

2026 General Rate Application

Volume II: Exhibits

May 2026

An application to the Board of Commissioners of Public Utilities



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Exhibit 1

Executive Functional Areas of Accountability



Executive Functional Areas of Accountability

Areas of Accountability		
	Regulated	Non-Regulated
Chief Executive Officer	Executive Internal Audit	
VP, Chief Legal Officer & Corporate Secretary	Legal Corporate Secretary Supply Chain Hydro Place Operations	
VP, Chief Financial Officer	Financial Services Insurance Information Services	
VP, People & Corporate Affairs	Engagement & Culture Human Resources & Labour Relations Safety, Health & Environment Strategy, Risk & Sustainability	
VP, Hydro Engineering & NLSO	Engineering Services (Regulated) NLSO System Planning	
VP, Hydro Operations	Production (Regulated) Transmission & Rural Operations	Exploits Generation
VP, Churchill Falls & Muskrat Falls		Production (Non-Regulated) Engineering (Non-Regulated) Site Services - Churchill Falls Transmission - Churchill Falls Transmission - LIL & LTA
	Operating Technology	
VP, Regulatory & Stakeholder Relations	Regulatory Affairs Customer Service	
	Public Affairs & Stakeholder Relations	
VP, Transmission Interconnections & Business Development	Electrification and Energy Optimization	
	Indigenous Affairs Energy Marketing Commercial and Business Development	
VP, Major Projects	Asset Management	
	Major Projects	

Exhibit 2

Review of Intercompany Transactions Costing Guidelines





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March 30, 2026

Board of Commissioners of Public Utilities
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Attention: Mike McNiven
Board Secretary

Re: Review of Newfoundland and Labrador Hydro's Intercompany Transactions Costing Guidelines

Please find enclosed Newfoundland and Labrador Hydro's ("Hydro") Intercompany Transactions Costing Guidelines (2026) ("Intercompany Guidelines"), included as Attachment 1.

Hydro's Intercompany Guidelines were last reviewed during Hydro's 2013 General Rate Application ("GRA"). At that time, the allocation methods for common services were reviewed by Doane Grant Thornton LLP as the expert for the Board of Commissioners of Public Utilities ("Board"), and Hydro's expert, Deloitte LLP, both of whom found the methods reasonable. In consideration of the passage of time and the corporate structure changes as a result of the amalgamation of Hydro and Nalcor Energy, Hydro proceeded to review and update its Intercompany Guidelines in advance of the next GRA.

In 2025, Hydro engaged third-party expert KPMG LLP ("KPMG") to review its Intercompany Guidelines with respect to the appropriateness of allocators for intercompany charges and administrative fees, appropriateness of guidelines in light of organizational changes due to amalgamation, appropriateness of new administration fees/allocators proposed by Hydro, and consistency with industry practice.

As committed in its report on amalgamation activities,¹ Hydro is providing a copy of KPMG's final report to the Board, included as Attachment 2.

These Intercompany Guidelines form the basis of cost allocation within Hydro's 2027 Test Year. While Hydro is in the process of completing its GRA for filing in April 2026, the process to review the GRA and the proposals and evidence within is significant and likely to continue through the balance of 2026. To allow a more expeditious review of the Intercompany Guidelines, Hydro is requesting that the Board establish a process for review of the report, as it has done for other reports, such as the Implementation of the Rate Mitigation Plan² in 2024.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

A handwritten signature in blue ink, appearing to read "Shirley A. Walsh", written over a horizontal line.

Shirley A. Walsh
Senior Legal Counsel, Regulatory
SAW/kd

¹ "Report on Amalgamation Activities," Newfoundland and Labrador Hydro, rev. April 17, 2025 (originally filed April 15, 2025).

² "Implementation of the Rate Mitigation Plan," Newfoundland and Labrador Hydro, October 22, 2024.

Mike McNiven
Board of Commissioners of Public Utilities

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Encl.

ecc:

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Attachment 1

Intercompany Transactions Costing Guidelines

Newfoundland and Labrador Hydro



Intercompany Transactions Costing Guidelines

2026 Update

March 30, 2026

A report to the Board of Commissioners of Public Utilities



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1.0 Purpose

This document is intended to outline the guidelines for charging costs across the lines of business within Newfoundland and Labrador Hydro (“Hydro” or “Company”).

2.0 Introduction

Hydro is a regulated utility owned by the people of Newfoundland and Labrador and subject to the *Public Utilities Act* and the *Electrical Power and Control Act, 1994*. The former Nalcor Energy (“Nalcor”) legal entity was a Crown corporation that was established in 2007 as part of one of the key initiatives of Newfoundland and Labrador’s Energy Plan. Effective January 1, 2025, Hydro and Nalcor legally amalgamated, resulting in the establishment of Hydro as the parent corporation. The legal entity structure is outlined in Figure 1.

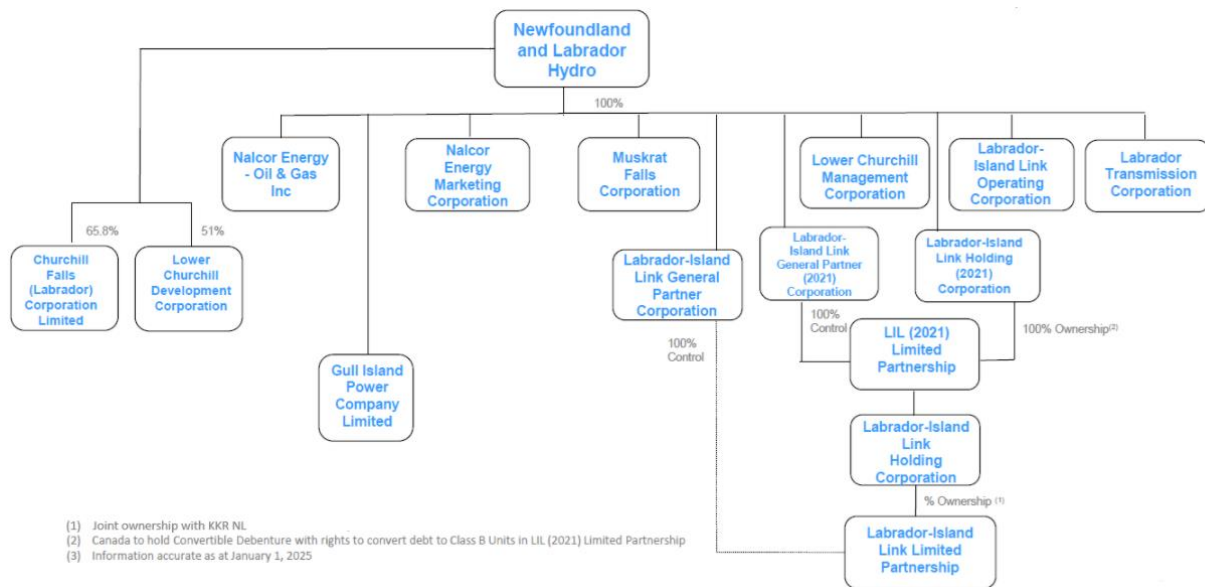


Figure 1: Legal Entity Structure

Hydro’s business includes the development, generation, transmission, distribution and sale of electricity, including energy marketing and the development, production and sale of oil and gas. These Intercompany Transactions Costing Guidelines apply to both intra-company and intercompany transactions. The Hydro legal entity includes both regulated and non-regulated business segments. Hydro’s activities are regulated by the provincial utility regulator (the Board of Commissioners of Public Utilities). Hydro’s non-regulated business segment includes activities that had been included in the former Nalcor legal entity, as well as activities that were excluded from recovery from customers

through electricity rates. For purposes of this report, “regulated” and “non-regulated” are considered lines of business.

The guidelines are based on the principle of cost-based recovery. There is no profit component, and employees track time worked for other lines of business and recoverable entities using a weekly time sheet. This results in a labour recharge, which is also used in the calculation of net full-time equivalents (“FTE”). Costs associated with the operations of certain departments are allocated through an Administration Fee as outlined in this document. Administration Fee business units are based in both regulated and non-regulated business segments.

3.0 Costing Methods

The costing framework used includes three primary means of charging costs among lines of business at Hydro.

- Type 1 – Administration Fee costs;
- Type 2 – Costs related to the provision of Corporate Services; and
- Type 3 – Cost Recovery business units.

3.1 Type 1 – Administration Fee Costs

Certain functions provide common services to various lines of business and recoverable entities, and the nature of that work is performed in the general interest of the organization, providing equitable benefit across all lines of business and recoverable entities. Costs are recovered through an Administration Fee as described below. FTEs in Administration Fee business units are counted in the entity in which they are based; however, their costs are allocated through an Administration Fee. For the purpose of allocating Administration Fees, FTEs within Administration Fee business units are excluded from the calculation for the applicable line of business. Time should be tracked in the Administration Fee business unit for allocation amongst all lines of business and recoverable entity, unless a project or scope of work incorporates a significant portion of an individual’s working hours within a year and is identified to be for the benefit of a particular line(s) of business or recoverable entities (e.g., negotiation of major commercial or labour contract). Table 1 outlines Hydro’s Administration Fees.

Table 1: Administration Fees

Department	Allocation Basis	Home Business Unit (Regulated vs. Non-Regulated)
Human Resources (“HR”)	FTEs	Non-Regulated ¹
Safety and Health Environment	Hybrid Allocator ²	Non-Regulated
Information Systems (“IS”)	Hybrid Allocator	Non-Regulated
	Average Users ³	Non-Regulated ⁴
Business System Transformation (“BST”) Fees	Average Users ⁵	Non-Regulated
Hydro Place Office Space and Related Costs	Square Footage	Regulated
Network Services Costs	Average Users	Regulated
Accounts Payable (“AP”)	Number of Invoices	Non-Regulated
General Ledger	Average number of Journal Entries, Accounts Receivable (“AR”) Invoices and Cash Receipts	Non-Regulated
Procurement	Number of Purchase Orders	Regulated
Executive	Hybrid Allocator	Non-Regulated
Corporate Secretary	Hybrid Allocator	Non-Regulated
Culture (Internal Communications)	Hybrid Allocator	Non-Regulated ⁶
Employee Engagement	FTEs	Non-Regulated

1 **3.1.1 Human Resources**

2 HR provides shared service to all lines of business and recoverable entities in the areas of:

- 3 • Payroll;
- 4 • HR systems;
- 5 • Pension administration;
- 6 • Administration of the performance management system;
- 7 • Workforce planning;

¹ Administration Fee business units exist in both regulated and non-regulated business segments for this common service.

² The Hybrid Allocator uses the line of business total gross capital assets and total operating and maintenance costs, both weighted at 50%, to calculate the allocation of costs.

³ Average users for the IS fee is defined as the average of the number of FTEs and contractors, email inboxes, number of computers and JD Edwards (“JDE”) users.

⁴ *Supra*, f.n. 1.

⁵ Average users for the BST fee is defined as the average of FTEs and JDE users.

⁶ *Supra*, f.n. 1.

- Employee development; and
- Maintenance of the HR database.

Operating costs incurred in providing HR services in the Administration Fee business unit are allocated to the lines of business and recoverable entities on an FTE basis.

3.1.2 Safety, Health and Environment

Hydro's Safety, Health and Environment department provides guidance on corporate safety, health and environment initiatives and oversight on internal policy, procedures and legislation; coordinates corporate efforts with regard to environmental stewardship; and Occupational Health services, including coordinating corporate efforts with regard to employee safety and wellness. Operating costs incurred in providing safety and health services are allocated to the lines of business and recoverable entities using a Hybrid Allocator.

3.1.3 Information Systems (Regulated and Non-Regulated)

IS provides assistance and support in the areas of software applications, planning and integration, and business solutions. This department is also responsible for the Company's information management programming, as well as maintenance and administration of the company-wide computer infrastructure and provides technical support. Operating costs incurred in providing IS services are allocated to the lines of business and recoverable entities on an average user basis. Depreciation expenses and a return on rate base at the weighted average cost of capital ("WACC") for costs certain capitalized are allocated to each line of business on an average user basis.⁷ Costs that are incurred solely for a particular line of business, rather than shared among the lines of business and recoverable entities, are charged to that line of business and are excluded from the determination of shared costs.

3.1.4 Business Systems Transformation

Separate from the IS fee is the BST fee, which is made up of three components: capital costs, non-capital costs and program management costs. The BST fee allocator is the average of two ratios: the percentage share of overall users and the percentage share of overall FTEs in relation to Hydro and its subsidiaries.

⁷ Return on rate base is applicable to regulated assets only.

Costs that were incurred for the benefit of a specific line of business are excluded from the common service cost allocation.

3.1.5 Office Space

Each line of business and recoverable entity occupying floor space at Hydro Place is charged a rental charge for floor space. The square footage rental rate reflects the average annual capital and operating cost for Hydro Place as determined by the following formula:

$$\frac{\text{Hydro Place Operating Costs} + \text{Return on Rate Base} + \text{Annual Depreciation}}{\text{Hydro Place Total Square Footage}}$$

3.1.6 Network Services Costs

All lines of business and recoverable entities are charged their share of costs relating to network services, including maintenance of the LAN⁸ and phone networks, internet connectivity and cell phone administration costs. Operating costs incurred in providing network services are allocated to the lines of business and recoverable entities on an average user basis.

3.1.7 Executive Costs

The Executive team provides leadership, strategic oversight and decision-making. Certain executive roles, namely the Chief Executive Officer, General Counsel, and the Vice Presidents responsible for Finance and HR and their support staff, provide executive services that benefit all lines of business and recoverable entities, and accordingly, operating costs associated with these services are allocated using a Hybrid Allocator.

3.1.8 Culture (Internal Communications)

Hydro's Culture team provides support to the organization and its customers through management of internal company communications, management of Hydro's website and social media channels, and is responsible for Hydro's corporate brand and customer education materials. As the work of this department benefits the organization as a whole and is generally not linked to one particular line of business, operating costs incurred in providing communications services (excluding non-regulated

⁸ Local Area Network ("LAN").

advertising costs unrelated to matters relating to conservation, safety and consumer information) are allocated to each line of business and recoverable entity using a Hybrid Allocator.

3.1.9 Employee Engagement

Hydro's Employee Engagement team provides guidance on corporate engagement and inclusion, diversity, equity and accessibility initiatives and oversight on internal policy, procedures and legislation, including:

- Diversity, Equity and Inclusion Programming;
- Employee Recognition Programs;
- Employee Onboarding; and
- Employee Engagement Initiatives.

As the work of this department benefits the organization as a whole and is generally not linked to one particular line of business, operating costs incurred in providing employee engagement services are allocated to each line of business and recoverable entity on an FTE basis.

3.1.10 Corporate Secretary

The Corporate Secretary team provides support to Hydro's Board of Directors, as well as fulfills Hydro's governance and legislative responsibilities. As the work within this department benefits the organization as a whole and is generally not linked to one particular line of business, operating costs incurred in providing legal and corporate secretary services are allocated to each line of business and recoverable entity using a Hybrid Allocator.

3.1.11 Accounts Payable

The AP team within the Finance division provides invoice processing services to all lines of business and recoverable entities. Operating costs incurred to provide this service are allocated to the lines of business based on the percentage of invoices processed per line of business.

3.1.12 General Ledger

The General Ledger team within the Finance division provides general ledger management services for miscellaneous AR, journal entry processing and recording cash receipts for all lines of business and

recoverable entities. Operating costs incurred in providing the General Ledger services are allocated based on the proportion of the average of AR invoices, journal entries and cash receipts recorded.

3.1.13 Supply Chain

The Supply Chain team provides services to all lines of business, primarily related to management of the procurement process, including tendering, contract management, creation and management of purchase orders and change requests. Operating costs incurred to provide the procurement services are allocated to the lines of business and recoverable entities based on the number of purchase orders issued per line of business.

3.2 Type 2 – Corporate Costs and Services Provided Across Lines of Business

Certain departments provide corporate services (or shared services) to other lines of business and recoverable entities within Hydro, which can be assigned to one or more specific lines of business and recoverable entities. These services include management, treasury, legal, labour relations, recruitment, engineering services and administration. Transactions associated with these services are governed by these guidelines. Intercompany transactions operate on the premise that all transactions are billed at cost. Corporate costs incurred within various lines of business and recoverable entities are charged to the appropriate line of business as described below.

Employees hired within departments providing corporate services for both regulated and non-regulated functions are assigned a home business unit based on their role and primary responsibilities. Where an employee is expected to provide equal services to the regulated and non-regulated business, the default is a non-regulated business unit.

Operational departments within a particular line of business may be required to provide services to other lines of business and recoverable entities. This may occur for reasons such as geographic location, identified efficiencies in work execution, or circumstances where additional support is required (i.e., adverse weather response, emergency repairs, extended outages, etc.). Transactions associated with these services are governed by these guidelines. Intercompany transactions operate on the premise that all transactions are billed at cost.

3.2.1 Employee Labour Costs

All employees of Hydro are required to charge time by completing time sheets, which allocate labour to work orders based on activity. The guiding principle is that where an employee spends time on specific tasks and work activities for another entity or line of business, time is to be charged at cost. Cost, or the bill rate, is defined as labour costs, fringe benefits (including time off) and other direct costs. Please refer to Appendix A for a detailed listing of the components of the bill rate. The operating bill rates are reviewed annually and updated as required. Labour hours that are recharged through this process are used in the calculation of net FTEs.

3.2.2 Overtime

Overtime will be charged as incurred in accordance with the overtime policy, and no additional markup or fixed charge is applied.

3.2.3 Time Sheets

All employees are required to complete weekly time sheets. All work hours must be coded to work orders in order to adequately track hours to the appropriate business unit. Time is coded in 30-minute increments.

3.2.4 Corporate Services⁹

The most common functions and departments that may share services across entities and charge time for services to individual lines of business and recoverable entities include:

1) Leadership Team

Executive and director roles providing strategic oversight and general management that are not included in the Executive common service business unit.

2) Legal

Legal Counsel's responsibilities include the provision of legal services.

3) Internal Audit

The Internal Audit department provides auditing services as determined in audit plans and engagements.

⁹ Corporate Services costs exclude the Type 1 costs mentioned above that are allocated through an Administration Fee.

4) Engineering Services

Engineering Services provide expertise and guidance in all engineering disciplines and cover such items as:

- i. Design, construction and project management;
- ii. Engineering studies, technical specifications and construction coordination;
- iii. Tender preparation and analysis, including interaction with consultants; and
- iv. Review and resolution of maintenance problems.

5) Environmental Services

The Environmental Services department's activities include auditing for compliance with government regulations and corporate policy, obtaining permits and approvals for proposed programs and advising on environmental matters.

6) Financial Planning

The Financial Planning department provides services to facilitate the production, review and distribution of annual long-term financial plans. As well, they provide financial planning and analyses for various activities and scenarios.

7) Insurance

The Insurance department provides services related to the placement, policy and claims administration of the corporate insurance program.

8) Other Financial Services

The Finance division also provides capital accounting, technical accounting, consolidated and entity-specific budgeting and forecasting, financial systems, treasury, tax, and divisional financial reporting services for each line of business.

9) Major Projects and Asset Management

This division provides guidance and oversight on asset management policy and procedures, as well as project engineering and execution services to capital projects over a prescribed threshold.

10) Public Affairs and Stakeholder Relations

This division provides guidance and oversight on Hydro's stakeholder relations as well as external public affairs.

11) Strategic Planning and Risk Management

Hydro's Strategic Planning and Risk Management department provides guidance and monitoring on corporate strategic initiatives and corporate Risk Management guidance, including support to Hydro's Board of Directors.

3.2.5 Fixed Charge

In addition to labour costs, a fixed rate will be applied to each hour of regular labour charged to lines of business and recoverable entities. The fixed charge accounts for the additional cost, beyond basic salary and benefit costs, of having an employee available to provide service. The fixed charge recovers costs originally charged in the Administration Fee as well as other employee-related costs, including:

- Telephone and fax;
- Books and subscriptions;
- Membership fees and dues;
- Conferences;
- Training; and
- Employee expenses (e.g., overtime meal allowance).

While most employees who provide intercompany services are located in Hydro Place, this rate will also be used as a proxy for employees working from other locations.

The fixed charge rate is reviewed annually and updated accordingly.

3.2.6 Materials Costs

Materials issued from inventory will be charged at cost to the applicable line of business.

3.2.7 Vehicle and Other Equipment Costs

Vehicles utilized across lines of business and recoverable entities will be charged a rental rate which is based upon the type of vehicle utilized. The rental charge is calculated by multiplying the usage time by the daily or hourly rental rate for the applicable vehicle. The rental rates are updated annually.

3.2.8 Computers

Computer purchases are charged directly to the applicable line of business.

3.3 Type 3 – Cost Recovery Business Units

Certain functions incur costs on a cost recovery basis. In these cases, all costs associated with the activity are charged in accordance with the applicable cost recovery arrangements.

4.0 Billing and Collection

Invoices for the recovery of intercompany transactions are to be issued on a monthly basis. Billings to and from related entities shall be undertaken within 30 days of the end of the month in which the service, resource or asset is provided. Receivables between related companies are paid upon invoice receipt from a related entity. If the invoice is not paid in full within 30 days from the date of the invoice, interest charges may apply. Finance charges are calculated by applying a rate to the intercompany balance(s) that is equal to the cost of short-term financing for the company to which the balance is owed. If the company to which the balance is owed is Hydro, then the rate applied to such balances is the last approved WACC. In certain cases, where it is advantageous for Hydro, settlement terms may differ from the process noted above.

Appendix A

Operating Bill Rate Components



Operating Bill Rate Components

Components of the operating bill rate are as follows:

- **Salary Cost Components:**

- Salaries and Temporary Salaries, including the payroll code for Easeback/Return to Work
- Other Salary Costs – Retroactive Pay

- **Mark Up Components:**

- Fringe Benefit Costs
 - Canada Pension Plan
 - Employment Insurance
 - Public Service Pension Plan (“PSPP”)
 - Group Money Purchase Plan
 - Prior Service Matched PSPP
 - Workplace Health Safety and Compensation Premiums

- **Insurances:**

- Life Insurances
- Accidental Death and Dismemberment Insurance
- Medical Insurance
- Dental Insurance

- **Company Costs:**

- Employee Future Benefits Expense
- Payroll Taxes
- Other Salary Costs - Bonus, Performance Contracts and Signing Bonus

- **Leave:**

- All paid leave types

Attachment 2

Intercompany Transactions Costing Guidelines Review

KPMG LLP





Intercompany Transactions Costing Guidelines Review

Newfoundland & Labrador Hydro

March 26, 2026

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Glossary

Administration Business Unit (Admin BU) – A business unit (accumulation of costs) that is apportioned to different Lines of Business based on an allocator.

Administration (Admin) Fee (or Type 1 Costs) – An Admin Fee are a collection of costs which are allocated using an allocator (as opposed to directly charged). Hydro's Intercompany Transactions Costing Guidelines refer to these as Type 2 Costs.

Allocator (or Cost Allocator) – Some proportional metric used to apportion costs across different Lines of Business (e.g., FTEs, Purchase Orders, average IS Users, etc.).

Bill Rate – A percentage mark-up applied to standard (non-overtime) labour cost via timesheets to account for labour burden costs such as fringe benefits, payroll taxes, vacation, etc.

Business Unit (BU) – A business unit ("BU") is the same as a cost center. It is the lowest level that costs can be assigned to in Hydro's financial system. A department or team may be a single business unit or may comprise multiple business units. Each employee is assigned a 'home' business unit, which is where their associated labour costs are assigned prior to any labour recharges.

Corporate Costs (or Type 2 Costs) – Costs which are directly assigned to specific Lines of Business (LoB) and can include labour, materials, equipment and/or external services. Labour costs are assigned using timesheets.

Fixed Charge – A per hour charge applied to standard (non-overtime) labour hours via timesheets to account for other fixed employee related costs such as computers/hardware, professional memberships, etc.

Home Business Unit (Home BU) – The business unit in which an FTE is coded to.

Hybrid Allocator – A composite financial-based allocator based on the average of the proportions of a Line of Business' Gross Assets (excluding intangible assets) and Operations & Maintenance (O&M) costs.

Intercompany Transactions Costing Guidelines (2017) (2017 Guidelines) – Hydro's guidelines that were reviewed as part of the 2017 General Rate Application.

Intercompany Transactions Costing Guidelines (2026) (2026 Guidelines) – Hydro's most recent guidelines that reflect changes and updates to their intercompany transactions costing approach for 2026.

Lines of Business (LoB) – Either a distinct legal entity or a segment of a legal entity which support the delivery of a specific service or asset. Lines of business are either regulated or non-regulated to ensure Hydro can maintain separation between regulated and non-regulated activities.

Executive Summary

KPMG LLP (“KPMG”) was retained by Newfoundland and Labrador Hydro (“Hydro”) to complete an independent review of Hydro’s *Intercompany Transactions Costing Guidelines (2026)*. The basis of the review is to support Hydro in preparation for its next General Rate Application (“GRA”) which will be submitted to the Newfoundland & Labrador Board of Commissioners of Public Utilities (“the Board”).

KPMG’s review was limited to the assessment of Hydro’s cost allocation methodologies. The assessment was based on a review of regulatory guidance from the Board, the Alberta Utilities Commission, and the Ontario Energy Board; as well as a review of comparator utilities’ practices, which included BC Hydro, ENMAX, Manitoba Hydro, NB Power, and Ontario Power Generation.

For clarity, KPMG was not engaged to:

- (1) assess the reasonableness of the shared/common services costs being allocated
- (2) complete any benchmarking to assess shared/common services costs to those at peer utilities, or
- (3) assess the cost differential if Hydro’s regulated operations were to be delivered through a stand-alone entity.

The last comprehensive review of Hydro’s Intercompany Transactions Costing Guidelines was during Hydro’s 2013 GRA, in which independent reports were commissioned by both Hydro and the Board (prepared by Deloitte and Grant Thornton, respectively). The Intercompany Transaction Costing Guidelines (2017) were submitted as part of Hydro’s 2017 GRA but were not reviewed to the same level of detail as in the 2013 GRA.

Hydro’s current version Intercompany Transactions Costing Guidelines (2026 Guidelines) largely embodies the same allocation principles and mechanisms as those outlined in the 2017 version. However, there have been several refinements to the approach over time, largely related to transitioning select functions from a timesheet-based (Type 1) approach to an allocation-based (Admin Fee or Type 2) approach and changes to allocators used. The most notable changes were:

- (1) Introduction of a Hybrid Allocator to allocate select Executive, Corporate Secretary, Communications, and Safety, Health & Environment costs.
- (2) Transitioning the allocation approach from a partial two-step to a one-step allocation.
- (3) Removal of admin fee components in the allocators.

KPMG’s evaluation finds that the current application of Hydro’s *Intercompany Transactions Costing Guidelines (2026)* is a reasonable mechanism for allocating corporate and shared services costs between Hydro’s regulated and non-regulated lines of business.

1 Introduction

1.1 Scope

Newfoundland and Labrador Hydro (“Hydro”) engaged KPMG LLP (“KPMG”) to complete an independent review of Hydro’s *Intercompany Transactions Costing Guidelines (2026)* and the application of these guidelines. These guidelines outline the approaches used to allocate costs within Hydro (between regulated and non-regulated lines of business) and between Hydro and its affiliates. These transactions include costs allocated to affiliates by Hydro for services provided, costs allocated to Hydro by affiliates for services received, and costs between lines of business within Hydro.

The objective of this review is to review these guidelines and their application in the context of both regulatory precedent and alignment with other Canadian utilities’ cost allocation approaches.

KPMG’s review is limited to the assessment of Hydro’s cost allocation methodologies. KPMG was not engaged to assess the reasonableness of the shared/common services costs being allocated, to complete any benchmarking to assess shared/common services costs to those at peer utilities, or to assess the cost differential if Hydro’s regulated operations were to be delivered through a stand-alone entity.

The basis of the review is to support Hydro in preparation for its next General Rate Application (“GRA”) which will be submitted to the Newfoundland & Labrador Board of Commissioners of Public Utilities (“the Board”).

1.2 Limitations

This engagement does not constitute an audit of the *Intercompany Transactions Costing Guidelines (2026)* or associated costs and is therefore not subject to assurance or other standards issued by the Canadian Auditing and Assurance Standards Board. Consequently, no opinions or conclusions intended to convey assurance have been expressed. The results summarized in this report are based on the information provided to us during the course of our work, which includes financial information and information obtained through discussions with Hydro management and employees. This report relies on data and information from the sources noted and makes no representations with respect to their accuracy or completeness. KPMG has no obligation to update this report or to revise the information contained herein to reflect corrections or changes to information or representations provided to KPMG or other events that could influence the results of the report occurring subsequent to completion of KPMG’s fieldwork.

The *Intercompany Transactions Costing Guidelines (2026)* are intended to reflect Hydro’s intercompany transaction approach for 2026. Therefore, Hydro has prepared the proposed corporate services cost allocations using 2025 and 2026 budgeted Operations & Maintenance (O&M) costs. KPMG’s findings and conclusions are therefore limited to the allocation approaches for 2025 and 2026 costs. KPMG did not assess the reasonableness of associated amounts.

The information contained herein is for the internal use of Hydro management. It is understood that this report may be distributed by Hydro externally to the Board as part of the regulatory process. KPMG disclaims any responsibility or liability for losses, damages, or costs incurred by anyone as a result of any external circulation, publication, reproduction, or use of the information contained herein.

1.3 Approach

Table 1 provides a summary of KPMG's approach to reviewing Hydro's Intercompany Transaction Guidelines and its application.

Table 1: Overview of KPMG's Approach

Step	Description
1	Initial Review of Intercompany Transaction Costing Guidelines and Identification of Notable Changes. KPMG completed an initial assessment of Hydro's current approach to intercompany transactions and compared it with approaches previously filed with the Board (specifically in the 2013 GRA and the 2017 GRA). KPMG also met with Hydro's core project team to understand notable recent changes to organizational structure, operations, and business context that could influence the cost allocation approach.
2	Review and Document Regulatory Guidance. KPMG reviewed past filings and Board decisions to identify cost allocation guidance, principles, and/or precedents. Research was also completed on cost allocation guidance from other select Canadian utility regulatory authorities.
3	Review of Supporting Information and Cost Allocation Workbooks. KPMG reviewed information provided by Hydro to develop an understanding of current volume and direction of cost flows. This included reviewing background information and supporting workbooks / calculations related to: ▪ Development of cost pools for allocation ▪ Calculation of allocators ▪ Volume of direct / timesheet-based intercompany transactions ▪ Organizational structure of common services departments and alignment with business unit ("BU")¹ structure ▪ Calculation / basis for bill rate and fixed charge The information review provided KPMG with an initial understanding to inform clarification discussions with Hydro's core project team, as well as with identified staff interviews (Step 5).
4	Comparator Utility Cost Allocation Methodology Research. KPMG researched cost allocation approaches for five (5) comparator utilities with regulated operations.
5	Interviews with Common/Corporate Service Departments. KPMG completed interviews with select Hydro staff, which included discussions with the following personnel: ▪ Team Lead - Accounts Payable & General Ledger ▪ Senior Manager – People & Business Services ▪ Director – Safety, Health, & Environment ▪ Senior Manager – Operational Technology ▪ Senior Manager – Supply Chain & Administration ▪ Senior Manager – Employee Engagement & Culture ▪ Senior Manager – Business Solutions & Information Management ▪ Assistant Corporate Secretary & Senior Legal Counsel ▪ Senior Manager – Hydro Production (Bay d'Espoir and Exploits Generation System) These interviews focused on gaining an understanding of: ▪ The scope of services being provided, and the nature of costs being allocated to other lines of business ▪ Any anticipated changes to the scope of services and/or volume of service expected over the GRA term ▪ Changes in organizational structure and/or service delivery approach ▪ Factors that drive level of effort / cost and the appropriateness of cost allocators
6	Assessment of Cost Allocation Approaches Adopted by Hydro. KPMG evaluated Hydro's cost allocation approach against a set of criteria informed by regulatory guidance and precedent (refer to Section 3 of this report).
7	Report Development. KPMG consolidated background information and findings into this report.

¹ In the context of Hydro, a business unit ("BU") is the same as a cost center. It is the lowest level that costs can be assigned to in their financial system. A department or team may be a single business unit or may comprise multiple business units. Each employee is assigned a 'home' business unit, which is where their associated labour costs are assigned prior to any labour recharges.

2 Background

2.1 Newfoundland & Labrador Hydro

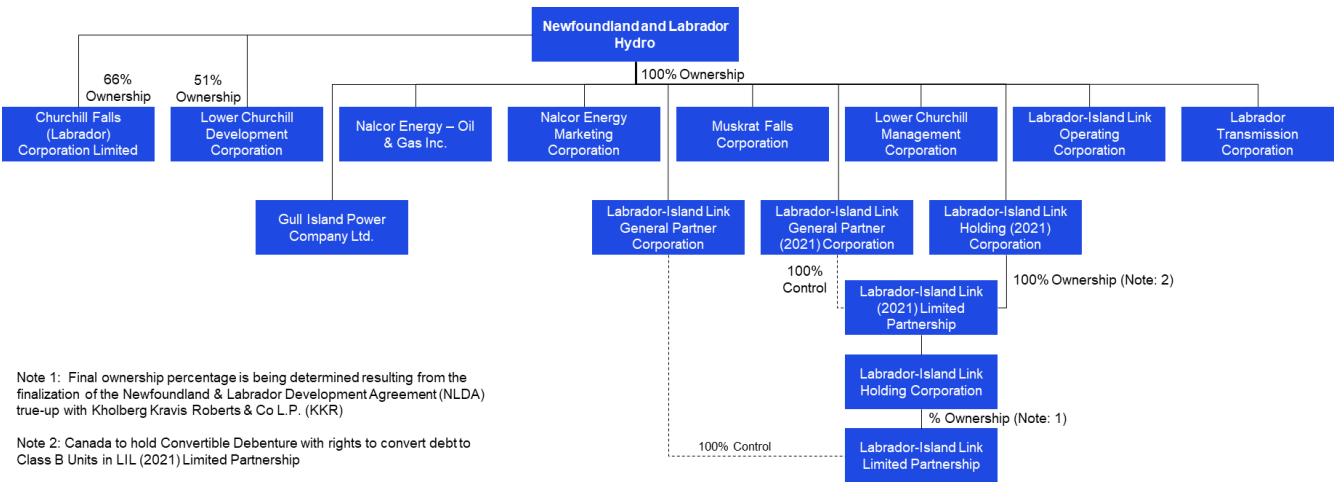
Hydro is a provincial Crown corporation and is the primary generator of electricity in Newfoundland & Labrador. Hydro's operations encompass generation, transmission, and distribution, and includes both operations that are regulated by the Board as well as non-regulated operations.

Between 2007 and 2024, Hydro was a subsidiary of the provincial Crown-owned energy holding company Nalcor Energy ("Nalcor"). In June 2021, the Government of Newfoundland and Labrador announced the integration of Nalcor Energy's operations under Hydro as part of a restructuring effort that was intended to streamline operations, reduce duplication, and save costs. This restructuring created a unified Crown utility focused on providing safe, cost-effective, and reliable electricity while maximizing the economic potential of the province's energy resources.

Assented to on December 4, 2024, the Hydro Corporation Act enacted the legal amalgamation of Hydro and Nalcor. This amalgamation states that these corporations shall continue under the name Newfoundland and Labrador Hydro reflecting the operational reality of a single, consolidated organization.²

Figure 1 shows the corporate structure of Hydro post-amalgamation.

Figure 1: Hydro's Corporate Structure (January 1, 2025)



Post-amalgamation, NL Hydro's operations continue to include both regulated and non-regulated activities, which are segmented into regulated and non-regulated lines of business.³ A summary of the lines of business is shown in **Table 2**.

² Office of the Legislative Council of Newfoundland and Labrador, *Hydro Corporation Act 2024, (Assented December 4, 2024): 2.(1)*, <https://www.assembly.nl.ca/Legislation/sr/statutes/h18.htm>

³ Lines of business are either a distinct legal entity or a segment of a legal entity which support the delivery of a specific service or asset. Lines of business are either regulated or non-regulated and are set up to ensure Hydro can maintain separation between regulated and non-regulated activities.

Table 2: Alignment of Hydro's Lines of Business to Hydro's Legal Entities

Legal Entity	Lines of Business	Regulated / Non-regulated
Newfoundland and Labrador Hydro	Regulated Hydro	Regulated
	Newfoundland & Labrador System Operator (NLSO)	
	Executive	Non-regulated
	Exploits	
	General Ledger	
	Hydro AP	
	Water Management – Churchill River	
	Menihek	Non-regulated (formerly Nalcor)
	Power Supply	
Nalcor Energy Marketing Corporation	Energy Marketing	Non-regulated
Churchill Falls (Labrador) Corporation Limited (CF(L)Co)	Churchill Falls	
Muskrat Falls Corporation	Muskrat Falls	
Labrador-Island Link Operating Corporation	Labrador-Island Link	
Labrador Transmission Corporation	Labrador Transmission	
Oil & Gas Inc.	Oil & Gas	

2.2 History of Hydro's Intercompany Transaction Guidelines

Hydro has historically relied on a cost allocation approach to allocate costs between its regulated and non-regulated lines of business. Hydro's approach has evolved over time to adapt to changes in the nature and structure of its operations. **Table 3** provides a brief overview of the evolution of Hydro's approach based on available Board filings.

Table 3: Summary of Hydro's Historical Approaches to Cost Allocation

Timeframe	Summary
Prior to 2007	To recover costs from Churchill Falls (Labrador) Corporation Limited (CF(L)Co) for the provision of common/shared services, Hydro relied on a combination of time reporting, direct assignment of specific costs, the use of internal allocators (i.e., allocation of costs based on an estimated proportion of staff time), and the use of an external allocator for Information System and Telecommunication costs. ^{4,5}
2007 to 2017	The creation of Nalcor in 2007 resulted in an increase in intercompany activity. This resulted in changes to the intercompany transaction approach. In 2010 mandatory timesheets were introduced for all employees, where previously employees would only report time related to leave, capital projects, and work related to other lines of business.⁶ During Hydro's 2013 GRA, the Intercompany Transaction Guidelines and its application were reviewed. A report by Grant Thornton on behalf of the Board entitled <i>Newfoundland and Labrador Hydro – Expert Report – Evaluating the Pricing Policy for Affiliate Common Services, Common Expenses and Corporate Services</i> (also referred to as the 'Rolph Report') and an independent report commissioned by Hydro and completed

⁴ Grant Thornton, *Financial Consultants Report: Board of Commissioners of Public Utilities Newfoundland and Labrador Hydro 2001 General Rate Hearing* (August 15, 2001): p. 36-37, <http://www.pub.nl.ca/ARCHIVE/hyd01gra/filings/Sept14/Pub/GrantThornton2001HydroHearingReport.pdf>

⁵ Grant Thornton, *Financial Consultants Report: Board of Commissioners of Public Utilities Newfoundland and Labrador Hydro 2006 General Rate Application* (October 20, 2006): 52-53, <http://www.pub.nl.ca/ARCHIVE/hydro2006gra/files/reports/GT-FinancialReport-Oct20-06.pdf>

⁶ Newfoundland and Labrador Hydro, *2013 General Rate Application – Volume 1* (July 30, 2013): 1.22, <http://www.pub.nl.ca/applications/ARCHIVE/2013/NLH2013GRA/files/application/Application-Volume1.pdf>

Timeframe	Summary
	by Deloitte entitled <i>Nalcor Intercompany Review</i> were completed.^{7,8} The Deloitte report found that, “...the methodologies and practices adopted by Nalcor are fair and reasonable and in line with other utilities”.⁸ The Rolph Report found the approach reasonable, but noted two possible issues: (1) The need to fully burden costs related to common services prior to allocation. The Rolph Report used HR as an example where HR should receive an appropriate allocation from other common services (i.e., Information Systems, Safety and Health) prior to then allocating out HR costs to the various lines of business. (2) The inclusion of a mark-up when Hydro renders a service to Nalcor (or another line of business) that benefits an energy project involving private interests. In assessing the issue of fully burdened costs, the Rolph Report presented a sensitivity analysis to illustrate the potential rate impact of increases/decreases in net intercompany transactions into Hydro. The Rolph Report concluded that fully burdening costs would not result in a material change in allocations. In Order P.U. 49(2016) the Board approved of Hydro's cost allocation methodology but directed Hydro to fully burden the admin fee and to propose a reporting approach for intercompany activity.⁹ Order P.U. 49(2016) also referenced changes to Hydro's corporate structure and governance, specifically that, “...Hydro will become a separate business unit to ensure as distinct separate from unregulated activities...”. Hydro implemented these changes in 2016 and 2017. This included the creation of a separate dedicated executive team for Hydro and the transfer of common services from Hydro to Nalcor, specifically Human Resources, Safety and Health, and Information Systems (the structure has since been changed, which is described in Table 4).¹⁰ Hydro filed its <i>Intercompany Transaction Costing Guideline (July 2017)</i> as part of the 2017 GRA.¹¹ In the subsequent Board decision, P.U. 16(2019), there was no specific commentary related to the <i>Intercompany Transaction Costing Guideline (July 2017)</i>. However, there was commentary on a separate allocation for Nalcor's Business System Transformation (BST) project which was being evaluated as part of a separate proceeding.¹² The BST allocation approach was approved by the Board in Order P.U.27(2022).^{13,14}

2.3 Summary of Changes Since 2017 GRA

Hydro's overarching cost allocation approach, as documented within its current *Intercompany Transaction Costing Guidelines (2026)*, largely embodies the same allocation principles and mechanism as in the July 2017 guidelines submitted as part of Hydro's 2017 GRA. However, there have been some changes which are outlined in **Table 4**.

⁷ Grant Thornton, *Newfoundland and Labrador Hydro – Expert Report – Evaluating the Pricing Policy for Affiliate Common Services, Common Expenses and Corporate Services (April 24, 2014)*, <http://www.pub.nl.ca/applications/ARCHIVE/2013/NLH2013GRA/files/reports/Rolph-Report-Apr25-14.pdf>

⁸ Deloitte, *Nalcor Intercompany Review: Final Report (June 6, 2012)* (submitted by Hydro under IR response NP-NLH-024), <http://www.pub.nl.ca/applications/ARCHIVE/2013/NLH2013GRA/files/rfi/NP-NLH-024.PDF>

⁹ Newfoundland and Labrador Board of Commissioners of Public Utilities, No. P.U. 49(2016): p. 33-38, <http://www.pub.nf.ca/orders/order2016/pu/PU49-2016.pdf>

¹⁰ Grant Thornton, *Board of Commissioners of Public Utilities Financial Consultants Report- Newfoundland and Labrador Hydro 2017 General Rate Application (December 4, 2017)*: p. 71-80, <http://www.pub.nl.ca/applications/2017/NLH2017GRA/report/Grant%20Thornton%20Financial%20Consultants%20Report%20-%202017-12-04.PDF>

¹¹ Newfoundland and Labrador Hydro, *Corporate Business Systems Transformation Program Justification (June 22, 2018)*: p. 11-12, <http://www.pub.nf.ca/applications/2017/NLH2017GRA/compliance/From%20NLH%20-%20Corporate%20Business%20Systems%20Transformation%20Program%20-%202018-06-22.PDF>

¹² Newfoundland and Labrador Board of Commissioners of Public Utilities, No. P.U. 16(2019): p. 27, <http://www.pub.nl.ca/orders/order2019/pu/PU16-2019.pdf>

¹³ Newfoundland and Labrador Board of Commissioners of Public Utilities, No. P.U. 27(2022): p. 8, [http://www.pub.nl.ca/PU/orders/2022/P.U.%2027\(2022\).PDF](http://www.pub.nl.ca/PU/orders/2022/P.U.%2027(2022).PDF)

¹⁴ Newfoundland and Labrador Hydro, *2017 General Rate Application (July 4, 2018) Exhibit 5*: p. 151-168, <http://www.pub.nl.ca/applications/2017/NLH2017GRA/applications/NLH%202017%20General%20Rate%20Application%20-%20Volume%20II%20-%20Revision%205%20-%202018-07-04.PDF>

Table 4: Timeline of Changes to the Intercompany Transaction Costing Approach Since the 2017 GRA

Change	Timeframe	Description
Organizational Structure	2021 to 2023	Hydro implemented several organizational changes following the Government of Newfoundland and Labrador's announcement (in June 2021) to dissolve Nalcor and move its operations into Hydro. These organizational changes focused on merging those Hydro (regulated) and Nalcor (non-regulated) teams that provided similar business functions. While these teams were merged, individuals' responsibilities remained largely the same. Thus, if they previously supported regulated activities pre-Nalcor dissolution, they would support regulated activities post-Nalcor dissolution. As such, staff remained coded to either 'Regulated' or 'Non-Regulated' Home BUs to maintain separation of costs between regulated and non-regulated lines of business. The following functions were merged: ▪ Corporate Communication (January 2022) ▪ Finance (June 2022) ▪ Safety, Health & Environment (July 2022) ▪ Human Resources (May 2023)
Changes to Procurement (Supply Chain) Allocation Approach	2021	The Procurement team transitioned from allocating its costs based on timesheets to allocating its costs through an Admin Fee that is based on the purchase orders (POs) processed by each entity served. Further details provided in Section 5.3.3.5 Procurement.
Changes to AP (Finance) Allocation Approach	2022	The Accounts Payable team transitioned from allocating its costs using cost recovery business units, where costs for staff dedicated to a specific line of business were fully allocated to the relevant line of business (refer to Type 3 in Section 5.1), to allocating its costs through an Admin Fee that is based on the number of invoices processed by each entity served. Further details provided in Section 5.3.3.7 Accounts Payable (AP).
Changes to GL (Finance) Allocation Approach	2023 to 2024	The General Ledger team transitioned from allocating its costs using cost recovery business units, where costs for staff dedicated to a specific lines of business were fully transferred to the relevant line of business (refer to Type 3 in Section 5.1), to allocating its costs through an Admin Fee that is based on an average of transactions (cash receipts, accounts receivable invoices, and journal entries) processed by each entity served. Further details provided in Section 5.3.3.8 General Ledger (GL).
Transition of Select Executive Roles to New Admin Fee Business Unit	2025	The CEO, VP Chief Legal Officer & Corporate Secretary, VP Chief Financial Officer, VP People & Corporate Affairs, and associated administrative support staff were transferred to a new Non-Regulated Admin BU. Costs associated with this BU were allocated through an Admin Fee that is calculated using the proportion of FTEs in each line of business. Prior to the Admin Fee, these roles allocated their time based on timesheets. Further details provided in Section 5.3.3.9 Executive.
Changes to Executive Allocation Approach	2026	The Executive Non-Regulated Admin BU (that was created in 2025) will be transitioning from an allocation based on proportion of FTEs to the Hybrid Allocator.

Change	Timeframe	Description
		Further details provided in Sections 5.3.2 Hybrid Allocator and Section 5.3.3.9 Executive.
Changes to Corporate Secretary Allocation Approach	2026	The Corporate Secretary team will be transitioning from allocating its costs based on timesheets to allocating its costs through an Admin Fee that is based on the Hybrid Allocator. Further details provided in Sections 5.3.2 Hybrid Allocator and 5.3.3.10 Corporate Secretary
Changes to Culture (Internal Communications) Allocation Approach	2026	The Culture (Internal Communications) team will be transitioning from allocating its costs based on timesheets to allocating its costs through an Admin Fee that is based on the Hybrid Allocator. Further details provided in Sections 5.3.2 Hybrid Allocator and 5.3.3.1 People & Culture.
Changes to Employee Engagement Allocation Approach	2026	The Employee Engagement team will be transitioning from allocating its costs based on timesheets to allocating its costs through an Admin Fee that is based on FTEs. Further details provided in Sections 5.3.3.1 People & Culture.
Changes to Safety, Health, and Environment Allocation Approach	2026	The Safety, Health, and Environment teams will be transitioning from allocating costs based on FTEs to allocating its costs through an Admin Fee that is based on the Hybrid Allocator. Further details provided in Sections 5.3.2 Hybrid Allocator and 5.3.3.3 Safety, Health, and Environment.
Removal of Admin BUs Components from Allocators	2026	Hydro's allocators included the Admin BU components. For example, IS FTEs, which are assigned to a non-regulated Home BU, were included in the non-regulated proportion of FTEs and conversely FTEs for Procurement, which are assigned to a regulated Home BU, would be included in the regulated proportion of FTEs. In Hydro's updated approach, the allocators (i.e., FTEs, POs, average IS users, etc.) of Admin BUs are excluded from the calculations to remove any bias resulting from the inclusion of administrative functions in the allocators. Further details provided in Section 5.3 Admin Fee Costs (Type 1).
Transition of Allocation Approach from Partial Two-Step to a One-Step Allocation	2026	Hydro's allocation approach employed a 'partial' two step allocation where select Admin Fees (Network Services, Hydro Place, Procurement, IS, HR, Environment & Safety, and BST) were allocated first and the remaining Admin Fees (Executive, AP, and GL) were allocated second. This resulted in the Executive, AP, and GL Admin fees receiving allocations from other Admin Fees prior to being allocated out themselves. Hydro is transitioning to a single-step allocation where all Admin Fees are allocated out once. Further details provided in Section 5.3 Admin Fee Costs (Type 1).

3 Regulatory Guidance

As a first step in our review of regulatory guidance, KPMG reviewed prior decisions by the Board and guidance related to the cost allocation of shared / corporate services. This was supplemented with a review of guidance from the Alberta Utilities Commission (“AUC”) and the Ontario Energy Board (“OEB”). Documents from the AUC and OEB were selected for review due to the relatively large number of utilities in these jurisdictions, which includes many private utilities operating in a group corporate structure. The presence of such structures has required the AUC and OEB to establish additional rigour around the review of cost allocation approaches for inter-company transactions.

3.1 Newfoundland & Labrador Board of Commissioners of Public Utilities

In Order No. P.U. 19 (2003) related to Newfoundland Power Inc’s (“NP”) 2003 General Rate Application, the Board established the following principles for inter-corporate transactions:¹⁵

- i. All inter-corporate transactions between a utility and its affiliates shall be fully transparent and are subject to scrutiny by the Board.
- ii. A utility shall have the right to manage its affairs but it must demonstrate to the satisfaction of the Board that all affiliate transactions are prudent.
- iii. A utility shall ensure that inter-corporate transactions will not disadvantage the interests of ratepayers and furthermore that ratepayers and the utility will derive some demonstrable benefit from such transactions.
- iv. The onus is on the utility to show that it is in compliance with the guidelines and principles with respect to inter-corporate transactions.

In Hydro’s 2013 GRA, Hydro noted:¹⁶

“In a letter filed with the Board on November 13, 2008, regarding Newfoundland Power’s Inter-Affiliate Code of Conduct, Hydro stated *“It should be noted that the organizational structure of Hydro’s corporate affiliations differs significantly from that of Newfoundland Power. As a result, an Inter-Affiliate Code of Conduct for Hydro would differ in procedures but remain consistent with the philosophy and principals (sic) contained in Newfoundland Power’s draft Code of Conduct.”*

“In the development of the Intercompany Transaction Costing Guidelines, Hydro recognized the merits of the rules and principles that the Board has established for Newfoundland Power’s inter-corporate transactions, while also considering the significant differences with both the corporate structure, and magnitude of Nalcor’s intercompany transactions, versus Newfoundland Power.”

In Hydro’s 2013 Amended GRA, the following principles were defined:¹⁷

“Cost-based: Intercompany charges among lines of business are cost-based only.

¹⁵ Newfoundland and Labrador Board of Commissioners of Public Utilities, *No. P.U. 19 (2003)*: p. 57-58, <http://www.pub.nl.ca/ARCHIVE/nfpower03/order/pu19-2003.pdf>

¹⁶ Newfoundland and Labrador Hydro, *CA-NLH-082*, <http://www.pub.nl.ca/applications/ARCHIVE/2013/NLH2013GRA/files/rfi/CA-NLH-082.PDF>

¹⁷ Newfoundland and Labrador Hydro, *2013 Amended General Rate Application*: p. 276-277, <http://www.pub.nl.ca/applications/ARCHIVE/2013/NLH2013GRA-Amended/files/application/NLH-2013-GRA-Application-Volume-1-AMENDED-2014-11-10.pdf>

Fair and reasonable: The result of allocations should fairly and reasonably reflect the cost of providing a service. The allocation of a cost should reflect a causal relationship between the provision of a service and the cost.

Accurate and traceable: The allocated charges should reflect the cost of the provision of services among entities with a reasonable degree of accuracy. Labour should be charged using time sheets based on work activity or, where there is cost sharing, the allocators should be a reasonable reflection of the cost driver.

Acceptable in a regulatory context: The methodology should be acceptable under a regulatory framework which demands a certain amount of rigor in development and design, taking into account the fact that results of the methodology may affect large groups of stakeholders, including end consumers of electrical energy in Newfoundland and Labrador.

Consistent with industry standards: The methodology should be consistent with industry standards and practices, where applicable, as well as best practices among Canadian utilities.”

3.2 Alberta Utilities Commission

The AUC generally relies on the following three criteria to assess the reasonableness of utilities’ inter-affiliate costs in determining eligibility for recovery from ratepayers:¹⁸

- (a) Are the services necessary for the provision of utility service?
- (b) Are the costs allocated correctly?
- (c) Would it be less expensive for the utility to provide the services itself or to seek a different third-party provider on a stand-alone basis?

3.3 Ontario Energy Board

In 2012, the OEB issued a revision of its Accounting Procedures Handbook (“the Handbook”). The Handbook identifies the following guidelines to be followed by all regulated utilities and their affiliates in developing policies and procedures for allocating the costs of transactions, products, or services between a regulated utility and its affiliates:¹⁹

- “1. The methods used in the allocation of costs should not result in cross-subsidization between regulated and non-regulated lines of business, products or services.
- 2. To the maximum extent practicable, in consideration of the benefit versus cost constraint (i.e. the benefits expected to arise from providing information should exceed the cost of doing so), costs should be collected and classified on a direct basis for each product and service provided.
- 3. The general method for charging indirect costs should be on a fully allocated cost basis.
- 4. To the extent possible, all direct and allocated costs between regulated and non-regulated lines of business, services or products shall be traceable on the books of the regulated utility to the Uniform System of Accounts (“USoA”).
- 5. All costs shall be classified to lines of business, services or products that are regulated, non-regulated or common to both.
- 6. The primary cost driver of common costs, or a relevant proxy in the absence of a primary cost driver, shall be identified and used to allocate the cost between regulated and non-regulated lines of business, products or services.

¹⁸ Alberta Utilities Commission, *Decision 2012-091 AltaGas Utilities Inc. 2010-2012 General Rate Application Phase 1*: p. 103, <https://www2.auc.ab.ca/proceeding/904/dispositions/1882/details>

¹⁹ Ontario Energy Board, *Accounting Procedures Handbook for Electricity Distributors (December, 2011)*: Article 340, p. 298, <https://www.oeb.ca/sites/default/files/uploads/documents/regulatorycodes/2019-01/Accounting-Procedures-Handbook-Elec-Distributors-20120101.pdf>

7. The methods used in the allocation of costs should be documented and reviewed on a regular basis. If necessary, the cost methods should be revised in order to reflect changes in cost relationships and the related cost allocators. Any changes in the allocation method or the cost allocators used, including the supporting rationale, should be documented and the documentation should be available for Board review.”

3.4 Regulatory Guidance Summary and Evaluation Criteria

While different regulators may use different terms and categories to define acceptable principles for inter-affiliate / inter-corporate transactions and cost allocation, the underlying principles applied are generally consistent. Regulators seek to ensure:

Prudency – Costs incurred are prudent and are either considered necessary for the provision of utility service and/or provide a benefit to the customer.

Transparency – Costs are charged and/or allocated in a manner that is traceable.

Accuracy – Where practical and appropriate, costs should be directly assigned to an individual entity. This will be appropriate where the entity is the sole beneficiary of an activity. Where an activity and its costs support multiple entities, costs should be allocated based on associated cost drivers. In other words, cost allocations should reflect cost causality.

To evaluate Hydro’s methodology, the evaluation criteria in **Table 5** were used. As noted in **Section 1.1**, KPMG’s review is limited to the assessment of Hydro’s cost allocation methodologies. KPMG was not engaged to assess the reasonableness of the shared/common services costs being allocated. Therefore, the principle of ‘prudency’ has not been considered in our evaluation.

Table 5: Evaluation Criteria

No.	Criteria	Description
1	Direct Assigned Where Practical	Costs that are clearly linked to a given line of business are directly assigned to that line of business where practical.
2	Cost Causality	Where costs cannot be directly assigned, or it is impractical to do so, the allocator used to allocate costs is reflective of the drivers of the cost of the service and/or the goods provided.
3	Transparency	The allocation approach is supported by a defined and documented methodology, and the application of the methodology is transparent. Allocators, and their source or basis of calculation, are clear and visible.
4	Regulatory Precedence	The cost allocation methodology has been tested and approved through previous regulatory reviews and/or is defensible from a regulatory perspective.
5	Objectivity	Usage of allocators results in an objective allocation amount that is free from undue bias.
6	Cost Effectiveness / Administrative Effort	The methodology considers the cost and/or level of effort to administer relative to accuracy of allocations.
7	Flexibility / Adaptability	The methodology can accommodate future changes in regulations, accounting, and organizational structures with reasonable ease.

4 Comparators

To support our review of Hydro's cost allocation approach, KPMG undertook a review of the approaches for inter-affiliate transactions and cost allocation that are used by selected comparator Canadian utilities. This section provides an overview of each comparator's approach and references to the information sources used (further detail on allocation approaches for specific functions are provided in **Section 5.3.3**). Comparators were selected based on size of the organization, nature of operations, availability of information related to cost allocation approaches, and recency of cost allocation information.

More direct comparisons between approaches are included in **Section 5**.

4.1 BC Hydro

BC Hydro is an electricity utility wholly owned by the Government of British Columbia and regulated by the British Columbia Utilities Commission ("BCUC"). It is the largest electrical utility within British Columbia with operations that span generation, transmission, and distribution, as well as electrical wholesale via a wholly owned subsidiary, Powerex. Most of BC Hydro's operations are regulated but it does have some non-regulated segments such as Powerex and Powertech Labs (research, development, and advisory services provider). Charging costs to these entities is considered in regulatory filings.

BC Hydro allocates its 'Business Support Costs' to Generation, Transmission, Distribution and Customer Care. Business Support Costs are those common functions that provide support across the BC Hydro organization, these include departments such as Finance, Technology, Supply Chain, HR, Corporate Affairs, and Safety. These costs are allocated as follows:

- i. Insurance costs are allocated based on specific assets and insurance policies.
- ii. Fleet costs are allocated based on usage
- iii. All remaining Business Support Costs and Non-Current Pension costs are allocated based on the average of their proportionate shares of expenditures (operating costs and capital) and FTEs.

Business Support Costs allocated to Powerex are decided through a separate decision with the BCUC.^{20,21}

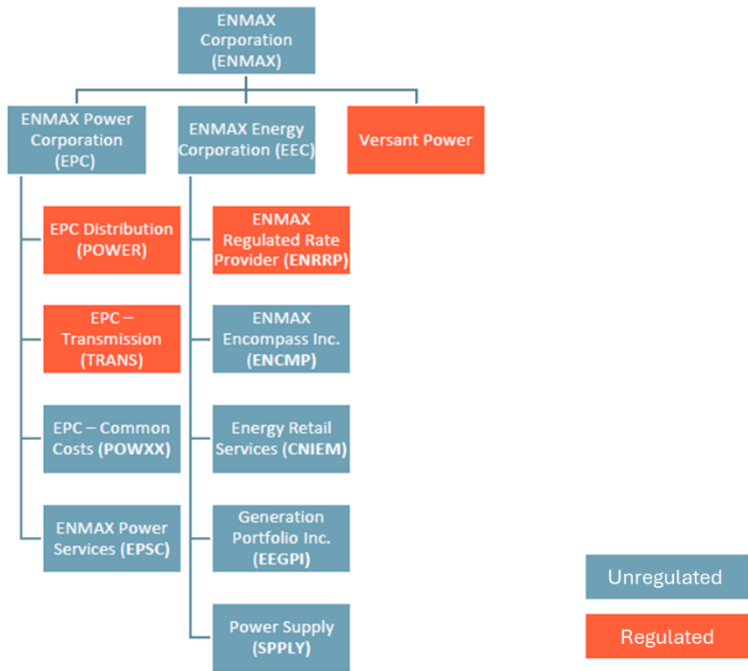
²⁰ British Columbia Hydro, *Fiscal 2020 to Fiscal 2021 Revenue Requirements Application* (February 25, 2019), p. 981, https://docs.bcuc.com/documents/proceedings/2019/doc_53488_b-1-bch-f20-f21-rr-application.pdf

²¹ British Columbia Hydro, *Fiscal 2023 to Fiscal 2025 Revenue Requirements Application* (August 31, 2021), p. 1041, https://docs.bcuc.com/documents/proceedings/2021/doc_64005_b-2-bch-f23-f25-rra-public.pdf

4.2 ENMAX

ENMAX Corporation (“ENMAX”) is wholly owned by the City of Calgary. ENMAX’s operations include regulated and non-regulated business. **Figure 2** shows a simplified view of the corporate structure and identifies the regulated and non-regulated business units.²²

Figure 2: Simplified ENMAX Corporate Structure



There are two cost allocation processes:

- i. Shared Services Cost Allocation – Allocating costs from ENMAX to all business units.
- ii. Common Cost Allocation – Allocating costs from POWXX to POWER, TRANS, and EPSC. POWXX includes the following functions: Customer Relations and System Development, Embedded Shared Services (facilities, finance, human resources), Business Operations (business improvement, capital management, regulatory), SVP Power, Field Services, Project Delivery, and System Operations and Asset Performance.

In both allocation processes, shared or common service departments will directly charge costs that can be clearly assigned to a specific business unit, which will include costs related to employee time. The remaining net costs within the shared or common service are then allocated using a variety of allocators that depend on the nature of the shared or common service. These allocators include square footage, headcount, device/user count, activity estimates, and insured asset value. ENMAX also uses a ‘Universal Allocator’ which is the average of total assets, operating margin, and headcount.²³

²² Energy+Environmental Economics, *ENMAX Cost Allocation Review (September 2022)*, p. 6, https://www2.auc.ab.ca/proceeding/27581/documents/727215/27581_X0054.01_2022-11-14-EPC-Appendix%20Q%20Cost%20Allocation%20Report%20Blackline_000111.pdf/False/view (Login Required)

²³ Energy+Environmental Economics, *ENMAX Cost Allocation Review (September 2022)*, p. 9-23, https://www2.auc.ab.ca/proceeding/27581/documents/727215/27581_X0054.01_2022-11-14-EPC-Appendix%20Q%20Cost%20Allocation%20Report%20Blackline_000111.pdf/False/view (Login Required)

4.3 Manitoba Hydro

Manitoba Hydro (“MB Hydro”) is a crown utility that provides both electricity and natural gas to customers. To ensure that shared corporate costs are apportioned appropriately to each line of business, MB Hydro developed the Integrated Cost Allocation Methodology (“ICAM”). The ICAM is used to allocate a wide range of costs beyond just typical corporate services (i.e., HR, Finance, Safety, etc.). Thus, the ICAM is also used to allocate the costs of operations and maintenance functions (i.e., station maintenance, distribution maintenance, metering, load forecasting, etc.) and customer service functions (i.e., billing and collection, dispatch, meter reading, etc.).

Where practical and appropriate, MB Hydro directly charges costs to its gas line of business (Centra Gas). The remaining costs are then allocated between electricity and gas using three different allocators:

- Proportion of Total Customers
- Proportion of Total Corporate Activity Charges (i.e., the proportion of labour costs that are directly charged)
- Average of the Proportion of Corporate Assets and the Proportion of Corporate Activity Charges

MB Hydro does not use FTEs as an allocator because Centra Gas does not have any employees. Where MB Hydro does not directly charge costs, and where the allocators are considered to not be reflective of the underlying cost drivers, MB Hydro relies on management estimates to apportion costs.^{24,25,26}

4.4 NB Power

NB Power is a provincial Crown utility that is responsible for the generation, transmission, distribution, and sale of electricity within the Province of New Brunswick. NB Power employs a corporate cost allocation approach to allocate costs to the Generation, Nuclear, Transmission, Distribution & Customer Service, and Energy Marketing divisions. Corporate costs include a wide range of functions such as supply chain, fleet services, legal, corporate affairs, cyber security, and human resources

Corporate service costs (and staff time) that can be directly attributed to a specific division are directly charged. Remaining costs are allocated using allocators. NB Power primarily relies on the proportion of Operations Maintenance and Administration (OM&A) expenses. NB Power also uses Net Property, Plant, and Equipment (PP&E) and Capital Expenses but to a much lesser extent.²⁷

4.5 Ontario Power Generation

Ontario Power Generation (“OPG”) is an electricity generating utility wholly owned by the Government of Ontario. OPG’s primary business focus is the generation and sale of electricity, which is mainly produced from nuclear and renewable energy sources. Certain lines of business are regulated by OEB, including its nuclear generating fleet and some hydro-electric generation. OPG operates a diverse range of generating facilities, including both stand-alone plants and groups of facilities. The organization’s structure includes both regulated and non-regulated generating facilities, all located within Ontario.

OPG’s cost allocation methodology allocates the following costs among specific lines of business:

- Corporate Costs

²⁴ Deloitte LLP, *Expense Allocation Methodology review (October 23, 2024)*, <https://www.pubmanitoba.ca/v1/proceedings-decisions/appl-current/pubs/2024-centra/del-01-centra-expenseallocationmethodologyreviewreportvf.pdf>

²⁵ Deloitte LLP, *Centra Gas 2024/25 General Rate Application PUB Information Request to Deloitte LLP – Responses of Deloitte LLP (January 27, 2025)*, https://www.pubmanitoba.ca/v1/proceedings-decisions/appl-current/pubs/2024-centra/pub-14-pub_del-i-1-19.pdf

²⁶ Centra Gas Manitoba Inc., *Fiscal 2025 General Rate Application (October 7, 2024)* 1533, https://www.hydro.mb.ca/docs/regulatory_affairs/pdf/natural_gas/gra_2024_2025/full_general_rate_application_fiscal_2025.pdf

²⁷ NB Power Corporation, *2024-2025 General Rate Application - Appendix BA NB Power Overhead Study 2022-23*, Accessed via <https://filemaker.nbeub.ca/fmi/webd/NBEUB%20ToolKit13>

- Chief Information Office
- Supply Chain
- Real Estate
- Finance
- Environment, Health & Safety
- Human Resources
- Corporate Office (Law, Corporate Affairs, Business Development & Strategy, Regulatory Affairs, Executive Operations)
- Operations Support
 - Enterprise Engineering
 - Integrated Fleet Management
 - Security & Training
 - Enterprise Projects
 - Other Support

The cost allocation approach aims to directly assign costs where reasonably possible. Direct assignment is done through specific assignment and/or management estimation. Remaining costs are allocated using allocators, which include allocators based on each line of business' shares of:

- Labour Cost
- Management Labour Cost
- Local Area Network (LAN) IDs
- Number of Nuclear Generating Units
- OM&A costs
- Blended OM&A and Capital Costs

OPG historically used 'internal allocators' in its cost allocation methodology. Internal allocators are those that are dependent on other outputs in the cost allocation process. Thus, OPG notes: "...a supervisor's salary may be allocated in proportion to the salaries of the individuals being supervised". The prior use of internal allocators was noted to be administratively cumbersome due to the iterative calculation process; as a result, OPG has moved to using only allocators that are external to, or upstream of, the cost allocation process (i.e., labour cost, LAN IDs, etc.), when it allocates the remaining net costs.²⁸

²⁸ Ontario Power Generation, *Application for Payment Amounts for the Period from January 1, 2022 to December 31, 2026 Exhibit F3 Cost Allocation Methodology*, https://files.opg.com/wp-content/uploads/2021/05/F3-01-04-Cost-Allocation-Methodology_Updated_20210429_210501_183611.pdf

5 Cost Allocation Review

This section describes the various components of Hydro's cost allocation approach and provides an assessment of the reasonableness of the approach.

5.1 Overview of Hydro's Cost Allocation Approach

Consistent with Hydro's 2017 Intercompany Transaction Costing Guidelines, Hydro's *Intercompany Transaction Costing Guidelines (2026)* outlines three costing methods:

- **Type 1 – Administration (Admin) Fee Costs:** This costing method uses allocators to apportion costs to Hydro's lines of business. While Hydro often refers to the Admin Fee as a singular fee, it is comprised of several components including Human Resources, Safety and Health, Environment, Information Systems (IS), Network Services, Accounts Payable, General Ledger, Corporate Secretary, Supply Chain, Culture (Internal Communications), Employee Engagement, and Executive business units. Additionally, there is a component to allocated costs associated with the Hydro Place office.
- **Type 2 – Corporate Costs and Services Provided Across Lines of Business:** This costing method directly assigns labour costs to lines of business. All charges are billed at-cost.
- **Type 3 – Cost Recovery Business Units:** Type 3 costs are directly assigned to a specific line of business (or charged to an external entity). In practice, Hydro will set up a specific business unit in which costs can be assigned. The accumulated costs within the business unit are then fully allocated (zero costs remain in the BU) to the appropriate line of business. Labour costs are accumulated in the business unit either by having staff assigned to the business unit as their home business unit and/or labour costs are charged into the business unit using time sheets.

All Hydro staff complete time sheets; therefore, all staff can directly assign some of their time (and their associated labour cost) to specific lines of business or projects. The assignment of time to specific lines of business is appropriate if they are completing activities that can be clearly associated to a single line of business or a specific project. The ability to directly assign time extends to staff who are coded to Admin Fee business units. Thus, only net labour costs within the Admin Fee business units are allocated using allocators. The approach of relying on timesheets to charge costs is generally aligned with the comparator approaches in **Section 4**, in that Hydro aims to first directly assign costs before relying on other allocation mechanisms.

5.2 Corporate Costs via Time Sheets (Type 2 Costs)

As noted, all Hydro staff complete time sheets. The associated labour cost is comprised of three components:

- **Hourly Base Salary** – The direct salary for each specific employee converted to an hourly value.
- **Bill Rate** – A markup to account for fringe benefits, insurances, payroll taxes, vacation and sick leave, and other salary costs.
- **Fixed Charge** – A fixed hourly charge that is intended to account for other employee related costs (telephone, fax, books, subscriptions, Membership fees/dues, conferences, training, and employee expenses). The Fixed Charge also includes select Admin Fees that provide general support, specifically Hydro Place Operations & Admin Support, BST Fee, AP, GL, Procurement, and Executive, with these costs converted to a per hour equivalent.

The Bill Rate and the Fixed Charge are not applied to overtime hours.

5.2.1 Bill Rate

On an annual basis, Hydro calculates the average Bill Rate based on the three preceding years. Hydro compares the three-year average Bill Rate to the 'system' Bill Rate (i.e., the bill rate that is applied to labour costs) to assess the materiality of the difference between the two values and if there is any discernible trend in the average Bill Rate, which informs Hydro's decision as to whether and adjustment to the system Bill Rate is needed. The calculated Bill Rates and system Bill Rate are shown in **Table 6**.

The approach to calculating and updating the Bill Rate is consistent with the approach used in 2017.

Table 6: Hydro's Historical Calculated and System Bill Rate

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Calculated Three Year Average Bill Rate	68.5%	67.4%	69.9%	70.5%	70.3%	67.7%		
System Bill Rate	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%	68.0%

5.2.2 Fixed Overhead Charge

Hydro reviews and updates the Fixed Overhead Charge annually. **Table 7** shows the historical and current hourly and daily max Fixed Overhead Charges.

The approach to calculating and updating the Fixed Overhead Charge is consistent with the approach used in 2017.

Table 7: Hydro's Historical and Current Fixed Overhead Charge

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Fixed Charge (Hourly)	\$12.51	\$11.72	\$12.09	\$13.05	\$12.00	\$12.00	\$12.00	\$12.00
Fixed Charge (Daily Max)	\$93.83	\$87.90	\$90.68	\$97.88	\$90.00	\$90.00	\$90.00	\$90.00

5.3 Admin Fee Costs (Type 1)

As noted in **Table 4**, Hydro is implementing two overarching changes to the Admin Fee cost allocation approach:

- (1) Removing Admin BU components from the allocators; and,
- (2) Transitioning from a partial two-step allocation to a one-step allocation.

In addition to these overarching changes, Hydro has also introduced a hybrid allocator and has refined the scope of the Admin Fees across several shared service departments.

5.3.1 Admin BU Components in Allocators and One Step versus Two Step Allocation

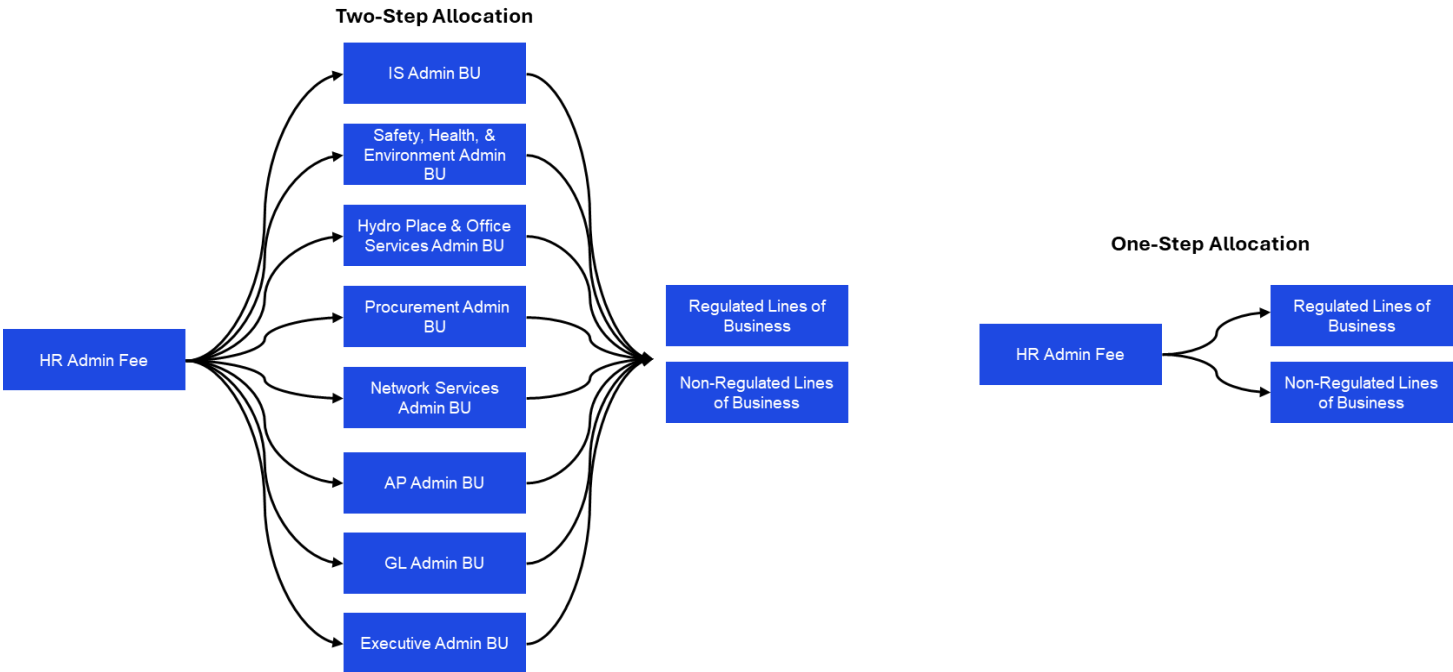
Conceptually, the removal of the Admin BU components from the allocators is intended to result in Admin Fees being fully allocated (i.e., zero cost remaining in the Admin BU). By including the Admin BU components in the allocators, the Admin Fees are being allocated between each other and to themselves, which implies that costs are remaining in the Admin BUs. The rationale that no costs should remain in the Admin BUs is that these corporate services exist to support the broader organization, they do not exist to support themselves.

To illustrate this concept, we will look at the HR Admin BU. The costs within this BU are allocated using a proportion of FTEs; however, the HR Admin BU has FTEs associated with it and the Admin BU's 'Home' is on the non-regulated

side of the business. Therefore, by including the HR Admin BU's FTEs within the allocator, a proportion of the HR Admin costs would be allocated to itself and remain on the non-regulated side of the business. Additionally, a proportion of HR Admin costs would be allocated to other Admin BUs based on their proportion of FTEs and would therefore be associated to either the regulated or non-regulated side of the business depending on the 'Home' of the various Admin BUs. This also highlights that the decision regarding the 'Home' of the Admin BU will influence the allocation. As an extreme example, if all Admin BUs were non-regulated, it would skew the allocation toward the non-regulated lines of business; conversely if all Admin BU were regulated it would skew the allocation toward the regulated lines of business.

The choice of a one-step versus two-step allocation approach will influence the level of refinement of the cost allocation methodology. In a two-step allocation, the individual Admin Fees would be allocated to each other (but not themselves). This is implying that any Admin BU receives support from the other Admin BUs but does not provide support to itself (or should not attract its own costs as it exists to support the broader organization). The first step is intended to burden the Admin Fees prior to them then being allocated based on the relevant allocator. The second step then allocated the burdened Admin Fees to the lines of business. The issue of fully burdening the admin fees prior to allocation was highlighted by the Rolph Report (refer to **Table 3**); however, the analysis in the Rolph Report determined that fully burdening the admin fees did not result in a material impact. **Figure 3** shows a conceptual view of the two-step and one-step approaches using the HR Admin Fee.

Figure 3: Conceptual View of One-Step versus Two-Step Allocation Using HR Admin Fee



Hydro's current approach uses a partial two-step approach, where the HR, IS, SH&E, Hydro Place & Office Services, Procurement, and Network Services Admin Fees are allocated and then the Executive, AP, and GL Admin Fees are allocated. This means that the first step allocates Admin Fee costs to the Executive, AP, and GL Admin fee whose costs are then re-allocated to the lines of business.

Table 8 shows the estimated differences between Hydro's current approach and the other approaches. There is negligible difference between a one-step and two-step approach and given this negligible difference Hydro opted to proceed with the one-step allocation due to its simplicity and traceability. There is a more notable difference between the inclusion versus exclusion of Admin BU components in the allocators. The resulting Admin Fee allocation, when excluding the Admin BU components, results in approximately a 2% (~\$600,000) shift in allocation from the non-regulated lines of business to the regulated lines of business. Thus, as shown in **Table 8**, the

Regulated Business is allocated \$16.3 million when Admin BUs are excluded from the allocators (Column 3) whereas it is allocated only \$15.7 million if they are not (Column 2). The shift in allocations can generally be explained by the fact that more of the Admin Fee BUs 'Home' assignments are on the non-regulated side of the business.

Table 8: Estimated Admin Fee Allocations for Different Approaches Using 2025 Budget

Approach	Hydro Current Approach (Partial Two Step / Admin Included in Allocators)	One-Step (Admin Included in Allocators)	One-Step (Admin Excluded from Allocators)	Two Step
Regulated (\$ 000,000s)	15.7	15.7	16.3	16.3
Non-Regulated (\$ 000,000s)	12.9	12.9	12.3	12.3
Regulated Percentage	54.8%	54.9%	57.0%	57.0%
Non-Regulated Percentage	45.2%	45.1%	43.0%	43.0%

When comparing Hydro's proposed approach (of a one-step allocation that excludes Admin BU components from the allocators) to the comparator peer utilities, we note the following:

- OPG has simplified its cost allocation approach and thus has replaced 'internal allocators' with 'external allocators' to remove iterative calculation steps. The result is that allocations are one-step.
- Based on ENMAX's filings, it is noted that ENMAX Power Corporation's (EPC) Corporate administration & general costs and ENMAX Common Operations (POWXX) costs are fully allocated to its Transmission and Distribution businesses.²⁹ This suggests that the EPC and POWXX components of allocators (i.e., headcount, workstation count, office square footage, etc.) are not included in the allocation.

Hydro's proposed one-step allocation that excludes Admin BU components from the allocators is generally consistent with the comparator peer utilities reviewed.

5.3.2 Hybrid Allocator

Hydro is introducing the use of a 'Hybrid Allocator' in 2026 to apportion the Communications Admin Fee, SH&E Admin Fee, Executive Admin Fee, and Corporate Secretary Admin Fee. The Hybrid Allocator is calculated as follows:

$$\begin{aligned} & \text{Line of Business (LoB) Allocation \%} \\ &= 50\% * \frac{\text{LoB Gross PPE (excluding intangible assets)}}{\text{Total Gross PPE (excluding intangible assets)}} + 50\% * \frac{\text{LoB O\&M Cost}}{\text{Total O\&M Cost}} \end{aligned}$$

Table 9 shows the calculation of Hydro's Hybrid Allocator.

Table 9: Hybrid Allocator Proportions

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated	37.5%	38.7%	36.2%	34.7%	32.9%	30.0%	30.0%	30.0%
Other LoBs	62.5%	61.3%	63.8%	65.3%	67.1%	70.0%	70.0%	70.0%

²⁹ ENMAX Power Corporation, 2023-2025 Transmission General Tariff Application Appendix A Minimum Filing Requirements (MFR Schedules), Tabs 24 and 25, https://prd-spwfe-ext-efiling20.auc.ab.ca/sites/P014/_layouts/15/download.aspx?SourceUrl=https://prd-spwfe-ext-efiling20.auc.ab.ca/sites/P014/PublicDocs_27581/27581_X0017_Appendix%20A%20-%20Minimum%20Filing%20Requirements%20MFR%20Schedules_000019.xlsx

Hydro considered the use of the Massachusetts Formula, which is generally calculated using some combination of a revenue metric, a PPE / capital assets metric, and a labour metric. The Massachusetts Formula and variants of the Massachusetts Formula are a commonly used approach by Canadian and USA utilities to allocate more general costs where single specific allocators (i.e., FTEs, direct labour cost, operating expense, etc.) are not considered reflective of the underlying cost drivers. However, Hydro identified some concerns with the revenue component of the Massachusetts Formula which may distort the resulting allocation percentages:

- Electricity rates associated with the Churchill Falls contract are lower than prevailing market rates.
- Complex intercompany transactions introduce challenges in appropriately isolating revenue sources by LoB. Examples noted include:
 - A portion of Nalcor Energy Marketing revenue is sold on behalf of Muskrat Falls and Regulated Hydro, and the revenue shows up on Nalcor Energy Marketing's financials.
 - The majority of Lower Churchill Falls revenues are from intercompany transactions.

Hydro's Hybrid Allocator approach is similar to that of the comparator utilities³⁰:

- BC Hydro – Uses a hybrid allocator that combines Capital/Operating Expenses and FTEs
- Manitoba Hydro – Uses a hybrid allocator that combines Corporate Assets and Corporate Activity (i.e., labour) Charges.
- OPG – Uses a hybrid allocator that combines OM&A and Capital Cost.

5.3.3 Shared Service Department Summaries

5.3.3.1 People & Culture

The People & Culture department is responsible for the administration of payroll, recruitment, employee benefit programs, employee training and development, workforce planning, labour relations, employee engagement and diversity initiatives, and internal corporate communications. The department allocates its costs using both Type 1 (Admin Fee) and Type 2 (Corporate Cost) methods. The People & Culture organizational chart, **Figure 4**, shows the allocation of positions to admin and non-admin business units. There are three Admin Fee BUs within the department:

- HR Admin Fee – These positions are assigned to a non-regulated administrative business unit and are allocated using FTEs. The scope of HR activities within the admin fee has increased in 2026 to include employee development and workforce planning. The allocation of costs based on FTEs is consistent with the *2017 Intercompany Transaction Guidelines*.
- Employee Engagement Admin Fee – These positions are assigned to a non-regulated administrative business unit and are allocated using FTEs. The allocation of costs based on FTEs is the proposed approach for 2026. Historically these roles would allocate their time using timesheets; however, the activities completed within this team tend to provide general support to the organization (as a whole), making it difficult to distinguish what time was directly supporting a specific line of business.
- Culture (Internal Communications) Admin Fee – These positions are assigned to both regulated and non-regulated administrative business units and are allocated using the Hybrid Allocator. The use of the Hybrid is the proposed approach for 2026. Historically these roles would allocate their time using timesheets; however, the activities completed within this team tend to provide general support to the organization (as a whole), making it difficult to distinguish what time was directly supporting a specific line of business.

³⁰ There was insufficient level of detail in the publicly available filings for ENMAX and NB Power to confirm either's application of a one/two step approach or the inclusion of shared services components within the allocators.

Figure 4: People & Culture Organizational Chart

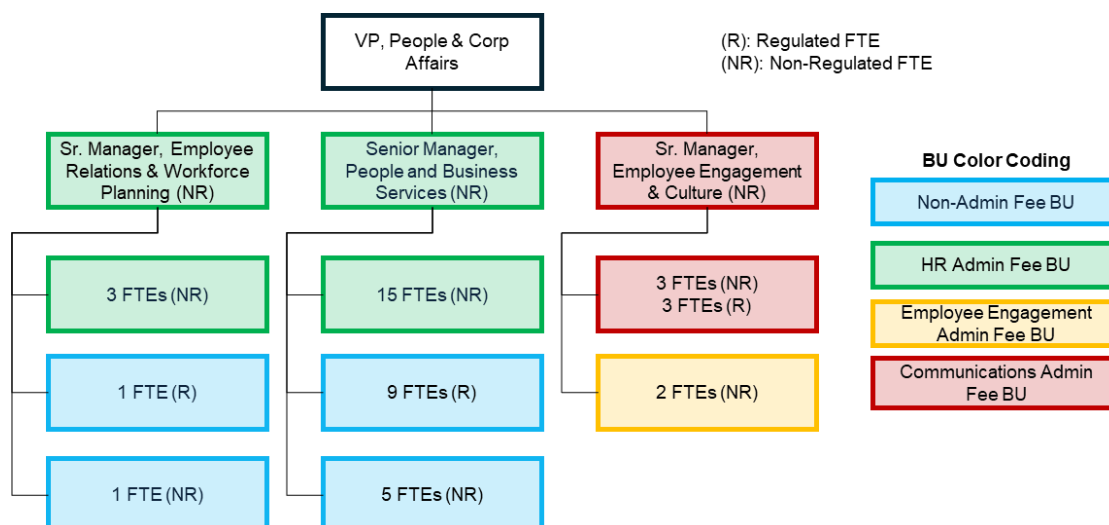


Table 10 shows the historical and forecasted allocation of the HR Admin Fee. Based on 2024 actuals, the Compensation & Payroll Admin Fee primarily consists of salaries and benefits (82%) and professional services (18%) related to compensation surveys. There is a negligible (<1%) volume of other costs related to travel, equipment rental, and miscellaneous expenses.

Table 10: HR Admin Fee Allocation (FTE Allocator)

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated FTEs	842.7	813.8	809.1	792.6	809.2	823.0	871.8	836.5
Other LoB FTEs	685.3	651.9	661.5	636.2	653.7	661.1	697.5	628.4
Total FTEs	1,528.0	1,465.7	1,470.6	1,428.8	1,462.9	1,484.1	1,569.3	1,464.9
Hydro Regulated % FTEs	55.2%	55.5%	55.0%	55.5%	55.3%	55.5%	55.6%	57.1%
Other LoB % FTEs	44.8%	44.5%	45.0%	44.5%	44.7%	44.5%	44.4%	42.9%
Hydro Regulated Allocation (\$000s)	702.9	621.1	516.9	578.0	698.4	721.5	719.3	1,058.4
Other LoB Allocation (\$000s)	571.6	497.5	422.6	464.0	564.2	579.5	575.5	795.1
Total HR Admin Fee (\$000s)	1,274.4	1,118.6	939.5	1,042.0	1,262.6	1,301.0	1,294.7	1,853.4

Note: Totals may not add due to rounding.

Table 11 shows the forecasted allocation of the Employee Engagement component of the Admin Fee for 2026. Prior to 2026 the Employee Engagement team had allocated their time using timesheets. Hydro's budgeted Employee Engagement Admin Fee costs primarily consist of salaries and benefits (91%).

Table 11: Employee Engagement Allocations (FTE Allocator)

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated FTEs								836.5
Other LoB FTEs								628.4
Total FTEs								1,464.9
Hydro Regulated % FTEs								57.1%

Costs previously assigned as Type 2 (Corporate Costs)

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Other LoB % FTEs								42.9%
Hydro Regulated Allocation (\$000s)								187.2
Other LoB Allocation (\$000s)								140.7
Total Emp. Engage. Admin Fee (\$000s)								327.9

Note: Totals may not add due to rounding.

Table 12 shows the forecasted Culture (Internal Communications) Admin Fee for 2026. Prior to 2026 the Communications team had allocated their time using timesheets. Hydro's budgeted Culture (Internal Communications) Admin Fee costs primarily consist of salaries and benefits (78%) and Office Supplies & Expenses (16%).

Table 12: Culture (Internal Communications) Admin Fee Allocation (Hybrid Allocator)

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated Hybrid Alloc %								30.0%
Other LoB Hybrid Alloc %								70.0%
Hydro Regulated Allocation (\$000s)								342.2
Other LoB Allocation (\$000s)								798.2
Total Comms Admin Fee (\$000s)								1,140.5

Note: Totals may not add due to rounding.

Table 13 provides a summary of the allocators used by other utilities to assign HR related costs. The comparator utilities tend to rely on either a labour-related measure (i.e., FTEs, headcount, labour expense) or a hybrid allocator that includes some labour-related component. For example, NB Power uses OM&A Expense to allocate HR related costs. Based on NB Power's 2024 financial statements, OM&A Expense is made up of approximately 53% salaries/benefits and 28% 'hired services', with non-labour related costs representing the remaining 19%. Thus, the OM&A allocator used by NB Power has a significant labour component. Overall, Hydro's use of FTEs for allocating the costs of both the HR Admin Fee and Employee Engagement Admin Fee is generally aligned with the approaches used by comparator utilities.

Table 13: Comparator Utility HR Related Cost Allocators

Utility	Allocator
Newfoundland & Labrador Hydro	FTEs
NB Power	OM&A Expense
OPG	~20% Specific Allocations and Management Estimates ~80% Labour Cost
ENMAX	Headcount
Manitoba Hydro	Various depending on the specific cost centre within the HR department: - Corporate Activity Charges - Direct Charges - Hybrid Corporate Assets/Corporate Activity Charges
BC Hydro	50% Capital/Operating Expenditures and 50% FTEs

Table 14 provides a summary of the different allocators used to assign communications-related costs. The comparator utilities tend to rely on some form of hybrid financial measure. Overall, Hydro's use of the Hybrid Allocator is generally aligned with the comparators.

Table 14: Comparator Utility Communications Cost Allocators

Utility	Allocator
Newfoundland & Labrador Hydro	Hybrid Allocator (Gross PPE & O&M)
NB Power	OM&A Expense
OPG	For Corporate Communications / Brand Management: ~50% of costs allocated using Specific Assignment and Management Estimates ~50% of costs allocated using OM&A/Capital allocator
ENMAX	Universal Allocator (Total Assets, Operating Margin, and Headcount)
Manitoba Hydro	Various depending on the specific cost centre within Public Affairs department: - Number of Customers - Hybrid Corporate Assets/Corporate Activity Charges
BC Hydro	50% Capital/Operating Expenditures and 50% FTEs

5.3.3.2 Information Systems (IS)

The IS department is responsible for IT help desk, PC/device deployment, IT project management, enterprise architecture, system management, application development, cyber security, information management, and standards/policy management. All staff within Hydro IS are coded to a non-regulated administrative business unit (**Figure 5**) whose costs are allocated using the average of the proportions of number of FTEs and contractors, number of email inboxes, number of computers, and number of JDE users across each entity served.

Figure 5: Information Systems Organizational Chart

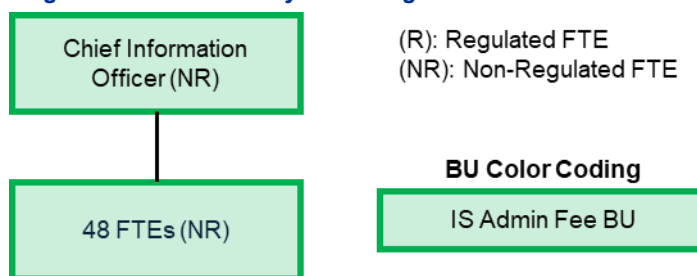


Table 15 shows the historical and forecast IS Admin Fee. Based on 2024 actual costs, the IS Admin Fee primarily consists of salaries and benefits for staff (44%), software (26%), depreciation (21%), and professional services (4%). The remainder (4%) are other costs related to system equipment maintenance, travel, equipment rental, and miscellaneous expenses. The share of costs allocated to Hydro Regulated over time has increased, as the average number of users in unregulated lines of business have declined.

Table 15: IS Admin Fee Allocations

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated Avg Users	1,007.5	965.3	952.0	940.5	918.8	942.8	961.2	921.0
Other LoB Avg Users	969.1	918.6	919.4	804.7	734.0	733.4	746.9	669.0
Total Avg Users	1,976.6	1,883.9	1,871.5	1,745.2	1,652.8	1,676.2	1,708.1	1,590.0
Hydro Regulated %	51.0%	51.2%	50.9%	53.9%	55.6%	56.2%	56.3%	57.9%

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Other LoB %	49.0%	48.8%	49.1%	46.1%	44.4%	43.8%	43.7%	42.1%
Hydro Regulated Allocation (\$000s)	3,917.3	4,134.7	4,334.2	4,748.9	5,182.5	6,295.2	7,246.3	9,166.4
Other LoB Allocation(\$000s)	3,768.0	3,934.6	4,185.8	4,063.2	4,140.1	4,896.4	5,630.3	6,658.3
Total IS Admin Fee (\$000s)	7,685.3	8,069.3	8,520.1	8,812.0	9,322.6	11,191.6	12,876.6	15,824.7

Note: Totals may not add due to rounding.

Table 16 provides a summary of the different allocators used to assign IS related costs. NB Power, Manitoba Hydro, and BC Hydro use financial and labour-based allocators, while OPG and ENMAX use allocators based on IT equipment or ID counts. Overall, Hydro's use of average users to allocate the IS Admin Fee is generally aligned with the comparators.

Table 16: Comparator Utility IS Cost Allocators

Utility	Allocator
Newfoundland & Labrador Hydro	Average IS Users (# FTEs and contractors, # email inboxes, # computers, and # JDE users)
NB Power	OM&A Expense
OPG	~5% of costs allocated using Specific / Management Estimate ~95% of costs allocated using LAN IDs
ENMAX	Total of Workstations, Non-Workstation Devices, and User Accounts
Manitoba Hydro	Various depending on the specific cost centre within the IT department: ▪ Corporate Activity Charges ▪ Number of Customers ▪ Direct Charges ▪ Hybrid Corporate Assets/Corporate Activity Charges ▪ Management Estimates
BC Hydro	50% Capital/Operating Expenditures and 50% FTEs

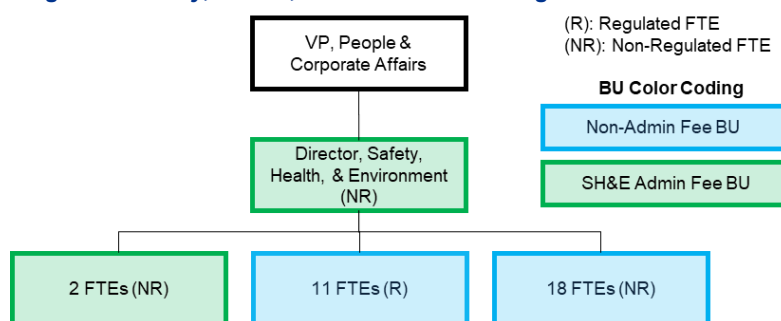
5.3.3.3 Safety, Health, and Environment

The Safety, Health, and Environment ("SH&E") department is responsible for Hydro's overall safety and environment management systems. The department allocates its costs using both Type 1 (Admin Fee) and Type 2 (Corporate Costs) methods. The SH&E organizational chart, **Figure 6**, shows the allocation of positions to admin and non-admin business units.

- **Safety & Health Environment Admin BU** – This BU consist of staff who manage safety-related systems and provide general reporting and analytical support; it also contains the major medical services contract and professional services costs related to environmental audits. Historically these costs have been allocated using FTEs, but Hydro is now planning to use the Hybrid Allocator for 2026 and beyond.

The remaining positions allocate their time using time sheets.

Figure 6: Safety, Health, and Environment Organizational Chart



Based on 2024 actuals, the combined SH&E Admin Fee consists primarily of professional services (47%), salaries and benefits for staff (39%), safety supplies (10%) and travel (3%). The remaining costs (1%) are other costs related to system equipment maintenance and office supplies.

The intent of Hydro changing the SH&E Admin Fee allocator from FTEs to the Hybrid Allocator in 2026 is to better reflect the underlying nature of operations and the demand it places on the environment and safety management systems. The rationale is that the Hybrid Allocator's inclusion of Gross PPE (excluding intangible assets) and O&M cost allows it to better reflect the scale and intensity of operations. **Table 17** shows the historical and forecast SH&E Admin Fee based on the FTE allocator.

Table 17: SH&E Admin Fee Allocations (FTE Allocator)

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated FTEs	842.7	813.8	809.1	792.6	809.2	823.0	871.8	
Other LoB FTEs	685.3	651.9	661.5	636.2	653.7	661.1	697.5	
Total FTEs	1,528.0	1,465.7	1,470.6	1,428.8	1,462.9	1,484.1	1,569.3	
Hydro Regulated %	55.2%	55.5%	55.0%	55.5%	55.3%	55.5%	55.6%	
Other LoB %	44.8%	44.5%	45.0%	44.5%	44.7%	44.5%	44.4%	
Hydro Regulated Allocation (\$000s)	427.0	367.7	370.1	427.8	439.2	496.7	482.7	
Other LoB Allocation(\$000s)	347.2	294.6	302.6	343.3	354.8	399.0	386.2	
Total SH&E Admin Fee (\$000s)	774.2	662.3	672.8	771.1	794.0	895.7	868.9	

Note: Totals may not add due to rounding.

Table 18 shows the forecasted SH&E Admin Fee using the Hybrid Allocator.

Table 18: SH&E Admin Fee Allocations (Hybrid Allocator)

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated Hybrid Alloc %								30.0%
Other LoB Hybrid Alloc %								70.0%
Hydro Regulated Allocation (\$000s)	Prior years allocated using FTE Allocator (Table 17)							275.1
Other LoB Allocation(\$000s)								641.7
SH&E Admin Fee (\$000s)								916.8

Note: Totals may not add due to rounding.

Table 19 provides a summary of the different allocators used to assign SH&E related costs. OPG, Manitoba Hydro, and BC Hydro utilize allocators that include a capital component and either labour cost and/or operating cost.

Table 19: Comparator Utility SH&E Cost Allocators

Utility	Allocator
Newfoundland & Labrador Hydro	Hybrid Allocator (Gross PPE & O&M)
NB Power	OM&A Expense
OPG	~50% of costs allocated using Specific / Management Estimate ~50% of costs allocated using OM&A/Capital allocator
ENMAX	Activity Estimates
Manitoba Hydro	Various depending on the specific cost centre within the Workplace Safety and Environmental Monitoring departments: - Corporate Activity Charges - Hybrid Corporate Assets/Corporate Activity Charges
BC Hydro	50% Capital/Operating Expenditures and 50% FTEs (Only Safety Noted)

Hydro's used of the Hybrid Allocator is generally aligned with the comparator utilities.

5.3.3.4 Hydro Place Operations and Admin & Office Services

The Hydro Place Operations and Admin & Office Services is responsible for the day-to-day management and operations of Hydro Place (corporate head office), including building maintenance, custodial services, front-desk / administrative support, office supplies management, and fleet support. All staff are assigned to regulated administrative business units (**Figure 7**).

Figure 7: Hydro Place Operations, Admin, and Office Services Organizational Chart

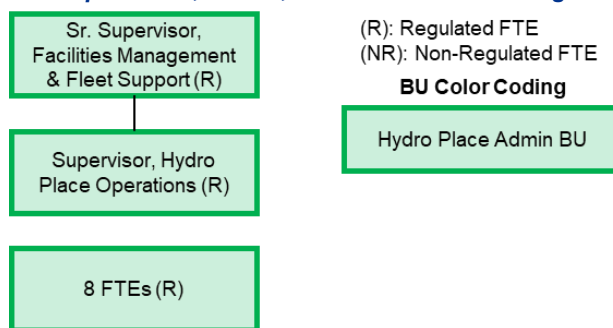


Table 20 shows the historical and forecast Hydro Place Admin Fee. Based on 2024 actuals, the Hydro Place Admin Fee primarily consists of system/equipment maintenance costs (33%), depreciation (33%), salaries and benefits for staff (25%), and office supplies and expense (9%).

Table 20: Hydro Place Admin Fee Allocations

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated Square Feet	85,321	85,188	84,749	79,194	81,379	76,936	80,564	73,129
Other LoB Square Feet	67,179	67,312	67,751	73,306	71,121	75,564	71,936	79,371
Total Hydro Place Square Feet	152,500	152,500	152,500	152,500	152,500	152,500	152,500	152,500
Hydro Regulated %	55.9%	55.9%	55.6%	51.9%	53.4%	50.4%	52.8%	48.0%
Other LoB %	44.1%	44.1%	44.4%	48.1%	46.6%	49.6%	47.2%	52.0%
Hydro Regulated Allocation (\$000s)	2,004.7	1,953.8	1,848.7	1,824.3	2,044.2	2,249.1	2,192.7	2,018.6

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Other LoB Allocation(\$000s)	1,578.4	1,543.7	1,477.9	1,688.6	1,786.5	2,209.0	1,957.8	2,190.9
Total Hydro Place Admin Fee (\$000s)	3,583.1	3,497.5	3,326.6	3,512.9	3,830.6	4,458.1	4,150.5	4,209.5

Note: Totals may not add due to rounding.

Table 21 provides a summary of the different allocators used to assign real estate and administrative costs (where available). ENMAX was the only comparator within the selected peer group that utilized square footage. The other comparators tend to rely on financial allocators. However, as noted in **Section 5.3.3.1**, NB Power's use of OM&A expense would be correlated to labour force size. Manitoba Hydro's use of corporate activity charges is also a proxy for labour as the Centra Gas does not have employees. While Hydro's use of square footage (which has been used since 2013) is not as common amongst the selected peer group, it is considered reasonable as it represents a more direct link between facility usage and cost.

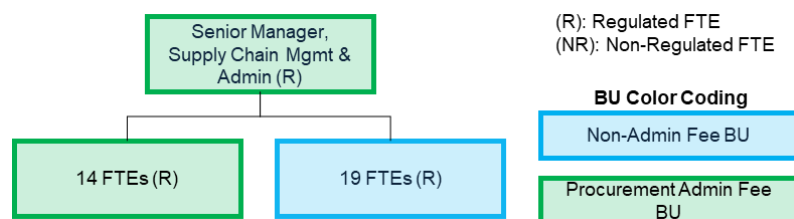
Table 21: Comparator Utility Real Estate / Administrative Cost Allocators

Utility	Allocator
Newfoundland & Labrador Hydro	Square Footage
NB Power	OM&A Expense
OPG	OM&A/Capital
ENMAX	Square Footage
Manitoba Hydro	Various depending on the specific cost centre within the Office & Administrative Buildings function: - Corporate Activity Charges - Direct Charges - Hybrid Corporate Assets/Corporate Activity Charges Various depending on the specific cost centre within the Administrative function: - Corporate Activity Charges - Direct Charges - Hybrid Corporate Assets/Corporate Activity Charges - Management Estimate
BC Hydro	Not specified

5.3.3.5 Procurement

The Supply Chain department is responsible for purchasing, contract advisory/support, and stores/materials management. The department allocates its costs using both Type 1 (Admin Fee) and Type 2 (Timesheets) methods. The Supply Chain organizational chart, **Figure 8**, shows the allocation of positions to admin and non-admin business units. The Materials team generally only manages Hydro's inventory; CF(L)Co and Muskrat Falls have their own teams. However, in instances where Materials staff provide support to other lines of business, they will charge their time to appropriate work orders. The Procurement team is assigned to an administrative business unit

Figure 8: Supply Chain Organizational Chart



and is allocated using purchase orders (POs). The administrative business unit includes the Senior Manager – Supply Chain Management as well as a Senior Advisor, both of these roles charge their time to major projects and/or other lines of business when providing significant support; the remainder of their time is allocated using the PO allocator.

Table 22 shows the historical and forecast procurement Admin Fee, 2019-2021 data is not shown as prior to 2021 procurement was charged using timesheets. Based on 2024 actuals, the Procurement Admin Fee primarily (98%) consists of salaries and benefits for staff.

Table 22: Procurement Allocations

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated POs	Costs previously assigned as Type 2 (Corporate Costs)			11,231	10,726	9,939	8,582	9,939
Other LoB POs				10,201	8,043	8,972	8,896	8,972
Total POs				21,432	18,769	18,911	17,478	18,911
Hydro Regulated %				52.4%	57.1%	52.6%	49.1%	52.6%
Other LoB %				47.6%	42.9%	47.4%	50.9%	47.4%
Hydro Regulated Allocation (\$ 000s)				772.6	894.5	905.1	906.8	1,009.2
Other LoB Allocation (\$000s)				701.7	670.7	817.0	940.0	911.0
Total Procurement Admin Fee (\$000s)				1,474.3	1,565.2	1,722.1	1,846.8	1,920.2

Note: Totals may not add due to rounding.

Table 23 provides a summary of the different allocators used to assign procurement / supply chain costs. NB Power is the only comparator within the selected peer group that uses POs as the allocation basis. The other comparators tend to rely on time estimates (activity allocator, management estimates) or blended financial allocators. Hydro's use of POs, while not common amongst the selected peer group, is considered reasonable as the volume of POs is a logical proxy for level of effort.

Table 23: Comparator Utility Supply Chain / Procurement Cost Allocators

Utility	Allocator
Newfoundland & Labrador Hydro	POs
NB Power	POs
OPG	OM&A/Capital
ENMAX	Activity Allocator (remaining costs allocated using Universal Allocator)
Manitoba Hydro	Management Estimate
BC Hydro	50% Capital/Operating Expenditures and 50% FTEs

5.3.3.6 Network Services

The Network Services team sits within the Information and Operations Technology department. The Network Services team is responsible for the maintenance of the LAN and phone networks, which support the entire organization. The team allocates its costs using both Type 1 (Admin Fee) and Type 2 (Timesheets) methods. The Information and Operations Technology department organizational chart, **Figure 9**, shows the allocation of positions to admin and non-admin business units.

Figure 9: Information and Operating Technology Organizational Chart

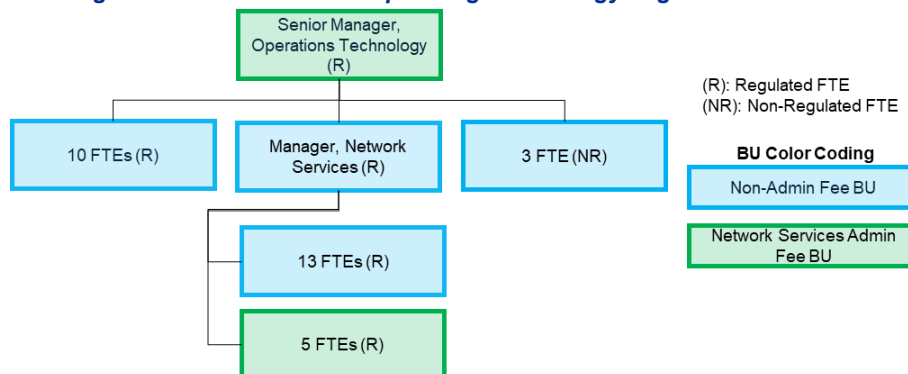


Table 24 shows the historical and forecast network services Admin Fee. Based on 2024 actuals, the Network Services Admin Fee primarily consists of salaries and benefits for staff (46%), depreciation (22%), professional services (19%), and equipment rentals (11%).

Table 24: Network Services Allocations

Year	2019*	2020*	2021	2022	2023	2024	2025B	2026F
Hydro Regulated Avg Users	1,041.7	965.3	952.0	940.5	918.8	942.8	961.2	921.0
Other LoB Avg Users	934.9	918.6	919.4	802.0	734.0	733.3	746.8	669.7
Total Avg Users	1,976.6	1,883.9	1,871.4	1,742.5	1,652.8	1,676.1	1,708.0	1,590.7
Hydro Regulated %	52.7%	51.2%	50.9%	54.0%	55.6%	56.2%	56.3%	57.9%
Other LoB %	47.3%	48.8%	49.1%	46.0%	44.4%	43.8%	43.7%	42.1%
Hydro Regulated Allocation (\$000s)	492.6	572.5	603.5	678.4	633.7	637.2	743.2	788.8
Other LoB Allocation(\$000s)	442.1	544.8	582.8	578.5	506.3	495.6	577.4	573.6
Total Network Serv. Admin Fee (\$000s)	934.8	1,117.4	1,186.3	1,256.8	1,140.0	1,132.8	1,320.6	1,362.4

Note: Totals may not add due to rounding.

*The 2019 and 2020 Network Services Admin Fee was allocated based on LAN, telephone, internet and mobile device counts.

Table 25 provides a summary of the different allocators used to assign LAN and telephone costs. Only OPG provides a cost category for “telecom”, although at OPG this category also includes other IT hardware and software costs. The allocator used by OPG for telecom costs is also the allocator it uses for the majority of other IT/IS related costs (as noted in **Section 5.3.3.2 Information Systems (IS)**). The other comparators define allocators only at the broader IT/IS group level (refer to **Table 16**).

Hydro’s use of average users appears reasonable as FTEs, contractors, email inboxes, devices, and JDE users are likely to drive telecommunications (LAN and telephone) bandwidth usage.

Table 25: Comparator Utility LAN/Telephone Cost Allocators

Utility	Allocator
Newfoundland & Labrador Hydro	Average IS Users (# FTEs and contractors, # email inboxes, # computers, and # JDE users)
NB Power	LAN/Telephone not explicitly defined in allocation methodology.
OPG	For Telecom/Hardware/Software costs: ~5% of costs allocated using Specific / Management Estimate ~95% of costs allocated using LAN IDs
ENMAX	LAN/Telephone not explicitly defined in allocation methodology.
Manitoba Hydro	LAN/Telephone not explicitly defined in allocation methodology.
BC Hydro	LAN/Telephone not explicitly defined in allocation methodology.

5.3.3.7 Accounts Payable (AP)

The AP team is responsible for invoice processing. The entire AP team is assigned to a non-regulated administrative business unit, and costs are allocated using numbers of invoices. The AP Team Lead also oversees the GL team and charges 50% of their time to the AP business unit.

Table 26 shows the historical and forecast AP Admin Fee. Based on 2024 actuals, the AP Admin Fee consists primarily of salaries and benefits for staff (99%), The remaining costs (1%) are related to office supplies, cost recoveries, and miscellaneous expenses.

Table 26: AP Allocations

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated Invoices	Prior to 2020 each line of business had their own clerks to process invoices.		24,740	25,222	26,519	23,708	26,519	24,499
Other LoB Invoices			19,354	16,767	16,541	15,497	16,541	15,985
Total Invoices			44,094	41,989	43,060	39,205	43,060	40,484
Hydro Regulated %			56.1%	60.1%	61.6%	60.5%	61.6%	60.5%
Other LoB %			43.9%	39.9%	38.4%	39.5%	38.4%	39.5%
Hydro Regulated Allocation (\$000s)			598.4	688.0	632.4	742.2	803.2	760.0
Other LoB Allocation(\$000s)			468.1	457.4	394.4	485.1	500.9	495.9
Total AP Admin Fee (\$000s)			1,066.5	1,145.3	1,026.8	1,227.3	1,304.1	1,256.0

Note: Totals may not add due to rounding.

Table 27 provides a summary of the different allocators used to assign AP costs. None of the comparators have a specific 'Accounts Payable' function noted so the overarching Finance allocators were reviewed as reference. The comparators rely on either management estimates, some labour related allocation mechanism, or financial allocators. While Hydro's use of invoices is not consistent with the comparator utilities it is considered reasonable as the volume of invoices would represent a rational proxy for staff effort.

Table 27: Comparator Utility AP Cost Allocators

Utility	Allocator
Newfoundland & Labrador Hydro	Invoices
NB Power	OM&A (Accounts Payable not explicitly defined, allocation for Finance-related functions)
OPG	Accounts Payable not explicitly defined, allocations Finance-related functions, are as follows: ~34% Specific/Management Estimates ~66% OM&A/Capital Allocator
ENMAX	Activity Estimates (Accounts Payable not explicitly defined, allocations for Finance & Treasury)
Manitoba Hydro	Corporate Activity Charges (Accounts Payable not explicitly defined, allocation for overall financial services.)
BC Hydro	Accounts Payable not explicitly defined in allocation methodology. Finance-related functions allocated using: 50% Capital/Operating Expenditures and 50% FTEs

5.3.3.8 General Ledger (GL)

The GL team is responsible for processing journal entries. The entire GL team is assigned to a non-regulated admin business unit and costs are allocated using the average of each entity's proportion of journal entries, accounts receivable invoices (excluding electricity customer receivables), and cash receipts. As noted in **Section 5.3.3.7**, the GL Team Lead also oversees the AP team and charges 50% of their time to the GL business unit, thus 50% of their time remains within the GL admin business unit.

Table 28 shows the historical and forecast GL Admin Fee. Based on 2024 actuals, the AP Admin Fee primarily consists of salaries and benefits for staff (83%) and other administrative fee burdens (15%). The remaining costs (2%) are related to office supplies, cost recoveries, and miscellaneous expenses.

Table 28: GL Historical and Test Year Allocations

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated Transactions	Prior to 2023 each line of business had their own clerks to process transactions.					4,836	5,094	4,836.0
Other LoB Transactions						7,804	7,243	7,804.0
Total Transactions						12,640	12,337	12,640.0
Hydro Regulated %						38.3%	41.3%	38.3%
Other LoB %						61.7%	58.7%	61.7%
Hydro Regulated Allocation (\$000s)						377.6	396.7	328.3
Other LoB Allocation (\$000s)						609.3	564.0	529.7
Total GL Admin Fee (\$000s)						986.9	960.7	858.0

Note: Totals may not add due to rounding.

Table 29 provides a summary of the different allocators used to assign GL costs. The comparators tend to rely on financial / labour related measures and/or management estimates. While Hydro's use of average transactions is not consistent with the selected comparators, Hydro's use of transactions is considered reasonable as the volume of transactions would represent a rational proxy for effort.

Table 29: Comparator Utility GL Cost Allocators

Utility	Allocator
Newfoundland & Labrador Hydro	Average of journal entries, accounts receivable invoices (excluding electricity customer receivables), and cash receipts
NB Power	OM&A (General Ledger not explicitly defined, allocation for Corporate Services, VP Finance, and Finance & Treasury)
OPG	General Ledger not explicitly defined, allocations for Operations Controllership: ~70% Specific/Management Estimates ~30% OM&A/Capital Allocator
ENMAX	Activity Estimates (General Ledger not explicitly defined, allocations for Finance & Treasury)
Manitoba Hydro	Corporate Activity Charges (General Ledger not explicitly defined, allocation for Financial Services.)
BC Hydro	General Ledger function not explicitly defined in allocation methodology. Finance-related functions allocated using: 50% Capital/Operating Expenditures and 50% FTEs

5.3.3.9 Executive

The Executive organizational chart, **Figure 10**, shows the allocation of positions to admin and non-admin business units. Prior to 2025 these roles allocated their time using timesheets; however, given that nature of activities these roles complete it was challenging to clearly assign time to single lines of business. In 2025, the President & CEO, VP Chief Financial Officer, and VP Chief Legal Officer (and executive assistants) were assigned to a non-regulated administrative business unit whose costs were allocated via FTEs.

In 2026 Hydro is intending to transition to the use of the Hybrid Allocator. The rationale being that FTEs is only a singular view of a line of business' scale, whereas the Hybrid Allocator's broader consideration of O&M costs and capital assets was considered to be more reflective of scale and complexity and a more reasonable proxy for Executives' level of effort spent.

Figure 10: Executive Organizational Chart

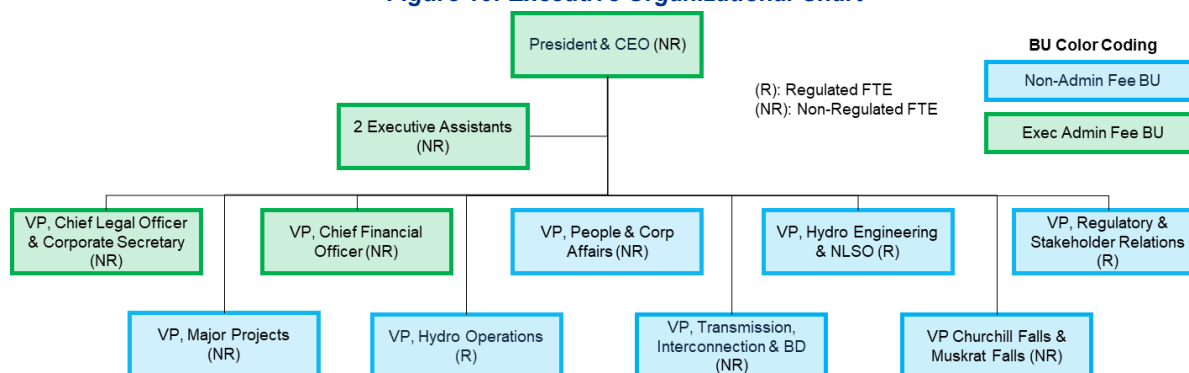


Table 30 and *Note: Totals may not add due to rounding.*

Table 31 shows the budgeted Executive Admin Fee for 2025 and 2026. Based on 2026 budget, the Executive Admin Fee consists primarily of salaries and benefits for staff (93%) and professional services (4%). The remaining costs (3%) are related to office supplies, travel, and miscellaneous expenses.

Table 30: Executive Allocation (FTE Allocator)

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated FTEs	Costs previously assigned as Type 2 (Corporate Costs)						871.8	

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Other LoB FTEs							697.5	
Total FTEs							1,569.3	
Hydro Regulated %							55.6%	
Other LoB %							44.4%	
Hydro Regulated Allocation (\$000s)							911.4	
Other LoB Allocation (\$000s)							729.2	
Total Executive Admin Fee (\$000s)							1,640.6	

Note: Totals may not add due to rounding.

Table 31: Executive Allocation (Hybrid Allocator)

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated Hybrid Alloc %								30.0%
Other LoB Hybrid Alloc %								70.0%
Hydro Regulated Allocation (\$000s)	Costs previously assigned as Type 2 (Corporate Costs)						Used FTE as Allocator	513.0
Other LoB Allocation (\$000s)								1,196.6
Total Executive Admin Fee (\$000s)								1,709.7

Note: Totals may not add due to rounding.

Table 32 provides a summary of the different allocators used to allocate executive related costs. In general, the comparators tend to rely on blended financial measures, with Manitoba Hydro, OPG, and BC Hydro using some combination of operating, capital/assets, and/or labour measures. ENMAX uses a Universal Allocator for the CEO and CFO roles that is similar to Hydro's proposed Hybrid Allocator. ENMAX and OPG employ different allocation approaches depending on the nature of the executive role. Overall, Hydro's approach is generally aligned with the comparators.

Table 32: Comparator Utility Executive Cost Allocators

Utility	Role	Allocator
Newfoundland & Labrador Hydro	CEO, CFO, Chief Legal Officer & Corporate Secretary, Executive Assistants (x2)	Hybrid Allocator (Gross PPE & O&M)
NB Power	President & CEO	OM&A
OPG	CEO	OM&A/Capital
	CFO	OM&A/Capital
	Corporate Governance & Corporate Secretary	~20% Management Estimate ~80% OM&A/Capital
	SVP Human Resource Office	Labour Cost
ENMAX	Executive Office	Universal Allocator
	Finance (including CFO)	Activity Estimate Universal Allocator
	IT (including CIO)	Proportion of Total Workstations, Non-Workstations (mobile devices) and Active User Accounts

Utility	Role	Allocator
Manitoba Hydro	Corporate Governance Services (incl Exec)	Hybrid Corporate Assets/Corporate Activity Charges
BC Hydro	All Executive	50% Capital/Operating Expenditures and 50% FTEs

5.3.3.10 Corporate Secretary

The Corporate Secretary team (**Figure 11**) primarily provides support to the Board of Directors. Historically this team has charged their time via timesheets; however, in practice, it has been difficult to distinguish time between regulated and non-regulated activities. Hydro is proposing to transition this team to an Admin BU for 2026 and allocate costs using the Hybrid Allocator. However, these staff will still complete timesheets and allocate time where there is clear and material effort required for a particular line of business, with only net labour costs being allocated.

Figure 11: Corporate Secretary Organizational Chart

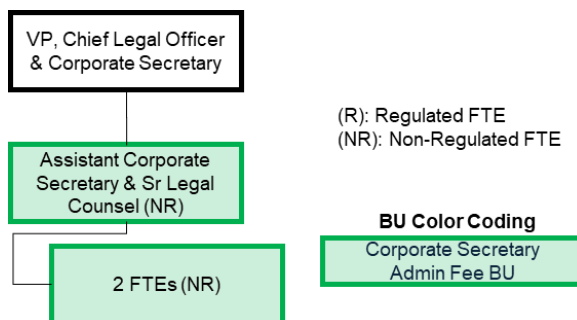


Table 33 shows the budgeted corporate secretary allocation for 2026. Based on 2026 budget, the Corporate Secretary Admin Fee consists fully of salaries and benefits for staff (100%).

Table 33: Corporate Secretary Allocations

Year	2019A	2020A	2021A	2022A	2023A	2024A	2025B	2026F
Hydro Regulated Hybrid Alloc %								30.0%
Other LoB Hybrid Alloc %								70.0%
Hydro Regulated Allocation (\$000s)		Costs previously assigned as Type 2 (Corporate Costs)						114.2
Other LoB Allocation (\$000s)								266.4
Total Corp Sec Admin Fee (\$000s)								380.6

Note: Totals may not add due to rounding.

Table 34 provides a summary of the different allocators used to allocate legal related costs (reference material did not provide distinctions or subcategorization of board secretarial costs). Manitoba Hydro, OPG and BC Hydro rely on some combination of operating, capital/assets, and/or labour measures. OPG, ENMAX, and Manitoba Hydro also utilize direct charges and/or management estimates. Hydro's proposed usage of the Hybrid Allocator is considered generally aligned with the comparators as it is understood that legal staff will still complete time sheets and directly charge their time for those activities related to specific lines of business, where identifiable.

Table 34: Comparator Utility Legal Cost Allocators

Utility	Allocator
Newfoundland & Labrador Hydro	Hybrid Allocator (Gross PPE & O&M)
NB Power	OM&A

Utility	Allocator
OPG	~25% Management Estimate ~75% OM&A/Capital
ENMAX	Activity Estimate
Manitoba Hydro	Direct Charge Hybrid Corporate Assets/Corporate Activity Charges
BC Hydro	50% Capital/Operating Expenditures and 50% FTEs

5.3.3.11 Business System Transformation (BST) Program Fee

In 2015 Hydro began participating in Nalcor's BST program which included:

- (1) Migration of the existing enterprise resource planning system (ERP) from JD Edwards World to JD Edwards EnterpriseOne
- (2) Implementation of the planning, budgeting, and forecasting solution Cognos TM1

These costs are allocated using a methodology approved by the Board in order NO. P.U. 27(2022). The allocation methodology is segmented into two components:

- (1) Regulated Hydro Specific Operating and Capital Costs – Capital and operating costs for specific systems/modules (i.e., Utiligy360³¹) are 100% allocated to Regulated Hydro.
- (2) Allocation of Remaining Costs – Remaining capital and operating costs (i.e., excluding those directly allocated to a line of business) are allocated using the average of the proportion of JD Edwards Users and FTEs. Note that this is different from the IS Average User allocator as the BST program is focused on upgrading the JDE system, as such number of computers and email inboxes were not considered to be reasonable causal drivers for allocation.

Table 35 shows the historical and budgeted BST allocation and specific cost assignment to Regulated Hydro. KPMG has not reviewed the allocation approach as it has been previously approved by the Board and the approach has not changed.

Table 35: BST Allocations

Year	2019	2020	2021	2022	2023	2024	2025B	2026F
Hydro Regulated BST Users	867.8	832.3	831.0	830.3	847.7	872.3	899.9	860.8
Other LoB BST Users	788.8	732.3	753.1	687.9	668.9	703.7	718.7	645.7
Total BST Users	1,656.6	1,564.6	1,584.1	1,518.2	1,516.6	1,576.0	1,618.6	1,506.5
Hydro Regulated %	52.4%	53.2%	52.5%	54.7%	55.9%	55.3%	55.6%	57.1%
Other LoB %	47.6%	46.8%	47.5%	45.3%	44.1%	44.7%	44.4%	42.9%
Hydro Regulated Allocation (\$000s)	1,109.3	1,190.3	1,023.7	1,248.7	1,276.2	1,263.7	1,325.9	1,228.5
Other LoB Allocation (\$000s)	1,008.3	1,047.3	927.7	1,034.5	1,007.0	1,019.5	1,059.0	966.6
Total BST Admin Fee (\$000s)	2,117.6	2,237.7	1,951.4	2,283.2	2,283.2	2,283.2	2,384.9	1,288.5
Hydro Regulated Specific (\$000s)	299.6	299.7	304.0	351.0	351.0	351.0	351.0	351.0
Total Hydro Regulated (\$000s)	1,408.9	1,490.0	1,327.6	1,599.7	1,627.2	1,614.8	1,677.0	1,639.6

Note: Totals may not add due to rounding.

³¹ Utiligy360 is a customer service module used exclusively by the regulated side of the business.

5.4 Summary of Admin Fee and Labour Charges

Table 36 summarizes the historical and budgeted Admin Fee allocations. The increase in the Total Admin Fee over time is a combination of increasing costs, Hydro making changes to the structure of its shared services (i.e., combining previously dedicated teams into a shared service and allocating as an Admin Fee), and transitioning teams previously using timesheets to Admin Fees.

The addition of new rows in the table below as you move to the right reflects the inclusion in the Admin Fee of additional departments over time as outlined earlier in **Table 4**.

Table 36: Summary of Admin Fee Allocation between Regulated Hydro and Other LoBs

Admin Fee Component	2019	2020	2021	2022	2023	2024	2025B	2026F
Regulated Hydro	8,953.4	9,139.8	9,599.4	11,317.6	12,152.1	14,039.2	16,079.2	18,201.0
HR	702.9	621.1	516.9	578.0	698.4	721.5	719.3	1,058.4
Employee Engagement								187.2
Communications								342.2
IS	3,917.3	4,134.7	4,334.2	4,748.9	5,182.5	6,295.2	7,246.3	9,166.4
SH&E	427.0	367.7	370.1	427.8	439.2	496.7	482.7	275.1
Hydro Place	2,004.7	1,953.8	1,848.7	1,824.3	2,044.2	2,249.1	2,192.7	2,018.6
Procurement				772.6	894.5	905.1	906.8	1,009.2
Network Services	492.6	572.5	603.5	678.4	633.7	637.2	743.2	788.8
AP			598.4	688.0	632.4	742.2	803.2	760.0
GL						377.6	396.7	328.3
Executive							911.4	513.0
Corporate Secretary								114.2
BST	1,408.9	1,490.0	1,327.6	1,599.7	1,627.2	1,614.8	1,677.0	1,639.6
Other LoBs	7,715.7	7,862.6	8,367.6	9,331.2	9,424.0	11,510.4	12,920.3	16,164.6
HR	571.6	497.5	422.6	464.0	564.2	579.5	575.5	795.1
Employee Engagement								140.7
Communications								798.2
IS	3,768.0	3,934.6	4,185.8	4,063.2	4,140.1	4,896.4	5,630.3	6,658.3
SH&E	347.2	294.6	302.6	343.3	354.8	399.0	386.2	641.7
Hydro Place	1,578.4	1,543.7	1,477.9	1,688.6	1,786.5	2,209.0	1,957.8	2,190.9
Procurement				701.7	670.7	817.0	940.0	911.0
Network Services	442.1	544.8	582.8	578.5	506.3	495.6	577.4	573.6
AP			468.1	457.4	394.4	485.1	500.9	495.9
GL						609.3	564.0	529.7
Executive							729.2	1,196.6
Corporate Secretary								266.4
BST	1,008.3	1,047.3	927.7	1,034.5	1,007.0	1,019.5	1,059.0	966.6
Total	16,669.1	17,002.4	17,967.0	20,648.8	21,576.1	25,549.7	28,999.6	34,365.6
% to Regulated Hydro	53.7%	53.8%	53.4%	54.8%	56.3%	54.9%	55.4%	53.0%
% to Other LoBs	46.3%	46.2%	46.6%	45.2%	43.7%	45.1%	44.6%	47.0%

Note: Totals may not add due to rounding.

6 Conclusion

KPMG evaluated the application of Hydro's *Intercompany Transaction Costing Guidelines (2026)* in alignment with the evaluation criteria introduced in **Section 3.4**. Overall, the allocation methodology appears to be a reasonable mechanism to allocate shared services costs.

Table 37: Overall Assessment of Hydro's Intercompany Transaction Approach by Evaluation Criteria

No.	Criteria	Description
1	Direct Assigned Where Practical	All Hydro staff complete time sheets; therefore, all staff can directly assign some of their time (and their associated labour cost) to specific lines of business or projects. Additionally, Hydro directly assigns non-labour costs to specific lines of business where appropriate. Overall, Hydro's approach allows for direct assignment where practical.
2	Cost Causality	The allocators used by Hydro to allocate Admin Fees are generally consistent with the comparator utilities. Where there are differences, for example AP (using invoices) and GL (using transactions), the allocators used are rational proxies for level of effort and cost. Overall, Hydro's allocators reasonably reflect the cost of service.
3	Transparency	The allocators are based on transparent data sets and can be easily calculated. Hydro has documented their methodology in an updated <i>Intercompany Transaction Costing Guidelines (2026)</i> . Hydro's proposed transition from a partial two-step allocation to a one-step allocation has further simplified the cost allocation approach making it easier to trace how costs flow from source to final line of business.
4	Regulatory Precedence	While Hydro has gone through organization changes and made modifications to its intercompany transactions (largely in the form of combining teams into shared services and creating new Admin Fees), the fundamental approach of Hydro's <i>Intercompany Transaction Costing Guidelines (2026)</i> remains largely consistent from the 2013 and 2017 iterations which were filed with the Board under respective GRAs. The set of evaluation criteria used in this report (Table 5) is based on regulatory precedence from the Board, AUC, and OEB.
5	Objectivity	The allocators are based on clear and quantifiable measures. Additionally, Hydro's proposed change where Admin BU components of allocators are excluded from the allocator calculations removes bias related to the assignment of 'Home BU'. Overall, Hydro's approach is reasonably objective.
6	Cost Effectiveness / Administrative Effort	Hydro's proposed transition from a partial two-step allocation to a one-step allocation simplifies the allocation calculations and does not appear to result in a material difference in the Admin Fee allocations.
7	Flexibility / Adaptability	Hydro's approach has demonstrated flexibility and adaptability with respect to changes in Hydro's structure, notably the dissolution of Nalcor.



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This report has been prepared by KPMG LLP ("KPMG") for Newfoundland and Labrador Hydro ("Client") pursuant to the terms of our Agreement with the Client dated January 15, 2025, and executed on January 16, 2025. KPMG neither warrants nor represents that the information contained in this report is accurate, complete, sufficient or appropriate for use by any person or entity other than Client or for any purpose other than set out in the Engagement Agreement. This report may not be relied upon by any person or entity other than Client, and KPMG hereby expressly disclaims any and all responsibility or liability to any person or entity other than Client in connection with their use of this report.

This report is based on information and documentation that was made available to KPMG by the Client at the date of this report. KPMG has not audited nor otherwise attempted to independently verify the information provided unless otherwise indicated. Should additional information be provided to KPMG after the issuance of this report, KPMG reserves the right (but will be under no obligation) to review this information and adjust its comments accordingly.

Pursuant to the terms of our engagement, it is understood and agreed that all decisions in connection with the implementation of advice, opportunities, and/or recommendations as provided by KPMG during the course of this engagement shall be the responsibility of, and made by, the Client. KPMG has not and will not perform management functions or make management decisions for the Client. Comments in this report are not intended, nor should they be interpreted, to be legal advice or opinion.

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Exhibit 3

Implementation of the Rate Mitigation Plan Report





Newfoundland and Labrador Hydro
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October 22, 2024

Board of Commissioners of Public Utilities
Prince Charles Building
120 Torbay Road, P.O. Box 21040
St. John's, NL A1A 5B2

Attention: Jo-Anne Galarneau
Executive Director and Board Secretary

Re: Newfoundland and Labrador Hydro – Implementation of the Rate Mitigation Plan Report

Please find enclosed Newfoundland and Labrador Hydro's Implementation of the Rate Mitigation Plan report as requested by the Board of Commissioners of Public Utilities on September 19, 2024.

Should you have any questions, please contact the undersigned.

Yours truly,

NEWFOUNDLAND AND LABRADOR HYDRO

Shirley A. Walsh
Senior Legal Counsel, Regulatory
SAW/kd

Encl.

ecc:

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Regulatory Email

Implementation of the Rate Mitigation Plan

October 22, 2024

A report to the Board of Commissioners of Public Utilities



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1.0 Introduction

On July 28, 2021, the Government of Canada together with the Government of Newfoundland and Labrador (“Government”) announced an agreement in principle with respect to rate mitigation. The agreement in principle provided for \$2 billion in federal financing, including a \$1 billion investment in the Labrador-Island Link (“LIL”) and a third federal loan guarantee of \$1 billion in relation to the Muskrat Falls and Labrador Transmission Assets. On February 14, 2022, as part of the province’s rate mitigation plan, Newfoundland and Labrador Hydro (“Hydro”), the Government, and the Government of Canada signed term sheets for a \$1 billion federal loan guarantee, capital restructuring of Muskrat Falls Corporation and Labrador Transmission Corporation, and a \$1 billion investment in the LIL by the Government of Canada in the form of a convertible debenture. These arrangements significantly contribute towards rate mitigation, keeping the cost of financing low and providing an additional source of funding through the Government of Canada convertible debenture.

Since the announcement of the federal financing outlined above, Hydro and the Government worked closely together on the remaining details with respect to rate mitigation, including the mechanics of implementation and the source of funding for the remaining requirements. In May 2024, the Government announced the finalization of its rate mitigation plan and issued two supporting Orders in Council.

In Order in Council OC2024-062, the Board of Directors of Hydro was directed to *“structure any application for utility rate increases such that retail rate increases to domestic rate class customers attributable to Newfoundland and Labrador Hydro shall be targeted at 2.25 per cent per year”* for each rate application filed with the Board of Commissioners of Public Utilities (“Board”) relating to the period up to and including the year 2030.¹ Order in Council OC2024-062 further directs that any additional funding required for Hydro to mitigate the Muskrat Falls Project² costs for customers subject to Island Interconnected System rates, to achieve the targeted rate increase for the period up to and including 2030, be through Hydro’s sources, to the extent possible, and for Hydro to retire the 2023 Supply Cost Variance Deferral Account (“SCVDA”) balance of \$271 million over the 2024–2026 period.

¹ OC2024-062 (*Hydro Corporation Act*, SNL 2007, c H-17), <<https://www.exec-oic.gov.nl.ca/public/oic/details?order-id=21851>>.

² The Muskrat Falls Project was referenced as the Lower Churchill Project (“LCP”) in the Order in Council.

1 Order in Council OC2024-063, issued on the same date, directed the Board of Directors of Nalcor Energy
2 that any additional funding required for Hydro to mitigate the Muskrat Falls Project³ costs or to retire
3 the 2023 SCVDA balance of \$271 million be through Nalcor Energy's sources.⁴

4 Hydro's SCVDA was approved by the Board in Order No. P.U. 33(2021), with the definition for the
5 account reflecting the Board's directions in Order No. P.U. 4(2022), issued in February 2022.⁵ The
6 purpose of the SCVDA was to address material changes in system costs associated with the integration
7 of the Muskrat Falls Project assets into the provincial electricity system. The SCVDA allows Hydro to
8 defer, among other supply cost and revenue variances, the variance between Muskrat Falls Project costs
9 incurred and those reflected in customer rates. In addition, Hydro is permitted to include any rate
10 mitigation funding received as per the SCVDA definition to offset supply cost variances. To
11 September 30, 2024, \$575.4 million of rate mitigation funding has been applied against the balance
12 owed from customers in the SCVDA.

13 The first rate change implemented under the Government's rate mitigation plan became effective
14 August 1, 2024, as part of Hydro's Application for July 1, 2024 Utility Rate Adjustments.⁶ Hydro is
15 currently preparing the necessary analysis and evidence to file its next general rate application ("GRA"),
16 planned for the second half of 2025. Hydro's GRA will incorporate the Muskrat Falls Project costs and
17 the Government's rate mitigation plan into its updated cost of service study.

18 On September 19, 2024, the Board requested additional information on the implementation of the
19 Government's rate mitigation plan and directed Hydro to file a report by October 22, 2024. The
20 following sections are presented in the same categories as the Board correspondence, with the inclusion
21 of each question or request from the Board, followed by Hydro's response and applicable background
22 information, where necessary.

³ The Muskrat Falls Project was referenced as the LCP in the Order in Council.

⁴ OC2024-063 (*Energy Corporation Act*, SNL 2007, c E-11.01 and *Corporations Act*, RSNL 1990, c C-36),
<<https://www.exec-oic.gov.nl.ca/public/oic/details?order-id=21852>>.

⁵ The SCVDA definition was last approved by the Board in Order No. P.U. 34(2023).

⁶ Board Order No. P.U. 15(2024).

2.0 Board Inquiries

2.1 General

Are the capping of rate increases provided for in the rate mitigation plan attributable to all changes in Hydro's costs or limited to cost recovery associated with the MFP only?

The targeted maximum rate increase provided for in the rate mitigation plan limits the rate impact to customers resulting from the inclusion of Muskrat Falls Project costs in rates. The purpose of the Government's rate mitigation plan is to offset the costs of the Muskrat Falls Project through rate mitigation; however, Order in Council 2024-062 provides for a target rate increase for Domestic customers on the Island Interconnected System, attributable to Hydro's costs, to 2.25% per year and therefore, by design, effectively limits the rate increase regardless of changes in other costs on the Island Interconnected System.

The approach to capping annual rate increases to apply rate mitigation to Island Industrial customers, if applicable.

Order in Council OC2024-062 directs that rate increases be structured for other customers subject to Island Interconnected System rates in a manner that is compatible with the Domestic rate class increase of 2.25% per year.

In January 2024, the Project Cost Recovery Rider was applied to Island Industrial Customers based on the estimated balances owed by them, considering the contributions made by the Utility customer since July 1, 2022, and utilizing the application of an energy allocator. Similar to the approach taken in Hydro's January 1, 2024 Industrial Customer Rate Adjustment application, Hydro will propose an adjustment to the Industrial customer Project Cost Recovery Rider accordingly to allow for the collection of prior amounts owing. The objective of this methodology is to maintain fairness in amounts collected through the Project Cost Recovery Rider between both customer groups given the different rate rider implementation dates. Hydro is currently reviewing the forecast of amounts due from Industrial customers to propose changes in rates effective January 1, 2025.

Hydro will review the Industrial customer rate as part of its next GRA once the impact of the Muskrat Falls Project costs and rate mitigation are reflected in the updated cost of service study. Rate mitigation

funds will be proposed to be allocated in the test year cost of service study in the same manner as the Muskrat Falls Project costs. The rate mitigation required is the amount that, after the allocation among the customer classes, results in the target increase of 2.25% to Domestic customers attributable to Hydro's costs.

The projected rate mitigation funding requirements for each year from 2024 to 2030.

Table 1 outlines the forecasted rate mitigation funding requirements for each year from 2024 up to and including 2030. These forecasted rate mitigation requirements represent the amount required to achieve the targeted 2.25% increase on an annual basis. The forecast provided below is based on estimates and assumptions made at a point in time; therefore, actual results may differ.⁷

**Table 1: Forecasted Rate Mitigation Required
2024–2030
(\$ Millions)**

	2024	2025	2026	2027	2028	2029	2030
Rate Mitigation Required	483.5	569.6	541.3	502.4	496.5	489.2	446.0

The sources and timing of annual rate mitigation funding for the period July 1, 2024 to the end of 2030.

Hydro's forecasted rate mitigation funding comes from three sources, the Government of Canada convertible debenture, the LCP dividends, and internally generated funding as directed by Orders in Council OC2024-062 and OC2024-063.

The Government of Canada's convertible debenture allows for drawings of up to \$150 million annually to a maximum funding balance of \$1 billion. In August 2023, the first drawing on the convertible debenture occurred in the amount of \$144.7 million, which was transferred to Hydro and applied against Hydro's SCVDA balance owed from customers. Funding received in 2024 and forecasted for future years is reflected in Table 2.

⁷ Forecast balances align to Hydro's internal financial forecast which was used to estimate rate mitigation required at the time of the Government's announcement and release of the rate mitigation plan in May 2024.

Hydro is planning to utilize internally generated funding to retire the remaining balance in the SCVDA as of December 31 of each year in the first quarter of the following year, with the exception of the December 31, 2023 balance. Orders in Council OC2024-062 and OC2024-063 directed the retirement of the 2023 SCVDA balance of \$271.3 million over the 2024–2026 period. This timing is reflected accordingly in Table 2, spread evenly over the three years.

Table 2 outlines the forecasted sources and timing of annual rate mitigation funding for the period of January 1, 2024⁸ through to the end of 2030. These forecasts are based on estimates and assumptions made at a point in time and actual results and timing of payments may vary.⁹

Table 2: Forecasted Rate Mitigation Funding – Sources and Timing
January 1, 2024–December 31, 2030
(\$ Millions)

	2024	2025	2026	2027	2028	2029	2030
Beginning Balance, Rate Mitigation Required¹⁰	271.3	514.5	420.6	320.9	267.0	249.0	276.7
Current Period Rate Mitigation Required¹¹	483.5	569.6	541.3	502.4	496.5	489.2	446.0
Rate Mitigation Funding:							
Government of Canada Convertible Debenture	(150.3) ¹²	(150.0)	(150.0)	(150.0)	(150.0)	(105.3)	-
LCP Dividends ¹³	-	(90.0)	(70.4)	(85.4)	(97.5)	(107.2)	(78.7)
Internally Generated Funding	(90.0)	(423.5)	(420.6)	(320.9)	(267.0)	(249.0)	(276.7)
Total Rate Mitigation Funding during the Period	(240.3)	(663.5)	(641.0)	(556.3)	(514.5)	(461.5)	(355.4)
Ending Balance, Rate Mitigation Required	514.5	420.6	320.9	267.0	249.0	276.7	367.3

Hydro notes that the Government's current rate mitigation plan matures in 2030; however, there is an ending balance as presented in Table 2. This balance is forecasted to be settled in the first quarter of 2031 through internally generated funding. In addition, the Government has committed publicly to rate

⁸ Hydro acknowledges the request from the Board cited July 1, 2024; however, Hydro has used a beginning date of January 1, 2024, to ensure clarity of the requirements and timing of payments for 2024.

⁹ Forecast balances align to Hydro's internal financial forecast which was used to estimate the rate mitigation required at the time of the Government's announcement and release of the rate mitigation plan in May 2024.

¹⁰ Beginning Balance, Rate Mitigation Required for 2024 is equal to the December 31, 2023 SCVDA balance.

¹¹ Current Period Rate Mitigation Required is the amount required to cover costs not being recovered from customers through base rates or the Project Cost Recovery Riders and is equal to the balances reported in Table 1.

¹² The 2024 balance of the convertible debenture funding includes \$0.3 million in accrued interest.

¹³ This balance includes any excess cash generated from operations associated with the Lower Churchill entities which is forecasted to be provided to the parent company through a common dividend.

mitigation post-2030 and keeping customer rates affordable for the people of the province. Hydro will work with the Government in advance of 2030 on future rate mitigation requirements.

2.2 Cost of Service Study Issues

On November 15, 2018, Hydro filed an application for revisions to its cost of service methodology (“2018 Cost of Service Study Methodology Review”) for use in the determination of test year customer class revenue requirements reflecting the inclusion of the Muskrat Falls Project costs upon full commissioning.

Board Order No. P.U. 37(2019) approved the recommendations in the settlement agreement on the cost of service issues agreed to by the parties. The approved recommendations regarding the Muskrat Falls Power Purchase Agreement (“PPA”), Transmission Funding Agreement (“TFA”) and export revenues included:

- 1) Power purchase costs resulting from the Muskrat Falls PPA and the TFA shall be functionalized as generation;
- 2) Net export revenues shall be functionalized as generation, which is the same manner as the functionalization of the Muskrat Falls Project costs;
- 3) The classification between demand and energy for the power purchase costs resulting from the Muskrat Falls PPA and the TFA shall be based on the system load factor. For greater clarity, it was agreed that this is inclusive of the costs related to the Muskrat Falls Generation, the LIL and the Labrador Transmission Assets; and
- 4) Net export revenues shall be classified using the system load factor, which is the same manner as the classification of the Muskrat Falls Project costs.¹⁴

The 2018 Cost of Service Methodology Review addressed the sharing of net revenue from export sales but did not address the treatment of rate mitigation funds that may be provided from other sources.

¹⁴ Board Order No. P.U. 37(2019), sch. A, pp. 2–4.

1 ***The treatment of rate mitigation in the GRA test year revenue requirement.***

2 The total rate mitigation required to meet the target rate increase of 2.25% in the test year revenue
3 requirement will be shown as a credit to the test year revenue requirement, thereby reducing the
4 revenue to be collected in rates from customers on the Island Interconnected System.

5 ***Whether rate mitigation funding will be identified on customer bills.***

6 Hydro currently has no plans to identify rate mitigation as a separate item on customer bills. Rate
7 mitigation will reduce the costs recovered from customers on the Island Interconnected System and
8 published rates will be calculated based on the reduced revenue requirement.

9 ***The allocation of rate mitigation funding within the test year cost of service study, if applicable.***

10 The 2018 Cost of Service Methodology Review likened export sales¹⁵ to a form of rate mitigation and
11 proposed that the revenue be classified in the same manner as the classification of the charges from the
12 TFA and the Muskrat Falls PPA. The proposal on the treatment of export sales was agreed to amongst
13 the parties and approved in Board Order No. P.U. 37(2019).

14 While the 2018 Cost of Service Methodology Review did not address the treatment of rate mitigation
15 funds from other sources, Hydro believes the same cost of service treatment should apply to other
16 forms of rate mitigation given the purpose of the funding, to reduce the impact of the Muskrat Falls
17 Project costs on rates, is consistent.

18 ***Whether the cost of service methodology needs to be updated to accommodate rate mitigation***
19 ***funding and, if so, the planned timing of any application.***

20 Hydro is planning to propose this change to the cost of service methodology in its next GRA along with
21 any other issues to be addressed for the test year cost of service. If the Board considers this issue more
22 appropriately addressed in a separate application in advance of the GRA, given the materiality, Hydro
23 will file an application in the first quarter of 2025 requesting approval for the allocation of rate
24 mitigation in the test year cost of service.

¹⁵ “2018 Cost of Service Methodology Review Report,” Newfoundland and Labrador Hydro, November 15, 2018, sec. 2.4, p. 6.

2.3 Deferral Account Issues

Projected year-end balances in the Supply Cost Variance Deferral Account for the period 2024 to 2030.

Please refer to Table 2. “Ending Balance, Rate Mitigation Required” provides a forecast for the ending SCVDA balance for the period of 2024 up to and including 2030.

The timing of when the methodology will be proposed to allocate the balances in the Supply Cost Variance Deferral Account among customer classes.

Hydro’s Supply Cost Accounting Application, filed with the Board on July 29, 2021, provided its timeline for proposing additional changes for the long-term approach for the SCVDA and disposition of any balance accumulated in the proposed (now existing) account. Hydro stated:

In its next GRA, Hydro will provide additional evidence on a long-term approach to the SCVDA to provide an opportunity for recovery of supply cost variances from those reflected in customer rates (including Muskrat Falls Project costs); and

Hydro plans to file a separate application to deal with the balance allocation and disposition in the proposed (now existing) SCVDA after the conclusion of its next GRA.¹⁶

Hydro is reviewing the requirements for a long-term approach to the SCVDA that will come into effect after the conclusion of the GRA and is expecting to be in a position to file an application on the matter in the first quarter of 2025. Filing an application in advance of the GRA will create efficiency by reducing the issues to be dealt within the GRA proceeding, in particular the allocation of the long-term SCVDA amongst customer classes. The long-term SCVDA will address the allocation to customer classes of supply cost variances from the test year values approved in the GRA. In addition to the allocation methodology for assigning variances to customers, the application will also address:

- 1) The interest rate accruing on balances in the account;
- 2) Rules for calculating and adjusting the marginal cost energy rate, if required; and
- 3) The extent of rules required for the disposition of balances, given the rate mitigation plan.

As planned, Hydro is proposing to deal with any issues related to the disposition and conclusion of the existing SCVDA in an application to be filed after the conclusion of the GRA. The existing SCVDA will be

¹⁶ “Supply Cost Accounting Application,” Newfoundland and Labrador Hydro, July 29, 2021, para. 27 and 28, p. 6.

used to record variances until a new test year is approved in the GRA, at which point adjustments will be made to transition to the approved long-term SCVDA.

The treatment of the Rural Rate Adjustment balance in the Supply Cost Variance Deferral Account and what options are available for timely balance disposition to Newfoundland Power.

The Rural Rate Adjustment (“RRA”) transfers the following to Newfoundland Power Inc. (“Newfoundland Power”):

- 1) Changes in Hydro’s Rural customer revenues resulting from changes in rural rates between test years; and
- 2) Changes in Hydro’s Rural customer revenues on the Island Interconnected System as a result of changes in Rural customer load between test years.

The Rate Stabilization Plan (“RSP”), discontinued since the effective date of the existing SCVDA on November 1, 2021, historically recorded activity relating to the RRA. The RSP was designed to smooth rate impacts for Newfoundland Power and Island Industrial Customers for variations between actual results and test year cost of service estimates for:

- Hydraulic production;
- No. 6 fuel cost used at Hydro’s Holyrood Thermal Generating Station;
- Customer load; and
- Rural rates.

The RSP contained established rules for the allocation of monthly variations in hydraulic production, fuel cost and the rural rate alteration and transferred the applicable amounts to the plan balances for Newfoundland Power or Island Industrial Customers. The plan balances also included rate rider activity and interest resulting in a total plan balance that would be collected or refunded to customers annually when rates were adjusted.

Balances in the RSP were incorporated into rates for Newfoundland Power annually on July 1 based on their March 31 balance in the RSP, including the RRA. The wholesale rate impact of the RSP balance for Newfoundland Power had a flow-through impact on their customers, including Domestic customers.

Subsequent to the effective date of the existing SCVDA on November 1, 2021, the RRA balance for Newfoundland Power has been accumulating in the SCVDA Section B: Utility Customer Balance. As noted previously, unlike the RSP, the existing SCVDA currently has no rules for the allocation of balances to customer classes, except for the RRA which is allocated between Newfoundland Power and regulated Labrador Interconnected System Customers.¹⁷ In addition, there are currently no rules for the reflection of balances owed to customers, such as the RRA, in the annual rate adjustments. As previously noted, the balance of the existing SCVDA and the disposition or allocation to customers is proposed to be addressed in an application to be filed after the conclusion of the GRA.

The current balance in the SCVDA owing to Newfoundland Power associated with the RRA is approximately \$20 million. Table 3 demonstrates the average end-customer rate impact of a decrease of 2.6%, which would occur if the RRA balance owing was allocated and refunded to Newfoundland Power in a future July 1 Utility Rate Adjustment, assuming all other items are kept constant.

Table 3: Estimated Customer Rate Impact of Current RRA Balance

	Billing Units ¹⁸	Unit	Current Rates	Billings at Existing Rates (\$)	Proposed July 1 Rates	Revised Billings (\$)	Change (\$)	Change Utility (%)	Estimated Change End Customer ¹⁹ (%)
Demand (kW)	15,164,268	\$/kW/mo	5.00	75,821,340	5.00	75,821,340			
Energy (MWh)	3,960,000	¢/kWh	2.444	96,782,400	2.444	96,782,400			
Energy (MWh)	1,840,700	¢/kWh	18.165	334,363,155	18.165	334,363,155			
Total Base Rate				506,966,895		506,966,895	-		
RSP: Current Plan Adjustment	5,800,700	¢/kWh	0.000	-	(0.345)	(20,000,000)	(20,000,000)	(3.9)	(2.6)
Project cost Recovery Rider	5,800,700	¢/kWh	0.000	-	0.000	-	-	0.0	0.0
Total				506,966,895		486,966,895	(20,000,000)	(3.9)	(2.6)

The Government's rate mitigation plan targets the domestic residential rate increases attributable to Hydro's costs at 2.25% annually up to and including 2030. Therefore, under this plan, any refund of balances in the SCVDA, such as the RRA, will result in a higher Project Cost Recovery Rider to achieve the target 2.25% rate increase, as demonstrated in Table 4.

¹⁷ The portion allocated to Hydro Rural Labrador Interconnected System is removed from the plan and written off to Hydro's net income (loss).

¹⁸ Billing units are based on 2019 Test Year.

¹⁹ Assumes a 66.80% flow-through rate.

Table 4: Estimated Overall Customer Rate Impact

	Billing Units ²⁰	Unit	Current Rates	Billings at Existing Rates (\$)	Proposed July 1 Rates	Revised Billings (\$)	Change (\$)	Change Utility (%)	Estimated Change End Customer ²¹ (%)
Demand (kW)	15,164,268	\$/kW/mo	5.00	75,821,340	5.00	75,821,340			
Energy (MWh)	3,960,000	¢/kWh	2.444	96,782,400	2.444	96,782,400			
Energy (MWh)	1,840,700	¢/kWh	18.165	334,363,155	18.165	334,363,155			
Total Base Rate				506,966,895		506,966,895	-		
RSP: Current Plan Adjustment	5,800,700	¢/kWh	0.000	-	(0.345)	(20,000,000)	(20,000,000)	(3.9)	(2.6)
Project cost Recovery Rider	5,800,700	¢/kWh	0.000	-	0.634	36,755,100	36,755,100	7.3	4.9
Total				506,966,895		523,721,995	16,755,100	3.4	2.3

Hydro is proposing to dispose of all balances in the SCVDA, including the RRA, after the GRA. If Hydro were to refund the RRA balance, the rate impact would continue to reflect a 2.25% increase in end customer rates, in accordance with the rate mitigation plan, as demonstrated in Table 4.

Whether any further additions or revisions the Supply Cost Variance Deferral Account are required to reflect the rate mitigation plan.

There are currently no further known additions or revisions required to the existing SCVDA to reflect the rate mitigation plan.

3.0 Conclusion

The Government's final rate mitigation plan was released in May 2024 and implemented into customer rates beginning on August 1, 2024. Hydro has existing regulatory mechanisms that support the rate mitigation plan such as the Project Cost Recovery Riders and the existing SCVDA. Rate mitigation funding received is captured through Hydro's existing SCVDA and passed on to customers by reducing the balance owed.

Hydro is in the process of preparing the analysis and evidence necessary to file its next GRA, which will incorporate Muskrat Falls Project costs and rate mitigation funding into its updated cost of service study. Hydro is also preparing to file, in advance of its next GRA, an application with the Board for a

²⁰ Billing units are based on 2019 Test Year.

²¹ Assumes a 66.80% flow-through rate.

- 1 long-term SCVDA that will include proposed customer class allocation methodology and disposition. As
- 2 outlined in Hydro's application for its existing SCVDA, Hydro is proposing to deal with any issues related
- 3 to the disposition and conclusion of the existing SCVDA in an application to be filed after the conclusion
- 4 of its next GRA.

Exhibit 4

Load Forecast and Sources of Supply



Load Forecast and Sources of Supply



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1.0 System Overview

Hydro is responsible for the generation, transmission, and distribution of electricity throughout Newfoundland and Labrador. As the primary generator of electricity for the province, Hydro has an installed generating capacity of over 2,658 MW,¹ which includes 10 hydroelectric generating stations,² 1 oil-fired plant, 4 CTs, and 24 diesel generating stations.³

Hydro operates an integrated transmission system spanning thousands of kilometres, connecting generation facilities in Labrador to Québec, and to the island of Newfoundland. The system includes transmission assets owned directly by Hydro, as well as interconnections with the LIL and the Maritime Link, which are owned by affiliated or third-party entities but form part of the broader provincial electricity network.

The Newfoundland and Labrador System Operator safely and reliably manages the provincial electricity system in real-time. It also provides open access to the provincial transmission network, which means providing transmission service to users like Hydro and other utilities in an open, non-discriminatory and non-preferential manner.

Hydro, as a public utility, is subject to the *Act* and related legislation and the broad oversight of the Board. As a public utility, Hydro is responsible for the provision of safe, reliable, least-cost, environmentally responsible electricity to its Utility, Industrial, and Rural customers throughout the province.

2.0 Hydro's Load Forecast and Sources of Supply

The purpose of load forecasting is to project electric power demand and energy requirements through future periods. The 2025 through the 2027 Test Year system load forecasts used in the 2026 GRA were prepared in a similar manner to applications previously reviewed by the Board. The forecasts reflect a combination of direct input from the Industrial customers and Hydro's Utility customer, Newfoundland

¹ Excluding Churchill Falls, which is operated by CF(L)Co, and the Menihek Hydroelectric Generating Station, which is operated by Hydro. Hydro purchases TwinCo Block and Recapture Energy from Churchill Falls to provide an electricity supply to the Labrador Interconnected System. All energy generated by the Menihek plant is sold to Hydro-Québec.

² Including Exploits and Star Lake assets, which are owned by Government and operated by Hydro. All of the power generated at these facilities is sold to Hydro through a PPA.

³ Including Natuashish Diesel Generating Station, which is owned by Mushuau Innu First Nation and operated by Regulated Hydro on their behalf.

Power, as well as Hydro's internal load forecasts for Newfoundland Power, and the Rural Interconnected and Isolated systems.⁴ Total load requirements are then determined from analyses of overall system losses, station service and demand diversity, allowing for the development of appropriate coincidence factors.

2.1 Island Interconnected System Load Forecast and Sources of Supply

2.1.1 Load Forecast

The 2027 Test Year load forecast, actual power, and energy requirements for the Island Interconnected System for 2019 through 2024, and the operating load forecasts for 2025⁵ and 2026, are provided in Schedule A-I.

Table 1 summarizes the overall forecast percentage changes for the Island Interconnected System for the 2027 Test Year in comparison to the 2019 Test Year.

**Table 1: Summary Percent Change in Hydro's Electricity Requirements
Island Interconnected System 2019 Test Year to 2027 Test Year⁶**

	2019 Test Year (GWh)	2027 Test Year (GWh)	Change (%)
Newfoundland Power	5,801	6,015	3.7
Industrial Customers	743	613	(17.5)
Hydro Rural Interconnected	452	462	2.2
Transmission Losses	207	327	58.0
Total Island Interconnected System	7,202	7,417	3.0

For the 2027 Test Year, Hydro is forecasting slightly higher electricity requirements relative to the 2019 Test Year. The increase is due to higher energy requirements for system losses, Newfoundland Power and Hydro Rural Interconnected, offset by lower Industrial customer requirements.

Newfoundland Power and Hydro Rural Interconnected load is 6,477 GWh in the 2027 Test Year compared to 6,253 GWh in the 2019 Test Year, an increase of 224 GWh. The key drivers of the increase

⁴ Newfoundland Power provided input in the spring of 2025. Industrial customers provided input during the fall and winter of 2024. Hydro's internal analyses for the Interconnected and Isolated systems were prepared over the course of 2025.

⁵ For all data in the tables and schedules, 2025 is comprised of actuals for the first three quarters and a forecast for the fourth quarter.

⁶ Numbers may not add due to rounding.

1 include the installation of electric boilers at Memorial University of Newfoundland, an increase in
2 population and customers, higher reliance on electricity for home heating driven by oil-to-electric
3 conversions, and the current electric vehicle usage. These drivers are partially offset by the adoption of
4 new technologies such as mini-split heat pumps, as well as increasing electricity prices, which are
5 impacting customer usage.

6 Industrial customer load for the 2027 Test Year is 613 GWh compared to 743 GWh in the 2019 Test Year,
7 a decrease of 130 GWh. Since the 2019 Test Year, North Atlantic Refining Limited⁷ has been sold to
8 Braya Renewable Fuels, which has a lower operating load. In addition, load for CBPP also decreased in
9 the 2027 Test Year. These decreases have been partially offset by an increase in load for Equinox Gold
10 Corporation,⁸ who have been connected subsequent to the 2019 Test Year.

11 System losses increased by 120 GWh, or 58.0%, in the 2027 Test Year compared to the 2019 Test Year
12 due to the addition of Muskrat Falls energy being delivered to the Island and through to the Maritime
13 Link. The 2019 Test Year included losses associated with Island bulk deliveries only; the primary flow of
14 energy was from west to east, as hydroelectric generation from Hydro's fleet was delivered to load
15 centers on the Avalon Peninsula. This was historically the primary driver of losses on the Island
16 Interconnected System.

17 In the 2027 Test Year, there are additional losses associated with forecasted exports which flow
18 between Soldiers Pond⁹ and the Bottom Brook Terminal Station for export over the Maritime Link¹⁰ of
19 207 GWh. However, this east-west flow of energy offsets the traditional west-east flow and effectively
20 reduces the losses from bulk island deliveries from 207 GWh in the 2019 Test Year to 120 GWh in the
21 2027 Test Year, partially offsetting the increase from exports.

⁷ North Atlantic Refining Limited was the legal entity operating the Come By Chance Refinery during the 2019 historical period referenced in the 2026 GRA. Following a change in ownership and a strategic shift toward renewable fuels production, the refinery business was rebranded as Braya Renewable Fuels, which is the successor operating entity today.

⁸ Marathon Gold was the original proponent of the Valentine Gold project during the 2019 period; the project is now owned and operated by Equinox Gold Corporation, of whom Marathon Gold is now a wholly owned subsidiary. Both references relate to the same mining facility for load comparison purposes.

⁹ Soldiers Pond is part of the Muskrat Fall Assets and is located on the Avalon Peninsula, which receives power from the LIL and converts it from high-voltage direct current to alternating current for integration into the Island Interconnected System.

¹⁰ No exports over the Maritime Link were forecasted for the 2019 Test Year.

2.1.2 Sources of Supply

Hydro's sources of supply for the Island Interconnected System for the 2027 Test Year are detailed in the production plan in Schedule A-IV. The actual energy supply sources and fuel expenses for 2019 to 2024, and the forecast for 2025, 2026, and through to the 2027 Test Year, are summarized in Schedule A-V.

The power system has undergone significant changes since the 2019 Test Year, during which Hydro relied heavily on the Holyrood TGS for both capacity and energy.

The years since have seen a transition towards increased integration of Muskrat Falls and the LIL, beginning with the gradual commissioning of Muskrat Falls generating units from December 22, 2020, to November 25, 2021. The LIL was energized on October 15, 2021¹¹ and was commissioned on April 13, 2023. LIL high-power testing was successfully completed in late March 2026, and the LIL is now able to operate at its full capacity of 900 MW.¹²

Since the full commissioning of the Muskrat Falls Assets in April 2023, Hydro has been working to increase the amount of energy that can be delivered to the Island Interconnected System over the LIL, which is a function of Island Interconnected System load, and how much energy is flowing over the LIL and Maritime Link. While the LIL has a rating of 900 MW, actual flows on the LIL are governed by operating procedures that ensure system stability is maintained for any contingency involving the LIL or the Maritime Link.

For the loss of the LIL bipole,¹³ there will be an immediate loss of supply that would have the potential to impact system frequency. To ensure system stability, Maritime Link exports are immediately curtailed to offset the loss of imports at Soldiers Pond. Often, this curtailment alone is insufficient to maintain system frequency within acceptable limits and UFLS¹⁴ is required.

At elevated LIL power flows, the amount of load shedding can be substantial. Further, the UFLS schedule primarily consists of blocks of residential feeders, and the amount of load available for UFLS is therefore

¹¹ The LIL and Maritime Link have been available to deliver energy to the Island since 2019.

¹² Prior to the completion of high-power testing, the LIL was rated at a base capacity of 700 MW.

¹³ The LIL is a bipole line consisting of two poles operating together. A LIL bipole outage means loss of the entire line.

¹⁴ UFLS is the automatic or manual actions required to shed system load when the system frequency falls below a defined acceptable parameter.

1 largely dependent on home heating load. For this reason, operational limits for LIL power flows can
2 fluctuate depending on ambient temperatures on the Island and are directly linked to system load.

3 To summarize the above, the amount of power that can be delivered to the Island Interconnected
4 System over the LIL is a function of the UFLS that is available or permitted. Since the LIL has been in
5 operation, Hydro has monitored its performance, and reliability has been demonstrated, which has
6 increased the amount of permissible UFLS.

7 As described in Hydro's Final Lower Churchill Project Operational (Stage 4F) Study,¹⁵ as part of the
8 *Reliability and Resource Adequacy Study Review*, Hydro has recently implemented the final UFLS scheme
9 to allow increased LIL bipole transfer limits. With these new limits, more energy delivered over the LIL
10 can be absorbed by the Island Interconnected System. This change in the UFLS scheme has greatly
11 reduced constraints, and the capacity provided by the LIL can now fully support the Island
12 Interconnected System load, less firm contractual commitments to Nova Scotia.¹⁶

13 Collectively, these changes to the system have caused a shift from a thermally dominated supply mix in
14 the 2019 Test Year to a 2027 Test Year characterized by reduced thermal output and increased reliance
15 on LIL imports to the Island, enabled by the integration of hydroelectric generation in Labrador.

16 Hydro's methodology used to forecast its production has also changed since the 2017 GRA. For the 2019
17 Test Year, a spreadsheet-based generation model was used to develop the production plan. However,
18 since that time, with the commissioning of the Maritime Link and the Muskrat Falls Assets, Hydro began
19 using Plexos¹⁷ to develop its production plan. The Plexos model has more capacity to model the system
20 dynamically and includes improved modelling of transmission constraints, market transactions and
21 contractual commitments.

¹⁵ "LCP Operational Study: Final LCP Operational Study ("Stage 4F") Report," TransGrid Solutions Inc., June 26, 2025. Provided in "Final LCP Operational (Stage 4F) Study – Overview," Newfoundland and Labrador Hydro, August 11, 2025, att. 1.

¹⁶ For clarity, the final UFLS scheme was not reflected in the 2027 Test Year as it was implemented after the production plan was developed.

¹⁷ Plexos is the modeling platform used by Hydro to determine probabilistic measures of system reliability (e.g., Loss of Load Hours, Loss of Load Expectation, and Expected Unserved Energy) and to probabilistically assess outage severity in the LIL Shortfall Analysis.

2.1.2.1 Hydroelectric Generation

Hydroelectric generation resources account for the bulk of Hydro’s existing supply and are considered well-established and reliable sources of capacity and energy. The average generation from all of the hydroelectric generators owned by Hydro is 4,600 GWh per year.¹⁸ This excludes Muskrat Falls generation and generation purchased by Hydro under a PPA. Annual generation varies due to inflows, reservoir levels, spills, and changes in unit efficiency.

Hydro’s 2019 and 2027 Test Year hydroelectric production is summarized in Table 2 and remains consistent between the two test years.

**Table 2: Hydroelectric Production
2019 Test Year and 2027 Test Year (GWh)**

	2019 Test Year	2027 Test Year
Forecast Production	4,600	4,600

2.1.2.2 Thermal Generation

Holyrood Generation

The Holyrood TGS is an oil-fired facility located on the Avalon Peninsula with a total firm capacity of 490 MW, consisting of two 170 MW units and one 150 MW unit. While it was originally designed and operated as a baseload plant, its current role is primarily to provide system reliability and backup generation until new resources are commissioned.¹⁹

The units at the Holyrood TGS are not designed to be cycled frequently, and as a result, they are typically started at the beginning of the winter and remain on until the end of the winter unless they are required to shut down for maintenance or an unplanned outage. For the 2027 Test Year, it is assumed that two units will be operational during the winter period, operating at minimum output, with a third unit remaining available but not operating. Holyrood TGS production for 2019 and 2027 Test Years is summarized in Table 3.

¹⁸ “2023 Hydrology Review,” Hatch Ltd., May 30, 2025. Provided as Exhibit 5.

¹⁹ As per “Reliability and Resource Adequacy Study Review – 2022 Update,” Newfoundland and Labrador Hydro, October 3, 2022, the Holyrood TGS shall remain available for a “Bridging Period” until 2030, or until such time that sufficient alternative generation is commissioned, adequate performance of the Labrador-Island Link is proven, and generation reserves are met.

**Table 3: Holyrood TGS Production
2019 Test Year and 2027 Test Year (GWh)**

	2019 Test Year	2027 Test Year
Thermal Generation Required	1,070	455

Since the commissioning of the LIL, the Holyrood TGS is not required to provide energy to the system during average hydrological conditions. Therefore, as noted above, the units are typically run at their minimum generation of 70 MW per unit unless they are required to generate above this level to serve customer load. As a result, forecast generation from the Holyrood TGS has decreased by 615 GWh when comparing the 2027 Test Year to the 2019 Test Year.

The thermal efficiency of the Holyrood TGS is a function of its hourly generation, with efficiency increasing as the level of generation increases and vice versa. The Holyrood TGS is most efficient at maximum output. Because generation has decreased significantly between the 2019 and 2027 Test Year periods as the LIL delivers more energy to the Island, the units are expected to be generating at a minimum, resulting in a reduction in overall efficiency of the Holyrood TGS, but also a reduction in the overall fuel consumption.

The fuel conversion factors for the 2019 and 2027 Test Years are summarized in Table 4.

**Table 4: Holyrood TGS No. 6 Fuel Conversion Factors
2019 Test Year and 2027 Test Year (kWh/bbl)**

	2019 Test Year	2027 Test Year
Conversion Factor	583	563

The forecasted conversion factor for the 2027 Test Year is based on experience in recent years, where Holyrood TGS production has been lower as a result of increased deliveries to the Island via the LIL, allowing Hydro to keep thermal generation at minimum output. To calculate the forecasted conversion factor, Hydro used the average Holyrood TGS efficiency between January 2021 and October 2025.²⁰

²⁰ This time horizon was chosen to represent an extended period of operations when Holyrood operations have been impacted by imports to the Island via the LIL and Maritime Link.

Combustion Turbine and Interconnected Diesel Generation

Hydro utilizes CTs and diesel generating units as critical resources for peaking, emergency backup, area supply requirements, and synchronous condensing support. Typically, CT and diesel generation are only dispatched in situations where load or reserve requirements cannot be met by LIL imports, hydroelectric generation, or the Holyrood TGS. This typically occurs in hours with high load or when other units are out of service. As a result, CT generation varies greatly from year to year depending on system conditions.

Table 5 provides Hydro's CT and diesel production for the 2019 and 2027 Test Years.

**Table 5: CT and Diesel Production
2019 Test Year and 2027 Test Year (GWh)**

	2019 Test Year	2027 Test Year
Forecast Production	23	44

The 2027 Test Year shows a 21 GWh increase in CT and diesel generation compared to the 2019 Test Year. This is due to an extended outage of Bay d'Espoir Units 5 and 6 due to the planned replacement of Penstock 3.²¹ This results in a higher-than-average rate of planned outages, which results in a higher level of thermal generation required to support those outages. While the model shows that there will be higher than average thermal generation to support planned outages, in reality, Hydro will plan its outages to minimize thermal generation where possible.

2.1.2.3 Power Purchases

In addition to its own generation, Hydro also purchases power from various suppliers to serve its customers on the Island Interconnected System. Table 6 provides a summary of Hydro's power purchases for the 2019 and 2027 Test Years. Further discussion on each category of power purchases is provided below and summarized in Schedule A-VI.

²¹ On March 13, 2026, Hydro filed an application for approval of capital expenditures for section replacement and weld refurbishment for Bay d'Espoir Hydroelectric Generating Facility Penstock 3. The regulatory proceeding is ongoing.

Table 6: Power Purchases for the 2019 Test Year and 2027 Test Year (GWh)²²

	2019 Test Year	2027 Test Year
Exploits	615	615
Star Lake	142	141
Rattle Brook	15	14
CBPP Co-Generation	67	67
CBPP Secondary	-	-
CBPP PPA	-	-
Wind	189	196
New World Dairy	-	3
LIL Imports ²³	341	1,283
Maritime Link Imports	141	-
Total Power Purchases	1,509	2,317

- 1 For the 2027 Test Year, the total from all power purchases is forecast to provide approximately 30%²⁴ of
2 Hydro's annual net energy supply for the Island Interconnected System.

3 **Exploits and Star Lake**

- 4 The Exploits hydroelectric facilities (Grand Falls, Bishop's Falls, and Star Lake) are owned by
5 Government, and Hydro has an operating agreement to operate and maintain these facilities on behalf
6 of Government, along with the purchase of all of the energy generated from these facilities.

- 7 The combined facility at Grand Falls and Bishop's Falls has an installed capacity of 95.6 MW, though
8 Hydro plans for a firm capacity of 63 MW due to limited storage capacity at the plants, as they are run-
9 of-river facilities, and the requirement to limit winter generation to reduce the risk of frazil ice. Star Lake
10 has a firm capacity of 18 MW and is assumed to be able to supply its full capacity at peak.

- 11 The total forecast generation included for the 2027 Test Year is approximately 615 GWh for Exploits
12 generation and 141 GWh for Star Lake, consistent with the 2019 Test Year, as the capacity operation of
13 the plant has not materially changed since that time. Similar to Hydro's other hydroelectric generation,

²² Numbers may not add due to rounding.

²³ LIL imports from the 2019 Test Year consist of Recapture Energy only. In the 2027 Test Year, there is no Recapture Energy deliveries over the LIL, rather all energy delivered over the LIL is supplied via the Muskrat Falls PPA.

²⁴ Total Purchases (2,317) / Total Supplied (7,417) = 31.2%. Please refer to Schedule A-IV.

annual generation at Exploits and Star Lake may vary due to inflows, reservoir levels, spill and changes in unit efficiency.

Rattle Brook

Rattle Brook²⁵ is a small hydroelectric generating station with a rated capacity of 4 MW. It has an average annual energy capability of 14 GWh and a firm energy capability of 13 GWh. Although it has an installed capacity of 4 MW, it is not assumed to provide any firm capacity for long-term planning purposes. Because it is a run-of-river plant and has limited storage capacity, it is categorized as a small storage unit and is modelled in system simulations as a daily energy constraint that varies by month.

The commercial arrangement is a seasonally adjusted contract, featuring a higher winter rate from November to March and a lower rate for the remainder of the year.

The PPA was renewed in 2023 until April 30, 2026, and further extended until November 2026. However, for the purposes of this analysis, it is assumed that the contract is extended for the 2027 Test Year, which includes approximately 14 GWh of purchased energy, relatively consistent with the 2019 Test Year.

CBPP Co-Generation

In 2023, Hydro and CBPP entered into a Co-Generation PPA governing the purchase of firm and non-firm power from CBPP's 15 MW Co-Generation facilities or its hydroelectric units. While the agreement was structured with a ten-year term commencing November 1, 2023, it includes provisions that allow either party, after January 1, 2026, to provide notice to amend or terminate the agreement on an annual basis. Based on the assumption that the agreement will remain in effect for the 2027 Test Year, forecast production of approximately 67 GWh is included, consistent with the balance included in the 2019 Test Year.

CBPP Secondary

Deer Lake Power's plant on Grand Lake is included in Hydro's production model and is modeled to a level of detail similar to that of Hydro's own system. Following the approval of a revised Power Service Agreement in 2021, which eliminated prior generation credit and secondary operating arrangements,

²⁵ Rattle Brook is owned and operated by Algonquin Power & Utilities Corp.

1 and the subsequent approval of stand-alone capacity assistance and Co-Generation agreements, Hydro
2 no longer relies on secondary power service arrangements associated with CBPP. Accordingly, Hydro is
3 not forecasting any secondary energy deliveries in the 2027 Test Year.

4 **CBPP Power Purchase Agreement**

5 In December 2025, Hydro entered into a fourth PPA with CBPP, as directed by Government. The CBPP
6 PPA provides Hydro with 140 GWh of firm energy from January 1, 2026, to June 30, 2026, inclusive.²⁶
7 The Co-Generation PPA is suspended during the term of the agreement. The costs incurred under the
8 previous three PPAs were not recovered from Hydro's customers. This fourth PPA is structured by Hydro
9 in a manner that ensures there are no additional impacts on customers than those included in the 2019
10 Test Year budget for Co-Generation power purchases. A CBPP PPA is not assumed to be in place for the
11 2027 Test Year.

12 **Wind**

13 On the Island Interconnected System, long-standing PPAs exist with Elemental Energy for the
14 St. Lawrence and Fermeuse wind energy. At each site, there are nine 3 MW wind turbines, for a total
15 installed capacity of 54 MW. Estimates of generation from each wind farm are included in Hydro's
16 production model as purchase contracts. For the 2027 Test Year, these PPAs are forecast to provide a
17 total of approximately 196 GWh to the system annually, which is relatively consistent with the 2019 Test
18 Year.

19 **New World Dairy Inc.**

20 New World Dairy is a 450 kW biogas generator located in St. Davids on the west coast of Newfoundland.
21 Hydro initially signed a PPA with New World Dairy in 2017, and they began producing power in 2018. As
22 a result, it was excluded from the 2019 Test Year at the time of the submission of the 2017 GRA. It is
23 forecast to provide approximately 3 GWh of energy to the system annually under a PPA. The PPA was
24 renewed in 2025 until April 14, 2027. For the purposes of this analysis, it is assumed that the contract is
25 extended through the end of the 2027 Test Year.

²⁶ This PPA is not reflected in Schedule VI for 2026; however, during the period that it is in effect, it may offset hydro production on the Island and/or reduce LIL deliveries to the Island.

LIL and Maritime Link Imports

The installed capacity at Muskrat Falls is 824 MW, generating 4,900 GWh per year, with the energy distributed between Island demand and exports to external markets via the Maritime Link.²⁷ The LIL delivers power from the Muskrat Falls Hydroelectric Generating Facility in Labrador to Soldiers Pond on the Avalon Peninsula.

The LIL and Maritime Link imports to the Island for the 2019 and 2027 Test Years are shown in Table 7.

**Table 7: LIL and Maritime Link Imports to the Island
2019 Test Year and 2027 Test Year (GWh)²⁸**

	2019 Test Year	2027 Test Year
LIL Imports ²⁹	341	1,283
Maritime Link Imports	141	-
Total Imports	482	1,283

LIL Imports to the Island Interconnected System in the 2027 Test Year have increased by approximately 801 GWh when compared to the 2019 Test Year as a result of the full commissioning of all four units at the Muskrat Falls Hydroelectric Generating Facility in 2021. In addition, in 2019, the LIL was in the commissioning stage and was not able to operate at high capacity. In 2023, the LIL was fully commissioned and, in 2026, was cleared to operate at its full 900 MW capacity, enabling increased deliveries to the Island over this time period and into the future.

There are no Maritime Link imports forecasted to occur in the 2027 Test Year.³⁰

²⁷ Muskrat Falls export commitments to Nova Scotia consist of the Nova Scotia Block, Supplemental Energy (Five-year commitment ending March 2026), and the Energy Access Agreement.

²⁸ Gross LIL imports to the Island, less LIL losses and Maritime Link exports. Deliveries are measured at Soldiers Pond.

²⁹ LIL imports from the 2019 Test Year were from Recapture Energy deliveries over the LIL only. In the 2027 Test Year, there are no Recapture Energy deliveries forecasted to occur over the LIL, rather all energy is supplied via the Muskrat Falls PPA.

³⁰ Since the 2019 Test Year was compiled, it was determined that planning for imports over the Maritime Link is not a feasible option. Transmission paths to gain access to potential markets are largely committed, and neighbouring jurisdictions do not have surplus capacity to export. Therefore, Hydro does not include any long-term plan for Maritime Link imports for production planning purposes, and they are not included in the 2027 Test Year. This confirmation does not preclude opportunities on a short-term (spot market) basis for firm capacity or non-firm energy to meet capacity or energy requirements for the Island Interconnected System.

Newfoundland Power Generation Credit

For the 2019 Test Year, Newfoundland Power’s generation credit was calculated based on the Island Interconnected System’s reserve at criteria. The calculation takes the total capacity of Newfoundland Power generation and subtracts a reserve at criteria to arrive at a generation credit. Reserve at criteria is not the same as system reserve; to calculate the reserve at criteria, 240 MW³¹ of reserve margin was subtracted from the total Island Interconnected System capacity at peak, inclusive of capacity assistance contracts, to determine the maximum Island Interconnected System demand that can be supported on peak. The maximum demand that can be supported on peak was then used to calculate the percent reserve at criteria. The current hydraulic generation credit approved in Hydro’s 2017 GRA is 83.5 MW, and the thermal generation credit is 34.6 MW, for a total of 118.1 MW.

Hydro’s Cost of Service Methodology Application,³² included an analysis of historical hydraulic generation data to determine the amount of hydraulic generation that Newfoundland Power was able to provide during times of high or peak load on the Island Interconnected System following a request from Hydro to maximize hydraulic generation. Based on the analysis, Hydro’s position is that historical generation during the Island system peak is an accurate reflection of the available generation from Newfoundland Power. Accordingly, Hydro proposed a hydraulic credit of 64 MW for Newfoundland Power, which is the five-year historical average of Newfoundland Power’s hydraulic generation at the time of system peak for the period 2020–2024.³³ In its application, Hydro recommended that the process for determining the thermal generation credit remain unchanged, determined by Newfoundland Power’s thermal generation capability forecast for the test year, reduced by the reserve at the criteria.³⁴

Table 8 shows the calculation of Newfoundland Power’s generation credit for the 2027 Test Year, based on Hydro’s proposals in its Cost of Service Methodology Application.

³¹ To ensure reliable system operation in covering the single worst contingency, Hydro targets a spinning reserve equal to the capacity of the largest online unit. For the 2019 Test Year, this was equal to 170 MW when Unit 1 or Unit 2 at Holyrood was online, and was otherwise 154 MW, which is the capacity of Bay d’Espoir Unit 7. Hydro maintained an additional 70 MW of available reserve above these spinning reserve requirements. This reserve, over and above what is required for the single worst contingency, covers performance uncertainties in generating units, especially wind and other variable generation, transmission equipment and unanticipated increases in demand. This assists in expediting load recovery for a large generation loss and is required for prudent management of system risks for customers.

³² “Cost of Service Methodology Application,” Newfoundland and Labrador Hydro, August 22, 2025.

³³ Compared to the existing 83.5 MW credit.

³⁴ For more information on the methodology, please refer to the “Cost of Service Methodology Application,” Newfoundland and Labrador Hydro, August 22, 2025, sch. 1, att. 4.

Table 8: Proposed Newfoundland Power Generation Credit (kW)

	2027 Test Year
Thermal Capacity	44,500
Reserve at Criteria	1.13235
Thermal Generation Credit	39,299
Hydraulic Generation Credit ³⁵	64,000
Total Newfoundland Power Generation Credit	103,299

2.1.2.4 Capacity Assistance

To help manage system peaks, Hydro can call on capacity assistance agreements with several customers.

Vale Capacity Assistance Agreement

The Vale Newfoundland and Labrador Limited Capacity Assistance Agreement allows for 7.5 MW of capacity assistance during the winter season. For the 2027 Test Year, it is assumed that the agreement for 7.5 MW of capacity assistance with Vale Newfoundland and Labrador Limited is renewed for the winter operating season; however, there is no energy associated with this agreement.

CBPP Capacity Assistance Agreement

In Board Order No. P.U. 32(2023), the Board approved a Capacity Assistance Agreement between CBPP and Hydro, through which CBPP agreed to provide Hydro with up to 90 MW of capacity assistance in the winter period and 50 MW outside of the winter period for a 15-year term. It is assumed that the CBPP Capacity Assistance Agreement is in place during the 2027 Test Year; however, there is no energy associated with this agreement.

Newfoundland Power Curtailable Credit

Hydro can also make calls for curtailment from Newfoundland Power, who in turn sheds curtailable load with participating customers. Hydro provides a curtailable credit to Newfoundland Power, which was approved in Board Order No. P.U. 47(2014). Hydro did not make any calls for curtailment from Newfoundland Power in 2025; however, the winter 2025–2026 curtailment test confirmed that

³⁵ Hydraulic credit based on historical five-year average, as outlined in Hydro's Cost of Service Methodology application.

12.1 MW were available.³⁶ The amount of Newfoundland Power's curtailable load available is forecast to be 12 MW for the 2027 Test Year.

2.2 Labrador Interconnected System Load Forecast and Sources of Supply

2.2.1 Load Forecast

The 2027 Test Year load forecast, along with the actual power and energy requirements from Hydro for the Labrador Interconnected System for 2019 through 2024, and the operating load forecasts for 2025, 2026 and for the 2027 Test Year are provided in Schedule A-II.

Table 9 summarizes the overall forecast percentage changes for the Labrador Interconnected System for the 2027 Test Year in comparison to the 2019 Test Year.

**Table 9: Summary Percent Change in Hydro's Electricity Requirements
Labrador Interconnected System 2019 Test Year to 2027 Test Year**

	2019 Test Year (GWh)	2027 Test Year (GWh)	Change (%)
Hydro Rural Interconnected	753	736	(2.3)
Industrial Customers	2,026	1,902	(6.1)
Transmission Losses	192	172	(10.4)
Total Labrador Interconnected System	2,971	2,810	(5.4)

For the 2027 Test Year, Hydro is forecasting a decrease in electricity requirements for the Labrador Interconnected System of 161 GWh relative to the 2019 Test Year. This reflects lower Industrial customer loads as well as a lower Hydro Rural Interconnected load. The 2019 Test Year also included 61 GWh of data center growth related to cryptocurrency mining, which is no longer reflected in Hydro's firm requirements in line with Government direction that Hydro is not obligated to supply firm power to cryptocurrency customers.³⁷

Lower load requirements forecasted for the 2027 Test Year have resulted in a decrease in the forecasted losses compared to the 2019 Test Year. In addition, the reconfiguration of the transmission assets in

³⁶ In accordance with Hydro's Utility rate, the curtailable credit is required to be verified annually. The verification test involves curtailing Option Participants' load during the winter months to confirm the curtailable amount.

³⁷ Government of Newfoundland and Labrador, *Order in Council OC2022-266*, November 10, 2022.

Labrador with the commissioning of the Labrador Transmission Assets has changed the flow of energy, also contributing to a decrease in forecasted losses when comparing test year over test year.

2.2.2 Sources of Supply

The Labrador Interconnected System is served by large hydroelectric facilities on the Churchill River, and transmission to the two major load centres in Labrador East and Labrador West.

2.2.2.1 Churchill Falls

The majority of power and energy for the Labrador Interconnected System is purchased from CF(L)Co. The energy supplied from CF(L)Co is supplied from two distinct blocks: the Recapture Block and the TwinCo Block. The Recapture Block is a firm block of energy that provides Hydro with up to 300 MW and 2,362 GWh per year. Hydro currently uses a portion of the Recapture Block to supply its customers in Labrador. The TwinCo Block is a firm 225 MW block of energy, capable of supplying 1,971 GWh per year. It is currently resold by Hydro in Labrador West and is included in the Development Block in the Labrador Industrial Rates. The TwinCo Block has been available to Hydro since the end of 2014, when pre-existing contracts between CF(L)Co and TwinCo expired.³⁸ Hydro's 2027 Test Year continues to reflect the Recapture Block and TwinCo Block to service customers in Labrador, consistent with its 2019 Test Year.

2.2.2.2 Muskrat Falls

While the blocks of energy from Churchill Falls are sufficient to serve Labrador customer requirements, Muskrat Falls is used to serve Labrador customers from time to time to enable additional recapture exports via the Labrador/Québec interface.³⁹

³⁸ On May 12, 1969, Hydro-Québec and CF(L)Co entered into a power contract for the purchase of power from the CF(L)Co plant by Hydro-Québec (the 1969 Power Contract). Pursuant to Section 6.6 of the 1969 Power Contract, CF(L)Co has exercised its right to recapture 300 MW of power (Recapture Energy) generated at the Churchill Falls power plant. Under the terms of a PPA between Hydro and CF(L)Co (the NLH-CF(L)Co PPA) dated March 9, 1998, and amended on April 1, 1999, Hydro can, and does, purchase up to 300 MW of Recapture Energy from CF(L)Co for use outside of the province of Québec. Under the terms of the Hydro-Québec-Hydro Shareholders Agreement governing the operation of the Churchill Falls plant, CF(L)Co must make a firm 225 MW block of power and energy (the TwinCo Block) available to Hydro for distribution and use in Labrador West.

³⁹ As reported in Hydro's Supply Cost Variance Deferral Account reports, Muskrat Falls and Hydro entered into a PPA for the purchase and sale of Residual Block Energy in February 2022. Under this agreement, Labrador Interconnected, Rural and Industrial customer load, previously serviced with Recapture Energy from Churchill Falls, may now be serviced with energy from the Muskrat Falls Hydroelectric Generating Facility for the purpose of creating incremental Recapture Energy for export.

2.2.2.3 Combustion Turbine

Hydro maintains the 25 MW Happy Valley-Goose Bay GT. Production from this plant is 0.4 GWh in the 2027 Test Year, which is consistent with the 2019 Test Year.

2.3 Isolated Systems Load Forecast and Sources of Supply

2.3.1 Load Forecast

Hydro's Isolated systems include the Labrador Isolated system, Island Isolated system, and the L'Anse-au-Loup system.

The 2027 Test Year load forecast, along with the actual power and energy requirements for the Isolated systems for 2019–2024, and the operating load forecasts for 2025, 2026 and for the 2027 Test Year are provided in Schedule A-III.

Table 10 summarizes the overall forecast percentage changes for the Isolated system for the 2027 Test Year in comparison to the 2019 Test Year.

**Table 10: Summary Percent Change in Hydro's Electricity Requirements
Isolated Systems 2019 Test Year to 2027 Test Year**

	2019 Test Year (MWh)	2027 Test Year (MWh)	Change (%)
L'Anse-au-Loup	26,988	27,047	0.2
Labrador Isolated Systems	46,342	46,089	(0.5)
Island Isolated Systems	7,516	6,019	(19.9)
Total Isolated Systems	80,846	79,155	(2.1)

Electricity requirements across Hydro's Isolated systems are lower in the 2027 Test Year compared to the 2019 Test Year by 1.7 GWh. This change is largely driven by the Island Isolated system, where electricity requirements have decreased by 1.5 GWh or nearly 20% between test years. CDM initiatives,⁴⁰ general population decline⁴¹ and community relocations, such as those in Little Bay Islands,

⁴⁰ In 2025, CDM initiatives through the Isolated Communities Energy Efficiency Program resulted in more than 1,000 MWh of energy savings. For more information, please refer to "Electrification, Conservation and Demand Management Report – For the Year Ended December 31, 2025," Newfoundland and Labrador Hydro, April 10, 2026.

⁴¹ Data sourced to Statistics Canada for population comparisons between 2016 and 2021 show population decline on all Island Isolated systems. Approximately half of all Labrador Isolated systems also show decline over the same time frame.

have contributed to the reduction in the Island Isolated system load since the 2019 Test Year.

The Labrador Isolated systems forecast for the 2027 Test Year is similar to the 2019 Test Year. While population decline has impacted some communities, such as the relocation of William's Harbour, there is forecasted electrification and expansion expected in Nunatsiavut communities.

The L'Anse-au-Loup system requirements have been virtually unchanged since the 2019 Test Year. The system is primarily characterized by electric heat, and the load has been stable for the last number of years.

2.3.2 Sources of Supply

2.3.2.1 Diesel Generation

On Hydro's Isolated systems, diesel generating and distribution systems serve approximately 4,500 customers in over 40 communities throughout coastal Newfoundland and Labrador. The total installed capacity of Hydro's isolated diesel plants is approximately 43 MW.

Actual diesel fuel expenses for 2019 through 2024 and forecast fuel requirements for 2025, 2026, and 2027 Test Year are summarized in Schedule A-VII.

2.3.2.2 Renewables

Hydro continues to avail itself of opportunities to supplement or displace diesel generation through the following initiatives:⁴²

- **Power Purchase Agreement with Hydro-Québec**

On the L'Anse-au-Loup system, Hydro displaces diesel-generated energy by purchasing secondary energy from a regional Hydro-Québec hydroelectric plant.⁴³ The agreement enables Hydro to supply the majority of customer load in L'Anse-au-Loup with deliveries from Hydro-Québec at approximately 50% of the cost of diesel generation. In 2025, this resulted in

⁴² A listing of initiatives impacting the Rural Deficit is provided in Hydro's annual Rural Deficit report. The 2025 Rural Deficit Report was provided with Hydro's 2025 Annual Return filed with the Board on April 30, 2026.

⁴³ In 2021, Hydro executed a PPA with Hydro-Québec for the L'Anse-au-Loup system. This agreement enables Hydro to continue to purchase surplus hydroelectric energy from Hydro-Québec's Lac-Robertson Generating Station to supply Hydro's customers in the L'Anse-au-Loup area.

1 approximate savings of \$4.1 million in 2025. Hydro's forecast for the 2027 Test Year includes
2 more than 25,000 MWh of power purchases for the L'Anse-au-Loop system.

3 • **Mary's Harbour Mini Hydro Facility**

4 The Mary's Harbour Mini Hydro Facility began operations in September 2019. The project,
5 owned and operated by St. Mary's River Energy LP in collaboration with Hydro, combines hydro,
6 solar, and lithium-ion battery storage to reduce the community's diesel fuel use. The
7 photovoltaic and battery energy storage facility began operations in November 2021. Together,
8 they generated approximately 957 MWh in 2025, displacing diesel fuel generation. Hydro's
9 forecast for the 2027 Test Year reflects approximately 800 MWh of power purchases from the
10 Mary's Harbour Mini Hydro Facility.

11 • **Ramea Wind Generation**

12 Since 2004, Hydro has been purchasing wind energy from an Independent Power Producer,
13 Frontier Energy, in Ramea. The Frontier Energy site had a capacity of 390 kW with six 65 kW
14 turbines. In 2007, Hydro constructed a wind-hydrogen system in Ramea as a research and
15 development project. The Hydrogen portions of the wind-hydrogen project were approved for
16 decommissioning and removal by the Board in 2023. The wind assets portion of the wind-
17 hydrogen project, which has not operated since 2019, was approved for sale to Frontier Energy
18 or its successor company in 2024.

19 In 2025, the Board approved Hydro's application to interconnect and integrate the Puffin Wind
20 Inc. Renewable Energy project. While this project is currently underway, Hydro still purchases
21 energy from Frontier Energy. In the 2027 Test Year, Hydro has forecast approximately 600 MWh
22 in power purchases from Puffin Wind Inc.

23 • **Solar Photovoltaic**

24 Hydro has nine solar photovoltaic installations located in Hopedale, Rigolet, Nain, Postville,
25 St. Lewis,⁴⁴ Port Hope Simpson, Cartwright, and Black Tickle. The Cartwright project was put into
26 service in 2025. These PPAs enable Hydro to supply electricity to customers in isolated
27 communities at a lower cost than diesel generation while also reducing environmental impacts,

⁴⁴ St. Lewis includes two solar photovoltaic installations.

1 in accordance with Hydro's mandate. The projects resulted in the displacement of
2 approximately 149 MWh of diesel generation in 2025. Hydro continues to work with renewable
3 energy developers to enable further renewable energy integration and anticipates additional
4 projects to be developed in the coming year.

5 Given limited operating experience with these assets, Hydro does not yet have a basis to assume
6 firm or average energy output. Accordingly, there is no solar photovoltaic energy forecast for
7 the 2027 Test Year.

8 The combined impact of all cost-effective renewables and the Hydro-Québec power purchase contract
9 to serve the L'Anse-au-Loup system is a gross isolated generation mix that is one-third renewable in the
10 2027 Test Year.⁴⁵

⁴⁵ 2027 Test Year Renewable Sources Forecast (25,000 + 800 + 600) / 2027 Test Year Total Isolated System Load (79,155) = 33%.

Exhibit 5

2023 Hydrology Review



Final Report

2023 Hydrology Review

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PROVINCE OF NEWFOUNDLAND PEG Newfoundland and Labrador PROFESSIONAL ENGINEERS AND GEOSCIENTISTS	PERMIT HOLDER CLASS "A" This Permit Allows HATCH LTD. MIRC # 04025
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			<i>D. Sankar</i>	<i>Michael Rosales</i>	<i>Michael Rosales</i>
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- Appendix C: Lower Churchill Adjusted Inflow Series

Executive Summary

Hatch Ltd. (Hatch) was engaged by Newfoundland and Labrador Hydro (Hydro) to conduct a hydrology review of Hydro's hydraulic generation systems. The purpose of the study was to validate Hydro's historic hydrology data and average annual energy production to support future rate applications to the Newfoundland and Labrador Board of Commissioners of Public Utilities.

Hydro uses historic inflow series to estimate the generation capability of its hydroelectric systems. Each series consists of a sequence of daily flows associated with a sub-basin within the drainage area of each system. Their purpose is to represent the long-term historic average and variability of the inflows in each system. The inflow series are stored in a database within Hatch's proprietary Vista Decision Support System (DSS) model suite. Vista DSS is used by Hydro for real-time generation scheduling and longer-term system planning.

The objective of the work was to review the historic inflow series; repair inconsistencies as needed and estimate the average annual energy using Vista DSS. The scope of work included analyzing the inflow series for the Cat Arm, Hinds Lake, Paradise River and Bay d'Espoir reservoirs for the period 1950-2022, and inflow series for the Muskrat Falls Reservoir for the period 1957-2022, for inconsistencies or emerging trends. In addition, the inflow series were compared to long-term streamflow data from Water Survey of Canada (WSC) hydrometric stations (16 on the Island of Newfoundland and four in Labrador). Quantitative and qualitative analysis techniques were employed, including time series plots, monotonic trend tests, step change tests, plots of cumulative departure from the mean, and mass curve plots.

Where inconsistencies in the inflow series were identified, adjustments were made, and the adjusted inflow series were validated. The adjusted inflows then formed the basis for simulations in Vista DSS to estimate the average annual energy production from Hydro's hydroelectric assets on the Island of Newfoundland and at Muskrat Falls in Labrador.

In addition, the study assessed apparent trends in Hydro's annual combined reservoir energy inflows and provided commentary on the use of the critical dry sequence for system planning purposes and the methodology for establishing minimum storage limits for the island reservoirs post-construction of Muskrat Falls.

The study concluded that there is no convincing evidence for statistically significant monotonic trends in the timeframe of the 1950s to the present. The appearance of increasing trend in Hydro's combined reservoir energy inflows is sensitive to which time period is considered and may be due to natural hydrological variability. Since around 2010 there appears to be increasing annual runoff at some WSC stations in Labrador and the western part of the Island and decreasing annual runoff at some WSC stations in the eastern part of the Island; however, it remains to be seen if this is a short-term phenomenon or part of a longer-term trend.

The study identified recommendations from a previous hydrology review by SGE Acres (2004) that were not yet fully implemented, including proposed adjustments to inflow series in the Bay d'Espoir system. Hatch reviewed the 2004 report and concluded that the proposed adjustments were still valid and incorporated them into the current study. SGE Acres (2004) also concluded that discharge through the Ebbegunbaeg Control Structure was overestimated, potentially impacting the calculation of Bay d'Espoir inflows. The current study adjusted the Bay d'Espoir inflow series to distribute the runoff among the sub-basins in a consistent manner while preserving the overall runoff volume. As an interim measure, Hydro should replace its Bay d'Espoir inflow series with the adjusted series developed in this study. Hydro should address the recommendation by SGE Acres (2004) to make additional measurements as required to verify or redevelop the curves for the Ebbegunbaeg Control Structure and then recalculate the Bay d'Espoir inflows series if applicable.

No adjustments were proposed for the Hinds Lake, Cat Arm, and Paradise River inflow series. However, SGE Acres (2003) suggested that at Paradise River, the spill, head loss, and efficiency curves used to backroute the inflows may not have been examined as thoroughly as in other systems. Hydro should verify the information used to backroute inflows at Paradise River for systematic error.

The current study identified a sharp increase in the Lower Churchill inflow series starting in the 2010s. Hatch concluded that the Lower Churchill inflows during this period have been overestimated due to overestimation of spill during the diversion and operational phases of the Muskrat Falls development. In addition, the inflow series for the Unknown River sub-basin was found to be inconsistent with recent hydrometric data. The study adjusted the Lower Churchill inflow series to redistribute runoff among the sub-basins in a consistent manner and replace runoff values in the Muskrat Falls post-diversion period that were determined to be overestimated. Hydro should replace its Lower Churchill inflow series with the adjusted series developed in this study.

The average annual energy estimated from the adjusted inflows was 4,612.87 GWh from the Island and 5,047.01 GWh from Labrador (Muskrat Falls). There was little to no difference when compared to the energy estimated from the unadjusted flows. Review of regional hydrology confirmed that the 1959-1961 dry sequence falls within the driest years on record. Model simulation of the interconnected system with long-term hydrology including all historical dry periods (per Hydro's current practice) and other system constraints remains the recommended approach for operational and long-term planning of hydraulic generation. Hatch reviewed Hydro's minimum aggregate storage procedure and concluded that the approach is sound and that no changes are recommended.

1. Introduction

Newfoundland and Labrador Hydro (Hydro) is seeking to validate its historic hydrology data and average annual energy production to support future rate applications to the Newfoundland and Labrador Board of Commissioners of Public Utilities. For this purpose, Hydro engaged Hatch Ltd. (Hatch) to undertake a hydrology review of Hydro's hydraulic generation systems.

Hydro's historic inflow records form the basis of estimates of long-term energy generation capability, which are used to support system planning. The inflow records were synthesized by different methods including derivation from hydroelectric operations data (such as plant generation, observed water levels and gate openings) and transposition from regional streamflow measurements. The selection of method depended on the location, time period and availability of suitable data. Each method is subject to different sources of uncertainty. In addition, internal inconsistencies may result, when there was a need to use different methods to develop a composite record for the required time span. There is also a need to ensure that the records are representative of the natural historical hydrology of the region, including trends and wet/dry periods.

1.1 Objective

The objective of the work was to review the inflow records of the hydraulic generation systems owned by Hydro, repair inconsistencies as needed and estimate the average annual energy using the updated inflows in the Vista Decision Support System (DSS) implemented for Hydro by Hatch.

1.2 Scope of Work

The scope of work was as follows.

- Analyze Hydro's historic inflows for the Cat Arm, Hinds Lake, Paradise River and Bay d'Espoir reservoirs for the period 1950-2022, and historic inflows for the Muskrat Falls Reservoir for the period 1957-2022 for inconsistencies or emerging trends;
- Validate Hydro's historic inflow records against long-term streamflow data from Water Survey of Canada (WSC) hydrometric stations in Newfoundland and Labrador;
- Repair inconsistencies in Hydro's hydrological records including:
 - ◆ A synopsis of the methodology used in repairing the records;
 - ◆ A description of the steps required to identify, repair, and test the required changes to the record;
 - ◆ Adjust daily inflow datasets for use in Hydro's Vista DSS model based on the repairs performed on the hydrological records.

- Provide an assessment of any apparent trends in Hydro's annual combined reservoir energy inflows from 1950-2022;
- Provide an assessment of Hydro's ongoing use of the critical dry sequence from 1959-1962 for system planning purposes;
- Provide an assessment of Hydro's methodology for establishing minimum storage limits for the island reservoirs post-Muskrat Falls construction;
- Model Hydro's average annual energy production from its island hydroelectric assets and average annual energy production for Muskrat Falls using the adjusted inflow datasets in Vista DSS.

2. Background

2.1 Hydro Historic Inflow Series

Hydro uses historic inflow series to estimate the generation capability in its hydroelectric systems. Each series consists of a sequence of daily flows (in m^3/s) associated with a sub-basin in the drainage area of each system. While they are referred to as historic inflows, the values are synthesized or calculated values, not direct observations, and do not necessarily portray exact inflows that occurred on a given date in the past. They are reference inflow sequences whose purpose is to represent the long-term historic average and variability of the inflows in each system.

The inflow series are stored in a database within Hatch's proprietary Vista DSS model suite. Vista DSS is used by Hydro for real-time generation scheduling and longer-term system planning. The inflow values are stored on a daily time step, although the Island inflow series are monthly averaged values until the 1980s. For the data analysis in the current study and for consistency with previous studies, the inflows have been aggregated into annual values.

The inflow series extend farther back in time than the existence of the hydroelectric systems. The methods used to synthesize inflows for the periods before and after development of each system are different. In general, the pre-development inflows were synthesized from streamflow measurements at the project sites or in nearby watersheds, and post-development inflows were calculated by backrouting. The backrouting procedure makes use of recorded turbine flows, spill flows and reservoir levels, and the estimated relationship between reservoir elevation and volume, to solve for the estimated inflows. The records are extended by adding more backrouted values with the passage of time.

In Vista DSS, there are ten historic inflow series for sub-basins that contribute to generation at Hydro's hydroelectric systems on the Island of Newfoundland. These are listed below, grouped by system.

- Bay d'Espoir System:
 - ♦ Victoria Inflow;
 - ♦ Burnt Inflow;
 - ♦ Granite Lake Inflow;
 - ♦ Meelpaeg Lake Inflow;
 - ♦ Great Burnt Lake Inflow;
 - ♦ Cold Spring Pond Inflow; and
 - ♦ Long Pond Inflow.

- Hinds Lake System:
 - ♦ Hinds Lake Inflow.
- Cat Arm System:
 - ♦ Cat Arm Inflow.
- Paradise River System:
 - ♦ Paradise River Inflow.

The Bay d'Espoir (BDE) system includes the Bay d'Espoir, Upper Salmon and Granite Canal Generating Stations, and represents the majority of the hydraulic generation capability owned by Hydro on the Island.

Hydro formerly operated small hydroelectric systems at Snooks Arm, Venams Bight and Roddickton; these systems are no longer in operation.

The Exploits River hydroelectric system is included in Hydro's Vista DSS model but is not within the scope of the current review. Water management of the Exploits system is done by the Exploits Operations group and the system provides a firm output to Hydro.

With respect to Labrador, there are seven historic inflow series representing sub-basins of the Lower Churchill (LC) watershed that contribute to generation at the Muskrat Falls Generating Station on the Churchill River, as follows:

- Unknown River Inflow;
- Metchin Inflow;
- Fig Inflow;
- Cache Inflow;
- Minipi Inflow;
- Pinus Inflow; and
- Muskrat Falls Local Inflow.

The total Churchill River flow at Muskrat Falls includes outflow from the Churchill Falls Hydroelectric System (also known as the Upper Churchill), which is owned and operated by Churchill Falls (Labrador) Corporation Limited. The Upper Churchill inflows are not within the scope of the current review.

Summary data for each series provided as Table 2-1 and Table 2-2. Figure 2-1 and Figure 2-2 show the locations of the sub-basins and hydroelectric plants.

The historic inflow series are tabulated as annual flows (m^3/s) and equivalent annual runoff depths (mm) in Appendix A.

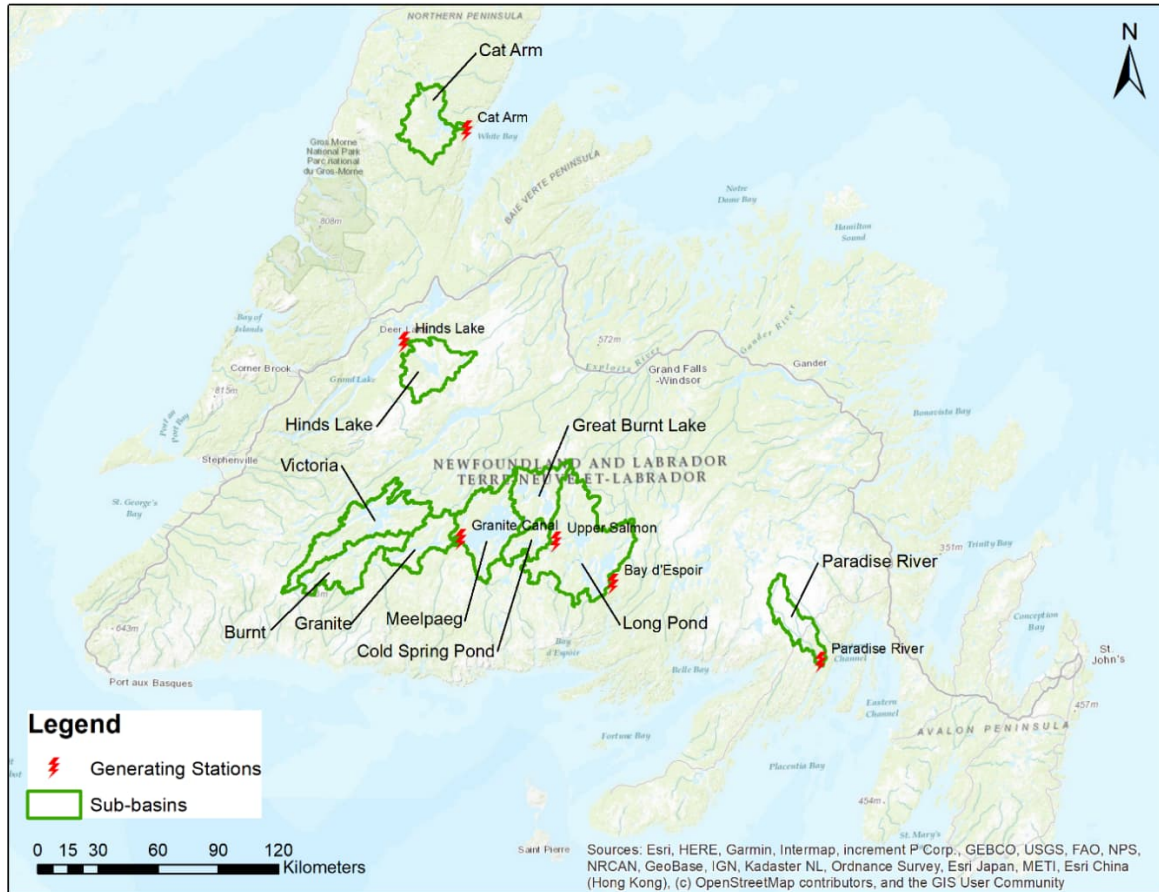


Figure 2-1: Location Map – Island Sub-basins

Table 2-1: Hydro Historic Inflow Series – Island Sub-basins

Series	Drainage Area (km ²)	Period of Record	Years of Record	Plant	Installed Capacity (MW)	Year Plant in Service
Victoria	1,058	1950-2022	73	Granite Canal	40	2003
Burnt	679	1950-2022	73			
Granite Lake	503	1950-2022	73			
Meelpaeg Lake	969	1950-2022	73			
Great Burnt Lake	630	1950-2022	73			
Cold Spring Pond	290	1950-2022	73	Upper Salmon	84	1983
Long Pond	1,774	1950-2022	73	Bay d'Espoir	592	1967
Cat Arm	651	1950-2022	73	Cat Arm	127	1985
Hinds Lake	651	1950-2022	73	Hinds Lake	75	1980
Paradise River	476.5	1950-2022	73	Paradise River	8	1989

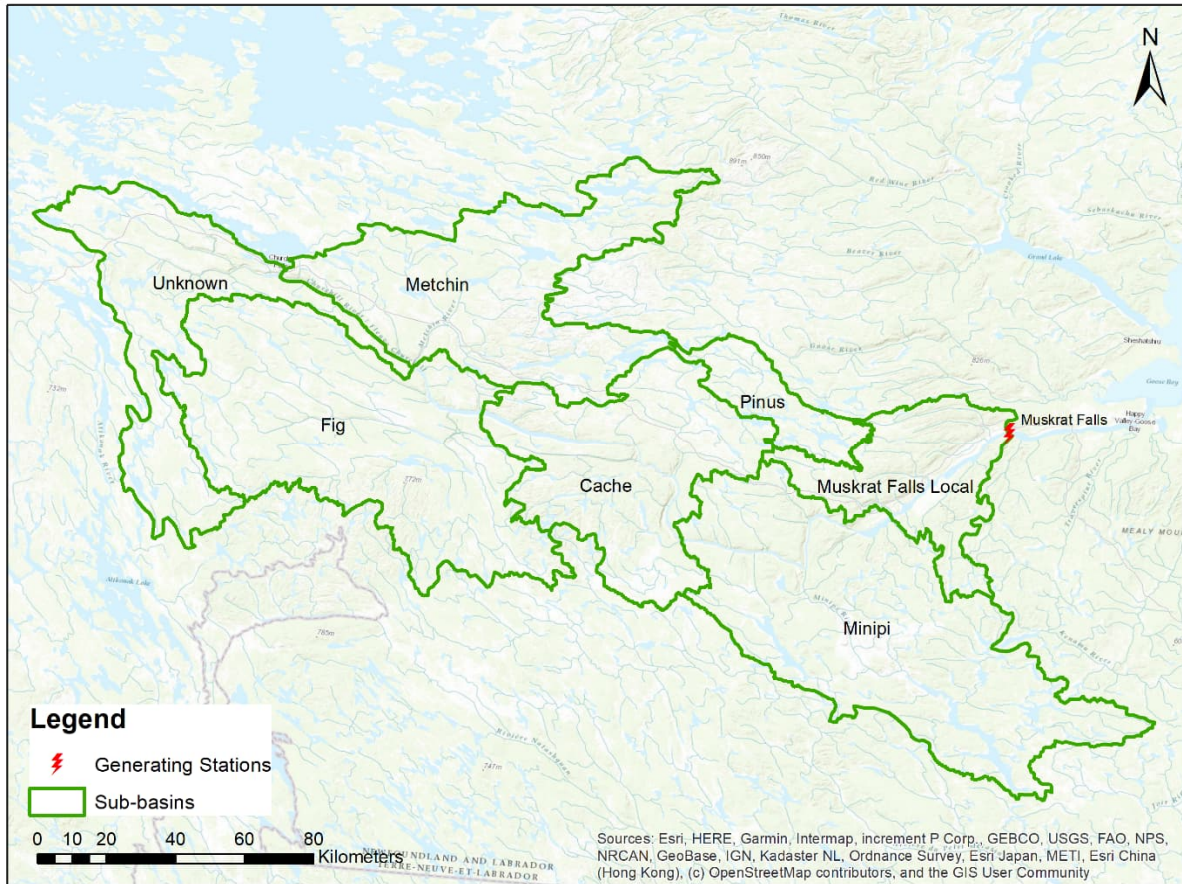


Figure 2-2: Location Map – Labrador Sub-basins

Table 2-2: Hydro Historic Inflow Series – Labrador Sub-basins

Series	Drainage Area (km ²)	Period of Record	Years of Record	Plant	Installed Capacity (MW)	Year Plant in Service
Unknown River	2,743	1957-2022	66			
Metchin	3,981	1957-2022	66			
Fig	5,219	1957-2022	66			
Cache	3,258	1957-2022	66			
Minipi	5,539	1957-2022	66			
Pinus	780	1957-2022	66			
Muskrat Falls Local	1,778	1957-2022	66	Muskrat Falls	824	2020

2.2 Physiography and Climate

2.2.1 *Island of Newfoundland*

The Island of Newfoundland represents the north-eastern most extension of the Appalachian Mountain system in North America. The physiography of the island of Newfoundland (Figure 2-3) consists primarily of a tilted plateau which is higher in the west than in the east. The highland areas in the west range from 200 to 600 m above sea level, with some peaks rising over 750 m. The central part of the Island has an elevation which ranges from 180 to 300 m. The eastern part of the Island is at a generally lower elevation and has undulating topography where only isolated peaks reach an elevation of 300 m.

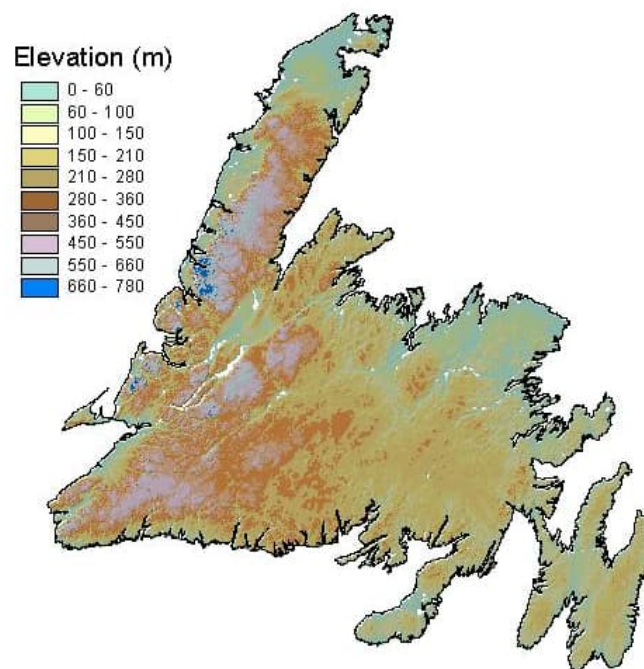


Figure 2-3: Topography of the Island of Newfoundland (NL Municipal and Provincial Affairs)

The climate of Newfoundland is classified as a cool snow forest climate with no distinct dry season and cool to warm summers. Mapping obtained from Agriculture and Agri-food Canada (Cole, 2013), based on hydrologic data for the period 1950-2006, show that the annual runoff is highest in the south and west of the island, where median values range from 1,200 mm to more than 1,800 mm (Figure 2-4). Annual runoff is the annual inflow expressed as an average depth in mm over the entire drainage area. It can be considered the effective precipitation over the area, that is, the average precipitation over the basin minus losses to evapotranspiration.



Figure 2-4: Median Annual Runoff of the Island of Newfoundland

2.2.2 **Labrador**

Labrador has a northern continental climate, with long, cold winters and short, cool summers. The relief of ranges from sea level to over 1,500 m in the Torngat Mountains at the northern tip of Labrador, Figure 2-5.

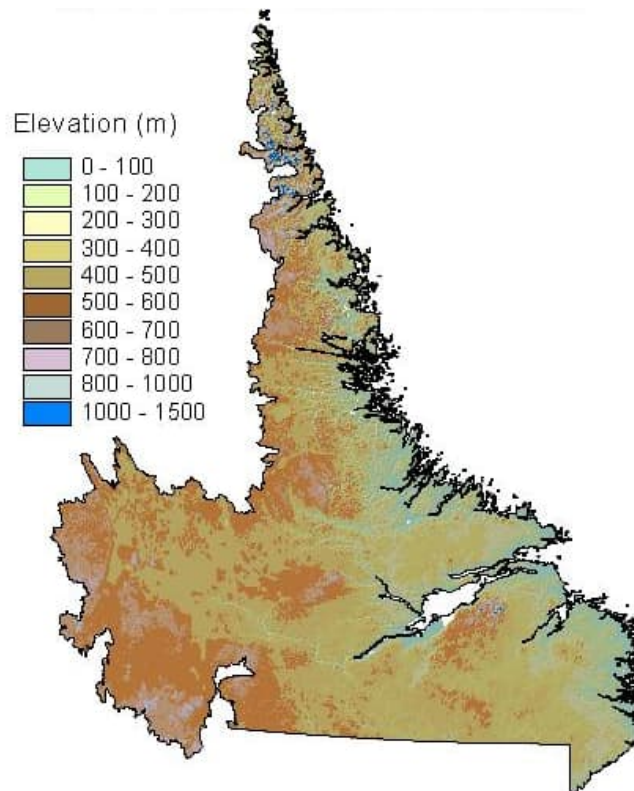


Figure 2-5: Topography of Labrador (NL Municipal and Provincial Affairs)

As shown in Figure 2-6, compared to the Island, the median annual runoff in Labrador is lower and relatively uniform, in the range of 600 mm to 800 mm, with higher amounts in the southeast.

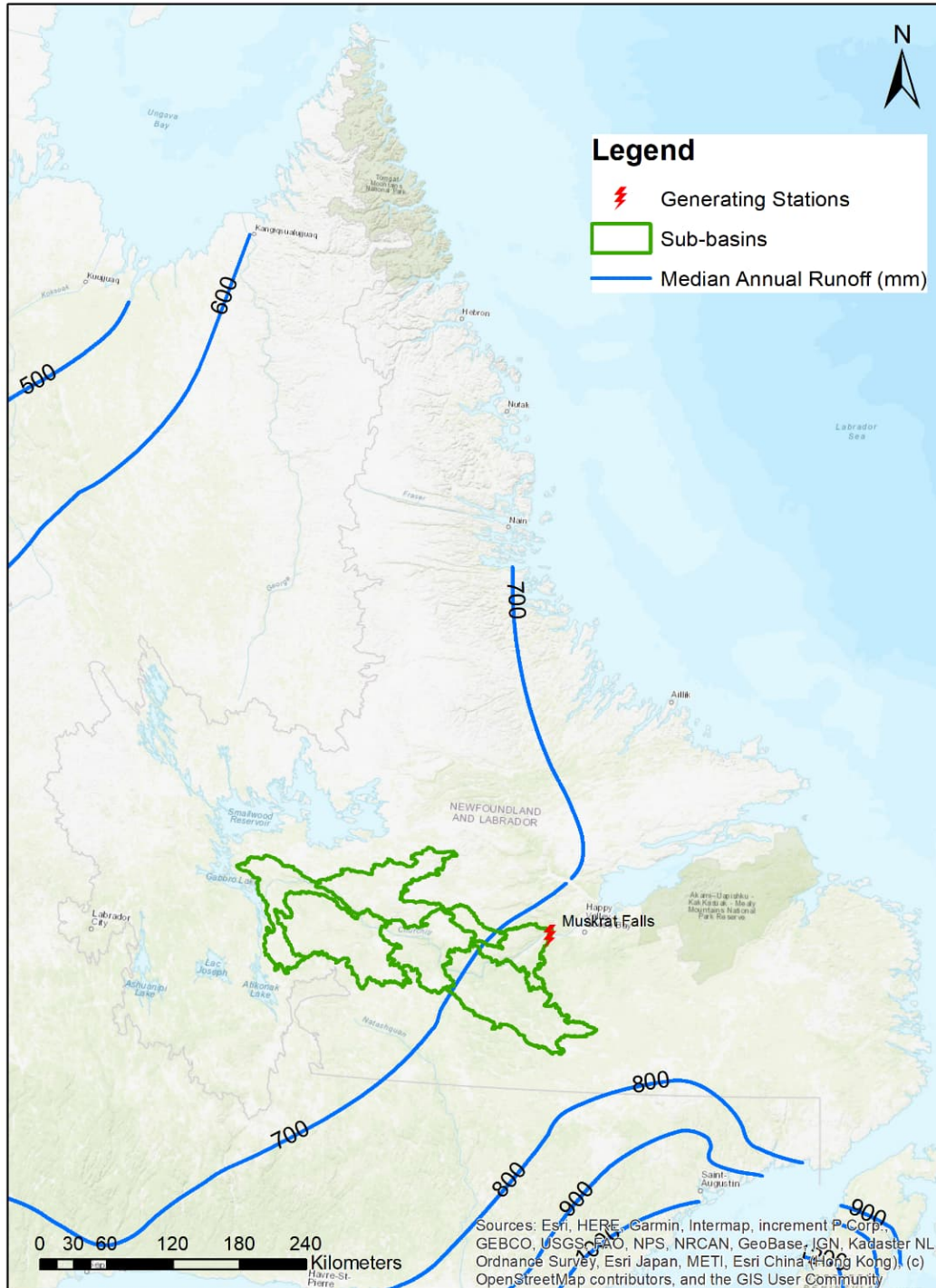


Figure 2-6: Median Annual Runoff of Labrador

3. Review of Previous Studies

3.1 Island Hydrology Review (2003)

In 2002, Hydro commissioned SGE Acres (now Hatch) to carry out a study of hydrological issues related to estimation of its hydroelectric energy production. The study (SGE Acres, 2003) reviewed Hydro's data and methodology for estimating annual hydroelectric capability on the Island of Newfoundland; recommended the appropriate length of hydrologic record to use to develop the estimate; and addressed trends and anomalies in the hydrologic record.

The study assessed the reference inflow series used by Hydro for its BDE, Hinds Lake, Cat Arm and Paradise River systems. In general, the lengths of the series were 50 years or more. For the years before the projects were built, the inflow series were developed using streamflow data from other sources, primarily WSC. For the years since the projects were constructed, the series were developed from Hydro's operational data.

The conclusion of the assessment was that the data used to construct the inflow series were generally valid. Some of the BDE inflow series had minor internal inconsistencies arising from the change in methods used to develop the inflow series before and after construction of the projects. The study concluded that the inconsistencies would have only a small effect on the estimates of average energy, but that the inflow series should be corrected.

Analysis of Hydro's inflow series and records from WSC hydrometric stations on the Island for the period 1950-2002 did not show any definitive natural trends or changes. Research on climate change in the region was not found to provide a conclusive indication of how climate change may affect hydraulic generation.

The hydrology of record was considered to be the best basis for estimating future conditions. The study concluded that it was desirable to use as long a hydrologic record as possible for the reference series to minimize the potential errors in estimates of mean and variability. A sample size of at least 30 years was desirable, but a longer record was preferable.

The method used at the time by Hydro to calculate expected energy production from its hydroelectric generating stations was to multiply the average flow at each plant by an appropriate energy conversion factor. Losses to generation such as spill and environmental releases were accounted for using historic values. The review of the methodology for calculating expected energy production concluded that computer simulation of the system would be a more suitable method for calculating the estimate, since it would allow clearer accounting for spills and other releases, as well as for changes in operation.

The findings of the study were considered to be consistent with practices in other jurisdictions, as determined by a survey of utilities and regulators.

Key recommendations of the study were as follows:

- The longest reliable reference inflow series (period of record) should be used for all Hydro's operation, planning and rate setting purposes;
- The inflow series presently used by Hydro should be corrected to ensure internal consistency;
- The same estimate of average annual energy from hydroelectric resources should be used for operations, planning and rate setting;
- Computer simulation of the operation of the hydroelectric system using the reference inflow series should be used to estimate energy production and spill from Hydro's hydraulic resources.

3.2 Adjustment of Bay d'Espoir Reference Inflow Sequences (2004)

Following the 2003 study, SGE Acres was retained by Hydro to adjust its BDE reference inflow series to make them internally consistent and free of random and systematic errors as demonstrated by appropriate statistical and graphical tests (SGE Acres, 2004).

The study found that the only portions of the Bay d'Espoir inflow series that could be accepted without adjustment were as follows:

- Victoria inflows in the Bay d'Espoir post-development period (1971 and later).
- Lower Salmon (Long Pond) inflows in the Upper Salmon post-development period (1983 and later).
- Combined Upper Salmon and Lower Salmon (Great Burnt Lake, Cold Spring Pond, Long Pond) inflows in the Bay d'Espoir pre-development period (prior to 1971).

To remediate the BDE inflow series, two types of adjustments were required. The first was an adjustment to the flows estimated for the pre-development period. These had originally been estimated for some of the Hydro basins using the standard technique of data transfer from nearby gauged basins, using adjustment factors based on drainage area and mean annual runoff. The 2004 study adjusted the transfer factors slightly, using the additional body of data by then available from the post-development Hydro basins.

The second type of adjustment related to internal basin accounting. In particular, the calculated discharge out of Meelpaeg Reservoir to the Upper Salmon reservoirs was assessed as incorrect. As a result, no part of the post-development Meelpaeg inflow series (comprising inflow to Burnt Pond, Granite Lake and Meelpaeg Reservoir) could be accepted. The problem also introduced error into the determination of inflows to the Upper Salmon reservoirs. The study concluded that the problem appeared to be with the discharge rating curves of the Ebbegunbaeg Control Structure. Furthermore, it would not be possible to validate the pre-development inflows using post-development inflow data until the rating curves were corrected and the post-development inflows were recalculated. As an interim

measure, the inflow values from all Meelpaeg and Salmon sub-basins were combined and reallocated using a proportional approach.

The study produced a remediated set of Bay d'Espoir inflow series. The adjustments increased the Victoria basin inflow by 2.5 percent, and the combined Meelpaeg-Salmon basin inflow by 0.6 percent. The overall increase in the total Bay d'Espoir inflow was 0.9 percent.

Key recommendations of the study were as follows:

- Hydro should make additional measurements as required to verify or redevelop the curves for the Ebbegunbaeg Control Structure;
- Hydro should use the revised gate curves to recalculate post-development inflow series for Meelpaeg, Upper Salmon, and Lower Salmon for the length of record which the data support, and of sufficient length to re-estimate pre-development adjustment factors;
- Hydro may consider replacing its Bay d'Espoir inflow series with the ones developed in this study, as an interim measure until new post-development series have been reconstructed for Meelpaeg, Upper Salmon and Lower Salmon.

3.3 Hydrology and Feasibility Study for Potential Bay d'Espoir Hydroelectric Generating Unit No. 8 (2020)

In 2020, Hydro engaged Hatch to complete a hydrology and feasibility study for a potential new generating unit (Unit 8) at the Bay d'Espoir Hydroelectric Generating Station (Hatch, 2020). Hydro provided its historic inflow series for the Bay d'Espoir system for use in the study. During the study, Hatch observed that the Hydro inflow series did not appear to be wholly consistent with the adjusted dataset produced by SGE Acres (2004). The reason for this was unknown. There were some apparent inconsistencies in the distribution of sub-basin inflows within the system, but they tended to balance each other out (i.e., compensating errors). Statistical analysis on the inflow series was carried out, but the study period was limited to 1970 to 2019.

4. Data Analysis Techniques

The purpose of the hydrologic data analysis was to determine whether there are any trends or anomalies in the series, such as continuously increasing or decreasing trends, or step trends due to some external factor. A statistical approach was necessary to assess the significance of any apparent finding. The analysis used quantitative statistical tests as well as standard hydrological plotting methods.

In statistical terms, the purpose of trend analysis is to determine if a series of observations of a random variable is generally increasing or decreasing with time, or whether the probability distribution has changed with time. Two types of trends may be distinguished: step changes, and monotonic trends. Step change tests are for testing changes before and after a known event such as a change in measurement techniques, forest fire, construction of a dam, or diversion. A monotonic trend is one that is continuously increasing or decreasing with time.

If a line is fitted to any time series plot it will almost always show some apparent trend; the chances of a perfectly horizontal line are slim. It is therefore important to carry out the appropriate statistical tests to assess the significance of an apparent trend.

The methods used in the study for assessment of the data series are described in this section. The results for the WSC streamflow records are provided in Section 5. The results for the Hydro historic inflow series are provided in Sections 6 through 11.

In carrying out the work described above, comparisons among basins were done using depth of annual runoff expressed in millimeters, since this measure removes the effect of drainage area and therefore allows comparison among basins.

The level for significance used in the quantitative tests is 5 percent (i.e., 0.05). When the test statistic (p-value) is less than 0.05, the null hypothesis (that there is no trend or step change) is rejected. This level is commonly used in statistical hydrology and represents a high threshold of evidence that must be met before concluding that a trend or step change is present (i.e., a less than 5 percent probability that the result is caused only by random chance).

4.1 Time Series Plots

The time series plots show the annual inflow over time. The data are plotted in chronological order and then smoothed using an efficient smoothing algorithm known as Locally Weighted Regression Scatterplot Smoothing (LOESS). Smoothing the data allows trends or runs of dry and wet periods to be seen. This graphical approach is important because there is no statistical non-monotonic trend test available, for example, to test for cyclical trends. An alpha value of 0.33 was chosen to smooth the data and minimize several local minima and maxima (Cleveland, 1979).

4.2 Monotonic Trend Test

Monotonic trend analysis is the primary test for the assessment of long-term trends. The non-parametric Mann-Kendall trend test (Mann, 1945) (Kendall, 1975) is commonly used to analyze trends in hydrological time series. It is based on the correlation between the ranks of a time series and their time order and tests the null hypothesis that there is no change in the median of the independent observations over time. The main reason for using non-parametric tests is that their power and significance are not affected by the actual distribution of the data. Parametric tests such as the regression coefficient test assume that the data are normally distributed, and their power can be greatly weakened when this assumption is not satisfied. Non-normally distributed data are very common for hydrological time series, and the insensitivity to distribution makes the use of non-parametric tests preferable (Kundzewicz & Robson, 2000), Yue et al., 2002). At the same time, non-parametric procedures are only slightly less powerful than parametric tests when used on normally distributed data. Moreover, they avoid the effort and the potential for real or perceived biases being imparted by the data analyst (Hirsch et al., 1991).

The assumption of serial independence of a time series is required for the resulting p-values of the Mann-Kendall test to be correct (Helsel & Hirsch, 2002). The reason is that, if autocorrelation (persistence) is present, the test may indicate a significant trend in a time series which is actually random, more often than the significance level specifies. In several studies, this problem has been approached by first testing the time series for lag-1 autocorrelation, and if the autocorrelation coefficient is significant or above a certain threshold, a “pre-whitening” procedure is applied to the data series to remove the effect of the serial dependence before carrying out the Mann-Kendall test. However, Fleming and Clarke (2002) concluded that pre-whitening of annual hydrologic time series can substantially and inappropriately reduce the power of trend significance tests and increase slope estimate errors. They recommended that pre-whitening not be applied to annual hydrologic time series unless there is strong site-specific physical basis for the assumption of lag-1 autocorrelation.

There is no physical basis to presuppose that natural runoff in any of the data series is serially dependent on an annual scale; therefore, the Mann-Kendall test was conducted on all the data series without adjustment.

The results of the monotonic trend tests were classified into five categories from Burn (1997):

- Category 1 is a statistically significant increasing trend with p-values less than 0.05;
- Category 2 is a mildly increasing trend with p-values between 0.05 and 0.10;
- Category 3 is a weak trend or no trend. P-values are greater than 0.10;
- Category 4 is a mild decreasing trend with p-values between 0.05 and 0.10; and
- Category 5 is a statistically significant decreasing trend with p-values less than 0.05.

4.3 Step Change Test

Traditionally, in trend analysis of hydrometeorological variables, step change tests have been used either to compare discontinuous records with a relatively long gap between them; or when a known event has occurred at a specific time which is likely to have altered the properties of the series. Intervention in a hydrologic time series can take various forms such as a change in streamflow measurement technique, an extensive forest fire or clear-cutting. If there is a known intervention at a certain point in the time series, a step change test will provide a check to see if the distribution of the data before the intervention is the same as that after the intervention.

The standard tests include the Mann-Whitney test and the t-test, both of which assume that the time of change is known. The Mann-Whitney test (also known as the Wilcoxon test) is a non-parametric (rank-based) test that looks for differences between two independent sample groups (Helsel & Hirsch, 2002). Its parametric counterpart is the t-test, which requires that the data be normally distributed. It has the same limitations common to parametric tests with respect to non-normal hydrological data, discussed previously.

Step change analysis using the Mann-Whitney test was carried out on the inflow data before and after points of suspected intervention. Points of suspected intervention in the Hydro series were identified from the known history of each development. A statistically significant result indicated a step change. Boxplots of the before and after series were also used to show changes in the distribution graphically.

4.4 Cumulative Departure from Mean

More recently, step change tests have been featured in a number of studies of trends in hydrometeorological variables with the goal of distinguishing climate-induced step changes from gradual monotonic trends. The motivation behind these investigations has been the idea that gradual trends and step changes have different implications for climate change impacts; i.e., a gradual change is expected to continue into the future, whereas a step change represents a shift of the climate system to a new regime that is expected to remain relatively constant until another shift occurs (McCabe & Wolock, 2002). It is also possible that analysis of a time series with a step change can result in the detection of a statistically significant monotonic trend, even if there is no such trend in the partitioned series before and after the change point (Villarini et al., 2009).

Helsel and Hirsch (2002) caution that the decision to use a step change test should not be based on a prior examination of the data (i.e., a step is apparent but there is no prior hypothesis that it should have occurred), or on a computation of the time which maximizes the difference between periods. They argue that such a prior investigation biases the significance level of the test.

A reasonable approach appears to be that of McCabe and Wolock (2002), who employed a graphical standardized departures analysis prior to conducting statistical tests of trend on streamflow in the coterminous United States. This approach is consistent with the principles of exploratory data analysis advocated by Kundzewicz and Robson (2004) to distinguish between changes that arise from land-use change, climate change, or simply from altered measurement techniques. The plot of cumulative departure from the mean has the property of positive slopes indicating values above the mean, and negative slopes indicating values below the mean. A plot consisting of a V or inverted-V shape with relatively uniform slopes before and after the vertex indicates a potential step change occurring at the time of the vertex. The cumulative departure from the mean was plotted for each flow series to detect such potential change points.

4.5 Mass Curves

A mass curve analysis is a standard hydrological plotting technique to aid in detection of changes in the homogeneity or consistency of the data. A single mass curve is a plot of cumulative flows against time. A record that is homogeneous and consistent will plot as a straight line. Any change in the consistency or homogeneity of the data record will show up as a change in the slope of the mass curve. Hence major changes such as in measurement techniques or location of gauges would be seen as breaks or changes in slopes of the mass curve if they have affected the data.

A double mass curve is a plot of cumulative flows against the cumulative flows of another station that is known to be consistent (e.g., a nearby hydrometric gauge). Again, a change in slope indicates that the data set is internally inconsistent.

5. Water Survey of Canada Streamflow Records

Streamflows are measured and recorded at WSC hydrometric stations at several locations in Newfoundland and Labrador. The stations chosen for comparison with Hydro's series included stations that WSC has designated as part of the current (2020) Reference Hydrometric Basin Network (RHBN). The RHBN is a set of hydrometric stations in locations where hydrological conditions are stable or undisturbed by human intervention, and have at least 20 years of good quality record, for which data are collected to a set of consistent, national standard procedures (Pellerin and Tanekou, 2020). Thus, the RHBN represents a high standard of data quality for detecting climate change impacts and variability in Canada's surface waters.

Two additional stations not part of the RHBN (Lewaseechjeech and Little Mecatina) were selected due to use in previous studies, owing to their record length and proximity to the systems of interest.

The stations are summarized in Table 5-1 and Table 5-2 and locations are shown in Figure 5-1 and Figure 5-2. Time series plots, monotonic trend analysis, plots of cumulative departure from mean, and mass curves for each station are presented in this section. Step change analyses for selected stations are presented in subsequent sections for comparison with the Hydro inflow series.

Table 5-1: Selected WSC Hydrometric Stations – Island of Newfoundland

Name	Station ID	Drainage Area (km ²)	Period of Record	2020 RHBN
Bay du Nord River at Big Falls	02ZF001	1,170	1950-2021	Y
Come By Chance River near Goobies	02ZH002	43.3	1961-2020	Y
Gander River at Big Chute	02YQ001	4,450	1949-2021	Y
Garnish River near Garnish	02ZG001	205	1958-2021	Y
Harrys River below Highway Bridge	02YJ001	640	1968-2021	Y
Isle Aux Morts River below Highway Bridge	02ZB001	205	1962-2021	Y
Lewaseechjeech Brook at Little Grand Lake	02YK002	470	1952-2021	N
Middle Brook near Gambo	02YR001	275	1959-2021	Y
Northeast Pond River at Northeast Pond	02ZM006	3.63	1953-2021	Y
Pipers Hole River at Mothers Brook	02ZH001	764	1952-2021	Y
Rocky River near Colinet	02ZK001	301	1948-2021	Y
South West Brook near Baie Verte	02ZJ001	93.2	1980-2021	Y
Southern Bay River near Southern Bay	02YM003	67.4	1976-2020	Y
Southwest Brook at Terra Nova National Park	02YS003	36.7	1967-2020	Y
Torrent River at Bristol's Pool	02YC001	624	1959-2021	Y
Upper Humber River near Reidville	02YL001	2,110	1928-2021	Y

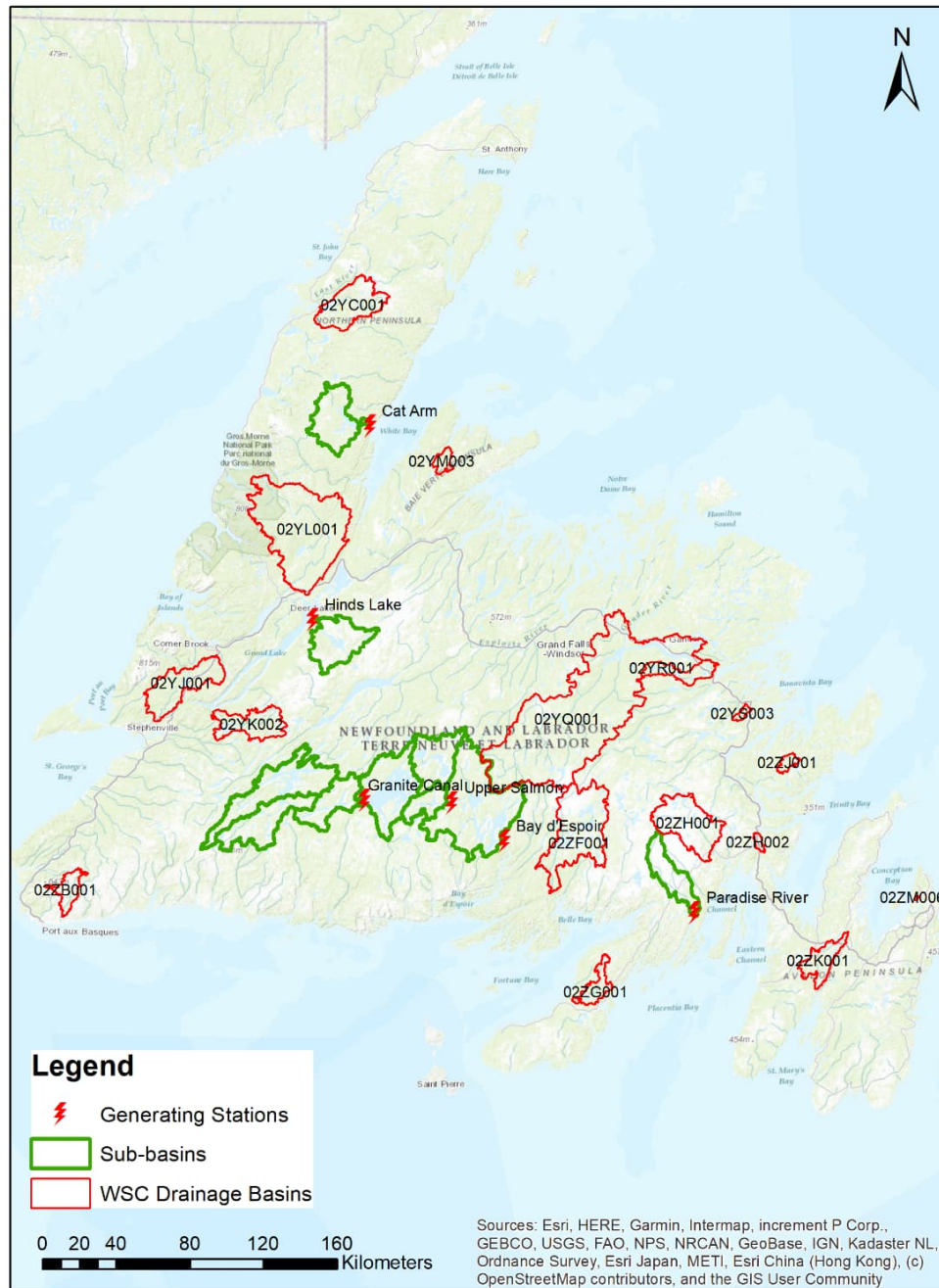


Figure 5-1: Location Map – Selected WSC Hydrometric Stations – Island of Newfoundland

Table 5-2: Selected WSC Hydrometric Stations – Labrador

Name	Station ID	Drainage Area (km ²)	Period of Record	2020 RHBN
Alexis River near Port Hope Simpson	03QC002	2,310	1978-2022	Y
Eagle River above Falls	03QC001	10,900	1966-2021	Y
Little Mecatina River above Lac Fourmont	02XA003	4,540	1979-2022	N
Ugjoktok River below Harp Lake	03NF001	7,570	1979-2021	Y

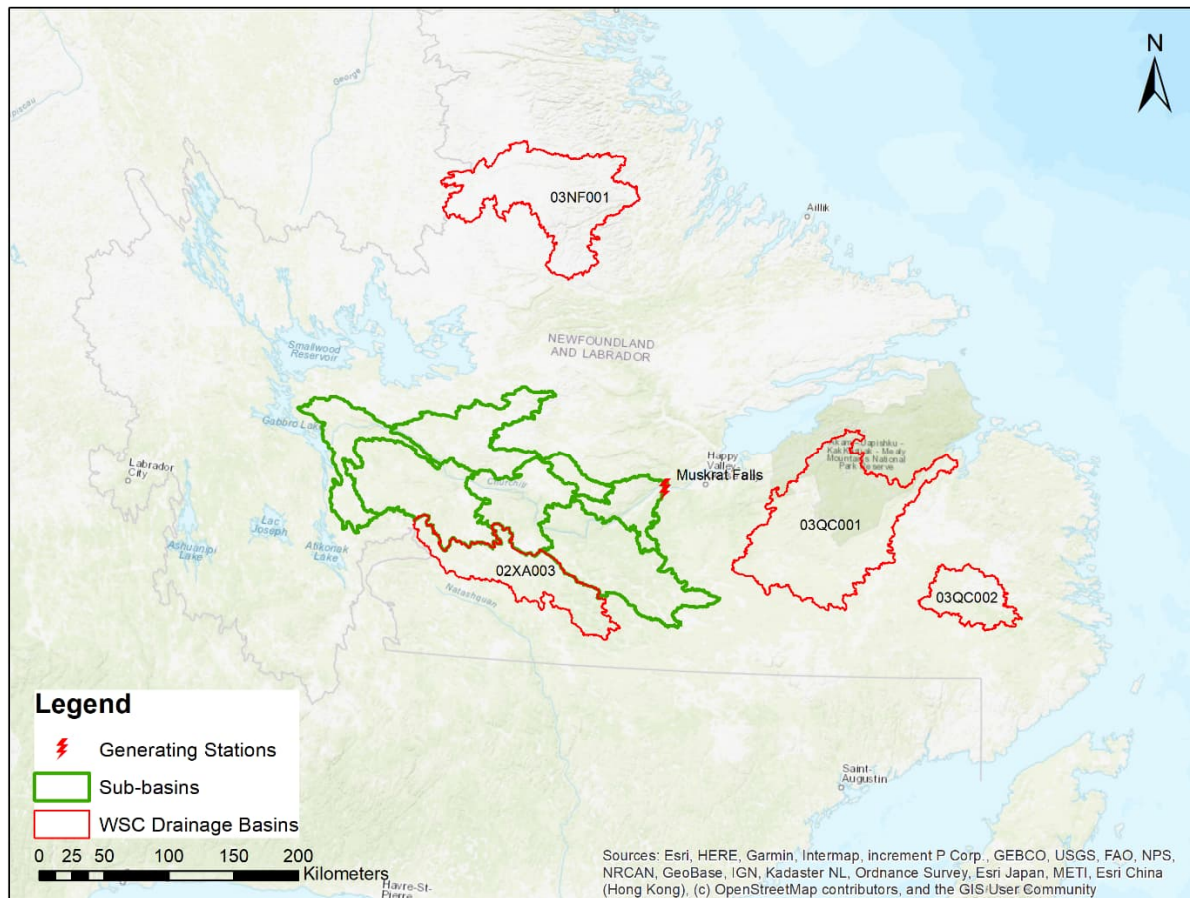


Figure 5-2: Location Map – Selected WSC Hydrometric Stations – Labrador

5.1 Island of Newfoundland

Sixteen WSC stations on the Island of Newfoundland were analyzed. Upper Humber was the only station with records pre-dating the Hydro inflow series. For consistency with the Hydro inflow series, only the available annual flows after 1950 were considered. As well, the quality of pre-1950 streamflow data is unknown since it was collected by others but the post-1950 data has been quality-controlled by WSC and is therefore considered to be reliable (SGE Acres, 2003). Figure 5-3 shows the time series plot of the selected stations with LOESS lines.

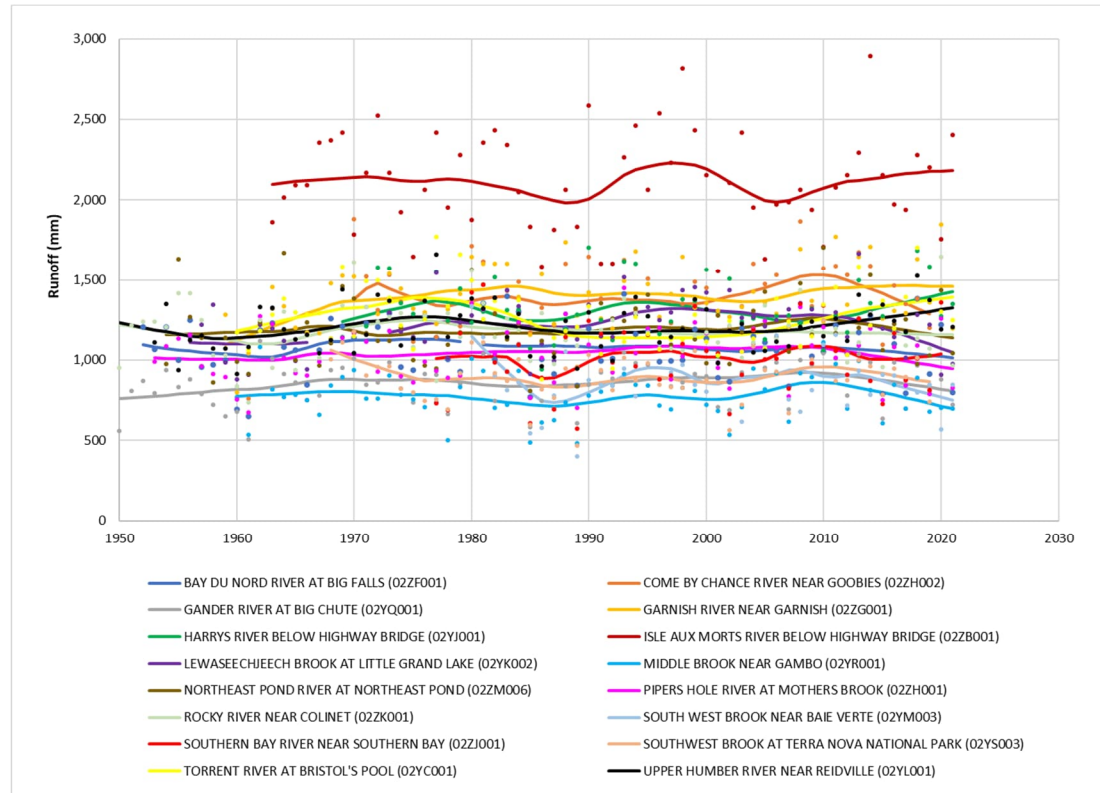


Figure 5-3: Time Series Plot with LOESS Lines – Selected WSC Stations – Island of Newfoundland

Most of the stations do not show any strongly visible monotonic trend. However, there appears to be a divergence since around 2010 between some stations in the western part of the Island trending wetter and some stations in the eastern part of the Island trending drier. It remains to be seen whether this is a short-term phenomenon or part of a longer term trend.

5.1.1 Monotonic Trend Analysis

Table 5-3 presents the monotonic trend analysis of the selected Island WSC stations. No statistically significant monotonic trends were detected for the time periods considered. It is noted, however, that the result for each station is specific to its period of record. Gander River and Garnish River showed a mild increasing trend.

Table 5-3: Monotonic Trend Analysis – Selected WSC Stations – Island of Newfoundland

Name	Station ID	Analysis Period	Sample Size n	Mean (mm)	Mann-Kendall p-value	Category	Remarks
Bay du Nord River at Big Falls	02ZF001	1952-2021	69	1,075	0.664	3	Practically horizontal
Come By Chance River near Goobies	02ZH002	1961-2020	51	1,391	0.276	3	Weak incr.
Gander River at Big Chute	02YQ001	1950-2021	72	858	0.097	2	Mild incr.
Garnish River near Garnish	02ZG001	1959-2021	63	1,390	0.097	2	Mild incr.
Harrys River below Highway Bridge	02YJ001	1969-2021	53	1,309	0.872	3	Practically horizontal
Isle Aux Morts River below Highway Bridge	02ZB001	1963-2021	59	2,111	0.969	3	Practically horizontal
Lewaseechjeech Brook at Little Grand Lake	02YK002	1956-2021	59	1,213	0.221	3	Weak incr.
Middle Brook near Gambo	02YR001	1960-2021	62	780	0.846	3	Practically horizontal
Northeast Pond River at Northeast Pond	02ZM006	1954-2021	68	1,189	0.427	3	Practically horizontal
Pipers Hole River at Mothers Brook	02ZH001	1953-2021	69	1,040	0.517	3	Practically horizontal
Rocky River near Colinet	02ZK001	1950-2021	72	1,175	0.496	3	Practically horizontal
South West Brook near Baie Verte	02ZJ001	1980-2021	42	875	0.580	3	Weak decr.
Southern Bay River near Southern Bay	02YM003	1977-2020	44	1,015	0.871	3	Weak incr.
Southwest Brook at Terra Nova National Park	02YS003	1968-2020	52	898	0.862	3	Practically horizontal
Torrent River at Bristol's Pool	02YC001	1960-2021	62	1,257	0.662	3	Practically horizontal
Upper Humber River near Reidville	02YL001	1953-2021	69	1,200	0.133	3	Weak incr.

Results were compared to the 2003 study as follows:

- Gander River showed a mild increasing trend, whereas in the 2003 study it had a weak increasing trend;
- Garnish River showed a mild increasing trend, the same result as in the 2003 study;
- The 2003 study detected a significant increasing trend at Lewaseechjeech Brook. In the current study, this trend is no longer significant with additional years of data. The annual runoff tended to level off during the 2000s and decline through the 2010s;
- The 2003 study detected a significant decreasing trend at Torrent River. In the current study, this trend is no longer significant with additional years of data. The annual runoff has tended to increase since the 2000s.

5.1.2 Cumulative Departure from Mean

Figure 5-4 shows the plot of cumulative departure from mean for the selected Island of Newfoundland stations. The plots show alternating positive and negative slopes which indicate periods of variability above and below the mean, but there are no clear indications of any shifts that would constitute a step change.

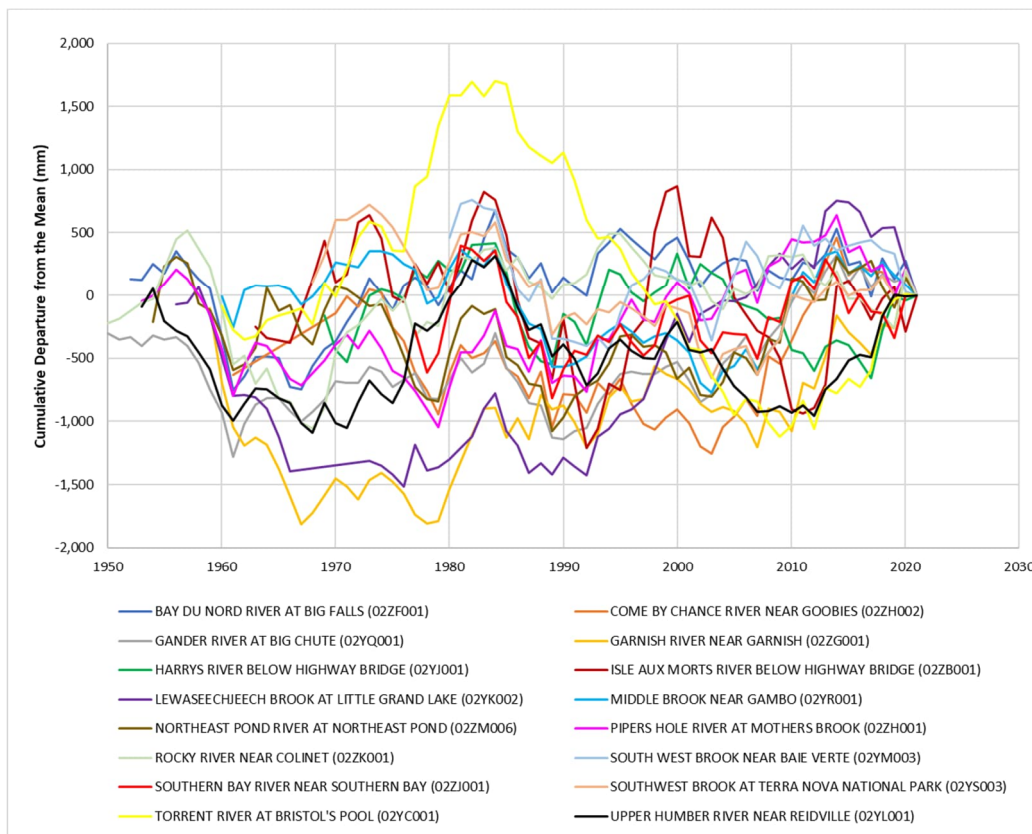


Figure 5-4: Cumulative Departure from Mean – Selected WSC Stations – Island of Newfoundland

5.1.3 Mass Curves

Figure 5-5 shows the single mass curves of the WSC hydrometric stations plotted for the period since 1950. They all appear reasonable, that is, each individual series has basically a constant overall slope throughout the period (disregarding offsets that correspond to gaps in the record). The slopes of the mass curves simply indicate relative wetness or dryness. Isle aux Morts, for example, is the wettest basin. The apparent waviness is caused by annual flow variations.

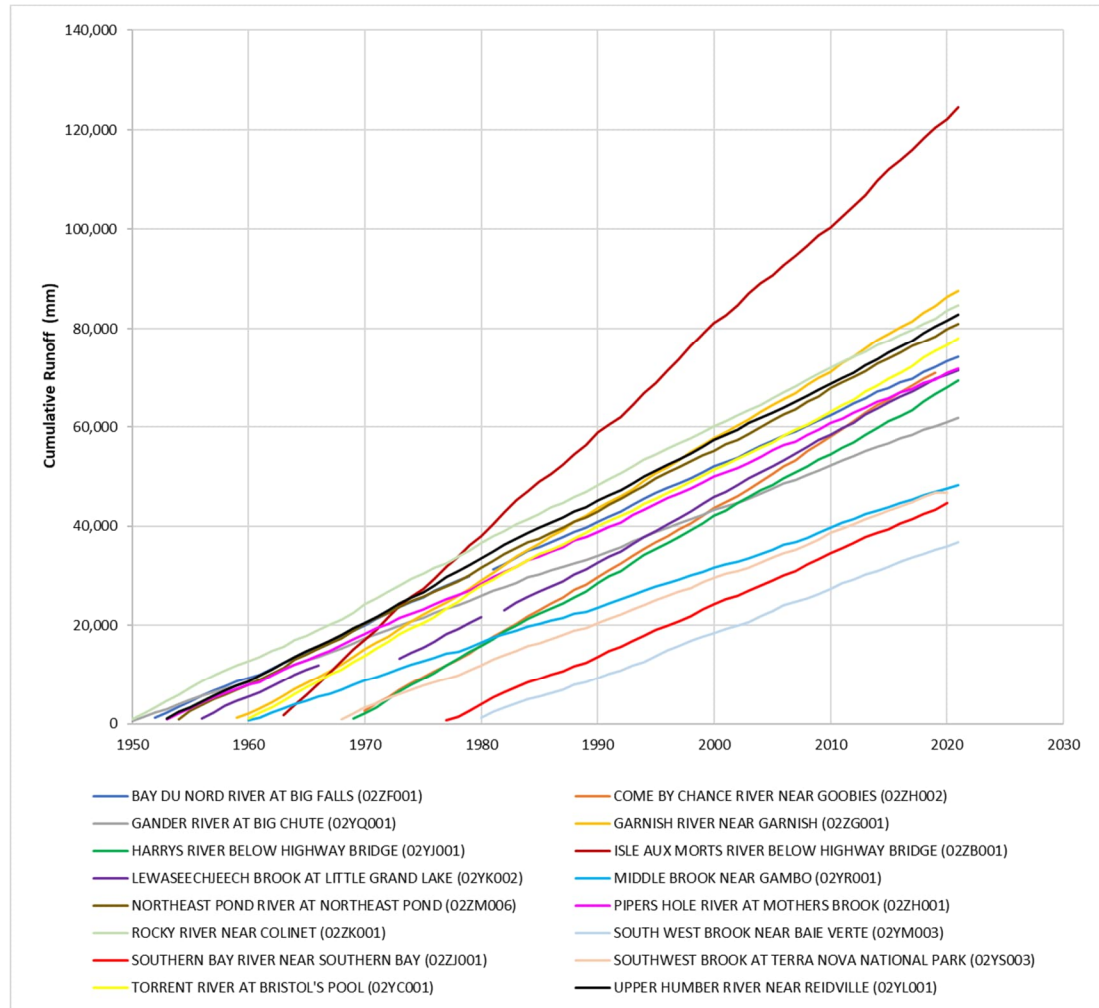


Figure 5-5: Single Mass Curves – Selected WSC Stations – Island of Newfoundland

The double mass curves in Figure 5-6 show the cumulative flows of the WSC stations plotted using Gander River as a reference. This plot shows that Gander River provides a good reference for the other stations, even geographically remote basins like Torrent River, Rocky River and Isle aux Morts. Adjacent rivers like Middle Brook plot as straight lines, whereas the more remote ones follow Gander River less closely, but overall, the slopes are consistent.

Gander River was therefore used as the reference station in preparing the double mass curves for the Island Hydro series; it was also used for this purpose in the 2003 study, for the same reason.

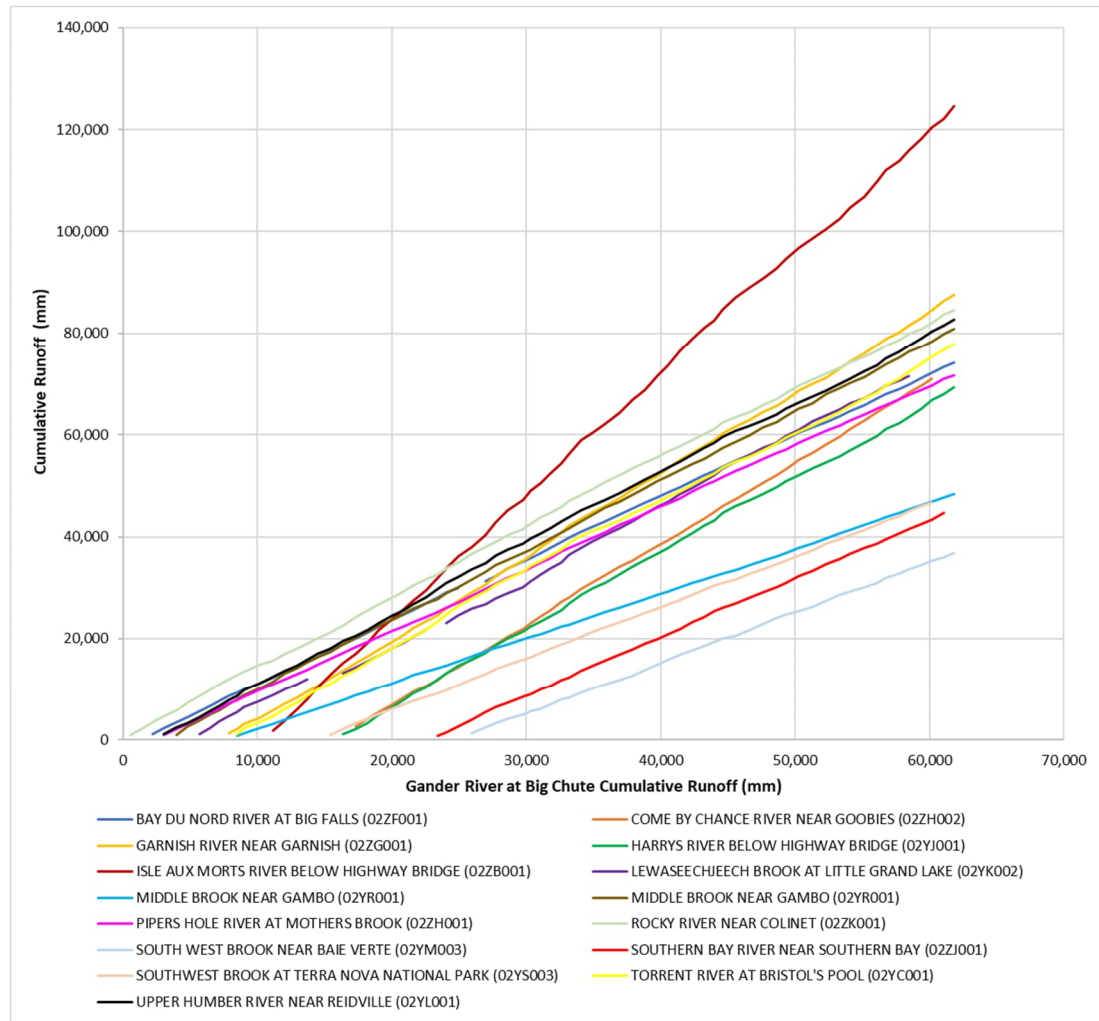


Figure 5-6: Double Mass Curves – Selected WSC Stations – Island of Newfoundland

5.2 Labrador

Four WSC gauges in Labrador were analyzed. Figure 5-7 shows the time series plots of the selected gauges with LOESS lines. There is no strong visual indication of monotonic trend for the full period of record, but runoff since around 2010 appears to be trending wetter. It remains to be seen whether this is a short-term phenomenon or part of a longer term trend.

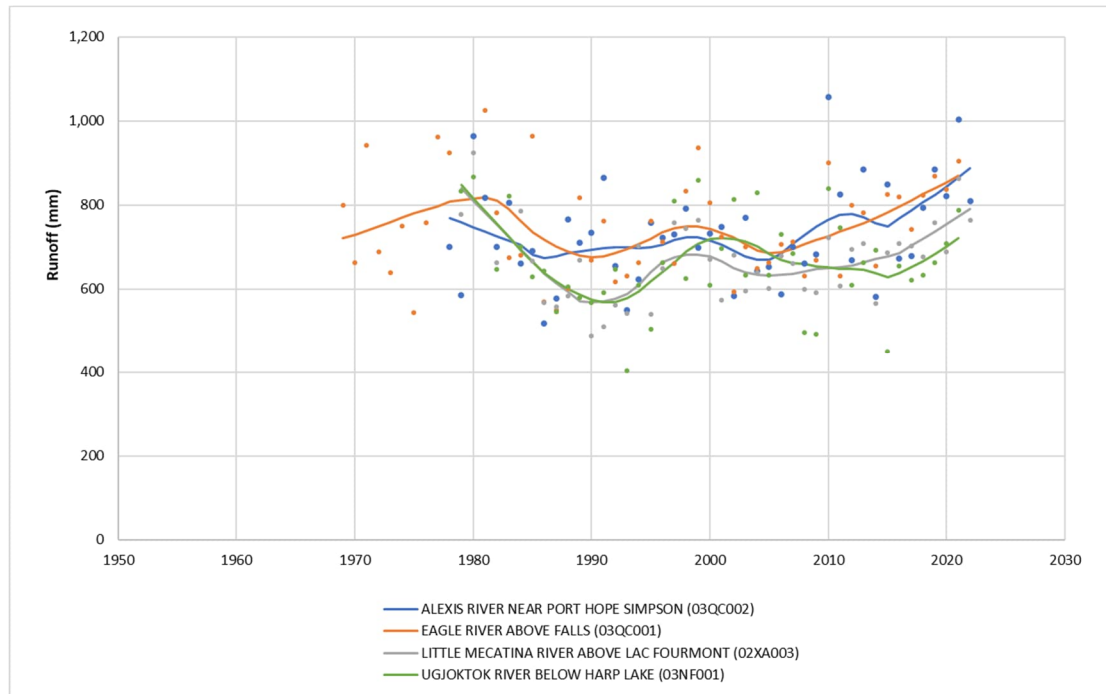


Figure 5-7: Time Series Plot with LOESS Lines – Selected WSC Stations – Labrador

5.2.1 Monotonic Trend Analysis

Table 5-4 presents the monotonic trend analysis of the selected Labrador WSC stations. No statistically significant monotonic trends were detected for the time periods considered. Little Mecatina River showed a mild increasing trend.

Table 5-4: Monotonic Trend Analysis – Selected WSC Stations – Labrador

Name	Station ID	Analysis Period	Sample Size n	Mean (mm)	Mann-Kendall p-value	Category	Remarks
Alexis River near Port Hope Simpson	03QC002	1978-2022	45	731	0.122	3	Weak incr.
Eagle River above Falls	03QC001	1969-2021	51	745	0.310	3	Practically horizontal
Little Mecatina River above Lac Fourmont	02XA003	1979-2022	42	664	0.072	2	Mild incr.
Ugjoktok River below Harp Lake	03NF001	1979-2021	42	663	0.862	3	Practically horizontal

5.2.2 Cumulative Departure from Mean

Figure 5-9 shows the plot of cumulative departure from mean for the selected Labrador stations. The plots show periods of variability above and below the mean, but no clear indications of any shifts that would constitute a step change.

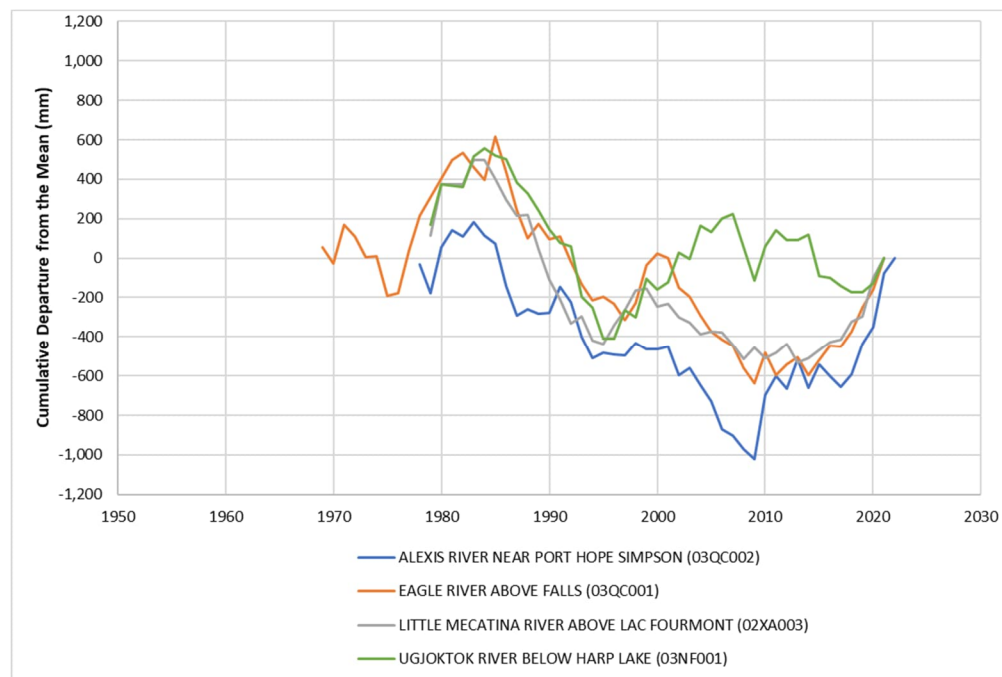


Figure 5-8: Cumulative Departure from Mean – Selected WSC Stations – Labrador

5.2.3 Mass Curves

Figure 5-9 shows the single mass curves for the WSC hydrometric stations plotted for the period since 1950. They all appear reasonable, that is, each individual series has basically a constant slope throughout the period (disregarding offsets that correspond to gaps in the record). The relative uniformity of the mean annual runoff is evident from the parallel slopes.

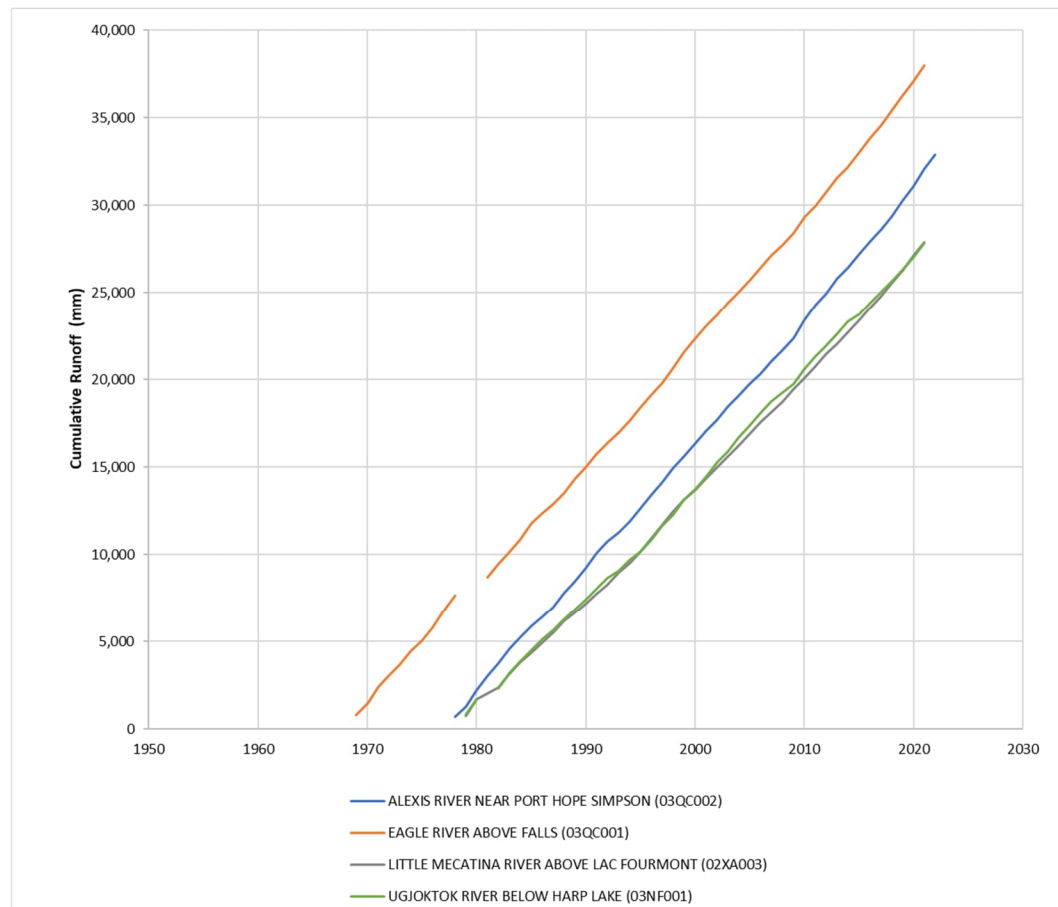


Figure 5-9: Single Mass Curves – Selected WSC Stations – Labrador

The double mass curves in Figure 5-10 show the cumulative flows of the WSC stations plotted using Eagle River as a reference. This plot shows that Eagle River provides a good reference for the other stations. Eagle River was therefore also used as the reference station in preparing the double mass curves for the Labrador Hydro series.

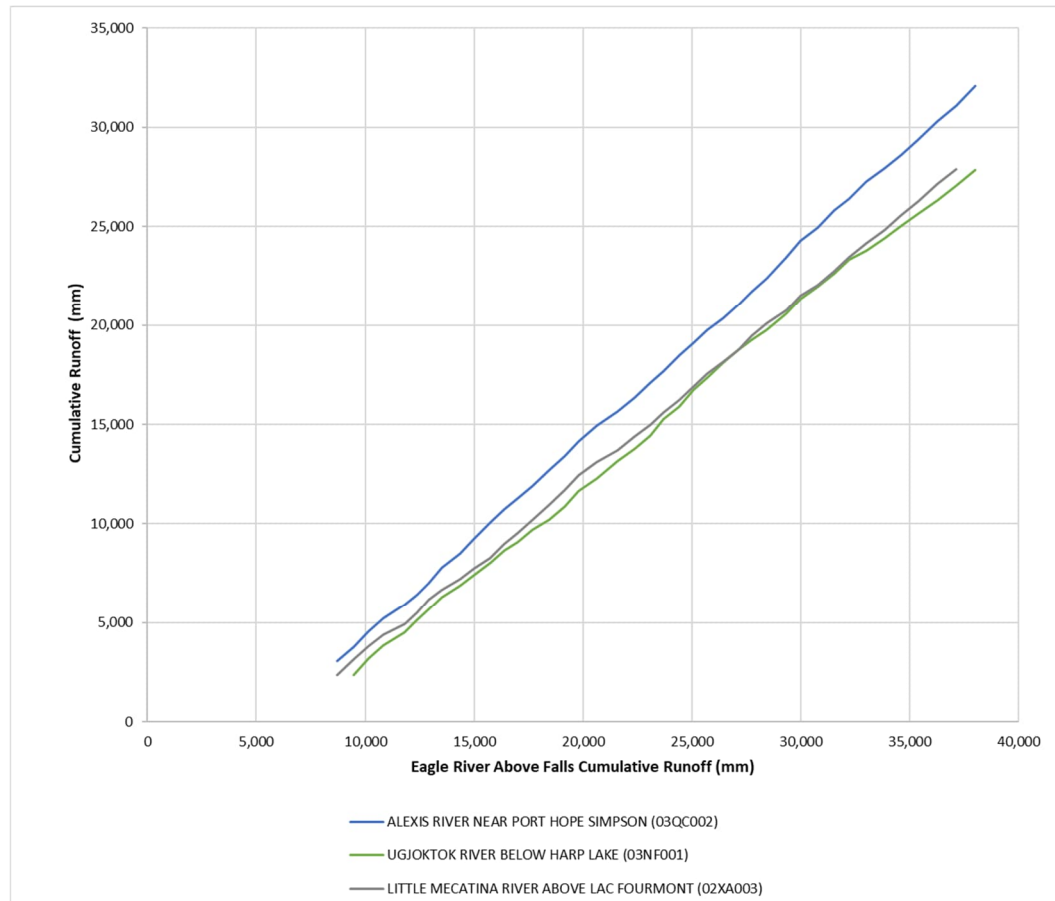


Figure 5-10: Double Mass Curves – Selected WSC Stations – Labrador

5.3 Discussion

From the results of the analysis presented above, the streamflow records show no convincing evidence for statistically significant monotonic trends on an overall regional basis in the timeframe of the 1950s to the present. At some stations, the period of available data affects whether or not there is an apparent trend, and its direction. Since around 2010 there appears to be increasing annual runoff at some WSC stations in Labrador and the western part of the Island and decreasing annual runoff at some WSC stations in the eastern part of the Island; however, it remains to be seen if this is a short-term phenomenon or part of a longer term trend.

6. Bay d'Espoir System

6.1 Data Review

The Bay d'Espoir (BDE) inflow series in Vista span the time period 1950-2022. There are seven historic inflow series:

- Victoria Inflow;
- Burnt Inflow;
- Granite Lake Inflow;
- Meelpaeg Lake Inflow;
- Great Burnt Lake Inflow;
- Cold Spring Pond Inflow; and
- Long Pond Inflow.

These correspond to the sub-basin drainage areas in Table 2-1 and Figure 2-1. The BDE system is located in the southern part of the Island and was formed by the diversion of several adjacent watersheds. The hydroelectric plants in the BDE system in upstream to downstream order are Granite Canal (commissioned 2003), Upper Salmon (commissioned 1983) and Bay d'Espoir (commissioned 1967).

The inflow values are stored in Vista on a daily time step, although the daily values consist of monthly averaged flows until the 1980s. Table 6-1 summarizes the data intervals.

Table 6-1: BDE Inflow Series Data Intervals

Series	Drainage Area (km ²)	Period of Record	Monthly Data	Daily Data
Victoria	1,058	1950-2022	January 1, 1950 to February 28, 1981	March 1, 1981 to December 31, 2022
Burnt	679	1950-2022	January 1, 1950 to February 28, 1981	March 1, 1981 to December 31, 2022
Granite Lake	503	1950-2022	January 1, 1950 to February 28, 1981	March 1, 1981 to December 31, 2022*
Meelpaeg Lake	969	1950-2022	January 1, 1950 to February 28, 1981	March 1, 1981 to December 31, 2022
Great Burnt Lake	630	1950-2022	January 1, 1950 to December 31, 1982	January 1, 1983 to December 31, 2022
Cold Spring Pond	290	1950-2022	January 1, 1950 to December 31, 1982	January 1, 1983 to December 31, 2022
Long Pond	1,774	1950-2022	January 1, 1950 to February 28, 1981	March 1, 1981 to December 31, 2022

* Granite Lake values from January to December 2001 are monthly.

For the data analysis in the current study and for consistency with previous studies, the inflows have been aggregated into annual values. Figure 6-1 shows the time series plot (with LOESS lines) of the BDE historic inflow series. The total BDE inflow, consisting of the area-weighted average of the separate series, is also shown.

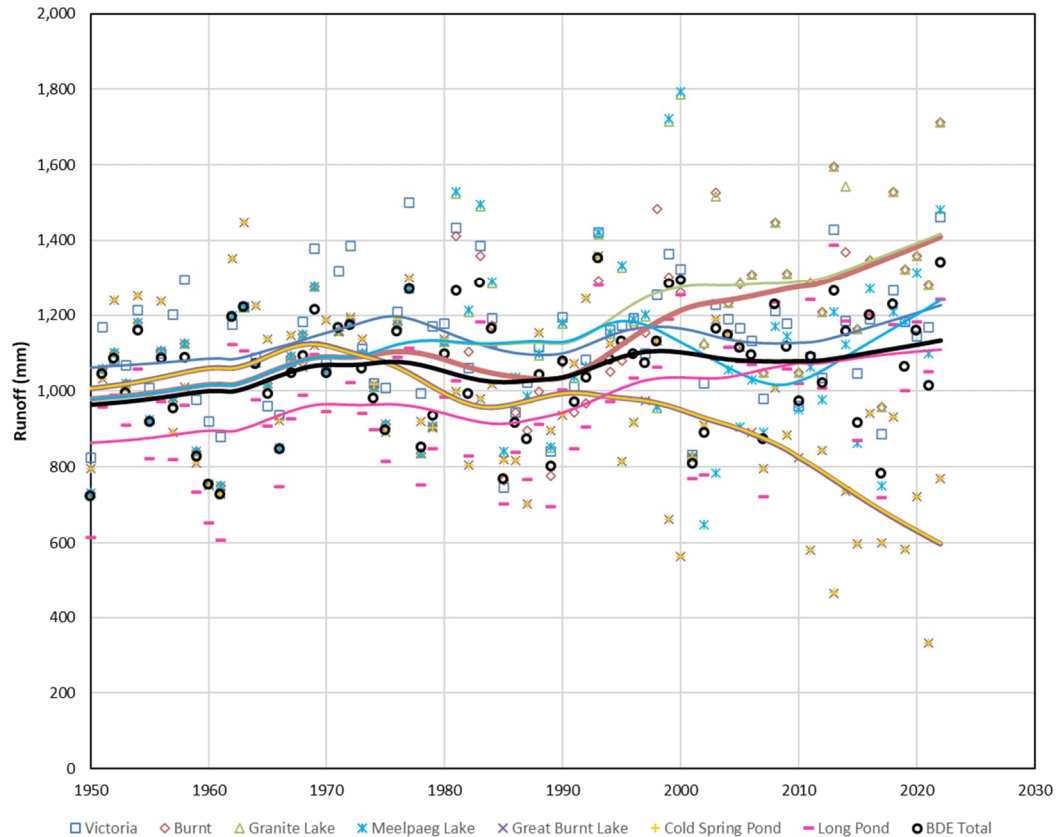


Figure 6-1: Time Series Plot with LOESS Lines – BDE Historic Inflow Series

The series show strongly diverging trends in the latter part of the record. This contrasts with the early part of the record when the series are relatively stable and show similar wet and dry cycles.

Overlapping markers, where sub-basins have identical runoff in successive years, appear to indicate periods when the series were synthesized from the same reference data. These periods include:

- 1950 to 1980: Burnt, Granite Lake, Meelpaeg Lake;
- 1981 to 2001: Granite Lake, Meelpaeg Lake;
- 2002 to 2022: Burnt, Granite Lake;
- 1950 to 2022: Great Burnt Lake, Cold Spring Pond.

As previously noted in the BDE Unit 8 study (Hatch, 2020), there were discrepancies between some of the Hydro series and the adjustments made by SGE Acres (2004) to remediate inconsistencies in the inflows. As a consequence, while proceeding with the analysis of the current data set, there was a need to evaluate the extent of these discrepancies and their impact.

SGE Acres produced four series of adjusted flows, expressed as annual and monthly volumes, provided as Appendix F of the 2004 report. The four adjusted series align with the current Vista sub-basins as follows:

- Victoria;
- Meelpaeg (corresponding to the Burnt, Granite Lake and Meelpaeg Lake sub-basins in Vista). The original unadjusted series for this area was referred to as “Grey” in the 2003 study;
- Upper Salmon (corresponding to the Great Burnt Lake and Cold Spring Pond sub-basins in Vista); and
- Lower Salmon (corresponding to the Long Pond sub-basin in Vista).

6.1.1 Victoria

Figure 6-2 shows the historic inflow series from Hydro (with LOESS line) along with the adjusted inflows from SGE Acres (2004).

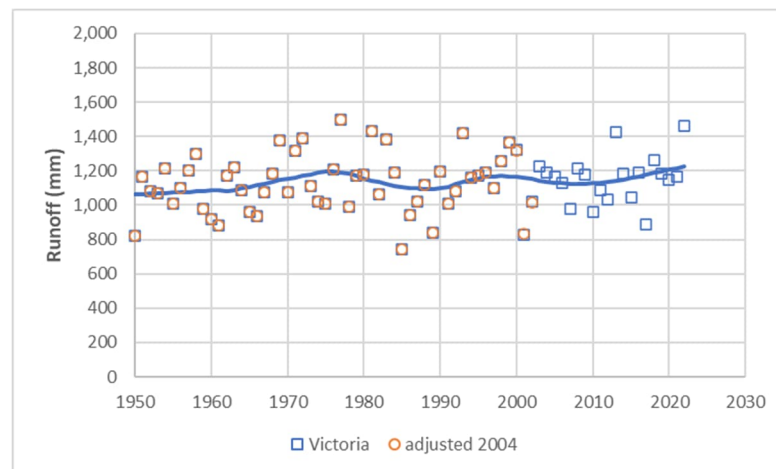


Figure 6-2: Historic and SGE Acres (2004) Adjusted Inflows – Victoria

The Victoria historic inflow series from Hydro matches the 1950 to 2002 adjusted inflows, which are provided in SGE Acres (2004) Table F.1.

6.1.2 *Burnt, Granite Lake and Meelpaeg Lake*

Figure 6-3 shows the historic inflow series from Hydro (with LOESS lines) along with the adjusted inflows from SGE Acres (2004).

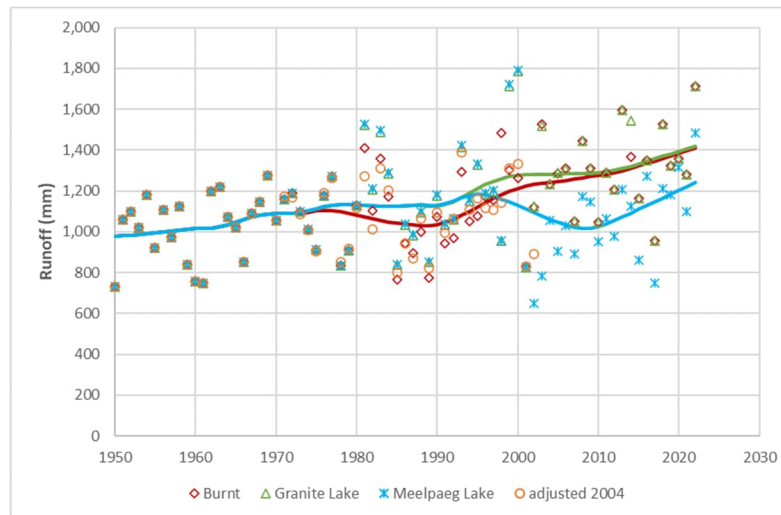


Figure 6-3: Historic and SGE Acres (2004) Adjusted Inflows – Burnt, Granite Lake and Meelpaeg Lake

For the period 1950 to 1980, the Hydro inflows are generally consistent with the adjusted “Meelpaeg” inflows. During this timeframe, the runoff values are uniform in all three sub-basins; the sub-basin inflow rates are proportional only to sub-basin drainage area. This is consistent with the treatment of the sub-basins as a single “Meelpaeg” drainage area in the derivation of the historic inflows, as documented by SGE Acres (2003, 2004).

For the period 1981 to 2000, the combined Hydro inflows do not match the adjusted inflows but do match the original unadjusted “Grey” series as documented in SGE Acres (2003). However, there is also a discrepancy in the how the runoff is distributed; the runoff values are uniform between the Granite Lake and Meelpaeg Lake sub-basins, and lower in the Burnt sub-basin.

The period 2001 to 2022 includes the operational period of the Granite Canal Generating Station. For most of this period, the runoff values are uniform between the Burnt and Granite Lake sub-basins, and lower in the Meelpaeg Lake sub-basin. Operational data from the generating station allows combined Burnt and Granite Lake inflows to be backrouted independently of Meelpaeg Lake. Partitioning the flow between the Burnt and Granite Lake sub-basins is then on the basis of drainage area.

6.1.3 Great Burnt Lake and Cold Spring Pond

Figure 6-4 shows the historic inflow series from Hydro (with LOESS lines) along with the Upper Salmon adjusted inflows from SGE Acres (2004).

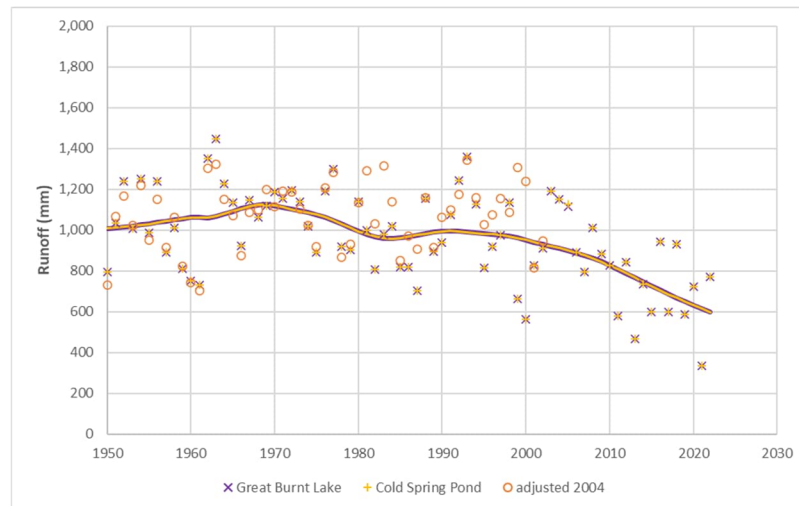


Figure 6-4: Historic and SGE Acres (2004) Adjusted Inflows – Great Burnt Lake and Cold Spring Pond

The runoff values are uniform in both sub-basins; the sub-basin inflow rates are proportional only to sub-basin drainage area.

Prior to 1981, the inflows follow a similar pattern as the adjusted dataset, but do not match in most years. For the period 1981 to 2000, the sub-basin inflows in the current dataset from Hydro match the original unadjusted series as documented in SGE Acres (2003). The declining trend after 2000 is not consistent with the pattern seen in the adjacent sub-basins.

6.1.4 Long Pond

Figure 6-5 shows the historic inflow series from Hydro (with LOESS line) along with the adjusted Lower Salmon inflows from SGE Acres (2004).

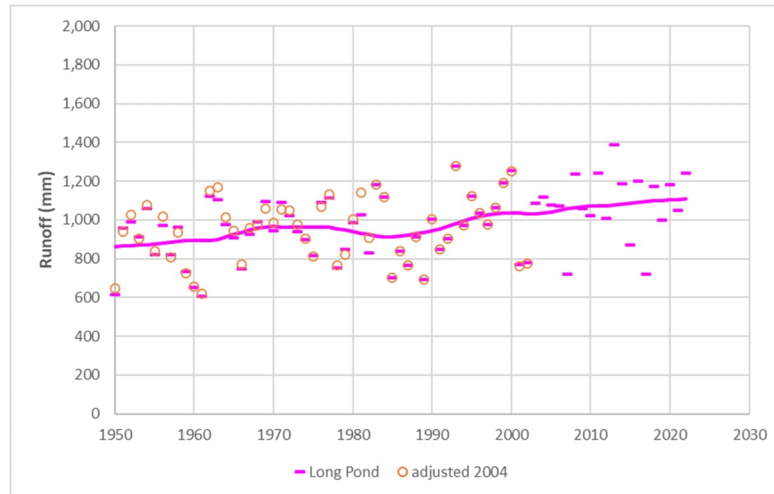


Figure 6-5: Historic and SGE Acres (2004) Adjusted Inflows – Long Pond

Prior to 1983, the inflows are similar to the adjusted dataset, but do not exactly match. For the period 1983 to 2002, the inflow series matches the adjusted inflows which are provided in SGE Acres (2004) Table F.4.

6.2 Implementation of Previously Recommended Adjustments

The preceding comparison found that the adjusted BDE inflows prepared by SGE Acres (2004) have not been fully implemented in Hydro's Vista DSS database. The historic dataset still includes long periods of values that pre-date the 2004 study. The only portions of the historic dataset that can be accepted for analysis without further adjustment are as follows:

- **Victoria:** The adjusted inflows prepared by SGE Acres in 2004 have been implemented in the historic series. The main adjustment made by SGE Acres was to increase the pre-development inflow values, which were judged to be too low. The increase was determined via comparison of mean annual runoffs of WSC basins for the pre- and post-development periods. The inflows in the post-development period were derived from backrouting Victoria Reservoir level and discharge data, which was accepted by SGE Acres (2004) and continues to the present;
- **Long Pond, for the Upper Salmon post-development period 1983 to 2022:** The inflows in this period were derived from backrouting Long Pond reservoir levels and discharges at Upper Salmon and Long Pond, which was accepted by SGE Acres (2004) and continues to the present.

Post-development inflows are developed by standard backrouting techniques using calibrated curves for structures and generating units. These methods are accurate when calibrated information is available. However, the 2004 study determined that a major source of error was uncertainty in the gate discharge rating curves of the Ebbegunbaeg Control Structure. This control structure regulates the discharge from Meelpaeg Lake. The 2004 study reviewed the history of the Ebbegunbaeg discharge rating and concluded that it overestimated the discharge. The study concluded that the water transfers from Meelpaeg Lake to the Upper Salmon reservoirs, as they had been calculated to date, were incorrect. The error in overestimating the Ebbegunbaeg discharge would lead to overestimating the runoff in the Meelpaeg sub-basin (and Burnt and Granite sub-basins, prior to the Granite Canal development). At the same time, it would lead to underestimating the runoff to the Upper Salmon sub-basins (and also to Long Pond, prior to the Upper Salmon development).

SGE Acres (2004) recommended that Hydro should make additional measurements as required to verify or redevelop the rating curves for the Ebbegunbaeg Control Structure; and that Hydro should use the revised curves to recalculate post-development inflows for the Meelpaeg, Upper Salmon, and Lower Salmon reservoirs. To Hatch's knowledge, these recommendations remain outstanding.

The interim solution proposed by SGE Acres was to remove the source of error by combining the backrouted inflows of the affected drainage areas and redistributing them according to the proportions that were accepted for the pre-development period.

In addition to the above, SGE Acres concluded that the pre-development inflow values for Meelpaeg (including Burnt and Granite) were too low and needed to be increased in a similar fashion as Victoria.

SGE Acres developed series of adjusted inflows and recommended that Hydro replace its BDE inflow series with the adjusted series, until such time as the Ebbegunbaeg rating curves could be revised and post-development inflows could be reconstructed for the Meelpaeg, Upper Salmon and Lower Salmon reservoirs. The derivation of the adjusted flows is discussed in the 2004 report and is not repeated here.

Hatch has reviewed the 2004 report and concluded that the adjusted flows and their derivation and justification are still valid. The recommended steps for application to Hydro's BDE inflow series, as they now exist, are described below.

6.2.1 *Burnt, Granite Lake and Meelpaeg Lake Adjusted Flows*

6.2.1.1 1950-2002

Adjusted monthly inflow volumes for the combined Burnt, Granite Lake and Meelpaeg Lake area for the period 1950-2002 are provided in SGE Acres (2004) Table F.2.

For use in Vista DSS, there was a need to partition these adjusted flows into the separate Burnt, Granite Lake and Meelpaeg Lake sub-basins. To do this, it was now possible to take advantage of data from the post-development phase of Granite Canal (2003 and later). Inflows to the combined Burnt/Granite Lake drainage area since 2003 have been derived from backrouting of known discharges from the Granite Canal development, along with releases at Victoria Control Structure and spills at Burnt Dam and Granite Lake.

The 2003-2022 average annual inflow volume to the combined Burnt/Granite Lake/Meelpaeg Lake drainage area was estimated as 2,415 million m³ (45.9 percent of the total BDE inflow excluding Victoria; see section 6.2.1.2 below). Of this amount, the annual inflow volume to the Burnt/Granite Lake portion, from the backrouted values in the Hydro series, was 1,561 million m³. Thus, the proportions of the combined inflows were 0.64655 for Burnt/Granite Lake, and 0.35345 for Meelpaeg Lake. These proportions were assumed to apply to the 1950-2002 period as well.

With respect to further dividing the flow between Burnt and Granite Lake, there were no available flow records in Burnt Canal between Burnt Pond and Granite Lake that could be used to backroute separate Burnt and Granite Lake series, which could also reveal spatial variations in runoff. Runoff mapping suggests that Burnt may be wetter than Granite Lake, but any such spatial variation in the inflow dataset would not be expected to have much impact on the generation at the plants downstream. For the purpose of this task, it was assumed that both sub-basins have the same average runoff depths and that the flows could be proportioned by drainage area only. The drainage area ratios were $679/1,182 = 0.57445$ for Burnt and $503/1,182 = 0.42555$ for Granite Lake.

Thus, the final ratios to prorate the adjusted 1950-2002 inflows were:

- Burnt: $0.64655 * 0.57445 = 0.37141$;
- Granite Lake: $0.64655 * 0.42555 = 0.27514$; and
- Meelpaeg Lake: 0.35345.

The ratios were applied to the values in SGE Acres (2004) Table F.2 to yield separate adjusted monthly inflow volumes to the Burnt, Granite Lake and Meelpaeg Lake sub-basins.

Adjustment factors for each month from January 1950 to December 2002 were then computed as ratios of the adjusted to unadjusted monthly inflow volumes. The adjustment factors were then applied to the unadjusted daily inflow series, yielding the series of adjusted daily inflows.

6.2.1.2 2003-2022

For this period, the Hydro daily inflows to Burnt and Granite Lake were summed and then prorated by drainage area (0.57445 for Burnt and 0.42555 for Granite) to yield separate and consistent adjusted inflow series for Burnt and Granite Lake.

The problem with the Meelpaeg Lake inflow series continues to be the uncertainty of the water transfer via the Ebbegunbaeg Control Structure. To remove this source of uncertainty, the approach of SGE Acres (2004) was followed by summing the Hydro daily inflows for Burnt, Granite Lake, Meelpaeg Lake, Great Burnt Lake, Cold Spring Pond and Long Pond.

Based on pre-development data, SGE Acres (2004) estimated that the proportion of runoff to the combined Burnt, Granite Lake and Meelpaeg Lake sub-basin area was 45.9 percent of the total BDE runoff (excluding Victoria).

Thus, a series of estimated daily inflows to the combined Burnt, Granite and Meelpaeg area was derived as 0.459 times the summed inflows above.

The daily inflows to the Meelpaeg sub-basin were then calculated as the estimated inflows in the preceding step, minus the combined Burnt and Granite inflows. This yielded the final adjusted daily inflow series for Meelpaeg, unaffected by the rating curve uncertainty.

6.2.2 **Great Burnt Lake and Cold Spring Pond**

6.2.2.1 1950-2002

Adjusted monthly inflow volumes for the combined Great Burnt Lake and Cold Spring Pond area for the period 1950-2002 are provided in SGE Acres (2004) Table F.3.

For use in Vista DSS, there was a need to partition the adjusted flows into the separate Great Burnt Lake and Cold Spring Pond sub-basins. It was accepted that both sub-basins have the same average runoff depths and that the flows can be proportioned by drainage area. The drainage area ratios were $630/920 = 0.68488$ for Great Burnt Lake and $290/920 = 0.31521$ for Cold Spring Pond.

The ratios were then used to calculate separate adjusted monthly inflow volumes to Great Burnt Lake and Cold Spring Pond, from the values in SGE Acres (2004) Table F.3.

Adjustment factors for each month from January 1950 to December 2002 were then computed as ratios of the adjusted to unadjusted monthly inflow volumes. The adjustment factors were then applied to the unadjusted daily inflow series to yield the series of adjusted daily inflows.

6.2.2.2 2003 to 2022

The problem with the Great Burnt Lake and Cold Spring Pond inflow series continues to be the uncertainty of the water transfer via the Ebbegunbaeg Control Structure. To remove this source of uncertainty, the approach of SGE Acres (2004) was followed by summing the Hydro daily inflows for Burnt, Granite, Meelpaeg, Great Burnt Lake, Cold Spring Pond and Long Pond.

Based on pre-development data, SGE Acres (2004) estimated that the proportion of runoff to the combined Great Burnt Lake, Cold Spring Pond and Long Pond sub-basin area was 54.1 percent of the total BDE runoff (excluding Victoria).

Thus, an estimated daily series of inflows to the combined Great Burnt Lake, Cold Spring Pond and Long Pond area was derived as 0.541 times the summed inflows above.

The daily inflows to the combined Great Burnt Lake and Cold Spring Pond area were then calculated as the estimated inflows in the preceding step, minus the Long Pond inflows (which were accepted as backrouted values). To partition the resulting values into the separate Great Burnt Lake and Cold Spring Pond sub-basins, the values were proportioned by drainage area as has been previously described.

This yielded the final adjusted daily inflow series for Great Burnt Lake and Cold Spring Pond, unaffected by the rating curve uncertainty.

6.2.3 Long Pond

Adjusted monthly inflow volumes for Long Pond for the period 1950 to 2002 are provided in SGE Acres (2004) Table F.4.

Adjustment factors for each month from January 1950 to December 2002 were computed as ratios of the adjusted to unadjusted monthly inflow volumes. The adjustment factors were then applied to the unadjusted daily inflow series to yield the series of adjusted daily inflows.

6.2.4 Overall Volume Adjustments

Table 6-2 shows the changes in the volumes of the BDE historic inflow series as a result of the adjustments. The total BDE runoff volume was maintained, as the adjustments involved only a redistribution of runoff between the sub-basins.

Table 6-2: BDE Inflow Series Overall Volume Adjustments

Name	Historic (mm)	Adjusted (mm)	Change
Victoria	1,133	1,133	0.0%
Burnt	1,133	1,265	+11.7%
Granite Lake	1,164	1,265	+8.6%
Meelpaeg Lake	1,090	843	-22.7%
Great Burnt Lake	957	1,051	+9.8%
Cold Spring Pond	957	1,051	+9.8%
Long Pond	978	985	+0.7%
Total BDE	1,055	1,055	0.0%

6.3 Data Analysis of Adjusted Inflows

The adjusted series were tested to verify that the adjustments were successful in removing the internal inconsistencies. The total BDE inflows were also tested as an overall check. The results were compared to information from the RHBN stations that were used to validate the adjusted series in the 2004 study (Bay du Nord, Gander and Upper Humber).

Figure 6-6 shows the time series plot of the adjusted series with LOESS lines.

The implication of using constant ratios to allocate flows between sub-basins is that the spatial distribution of the flows is assumed to be the same every year (visible as periods when the series are parallel). In particular, the adjusted series for Burnt and Granite Lake are assumed to be equally wet each year, and likewise Great Burnt Lake and Cold Spring Pond, as shown by the overlapping markers. However, this lack of diversity is not particularly important for Hydro's purposes, given the large volumes of storage in the Bay d'Espoir reservoirs. The temporal variability of the combined inflows is still maintained. Greater diversity is evident in time periods when series consist of exclusively backrouted values, such as Long Pond after 1982. Reconstruction of backrouted inflows following a correction of the Ebbegunbaeg discharge rating would be expected to show an increase in diversity between the upstream and downstream sub-basins, which for now must use interim proportional values.

Figure 6-7 shows the time series plots of three RHBN stations (Bay du Nord, Gander, and Upper Humber) that were compared to the adjusted BDE series in the 2004 study. The plots show overall similar behaviors as those of the adjusted BDE series, albeit with greater diversity as expected of natural streamflow series.

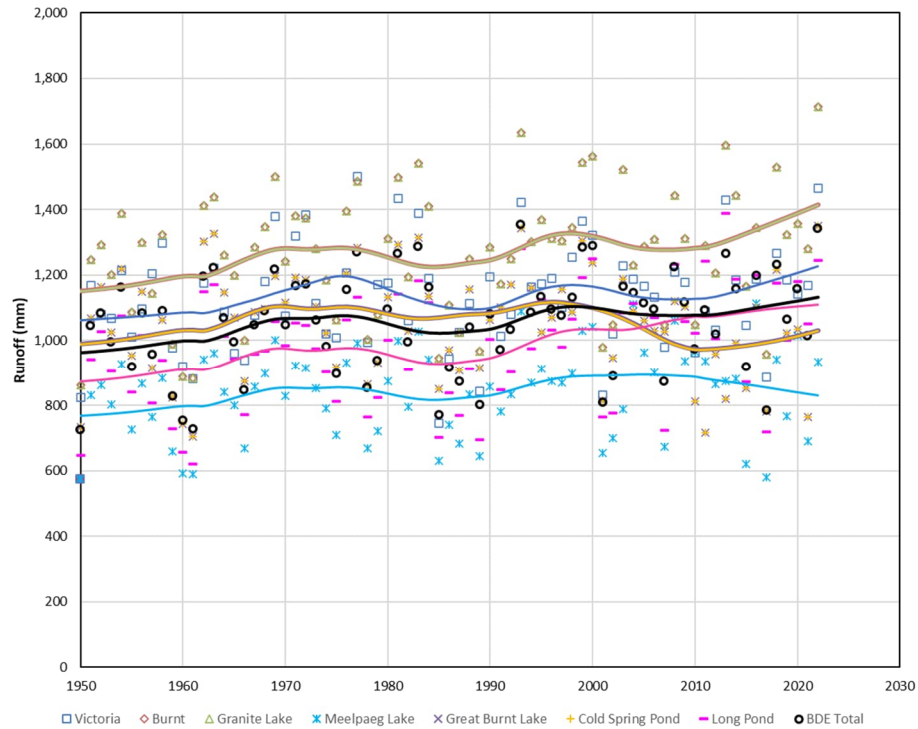


Figure 6-6: Time Series Plot with LOESS Lines – BDE Adjusted Inflow Series

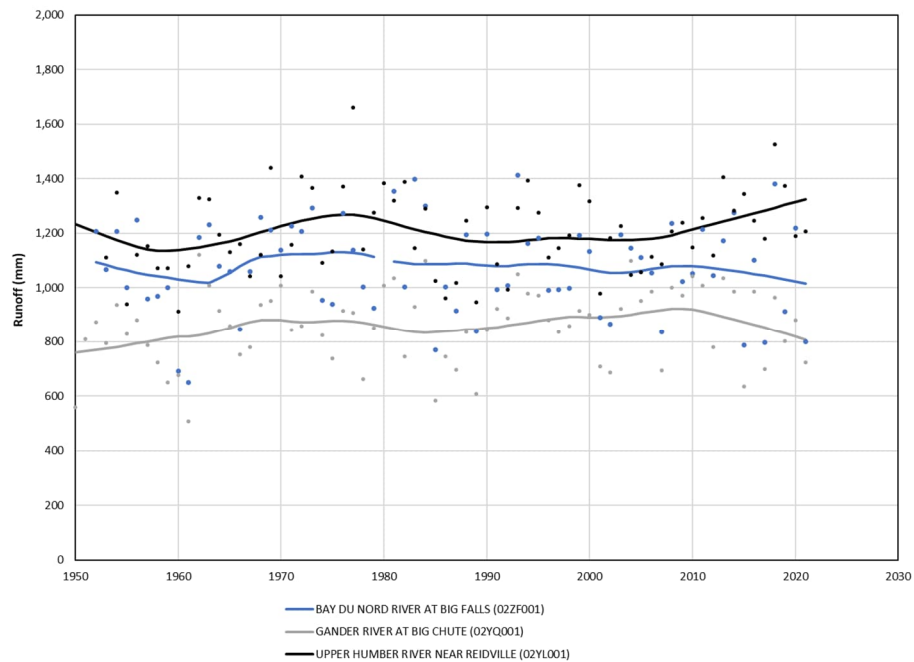


Figure 6-7: Time Series Plot with LOESS Lines – Bay du Nord, Gander, and Upper Humber

6.3.1 Monotonic Trend Analysis

Table 6-3 presents the monotonic trend analysis of the adjusted series.

Table 6-3: Monotonic Trend Analysis – BDE Adjusted Inflow Series

Name	Analysis Period	Sample Size n	Mean (mm)	Mann-Kendall p-value	Category	Remarks
Victoria	1950-2022	73	1,133	0.178	3	Weak incr.
Burnt	1950-2022	73	1,265	0.044	1	Sig. incr.
Granite Lake	1950-2022	73	1,265	0.044	1	Sig. incr.
Meelpaeg Lake	1950-2022	73	843	0.048	1	Sig. incr.
Great Burnt Lake	1950-2022	73	1,051	0.472	3	Practically horizontal
Cold Spring Pond	1950-2022	73	1,051	0.472	3	Practically horizontal
Long Pond	1950-2022	73	985	0.001	1	Sig. incr.
Total BDE	1950-2022	73	1,055	0.046	1	Sig. incr.

In the 2004 study, trend analysis found no significant monotonic trend in the adjusted (1950-2002) BDE series. With additional years of data, some of the adjusted series and the adjusted BDE total show significant trend.

The finding of significant trend is sensitive to the early part of the period of record, which was drier than the long-term average. This coincides with the BDE pre-development period (1950-1970) which, if excluded from the trend analysis, results in no significant trend being detected in the adjusted BDE total or any of the adjusted sub-basin series except for Long Pond. The available WSC records suggest that the lower runoff values during the BDE pre-development period were due to natural conditions and not a difference in estimation methodology.

6.3.2 Cumulative Departure from Mean

Figure 6-8 shows the plot of cumulative departure from mean of the adjusted inflow series.

The plots show alternating positive and negative slopes which indicate periods of variability above and below the mean, but there are no clear indications of any shifts that would constitute a step change.

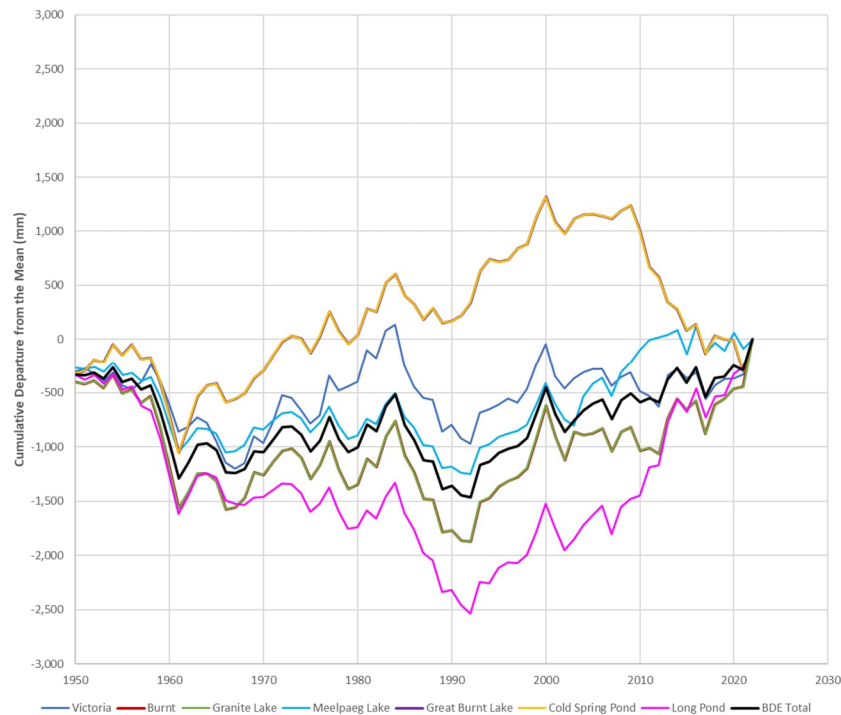


Figure 6-8: Cumulative Departure from Mean – BDE Adjusted Inflow Series

6.3.3 Step Change Analysis

Step change analysis was carried out on the adjusted series to compare inflow values before and after known intervention. The before/after years used to split the sample were:

- 1971 – original Bay d'Espoir development diversions completed, all generating units in operation;
- 1983 – Upper Salmon development completed;
- 2003 – Granite Canal development completed.

Table 6-4, Table 6-5 and Table 6-6 presents the step change analysis of the adjusted series. Boxplots of the pre- and post-development inflows for each potential intervention year are shown in Figure 6-9, Figure 6-10 and Figure 6-11. (Results for Granite Lake and Cold Spring Pond are combined with Burnt Pond and Great Burnt Lake respectively since the runoff series are identical.) Results for the comparison RHBN stations are also shown.

For the 1971 potential change point, mean and median inflow values were generally higher in the post-development period, but only Long Pond was significant at 5 percent. However, this could be due to the pre-development period coinciding with a natural dry period.

For the 1983 potential change point, Long Pond again showed a statistically significant increase. The pre-development sample includes the early dry period, although the result could also involve uncertainty in the inflow values due to the estimation method that had to be used for the 1971 to 1983 period. In addition, a Mann-Kendall analysis of the post-development sample showed a significant increasing trend that could contribute to the finding of an apparent step change.

For the 2003 potential change point, a step change can likely be ruled out for Long Pond since its inflow calculation would not be affected by the Granite Canal development; the apparent step change is likely due to monotonic trend. No other statistically significant changes were detected.

The boxplots do not suggest any major changes in the variance of the series before and after the potential change points.

Table 6-4: Step Change Analysis Pre/Post-1971 – BDE Adjusted Inflow Series

Name	Pre	Post	Sample Size n ₁ , n ₂	Mann-Whitney p-value	Remarks
Victoria	1950-1970	1971-2022	21, 52	0.112	Post is higher but not sig.
Burnt (& Granite Lake)	1950-1970	1971-2022	21, 52	0.117	Post is higher but not sig.
Meelpaeg Lake	1950-1970	1971-2022	21, 52	0.101	Post is higher but not sig.
Great Burnt Lake (& Cold Spring Pond)	1950-1970	1971-2022	21, 52	0.784	Little change
Long Pond	1950-1970	1971-2022	21, 52	0.027	Post is higher, sig. at 5%
Total BDE	1950-1970	1971-2022	21, 52	0.085	Post is higher, sig. at 10%
Bay du Nord (02ZF001)	1952-1970	1971-2021	19, 50	0.134	Post is higher but not sig.
Gander (02YQ001)	1950-1970	1971-2021	21, 51	0.227	Post is higher but not sig.
Upper Humber (02YL001)	1953-1970	1971-2021	18, 51	0.056	Post is higher, sig. at 10%

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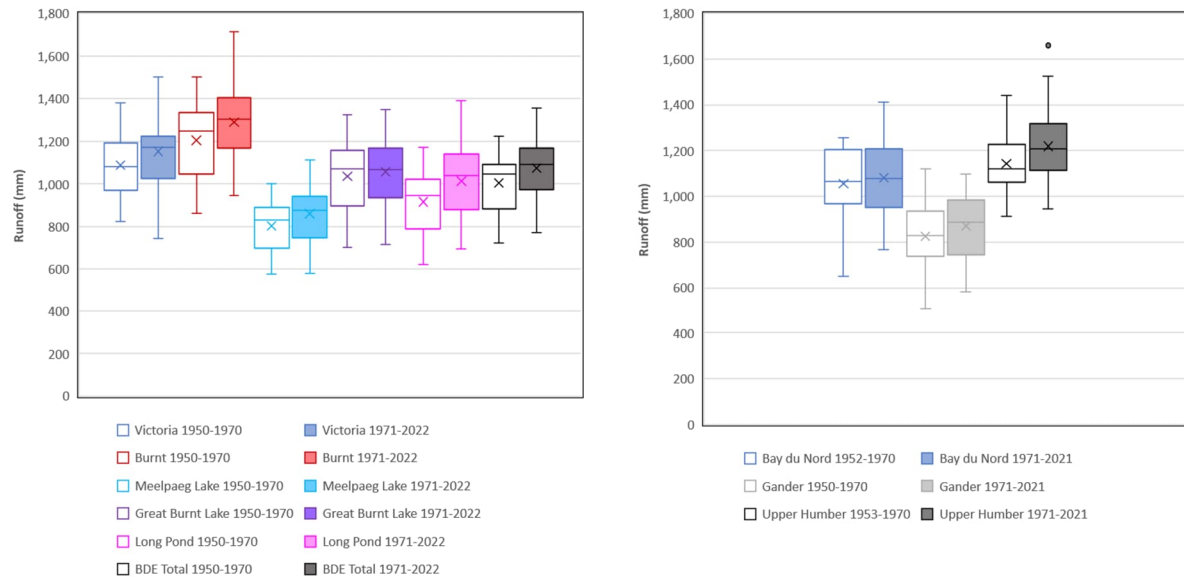


Figure 6-9: Boxplots Pre/Post-1971 – BDE Adjusted Inflow Series

Table 6-5: Step Change Analysis Pre/Post-1983 – BDE Adjusted Inflow Series

Name	Pre	Post	Sample Size n ₁ , n ₂	Mann-Whitney p-value	Remarks
Victoria	1950-1982	1983-2022	33, 40	0.524	Little change
Burnt (& Granite Lake)	1950-1982	1983-2022	33, 40	0.204	Post is higher but not sig.
Meelpaeg Lake	1950-1982	1983-2022	33, 40	0.154	Post is higher but not sig.
Great Burnt Lake (& Cold Spring Pond)	1950-1982	1983-2022	33, 40	0.606	Little change
Long Pond	1950-1982	1983-2022	33, 40	0.017	Post is higher, sig. at 5%
Total BDE	1950-1982	1983-2022	33, 40	0.193	Post is higher but not sig.
Bay du Nord (02ZF001)	1952-1982	1983-2021	30, 39	0.599	Little change
Gander (02YQ001)	1950-1982	1983-2021	33, 39	0.268	Post is higher but not sig.
Upper Humber (02YL001)	1953-1982	1983-2021	30, 39	0.808	Little change

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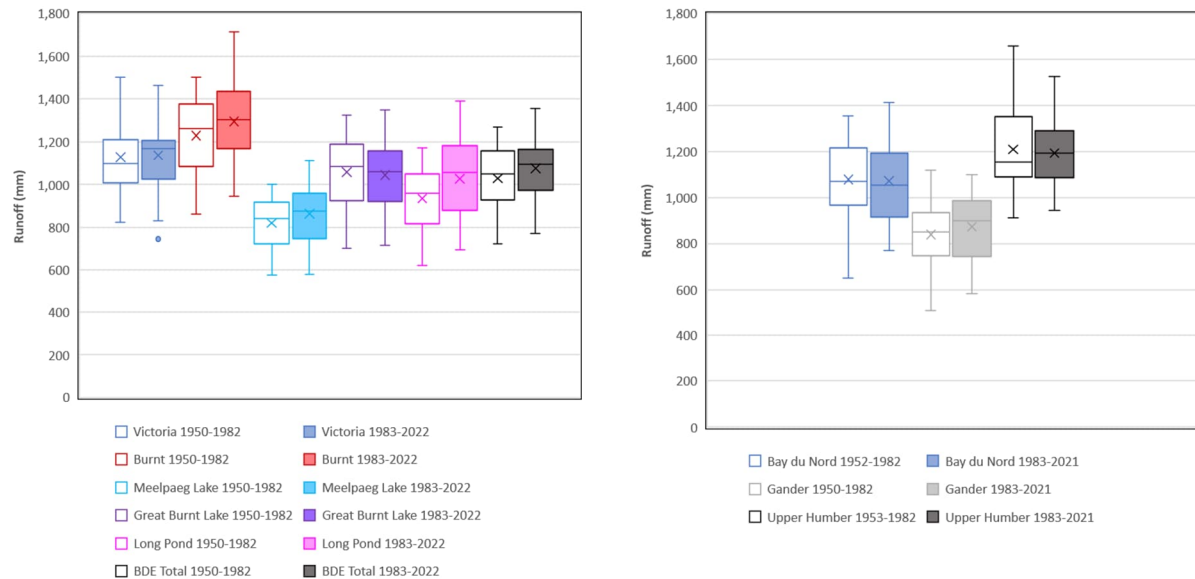


Figure 6-10: Boxplots Pre/Post-1983 – BDE Adjusted Inflow Series

Table 6-6: Step Change Analysis Pre/Post-2003 – BDE Adjusted Inflow Series

Name	Pre	Post	Sample Size n ₁ , n ₂	Mann-Whitney p-value	Remarks
Victoria	1950-2002	2003-2022	53, 20	0.550	Little change.
Burnt (& Granite Lake)	1950-2002	2003-2022	53, 20	0.168	Post is higher but not sig.
Meelpaeg Lake	1950-2002	2003-2022	53, 20	0.097	Post is higher, sig. at 10%.
Great Burnt Lake (& Cold Spring Pond)	1950-2002	2003-2022	53, 20	0.112	Post is lower but not sig.
Long Pond	1950-2002	2003-2022	53, 20	0.002	Post is higher, sig. at 5%.
Total BDE	1950-2002	2003-2022	53, 20	0.115	Post is higher but not sig.
Bay du Nord (02ZF001)	1952-2002	2003-2021	50, 19	0.989	Little change.
Gander (02YQ001)	1950-2002	2003-2021	53, 19	0.071	Post is higher, sig. at 10%.
Upper Humber (02YL001)	1953-2002	2003-2021	50, 19	0.379	Post is higher but not sig.

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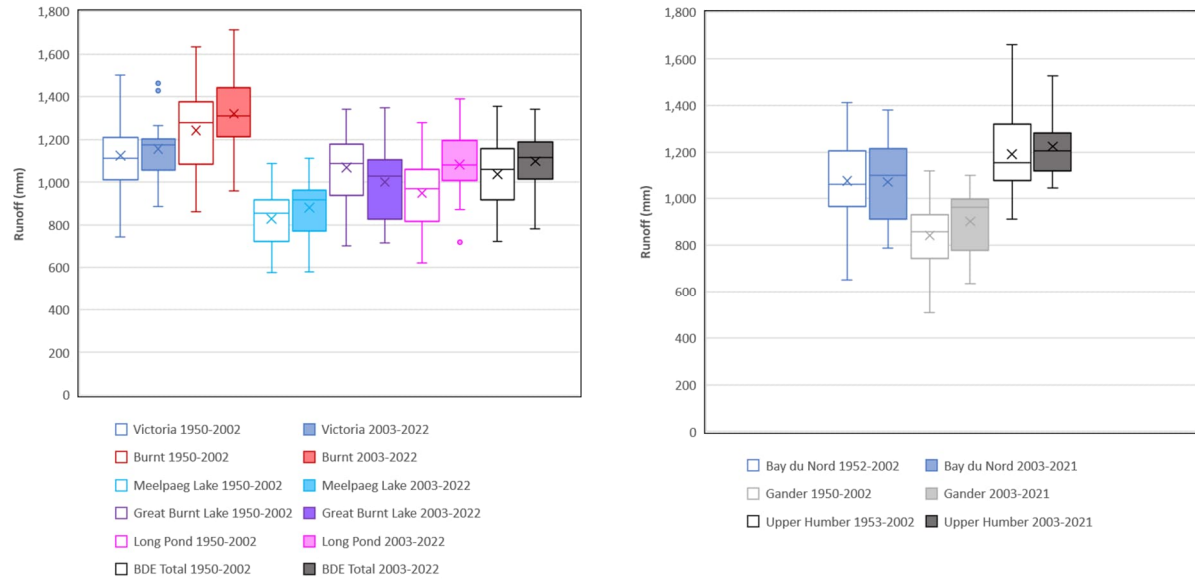


Figure 6-11: Boxplots Pre/Post-2003 – BDE Adjusted Inflow Series

6.3.4 Mass Curves

Figure 6-12 shows the single mass curves of the adjusted BDE series. There are no unnatural breaks in slope or unusual offsets. The slight changes in the curves may be attributed to annual flow variations and natural hydrologic variability with some basins experiencing wet or dry periods that were not experienced by others. The double mass curves with Gander River in Figure 6-13 show similar behavior.

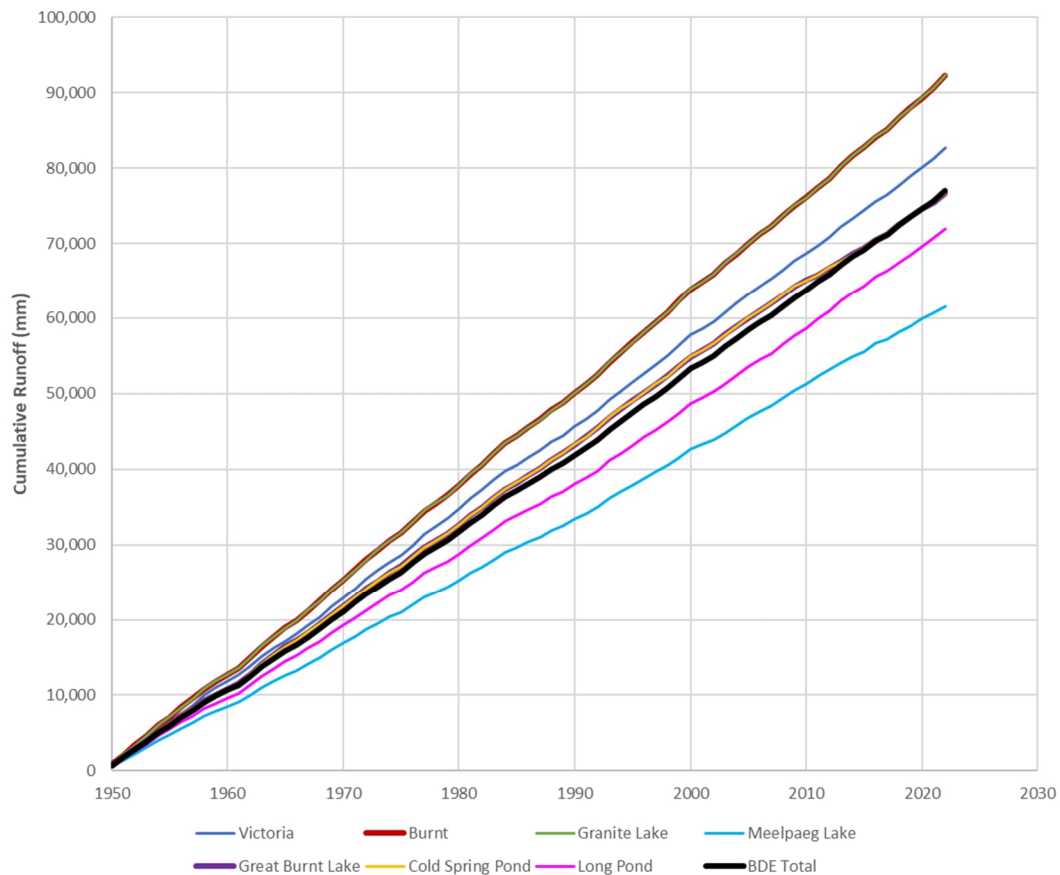


Figure 6-12: Single Mass Curves – BDE Adjusted Inflow Series

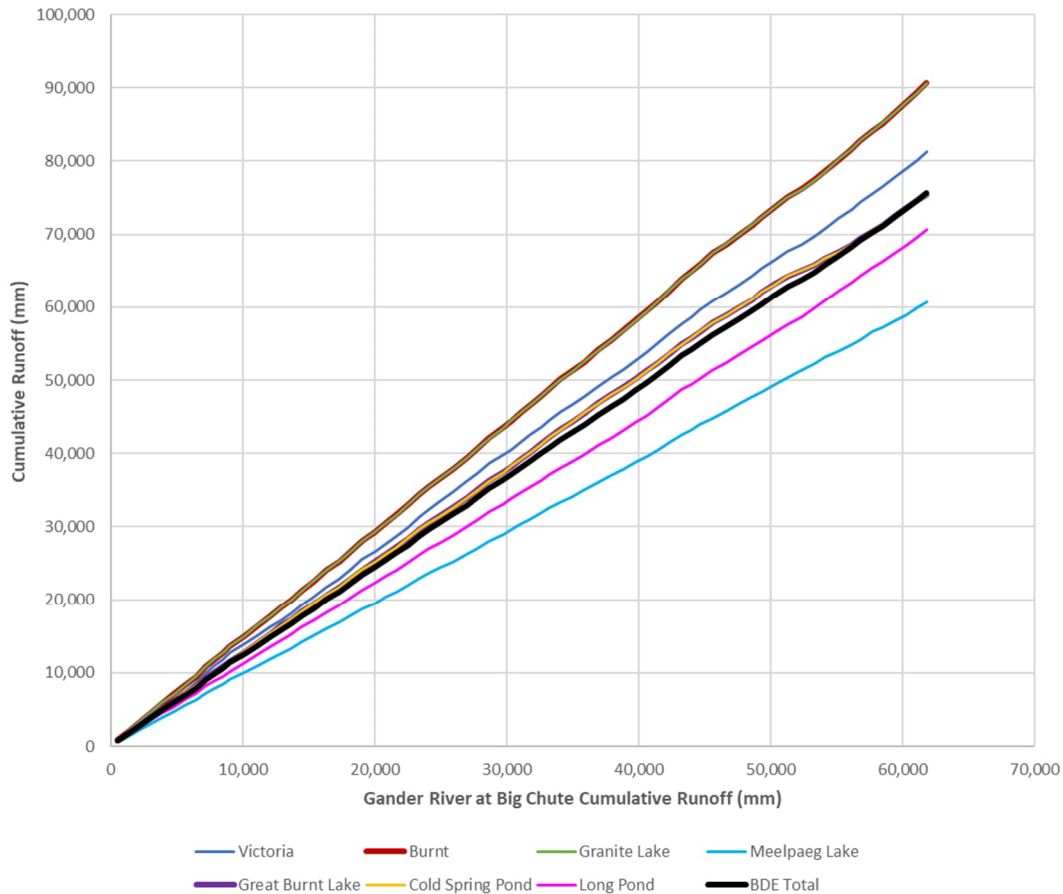


Figure 6-13: Double Mass Curves – BDE Adjusted Inflow Series

6.4 Discussion

Adjusted inflow series have been estimated using a proportional approach. The adjusted inflow series appear to be free of random and systematic errors. The adjustments have redistributed the inflows among the sub-basins in a consistent manner while preserving the overall BDE runoff volume. Apparent trends are most likely due to natural hydrological variability (drier years dominating the early part of the record, and recent years being wetter in some areas).

The BDE adjusted inflow series should be considered interim until the recommendation is addressed to validate the Ebbegunbaeg Control Structure discharge rating and reconstruct the inflow record, if necessary. Uncertainty in the Ebbegunbaeg discharge rating impacts the internal distribution of the estimated pre-development and/or post-development inflows in potentially all sub-basins except Victoria.

The BDE adjusted inflow series are tabulated as annual flows (m^3/s) and equivalent annual runoff depths (mm) in Appendix B. Daily flow values have been provided to Hydro in digital format.

6.5 North Salmon Spillway Rating Curve

Hydro asked Hatch to evaluate the discharge rating curves for partial gate openings at North Salmon Spillway on Great Burnt Lake. Hatch reviewed the gate discharge rating curves documented in the Upper Salmon Development Operating and Maintenance Manual (Acres Consulting Services Limited, 1983), Part 6 Reservoir Operation, Figure 9; along with Hydro drawing 5455-B1-1-5200-3301, North Salmon Spillway General Arrangement, Rev. 1, February 15, 1982.

The discharges for free surface flow and partial gate flow conditions are consistent with each other, based on the recommended relationship in the U.S. Army Corps of Engineers Hydraulic Design Criteria Sheet 312 for Vertical Lift Gates on Spillways (USACE, 1987). The design criteria relate the hydraulic performance of vertical lift gate spillways at partial gate openings to their performance in free surface discharge conditions. If the free surface discharge is accurate, then the partial gate discharge is likely to be accurate also. The free surface discharge rating of the North Salmon Spillway is consistent with that of a broad-crested weir (which the spillway resembles), which has a much lower discharge coefficient than an ogee weir. It is unknown whether the spillway experiences tailwater or apron effects, but if present, they would tend to reduce the coefficient further.

Hydro has calculated an alternative discharge rating, based in part on determining the discharge at North Salmon Spillway that would appear to achieve a balance with the Ebbegunbaeg gate opening calculated discharge. However, Hydro acknowledged that the alternative discharge rating appeared to be too high from a theoretical perspective, and too high when compared to the known performance of the vertical lift gate spillway at Muskrat Falls. If as per SGE Acres (2004) the discharge through Ebbegunbaeg is being overestimated, it would also yield an overestimate of the discharge through the North Salmon Spillway using such an approach.

Hatch concludes that the North Salmon Spillway discharge rating curves published in the Upper Salmon Operating and Maintenance Manual appear to be valid. Error in the discharge rating at Ebbegunbaeg may be responsible for any apparent discrepancy with the discharge values at the North Salmon Spillway.

7. Hinds Lake

7.1 Data Review

The Hinds Lake inflow series in Vista spans the time period from 1950 to 2022. The Hinds Lake series represents inflows in the drainage area of the Hinds Lake plant, Figure 2-1. The plant came into service in December 1980. The Hinds Lake sub-basin is tributary to the Grand Lake-Humber River watershed in the western part of the Island.

Table 7-1 summarizes the data intervals of the Hinds Lake series. The inflow values are stored in Vista on a daily time step, although the daily values consist of monthly averaged flows until 1981.

Table 7-1: Hinds Lake Inflow Series Data Intervals

Series	Drainage Area (km ²)	Period of Record	Monthly Data	Daily Data
Hinds Lake	651	1950-2022	January 1, 1950 to December 31, 1980	January 1, 1981 to December 31, 2022

SGE Acres (2003) documented the synthesis and timeline of the inflow series. Estimation of inflows in the pre-development period relied on the former WSC hydrometric station 02YK004 (Hinds Brook near Grand Lake) which was in service from October 1956 to March 1980. The timeline is summarized briefly below.

- 1950 to 1956: inflows were estimated by prorating backrouted inflows to Grand Lake. (data supplied by Deer Lake Power). The proration factor was based on 1956-1976 streamflow measurements at 02YK004 with adjustments for drainage area;
- 1956 to 1980: inflows were estimated from streamflow measurements at 02YK004, with adjustments for drainage area;
- 1980 to present: from April 1980 onward, following construction of the Hinds Lake development, Hydro has synthesized the inflows by backrouting.

For the data analysis in the current study and for consistency with previous studies, the inflows have been aggregated into annual values. Figure 7-1 shows the time series plot of the Hinds Lake series with LOESS line. The Hinds Lake LOESS line appears to show an increasing trend.

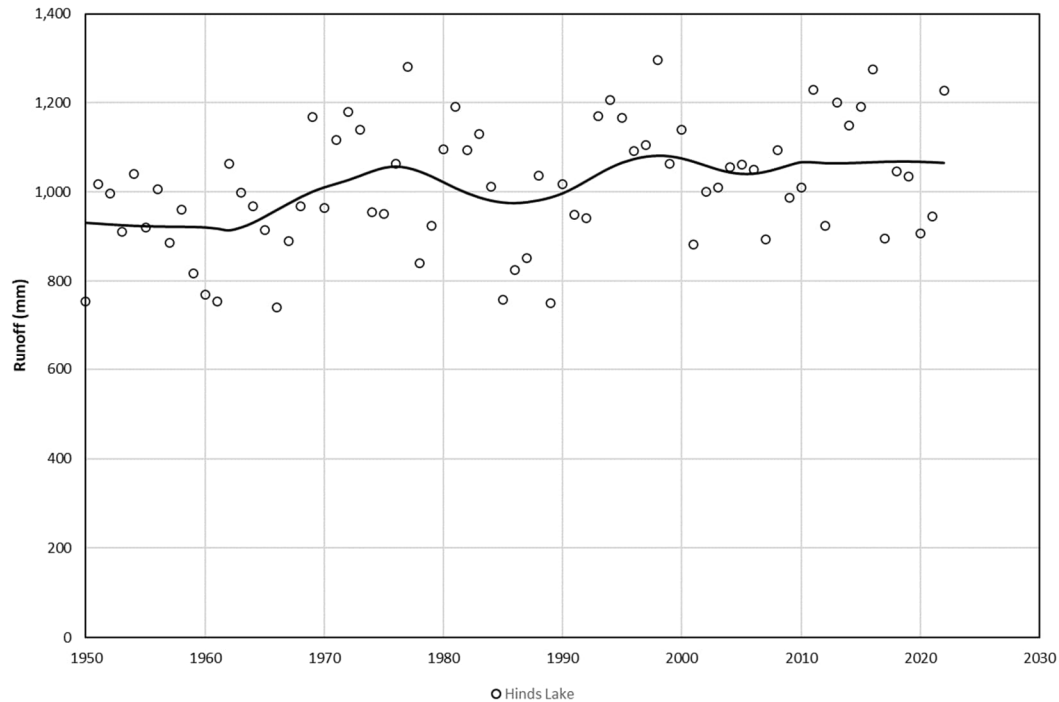


Figure 7-1: Time Series Plot with LOESS Line – Hinds Lake Historic Inflow Series

7.2 Data Analysis

7.2.1 Monotonic Trend Analysis

Table 7-2 presents the monotonic trend analysis of the historic series.

Table 7-2: Monotonic Trend Analysis – Hinds Lake Historic Inflow Series

Name	Analysis Period	Sample Size n	Mean (mm)	Mann-Kendall p-value	Category	Remarks
Hinds Lake	1950-2022	73	1,013	0.008	1	Sig. incr.

The 2003 study also found a significant increasing (Category 1) trend at Hinds Lake, although it was sensitive to the inclusion of the relatively dry period in the 1950s and 1960s. The current study has similarly found that if the trend analysis is limited to the 1970s onward, there is no significant trend.

7.2.2 Cumulative Departure from Mean

The cumulative departure from the mean of the inflow series was plotted, Figure 7-2. The plot shows alternating positive and negative slopes which indicate periods of variability above and below the mean, but there are no clear indications of any shifts that would constitute a step change.

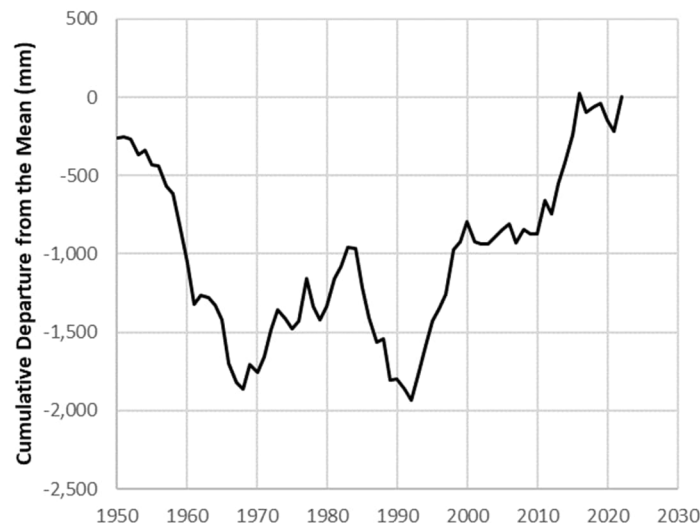


Figure 7-2: Cumulative Departure from Mean – Hinds Lake Historic Inflow Series

7.2.3 Step Change Analysis

Step change analysis was carried out on the historic series to compare inflow values before and after known intervention. The before/after year used to split the Hinds Lake series was 1980, the year that the hydro plant came into operation, when there would have been a change in flow calculation methodology.

Table 7-3 presents the step change analysis of the historic series. Boxplots of the pre- and post-development inflow are shown in Figure 7-3. Results for the comparison RHBN station, Upper Humber (02YL001), are also shown.

For the 1980 potential change point, the Hinds Lake series showed a statistically significant increase. However, this could be due to the pre-development period including a natural dry period. If the first sample is limited to 1970-1979, there is no significant step change.

The boxplots do not suggest any major changes in the variance of the series before and after the potential change points.

Table 7-3: Step Change Analysis – Hinds Lake Historic Inflow Series and Upper Humber

Name	Pre	Post	Sample Size n_1, n_2	Mann-Whitney p-value	Remarks
Hinds Lake	1950-1979	1980-2022	30, 43	0.013	Post is higher, sig. at 5%
Upper Humber (02YL001)	1953-1979	1980-2021	27, 42	0.735	Post is higher, not sig.

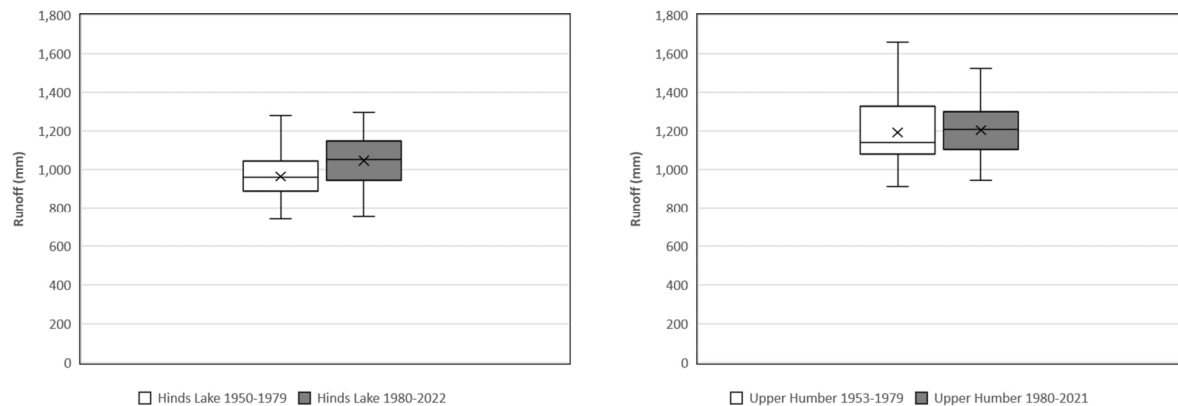


Figure 7-3: Boxplots – Hinds Lake Historic Inflow Series and Upper Humber

7.2.4 Mass Curves

Figure 7-4 shows the single mass curve of the historic inflow series. It appears to be reasonable, that is, it has basically a constant overall slope throughout the period. The apparent waviness is caused by annual flow variations.

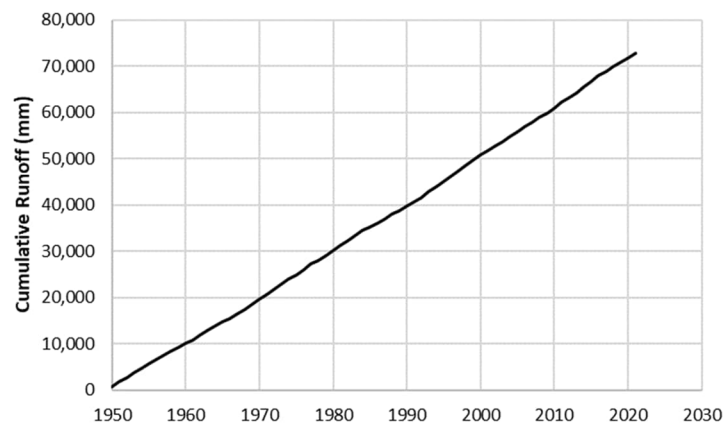


Figure 7-4: Single Mass Curve – Hinds Lake Historic Inflow Series

The double mass curve in Figure 7-5 shows the cumulative flows of the historic inflow series plotted against Gander River as a reference. The double mass curve is similar in behavior to the single mass curve.

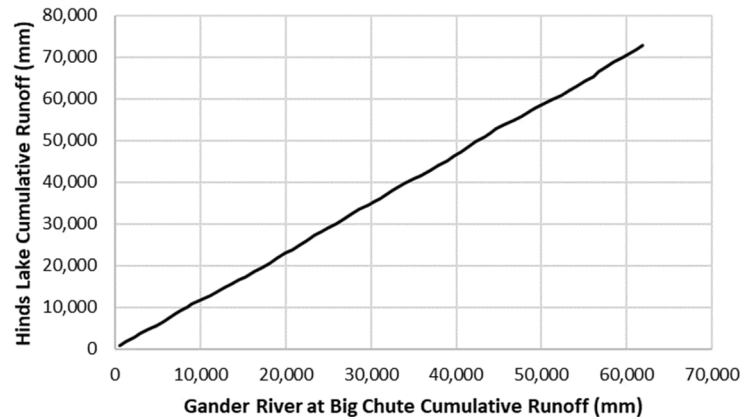


Figure 7-5: Double Mass Curve – Hinds Lake Historic Inflow Series

7.3 Discussion

It is possible that the apparent trend in the Hinds Lake inflow series is due to natural hydrological variability. The finding of significant trend is sensitive to the time period considered, and the dry period in the early part of the series appears in other hydrologic records in Newfoundland. The 2003 investigation did not find any indication that the pre-development inflows have been underestimated, or that there is systematic error in the post-development backrouting calculations. No adjustments are recommended at this time.

8. Cat Arm

8.1 Data Review

The Cat Arm inflow sequence in Vista spans the time period from 1950 to 2022. The Cat Arm series represents inflows in the drainage area of the Cat Arm plant, Figure 2-1. The plant came into service in August 1985. The Cat Arm sub-basin is located on the Great Northern Peninsula near Great Cat Arm.

Table 8-1 summarizes the data intervals of the Cat Arm series. The inflow values are stored in Vista on a daily time step, although the daily values consist of monthly averaged flows until 1985.

Table 8-1: Cat Arm Inflow Series Data Intervals

Series	Drainage Area (km ²)	Period of Record	Monthly Data	Daily Data
Cat Arm	651	1950-2022	January 1, 1950 to May 31, 1985	June 1, 1985 to December 31, 2022

SGE Acres (2003) documented the synthesis and timeline of the inflow series. Estimation of inflows in the pre-development period relied on the former WSC hydrometric station Cat Arm River above Great Cat Arm (02YF001) which was in service from September 1968 to December 1982. The timeline is summarized briefly below.

- 1950 to 1959: inflows were estimated from linear regression of Upper Humber River (02YL001) and Cat Arm River (02YF001). Missing months were infilled by linear regression of Upper Humber River and backrouted inflows at Grand Lake (data supplied by Deer Lake Power). The synthesized Cat Arm flows for April to July of each year were adjusted to improve accuracy of the estimated runoff due to snowmelt;
- 1959 to 1968: inflows were estimated from multiple linear regression of records from the WSC stations at Cat Arm River (02YF001), Upper Humber River (02YL001) and Torrent River (02YC001);
- 1968 to 1982: inflows were estimated from streamflow measurements at 02YF001, with adjustments for drainage area;
- 1983 to present: from 1983 onward, following construction of the Cat Arm development, Hydro has synthesized the inflows by backrouting.

For the data analysis in the current study and for consistency with previous studies, the inflows have been aggregated into annual values. Figure 8-1 shows the time series plot of the Cat Arm series with LOESS line. The Cat Arm LOESS line appears to show an increasing trend.

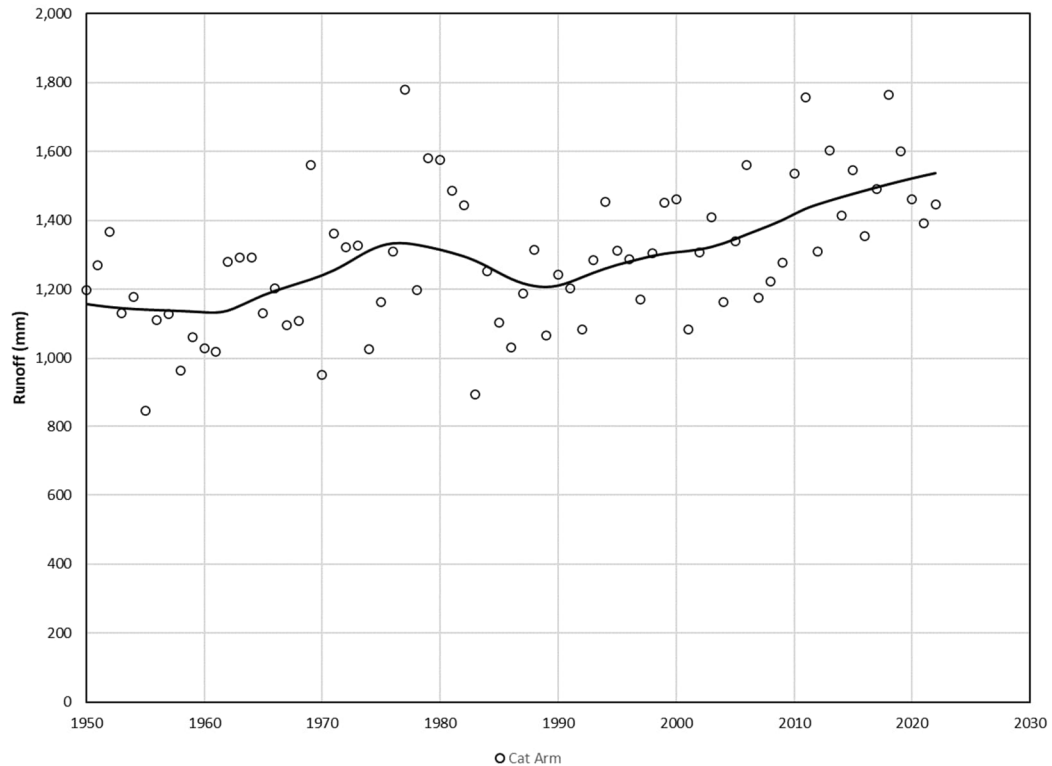


Figure 8-1: Time Series Plot with LOESS Line – Cat Arm Historic Inflow Series

8.2 Data Analysis

8.2.1 Monotonic Trend Analysis

Table 8-2 presents the monotonic trend analysis of the historic series.

Table 8-2: Monotonic Trend Analysis – Cat Arm Historic Inflow Series

Name	Analysis Period	Sample Size n	Mean (mm)	Mann-Kendall p-value	Category	Remarks
Cat Arm	1950-2022	73	1,289	0.000	1	Sig. incr.

The 2003 study found a mild increasing (Category 2) trend at Cat Arm, although it was sensitive to the inclusion of the relatively dry period in the 1950s and 1960s. However, in the current analysis, the finding of significant trend persists even if the analysis is limited to the 1970s onward.

8.2.2 Cumulative Departure from Mean

The cumulative departure from the mean of the inflow series was plotted, Figure 8-2. The plot shows alternating positive and negative slopes which indicate periods of variability above and below the mean, but there are no clear indications of any shifts that would constitute a step change.

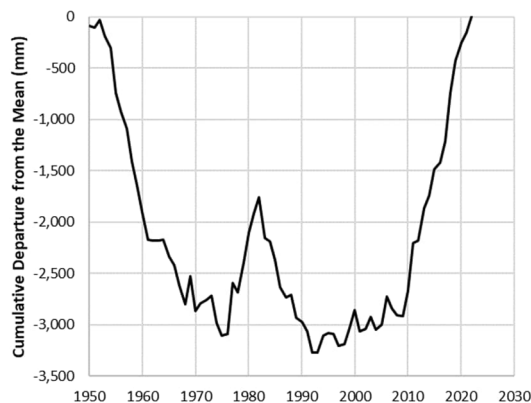


Figure 8-2: Cumulative Departure from Mean – Cat Arm Historic Inflow Series

8.2.3 Step Change Analysis

Step change analysis was carried out on the historic series to compare inflow values before and after known intervention. The before/after year used to split the Cat Arm series was 1985, the year that the hydro plant came into operation, when there would have been a change in flow calculation methodology.

Table 8-3 presents the step change analysis of the historic series. Boxplots of the pre- and post-development inflow are shown in Figure 8-3. Results for the comparison RHBN station, Upper Humber (02YL001), are also shown.

For the 1985 potential change point, the Cat Arm series showed a statistically significant increase. However, this could be due to the pre-development period including a natural dry period. If the first sample is limited to 1970-1984, there is no significant step change.

The boxplots do not suggest any major changes in the variance of the series before and after the potential change points.

Table 8-3: Step Change Analysis – Cat Arm Historic Inflow Series and Upper Humber

Name	Pre	Post	Sample Size n_1, n_2	Mann-Whitney p-value	Remarks
Cat Arm	1950-1984	1985-2022	35, 38	0.011	Post is higher, sig. at 5%
Upper Humber (02YL001)	1953-1984	1985-2021	32, 37	0.612	Post is lower, not sig.

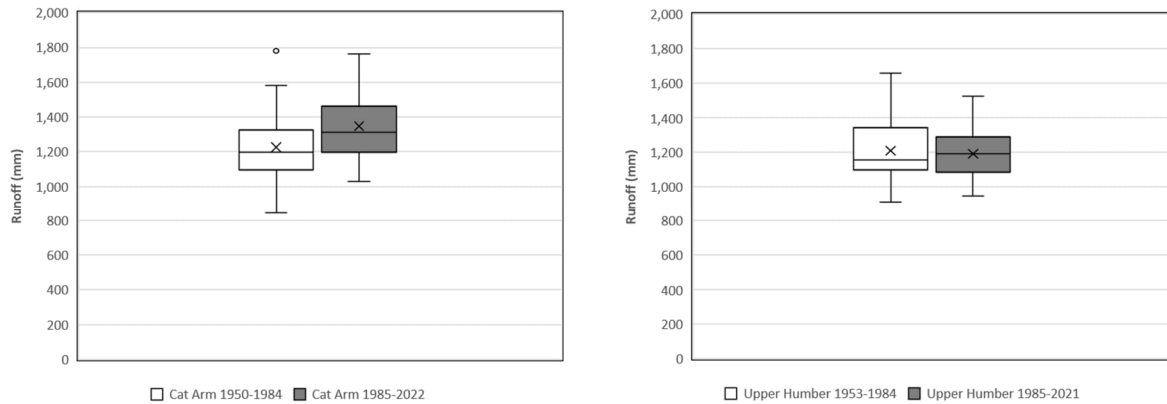


Figure 8-3: Boxplots – Cat Arm Historic Inflow Series and Upper Humber

8.2.4 Mass Curves

Figure 8-4 shows the single mass curve of the historic inflow series. There are no offsets or breaks in slope, but the slope is seen to get steeper over time as a result of the increasing trend in runoff.

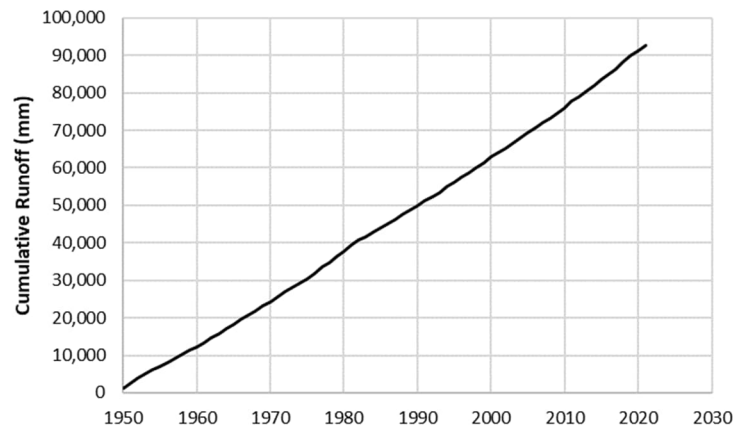


Figure 8-4: Single Mass Curve – Cat Arm Historic Inflow Series

The double mass curve in Figure 8-5 shows the cumulative flows of the historic inflow series plotted against Gander River as a reference. The double mass curve is similar in behavior to the single mass curve.

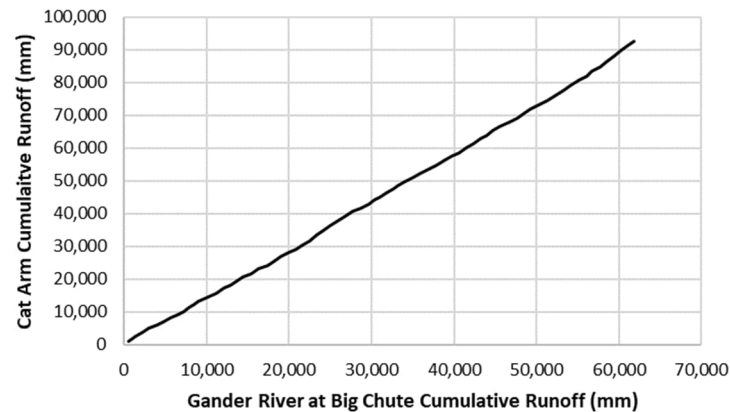


Figure 8-5: Double Mass Curve – Cat Arm Historic Inflow Series

8.3 Discussion

It is possible that the apparent trend in the Cat Arm inflow series is due to natural hydrological variability. The 2003 study found a mild increasing trend in the Cat Arm inflow series, which has increased in significance with subsequent years of data. Annual runoff values at Cat Arm have tended to increase from the 2000s onward and increases have been seen in a similar timeframe at the Upper Humber, Torrent River and Harry's River WSC stations in western Newfoundland. The 2003 investigation did not find any indication that the pre-development inflows have been underestimated, or that there is systematic error in the post-development backrouting calculations. No adjustments are recommended at this time.

9. Paradise River

9.1 Data Review

The Paradise River inflow series in Vista spans the time period from 1950 to 2022. The Paradise River series represents inflows in the drainage area of the Paradise River plant, Figure 2-1, located near Paradise Sound, Placentia Bay. The plant came into service in March 1989.

Table 9-1 summarizes the data intervals of the Paradise River series. The inflow values are stored in Vista on a daily time step, although the daily values consist of monthly averaged flows until 1989.

Table 9-1: Paradise River Inflow Series Data Intervals

Series	Drainage Area (km ²)	Period of Record	Monthly Data	Daily Data
Paradise River	476.5	1950-2022	January 1, 1950 to March 31, 1989	April 1, 1989 to December 31, 2022

SGE Acres (2003) documented the synthesis and timeline of the inflow series. Estimation of inflows in the pre-development period relied on the WSC hydrometric station 02ZH001 (Pipers Hole River at Mothers Brook). The timeline is summarized briefly below:

- 1950 to 1988: Correlation with the annual Paradise River inflows 1953 to 1988 demonstrates that the series was synthesized by prorating the WSC flow record. The proration factor was the ratio of the drainage areas, multiplied by the ratio of the assumed mean annual runoff of the two areas. The derivation of the inflows prior to 1953 is not documented;
- 1989 to 2001: From 1989 onward, following construction of the Paradise River development, Hydro synthesized the inflows by backrouting.

For the data analysis in the current study and for consistency with previous studies, the inflows have been aggregated into annual values. Figure 9-1 shows the time series plot of the Paradise River series with LOESS line. The Paradise River LOESS line appears to show a decreasing trend.

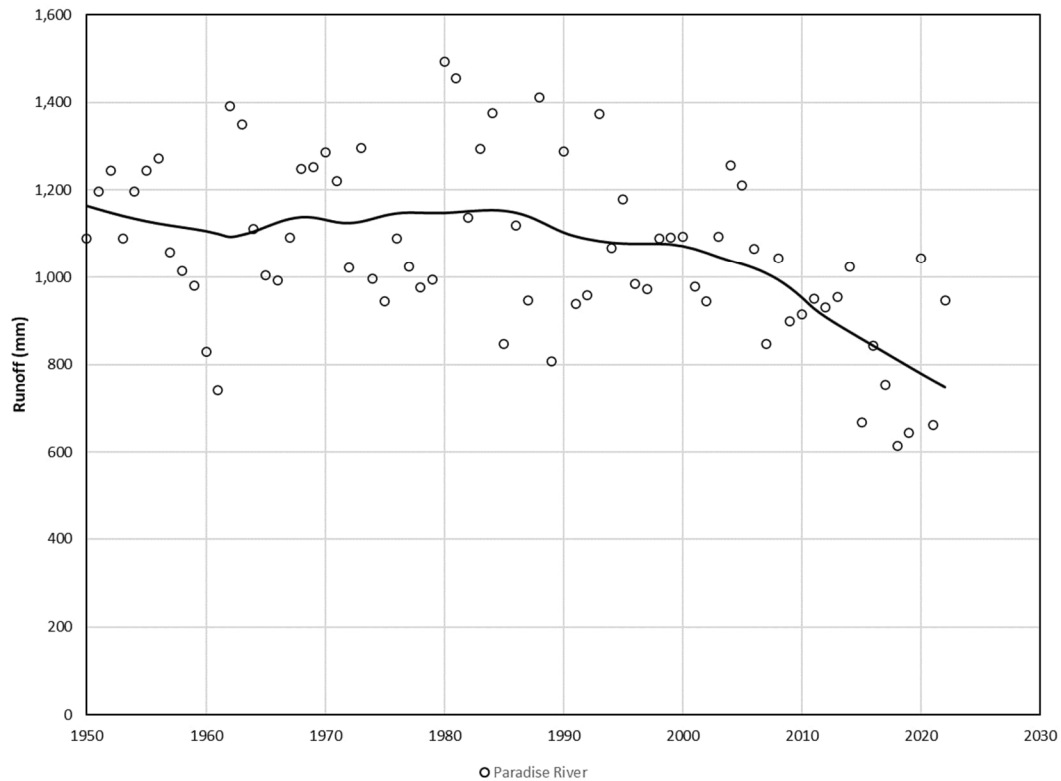


Figure 9-1: Time Series Plot with LOESS Line – Paradise River Historic Inflow Series

9.2 Data Analysis

9.2.1 Monotonic Trend Analysis

Table 9-2 presents the monotonic trend analysis of the historic series.

Table 9-2: Monotonic Trend Analysis – Paradise River Historic Inflow Series

Name	Analysis Period	Sample Size n	Mean (mm)	Mann-Kendall p-value	Category	Remarks
Paradise River	1950-2022	73	1,061	0.000	5	Sig. decr.

The 2003 study found a weak (non-significant) decreasing trend. The current study finding of significant decreasing trend appears to be due to a more pronounced decrease in annual runoff values in the years since the previous study.

9.2.2 Cumulative Departure from Mean

The cumulative departure from the mean of the inflow series was plotted, Figure 9-2. The plot shows alternating positive and negative slopes which indicate periods of variability above and below the mean, but there are no clear indications of any shifts that would constitute a step change.

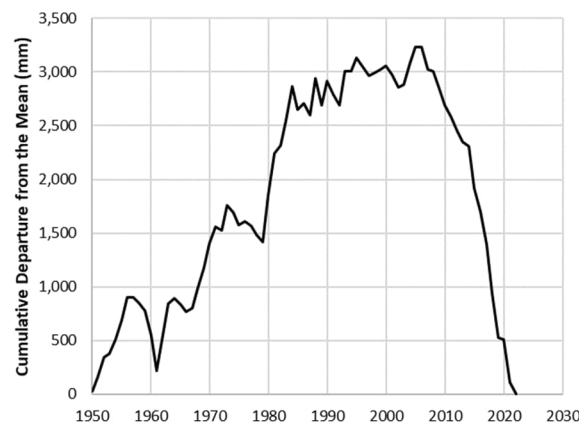


Figure 9-2: Cumulative Departure from the Mean – Paradise River Historic Inflow Series

9.2.3 Step Change Analysis

Step change analysis was carried out on the historic series to compare inflow values before and after known intervention. The before/after year used to split the Paradise River series was 1989, the year that the hydro plant came into operation, when there would have been a change in flow calculation methodology.

Table 9-3 presents the step change analysis of the historic series. Boxplots of the pre- and post-development inflow are shown in Figure 9-3. Results for the comparison RHBN station, Pipers Hole (02ZH001), are also shown.

For the 1989 potential change point, the Paradise River series showed a statistically significant decrease. However, this could be due to the fact that the post-development period has a significant decreasing trend. The 2003 study did not show a significant difference, probably because of the fewer data points after 1989 that were available at the time, but it was noted that the decrease was confirmed by Hydro's experience; the station had not produced as much energy as the inflow sequence would have suggested, even in wet years.

The boxplots do not suggest any major changes in the variance of the series before and after the potential change points.

Table 9-3: Step Change Analysis – Paradise River Historic Inflow Series and Pipers Hole River

Name	Pre	Post	Sample Size n ₁ , n ₂	Mann-Whitney p-value	Remarks
Paradise River	1950-1988	1989-2022	39, 34	0.000	Post is lower, sig. at 5%
Pipers Hole (02ZH001)	1953-1988	1989-2021	36, 33	0.622	Post is higher, not sig.

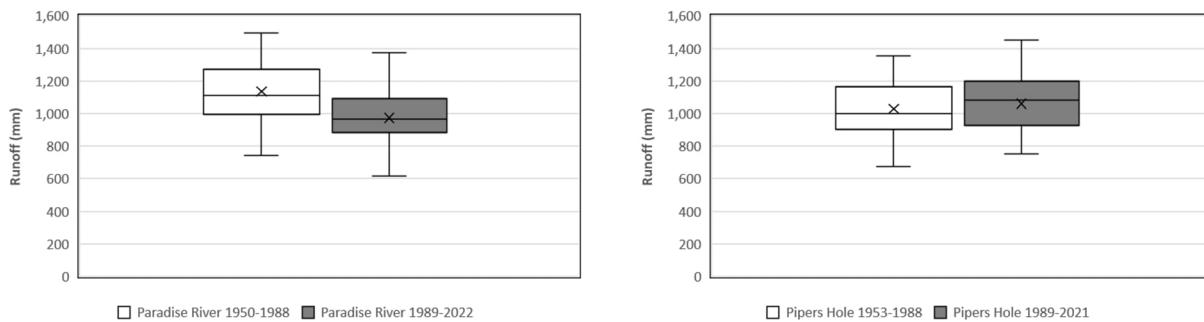


Figure 9-3: Boxplots – Paradise River Historic Inflow Series and Pipers Hole

9.2.4 Mass Curves

Figure 9-4 shows the single mass curve of the historic inflow series. The flattening slope near the end of the mass curve is reflective of the decreasing runoff values in recent years.

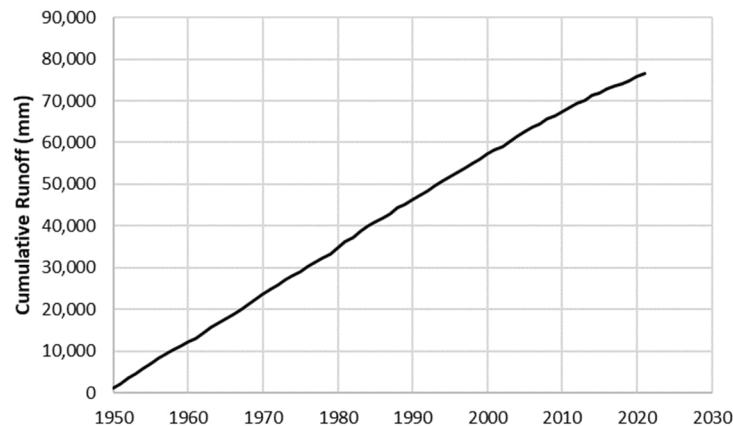


Figure 9-4: Single Mass Curve – Paradise River Historic Inflow Series

The double mass curve in Figure 9-5 shows the cumulative flows of the historic inflow series plotted against Gander River as a reference. The double mass curve is similar in behavior to the single mass curve.

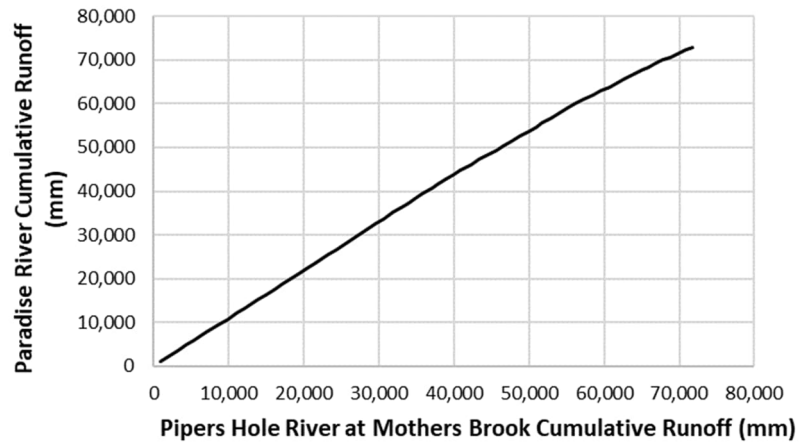


Figure 9-5: Double Mass Curve – Paradise River Historic Inflow Series

9.3 Discussion

Figure 9-6 shows a side-by-side comparison of the Paradise River historic inflow series and the Pipers Hole record with LOESS lines. Table 9-4 compares the mean annual runoff for various periods.

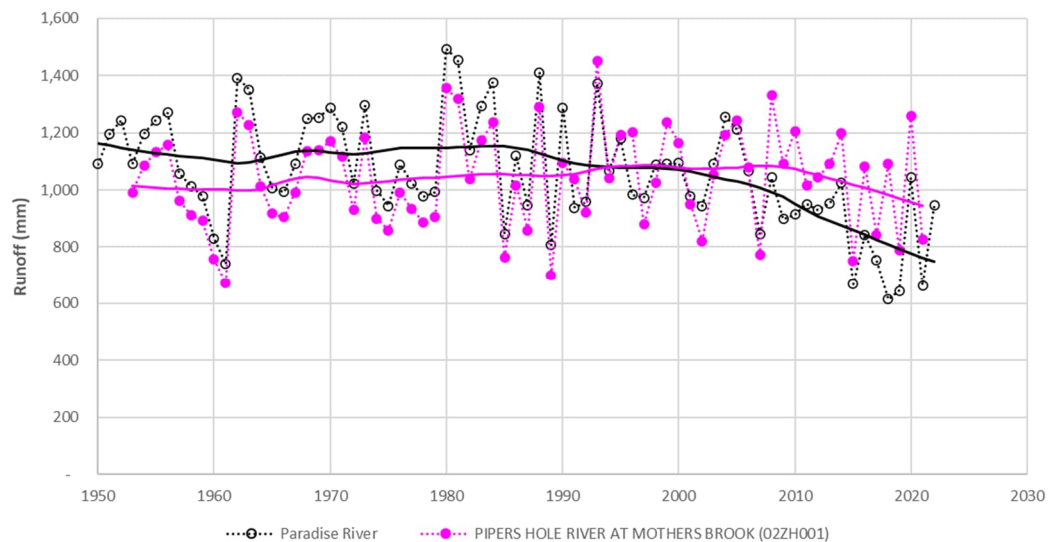


Figure 9-6: Time Series Plot with LOESS Lines – Paradise River and Pipers Hole River

Table 9-4: Comparison of Paradise River and Pipers Hole River Mean Annual Runoff

Period	Paradise River	Pipers Hole	Ratio
1953-2021	1,056	1,040	1.015
1953-1988	1,133	1,030	1.100
1989-2021	975	1,051	0.928

The comparison clearly shows how the Paradise River pre-development inflows were synthesized by proration of the Pipers Hole streamflows with the assumption that Paradise River was 10 percent wetter than Pipers Hole on average. The backrouted inflows in the post-development period confirm that the two basins exhibit similar patterns, but from the 1990s to the late 2000s, the backrouted runoff closely matches the observed Pipers Hole runoff, while it is consistently lower from the late 2000s onward. Available runoff mapping suggests that the two basins should have similar long-term averages, which agrees with the ratio when the full periods of record are compared. Differences of up to 10 percent are in the likely range of accuracy of the inflow values. There is insufficient information to clearly indicate that the pre-development inflows should be adjusted.

SGE Acres (2003) suggested that at Paradise River, the spill, head loss, and efficiency curves used to backroute the inflows may not have been examined as thoroughly as in other systems since the station is relatively small. It is possible that differences between the backrouted Paradise River runoff and the observed Pipers Hole record are due to natural hydrological variability, but Hydro should verify the backrouting information for systematic error.

10. Annual Combined Reservoir Energy Inflow

10.1 Data Review

The annual combined reservoir energy inflow represents the sum of the annual runoff volumes for the Bay d'Espoir, Hinds Lake, Cat Arm and Paradise River systems. Hydro has observed an increasing trend in the combined reservoir inflow and asked Hatch to investigate this apparent trend.

Figure 10-1 shows the time series plot of the combined inflow series with LOESS line. For consistency with the previous analyses, the combined inflow volumes are expressed as area-weighted runoff. The LOESS line appears to show an increasing trend.

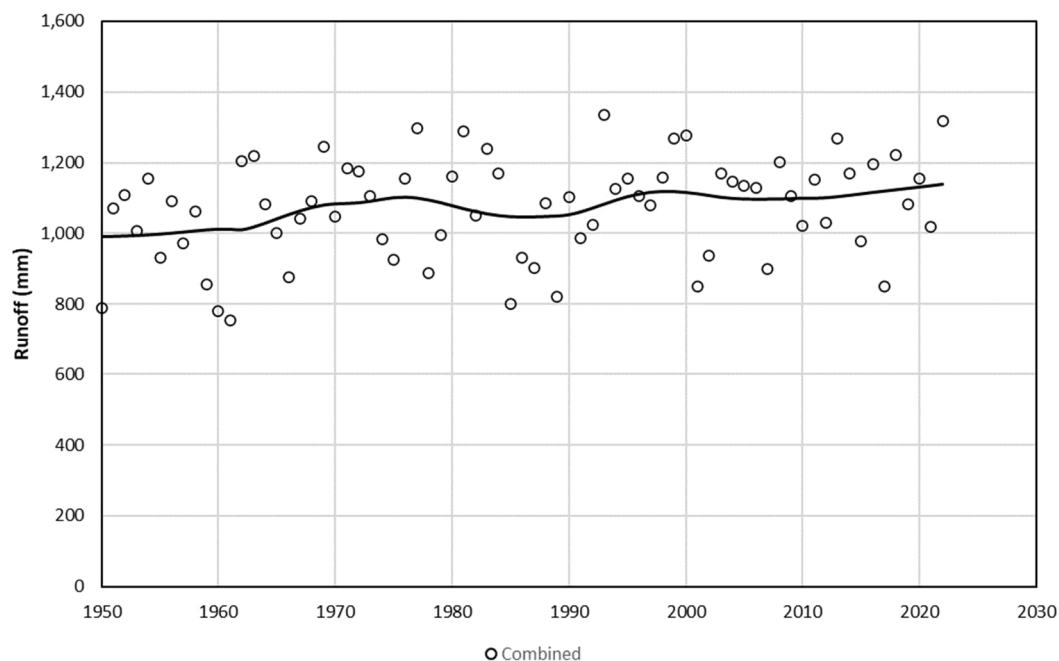


Figure 10-1: Time Series Plot with LOESS Line – Combined Reservoir Energy Inflow Series

10.2 Monotonic Trend Analysis

Table 10-1 presents the monotonic trend analysis of the combined series.

Table 10-1: Monotonic Trend Analysis – Combined Reservoir Energy Inflow Series

Name	Analysis Period	Sample Size n	Mean (mm)	Mann-Kendall p-value	Category	Remarks
Combined Reservoir	1950-2022	73	1,071	0.042	1	Sig. incr.

The combined inflow series was classified as Category 1, indicating a statistically significant increasing trend. However, the result is sensitive to the inclusion of the relatively dry period in the 1950s and 1960s. If the trend analysis is limited to the 1970s onward, there is no significant trend.

10.3 Cumulative Departure from the Mean

The cumulative departure from the mean was plotted for the combined inflow series, Figure 10-2. The plot shows alternating positive and negative slopes which indicate periods of variability above and below the mean, but there are no clear indications of any shifts that would constitute a step change.

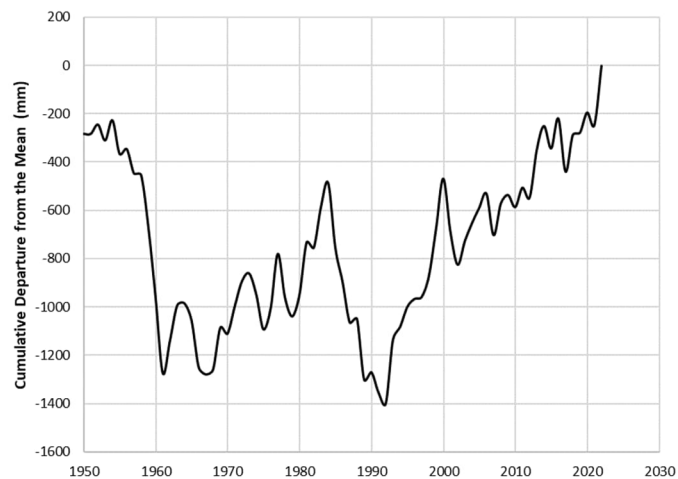


Figure 10-2: Cumulative Departure from Mean – Combined Reservoir Energy Inflow Series

10.4 Mass Curves

Figure 10-3 shows the single mass curve of the combined inflow series. It appears to be reasonable, that is, it has basically a constant overall slope throughout the period. The apparent waviness is caused by annual flow variations.

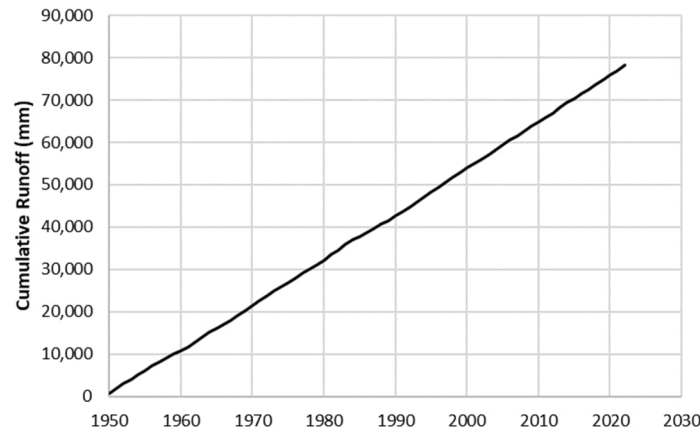


Figure 10-3: Single Mass Curve – Combined Reservoir Energy Inflow Series

The double mass curve in Figure 6-13 shows the cumulative flows of the historic inflow series plotted against Gander River as a reference. The double mass curve is similar in behavior to the single mass curve.

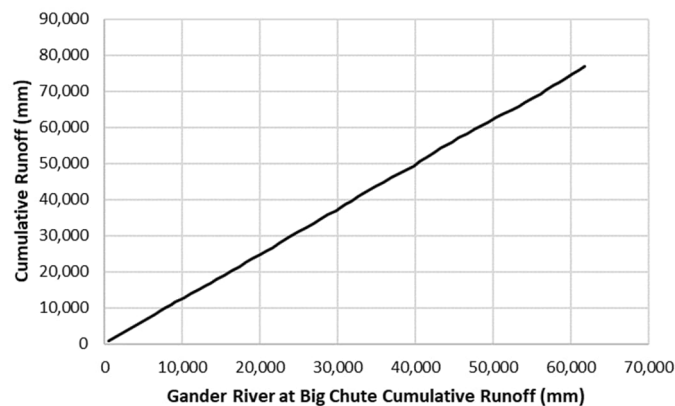


Figure 10-4: Double Mass Curve – Combined Reservoir Energy Inflow Series

10.5 Discussion

Based on the available information, the apparent increasing trend in the combined inflow may be due to natural hydrological variability. The finding of significant trend is sensitive to the time period considered. The dry period in the early part of the series is validated in other hydrologic records in Newfoundland. BDE pre-development inflows have been adjusted using the best available information, and the 2003 investigation did not find any indication that the pre-development inflows of any other series have been underestimated. WSC records suggest that, since around 2010, there appears to be increasing annual runoff in the western part of the Island, and this may extend to some of Hydro's systems. It remains to be seen whether this is a short-term phenomenon or part of a longer term trend.

11. Lower Churchill

11.1 Data Review

The Lower Churchill (LC) inflow series in Vista span the time period from 1957 to 2022. There are seven historic inflow series:

- Unknown River Inflow;
- Metchin Inflow;
- Fig Inflow;
- Cache Inflow;
- Minipi Inflow;
- Pinus Inflow; and
- Muskrat Falls Local Inflow.

These correspond to the sub-basin drainage areas in Figure 2-2.

The inflow values are stored in Vista on a daily time step, although the daily values for the Unknown River sub-basin consist of monthly averaged flows for portions of the record. Table 11-1 summarizes the data intervals of the LC series.

Table 11-1: Lower Churchill Inflow Series Data Intervals

Series	Drainage Area (km ²)	Period of Record	Monthly Data	Daily Data
Unknown River	2,743	1957-2022	January 1, 1957 to December 31, 1975; January 1, 1998 to December 31, 2006	January 1, 1976 to December 31, 1997; January 1, 2007 to December 31, 2022
Metchin	3,981	1957-2022	n/a	January 1, 1957 to December 31, 2022
Fig	5,219	1957-2022	n/a	January 1, 1957 to December 31, 2022
Cache	3,258	1957-2022	n/a	January 1, 1957 to December 31, 2022
Minipi	5,539	1957-2022	n/a	January 1, 1957 to December 31, 2022
Pinus	780	1957-2022	n/a	January 1, 1957 to December 31, 2022
Muskrat Falls Local	1,778	1957-2022	n/a	January 1, 1957 to December 31, 2022

For the data analysis in the current study and for consistency with previous studies, the inflows have been aggregated into annual values. Figure 11-1 shows the time series plots (with LOESS lines) of the LC historic inflow series.

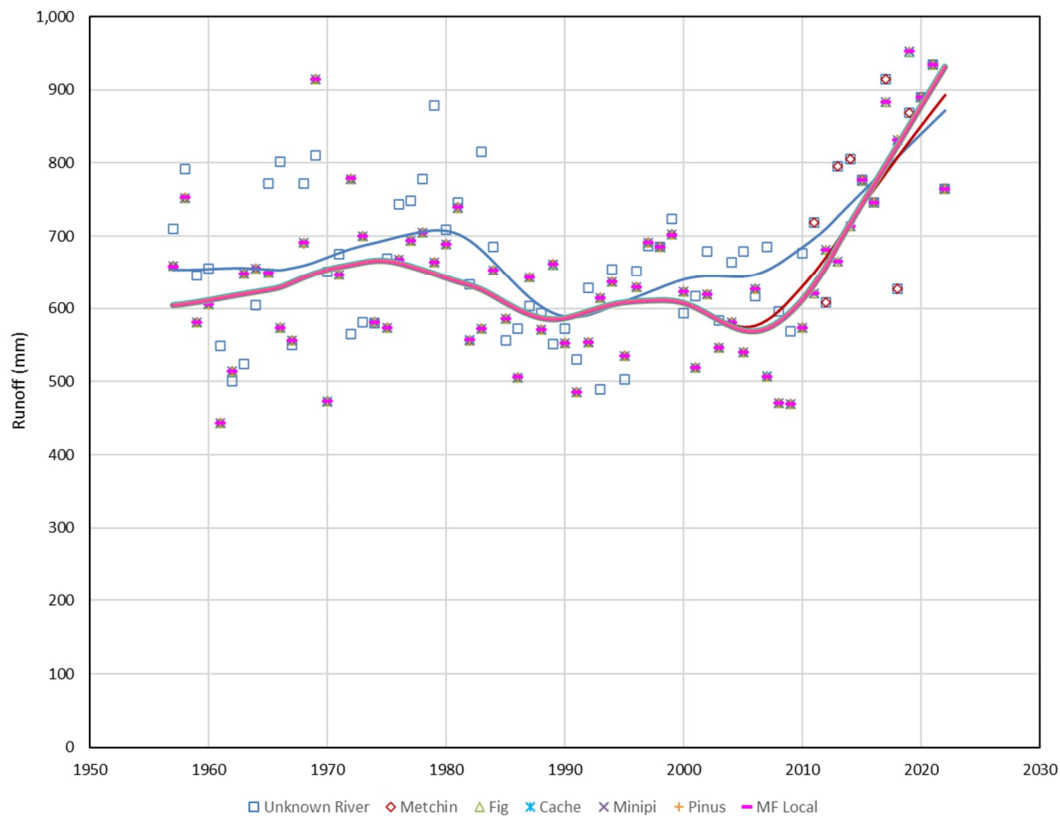


Figure 11-1: Time Series Plot with LOESS Lines – Lower Churchill Historic Inflow Series

The plot shows wet and dry periods, and a sharply increasing trend starting in the 2010s. Similar wet and dry periods are visible in the WSC records (Figure 5-7) as well as a trend of increasing runoff in recent years, although the recent increase in the LC series seems to exceed the historical range of variability while the increase in the WSC records is not as extreme.

Most of the series have the same runoff value each year; their flow rates are proportional to drainage area only and follow the same annual variation. This is consistent with the available information on how the inflow series were derived. Historically, the Lower Churchill drainage area has been sparsely gauged, with the longest continuous records being at the upstream and downstream extents (Churchill Falls and Muskrat Falls, respectively), and few observations to describe spatial variations in between. Estimates of sub-basin inflow have generally relied on lumped estimates of the runoff volume between Churchill Falls and Muskrat Falls, and proration by sub-basin drainage area.

Hatch (2008) completed a power and energy study of the Churchill River for the Lower Churchill Project, which documented the data that formed the basis for the current LC inflow series. The study used inflows prepared by LaSalle Consulting Group Inc. (LaSalle). LaSalle summarized the development of these inflow sequences in a report to Hydro-Québec (Validation of the Churchill River Complex Natural Inflow (1999)). A 41-year series of monthly inflows was provided for both the Upper and Lower Churchill River basins for the period October 1956 to December 1997. Also provided in that report were daily inflow sequences for the Upper Churchill (January 1, 1976 to December 31, 1997) and Lower Churchill (October 1, 1956 to December 31, 1997). It was stated in the cover letter of the LaSalle report that some inconsistencies were found in these daily inflow series, and that further actions were suggested to improve the quality of the computed daily inflows.

The daily series appeared to be the best estimate to date and was adopted for use in the 2008 Hatch study, with an adjustment for MAR. Checks were performed to ensure that the estimated MAR was reasonable compared to natural gauged basins in the region. From this review it was decided that the Lower Churchill inflows estimated by LaSalle were too low. This was not a new finding; a previous study (Acres International Limited, 1999) commissioned by Hydro had also reviewed the apparent discrepancy in Lower Churchill MAR. Since the effect on power and energy estimates for the proposed Lower Churchill Project was less than three percent, and conservative, the 1999 study did not recommend a revision to the inflow sequence at that time. A recommendation was made to revisit the issue once additional flow data were available from nearby stations.

The 2008 study recommended adjusting the LC inflow series to correct the Lower Churchill MAR. The MAR of the basin based on the LaSalle flow estimates was 607 mm; the recommended value was 630 mm. The adjustment was made by multiplying the LC inflow series by the ratio of MAR, i.e., a 3.8 percent increase.

For the period 1998 to 2006, LC inflows were developed by regression of the LaSalle daily inflow estimates to daily flows at the WSC hydrometric station on the Little Mecatina River (02XA003), which is in an adjacent basin to the south of the Lower Churchill basin. Correlation of the 19 years of overlapping daily data yielded an R^2 of 0.86. A regression equation was developed to enable the estimation of Lower Churchill daily flow as a function of Little Mecatina daily flow. Based on this relationship, the daily inflows to the Lower Churchill basin were calculated for the period 1998 to 2006; a 3.8 percent increase was then applied for MAR, as described above. Other gauges in the region were considered as a basis for the flow estimates for this period; however, correlation with the LaSalle estimates was not as good, and the length of the records were shorter.

The 2008 study adopted a separate inflow series for the Unknown River sub-basin in order to estimate its contribution to tailwater levels at the CF powerhouse. Inflows to the Unknown River sub-basin were estimated by pro-rating inflow estimates for the CF Ossokmanuan Reservoir sub-basin by drainage area, as the two sub-basins are adjacent and were assumed to have similar runoff patterns. To ensure consistency with the estimated runoff in the overall LC basin, the Unknown River inflows were subtracted from the LC daily inflow series. The LC daily inflow series, minus Unknown River, were then apportioned to the other LC sub-basins on the basis of drainage area.

Extension of the inflow series after 2006 continued in the Fig, Cache, Minipi, Pinus and Muskrat Falls Local sub-basins on the basis of drainage area proration of the difference in flows at Churchill Falls (as recorded by CF(L)Co) and Muskrat Falls. Flows at Muskrat Falls were measured by WSC hydrometric station 03OE001 until October 2016 when diversion commenced for the Muskrat Falls hydroelectric development (i.e., flows were diverted through the newly constructed Muskrat Falls spillway). Generation at Muskrat Falls commenced in December 2020 and flows from that time onward have been estimated from operational data.

In contrast, the treatment of the Metchin and Unknown sub-basins after 2006 has been inconsistent. From 2007 to 2010, the Metchin annual runoff values match those of the other LC sub-basins downstream, but the Unknown annual runoff values do not match data from CF(L)Co for the Ossokmanuan sub-basin. From 2011 to 2014 and again from 2017 to 2019, the Metchin and Unknown sub-basins match each other in annual runoff values, but match neither the other LC sub-basins nor Ossokmanuan. From 2015 to 2016 and 2020 to 2022, the Metchin and Unknown sub-basins have the same annual runoff values as the other LC sub-basins.

11.2 Data Analysis

11.2.1 Monotonic Trend Analysis

Table 11-2 presents the monotonic trend analysis of the adjusted series. No significant monotonic trend was detected for the time period considered.

Table 11-2: Monotonic Trend Analysis – LC Historic Inflow Series

Name	Analysis Period	Sample Size n	Mean (mm)	Mann-Kendall p-value	Category	Remarks
Unknown River	1957-2022	66	675	0.057	2	Mild incr.
Metchin	1957-2022	66	644	0.215	3	Weak incr.
Fig	1957-2022	66	644	0.170	3	Weak incr.
Cache	1957-2022	66	644	0.173	3	Weak incr.
Minipi	1957-2022	66	644	0.170	3	Weak incr.
Pinus	1957-2022	66	644	0.173	3	Weak incr.
Muskrat Falls Local	1957-2022	66	645	0.173	3	Weak incr.

11.2.2 Cumulative Departure from Mean

The cumulative departure from the mean was plotted for each inflow series, Figure 11-2. The plots for Fig, Cache, Minipi, Pinus and Muskrat Falls overlap as the series have identical values. The slopes of the plot show a long run of values below the mean shifting over a short period of time around 2010 to a run of values above the mean. WSC records show increasing runoff after 2010, but there were also changes in inflow calculation methodology in close proximity to this point, which were investigated in the step change analysis below.

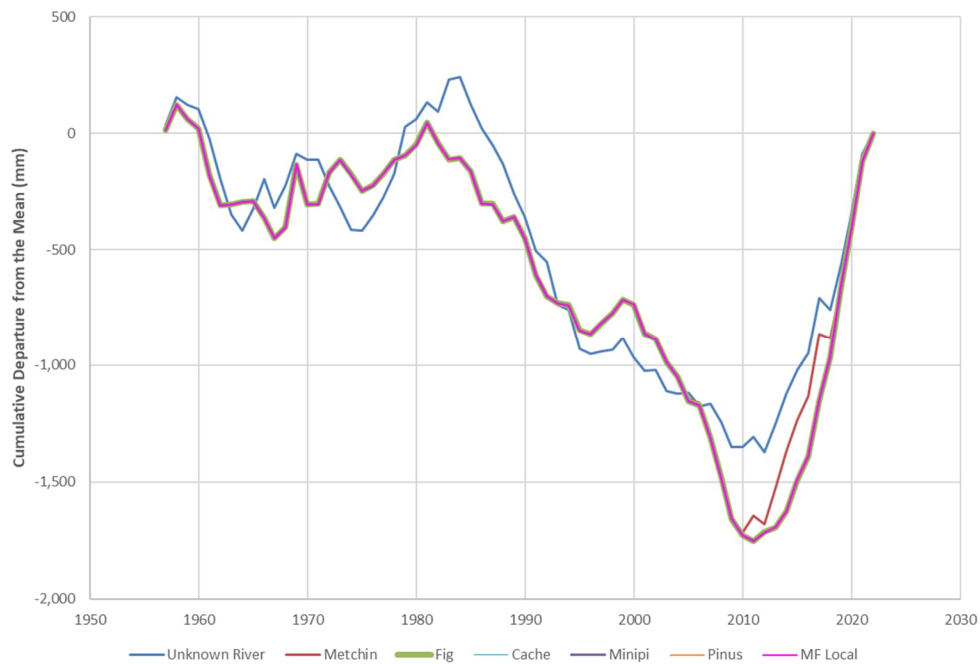


Figure 11-2: Cumulative Departure from Mean – LC Historic Inflow Series

11.2.3 Step Change Analysis

Step change analysis was carried out on the historic series to compare inflow values before and after known intervention. The RHBN hydrometric station Eagle River Above Falls (03QC001) was also tested for comparison.

Fig, Cache, Minipi, Pinus, and Muskrat Falls Local (and nearly all of Metchin) have identical runoff values and were addressed by analyzing a single series (Fig). The series was divided into Churchill Falls pre- and post-development periods, and the post-development period was further subdivided to consider changes in the flow synthesis methodology up to and including the Muskrat Falls development.

- 1957-1971/1972-1997. The La Salle (1999) inflows were used for these periods. The periods were tested to check homogeneity of the estimated inflows during the pre- and post-development periods of the Upper Churchill. 1972 is the first full year of “normal” generation operations after the Churchill Falls reservoirs were completely filled and all generating units were in service;
- 1972-1997/1998-2006. The 1998-2006 inflows were estimated from correlation of the La Salle inflows with the record of the Little Mecatina WSC station (02AX003);
- 1972-2006/2007-2016. From 2007 until October 2016, the inflows were estimated from flow records at the Churchill Falls Generating Station and Muskrat Falls hydrometric station (03OE001);
- 1972-2016/2017-2022. Flow observations at the Muskrat Falls hydrometric station were discontinued in late 2016 with the closure of the river for the Muskrat Falls development. Flows at Muskrat Falls were subsequently derived through various means during the diversion, reservoir filling and operational phases of the development.

Table 11-3 to Table 11-6 present the step change analysis of the historic series. Boxplots of the inflows before and after each potential intervention year are shown in Figure 11-3 to Figure 11-6.

For the 1972 potential change point, no significant change was detected in the distribution of the inflow values going from the pre-development to post-development periods of Churchill Falls.

For the 1998 potential change point, no significant change was detected in the distribution of the inflow values going from the LaSalle dataset to the Little Mecatina derived values. The mean and median values and variance of the Eagle River record also showed little difference between the same time periods.

For the 2007 potential change point, no significant change was detected in the distribution of the inflow values using flow data at Churchill Falls and Muskrat Falls. Again, the mean and median values and variance of the Eagle River record also showed little difference between the same time periods.

For the 2017 potential change point, the inflow values after the Muskrat Falls diversion were found to be significantly higher than before the diversion. Observed streamflows at Eagle River were also higher, but not to the threshold of statistical significance. The result suggests that the increased inflow values could, to some extent, be attributed to natural hydrological variability. However, as discussed in Section 11.3 and 11.4, there was likely some component due to error in the Muskrat Falls calculated discharge during the diversion and operational phases of the development.

Table 11-3: Step Change Analysis Pre/Post-1972 – Fig Historic Inflow Series

Name	Pre	Post	Sample Size n ₁ , n ₂	Mann-Whitney p-value	Remarks
Fig	1957-1971	1972-1997	15, 26	0.735	Little change
Eagle (03QC001)	1969-1971	1972-1997	3, 24	n/a	Sample size n ₁ too small for test

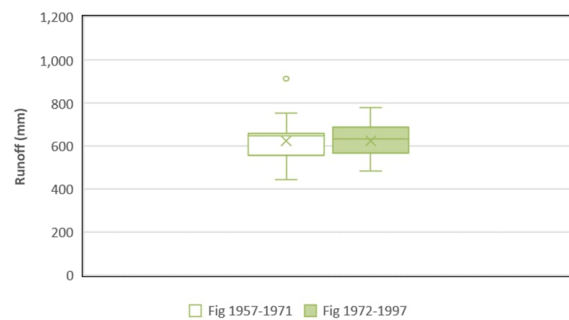


Figure 11-3: Boxplots Pre/Post-1972 – Fig Historic Inflow Series

Table 11-4: Step Change Analysis Pre/Post-1998 – Fig Historic Inflow Series

Name	Pre	Post	Sample Size n ₁ , n ₂	Mann-Whitney p-value	Remarks
Fig	1972-1997	1998-2006	26, 9	0.417	Post is lower, not sig.
Eagle (03QC001)	1972-1997	1998-2006	24, 9	0.854	Little change

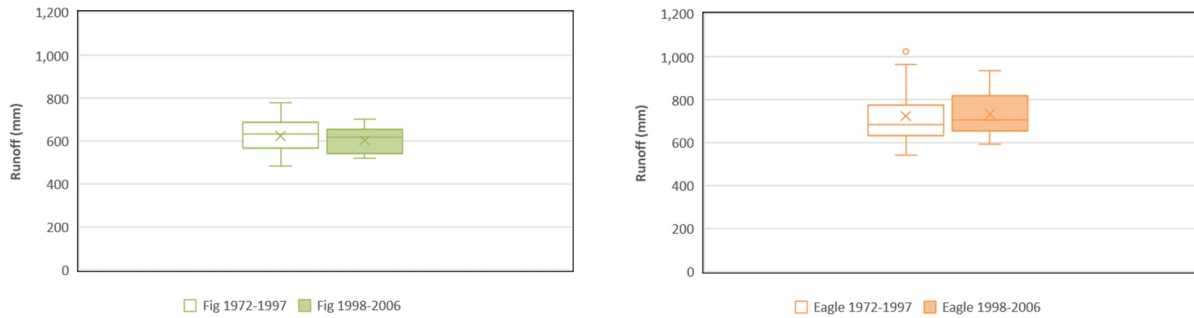


Figure 11-4: Boxplots Pre/Post-1998 – Fig Historic Inflow Series

Table 11-5: Step Change Analysis Pre/Post-2007 – Fig Historic Inflow Series

Name	Pre	Post	Sample Size n_1, n_2	Mann-Whitney p-value	Remarks
Fig	1972-2006	2007-2016	35, 10	0.838	Little change
Eagle (03QC001)	1972-2006	2007-2016	33, 10	0.735	Little change

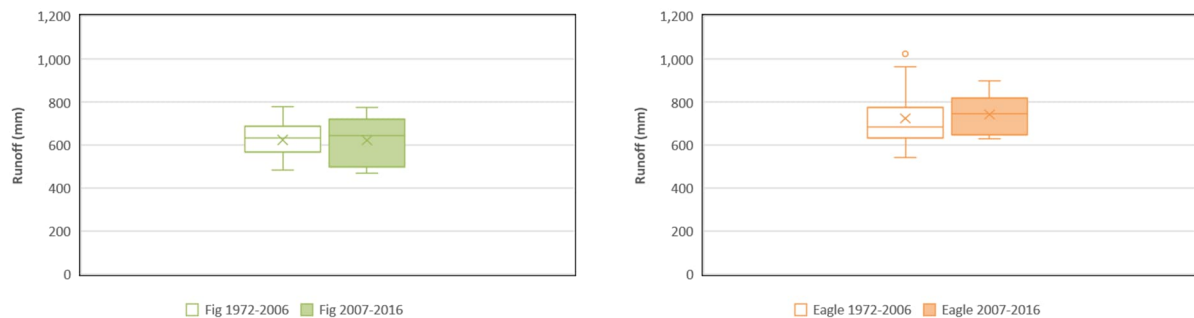


Figure 11-5: Boxplots Pre/Post-2007 – Fig Historic Inflow Series

Table 11-6: Step Change Analysis Pre/Post-2017 – Fig Historic Inflow Series

Name	Pre	Post	Sample Size n_1, n_2	Mann-Whitney p-value	Remarks
Fig	1972-2016	2017-2022	45, 6	0.000	Post is higher, sig. at 5%
Eagle (03QC001)	1972-2016	2017-2021	43, 5	0.061	Post is higher, sig. at 10%

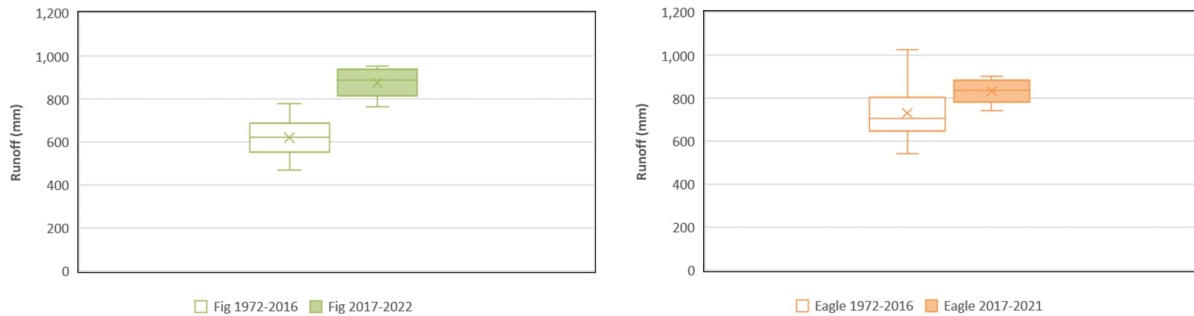


Figure 11-6: Boxplots Pre/Post-2017 – Fig Historic Inflow Series

For the step change analysis of the Unknown River inflows, the beginning of the analysis period was limited to 1972 to facilitate comparison with Eagle River, and the series was split at the year 2011 with the end of inflows derived from Ossokmanuan. Results are shown in Table 11-7 and Figure 11-7.

The inflow values after the potential change point were found to be significantly higher. Observed streamflows at Eagle River were also higher, although not to the same level of significance. The result suggests that the increased inflow values could, to some extent, be attributed to natural hydrological variability. However, the post-2011 period includes inflows derived after the Muskrat Falls diversion, which may have been affected by the same issues mentioned above.

Table 11-7: Step Change Analysis Pre/Post-2011 – Unknown River Historic Inflow Series

Name	Pre	Post	Sample Size n ₁ , n ₂	Mann-Whitney p-value	Remarks
Unknown River	1972-2010	2011-2022	39, 12	0.000	Post is higher, sig. at 5%
Eagle (03QC001)	1972-2010	2011-2021	37, 11	0.061	Post is higher, sig. at 10%

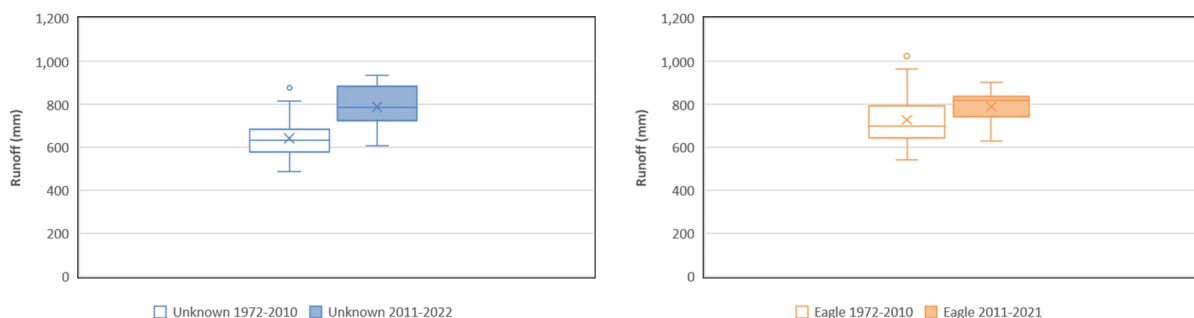


Figure 11-7: Boxplots Pre/Post-2011 – Unknown River Historic Inflow Series

11.2.4 Mass Curves

Figure 11-8 shows the single mass curves of the historic LC series. There are no unnatural breaks in slope or unusual offsets. The slopes of the mass curves simply indicate relative wetness or dryness. The slight changes in the curves may be attributed to annual flow variations and natural hydrologic variability. The double mass curves with Eagle River in Figure 11-9 show similar behavior.

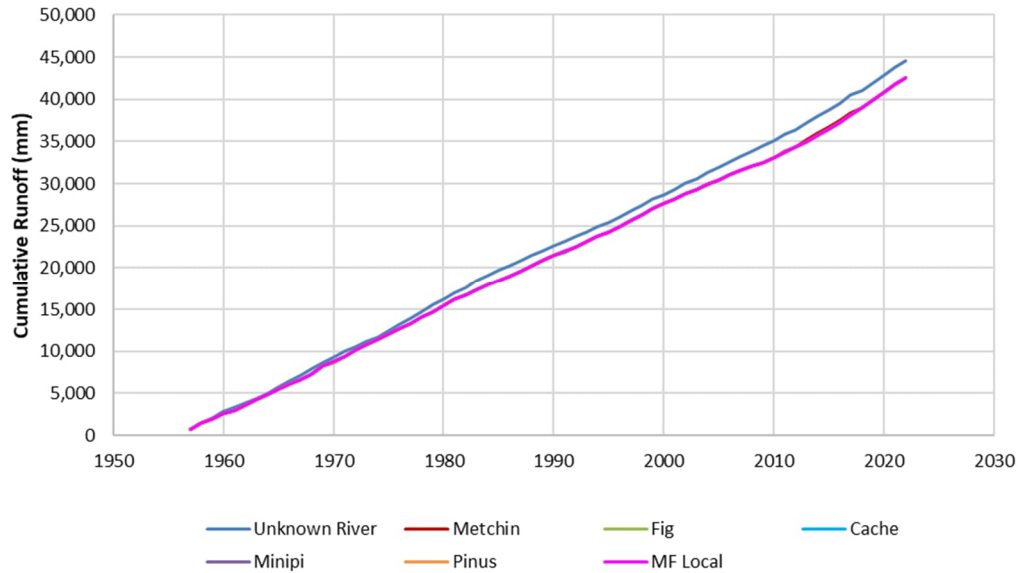


Figure 11-8: Single Mass Curves – LC Historic Inflow Series

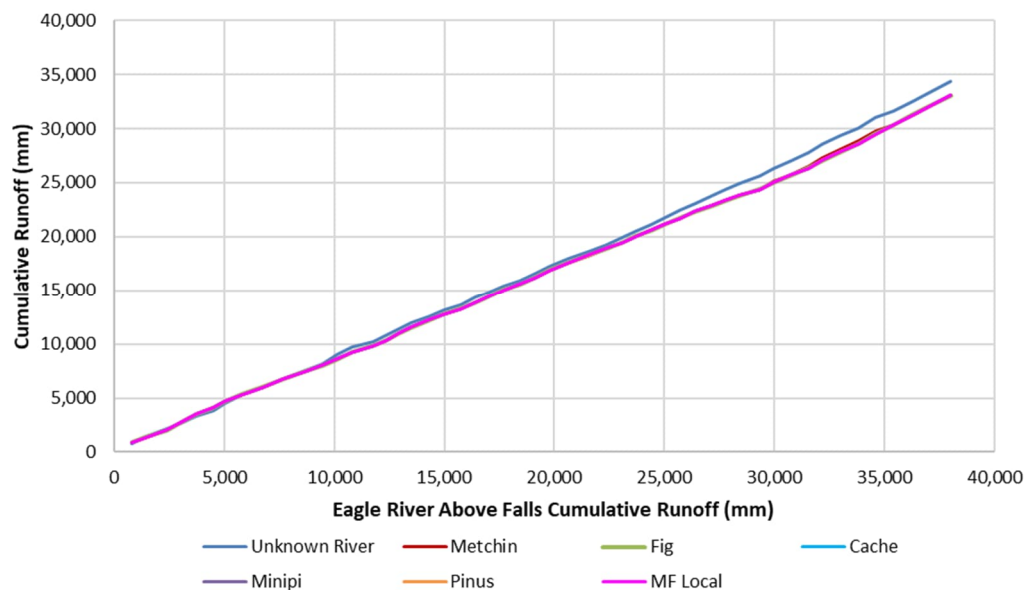


Figure 11-9: Double Mass Curves – LC Historic Inflow Series

11.3 Muskrat Falls Spillway Rating Curve

Hydro previously noted errors in the calculation of spill at Muskrat Falls, attributed to errors in the discharge coefficients of the Muskrat Falls spillway. Hydro recently revised the discharge coefficients and the calculated Muskrat Falls inflows for the period after full impoundment and provided the documentation to Hatch for review.

Final impoundment of the Muskrat Falls Reservoir to full supply level (FSL) was completed in September 2019. Prior to generator commissioning beginning with Unit 1 in September 2020, the reservoir was maintained at FSL exclusively via operation of the gated spillway. As the generating units were commissioned, flows were diverted from the spillway through the powerhouse. The spillway is now only used as required to pass excess water that cannot be used in power generation during periods when inflows exceed the capacity of available units, or there is inadequate transmission capacity for generation.

After commissioning, it was observed that there were discrepancies in back-calculated inflows to the reservoir depending on whether flows were through the spillway or the powerhouse. The calculated inflow values would be higher when flow was through the spillway, and lower when the spillway was not in use, in excess of natural and expected variation in inflow. It was suspected that the spillway rating curves from the original design documentation were overestimating the spill flows from the completed structure, particularly at the smaller partial spillway gate openings that had become more common with operation of the powerhouse.

WSC gauge 03OE014 is situated on the Churchill River 6.15 km downstream of Muskrat Falls and has flow records from the same period. Given the close proximity to the Muskrat Falls plant and a lack of significant sources of additional inflow between the tailrace and WSC gauge, it may be reasonably assumed that the flow at the WSC station is the same as the total flow at the Muskrat Falls plant. The WSC station was used to compare flows from the plant for the purposes of examining any error in the spillway discharge.

Hydro examined the discrepancy in flows at various spillway gate positions and found that the differences between the calculated spillway discharges and WSC observed flows were largest at smaller partial gate openings and improved as the gate opening was increased. Hydro then developed correction factors for previously used gate positions, which then allowed for the development of a relationship to calculate revised coefficients of performance for the structure at partial openings. These new coefficients were then used to update spillway discharges for the post-impoundment period, which in turn was used to update back calculated inflows for that same period (September 2019 to December 2022). The resulting inflows were on average 8 percent lower than the original values and were more in line with the long-term annual average flow at Muskrat Falls, based on data from the former WSC station 03OE001 prior to the construction of the facility.

Hatch concurs with Hydro's assessment and recommends adoption of the revised inflows to remediate the LC inflow series for the September 2019 to 2022 period.

11.4 Muskrat Falls Diversion Period

Hatch discussed with Hydro the possibility that the inflows during the diversion period before full impoundment (October 2016 to September 2019) were also overestimated. This would explain the unusually high runoff values for this period, but unfortunately there was insufficient information to apply a similar correction to the inflows as for the period after full impoundment. During the diversion, the flow was passed through the partially completed spillway. The spillway rollways had not yet been constructed to their final elevation and geometry, and operational data from the period is limited.

As an alternative, Hatch reviewed the correlation of the total LC daily inflows for the period January 2007 to October 2016 to the recorded flows at the WSC Little Mecatina station (02XA003).



Figure 11-10: Scatterplot – LC Total Daily Inflow vs. Little Mecatina

The R^2 value was 0.8768. Therefore, it was concluded that the Little Mecatina record would be suitable to derive alternative LC inflows for the October 2016 to September 2019 period that would be unaffected by the uncertainty in the Muskrat Falls diversion discharge.

11.5 Unknown River

A WSC hydrometric station on the Churchill River above the tailrace (03OE008) was active from 2009 to 2014 and 2017 to present. It captures the runoff from the Unknown River sub-basin, and although the record is discontinuous, there is sufficient data to permit a review of the assumptions that had been made for the Unknown River historic inflow series.

03OE008 is located downstream of two spillways in the Churchill Falls Hydroelectric System, Ossokmanuan Spillway and Jacopie Spillway. Spills from Ossokmanuan Spillway are exceptionally rare and none have occurred during the 03OE008 period of record. Jacopie Spillway has spilled on a number of occasions since 2018. Operational data was reviewed to filter the dates with Jacopie spill out of the 03OE008 record, to create a dataset of daily flows attributable solely to local runoff in the Unknown River sub-basin.

The Unknown River historic inflow values for 2009 and 2010 are known to be derived from CF(L)Co Ossokmanuan Reservoir inflow data. The values for this period were regressed against 03OE008 and found to be not well correlated (R^2 0.4747). A much better correlation for the period was obtained by regressing the total inflow of the other LC sub-basins against 03OE008 (R^2 0.8888).

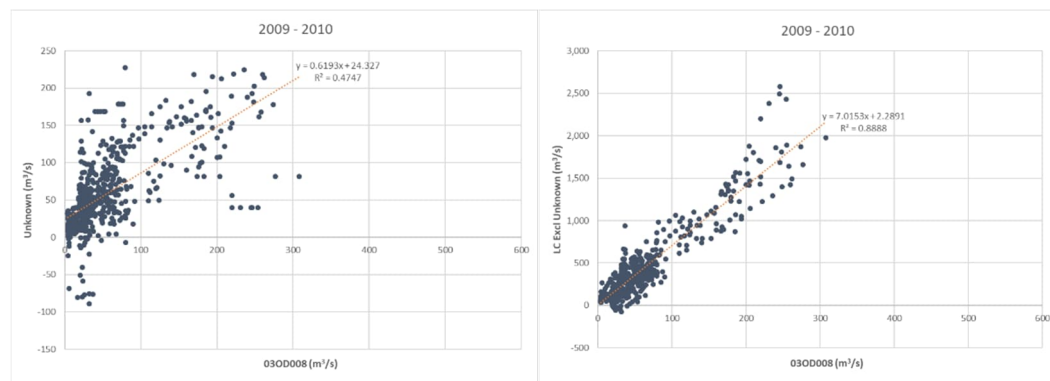


Figure 11-11: Scatterplots – Unknown River 2009-2010

The Unknown River historic daily inflow values for 2011-2014/2017-2019 were also regressed against 03OE008. The derivation of the Unknown River values for these periods is unclear. The R^2 value was 0.7227. A better correlation for the same periods was obtained by regressing the total inflow of the other LC sub-basins against 03OE008 (R^2 0.8460).

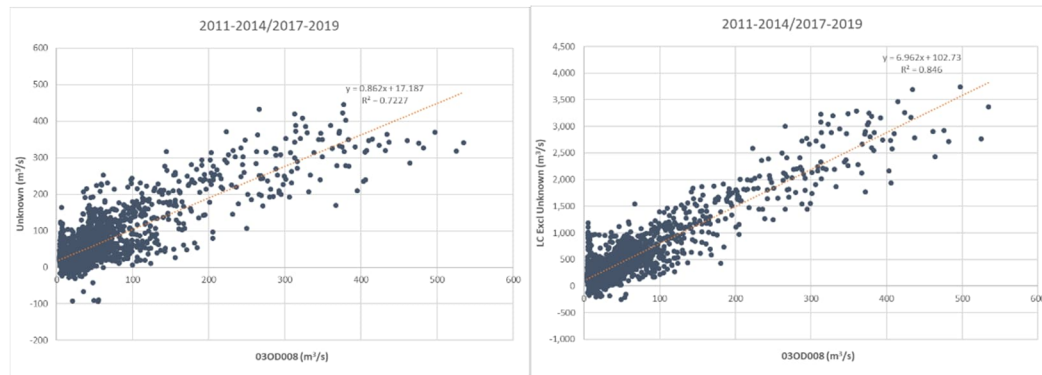


Figure 11-12: Scatterplots – Unknown River 2011-2014/2017-2019

The hydrometric station data show that the Ossokmanuan Reservoir inflows are not representative of the runoff in the Unknown River sub-basin. It would be more reasonable to derive the long-term inflows in the Unknown River sub-basin from the same datasets as the other LC sub-basins.

11.6 Lower Churchill Tributary Hydrometric Records

In discussion with Hydro, consideration was given as to whether data from other WSC hydrometric stations on tributaries of the Lower Churchill could be used to refine the historic inflow series. Such stations include Metchin (03OD007), Minipi (03OE003), and Pinus (03OE011). However, the records were considered to be too short and discontinuous to use for deriving reference hydrology. The records also tend to have seasonal gaps during the winter, when observed values are missing or uncertain due to low inflows and frozen river conditions. The proportion of the LC drainage area covered by the tributary stations is relatively small and limited to the fringes of the basin. The Metchin station flow values are disproportionately low; based on an investigation of mapping and aerial imagery it is suspected that a portion of the sub-basin has two outlets, one to the main stem of the Metchin River and another flowing west to Smallwood Reservoir, and consequently the record of 03OD007 underestimates the sub-basin runoff. On the other hand, the Minipi station flow values appear to be disproportionately high and it is unclear whether this is simply due to a highly localized wetter climate in the southeast extremity of the LC basin. It should also be noted that incorporating observed daily streamflow values into the historic inflow record could create some internal inconsistency with the backrouted daily inflow values unless differences in flow travel time are accounted for (although this may not be a concern for longer timesteps).

The main value of the tributary station records has been as a source of calibration data for inflow forecasting, and Hydro has used the stations for this purpose where possible.

11.7 Implementation of Recommended Adjustments

The recommended steps for adjustment of Hydro's current LC inflow series are described below.

11.7.1 January 1957 to October 2016

The total LC inflows for the period January 1959 to October 2016 can be accepted. However, it was recommended that the Unknown and Metchin inflows not be estimated separately from the other sub-basins, and that the total LC inflow be allocated to the sub-basins consistently on the basis of drainage area. The unadjusted LC sub-basin inflows are summed to produce the total LC inflow. The adjusted daily inflow series for each sub-basin are then derived by drainage area proration. The proration factors are summarized in Table 11-8.

Table 11-8: Updated Proration Factors for Lower Churchill Sub-basins

Sub-basin	Area (km ²)	Proration Factor
Unknown River	2,743	0.1177
Metchin	3,981	0.1709
Fig	5,219	0.2240
Cache	3,258	0.1398
Minipi	5,539	0.2377
Pinus	780	0.0335
MF Local	1,778	0.0763
LC Total	23,298	1.0000

11.7.2 November 2016 to September 2019

November 1, 2016 to September 6, 2019 is the period after the diversion of Muskrat Falls but before full impoundment, during which there were no reliable flow measurements at Muskrat Falls. To derive the total LC inflows for this period, the Line of Organic Correlation method (Hirsch and Gilroy, 1984) was used to correlate the daily total LC inflows to Little Mecatina (02XA003), for the period January 1, 2007 to October 31, 2016. The predictive relationship obtained was used to synthesize the total LC inflows for November 1, 2016 to September 6, 2019. These inflows were then distributed using the proration factors from Table 11-8.

11.7.3 September 2019 to December 2022

From September 7, 2019 to December 31, 2022, the inflows adjusted by Hydro after full impoundment at Muskrat Falls were recommended for adoption.

11.7.4 Overall Volume Adjustments

Table 11-9 shows the changes in the volumes of the LC historic inflow series as a result of the adjustments. The LC runoff volume decreased by 2.8 percent as a result of the adjustments to address suspected overestimated discharge at Muskrat Falls after river diversion.

Table 11-9: LC Inflow Series Overall Volume Adjustments

Name	Historic (mm)	Adjusted (mm)	Change
Unknown River	675	630	-6.7%
Metchin	644	630	-2.2%
Fig	644	630	-2.2%
Cache	644	630	-2.2%
Minipi	644	630	-2.2%
Pinus	644	630	-2.2%
MF Local	645	630	-2.2%
LC Total	648	630	-2.8%

11.8 Data Analysis of Adjusted Inflows

The adjusted series were tested to verify that the adjustments were successful in removing the internal inconsistencies. As a result of the adjustments, all of the LC inflow series have the same runoff; therefore, results are shown as a single runoff series (LC Total).

Figure 11-13 shows the time series plot of the adjusted series with LOESS line. Compared to the unadjusted series in Figure 11-1, the runoff values of the most recent years are now within the range of the historic variability.

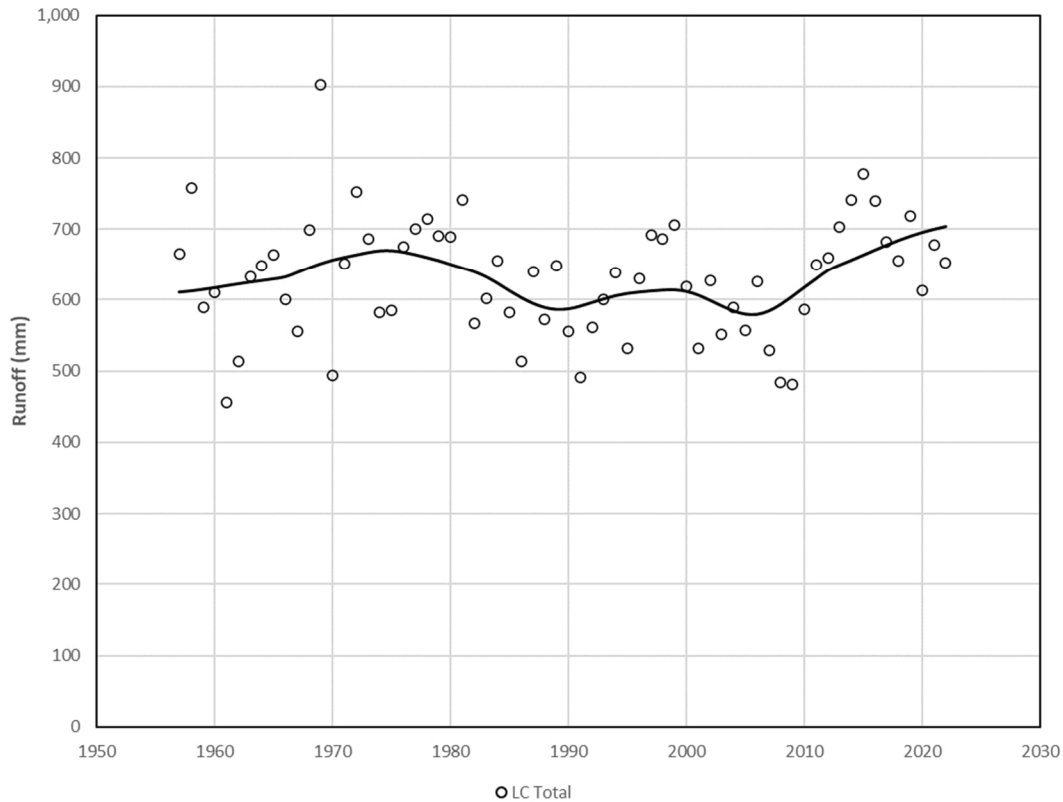


Figure 11-13: Time Series Plot with LOESS Lines – LC Adjusted Inflow Series

The plot may be compared to the WSC stations in Figure 5-7. The plots show overall similar behaviors, indicating that the adjusted series is representative of the historic hydrology in the region.

11.8.1 Monotonic Trend Analysis

Table 11-10 presents the monotonic trend analysis of the adjusted series. No significant monotonic trend was detected for the time period considered.

Table 11-10: Monotonic Trend Analysis – LC Adjusted Inflow Series

Name	Analysis Period	Sample Size n	Mean (mm)	Mann-Kendall p-value	Category	Remarks
LC Total	1957-2022	66	630	0.765	3	Practically horizontal

11.8.2 Cumulative Departure from Mean

Figure 11-14 shows the plot of cumulative departure from mean of the adjusted inflow series. The plot shows alternating positive and negative slopes which indicate periods of variability above and below the mean, but there are no clear indications of any shifts that would constitute a step change.

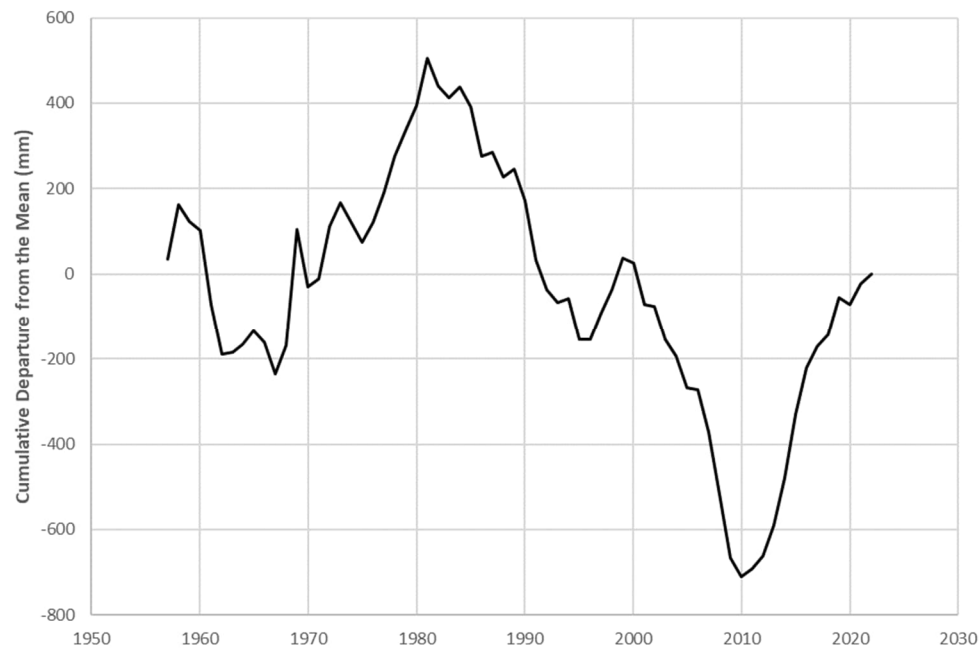


Figure 11-14: Cumulative Departure from Mean – LC Adjusted Inflow Series

11.8.3 Step Change Analysis

Step change analysis was carried out on the adjusted series to determine the effect of the adjustments on the step change detected in the historic series, Table 11-11. Boxplots of the inflows before are shown in Figure 11-15. The results for Eagle River are shown for comparison. The results show that the statistically significant increase in runoff values after the Muskrat Falls diversion has been eliminated.

Table 11-11: Step Change Analysis Pre/Post-2017 – LC Total Adjusted Inflow Series

Name	Pre	Post	Sample Size n_1, n_2	Mann-Whitney p-value	Remarks
LC Total	1972-2016	2017-2022	45, 6	0.193	Post is higher, not sig.
Eagle (03QC001)	1972-2016	2017-2021	43, 5	0.061	Post is higher, sig. at 10%

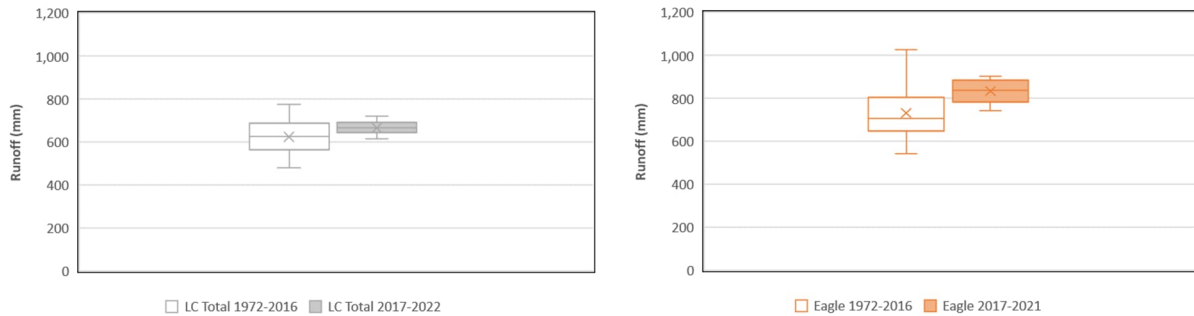


Figure 11-15: Boxplots Pre/Post-2017 – LC Total Adjusted Inflow Series

11.8.4 Mass Curves

Figure 11-16 shows the single mass curve of the adjusted LC series. There are no unnatural breaks in slope or unusual offsets. The slight changes in the curves may be attributed to annual flow variations and natural hydrologic variability. The double mass curve with Eagle River in Figure 11-17 shows similar behavior.

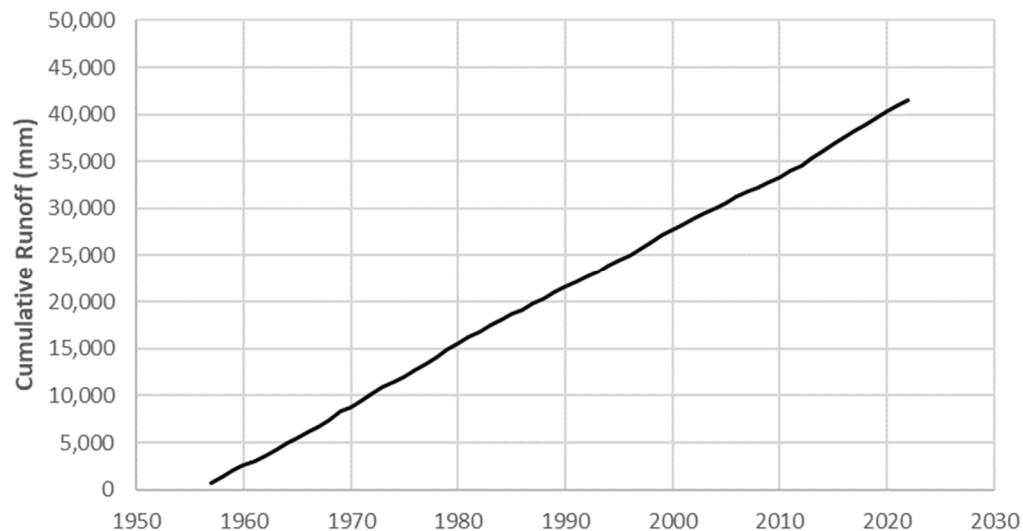


Figure 11-16: Single Mass Curve – LC Adjusted Inflow Series

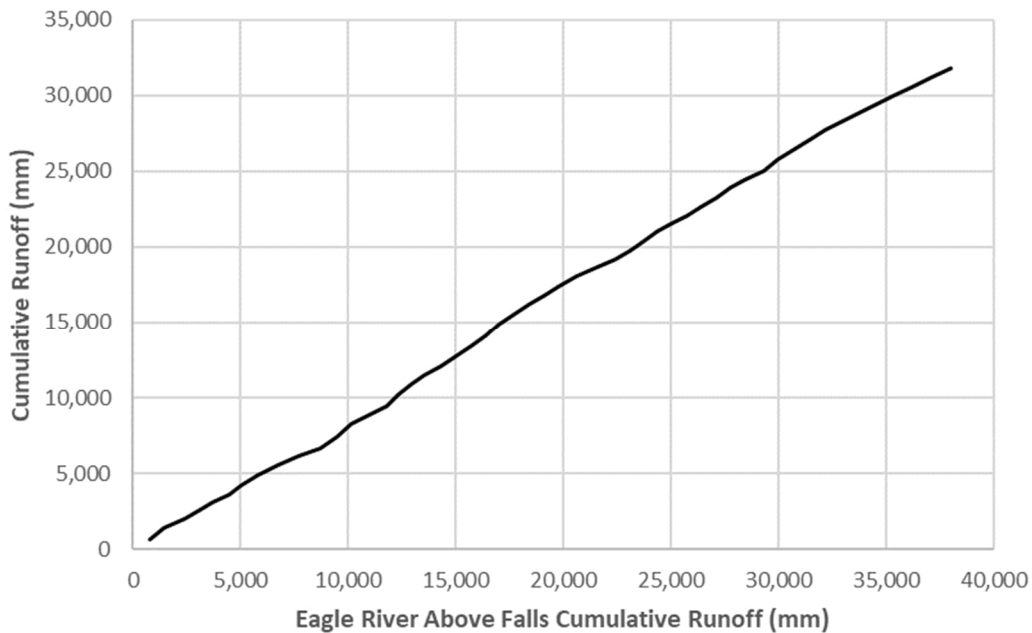


Figure 11-17: Double Mass Curve – LC Adjusted Inflow Series

11.9 Discussion

Adjustments to the inflow series have been made to distribute runoff in a consistent manner, and to replace runoff values in the Muskrat Falls post-diversion period that were judged to be overestimated. The adjustments have eliminated the apparent monotonic trend and step change. The adjusted inflows appear to be free of random and systematic errors, and the values are consistent with other hydrometric records in the region and are within the range of historic variability.

The LC adjusted inflow series are tabulated as annual flows (m^3/s) and equivalent annual runoff depths (mm) in Appendix C. Daily flow values have been provided to Hydro in digital format.

12. Average Annual Energy

To estimate the energy capability of Hydro's Island hydroelectric systems and Muskrat Falls, LT Vista was employed. The LT Vista model facilitates studies of long-term generation using long periods of hydrology. The model was based on water balance continuity where flow release decisions are constrained by physical limits and operating rules defined in the setup. For this study, the load profile used for long-term planning was imposed on the system along with market opportunities. The analysis was performed using the common period of hydrology available for both the Island and Labrador (1957-2022). Three sub-periods (off, on and premium peak) were used for this analysis (Figure 12-1). The subperiod is selected so that derived energy is properly influenced by the load profile, i.e., higher generation during higher load sub-periods. A five-day model output timestep was used for this assessment.

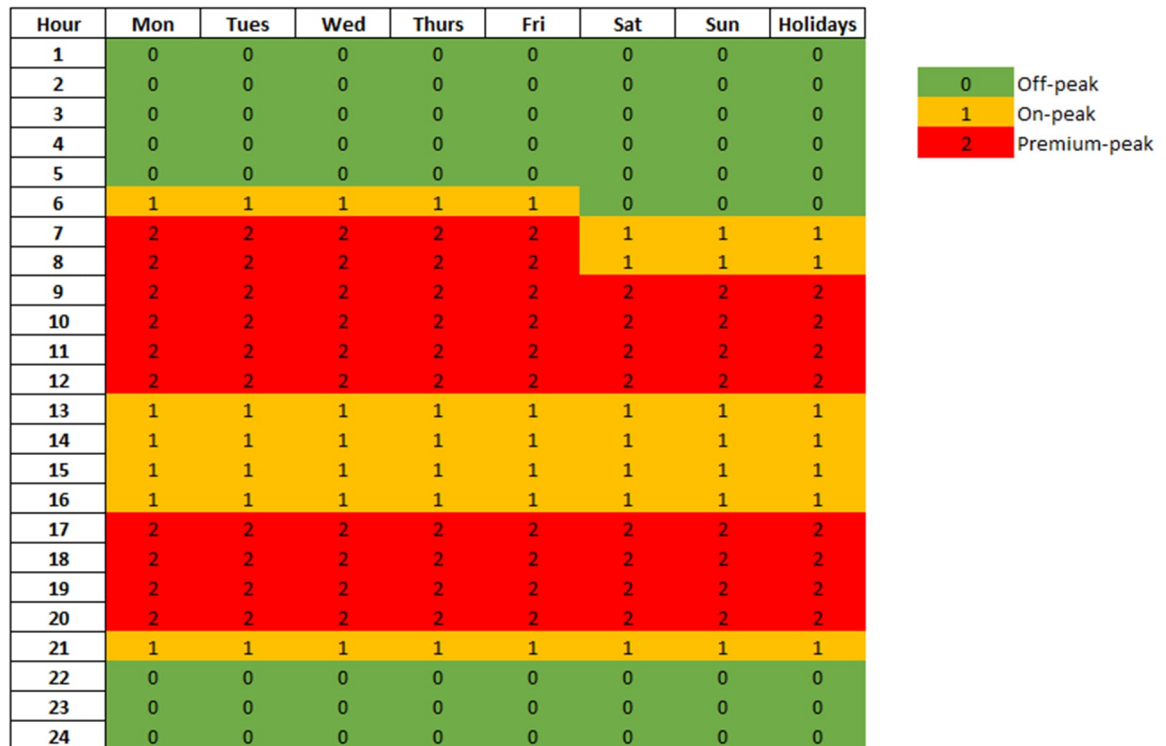


Figure 12-1: Sub-periods Used for Energy Estimation

The results of the energy analysis are presented in Table 12-1 as average annual energy for the Bay d'Espoir, Cat Arm, Hinds Lake, Paradise and Muskrat Falls systems and the contributions from each plant.

Table 12-1: Average Annual Energy for Integrated System and Contributing Plants

System	Plant	Average Annual Energy (GWh)	Difference Relative to Original Hydrology (GWh)	System Total Energy (GWh)
Bay d'Espoir	Granite Canal	257.43	-0.04	3,455.30
	Upper Salmon	532.53	0.01	
	Bay d'Espoir	2,665.34	0.00	
Cat Arm	Cat Arm	769.42	0.00	769.42
Hinds Lake	Hinds Lake	355.76	0.00	355.76
Paradise River	Paradise River	32.39	-0.01	32.39
Muskrat Falls	Muskrat Falls	5,047.01	0.01	5,047.01

The average annual energy estimated from the adjusted inflows was 4,612.87 GWh from the Island and 5,047.01 GWh from Labrador. The average annual energy from the original flows was compared to that from the adjusted flows and there was little to no difference. This is consistent with the findings from the hydrology review that most of the required adjustments were due to internal inconsistencies in flows within the sub-basins and not errors in the total system runoff volumes.

13. Critical Dry Sequence

As noted in SGE Acres (2004), the critical dry sequence for Hydro's operational and long-term planning of hydraulic generation on the Island of Newfoundland runs from early 1959 to early 1962. This period was assessed to verify that it is still the driest on record, and that the combined reservoir energy inflows adequately represent the dry period.

A major change since the 2004 study is that the Island is no longer an isolated system. The Muskrat Falls development has come into service and is able to supplement the Island systems via the Labrador Island Link (LIL). However, the Muskrat Falls development adds practically no reservoir storage, and Hydro does not control water management of the upstream reservoirs at Churchill Falls; thus, Hydro must still rely upon and manage its Island reservoirs accordingly.

The 3-year moving average runoff was calculated for the combined Island inflow, and for WSC stations 02ZF001 (Bay du Nord River), 02YQ001 (Gander River) and 02YL001 (Upper Humber River). These stations are RHBN stations that cover much of the same time period and have large drainage areas with a representative spatial coverage of the Island.

Figure 13-1 shows the annual runoff with plots of the 3-year moving average. 1959-1961 is driest 3-year period of the combined Island as well as Bay du Nord River and Gander River, and among the driest for Upper Humber River. There have not been any drier periods since the previous (2004) study.

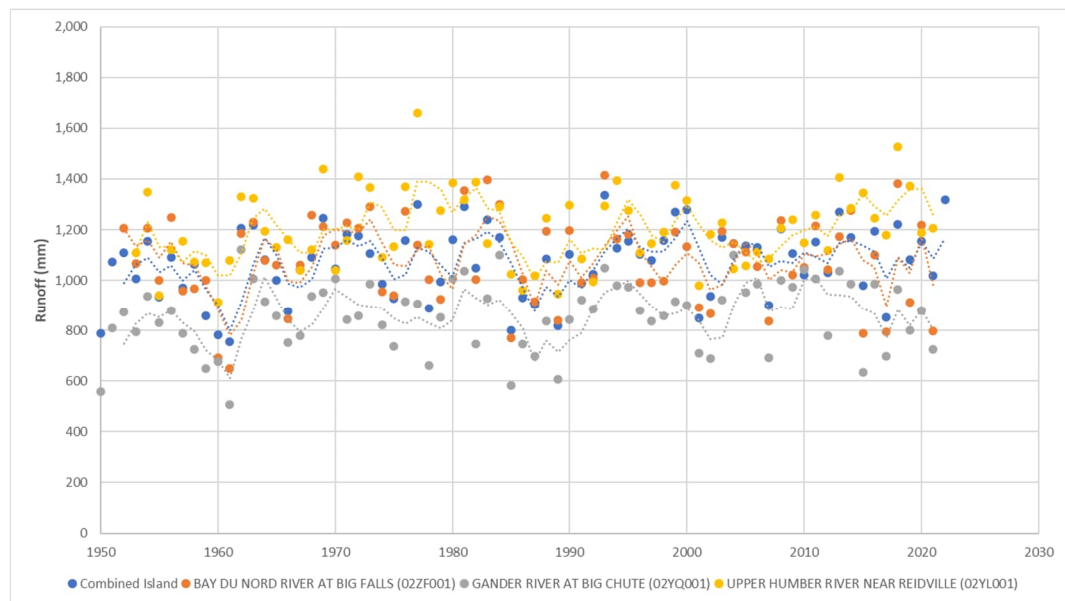


Figure 13-1: Combined Reservoir (Island) Inflows and WSC Streamflows with 3-year Moving Average

As summarized in Table 13-1, the severity of the dry period was expressed as the ratio of the dry period runoff to the mean annual runoff of the full records from 1950 to present.

Table 13-1: Critical Dry Sequence – Island of Newfoundland

Series	1959-1961 Dry Period Runoff (mm)	Mean Annual Runoff (mm)	Ratio
Combined Island	798	1,071	0.745
Bay du Nord	780	1,075	0.726
Gander	611	858	0.712
Upper Humber	1,021	1,200	0.851

The average ratio of the three WSC stations is 0.763, which is comparable to the dry period ratio of the combined series. This confirms that the dry period runoff values in the combined series are representative of the historic hydrologic minimum on the Island. The five driest 3-year sequences in the combined series (in decreasing order of severity) are the periods ending 1961, 1987, 1960, 1962, and 1989; all have average runoffs in the range of 75 to 87 percent of long-term MAR.

By way of comparison, the five driest 3-year sequences in the LC total inflow series (in decreasing order of severity) are the periods ending 2009, 2010, 1962, 1963 and 1992. All of them are in the range of 80 to 85 percent of the long-term MAR. As an approximate check, if the combined Island and LC runoff series are lumped on an area-weighted basis, the single driest 3-year period is still 1959-61. It should be noted that this treatment neglects issues such as differences in water-to-energy conversion of the different systems, transmission constraints, etc., but it shows that the years around 1960 remain among the driest on record on a regional basis. Model simulation of the interconnected system with long-term hydrology including all historical dry periods (per Hydro's current practice) and other system constraints remains the recommended approach for operational and long-term planning of hydraulic generation.

14. Minimum Aggregate Storage Procedure

Hydro employs a planning methodology which balances hydraulic and thermal production annually depending on the available hydrology. Hydro specifically focuses on maximizing generation from hydraulic sources and minimizing generation from thermal sources to manage cost to customers.

Monthly minimum reservoir storage limits are established annually to ensure that the system is operated to maintain sufficient water in storage to maintain full hydraulic production through a repeat of the historic dry period (1959 to 1962) and any shorter-term dry periods in the hydraulic records. Hydro's minimum storage limits represent the lowest aggregate storage level that Hydro's main reservoirs could reach and still ensure that native load could be met through hydraulic production, supplemented with maximized deliveries of power from Muskrat Falls over the Labrador Island Link (LIL) should there be a repeat of a critical dry inflow sequence.

The analysis considers only Hydro's large storage reservoirs; Victoria, Meelpaeg, Long Pond, Cat Arm, and Hinds Lake, and includes a small buffer of storage at each reservoir to account for the effects of customer load variability, control structure or plant constraints, and reservoir storage imbalances. The analysis uses the Vista Decision Support Software (Vista DSS) to simulate reservoir storage through select historic inflow sequences. Vista determines the supplementary energy (LIL energy delivered to the island) that is required in each inflow sequence to meet Island load and optimize the reservoir system over the study period. A spreadsheet model is then used to determine how much lower the storage could be if the supplementary energy used on the island is maximized.

The monthly aggregate reservoir storage limits are developed each year with consideration of the historic inflow sequences, generating plant availability, LIL availability, and system load forecasts. Total system storage is continuously monitored against the established minimum limits.

Power deliveries from Muskrat Falls via the LIL can be increased when necessary to improve system storage to the extent that energy is available from Muskrat Falls under existing agreements. Other factors, such as the distribution of storage among the reservoirs, weather forecasts, and approximations of the water equivalent in snowpack would also be considered in making the decisions related to delivering more power to the island.

The analysis entails a comparison of the storage limits derived using the largest decrease in storage across all inflow sequences in a given time period, and the storage limits derived from simulation of the 1959 and 1960 inflow sequences (the two driest hydrological years in the critical dry sequence).

The minimum storage limits are an indication of total hydraulic storage required in Hydro's system based on a significant number of assumptions and an optimization model that cannot model all aspects of Hydro's complex system. If Hydro's aggregate system storage is abnormally low or if any individual reservoirs approach their minimum historic level, additional analysis to manage available storage would be performed. This could include detailed examinations of historic dry sequences, sensitivity analyses of key assumptions, or reservoir specific analysis using spreadsheet routing models.

Hatch has reviewed Hydro's minimum aggregate storage procedure and concludes that the approach is sound and that no changes are recommended.

15. Conclusions and Recommendations

15.1 Conclusions

The conclusions of the study are as follows:

1. The analyzed WSC streamflow records show no convincing evidence for statistically significant monotonic trends in the timeframe of the 1950s to the present. At some stations, the period of available data affects whether there is an apparent trend, and its direction. Since around 2010 there appears to be increasing annual runoff at some WSC stations in Labrador and the western part of the Island and decreasing annual runoff at some WSC stations in the eastern part of the Island; however, it remains to be seen if this is a short-term phenomenon or part of a longer term trend.
2. The adjusted BDE inflows prepared by SGE Acres (2004) have not been fully implemented in Hydro's Vista DSS database. The historic dataset still includes long periods of values that pre-date the 2004 study. Hatch has reviewed the 2004 report and concluded that the adjusted flows and their derivation and justification are still valid.
3. SGE Acres (2004) investigated the Ebbegunbaeg Control Structure discharge rating and concluded that it overestimated the discharge. Error in the Ebbegunbaeg discharge rating could result in errors in the calculation and distribution of the estimated pre-development and/or post-development inflows in potentially all BDE sub-basins except Victoria.
4. Adjusted BDE inflow series have been proposed which distribute the inflows among the sub-basins in a consistent manner while preserving the overall BDE runoff volume. Apparent trends in the adjusted inflows are likely due to natural hydrological variability (drier years dominating the early part of the record, and recent years being wetter in some areas).
5. The North Salmon Spillway discharge rating curves published in the Upper Salmon Operating and Maintenance Manual appear to be valid. Error in the discharge rating at Ebbegunbaeg may be responsible for any apparent discrepancy with the discharge values at the North Salmon Spillway.
6. Apparent trends in the Hinds Lake, Cat Arm and Paradise River inflow series may be due to natural hydrological variability.
7. Apparent increasing trend in Hydro's combined reservoir energy inflows may be due to natural hydrological variability. The finding of significant trend is sensitive to the time period considered. The dry period in the early part of the series is validated in other hydrologic records in Newfoundland. WSC records suggest that, since around 2010, there appears to be increasing annual runoff in the western part of the Island, and this may extend to some of Hydro's systems. It remains to be seen whether this is a short-term phenomenon or part of a longer term trend.

8. The LC historic inflow series show a sharp increase in runoff starting in the 2010s. WSC records also show increasing runoff in recent years, although the recent increase in the LC series seems to exceed the historical range of variability, while the increase in the WSC records is not as extreme. The current review concluded that the LC inflows during this period have been overestimated due to overestimation of spill during the diversion and operational phases of the Muskrat Falls development.
9. Hydro determined that there were errors in the discharge coefficients of the Muskrat Falls spillway. Hatch concurs with Hydro's assessment and revision of the discharge coefficients and the calculated Muskrat Falls inflows for the period after full impoundment (September 2019 onward).
10. It was concluded that the Little Mecatina WSC record would be suitable to derive alternative LC inflows for the October 2016 to September 2019 period that would be unaffected by the uncertainty in the Muskrat Falls diversion discharge.
11. Recent WSC hydrometric station data show that the Ossokmanuan Reservoir historic inflows are not representative of the runoff in the Unknown River sub-basin. It would be more reasonable to derive the long-term inflows in the Unknown River sub-basin from the same datasets as the other LC sub-basins.
12. Adjusted LC inflow series have been proposed which distribute runoff in a consistent manner and replace runoff values in the Muskrat Falls post-diversion period that were judged to be overestimated. The adjustments have eliminated the apparent monotonic trend and step change. The adjusted inflows are consistent with long-term hydrometric records in Labrador and are within the range of historic variability.
13. The average annual energy estimated from the adjusted inflows was 4,612.87 GWh from the Island and 5,047.01 GWh from Labrador. The average annual energy from the original flows was compared to that from the adjusted flows and there was little to no difference.
14. Review of regional hydrology confirms that the 1959-1961 dry sequence falls within the driest years on record. Model simulation of the interconnected system with long-term hydrology including all historical dry periods (per Hydro's current practice) and other system constraints remains the recommended approach for operational and long-term planning of hydraulic generation.
15. Hatch has reviewed Hydro's minimum aggregate storage procedure and concludes that the approach is sound that no changes are recommended.

15.2 Recommendations

The recommendations of the study are as follows.

16. Hydro should address the recommendation by SGE Acres (2004) to make additional measurements as required to verify or redevelop the curves for the Ebbegunbaeg Control Structure. If the gate curves are revised, they should be used to recalculate post-development inflow series for the length of record which the data support, and of sufficient length to re-estimate pre-development adjustment factors.
17. Hydro should replace the BDE historic inflow series with the adjusted series developed in this study, as an interim measure until the Ebbegunbaeg discharge rating is validated and the inflow series have been reconstructed, as applicable.
18. SGE Acres (2003) suggested that at Paradise River, the spill, head loss, and efficiency curves used to backroute the inflows may not have been examined as thoroughly as in other systems. Hydro should verify the information used to backroute inflows at Paradise River for systematic error.
19. Hydro should replace the LC historic inflow series with the adjusted series developed in this study.

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Appendix A

Hydro Historic Inflow Series

Table A-1
Victoria Historic Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 1058

Year	Flow m ³ /s	Runoff mm
1950	27.65	824
1951	39.16	1167
1952	36.18	1081
1953	35.82	1068
1954	40.73	1214
1955	33.83	1009
1956	36.79	1100
1957	40.34	1202
1958	43.47	1296
1959	32.79	977
1960	30.81	921
1961	29.52	880
1962	39.39	1174
1963	40.95	1221
1964	36.40	1088
1965	32.21	960
1966	31.45	937
1967	36.13	1077
1968	39.57	1183
1969	46.25	1379
1970	36.02	1074
1971	44.25	1319
1972	46.39	1387
1973	37.31	1112
1974	34.20	1019
1975	33.80	1007
1976	40.43	1208
1977	50.34	1500
1978	33.30	993
1979	39.25	1170
1980	39.43	1178
1981	48.05	1432
1982	35.58	1060
1983	46.51	1386
1984	39.88	1192
1985	24.98	745
1986	31.65	943

Year	Flow m ³ /s	Runoff mm
1987	34.33	1023
1988	37.35	1116
1989	28.23	841
1990	40.07	1194
1991	33.93	1011
1992	36.19	1082
1993	47.66	1421
1994	38.98	1162
1995	39.37	1173
1996	39.87	1192
1997	36.90	1100
1998	42.08	1254
1999	45.78	1365
2000	44.26	1323
2001	27.86	830
2002	34.22	1020
2003	41.16	1227
2004	39.77	1189
2005	39.12	1166
2006	37.99	1132
2007	32.83	979
2008	40.55	1212
2009	39.48	1177
2010	32.24	961
2011	36.52	1089
2012	34.61	1034
2013	47.91	1428
2014	39.73	1184
2015	35.10	1046
2016	39.80	1189
2017	29.73	886
2018	42.46	1265
2019	39.69	1183
2020	38.30	1145
2021	39.20	1168
2022	49.08	1463
Mean	37.99	1133

Table A-2
Burnt Historic Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 679

Year	Flow m ³ /s	Runoff mm
1950	15.77	732
1951	22.81	1059
1952	23.63	1101
1953	21.98	1021
1954	25.39	1179
1955	19.89	924
1956	23.77	1107
1957	20.95	973
1958	24.20	1124
1959	18.09	840
1960	16.24	756
1961	16.15	750
1962	25.84	1200
1963	26.30	1222
1964	23.07	1074
1965	21.94	1019
1966	18.32	851
1967	23.49	1091
1968	24.66	1148
1969	27.45	1275
1970	22.72	1055
1971	24.92	1158
1972	25.51	1188
1973	23.67	1099
1974	21.76	1011
1975	19.63	912
1976	25.26	1176
1977	27.34	1270
1978	18.02	837
1979	19.53	907
1980	24.28	1131
1981	30.40	1412
1982	23.75	1103
1983	29.28	1360
1984	25.18	1173
1985	16.46	764
1986	20.32	944

Year	Flow m ³ /s	Runoff mm
1987	19.31	897
1988	21.45	999
1989	16.71	776
1990	23.13	1074
1991	20.32	944
1992	20.79	968
1993	27.83	1293
1994	22.61	1050
1995	23.23	1079
1996	25.20	1173
1997	24.87	1155
1998	31.92	1483
1999	28.01	1301
2000	27.08	1261
2001	17.79	826
2002	24.15	1122
2003	32.84	1525
2004	26.49	1234
2005	27.62	1283
2006	28.18	1309
2007	22.59	1049
2008	31.07	1447
2009	28.24	1311
2010	22.56	1048
2011	27.74	1288
2012	25.94	1208
2013	34.37	1597
2014	29.48	1369
2015	25.07	1164
2016	28.95	1348
2017	20.61	957
2018	32.92	1529
2019	28.51	1324
2020	29.18	1359
2021	27.54	1279
2022	36.85	1712
Mean	24.37	1133

Table A-3
Granite Lake Historic Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 503

Year	Flow m ³ /s	Runoff mm
1950	11.68	732
1951	16.90	1059
1952	17.51	1101
1953	16.28	1021
1954	18.81	1179
1955	14.73	924
1956	17.61	1107
1957	15.52	973
1958	17.93	1124
1959	13.40	840
1960	12.03	756
1961	11.97	750
1962	19.14	1200
1963	19.48	1222
1964	17.09	1074
1965	16.25	1019
1966	13.57	851
1967	17.40	1091
1968	18.27	1148
1969	20.33	1275
1970	16.83	1055
1971	18.46	1158
1972	18.90	1188
1973	17.54	1099
1974	16.12	1011
1975	14.54	912
1976	18.71	1176
1977	20.25	1270
1978	13.35	837
1979	14.47	907
1980	17.98	1131
1981	24.30	1523
1982	19.28	1209
1983	23.77	1490
1984	20.44	1285
1985	13.36	838
1986	16.50	1034

Year	Flow m ³ /s	Runoff mm
1987	15.67	983
1988	17.41	1094
1989	13.57	850
1990	18.78	1177
1991	16.49	1034
1992	16.88	1061
1993	22.59	1416
1994	18.35	1151
1995	21.19	1329
1996	18.86	1186
1997	19.09	1197
1998	15.23	955
1999	27.36	1715
2000	28.43	1787
2001	13.18	826
2002	17.97	1126
2003	24.21	1518
2004	19.60	1232
2005	20.58	1291
2006	20.86	1308
2007	16.73	1049
2008	23.02	1447
2009	20.92	1311
2010	16.71	1048
2011	20.55	1288
2012	19.22	1208
2013	25.46	1597
2014	24.61	1543
2015	18.57	1164
2016	21.45	1348
2017	15.26	957
2018	24.39	1529
2019	21.12	1324
2020	21.62	1359
2021	20.41	1279
2022	27.30	1712
Mean	18.55	1164

Table A-4
Meelpaeg Lake Historic Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 969

Year	Flow m ³ /s	Runoff mm
1950	22.50	732
1951	32.55	1059
1952	33.73	1101
1953	31.37	1021
1954	36.24	1179
1955	28.38	924
1956	33.92	1107
1957	29.89	973
1958	34.54	1124
1959	25.82	840
1960	23.17	756
1961	23.06	750
1962	36.87	1200
1963	37.53	1222
1964	32.92	1074
1965	31.31	1019
1966	26.15	851
1967	33.53	1091
1968	35.19	1148
1969	39.17	1275
1970	32.42	1055
1971	35.57	1158
1972	36.40	1188
1973	33.78	1099
1974	31.06	1011
1975	28.01	912
1976	36.04	1176
1977	39.02	1270
1978	25.72	837
1979	27.87	907
1980	34.65	1131
1981	46.94	1528
1982	37.27	1213
1983	45.94	1495
1984	39.51	1289
1985	25.82	840
1986	31.89	1038

Year	Flow m ³ /s	Runoff mm
1987	30.29	986
1988	33.65	1098
1989	26.22	853
1990	36.29	1181
1991	31.88	1037
1992	32.62	1065
1993	43.67	1421
1994	35.48	1155
1995	40.96	1333
1996	36.45	1190
1997	36.90	1201
1998	29.44	958
1999	52.88	1721
2000	54.95	1793
2001	25.37	826
2002	19.88	647
2003	24.08	784
2004	32.38	1057
2005	27.79	905
2006	31.67	1031
2007	27.41	892
2008	35.89	1171
2009	35.17	1145
2010	29.19	950
2011	32.69	1064
2012	29.98	978
2013	37.15	1209
2014	34.50	1123
2015	26.51	863
2016	38.97	1272
2017	23.04	750
2018	37.16	1210
2019	36.34	1183
2020	40.26	1314
2021	33.79	1100
2022	45.53	1482
Mean	33.45	1090

Table A-5
Great Burnt Lake Historic Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 630

Year	Flow m ³ /s	Runoff mm
1950	15.89	796
1951	20.62	1032
1952	24.70	1240
1953	20.14	1008
1954	25.00	1252
1955	19.71	987
1956	24.67	1238
1957	17.79	890
1958	20.17	1010
1959	16.20	811
1960	14.97	751
1961	14.57	729
1962	27.00	1351
1963	28.91	1447
1964	24.40	1225
1965	22.70	1136
1966	18.41	922
1967	22.90	1146
1968	21.16	1062
1969	22.38	1120
1970	23.73	1188
1971	23.09	1156
1972	23.79	1194
1973	22.73	1138
1974	20.35	1019
1975	17.80	891
1976	23.71	1190
1977	25.94	1298
1978	18.36	919
1979	18.03	903
1980	22.65	1137
1981	19.95	999
1982	16.07	805
1983	19.58	980
1984	20.28	1018
1985	16.35	818
1986	16.31	817

Year	Flow m ³ /s	Runoff mm
1987	14.05	703
1988	23.00	1154
1989	17.88	895
1990	18.71	937
1991	21.45	1074
1992	24.78	1244
1993	27.15	1359
1994	22.48	1125
1995	16.28	815
1996	18.28	917
1997	19.47	974
1998	22.62	1132
1999	13.21	661
2000	11.22	563
2001	16.47	825
2002	18.17	910
2003	23.75	1189
2004	22.91	1150
2005	22.29	1116
2006	17.78	890
2007	15.90	796
2008	20.10	1009
2009	17.64	883
2010	16.47	825
2011	11.59	580
2012	16.79	843
2013	9.29	465
2014	14.69	736
2015	11.94	598
2016	18.74	941
2017	11.98	600
2018	18.61	932
2019	11.67	584
2020	14.39	722
2021	6.65	333
2022	15.39	771
Mean	19.11	957

Table A-6
Cold Spring Pond Historic Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 290

Year	Flow m ³ /s	Runoff mm
1950	7.32	796
1951	9.50	1033
1952	11.37	1240
1953	9.27	1008
1954	11.51	1252
1955	9.08	987
1956	11.36	1239
1957	8.19	890
1958	9.29	1010
1959	7.46	811
1960	6.89	751
1961	6.71	729
1962	12.43	1351
1963	13.31	1447
1964	11.23	1225
1965	10.45	1136
1966	8.48	922
1967	10.54	1147
1968	9.74	1062
1969	10.30	1120
1970	10.92	1188
1971	10.63	1156
1972	10.95	1194
1973	10.46	1138
1974	9.37	1019
1975	8.19	891
1976	10.91	1190
1977	11.94	1298
1978	8.45	919
1979	8.30	903
1980	10.43	1137
1981	9.19	999
1982	7.40	805
1983	9.01	980
1984	9.34	1018
1985	7.53	818
1986	7.51	817

Year	Flow m ³ /s	Runoff mm
1987	6.47	703
1988	10.58	1154
1989	8.23	895
1990	8.61	937
1991	9.87	1074
1992	11.41	1244
1993	12.50	1359
1994	10.35	1125
1995	7.49	815
1996	8.41	917
1997	8.96	974
1998	10.41	1132
1999	6.08	661
2000	5.16	563
2001	7.58	825
2002	8.37	910
2003	10.93	1189
2004	10.54	1150
2005	10.38	1128
2006	8.18	890
2007	7.32	796
2008	9.25	1009
2009	8.12	883
2010	7.58	825
2011	5.34	580
2012	7.73	843
2013	4.29	466
2014	6.76	736
2015	5.50	598
2016	8.63	941
2017	5.52	600
2018	8.57	932
2019	5.37	584
2020	6.63	722
2021	3.06	333
2022	7.09	771
Mean	8.80	957

Table A-7
Long Pond Historic Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 1774

Year	Flow m ³ /s	Runoff mm
1950	34.52	614
1951	53.92	959
1952	55.52	990
1953	51.26	911
1954	59.50	1058
1955	46.21	821
1956	54.51	972
1957	46.12	820
1958	54.20	964
1959	41.22	733
1960	36.63	653
1961	34.13	607
1962	63.12	1122
1963	62.21	1106
1964	54.77	976
1965	51.11	909
1966	42.03	747
1967	52.11	926
1968	55.52	990
1969	61.70	1097
1970	53.25	947
1971	61.33	1090
1972	57.40	1023
1973	52.96	941
1974	50.59	899
1975	45.80	814
1976	61.17	1090
1977	62.65	1114
1978	42.40	754
1979	47.77	849
1980	55.28	985
1981	57.83	1028
1982	46.58	828
1983	66.54	1183
1984	62.75	1119
1985	39.46	702
1986	47.16	838

Year	Flow m ³ /s	Runoff mm
1987	43.19	768
1988	51.23	913
1989	39.09	695
1990	56.45	1003
1991	47.66	847
1992	50.78	905
1993	71.96	1279
1994	54.72	973
1995	63.27	1125
1996	58.00	1034
1997	55.02	978
1998	59.85	1064
1999	66.98	1191
2000	70.35	1254
2001	43.27	769
2002	43.77	778
2003	61.03	1085
2004	62.62	1116
2005	60.66	1078
2006	60.20	1070
2007	40.63	722
2008	69.34	1236
2009	59.48	1057
2010	57.43	1021
2011	69.81	1241
2012	56.53	1008
2013	78.10	1388
2014	66.70	1186
2015	48.96	870
2016	67.44	1202
2017	40.42	718
2018	66.07	1175
2019	56.31	1001
2020	66.34	1183
2021	59.12	1051
2022	69.94	1243
Mean	54.99	978

Table A-8
Hinds Lake Historic Inflow Series
Annual Flow and Runoff

System: Hinds Lake
Length of Record: 73 years
Area (km²): 651

Year	Flow m ³ /s	Runoff mm
1950	15.57	754
1951	21.02	1018
1952	20.53	997
1953	18.81	911
1954	21.47	1040
1955	19.01	921
1956	20.70	1006
1957	18.29	886
1958	19.83	961
1959	16.85	816
1960	15.83	769
1961	15.56	754
1962	21.96	1064
1963	20.61	998
1964	19.93	968
1965	18.88	915
1966	15.28	740
1967	18.35	889
1968	19.93	968
1969	24.11	1168
1970	19.90	964
1971	23.07	1117
1972	24.28	1179
1973	23.52	1139
1974	19.72	955
1975	19.62	950
1976	21.88	1063
1977	26.43	1280
1978	17.35	841
1979	19.06	923
1980	22.56	1096
1981	24.59	1191
1982	22.57	1093
1983	23.34	1131
1984	20.83	1012
1985	15.63	757
1986	17.03	825

Year	Flow m ³ /s	Runoff mm
1987	17.59	852
1988	21.35	1037
1989	15.50	751
1990	20.99	1017
1991	19.57	948
1992	19.39	942
1993	24.16	1171
1994	24.91	1207
1995	24.09	1167
1996	22.48	1092
1997	22.82	1106
1998	26.76	1296
1999	21.96	1064
2000	23.44	1139
2001	18.22	883
2002	20.65	1000
2003	20.86	1011
2004	21.72	1055
2005	21.90	1061
2006	21.69	1051
2007	18.46	894
2008	22.52	1094
2009	20.39	988
2010	20.85	1010
2011	25.38	1229
2012	19.04	925
2013	24.80	1201
2014	23.70	1148
2015	24.58	1191
2016	26.24	1275
2017	18.49	895
2018	21.58	1046
2019	21.38	1035
2020	18.66	906
2021	19.51	945
2022	25.32	1227
Mean	20.89	1013

Table A-9
Cat Arm Historic Inflow Series
Annual Flow and Runoff

System: Cat Arm
Length of Record: 73 years
Area (km²): 651

Year	Flow m ³ /s	Runoff mm
1950	24.72	1198
1951	26.23	1270
1952	28.13	1367
1953	23.36	1132
1954	24.30	1177
1955	17.41	843
1956	22.86	1110
1957	23.27	1127
1958	19.88	963
1959	21.88	1060
1960	21.18	1029
1961	21.02	1018
1962	26.42	1280
1963	26.69	1293
1964	26.60	1292
1965	23.32	1130
1966	24.82	1202
1967	22.60	1095
1968	22.80	1107
1969	32.23	1561
1970	19.64	951
1971	28.13	1363
1972	27.22	1322
1973	27.39	1327
1974	21.18	1026
1975	23.99	1162
1976	26.94	1309
1977	36.75	1780
1978	24.73	1198
1979	32.63	1581
1980	32.45	1576
1981	30.67	1486
1982	29.83	1445
1983	18.43	893
1984	25.80	1253
1985	22.79	1104
1986	21.29	1031

Year	Flow m ³ /s	Runoff mm
1987	24.52	1188
1988	27.07	1315
1989	22.00	1066
1990	25.65	1242
1991	24.83	1203
1992	22.32	1084
1993	26.55	1286
1994	30.03	1455
1995	27.07	1311
1996	26.48	1286
1997	24.15	1170
1998	26.91	1304
1999	29.95	1451
2000	30.11	1462
2001	22.35	1083
2002	27.01	1308
2003	29.07	1408
2004	23.95	1163
2005	27.65	1339
2006	32.23	1561
2007	24.27	1176
2008	25.17	1223
2009	26.39	1279
2010	31.69	1535
2011	36.29	1758
2012	26.97	1310
2013	33.08	1602
2014	29.21	1415
2015	31.92	1546
2016	27.89	1355
2017	30.79	1491
2018	36.43	1765
2019	33.06	1601
2020	30.06	1460
2021	28.72	1391
2022	29.85	1446
Mean	26.59	1289

Table A-10
Paradise River Historic Inflow Series
Annual Flow and Runoff

System: Paradise River
Length of Record: 73 years
Area (km²): 476.5

Year	Flow m ³ /s	Runoff mm
1950	16.47	1090
1951	18.07	1196
1952	18.75	1244
1953	16.47	1090
1954	18.07	1196
1955	18.80	1244
1956	19.16	1271
1957	15.98	1058
1958	15.31	1013
1959	14.80	979
1960	12.51	830
1961	11.20	741
1962	21.03	1392
1963	20.41	1350
1964	16.76	1112
1965	15.18	1005
1966	14.99	992
1967	16.48	1090
1968	18.81	1249
1969	18.92	1252
1970	19.43	1286
1971	18.45	1221
1972	15.39	1021
1973	19.58	1296
1974	15.06	997
1975	14.26	944
1976	16.42	1090
1977	15.47	1024
1978	14.76	977
1979	15.01	994
1980	22.50	1493
1981	21.99	1455
1982	17.19	1137
1983	19.54	1293
1984	20.73	1376
1985	12.79	846
1986	16.90	1119

Year	Flow m ³ /s	Runoff mm
1987	14.29	946
1988	21.25	1410
1989	12.19	807
1990	19.46	1288
1991	14.17	938
1992	14.45	959
1993	20.74	1373
1994	16.13	1067
1995	17.82	1179
1996	14.82	983
1997	14.68	972
1998	16.46	1089
1999	16.49	1091
2000	16.48	1094
2001	14.77	978
2002	14.26	943
2003	16.51	1092
2004	18.94	1257
2005	18.28	1210
2006	16.11	1066
2007	12.79	847
2008	15.73	1044
2009	13.58	899
2010	13.81	914
2011	14.36	950
2012	14.02	930
2013	14.41	953
2014	15.48	1025
2015	10.10	668
2016	12.70	843
2017	11.38	753
2018	9.29	615
2019	9.74	645
2020	15.73	1044
2021	10.02	663
2022	14.30	946
Mean	16.02	1061

Table A-11
Unknown River Historic Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 2743

Year	Flow m ³ /s	Runoff mm
1957	61.81	711
1958	68.93	792
1959	56.14	645
1960	56.84	655
1961	47.69	548
1962	43.56	501
1963	45.56	524
1964	52.40	604
1965	67.13	772
1966	69.69	801
1967	47.90	551
1968	66.94	772
1969	70.45	810
1970	56.55	650
1971	58.75	675
1972	48.98	565
1973	50.59	582
1974	50.48	580
1975	58.16	669
1976	64.48	743
1977	65.13	749
1978	67.69	778
1979	76.39	878
1980	61.43	708
1981	64.89	746
1982	55.12	634
1983	70.92	815
1984	59.41	685
1985	48.39	556
1986	49.79	572
1987	52.53	604
1988	51.45	593
1989	47.93	551

Year	Flow m ³ /s	Runoff mm
1990	49.80	573
1991	46.11	530
1992	54.50	628
1993	42.59	490
1994	56.90	654
1995	43.73	503
1996	56.58	652
1997	59.67	686
1998	59.56	685
1999	62.92	723
2000	51.44	593
2001	53.70	617
2002	59.04	679
2003	50.79	584
2004	57.57	664
2005	59.11	680
2006	53.64	617
2007	59.63	686
2008	51.74	596
2009	49.50	569
2010	58.81	676
2011	62.51	719
2012	52.80	609
2013	69.22	796
2014	70.06	806
2015	67.55	777
2016	64.75	746
2017	79.52	914
2018	54.49	626
2019	75.56	869
2020	77.20	890
2021	81.30	935
2022	66.52	765
Mean	58.68	675

Table A-12
Metchin Historic Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 3981

Year	Flow m ³ /s	Runoff mm
1957	83.15	659
1958	95.00	753
1959	73.41	581
1960	76.26	606
1961	55.98	443
1962	64.92	514
1963	81.75	648
1964	82.51	655
1965	81.95	649
1966	72.40	574
1967	70.18	556
1968	86.97	691
1969	115.41	914
1970	59.69	473
1971	81.71	647
1972	98.03	779
1973	88.37	700
1974	73.41	582
1975	72.45	574
1976	84.08	668
1977	87.55	694
1978	88.98	705
1979	83.88	665
1980	86.74	689
1981	93.32	739
1982	70.29	557
1983	72.30	573
1984	82.17	653
1985	73.98	586
1986	63.88	506
1987	81.24	644
1988	71.96	572
1989	83.48	661

Year	Flow m ³ /s	Runoff mm
1990	69.80	553
1991	61.32	486
1992	69.72	554
1993	77.60	615
1994	80.39	637
1995	67.62	536
1996	79.25	629
1997	87.33	692
1998	86.53	685
1999	88.65	702
2000	78.51	624
2001	65.58	519
2002	78.21	620
2003	68.95	546
2004	73.13	581
2005	68.21	540
2006	79.10	627
2007	64.00	507
2008	59.28	471
2009	59.32	470
2010	72.41	574
2011	90.69	718
2012	76.62	609
2013	100.49	796
2014	101.67	805
2015	98.02	776
2016	93.92	746
2017	115.42	914
2018	79.10	627
2019	109.62	868
2020	112.04	890
2021	118.00	935
2022	96.55	765
Mean	81.28	644

Table A-13
Fig Historic Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 5219

Year	Flow m ³ /s	Runoff mm
1957	109.04	659
1958	124.56	753
1959	96.24	582
1960	99.95	606
1961	73.39	443
1962	85.08	514
1963	107.20	648
1964	108.15	655
1965	107.42	649
1966	94.90	573
1967	92.02	556
1968	114.10	691
1969	151.32	914
1970	78.26	473
1971	106.99	646
1972	128.49	779
1973	115.87	700
1974	96.27	582
1975	94.97	574
1976	110.25	668
1977	114.79	694
1978	116.68	705
1979	109.93	664
1980	113.69	689
1981	122.33	739
1982	92.15	557
1983	94.77	573
1984	107.69	652
1985	96.99	586
1986	83.75	506
1987	106.52	644
1988	94.31	571
1989	109.38	661

Year	Flow m ³ /s	Runoff mm
1990	91.49	553
1991	80.41	486
1992	91.38	554
1993	101.76	615
1994	105.38	637
1995	88.62	535
1996	103.87	629
1997	114.49	692
1998	113.44	685
1999	116.21	702
2000	102.93	624
2001	85.92	519
2002	102.52	620
2003	90.38	546
2004	95.86	581
2005	89.45	540
2006	103.68	626
2007	83.95	507
2008	77.71	471
2009	77.75	470
2010	94.93	574
2011	102.71	621
2012	112.52	682
2013	110.15	666
2014	118.10	714
2015	128.46	776
2016	123.12	746
2017	146.27	884
2018	137.64	832
2019	157.62	952
2020	146.88	890
2021	154.69	935
2022	126.57	765
Mean	106.58	644

Table A-14
Cache Historic Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 3258

Year	Flow m ³ /s	Runoff mm
1957	68.05	659
1958	77.76	753
1959	60.07	581
1960	62.39	606
1961	45.82	443
1962	53.14	514
1963	66.93	648
1964	67.52	655
1965	67.05	649
1966	59.26	574
1967	57.44	556
1968	71.22	691
1969	94.46	914
1970	48.85	473
1971	66.86	647
1972	80.22	779
1973	72.33	700
1974	60.09	582
1975	59.28	574
1976	68.82	668
1977	71.64	693
1978	72.85	705
1979	68.65	665
1980	70.96	689
1981	76.38	739
1982	57.56	557
1983	59.16	573
1984	67.25	653
1985	60.58	586
1986	52.24	506
1987	66.48	644
1988	58.90	572
1989	68.28	661

Year	Flow m ³ /s	Runoff mm
1990	57.12	553
1991	50.19	486
1992	57.03	554
1993	63.53	615
1994	65.78	637
1995	55.31	535
1996	64.84	629
1997	71.48	692
1998	70.81	685
1999	72.56	702
2000	64.26	624
2001	53.64	519
2002	64.00	619
2003	56.42	546
2004	59.88	581
2005	55.81	540
2006	64.73	627
2007	52.42	507
2008	48.49	471
2009	48.55	470
2010	59.24	573
2011	64.10	620
2012	70.24	682
2013	68.80	666
2014	73.73	714
2015	80.21	776
2016	76.86	746
2017	91.28	884
2018	85.95	832
2019	98.39	952
2020	91.69	890
2021	96.57	935
2022	79.01	765
Mean	66.54	644

Table A-15
Minipi Historic Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 5539

Year	Flow m ³ /s	Runoff mm
1957	115.71	659
1958	132.20	753
1959	102.13	581
1960	106.05	605
1961	77.93	444
1962	90.32	514
1963	113.78	648
1964	114.79	655
1965	114.02	649
1966	100.72	573
1967	97.66	556
1968	121.09	691
1969	160.58	914
1970	83.01	473
1971	113.58	647
1972	136.38	779
1973	122.98	700
1974	102.15	582
1975	100.83	574
1976	116.97	668
1977	121.83	694
1978	123.83	705
1979	116.70	664
1980	120.66	689
1981	129.82	739
1982	97.78	557
1983	100.61	573
1984	114.28	652
1985	102.96	586
1986	88.86	506
1987	113.05	644
1988	100.12	572
1989	116.12	661

Year	Flow m ³ /s	Runoff mm
1990	97.09	553
1991	85.30	486
1992	96.99	554
1993	108.02	615
1994	111.86	637
1995	94.07	536
1996	110.24	629
1997	121.52	692
1998	120.39	685
1999	123.36	702
2000	109.26	624
2001	91.19	519
2002	108.83	620
2003	95.95	546
2004	101.76	581
2005	94.90	540
2006	110.04	626
2007	89.09	507
2008	82.47	471
2009	82.56	470
2010	100.74	574
2011	109.01	621
2012	119.43	682
2013	116.93	666
2014	125.36	714
2015	136.37	776
2016	130.68	746
2017	155.22	884
2018	146.10	832
2019	167.31	953
2020	155.89	890
2021	164.17	935
2022	134.33	765
Mean	113.12	644

Table A-16
Pinus Historic Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 780

Year	Flow m ³ /s	Runoff mm
1957	16.29	659
1958	18.63	753
1959	14.38	581
1960	14.93	605
1961	10.98	444
1962	12.71	514
1963	16.02	648
1964	16.17	655
1965	16.05	649
1966	14.19	574
1967	13.75	556
1968	17.06	692
1969	22.61	914
1970	11.69	473
1971	16.00	647
1972	19.21	779
1973	17.32	700
1974	14.38	581
1975	14.20	574
1976	16.47	668
1977	17.15	693
1978	17.44	705
1979	16.43	664
1980	16.99	689
1981	18.28	739
1982	13.79	558
1983	14.17	573
1984	16.10	653
1985	14.49	586
1986	12.52	506
1987	15.92	643
1988	14.10	572
1989	16.35	661

Year	Flow m ³ /s	Runoff mm
1990	13.67	553
1991	12.02	486
1992	13.66	554
1993	15.20	615
1994	15.75	637
1995	13.25	536
1996	15.53	629
1997	17.11	692
1998	16.95	685
1999	17.36	702
2000	15.38	624
2001	12.84	519
2002	15.32	620
2003	13.51	546
2004	14.33	581
2005	13.37	541
2006	15.49	626
2007	12.54	507
2008	11.62	471
2009	11.62	470
2010	14.18	573
2011	15.36	621
2012	16.81	681
2013	16.45	665
2014	17.62	713
2015	19.21	776
2016	18.42	747
2017	21.87	884
2018	20.59	833
2019	23.58	953
2020	21.95	890
2021	23.12	935
2022	18.92	765
Mean	15.93	644

Table A-17
Muskrat Falls Local Historic Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 1778

Year	Flow m ³ /s	Runoff mm
1957	37.13	659
1958	42.46	753
1959	32.78	581
1960	34.04	605
1961	25.03	444
1962	28.98	514
1963	36.52	648
1964	36.86	656
1965	36.59	649
1966	32.34	574
1967	31.35	556
1968	38.89	692
1969	51.54	914
1970	26.65	473
1971	36.47	647
1972	43.80	779
1973	39.47	700
1974	32.78	581
1975	32.36	574
1976	37.55	668
1977	39.10	693
1978	39.76	705
1979	37.46	664
1980	38.73	689
1981	41.68	739
1982	31.45	558
1983	32.30	573
1984	36.70	653
1985	33.03	586
1986	28.53	506
1987	36.28	643
1988	32.15	572
1989	37.28	661

Year	Flow m ³ /s	Runoff mm
1990	31.16	553
1991	27.39	486
1992	31.15	554
1993	34.65	615
1994	35.91	637
1995	30.20	536
1996	35.40	630
1997	39.00	692
1998	38.64	685
1999	39.57	702
2000	35.06	624
2001	29.27	519
2002	34.93	620
2003	30.79	546
2004	32.67	581
2005	30.48	541
2006	35.32	626
2007	28.60	507
2008	26.49	471
2009	26.49	470
2010	32.33	573
2011	34.99	621
2012	38.34	682
2013	37.54	666
2014	40.26	714
2015	43.78	776
2016	41.92	746
2017	49.82	884
2018	46.89	832
2019	53.71	953
2020	50.04	890
2021	52.70	935
2022	43.12	765
Mean	36.31	645

Appendix B

Bay d'Espoir Adjusted Inflow Series

Table B-1
Victoria Adjusted Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 1058

Year	Flow m ³ /s	Runoff mm
1950	27.65	824
1951	39.16	1167
1952	36.18	1081
1953	35.82	1068
1954	40.73	1214
1955	33.83	1009
1956	36.79	1100
1957	40.34	1202
1958	43.47	1296
1959	32.79	977
1960	30.81	921
1961	29.52	880
1962	39.39	1174
1963	40.95	1221
1964	36.40	1088
1965	32.21	960
1966	31.45	937
1967	36.13	1077
1968	39.57	1183
1969	46.25	1379
1970	36.02	1074
1971	44.25	1319
1972	46.39	1387
1973	37.31	1112
1974	34.20	1019
1975	33.80	1007
1976	40.43	1208
1977	50.34	1500
1978	33.30	993
1979	39.25	1170
1980	39.43	1178
1981	48.05	1432
1982	35.58	1060
1983	46.51	1386
1984	39.88	1192
1985	24.98	745
1986	31.65	943

Year	Flow m ³ /s	Runoff mm
1987	34.33	1023
1988	37.35	1116
1989	28.23	841
1990	40.07	1194
1991	33.93	1011
1992	36.19	1082
1993	47.66	1421
1994	38.98	1162
1995	39.37	1173
1996	39.87	1192
1997	36.90	1100
1998	42.08	1254
1999	45.78	1365
2000	44.26	1323
2001	27.86	830
2002	34.22	1020
2003	41.16	1227
2004	39.77	1189
2005	39.12	1166
2006	37.99	1132
2007	32.83	979
2008	40.55	1212
2009	39.48	1177
2010	32.24	961
2011	36.52	1089
2012	34.61	1034
2013	47.91	1428
2014	39.73	1184
2015	35.10	1046
2016	39.80	1189
2017	29.73	886
2018	42.46	1265
2019	39.69	1183
2020	38.30	1145
2021	39.20	1168
2022	49.08	1463
Mean	37.99	1133

Table B-2
Burnt Adjusted Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 679

Year	Flow m ³ /s	Runoff mm
1950	18.55	862
1951	26.84	1246
1952	27.81	1295
1953	25.86	1201
1954	29.88	1388
1955	23.40	1087
1956	27.96	1302
1957	24.64	1145
1958	28.48	1323
1959	21.29	989
1960	19.10	890
1961	19.01	883
1962	30.40	1412
1963	30.95	1437
1964	27.14	1264
1965	25.81	1199
1966	21.56	1001
1967	27.64	1284
1968	29.01	1351
1969	32.29	1500
1970	26.73	1241
1971	29.73	1381
1972	29.55	1376
1973	27.53	1279
1974	25.50	1184
1975	22.89	1063
1976	30.04	1399
1977	31.97	1485
1978	21.58	1002
1979	23.23	1079
1980	28.24	1315
1981	32.23	1497
1982	25.69	1193
1983	33.17	1540
1984	30.33	1413
1985	20.33	944
1986	23.87	1109

Year	Flow m ³ /s	Runoff mm
1987	22.04	1024
1988	26.88	1252
1989	20.79	966
1990	27.67	1285
1991	25.23	1172
1992	26.87	1251
1993	35.15	1632
1994	28.02	1301
1995	29.48	1369
1996	28.22	1314
1997	28.07	1304
1998	28.96	1345
1999	33.23	1544
2000	33.64	1566
2001	21.09	979
2002	22.54	1047
2003	32.77	1522
2004	26.48	1233
2005	27.69	1286
2006	28.17	1308
2007	22.59	1049
2008	31.07	1447
2009	28.24	1311
2010	22.56	1048
2011	27.74	1288
2012	25.94	1208
2013	34.37	1597
2014	31.07	1443
2015	25.07	1164
2016	28.95	1348
2017	20.61	957
2018	32.92	1529
2019	28.51	1324
2020	29.18	1359
2021	27.54	1279
2022	36.85	1712
Mean	27.21	1265

Table B-3
Granite Lake Adjusted Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 503

Year	Flow m ³ /s	Runoff mm
1950	13.74	862
1951	19.88	1246
1952	20.60	1295
1953	19.16	1201
1954	22.14	1388
1955	17.33	1087
1956	20.72	1302
1957	18.26	1145
1958	21.10	1323
1959	15.77	989
1960	14.15	890
1961	14.08	883
1962	22.52	1412
1963	22.92	1437
1964	20.11	1264
1965	19.12	1199
1966	15.97	1001
1967	20.48	1284
1968	21.49	1351
1969	23.92	1500
1970	19.80	1241
1971	22.02	1381
1972	21.89	1376
1973	20.40	1279
1974	18.89	1184
1975	16.96	1063
1976	22.25	1399
1977	23.69	1485
1978	15.99	1002
1979	17.21	1079
1980	20.92	1315
1981	23.87	1497
1982	19.03	1193
1983	24.57	1540
1984	22.47	1413
1985	15.06	944
1986	17.68	1109

Year	Flow m ³ /s	Runoff mm
1987	16.33	1024
1988	19.91	1252
1989	15.40	966
1990	20.50	1285
1991	18.69	1172
1992	19.91	1251
1993	26.04	1632
1994	20.76	1301
1995	21.84	1369
1996	20.91	1314
1997	20.80	1304
1998	21.45	1345
1999	24.62	1544
2000	24.92	1566
2001	15.62	979
2002	16.70	1047
2003	24.28	1522
2004	19.61	1233
2005	20.51	1286
2006	20.87	1308
2007	16.73	1049
2008	23.02	1447
2009	20.92	1311
2010	16.71	1048
2011	20.55	1288
2012	19.22	1208
2013	25.46	1597
2014	23.02	1443
2015	18.57	1164
2016	21.45	1348
2017	15.26	957
2018	24.39	1529
2019	21.12	1324
2020	21.62	1359
2021	20.41	1279
2022	27.30	1712
Mean	20.16	1265

Table B-4
Meelpaeg Lake Adjusted Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 969

Year	Flow m ³ /s	Runoff mm
1950	17.66	575
1951	25.54	831
1952	26.46	864
1953	24.61	801
1954	28.43	925
1955	22.26	725
1956	26.61	868
1957	23.45	763
1958	27.10	882
1959	20.26	659
1960	18.18	593
1961	18.09	589
1962	28.93	942
1963	29.45	958
1964	25.83	843
1965	24.56	799
1966	20.51	668
1967	26.31	856
1968	27.61	901
1969	30.73	1000
1970	25.43	828
1971	28.29	921
1972	28.12	918
1973	26.20	853
1974	24.27	790
1975	21.78	709
1976	28.58	933
1977	30.42	990
1978	20.53	668
1979	22.11	719
1980	26.87	877
1981	30.67	998
1982	24.45	796
1983	31.56	1027
1984	28.86	942
1985	19.34	630
1986	22.71	739

Year	Flow m ³ /s	Runoff mm
1987	20.97	683
1988	25.58	835
1989	19.79	644
1990	26.33	857
1991	24.01	781
1992	25.57	834
1993	33.45	1088
1994	26.66	868
1995	28.05	913
1996	26.86	876
1997	26.71	869
1998	27.55	897
1999	31.62	1029
2000	32.01	1045
2001	20.07	653
2002	21.45	698
2003	24.17	787
2004	34.08	1112
2005	29.57	962
2006	27.61	899
2007	20.66	672
2008	32.57	1063
2009	28.73	935
2010	29.60	963
2011	28.74	935
2012	26.58	867
2013	26.82	873
2014	27.09	882
2015	19.08	621
2016	34.20	1116
2017	17.79	579
2018	28.92	941
2019	23.56	767
2020	31.15	1017
2021	21.21	690
2022	28.67	933
Mean	25.89	843

Table B-5
Great Burnt Lake Adjusted Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 630

Year	Flow m ³ /s	Runoff mm
1950	14.63	732
1951	21.29	1066
1952	23.21	1165
1953	20.44	1023
1954	24.33	1218
1955	19.00	951
1956	22.94	1152
1957	18.27	914
1958	21.20	1061
1959	16.44	823
1960	14.82	744
1961	14.04	703
1962	25.98	1301
1963	26.46	1324
1964	22.91	1150
1965	21.35	1069
1966	17.46	874
1967	21.68	1085
1968	21.89	1099
1969	23.91	1197
1970	22.27	1115
1971	23.81	1192
1972	23.66	1188
1973	22.05	1104
1974	20.42	1022
1975	18.33	918
1976	24.05	1207
1977	25.60	1282
1978	17.28	865
1979	18.60	931
1980	22.61	1135
1981	25.81	1292
1982	20.57	1030
1983	26.22	1313
1984	22.67	1138
1985	16.98	850
1986	19.37	969

Year	Flow m ³ /s	Runoff mm
1987	18.13	907
1988	23.09	1159
1989	18.24	913
1990	21.24	1063
1991	21.97	1100
1992	23.39	1174
1993	26.79	1341
1994	23.17	1160
1995	20.47	1025
1996	21.37	1073
1997	23.08	1155
1998	21.69	1086
1999	26.06	1305
2000	24.71	1240
2001	16.26	814
2002	18.88	945
2003	23.68	1186
2004	21.75	1091
2005	21.15	1059
2006	20.56	1029
2007	20.52	1027
2008	22.37	1123
2009	22.05	1104
2010	16.19	810
2011	14.29	715
2012	19.12	959
2013	16.37	820
2014	19.77	990
2015	17.03	853
2016	22.01	1105
2017	15.58	780
2018	24.26	1215
2019	20.43	1023
2020	20.63	1036
2021	15.27	764
2022	26.93	1348
Mean	20.97	1051

Table B-6
Cold Spring Pond Adjusted Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 290

Year	Flow m ³ /s	Runoff mm
1950	6.73	732
1951	9.80	1066
1952	10.68	1165
1953	9.41	1023
1954	11.20	1218
1955	8.75	951
1956	10.56	1152
1957	8.41	914
1958	9.76	1061
1959	7.57	823
1960	6.82	744
1961	6.46	703
1962	11.96	1301
1963	12.18	1324
1964	10.54	1150
1965	9.83	1069
1966	8.04	874
1967	9.98	1085
1968	10.08	1099
1969	11.01	1197
1970	10.25	1115
1971	10.96	1192
1972	10.89	1188
1973	10.15	1104
1974	9.40	1022
1975	8.44	918
1976	11.07	1207
1977	11.79	1282
1978	7.95	865
1979	8.56	931
1980	10.41	1135
1981	11.88	1292
1982	9.47	1030
1983	12.07	1313
1984	10.44	1138
1985	7.81	850
1986	8.91	969

Year	Flow m ³ /s	Runoff mm
1987	8.34	907
1988	10.63	1159
1989	8.40	913
1990	9.78	1063
1991	10.12	1100
1992	10.77	1174
1993	12.33	1341
1994	10.67	1160
1995	9.42	1025
1996	9.84	1073
1997	10.62	1155
1998	9.98	1086
1999	12.00	1305
2000	11.38	1240
2001	7.49	814
2002	8.69	945
2003	10.90	1186
2004	10.01	1091
2005	9.74	1059
2006	9.47	1029
2007	9.45	1027
2008	10.30	1123
2009	10.15	1104
2010	7.45	810
2011	6.58	715
2012	8.80	959
2013	7.54	820
2014	9.10	990
2015	7.84	853
2016	10.13	1105
2017	7.17	780
2018	11.17	1215
2019	9.40	1023
2020	9.50	1036
2021	7.03	764
2022	12.40	1348
Mean	9.65	1051

Table B-7
Long Pond Adjusted Inflow Series
Annual Flow and Runoff

System: Bay d'Espoir
Length of Record: 73 years
Area (km²): 1774

Year	Flow m ³ /s	Runoff mm
1950	36.37	647
1951	52.95	941
1952	57.71	1029
1953	50.82	903
1954	60.49	1075
1955	47.25	840
1956	57.05	1017
1957	45.42	808
1958	52.71	937
1959	40.88	727
1960	36.84	657
1961	34.91	621
1962	64.60	1148
1963	65.79	1170
1964	56.96	1015
1965	53.08	944
1966	43.42	772
1967	53.90	958
1968	54.44	970
1969	59.46	1057
1970	55.38	984
1971	59.20	1052
1972	58.84	1049
1973	54.82	975
1974	50.78	903
1975	45.58	810
1976	59.81	1066
1977	63.66	1132
1978	42.97	764
1979	46.26	822
1980	56.23	1002
1981	64.17	1141
1982	51.16	909
1983	66.54	1183
1984	62.75	1119
1985	39.46	702
1986	47.16	838

Year	Flow m ³ /s	Runoff mm
1987	43.19	768
1988	51.23	913
1989	39.09	695
1990	56.45	1003
1991	47.66	847
1992	50.78	905
1993	71.96	1279
1994	54.72	973
1995	63.27	1125
1996	58.00	1034
1997	55.02	978
1998	59.85	1064
1999	66.98	1191
2000	70.22	1252
2001	42.90	763
2002	43.69	777
2003	61.03	1085
2004	62.62	1116
2005	60.66	1078
2006	60.20	1070
2007	40.63	722
2008	69.34	1236
2009	59.48	1057
2010	57.43	1021
2011	69.81	1241
2012	56.53	1008
2013	78.10	1388
2014	66.70	1186
2015	48.96	870
2016	67.44	1202
2017	40.42	718
2018	66.07	1175
2019	56.31	1001
2020	66.34	1183
2021	59.12	1051
2022	69.94	1243
Mean	55.37	985

Appendix C

Lower Churchill Adjusted Inflow Series

Table C-1
Unknown River Adjusted Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 2743

Year	Flow m ³ /s	Runoff mm
1957	57.83	665
1958	65.87	757
1959	51.21	589
1960	53.01	611
1961	39.64	456
1962	44.58	513
1963	55.05	633
1964	56.30	649
1965	57.70	664
1966	52.20	600
1967	48.30	555
1968	60.76	701
1969	78.44	902
1970	42.93	494
1971	56.54	650
1972	65.34	753
1973	59.67	686
1974	50.56	581
1975	50.87	585
1976	58.68	677
1977	60.87	700
1978	62.05	714
1979	59.96	689
1980	59.93	691
1981	64.34	740
1982	49.22	566
1983	52.28	601
1984	56.91	656
1985	50.66	583
1986	44.67	514
1987	55.56	639
1988	49.79	574
1989	56.36	648

Year	Flow m ³ /s	Runoff mm
1990	48.27	555
1991	42.69	491
1992	48.78	562
1993	52.19	600
1994	55.55	639
1995	46.23	532
1996	54.81	632
1997	60.10	691
1998	59.60	685
1999	61.29	705
2000	53.77	620
2001	46.16	531
2002	54.48	626
2003	47.88	551
2004	51.23	591
2005	48.41	557
2006	54.37	625
2007	45.93	528
2008	42.11	486
2009	41.88	482
2010	50.92	586
2011	56.42	649
2012	57.29	661
2013	61.15	703
2014	64.36	740
2015	67.51	776
2016	64.26	741
2017	59.28	682
2018	57.00	656
2019	62.50	719
2020	53.35	615
2021	58.92	677
2022	56.76	653
Mean	54.75	630

Table C-2
Metchin Adjusted Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 3981

Year	Flow m ³ /s	Runoff mm
1957	83.97	665
1958	95.64	757
1959	74.36	589
1960	76.98	611
1961	57.55	456
1962	64.74	513
1963	79.93	633
1964	81.75	649
1965	83.79	664
1966	75.80	600
1967	70.13	555
1968	88.22	701
1969	113.90	902
1970	62.34	494
1971	82.09	650
1972	94.87	753
1973	86.64	686
1974	73.41	581
1975	73.86	585
1976	85.21	677
1977	88.39	700
1978	90.10	714
1979	87.06	689
1980	87.02	691
1981	93.42	740
1982	71.46	566
1983	75.91	601
1984	82.64	656
1985	73.55	583
1986	64.87	514
1987	80.67	639
1988	72.29	574
1989	81.83	648

Year	Flow m ³ /s	Runoff mm
1990	70.09	555
1991	61.99	491
1992	70.82	562
1993	75.78	600
1994	80.66	639
1995	67.12	532
1996	79.58	632
1997	87.26	691
1998	86.53	685
1999	88.99	705
2000	78.07	620
2001	67.02	531
2002	79.10	626
2003	69.52	551
2004	74.38	591
2005	70.30	557
2006	78.95	625
2007	66.69	528
2008	61.15	486
2009	60.80	482
2010	73.94	586
2011	81.92	649
2012	83.19	661
2013	88.80	703
2014	93.45	740
2015	98.03	776
2016	93.30	741
2017	86.08	682
2018	82.77	656
2019	90.74	719
2020	77.43	615
2021	85.51	677
2022	82.38	653
Mean	79.50	630

Table C-3
Fig Adjusted Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 5219

Year	Flow m ³ /s	Runoff mm
1957	110.06	665
1958	125.36	757
1959	97.46	589
1960	100.89	611
1961	75.44	456
1962	84.85	513
1963	104.77	633
1964	107.14	649
1965	109.82	664
1966	99.35	600
1967	91.92	555
1968	115.63	701
1969	149.28	902
1970	81.71	494
1971	107.59	650
1972	124.35	753
1973	113.56	686
1974	96.22	581
1975	96.81	585
1976	111.68	677
1977	115.85	700
1978	118.10	714
1979	114.11	689
1980	114.06	691
1981	122.45	740
1982	93.67	566
1983	99.50	601
1984	108.32	656
1985	96.41	583
1986	85.02	514
1987	105.73	639
1988	94.75	574
1989	107.26	648

Year	Flow m ³ /s	Runoff mm
1990	91.87	555
1991	81.25	491
1992	92.83	562
1993	99.32	600
1994	105.72	639
1995	87.98	532
1996	104.31	632
1997	114.37	691
1998	113.42	685
1999	116.64	705
2000	102.33	620
2001	87.85	531
2002	103.68	626
2003	91.12	551
2004	97.49	591
2005	92.14	557
2006	103.47	625
2007	87.42	528
2008	80.15	486
2009	79.70	482
2010	96.91	586
2011	107.38	649
2012	109.03	661
2013	116.38	703
2014	122.48	740
2015	128.48	776
2016	122.29	741
2017	112.82	682
2018	108.49	656
2019	118.94	719
2020	101.51	615
2021	112.10	677
2022	108.00	653
Mean	104.20	630

Table C-4
Cache Adjusted Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 3258

Year	Flow m ³ /s	Runoff mm
1957	68.69	665
1958	78.24	757
1959	60.83	589
1960	62.97	611
1961	47.08	456
1962	52.96	513
1963	65.39	633
1964	66.87	649
1965	68.54	664
1966	62.01	600
1967	57.37	555
1968	72.17	701
1969	93.17	902
1970	51.00	494
1971	67.15	650
1972	77.61	753
1973	70.87	686
1974	60.05	581
1975	60.42	585
1976	69.70	677
1977	72.30	700
1978	73.71	714
1979	71.22	689
1980	71.18	691
1981	76.42	740
1982	58.46	566
1983	62.10	601
1984	67.60	656
1985	60.17	583
1986	53.06	514
1987	65.99	639
1988	59.13	574
1989	66.94	648

Year	Flow m ³ /s	Runoff mm
1990	57.34	555
1991	50.71	491
1992	57.93	562
1993	61.99	600
1994	65.98	639
1995	54.91	532
1996	65.10	632
1997	71.38	691
1998	70.79	685
1999	72.79	705
2000	63.86	620
2001	54.83	531
2002	64.71	626
2003	56.87	551
2004	60.84	591
2005	57.50	557
2006	64.58	625
2007	54.56	528
2008	50.02	486
2009	49.74	482
2010	60.48	586
2011	67.01	649
2012	68.05	661
2013	72.64	703
2014	76.44	740
2015	80.19	776
2016	76.32	741
2017	70.41	682
2018	67.71	656
2019	74.23	719
2020	63.37	615
2021	69.98	677
2022	67.42	653
Mean	65.03	630

Table C-5
Minipi Adjusted Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 5539

Year	Flow m ³ /s	Runoff mm
1957	116.79	665
1958	133.03	757
1959	103.42	589
1960	107.06	611
1961	80.05	456
1962	90.04	513
1963	111.18	633
1964	113.70	649
1965	116.53	664
1966	105.43	600
1967	97.55	555
1968	122.70	701
1969	158.41	902
1970	86.71	494
1971	114.18	650
1972	131.95	753
1973	120.51	686
1974	102.11	581
1975	102.73	585
1976	118.51	677
1977	122.93	700
1978	125.32	714
1979	121.09	689
1980	121.03	691
1981	129.94	740
1982	99.40	566
1983	105.59	601
1984	114.94	656
1985	102.30	583
1986	90.22	514
1987	112.20	639
1988	100.54	574
1989	113.82	648

Year	Flow m ³ /s	Runoff mm
1990	97.49	555
1991	86.22	491
1992	98.50	562
1993	105.40	600
1994	112.18	639
1995	93.36	532
1996	110.69	632
1997	121.37	691
1998	120.36	685
1999	123.77	705
2000	108.59	620
2001	93.22	531
2002	110.02	626
2003	96.69	551
2004	103.45	591
2005	97.77	557
2006	109.80	625
2007	92.76	528
2008	85.05	486
2009	84.57	482
2010	102.84	586
2011	113.94	649
2012	115.70	661
2013	123.50	703
2014	129.98	740
2015	136.34	776
2016	129.77	741
2017	119.72	682
2018	115.12	656
2019	126.22	719
2020	107.73	615
2021	118.97	677
2022	114.62	653
Mean	110.57	630

Table C-6
Pinus Adjusted Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 780

Year	Flow m ³ /s	Runoff mm
1957	16.46	665
1958	18.75	757
1959	14.58	589
1960	15.09	611
1961	11.28	456
1962	12.69	513
1963	15.67	633
1964	16.02	649
1965	16.42	664
1966	14.86	600
1967	13.75	555
1968	17.29	701
1969	22.33	902
1970	12.22	494
1971	16.09	650
1972	18.60	753
1973	16.98	686
1974	14.39	581
1975	14.48	585
1976	16.70	677
1977	17.33	700
1978	17.66	714
1979	17.07	689
1980	17.06	691
1981	18.31	740
1982	14.01	566
1983	14.88	601
1984	16.20	656
1985	14.42	583
1986	12.72	514
1987	15.81	639
1988	14.17	574
1989	16.04	648

Year	Flow m ³ /s	Runoff mm
1990	13.74	555
1991	12.15	491
1992	13.88	562
1993	14.85	600
1994	15.81	639
1995	13.16	532
1996	15.60	632
1997	17.10	691
1998	16.96	685
1999	17.44	705
2000	15.30	620
2001	13.14	531
2002	15.51	626
2003	13.63	551
2004	14.58	591
2005	13.78	557
2006	15.47	625
2007	13.07	528
2008	11.99	486
2009	11.92	482
2010	14.49	586
2011	16.06	649
2012	16.31	661
2013	17.41	703
2014	18.32	740
2015	19.22	776
2016	18.29	741
2017	16.87	682
2018	16.22	656
2019	17.79	719
2020	15.17	615
2021	16.75	677
2022	16.14	653
Mean	15.58	630

Table C-7
Muskrat Falls Local Adjusted Inflow Series
Annual Flow and Runoff

System: Lower Churchill
Length of Record: 66 years
Area (km²): 1778

Year	Flow m ³ /s	Runoff mm
1957	37.49	665
1958	42.70	757
1959	33.20	589
1960	34.37	611
1961	25.70	456
1962	28.90	513
1963	35.69	633
1964	36.50	649
1965	37.41	664
1966	33.84	600
1967	31.31	555
1968	39.39	701
1969	50.85	902
1970	27.83	494
1971	36.65	650
1972	42.36	753
1973	38.68	686
1974	32.78	581
1975	32.98	585
1976	38.04	677
1977	39.46	700
1978	40.23	714
1979	38.87	689
1980	38.85	691
1981	41.71	740
1982	31.91	566
1983	33.89	601
1984	36.89	656
1985	32.84	583
1986	28.96	514
1987	36.02	639
1988	32.27	574
1989	36.54	648

Year	Flow m ³ /s	Runoff mm
1990	31.29	555
1991	27.68	491
1992	31.62	562
1993	33.83	600
1994	36.01	639
1995	29.97	532
1996	35.53	632
1997	38.96	691
1998	38.63	685
1999	39.73	705
2000	34.86	620
2001	29.92	531
2002	35.32	626
2003	31.04	551
2004	33.21	591
2005	31.38	557
2006	35.25	625
2007	29.78	528
2008	27.30	486
2009	27.15	482
2010	33.01	586
2011	36.58	649
2012	37.14	661
2013	39.64	703
2014	41.72	740
2015	43.77	776
2016	41.66	741
2017	38.43	682
2018	36.95	656
2019	40.52	719
2020	34.58	615
2021	38.19	677
2022	36.79	653
Mean	35.49	630

Exhibit 6

Total Compensation Program Review





Total Compensation Program Review

- Part II (Comparator Group Identification & Market Competitive Review)

June 21, 2024

Key Findings (1 of 2)

- Newfoundland and Labrador Hydro (“Hydro”) engaged Southlea to conduct a comprehensive compensation review to develop a fair and defensible framework for total compensation for the Crown-owned utility, according to good utility practice. A sound compensation framework is critical in attracting and retaining key talent and supporting Hydro in carrying out its mandate. The engagement was completed in two parts:
 - Part 1: we developed a total compensation philosophy that aligns with market practices amongst Canadian utilities, including the recommended comparator group approach as the basis of market assessment (refer to separate report)
 - Part 2: we conducted the market assessment of Hydro’s total compensation relative to the recommended comparator groups and reviewed Hydro’s total compensation programs and practices relative to market

Compensation Philosophy and Comparator Groups

- Based on utilities market practice, sound compensation design principles, and Hydro’s business and talent landscape, we recommend that the comparator group approach for Hydro is other **Canadian utilities** (restricted to similarly-sized utilities for executives, including CEO and VPs, and adjusted for the Atlantic compensation market differential), including both government- and investor-owned utilities
- Further to our Part 1 Report, **we do not recommend segmentation** (i.e., separating jobs into multiple salary scales) or the use of government / public service as a comparator group
- To attract and retain key talent, Hydro needs to be market competitive on **total remuneration*** as it represents the value of the total compensation package offered to employees. Total remuneration is targeted at the **market 50th percentile**, and between **the 25th and 50th percentiles for CEO and VPs** due to the different pay mix offered at Hydro when compared to the market

Key Findings (2 of 2)

Market Assessment

- Hydro is **12% below the market 50th percentile** on a total remuneration* basis for non-union, non-executive workforce in **2023** (likely further below market in 2024), primarily due to the **absence of variable pay component** (i.e., performance-based incentive compensation, typically offered in market)
- For **executives (CEO and VPs)**, Hydro is **~50% below the market 50th percentile** on a total remuneration basis
- Market differentials over 5% are uncompetitive and, if the gap is not addressed, Hydro could face further risks in key talent attraction/retention and unionization. For example: 41% of resignations cite compensation as the key driver and most resignations are technical & professional roles
- Hydro's employer-provided **pension and benefit** values are comparable to what's commonly offered by other related utilities and would not be considered generous

Compensation Program Review

- In addition to being market competitive, Hydro's pay grades need to **address compression** by sufficiently differentiating compensation offered to unionized "feeder" roles and their adjacent supervisory jobs
- Hydro's compensation model supports **pay equity** principles
- Some **adjustments** on specific elements of Hydro's compensation program are needed to better align with generally accepted compensation and market practices, including fewer salary grades and wider salary ranges with fewer restrictions on the progression of salaries above the job rate
- In addition, Hydro will need to create a **separate funding pool for market adjustments** to close market gaps in addition to regular annual merit adjustments

Key Risks

- As summarized, Hydro's total remuneration is positioned materially below the market 50th percentile. If the structure is not adjusted, then Hydro will fall further behind market competitive pay levels given expected annual increases in market compensation levels. This can have potential implications on Hydro's ability to attract and retain key talent, including:

Area	Key Risks
Internal Talent Risks	Increasing voluntary attrition and that high performers and/or those with critical skill sets are at an increased risk of leaving given their ability to potentially negotiate above-market compensation packages within competitor organizations with knowledge and skills acquired at Hydro, making it more difficult for Hydro to deliver upon its strategic priorities Time to fill rates may increase and accepted offer rates may decrease which can put Hydro at-risk to fill vacant roles or attract high-quality talent required to deliver upon its core focus of delivering safe and reliable energy. Furthermore, it is often more cost efficient to provide current employees with market competitive salaries rather than to replace roles from the market at relatively higher compensation levels. In addition, the increased use of contractors to fill vacant positions is often at a much higher cost Experienced talent is often replaced with less experienced talent which can create potential risks in terms of institutional knowledge and ability to maintain efficient delivery of services. We understand that Hydro's average years of service has already been decreasing over the past number of years Challenges in maintaining a direct relationship with employees as uncompetitive compensation is often used to support unionization efforts
Market Risks	The growth in electrification is increasing demands for talent with utility experience among other utilities and other related companies (e.g., renewable energy generation) making a competitive total remuneration package even more important
Compensation Design Risks	- Separating jobs into multiple salary ranges by function may lead to risks of gender pay equity non-compliance Younger talent is more likely to put a greater emphasis on cash compensation (e.g., salary plus incentives) where Hydro is further behind market. A market competitive pension and benefit package does not close the gap to market on a total remuneration basis

Summary of Recommendations

- Review and update the non-executive salary structure for closer alignment to market on a total remuneration basis
 - Align to 2024 compensation levels which are anticipated to be 3.5% to 4.0% higher than the 2023 compensation data contained in this analysis, to avoid further misalignment with market. If no adjustment is made to the Hydro salary structure, total remuneration market differentials could reach 15%+, a level indicating significant misalignment with talent attraction and retention challenges expected
 - Make necessary adjustments to specific pay grades to address potential compression relative to the bargaining unit feeder roles to encourage unionized employees to take supervisory roles
 - Adjust / modify the salary structure to better align with career progression and Hydro's organization structure (e.g., fewer bands with wider Hay Point ranges) and provide greater flexibility to manage salaries above the job rate
- Adjust the pay bands for the VPs and create a pay band for the CEO to position total remuneration between the 25th and 50th percentiles of total cash compensation within the market

Level	Current Range			Proposed Range		
	Min. (% of Job Rate)	Job Rate	Max. (% of Job Rate)	Min. (% of Job Rate)	Job Rate	Max. (% of Job Rate)
Chief Executive Officer	N/A			\$512,000 80%	\$640,000	\$768,000 120%
Vice President	\$212,160 80%	\$265,200	\$291,720 110%	\$280,000 80%	\$350,000	\$420,000 120%

- Go through the standard salary review process to make salary adjustments relative to the updated salary structure
 - Provide an additional increase to employees positioned below the minimum of the updated range to bring them to the range minimum
 - Develop a separate budget for “market adjustments” to close the gap to the range midpoint that would be in addition to the standard merit budget that tracks regular market movements. This may need to be applied over multiple years to fully close the gap

Supporting Details

Comparator Group – Typical Selection Criteria

- A comparator group represents the market for talent in terms of companies from **which you recruit from or lose talent to and/or have similar scope/complexity**
- In developing comparator groups, companies usually consider the following factors:

Factor	Considerations
Industry	• Industry-related knowledge and skills is usually a key requirement • May need to go outside of direct industry given the limited size of the Canadian market
Geography	• Geographic scope tends to vary by employee level • At lower levels it is more localized / regional, while at more senior levels, it is broader
Size	• For executives, company size (i.e., revenue, assets) is typically correlated with executive pay levels • Peer groups are usually screened to capture companies closest in size (e.g., 0.5x to 2.0x or 0.33x to 3.0x)
Ownership	• Impact on the risk / reward relationship and overall pay levels • Is more relevant for executives v. nonexecutive employees
Business complexity	• Different lines of business and / or regions can also impact complexity • Growth expectations may impact the type of talent required to successfully execute the strategy • Margins and growth expectations

- Further details follow on the next few pages

Comparator Group – Recommended Approach

Factors	Considerations	Rationale
Industry	Utility companies	Industry experience beneficial for all roles; consistent with market practices
Region	Atlantic Canada	Reflective of regional pay levels and primary talent market
Size	Comparably-sized utilities for senior leaders (scope considerations: revenue, assets and employees)	Size is an important consideration for the scope/complexity of senior leaders
Ownership structure	Government-owned and investor-owned utilities	Maintaining a balance is important to reflect talent market while recognizing role as a government-owned utility
Business mix	- Regulated utilities or mixed utilities with a significant regulated business component - Primary focus on integrated utilities companies	Addresses comparability
Segments	One comparator group across organization	Consistent with market practices; reflects talent strategy and collaboration across organization; supports pay equity
Compensation positioning	- Total compensation structure (cash + benefits + pension) targeted at the 50th percentile of the comparator group (for senior leaders, total compensation targeted between 25th and 50th percentiles given lack of incentives) - Flexibility in pay positioning for front-line supervisor levels to minimize compression issues with bargaining unit feeder roles - Actual compensation for any employee can be below/above targeted positioning to reflect skills, experience and performance	Aligns with broad market practices and reflects Hydro's pay mix (e.g., lack of incentives)

Benchmarking Methodology – Competitive Market Data

- Benchmarking is used to assess the competitiveness of an organization's compensation in relation to its comparator group (e.g., above / below / comparable to market)
- The primary comparator group for Hydro is the Utilities sample. A secondary reference was also considered to provide additional market context (not the main comparator) and to validate the Utilities sample market findings

Employee group	Total Direct Compensation (salary + target short-term incentives + long-term incentives, where available)	Group Insurance (Benefits) and Group Retirement (Pension) Plans
Non-executive workforce	Primary Reference: Utilities Secondary Reference: Industrials. Larger sample of companies and sometimes used by other related utilities as primary reference thus considered a reasonable secondary reference	Active employee benefit and post-employment retiree benefit plan (group insurance plans) ▪ HUB International's Benefit Design Database ▪ Sample: Relevant geographic (Atlantic Canada) and industry (public sector, power, and utilities) comparators ▪ Based on the portion of benefit value provided by the employer Pension plan ▪ TELUS Health (formerly LifeWorks) Pension Database ▪ Sample: Canadian utilities ▪ Based on the portion of pension value provided by the employer
CEO and VPs	Primary Reference: Utilities Secondary Reference: Select Canadian Utilities with similar size and scope. Size and scope typical consideration in executive level compensation	

Details of market references (comparator lists in **Appendix I**):

- **Utilities:** sample of 16 utility companies from the Korn Ferry Compensation Survey. Matches aligned based on comparable Hay points. Discounted by 5% to reflect the Atlantic market pay levels
- **Select Canadian Utilities:** sample of eight utility companies with data sourced from public disclosure. Companies that are comparable in size to Hydro in terms of revenue, assets and employees regardless of Hay Points. Comparing similar roles across similarly-sized organizations
- **Industrials:** sample of 248 companies from the Korn Ferry Compensation Survey. Matches aligned based on comparable Hay points. Discounted by 5% to reflect the Atlantic market pay levels

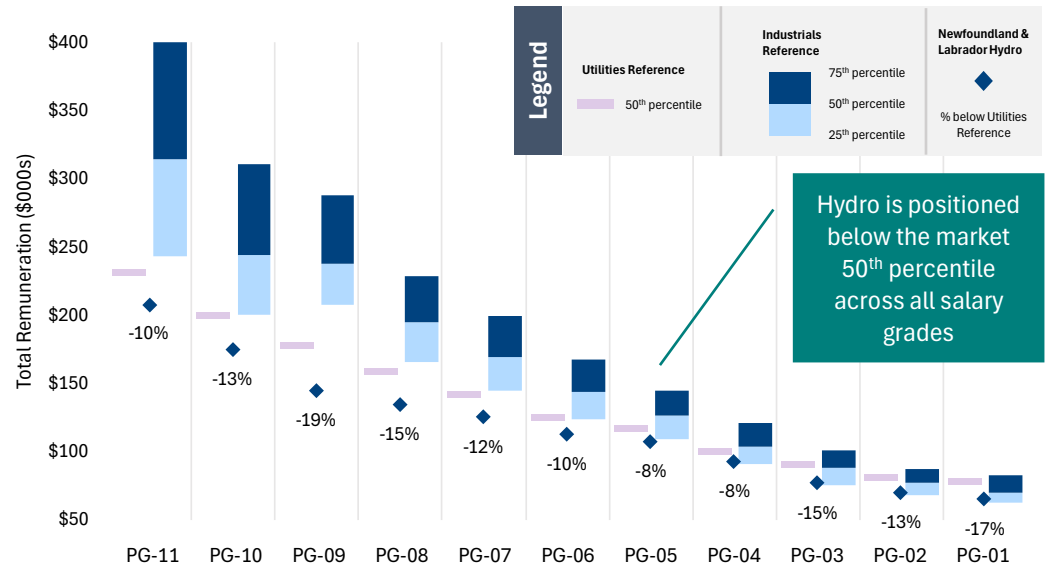
Total Remuneration Market Assessment

Non-executive Workforce

- Hydro's overall market positioning (non-unionized, below the VP level) on a total remuneration (TR) basis is, on average, **12% below market 50th percentile** of the utility comparator group and would be considered uncompetitive, increasing Hydro's attraction and retention risks
 - Hydro's job rates (base salaries) are positioned, on average, 1% below the market 50th percentile (within a competitive range of +/-5% of market)
 - However, base salaries alone are insufficient to attract / retain key talent as employees consider the overall value of the total compensation package. The lack of a variable pay component reduces Hydro's positioning on a target total direct compensation (TTDC) basis below market
 - The employer provided value of Hydro's group insurance plan (benefits) is slightly above the market 50th and the group retirement plan (pensions) is slightly below the market 50th percentile resulting in little change to Hydro's relative market positioning on total remuneration

Key Insights

- Secondary reference of Canadian industrial companies provide for additional context (and often used by other utilities)
- Industrial pay levels (in blue) tend to be above the utility comparator group
- Hydro's TR is, on average, below the 25th percentile of the industrial reference

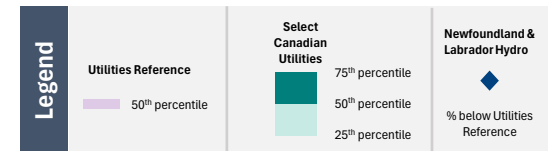
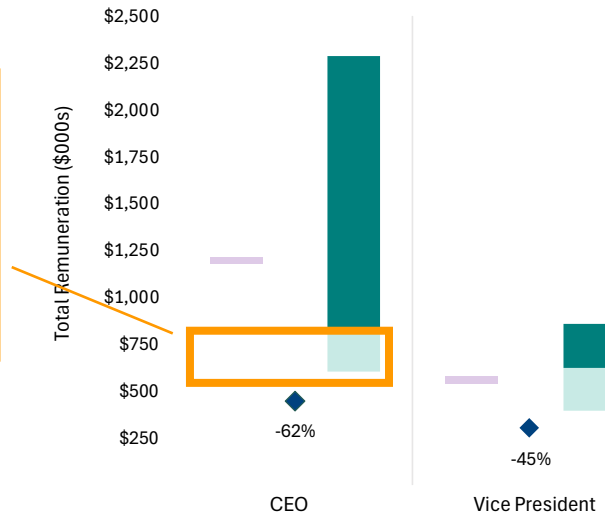


Total Remuneration Market Assessment

Executive Officers (CEO & VPs)

- Hydro's overall market positioning (CEO and direct reports) on a total remuneration (TR) basis is **materially below the 50th percentile** of the utility comparator group and would be considered uncompetitive, increasing Hydro's attraction and retention risks
 - Hydro's job rates (actual cash compensation for CEO due to lack of a job rate for CEO) are positioned, on average, 8% below the market 50th percentile (outside of the competitive range of +/-5% of market)
 - Like the non-executive workforce, Hydro competes for talent on a total compensation basis (not on only base salaries). The lack of a variable pay component reduces Hydro's positioning on a target total direct compensation (TTDC) basis to, on average, 50% below the market 50th percentile
 - The employer provided value of Hydro's group insurance plan (benefits) is slightly above the market 50th and the group retirement plan (pensions) is slightly below the market 50th percentile resulting in little change to Hydro's relative market positioning on total remuneration

CEO Proposed Salary Range
Midpoint of \$640,000
(with a range of \$512,000 to \$768,000; +/-20%)
aligns with the market 25th to 50th percentiles of total cash compensation



Key Insights

- Secondary reference of select Canadian utilities provided that are comparable in size/scope to Hydro (given primary reference is based on comparable Hay Points)
- Wide range of pay offered within these organizations (as illustrated by the range of the green bar)
- Hydro's TR is positioned slightly below the 25th percentile of this group

Compensation Programs & Process Review

Overview of Findings

- We completed a market assessment of Hydro's compensation programs and practices (for non-unionized employees). The following provides a high-level overview of the assessment:

Areas of Alignment with Market & Best Practice	Areas for Further Review
▪ Current job evaluation structure based on Korn Ferry Hay system provides a gender-neutral framework to evaluate jobs in support of pay equity ▪ Salary placement practices (new hires, promotions and temporary adjustments) reflect market practices and provide sufficient flexibility and control to manage pay ▪ Hydro's performance calibration process (across five performance ratings) is generally aligned with market however the distribution of ratings above meets is more stringent than typical	▪ Hydro's lack of variable compensation / incentive plan is not consistent with market practices among Canadian utilities (including a mix of government- and investor-owned utilities) ▪ Hydro's salary ranges have an 80% to 110% range around the job rate, but the merit adjustment process limits progression above the job rate (100%) which can create challenges in differentiating compensation within the salary band. The 110% of midpoint maximum is lower than the market typical maximum of 120% ▪ Hydro's compensation structure has 11 salary bands below executive which is more than typical among comparably-sized utilities. This results in varying compensation differentials between grades that may not sufficiently compensate for career progression

Appendix

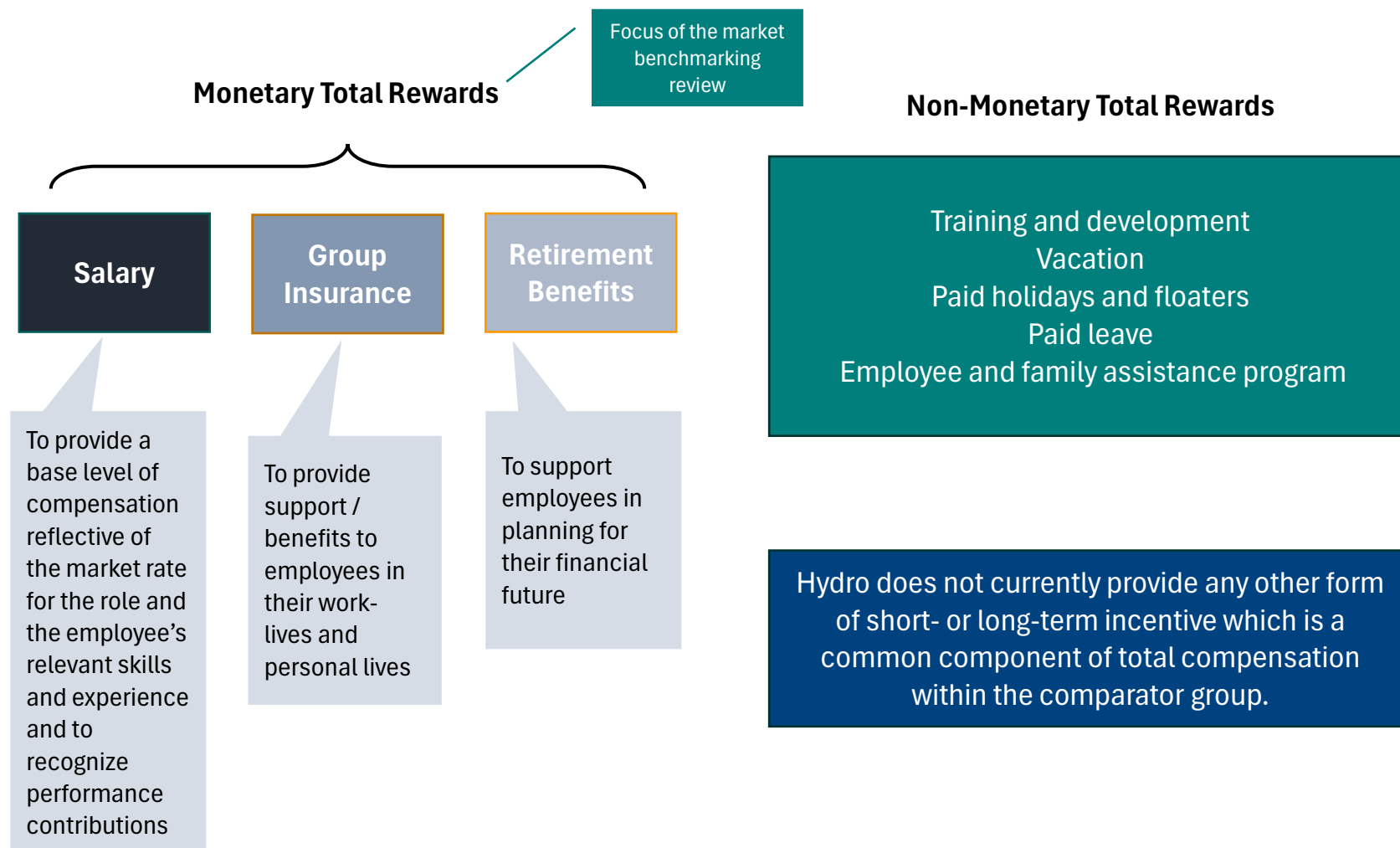
- I. Compensation Philosophy**
- II. Benchmarking Summary**
- III. Compensation Programs & Practices Review**

Compensation Philosophy – Comparator Groups

Company (sorted by descending revenue)	Headquarters	Ownership	Scope Information			Peer Group		
			Revenue (\$M, LTM)	Assets (\$M, LTM)	Employees (LTM)	Utilities Reference (aligned by Hay points)	Select Canadian Utilities	
Fortis Inc. †	St. John's, NL	Investor	\$11,517	\$65,920	9,598	✓		
British Columbia Hydro and Power Authority	Vancouver, BC	Govt.	\$6,966	\$48,486	7,700		✓	
EPCOR Utilities Inc.	Edmonton, AB	Govt.	\$4,377	\$15,419	3,600		✓	
ENMAX Corporation	Calgary, AB	Govt.	\$3,783	\$9,446	1,700		✓	
Manitoba Hydro-Electric Board	Winnipeg, MB	Govt.	\$3,410	\$30,823	4,692		✓	
Toronto Hydro-Electric System Limited	Toronto, ON	Govt.	\$3,601	\$6,947	1,245	✓		
Saskatchewan Power Corporation	Regina, SK	Govt.	\$3,343	\$13,254	3,100		✓	
New Brunswick Power Corporation †	Fredericton, NB	Govt.	\$3,390	\$8,158	2,600	✓	✓	
Franklin Electric Co., Inc.	Fort Wayne, IN	Investor	\$2,727	\$2,282	5,400	✓		
FortisBC Energy Inc.	Surrey, BC	Investor	\$1,937	\$9,236	2,617	✓		
Nova Scotia Power Inc. †	Halifax, NS	Investor	\$1,671	\$7,221	2,000		✓	
SaskEnergy Incorporated	Regina, SK	Govt.	\$1,002	\$3,616	1,100		✓	
Wataynikaneyap Power LP	Fort William, ON	Govt.	< \$999	n/d	90	✓		
EDP Renewables North America LLC	Houston, TX	Investor	\$952	n/d	887	✓		
FortisAlberta Inc.	Calgary, AB	Investor	\$814	\$5,962	1,234	✓		
Newfoundland Power Inc. †	St. John's, NL	Investor	\$774	\$1,950	600	✓		
Maritime Electric Company Limited †	Charlottetown, PE	Investor	\$225	n/d	219	✓		
FortisOntario Inc.	Fort Erie, ON	Investor	\$217	n/d	220	✓		
Oshawa Puc Networks Inc.	Oshawa, ON	Govt.	\$172	\$270	n/d	✓		
Utilities Kingston Ltd	Kingston, ON	Govt.	\$103	n/d	225	✓		
Elexicon Energy Inc	Ajax, ON	Govt.	\$94	\$828	250	✓		
Halton Hills Hydro Inc.	Acton, ON	Govt.	\$82	n/d	52	✓		
Newmarket-Tay Power Distribution Ltd.	Newmarket, ON	Govt.	\$31	n/d	71	✓		
			Within 1/3 to 3x Hydro			Sample Median		
						Revenue	\$774	\$3,400
						Assets	\$5,962	\$11,350
						Employees	744	2,850
Newfoundland & Labrador Hydro	St. John's, NL	Govt.	\$1,495	\$21,291	1,500	n = 16	n = 8	

Compensation Philosophy – Total Rewards Program Elements

- Hydro's total rewards program consists of the following:



Compensation Philosophy – Appropriate Pay Positioning

Most organizations target their compensation structure (e.g., midpoint of the salary range plus incentives) at the market 50th percentile (i.e., 50% of companies in the comparator group pay less and 50% pay more)

The following illustrates how Hydro's total compensation will be benchmarked relative to the market data

- For employees, the appropriate positioning of total compensation is the 50th percentile. This may mean that salaries (base wages) are positioned above the market 50th to offset the lack of a variable pay component (i.e., incentives, usually a part of compensation packages offered by Hydro's competitors)
- Since the proportion of incentive pay generally increases in the market with seniority, Hydro may not be able to position total compensation at the 50th percentile for senior levels (particularly CEO and VPs), with the lack of incentive pay and a different risk / reward profile

Employees

ILLUSTRATIVE

Element (\$000s)	Hydro	Market Compensation		
		25 th	50 th	75 th
Salary	\$110	\$95	\$100	\$110
Short-term incentives (% of salary)	0%	5%	10%	15%
Long-term incentives (% of salary)	0%	0%	0%	0%
Total direct compensation (Salary + STI + LTI)	\$110	\$100	\$110	\$125
Pension & benefits (% of salary)	20%	15%	20%	25%
Total compensation (TDC + P&B)	\$132	\$115	\$130	\$150

Each element is independently arrayed and cannot be added.

Senior Leaders

ILLUSTRATIVE

Element (\$000s)	Hydro	Market Compensation		
		25 th	50 th	75 th
Salary	\$250	\$200	\$225	\$275
Short-term incentives (% of salary)	0%	20%	30%	40%
Long-term incentives (% of salary)	0%	0%	20%	30%
Total direct compensation (Salary + STI + LTI)	\$250	\$245	\$340	\$435
Pension & benefits (% of salary)	20%	15%	20%	25%
Total compensation (TDC + P&B)	\$300	\$280	\$385	\$490

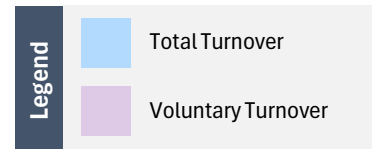
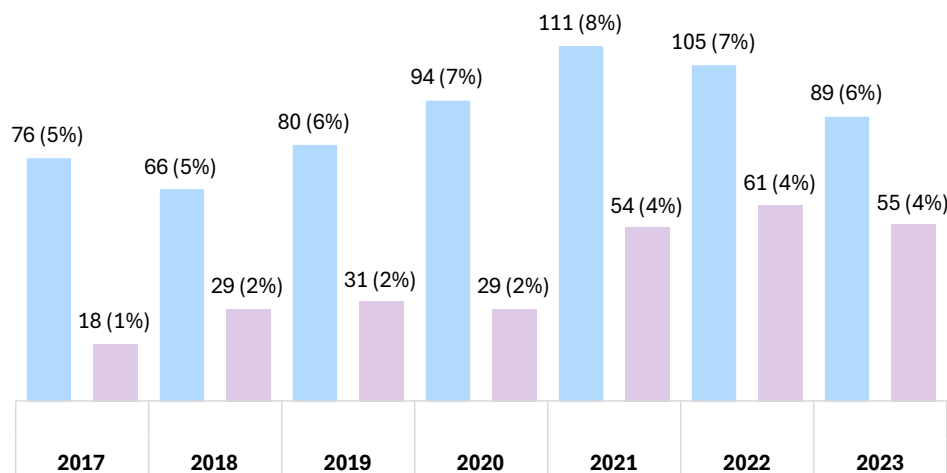
Each element is independently arrayed and cannot be added.

Concepts – for discussion purposes.

The figures are illustrative.

Compensation Philosophy – Attrition Analysis

2017 - 2023 Total Turnover (Permanent & Term)



- Over the past three years, Hydro's attrition rates (in terms of voluntary turnover) has increased (from 1% to 4%)
- Engineers, technicians, professionals, skilled trades, and leads & supervisors groups continue to see the most voluntary turnover
- The majority of attrition occurs in employees with less than five years of service at Hydro
- Career advancement, compensation and work-life flexibility are the most cited reason for leaving

For voluntary turnover for 2022 and 2023, turnover statistics are as follows:

Employee Group	2022	2023
Administrative	3%	5%
Engineer	21%	22%
Executive	0%	0%
Field Supervisors	0%	4%
Leads and Supervisors	16%	5%
Manual Workers	2%	7%
Middle Managers	2%	4%
Professionals	22%	18%
Semi-Professional	2%	4%
Senior Managers	2%	4%
Skilled Trades	19%	11%
Technician	12%	16%

Years of Service	2022	2023
(<1)	11%	4%
(1-5)	46%	55%
(6-10)	18%	16%
(11-15)	15%	15%
(16-20)	5%	5%
(21-25)	5%	5%

Cited Reason for Leaving	2022	2023
Career advancement	51%	56%
Compensation	26%	41%
Work-life flexibility	37%	22%
Career change	2%	19%
Other	40%	28%

As provided by Hydro; reviewed by Southlea

Benchmarking Summary

Non-executive Workforce (below Vice-president Level)

- On a total remuneration basis, Hydro is positioned 12% below the 50th percentile of the utilities reference, due to a lack of variable pay / incentive program
- Although Hydro's job rates are aligned to the 50th percentile of the utilities reference, it is not sufficient for talent attraction and retention as employees consider the value of the total compensation package

Pay Grade	Job Rate	Total Remuneration	Utilities Reference - 50th Percentile			Industrials Reference - 50th Percentile		
			Salary	TTDC	TR	Salary	TTDC	TR
PG-11	\$184	\$208	\$167 10%	\$209 -12%	\$231 -10%	\$200 -8%	\$288 -36%	\$315 -34%
PG-10	\$154	\$174	\$149 4%	\$179 -14%	\$199 -13%	\$172 -11%	\$221 -30%	\$244 -29%
PG-09	\$127	\$144	\$133 -5%	\$157 -19%	\$178 -19%	\$160 -20%	\$216 -41%	\$237 -39%
PG-08	\$119	\$134	\$123 -4%	\$141 -16%	\$158 -15%	\$144 -17%	\$176 -32%	\$195 -31%
PG-07	\$110	\$124	\$109 1%	\$127 -13%	\$142 -12%	\$128 -14%	\$152 -27%	\$169 -26%
PG-06	\$99	\$112	\$98 0%	\$111 -11%	\$124 -10%	\$113 -13%	\$128 -23%	\$143 -22%
PG-05	\$94	\$106	\$94 0%	\$103 -9%	\$116 -8%	\$98 -4%	\$113 -17%	\$127 -16%
PG-04	\$81	\$92	\$82 0%	\$88 -8%	\$99 -8%	\$82 -1%	\$92 -12%	\$103 -11%
PG-03	\$67	\$76	\$75 -11%	\$80 -15%	\$90 -15%	\$71 -5%	\$78 -14%	\$88 -13%
PG-02	\$61	\$69	\$71 -13%	\$71 -13%	\$80 -13%	\$63 -3%	\$68 -10%	\$77 -10%
PG-01	\$57	\$64	\$68 -17%	\$68 -17%	\$78 -17%	\$59 -3%	\$62 -8%	\$70 -8%
Weighted Average			-1%	-13%	-12%	-12%	-26%	-25%

Benchmarking Summary

Chief Executive Officer & Vice Presidents

- Hydro's base salaries are positioned below the market 50th percentile of both samples
- Given the absence of incentive programs at Hydro, Hydro's market positioning decreases on a total cash and total direct compensation basis
- Hydro's market position improves slightly going from total direct compensation to total remuneration, reflecting the above-market pension & benefits provisions (though Hydro's pension value is below market 50th percentile). Total remuneration continues to be materially below market
- Hydro does not currently have a salary range for the President and CEO. Based on the market data, a midpoint of \$640,000 (with a range of \$512,000 to \$768,000; +/-20%) aligns with the market 25th to 50th percentiles of total cash compensation

Executive	Salary / Job Rate	Total Remuneration	Utilities Reference - 50th Percentile <i>Hydro as a % above / below market</i>				Select Canadian Utilities <i>Hydro as a % above / below market</i>							
			Salary	TTC	TTDC	TR	Salary		TC		TDC		TR	
							25P	50P	25P	50P	25P	50P	25P	50P
President & CEO	\$395	\$447	\$512 -23%	\$762 -48%	\$1,115 -65%	\$1,185 -62%	\$402 -2%	\$487 -19%	\$537 -26%	\$759 -48%	\$537 -26%	\$759 -48%	\$609 -27%	\$830 -46%
Vice President	\$265	\$300	\$284 -7%	\$390 -32%	\$508 -48%	\$547 -45%	\$301 -12%	\$348 -24%	\$351 -24%	\$433 -39%	\$351 -24%	\$577 -54%	\$396 -24%	\$624 -52%
Average			-8%	-34%	-50%	-47%	-11%	-23%	-25%	-40%	-25%	-53%	-25%	-51%

Average is calculated as weighted average with one President & CEO role and eight Vice President Roles

Benchmarking Summary

Non-salary Compensation Elements

- In general, 60 – 70% of the organizations in both utilities and industrial references reported short- and long-term incentives
- Participation in the short-term incentive plan applies to most employee levels while participation in the long-term incentive plan tends to be limited to VPs and above
- The employer provided value of Hydro's benefit plans are positioned slightly ahead of the market while the employer provided value of Hydro's pension plan is positioned below market

Pay Grade	Short-Term Incentives (STI)			Long-Term Incentives (LTI)			Group Insurance Program (Benefits)		Group Retirement Plan (Pension)	
	Hydro	Utilities Reference (50P)	Market (50P)	Hydro	Utilities Reference (50P)	Market (50P)	Hydro	Market (50P)	Hydro	Market (50P)
President & CEO	0%	49%	88%	0%	69%	-	7.0%	5.4%	6.1%	8.1%
Vice President	0%	37%	40%	0%	42%	-	7.0%	5.4%	6.1%	8.1%
PG-11	0%	25%	29%	0%	-	33%	7.0%	5.4%	6.1%	8.1%
PG-10	0%	21%	23%	0%	-	23%	7.0%	5.4%	6.1%	8.1%
PG-09	0%	17%	22%	0%	-	24%	7.0%	5.4%	6.1%	8.1%
PG-08	0%	15%	18%	0%	-	16%	7.0%	5.4%	6.1%	8.1%
PG-07	0%	16%	15%	0%	-	13%	7.0%	5.4%	6.1%	8.1%
PG-06	0%	13%	12%	0%	-	9%	7.0%	5.4%	6.1%	8.1%
PG-05	0%	10%	11%	0%	-	9%	7.0%	5.4%	6.1%	8.1%
PG-04	0%	8%	10%	0%	-	11%	7.0%	5.4%	6.1%	8.1%
PG-03	0%	6%	7%	0%	-	0%	7.0%	5.4%	6.1%	8.1%
PG-02	0%	-	6%	0%	-	-	7.0%	5.4%	6.1%	8.1%
PG-01	0%	-	6%	0%	-	-	7.0%	5.4%	6.1%	8.1%

Select Canadian Utilities, Industrials reference

Benchmarking Summary

Group Insurance & Retirement Plans – Methodology

Group Insurance Plan	Group Retirement Plan
Prepared by HUB Insurance¹ • The relative <u>value</u> of the group benefits was established for each organization based on a standard set of assumptions and employee population • Benefit plan cost is influenced by an individual organization's employee demographics and claiming patterns. The <u>value</u> is based on the design and provisions of the plan • The key drivers of the benefits such as benefit/reimbursement levels, maximums and eligibility are considered • Employee costs sharing is netted against the total value • Flexible benefit plans are assessed based on the design and credits/price tags	Prepared by TELUS Health² • Based on a representative salaried employee • Reflects the annualized estimated employer-provided value of the pension arrangements • The total value was first assessed and then employee cost-sharing was applied to determine the employer-provided pension value • Results are based on several assumptions, methods, data and pension arrangements as summarized by TELUS Health, the key assumptions include: • Discount rate – 5.5% • Salary increases – 3.0% • Inflation – 2.0% • The results do not account for the current level of employer funding and funding policies

1. Report provided to Hydro dated February 2024

2. Report provided to Hydro dated March 28, 2024

Benchmarking Summary

Group Insurance & Retirement Plans – Detailed Results

(% of salary)	Hydro	Market 50 th
Group Insurance Plan		
Active program	4.1%	4.2%
Retiree program	1.7%	1.2%
Retiring allowance	1.2%	0.0%
Total Group Insurance Plan (employer-provided value)	7.0%	5.4%
Group Retirement Plan		
Total value	16.2%	14.1%
Total Group Retirement Plan (employer-provided value)	6.1%	8.1%

Benchmarking Summary

Group Insurance & Retirement Plans – Observations

Group Insurance Plan	Group Retirement Plan
- Active program is slightly below market 50th percentile with differing positioning by element - Extended health care, dental, life insurance and AD&D have a high value as Hydro pays 100% of the premiums (75% for dental) - Long-term disability is 100% employee paid so there is no employer-provided value - Fewer organizations are offering retiree benefits which impacts market values. Hydro's cost sharing approach reduces the employer-provided value of retiree program but still slightly above market 50th percentile - None of the peers provide a retiring allowance which increases the overall value relative to market	- The total value is above the market 50th percentile reflecting the higher value of the defined benefit design (v. defined contribution) - Among the defined benefit comparators, Hydro's indexing provision and benefit accrual rate are less generous reducing its relative positioning - Hydro has the highest level of employee contribution reducing the employer-provided value relative to market

Compensation Programs Review

Legend		Alignment with market
		Some misalignment

Element	Hydro Approach	Market Alignment	Market Practices & Comments
Job evaluation	Korn Ferry Hay job evaluation system		- Mixed practice including: point-factor systems, or established JE methodologies like Korn Ferry Hay (typical in public sector and crown corporations) - Increasingly, whole-job leveling approaches are being adopted to align with career progression
Grading structure	Based on job evaluation scores. Increasing point spreads at senior levels with consistent point band differentials		Grading structures are commonly based on job evaluation scores with either consistent and increasing point spreads and point band differentials at senior levels
Salary structure	Each grade is associated with a job rate, with salary range at 80% to 110% of job rate		- Typically see 7 to 8 salary ranges (below executive) among similarly-sized utilities - Symmetrical salary ranges (e.g., 80 – 120%, 85 – 115% midpoint) are most common - Job rate (“control point”) usually defined as the salary range midpoint (Hydro’s practice is akin to maximum control points with some flexibility)
Merit adjustments	- For employees below job rate midpoint, merit increase is determined based on a performance management framework - To move beyond job rate, employee needs to be a top 25% performer for two consecutive years. Following a pay increase past job rate, employees need to be a top 25% for an additional 2 years to qualify for further merit adjustments		- Merit adjustment based on a combination of performance ratings and position-in-range common in market, with built-in mechanism to ensure that employees receive higher increases when below job rate, and lower when above “Red-circled” employees may continue to be eligible for merit increases in a lump sum - Limitations around merit increases are not commonly observed

Compensation Programs Review

Legend		Alignment with market
		Some misalignment

Element	Hydro Approach	Market Alignment	Market Practices & Comments
Salary structure adjustments	Most recent economic adjustment was in 2023 (none since 2015)		- Salary structures are usually adjusted once every few (e.g., 2 to 5) years for continued market alignment - Merit adjustments occur annually, independent from the structure adjustments
New hires	- Salary offered commensurate with candidate's qualifications, experience, and internal equity - People & Culture Division has ultimate authority on salary rate for new hires - Employees hired in Q4 are ineligible for merit adjustments in the following year		Hydro is generally aligned with market practice
Promotions	Employees promoted are entitled to a promotional adjustment capped at the destination role's job rate		- Promotional salary may be determined based on operating level and candidate experience - Salary adjustments may be subject to cap (e.g., 15%)
Temporary assignments	- If assigned to a pay grade above current level: employee may receive pay adjustments for the duration of temporary role, with a maximum adjustment of 5% per grade, and 10% overall - If assigned to a pay grade below current level: employees assume pay rate at the destination role		- Temporary job allowances / ex gratia payments are common for recognition of temporary, higher-level jobs - Allowance amounts are typically determined to bridge the gap between compensation at current and destination roles (if destination role is more senior) - Pay is usually grand-parented if destination role is at a lower level

Compensation Programs Review

Legend		Alignment with market
		Some misalignment

Element	Hydro Approach	Market Alignment	Market Practices & Comments										
Performance calibration	▪ Employees follow the following performance rating distribution which informs merit adjustments <table><tr><th>Rating</th><th>Expected Distribution</th></tr><tr><td>Exceptional</td><td>5%</td></tr><tr><td>Exceeds Expectations</td><td>20%</td></tr><tr><td>Meets Expectations</td><td>70%</td></tr><tr><td>Improvements Required</td><td rowspan="2">5%</td></tr><tr><td>Unacceptable</td></tr></table>	Rating	Expected Distribution	Exceptional	5%	Exceeds Expectations	20%	Meets Expectations	70%	Improvements Required	5%	Unacceptable	
Rating	Expected Distribution												
Exceptional	5%												
Exceeds Expectations	20%												
Meets Expectations	70%												
Improvements Required	5%												
Unacceptable													

Salary Structure Analysis

- 1 ▪ Hydro's point bands are generally increasing in width with higher grades, indicating increasing variance with seniority. The practice is commonly observed in the market
- 2 ▪ While Hydro's point band midpoints have a consistent 17 – 19% progression, companies typically see point band midpoints with increasing midpoint progression (e.g., 10% per level between PG-01 and PG-05; 15% between PG-06 and PG-08, 20% above PG-08) in reflection of the increased accountability with seniority
- 3 ▪ Hydro's salary range control point (i.e., job rate) progression varies by level, however, increasing midpoint progression is most common in the market

Hydro Grade	Description	# EEs	Hay Point Range 1					Salary Range 2 3			
			Min	Mid	Max	Point Spread	Midpoint Progression	Min	Job Rate	Max	Job Rate Progression
PG-11	Director	12	924	1007	1090	166	18%	\$ 146,900	\$ 183,600	\$ 201,950	19%
PG-10	Sr. Manager	43	782	853	923	141	17%	\$ 123,200	\$ 154,000	\$ 169,400	21%
PG-09	Manager	50	676	729	781	105	17%	\$ 101,850	\$ 127,300	\$ 140,050	7%
PG-08	Team Lead, Engineer	109	570	623	675	105	18%	\$ 94,900	\$ 118,650	\$ 130,500	8%
PG-07	Engineer, Specialist, Sr. Supervisor	116	482	526	569	87	18%	\$ 88,050	\$ 110,050	\$ 121,050	11%
PG-06	Supervisor, Sr. Advisor, Sr. Analyst	87	408	445	481	73	18%	\$ 79,000	\$ 98,800	\$ 108,700	5%
PG-05	Advisor, Planner, Analyst, Supervisor	113	345	376	407	62	18%	\$ 75,250	\$ 94,050	\$ 103,450	16%
PG-04	Administrator	20	291	318	344	53	19%	\$ 65,100	\$ 81,350	\$ 89,500	21%
PG-03	Assistant, Coordinator, Technician	25	246	268	290	44	18%	\$ 53,950	\$ 67,400	\$ 74,150	10%
PG-02	Assistant	10	208	227	245	37	19%	\$ 49,100	\$ 61,400	\$ 67,500	8%
PG-01	Administrative Assistant	2	175	191	207	32	-	\$ 45,400	\$ 56,750	\$ 62,400	-

- From a market perspective, we would typically see closer to eight grades in total below executive (refer to next page for an illustrative example)

Salary Structure Analysis

Typical Career Level Framework (below Executive)

Salary Band	Management	Professionals	Support
8	M4 - Director	P6 – Renowned Expert	
7	M3 – Sr. Manager	P5 – Expert	
6	M2 – Manager	P4 – Specialized	
5	M1 – Supervisor	P3 – Career	
4		P2 – Developing	S4 – Team Lead
3		P1 – Entry	S3 – Senior
2			S2 – Intermediate
1			S1 – Entry

ILLUSTRATIVE

Range Penetration Analysis

- 1 ▪ Most Hydro employees have salaries that are positioned between 0.90 to 1.00x of the job rate, partly due to Hydro's wage freeze for the past 8 years
- 2 ▪ Overall, there is a good distribution around the midpoint with an overall compa-ratio (salary / job rate) of 1.00x. Employees in the higher pay grades tend to be positioned higher in the range, which may reflect longer tenure and/or other compensation pressures (e.g., compression v. bargaining unit feeder roles, recent compensation freeze)

Hydro Grade	Description	# EEs	Job Rate (\$000s)	Average Salary (\$000s)	% of Employee Compa-Ratios Positioned					Average Compa-Ratio
					Below Minimum (< 0.80)	Below Midpoint (0.80 - 0.90)	Around Midpoint (0.90 - 1.00)	Above Midpoint (1.00 - 1.10)	Above Maximum (> 1.10)	
PG-11	Director	12	\$184	\$190	-	-	25%	75%	-	1.04
PG-10	Sr. Manager	43	\$154	\$156	-	5%	53%	42%	-	1.01
PG-09	Manager	50	\$127	\$132	-	-	36%	50%	14%	1.04
PG-08	Team Lead, Engineer	109	\$119	\$121	1%	2%	48%	50%	-	1.02
PG-07	Engineer, Specialist, Sr. Supervisor	116	\$110	\$110	-	3%	59%	38%	-	1.00
PG-06	Supervisor, Sr. Advisor, Sr. Analyst	87	\$99	\$95	-	26%	51%	18%	5%	0.96
PG-05	Advisor, Planner, Analyst, Supervisor	113	\$94	\$92	-	13%	63%	24%	-	0.98
PG-04	Administrator	20	\$81	\$80	-	20%	55%	10%	15%	0.99
PG-03	Assistant, Coordinator, Technician	25	\$67	\$66	-	16%	64%	4%	16%	0.98
PG-02	Assistant	10	\$61	\$57	20%	10%	70%	-	-	0.93
PG-01	Administrative Assistant	2	\$57	\$57	-	-	100%	-	-	1.00
Weighted Average										1.00

Compensation Compression Analysis

- Compensation compression occurs when there is not enough of a pay differential to support the promotion between the bargaining unit feeder role and the non-unionized supervisory role. We examined both operational and office worker progression and did not observe any issues for office workers

Operations

- Hydro provides a 15% increase in salary up to the job rate of the new role (7% for office workers, but fewer transitions are made for this group). For temporary assignments, a similar 15% increase is provided but it is not capped by the job rate
- The following analysis illustrates the percentage increase between the typical bargaining unit feeder role to the non-unionized supervisory role. Most of the progressions have less than a 15% differential resulting in too little of an increase to encourage unionized roles to move into a supervisory role (or looked at it in a different way – the salary as a first line manager would need to be above the job rate (compa-ratio >1.00) in order to provide the full 15% increase)
- The compression issues further illustrates the need to increase management job rates to maintain a reasonable differential, even if the job rate is positioned above the market 50th percentile

Operations Group				1	2	
Union Level	Descriptor	Non-union Grade	Descriptor	% Increase to Non-union Job Rate	Management Compa-ratio at	
					Union Job Rate	Union Job Rate + 15%
GROUP 13	System Operator	PG-07	Sr. Supervisor	0%	1.00	1.15
GROUP 12	Plant Operator	PG-07	Sr. Supervisor	5%	0.95	1.09
GROUP 11	Plant Operator	PG-07	Sr. Supervisor	10%	0.91	1.04
GROUP 12	Technologist	PG-06	Supervisor	-6%	1.06	1.22
GROUP 10	Technician	PG-06	Supervisor	4%	0.97	1.11
GROUP 11	Operator	PG-05	Supervisor	-6%	1.06	1.22
GROUP 10	Maintenance / Technician / Inspector / Custodian	PG-05	Supervisor	-1%	1.01	1.17
GROUP 9	Carpenter	PG-05	Supervisor	14%	0.88	1.01
GROUP 8	Maintenance / Representative	PG-05	Supervisor	25%	0.80	0.92

Above range max
(capped)

Exhibit 7

2023 Depreciation Study





2023 DEPRECIATION STUDY

CALCULATED ANNUAL DEPRECIATION ACCRUAL RATES
APPLICABLE TO ELECTRIC PLANT IN SERVICE

Prepared for Newfoundland and Labrador Hydro
June 2023

Headquarters
293 Boston Post Rd West, Ste 500
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508.263.6200

Washington, D.C. Office
1300 19th St NW, Ste 620
Washington, DC, USA 20036
202.587.4470

Concentric Advisors, ULC
28 Quarry Park Blvd SE, Ste 350
Calgary, AB, Canada T2C 5P9
587.997.6489



June 9, 2023

Newfoundland and Labrador Hydro
Hydro Place, 500 Columbus Drive
P.O. Box 12400
St. John's, NL
A1B 4K7

Attention: Mr. Michael Conway, CA, CPA
Manager Regulatory Finance

Dear Mr. Conway;

Pursuant to your request, we have conducted a depreciation study related to the electric generation, transmission, and distribution plant of Newfoundland and Labrador Hydro ("NL Hydro") as of December 31, 2022. Our report presents a description of the methods used in the estimation of depreciation and net salvage, the statistical analysis of service life and the summary and detailed tabulations of annual and accrued depreciation.

We gratefully acknowledge the assistance of NL Hydro personnel in the completion of the review.

Should you have any questions or concerns, please do not hesitate to contact me directly at 587.997.6489

Yours truly,

Concentric Advisors, ULC

A handwritten signature in blue ink, appearing to be "LEK", written over a light blue rectangular background.

Larry E. Kennedy
Senior Vice President

A handwritten signature in blue ink, appearing to be "Amanda Nori", written over a light blue rectangular background.

Amanda Nori
Assistant Vice President

LEK/ta
Project: 100119



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SECTION 1

1 STUDY HIGHLIGHTS

Pursuant to Newfoundland and Labrador Hydro's ("NL Hydro" or the "Company") request, Concentric Advisors, ULC ("Concentric") conducted a depreciation study related to the electric plant accounts, as of December 31, 2022. The purpose of the study is to determine the annual depreciation accrual rates and amounts applicable to the original cost of electric utility plant, as of December 31, 2022.

The depreciation rates are based on the Straight-Line method using the Average Life Group ("ALG") procedure and were applied on a Remaining Life basis. The calculations were based on attained ages and estimated average service life and forecasted net salvage

characteristics for each depreciable group of assets.

Concentric recommends the calculated annual depreciation accrual rates set forth herein apply specifically to plant in service, as of December 31, 2022, summarized in Table 1 in Section 5 of this report by account detail. Supporting data and calculations are provided as well.

Finally, this study results in an annual depreciation expense accrual related to the recovery of original cost and net salvage requirement of 67.2 million, when applied to depreciable plant study balances, as of December 31, 2022, of \$3.24 billion. The study results are summarized at an aggregate functional group level as follows:

SUMMARY OF ORIGINAL COST, ACCRUAL PERCENTAGES AND AMOUNTS

Current Study Original Cost	2017 Study Original Cost	Current Study Annual Accrual	2017 Study Annual Accrual	Current Study Annual Accrual Percent	2017 Study Annual Accrual Percent
\$3,244,433,111	\$2,458,776,655	\$67,150,785	\$56,078,215	2.07%	2.28%



SECTION 2

2 BASIS OF THE UPDATE

2.1 Scope

Concentric has been retained by Newfoundland and Labrador Hydro (“NL Hydro”) to develop reasonable and appropriate depreciation amounts based on generation, transmission, distribution, and general plant assets in service as of December 31, 2022. This report also describes the concepts, methods and judgments which underlie the recommended annual depreciation accrual rates. The rates and amounts are based on the Straight-Line method of depreciation, incorporating the ALG procedure applied on a Remaining Life basis.

The Straight-Line method, ALG procedure is a commonly used depreciation calculation procedure that has been widely accepted in jurisdictions throughout North America. Concentric recommends its continued use. Amortization accounting is used for certain accounts because of the disproportionate plant accounting effort required to process retirements in these accounts. Many regulated utilities in North America have received approval to adopt amortization accounting for these types of accounts.

2.2 Plan of Study

This study is presented in the following order:

Section 1:	Study Highlights, presents a brief summary of the depreciation study and results
Section 2:	Contains statements with respect to the plan and the Basis of the Update
Section 3:	Development of the Required Depreciation Rates, presents descriptions of the methods used and factors considered in the service life study
Section 4:	Calculation of Annual and Accrued Depreciation, presents the methods and procedures used in the calculation of depreciation
Section 5:	Results of Study, presents summaries by depreciable group of annual and accrued depreciation in Tables 1 and 2.
Section 6:	Presents the results of the Retirement Rate Statistics
Section 7:	Presents the results of the Detailed Depreciation Calculations
Section 8:	Estimation of Survivor Curves, is an overview of Iowa curves and the Retirement Rate Analysis

2.3 Depreciation

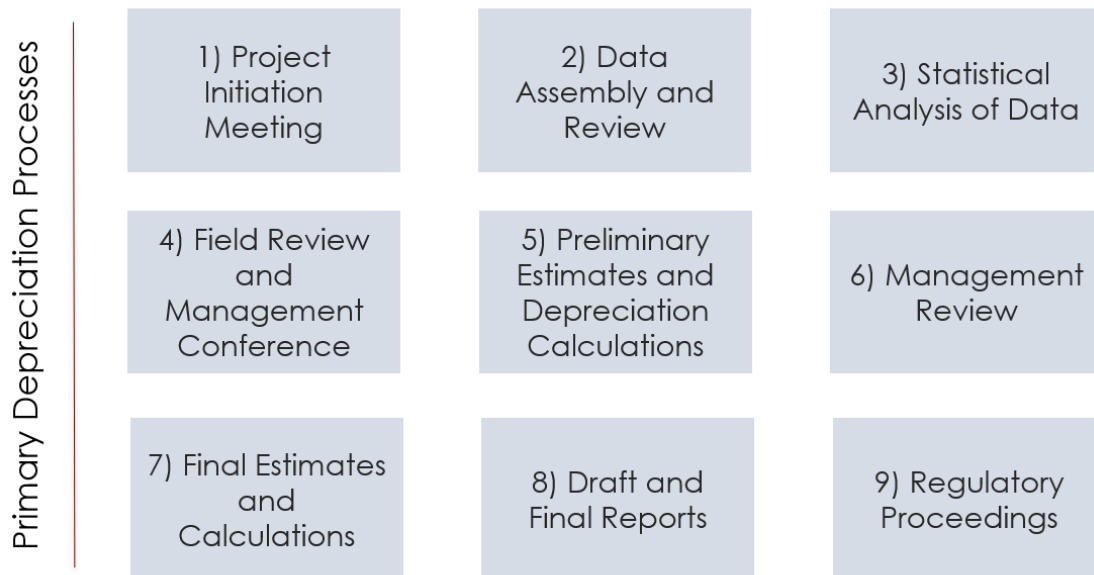
A full and comprehensive depreciation study includes the following components:

1. supported recommendations regarding Average Service Life estimates for each account;
2. supported recommendations regarding estimated Net Salvage requirements for each account;
3. selection of an appropriate grouping procedure;



4. detailed calculation of the depreciation rate utilizing the estimated Average Service Life and Net Salvage requirements; and
5. a document explaining the procedures followed and justifying the results in a format suitable for submission to senior management and regulatory authorities.

A diagram of the nine primary processes followed by Concentric in the development of the depreciation study is provided below. Each of the steps is undertaken by Concentric using proprietary software.



2.4 Information Provided by NL Hydro

NL Hydro has provided Concentric with the required information, as of December 31, 2022. This information has been compiled from the plant accounting records and includes the following:

- Current balances by vintage year for each account (aged balances) through December 31, 2022. The balances provide the amount of investment sorted by installation year. This file is only inclusive of plant in service and does not include any retirement information;
- retirement transactions for all accounts through December 31, 2022. The transactions include information regarding the transaction year of the retirement, the installation year of the asset being retired, and the original cost of the asset being retired; and
- cost of removal and gross salvage transactions for all accounts requiring the recovery of net salvage through December 31, 2022. The transactions include information regarding the transaction year of the retirement, the costs associated with the retirement, and any gross salvage proceeds from the sale or reuse of the property.



2.5 Data Reconciliation

The above data was reviewed and reconciled to Company control schedules to ensure accuracy and reasonableness in use of the calculations developed in this study. These checks include:

- that the surviving investment by account equals (or can be reconciled to) the Company's gross plant in service and accumulated depreciation ledger balances;
- that the surviving investment in each vintage is not negative. In other words, this check confirms that the sum of retirements from any given vintage have not exceeded the amount of plant additions to the vintage; and
- that any adjusting transactions are properly accounted for within the databases.



SECTION 3

3 DEVELOPMENT OF THE REQUIRED DEPRECIATION RATES

3.1 Depreciation

The development of the depreciation calculations requires the input of an average service life, a retirement dispersion curve (i.e., Iowa curve) and net salvage recommendations (i.e., the depreciation parameters). Additionally, to complete the depreciation calculations, the calculation methods must be established. Specifically, the selection of the depreciation method must establish three types of additional input:

1. the choice of a depreciation method;
2. a basis upon which to apply the method, and
3. in the case of group assets, a procedure to use in grouping the assets.

In this study, the depreciation rates for NL Hydro have been calculated in accordance with the Straight-Line method, the ALG procedure and applied using the Remaining Life technique, with any accumulated depreciation variances imbedded within the remaining life calculations.

Depreciation, as applied to depreciable plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of electric plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art and changes in demand and requirements of public authorities.¹

When considering the action of the elements, the average service life and net salvage calculations have considered large catastrophic events that have occurred and impacted the life estimates of utilities across North America. The average service life of utilities has been influenced by events including:

- forest fires;
- earthquakes;
- tornadoes;
- ice storms;
- wind-storms;
- large scale flooding;
- fires;
- lightning;
- intentional actions of third parties;
- hoar frost; and
- other natural forces of nature.

¹ The National Association of Railroad and Utilities Commissioners, Uniform System of Accounts for Class A and B Electric Utilities. The Definition used by the Federal Energy Regulatory Commission for Electric is essentially the same.



Depreciation, as used in accounting, is a method of distributing fixed capital costs, less net salvage, over a period of time by allocating annual amounts to expense. Each annual amount of such depreciation expense is part of that year's total cost of providing electric distribution utility service. Normally, the period of time over which the fixed capital cost is allocated to the cost of service is equal to the period of time over which an item renders service - that is, the item's service life. The most prevalent method of allocation is to distribute an equal amount of cost to each year of service life. This method is known as the Straight-Line method of depreciation.

The calculation of annual and accrued depreciation based on the Straight-Line method requires the estimation of survivor curves and is described in the following sections of this report. The development of the proposed depreciation rates also requires the selection of group depreciation procedures, as discussed below.

3.1.1 Study Depreciation Methods and Procedures

This study calculates the annual and accrued depreciation using the Straight-Line method and ALG procedure for most accounts. For certain general plant accounts, the annual and accrued depreciation are based on amortization accounting. Both types of calculations were based on original cost, attained ages and estimates of service lives. Variances between the calculated accrued depreciation and the book accumulated depreciation are amortized over the composite remaining life of each account.

Continued monitoring and maintenance of the accumulated depreciation reserve at the account level is recommended.

3.2 Estimation of Survivor Curves and Net Salvage

3.2.1 Survivor Curves

The use of an average service life or a property group implies that the various units in the group have different lives. Thus, the average life may be obtained by determining the separate lives of each of the units, or by constructing a survivor curve plotting the number of units which survive at successive ages using the retirement rate method of analysis.

The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized survivor curves known as the Iowa type curves. The Iowa curves *"...were sorted into three groups according to whether the mode was to the left, approximately coincident with, or to the right of the average-life ordinate. The curves in each of these three groups were then sub-classified in accordance with the height of the mode, taking also into consideration the distance of the mode to the left or right of the average life."*² The Iowa curves are described as L-type (i.e. left-moded), R-type (i.e. right-moded), and S-type (i.e. symmetrical). Further development resulted in the introduction of O-type (i.e. origin-moded curves) where the greatest frequency of retirement occurs at the origin, or immediately after age zero. Individual type curves are further

² Robley Winfrey, Statistical Analyses of Industrial Property Retirements, Bulletin 125 revised (Engineering Research Institute, Iowa State University, 1935) 65



depicted with numerical subscripts which represent the relative heights of the modes of the frequency curves within each family.

The program that is used by Concentric for statistical smooth curve fitting utilizes an internal “goodness-of-fit” criterion known as the Residual Measure. This Residual Measure is based on a least squares solution of the differences between the stub curve (or original data points) and smooth survivor curve which also requires a balancing of the differences above and below the stub curve.

The criterion of goodness-of-fit is the mean square of the differences between the points on the stub and fitted smooth survivor curves. The residual measure, or standard error of estimate, shown in the output format is the square root of this mean square. As such, the lower the Residual Measure the better the statistical fit between the analyzed Iowa curve and the observed data points. Concentric follows the widely used practice of fitting Iowa curves up to one percent of the maximum exposures. This standard practice is utilized to minimize the influence of typically small retirements applied to similarly small exposures which may unduly affect the Iowa curve fitting process. However, Concentric will recognize the observed data points beyond the one percent of maximum exposures if it is determined that the additional data is a valid consideration for life recommendation.

A discussion of the general concept of survivor curves and retirement rate method is presented in Section 9.

3.2.2 Survivor Curve and Net Salvage Judgments

The service life and net salvage estimates used in the depreciation and amortization calculations were based on informed professional judgment which incorporated a review of management’s plans, policies and outlook, a general knowledge of the electric utility industry, and comparisons of the service life and net salvage estimates from Concentric’s studies of other electric utilities. The use of survivor curves, to reflect the expected dispersion of retirement, provides a consistent method of estimating depreciation for electric plant. Iowa type survivor curves were used to depict the estimated survivor curves for the plant accounts not subject to amortization accounting.

The procedure for estimating service lives consisted of compiling historical data for the plant accounts or depreciable groups, analyzing this history through the use of widely accepted techniques, and forecasting the survivor characteristics for each depreciable group on the basis of interpretations of the historical data and the probable future. The forecasting of a probable future life included management and operational staff interviews. The combination of the historical experience and the probable future retirement forces yielded estimated survivor curves from which the average service lives were derived.

NL Hydro has indicated that there is minimal historical net salvage data. As such, the estimates of net salvage were based on peer comparison and the knowledge and experience of Concentric.

The following discussion, dealing with a number of accounts which comprise the majority of the investment analyzed, presents an overview of the factors considered by Concentric in the determination of the average service life and net salvage estimates. The survivor curve estimates for



the remainder of the accounts not discussed in the following sections were based on similar considerations.

ACCOUNT B02 - BOILER SYSTEM

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$20,768,742	0.64%	40-R3	40-R1	-8%	0%

The investment in Boiler System comprises 0.64% of the total depreciable plant. The investment in this account mainly consists of steam generator, boiler structure & boiler secondary super-heater. The currently approved average service life estimate is the Iowa 40-R3. The retirement rate analysis prepared in this study reviewed the plant installed over the period of 1968 through 2022 and the retirement experience covering the period of 1968 through 2022. Over this period this account has experienced \$11,281,692 of retirements over a widely sparse range of ages as summarized on the observed life table provided on page 6-13 of this report. An analysis of the currently approved Iowa 40-R3 did not provide a good fit over the observed data. To better fit the data a five-year increase to the average service life was deemed appropriate. As shown on the fitted smooth curve on page 6-12, an Iowa 40-R1 provides a better fit to the observed data. Discussions and review with NL Hydro representatives suggested that the recommended 40-R1 was reasonable for this account. Therefore, the current approved Iowa 40-R1 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has used its knowledge and experience, peer comparisons, knowledge of NL Hydro's capitalization and removal policies, and discussions with NL Hydro representatives to recommend zero percent as a net salvage expectation. NL Hydro representatives have indicated that zero percent is reasonable for this account. Based on the above, Concentric Advisors recommends zero percent to best represent the future expectations for the equipment in this account.

ACCOUNT B05 -BUILDINGS - OTHER

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$90,855,034	2.80%	50-R0.5	55-R1	-3%	0%

The investment in Buildings - Other comprises 2.80% of the total depreciable plant. The investment in this account mainly consists of building structures and components including HVAC systems, security, etc. The currently approved average service life estimate is the Iowa 50-R0.5. The retirement rate analysis prepared in this study reviewed the plant over the period of 1965 through 2022. Over this period this account has experienced \$13,378,914 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-22 of this report. An analysis of the currently approved Iowa 50-R0.5 did not provide a good fit over the observed data. A peer comparison of Canadian utilities produced a wide range from 25 to 80 years



to better fit the data a five-year increase to the average service life was deemed appropriate. As shown on the fitted smooth curve on page, an Iowa 55-R1 provides a better fit to the observed data. Discussions and review with NL Hydro representatives suggested that the recommended 55-R1 was reasonable for this account. Therefore, the current approved Iowa 55-R1 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 8 percent for their Hydro Production Structures, negative 13 percent for their Diesel Structures, 0 percent for their Substation Structures, 0 percent for their Distribution Structures, and 0 percent for their small and large General Plant Structures respectively. Newfoundland Power Inc. has a net salvage percentage of negative 30 percent for their Hydro Production Structures, negative 20% for their Diesel Structures, negative 20 percent for their Transmission Substation Structures, and negative 15 percent and negative 5 percent for their small and large buildings respectively. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views 0 percent as a net salvage expectation. NL Hydro representatives have indicated that 0 percent is reasonable for this account. Based on the above, Concentric Advisors recommends 0 percent to best represent the future expectations for the equipment in this account.

ACCOUNT B06 - BUILDINGS - METAL

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$51,711,740	1.59%	55-R3	55-R3	-3%	0%

The investment in Buildings - Metal comprises 1.59% of the total depreciable plant. The investment in this account mainly consists of powerhouse and pump-house structures and components, and metal control buildings in stations. The currently approved average service life estimate is the Iowa 55-R3. The retirement rate analysis prepared in this study reviewed the plant over the period of 1965 through 2022. Over this period this account has experienced \$2,305,821 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-25 of this report. As shown on the fitted smooth curve on page 6-24, the currently approved Iowa 55-R3 still provides a reasonable fit to the complete observed data. A peer comparison of Canadian utilities produced a wide range from 25 to 80 years. Discussions and review with NL Hydro representatives suggested that the currently approved Iowa 55-R3 is a reasonable expectation for this account. Based on the above, the currently approved Iowa 55-R3 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of 0 percent and 0 percent for their small and large buildings respectively. Newfoundland Power Inc. has a net salvage percentage of negative 15 percent and negative 5 percent for their small and large buildings respectively. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors



views 0 percent as a net salvage expectation. NL Hydro representatives have indicated that 0 percent is reasonable for this account. Based on the above, Concentric Advisors recommends 0 percent to best represent the future expectations for the equipment in this account.

ACCOUNT C09 - CIRCUIT BREAKERS

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$101,580,642	3.13%	60-R2.5	55-R2	-8%	-5%

The investment in Circuit Breakers comprises 3.13% of the total depreciable plant. The investment in this account mainly consists of breakers & upgrades, switches, and switchgear. The currently approved average service life estimate is the Iowa 60-R2.5. The retirement rate analysis prepared in this study reviewed the plant over the period of 1965 through 2022. Over this period this account has experienced \$5,501,576 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-52 of this report. A significant amount of retirements have occurred relatively early at ages 0.0 to 9.5. Concentric Advisors has placed less emphasis on this early retirement activity. An analysis of the currently approved Iowa 60-R2.5 did not provide a good fit over the observed data. As shown on the fitted smooth curve on page 6-51, an Iowa 55-R2 provides an excellent fit to the observed data. Discussions and review with NL Hydro representatives agreed that the recommended Iowa 55-R2 is a reasonable expectation for this account. Based on the above, the current approved Iowa 55-R2 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has used its knowledge and experience, peer comparisons, knowledge of NL Hydro's capitalization and removal policies, and discussions with NL Hydro representatives to recommend negative 5 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 5 percent is a reasonable for this account. Based on the above, Concentric Advisors recommends negative 5 percent to best represent the future expectations for the equipment in this account.

ACCOUNT C13 - CONDUCTOR - TRANSMISSION

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$87,923,266	2.71%	60-R3	60-R3	-20%	-5%

The investment in Conductor - Transmission account comprises 2.71% of the total depreciable plant. The investment in this account mainly consists of transmission conductor. The currently approved average service life estimate is the Iowa 60-R3. The retirement rate analysis prepared in this study reviewed the plant over the period of 1967 through 2022. Over this period this account has experienced \$5,552,896 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-61 of this report. As shown on the fitted smooth curve on page



6-60, the currently approved Iowa 60-R3 provides a good fit over the available observed data. A peer comparison of Canadian utilities produced a range from 40 to 85 years. Discussions and review with NL Hydro representatives indicated that while there are no major issues with conductor, the smaller communities are converting to electrical power sources so there is a need to upgrade conductor size. They also indicated that the existing conductor is mainly bare but there is some coated conductor and that there are no saltwater issues. Conductor technology has not changed much. NL Hydro representatives suggested that the current 60-R3 was reasonable for this account. Based on the above, the current approved Iowa 60-R3 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 13 percent. Newfoundland Power Inc. utilizes negative 40 percent for their Transmission Conductor. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 5 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 5 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 5 percent to best represent the future expectations for the equipment in this account.

ACCOUNT C14 -CONDUCTOR - DISTRIBUTION

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$39,466,639	1.22%	45-R3	48-R3	-14%	-10%

The investment in Conductor - Distribution comprises 1.22% of the total depreciable plant. The investment in this account mainly consists of distribution conductors at 25 kV and below including primary, secondary, and service drop conductors. The currently approved average service life estimate is the Iowa 45-R3. The retirement rate analysis prepared in this study reviewed the plant over the period of 1971 through 2022. Over this period this account has experienced \$2,643,830 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-64 of this report. An analysis of the currently approved Iowa 45-R3 did not provide a good fit to the observed data. As shown on the fitted smooth curve on page 6-63, an Iowa 48-R3 provides an excellent fit over the available observed data. A peer comparison of Canadian utilities produced a wide range from 29 to 65 years. Discussions and review with NL Hydro representatives indicated that there are no major issues with conductor, the smaller communities are converting to electrical power sources so there is a need to upgrade conductor size. They also indicated that the existing conductor is mainly bare but there is some coated conductor and that there are no saltwater issues. NL Hydro representatives agreed that the recommended 48-R3 was reasonable for this account. Based on the above, the currently approved Iowa 48-R3 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 5 percent. Newfoundland Power



Inc. utilizes a range of negative 30 percent to negative 40 percent for their Distribution Conductor. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 10 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 10 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 10 percent to best represent the future expectations for the equipment in this account.

ACCOUNT C15 – CONTROL, METER, RELAYING

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$56,800,508	1.75%	40-R3	35-R3	0%	0%

The investment in Control, Meter, Relaying account comprises 1.75% of the total depreciable plant. The investment in this account mainly consists of plant and turbine protection, control meter/relay including revenue metering, station controls and protection. The currently approved average service life estimate is the Iowa 40-R3. The retirement rate analysis prepared in this study reviewed the plant over the period of 1966 through 2022. Over this period this account has experienced \$4,572,296 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-67 of this report. An analysis of the currently approved Iowa 40-R3 did not provide a good fit to the observed data. As shown on the fitted smooth curve on page 6-66, a recommended Iowa 35-R3 provides a good fit to the observed data. Discussions and review with NL Hydro representatives suggested that the recommended Iowa 35-R3 is a reasonable expectation for this account. Based on the above, the currently approved Iowa 35-R3 is recommended to best represent the future expectations for the equipment in this account.

NL Hydro representatives have indicated that 0 percent is a reasonable net salvage expectation for this account. Based on these comments, Concentric Advisors recommends 0 percent to best represent the future expectations for the equipment in this account.

ACCOUNT D01 – DAMS, DYKES, CANALS AND TUNNELS

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$363,985,588	11.22%	110-R4	110-R4	-8%	-5%

The investment in Dams, Dykes, Canals and Tunnels is the largest account and comprises approximately 11.22% of the total depreciable plant. The investment in this account mainly consists of dams, dykes, canals, and tunnels. The currently approved average service life estimate is an Iowa 110-R4. The retirement experience has been very small and as such has not resulted in any reliable historical indications. As such, the average service life recommendations were based primarily on the comments received from the NL Hydro operational staff, and on the experience of Concentric Advisors. A peer comparison of Canadian utilities was conducted which indicated a range from 70



years to 125 years. Discussions and review with NL Hydro representatives indicated that an active condition assessment program along with routine surveillance is utilized. No large capital programs are forecasted other than for routine maintenance. There was also general agreement that a 110-year life was reasonable for this account. Based on these comments and on the peer comparison of Canadian utilities, an Iowa 110-R4 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 8 percent. Newfoundland Power Inc. has a net salvage percentage of negative 30 percent. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 5 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 5 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 5 percent to best represent the future expectations for the equipment in this account.

ACCOUNT D02 – DIESEL SYSTEMS AND ENGINES

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$51,165,266	1.58%	25-L0.5	22-L0.5	-11%	-15%

The investment in Diesel Systems and Engines comprises 1.58% of the total depreciable plant. The investment in this account mainly consists of engines, generators, cooling systems, and switchgear. The currently approved average service life estimate is the Iowa 25-L0.5. The retirement rate analysis prepared in this study reviewed the plant over the period of 1965 through 2022. Over this period this account has experienced \$34,749,251 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-83 of this report. An analysis of the currently approved Iowa 25-L0.5 did not provide a good fit over the observed data. As shown on the fitted smooth curve on page 6-82, an Iowa 22-L0.5 provides an excellent fit over the observed data. Discussions and review with NL Hydro representatives indicated that the historical indications and recommended 22-L0.5 was reasonable for this account. Therefore, an Iowa 22-L0.5 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 8 percent and negative 5 percent for their Diesel Primer Movers and Generators respectively. Newfoundland Power Inc. has a net salvage percentage range of negative 20 percent to negative 65 percent for their Primer Movers and Generators. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 15 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 15 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 15 percent to best represent the future expectations for the equipment in this account.



ACCOUNT F06 – FUEL SYSTEMS

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$45,318,585	1.40%	50-R1.5	50-R0.5	-11%	-15%

The investment in Fuel Systems comprises 1.40% of the total depreciable plant. The investment in this account mainly consists of fuel systems including storage tanks. The currently approved average service life estimate is the Iowa 50-R1.5. The retirement rate analysis prepared in this study reviewed the plant over the period of 1956 through 2022. Over this period this account has experienced \$5,493,895 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-116 of this report. An analysis of the currently approved Iowa 50-R1.5 did not provide a good fit over the observed data. As shown on the fitted smooth curve on page 6-115, an Iowa 50-R0.5 provides an excellent fit over the observed data. Discussions and review with NL Hydro representatives indicated that the historical indications and recommended 50-R0.5 was reasonable for this account. Therefore, an Iowa 50-R0.5 is recommended to best represent the future expectations for the equipment in this account. Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 25 percent. Newfoundland Power Inc. has a net salvage range of negative 20 percent to negative 65 percentage. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 15 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 15 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 15 percent to best represent the future expectations for the equipment in this account.

ACCOUNT G01 – GAS TURBINE SYSTEMS

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$78,495,255	2.42%	45-R3	45-R3	-2%	-5%

The investment in Gas Turbine Systems comprises 2.42% of the total depreciable plant. The investment in this account mainly consists of turbine engines and generators. The currently approved average service life estimate is the Iowa 45-R3. The retirement rate analysis prepared in this study reviewed the plant over the period of 1968 through 2022. Over this period this account has experienced \$6,897,177 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-120 of this report. As shown on the fitted smooth curve on page 6-119, the currently approved Iowa 45-R3 provides a good fit over the available observed data. A peer comparison of Canadian utilities produced a range from 25 to 65 years. Discussions and review with NL Hydro representatives indicated that there are four Gas Turbines in NL Hydro's system. These turbines are mainly used for stand-by and peaking purposes and that there has been little historical use and that this will likely continue in the near future. Discussions and review with



NL Hydro representatives suggested that the 45-R3 was reasonable for this account. Therefore, the current approved Iowa 45-R3 is recommended to best represent the future expectations for the equipment in this account.

Newfoundland Power Inc. has a net salvage of negative 5 percent. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 5 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 5 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 5 percent to best represent the future expectations for the equipment in this account.

ACCOUNT G03 – GENERATORS, WINDINGS, AND POWERHOUSE

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$260,556,616	8.03%	65-S3	65-R2.5	-8%	-5%

The investment in Generators comprises 8.03% of the total depreciable plant. The investment in this account mainly consists of the electric power generator and assembly including rotor, bearings and excitation systems. Discussions and review with NL Hydro representatives also suggested that this account be consolidated. As such, this account was consolidated with G04, Generator – Windings, and P10, Powerhouse. The currently approved average service life estimate is the Iowa 65-S3. The retirement rate analysis prepared in this study reviewed plant over the period of 1966 through 2022. Over this period this account has experienced \$8,803,847 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-126 and of this report. The currently approved Iowa 65-S3 did not fit the observed data as well as the Iowa 65-R2.5. A peer comparison of Canadian utilities indicated a range from 25 years to 65 years. Discussions and review with NL Hydro representatives suggested that a 65-R2.5 was more reasonable for the equipment in this account. Based on the above and the peer comparison of Canadian utilities, an Iowa 65-R2.5 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 8 percent and Newfoundland Power Inc. has a net salvage percentage of negative 30 percent. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 5 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 5 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 5 percent to best represent the future expectations for the equipment in this account.



ACCOUNT I03 – INSULATORS

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$45,781,055	1.41%	35-L3	35-R2.5	0%	0%

The investment in Insulators comprises 1.41% of the total depreciable plant. The investment in this account mainly consists of insulators for transmission lines and stations. The currently approved average service life estimate is the Iowa 35-L3. The retirement rate analysis prepared in this study reviewed the plant over the period of 1966 through 2022. Over this period this account has experienced \$8,967,338 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-141 and of this report. An analysis of the currently approved Iowa 35-L3 did not provide a good fit over the observed data. As shown on the fitted smooth curve on page 6-140, an Iowa 35-R2.5 provides an excellent fit over the observed data. A peer comparison of Canadian utilities produced a range from 33 to 40 years. Discussions and review with NL Hydro representatives indicated that porcelain and glass insulators are used in NL Hydro's system. They also viewed that the historical indications of a recommended 35-R2.5 was reasonable for this account. Therefore, an Iowa 35-R2.5 is recommended to best represent the future expectations for the equipment in this account.

NL Hydro representatives have indicated an expectation of 0 percent as a reasonable net salvage expectation for this account. Based on these comments, Concentric Advisors recommends 0 percent to best represent the future expectations for the equipment in this account

ACCOUNT M06 – METERS - DIGITAL

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$8,380,027	0.26%	20-L3	18-L3	0%	0%

The investment in Meters - Digital comprises 0.26% of the total depreciable plant. The investment in this account mainly consists of AMI and AMR meters. NL Hydro is switching AMI back to AMR, replacing approximately 30,000 meters in the next few years. As technology has impacted the lives in metering accounts, the life of meter and regulator installations has necessarily shortened as well. The currently approved average service life estimate is the Iowa 20-L3. The retirement rate analysis prepared in this study reviewed the plant over the period of 1965 through 2022. Over this period this account has experienced \$806,774 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-177 and of this report. As shown on the fitted smooth curve on page 6-176, a recommended Iowa 18-L3 provides a good fit to the observed data. Discussions and review with NL Hydro representatives suggested that the recommended Iowa 18-L3 is a reasonable expectation for this account. Based on the above, the current approved Iowa 18-L3 is recommended to best represent the future expectations for the equipment in this account.



NL Hydro representatives have indicated that 0 percent is a reasonable net salvage expectation for this account. Based on these comments, Concentric Advisors recommends 0 percent to best represent the future expectations for the equipment in this account.

ACCOUNT M10 – MISCELLANEOUS UNITS OF PROPERTY

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$15,112,008	0.47%	22-R1.5	25-R1.5	0%	0%

The investment in Miscellaneous Units of Property comprises 0.47% of the total depreciable plant. The investment in this account mainly consists of studies and assessments. The currently approved average service life estimate is the Iowa 22-R1.5. The retirement rate analysis prepared in this study reviewed the plant over the period of 1966 through 2022. Over this period this account has experienced \$3,512,678, of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-186 of this report. As shown on the fitted smooth curve on page 6-185, a recommended Iowa 25-R1.5 provides a good fit to the observed data. Discussions and review with NL Hydro representatives suggested that the recommended Iowa 25-R1.5 is a reasonable expectation for this account. Based on the above, the current approved Iowa 25-R1.5 is recommended to best represent the future expectations for the equipment in this account.

NL Hydro representatives have indicated that 0 percent is a reasonable net salvage expectation for this account. Based on these comments, Concentric Advisors recommends 0 percent to best represent the future expectations for the equipment in this account.

ACCOUNT P03 - PENSTOCK

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$79,662,143	2.46%	70-R4	75-R4	-8%	-5%

The investment in Penstock comprises 2.46% of the total depreciable plant. The investment in this account mainly consists of the penstock. The currently approved average service life estimate is an Iowa 70-R4. The retirement experience has been very small and as such has not resulted in reliable historical indications. A peer comparison of Canadian utilities indicated a range from 65 years to 75 years. As shown on the fitted smooth curve on page 6-206, a recommended Iowa 75-R4 provides a good fit to the observed data. Discussions and review with NL Hydro representatives suggested that the recommended Iowa 75-R4 is a reasonable expectation for this account. Based on the above, the current approved Iowa 75-R4 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from one electric utility. Newfoundland Power Inc. has a net salvage percentage of negative 30 percent. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors



views negative 5 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 5 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 5 percent to best represent the future expectations for the equipment in this account.

ACCOUNT P04 – POLE CRIBS AND POLE HARDWARE

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$140,660,243	4.34%	35-S2.5	40-S2.5	-20%	-25%

The investment in Pole Cribs and Pole Hardware comprises 4.34% of the total depreciable plant. The investment in this account mainly consists of pole cribs and pole hardware at the distribution level including cross arms, insulators, brackets, pole gains, and cut-outs/fuse assemblies. The currently approved average service life estimate is the Iowa 35-S2.5. The retirement rate analysis prepared in this study reviewed plant over the years 1967 through 2022. Over this period this account has experienced \$10,046,128 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-210 of this report. The Iowa 40-S2.5 provides a more appropriate fit to the complete observed data. A peer comparison of Canadian utilities produced a range from 40 to 56 years. Discussions and review with NL Hydro representatives suggested that the historical experience and the recommended Iowa 40-S2.5 is a reasonable expectation for this account. Based on the above and the peer comparison of Canadian utilities, the Iowa 40-S2.5 is recommended to best represent the future expectations for the equipment in this account.

In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 25 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 25 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 25 percent to best represent the future expectations for the equipment in this account.

ACCOUNT P05 – POLE STRUCTURES - WOOD

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$157,018,613	4.84%	57-R3	57-R3	-20%	-10%

The investment in Pole Structures – Wood comprises 4.84% of the total depreciable plant. The investment in this account mainly consists of wood pole structures including inspection and refurbishment at the transmission level (46 kV and above). The currently approved average service life estimate is an Iowa 57-R3. The retirement rate analysis prepared in this study reviewed the plant installed over the period of 1960 through 2022. Over this period this account has experienced \$12,368,525 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-213 of this report. As shown on the fitted smooth curve on page 6-212,



the currently approved Iowa 57-R3 still provides an excellent fit to the observed data. A peer comparison of Canadian utilities produced a range from 40 to 60 years. Discussions and review with NL Hydro representatives indicated that there are no saltwater issues, and that the climate of NL Hydro's territory is largely dry and cold resulting in less corrosive influences. They also suggested that the historical experience and resultant Iowa 57-R3 are reasonable expectations for this account. Based on the above, the Iowa 57-R3 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 5 percent for distribution poles, towers, and fixtures, and negative 13 percent for transmission poles and fixtures Newfoundland Power Inc. has a net salvage percentage of negative 40 percent. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 10 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 10 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 10 percent to best represent the future expectations for the equipment in this account.

ACCOUNT P07 – POLES - WOOD

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$87,389,247	2.69%	43-R1	48-R1.5	-20%	-25%

The investment in Poles - Wood comprises 2.69% of the total depreciable plant. The investment in this account mainly consists of wood poles generally at the distribution level 25 kV and below. The currently approved average service life estimate is the Iowa 37-R3. The retirement rate analysis prepared in this study reviewed the plant over the period of 1967 through 2022. Over this period this account has experienced \$11,282,982 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-219 of this report. The currently approved Iowa 43-R1 provided a poor fit on the observed data. A peer comparison of Canadian utilities produced a range from 40 to 56 years. NL Hydro representatives indicated that the historical life for this account appeared too short. They indicated that the purchase of previously owned facilities and subsequent retirements (with an original vintage equal to the acquisition date) has resulted in a short average service life. Based on this, it was agreed that a peer comparison of Canadian utilities, Iowa 48- R1.5 would be a more appropriate estimate. As such, the Iowa 48-R1.5 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation for their distribution poles, towers, and fixtures of negative 5 percent, and negative 13 percent for transmission poles and fixtures. Newfoundland Power Inc. has a net salvage percentage of negative 40 percent. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 25 percent as a net salvage expectation. NL Hydro representatives have indicated that



negative 25 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 25 percent to best represent the future expectations for the equipment in this account.

ACCOUNT R13 - ROADS

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$89,075,458	2.75%	60-R4	60-R4	-8%	0%

The investment in Roads comprises 2.75% of the total depreciable plant. The investment in this account mainly consists of gravel and access roads. The currently approved average service life estimate is the Iowa 60-R4. The retirement experience has been very small and as such has not resulted in any reliable historical indications. A peer comparison of Canadian utilities produced a range from 40 years to 60 years. Discussions and review with NL Hydro representatives suggested that a 60 year average service life is still reasonable for the equipment in this account. Based on the above and the peer comparison of Canadian utilities, an Iowa 60-R4 is recommended to best represent the future expectation for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 8 percent. Newfoundland Power Inc. has a net salvage percentage of negative 10 percent. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views 0 percent as a net salvage expectation. NL Hydro representatives have indicated that 0 percent is reasonable for this account. Based on the above, Concentric Advisors recommends 0 percent to best represent the future expectations for the equipment in this account.

ACCOUNT T04 - TOWERS

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$135,861,156	4.19%	Regulatory: 14-S4 Legal: 14-S465-R4	65-R4	-20%	0%

The investment in Towers comprises 4.19% of the total depreciable plant. The investment in this account mainly consists of steel towers including inspection and refurbishment. The currently approved average service life estimate is the Iowa 65-R4. The retirement rate analysis prepared in this study reviewed plant over the period of 1967 through 2022. Over this period this account has experienced \$3,210,803 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-313 of this report. Although the historical data is limited, it did indicate that a 65-R4 still provided a good fit to the historical data. A peer comparison of Canadian utilities produced a range from 50 years to 70 years. Discussions and review with NL Hydro representatives suggested that the recommended 65-R4 was reasonable for this account. Based on



the above, an Iowa 65-R4 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 13 percent for their transmission towers and fixtures, and negative 5 percent for distribution poles, towers, and fixtures Newfoundland Power Inc. has a net salvage percentage of negative 40 percent. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views 0 percent as a net salvage expectation. NL Hydro representatives have indicated that 0 is reasonable for this account. Based on the above, Concentric Advisors recommends 0 percent to best represent the future expectations for the equipment in this account.

ACCOUNT T05 - TRANSFORMERS - OTHER, PAD MOUNT, AND STATIC EXCITATION SYSTEM AND TRANSFORMERS

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$159,651,482	4.92%	55-R3	50-R2.5	-6%	-5%

The investment in Transformers - Other comprises 4.92% of the total depreciable plant. The investment in this account mainly consists of transformers including power transformers, auto transformers and generator step-up transformers. Discussions and review with NL Hydro representatives also suggested that this account be consolidated. As such, this account was consolidated with T06, Transformers – Pad Mount, S08, Static Excitation System, and S09, Static Excitation Transformers. The currently approved average service life estimate is the Iowa 55-R3. The retirement rate analysis prepared in this study reviewed plant over the period of 1964 through 2022. Over this period this account has experienced \$17,032,978 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-316 of this report. As shown on the fitted smooth curve on page 6-315, the currently approved Iowa 55-R3 did not provide a good fit over the observed data. A peer comparison of Canadian utilities produced a range from 40 to 60 years. Discussions and review with NL Hydro representatives suggested that the historical experience and currently approved Iowa 50-R2.5 are reasonable expectations for this account. Based on the above, the current approved Iowa 50-R2.5 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation for their transmission station equipment of negative 10 percent, and negative 5 percent for line transformers. Newfoundland Power Inc. has a net salvage percentage of negative 10 percent for distribution transformers and mountings. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 5 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 5 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 5 percent to best represent the future expectations for the equipment in this account.



ACCOUNT T07 – TRANSFORMERS – POLE MOUNTED

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$52,105,106	1.61%	30-L1	35-L1	-8%	-10%

The investment in Distribution Transformers – Pole Mounted comprises 1.61% of the total depreciable plant. The investment in this account mainly consists of pole mounted distribution transformers. The currently approved average service life estimate is the Iowa 30-L1. The retirement rate analysis prepared in this study reviewed plant over the period of 1965 through 2022. Over this period this account has experienced \$7,233,678 of retirements over a widely dispersed range of ages as summarized on the observed life table provided on page 6-320 of this report. An analysis of the currently approved Iowa 30-L1 did not provide a good fit to the observed data. As shown on the fitted smooth curve on page 6-319, an Iowa 35-L1 provides an excellent fit over the observed data. A peer comparison of Canadian utilities produced a range from 35 to 40 years. Discussions and review with NL Hydro representatives suggested that the historical experience of an Iowa 35-L1 is a reasonable expectation for this account. Based on the above, the currently approved Iowa 35-L1 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 10 percent for their transmission station equipment and 0% for distribution station equipment. Newfoundland Power Inc. utilizes negative 20 percent for their Substation Equipment. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 10 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 10 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 10 percent to best represent the future expectations for the equipment in this account.

ACCOUNT T09 - TURBINES

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$72,292,487	2.23%	Regulatory: 14-S4 Legal: 14-S455-R2.5	55-R2.5	-14%	-20%

The investment in Turbines comprises 2.23% of the total depreciable plant. The investment in this account mainly consists of turbines. The currently approved average service life estimate is the Iowa 55-R2.5. The retirement experience has been very small and as such has not resulted in any reliable historical indications. A peer comparison of Canadian utilities produced a range of 40 to 55 years. Discussions and review with NL Hydro representatives indicated that there are four gas turbines utilized for mainly stand-by and peaking purposes and have little historical usage. Discussions and review with NL Hydro representatives also suggested that the current 55-year average service life is still reasonable for the equipment in this account. Based on the above and the peer comparison of



Canadian utilities, an Iowa 55-R2.5 is recommended to best represent the future expectations for the equipment in this account.

Concentric Advisors has utilized net salvage recommendations from two electric utilities. Northwest Territories Power Corporation has a recommendation of negative 8 percent for water wheels, turbines, and generators, and negative 5 percent for wind turbines. Newfoundland Power Inc. has a net salvage percentage of negative 5 percent for gas turbines. In consideration of the above and knowledge of NL Hydro's capitalization and removal policies, Concentric Advisors views negative 20 percent as a net salvage expectation. NL Hydro representatives have indicated that negative 20 percent is reasonable for this account. Based on the above, Concentric Advisors recommends negative 20 percent to best represent the future expectations for the equipment in this account.

ACCOUNT T11 - HOLYROOD GAS TURBINE - TURBINE OVERHAUL

Investment \$	Investment %	Previously Approved Curves	Concentric Recommended Curves	Previously Approved Salvage	Concentric Recommended Salvage
\$5,725,855	0.18%	6-SQ	6-SQ	0%	0%

The investment in Holyrood Gas Turbine – Turbine Overhaul comprises 0.18% of the total depreciable plant. The investment in this account mainly consists of turbines. The currently approved average service life estimate is the Iowa 6-SQ. The retirement experience has been very small and as such has not resulted in any reliable historical indications. Discussions and review with NL Hydro representatives indicated that there are four gas turbines utilized for mainly stand-by and peaking purposes and have little historical usage. Discussions and review with NL Hydro representatives also suggested that the current 6-year average service life is still reasonable for the equipment in this account. Based on the above and the peer comparison of Canadian utilities, an Iowa 6-SQ is recommended to best represent the future expectations for the equipment in this account.

NL Hydro representatives have indicated that 0 percent is a reasonable net salvage expectation for this account. Based on these comments, Concentric Advisors recommends 0 percent to best represent the future expectations for the equipment in this account.



SECTION 4

4 CALCULATION OF ANNUAL AND ACCRUED DEPRECIATION

4.1 Group Depreciation Procedures

When more than a single item of property is under consideration, a group procedure for depreciation is appropriate because, usually all of the items within a group do not have identical service lives but have lives that are dispersed over a range of time. There are two primary group procedures: Average Life Group (“ALG”) and Equal Life Group (“ELG”).

In the ALG procedure, the property group is subdivided according to service life. That is, each ALG includes that portion of the property which experiences the life of that specific group. The relative size of each ALG is determined from the property's life dispersion curve. The calculated depreciation for the property group is the summation of the calculated depreciation based on the service life of each ALG.

The table on the following page presents an illustration of the calculation of ALG depreciation in a mass property account using the Iowa 13-R2 survivor curve, zero percent net salvage and a December 31, 2015 calculation date. Each ALG, in the table, is defined by the age interval shown in columns 1 and 2. These are the ages at which the first and last retirement of each group occurs, and the group's equal life, shown in column 3, is the midpoint of the interval. For purposes of the calculation, each vintage is divided into ALGs arranged so that the midpoint of each one-year age interval coincides with the calculation date, e.g., in this case December 31. This enables the calculation of annual accruals for a twelve-month period centered on the date of calculation.

The retirement during the age interval, shown in column 4, is the size of each ALG derived from the Iowa 13-R2 survivor curve and zero percent net salvage. It is the difference between the percentage surviving at the beginning and end of the age interval. Each ALG's annual accrual, shown in column 5, equals the group's size (column 4) divided by its life (column 3), except in the circumstance of age 0.5 due to the use of the mid-year convention.

Columns 7 through 10, show the derivation of the annual and accrued factors for each vintage based on the information developed in the first five columns. The year installed is shown in column 6. For all vintages other than 2015, the summation of annual accruals for each year installed, shown in column 7, is calculated by adding one-half of the group annual accrual (column 5) for that vintage's current age interval plus the group annual accruals for all succeeding age intervals. For example, the figure 9.36279122771 for 2014, equals one-half of 0.69931333333 plus all of the succeeding figures in column 5. Only one-half of the annual accrual for the vintage's current age interval group is included in the summation because the ALG for that interval has reached the year during which it is expected to be retired.



DETAILED COMPUTATION OF ANNUAL AND ACCRUED FACTORS USING THE EQUAL LIFE GROUP PROCEDURE
INPUT PARAMETERS: CALCULATION DATE = 12-31-2015 SURVIVOR CURVE = 13-R2

Age Interval		Life	Retirements During Interval	Group Annual Accrual	Year Inst.	Summation of Annual Accruals	Average Percent Surviving	Annual Factor	Accrued Factor
Beg.	End								
(1)	(2)	(3)	(4)	(5)=(4)/(3)	(6)	(7)	(8)	(9)	(10)
0.000	1.000	0.500	0.81843	0.81843000000	2015	10.53087789438	99.607343	0.1057	0.0529
1.000	2.000	1.500	1.04897	0.69931333333	2014	9.36279122771	98.657081	0.0949	0.1424
2.000	3.000	2.500	1.32665	0.53066000000	2013	8.74780456105	97.469276	0.0897	0.2243
3.000	4.000	3.500	1.65967	0.47419142857	2012	8.24537884676	95.976118	0.0859	0.3007
4.000	5.000	4.500	2.05317	0.45626000000	2011	7.78015313248	94.119697	0.0827	0.3722
5.000	6.000	5.500	2.51363	0.45702363636	2010	7.32351131430	91.836296	0.0797	0.4384
6.000	7.000	6.500	3.05106	0.46939384615	2009	6.86030257304	89.053950	0.0770	0.5005
7.000	8.000	7.500	3.66989	0.48931866667	2008	6.38094631663	85.693474	0.0745	0.5588
8.000	9.000	8.500	4.36997	0.51411411765	2007	5.87922992447	81.673542	0.0720	0.6120
9.000	10.000	9.500	5.14410	0.54148421053	2006	5.35143076038	76.916510	0.0696	0.6612
10.000	11.000	10.500	5.97129	0.56869428571	2005	4.79634151226	71.358816	0.0672	0.7056
11.000	12.000	11.500	6.79860	0.59118260870	2004	4.21640306506	64.973866	0.0649	0.7464
12.000	13.000	12.500	7.54947	0.60395760000	2003	3.61883296071	57.799833	0.0626	0.7825
13.000	14.000	13.500	8.12298	0.60170222222	2002	3.01600304960	49.963612	0.0604	0.8154
14.000	15.000	14.500	8.39246	0.57879034483	2001	2.42575676607	41.705891	0.0582	0.8439
15.000	16.000	15.500	8.25458	0.53255354839	2000	1.87008481946	33.382372	0.0560	0.8680
16.000	17.000	16.500	7.66186	0.46435515152	1999	1.37163046951	25.424151	0.0539	0.8894
17.000	18.000	17.500	6.66225	0.38070000000	1998	0.94910289375	18.262094	0.0520	0.9100
18.000	19.000	18.500	5.40212	0.29200648649	1997	0.61274965050	12.229909	0.0501	0.9269
19.000	20.000	19.500	4.06774	0.20860205128	1996	0.36244538162	7.494980	0.0484	0.9438
20.000	21.000	20.500	2.81382	0.13725951220	1995	0.18951459988	4.054203	0.0467	0.9574
21.000	22.000	21.500	1.70757	0.07942186047	1994	0.08117391354	1.793508	0.0453	0.9740
22.000	23.000	22.500	0.78015	0.03467333333	1993	0.02412631664	0.549647	0.0439	0.9878
23.000	24.000	23.500	0.15903	0.00676723404	1992	0.00340603296	0.080054	0.0425	0.9988
24.000	24.180	24.090	0.00054	0.00002241594	1991	0.00000201743	0.000049	0.0412	1.0000
TOTAL			100.00000						

The summation of annual accruals (column 7) for installations during 2015 is calculated on the basis of an in-service date at the midpoint of the year, i.e., June 30. In as much as the overall calculation is centered on December 31, 2015, the first figure in column 7, for vintage 2015, equals all of the group annual accrual for the first equal life group plus the accruals for all of the subsequent equal life groups.

The average percent surviving derived from the Iowa 13-R2 survivor curve and zero percent net salvage, is shown in column 8 for each age interval. The annual factor, shown in column 9, is the result of dividing the summation of annual accruals (column 7) by the average percent surviving (column 8). The accrued factor, shown in column 10, equals the annual factor multiplied by the age of the group at December 31, 2015.



4.2 Calculation of Annual and Accrued Amortization

Amortization is the gradual extinguishment of an amount in an account by distributing such amount over a fixed period, over the life of the asset or liability to which it applies, or over the period during which it is anticipated the benefit will be realized. Normally, the distribution of the amount is in equal amounts for each year of the amortization period.

The calculation of annual and accrued amortization requires the selection of an amortization period. The amortization periods used in this report were based on judgment which incorporated a consideration of the period during which the assets will render most of their service, the amortization period and service lives used by other utilities, and the service life estimates previously used for the asset under depreciation accounting.

Amortization accounting is proposed for a number of accounts that represent numerous units of property, but a very small portion of depreciable electric plant in service. The accounts and their amortization periods are as follows:

Account	Title	Investment \$	Recommended Amortization Period in Years
C11	Computers	\$4,443,772	5
C21	Cell Phones	\$96,037	3
C22	Charging Station	\$887,935	10
O01	Office Equipment	\$972,862	20
O02	Office Furniture	\$1,111,454	20
P11	Printers	\$660,208	6
R14	Routers and LAN	\$1,717,528	5
S03	Servers	\$295,740	7
S05	Software	\$5,364,462	7
T02	Test Equipment	\$1,874,295	20
T03	Tools and Equipment	\$20,821,666	20
T10	Holyrood Turbines – Combustor Overhaul	\$3,028,926	3
T11	Holyrood Turbines – Turbine Overhaul	\$5,725,855	6
T12	Holyrood Turbine – Combustor Overhaul	\$3,088,487	12
T14	Transformers – Charging Station	\$565,118	10

For the purpose of calculating annual amortization amounts, as of December 31, 2022, the book depreciation reserve for each plant account (or sub-account) is assigned or allocated to vintages. The book reserve assigned to vintages with an age greater than the amortization period is equal to the vintage's original cost. The remaining book reserve is allocated among vintages with an age less than the amortization period in proportion to the calculated accrued amortization. The calculated accrued



amortization is equal to the original cost multiplied by the ratio of the vintage's age to its amortization period. The annual amortization amount is determined by dividing the future amortizations (original cost less allocated book reserve) by the remaining period of amortization for the vintage.

4.3 Monitoring of Book Accumulated Depreciation

The calculated accrued depreciation or amortization represents that portion of the depreciable cost which will not be allocated to expense through future depreciation accruals, if current forecasts of service life characteristics materialize and are used as a basis for depreciation accounting. Thus, the calculated accrued depreciation provides a measure of the book accumulated depreciation. The use of this measure is recommended in the amortization of book accumulated depreciation variances to insure complete recovery of capital over the life of the property.

The recommended amortization of the variance between the book accumulated depreciation and the calculated accrued depreciation is based on an amortization period equal to the composite remaining life for each property group where the variance exceeds five percent of the calculated accrued depreciation.

The composite remaining life for use in the calculation of accumulated depreciation variances is derived by developing the composite sum of the individual remaining lives in accordance with the following equation:

$$\text{Composite Remaining Life} = \frac{\sum \left(\frac{\text{Book Cost}}{\text{Life}} \times \text{Remaining Life} \right)}{\sum \frac{\text{Book Cost}}{\text{Life}}} \quad (1)$$

The book costs and lives of the several vintages, which are summed in the foregoing equation, are defined by the estimated future survivor curve. In as much as book cost divided by life equals the Whole Life annual accrual, the foregoing equation reduces to the following form:

$$\text{Composite Remaining Life} = \frac{\sum \text{Whole Life Future Accruals}}{\sum \text{Whole Life Annual Accrual}} \quad (2)$$

or

$$\text{Composite Remaining Life} = \frac{\sum \text{Book Cost} - \text{Calc. Reserve}}{\sum \text{Whole Life Annual Accrual}} \quad (3)$$



SECTION 5

5 RESULTS OF THE STUDY

5.1 Qualification of Results

The calculated annual and accrued depreciation are the principal results of the study and are shown in Tables 1 and 2, related to investment as of December 31, 2022. Continued surveillance and periodic revisions are normally required to maintain continued use of appropriate annual depreciation accrual rates. An assumption that accrual rates can remain unchanged over a long period of time implies a disregard for the inherent variability in service lives and salvage and for the change of the composition of property in service. The annual accrual rates and the accrued depreciation were calculated in accordance with the Straight-Line method, using the ALG procedure, based on estimates which reflect considerations of current historical evidence and expected future conditions.

5.2 Description of Detailed Tabulations

The following tables provides summaries by account of the original cost of investment, calculated and booked accumulated depreciation amounts, the required amount of annual depreciation expense, the required depreciation rate to be applied against the original cost of the account and the estimated composite remaining life of the surviving plant in service.

The detailed calculations of annual depreciation applicable to depreciable assets, as of December 31, 2022, are presented in account sequence starting in Section 5 – Page 5-2. The tables indicate the estimated average survivor curves used in the calculations. The tables set forth (for each installation year) the original cost, calculated accrued depreciation and the calculated annual accrual.

5.3 Impact of the International Financial Reporting Standards (IFRS) in This Study

In the determination of the depreciation rates for Regulatory purposes Concentric Advisors has applied its depreciation parameters on an original cost basis. However, upon implementation of IFRS NL Hydro's reported asset values are calculated on a deemed cost basis in the disclosure of the plant in service in its accounting systems for financial disclosure purposes. Therefore, the depreciation rates need to recognize that the cost basis is a deemed cost rather than an original cost. To ensure proper and accurate recovery, Concentric Advisors has applied its developed depreciation expense (as determined from an original cost base) to NL Hydro's deemed costs to develop deemed cost accrual rates for each depreciable account as shown on Table 1. Concentric Advisors notes that the deemed cost depreciation rates are for financial disclosure purposes only. These deemed cost accrual rates will then ensure the accurate recovery of NL Hydro's deemed cost investment as of December 31, 2022.

NEWFOUNDLAND AND LABRADOR HYDRO

TABLE 1 - ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2022
DEPRECIATION RELATED TO RECOVERY OF ORIGINAL COST OF INVESTMENT
TOTAL

Account	Account Description (1)	Survivor Curve (2)	Net Salvage Percent (3)	Economic Planning Horizon (4)	Original Cost as of Dec. 31, 2022 (5)	Book Depreciation Reserve (6)	Future Accruals (7)	Calculated Annual Accrual Amount (8)	Calculated Annual Accrual Rate (9)	Composite Remaining Life (10)	Deemed Cost as of Dec. 31, 2022 (11)	Deemed Cost Accrual Rate (12)	Whole Life Accrual Rate (13)	Investment Percent
A01	AIRCRAFT LANDING STRIP	33-R2	0	0	203,513	151,282	52,230	1,880	0.92	20.10	70,960	2.65	3.03	0.01%
A04	AUXILIARY POWER SYSTEMS	25-R4	0	0	9,809,817	4,556,605	5,253,212	302,724	3.09	13.86	7,869,185	3.85	4.00	0.30%
B01	BATTERY AND POWER SYSTEMS	20-L1.5	0	0	15,258,791	7,315,802	7,942,989	589,455	3.86	12.50	12,015,162	4.91	5.00	0.47%
B02	BOILER SYSTEM	40-R1	0	0	20,768,742	20,768,741	1	0	0.00	11.11	1	0.00	2.50	0.64%
B03	BOOMS - TIMBER	25-R2.5	0	0	388,846	180,596	208,250	10,772	2.77	15.05	325,629	3.31	4.00	0.01%
B04	BRIDGES	65-R4	0	0	10,669,071	3,870,096	6,798,975	122,618	1.15	48.81	7,379,786	1.66	1.54	0.33%
B05	BUILDINGS - OTHER	55-R1	0	0	90,855,034	37,562,147	53,292,887	1,179,999	1.30	42.02	64,072,610	1.84	1.82	2.80%
B06	BUILDINGS - METAL	55-R3	0	0	51,711,740	21,085,067	30,626,673	688,416	1.33	37.86	34,658,778	1.99	1.82	1.59%
B07	BUS DUCT GENERATOR	40-R4	0	0	1,969,235	792,292	1,176,943	44,549	2.26	24.66	1,498,442	2.97	2.50	0.06%
B08	BUSWORK AND HARDWARE	50-R4	-5	0	8,232,384	5,057,740	3,586,263	120,418	1.46	24.71	4,600,235	2.62	2.10	0.25%
C01	CABLES - TELECONTROL	30-R4	-5	0	1,719,840	1,454,740	351,092	29,917	1.74	10.79	393,321	7.61	3.50	0.05%
C02	CABLE - SUBMARINE	45-R4	-15	0	10,575,115	7,465,843	4,695,539	247,568	2.34	18.47	4,450,720	5.56	2.56	0.33%
C03	CABLES - UNDERGROUND	60-S4	-10	0	8,919,565	1,648,476	8,163,046	161,286	1.81	50.25	8,039,428	2.01	1.83	0.27%
C04	CABLES - ABOVE GROUND	65-R4	-10	0	15,528,122	7,033,021	10,047,912	220,599	1.42	42.46	10,140,458	2.18	1.69	0.48%
C06	CAPACITORS	35-R3	-3	0	994,858	867,015	157,688	11,951	1.20	8.21	695,014	1.72	2.94	0.03%
C07	CHEMICAL FEED SYSTEMS	45-R4	-5	0	459,814	455,796	27,009	1,439	0.31	6.07	13,291	10.83	2.33	0.01%
C09	CIRCUIT BREAKERS	55-R2	-5	0	101,580,642	15,325,584	91,334,091	1,912,764	1.88	47.54	96,844,891	1.98	1.91	3.13%
C10	COMPRESSED AIR SYSTEMS	41-R1.5	0	0	17,920,884	5,596,752	12,324,132	367,706	2.05	31.57	15,677,462	2.35	2.44	0.55%
C11	COMPUTERS	5-SQ	0	0	4,443,772	1,691,473	2,752,299	982,379	22.11	2.79	4,443,772	22.11	20.00	0.14%
C12	CONDENSERS	55-R3	-3	0	410,930	138,884	284,373	5,862	1.43	39.92	285,000	2.06	1.87	0.01%
C13	CONDUCTOR - TRANSMISSION	60-R3	-5	0	87,923,266	36,026,698	56,292,732	1,614,267	1.84	35.40	65,347,634	2.47	1.75	2.71%
C14	CONDUCTOR - DISTRIBUTION	48-R3	-10	0	39,466,639	20,434,016	22,979,286	754,533	1.91	28.65	23,982,195	3.15	2.29	1.22%
C15	CONTROL, METERING, RELAYING	35-R3	0	0	56,800,508	17,979,885	38,820,624	1,529,007	2.69	24.16	47,737,527	3.20	2.86	1.75%
C16	COOLING SYSTEMS AND WATER SUPPLY SYSTEMS	40-R1.5	0	0	21,513,302	6,910,720	14,602,582	432,648	2.01	31.12	18,411,079	2.35	2.50	0.66%
C17	COUNTERPOISE	55-R2.5	0	0	6,872,703	2,213,188	4,659,515	118,512	1.72	38.49	5,667,590	2.09	1.82	0.21%
C18	CRANES	70-R3	0	0	8,730,677	2,121,417	6,609,260	157,459	1.80	44.62	7,947,573	1.98	1.43	0.27%
C21	CELL PHONES	3-SQ	0	0	96,037	18,382	77,655	39,991	41.64	2.01	96,037	41.64	33.33	0.00%
C22	CHARGING STATION	10-SQ	0	0	887,935	49,602	838,333	90,549	10.20	9.26	887,935	10.20	10.00	0.03%
D01	DAMS, DYKES, CANALS AND TUNNELS	110-R4	-5	0	363,985,588	66,685,088	315,499,780	4,577,915	1.26	69.78	343,053,082	1.33	0.95	11.22%
D02	DIESEL SYSTEMS AND ENGINES	22-L0.5	-15	0	51,165,266	12,364,894	46,475,161	3,024,477	5.91	15.99	51,647,668	5.86	5.23	1.58%
D03	DISCONNECT SWITCHES	55-R2.5	0	0	33,510,541	8,562,249	24,948,292	543,296	1.62	43.46	29,211,066	1.86	1.82	1.03%
D04	DYKES AND LINERS	42-L1.5	-5	0	2,364,261	1,876,912	605,562	23,721	1.00	22.19	695,798	3.41	2.50	0.07%
E01	ELEVATORS	45-S5	0	0	89,800	89,800	0	0	0.00	2.53	0	0.00	2.22	0.00%
E02	EMS EQUIPMENT	30-S0.5	0	0	12,390,968	12,256,363	134,604	5,859	0.05	10.04	159,468	3.67	3.33	0.38%
E03	ENVIRONMENTAL EQUIPMENT	47-R3	0	0	662,703	496,700	166,003	6,098	0.92	17.58	242,418	2.52	2.13	0.02%
F01	FALL ARREST EQUIPMENT	15-R4	0	0	2,718,826	2,400,499	318,326	40,330	1.48	4.76	2,243,470	1.80	6.67	0.08%
F02	FENCING	52-R3	0	0	11,288,431	4,446,780	6,841,651	164,373	1.46	36.82	7,974,807	2.06	1.92	0.35%
F03	FIRE FIGHTING EQUIPMENT	50-R4	0	0	21,046,779	6,927,445	14,119,334	349,941	1.66	36.46	16,513,028	2.12	2.00	0.65%
F04	FOOTINGS AND FOUNDATIONS	65-R3	0	0	180,158,474	22,605,681	157,552,792	2,740,121	1.52	57.30	172,472,002	1.59	1.54	5.55%
F06	FUEL SYSTEMS	50-R0.5	-15	0	45,318,585	12,400,285	39,716,088	889,000	1.96	42.85	37,438,418	2.37	2.30	1.40%
G01	GAS TURBINE SYSTEMS	45-R3	-5	0	78,495,255	33,218,199	49,201,818	1,385,054	1.76	30.36	57,093,617	2.43	2.33	2.42%
G02	GATES	80-R4	0	0	24,866,269	5,588,738	19,277,531	382,099	1.54	53.47	22,473,384	1.70	1.25	0.77%
G03	GENERATORS, WINDINGS, AND POWERHOUSE	65-R2.5	-5	0	260,556,616	83,524,636	190,059,811	4,510,494	1.73	43.05	214,610,829	2.10	1.62	8.03%
G05	GLYCOL SYSTEMS	40-S3	-5	0	579,261	480,390	127,834	7,480	1.29	13.70	147,043	5.09	2.63	0.02%
G06	GOVENORS	45-S4	-10	0	7,840,659	4,231,592	4,393,134	305,967	3.90	17.15	6,562,987	4.66	2.44	0.24%
G07	GROUND WIRE SYSTEM	60-R4	-5	0	29,966,922	5,910,212	25,555,057	519,384	1.73	49.00	27,275,864	1.90	1.75	0.92%
I02	INSTRUMENTATION	25-L0.5	0	0	8,137,029	5,197,326	2,939,703	145,146	1.78	13.95	3,547,421	4.09	4.00	0.25%
I03	INSULATORS	35-R2.5	0	0	45,781,055	26,501,046	19,280,009	911,300	1.99	18.54	31,957,220	2.85	2.86	1.41%
I04	INTAKE STRUCTURES	110-R4	0	0	25,025,336	3,714,080	21,311,256	280,363	1.12	78.56	23,814,847	1.18	0.91	0.77%
I05	INVERTERS	22-S1.5	-5	0	933,766	368,552	611,903	43,006	4.61	13.46	647,942	6.64	4.77	0.03%
L03	LAND IMPROVEMENTS	75-R3	0	0	18,415,204	9,911,169	8,504,034	149,393	0.81	49.79	10,117,736	1.48	1.33	0.57%
L04	LIGHTING SYSTEMS	50-R4	0	0	3,901,031	789,798	3,111,233	72,575	1.86	40.87	3,489,984	2.08	2.00	0.12%
L05	LIGHTNING ARRESTORS	58-R3	0	0	7,000,276	3,027,313	3,972,963	97,102	1.39	39.82	4,844,142	2.00	1.72	0.22%
L06	LINE COUPLING EQUIPMENT	24-R5	0	0	11,226	11,226	0	0	0.00	0.00	0	0.00	4.17	0.00%
M01	MAIN BREAKERS	42-R0.5	-5	0	479,851	288,725	215,119	7,338	1.53	26.96	265,238	2.77	2.50	0.01%
M02	MARINE TERMINAL	65-R4	-5	0	2,964,963	2,964,485	148,726	7,058	0.24	17.55	1,499	470.75	1.62	0.09%
M03	METALCLAD SWITCHGEAR CUB/EQU 4kV/600	45-R4	-5	0	3,479,227	2,023,549	1,629,640	43,154	1.24	24.65	1,915,245	2.25	2.33	0.11%
M04	METER TEST SWITCHES	35-R5	0	0	58,301	53,953	4,348	640	1.10	4.95	13,519	4.73	2.86	0.00%
M05	METERING TANKS	37-R3	0	0	649,880	393,096	256,784	9,829	1.51	18.89	436,326	2.25	2.70	0.02%
M06	METERS - DIGITAL	18-L3	0	0	8,380,027	4,261,100	4,118,927	417,992	4.99	9.52	7,475,878	5.59	5.56	0.26%
M07	METERS - ANALOGUE	25-L2	0	0	1,103,014	741,236	361,778	17,184	1.56	12.67	480,855	3.57	4.00	0.03%
M08	METERS - OTHER	22-L4	0	0	424,617	258,858	165,759	11,467	2.70	10.73	328,511	3.49	4.55	0.01%

NEWFOUNDLAND AND LABRADOR HYDRO

TABLE 1 - ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2022
DEPRECIATION RELATED TO RECOVERY OF ORIGINAL COST OF INVESTMENT
TOTAL

Account	Account Description (1)	Survivor Curve (2)	Net Salvage Percent (3)	Economic Planning Horizon (4)	Original Cost as of Dec. 31, 2022 (5)	Book Depreciation Reserve (6)	Future Accruals (7)	Calculated Annual Accrual Amount (8)	Calculated Annual Accrual Rate (9)	Composite Remaining Life (10)	Deemed Cost as of Dec. 31, 2022 (11)	Deemed Cost Accrual Rate (12)	Whole Life Accrual Rate (13)	Investment Percent
M10	MISCELLANEOUS UNITS OF PROPERTY	25-R1.5	0	0	15,112,008	11,744,689	3,367,319	201,253	1.33	14.65	13,467,451	1.49	4.00	0.47%
M11	MOBILE - A.T.V.'S AND SNOWMOBILES	7-L3	20	0	2,972,484	2,000,153	377,835	58,262	1.96	3.47	2,912,399	2.00	11.43	0.09%
M12	MOBILE - AIR COMPRESSOR ATTACHMENT AND BOAT	20-L0	20	0	360,511	218,308	70,101	4,494	1.25	12.10	198,920	2.26	4.00	0.01%
M13	MOBILE - ARGO'S	9-R5	20	0	243,908	74,627	120,499	18,266	7.49	5.87	243,908	7.49	8.89	0.01%
M14	MOBILE - FLEX/FORK/LOAD/GRADE/MUSK/TRAILER	18-L3	20	0	10,866,107	5,483,370	3,209,515	320,408	2.95	8.93	8,639,821	3.71	4.44	0.33%
M16	MULTIPLEX EQUIPMENT	18-S1.5	0	0	3,554,083	1,931,990	1,622,093	134,364	3.78	10.23	2,630,207	5.11	5.56	0.11%
O01	OFFICE EQUIPMENT	20-SQ	0	0	972,862	504,991	467,871	42,898	4.41	10.09	786,841	5.45	5.00	0.03%
O02	OFFICE FURNITURE	20-SQ	0	0	1,111,454	704,595	406,859	46,695	4.20	8.07	876,022	5.33	5.00	0.03%
P01	P.C.B. STORAGE CONTAINER	30-R4	0	0	42,480	42,399	81	21	0.05	3.76	1,483	1.42	3.33	0.00%
P02	PABX - PRIVATE AUTO BRANCH EXCHANGE	20-R4	0	0	258,657	258,657	0	0	0.00	2.00	0	0.00	5.00	0.01%
P03	PENSTOCK	75-R4	-5	0	79,662,143	25,712,580	57,932,670	1,411,741	1.77	44.00	66,593,526	2.12	1.40	2.46%
P04	POLE CRIBS AND POLE HARDWARE	40-S2.5	-25	0	140,660,243	62,543,404	113,281,900	4,575,778	3.25	25.05	105,522,939	4.34	3.13	4.34%
P05	POLE STRUCTURES - WOOD	57-R3	-10	0	157,018,613	64,236,455	108,484,019	2,978,903	1.90	36.24	119,815,598	2.49	1.93	4.84%
P06	POLES - CONCRETE	25-R4	-25	0	333,760	329,100	88,100	55,346	15.93	2.09	55,346	96.07	5.00	0.01%
P07	POLES - WOOD	48-R1.5	-25	0	87,389,247	35,109,473	74,127,085	1,940,581	2.22	36.91	65,039,108	2.98	2.60	2.69%
P08	POWER LINE CARRIER	25-R3	-5	0	4,570,098	3,212,646	1,585,957	108,271	2.37	11.10	2,053,927	5.27	4.20	0.14%
P09	POWER SYSTEMS	25-L3	0	0	2,722,514	938,978	1,783,536	86,586	3.18	18.85	2,533,353	3.42	4.00	0.08%
P11	PRINTERS	6-SQ	0	0	660,208	282,340	377,868	131,792	19.96	3.03	660,208	19.96	16.67	0.02%
P12	PROTECTIVE CONTROL AND RELAY PANELS	35-R3	0	0	30,299,461	6,264,962	24,034,499	838,796	2.77	28.05	28,780,094	2.91	2.86	0.93%
R01	RADIO TOWERS (WOOD OR STEEL)	48-R2	-5	0	9,109,013	6,914,144	2,650,320	78,659	0.86	29.91	2,965,685	2.65	2.19	0.28%
R02	RADIOS - FIXED MICROWAVE EQUIPMENT AND FIXED UHF EQUIPMENT	15-R5	0	0	5,188,518	3,245,325	1,943,194	329,825	6.36	5.38	3,568,874	9.24	6.67	0.16%
R04	RADIOS - FIXED VHF EQUIPMENT AND MOBILE VHF BASE STATION	15-R3	0	0	7,464,821	7,373,614	91,207	15,880	0.21	2.79	3,159,501	0.50	6.67	0.23%
R06	RAMPS - YARD STORAGE	25-R3	0	0	2,139,975	1,202,528	937,447	61,628	2.88	12.37	1,481,689	4.16	4.00	0.07%
R07	REACTORS AND RESISTORS	40-S4	0	0	1,381,472	636,380	745,092	42,510	3.08	18.88	1,084,991	3.92	2.50	0.04%
R08	RECLOSERS	48-R2	-5	0	10,478,610	3,305,111	7,697,430	191,457	1.83	37.57	8,539,858	2.24	2.19	0.32%
R09	REGULATORS	35-S0	-5	0	7,739,897	2,520,111	5,606,782	199,634	2.58	26.25	6,454,937	3.09	3.00	0.24%
R11	REVENUE METERING	35-R3	0	0	3,119,204	1,056,808	2,062,397	77,696	2.49	24.36	2,779,291	2.80	2.86	0.10%
R12	RIGHT-OF-WAYS	65-R4	0	0	43,540,846	12,502,893	31,037,953	635,265	1.46	47.69	35,837,593	1.77	1.54	1.34%
R13	ROADS	60-R4	0	0	89,075,458	32,662,383	56,413,075	2,188,123	2.46	26.88	79,975,479	2.74	1.67	2.75%
R14	ROUTERS AND LAN	5-SQ	0	0	1,717,528	852,975	864,553	379,981	22.12	2.23	1,725,466	22.02	20.00	0.05%
R15	RUNNER	55-R5	0	0	11,986,372	9,290,447	2,695,925	272,225	2.27	10.71	7,138,367	3.81	1.82	0.37%
S01	SCADA EQUIPMENT	20-L3	0	0	5,428,323	2,889,797	2,538,525	194,618	3.59	11.34	3,922,458	4.96	5.00	0.17%
S02	SECTIONALIZERS	25-R5	0	0	362,337	94,347	267,990	11,208	3.09	19.09	302,960	3.70	4.00	0.01%
S03	SERVERS	7-SQ	0	0	295,740	140,534	155,206	44,344	14.99	3.50	295,740	14.99	14.29	0.01%
S04	SEWAGE DISPOSAL SYSTEM	55-R4	-5	0	2,976,966	2,001,549	1,124,265	31,536	1.06	31.09	1,270,591	2.48	1.91	0.09%
S05	SOFTWARE	7-SQ	0	0	5,364,462	2,667,575	2,696,887	870,821	16.23	3.17	5,364,462	16.23	14.29	0.17%
S06	SPILLWAY STRUCTURES AND WATER REGULATING STRUCTURES	110-R4	-5	0	53,476,197	5,628,978	50,521,029	675,918	1.26	76.65	47,364,294	1.43	0.95	1.65%
S07	STACKS	55-R4	-5	0	7,664,903	3,369,895	4,678,253	106,756	1.39	35.78	5,203,627	2.05	1.91	0.24%
S10	STATION SERVICE	50-R4	-5	0	10,250,942	3,202,148	7,561,341	209,204	2.04	35.47	8,965,681	2.33	2.10	0.32%
S11	STOP LOGS	65-R4	0	0	3,285,887	1,136,218	2,149,670	71,847	2.19	32.34	2,822,721	2.55	1.54	0.10%
S12	STORAGE PALLETS AND RACKINGS	30-R3	0	0	14,403	14,403	0	0	0.00	4.62	0	0.00	3.33	0.00%
S13	STORM AND YARD DRAINAGE	55-R4	0	0	1,308,713	1,109,454	199,260	6,160	0.47	21.66	283,067	2.18	1.82	0.04%
S14	STREET LIGHTS	25-R1.5	-10	0	7,300,277	3,095,546	4,934,759	240,960	3.30	18.14	6,284,846	3.83	4.40	0.23%
S15	STRUCTURAL SUPPORTS (WOOD OR STEEL)	55-R4	-5	0	18,804,123	7,926,396	11,817,933	333,432	1.77	34.11	13,540,874	2.46	1.91	0.58%
S17	SUMP SYSTEMS	35-R4	0	0	1,428,383	322,996	1,105,387	36,938	2.59	28.27	1,365,263	2.71	2.86	0.04%
S18	SURGE SYSTEMS	60-R4	0	0	11,721,454	4,914,139	6,807,314	133,303	1.14	39.04	8,823,360	1.51	1.67	0.36%
S19	STATION SWITCHING	38-S0.5	0	0	10,921,322	5,597,642	5,323,680	233,668	2.14	21.55	7,550,594	3.09	2.63	0.34%
S20	SWITCHING SYSTEMS - L.V.	60-R5	0	0	2,304,609	825,486	1,479,123	58,045	2.52	27.76	2,071,699	2.80	1.67	0.07%
T01	TELECONTROL SYSTEM	27-S0.5	0	0	13,967,827	7,630,866	6,336,960	332,028	2.38	16.17	9,464,734	3.51	3.70	0.43%
T02	TEST EQUIPMENT	20-SQ	0	0	1,874,295	1,016,645	857,651	80,107	4.27	9.88	1,439,160	5.57	5.00	0.06%
T03	TOOLS AND EQUIPMENT	20-SQ	0	0	20,821,666	7,996,858	12,824,808	992,124	4.76	12.52	18,124,359	5.47	5.00	0.64%
T04	TOWERS	65-R4	0	0	135,861,156	35,230,236	100,630,919	2,298,092	1.69	45.48	117,964,476	1.95	1.54	4.19%
T05	TRANSFORMERS - OTHER, PAD MOUNT, AND STATIC EXCITATION SYSTEM AND TRANSFORMERS	50-R2.5	-5	0	159,651,482	57,309,837	110,324,219	3,189,144	2.00	33.75	128,011,667	2.49	2.10	4.92%
T07	TRANSFORMERS - POLE MOUNTED	35-L1	-10	0	52,105,106	19,953,769	37,361,848	1,366,755	2.62	26.54	44,817,972	3.05	3.14	1.61%
T09	TURBINES	55-R2.5	-20	0	72,292,487	36,277,721	50,473,263	1,814,777	2.51	28.97	49,566,107	3.66	2.18	2.23%
T10	HOLYROOD GAS TURBINE - COMBUSTOR OVERHAUL	3-SQ	0	0	3,028,926	3,028,926	0	0	0.00	0.00	3,028,926	0.00	33.33	0.09%
T11	HOLYROOD GAS TURBINE - TURBINE OVERHAUL	6-SQ	0	0	5,725,855	4,045,192	1,680,664	1,113,394	19.45	1.51	5,725,855	19.45	16.67	0.18%
T12	HOLYROOD GAS TURBINE - COMBUSTOR OVERHAUL	12-SQ	0	0	3,088,487	2,062,608	1,025,879	227,973	7.38	4.50	3,088,487	7.38	8.33	0.10%
T14	TRANSFORMERS - CHARGING STATION	10-SQ	0	0	565,118	29,082	536,037	57,700	10.21	9.30	565,118	10.21	10.00	0.02%
V01	VACUUM CLEANING SYSTEM	60-R4	0	0	72,451	68,458	3,993	198	0.27	17.61	6,099	3.25	1.67	0.00%
V02	VALVES - PENSTOCK	65-R3	0	0	8,222,508	3,249,547	4,972,962	131,479	1.60	38.29	6,223,806	2.11	1.54	0.25%
V03	VEHICLES - 1 TON	8-L4	15	0	159,768	110,086	25,718	9,498	5.94	2.37	159,768	5.94	10.63	0.00%

NEWFOUNDLAND AND LABRADOR HYDRO

TABLE 1 - ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2022
DEPRECIATION RELATED TO RECOVERY OF ORIGINAL COST OF INVESTMENT
TOTAL

Account	Account Description (1)	Survivor Curve (2)	Net Salvage Percent (3)	Economic Planning Horizon (4)	Original Cost as of Dec. 31, 2022 (5)	Book Depreciation Reserve (6)	Future Accruals (7)	Calculated Annual Accrual Amount (8)	Calculated Annual Accrual Rate (9)	Composite Remaining Life (10)	Deemed Cost as of Dec. 31, 2022 (11)	Deemed Cost Accrual Rate (12)	Whole Life Accrual Rate (13)	Investment Percent
V04	VEHICLES - 3/4 TON AND UNDER	7-L3	15	0	6,440,592	3,709,220	1,765,284	412,445	6.40	3.35	6,418,872	6.43	12.14	0.20%
V05	VEHICLES - BOOMS/BODIES/CRANES/CAB/CHASSIS	13-L3	15	0	18,669,746	9,921,021	5,948,263	758,339	4.06	6.72	16,778,558	4.52	6.54	0.58%
V06	VEHICLES - CARS, STATION WAGONS AND VAN	7-L3	15	0	1,431,284	952,312	264,280	44,590	3.12	3.19	1,394,083	3.20	12.14	0.04%
V07	VEHICLES - DUMP TRUCKS	10-L5	15	0	11,535	11,535	-1,730	-1,730	-15.00	0.00	0	0.00	8.50	0.00%
W04	WATER TREATMENT AND WATER SYSTEMS - FEED	55-R1.5	-5	0	17,319,432	8,524,128	9,661,276	211,509	1.22	37.77	10,705,544	1.98	1.91	0.53%
	TOTAL PLANT IN SERVICE				3,244,433,111	1,122,565,420	2,297,716,649	67,150,785	2.07		2,637,141,738	2.55		
	HOLYROOD ASSET													
H02	HRD ACCELERATED ASSET	N/A	0	0	210,273,063	178,548,729	31,724,334	0	0.00	0.00	147,272,289	0.00	0.00	
	TOTAL PLANT				3,454,706,174	1,301,114,149	2,329,440,984	67,150,785	1.94		2,784,414,027	2.41		

NEWFOUNDLAND AND LABRADOR HYDRO

TABLE 1A - ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2022
DEPRECIATION RELATED TO RECOVERY OF ORIGINAL COST OF INVESTMENT
LIFE

Account	Account Description	Survivor Curve	Net Salvage Percent	Economic Planning Horizon	Original Cost as of Dec. 31, 2022	Book Depreciation Reserve	Future Accruals	Calculated Annual Amount	Calculated Annual Rate	Composite Remaining Life	Deemed Cost as of Dec. 31, 2022	Deemed Cost Accrual Rate	Whole Life Accrual Rate
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
A01	AIRCRAFT LANDING STRIP	33-R2	0	0	203,513	151,282	52,230	1,880	0.92	20.10	70,960	2.65	3.03
A04	AUXILIARY POWER SYSTEMS	25-R4	0	0	9,809,817	4,556,605	5,253,212	302,724	3.09	13.86	7,869,185	3.85	4
B01	BATTERY AND POWER SYSTEMS	20-L1.5	0	0	15,258,791	7,315,802	7,942,989	589,455	3.86	12.50	12,015,162	4.91	5
B02	BOILER SYSTEM	40-R1	0	0	20,768,742	20,768,741	1	0	0.00	11.11	1	-	2.5
B03	BOOMS - TIMBER	25-R2.5	0	0	388,846	180,596	208,250	10,772	2.77	15.05	325,629	3.31	4
B04	BRIDGES	65-R4	0	0	10,669,071	3,870,096	6,798,975	122,618	1.15	48.81	7,379,786	1.66	1.54
B05	BUILDINGS - OTHER	55-R1	0	0	90,855,034	37,562,147	53,292,887	1,179,999	1.30	42.02	64,072,610	1.84	1.82
B06	BUILDINGS - METAL	55-R3	0	0	51,711,740	21,085,047	30,626,673	688,416	1.33	37.86	34,658,778	1.99	1.82
B07	BUS DUCT GENERATOR	40-R4	0	0	1,969,235	792,292	1,176,943	44,549	2.26	24.66	1,498,442	2.97	2.5
B08	BUSWORK AND HARDWARE	50-R4	0	0	8,232,384	5,029,556	3,202,828	102,439	1.24	24.71	4,600,235	2.23	2
C01	CABLES - TELECONTROL	30-R4	0	0	1,719,840	1,451,618	268,222	22,368	1.30	10.79	393,321	5.69	3.33
C02	CABLE - SUBMARINE	45-R4	0	0	10,575,115	7,392,522	3,182,593	148,471	1.40	18.47	4,450,720	3.34	2.22
C03	CABLES - UNDERGROUND	60-S4	0	0	8,919,565	1,609,800	7,309,765	142,010	1.59	50.25	8,039,428	1.77	1.67
C04	CABLES - ABOVE GROUND	65-R4	0	0	15,528,122	6,963,319	8,564,803	178,898	1.15	42.46	10,140,458	1.76	1.54
C06	CAPACITORS	35-R3	0	0	994,858	862,761	132,097	9,643	0.97	8.21	695,014	1.39	2.86
C07	CHEMICAL FEED SYSTEMS	45-R4	0	0	459,814	454,501	5,314	145	0.03	6.07	13,291	1.09	2.22
C09	CIRCUIT BREAKERS	55-R2	0	0	101,580,642	15,075,719	86,504,923	1,806,757	1.78	47.54	96,844,891	1.87	1.82
C10	COMPRESSED AIR SYSTEMS	41-R1.5	0	0	17,920,884	5,596,752	12,324,132	367,706	2.05	31.57	15,677,462	2.35	2.44
C11	COMPUTERS	5-SQ	0	0	4,443,772	1,691,473	2,752,299	982,379	22.11	2.79	4,443,772	22.11	20
C12	CONDENSERS	55-R3	0	0	410,930	138,628	272,302	5,387	1.31	39.92	285,000	1.89	1.82
C13	CONDUCTOR - TRANSMISSION	60-R3	0	0	87,923,266	35,884,948	52,038,318	1,472,166	1.67	35.40	65,347,634	2.25	1.67
C14	CONDUCTOR - DISTRIBUTION	48-R3	0	0	39,466,639	20,215,878	19,250,760	602,187	1.53	28.65	23,982,195	2.51	2.08
C15	CONTROL, METERING, RELAYING	35-R3	0	0	56,800,508	17,979,885	38,820,624	1,529,007	2.69	24.16	47,737,527	3.20	2.86
C16	COOLING SYSTEMS AND WATER SUPPLY SYSTEMS	40-R1.5	0	0	21,513,302	3,866,583	17,646,719	586,570	2.73	31.12	18,411,079	3.19	2.5
C17	COUNTERPOISE	55-R2.5	0	0	6,872,703	2,213,188	4,659,515	118,512	1.72	38.49	5,667,590	2.09	1.82
C18	CRANES	70-R3	0	0	8,730,677	2,121,417	6,609,260	157,459	1.80	44.62	7,947,573	1.98	1.43
C21	CELL PHONES	3-SQ	0	0	96,037	18,382	77,655	39,991	41.64	2.01	96,037	41.64	33.33
C22	CHARGING STATION	10-SQ	0	0	887,935	49,602	838,333	90,549	10.20	9.26	887,935	10.20	10
D01	DAMS, DYKES, CANALS AND TUNNELS	110-R4	0	0	363,985,588	66,685,088	297,300,501	4,311,952	1.18	69.78	343,053,082	1.26	0.91
D02	DIESEL SYSTEMS AND ENGINES	22-L0.5	0	0	51,165,266	11,936,181	39,229,085	2,518,633	4.92	15.99	51,647,668	4.88	4.55
D03	DISCONNECT SWITCHES	55-R2.5	0	0	33,510,541	8,562,249	24,948,292	543,296	1.62	43.46	29,211,066	1.86	1.82
D04	DYKES AND LINERS	42-L1.5	0	0	2,364,261	1,869,403	494,858	18,602	0.79	22.19	695,798	2.67	2.38
E01	ELEVATORS	45-S5	0	0	89,800	89,800	0	0	0.00	2.53	0	-	2.22
E02	EMS EQUIPMENT	30-S0.5	0	0	12,390,968	12,256,363	134,604	5,859	0.05	10.04	159,468	3.67	3.33
E03	ENVIRONMENTAL EQUIPMENT	47-R3	0	0	662,703	496,700	166,003	6,098	0.92	17.58	242,418	2.52	2.13
F01	FALL ARREST EQUIPMENT	15-R4	0	0	2,718,826	2,400,499	318,326	40,330	1.48	4.76	2,243,470	1.80	6.67
F02	FENCING	52-R3	0	0	11,288,431	4,446,780	6,841,651	164,373	1.46	36.82	7,974,807	2.06	1.92
F03	FIRE FIGHTING EQUIPMENT	50-R4	0	0	21,046,779	6,927,445	14,119,334	349,941	1.66	36.46	16,513,028	2.12	2
F04	FOOTINGS AND FOUNDATIONS	65-R3	0	0	180,158,474	22,605,681	157,552,792	2,740,121	1.52	57.30	172,472,002	1.59	1.54
F06	FUEL SYSTEMS	50-R0.5	0	0	45,318,585	12,257,395	33,061,191	732,937	1.62	42.85	37,438,418	1.96	2
G01	GAS TURBINE SYSTEMS	45-R3	0	0	78,495,255	33,170,643	45,324,612	1,257,239	1.60	30.36	57,093,617	2.20	2.22
G02	GATES	80-R4	0	0	24,866,269	5,588,738	19,277,531	382,099	1.54	53.47	22,473,384	1.70	1.25
G03	GENERATORS, WINDINGS, AND POWERHOUSE	65-R2.5	0	0	260,556,616	38,655,301	221,901,315	5,687,323	2.18	43.05	214,610,829	2.65	1.54
G05	GLYCOL SYSTEMS	40-S3	0	0	579,261	477,920	101,340	5,492	0.95	13.70	147,043	3.73	2.5
G06	GOVERNORS	45-S4	0	0	7,840,659	4,166,993	3,673,666	245,076	3.13	17.15	6,562,987	3.73	2.22
G07	GROUND WIRE SYSTEM	60-R4	0	0	29,966,922	5,854,676	24,112,247	486,550	1.62	49.00	27,275,864	1.78	1.67
I02	INSTRUMENTATION	25-L0.5	0	0	8,137,029	5,197,326	2,939,703	145,146	1.78	13.95	3,547,421	4.09	4
I03	INSULATORS	35-R2.5	0	0	45,781,055	26,501,046	19,280,009	911,300	1.99	18.54	31,957,220	2.85	2.86
I04	INTAKE STRUCTURES	110-R4	0	0	25,025,336	3,714,080	21,311,256	280,363	1.12	78.56	23,814,847	1.18	0.91
I05	INVERTERS	22-S1.5	0	0	933,766	355,410	578,356	37,291	3.99	13.46	647,942	5.76	4.55
I03	LAND IMPROVEMENTS	75-R3	0	0	18,415,204	9,911,169	8,504,034	149,393	0.81	49.79	10,117,736	1.48	1.33
L04	LIGHTING SYSTEMS	50-R4	0	0	3,901,031	789,798	3,111,233	72,575	1.86	40.87	3,489,984	2.08	2
L05	LIGHTNING ARRESTORS	58-R3	0	0	7,000,276	3,027,313	3,972,963	97,102	1.39	39.82	4,844,142	2.00	1.72
L06	LINE COUPLING EQUIPMENT	24-R5	0	0	11,226	11,226	0	0	0.00	0.00	0	-	4.17
M01	MAIN BREAKERS	42-R0.5	0	0	479,851	287,440	192,411	6,520	1.36	26.96	265,238	2.46	2.38
M02	MARINE TERMINAL	65-R4	0	0	2,964,963	2,964,479	485	17	0.00	17.55	1,499	1.13	1.54
M03	MATCHCLAD SWITCHGEAR CUB/EQU 4kv/600	45-R4	0	0	3,479,227	2,014,912	1,464,315	36,894	1.06	24.65	1,915,245	1.93	2.22
M04	METER TEST SWITCHES	35-R5	0	0	58,301	53,953	4,348	640	1.10	4.95	13,519	4.73	2.86
M05	METERING TANKS	37-R3	0	0	649,880	393,096	256,784	9,829	1.51	18.89	436,326	2.25	2.7
M06	METERS - DIGITAL	18-L3	0	0	8,380,027	4,261,100	4,118,927	417,992	4.99	9.52	7,475,878	5.59	5.56
M07	METERS - ANALOGUE	25-L2	0	0	1,103,014	741,236	361,778	17,184	1.56	12.67	480,855	3.57	4
M08	METERS - OTHER	22-L4	0	0	424,617	258,858	165,759	11,467	2.70	10.73	328,511	3.49	4.55

NEWFOUNDLAND AND LABRADOR HYDRO

TABLE 1A - ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2022
DEPRECIATION RELATED TO RECOVERY OF ORIGINAL COST OF INVESTMENT
LIFE

Account	Account Description	Survivor Curve	Net Salvage Percent	Economic Planning Horizon	Original Cost as of Dec. 31, 2022	Book Depreciation Reserve	Future Accruals	Calculated Annual Amount	Calculated Annual Rate	Composite Remaining Life	Deemed Cost as of Dec. 31, 2022	Deemed Cost Accrual Rate	Whole Life Accrual Rate
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
M10	MISCELLANEOUS UNITS OF PROPERTY	25-R1.5	0	0	15,112,008	11,744,689	3,367,319	201,253	1.33	14.65	13,467,451	1.49	4
M11	MOBILE - A.T.V.'S AND SNOWMOBILES	7-L3	20	0	2,972,484	2,000,153	377,835	58,262	1.96	3.47	2,912,399	2.00	11.43
M12	MOBILE - AIR COMPRESSOR ATTACHMENT AND BOAT	20-L0	20	0	360,511	218,308	70,101	4,494	1.25	12.10	198,920	2.26	4
M13	MOBILE - ARGO'S	9-R5	20	0	243,908	74,627	120,499	18,266	7.49	5.87	243,908	7.49	8.89
M14	MOBILE - FLEX/FORK/LOAD/GRADE/MUSK/TRAILER	18-L3	20	0	10,866,107	5,483,370	3,209,515	320,408	2.95	8.93	8,639,821	3.71	4.44
M16	MULTIPLEX EQUIPMENT	18-S1.5	0	0	3,554,083	1,931,990	1,622,093	134,364	3.78	10.23	2,630,207	5.11	5.56
O01	OFFICE EQUIPMENT	20-SQ	0	0	972,862	504,991	467,871	42,898	4.41	10.09	786,841	5.45	5
O02	OFFICE FURNITURE	20-SQ	0	0	1,111,454	704,595	406,859	46,695	4.20	8.07	876,022	5.33	5
P01	P.C.B. STORAGE CONTAINER	30-R4	0	0	42,480	42,399	81	21	0.05	3.76	1,483	1.42	3.33
P02	PABX - PRIVATE AUTO BRANCH EXCHANGE	20-R4	0	0	258,657	258,657	0	0	0.00	2.00	0	-	5
P03	PENSTOCK	75-R4	0	0	79,662,143	25,712,580	53,949,563	1,303,549	1.64	44.00	66,593,526	1.96	1.33
P04	POLE CRIBS AND POLE HARDWARE	40-S2.5	0	0	140,660,243	61,165,195	79,495,048	3,028,194	2.15	25.05	105,522,939	2.87	2.5
P05	POLE STRUCTURES - WOOD	57-R3	0	0	157,018,613	63,990,058	93,028,555	2,490,597	1.59	36.24	119,815,598	2.08	1.75
P06	POLES - CONCRETE	25-R4	0	0	333,760	299,407	34,353	11,288	3.38	2.09	55,346	20.40	4
P07	POLES - WOOD	48-R1.5	0	0	87,389,247	34,562,010	52,827,237	1,334,636	1.53	36.91	65,039,108	2.05	2.08
P08	POWER LINE CARRIER	25-R3	0	0	4,570,098	3,183,761	1,386,337	88,072	1.93	11.10	2,053,927	4.29	4
P09	POWER SYSTEMS	25-L3	0	0	2,722,514	938,978	1,783,536	86,586	3.18	18.85	2,533,353	3.42	4
P11	PRINTERS	6-SQ	0	0	660,208	282,340	377,868	131,792	19.96	3.03	660,208	19.96	16.67
P12	PROTECTIVE CONTROL AND RELAY PANELS	35-R3	0	0	30,299,461	6,264,962	24,034,499	838,796	2.77	28.05	28,780,094	2.91	2.86
R01	RADIO TOWERS (WOOD OR STEEL)	48-R2	0	0	9,109,013	6,880,713	2,228,301	65,494	0.72	29.91	2,965,685	2.21	2.08
R02	RADIOS - FIXED MICROWAVE EQUIPMENT AND FIXED UHF EQUIPMENT	15-R5	0	0	5,188,518	3,168,663	2,019,855	381,722	7.36	5.38	3,568,874	10.70	6.67
R04	RADIOS - FIXED VHF EQUIPMENT AND MOBILE VHF BASE STATION	15-R3	0	0	7,464,821	515,749	6,949,071	2,748,801	36.82	2.79	3,159,501	87.00	6.67
R06	RAMPS - YARD STORAGE	25-R3	0	0	2,139,975	1,202,528	937,447	61,628	2.88	12.37	1,481,689	4.16	4
R07	REACTORS AND RESISTORS	40-S4	0	0	1,381,472	636,380	745,092	42,510	3.08	18.88	1,084,991	3.92	2.5
R08	RECLOSERS	48-R2	0	0	10,478,610	3,276,137	7,202,473	177,509	1.69	37.57	8,539,858	2.08	2.08
R09	REGULATORS	35-S0	0	0	7,739,897	2,493,500	5,246,398	184,430	2.38	26.25	6,454,937	2.86	2.86
R11	REVENUE METERING	35-R3	0	0	3,119,204	1,056,808	2,062,397	77,696	2.49	24.36	2,779,291	2.80	2.86
R12	RIGHT-OF-WAYS	65-R4	0	0	43,540,846	12,502,893	31,037,953	635,265	1.46	47.69	35,837,593	1.77	1.54
R13	ROADS	60-R4	0	0	89,075,458	32,662,383	56,413,075	2,188,123	2.46	26.88	79,975,479	2.74	1.67
R14	ROUTERS AND LAN	5-SQ	0	0	1,717,528	852,975	864,553	379,981	22.12	2.23	1,725,466	22.02	20
R15	RUNNER	55-R5	0	0	11,986,372	9,290,447	2,695,925	272,225	2.27	10.71	7,138,367	3.81	1.82
S01	SCADA EQUIPMENT	20-L3	0	0	5,428,323	2,889,797	2,538,525	194,618	3.59	11.34	3,922,458	4.96	5
S02	SECTIONALIZERS	25-R5	0	0	362,337	94,347	267,990	11,208	3.09	19.09	302,960	3.70	4
S03	SERVERS	7-SQ	0	0	295,740	140,534	155,206	44,344	14.99	3.50	295,740	14.99	14.29
S04	SEWAGE DISPOSAL SYSTEM	55-R4	0	0	2,976,966	1,996,731	980,235	27,055	0.91	31.09	1,270,591	2.13	1.82
S05	SOFTWARE	7-SQ	0	0	5,364,462	2,667,575	2,696,887	870,821	16.23	3.17	5,364,462	16.23	14.29
S06	SPILLWAY STRUCTURES AND WATER REGULATING STRUCTURES	110-R4	0	0	53,476,197	5,628,978	47,847,219	639,837	1.20	76.65	47,364,294	1.35	0.91
S07	STACKS	55-R4	0	0	7,664,903	3,353,426	4,311,477	95,185	1.24	35.78	5,203,627	1.83	1.82
S10	STATION SERVICE	50-R4	0	0	10,250,942	3,177,273	7,073,669	188,800	1.84	35.47	8,965,681	2.11	2
S11	STOP LOGS	65-R4	0	0	3,285,887	1,136,218	2,149,670	71,847	2.19	32.34	2,822,721	2.55	1.54
S12	STORAGE PALLETS AND RACKINGS	30-R3	0	0	14,403	14,403	0	0	0.00	4.62	0	-	3.33
S13	STORM AND YARD DRAINAGE	55-R4	0	0	1,308,713	1,109,454	199,260	6,160	0.47	21.66	283,067	2.18	1.82
S14	STREET LIGHTS	25-R1.5	0	0	7,300,277	3,059,605	4,240,672	200,901	2.75	18.14	6,284,846	3.20	4
S15	STRUCTURAL SUPPORTS (WOOD OR STEEL)	55-R4	0	0	18,804,123	7,887,067	10,917,056	297,407	1.58	34.11	13,540,874	2.20	1.82
S17	SUMP SYSTEMS	35-R4	0	0	1,428,383	322,996	1,105,387	36,938	2.59	28.27	1,365,263	2.71	2.86
S18	SURGE SYSTEMS	60-R4	0	0	11,721,454	4,914,139	6,807,314	133,303	1.14	39.04	8,823,360	1.51	1.67
S19	STATION SWITCHING	38-S0.5	0	0	10,921,322	5,597,642	5,323,680	233,668	2.14	21.55	7,550,594	3.09	2.63
S20	SWITCHING SYSTEMS - L.V.	60-R5	0	0	2,304,609	825,486	1,479,123	58,045	2.52	27.76	2,071,699	2.80	1.67
T01	TELECONTROL SYSTEM	27-S0.5	0	0	13,967,827	7,630,866	6,336,960	332,028	2.38	16.17	9,464,734	3.51	3.7
T02	TEST EQUIPMENT	20-SQ	0	0	1,874,295	1,016,645	857,651	80,107	4.27	9.88	1,439,160	5.57	5
T03	TOOLS AND EQUIPMENT	20-SQ	0	0	20,821,666	7,996,858	12,824,808	992,124	4.76	12.52	18,124,359	5.47	5
T04	TOWERS	65-R4	0	0	135,861,156	35,230,236	100,630,919	2,298,092	1.69	45.48	117,964,476	1.95	1.54
T05	TRANSFORMERS - OTHER, PAD MOUNT, AND STATIC EXCITATION SYSTEM AND TRANSFORMERS	50-R2.5	0	0	159,651,482	42,926,108	116,725,375	3,707,763	2.32	33.75	128,011,667	2.90	2
T07	TRANSFORMERS - POLE MOUNTED	35-L1	0	0	52,105,106	19,748,252	32,356,855	1,171,291	2.25	26.54	44,817,972	2.61	2.86
T09	TURBINES	55-R2.5	0	0	72,292,487	36,277,721	36,014,765	1,211,434	1.68	28.97	49,566,107	2.44	1.82
T10	HOLYROOD GAS TURBINE - COMBUSTOR OVERHAUL	3-SQ	0	0	3,028,926	3,028,926	0	0	0.00	0.00	3,028,926	-	33.33
T11	HOLYROOD GAS TURBINE - TURBINE OVERHAUL	6-SQ	0	0	5,725,855	4,045,192	1,680,664	1,113,394	19.45	1.51	5,725,855	19.45	16.67
T12	HOLYROOD GAS TURBINE - COMBUSTOR OVERHAUL	12-SQ	0	0	3,088,487	2,062,608	1,025,879	227,973	7.38	4.50	3,088,487	7.38	8.33
T14	TRANSFORMERS - CHARGING STATION	10-SQ	0	0	565,118	29,082	536,037	57,700	10.21	9.30	565,118	10.21	10
V01	VACUUM CLEANING SYSTEM	60-R4	0	0	72,451	68,458	3,993	198	0.27	17.61	6,099	3.25	1.67
V02	VALVES - PENSTOCK	65-R3	0	0	8,222,508	3,249,547	4,972,962	131,479	1.60	38.29	6,223,806	2.11	1.54
V03	VEHICLES - 1 TON	8-L4	15	0	159,768	110,086	25,718	9,498	5.94	2.37	159,768	5.94	10.63

NEWFOUNDLAND AND LABRADOR HYDRO

TABLE 1A - ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2022
DEPRECIATION RELATED TO RECOVERY OF ORIGINAL COST OF INVESTMENT
LIFE

Account	Account Description	Survivor Curve	Net Salvage Percent	Economic Planning Horizon	Original Cost as of Dec. 31, 2022	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Composite Remaining Life	Deemed Cost as of Dec. 31, 2022	Deemed Cost Accrual Rate	Whole Life Accrual Rate
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
V04	VEHICLES - 3/4 TON AND UNDER	7-L3	15	0	6,440,592	3,709,220	1,765,284	412,445	6.40	3.35	6,418,872	6.43	12.14
V05	VEHICLES - BOOMS/BODIES/CRANES/CAB/CHASSIS	13-L3	15	0	18,669,746	9,921,021	5,948,263	758,339	4.06	6.72	16,778,558	4.52	6.54
V06	VEHICLES - CARS, STATION WAGONS AND VAN	7-L3	15	0	1,431,284	952,312	264,280	44,590	3.12	3.19	1,394,083	3.20	12.14
V07	VEHICLES - DUMP TRUCKS	10-L5	15	0	11,535	11,535	-1,730	-1,730	-15.00	0.00	0	-	8.5
W04	WATER TREATMENT AND WATER SYSTEMS - FEED	55-R1.5	0	0	17,319,432	4,980,717	12,338,715	333,641	1.93	37.77	10,705,544	3.12	1.82
	TOTAL PLANT IN SERVICE				3,244,433,111	1,045,542,762	2,191,994,808	66,338,749	2.04		2,637,141,738	2.52	
	HOLYROOD ASSET												
H02	HRD ACCELERATED ASSET	N/A	0	0	210,273,063	178,548,729	31,724,334	0	0.00	0.00	147,272,289	0.00	0.00
	TOTAL PLANT				3,454,706,174	1,224,091,490	2,223,719,143	66,338,749	1.92		2,784,414,027	2.38	

NEWFOUNDLAND AND LABRADOR HYDRO

TABLE 1B - ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2022
DEPRECIATION RELATED TO RECOVERY OF ORIGINAL COST OF INVESTMENT AND COST OF REMOVAL COST OF REMOVAL

Account	Account Description	Survivor Curve	Net Salvage Percent	Economic Planning Horizon	Original Cost as of Dec. 31, 2022	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Deemed Cost as of Dec. 31, 2022	Deemed Cost Accrual Rate	Whole Life Accrual Rate
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
A01	AIRCRAFT LANDING STRIP	33-R2	0	0	203,513	0	0	0	0.00	70,960	0.00	0.00
A04	AUXILIARY POWER SYSTEMS	25-R4	0	0	9,809,817	0	0	0	0.00	7,869,185	0.00	0.00
B01	BATTERY AND POWER SYSTEMS	20-L1.5	0	0	15,258,791	0	0	0	0.00	12,015,162	0.00	0.00
B02	BOILER SYSTEM	40-R1	0	0	20,768,742	0	0	0	0.00	1	0.00	0.00
B03	BOOMS - TIMBER	25-R2.5	0	0	388,846	0	0	0	0.00	325,629	0.00	0.00
B04	BRIDGES	65-R4	0	0	10,669,071	0	0	0	0.00	7,379,786	0.00	0.00
B05	BUILDINGS - OTHER	55-R1	0	0	90,855,034	0	0	0	0.00	64,072,610	0.00	0.00
B06	BUILDINGS - METAL	55-R3	0	0	51,711,740	0	0	0	0.00	34,658,778	0.00	0.00
B07	BUS DUCT GENERATOR	40-R4	0	0	1,969,235	0	0	0	0.00	1,498,442	0.00	0.00
B08	BUSWORK AND HARDWARE	50-R4	-5	0	8,232,384	28,184	383,435	17,979	0.22	4,600,235	0.39	0.10
C01	CABLES - TELECONTROL	30-R4	-5	0	1,719,840	3,122	82,870	7,549	0.44	393,321	1.92	0.17
C02	CABLE - SUBMARINE	45-R4	-15	0	10,575,115	73,321	1,512,946	99,097	0.94	4,450,720	2.23	0.34
C03	CABLES - UNDERGROUND	60-S4	-10	0	8,919,565	38,676	853,280	19,276	0.22	8,039,428	0.24	0.16
C04	CABLES - ABOVE GROUND	65-R4	-10	0	15,528,122	69,702	1,483,110	41,701	0.27	10,140,458	0.41	0.15
C06	CAPACITORS	35-R3	-3	0	994,858	4,254	25,591	2,308	0.23	695,014	0.33	0.08
C07	CHEMICAL FEED SYSTEMS	45-R4	-5	0	459,814	1,295	21,695	1,294	0.28	13,291	9.74	0.11
C09	CIRCUIT BREAKERS	55-R2	-5	0	101,580,642	249,864	4,829,168	106,007	0.10	96,844,891	0.11	0.09
C10	COMPRESSED AIR SYSTEMS	41-R1.5	0	0	17,920,884	0	0	0	0.00	15,677,462	0.00	0.00
C11	COMPUTERS	5-SQ	0	0	4,443,772	0	0	0	0.00	4,443,772	0.00	0.00
C12	CONDENSERS	55-R3	-3	0	410,930	257	12,071	475	0.12	285,000	0.17	0.05
C13	CONDUCTOR - TRANSMISSION	60-R3	-5	0	87,923,266	141,750	4,254,414	142,101	0.16	65,347,634	0.22	0.08
C14	CONDUCTOR - DISTRIBUTION	48-R3	-10	0	39,466,639	218,138	3,728,526	152,346	0.39	23,982,195	0.64	0.21
C15	CONTROL, METERING, RELAYING	35-R3	0	0	56,800,508	0	0	0	0.00	47,737,527	0.00	0.00
C16	COOLING SYSTEMS AND WATER SUPPLY SYSTEMS	40-R1.5	0	0	21,513,302	3,044,137	-3,044,137	-153,922	-0.72	18,411,079	-0.84	0.00
C17	COUNTERPOISE	55-R2.5	0	0	6,872,703	0	0	0	0.00	5,667,590	0.00	0.00
C18	CRANES	70-R3	0	0	8,730,677	0	0	0	0.00	7,947,573	0.00	0.00
C21	CELL PHONES	3-SQ	0	0	96,037	0	0	0	0.00	96,037	0.00	0.00
C22	CHARGING STATION	10-SQ	0	0	887,935	0	0	0	0.00	887,935	0.00	0.00
D01	DAMS, DYKES, CANALS AND TUNNELS	110-R4	-5	0	363,985,588	0	18,199,279	265,963	0.07	343,053,082	0.08	0.04
D02	DIESEL SYSTEMS AND ENGINES	22-L0.5	-15	0	51,165,266	428,713	7,246,077	505,844	0.99	51,647,668	0.98	0.68
D03	DISCONNECT SWITCHES	55-R2.5	0	0	33,510,541	0	0	0	0.00	29,211,066	0.00	0.00
D04	DYKES AND LINERS	42-L1.5	-5	0	2,364,261	7,509	110,704	5,119	0.22	695,798	0.74	0.12
E01	ELEVATORS	45-S5	0	0	89,800	0	0	0	0.00	0	0.00	0.00
E02	EMS EQUIPMENT	30-S0.5	0	0	12,390,968	0	0	0	0.00	159,468	0.00	0.00
E03	ENVIRONMENTAL EQUIPMENT	47-R3	0	0	662,703	0	0	0	0.00	242,418	0.00	0.00
F01	FALL ARREST EQUIPMENT	15-R4	0	0	2,718,826	0	0	0	0.00	2,243,470	0.00	0.00
F02	FENCING	52-R3	0	0	11,288,431	0	0	0	0.00	7,974,807	0.00	0.00
F03	FIRE FIGHTING EQUIPMENT	50-R4	0	0	21,046,779	0	0	0	0.00	16,513,028	0.00	0.00
F04	FOOTINGS AND FOUNDATIONS	65-R3	0	0	180,158,474	0	0	0	0.00	172,472,002	0.00	0.00
F06	FUEL SYSTEMS	50-R0.5	-15	0	45,318,585	142,891	6,654,897	156,063	0.34	37,438,418	0.42	0.30
G01	GAS TURBINE SYSTEMS	45-R3	-5	0	78,495,255	47,557	3,877,206	127,815	0.16	57,093,617	0.22	0.11
G02	GATES	80-R4	0	0	24,866,269	0	0	0	0.00	22,473,384	0.00	0.00
G03	GENERATORS, WINDINGS, AND POWERHOUSE	65-R2.5	-5	0	260,556,616	44,869,335	-31,841,505	-1,176,829	-0.45	214,610,829	-0.55	0.08
G05	GLYCOL SYSTEMS	40-S3	-5	0	579,261	2,470	26,493	1,988	0.34	147,043	1.35	0.13
G06	GOVENORS	45-S4	-10	0	7,840,659	64,598	719,468	60,891	0.78	6,562,987	0.93	0.22
G07	GROUND WIRE SYSTEM	60-R4	-5	0	29,966,922	55,536	1,442,810	32,834	0.11	27,275,864	0.12	0.08
I02	INSTRUMENTATION	25-L0.5	0	0	8,137,029	0	0	0	0.00	3,547,421	0.00	0.00
I03	INSULATORS	35-R2.5	0	0	45,781,055	0	0	0	0.00	31,957,220	0.00	0.00
I04	INTAKE STRUCTURES	110-R4	0	0	25,025,336	0	0	0	0.00	23,814,847	0.00	0.00
I05	INVERTERS	22-S1.5	-5	0	933,766	13,142	33,547	5,715	0.61	647,942	0.88	0.22
L03	LAND IMPROVEMENTS	75-R3	0	0	18,415,204	0	0	0	0.00	10,117,736	0.00	0.00
L04	LIGHTING SYSTEMS	50-R4	0	0	3,901,031	0	0	0	0.00	3,489,984	0.00	0.00
L05	LIGHTNING ARRESTORS	58-R3	0	0	7,000,276	0	0	0	0.00	4,844,142	0.00	0.00
L06	LINE COUPLING EQUIPMENT	24-R5	0	0	11,226	0	0	0	0.00	0	0.00	0.00
M01	MAIN BREAKERS	42-R0.5	-5	0	479,851	1,285	22,708	818	0.17	265,238	0.31	0.12
M02	MARINE TERMINAL	65-R4	-5	0	2,964,963	6	148,242	7,041	0.24	1,499	469.61	0.08
M03	METALCLAD SWITCHGEAR CUB/EQU 4kw/600	45-R4	-5	0	3,479,227	8,637	165,325	6,260	0.18	1,915,245	0.33	0.11
M04	METER TEST SWITCHES	35-R5	0	0	58,301	0	0	0	0.00	13,519	0.00	0.00
M05	METERING TANKS	37-R3	0	0	649,880	0	0	0	0.00	436,326	0.00	0.00

NEWFOUNDLAND AND LABRADOR HYDRO

TABLE 1B - ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2022
DEPRECIATION RELATED TO RECOVERY OF ORIGINAL COST OF INVESTMENT AND COST OF REMOVAL COST OF REMOVAL

Account	Account Description	Survivor Curve	Net Salvage Percent	Economic Planning Horizon	Original Cost as of Dec. 31, 2022	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Deemed Cost as of Dec. 31, 2022	Deemed Cost Accrual Rate	Whole Life Accrual Rate
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
M06	METERS - DIGITAL	18-L3	0	0	8,380,027	0	0	0	0.00	7,475,878	0.00	0.00
M07	METERS - ANALOGUE	25-L2	0	0	1,103,014	0	0	0	0.00	480,855	0.00	0.00
M08	METERS - OTHER	22-L4	0	0	424,617	0	0	0	0.00	328,511	0.00	0.00
M10	MISCELLANEOUS UNITS OF PROPERTY	25-R1.5	0	0	15,112,008	0	0	0	0.00	13,467,451	0.00	0.00
M11	MOBILE - A.T.V.'S AND SNOWMOBILES	7-L3	20	0	2,972,484	0	-594,497	0	0.00	2,912,399	0.00	0.00
M12	MOBILE - AIR COMPRESSOR ATTACHMENT AND BOAT	20-L0	20	0	360,511	0	0	0	0.00	198,920	0.00	0.00
M13	MOBILE - ARGO'S	9-R5	20	0	243,908	0	0	0	0.00	243,908	0.00	0.00
M14	MOBILE - FLEX/FORK/LOAD/GRADE/MUSK/TRAILER	18-L3	20	0	10,866,107	0	0	0	0.00	8,639,821	0.00	0.00
M16	MULTIPLEX EQUIPMENT	18-S1.5	0	0	3,554,083	0	0	0	0.00	2,630,207	0.00	0.00
O01	OFFICE EQUIPMENT	20-SQ	0	0	972,862	0	0	0	0.00	786,841	0.00	0.00
O02	OFFICE FURNITURE	20-SQ	0	0	1,111,454	0	0	0	0.00	876,022	0.00	0.00
P01	P.C.B. STORAGE CONTAINER	30-R4	0	0	42,480	0	0	0	0.00	1,483	0.00	0.00
P02	PABX - PRIVATE AUTO BRANCH EXCHANGE	20-R4	0	0	258,657	0	0	0	0.00	0	0.00	0.00
P03	PENSTOCK	75-R4	-5	0	79,662,143	0	3,983,107	108,192	0.14	66,593,526	0.16	0.07
P04	POLE CRIBS AND POLE HARDWARE	40-S2.5	-25	0	140,660,243	1,378,209	33,786,852	1,547,584	1.10	105,522,939	1.47	0.63
P05	POLE STRUCTURES - WOOD	57-R3	-10	0	157,018,613	246,397	15,455,464	488,306	0.31	119,815,598	0.41	0.18
P06	POLES - CONCRETE	25-R4	-25	0	333,760	29,693	53,747	41,881	12.55	55,346	75.67	1.00
P07	POLES - WOOD	48-R1.5	-25	0	87,389,247	547,463	21,299,848	605,945	0.69	65,039,108	0.93	0.52
P08	POWER LINE CARRIER	25-R3	-5	0	4,570,098	28,885	199,620	20,199	0.44	2,053,927	0.98	0.20
P09	POWER SYSTEMS	25-L3	0	0	2,722,514	0	0	0	0.00	2,533,353	0.00	0.00
P11	PRINTERS	6-SQ	0	0	660,208	0	0	0	0.00	660,208	0.00	0.00
P12	PROTECTIVE CONTROL AND RELAY PANELS	35-R3	0	0	30,299,461	0	0	0	0.00	28,780,094	0.00	0.00
R01	RADIO TOWERS (WOOD OR STEEL)	48-R2	-5	0	9,109,013	33,431	422,020	13,165	0.14	2,965,685	0.44	0.11
R02	RADIOS - FIXED MICROWAVE EQUIPMENT AND FIXED UHF EQUIPMENT	15-R5	0	0	5,188,518	76,661	-76,661	-51,897	-1.00	3,568,874	-1.45	0.00
R04	RADIOS - FIXED VHF EQUIPMENT AND MOBILE VHF BASE STATION	15-R3	0	0	7,464,821	6,857,865	-6,857,865	-2,732,921	-36.61	3,159,501	-86.50	0.00
R06	RAMPS - YARD STORAGE	25-R3	0	0	2,139,975	0	0	0	0.00	1,481,689	0.00	0.00
R07	REACTORS AND RESISTORS	40-S4	0	0	1,381,472	0	0	0	0.00	1,084,991	0.00	0.00
R08	RECLOSERS	48-R2	-5	0	10,478,610	28,973	494,957	13,948	0.13	8,539,858	0.16	0.11
R09	REGULATORS	35-S0	-5	0	7,739,897	26,611	360,384	15,204	0.20	6,454,937	0.24	0.14
R11	REVENUE METERING	35-R3	0	0	3,119,204	0	0	0	0.00	2,779,291	0.00	0.00
R12	RIGHT-OF-WAYS	65-R4	0	0	43,540,846	0	0	0	0.00	35,837,593	0.00	0.00
R13	ROADS	60-R4	0	0	89,075,458	0	0	0	0.00	79,975,479	0.00	0.00
R14	ROUTERS AND LAN	5-SQ	0	0	1,717,528	0	0	0	0.00	1,725,466	0.00	0.00
R15	RUNNER	55-R5	0	0	11,986,372	0	0	0	0.00	7,138,367	0.00	0.00
S01	SCADA EQUIPMENT	20-L3	0	0	5,428,323	0	0	0	0.00	3,922,458	0.00	0.00
S02	SECTIONALIZERS	25-R5	0	0	362,337	0	0	0	0.00	302,960	0.00	0.00
S03	SERVERS	7-SQ	0	0	295,740	0	0	0	0.00	295,740	0.00	0.00
S04	SEWAGE DISPOSAL SYSTEM	55-R4	-5	0	2,976,966	4,818	144,030	4,481	0.15	1,270,591	0.35	0.09
S05	SOFTWARE	7-SQ	0	0	5,364,462	0	0	0	0.00	5,364,462	0.00	0.00
S06	SPILLWAY STRUCTURES AND WATER REGULATING STRUCTURES	110-R4	-5	0	53,476,197	0	2,673,810	36,081	0.07	47,364,294	0.08	0.04
S07	STACKS	55-R4	-5	0	7,664,903	16,469	366,776	11,571	0.15	5,203,627	0.22	0.09
S10	STATION SERVICE	50-R4	-5	0	10,250,942	24,875	487,672	20,404	0.20	8,965,681	0.23	0.10
S11	STOP LOGS	65-R4	0	0	3,285,887	0	0	0	0.00	2,822,721	0.00	0.00
S12	STORAGE PALLETS AND RACKINGS	30-R3	0	0	14,403	0	0	0	0.00	0	0.00	0.00
S13	STORM AND YARD DRAINAGE	55-R4	0	0	1,308,713	0	0	0	0.00	283,067	0.00	0.00
S14	STREET LIGHTS	25-R1.5	-10	0	7,300,277	35,941	694,087	40,059	0.55	6,284,846	0.64	0.40
S15	STRUCTURAL SUPPORTS (WOOD OR STEEL)	55-R4	-5	0	18,804,123	39,329	900,877	36,025	0.19	13,540,874	0.27	0.09
S17	SUMP SYSTEMS	35-R4	0	0	1,428,383	0	0	0	0.00	1,365,263	0.00	0.00
S18	SURGE SYSTEMS	60-R4	0	0	11,721,454	0	0	0	0.00	8,823,360	0.00	0.00
S19	STATION SWITCHING	38-S0.5	0	0	10,921,322	0	0	0	0.00	7,550,594	0.00	0.00
S20	SWITCHING SYSTEMS - L.V.	60-R5	0	0	2,304,609	0	0	0	0.00	2,071,699	0.00	0.00
T01	TELECONTROL SYSTEM	27-S0.5	0	0	13,967,827	0	0	0	0.00	9,464,734	0.00	0.00
T02	TEST EQUIPMENT	20-SQ	0	0	1,874,295	0	0	0	0.00	1,439,160	0.00	0.00
T03	TOOLS AND EQUIPMENT	20-SQ	0	0	20,821,666	0	0	0	0.00	18,124,359	0.00	0.00
T04	TOWERS	65-R4	0	0	135,861,156	0	0	0	0.00	117,964,476	0.00	0.00
T05	TRANSFORMERS - OTHER, PAD MOUNT, AND STATIC EXCITATION SYSTEM AND TRANSFORMERS	50-R2.5	-5	0	159,651,482	14,383,730	-6,401,155	-518,619	-0.32	128,011,667	-0.41	0.10
T07	TRANSFORMERS - POLE MOUNTED	35-L1	-10	0	52,105,106	205,518	5,004,993	195,484	0.38	44,817,972	0.44	0.28
T09	TURBINES	55-R2.5	-20	0	72,292,487	0	14,458,497	603,343	0.83	49,566,107	1.22	0.36
T10	HOLYROOD GAS TURBINE - COMBUSTOR OVERHAUL	3-SQ	0	0	3,028,926	0	0	0	0.00	3,028,926	0.00	0.00

NEWFOUNDLAND AND LABRADOR HYDRO

TABLE 1B - ESTIMATED SURVIVOR CURVE, ORIGINAL COST, BOOK DEPRECIATION RESERVE AND CALCULATED ANNUAL DEPRECIATION ACCRUALS RELATED TO UTILITY PLANT AS OF DECEMBER 31, 2022
DEPRECIATION RELATED TO RECOVERY OF ORIGINAL COST OF INVESTMENT AND COST OF REMOVAL COST OF REMOVAL

Account	Account Description	Survivor Curve	Net Salvage Percent	Economic Planning Horizon	Original Cost as of Dec. 31, 2022	Book Depreciation Reserve	Future Accruals	Calculated Annual Accrual Amount	Calculated Annual Accrual Rate	Deemed Cost as of Dec. 31, 2022	Deemed Cost Accrual Rate	Whole Life Accrual Rate
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
T11	HOLYROOD GAS TURBINE - TURBINE OVERHAUL	6-SQ	0	0	5,725,855	0	0	0	0.00	5,725,855	0.00	0.00
T12	HOLYROOD GAS TURBINE - COMBUSTOR OVERHAUL	12-SQ	0	0	3,088,487	0	0	0	0.00	3,088,487	0.00	0.00
T14	TRANSFORMERS - CHARGING STATION	10-SQ	0	0	565,118	0	0	0	0.00	565,118	0.00	0.00
V01	VACUUM CLEANING SYSTEM	60-R4	0	0	72,451	0	0	0	0.00	6,099	0.00	0.00
V02	VALVES - PENSTOCK	65-R3	0	0	8,222,508	0	0	0	0.00	6,223,806	0.00	0.00
V03	VEHICLES - 1 TON	8-L4	15	0	159,768	0	-23,965	0	0.00	159,768	0.00	0.00
V04	VEHICLES - 3/4 TON AND UNDER	7-L3	15	0	6,440,592	0	-966,089	0	0.00	6,418,872	0.00	0.00
V05	VEHICLES - BOOMS/BODIES/Cranes/CAB/CHASSIS	13-L3	15	0	18,669,746	0	-2,800,462	0	0.00	16,778,558	0.00	0.00
V06	VEHICLES - CARS, STATION WAGONS AND VAN	7-L3	15	0	1,431,284	0	-214,693	0	0.00	1,394,083	0.00	0.00
V07	VEHICLES - DUMP TRUCKS	10-L5	15	0	11,535	0	-1,730	0	0.00	0	0.00	0.00
W04	WATER TREATMENT AND WATER SYSTEMS - FEED	55-R1.5	-5	0	17,319,432	3,543,411	-2,677,439	-122,132	-0.71	10,705,544	-1.14	0.09
	TOTAL PLANT IN SERVICE				3,244,433,111	77,022,659	101,120,405	812,036	0.03	2,637,141,738	0.03	
	HOLYROOD ASSET											
H02	HRD ACCELERATED ASSET	N/A	0	0	210,273,063	0	0	0	0.00	147,272,289	0.00	0.00
	TOTAL PLANT				3,454,706,174	77,022,659	101,120,405	812,036	0.02	2,784,414,027	0.03	



SECTION 6

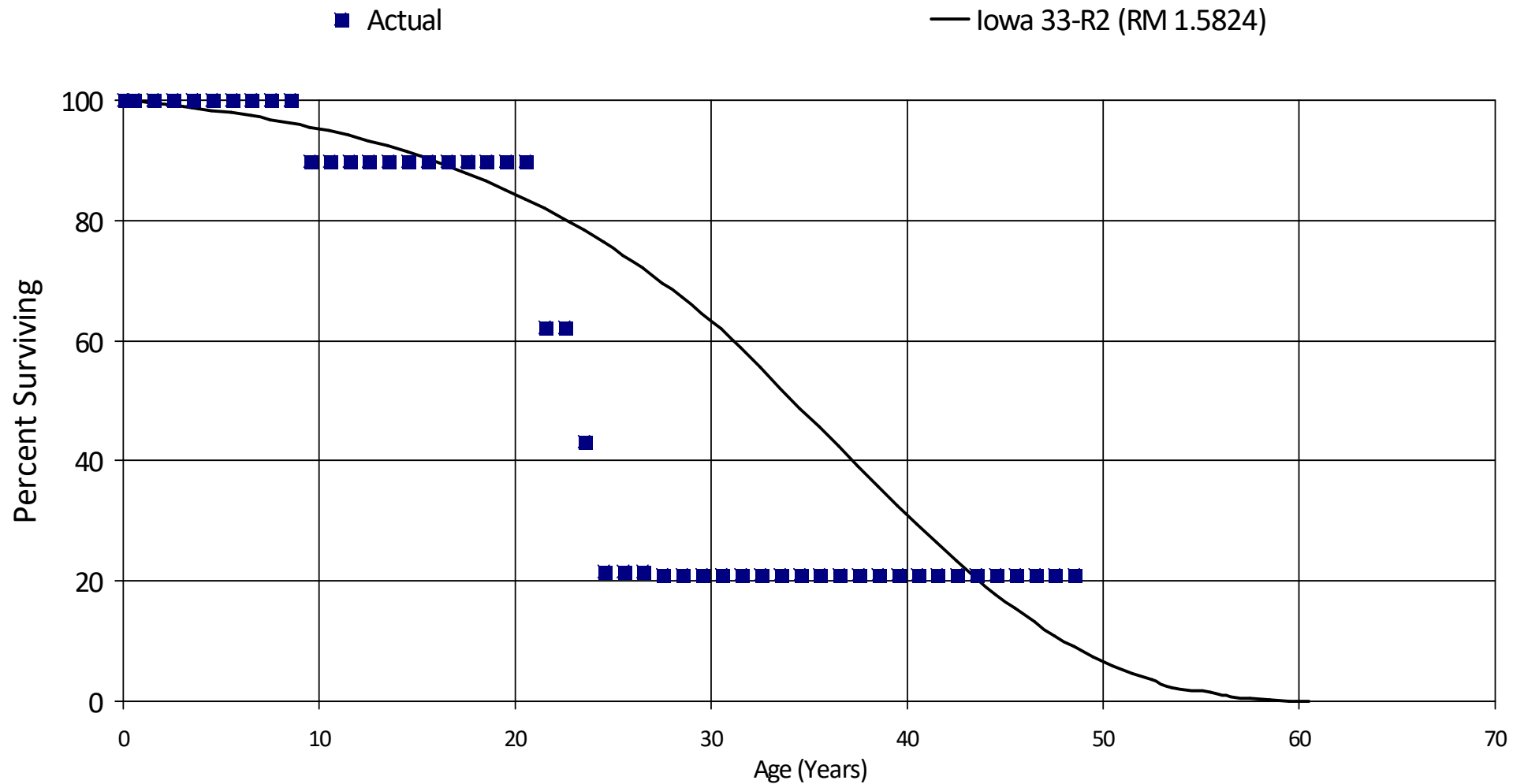
6 RETIREMENT RATE ANALYSIS

NEWFOUNDLAND AND LABRADOR HYDRO

Account A01 - Aircraft Landing Strip

Placement Band - 1968 - 2021 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account A01 - Aircraft Landing Strip

Placement Band - 1968 - 2021 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	415,645	0	0.00000	1.00000	100.00
0.5	415,645	0	0.00000	1.00000	100.00
1.5	396,074	0	0.00000	1.00000	100.00
2.5	396,074	0	0.00000	1.00000	100.00
3.5	396,074	0	0.00000	1.00000	100.00
4.5	396,074	0	0.00000	1.00000	100.00
5.5	396,074	0	0.00000	1.00000	100.00
6.5	344,685	0	0.00000	1.00000	100.00
7.5	344,685	0	0.00000	1.00000	100.00
8.5	344,685	35,373	0.10262	0.89738	100.00
9.5	309,312	0	0.00000	1.00000	89.74
10.5	309,312	0	0.00000	1.00000	89.74
11.5	309,312	0	0.00000	1.00000	89.74
12.5	309,312	0	0.00000	1.00000	89.74
13.5	309,312	0	0.00000	1.00000	89.74
14.5	309,312	0	0.00000	1.00000	89.74
15.5	309,312	0	0.00000	1.00000	89.74
16.5	230,922	0	0.00000	1.00000	89.74
17.5	230,922	0	0.00000	1.00000	89.74
18.5	230,922	0	0.00000	1.00000	89.74
19.5	230,922	0	0.00000	1.00000	89.74
20.5	230,922	70,746	0.30636	0.69364	89.74
21.5	160,176	0	0.00000	1.00000	62.25
22.5	160,176	48,887	0.30521	0.69479	62.25
23.5	111,289	55,677	0.50029	0.49971	43.25
24.5	55,612	0	0.00000	1.00000	21.61
25.5	55,612	0	0.00000	1.00000	21.61
26.5	55,612	1,449	0.02606	0.97394	21.61

NEWFOUNDLAND AND LABRADOR HYDRO

Account A01 - Aircraft Landing Strip

Placement Band - 1968 - 2021 Experience Band - 1992 - 2022

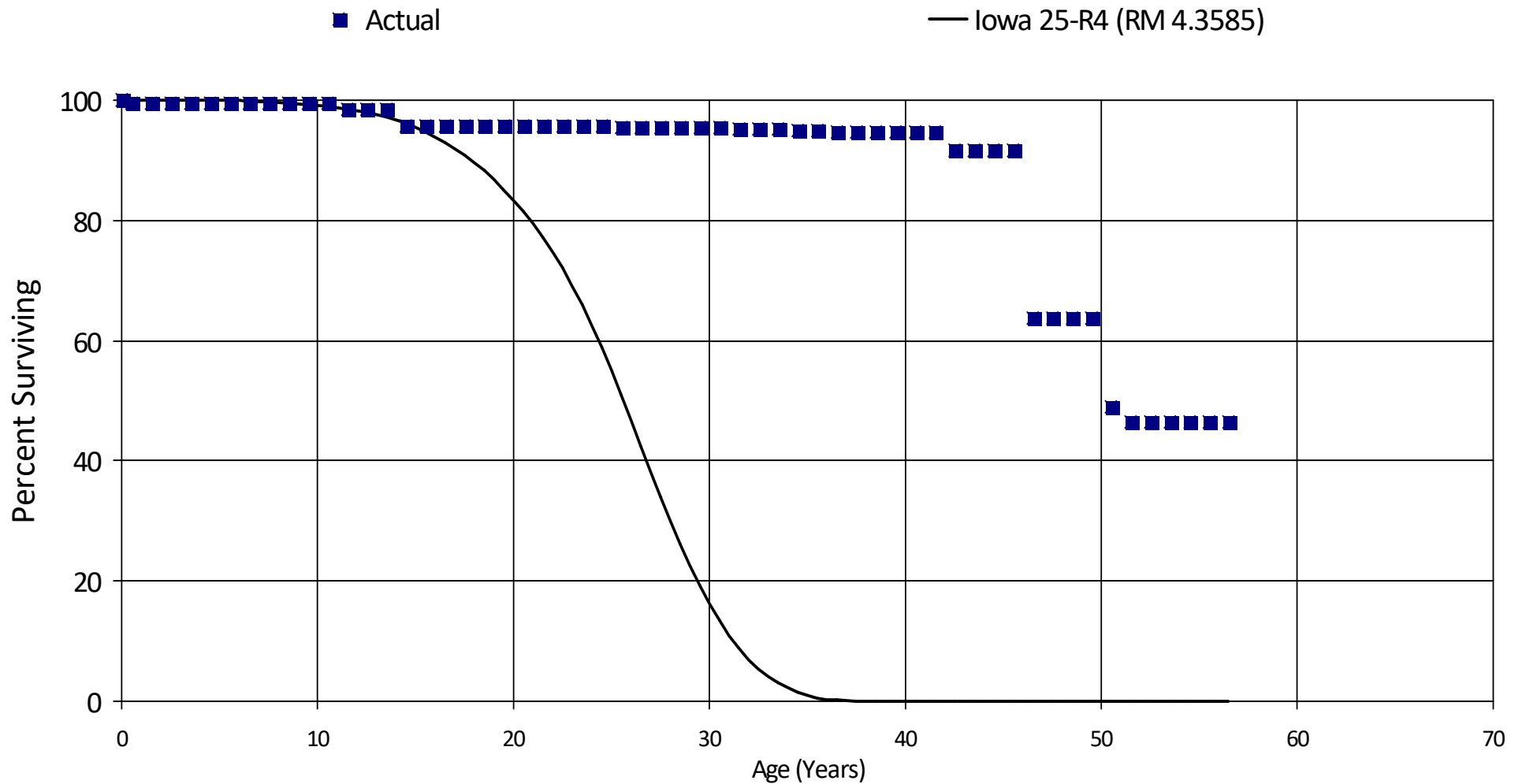
27.5	54,163	0	0.00000	1.00000	21.05
28.5	7,976	0	0.00000	1.00000	21.05
29.5	7,976	0	0.00000	1.00000	21.05
30.5	7,976	0	0.00000	1.00000	21.05
31.5	7,976	0	0.00000	1.00000	21.05
32.5	7,976	0	0.00000	1.00000	21.05
33.5	7,976	0	0.00000	1.00000	21.05
34.5	7,976	0	0.00000	1.00000	21.05
35.5	7,976	0	0.00000	1.00000	21.05
36.5	7,976	0	0.00000	1.00000	21.05
37.5	7,976	0	0.00000	1.00000	21.05
38.5	7,976	0	0.00000	1.00000	21.05
39.5	7,976	0	0.00000	1.00000	21.05
40.5	7,976	0	0.00000	1.00000	21.05
41.5	7,976	0	0.00000	1.00000	21.05
42.5	7,976	0	0.00000	1.00000	21.05
43.5	7,976	0	0.00000	1.00000	21.05
44.5	7,976	0	0.00000	1.00000	21.05
45.5	7,976	0	0.00000	1.00000	21.05
46.5	7,976	0	0.00000	1.00000	21.05
47.5	7,976	0	0.00000	1.00000	21.05
48.5	0	0	0.00000	0.00000	21.05
Totals:		212,132			

NEWFOUNDLAND AND LABRADOR HYDRO

Account A04 - Auxiliary Power Systems

Placement Band - 1958 - 2022 Experience Band - 2003 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account A04 - Auxiliary Power Systems

Placement Band - 1958 - 2022 Experience Band - 2003 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	10,094,646	56,321	0.00558	0.99442	100.00
0.5	9,838,844	0	0.00000	1.00000	99.44
1.5	9,838,844	0	0.00000	1.00000	99.44
2.5	9,392,818	0	0.00000	1.00000	99.44
3.5	9,254,359	0	0.00000	1.00000	99.44
4.5	7,444,576	0	0.00000	1.00000	99.44
5.5	6,115,094	0	0.00000	1.00000	99.44
6.5	5,927,827	0	0.00000	1.00000	99.44
7.5	4,590,517	0	0.00000	1.00000	99.44
8.5	4,590,517	0	0.00000	1.00000	99.44
9.5	3,788,040	0	0.00000	1.00000	99.44
10.5	3,575,024	39,015	0.01091	0.98909	99.44
11.5	3,476,183	0	0.00000	1.00000	98.36
12.5	3,186,711	0	0.00000	1.00000	98.36
13.5	3,186,711	88,784	0.02786	0.97214	98.36
14.5	3,097,927	0	0.00000	1.00000	95.62
15.5	3,097,927	0	0.00000	1.00000	95.62
16.5	3,097,927	0	0.00000	1.00000	95.62
17.5	3,000,384	0	0.00000	1.00000	95.62
18.5	3,000,384	0	0.00000	1.00000	95.62
19.5	2,551,986	0	0.00000	1.00000	95.62
20.5	2,551,986	0	0.00000	1.00000	95.62
21.5	2,183,718	0	0.00000	1.00000	95.62
22.5	2,035,689	0	0.00000	1.00000	95.62
23.5	2,019,633	0	0.00000	1.00000	95.62
24.5	2,019,633	4,435	0.00220	0.99780	95.62
25.5	2,015,198	0	0.00000	1.00000	95.41
26.5	2,015,198	1,465	0.00073	0.99927	95.41

NEWFOUNDLAND AND LABRADOR HYDRO

Account A04 - Auxiliary Power Systems

Placement Band - 1958 - 2022 Experience Band - 2003 - 2022

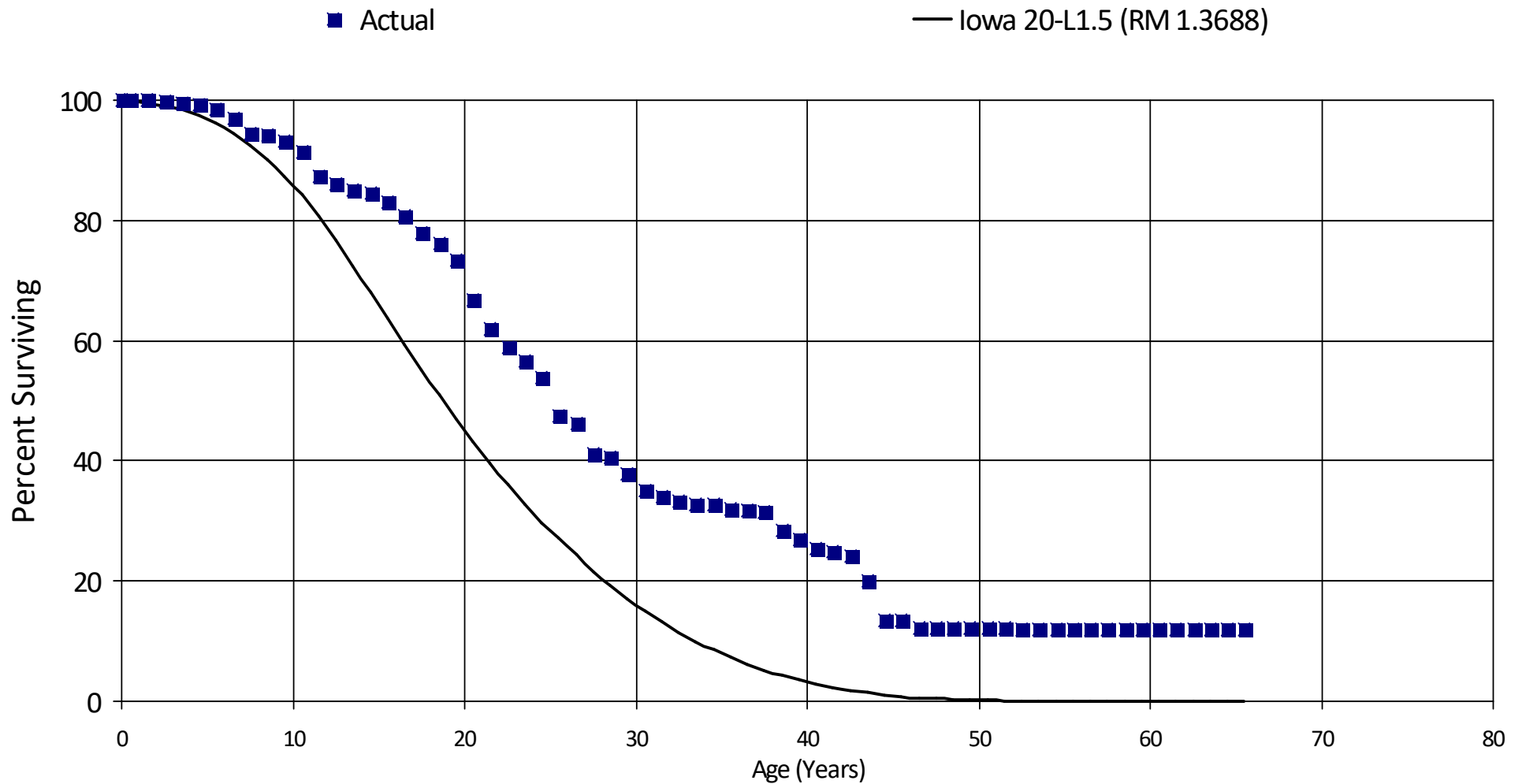
27.5	2,013,733	0	0.00000	1.00000	95.34
28.5	2,013,733	0	0.00000	1.00000	95.34
29.5	2,013,733	0	0.00000	1.00000	95.34
30.5	1,950,008	2,233	0.00115	0.99885	95.34
31.5	1,947,775	0	0.00000	1.00000	95.23
32.5	1,947,775	0	0.00000	1.00000	95.23
33.5	1,267,635	3,242	0.00256	0.99744	95.23
34.5	1,119,315	0	0.00000	1.00000	94.99
35.5	1,119,315	2,388	0.00213	0.99787	94.99
36.5	1,116,927	0	0.00000	1.00000	94.79
37.5	1,116,927	0	0.00000	1.00000	94.79
38.5	895,853	0	0.00000	1.00000	94.79
39.5	852,355	0	0.00000	1.00000	94.79
40.5	438,817	0	0.00000	1.00000	94.79
41.5	438,817	14,976	0.03413	0.96587	94.79
42.5	423,841	0	0.00000	1.00000	91.55
43.5	324,067	0	0.00000	1.00000	91.55
44.5	322,067	0	0.00000	1.00000	91.55
45.5	322,067	98,000	0.30428	0.69572	91.55
46.5	224,067	289	0.00129	0.99871	63.69
47.5	223,778	0	0.00000	1.00000	63.61
48.5	218,729	0	0.00000	1.00000	63.61
49.5	218,729	49,845	0.22788	0.77212	63.61
50.5	168,884	9,305	0.05510	0.94490	49.11
51.5	159,579	0	0.00000	1.00000	46.40
52.5	159,579	0	0.00000	1.00000	46.40
53.5	159,579	0	0.00000	1.00000	46.40
54.5	159,579	0	0.00000	1.00000	46.40
55.5	159,579	0	0.00000	1.00000	46.40
56.5	0	0	0.00000	0.00000	46.40
Totals:		370,298			

NEWFOUNDLAND AND LABRADOR HYDRO

Account B01 - Battery and Power Systems

Placement Band - 1956 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account B01 - Battery and Power Systems

Placement Band - 1956 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	20,262,723	0	0.00000	1.00000	100.00
0.5	20,008,582	0	0.00000	1.00000	100.00
1.5	19,490,181	31,712	0.00163	0.99837	100.00
2.5	18,545,642	47,671	0.00257	0.99743	99.84
3.5	17,100,957	40,274	0.00236	0.99764	99.58
4.5	16,104,841	159,679	0.00991	0.99009	99.34
5.5	14,468,820	207,966	0.01437	0.98563	98.36
6.5	13,878,361	352,626	0.02541	0.97459	96.95
7.5	12,620,775	34,448	0.00273	0.99727	94.49
8.5	12,273,333	139,411	0.01136	0.98864	94.23
9.5	11,377,009	212,946	0.01872	0.98128	93.16
10.5	10,323,908	468,048	0.04534	0.95466	91.42
11.5	9,318,420	137,109	0.01471	0.98529	87.28
12.5	8,651,036	108,699	0.01256	0.98744	86.00
13.5	7,843,439	45,780	0.00584	0.99416	84.92
14.5	7,414,061	130,683	0.01763	0.98237	84.42
15.5	6,857,768	182,368	0.02659	0.97341	82.93
16.5	6,382,141	228,226	0.03576	0.96424	80.72
17.5	5,777,679	124,507	0.02155	0.97845	77.83
18.5	5,398,818	190,247	0.03524	0.96476	76.15
19.5	3,890,553	352,866	0.09070	0.90930	73.47
20.5	3,531,076	252,110	0.07140	0.92860	66.81
21.5	2,878,543	148,329	0.05153	0.94847	62.04
22.5	2,648,684	104,526	0.03946	0.96054	58.84
23.5	2,536,145	117,643	0.04639	0.95361	56.52
24.5	2,256,685	266,372	0.11804	0.88196	53.90
25.5	1,978,553	52,049	0.02631	0.97369	47.54
26.5	1,876,774	208,599	0.11115	0.88885	46.29

NEWFOUNDLAND AND LABRADOR HYDRO

Account B01 - Battery and Power Systems

Placement Band - 1956 - 2022 Experience Band - 1991 - 2022

27.5	1,650,295	25,667	0.01555	0.98445	41.14
28.5	1,599,528	107,122	0.06697	0.93303	40.50
29.5	1,492,406	108,285	0.07256	0.92744	37.79
30.5	1,236,260	35,619	0.02881	0.97119	35.05
31.5	1,200,641	23,696	0.01974	0.98026	34.04
32.5	941,150	17,400	0.01849	0.98151	33.37
33.5	909,937	0	0.00000	1.00000	32.75
34.5	903,390	22,894	0.02534	0.97466	32.75
35.5	878,323	6,393	0.00728	0.99272	31.92
36.5	871,930	6,470	0.00742	0.99258	31.69
37.5	754,397	72,512	0.09612	0.90388	31.45
38.5	681,885	33,787	0.04955	0.95045	28.43
39.5	648,098	39,925	0.06160	0.93840	27.02
40.5	585,490	13,700	0.02340	0.97660	25.36
41.5	571,790	17,094	0.02990	0.97010	24.77
42.5	268,144	44,588	0.16628	0.83372	24.03
43.5	214,593	70,455	0.32832	0.67168	20.03
44.5	129,435	0	0.00000	1.00000	13.45
45.5	129,435	12,425	0.09599	0.90401	13.45
46.5	117,010	0	0.00000	1.00000	12.16
47.5	110,963	0	0.00000	1.00000	12.16
48.5	110,963	0	0.00000	1.00000	12.16
49.5	110,612	0	0.00000	1.00000	12.16
50.5	110,612	0	0.00000	1.00000	12.16
51.5	49,174	1,004	0.02042	0.97958	12.16
52.5	48,170	0	0.00000	1.00000	11.91
53.5	48,170	0	0.00000	1.00000	11.91
54.5	1,466	0	0.00000	1.00000	11.91
55.5	1,466	0	0.00000	1.00000	11.91
56.5	1,466	0	0.00000	1.00000	11.91
57.5	1,466	0	0.00000	1.00000	11.91

NEWFOUNDLAND AND LABRADOR HYDRO

Account B01 - Battery and Power Systems

Placement Band - 1956 - 2022 Experience Band - 1991 - 2022

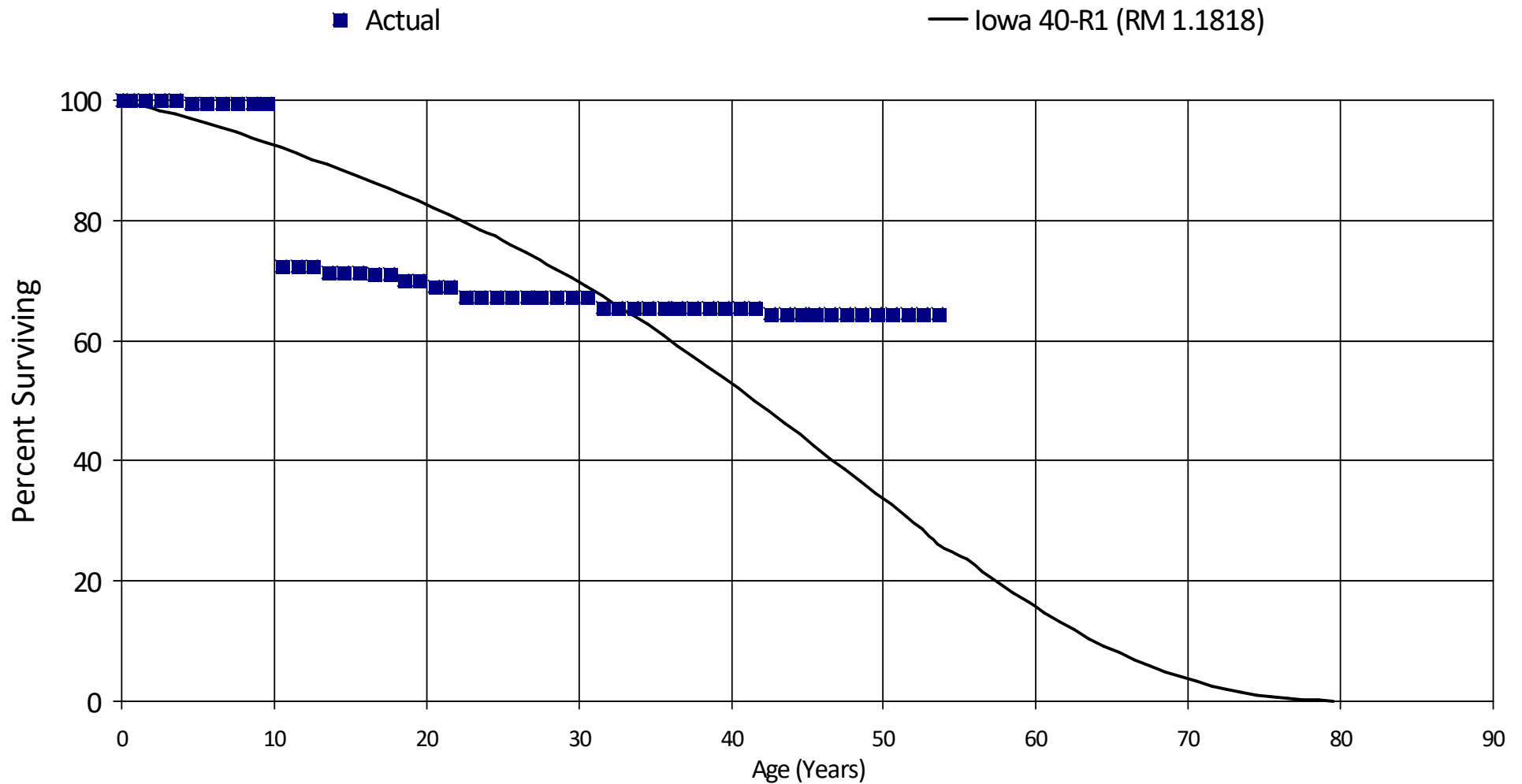
58.5	1,466	0	0.00000	1.00000	11.91
59.5	1,466	0	0.00000	1.00000	11.91
60.5	1,466	0	0.00000	1.00000	11.91
61.5	1,466	0	0.00000	1.00000	11.91
62.5	1,466	0	0.00000	1.00000	11.91
63.5	1,466	0	0.00000	1.00000	11.91
64.5	1,466	0	0.00000	1.00000	11.91
65.5	1,466	0	0.00000	1.00000	11.91
Totals:		5,003,930			

NEWFOUNDLAND AND LABRADOR HYDRO

Account B02 - Boiler System

Placement Band - 1968 - 1999 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account B02 - Boiler System

Placement Band - 1968 - 1999 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	32,050,434	0	0.00000	1.00000	100.00
0.5	32,050,434	0	0.00000	1.00000	100.00
1.5	32,050,434	0	0.00000	1.00000	100.00
2.5	32,050,434	0	0.00000	1.00000	100.00
3.5	32,050,434	180,285	0.00563	0.99437	100.00
4.5	31,870,149	0	0.00000	1.00000	99.44
5.5	31,870,149	0	0.00000	1.00000	99.44
6.5	31,870,149	0	0.00000	1.00000	99.44
7.5	31,870,149	0	0.00000	1.00000	99.44
8.5	31,870,149	0	0.00000	1.00000	99.44
9.5	31,870,149	8,721,695	0.27366	0.72634	99.44
10.5	23,148,454	0	0.00000	1.00000	72.23
11.5	23,148,454	0	0.00000	1.00000	72.23
12.5	23,148,454	328,432	0.01419	0.98581	72.23
13.5	22,820,022	0	0.00000	1.00000	71.21
14.5	22,820,022	0	0.00000	1.00000	71.21
15.5	22,820,022	42,746	0.00187	0.99813	71.21
16.5	22,777,275	0	0.00000	1.00000	71.08
17.5	22,777,275	292,387	0.01284	0.98716	71.08
18.5	22,484,889	0	0.00000	1.00000	70.17
19.5	22,484,889	338,428	0.01505	0.98495	70.17
20.5	22,146,461	0	0.00000	1.00000	69.11
21.5	22,146,461	629,544	0.02843	0.97157	69.11
22.5	21,516,917	0	0.00000	1.00000	67.15
23.5	21,424,372	0	0.00000	1.00000	67.15
24.5	21,424,372	0	0.00000	1.00000	67.15
25.5	21,370,786	0	0.00000	1.00000	67.15
26.5	21,351,363	0	0.00000	1.00000	67.15

NEWFOUNDLAND AND LABRADOR HYDRO

Account B02 - Boiler System

Placement Band - 1968 - 1999 Experience Band - 1991 - 2022

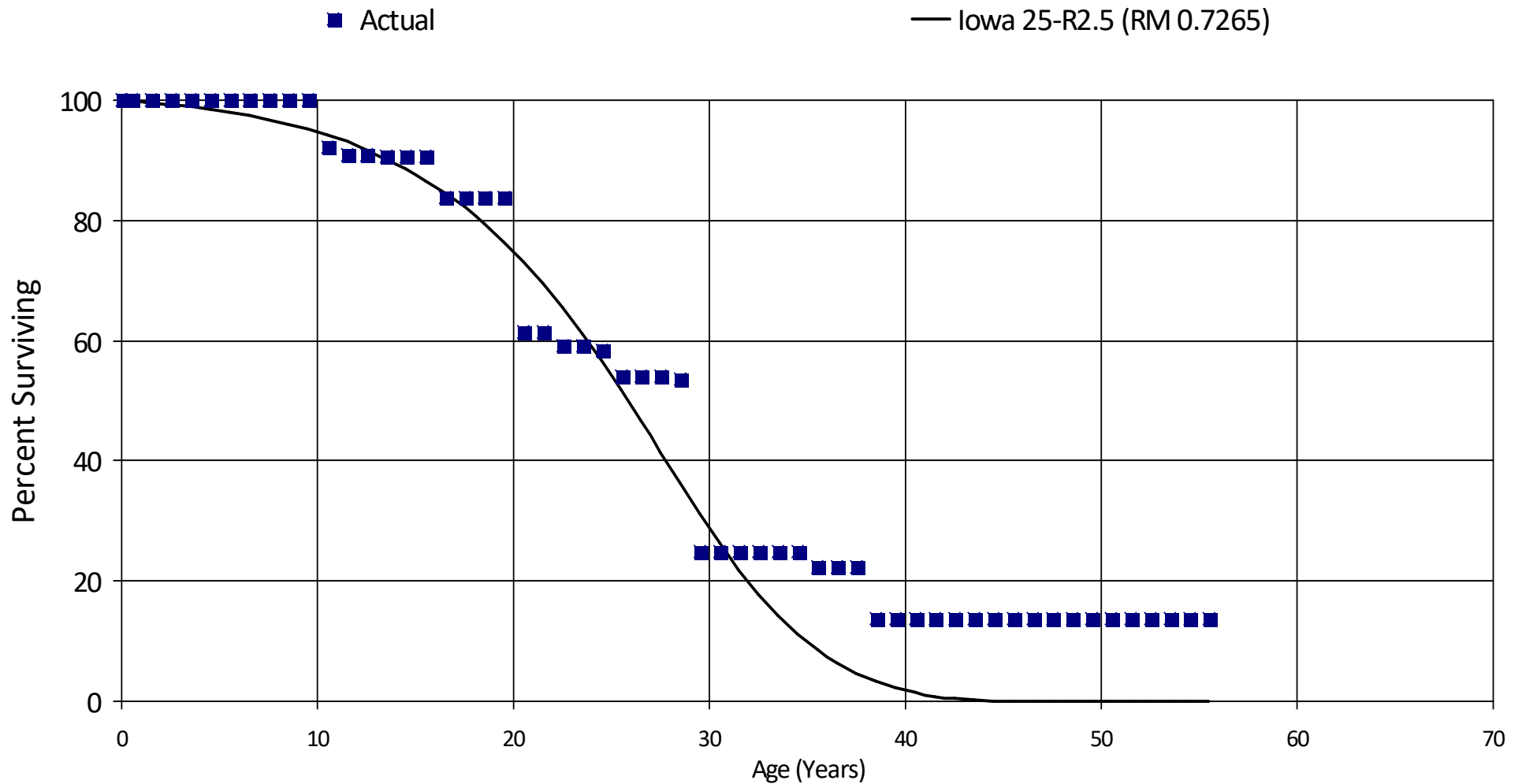
27.5	21,351,363	0	0.00000	1.00000	67.15
28.5	21,351,363	0	0.00000	1.00000	67.15
29.5	21,166,871	0	0.00000	1.00000	67.15
30.5	21,166,871	564,681	0.02668	0.97332	67.15
31.5	20,602,190	0	0.00000	1.00000	65.36
32.5	20,602,190	0	0.00000	1.00000	65.36
33.5	16,293,029	0	0.00000	1.00000	65.36
34.5	15,812,694	0	0.00000	1.00000	65.36
35.5	15,782,733	0	0.00000	1.00000	65.36
36.5	15,640,215	0	0.00000	1.00000	65.36
37.5	15,640,215	0	0.00000	1.00000	65.36
38.5	15,640,215	0	0.00000	1.00000	65.36
39.5	15,640,215	0	0.00000	1.00000	65.36
40.5	15,572,184	0	0.00000	1.00000	65.36
41.5	15,257,931	183,493	0.01203	0.98797	65.36
42.5	15,074,437	0	0.00000	1.00000	64.57
43.5	15,072,397	0	0.00000	1.00000	64.57
44.5	15,072,397	0	0.00000	1.00000	64.57
45.5	15,072,397	0	0.00000	1.00000	64.57
46.5	15,072,397	0	0.00000	1.00000	64.57
47.5	15,072,397	0	0.00000	1.00000	64.57
48.5	15,072,397	0	0.00000	1.00000	64.57
49.5	15,072,397	0	0.00000	1.00000	64.57
50.5	15,072,397	0	0.00000	1.00000	64.57
51.5	14,276,809	0	0.00000	1.00000	64.57
52.5	14,276,809	0	0.00000	1.00000	64.57
53.5	14,276,809	0	0.00000	1.00000	64.57
Totals:		11,281,691			

NEWFOUNDLAND AND LABRADOR HYDRO

Account B03 - Booms - Timber

Placement Band - 1966 - 2017 Experience Band - 2005 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account B03 - Booms - Timber

Placement Band - 1966 - 2017 Experience Band - 2005 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	936,776	0	0.00000	1.00000	100.00
0.5	936,776	0	0.00000	1.00000	100.00
1.5	936,776	0	0.00000	1.00000	100.00
2.5	936,776	0	0.00000	1.00000	100.00
3.5	936,776	0	0.00000	1.00000	100.00
4.5	936,776	0	0.00000	1.00000	100.00
5.5	723,485	0	0.00000	1.00000	100.00
6.5	723,485	0	0.00000	1.00000	100.00
7.5	671,923	0	0.00000	1.00000	100.00
8.5	634,914	0	0.00000	1.00000	100.00
9.5	634,914	50,000	0.07875	0.92125	100.00
10.5	584,914	8,673	0.01483	0.98517	92.12
11.5	576,242	0	0.00000	1.00000	90.75
12.5	576,242	818	0.00142	0.99858	90.75
13.5	575,423	0	0.00000	1.00000	90.62
14.5	575,423	0	0.00000	1.00000	90.62
15.5	575,423	44,401	0.07716	0.92284	90.62
16.5	531,022	0	0.00000	1.00000	83.63
17.5	531,022	0	0.00000	1.00000	83.63
18.5	531,022	0	0.00000	1.00000	83.63
19.5	531,022	140,269	0.26415	0.73585	83.63
20.5	390,753	0	0.00000	1.00000	61.54
21.5	390,753	14,962	0.03829	0.96171	61.54
22.5	375,791	0	0.00000	1.00000	59.18
23.5	375,791	5,428	0.01444	0.98556	59.18
24.5	370,363	26,774	0.07229	0.92771	58.33
25.5	343,589	0	0.00000	1.00000	54.11
26.5	343,589	0	0.00000	1.00000	54.11

NEWFOUNDLAND AND LABRADOR HYDRO

Account B03 - Booms - Timber

Placement Band - 1966 - 2017 Experience Band - 2005 - 2022

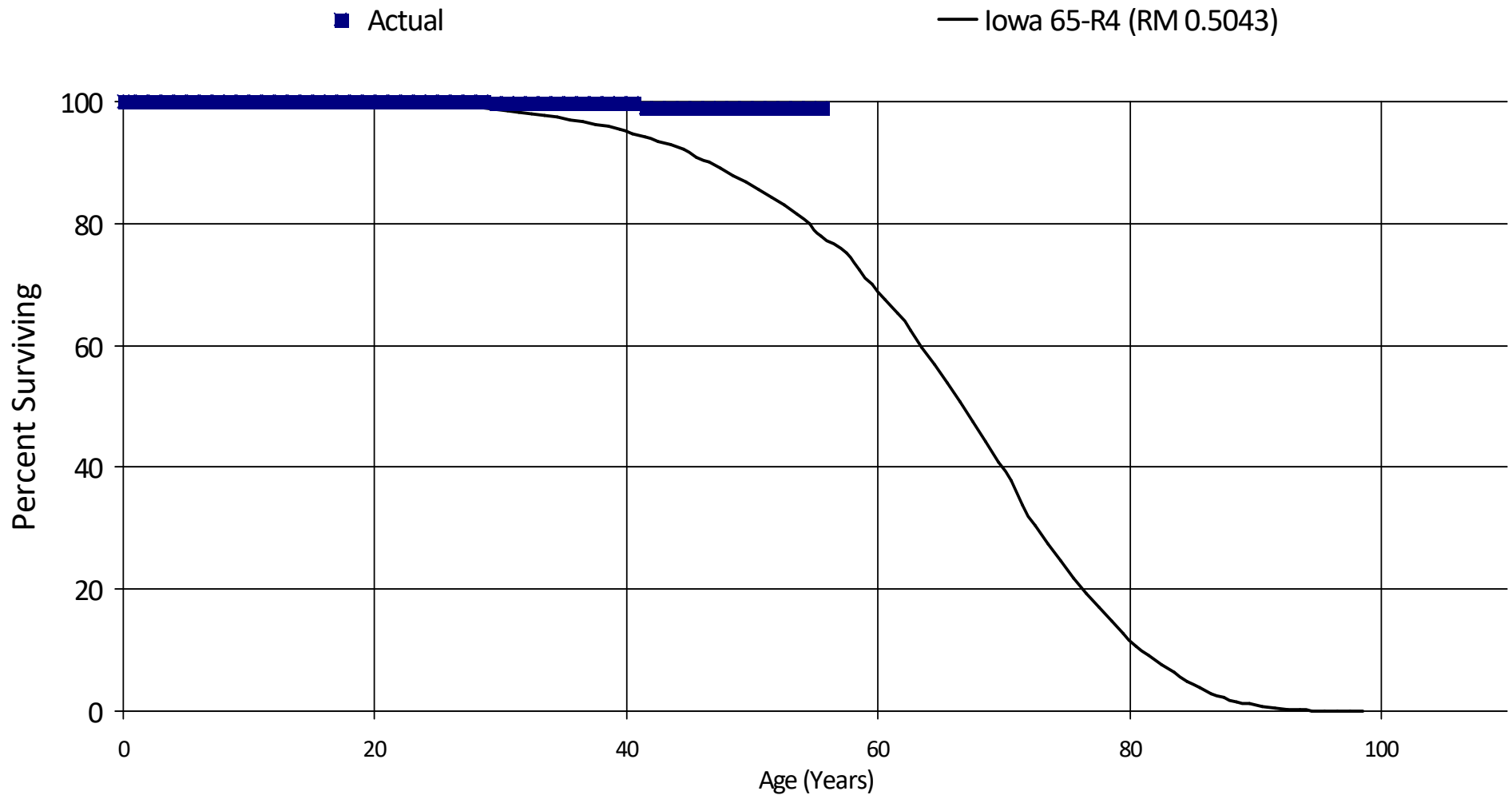
27.5	343,589	3,034	0.00883	0.99117	54.11
28.5	340,555	182,066	0.53462	0.46538	53.63
29.5	158,489	0	0.00000	1.00000	24.96
30.5	158,489	0	0.00000	1.00000	24.96
31.5	158,489	0	0.00000	1.00000	24.96
32.5	158,489	0	0.00000	1.00000	24.96
33.5	158,489	0	0.00000	1.00000	24.96
34.5	158,489	16,064	0.10136	0.89864	24.96
35.5	142,425	0	0.00000	1.00000	22.43
36.5	142,425	0	0.00000	1.00000	22.43
37.5	142,425	55,440	0.38926	0.61074	22.43
38.5	86,985	0	0.00000	1.00000	13.70
39.5	86,985	0	0.00000	1.00000	13.70
40.5	86,985	0	0.00000	1.00000	13.70
41.5	86,985	0	0.00000	1.00000	13.70
42.5	86,985	0	0.00000	1.00000	13.70
43.5	40,191	0	0.00000	1.00000	13.70
44.5	40,191	0	0.00000	1.00000	13.70
45.5	40,191	0	0.00000	1.00000	13.70
46.5	40,191	0	0.00000	1.00000	13.70
47.5	40,191	0	0.00000	1.00000	13.70
48.5	40,191	0	0.00000	1.00000	13.70
49.5	40,191	0	0.00000	1.00000	13.70
50.5	40,191	0	0.00000	1.00000	13.70
51.5	40,191	0	0.00000	1.00000	13.70
52.5	38,209	0	0.00000	1.00000	13.70
53.5	38,209	0	0.00000	1.00000	13.70
54.5	38,209	0	0.00000	1.00000	13.70
55.5	38,209	0	0.00000	1.00000	13.70
Totals:		547,929			

NEWFOUNDLAND AND LABRADOR HYDRO

Account B04 - Bridges

Placement Band - 1966 - 2022 Experience Band - 1996 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account B04 - Bridges

Placement Band - 1966 - 2022 Experience Band - 1996 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	10,685,570	0	0.00000	1.00000	100.00
0.5	10,460,570	0	0.00000	1.00000	100.00
1.5	10,460,570	0	0.00000	1.00000	100.00
2.5	9,362,780	0	0.00000	1.00000	100.00
3.5	8,437,780	0	0.00000	1.00000	100.00
4.5	4,951,006	0	0.00000	1.00000	100.00
5.5	4,951,006	0	0.00000	1.00000	100.00
6.5	4,270,789	0	0.00000	1.00000	100.00
7.5	4,270,789	0	0.00000	1.00000	100.00
8.5	4,270,789	0	0.00000	1.00000	100.00
9.5	4,270,789	0	0.00000	1.00000	100.00
10.5	4,270,789	0	0.00000	1.00000	100.00
11.5	4,251,595	0	0.00000	1.00000	100.00
12.5	4,251,595	0	0.00000	1.00000	100.00
13.5	4,251,595	0	0.00000	1.00000	100.00
14.5	4,251,595	0	0.00000	1.00000	100.00
15.5	3,914,583	0	0.00000	1.00000	100.00
16.5	3,914,583	0	0.00000	1.00000	100.00
17.5	3,914,583	0	0.00000	1.00000	100.00
18.5	3,914,583	0	0.00000	1.00000	100.00
19.5	3,602,553	0	0.00000	1.00000	100.00
20.5	3,602,553	0	0.00000	1.00000	100.00
21.5	3,602,553	0	0.00000	1.00000	100.00
22.5	3,602,553	0	0.00000	1.00000	100.00
23.5	3,602,553	0	0.00000	1.00000	100.00
24.5	3,602,553	0	0.00000	1.00000	100.00
25.5	3,538,953	0	0.00000	1.00000	100.00
26.5	3,502,566	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account B04 - Bridges

Placement Band - 1966 - 2022 Experience Band - 1996 - 2022

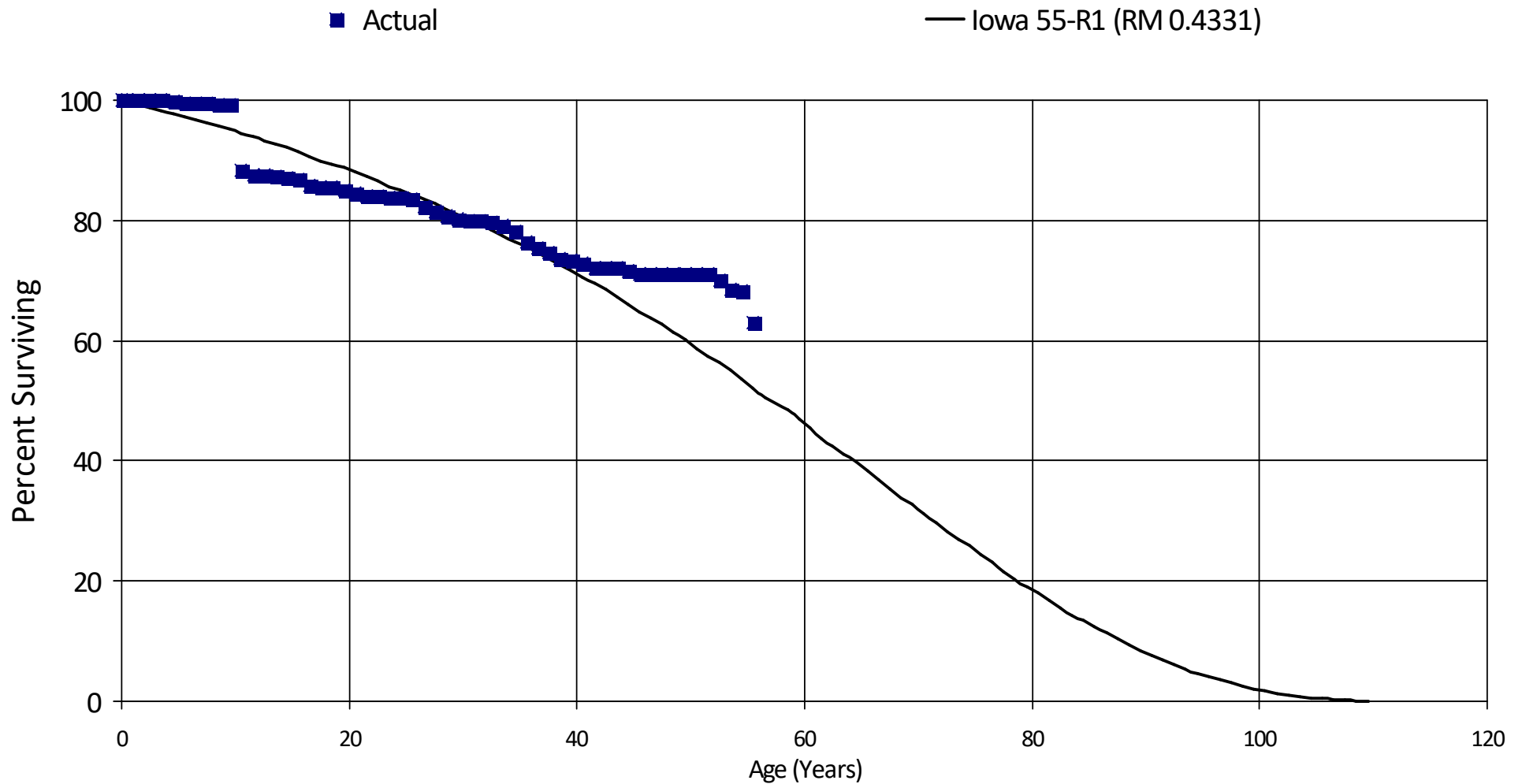
27.5	3,502,566	0	0.00000	1.00000	100.00
28.5	3,447,001	11,000	0.00319	0.99681	100.00
29.5	3,436,001	0	0.00000	1.00000	99.68
30.5	2,806,693	0	0.00000	1.00000	99.68
31.5	2,806,693	0	0.00000	1.00000	99.68
32.5	2,806,693	0	0.00000	1.00000	99.68
33.5	2,806,693	0	0.00000	1.00000	99.68
34.5	2,806,693	0	0.00000	1.00000	99.68
35.5	2,806,693	0	0.00000	1.00000	99.68
36.5	2,806,693	0	0.00000	1.00000	99.68
37.5	2,806,693	0	0.00000	1.00000	99.68
38.5	818,463	0	0.00000	1.00000	99.68
39.5	791,716	0	0.00000	1.00000	99.68
40.5	791,716	5,021	0.00634	0.99366	99.68
41.5	786,696	0	0.00000	1.00000	99.05
42.5	565,270	0	0.00000	1.00000	99.05
43.5	565,270	0	0.00000	1.00000	99.05
44.5	565,270	0	0.00000	1.00000	99.05
45.5	565,270	479	0.00085	0.99915	99.05
46.5	564,791	0	0.00000	1.00000	98.97
47.5	564,791	0	0.00000	1.00000	98.97
48.5	564,791	0	0.00000	1.00000	98.97
49.5	564,791	0	0.00000	1.00000	98.97
50.5	564,791	0	0.00000	1.00000	98.97
51.5	564,791	0	0.00000	1.00000	98.97
52.5	564,791	0	0.00000	1.00000	98.97
53.5	564,791	0	0.00000	1.00000	98.97
54.5	564,791	0	0.00000	1.00000	98.97
55.5	564,791	0	0.00000	1.00000	98.97
Totals:		16,500			

NEWFOUNDLAND AND LABRADOR HYDRO

Account B05 - Buildings - Other

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account B05 - Buildings - Other

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	104,233,949	0	0.00000	1.00000	100.00
0.5	101,929,321	0	0.00000	1.00000	100.00
1.5	100,789,835	0	0.00000	1.00000	100.00
2.5	98,704,559	76,705	0.00078	0.99922	100.00
3.5	96,601,708	204,506	0.00212	0.99788	99.92
4.5	93,831,727	199,241	0.00212	0.99788	99.71
5.5	82,176,619	51,304	0.00062	0.99938	99.50
6.5	77,136,191	10,000	0.00013	0.99987	99.44
7.5	74,605,698	83,118	0.00111	0.99889	99.43
8.5	72,407,158	78,986	0.00109	0.99891	99.32
9.5	70,365,055	7,733,707	0.10991	0.89009	99.21
10.5	60,792,493	447,686	0.00736	0.99264	88.31
11.5	57,851,678	2,856	0.00005	0.99995	87.66
12.5	51,266,909	201,923	0.00394	0.99606	87.66
13.5	50,571,466	132,098	0.00261	0.99739	87.31
14.5	49,609,620	158,952	0.00320	0.99680	87.08
15.5	48,507,492	634,408	0.01308	0.98692	86.80
16.5	43,437,933	73,954	0.00170	0.99830	85.66
17.5	42,307,362	10,389	0.00025	0.99975	85.51
18.5	41,629,554	220,139	0.00529	0.99471	85.49
19.5	38,015,932	181,899	0.00478	0.99522	85.04
20.5	37,794,132	251,043	0.00664	0.99336	84.63
21.5	35,544,602	66,910	0.00188	0.99812	84.07
22.5	34,941,121	58,653	0.00168	0.99832	83.91
23.5	34,595,089	36,714	0.00106	0.99894	83.77
24.5	34,497,752	66,998	0.00194	0.99806	83.68
25.5	33,484,953	526,647	0.01573	0.98427	83.52
26.5	31,895,301	294,307	0.00923	0.99077	82.21

NEWFOUNDLAND AND LABRADOR HYDRO

Account B05 - Buildings - Other

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

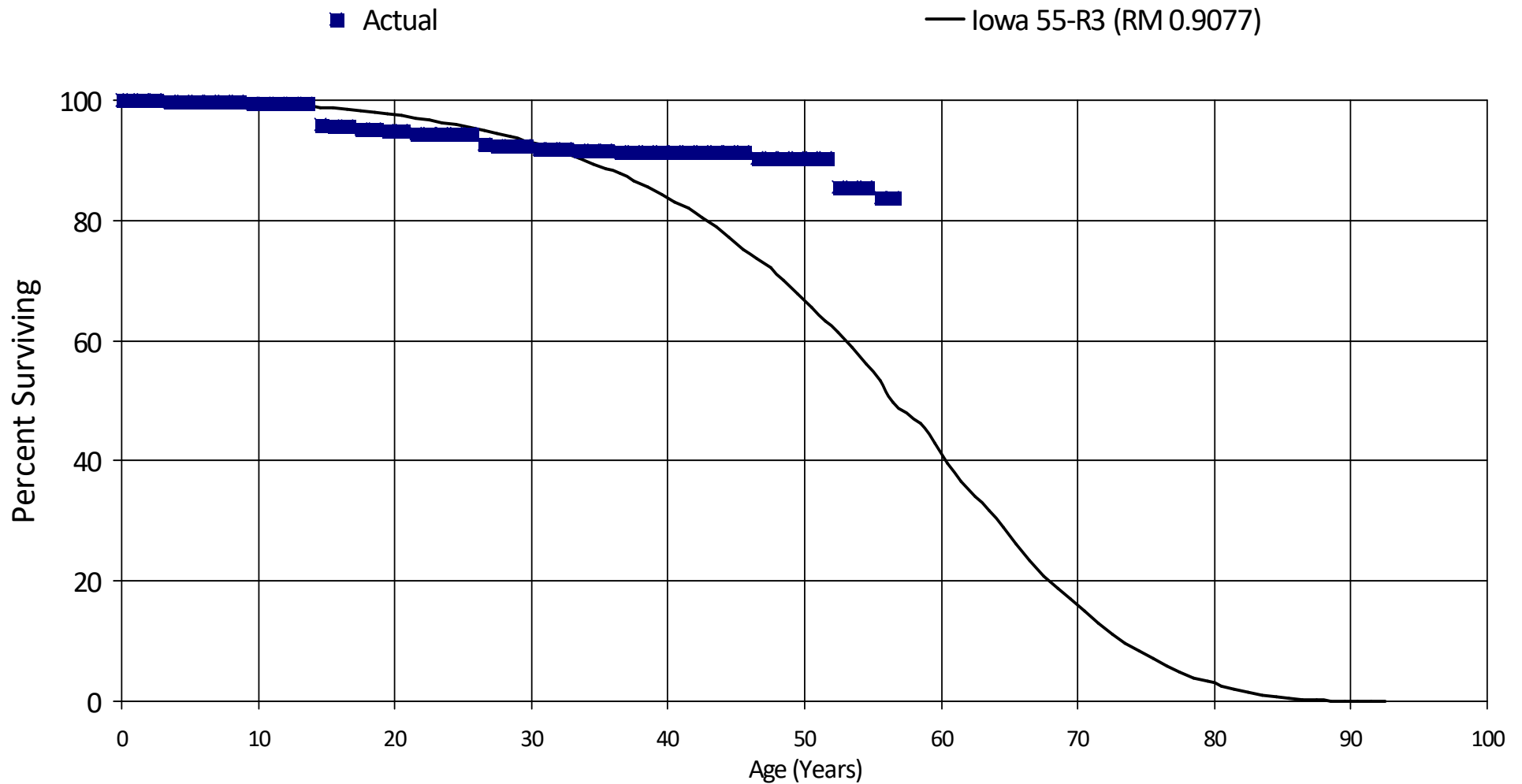
27.5	31,057,970	274,038	0.00882	0.99118	81.45
28.5	30,290,251	230,593	0.00761	0.99239	80.73
29.5	29,914,841	47,148	0.00158	0.99842	80.12
30.5	29,747,862	47,383	0.00159	0.99841	79.99
31.5	29,575,127	86,568	0.00293	0.99707	79.86
32.5	28,056,627	137,753	0.00491	0.99509	79.63
33.5	7,904,555	115,463	0.01461	0.98539	79.24
34.5	7,624,892	165,479	0.02170	0.97830	78.08
35.5	6,410,596	81,040	0.01264	0.98736	76.39
36.5	5,953,765	58,090	0.00976	0.99024	75.42
37.5	5,731,756	75,513	0.01317	0.98683	74.68
38.5	5,617,459	31,913	0.00568	0.99432	73.70
39.5	5,506,876	27,275	0.00495	0.99505	73.28
40.5	4,622,817	52,640	0.01139	0.98861	72.92
41.5	4,431,131	0	0.00000	1.00000	72.09
42.5	3,856,754	2,282	0.00059	0.99941	72.09
43.5	3,721,611	18,731	0.00503	0.99497	72.05
44.5	3,686,675	27,000	0.00732	0.99268	71.69
45.5	3,308,432	0	0.00000	1.00000	71.17
46.5	3,308,432	0	0.00000	1.00000	71.17
47.5	2,415,573	1,586	0.00066	0.99934	71.17
48.5	2,391,090	0	0.00000	1.00000	71.12
49.5	2,113,858	1,081	0.00051	0.99949	71.12
50.5	2,049,126	1,515	0.00074	0.99926	71.08
51.5	1,998,330	31,070	0.01555	0.98445	71.03
52.5	1,844,789	39,701	0.02152	0.97848	69.93
53.5	1,752,878	1,099	0.00063	0.99937	68.43
54.5	260,201	20,811	0.07998	0.92002	68.39
55.5	0	0	0.00000	0.00000	62.92
Totals:		13,378,915			

NEWFOUNDLAND AND LABRADOR HYDRO

Account B06 - Buildings - Metal

Placement Band - 1965 - 2021 Experience Band - 2000 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account B06 - Buildings - Metal

Placement Band - 1965 - 2021 Experience Band - 2000 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	54,017,562	0	0.00000	1.00000	100.00
0.5	54,017,562	0	0.00000	1.00000	100.00
1.5	51,785,503	0	0.00000	1.00000	100.00
2.5	49,573,003	63,030	0.00127	0.99873	100.00
3.5	39,539,984	0	0.00000	1.00000	99.87
4.5	35,416,618	0	0.00000	1.00000	99.87
5.5	35,416,618	41,104	0.00116	0.99884	99.87
6.5	35,375,514	0	0.00000	1.00000	99.75
7.5	24,609,930	18,990	0.00077	0.99923	99.75
8.5	23,701,747	15,545	0.00066	0.99934	99.67
9.5	23,686,202	0	0.00000	1.00000	99.60
10.5	23,686,202	0	0.00000	1.00000	99.60
11.5	23,654,555	0	0.00000	1.00000	99.60
12.5	23,647,256	14,030	0.00059	0.99941	99.60
13.5	23,467,536	864,917	0.03686	0.96314	99.54
14.5	22,584,801	50,070	0.00222	0.99778	95.87
15.5	22,485,342	0	0.00000	1.00000	95.66
16.5	22,485,342	121,579	0.00541	0.99459	95.66
17.5	22,078,810	0	0.00000	1.00000	95.14
18.5	22,028,568	67,693	0.00307	0.99693	95.14
19.5	21,794,023	0	0.00000	1.00000	94.85
20.5	21,051,628	76,056	0.00361	0.99639	94.85
21.5	20,906,904	0	0.00000	1.00000	94.51
22.5	20,906,904	26,025	0.00124	0.99876	94.51
23.5	20,880,879	8,272	0.00040	0.99960	94.39
24.5	20,711,723	0	0.00000	1.00000	94.35
25.5	20,711,723	394,433	0.01904	0.98096	94.35
26.5	19,807,026	8,054	0.00041	0.99959	92.55

NEWFOUNDLAND AND LABRADOR HYDRO

Account B06 - Buildings - Metal

Placement Band - 1965 - 2021 Experience Band - 2000 - 2022

27.5	19,695,356	0	0.00000	1.00000	92.51
28.5	19,687,462	5,334	0.00027	0.99973	92.51
29.5	19,249,095	115,181	0.00598	0.99402	92.49
30.5	18,201,472	0	0.00000	1.00000	91.94
31.5	16,833,397	0	0.00000	1.00000	91.94
32.5	15,292,564	57,461	0.00376	0.99624	91.94
33.5	15,092,132	6,565	0.00043	0.99957	91.59
34.5	14,650,116	8,202	0.00056	0.99944	91.55
35.5	14,357,692	7,747	0.00054	0.99946	91.50
36.5	14,333,255	3,359	0.00023	0.99977	91.45
37.5	14,247,899	10,092	0.00071	0.99929	91.43
38.5	13,834,570	6,766	0.00049	0.99951	91.37
39.5	12,475,501	0	0.00000	1.00000	91.33
40.5	10,550,466	3,043	0.00029	0.99971	91.33
41.5	9,979,834	0	0.00000	1.00000	91.30
42.5	6,840,967	0	0.00000	1.00000	91.30
43.5	6,593,142	0	0.00000	1.00000	91.30
44.5	5,916,153	0	0.00000	1.00000	91.30
45.5	5,803,081	62,342	0.01074	0.98926	91.30
46.5	5,445,345	89	0.00002	0.99998	90.32
47.5	4,893,559	0	0.00000	1.00000	90.32
48.5	4,893,559	0	0.00000	1.00000	90.32
49.5	4,893,559	0	0.00000	1.00000	90.32
50.5	4,893,559	0	0.00000	1.00000	90.32
51.5	4,193,362	223,391	0.05327	0.94673	90.32
52.5	3,822,885	2,972	0.00078	0.99922	85.51
53.5	2,475,610	0	0.00000	1.00000	85.44
54.5	1,127,288	23,477	0.02083	0.97917	85.44
55.5	752,060	0	0.00000	1.00000	83.66
56.5	496,681	0	0.00000	1.00000	83.66

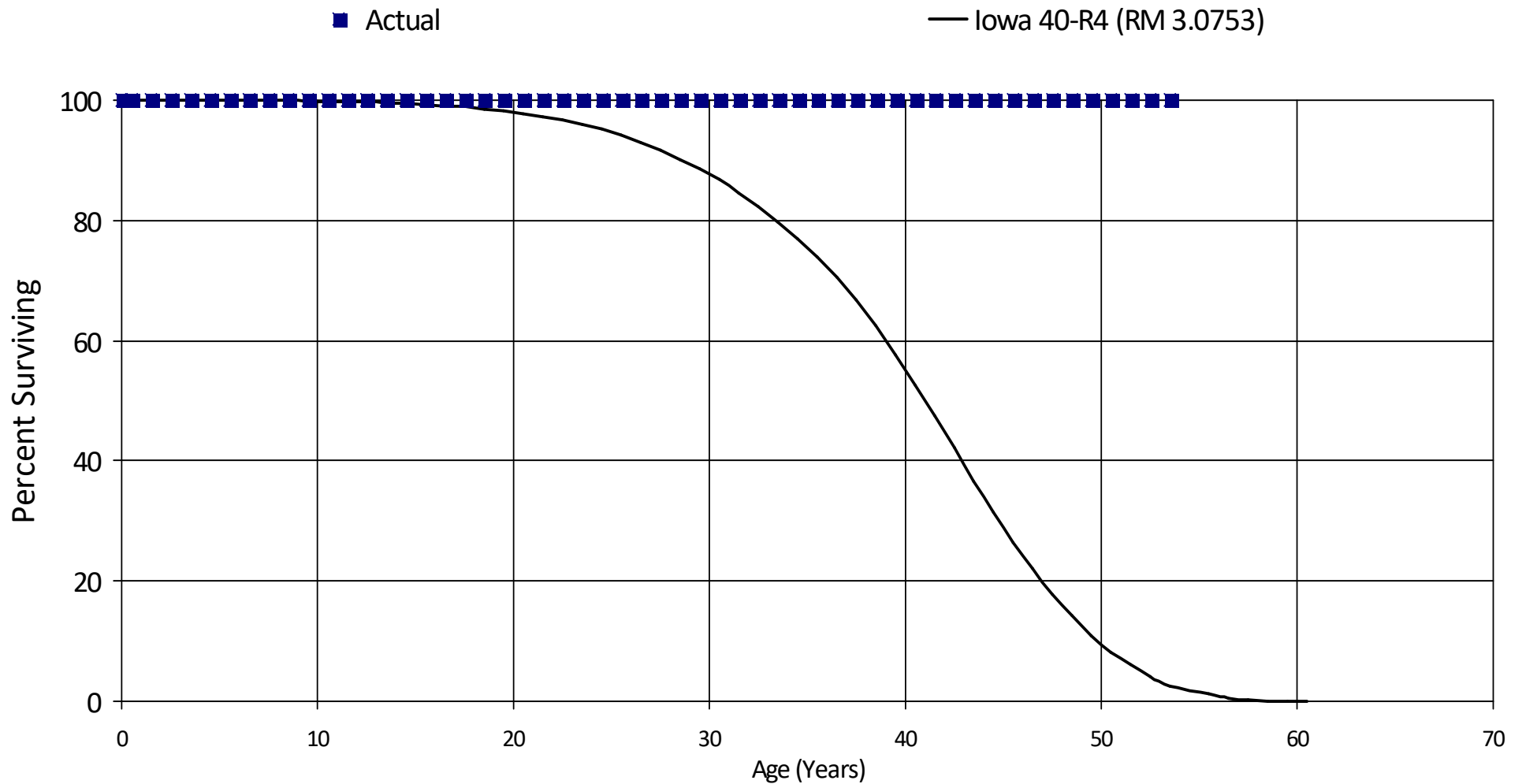
Totals: 2,305,819

NEWFOUNDLAND AND LABRADOR HYDRO

Account B07 - Bus Duct Generator

Placement Band - 1968 - 2022 Experience Band - 2022 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account B07 - Bus Duct Generator

Placement Band - 1968 - 2022 Experience Band - 2022 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,969,235	0	0.00000	1.00000	100.00
0.5	1,943,274	0	0.00000	1.00000	100.00
1.5	1,943,274	0	0.00000	1.00000	100.00
2.5	1,943,274	0	0.00000	1.00000	100.00
3.5	1,943,274	0	0.00000	1.00000	100.00
4.5	1,943,274	0	0.00000	1.00000	100.00
5.5	1,534,405	0	0.00000	1.00000	100.00
6.5	1,456,108	0	0.00000	1.00000	100.00
7.5	825,804	0	0.00000	1.00000	100.00
8.5	825,804	0	0.00000	1.00000	100.00
9.5	825,804	0	0.00000	1.00000	100.00
10.5	825,804	0	0.00000	1.00000	100.00
11.5	825,804	0	0.00000	1.00000	100.00
12.5	825,804	0	0.00000	1.00000	100.00
13.5	825,804	0	0.00000	1.00000	100.00
14.5	825,804	0	0.00000	1.00000	100.00
15.5	825,804	0	0.00000	1.00000	100.00
16.5	825,804	0	0.00000	1.00000	100.00
17.5	825,804	0	0.00000	1.00000	100.00
18.5	825,804	0	0.00000	1.00000	100.00
19.5	459,833	0	0.00000	1.00000	100.00
20.5	459,833	0	0.00000	1.00000	100.00
21.5	459,833	0	0.00000	1.00000	100.00
22.5	459,833	0	0.00000	1.00000	100.00
23.5	459,833	0	0.00000	1.00000	100.00
24.5	459,833	0	0.00000	1.00000	100.00
25.5	459,833	0	0.00000	1.00000	100.00
26.5	459,833	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account B07 - Bus Duct Generator

Placement Band - 1968 - 2022 Experience Band - 2022 - 2022

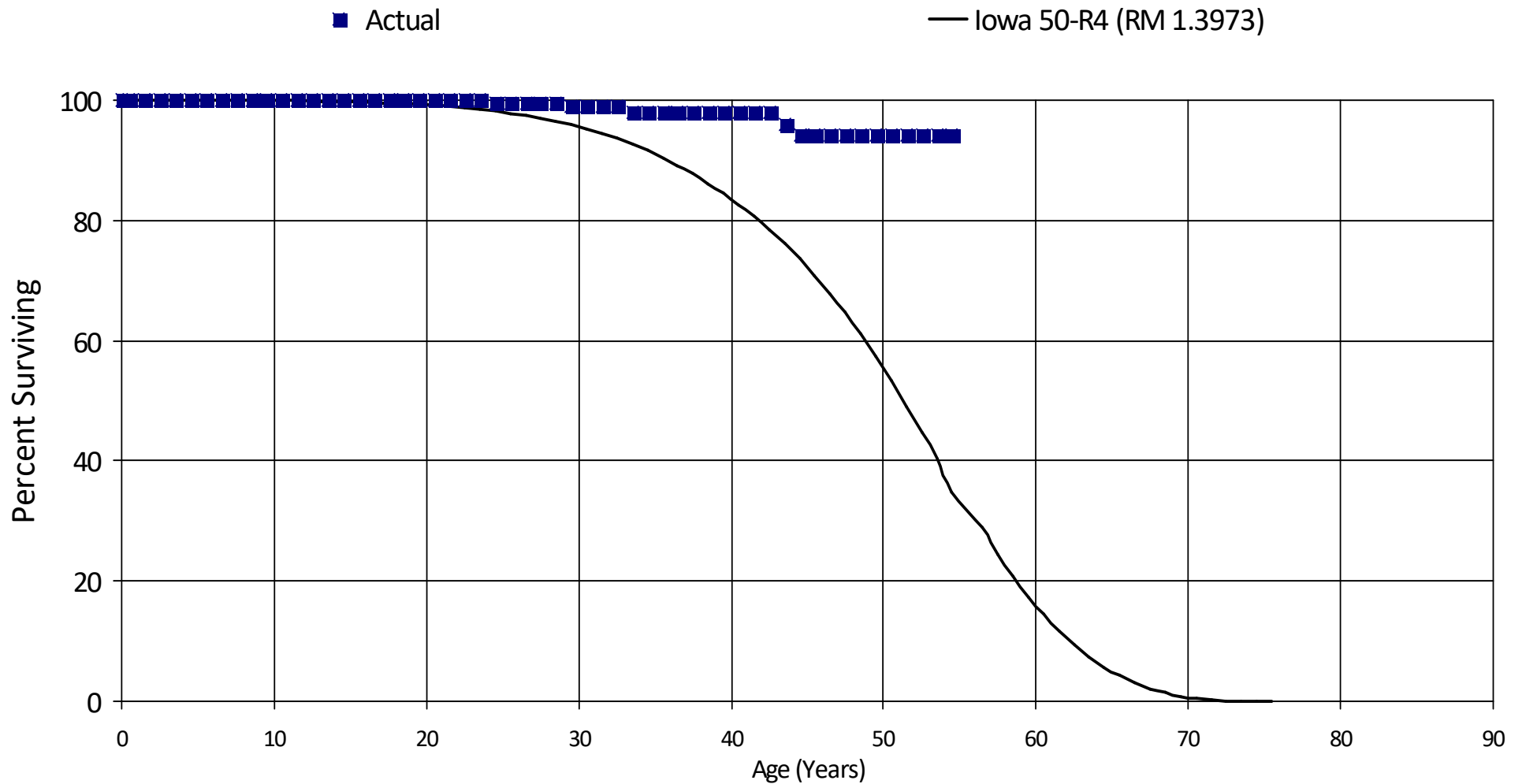
27.5	459,833	0	0.00000	1.00000	100.00
28.5	459,833	0	0.00000	1.00000	100.00
29.5	459,833	0	0.00000	1.00000	100.00
30.5	459,833	0	0.00000	1.00000	100.00
31.5	459,833	0	0.00000	1.00000	100.00
32.5	459,833	0	0.00000	1.00000	100.00
33.5	459,833	0	0.00000	1.00000	100.00
34.5	338,955	0	0.00000	1.00000	100.00
35.5	338,955	0	0.00000	1.00000	100.00
36.5	338,955	0	0.00000	1.00000	100.00
37.5	338,955	0	0.00000	1.00000	100.00
38.5	338,955	0	0.00000	1.00000	100.00
39.5	338,955	0	0.00000	1.00000	100.00
40.5	338,955	0	0.00000	1.00000	100.00
41.5	338,955	0	0.00000	1.00000	100.00
42.5	27,238	0	0.00000	1.00000	100.00
43.5	27,238	0	0.00000	1.00000	100.00
44.5	27,238	0	0.00000	1.00000	100.00
45.5	27,238	0	0.00000	1.00000	100.00
46.5	27,238	0	0.00000	1.00000	100.00
47.5	27,238	0	0.00000	1.00000	100.00
48.5	27,238	0	0.00000	1.00000	100.00
49.5	27,238	0	0.00000	1.00000	100.00
50.5	27,238	0	0.00000	1.00000	100.00
51.5	27,238	0	0.00000	1.00000	100.00
52.5	27,238	0	0.00000	1.00000	100.00
53.5	27,238	0	0.00000	1.00000	100.00
Totals:		0			

NEWFOUNDLAND AND LABRADOR HYDRO

Account B08 - Buswork and Hardware

Placement Band - 1967 - 2021 Experience Band - 2012 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account B08 - Buswork and Hardware

Placement Band - 1967 - 2021 Experience Band - 2012 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	8,372,284	0	0.00000	1.00000	100.00
0.5	8,372,284	0	0.00000	1.00000	100.00
1.5	7,875,913	0	0.00000	1.00000	100.00
2.5	7,604,789	0	0.00000	1.00000	100.00
3.5	7,525,110	0	0.00000	1.00000	100.00
4.5	7,509,094	0	0.00000	1.00000	100.00
5.5	7,284,001	0	0.00000	1.00000	100.00
6.5	7,051,050	0	0.00000	1.00000	100.00
7.5	7,004,644	0	0.00000	1.00000	100.00
8.5	6,958,421	0	0.00000	1.00000	100.00
9.5	6,645,192	0	0.00000	1.00000	100.00
10.5	6,082,617	0	0.00000	1.00000	100.00
11.5	6,082,617	0	0.00000	1.00000	100.00
12.5	6,082,617	0	0.00000	1.00000	100.00
13.5	6,048,942	0	0.00000	1.00000	100.00
14.5	6,048,942	0	0.00000	1.00000	100.00
15.5	6,048,942	0	0.00000	1.00000	100.00
16.5	6,048,942	0	0.00000	1.00000	100.00
17.5	6,042,609	0	0.00000	1.00000	100.00
18.5	5,930,384	0	0.00000	1.00000	100.00
19.5	5,893,277	0	0.00000	1.00000	100.00
20.5	5,844,707	0	0.00000	1.00000	100.00
21.5	5,844,707	0	0.00000	1.00000	100.00
22.5	5,545,223	0	0.00000	1.00000	100.00
23.5	5,545,223	21,992	0.00397	0.99603	100.00
24.5	5,196,841	10,856	0.00209	0.99791	99.60
25.5	5,130,068	0	0.00000	1.00000	99.39
26.5	5,031,202	0	0.00000	1.00000	99.39

NEWFOUNDLAND AND LABRADOR HYDRO

Account B08 - Buswork and Hardware

Placement Band - 1967 - 2021 Experience Band - 2012 - 2022

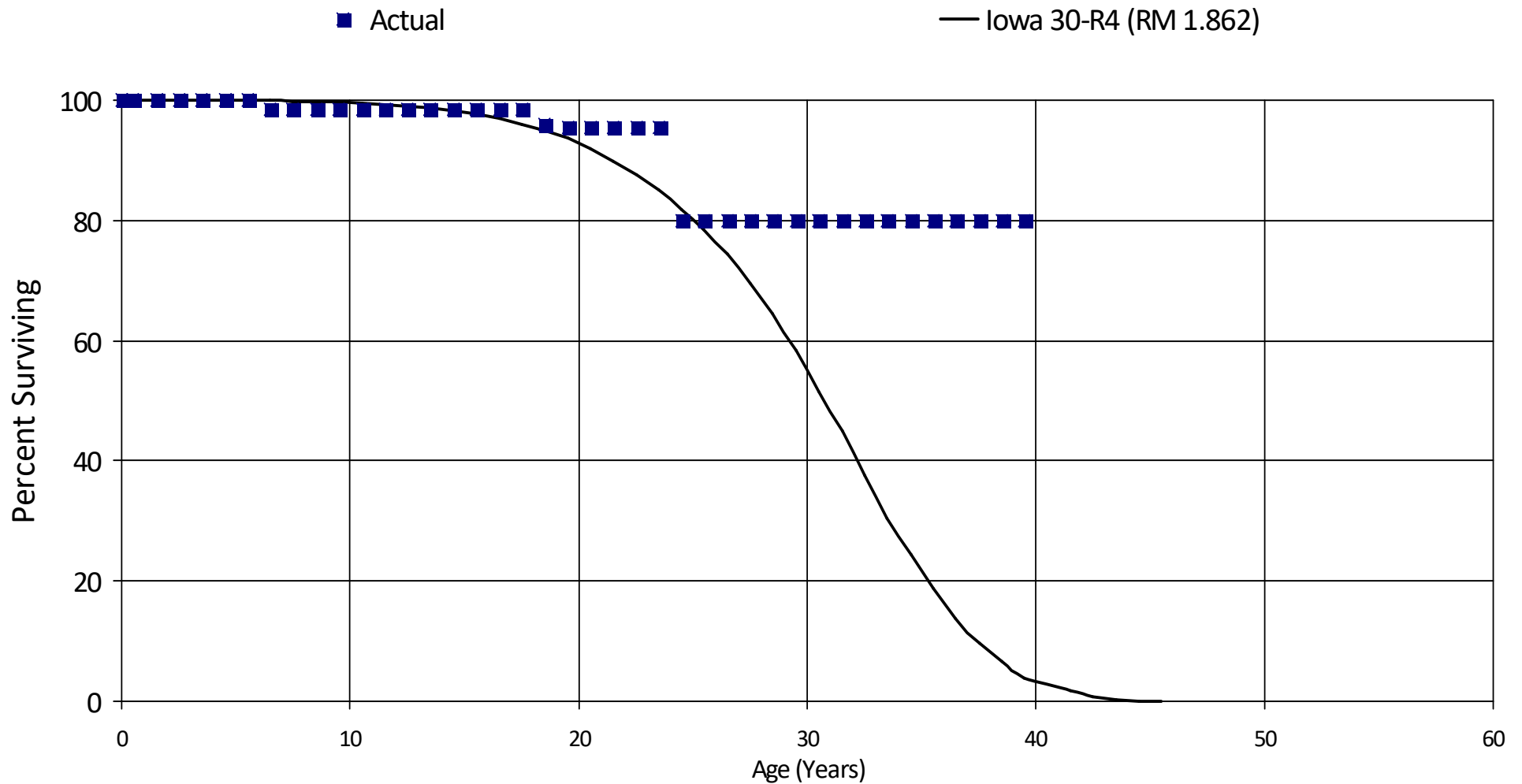
27.5	4,570,840	0	0.00000	1.00000	99.39
28.5	4,421,462	12,518	0.00283	0.99717	99.39
29.5	4,375,816	0	0.00000	1.00000	99.11
30.5	3,852,813	0	0.00000	1.00000	99.11
31.5	3,145,350	0	0.00000	1.00000	99.11
32.5	2,994,508	35,777	0.01195	0.98805	99.11
33.5	2,566,420	0	0.00000	1.00000	97.93
34.5	2,543,876	0	0.00000	1.00000	97.93
35.5	2,433,209	0	0.00000	1.00000	97.93
36.5	2,349,034	0	0.00000	1.00000	97.93
37.5	2,325,236	0	0.00000	1.00000	97.93
38.5	2,325,236	0	0.00000	1.00000	97.93
39.5	2,158,823	0	0.00000	1.00000	97.93
40.5	1,920,438	0	0.00000	1.00000	97.93
41.5	1,708,229	0	0.00000	1.00000	97.93
42.5	1,575,464	32,475	0.02061	0.97939	97.93
43.5	1,387,244	24,869	0.01793	0.98207	95.91
44.5	1,109,380	0	0.00000	1.00000	94.19
45.5	996,354	0	0.00000	1.00000	94.19
46.5	994,056	0	0.00000	1.00000	94.19
47.5	926,016	0	0.00000	1.00000	94.19
48.5	917,321	1,413	0.00154	0.99846	94.19
49.5	915,908	0	0.00000	1.00000	94.04
50.5	908,965	0	0.00000	1.00000	94.04
51.5	908,965	0	0.00000	1.00000	94.04
52.5	387,335	0	0.00000	1.00000	94.04
53.5	369,335	0	0.00000	1.00000	94.04
54.5	264,746	0	0.00000	1.00000	94.04
Totals:		139,900			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C01 - Cables - Telecontrol

Placement Band - 1982 - 2020 Experience Band - 2000 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C01 - Cables - Telecontrol

Placement Band - 1982 - 2020 Experience Band - 2000 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,825,371	0	0.00000	1.00000	100.00
0.5	1,825,371	0	0.00000	1.00000	100.00
1.5	1,825,371	0	0.00000	1.00000	100.00
2.5	1,825,371	0	0.00000	1.00000	100.00
3.5	1,825,371	0	0.00000	1.00000	100.00
4.5	1,825,371	0	0.00000	1.00000	100.00
5.5	1,825,371	27,391	0.01501	0.98499	100.00
6.5	1,797,980	0	0.00000	1.00000	98.50
7.5	1,795,438	0	0.00000	1.00000	98.50
8.5	1,795,438	0	0.00000	1.00000	98.50
9.5	1,783,587	0	0.00000	1.00000	98.50
10.5	1,783,587	0	0.00000	1.00000	98.50
11.5	1,783,587	0	0.00000	1.00000	98.50
12.5	1,684,136	0	0.00000	1.00000	98.50
13.5	1,684,136	0	0.00000	1.00000	98.50
14.5	1,684,136	0	0.00000	1.00000	98.50
15.5	1,684,136	0	0.00000	1.00000	98.50
16.5	1,684,136	0	0.00000	1.00000	98.50
17.5	1,684,136	45,443	0.02698	0.97302	98.50
18.5	1,638,692	8,519	0.00520	0.99480	95.84
19.5	737,925	0	0.00000	1.00000	95.34
20.5	477,548	0	0.00000	1.00000	95.34
21.5	347,969	0	0.00000	1.00000	95.34
22.5	325,938	0	0.00000	1.00000	95.34
23.5	149,330	24,177	0.16190	0.83810	95.34
24.5	125,153	0	0.00000	1.00000	79.90
25.5	125,153	0	0.00000	1.00000	79.90
26.5	125,153	0	0.00000	1.00000	79.90

NEWFOUNDLAND AND LABRADOR HYDRO

Account C01 - Cables - Telecontrol

Placement Band - 1982 - 2020 Experience Band - 2000 - 2022

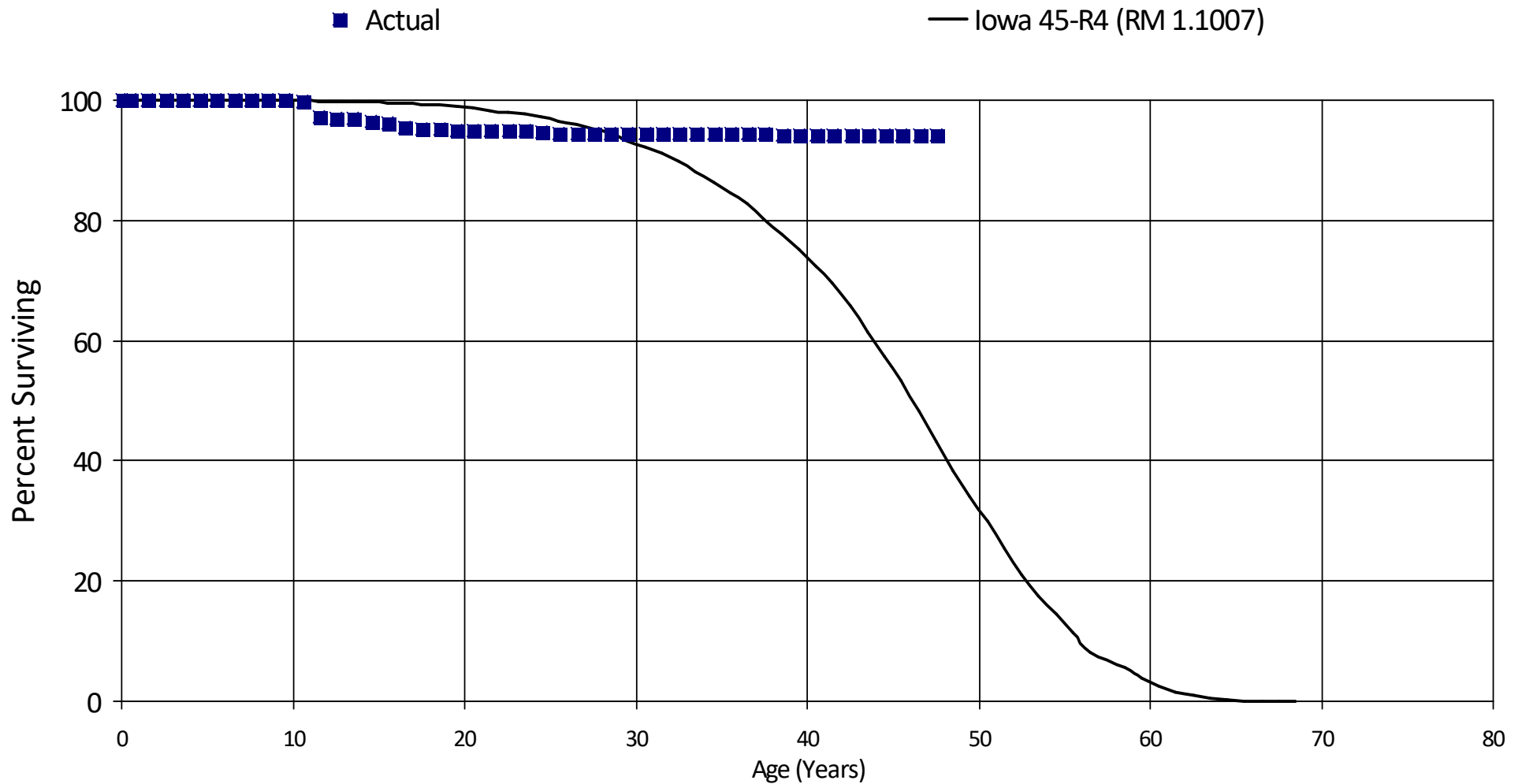
27.5	125,153	0	0.00000	1.00000	79.90
28.5	125,153	0	0.00000	1.00000	79.90
29.5	12,612	0	0.00000	1.00000	79.90
30.5	12,612	0	0.00000	1.00000	79.90
31.5	12,612	0	0.00000	1.00000	79.90
32.5	12,612	0	0.00000	1.00000	79.90
33.5	12,612	0	0.00000	1.00000	79.90
34.5	12,612	0	0.00000	1.00000	79.90
35.5	12,612	0	0.00000	1.00000	79.90
36.5	12,612	0	0.00000	1.00000	79.90
37.5	12,612	0	0.00000	1.00000	79.90
38.5	12,612	0	0.00000	1.00000	79.90
39.5	12,612	0	0.00000	1.00000	79.90
Totals:		105,530			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C02 - Cables - Submarine

Placement Band - 1965 - 2019 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C02 - Cables - Submarine

Placement Band - 1965 - 2019 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	11,099,413	0	0.00000	1.00000	100.00
0.5	11,099,413	0	0.00000	1.00000	100.00
1.5	11,099,413	0	0.00000	1.00000	100.00
2.5	11,099,413	0	0.00000	1.00000	100.00
3.5	10,934,449	0	0.00000	1.00000	100.00
4.5	10,934,449	0	0.00000	1.00000	100.00
5.5	10,934,449	0	0.00000	1.00000	100.00
6.5	9,425,415	262	0.00003	0.99997	100.00
7.5	9,425,153	0	0.00000	1.00000	100.00
8.5	9,425,153	0	0.00000	1.00000	100.00
9.5	9,425,153	24,789	0.00263	0.99737	100.00
10.5	9,400,365	245,126	0.02608	0.97392	99.74
11.5	9,155,239	10,786	0.00118	0.99882	97.14
12.5	9,144,453	2,233	0.00024	0.99976	97.03
13.5	9,061,533	48,195	0.00532	0.99468	97.01
14.5	8,971,043	19,777	0.00220	0.99780	96.49
15.5	8,846,986	87,216	0.00986	0.99014	96.28
16.5	8,759,770	21,424	0.00245	0.99755	95.33
17.5	8,738,346	0	0.00000	1.00000	95.10
18.5	8,738,346	5,358	0.00061	0.99939	95.10
19.5	8,732,988	1,990	0.00023	0.99977	95.04
20.5	8,730,998	1,297	0.00015	0.99985	95.02
21.5	8,729,701	13,145	0.00151	0.99849	95.01
22.5	8,716,556	4,245	0.00049	0.99951	94.87
23.5	7,789,963	8,605	0.00110	0.99890	94.82
24.5	7,781,358	17,612	0.00226	0.99774	94.72
25.5	7,763,746	5,538	0.00071	0.99929	94.51
26.5	7,758,208	0	0.00000	1.00000	94.44

NEWFOUNDLAND AND LABRADOR HYDRO

Account C02 - Cables - Submarine

Placement Band - 1965 - 2019 Experience Band - 1992 - 2022

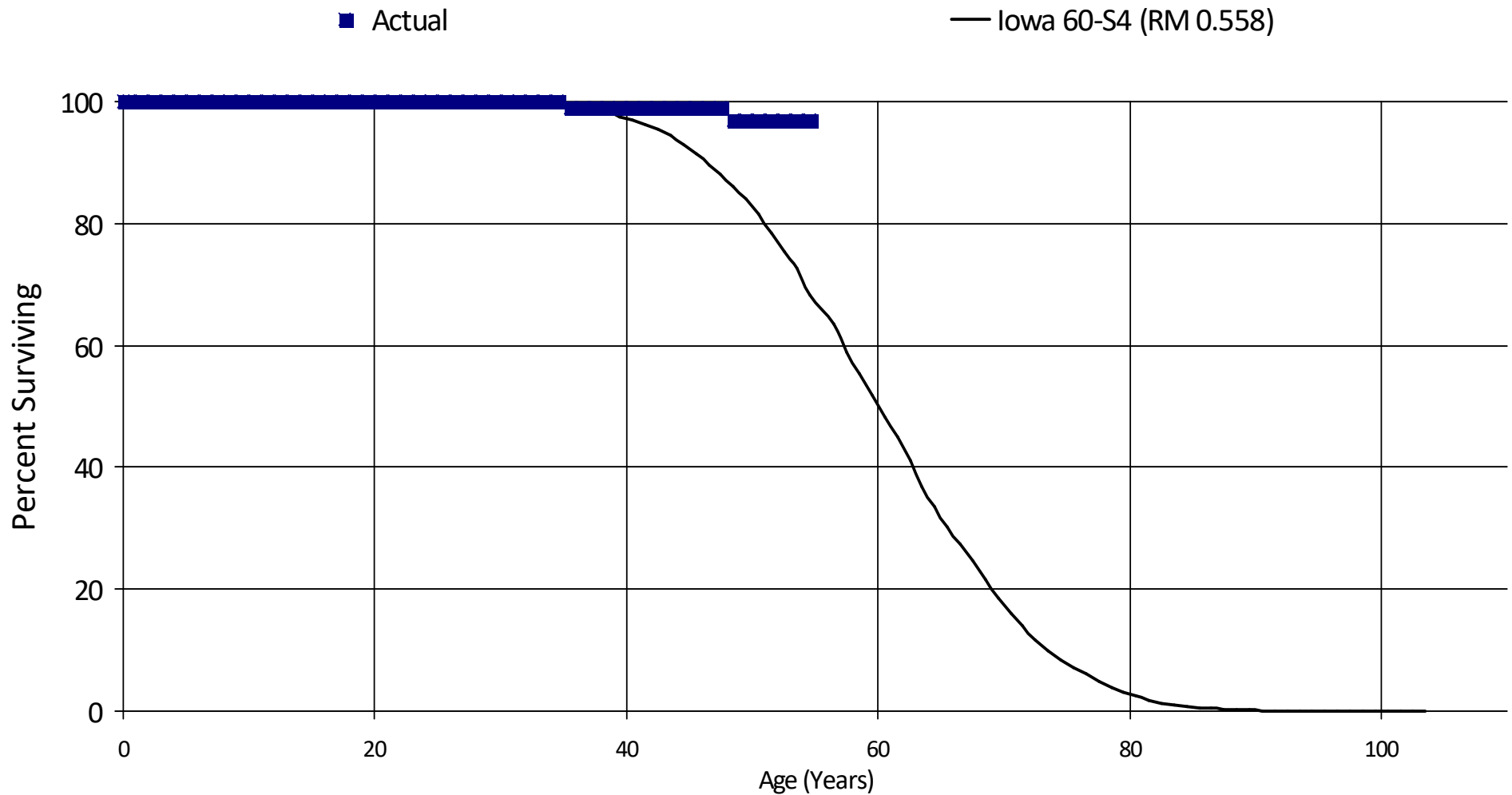
27.5	7,758,208	0	0.00000	1.00000	94.44
28.5	7,758,208	0	0.00000	1.00000	94.44
29.5	7,758,208	4,602	0.00059	0.99941	94.44
30.5	7,753,606	0	0.00000	1.00000	94.38
31.5	7,753,606	0	0.00000	1.00000	94.38
32.5	4,774,257	39	0.00001	0.99999	94.38
33.5	2,320,767	968	0.00042	0.99958	94.38
34.5	769,408	443	0.00058	0.99942	94.34
35.5	768,965	0	0.00000	1.00000	94.29
36.5	768,965	0	0.00000	1.00000	94.29
37.5	768,965	651	0.00085	0.99915	94.29
38.5	768,314	0	0.00000	1.00000	94.21
39.5	768,314	0	0.00000	1.00000	94.21
40.5	644,913	0	0.00000	1.00000	94.21
41.5	644,913	0	0.00000	1.00000	94.21
42.5	475,797	0	0.00000	1.00000	94.21
43.5	475,797	0	0.00000	1.00000	94.21
44.5	475,797	0	0.00000	1.00000	94.21
45.5	475,797	0	0.00000	1.00000	94.21
46.5	475,797	0	0.00000	1.00000	94.21
47.5	0	0	0.00000	0.00000	94.21
Totals:		524,301			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C03 - Cables - Underground

Placement Band - 1967 - 2022 Experience Band - 2012 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C03 - Cables - Underground

Placement Band - 1967 - 2022 Experience Band - 2012 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	8,933,606	0	0.00000	1.00000	100.00
0.5	8,499,450	0	0.00000	1.00000	100.00
1.5	7,830,835	0	0.00000	1.00000	100.00
2.5	6,377,999	0	0.00000	1.00000	100.00
3.5	5,766,402	0	0.00000	1.00000	100.00
4.5	4,985,421	0	0.00000	1.00000	100.00
5.5	3,175,682	0	0.00000	1.00000	100.00
6.5	2,794,411	0	0.00000	1.00000	100.00
7.5	2,248,687	0	0.00000	1.00000	100.00
8.5	1,783,797	0	0.00000	1.00000	100.00
9.5	1,674,628	0	0.00000	1.00000	100.00
10.5	1,403,221	0	0.00000	1.00000	100.00
11.5	1,403,221	0	0.00000	1.00000	100.00
12.5	1,403,221	0	0.00000	1.00000	100.00
13.5	1,403,221	0	0.00000	1.00000	100.00
14.5	1,403,221	0	0.00000	1.00000	100.00
15.5	1,403,221	0	0.00000	1.00000	100.00
16.5	1,403,221	0	0.00000	1.00000	100.00
17.5	1,403,221	0	0.00000	1.00000	100.00
18.5	1,403,221	0	0.00000	1.00000	100.00
19.5	1,403,221	0	0.00000	1.00000	100.00
20.5	1,403,221	0	0.00000	1.00000	100.00
21.5	1,385,569	0	0.00000	1.00000	100.00
22.5	1,317,288	0	0.00000	1.00000	100.00
23.5	1,317,288	0	0.00000	1.00000	100.00
24.5	1,294,962	0	0.00000	1.00000	100.00
25.5	1,294,962	0	0.00000	1.00000	100.00
26.5	1,285,076	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account C03 - Cables - Underground

Placement Band - 1967 - 2022 Experience Band - 2012 - 2022

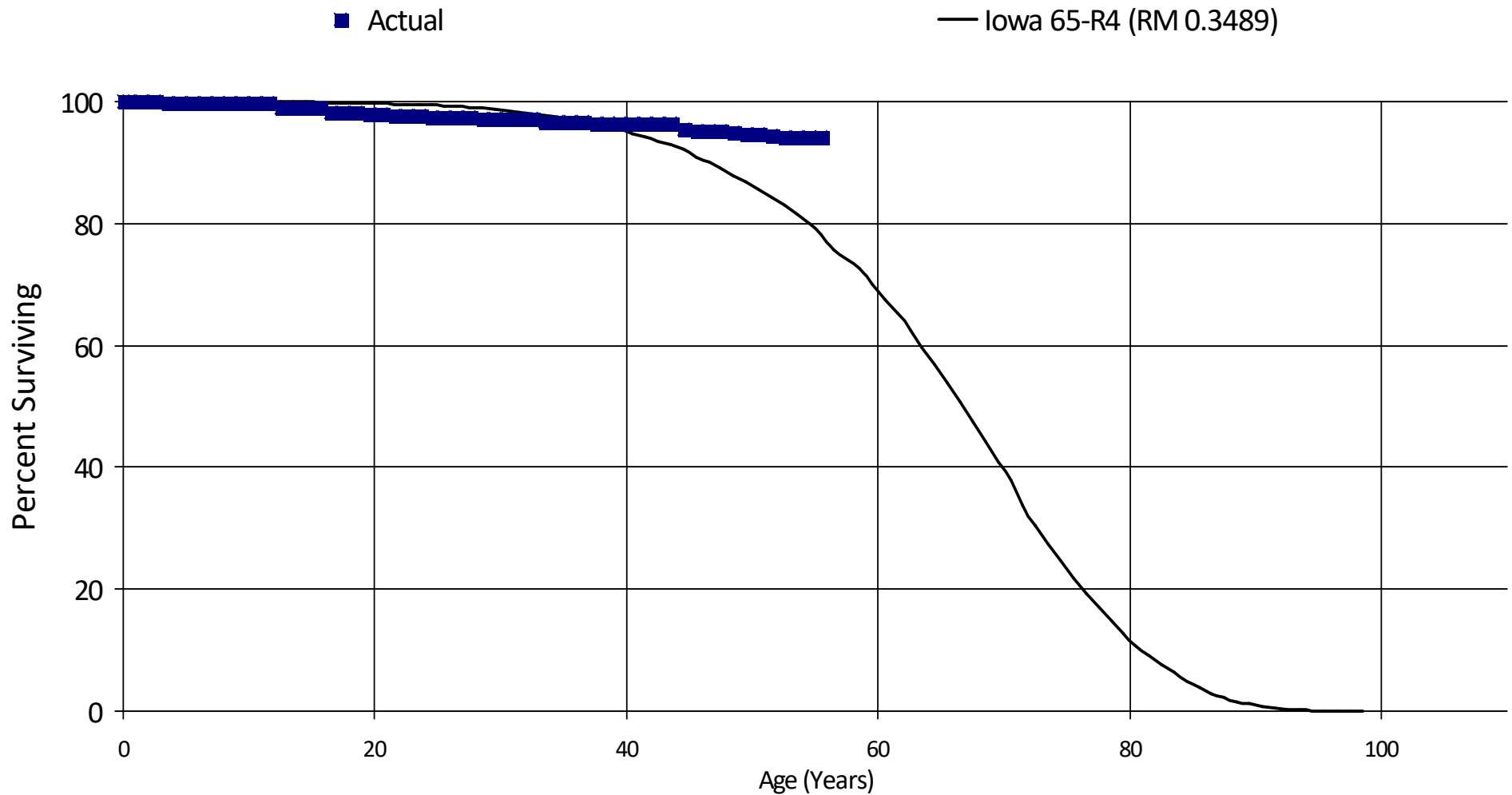
27.5	1,119,039	0	0.00000	1.00000	100.00
28.5	1,119,039	0	0.00000	1.00000	100.00
29.5	1,112,416	0	0.00000	1.00000	100.00
30.5	1,060,242	0	0.00000	1.00000	100.00
31.5	966,146	0	0.00000	1.00000	100.00
32.5	885,215	0	0.00000	1.00000	100.00
33.5	807,922	0	0.00000	1.00000	100.00
34.5	807,922	7,281	0.00901	0.99099	100.00
35.5	756,045	0	0.00000	1.00000	99.10
36.5	756,045	0	0.00000	1.00000	99.10
37.5	756,045	0	0.00000	1.00000	99.10
38.5	756,045	0	0.00000	1.00000	99.10
39.5	722,823	0	0.00000	1.00000	99.10
40.5	623,471	0	0.00000	1.00000	99.10
41.5	575,688	0	0.00000	1.00000	99.10
42.5	513,619	0	0.00000	1.00000	99.10
43.5	429,332	188	0.00044	0.99956	99.10
44.5	344,032	0	0.00000	1.00000	99.06
45.5	337,249	0	0.00000	1.00000	99.06
46.5	333,551	0	0.00000	1.00000	99.06
47.5	318,248	6,571	0.02065	0.97935	99.06
48.5	311,677	0	0.00000	1.00000	97.01
49.5	311,677	0	0.00000	1.00000	97.01
50.5	298,816	0	0.00000	1.00000	97.01
51.5	270,008	0	0.00000	1.00000	97.01
52.5	134,932	0	0.00000	1.00000	97.01
53.5	134,932	0	0.00000	1.00000	97.01
54.5	67,835	0	0.00000	1.00000	97.01
Totals:		14,040			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C04 - Cables - Above Ground

Placement Band - 1965 - 2022 Experience Band - 2010 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C04 - Cables - Above Ground

Placement Band - 1965 - 2022 Experience Band - 2010 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	15,872,188	0	0.00000	1.00000	100.00
0.5	15,540,535	0	0.00000	1.00000	100.00
1.5	14,462,896	0	0.00000	1.00000	100.00
2.5	14,135,140	29,911	0.00212	0.99788	100.00
3.5	14,044,196	0	0.00000	1.00000	99.79
4.5	12,270,104	0	0.00000	1.00000	99.79
5.5	10,190,580	0	0.00000	1.00000	99.79
6.5	10,103,197	0	0.00000	1.00000	99.79
7.5	10,001,442	0	0.00000	1.00000	99.79
8.5	10,001,442	0	0.00000	1.00000	99.79
9.5	9,839,330	0	0.00000	1.00000	99.79
10.5	9,427,425	0	0.00000	1.00000	99.79
11.5	9,128,061	63,219	0.00693	0.99307	99.79
12.5	9,004,293	0	0.00000	1.00000	99.10
13.5	9,004,293	0	0.00000	1.00000	99.10
14.5	9,004,293	0	0.00000	1.00000	99.10
15.5	9,004,293	84,913	0.00943	0.99057	99.10
16.5	8,876,906	0	0.00000	1.00000	98.17
17.5	8,762,283	0	0.00000	1.00000	98.17
18.5	8,762,283	27,352	0.00312	0.99688	98.17
19.5	8,665,270	0	0.00000	1.00000	97.86
20.5	8,656,568	4,631	0.00053	0.99947	97.86
21.5	8,536,396	0	0.00000	1.00000	97.81
22.5	8,428,726	0	0.00000	1.00000	97.81
23.5	8,341,233	38,030	0.00456	0.99544	97.81
24.5	8,082,379	0	0.00000	1.00000	97.36
25.5	8,061,521	0	0.00000	1.00000	97.36
26.5	7,967,926	0	0.00000	1.00000	97.36

NEWFOUNDLAND AND LABRADOR HYDRO

Account C04 - Cables - Above Ground

Placement Band - 1965 - 2022 Experience Band - 2010 - 2022

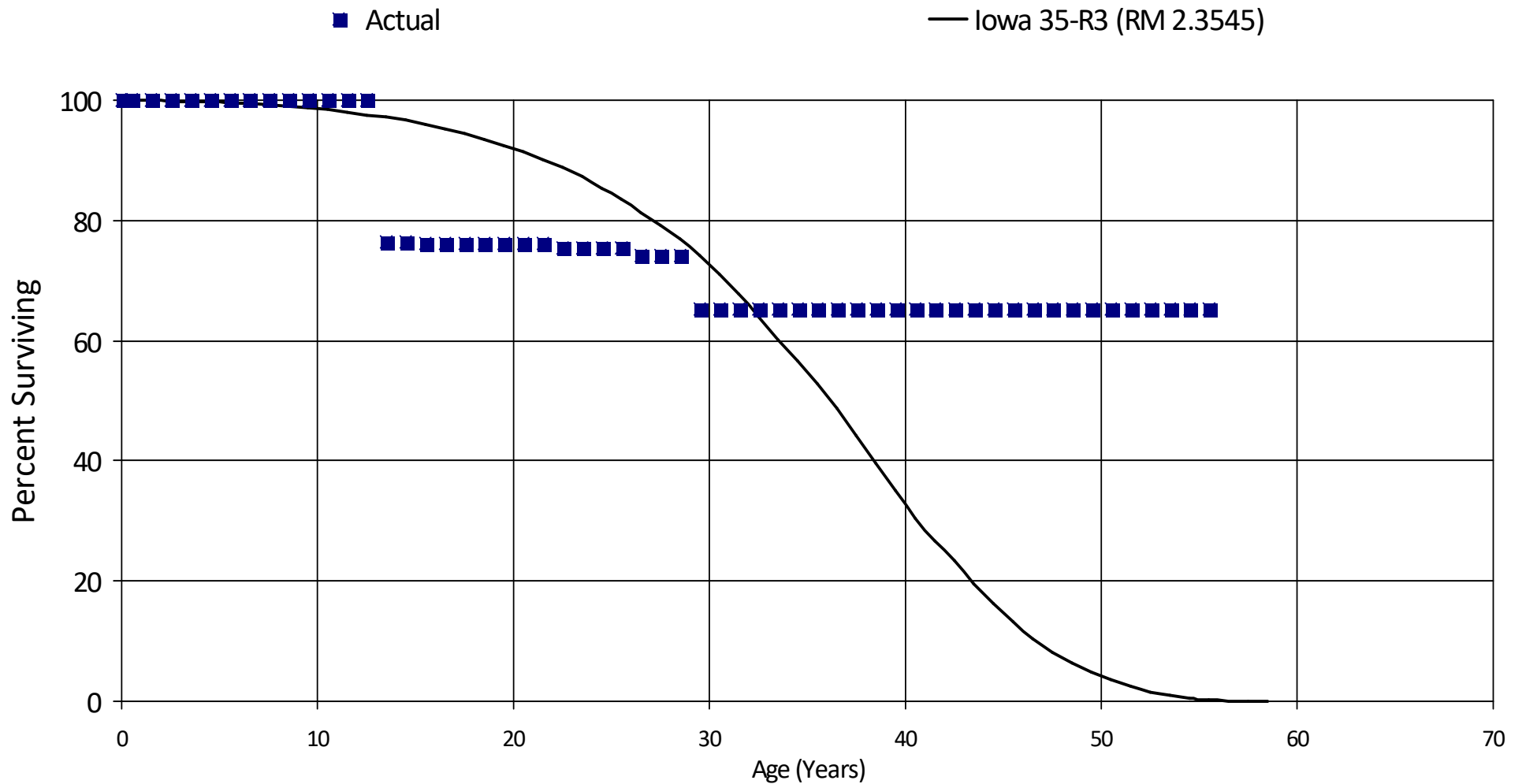
27.5	7,740,577	19,117	0.00247	0.99753	97.36
28.5	7,049,617	150	0.00002	0.99998	97.12
29.5	6,994,816	0	0.00000	1.00000	97.12
30.5	6,614,511	0	0.00000	1.00000	97.12
31.5	6,145,339	0	0.00000	1.00000	97.12
32.5	5,923,995	27,298	0.00461	0.99539	97.12
33.5	5,489,825	134	0.00002	0.99998	96.67
34.5	5,371,985	0	0.00000	1.00000	96.67
35.5	5,239,508	0	0.00000	1.00000	96.67
36.5	5,155,318	8,429	0.00164	0.99836	96.67
37.5	4,251,510	0	0.00000	1.00000	96.51
38.5	4,224,731	0	0.00000	1.00000	96.51
39.5	3,660,451	0	0.00000	1.00000	96.51
40.5	3,387,879	0	0.00000	1.00000	96.51
41.5	3,326,851	0	0.00000	1.00000	96.51
42.5	2,169,812	0	0.00000	1.00000	96.51
43.5	2,024,849	20,755	0.01025	0.98975	96.51
44.5	1,477,860	5,372	0.00363	0.99637	95.52
45.5	1,403,328	0	0.00000	1.00000	95.17
46.5	1,385,134	0	0.00000	1.00000	95.17
47.5	1,371,622	3,444	0.00251	0.99749	95.17
48.5	1,313,125	3,099	0.00236	0.99764	94.93
49.5	1,309,007	558	0.00043	0.99957	94.71
50.5	1,308,449	2,734	0.00209	0.99791	94.67
51.5	1,112,487	4,920	0.00442	0.99558	94.47
52.5	806,220	0	0.00000	1.00000	94.05
53.5	806,220	0	0.00000	1.00000	94.05
54.5	176,786	0	0.00000	1.00000	94.05
55.5	0	0	0.00000	0.00000	94.05
Totals:		344,066			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C06 - Capacitors

Placement Band - 1966 - 2021 Experience Band - 1996 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C06 - Capacitors

Placement Band - 1966 - 2021 Experience Band - 1996 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,428,578	0	0.00000	1.00000	100.00
0.5	1,428,578	0	0.00000	1.00000	100.00
1.5	1,413,131	0	0.00000	1.00000	100.00
2.5	1,413,131	0	0.00000	1.00000	100.00
3.5	1,413,131	0	0.00000	1.00000	100.00
4.5	1,413,131	0	0.00000	1.00000	100.00
5.5	1,413,131	0	0.00000	1.00000	100.00
6.5	1,413,131	0	0.00000	1.00000	100.00
7.5	1,413,131	0	0.00000	1.00000	100.00
8.5	1,413,131	0	0.00000	1.00000	100.00
9.5	1,413,131	0	0.00000	1.00000	100.00
10.5	1,413,131	0	0.00000	1.00000	100.00
11.5	1,413,131	0	0.00000	1.00000	100.00
12.5	1,413,131	332,373	0.23520	0.76480	100.00
13.5	1,080,758	0	0.00000	1.00000	76.48
14.5	1,080,758	4,448	0.00412	0.99588	76.48
15.5	1,076,310	0	0.00000	1.00000	76.16
16.5	1,076,310	0	0.00000	1.00000	76.16
17.5	1,076,310	0	0.00000	1.00000	76.16
18.5	1,076,310	0	0.00000	1.00000	76.16
19.5	1,076,310	0	0.00000	1.00000	76.16
20.5	1,076,310	0	0.00000	1.00000	76.16
21.5	1,076,310	10,542	0.00979	0.99021	76.16
22.5	909,122	0	0.00000	1.00000	75.41
23.5	909,122	0	0.00000	1.00000	75.41
24.5	909,122	0	0.00000	1.00000	75.41
25.5	909,122	16,678	0.01835	0.98165	75.41
26.5	591,947	0	0.00000	1.00000	74.03

NEWFOUNDLAND AND LABRADOR HYDRO

Account C06 - Capacitors

Placement Band - 1966 - 2021 Experience Band - 1996 - 2022

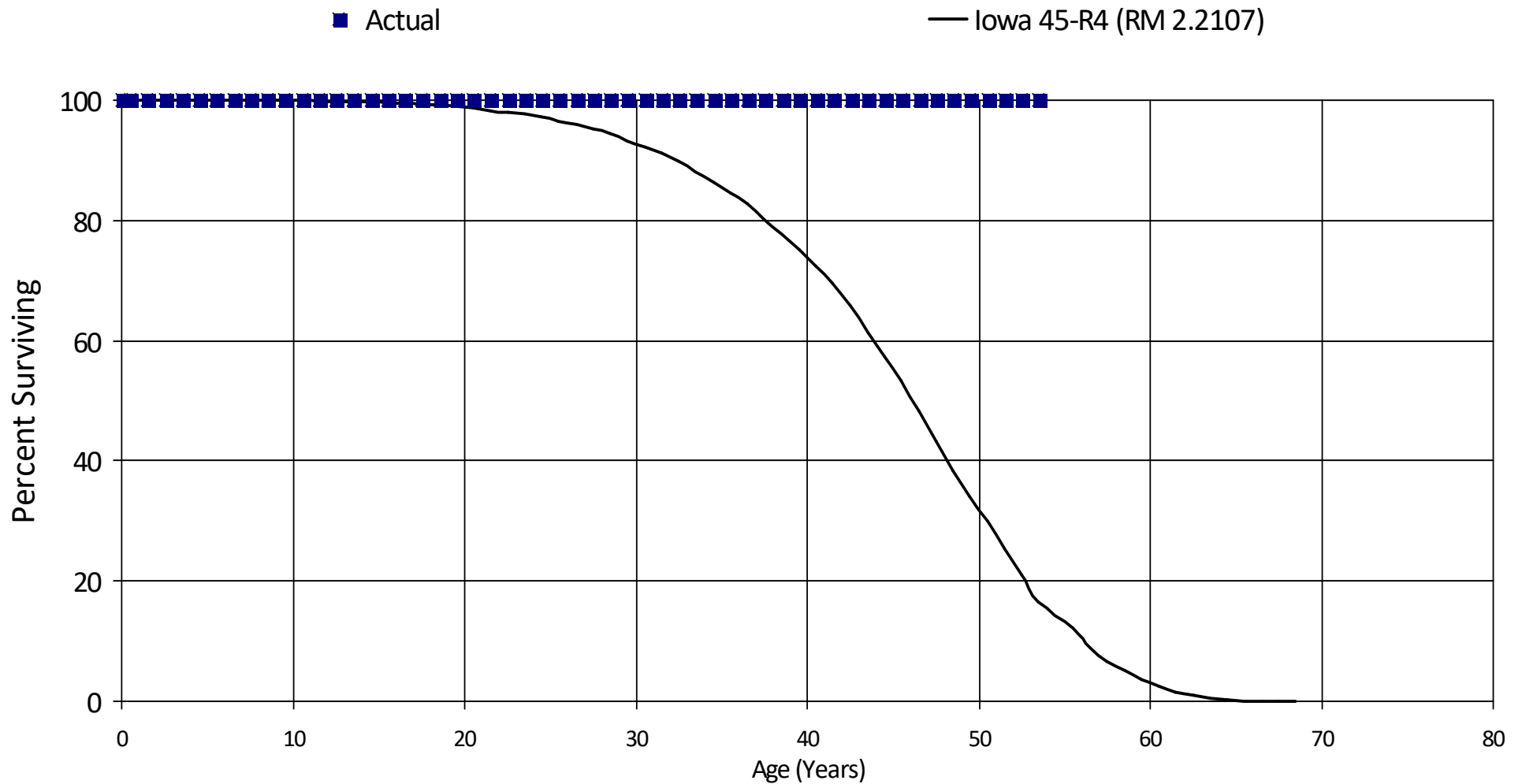
27.5	582,416	0	0.00000	1.00000	74.03
28.5	582,416	69,680	0.11964	0.88036	74.03
29.5	512,736	0	0.00000	1.00000	65.17
30.5	512,736	0	0.00000	1.00000	65.17
31.5	512,736	0	0.00000	1.00000	65.17
32.5	512,736	0	0.00000	1.00000	65.17
33.5	512,736	0	0.00000	1.00000	65.17
34.5	512,736	0	0.00000	1.00000	65.17
35.5	429,010	0	0.00000	1.00000	65.17
36.5	429,010	0	0.00000	1.00000	65.17
37.5	429,010	0	0.00000	1.00000	65.17
38.5	429,010	0	0.00000	1.00000	65.17
39.5	429,010	0	0.00000	1.00000	65.17
40.5	405,743	0	0.00000	1.00000	65.17
41.5	405,743	0	0.00000	1.00000	65.17
42.5	332,630	0	0.00000	1.00000	65.17
43.5	332,630	0	0.00000	1.00000	65.17
44.5	332,630	0	0.00000	1.00000	65.17
45.5	332,630	0	0.00000	1.00000	65.17
46.5	308,195	0	0.00000	1.00000	65.17
47.5	308,195	0	0.00000	1.00000	65.17
48.5	308,195	0	0.00000	1.00000	65.17
49.5	308,195	0	0.00000	1.00000	65.17
50.5	308,195	0	0.00000	1.00000	65.17
51.5	47,294	0	0.00000	1.00000	65.17
52.5	44,471	0	0.00000	1.00000	65.17
53.5	44,471	0	0.00000	1.00000	65.17
54.5	44,471	0	0.00000	1.00000	65.17
55.5	44,471	0	0.00000	1.00000	65.17
Totals:		433,721			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C07 - Chemical Feed Systems

Placement Band - 1968 - 2014 Experience Band - 2022 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C07 - Chemical Feed Systems

Placement Band - 1968 - 2014 Experience Band - 2022 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	459,814	0	0.00000	1.00000	100.00
0.5	459,814	0	0.00000	1.00000	100.00
1.5	459,814	0	0.00000	1.00000	100.00
2.5	459,814	0	0.00000	1.00000	100.00
3.5	459,814	0	0.00000	1.00000	100.00
4.5	459,814	0	0.00000	1.00000	100.00
5.5	459,814	0	0.00000	1.00000	100.00
6.5	459,814	0	0.00000	1.00000	100.00
7.5	459,814	0	0.00000	1.00000	100.00
8.5	446,523	0	0.00000	1.00000	100.00
9.5	446,523	0	0.00000	1.00000	100.00
10.5	446,523	0	0.00000	1.00000	100.00
11.5	446,523	0	0.00000	1.00000	100.00
12.5	446,523	0	0.00000	1.00000	100.00
13.5	446,523	0	0.00000	1.00000	100.00
14.5	446,523	0	0.00000	1.00000	100.00
15.5	446,523	0	0.00000	1.00000	100.00
16.5	446,523	0	0.00000	1.00000	100.00
17.5	446,523	0	0.00000	1.00000	100.00
18.5	446,523	0	0.00000	1.00000	100.00
19.5	446,523	0	0.00000	1.00000	100.00
20.5	446,523	0	0.00000	1.00000	100.00
21.5	446,523	0	0.00000	1.00000	100.00
22.5	446,523	0	0.00000	1.00000	100.00
23.5	446,523	0	0.00000	1.00000	100.00
24.5	446,523	0	0.00000	1.00000	100.00
25.5	417,847	0	0.00000	1.00000	100.00
26.5	417,847	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account C07 - Chemical Feed Systems

Placement Band - 1968 - 2014 Experience Band - 2022 - 2022

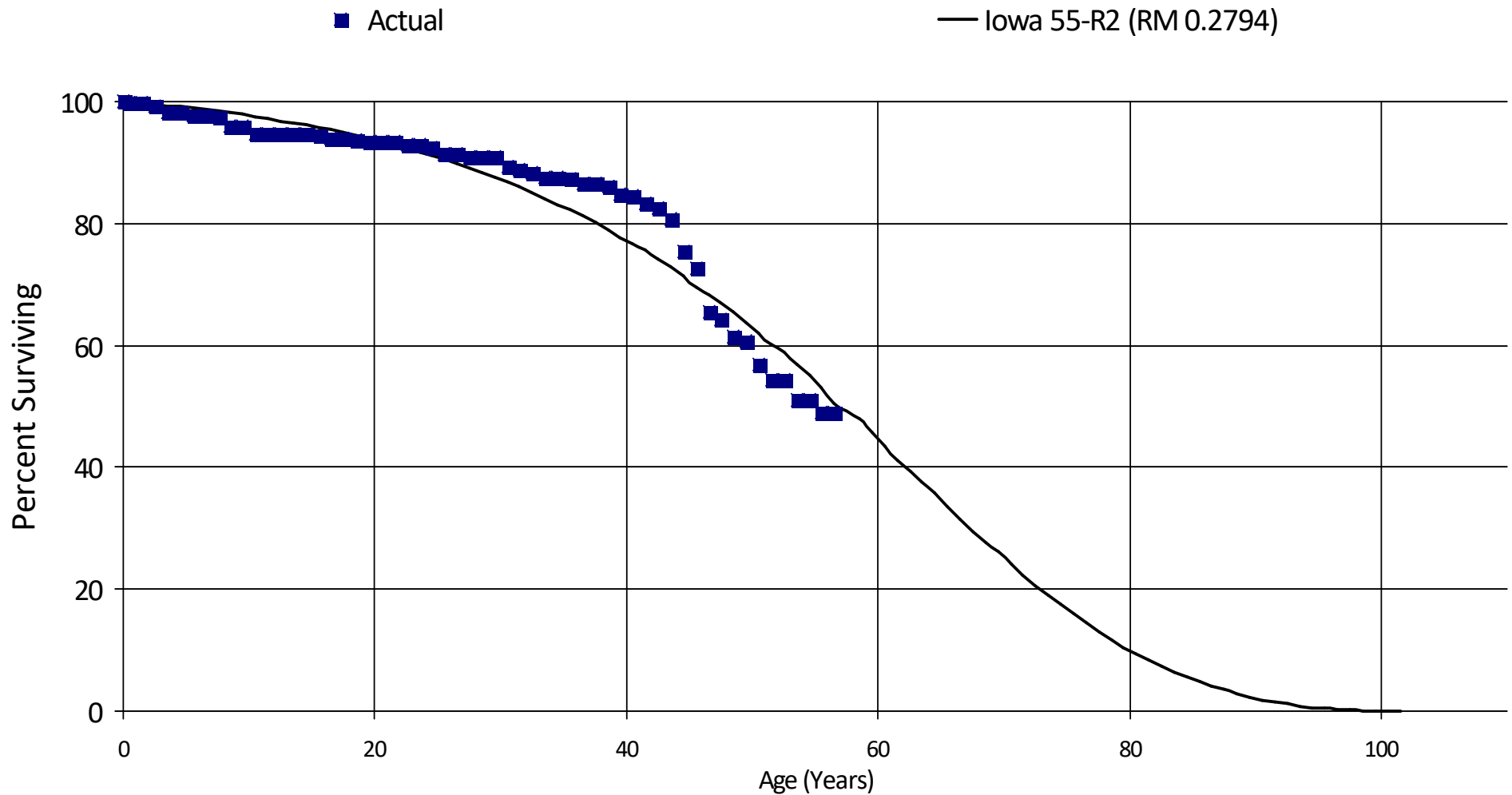
27.5	417,847	0	0.00000	1.00000	100.00
28.5	417,847	0	0.00000	1.00000	100.00
29.5	417,847	0	0.00000	1.00000	100.00
30.5	417,847	0	0.00000	1.00000	100.00
31.5	417,847	0	0.00000	1.00000	100.00
32.5	417,847	0	0.00000	1.00000	100.00
33.5	417,847	0	0.00000	1.00000	100.00
34.5	417,847	0	0.00000	1.00000	100.00
35.5	417,847	0	0.00000	1.00000	100.00
36.5	417,847	0	0.00000	1.00000	100.00
37.5	417,847	0	0.00000	1.00000	100.00
38.5	417,847	0	0.00000	1.00000	100.00
39.5	417,847	0	0.00000	1.00000	100.00
40.5	417,847	0	0.00000	1.00000	100.00
41.5	417,847	0	0.00000	1.00000	100.00
42.5	417,847	0	0.00000	1.00000	100.00
43.5	367,295	0	0.00000	1.00000	100.00
44.5	367,295	0	0.00000	1.00000	100.00
45.5	367,295	0	0.00000	1.00000	100.00
46.5	367,295	0	0.00000	1.00000	100.00
47.5	367,295	0	0.00000	1.00000	100.00
48.5	367,295	0	0.00000	1.00000	100.00
49.5	367,295	0	0.00000	1.00000	100.00
50.5	367,295	0	0.00000	1.00000	100.00
51.5	295,111	0	0.00000	1.00000	100.00
52.5	295,111	0	0.00000	1.00000	100.00
53.5	50,552	0	0.00000	1.00000	100.00
Totals:		0			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C09 - Circuit Breakers

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C09 - Circuit Breakers

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	107,082,218	160,899	0.00150	0.99850	100.00
0.5	103,113,561	0	0.00000	1.00000	99.85
1.5	95,223,482	587,602	0.00617	0.99383	99.85
2.5	88,304,644	826,176	0.00936	0.99064	99.23
3.5	76,668,533	127,535	0.00166	0.99834	98.30
4.5	61,842,839	203,392	0.00329	0.99671	98.14
5.5	49,753,673	39,439	0.00079	0.99921	97.82
6.5	39,279,069	136,556	0.00348	0.99652	97.74
7.5	25,736,314	372,827	0.01449	0.98551	97.40
8.5	23,149,529	24,779	0.00107	0.99893	95.99
9.5	19,819,902	231,183	0.01166	0.98834	95.89
10.5	16,652,886	0	0.00000	1.00000	94.77
11.5	15,592,618	0	0.00000	1.00000	94.77
12.5	15,227,506	0	0.00000	1.00000	94.77
13.5	14,662,907	0	0.00000	1.00000	94.77
14.5	14,438,454	67,355	0.00466	0.99534	94.77
15.5	14,081,930	58,294	0.00414	0.99586	94.33
16.5	13,837,029	0	0.00000	1.00000	93.94
17.5	13,787,017	50,464	0.00366	0.99634	93.94
18.5	13,656,069	40,862	0.00299	0.99701	93.60
19.5	13,265,770	0	0.00000	1.00000	93.32
20.5	12,844,291	0	0.00000	1.00000	93.32
21.5	12,825,733	47,162	0.00368	0.99632	93.32
22.5	12,513,716	20,279	0.00162	0.99838	92.98
23.5	12,493,437	47,291	0.00379	0.99621	92.83
24.5	12,291,779	147,283	0.01198	0.98802	92.48
25.5	11,950,939	0	0.00000	1.00000	91.37
26.5	11,521,671	72,655	0.00631	0.99369	91.37

NEWFOUNDLAND AND LABRADOR HYDRO

Account C09 - Circuit Breakers

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

27.5	10,619,518	0	0.00000	1.00000	90.79
28.5	10,594,070	0	0.00000	1.00000	90.79
29.5	10,321,621	173,483	0.01681	0.98319	90.79
30.5	9,057,822	46,776	0.00516	0.99484	89.26
31.5	8,909,107	56,847	0.00638	0.99362	88.80
32.5	8,474,465	75,026	0.00885	0.99115	88.23
33.5	7,814,538	0	0.00000	1.00000	87.45
34.5	7,669,706	22,391	0.00292	0.99708	87.45
35.5	7,572,931	65,599	0.00866	0.99134	87.19
36.5	7,489,118	0	0.00000	1.00000	86.43
37.5	7,449,558	32,264	0.00433	0.99567	86.43
38.5	7,417,294	104,884	0.01414	0.98586	86.06
39.5	7,000,274	17,450	0.00249	0.99751	84.84
40.5	6,069,171	104,386	0.01720	0.98280	84.63
41.5	5,762,988	54,215	0.00941	0.99059	83.17
42.5	4,956,225	99,676	0.02011	0.97989	82.39
43.5	4,779,173	310,450	0.06496	0.93504	80.73
44.5	4,207,838	165,419	0.03931	0.96069	75.49
45.5	3,520,562	343,717	0.09763	0.90237	72.52
46.5	3,176,845	55,553	0.01749	0.98251	65.44
47.5	2,850,909	126,247	0.04428	0.95572	64.30
48.5	2,661,790	32,006	0.01202	0.98798	61.45
49.5	2,629,783	162,957	0.06197	0.93803	60.71
50.5	2,073,837	91,663	0.04420	0.95580	56.95
51.5	1,571,283	6,807	0.00433	0.99567	54.43
52.5	1,130,101	65,975	0.05838	0.94162	54.19
53.5	952,243	0	0.00000	1.00000	51.03
54.5	645,419	25,751	0.03990	0.96010	51.03
55.5	52,945	0	0.00000	1.00000	48.99
56.5	0	0	0.00000	0.00000	48.99

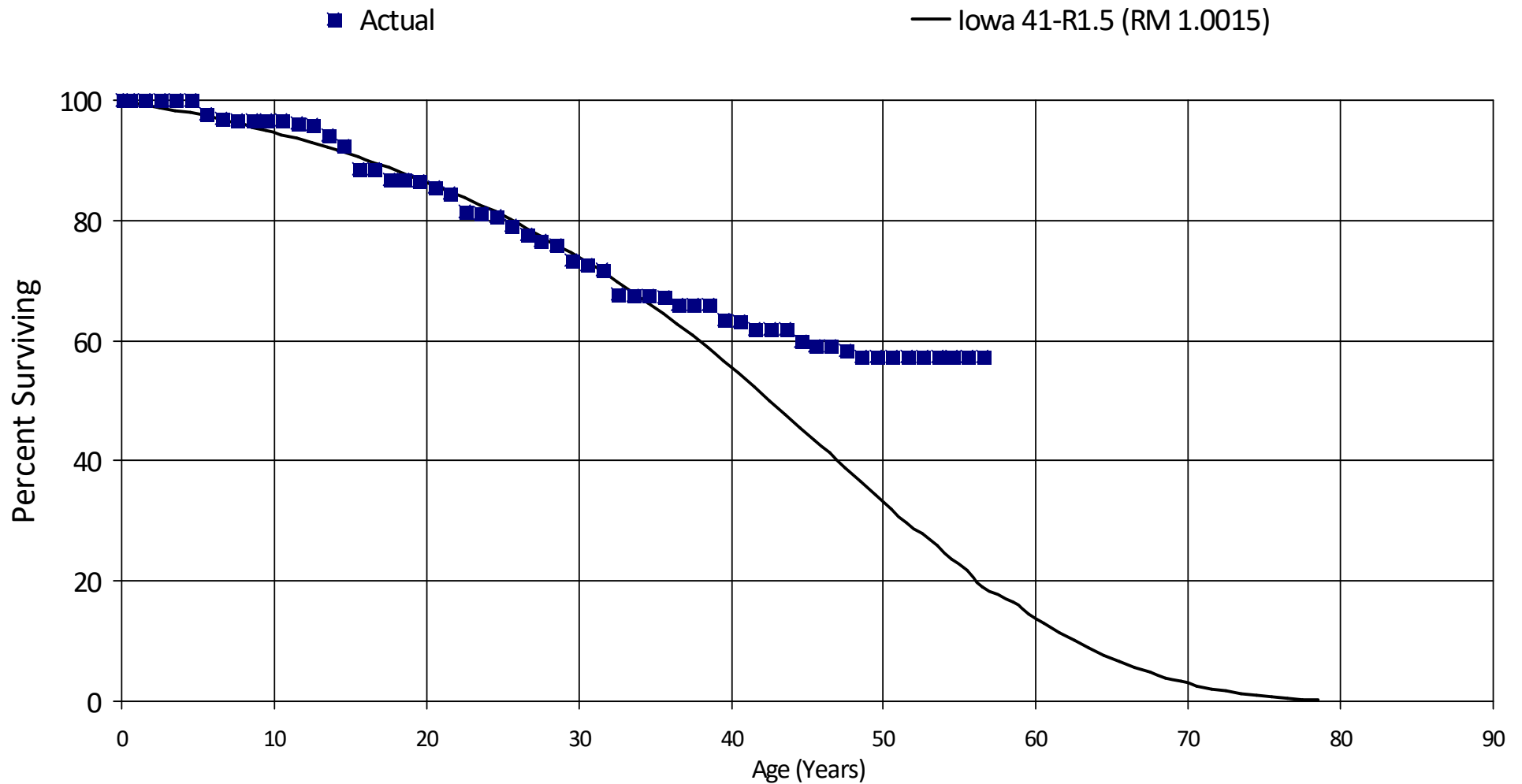
Totals: 5,501,575

NEWFOUNDLAND AND LABRADOR HYDRO

Account C10 - Compressed Air Systems

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C10 - Compressed Air Systems

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	19,880,032	0	0.00000	1.00000	100.00
0.5	19,330,380	0	0.00000	1.00000	100.00
1.5	18,910,177	0	0.00000	1.00000	100.00
2.5	18,623,658	0	0.00000	1.00000	100.00
3.5	18,566,370	2,844	0.00015	0.99985	100.00
4.5	18,563,526	414,878	0.02235	0.97765	99.98
5.5	18,117,169	171,365	0.00946	0.99054	97.75
6.5	17,263,750	5,365	0.00031	0.99969	96.83
7.5	9,165,048	19,135	0.00209	0.99791	96.80
8.5	7,202,116	0	0.00000	1.00000	96.60
9.5	6,066,303	0	0.00000	1.00000	96.60
10.5	6,066,303	33,125	0.00546	0.99454	96.60
11.5	5,438,603	2,485	0.00046	0.99954	96.07
12.5	5,295,681	101,029	0.01908	0.98092	96.03
13.5	5,025,963	96,947	0.01929	0.98071	94.20
14.5	4,611,299	192,426	0.04173	0.95827	92.38
15.5	4,179,568	1,766	0.00042	0.99958	88.52
16.5	4,161,012	79,023	0.01899	0.98101	88.48
17.5	4,081,989	0	0.00000	1.00000	86.80
18.5	4,081,989	8,231	0.00202	0.99798	86.80
19.5	3,873,758	43,863	0.01132	0.98868	86.62
20.5	3,788,623	46,678	0.01232	0.98768	85.64
21.5	3,705,578	132,489	0.03575	0.96425	84.58
22.5	3,419,656	13,168	0.00385	0.99615	81.56
23.5	3,242,130	16,940	0.00522	0.99478	81.25
24.5	3,142,169	59,522	0.01894	0.98106	80.83
25.5	3,054,116	58,872	0.01928	0.98072	79.30
26.5	2,984,588	39,150	0.01312	0.98688	77.77

NEWFOUNDLAND AND LABRADOR HYDRO

Account C10 - Compressed Air Systems

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

27.5	2,816,400	29,172	0.01036	0.98964	76.75
28.5	2,552,584	91,004	0.03565	0.96435	75.95
29.5	2,417,491	22,151	0.00916	0.99084	73.24
30.5	1,883,738	17,783	0.00944	0.99056	72.57
31.5	1,830,327	107,523	0.05875	0.94125	71.88
32.5	1,681,261	1,504	0.00089	0.99911	67.66
33.5	1,604,549	0	0.00000	1.00000	67.60
34.5	1,489,813	9,569	0.00642	0.99358	67.60
35.5	1,444,039	23,423	0.01622	0.98378	67.17
36.5	1,420,616	0	0.00000	1.00000	66.08
37.5	1,420,616	0	0.00000	1.00000	66.08
38.5	1,254,159	48,856	0.03896	0.96104	66.08
39.5	1,148,760	5,479	0.00477	0.99523	63.51
40.5	989,723	18,589	0.01878	0.98122	63.21
41.5	971,134	0	0.00000	1.00000	62.02
42.5	751,334	0	0.00000	1.00000	62.02
43.5	709,323	25,370	0.03577	0.96423	62.02
44.5	624,185	8,181	0.01311	0.98689	59.80
45.5	477,529	0	0.00000	1.00000	59.02
46.5	435,578	5,167	0.01186	0.98814	59.02
47.5	420,412	6,077	0.01445	0.98555	58.32
48.5	318,185	0	0.00000	1.00000	57.48
49.5	318,185	0	0.00000	1.00000	57.48
50.5	316,972	0	0.00000	1.00000	57.48
51.5	201,647	0	0.00000	1.00000	57.48
52.5	195,643	0	0.00000	1.00000	57.48
53.5	177,530	0	0.00000	1.00000	57.48
54.5	170,490	0	0.00000	1.00000	57.48
55.5	36,402	0	0.00000	1.00000	57.48
56.5	0	0	0.00000	0.00000	57.48

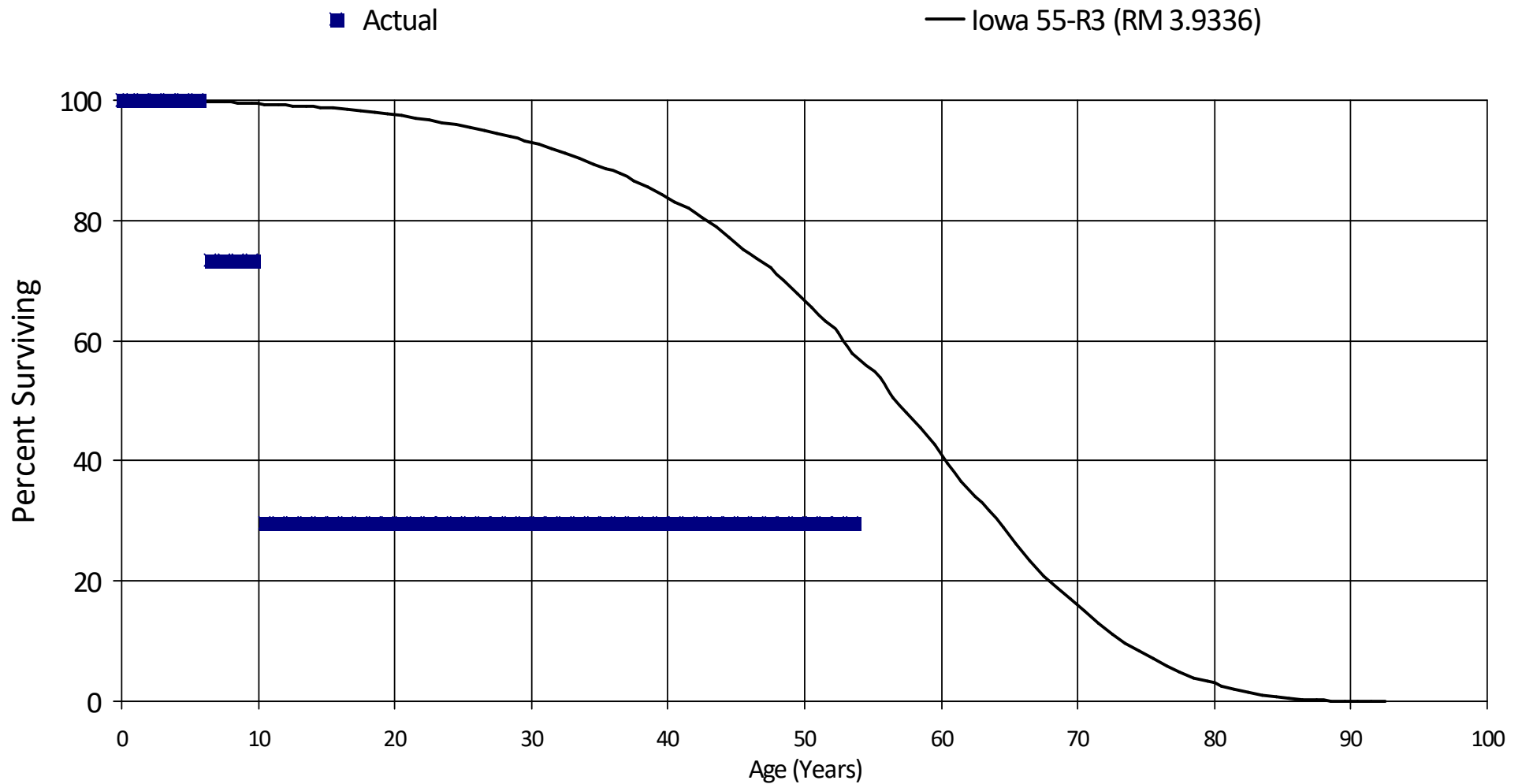
Totals: 1,959,149

NEWFOUNDLAND AND LABRADOR HYDRO

Account C12 - Condensers

Placement Band - 1968 - 2020 Experience Band - 1999 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C12 - Condensers

Placement Band - 1968 - 2020 Experience Band - 1999 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	709,727	0	0.00000	1.00000	100.00
0.5	709,727	0	0.00000	1.00000	100.00
1.5	709,727	0	0.00000	1.00000	100.00
2.5	424,727	0	0.00000	1.00000	100.00
3.5	424,727	0	0.00000	1.00000	100.00
4.5	424,727	0	0.00000	1.00000	100.00
5.5	424,727	113,499	0.26723	0.73277	100.00
6.5	311,227	0	0.00000	1.00000	73.28
7.5	311,227	0	0.00000	1.00000	73.28
8.5	311,227	0	0.00000	1.00000	73.28
9.5	311,227	185,297	0.59537	0.40463	73.28
10.5	125,930	0	0.00000	1.00000	29.65
11.5	125,930	0	0.00000	1.00000	29.65
12.5	125,930	0	0.00000	1.00000	29.65
13.5	125,930	0	0.00000	1.00000	29.65
14.5	125,930	0	0.00000	1.00000	29.65
15.5	125,930	0	0.00000	1.00000	29.65
16.5	125,930	0	0.00000	1.00000	29.65
17.5	125,930	0	0.00000	1.00000	29.65
18.5	125,930	0	0.00000	1.00000	29.65
19.5	125,930	0	0.00000	1.00000	29.65
20.5	125,930	0	0.00000	1.00000	29.65
21.5	125,930	0	0.00000	1.00000	29.65
22.5	125,930	0	0.00000	1.00000	29.65
23.5	125,930	0	0.00000	1.00000	29.65
24.5	125,930	0	0.00000	1.00000	29.65
25.5	125,930	0	0.00000	1.00000	29.65
26.5	125,930	0	0.00000	1.00000	29.65

NEWFOUNDLAND AND LABRADOR HYDRO

Account C12 - Condensers

Placement Band - 1968 - 2020 Experience Band - 1999 - 2022

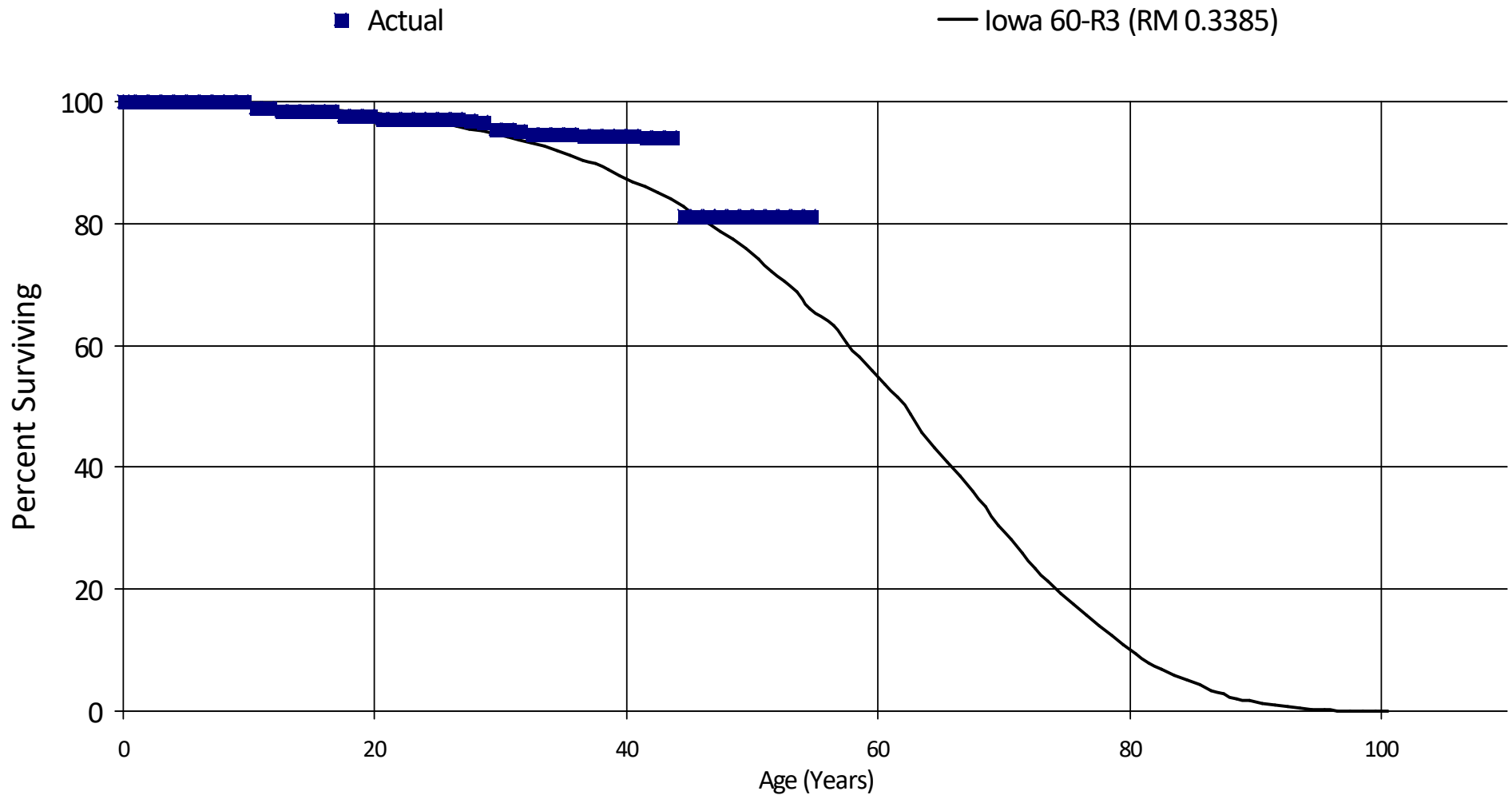
27.5	125,930	0	0.00000	1.00000	29.65
28.5	125,930	0	0.00000	1.00000	29.65
29.5	125,930	0	0.00000	1.00000	29.65
30.5	125,930	0	0.00000	1.00000	29.65
31.5	125,930	0	0.00000	1.00000	29.65
32.5	125,930	0	0.00000	1.00000	29.65
33.5	125,930	0	0.00000	1.00000	29.65
34.5	125,930	0	0.00000	1.00000	29.65
35.5	125,930	0	0.00000	1.00000	29.65
36.5	125,930	0	0.00000	1.00000	29.65
37.5	125,930	0	0.00000	1.00000	29.65
38.5	125,930	0	0.00000	1.00000	29.65
39.5	125,930	0	0.00000	1.00000	29.65
40.5	125,930	0	0.00000	1.00000	29.65
41.5	125,930	0	0.00000	1.00000	29.65
42.5	125,930	0	0.00000	1.00000	29.65
43.5	125,930	0	0.00000	1.00000	29.65
44.5	125,930	0	0.00000	1.00000	29.65
45.5	125,930	0	0.00000	1.00000	29.65
46.5	125,930	0	0.00000	1.00000	29.65
47.5	125,930	0	0.00000	1.00000	29.65
48.5	125,930	0	0.00000	1.00000	29.65
49.5	125,930	0	0.00000	1.00000	29.65
50.5	125,930	0	0.00000	1.00000	29.65
51.5	125,930	0	0.00000	1.00000	29.65
52.5	125,930	0	0.00000	1.00000	29.65
53.5	125,930	0	0.00000	1.00000	29.65
Totals:		298,796			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C13 - Conductor - Transmission

Placement Band - 1967 - 2020 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C13 - Conductor - Transmission

Placement Band - 1967 - 2020 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	93,476,162	0	0.00000	1.00000	100.00
0.5	93,476,162	0	0.00000	1.00000	100.00
1.5	93,476,162	0	0.00000	1.00000	100.00
2.5	93,081,990	0	0.00000	1.00000	100.00
3.5	92,883,175	0	0.00000	1.00000	100.00
4.5	90,494,242	0	0.00000	1.00000	100.00
5.5	67,952,791	0	0.00000	1.00000	100.00
6.5	67,759,071	67,979	0.00100	0.99900	100.00
7.5	67,691,091	0	0.00000	1.00000	99.90
8.5	67,691,091	0	0.00000	1.00000	99.90
9.5	67,691,091	578,547	0.00855	0.99145	99.90
10.5	67,112,544	26,504	0.00039	0.99961	99.05
11.5	67,086,039	370,056	0.00552	0.99448	99.01
12.5	66,715,983	12,891	0.00019	0.99981	98.46
13.5	66,591,325	24,358	0.00037	0.99963	98.44
14.5	66,566,967	0	0.00000	1.00000	98.40
15.5	66,566,967	0	0.00000	1.00000	98.40
16.5	65,861,446	410,530	0.00623	0.99377	98.40
17.5	65,450,916	63,133	0.00096	0.99904	97.79
18.5	64,953,386	0	0.00000	1.00000	97.70
19.5	64,778,828	341,068	0.00527	0.99473	97.70
20.5	61,842,941	0	0.00000	1.00000	97.19
21.5	59,530,975	0	0.00000	1.00000	97.19
22.5	56,657,941	0	0.00000	1.00000	97.19
23.5	56,636,252	14,600	0.00026	0.99974	97.19
24.5	55,048,053	990	0.00002	0.99998	97.16
25.5	53,901,311	25,135	0.00047	0.99953	97.16
26.5	52,652,156	85,533	0.00162	0.99838	97.11

NEWFOUNDLAND AND LABRADOR HYDRO

Account C13 - Conductor - Transmission

Placement Band - 1967 - 2020 Experience Band - 1991 - 2022

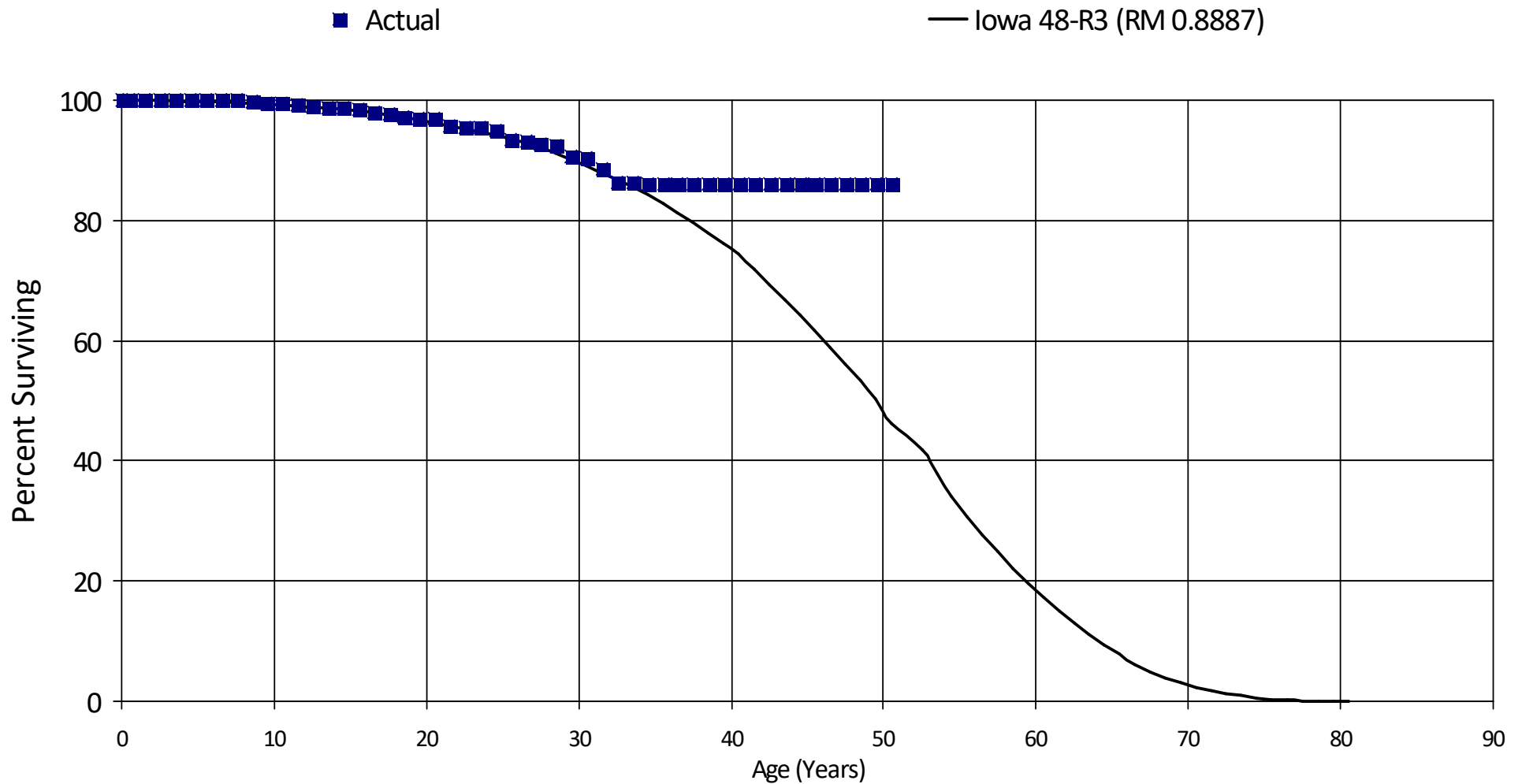
27.5	51,144,224	119,028	0.00233	0.99767	96.95
28.5	50,964,374	625,623	0.01228	0.98772	96.72
29.5	50,338,751	0	0.00000	1.00000	95.53
30.5	50,338,751	133,501	0.00265	0.99735	95.53
31.5	50,119,117	324,580	0.00648	0.99352	95.28
32.5	39,272,997	24,442	0.00062	0.99938	94.66
33.5	39,248,555	0	0.00000	1.00000	94.60
34.5	37,774,614	0	0.00000	1.00000	94.60
35.5	35,056,392	83,483	0.00238	0.99762	94.60
36.5	34,972,909	18,578	0.00053	0.99947	94.37
37.5	29,549,783	0	0.00000	1.00000	94.32
38.5	29,502,536	9,758	0.00033	0.99967	94.32
39.5	23,494,580	0	0.00000	1.00000	94.29
40.5	20,150,482	10,968	0.00054	0.99946	94.29
41.5	15,993,574	0	0.00000	1.00000	94.24
42.5	15,812,504	2,486	0.00016	0.99984	94.24
43.5	15,810,018	2,164,031	0.13688	0.86312	94.22
44.5	13,206,007	0	0.00000	1.00000	81.32
45.5	10,175,438	15,091	0.00148	0.99852	81.32
46.5	10,064,851	0	0.00000	1.00000	81.20
47.5	10,064,851	0	0.00000	1.00000	81.20
48.5	8,349,019	0	0.00000	1.00000	81.20
49.5	8,349,019	0	0.00000	1.00000	81.20
50.5	8,349,019	0	0.00000	1.00000	81.20
51.5	8,349,019	0	0.00000	1.00000	81.20
52.5	7,575,829	0	0.00000	1.00000	81.20
53.5	7,323,183	0	0.00000	1.00000	81.20
54.5	4,914,311	0	0.00000	1.00000	81.20
Totals:		5,552,893			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C14 - Conductor - Distribution

Placement Band - 1971 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C14 - Conductor - Distribution

Placement Band - 1971 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	42,110,469	0	0.00000	1.00000	100.00
0.5	41,042,509	479	0.00001	0.99999	100.00
1.5	40,073,630	544	0.00001	0.99999	100.00
2.5	38,670,918	2,090	0.00005	0.99995	100.00
3.5	38,057,380	4,045	0.00011	0.99989	100.00
4.5	37,347,509	8,981	0.00024	0.99976	99.99
5.5	36,348,789	13,474	0.00037	0.99963	99.97
6.5	36,224,968	4,465	0.00012	0.99988	99.93
7.5	35,046,639	25,140	0.00072	0.99928	99.92
8.5	33,470,647	106,228	0.00317	0.99683	99.85
9.5	31,010,334	18,031	0.00058	0.99942	99.53
10.5	29,566,243	33,970	0.00115	0.99885	99.47
11.5	28,852,589	122,738	0.00425	0.99575	99.36
12.5	28,472,496	33,062	0.00116	0.99884	98.94
13.5	27,738,652	60,071	0.00217	0.99783	98.83
14.5	27,165,239	60,355	0.00222	0.99778	98.62
15.5	26,601,448	134,862	0.00507	0.99493	98.40
16.5	25,631,204	29,524	0.00115	0.99885	97.90
17.5	25,389,720	158,464	0.00624	0.99376	97.79
18.5	24,945,429	61,871	0.00248	0.99752	97.18
19.5	24,441,319	26,870	0.00110	0.99890	96.94
20.5	20,572,314	263,089	0.01279	0.98721	96.83
21.5	19,732,318	15,809	0.00080	0.99920	95.59
22.5	19,034,680	21,119	0.00111	0.99889	95.51
23.5	18,509,475	72,115	0.00390	0.99610	95.40
24.5	17,914,665	307,141	0.01714	0.98286	95.03
25.5	16,223,356	27,713	0.00171	0.99829	93.40
26.5	15,463,482	108,064	0.00699	0.99301	93.24

NEWFOUNDLAND AND LABRADOR HYDRO

Account C14 - Conductor - Distribution

Placement Band - 1971 - 2022 Experience Band - 1991 - 2022

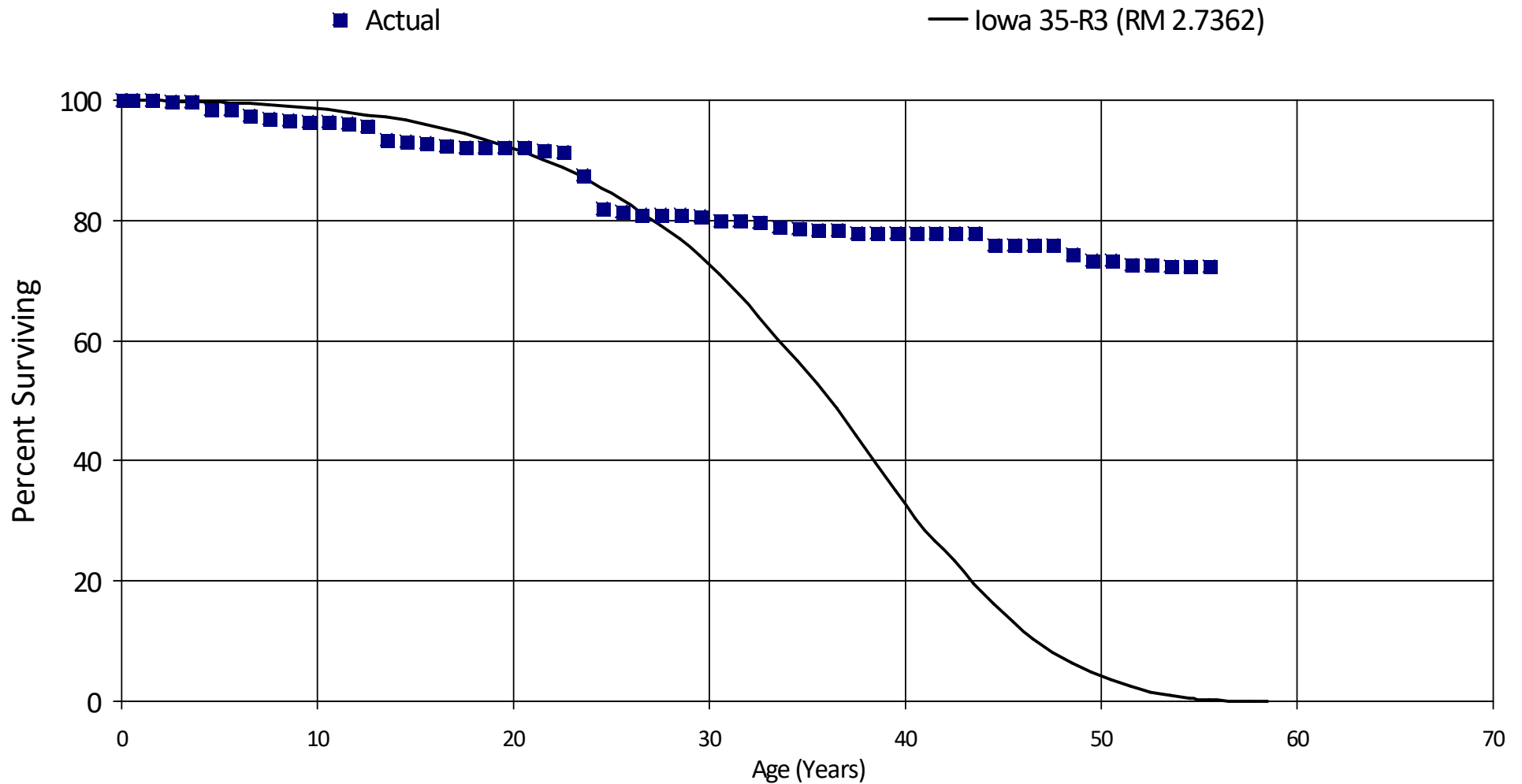
27.5	14,595,091	14,231	0.00098	0.99902	92.59
28.5	14,057,923	271,470	0.01931	0.98069	92.50
29.5	13,072,518	36,317	0.00278	0.99722	90.71
30.5	12,827,176	272,343	0.02123	0.97877	90.46
31.5	11,892,221	297,218	0.02499	0.97501	88.54
32.5	10,796,718	11,863	0.00110	0.99890	86.33
33.5	9,517,272	13,228	0.00139	0.99861	86.24
34.5	8,593,084	5,939	0.00069	0.99931	86.12
35.5	7,683,007	22	0.00000	1.00000	86.06
36.5	7,034,807	165	0.00002	0.99998	86.06
37.5	5,903,501	718	0.00012	0.99988	86.06
38.5	5,071,375	0	0.00000	1.00000	86.05
39.5	4,705,392	1	0.00000	1.00000	86.05
40.5	4,386,357	0	0.00000	1.00000	86.05
41.5	684,485	0	0.00000	1.00000	86.05
42.5	4,409	0	0.00000	1.00000	86.05
43.5	4,409	0	0.00000	1.00000	86.05
44.5	4,409	0	0.00000	1.00000	86.05
45.5	3,753	0	0.00000	1.00000	86.05
46.5	3,753	0	0.00000	1.00000	86.05
47.5	3,753	0	0.00000	1.00000	86.05
48.5	3,753	0	0.00000	1.00000	86.05
49.5	3,753	0	0.00000	1.00000	86.05
50.5	3,753	0	0.00000	1.00000	86.05
Totals:		2,643,829			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C15 - Control, Meter, Relaying

Placement Band - 1966 - 2022 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C15 - Control, Meter, Relaying

Placement Band - 1966 - 2022 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	61,372,804	0	0.00000	1.00000	100.00
0.5	58,039,341	13,320	0.00023	0.99977	100.00
1.5	54,435,646	152,676	0.00280	0.99720	99.98
2.5	48,808,351	40,934	0.00084	0.99916	99.70
3.5	44,762,293	468,393	0.01046	0.98954	99.62
4.5	37,839,087	788	0.00002	0.99998	98.58
5.5	32,447,942	377,195	0.01162	0.98838	98.58
6.5	29,555,334	167,980	0.00568	0.99432	97.43
7.5	23,128,737	25,993	0.00112	0.99888	96.88
8.5	22,744,113	51,041	0.00224	0.99776	96.77
9.5	21,887,525	0	0.00000	1.00000	96.55
10.5	21,001,526	84,209	0.00401	0.99599	96.55
11.5	20,467,296	126,533	0.00618	0.99382	96.16
12.5	19,883,432	465,613	0.02342	0.97658	95.57
13.5	18,800,636	35,163	0.00187	0.99813	93.33
14.5	18,572,155	69,390	0.00374	0.99626	93.16
15.5	18,502,765	80,152	0.00433	0.99567	92.81
16.5	18,187,519	62,522	0.00344	0.99656	92.41
17.5	17,715,623	2,726	0.00015	0.99985	92.09
18.5	17,344,174	0	0.00000	1.00000	92.08
19.5	16,897,420	13,424	0.00079	0.99921	92.08
20.5	16,644,940	55,274	0.00332	0.99668	92.01
21.5	15,639,207	55,438	0.00354	0.99646	91.70
22.5	14,950,516	609,220	0.04075	0.95925	91.38
23.5	13,868,681	904,790	0.06524	0.93476	87.66
24.5	12,839,712	59,440	0.00463	0.99537	81.94
25.5	12,252,012	80,706	0.00659	0.99341	81.56
26.5	11,879,430	13,142	0.00111	0.99889	81.02

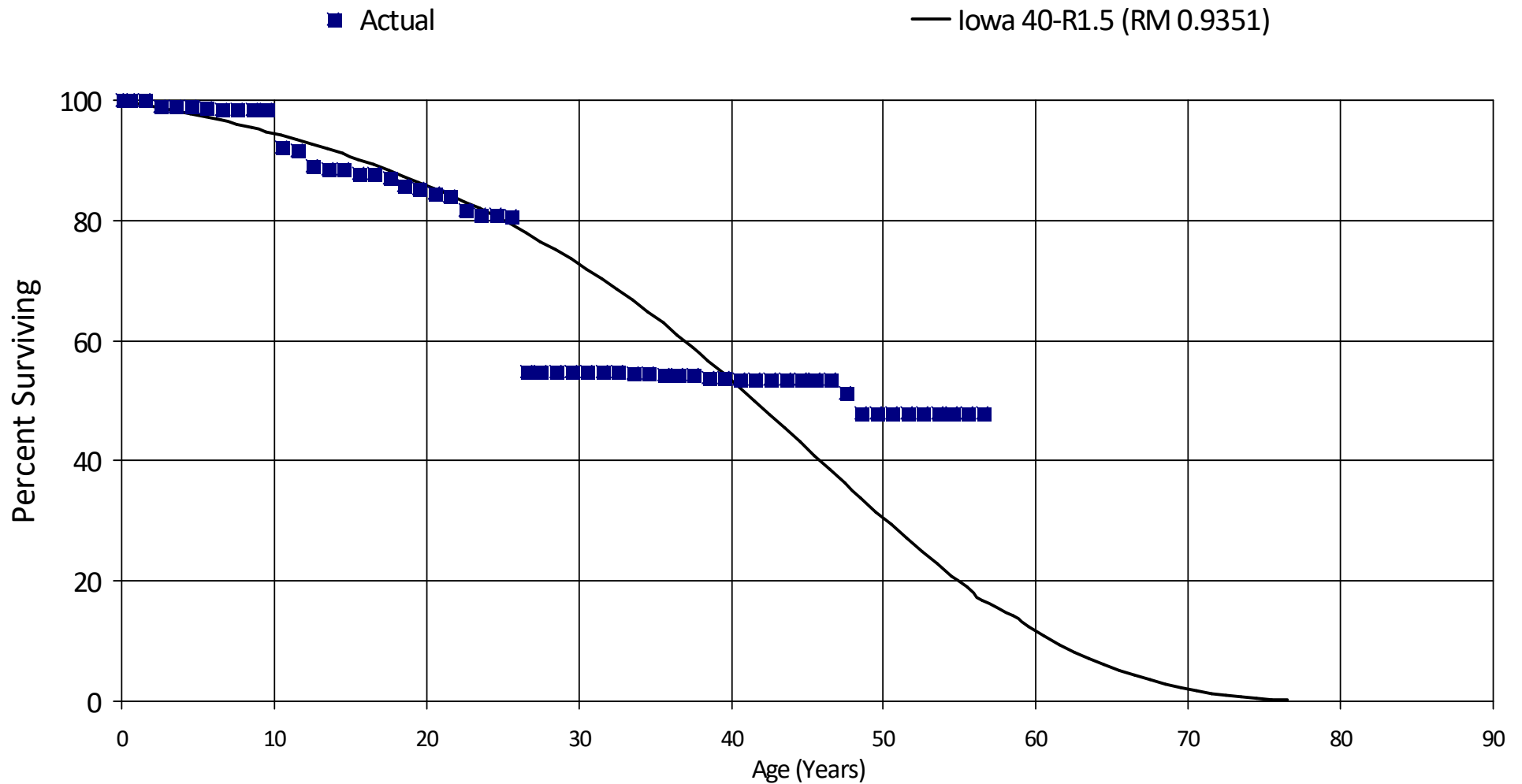
NEWFOUNDLAND AND LABRADOR HYDRO

Account C15 - Control, Meter, Relaying

Placement Band - 1966 - 2022 Experience Band - 1992 - 2022

27.5	10,835,583	2,980	0.00028	0.99972	80.93
28.5	10,424,634	16,763	0.00161	0.99839	80.91
29.5	10,350,095	91,253	0.00882	0.99118	80.78
30.5	9,110,475	23,756	0.00261	0.99739	80.07
31.5	8,776,986	5,721	0.00065	0.99935	79.86
32.5	8,001,245	94,144	0.01177	0.98823	79.81
33.5	7,499,692	22,609	0.00301	0.99699	78.87
34.5	7,215,983	21,753	0.00301	0.99699	78.63
35.5	6,851,194	0	0.00000	1.00000	78.39
36.5	6,514,229	33,134	0.00509	0.99491	78.39
37.5	6,244,024	187	0.00003	0.99997	77.99
38.5	6,150,849	0	0.00000	1.00000	77.99
39.5	5,762,787	0	0.00000	1.00000	77.99
40.5	5,114,018	0	0.00000	1.00000	77.99
41.5	4,948,500	9,772	0.00197	0.99803	77.99
42.5	4,483,512	0	0.00000	1.00000	77.84
43.5	4,203,750	99,116	0.02358	0.97642	77.84
44.5	3,731,382	0	0.00000	1.00000	76.00
45.5	3,549,684	0	0.00000	1.00000	76.00
46.5	3,534,116	6,399	0.00181	0.99819	76.00
47.5	2,932,551	62,541	0.02133	0.97867	75.86
48.5	2,749,047	28,439	0.01035	0.98965	74.24
49.5	2,720,608	0	0.00000	1.00000	73.47
50.5	2,720,608	29,198	0.01073	0.98927	73.47
51.5	2,691,410	0	0.00000	1.00000	72.68
52.5	2,299,778	8,468	0.00368	0.99632	72.68
53.5	2,275,632	0	0.00000	1.00000	72.41
54.5	2,147,651	0	0.00000	1.00000	72.41
55.5	11,395	0	0.00000	1.00000	72.41
Totals:		4,572,295			

NEWFOUNDLAND AND LABRADOR HYDRO
Account C16 - Cooling Systems and Water Supply Systems
Placement Band - 1965 - 2022 Experience Band - 1993 - 2022
Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C16 - Cooling Systems and Water Supply Systems

Placement Band - 1965 - 2022 Experience Band - 1993 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	24,724,022	0	0.00000	1.00000	100.00
0.5	24,191,840	0	0.00000	1.00000	100.00
1.5	23,399,136	220,559	0.00943	0.99057	100.00
2.5	21,738,456	0	0.00000	1.00000	99.06
3.5	21,219,833	0	0.00000	1.00000	99.06
4.5	17,700,510	61,217	0.00346	0.99654	99.06
5.5	15,874,528	21,639	0.00136	0.99864	98.72
6.5	15,303,189	7,626	0.00050	0.99950	98.59
7.5	11,575,231	0	0.00000	1.00000	98.54
8.5	11,268,194	0	0.00000	1.00000	98.54
9.5	9,337,822	597,757	0.06401	0.93599	98.54
10.5	8,740,065	61,916	0.00708	0.99292	92.23
11.5	8,287,868	234,028	0.02824	0.97176	91.58
12.5	7,705,078	42,775	0.00555	0.99445	88.99
13.5	7,190,307	0	0.00000	1.00000	88.50
14.5	6,795,640	51,412	0.00757	0.99243	88.50
15.5	6,644,463	0	0.00000	1.00000	87.83
16.5	6,600,177	57,373	0.00869	0.99131	87.83
17.5	6,475,094	87,207	0.01347	0.98653	87.07
18.5	6,387,887	45,234	0.00708	0.99292	85.90
19.5	5,045,285	50,693	0.01005	0.98995	85.29
20.5	4,955,237	27,142	0.00548	0.99452	84.43
21.5	4,928,095	133,717	0.02713	0.97287	83.97
22.5	4,715,175	36,960	0.00784	0.99216	81.69
23.5	4,660,098	0	0.00000	1.00000	81.05
24.5	4,297,320	15,494	0.00361	0.99639	81.05
25.5	4,281,825	1,376,970	0.32158	0.67842	80.76
26.5	2,865,496	0	0.00000	1.00000	54.79

NEWFOUNDLAND AND LABRADOR HYDRO

Account C16 - Cooling Systems and Water Supply Systems

Placement Band - 1965 - 2022 Experience Band - 1993 - 2022

27.5	2,679,326	364	0.00014	0.99986	54.79
28.5	2,601,024	3,483	0.00134	0.99866	54.78
29.5	2,581,595	0	0.00000	1.00000	54.71
30.5	2,455,542	0	0.00000	1.00000	54.71
31.5	2,427,234	0	0.00000	1.00000	54.71
32.5	2,382,330	1,500	0.00063	0.99937	54.71
33.5	2,121,161	3,274	0.00154	0.99846	54.68
34.5	1,991,972	7,916	0.00397	0.99603	54.60
35.5	1,944,033	0	0.00000	1.00000	54.38
36.5	1,933,674	6,231	0.00322	0.99678	54.38
37.5	1,600,703	14,120	0.00882	0.99118	54.20
38.5	1,337,275	0	0.00000	1.00000	53.72
39.5	1,328,337	1,155	0.00087	0.99913	53.72
40.5	1,161,130	0	0.00000	1.00000	53.67
41.5	1,119,390	0	0.00000	1.00000	53.67
42.5	1,080,721	0	0.00000	1.00000	53.67
43.5	776,733	1,101	0.00142	0.99858	53.67
44.5	722,975	0	0.00000	1.00000	53.59
45.5	406,801	0	0.00000	1.00000	53.59
46.5	393,794	16,854	0.04280	0.95720	53.59
47.5	376,940	25,000	0.06632	0.93368	51.30
48.5	351,940	0	0.00000	1.00000	47.90
49.5	332,601	0	0.00000	1.00000	47.90
50.5	332,601	0	0.00000	1.00000	47.90
51.5	322,855	0	0.00000	1.00000	47.90
52.5	317,077	0	0.00000	1.00000	47.90
53.5	236,314	0	0.00000	1.00000	47.90
54.5	225,790	0	0.00000	1.00000	47.90
55.5	215,751	0	0.00000	1.00000	47.90
56.5	43,528	0	0.00000	1.00000	47.90

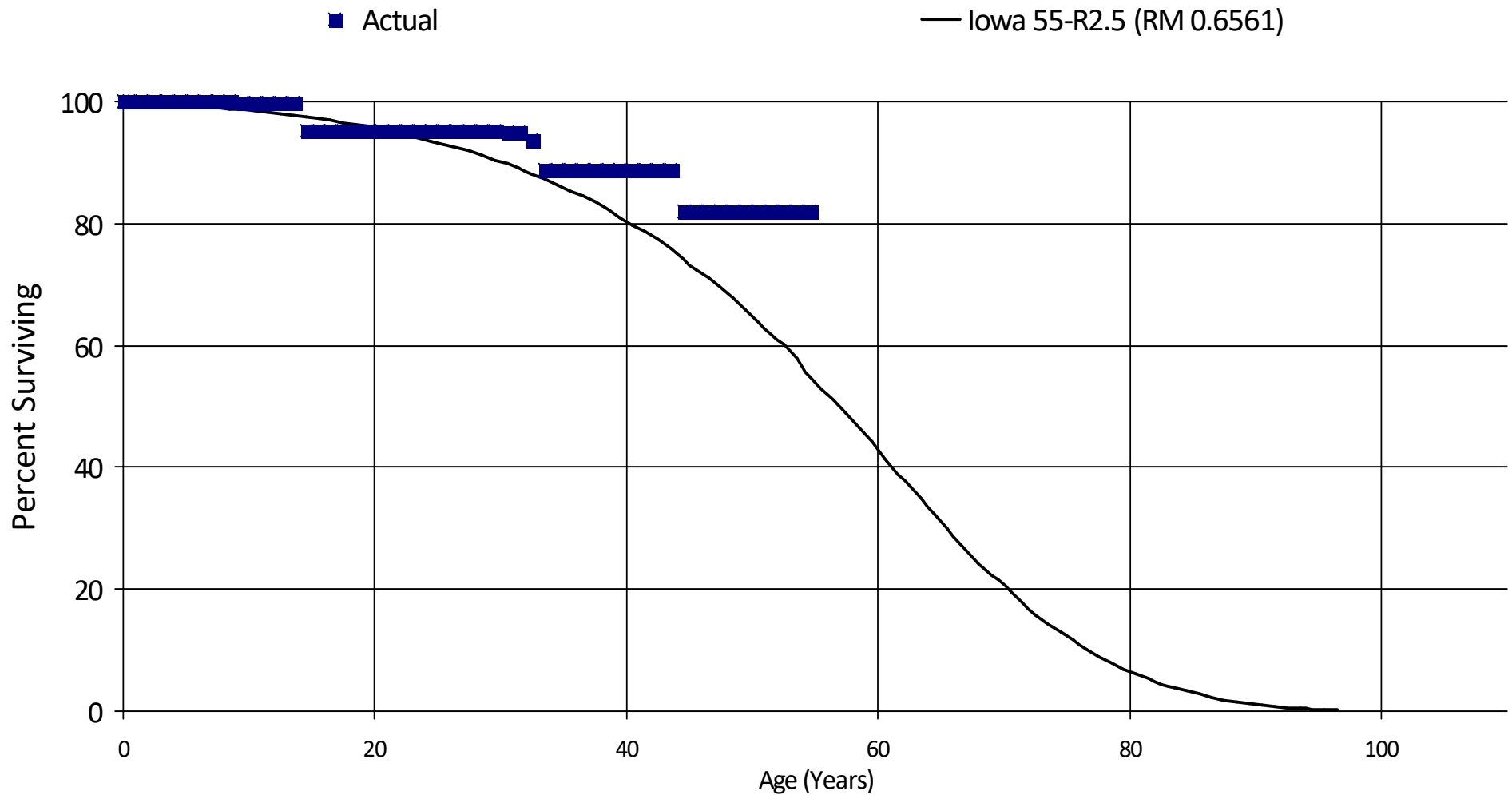
Totals: 3,210,717

NEWFOUNDLAND AND LABRADOR HYDRO

Account C17 - Counterpoise

Placement Band - 1967 - 2010 Experience Band - 2001 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C17 - Counterpoise

Placement Band - 1967 - 2010 Experience Band - 2001 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	3,807,565	0	0.00000	1.00000	100.00
0.5	3,807,565	0	0.00000	1.00000	100.00
1.5	3,807,565	0	0.00000	1.00000	100.00
2.5	3,807,565	0	0.00000	1.00000	100.00
3.5	3,807,565	0	0.00000	1.00000	100.00
4.5	3,807,565	0	0.00000	1.00000	100.00
5.5	3,807,565	0	0.00000	1.00000	100.00
6.5	3,807,565	0	0.00000	1.00000	100.00
7.5	3,807,565	0	0.00000	1.00000	100.00
8.5	3,807,565	5,928	0.00156	0.99844	100.00
9.5	3,801,637	0	0.00000	1.00000	99.84
10.5	3,801,637	0	0.00000	1.00000	99.84
11.5	3,801,637	0	0.00000	1.00000	99.84
12.5	3,801,637	5,192	0.00137	0.99863	99.84
13.5	3,796,445	176,142	0.04640	0.95360	99.70
14.5	3,620,303	0	0.00000	1.00000	95.07
15.5	3,620,303	0	0.00000	1.00000	95.07
16.5	3,620,303	0	0.00000	1.00000	95.07
17.5	3,620,303	0	0.00000	1.00000	95.07
18.5	3,620,303	0	0.00000	1.00000	95.07
19.5	3,267,393	0	0.00000	1.00000	95.07
20.5	3,086,189	0	0.00000	1.00000	95.07
21.5	2,869,337	0	0.00000	1.00000	95.07
22.5	2,588,549	0	0.00000	1.00000	95.07
23.5	2,585,391	0	0.00000	1.00000	95.07
24.5	2,585,391	0	0.00000	1.00000	95.07
25.5	2,536,948	0	0.00000	1.00000	95.07
26.5	2,519,062	0	0.00000	1.00000	95.07

NEWFOUNDLAND AND LABRADOR HYDRO

Account C17 - Counterpoise

Placement Band - 1967 - 2010 Experience Band - 2001 - 2022

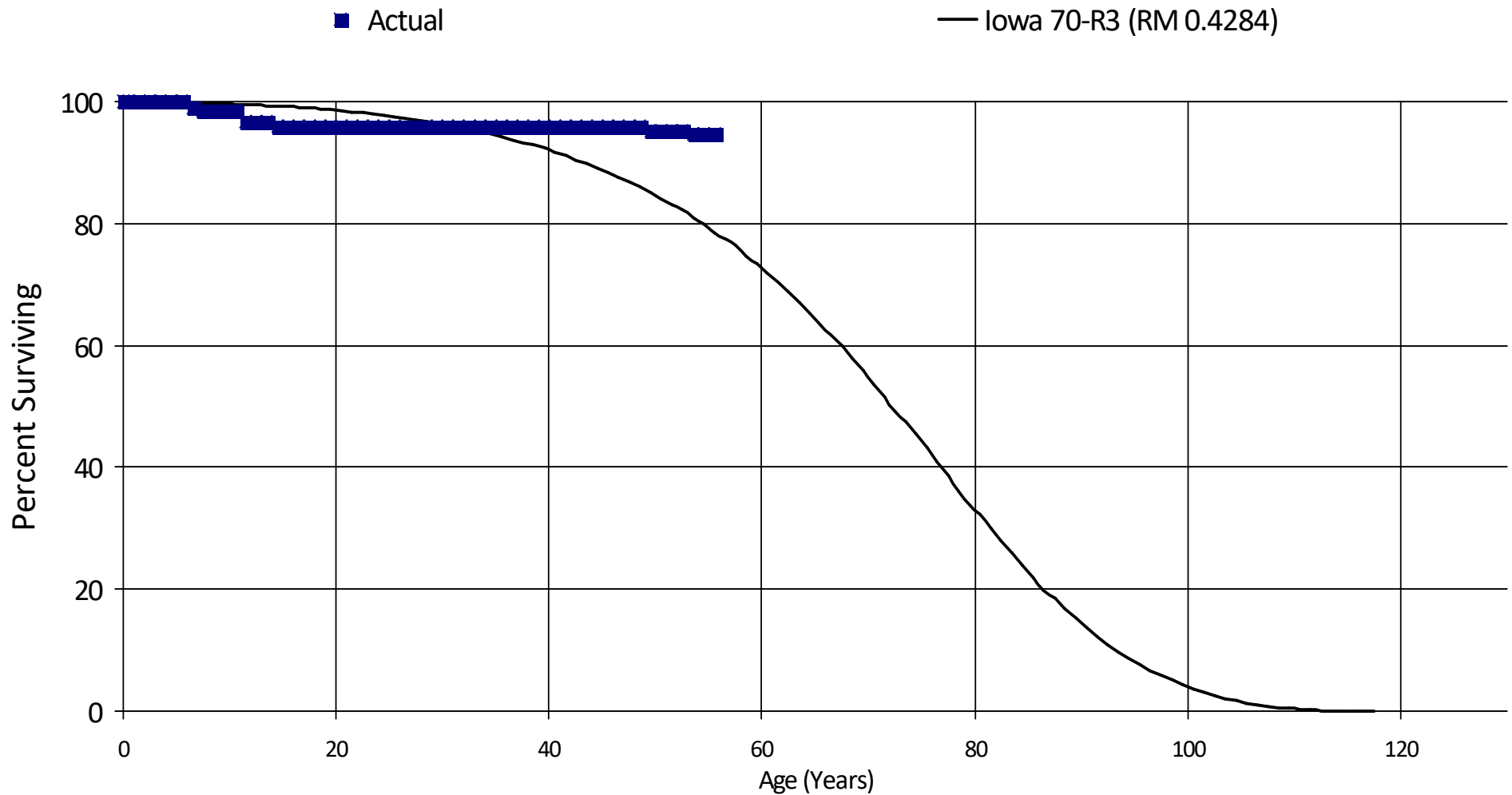
27.5	2,500,051	0	0.00000	1.00000	95.07
28.5	2,168,652	0	0.00000	1.00000	95.07
29.5	1,803,383	4,514	0.00250	0.99750	95.07
30.5	1,637,045	0	0.00000	1.00000	94.83
31.5	1,636,486	21,504	0.01314	0.98686	94.83
32.5	1,580,810	78,963	0.04995	0.95005	93.58
33.5	1,354,185	0	0.00000	1.00000	88.91
34.5	1,139,067	0	0.00000	1.00000	88.91
35.5	1,127,950	0	0.00000	1.00000	88.91
36.5	1,021,146	0	0.00000	1.00000	88.91
37.5	806,495	0	0.00000	1.00000	88.91
38.5	806,495	0	0.00000	1.00000	88.91
39.5	790,969	0	0.00000	1.00000	88.91
40.5	763,426	0	0.00000	1.00000	88.91
41.5	753,920	0	0.00000	1.00000	88.91
42.5	753,920	0	0.00000	1.00000	88.91
43.5	753,920	58,931	0.07817	0.92183	88.91
44.5	694,989	0	0.00000	1.00000	81.96
45.5	694,989	0	0.00000	1.00000	81.96
46.5	694,989	0	0.00000	1.00000	81.96
47.5	694,989	0	0.00000	1.00000	81.96
48.5	679,437	0	0.00000	1.00000	81.96
49.5	679,437	0	0.00000	1.00000	81.96
50.5	679,437	0	0.00000	1.00000	81.96
51.5	679,437	0	0.00000	1.00000	81.96
52.5	678,891	0	0.00000	1.00000	81.96
53.5	678,891	0	0.00000	1.00000	81.96
54.5	431,098	0	0.00000	1.00000	81.96
Totals:		351,174			

NEWFOUNDLAND AND LABRADOR HYDRO

Account C18 - Cranes

Placement Band - 1966 - 2022 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account C18 - Cranes

Placement Band - 1966 - 2022 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	9,025,232	0	0.00000	1.00000	100.00
0.5	8,297,235	0	0.00000	1.00000	100.00
1.5	7,808,188	0	0.00000	1.00000	100.00
2.5	7,786,346	0	0.00000	1.00000	100.00
3.5	7,367,187	0	0.00000	1.00000	100.00
4.5	7,367,187	0	0.00000	1.00000	100.00
5.5	7,331,761	75,734	0.01033	0.98967	100.00
6.5	6,675,420	31,583	0.00473	0.99527	98.97
7.5	6,630,395	0	0.00000	1.00000	98.50
8.5	6,598,812	0	0.00000	1.00000	98.50
9.5	6,598,812	4,823	0.00073	0.99927	98.50
10.5	6,593,989	123,081	0.01867	0.98133	98.43
11.5	6,470,908	0	0.00000	1.00000	96.59
12.5	6,470,908	0	0.00000	1.00000	96.59
13.5	6,470,908	42,281	0.00653	0.99347	96.59
14.5	6,413,437	0	0.00000	1.00000	95.96
15.5	6,413,437	0	0.00000	1.00000	95.96
16.5	6,319,536	0	0.00000	1.00000	95.96
17.5	6,319,536	0	0.00000	1.00000	95.96
18.5	6,319,536	0	0.00000	1.00000	95.96
19.5	4,759,386	0	0.00000	1.00000	95.96
20.5	4,750,971	0	0.00000	1.00000	95.96
21.5	4,750,971	0	0.00000	1.00000	95.96
22.5	4,750,971	0	0.00000	1.00000	95.96
23.5	4,750,971	0	0.00000	1.00000	95.96
24.5	4,750,971	0	0.00000	1.00000	95.96
25.5	4,750,971	0	0.00000	1.00000	95.96
26.5	4,744,764	0	0.00000	1.00000	95.96

NEWFOUNDLAND AND LABRADOR HYDRO

Account C18 - Cranes

Placement Band - 1966 - 2022 Experience Band - 1992 - 2022

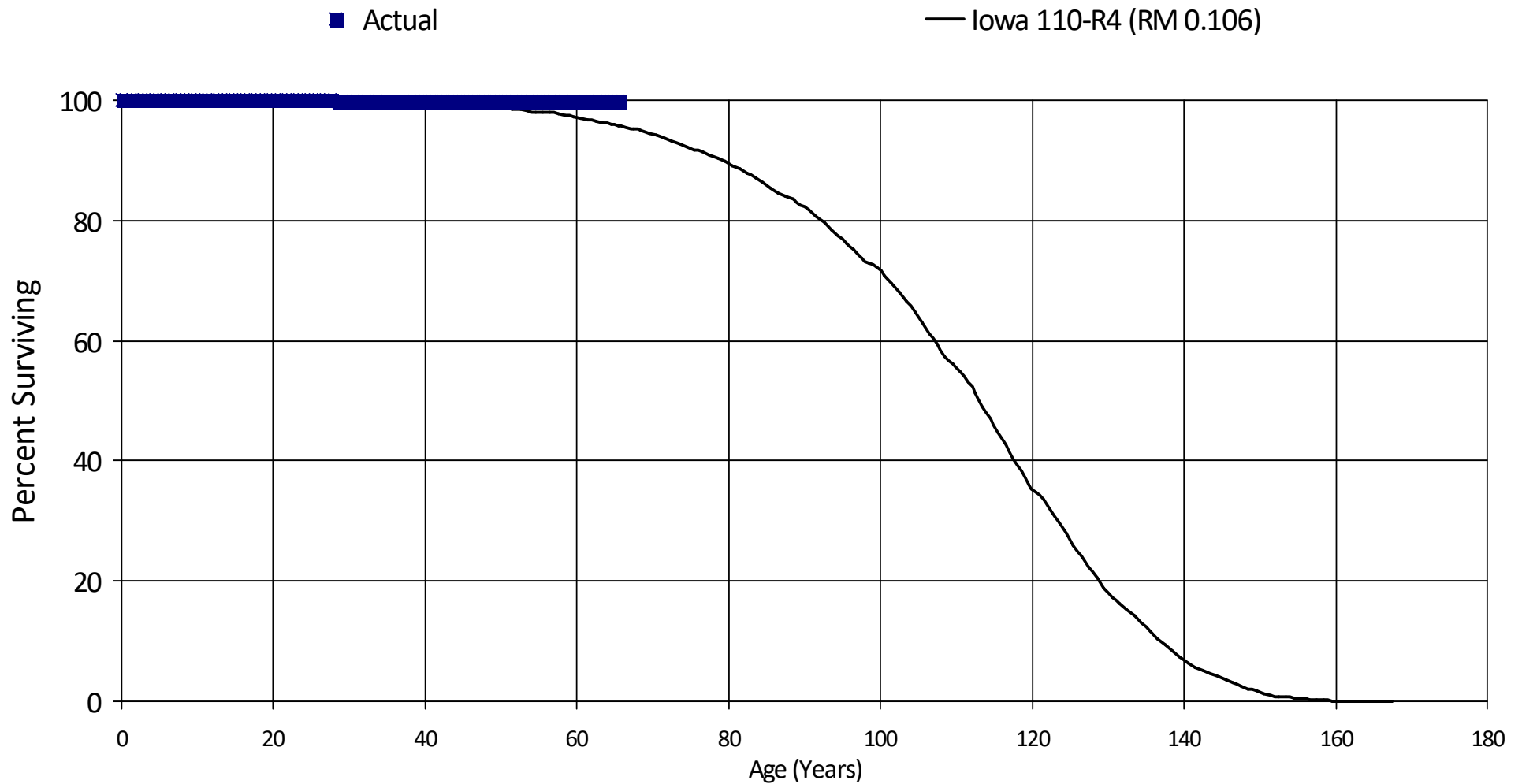
27.5	4,740,982	0	0.00000	1.00000	95.96
28.5	4,740,982	2,035	0.00043	0.99957	95.96
29.5	4,738,947	0	0.00000	1.00000	95.92
30.5	4,738,947	0	0.00000	1.00000	95.92
31.5	4,738,947	0	0.00000	1.00000	95.92
32.5	4,738,947	0	0.00000	1.00000	95.92
33.5	4,715,147	0	0.00000	1.00000	95.92
34.5	4,410,541	0	0.00000	1.00000	95.92
35.5	4,410,541	0	0.00000	1.00000	95.92
36.5	4,410,541	0	0.00000	1.00000	95.92
37.5	4,286,923	0	0.00000	1.00000	95.92
38.5	3,292,966	0	0.00000	1.00000	95.92
39.5	3,292,966	0	0.00000	1.00000	95.92
40.5	1,791,555	0	0.00000	1.00000	95.92
41.5	1,791,555	0	0.00000	1.00000	95.92
42.5	1,655,268	0	0.00000	1.00000	95.92
43.5	1,057,691	0	0.00000	1.00000	95.92
44.5	1,057,691	0	0.00000	1.00000	95.92
45.5	1,057,691	0	0.00000	1.00000	95.92
46.5	1,057,691	0	0.00000	1.00000	95.92
47.5	1,057,691	0	0.00000	1.00000	95.92
48.5	1,057,691	7,220	0.00683	0.99317	95.92
49.5	1,050,471	0	0.00000	1.00000	95.26
50.5	1,050,471	0	0.00000	1.00000	95.26
51.5	1,050,471	0	0.00000	1.00000	95.26
52.5	1,050,471	7,798	0.00742	0.99258	95.26
53.5	808,666	0	0.00000	1.00000	94.55
54.5	808,666	0	0.00000	1.00000	94.55
55.5	658,978	0	0.00000	1.00000	94.55
Totals:		294,555			

NEWFOUNDLAND AND LABRADOR HYDRO

Account D01 - Dams, Dykes, Canals, and Tunnels

Placement Band - 1956 - 2021 Experience Band - 2012 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account D01 - Dams, Dykes, Canals, and Tunnels

Placement Band - 1956 - 2021 Experience Band - 2012 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	364,677,053	0	0.00000	1.00000	100.00
0.5	364,677,053	0	0.00000	1.00000	100.00
1.5	364,415,647	0	0.00000	1.00000	100.00
2.5	364,011,087	0	0.00000	1.00000	100.00
3.5	363,021,545	0	0.00000	1.00000	100.00
4.5	362,993,965	0	0.00000	1.00000	100.00
5.5	362,940,642	0	0.00000	1.00000	100.00
6.5	362,589,562	0	0.00000	1.00000	100.00
7.5	362,589,562	0	0.00000	1.00000	100.00
8.5	362,431,255	0	0.00000	1.00000	100.00
9.5	362,431,255	0	0.00000	1.00000	100.00
10.5	361,128,269	0	0.00000	1.00000	100.00
11.5	361,128,269	0	0.00000	1.00000	100.00
12.5	360,631,383	0	0.00000	1.00000	100.00
13.5	359,927,206	0	0.00000	1.00000	100.00
14.5	359,927,206	0	0.00000	1.00000	100.00
15.5	359,927,206	0	0.00000	1.00000	100.00
16.5	359,927,206	0	0.00000	1.00000	100.00
17.5	357,063,923	0	0.00000	1.00000	100.00
18.5	357,063,923	0	0.00000	1.00000	100.00
19.5	328,844,887	0	0.00000	1.00000	100.00
20.5	328,844,887	0	0.00000	1.00000	100.00
21.5	328,844,887	0	0.00000	1.00000	100.00
22.5	328,844,887	0	0.00000	1.00000	100.00
23.5	328,844,887	0	0.00000	1.00000	100.00
24.5	328,844,887	0	0.00000	1.00000	100.00
25.5	328,844,887	0	0.00000	1.00000	100.00
26.5	328,844,887	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account D01 - Dams, Dykes, Canals, and Tunnels

Placement Band - 1956 - 2021 Experience Band - 2012 - 2022

27.5	328,844,887	677,266	0.00206	0.99794	100.00
28.5	328,167,622	0	0.00000	1.00000	99.79
29.5	328,162,910	0	0.00000	1.00000	99.79
30.5	328,124,900	134	0.00000	1.00000	99.79
31.5	328,124,765	0	0.00000	1.00000	99.79
32.5	328,124,765	0	0.00000	1.00000	99.79
33.5	327,621,677	9,686	0.00003	0.99997	99.79
34.5	315,619,659	0	0.00000	1.00000	99.79
35.5	315,619,659	0	0.00000	1.00000	99.79
36.5	315,570,856	0	0.00000	1.00000	99.79
37.5	304,575,297	0	0.00000	1.00000	99.79
38.5	191,450,660	0	0.00000	1.00000	99.79
39.5	169,766,393	0	0.00000	1.00000	99.79
40.5	114,996,186	0	0.00000	1.00000	99.79
41.5	114,996,186	0	0.00000	1.00000	99.79
42.5	106,262,575	0	0.00000	1.00000	99.79
43.5	79,308,031	0	0.00000	1.00000	99.79
44.5	75,663,645	3,146	0.00004	0.99996	99.79
45.5	75,660,499	0	0.00000	1.00000	99.79
46.5	75,660,499	0	0.00000	1.00000	99.79
47.5	75,660,499	0	0.00000	1.00000	99.79
48.5	75,660,499	116	0.00000	1.00000	99.79
49.5	75,660,383	1,117	0.00001	0.99999	99.79
50.5	75,659,266	0	0.00000	1.00000	99.79
51.5	75,659,266	0	0.00000	1.00000	99.79
52.5	70,759,441	0	0.00000	1.00000	99.79
53.5	70,613,217	0	0.00000	1.00000	99.79
54.5	70,613,217	0	0.00000	1.00000	99.79
55.5	43,481,252	0	0.00000	1.00000	99.79
56.5	615,306	0	0.00000	1.00000	99.79
57.5	615,306	0	0.00000	1.00000	99.79

NEWFOUNDLAND AND LABRADOR HYDRO

Account D01 - Dams, Dykes, Canals, and Tunnels

Placement Band - 1956 - 2021 Experience Band - 2012 - 2022

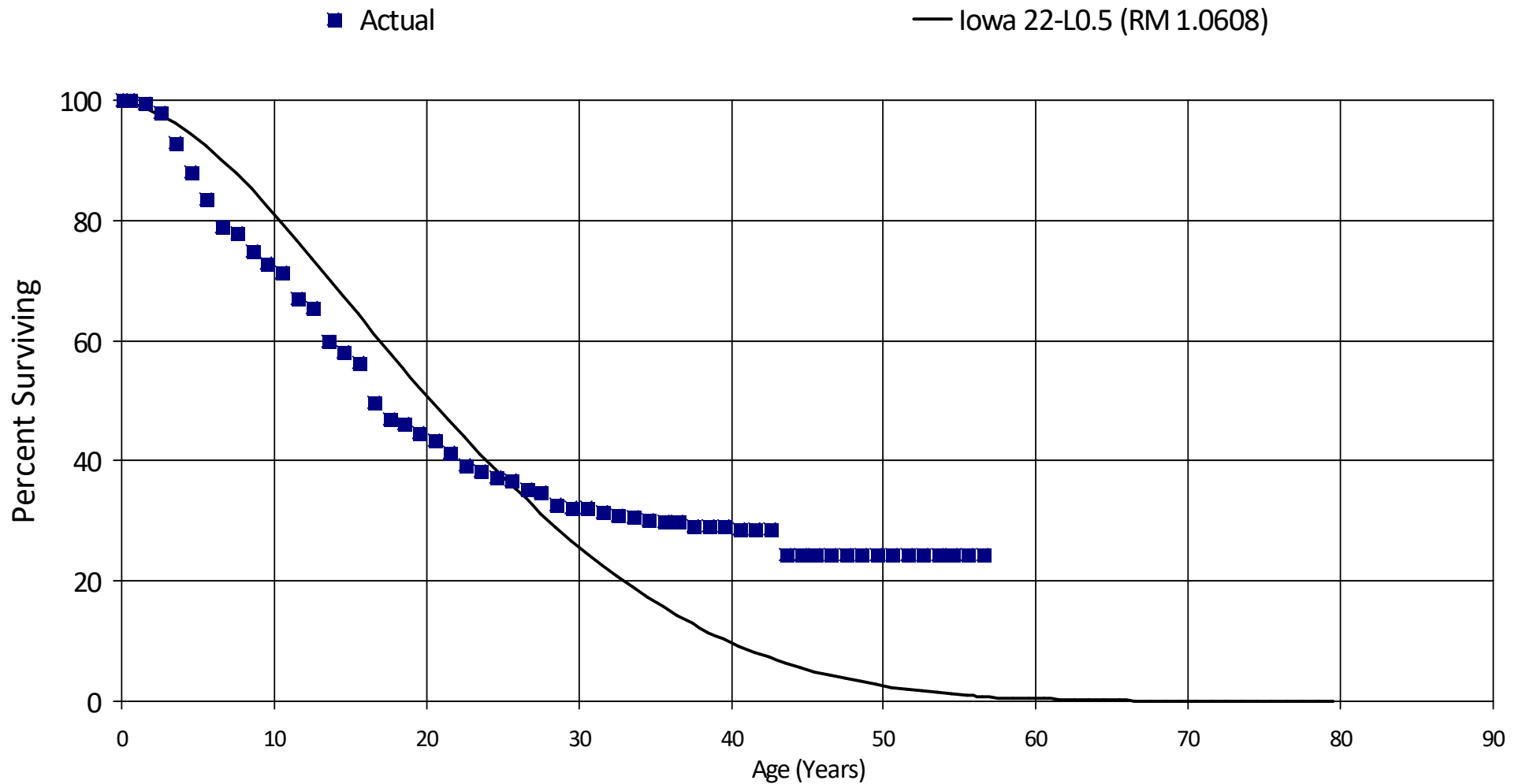
58.5	615,306	0	0.00000	1.00000	99.79
59.5	615,306	0	0.00000	1.00000	99.79
60.5	615,306	0	0.00000	1.00000	99.79
61.5	615,306	0	0.00000	1.00000	99.79
62.5	615,306	0	0.00000	1.00000	99.79
63.5	615,306	0	0.00000	1.00000	99.79
64.5	615,306	0	0.00000	1.00000	99.79
65.5	615,306	0	0.00000	1.00000	99.79
Totals:		691,465			

NEWFOUNDLAND AND LABRADOR HYDRO

Account D02 - Diesel Systems and Engines

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account D02 - Diesel Systems and Engines

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	85,914,517	0	0.00000	1.00000	100.00
0.5	81,768,568	490,224	0.00600	0.99400	100.00
1.5	77,343,124	1,143,124	0.01478	0.98522	99.40
2.5	70,846,109	3,673,090	0.05185	0.94815	97.93
3.5	63,792,579	3,341,573	0.05238	0.94762	92.85
4.5	55,086,597	2,862,066	0.05196	0.94804	87.99
5.5	48,751,616	2,667,855	0.05472	0.94528	83.42
6.5	41,820,853	510,818	0.01221	0.98779	78.86
7.5	41,310,035	1,569,672	0.03800	0.96200	77.90
8.5	39,740,362	1,065,209	0.02680	0.97320	74.94
9.5	38,675,153	873,819	0.02259	0.97741	72.93
10.5	37,247,387	2,236,828	0.06005	0.93995	71.28
11.5	32,662,255	766,275	0.02346	0.97654	67.00
12.5	30,128,099	2,597,325	0.08621	0.91379	65.43
13.5	25,852,618	675,397	0.02612	0.97388	59.79
14.5	25,177,221	862,116	0.03424	0.96576	58.23
15.5	23,681,276	2,719,688	0.11485	0.88515	56.24
16.5	20,701,657	1,153,255	0.05571	0.94429	49.78
17.5	18,442,280	310,305	0.01683	0.98317	47.01
18.5	18,131,976	603,786	0.03330	0.96670	46.22
19.5	17,488,800	506,082	0.02894	0.97106	44.68
20.5	16,035,846	742,250	0.04629	0.95371	43.39
21.5	13,775,449	681,140	0.04945	0.95055	41.38
22.5	12,181,646	334,349	0.02745	0.97255	39.33
23.5	11,628,302	313,199	0.02693	0.97307	38.25
24.5	10,664,903	105,203	0.00986	0.99014	37.22
25.5	9,551,266	387,133	0.04053	0.95947	36.85
26.5	8,634,056	127,987	0.01482	0.98518	35.36

NEWFOUNDLAND AND LABRADOR HYDRO

Account D02 - Diesel Systems and Engines

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

27.5	7,939,751	504,712	0.06357	0.93643	34.84
28.5	6,750,396	63,530	0.00941	0.99059	32.63
29.5	6,635,230	9,851	0.00148	0.99852	32.32
30.5	6,599,848	141,266	0.02140	0.97860	32.27
31.5	6,278,864	130,421	0.02077	0.97923	31.58
32.5	5,867,363	48,702	0.00830	0.99170	30.92
33.5	5,754,603	105,997	0.01842	0.98158	30.66
34.5	5,564,800	41,778	0.00751	0.99249	30.10
35.5	5,481,098	0	0.00000	1.00000	29.87
36.5	5,326,603	100,048	0.01878	0.98122	29.87
37.5	5,226,555	42,474	0.00813	0.99187	29.31
38.5	4,846,987	0	0.00000	1.00000	29.07
39.5	3,608,987	63,514	0.01760	0.98240	29.07
40.5	2,672,304	0	0.00000	1.00000	28.56
41.5	2,254,228	0	0.00000	1.00000	28.56
42.5	1,222,375	177,189	0.14495	0.85505	28.56
43.5	1,045,185	0	0.00000	1.00000	24.42
44.5	1,045,185	0	0.00000	1.00000	24.42
45.5	1,045,185	0	0.00000	1.00000	24.42
46.5	1,045,185	0	0.00000	1.00000	24.42
47.5	1,045,185	0	0.00000	1.00000	24.42
48.5	1,045,185	0	0.00000	1.00000	24.42
49.5	650,381	0	0.00000	1.00000	24.42
50.5	650,381	0	0.00000	1.00000	24.42
51.5	650,381	0	0.00000	1.00000	24.42
52.5	650,381	0	0.00000	1.00000	24.42
53.5	650,381	0	0.00000	1.00000	24.42
54.5	644,462	0	0.00000	1.00000	24.42
55.5	644,462	0	0.00000	1.00000	24.42
56.5	644,462	0	0.00000	1.00000	24.42

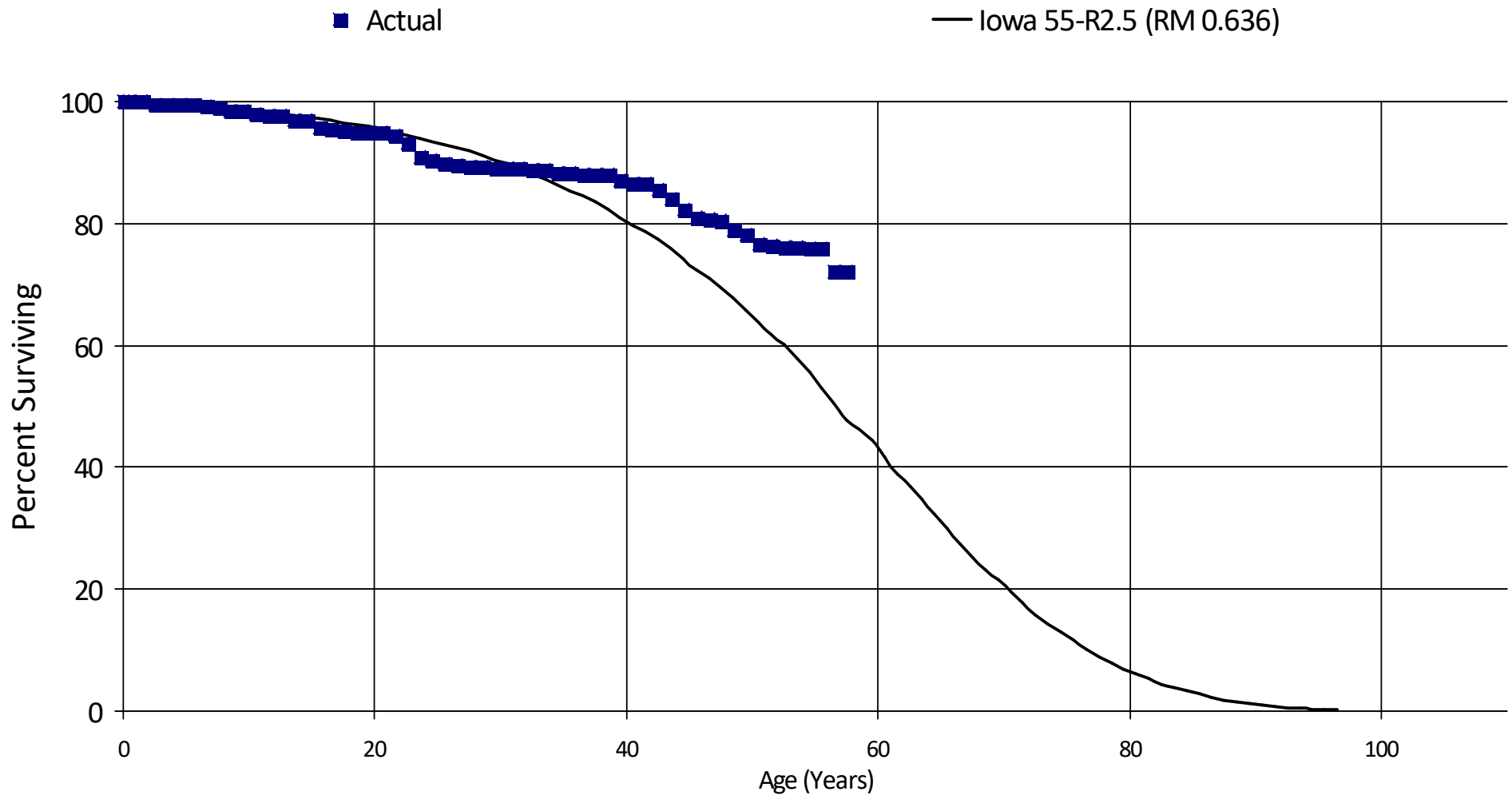
Totals: 34,749,250

NEWFOUNDLAND AND LABRADOR HYDRO

Account D03 - Disconnect Switches

Placement Band - 1964 - 2022 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account D03 - Disconnect Switches

Placement Band - 1964 - 2022 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	35,260,320	0	0.00000	1.00000	100.00
0.5	33,526,396	0	0.00000	1.00000	100.00
1.5	31,942,772	184,368	0.00577	0.99423	100.00
2.5	29,948,486	0	0.00000	1.00000	99.42
3.5	27,666,853	3,225	0.00012	0.99988	99.42
4.5	25,938,589	0	0.00000	1.00000	99.41
5.5	19,286,258	47,259	0.00245	0.99755	99.41
6.5	17,162,459	33,780	0.00197	0.99803	99.17
7.5	13,602,871	56,051	0.00412	0.99588	98.97
8.5	13,046,862	0	0.00000	1.00000	98.56
9.5	11,964,902	86,743	0.00725	0.99275	98.56
10.5	10,561,213	15,202	0.00144	0.99856	97.85
11.5	9,427,242	0	0.00000	1.00000	97.71
12.5	9,422,941	78,638	0.00835	0.99165	97.71
13.5	8,811,968	5,635	0.00064	0.99936	96.89
14.5	8,806,333	93,634	0.01063	0.98937	96.83
15.5	8,712,699	38,816	0.00446	0.99554	95.80
16.5	8,638,788	21,936	0.00254	0.99746	95.37
17.5	8,446,161	20,483	0.00243	0.99757	95.13
18.5	8,282,598	0	0.00000	1.00000	94.90
19.5	8,181,148	0	0.00000	1.00000	94.90
20.5	8,011,976	33,961	0.00424	0.99576	94.90
21.5	7,909,079	122,966	0.01555	0.98445	94.50
22.5	7,720,316	184,716	0.02393	0.97607	93.03
23.5	7,535,601	28,832	0.00383	0.99617	90.80
24.5	7,340,628	57,499	0.00783	0.99217	90.45
25.5	7,252,599	10,004	0.00138	0.99862	89.74
26.5	6,982,518	29,781	0.00427	0.99573	89.62

NEWFOUNDLAND AND LABRADOR HYDRO

Account D03 - Disconnect Switches

Placement Band - 1964 - 2022 Experience Band - 1992 - 2022

27.5	6,530,366	0	0.00000	1.00000	89.24
28.5	6,494,638	4,308	0.00066	0.99934	89.24
29.5	6,478,347	9,658	0.00149	0.99851	89.18
30.5	6,237,659	4,025	0.00065	0.99935	89.05
31.5	6,203,688	2,660	0.00043	0.99957	88.99
32.5	5,719,232	1,339	0.00023	0.99977	88.95
33.5	5,215,126	29,924	0.00574	0.99426	88.93
34.5	5,060,695	9,267	0.00183	0.99817	88.42
35.5	4,899,728	4,718	0.00096	0.99904	88.26
36.5	4,863,265	1,802	0.00037	0.99963	88.18
37.5	4,845,550	1,368	0.00028	0.99972	88.15
38.5	4,789,686	55,197	0.01152	0.98848	88.13
39.5	4,690,405	29,400	0.00627	0.99373	87.11
40.5	4,381,906	5,338	0.00122	0.99878	86.56
41.5	4,242,790	50,150	0.01182	0.98818	86.45
42.5	3,918,585	60,996	0.01557	0.98443	85.43
43.5	3,815,277	88,308	0.02315	0.97685	84.10
44.5	3,496,187	47,770	0.01366	0.98634	82.15
45.5	3,178,456	8,964	0.00282	0.99718	81.03
46.5	3,149,467	17,165	0.00545	0.99455	80.80
47.5	2,974,183	48,438	0.01629	0.98371	80.36
48.5	2,856,131	31,907	0.01117	0.98883	79.05
49.5	2,824,224	55,113	0.01951	0.98049	78.17
50.5	2,534,995	6,699	0.00264	0.99736	76.64
51.5	2,298,567	7,802	0.00339	0.99661	76.44
52.5	1,239,888	0	0.00000	1.00000	76.18
53.5	1,082,752	2,367	0.00219	0.99781	76.18
54.5	781,264	0	0.00000	1.00000	76.01
55.5	220,280	11,566	0.05251	0.94749	76.01
56.5	127,978	0	0.00000	1.00000	72.02
57.5	0	0	0.00000	0.00000	72.02

NEWFOUNDLAND AND LABRADOR HYDRO

Account D03 - Disconnect Switches

Placement Band - 1964 - 2022 Experience Band - 1992 - 2022

Totals:

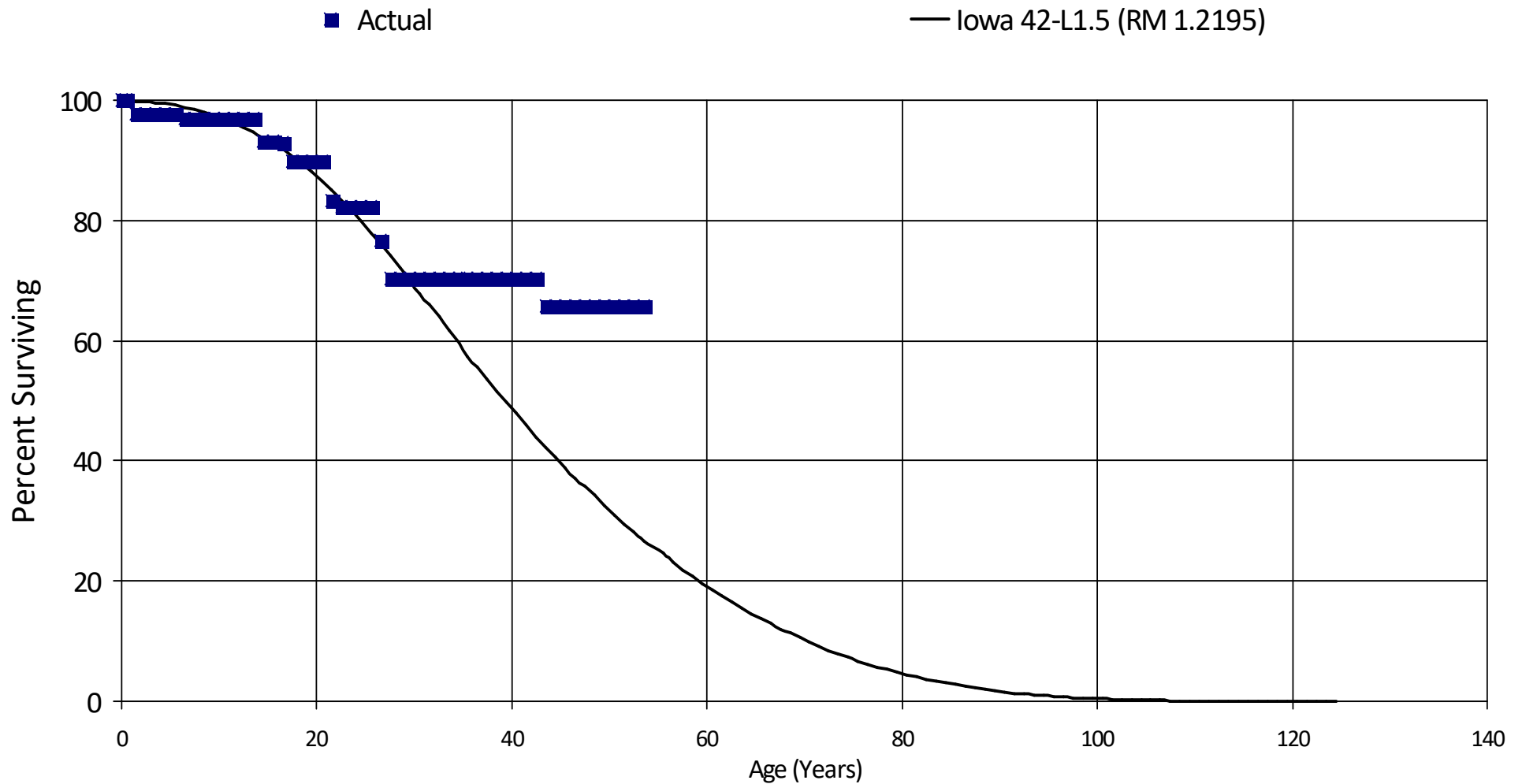
1,749,778

NEWFOUNDLAND AND LABRADOR HYDRO

Account D04 - Dykes and Liners

Placement Band - 1968 - 2011 Experience Band - 2002 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account D04 - Dykes and Liners

Placement Band - 1968 - 2011 Experience Band - 2002 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	3,144,590	0	0.00000	1.00000	100.00
0.5	3,144,590	75,464	0.02400	0.97600	100.00
1.5	3,069,126	0	0.00000	1.00000	97.60
2.5	3,069,126	0	0.00000	1.00000	97.60
3.5	3,069,126	0	0.00000	1.00000	97.60
4.5	3,069,126	0	0.00000	1.00000	97.60
5.5	3,069,126	19,425	0.00633	0.99367	97.60
6.5	3,049,701	0	0.00000	1.00000	96.98
7.5	3,049,701	0	0.00000	1.00000	96.98
8.5	3,049,701	0	0.00000	1.00000	96.98
9.5	3,049,701	0	0.00000	1.00000	96.98
10.5	3,049,701	0	0.00000	1.00000	96.98
11.5	2,570,918	0	0.00000	1.00000	96.98
12.5	2,570,918	0	0.00000	1.00000	96.98
13.5	2,570,918	98,455	0.03830	0.96170	96.98
14.5	2,472,463	0	0.00000	1.00000	93.27
15.5	2,472,463	9,704	0.00392	0.99608	93.27
16.5	2,462,759	81,055	0.03291	0.96709	92.90
17.5	2,365,190	0	0.00000	1.00000	89.84
18.5	2,365,190	0	0.00000	1.00000	89.84
19.5	2,365,190	0	0.00000	1.00000	89.84
20.5	2,289,302	168,684	0.07368	0.92632	89.84
21.5	2,120,618	25,156	0.01186	0.98814	83.22
22.5	2,095,462	0	0.00000	1.00000	82.23
23.5	1,960,978	0	0.00000	1.00000	82.23
24.5	1,921,381	0	0.00000	1.00000	82.23
25.5	1,921,381	128,562	0.06691	0.93309	82.23
26.5	1,792,819	147,344	0.08219	0.91781	76.73

NEWFOUNDLAND AND LABRADOR HYDRO

Account D04 - Dykes and Liners

Placement Band - 1968 - 2011 Experience Band - 2002 - 2022

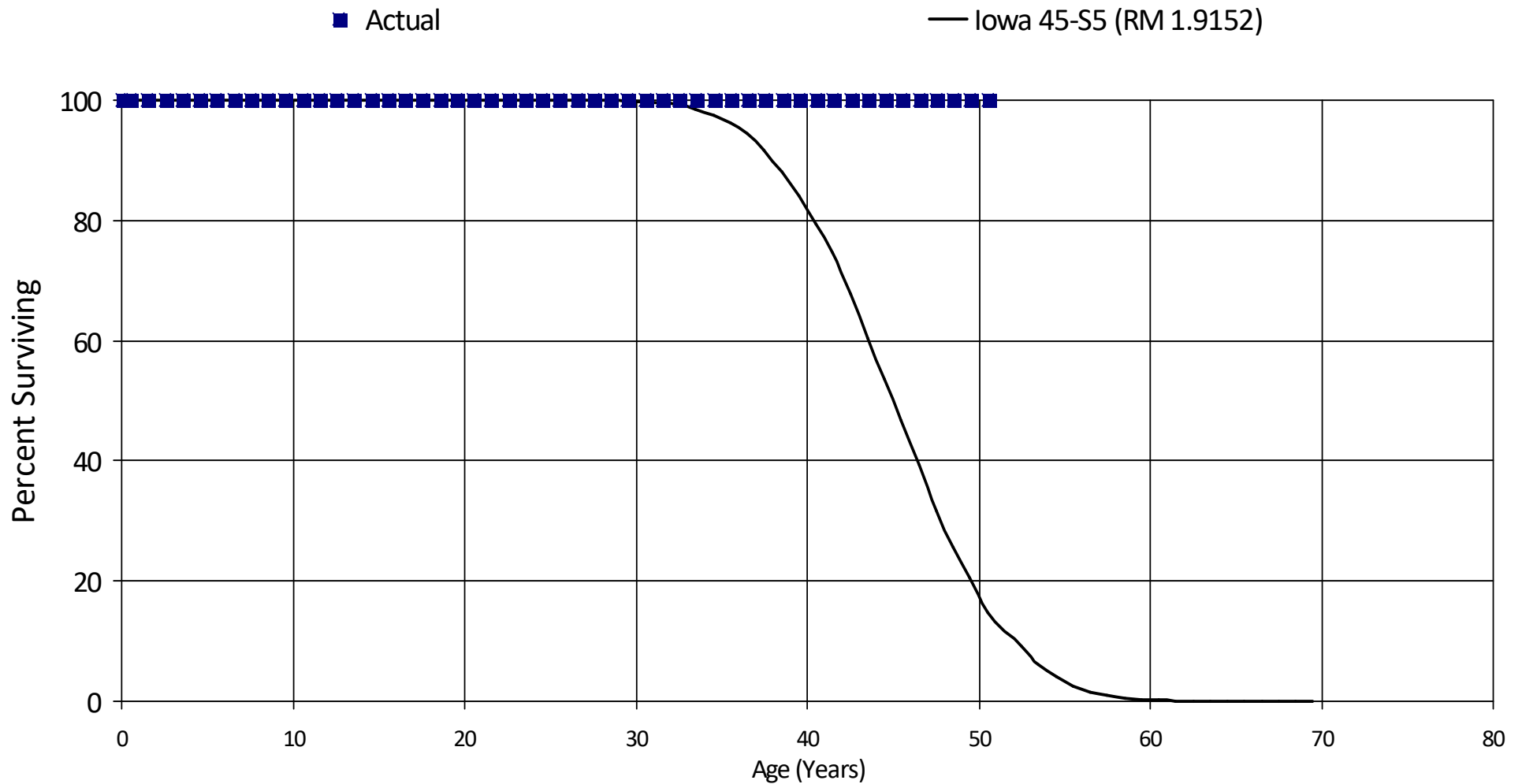
27.5	1,645,475	0	0.00000	1.00000	70.42
28.5	1,645,475	0	0.00000	1.00000	70.42
29.5	1,645,475	0	0.00000	1.00000	70.42
30.5	1,428,416	0	0.00000	1.00000	70.42
31.5	1,428,416	0	0.00000	1.00000	70.42
32.5	1,164,183	0	0.00000	1.00000	70.42
33.5	1,164,183	0	0.00000	1.00000	70.42
34.5	1,164,183	0	0.00000	1.00000	70.42
35.5	1,045,371	0	0.00000	1.00000	70.42
36.5	1,045,371	0	0.00000	1.00000	70.42
37.5	833,860	0	0.00000	1.00000	70.42
38.5	833,860	0	0.00000	1.00000	70.42
39.5	765,383	0	0.00000	1.00000	70.42
40.5	675,487	0	0.00000	1.00000	70.42
41.5	462,303	0	0.00000	1.00000	70.42
42.5	408,403	26,480	0.06484	0.93516	70.42
43.5	381,923	0	0.00000	1.00000	65.85
44.5	381,923	0	0.00000	1.00000	65.85
45.5	381,923	0	0.00000	1.00000	65.85
46.5	381,923	0	0.00000	1.00000	65.85
47.5	168,580	0	0.00000	1.00000	65.85
48.5	26,480	0	0.00000	1.00000	65.85
49.5	26,480	0	0.00000	1.00000	65.85
50.5	26,480	0	0.00000	1.00000	65.85
51.5	26,480	0	0.00000	1.00000	65.85
52.5	26,480	0	0.00000	1.00000	65.85
53.5	26,480	0	0.00000	1.00000	65.85
Totals:		780,329			

NEWFOUNDLAND AND LABRADOR HYDRO

Account E01 - Elevators

Placement Band - 1971 - 1971 Experience Band - 2022 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account E01 - Elevators

Placement Band - 1971 - 1971 Experience Band - 2022 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	89,800	0	0.00000	1.00000	100.00
0.5	89,800	0	0.00000	1.00000	100.00
1.5	89,800	0	0.00000	1.00000	100.00
2.5	89,800	0	0.00000	1.00000	100.00
3.5	89,800	0	0.00000	1.00000	100.00
4.5	89,800	0	0.00000	1.00000	100.00
5.5	89,800	0	0.00000	1.00000	100.00
6.5	89,800	0	0.00000	1.00000	100.00
7.5	89,800	0	0.00000	1.00000	100.00
8.5	89,800	0	0.00000	1.00000	100.00
9.5	89,800	0	0.00000	1.00000	100.00
10.5	89,800	0	0.00000	1.00000	100.00
11.5	89,800	0	0.00000	1.00000	100.00
12.5	89,800	0	0.00000	1.00000	100.00
13.5	89,800	0	0.00000	1.00000	100.00
14.5	89,800	0	0.00000	1.00000	100.00
15.5	89,800	0	0.00000	1.00000	100.00
16.5	89,800	0	0.00000	1.00000	100.00
17.5	89,800	0	0.00000	1.00000	100.00
18.5	89,800	0	0.00000	1.00000	100.00
19.5	89,800	0	0.00000	1.00000	100.00
20.5	89,800	0	0.00000	1.00000	100.00
21.5	89,800	0	0.00000	1.00000	100.00
22.5	89,800	0	0.00000	1.00000	100.00
23.5	89,800	0	0.00000	1.00000	100.00
24.5	89,800	0	0.00000	1.00000	100.00
25.5	89,800	0	0.00000	1.00000	100.00
26.5	89,800	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account E01 - Elevators

Placement Band - 1971 - 1971 Experience Band - 2022 - 2022

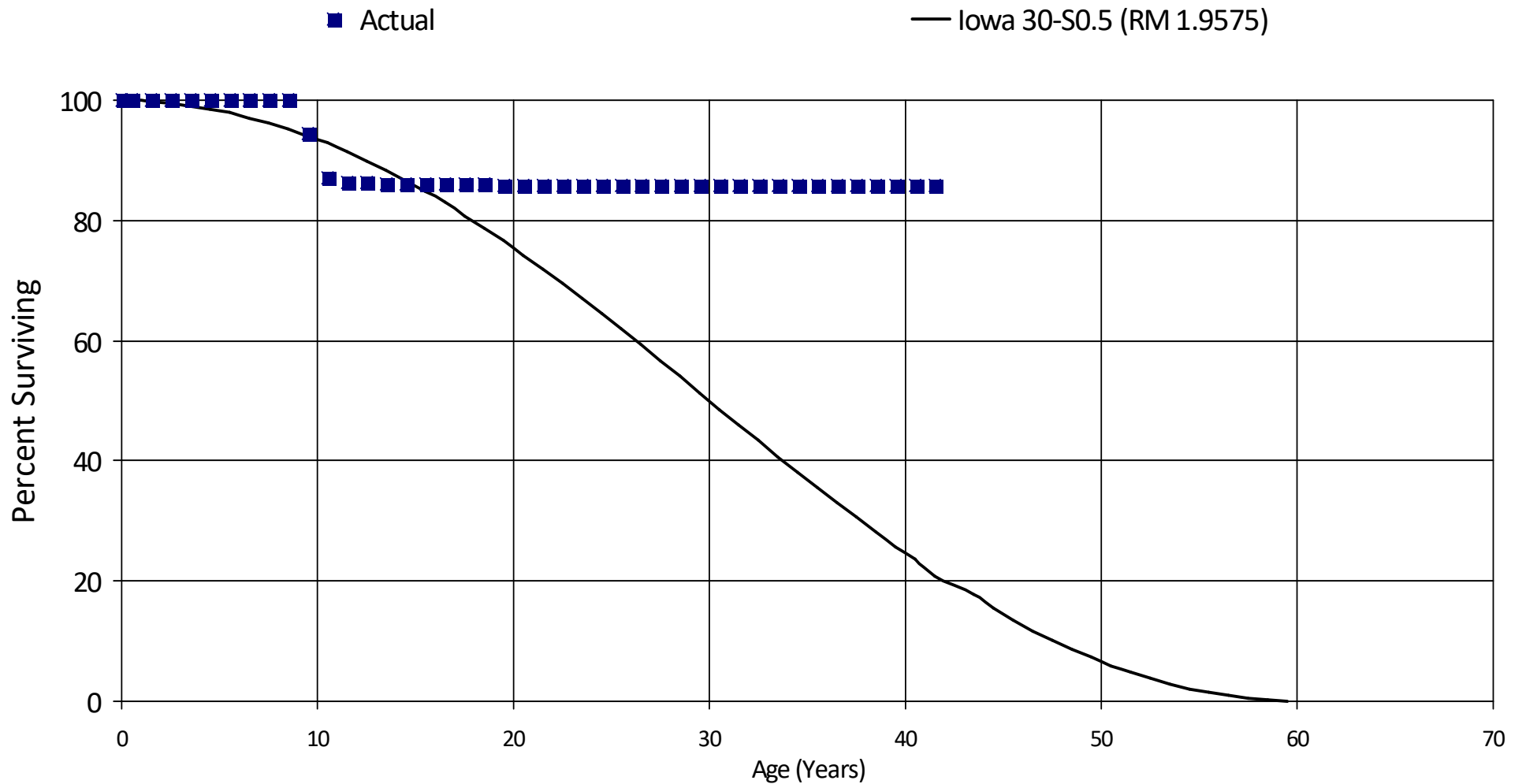
27.5	89,800	0	0.00000	1.00000	100.00
28.5	89,800	0	0.00000	1.00000	100.00
29.5	89,800	0	0.00000	1.00000	100.00
30.5	89,800	0	0.00000	1.00000	100.00
31.5	89,800	0	0.00000	1.00000	100.00
32.5	89,800	0	0.00000	1.00000	100.00
33.5	89,800	0	0.00000	1.00000	100.00
34.5	89,800	0	0.00000	1.00000	100.00
35.5	89,800	0	0.00000	1.00000	100.00
36.5	89,800	0	0.00000	1.00000	100.00
37.5	89,800	0	0.00000	1.00000	100.00
38.5	89,800	0	0.00000	1.00000	100.00
39.5	89,800	0	0.00000	1.00000	100.00
40.5	89,800	0	0.00000	1.00000	100.00
41.5	89,800	0	0.00000	1.00000	100.00
42.5	89,800	0	0.00000	1.00000	100.00
43.5	89,800	0	0.00000	1.00000	100.00
44.5	89,800	0	0.00000	1.00000	100.00
45.5	89,800	0	0.00000	1.00000	100.00
46.5	89,800	0	0.00000	1.00000	100.00
47.5	89,800	0	0.00000	1.00000	100.00
48.5	89,800	0	0.00000	1.00000	100.00
49.5	89,800	0	0.00000	1.00000	100.00
50.5	89,800	0	0.00000	1.00000	100.00
Totals:		0			

NEWFOUNDLAND AND LABRADOR HYDRO

Account E02 - EMS Equipment

Placement Band - 1980 - 2021 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account E02 - EMS Equipment

Placement Band - 1980 - 2021 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	14,437,016	0	0.00000	1.00000	100.00
0.5	14,437,016	0	0.00000	1.00000	100.00
1.5	14,421,630	0	0.00000	1.00000	100.00
2.5	14,389,763	0	0.00000	1.00000	100.00
3.5	14,389,763	0	0.00000	1.00000	100.00
4.5	14,389,763	0	0.00000	1.00000	100.00
5.5	14,389,763	2,430	0.00017	0.99983	100.00
6.5	14,276,845	0	0.00000	1.00000	99.98
7.5	14,276,845	0	0.00000	1.00000	99.98
8.5	14,276,845	776,238	0.05437	0.94563	99.98
9.5	13,500,608	1,067,058	0.07904	0.92096	94.54
10.5	12,433,550	121,068	0.00974	0.99026	87.07
11.5	12,312,482	3,830	0.00031	0.99969	86.22
12.5	12,308,652	20,609	0.00167	0.99833	86.19
13.5	12,288,043	0	0.00000	1.00000	86.05
14.5	12,288,043	0	0.00000	1.00000	86.05
15.5	12,288,043	5,303	0.00043	0.99957	86.05
16.5	12,282,740	2,437	0.00020	0.99980	86.01
17.5	12,280,304	8,898	0.00072	0.99928	85.99
18.5	12,271,406	11,909	0.00097	0.99903	85.93
19.5	12,259,497	2,977	0.00024	0.99976	85.85
20.5	12,256,520	6,566	0.00054	0.99946	85.83
21.5	12,217,148	0	0.00000	1.00000	85.78
22.5	12,176,906	0	0.00000	1.00000	85.78
23.5	12,169,804	0	0.00000	1.00000	85.78
24.5	12,070,718	0	0.00000	1.00000	85.78
25.5	12,070,718	0	0.00000	1.00000	85.78
26.5	12,070,718	16,726	0.00139	0.99861	85.78

NEWFOUNDLAND AND LABRADOR HYDRO

Account E02 - EMS Equipment

Placement Band - 1980 - 2021 Experience Band - 1991 - 2022

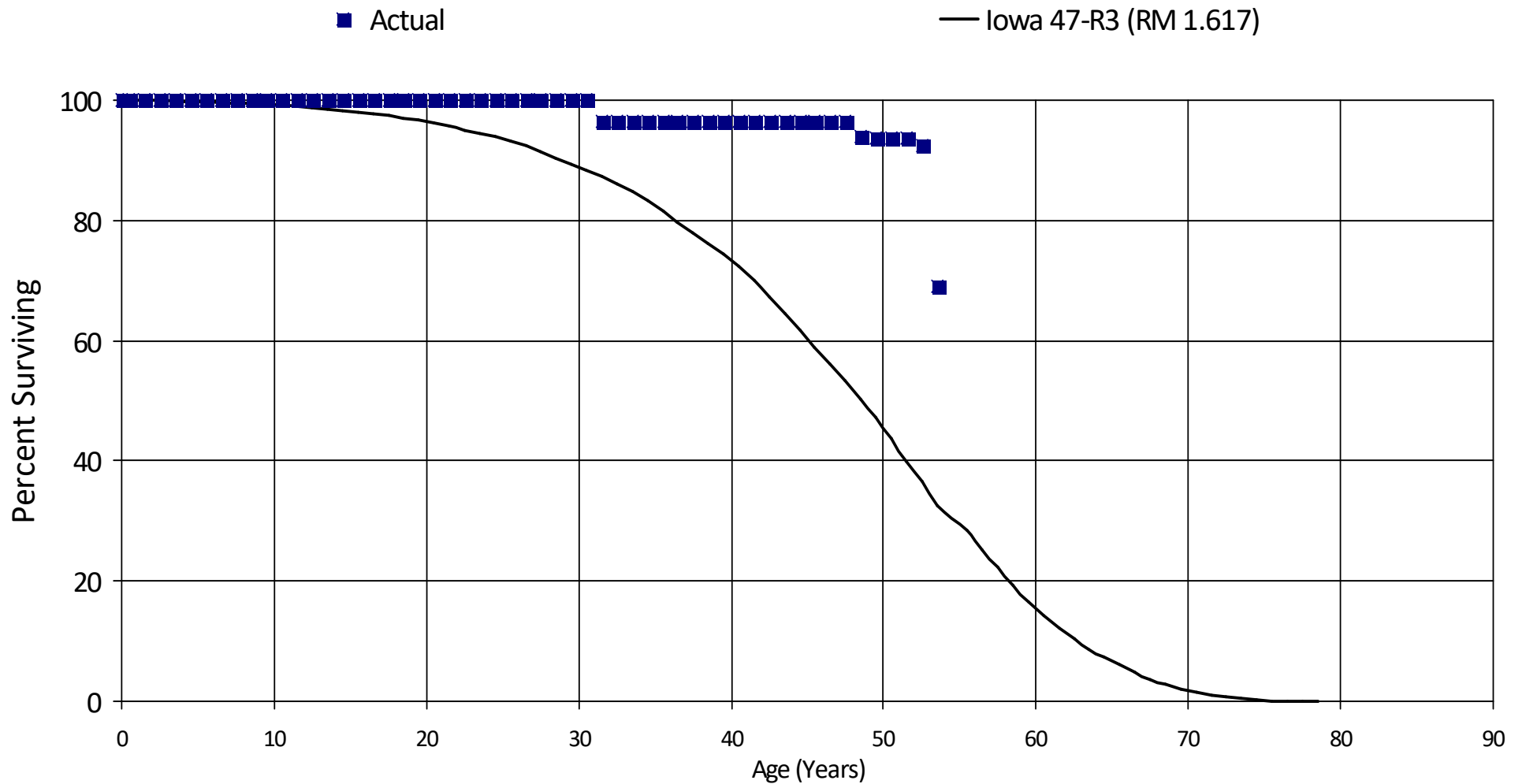
27.5	12,053,992	0	0.00000	1.00000	85.66
28.5	11,824,652	0	0.00000	1.00000	85.66
29.5	11,775,720	0	0.00000	1.00000	85.66
30.5	11,775,720	0	0.00000	1.00000	85.66
31.5	11,775,720	0	0.00000	1.00000	85.66
32.5	16,461	0	0.00000	1.00000	85.66
33.5	16,461	0	0.00000	1.00000	85.66
34.5	16,461	0	0.00000	1.00000	85.66
35.5	16,461	0	0.00000	1.00000	85.66
36.5	16,461	0	0.00000	1.00000	85.66
37.5	16,461	0	0.00000	1.00000	85.66
38.5	16,461	0	0.00000	1.00000	85.66
39.5	16,461	0	0.00000	1.00000	85.66
40.5	16,461	0	0.00000	1.00000	85.66
41.5	16,461	0	0.00000	1.00000	85.66
Totals:		2,046,049			

NEWFOUNDLAND AND LABRADOR HYDRO

Account E03 - Environmental Equipment

Placement Band - 1968 - 2020 Experience Band - 2002 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account E03 - Environmental Equipment

Placement Band - 1968 - 2020 Experience Band - 2002 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	800,903	0	0.00000	1.00000	100.00
0.5	800,903	0	0.00000	1.00000	100.00
1.5	800,903	0	0.00000	1.00000	100.00
2.5	798,814	0	0.00000	1.00000	100.00
3.5	798,814	0	0.00000	1.00000	100.00
4.5	784,611	0	0.00000	1.00000	100.00
5.5	784,611	0	0.00000	1.00000	100.00
6.5	784,611	0	0.00000	1.00000	100.00
7.5	764,445	0	0.00000	1.00000	100.00
8.5	764,445	0	0.00000	1.00000	100.00
9.5	764,445	0	0.00000	1.00000	100.00
10.5	764,445	0	0.00000	1.00000	100.00
11.5	764,445	0	0.00000	1.00000	100.00
12.5	764,445	0	0.00000	1.00000	100.00
13.5	764,445	0	0.00000	1.00000	100.00
14.5	692,553	0	0.00000	1.00000	100.00
15.5	692,553	0	0.00000	1.00000	100.00
16.5	692,553	0	0.00000	1.00000	100.00
17.5	692,553	0	0.00000	1.00000	100.00
18.5	692,553	0	0.00000	1.00000	100.00
19.5	692,553	0	0.00000	1.00000	100.00
20.5	692,553	0	0.00000	1.00000	100.00
21.5	692,553	0	0.00000	1.00000	100.00
22.5	692,553	0	0.00000	1.00000	100.00
23.5	692,553	0	0.00000	1.00000	100.00
24.5	692,553	0	0.00000	1.00000	100.00
25.5	563,310	0	0.00000	1.00000	100.00
26.5	563,310	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account E03 - Environmental Equipment

Placement Band - 1968 - 2020 Experience Band - 2002 - 2022

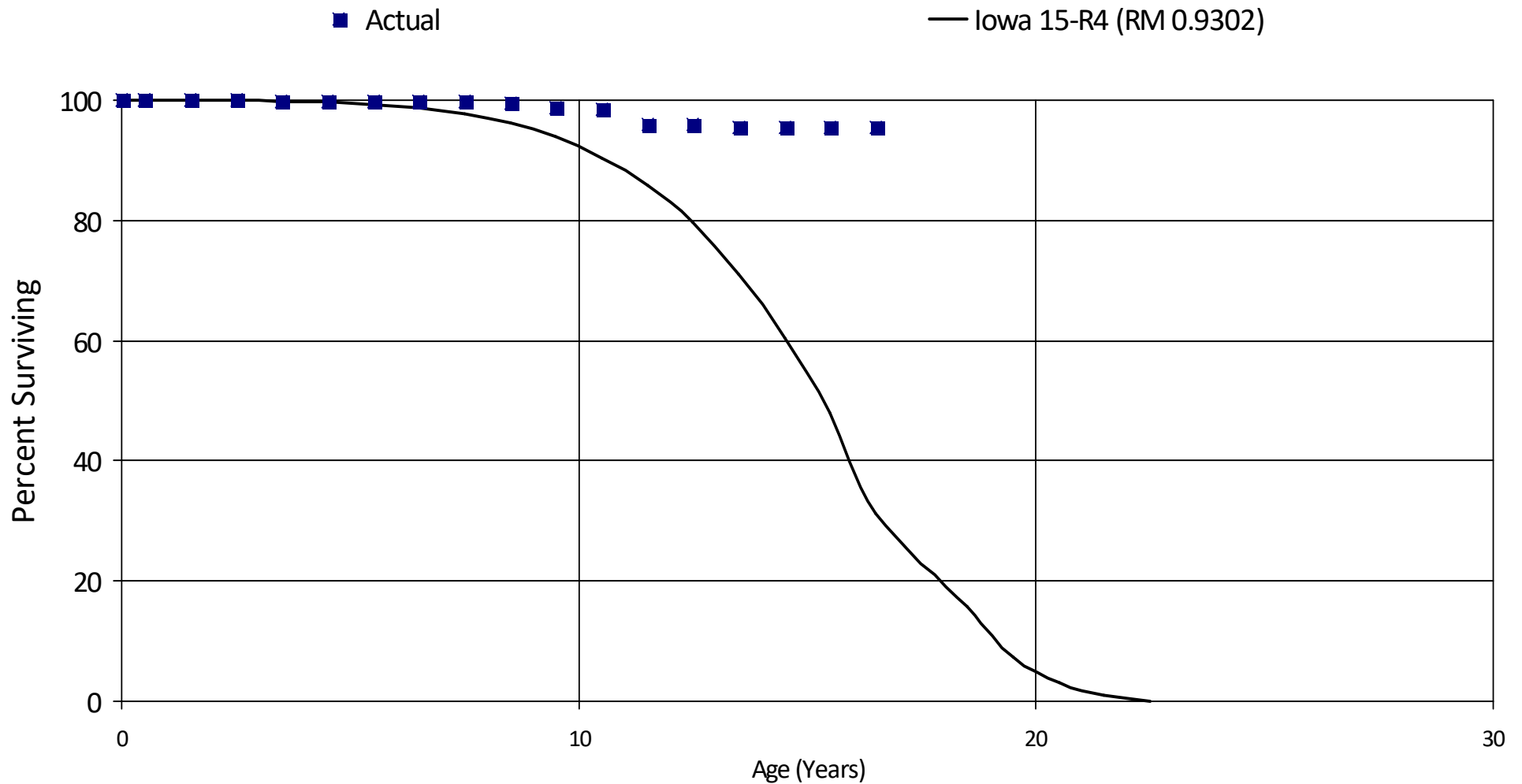
27.5	533,363	0	0.00000	1.00000	100.00
28.5	433,264	0	0.00000	1.00000	100.00
29.5	433,264	0	0.00000	1.00000	100.00
30.5	433,264	15,272	0.03525	0.96475	100.00
31.5	417,992	0	0.00000	1.00000	96.48
32.5	417,992	0	0.00000	1.00000	96.48
33.5	417,992	0	0.00000	1.00000	96.48
34.5	417,992	0	0.00000	1.00000	96.48
35.5	417,992	0	0.00000	1.00000	96.48
36.5	417,992	0	0.00000	1.00000	96.48
37.5	417,992	0	0.00000	1.00000	96.48
38.5	417,992	0	0.00000	1.00000	96.48
39.5	417,992	0	0.00000	1.00000	96.48
40.5	417,992	0	0.00000	1.00000	96.48
41.5	417,992	0	0.00000	1.00000	96.48
42.5	417,992	0	0.00000	1.00000	96.48
43.5	417,992	0	0.00000	1.00000	96.48
44.5	417,992	0	0.00000	1.00000	96.48
45.5	417,992	0	0.00000	1.00000	96.48
46.5	417,992	0	0.00000	1.00000	96.48
47.5	417,992	11,000	0.02632	0.97368	96.48
48.5	406,992	706	0.00173	0.99827	93.94
49.5	406,286	0	0.00000	1.00000	93.78
50.5	406,286	0	0.00000	1.00000	93.78
51.5	406,286	5,831	0.01435	0.98565	93.78
52.5	400,455	101,572	0.25364	0.74636	92.43
53.5	298,883	3,819	0.01278	0.98722	68.99
Totals:		138,200			

NEWFOUNDLAND AND LABRADOR HYDRO

Account F01 - Fall Arrest Equipment

Placement Band - 2005 - 2018 Experience Band - 2012 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account F01 - Fall Arrest Equipment

Placement Band - 2005 - 2018 Experience Band - 2012 - 2022

RETIREMENT RATE ANALYSIS

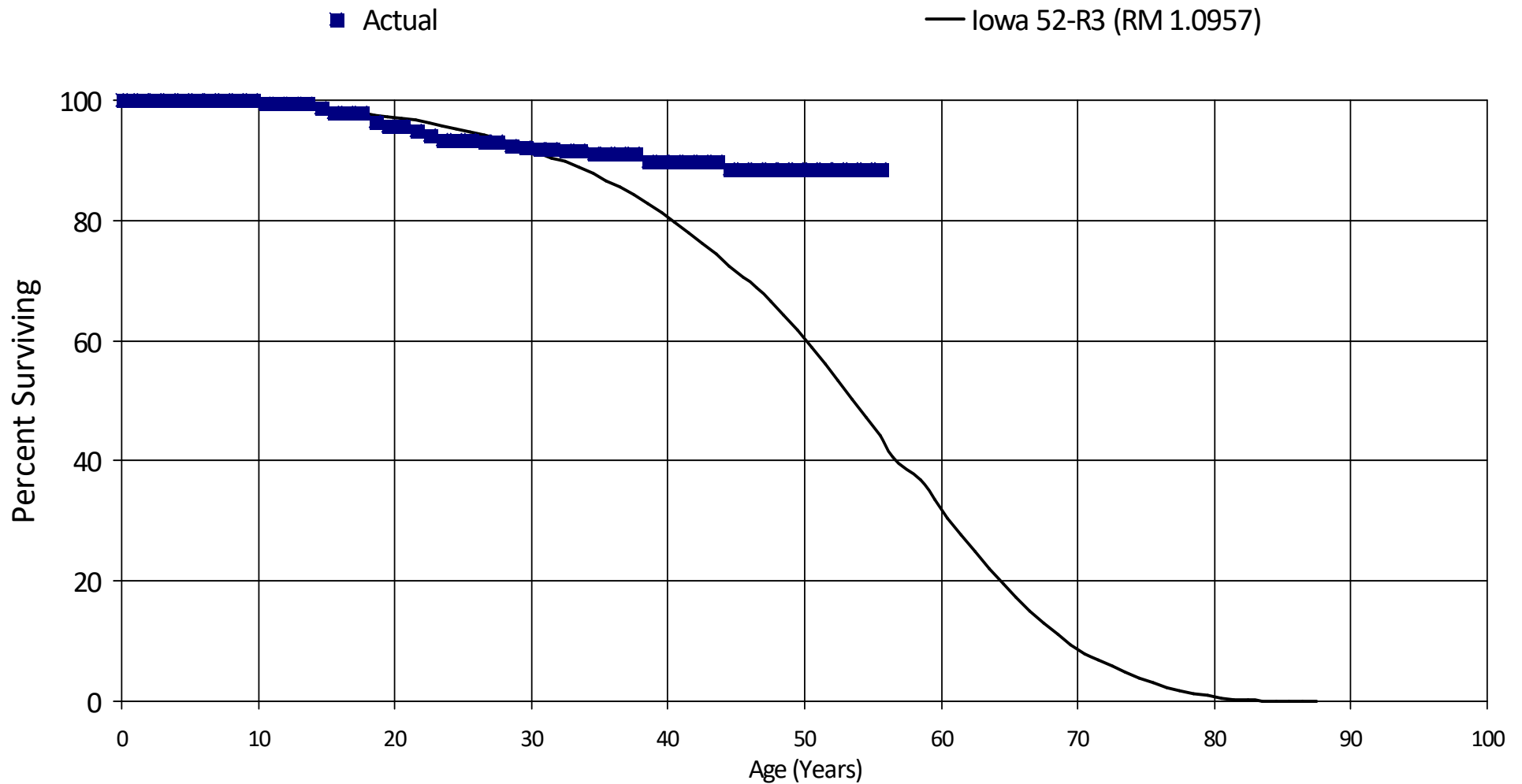
Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	2,795,930	0	0.00000	1.00000	100.00
0.5	2,795,930	0	0.00000	1.00000	100.00
1.5	2,795,930	0	0.00000	1.00000	100.00
2.5	2,795,930	5,019	0.00180	0.99820	100.00
3.5	2,790,911	0	0.00000	1.00000	99.82
4.5	2,752,725	0	0.00000	1.00000	99.82
5.5	2,591,460	0	0.00000	1.00000	99.82
6.5	2,378,542	3,310	0.00139	0.99861	99.82
7.5	2,249,381	1,824	0.00081	0.99919	99.68
8.5	1,913,374	16,446	0.00860	0.99140	99.60
9.5	1,663,778	5,846	0.00351	0.99649	98.74
10.5	1,473,690	36,281	0.02462	0.97538	98.39
11.5	1,306,867	0	0.00000	1.00000	95.97
12.5	1,263,767	8,377	0.00663	0.99337	95.97
13.5	782,827	0	0.00000	1.00000	95.33
14.5	583,548	0	0.00000	1.00000	95.33
15.5	415,963	0	0.00000	1.00000	95.33
16.5	198,105	0	0.00000	1.00000	95.33
Totals:		77,103			

NEWFOUNDLAND AND LABRADOR HYDRO

Account F02 - Fencing

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account F02 - Fencing

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	11,701,674	0	0.00000	1.00000	100.00
0.5	11,114,197	0	0.00000	1.00000	100.00
1.5	10,437,654	0	0.00000	1.00000	100.00
2.5	9,876,020	0	0.00000	1.00000	100.00
3.5	8,899,371	7,369	0.00083	0.99917	100.00
4.5	8,366,923	1,912	0.00023	0.99977	99.92
5.5	8,183,293	2,071	0.00025	0.99975	99.90
6.5	7,846,494	0	0.00000	1.00000	99.88
7.5	6,952,773	0	0.00000	1.00000	99.88
8.5	6,582,127	0	0.00000	1.00000	99.88
9.5	6,479,034	26,114	0.00403	0.99597	99.88
10.5	6,159,682	0	0.00000	1.00000	99.48
11.5	5,345,789	0	0.00000	1.00000	99.48
12.5	5,345,789	0	0.00000	1.00000	99.48
13.5	5,090,016	36,546	0.00718	0.99282	99.48
14.5	4,995,009	37,467	0.00750	0.99250	98.77
15.5	4,957,542	8,160	0.00165	0.99835	98.03
16.5	4,943,927	0	0.00000	1.00000	97.87
17.5	4,827,925	70,232	0.01455	0.98545	97.87
18.5	4,725,244	37,468	0.00793	0.99207	96.45
19.5	3,671,907	0	0.00000	1.00000	95.69
20.5	3,621,620	29,848	0.00824	0.99176	95.69
21.5	3,428,185	23,138	0.00675	0.99325	94.90
22.5	3,352,222	31,996	0.00954	0.99046	94.26
23.5	3,276,365	1,507	0.00046	0.99954	93.36
24.5	3,141,844	995	0.00032	0.99968	93.32
25.5	3,083,672	7,120	0.00231	0.99769	93.29
26.5	3,031,543	311	0.00010	0.99990	93.07

NEWFOUNDLAND AND LABRADOR HYDRO

Account F02 - Fencing

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

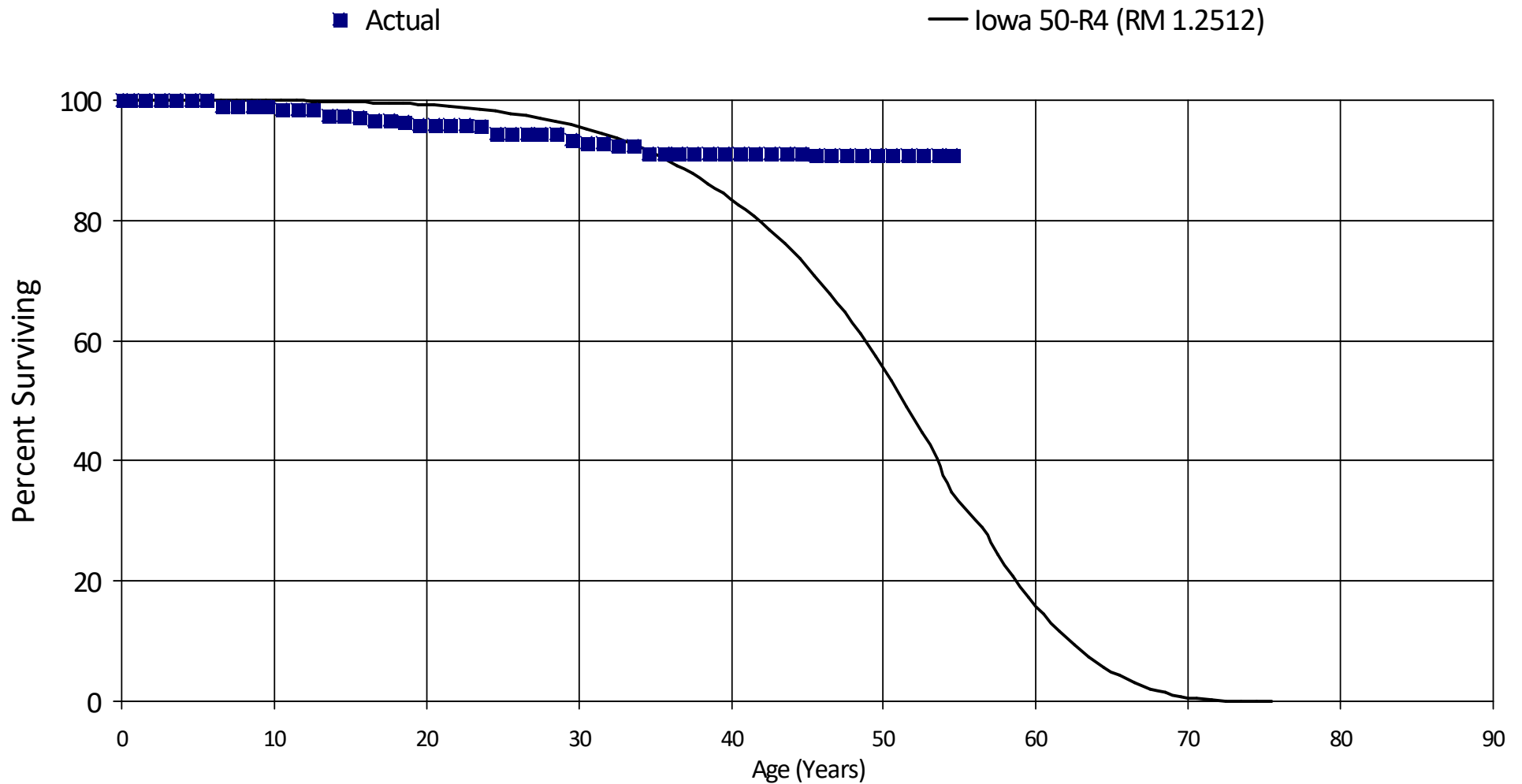
27.5	2,948,368	21,240	0.00720	0.99280	93.06
28.5	2,843,271	7,243	0.00255	0.99745	92.39
29.5	2,792,085	6,454	0.00231	0.99769	92.15
30.5	2,662,797	0	0.00000	1.00000	91.94
31.5	2,525,198	10,169	0.00403	0.99597	91.94
32.5	2,402,793	0	0.00000	1.00000	91.57
33.5	2,220,118	10,359	0.00467	0.99533	91.57
34.5	2,133,916	0	0.00000	1.00000	91.14
35.5	1,953,809	0	0.00000	1.00000	91.14
36.5	1,927,942	0	0.00000	1.00000	91.14
37.5	1,682,886	25,113	0.01492	0.98508	91.14
38.5	1,572,675	0	0.00000	1.00000	89.78
39.5	1,290,278	0	0.00000	1.00000	89.78
40.5	1,100,653	0	0.00000	1.00000	89.78
41.5	1,016,370	0	0.00000	1.00000	89.78
42.5	742,214	0	0.00000	1.00000	89.78
43.5	723,932	10,413	0.01438	0.98562	89.78
44.5	567,769	0	0.00000	1.00000	88.49
45.5	548,527	0	0.00000	1.00000	88.49
46.5	489,231	0	0.00000	1.00000	88.49
47.5	477,942	0	0.00000	1.00000	88.49
48.5	425,993	0	0.00000	1.00000	88.49
49.5	401,325	0	0.00000	1.00000	88.49
50.5	335,586	0	0.00000	1.00000	88.49
51.5	322,274	0	0.00000	1.00000	88.49
52.5	204,993	0	0.00000	1.00000	88.49
53.5	138,820	0	0.00000	1.00000	88.49
54.5	95,308	0	0.00000	1.00000	88.49
55.5	0	0	0.00000	0.00000	88.49
Totals:		413,245			

NEWFOUNDLAND AND LABRADOR HYDRO

Account F03 - Fire Fighting Equipment

Placement Band - 1967 - 2022 Experience Band - 1999 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account F03 - Fire Fighting Equipment

Placement Band - 1967 - 2022 Experience Band - 1999 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	21,640,257	0	0.00000	1.00000	100.00
0.5	21,535,981	0	0.00000	1.00000	100.00
1.5	18,637,226	0	0.00000	1.00000	100.00
2.5	17,734,213	0	0.00000	1.00000	100.00
3.5	16,401,528	0	0.00000	1.00000	100.00
4.5	15,877,532	0	0.00000	1.00000	100.00
5.5	15,450,781	156,557	0.01013	0.98987	100.00
6.5	13,609,034	0	0.00000	1.00000	98.99
7.5	10,488,974	12,437	0.00119	0.99881	98.99
8.5	9,525,377	0	0.00000	1.00000	98.87
9.5	8,967,300	45,673	0.00509	0.99491	98.87
10.5	8,342,987	0	0.00000	1.00000	98.37
11.5	8,337,785	701	0.00008	0.99992	98.37
12.5	8,333,438	72,271	0.00867	0.99133	98.36
13.5	6,344,593	2,972	0.00047	0.99953	97.51
14.5	6,102,928	8,917	0.00146	0.99854	97.46
15.5	6,094,011	41,299	0.00678	0.99322	97.32
16.5	6,052,712	2,414	0.00040	0.99960	96.66
17.5	5,995,056	16,189	0.00270	0.99730	96.62
18.5	5,978,868	21,971	0.00367	0.99633	96.36
19.5	5,328,289	203	0.00004	0.99996	96.01
20.5	4,698,845	4,691	0.00100	0.99900	96.01
21.5	4,478,090	3,269	0.00073	0.99927	95.91
22.5	4,474,821	10,812	0.00242	0.99758	95.84
23.5	4,397,416	54,919	0.01249	0.98751	95.61
24.5	4,273,979	2,170	0.00051	0.99949	94.42
25.5	4,138,773	406	0.00010	0.99990	94.37
26.5	4,138,367	0	0.00000	1.00000	94.36

NEWFOUNDLAND AND LABRADOR HYDRO

Account F03 - Fire Fighting Equipment

Placement Band - 1967 - 2022 Experience Band - 1999 - 2022

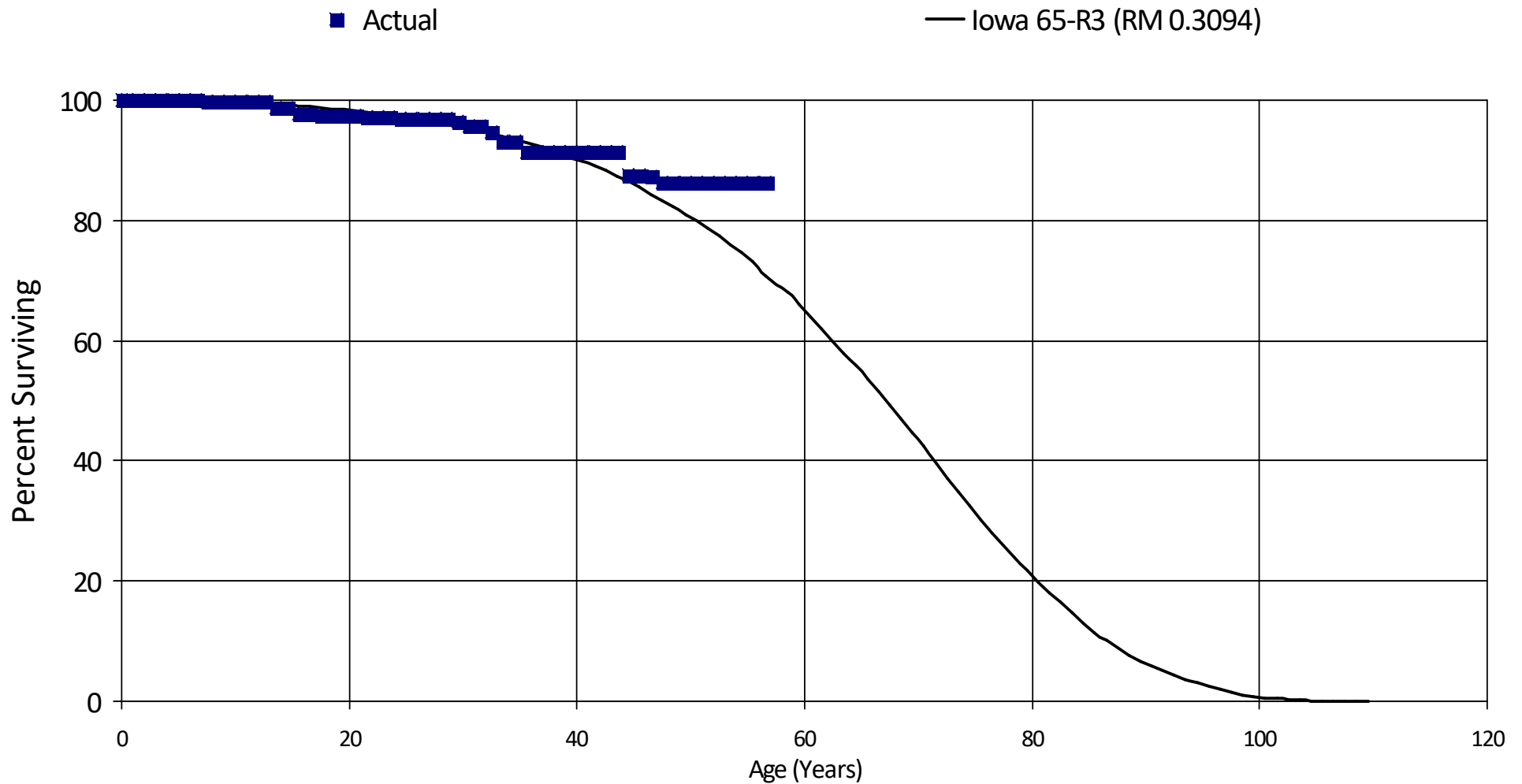
27.5	4,113,849	0	0.00000	1.00000	94.36
28.5	4,113,849	43,878	0.01067	0.98933	94.36
29.5	4,069,971	15,668	0.00385	0.99615	93.35
30.5	4,054,304	0	0.00000	1.00000	92.99
31.5	4,054,304	31,082	0.00767	0.99233	92.99
32.5	3,994,402	0	0.00000	1.00000	92.28
33.5	3,231,735	40,186	0.01243	0.98757	92.28
34.5	2,974,070	0	0.00000	1.00000	91.13
35.5	2,919,521	0	0.00000	1.00000	91.13
36.5	2,785,542	0	0.00000	1.00000	91.13
37.5	2,599,550	0	0.00000	1.00000	91.13
38.5	2,015,798	0	0.00000	1.00000	91.13
39.5	1,921,273	0	0.00000	1.00000	91.13
40.5	1,514,375	0	0.00000	1.00000	91.13
41.5	1,504,973	0	0.00000	1.00000	91.13
42.5	1,290,771	0	0.00000	1.00000	91.13
43.5	1,175,589	0	0.00000	1.00000	91.13
44.5	1,123,758	4,076	0.00363	0.99637	91.13
45.5	1,117,941	0	0.00000	1.00000	90.80
46.5	1,059,593	0	0.00000	1.00000	90.80
47.5	1,049,592	0	0.00000	1.00000	90.80
48.5	1,049,592	719	0.00069	0.99931	90.80
49.5	1,029,353	0	0.00000	1.00000	90.74
50.5	1,029,353	0	0.00000	1.00000	90.74
51.5	747,398	0	0.00000	1.00000	90.74
52.5	738,194	0	0.00000	1.00000	90.74
53.5	636,962	0	0.00000	1.00000	90.74
54.5	597,273	0	0.00000	1.00000	90.74
Totals:		593,480			

NEWFOUNDLAND AND LABRADOR HYDRO

Account F04 - Footings and Foundations

Placement Band - 1965 - 2022 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account F04 - Footings and Foundations

Placement Band - 1965 - 2022 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	181,664,166	0	0.00000	1.00000	100.00
0.5	181,111,693	1,366	0.00001	0.99999	100.00
1.5	179,852,365	71,797	0.00040	0.99960	100.00
2.5	174,085,040	9,300	0.00005	0.99995	99.96
3.5	172,583,353	0	0.00000	1.00000	99.96
4.5	157,752,751	0	0.00000	1.00000	99.96
5.5	22,992,446	0	0.00000	1.00000	99.96
6.5	21,218,173	26,848	0.00127	0.99873	99.96
7.5	18,356,193	0	0.00000	1.00000	99.83
8.5	17,698,232	291	0.00002	0.99998	99.83
9.5	17,697,941	36,626	0.00207	0.99793	99.83
10.5	17,638,634	0	0.00000	1.00000	99.62
11.5	17,598,047	100	0.00001	0.99999	99.62
12.5	17,597,947	140,699	0.00800	0.99200	99.62
13.5	17,457,247	0	0.00000	1.00000	98.82
14.5	17,427,924	189,707	0.01089	0.98911	98.82
15.5	17,238,217	0	0.00000	1.00000	97.74
16.5	17,238,217	47,046	0.00273	0.99727	97.74
17.5	17,191,171	0	0.00000	1.00000	97.47
18.5	17,181,457	1,380	0.00008	0.99992	97.47
19.5	16,135,143	11,757	0.00073	0.99927	97.46
20.5	13,615,347	24,525	0.00180	0.99820	97.39
21.5	13,556,966	10,261	0.00076	0.99924	97.21
22.5	13,516,213	4,866	0.00036	0.99964	97.14
23.5	13,445,775	11,384	0.00085	0.99915	97.11
24.5	13,320,259	12,531	0.00094	0.99906	97.03
25.5	13,307,728	4,864	0.00037	0.99963	96.94
26.5	13,153,909	7,958	0.00060	0.99940	96.90

NEWFOUNDLAND AND LABRADOR HYDRO

Account F04 - Footings and Foundations

Placement Band - 1965 - 2022 Experience Band - 1992 - 2022

27.5	12,682,939	0	0.00000	1.00000	96.84
28.5	12,677,512	62,933	0.00496	0.99504	96.84
29.5	12,542,265	87,255	0.00696	0.99304	96.36
30.5	11,829,132	9,145	0.00077	0.99923	95.69
31.5	10,807,276	117,521	0.01087	0.98913	95.62
32.5	9,377,602	137,940	0.01471	0.98529	94.58
33.5	8,898,789	6,068	0.00068	0.99932	93.19
34.5	8,776,908	172,290	0.01963	0.98037	93.13
35.5	8,297,556	331	0.00004	0.99996	91.30
36.5	8,249,576	241	0.00003	0.99997	91.30
37.5	8,223,489	60	0.00001	0.99999	91.30
38.5	8,215,611	0	0.00000	1.00000	91.30
39.5	7,449,418	0	0.00000	1.00000	91.30
40.5	6,985,412	0	0.00000	1.00000	91.30
41.5	6,685,955	0	0.00000	1.00000	91.30
42.5	6,145,846	0	0.00000	1.00000	91.30
43.5	6,074,348	240,679	0.03962	0.96038	91.30
44.5	4,727,086	9,345	0.00198	0.99802	87.68
45.5	3,521,378	6,951	0.00197	0.99803	87.51
46.5	3,410,809	40,576	0.01190	0.98810	87.34
47.5	3,261,792	0	0.00000	1.00000	86.30
48.5	3,193,508	0	0.00000	1.00000	86.30
49.5	3,178,926	1,051	0.00033	0.99967	86.30
50.5	3,167,509	0	0.00000	1.00000	86.27
51.5	3,167,509	0	0.00000	1.00000	86.27
52.5	2,756,139	0	0.00000	1.00000	86.27
53.5	2,756,139	0	0.00000	1.00000	86.27
54.5	1,887,129	0	0.00000	1.00000	86.27
55.5	167,301	0	0.00000	1.00000	86.27
56.5	167,301	0	0.00000	1.00000	86.27

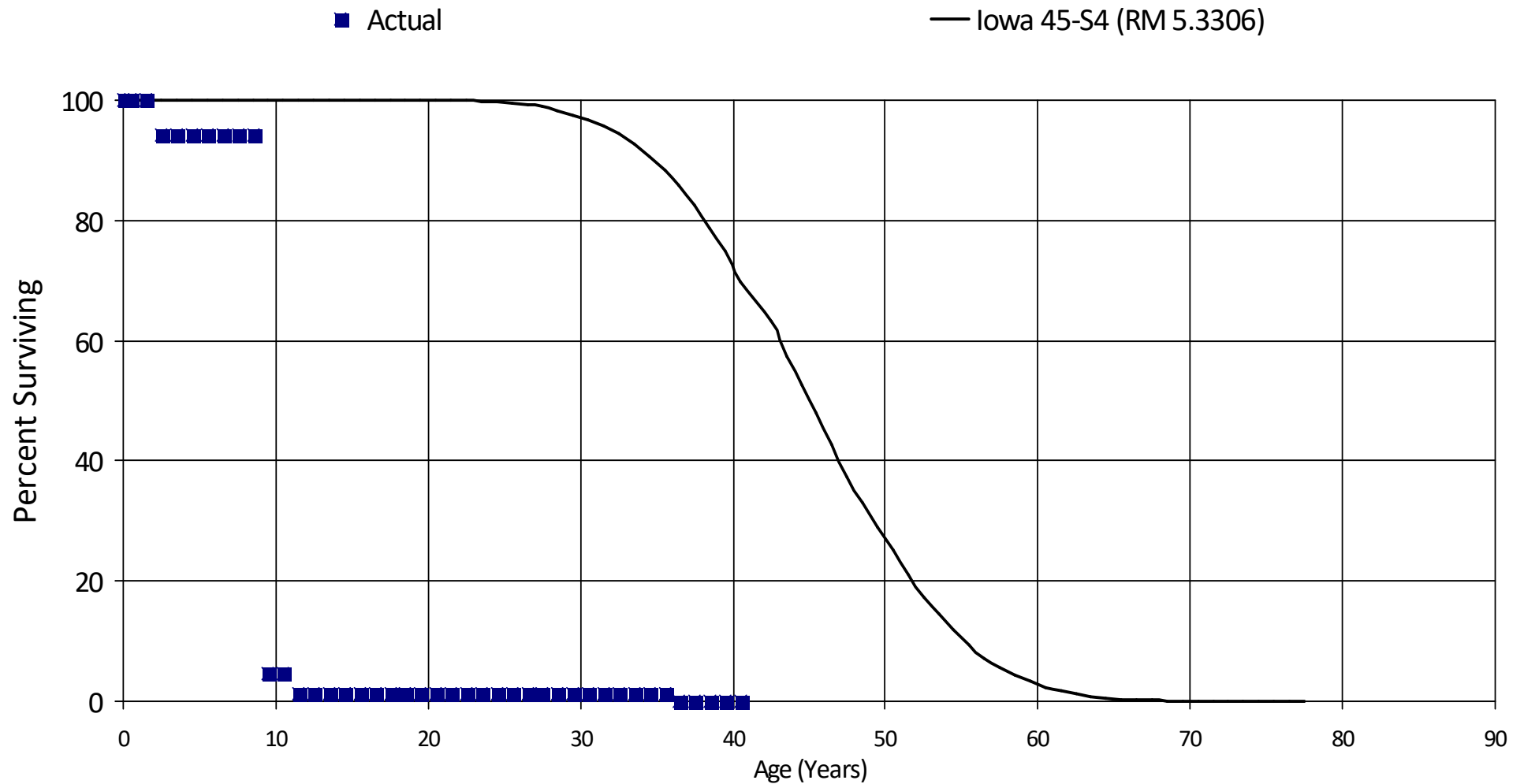
Totals: 1,505,692

NEWFOUNDLAND AND LABRADOR HYDRO

Account F05 - Frequency Conversion

Placement Band - 1977 - 2016 Experience Band - 2018 - 2018

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account F05 - Frequency Conversion

Placement Band - 1977 - 2016 Experience Band - 2018 - 2018

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	798,994	0	0.00000	1.00000	100.00
0.5	798,994	0	0.00000	1.00000	100.00
1.5	798,994	46,889	0.05869	0.94131	100.00
2.5	752,105	0	0.00000	1.00000	94.13
3.5	752,105	0	0.00000	1.00000	94.13
4.5	752,105	0	0.00000	1.00000	94.13
5.5	752,105	0	0.00000	1.00000	94.13
6.5	752,105	0	0.00000	1.00000	94.13
7.5	752,105	0	0.00000	1.00000	94.13
8.5	752,105	716,453	0.95260	0.04740	94.13
9.5	35,651	0	0.00000	1.00000	4.46
10.5	35,651	26,192	0.73467	0.26533	4.46
11.5	9,460	0	0.00000	1.00000	1.18
12.5	9,460	0	0.00000	1.00000	1.18
13.5	9,460	0	0.00000	1.00000	1.18
14.5	9,460	0	0.00000	1.00000	1.18
15.5	9,460	0	0.00000	1.00000	1.18
16.5	9,460	0	0.00000	1.00000	1.18
17.5	9,460	0	0.00000	1.00000	1.18
18.5	9,460	0	0.00000	1.00000	1.18
19.5	9,460	0	0.00000	1.00000	1.18
20.5	9,460	0	0.00000	1.00000	1.18
21.5	9,460	0	0.00000	1.00000	1.18
22.5	9,460	0	0.00000	1.00000	1.18
23.5	9,460	0	0.00000	1.00000	1.18
24.5	9,460	0	0.00000	1.00000	1.18
25.5	9,460	0	0.00000	1.00000	1.18
26.5	9,460	0	0.00000	1.00000	1.18

NEWFOUNDLAND AND LABRADOR HYDRO

Account F05 - Frequency Conversion

Placement Band - 1977 - 2016 Experience Band - 2018 - 2018

27.5	9,460	0	0.00000	1.00000	1.18
28.5	9,460	0	0.00000	1.00000	1.18
29.5	9,460	0	0.00000	1.00000	1.18
30.5	9,460	0	0.00000	1.00000	1.18
31.5	9,460	0	0.00000	1.00000	1.18
32.5	9,460	0	0.00000	1.00000	1.18
33.5	9,460	0	0.00000	1.00000	1.18
34.5	9,460	0	0.00000	1.00000	1.18
35.5	9,460	9,459	0.99994	0.00006	1.18
36.5	0	0	0.00000	1.00000	0.00
37.5	0	0	0.00000	1.00000	0.00
38.5	0	0	0.00000	1.00000	0.00
39.5	0	0	0.00000	1.00000	0.00
40.5	0	0	0.00000	1.00000	0.00

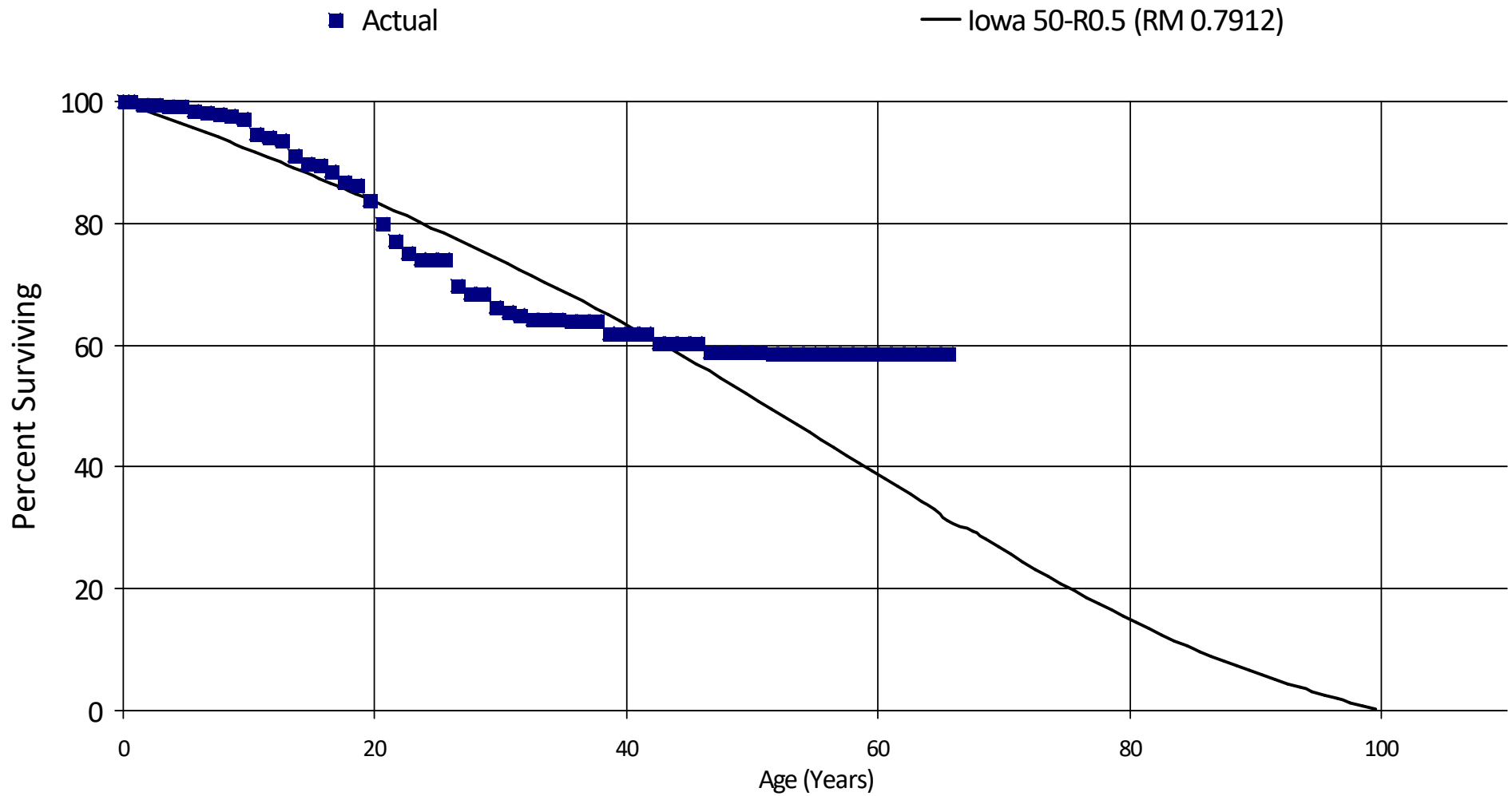
Totals: 798,993

NEWFOUNDLAND AND LABRADOR HYDRO

Account F06 - Fuel Systems

Placement Band - 1956 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account F06 - Fuel Systems

Placement Band - 1956 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	50,812,480	0	0.00000	1.00000	100.00
0.5	49,327,966	288,670	0.00585	0.99415	100.00
1.5	48,178,623	25,840	0.00054	0.99946	99.42
2.5	46,445,339	87,659	0.00189	0.99811	99.37
3.5	34,712,372	16,568	0.00048	0.99952	99.18
4.5	32,720,211	197,053	0.00602	0.99398	99.13
5.5	31,398,269	82,926	0.00264	0.99736	98.53
6.5	30,269,787	119,683	0.00395	0.99605	98.27
7.5	21,371,736	50,544	0.00236	0.99764	97.88
8.5	20,104,051	86,687	0.00431	0.99569	97.65
9.5	19,986,089	522,325	0.02613	0.97387	97.23
10.5	18,879,740	83,498	0.00442	0.99558	94.69
11.5	17,392,987	113,661	0.00653	0.99347	94.27
12.5	16,744,167	464,784	0.02776	0.97224	93.65
13.5	15,892,808	215,691	0.01357	0.98643	91.05
14.5	15,361,270	44,949	0.00293	0.99707	89.81
15.5	12,767,841	132,320	0.01036	0.98964	89.55
16.5	12,089,550	251,826	0.02083	0.97917	88.62
17.5	11,132,869	47,942	0.00431	0.99569	86.77
18.5	11,084,927	325,711	0.02938	0.97062	86.40
19.5	10,498,261	504,274	0.04803	0.95197	83.86
20.5	9,749,535	325,193	0.03335	0.96665	79.83
21.5	8,750,822	223,790	0.02557	0.97443	77.17
22.5	8,282,358	109,204	0.01319	0.98681	75.20
23.5	7,763,680	4,557	0.00059	0.99941	74.21
24.5	7,675,390	1,650	0.00021	0.99979	74.17
25.5	7,585,719	456,005	0.06011	0.93989	74.15
26.5	6,725,811	107,020	0.01591	0.98409	69.69

NEWFOUNDLAND AND LABRADOR HYDRO

Account F06 - Fuel Systems

Placement Band - 1956 - 2022 Experience Band - 1991 - 2022

27.5	6,404,633	14,842	0.00232	0.99768	68.58
28.5	6,069,318	183,831	0.03029	0.96971	68.42
29.5	5,665,304	84,412	0.01490	0.98510	66.35
30.5	4,958,534	27,816	0.00561	0.99439	65.36
31.5	4,593,165	48,759	0.01062	0.98938	64.99
32.5	3,995,650	1,500	0.00038	0.99962	64.30
33.5	3,716,523	3,976	0.00107	0.99893	64.28
34.5	3,698,617	15,000	0.00406	0.99594	64.21
35.5	3,227,561	3,113	0.00096	0.99904	63.95
36.5	3,222,895	0	0.00000	1.00000	63.89
37.5	3,028,829	89,532	0.02956	0.97044	63.89
38.5	2,939,297	100	0.00003	0.99997	62.00
39.5	2,922,002	0	0.00000	1.00000	62.00
40.5	2,922,002	0	0.00000	1.00000	62.00
41.5	2,495,578	60,813	0.02437	0.97563	62.00
42.5	2,254,792	0	0.00000	1.00000	60.49
43.5	2,254,792	0	0.00000	1.00000	60.49
44.5	2,254,792	0	0.00000	1.00000	60.49
45.5	2,238,202	63,382	0.02832	0.97168	60.49
46.5	1,962,333	0	0.00000	1.00000	58.78
47.5	1,917,917	0	0.00000	1.00000	58.78
48.5	1,627,304	0	0.00000	1.00000	58.78
49.5	1,624,060	0	0.00000	1.00000	58.78
50.5	1,624,060	6,788	0.00418	0.99582	58.78
51.5	1,529,984	0	0.00000	1.00000	58.53
52.5	1,529,184	0	0.00000	1.00000	58.53
53.5	771,643	0	0.00000	1.00000	58.53
54.5	74,872	0	0.00000	1.00000	58.53
55.5	74,872	0	0.00000	1.00000	58.53
56.5	11,786	0	0.00000	1.00000	58.53
57.5	11,786	0	0.00000	1.00000	58.53

NEWFOUNDLAND AND LABRADOR HYDRO

Account F06 - Fuel Systems

Placement Band - 1956 - 2022 Experience Band - 1991 - 2022

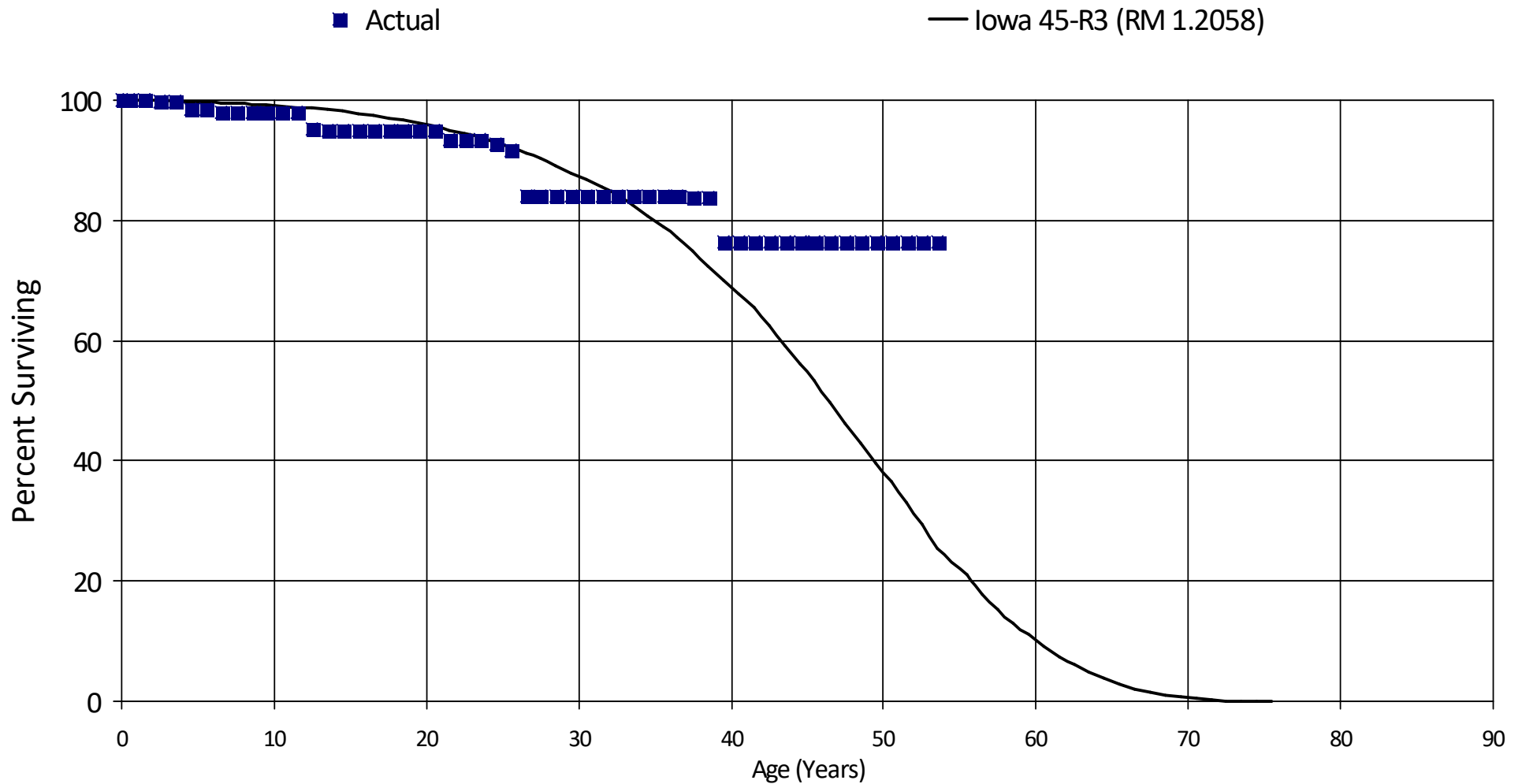
58.5	11,786	0	0.00000	1.00000	58.53
59.5	11,786	0	0.00000	1.00000	58.53
60.5	11,786	0	0.00000	1.00000	58.53
61.5	11,786	0	0.00000	1.00000	58.53
62.5	11,786	0	0.00000	1.00000	58.53
63.5	11,786	0	0.00000	1.00000	58.53
64.5	11,786	0	0.00000	1.00000	58.53
65.5	11,786	0	0.00000	1.00000	58.53
Totals:		5,493,894			

NEWFOUNDLAND AND LABRADOR HYDRO

Account G01 - Gas Turbine Systems

Placement Band - 1968 - 2022 Experience Band - 2000 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account G01 - Gas Turbine Systems

Placement Band - 1968 - 2022 Experience Band - 2000 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	85,392,431	0	0.00000	1.00000	100.00
0.5	84,131,784	0	0.00000	1.00000	100.00
1.5	84,131,784	185,109	0.00220	0.99780	100.00
2.5	81,882,840	0	0.00000	1.00000	99.78
3.5	80,243,009	1,011,679	0.01261	0.98739	99.78
4.5	78,559,669	0	0.00000	1.00000	98.52
5.5	74,495,657	339,693	0.00456	0.99544	98.52
6.5	71,367,718	0	0.00000	1.00000	98.07
7.5	40,071,561	0	0.00000	1.00000	98.07
8.5	37,980,089	0	0.00000	1.00000	98.07
9.5	30,169,302	0	0.00000	1.00000	98.07
10.5	29,792,958	0	0.00000	1.00000	98.07
11.5	29,570,092	874,301	0.02957	0.97043	98.07
12.5	28,695,792	48,384	0.00169	0.99831	95.17
13.5	28,517,774	0	0.00000	1.00000	95.01
14.5	28,517,774	0	0.00000	1.00000	95.01
15.5	28,517,774	2,141	0.00008	0.99992	95.01
16.5	28,515,633	18,390	0.00064	0.99936	95.00
17.5	28,497,243	0	0.00000	1.00000	94.94
18.5	28,497,243	0	0.00000	1.00000	94.94
19.5	28,497,243	0	0.00000	1.00000	94.94
20.5	28,497,243	459,085	0.01611	0.98389	94.94
21.5	27,976,321	0	0.00000	1.00000	93.41
22.5	27,976,321	0	0.00000	1.00000	93.41
23.5	27,967,233	203,409	0.00727	0.99273	93.41
24.5	27,763,824	336,343	0.01211	0.98789	92.73
25.5	26,884,704	2,243,280	0.08344	0.91656	91.61
26.5	24,641,424	0	0.00000	1.00000	83.97

NEWFOUNDLAND AND LABRADOR HYDRO

Account G01 - Gas Turbine Systems

Placement Band - 1968 - 2022 Experience Band - 2000 - 2022

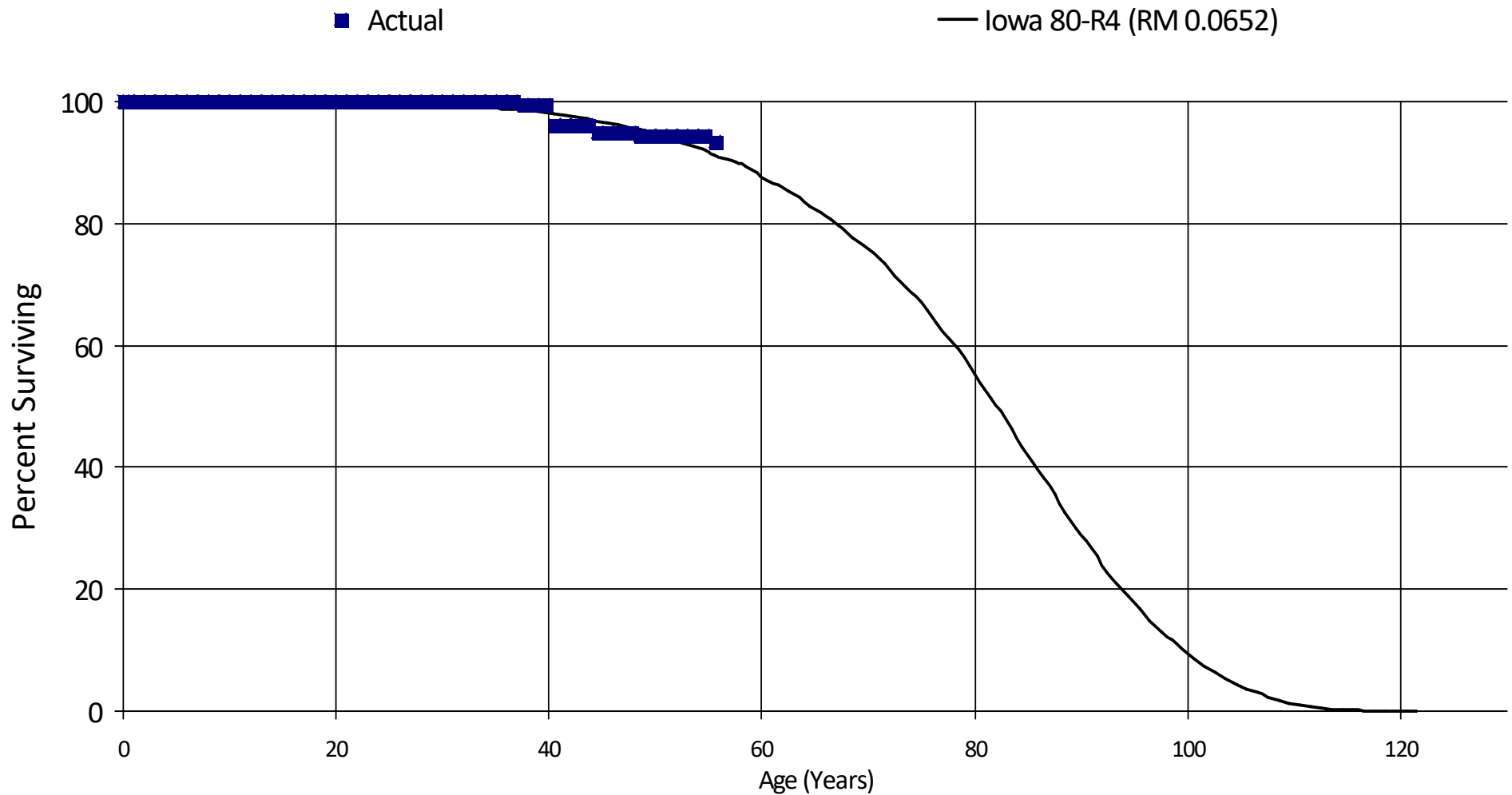
27.5	24,641,424	0	0.00000	1.00000	83.97
28.5	24,641,424	0	0.00000	1.00000	83.97
29.5	24,641,424	0	0.00000	1.00000	83.97
30.5	13,085,715	0	0.00000	1.00000	83.97
31.5	13,085,715	0	0.00000	1.00000	83.97
32.5	13,085,715	0	0.00000	1.00000	83.97
33.5	13,002,110	0	0.00000	1.00000	83.97
34.5	13,002,110	0	0.00000	1.00000	83.97
35.5	13,002,110	0	0.00000	1.00000	83.97
36.5	13,002,110	30,595	0.00235	0.99765	83.97
37.5	12,971,516	0	0.00000	1.00000	83.77
38.5	12,971,516	1,144,769	0.08825	0.91175	83.77
39.5	11,826,746	0	0.00000	1.00000	76.38
40.5	11,826,746	0	0.00000	1.00000	76.38
41.5	11,616,136	0	0.00000	1.00000	76.38
42.5	11,616,136	0	0.00000	1.00000	76.38
43.5	11,616,136	0	0.00000	1.00000	76.38
44.5	11,616,136	0	0.00000	1.00000	76.38
45.5	11,232,117	0	0.00000	1.00000	76.38
46.5	11,232,117	0	0.00000	1.00000	76.38
47.5	5,698,694	0	0.00000	1.00000	76.38
48.5	995,759	0	0.00000	1.00000	76.38
49.5	995,759	0	0.00000	1.00000	76.38
50.5	995,759	0	0.00000	1.00000	76.38
51.5	995,759	0	0.00000	1.00000	76.38
52.5	995,759	0	0.00000	1.00000	76.38
53.5	995,759	0	0.00000	1.00000	76.38
Totals:		6,897,178			

NEWFOUNDLAND AND LABRADOR HYDRO

Account G02 - Gates

Placement Band - 1966 - 2022 Experience Band - 2004 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account G02 - Gates

Placement Band - 1966 - 2022 Experience Band - 2004 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	25,386,054	0	0.00000	1.00000	100.00
0.5	21,513,888	0	0.00000	1.00000	100.00
1.5	21,513,888	0	0.00000	1.00000	100.00
2.5	21,513,888	0	0.00000	1.00000	100.00
3.5	20,208,518	0	0.00000	1.00000	100.00
4.5	20,208,518	0	0.00000	1.00000	100.00
5.5	19,561,848	10,503	0.00054	0.99946	100.00
6.5	19,049,833	0	0.00000	1.00000	99.95
7.5	17,632,313	0	0.00000	1.00000	99.95
8.5	17,310,665	0	0.00000	1.00000	99.95
9.5	15,395,434	0	0.00000	1.00000	99.95
10.5	15,363,434	0	0.00000	1.00000	99.95
11.5	15,363,434	0	0.00000	1.00000	99.95
12.5	15,363,434	9,500	0.00062	0.99938	99.95
13.5	15,353,933	0	0.00000	1.00000	99.89
14.5	15,353,933	0	0.00000	1.00000	99.89
15.5	15,353,933	0	0.00000	1.00000	99.89
16.5	15,353,933	0	0.00000	1.00000	99.89
17.5	15,353,933	0	0.00000	1.00000	99.89
18.5	14,914,822	0	0.00000	1.00000	99.89
19.5	14,914,822	0	0.00000	1.00000	99.89
20.5	14,914,822	0	0.00000	1.00000	99.89
21.5	14,914,822	0	0.00000	1.00000	99.89
22.5	14,914,822	0	0.00000	1.00000	99.89
23.5	14,914,822	0	0.00000	1.00000	99.89
24.5	14,914,822	0	0.00000	1.00000	99.89
25.5	14,914,822	0	0.00000	1.00000	99.89
26.5	14,914,822	0	0.00000	1.00000	99.89

NEWFOUNDLAND AND LABRADOR HYDRO

Account G02 - Gates

Placement Band - 1966 - 2022 Experience Band - 2004 - 2022

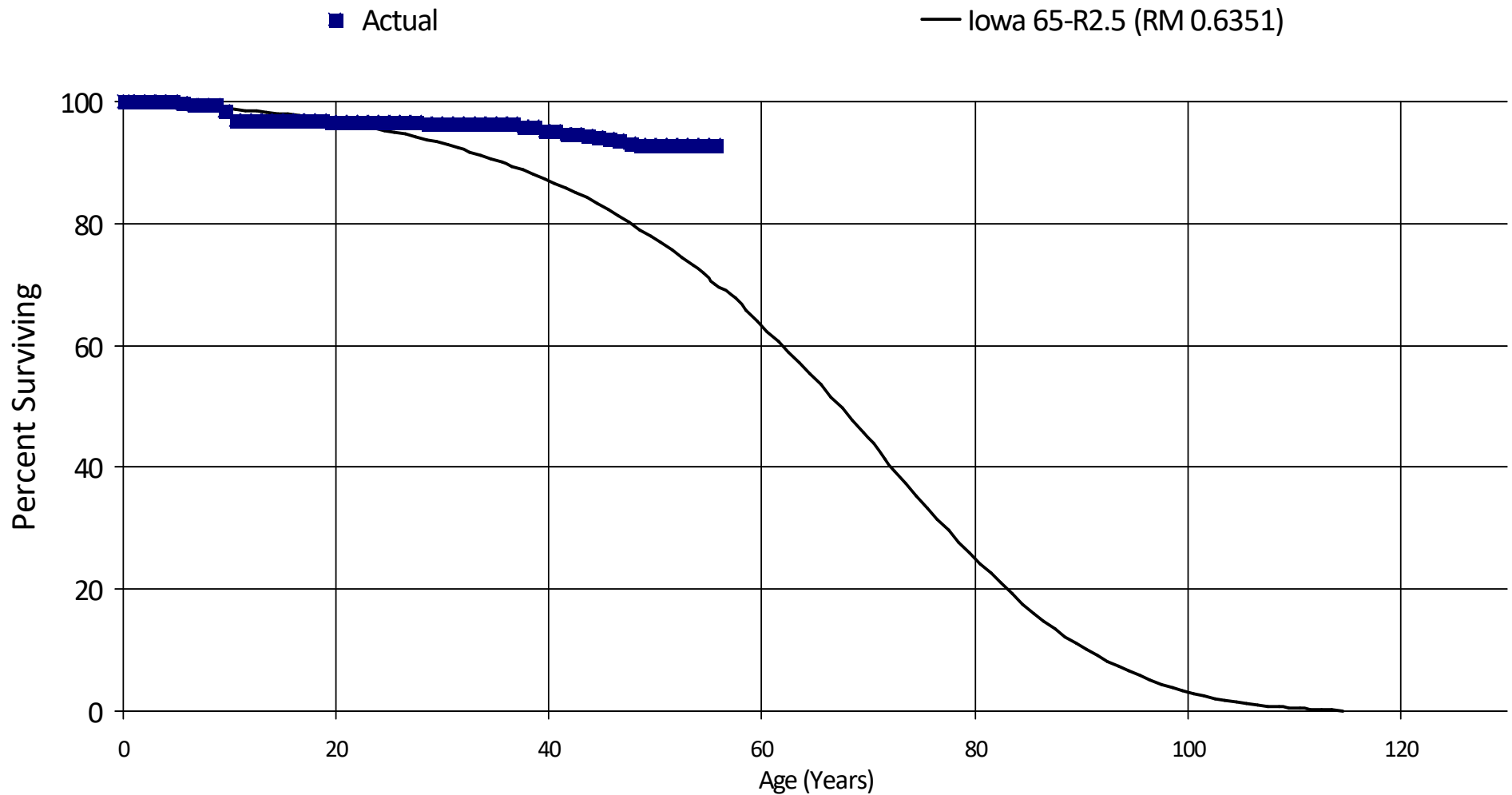
27.5	14,914,822	831	0.00006	0.99994	99.89
28.5	14,913,991	0	0.00000	1.00000	99.88
29.5	14,913,991	0	0.00000	1.00000	99.88
30.5	14,913,991	170	0.00001	0.99999	99.88
31.5	14,913,821	0	0.00000	1.00000	99.88
32.5	14,913,821	0	0.00000	1.00000	99.88
33.5	14,733,491	0	0.00000	1.00000	99.88
34.5	13,719,693	0	0.00000	1.00000	99.88
35.5	13,719,693	0	0.00000	1.00000	99.88
36.5	13,580,231	46,760	0.00344	0.99656	99.88
37.5	13,348,258	0	0.00000	1.00000	99.54
38.5	12,228,125	0	0.00000	1.00000	99.54
39.5	10,251,619	356,201	0.03475	0.96525	99.54
40.5	5,772,169	0	0.00000	1.00000	96.08
41.5	5,772,169	0	0.00000	1.00000	96.08
42.5	4,720,676	0	0.00000	1.00000	96.08
43.5	3,717,320	42,000	0.01130	0.98870	96.08
44.5	3,407,627	425	0.00012	0.99988	94.99
45.5	3,407,202	1,218	0.00036	0.99964	94.98
46.5	3,405,984	5,408	0.00159	0.99841	94.95
47.5	3,400,576	10,366	0.00305	0.99695	94.80
48.5	3,390,211	1,851	0.00055	0.99945	94.51
49.5	3,388,359	0	0.00000	1.00000	94.46
50.5	3,388,359	1,333	0.00039	0.99961	94.46
51.5	3,387,026	491	0.00014	0.99986	94.42
52.5	2,990,133	0	0.00000	1.00000	94.41
53.5	2,990,133	0	0.00000	1.00000	94.41
54.5	2,990,133	32,728	0.01095	0.98905	94.41
55.5	1,920,917	0	0.00000	1.00000	93.38
Totals:		519,785			

NEWFOUNDLAND AND LABRADOR HYDRO

Account G03 - Generators, Windings, and Powerhouse

Placement Band - 1966 - 2022 Experience Band - 1997 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account G03 - Generators, Windings, and Powerhouse

Placement Band - 1966 - 2022 Experience Band - 1997 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	273,176,888	0	0.00000	1.00000	100.00
0.5	265,814,368	797	0.00000	1.00000	100.00
1.5	243,877,929	0	0.00000	1.00000	100.00
2.5	242,552,214	75,460	0.00031	0.99969	100.00
3.5	239,304,984	20,683	0.00009	0.99991	99.97
4.5	236,225,885	584,224	0.00247	0.99753	99.96
5.5	232,082,231	493,866	0.00213	0.99787	99.71
6.5	221,178,512	0	0.00000	1.00000	99.50
7.5	188,180,699	0	0.00000	1.00000	99.50
8.5	182,465,485	1,831,978	0.01004	0.98996	99.50
9.5	169,331,793	2,585,480	0.01527	0.98473	98.50
10.5	165,529,103	131,809	0.00080	0.99920	97.00
11.5	165,225,339	0	0.00000	1.00000	96.92
12.5	158,838,023	0	0.00000	1.00000	96.92
13.5	158,603,257	0	0.00000	1.00000	96.92
14.5	158,452,997	2,433	0.00002	0.99998	96.92
15.5	158,450,564	87,173	0.00055	0.99945	96.92
16.5	158,280,102	0	0.00000	1.00000	96.87
17.5	158,280,102	0	0.00000	1.00000	96.87
18.5	158,280,102	103,546	0.00065	0.99935	96.87
19.5	127,457,391	0	0.00000	1.00000	96.81
20.5	127,420,523	64,978	0.00051	0.99949	96.81
21.5	127,258,530	7,928	0.00006	0.99994	96.76
22.5	127,142,964	0	0.00000	1.00000	96.75
23.5	126,977,063	0	0.00000	1.00000	96.75
24.5	126,971,895	3,161	0.00002	0.99998	96.75
25.5	126,961,458	64,561	0.00051	0.99949	96.75
26.5	126,896,898	1,506	0.00001	0.99999	96.70

NEWFOUNDLAND AND LABRADOR HYDRO

Account G03 - Generators, Windings, and Powerhouse

Placement Band - 1966 - 2022 Experience Band - 1997 - 2022

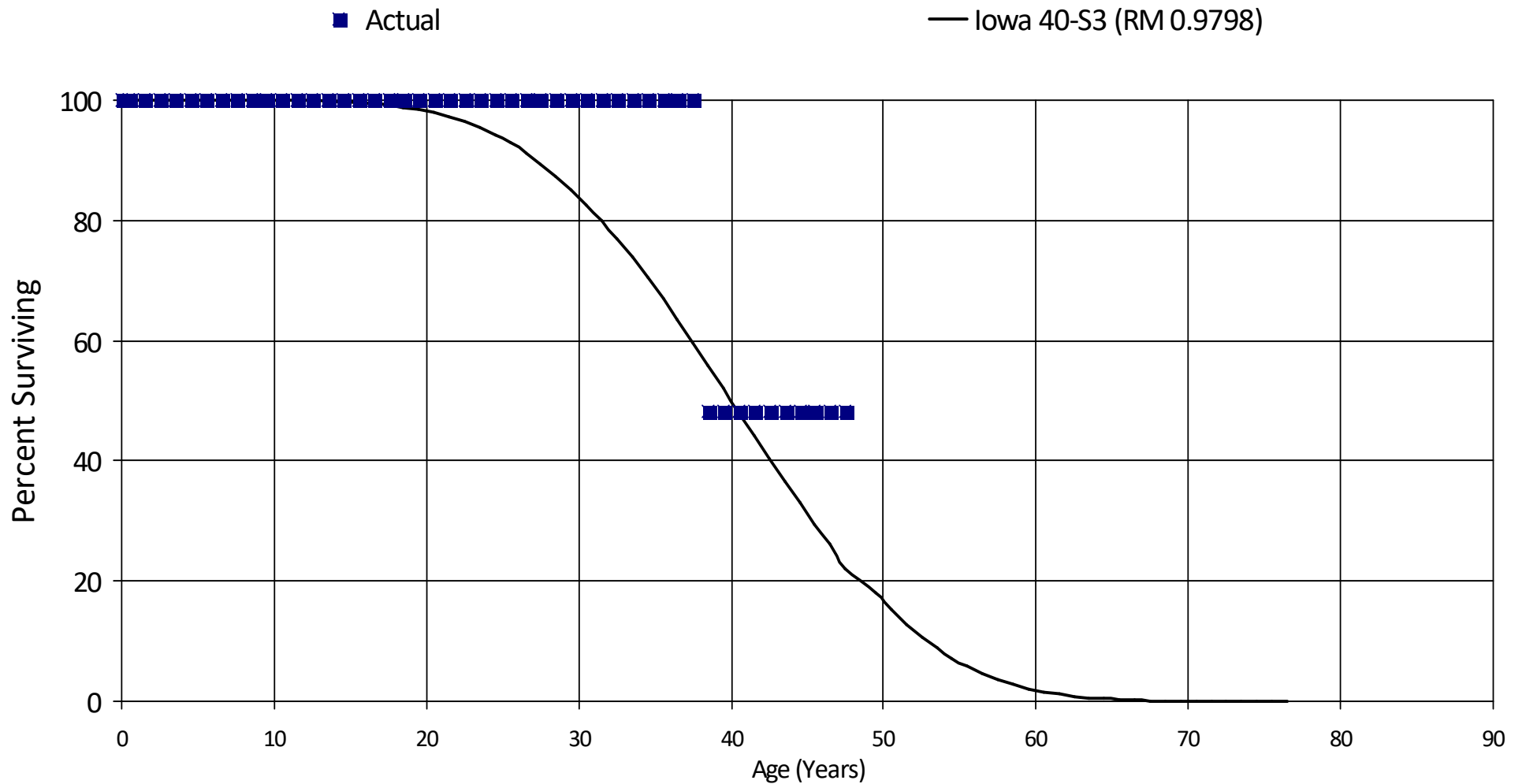
27.5	126,747,128	214,448	0.00169	0.99831	96.70
28.5	126,487,800	43,627	0.00034	0.99966	96.54
29.5	123,736,518	14,356	0.00012	0.99988	96.51
30.5	118,641,764	0	0.00000	1.00000	96.50
31.5	118,630,846	0	0.00000	1.00000	96.50
32.5	118,435,298	0	0.00000	1.00000	96.50
33.5	116,162,545	4,115	0.00004	0.99996	96.50
34.5	114,589,186	1,272	0.00001	0.99999	96.50
35.5	114,368,464	1,217	0.00001	0.99999	96.50
36.5	114,357,241	556,374	0.00487	0.99513	96.50
37.5	98,571,383	930	0.00001	0.99999	96.03
38.5	86,585,895	798,586	0.00922	0.99078	96.03
39.5	81,042,466	12,555	0.00015	0.99985	95.14
40.5	62,804,513	302,720	0.00482	0.99518	95.13
41.5	62,259,167	80,792	0.00130	0.99870	94.67
42.5	50,465,518	5,340	0.00011	0.99989	94.55
43.5	43,137,751	160,395	0.00372	0.99628	94.54
44.5	41,623,965	147,713	0.00355	0.99645	94.19
45.5	38,413,775	133,608	0.00348	0.99652	93.86
46.5	38,275,167	125,088	0.00327	0.99673	93.53
47.5	38,150,079	127,558	0.00334	0.99666	93.22
48.5	38,022,521	7,283	0.00019	0.99981	92.91
49.5	38,015,238	438	0.00001	0.99999	92.89
50.5	38,014,800	5,425	0.00014	0.99986	92.89
51.5	32,830,367	0	0.00000	1.00000	92.88
52.5	26,578,817	423	0.00002	0.99998	92.88
53.5	24,018,932	0	0.00000	1.00000	92.88
54.5	18,490,271	0	0.00000	1.00000	92.88
55.5	6,329,309	0	0.00000	1.00000	92.88
Totals:		8,803,846			

NEWFOUNDLAND AND LABRADOR HYDRO

Account G05 - Glycol Systems

Placement Band - 1974 - 2022 Experience Band - 2013 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account G05 - Glycol Systems

Placement Band - 1974 - 2022 Experience Band - 2013 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	669,311	0	0.00000	1.00000	100.00
0.5	620,704	0	0.00000	1.00000	100.00
1.5	620,704	0	0.00000	1.00000	100.00
2.5	620,704	0	0.00000	1.00000	100.00
3.5	620,704	0	0.00000	1.00000	100.00
4.5	620,704	0	0.00000	1.00000	100.00
5.5	620,704	0	0.00000	1.00000	100.00
6.5	620,704	0	0.00000	1.00000	100.00
7.5	620,704	0	0.00000	1.00000	100.00
8.5	620,704	0	0.00000	1.00000	100.00
9.5	620,704	0	0.00000	1.00000	100.00
10.5	620,704	0	0.00000	1.00000	100.00
11.5	620,704	0	0.00000	1.00000	100.00
12.5	620,704	0	0.00000	1.00000	100.00
13.5	620,704	0	0.00000	1.00000	100.00
14.5	620,704	0	0.00000	1.00000	100.00
15.5	620,704	0	0.00000	1.00000	100.00
16.5	620,704	0	0.00000	1.00000	100.00
17.5	620,704	0	0.00000	1.00000	100.00
18.5	620,704	0	0.00000	1.00000	100.00
19.5	620,704	0	0.00000	1.00000	100.00
20.5	620,704	0	0.00000	1.00000	100.00
21.5	620,704	0	0.00000	1.00000	100.00
22.5	620,704	0	0.00000	1.00000	100.00
23.5	620,704	0	0.00000	1.00000	100.00
24.5	620,704	0	0.00000	1.00000	100.00
25.5	620,704	0	0.00000	1.00000	100.00
26.5	620,704	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account G05 - Glycol Systems

Placement Band - 1974 - 2022 Experience Band - 2013 - 2022

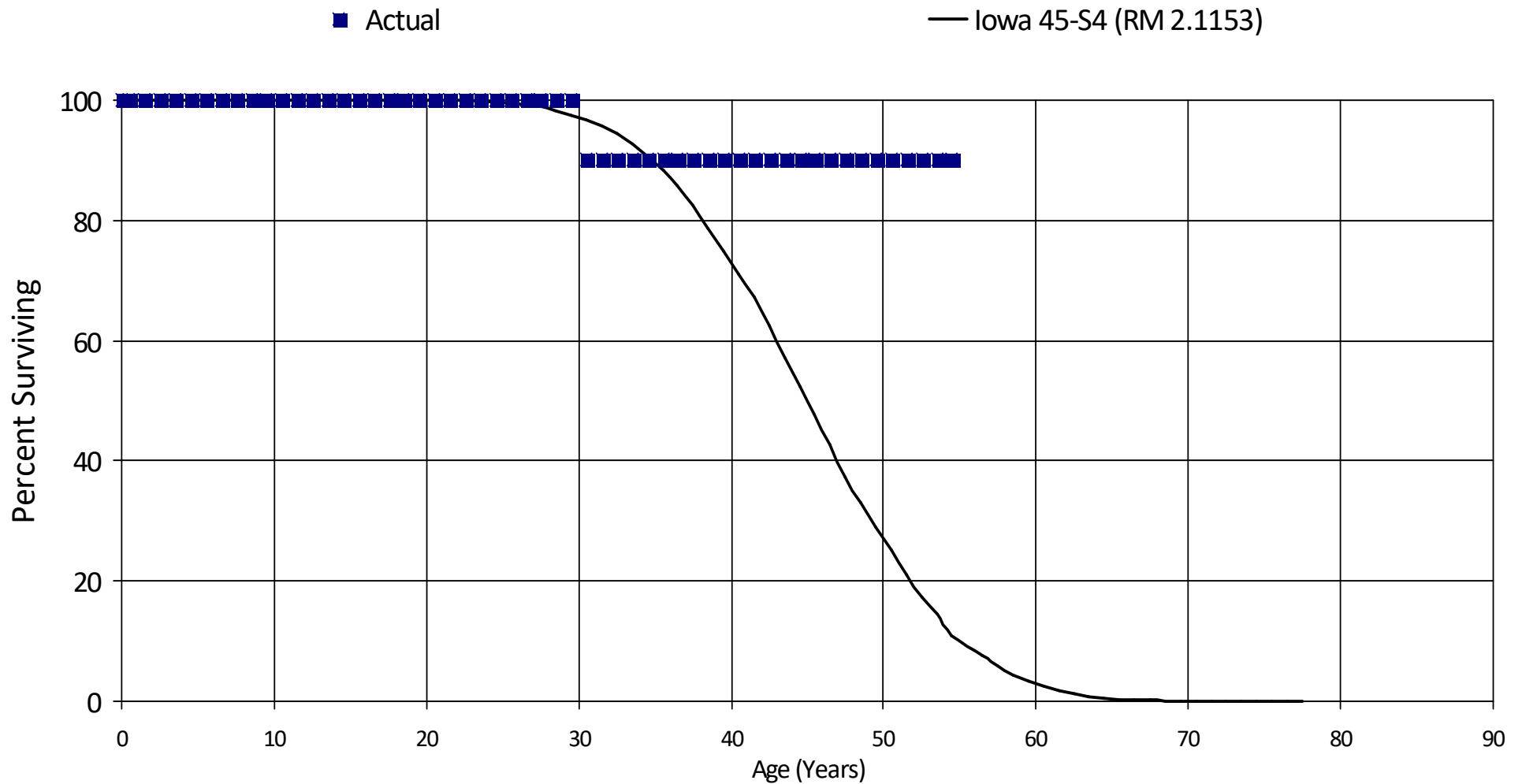
27.5	620,704	0	0.00000	1.00000	100.00
28.5	620,704	0	0.00000	1.00000	100.00
29.5	620,704	0	0.00000	1.00000	100.00
30.5	183,019	0	0.00000	1.00000	100.00
31.5	183,019	0	0.00000	1.00000	100.00
32.5	183,019	0	0.00000	1.00000	100.00
33.5	173,749	0	0.00000	1.00000	100.00
34.5	173,749	0	0.00000	1.00000	100.00
35.5	173,749	0	0.00000	1.00000	100.00
36.5	173,749	0	0.00000	1.00000	100.00
37.5	173,749	90,050	0.51828	0.48172	100.00
38.5	83,699	0	0.00000	1.00000	48.17
39.5	83,699	0	0.00000	1.00000	48.17
40.5	83,699	0	0.00000	1.00000	48.17
41.5	83,699	0	0.00000	1.00000	48.17
42.5	83,699	0	0.00000	1.00000	48.17
43.5	83,699	0	0.00000	1.00000	48.17
44.5	83,699	0	0.00000	1.00000	48.17
45.5	83,699	0	0.00000	1.00000	48.17
46.5	83,699	0	0.00000	1.00000	48.17
47.5	83,699	0	0.00000	1.00000	48.17
Totals:		90,050			

NEWFOUNDLAND AND LABRADOR HYDRO

Account G06 - Govenors

Placement Band - 1967 - 2009 Experience Band - 2006 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account G06 - Govenors

Placement Band - 1967 - 2009 Experience Band - 2006 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	8,326,911	0	0.00000	1.00000	100.00
0.5	8,326,911	0	0.00000	1.00000	100.00
1.5	8,326,911	0	0.00000	1.00000	100.00
2.5	8,326,911	0	0.00000	1.00000	100.00
3.5	8,326,911	0	0.00000	1.00000	100.00
4.5	8,326,911	0	0.00000	1.00000	100.00
5.5	8,326,911	0	0.00000	1.00000	100.00
6.5	8,326,911	0	0.00000	1.00000	100.00
7.5	8,326,911	0	0.00000	1.00000	100.00
8.5	8,326,911	0	0.00000	1.00000	100.00
9.5	8,326,911	0	0.00000	1.00000	100.00
10.5	8,326,911	0	0.00000	1.00000	100.00
11.5	8,326,911	0	0.00000	1.00000	100.00
12.5	8,326,911	0	0.00000	1.00000	100.00
13.5	7,031,696	0	0.00000	1.00000	100.00
14.5	7,031,696	0	0.00000	1.00000	100.00
15.5	7,031,696	0	0.00000	1.00000	100.00
16.5	6,119,183	0	0.00000	1.00000	100.00
17.5	6,119,183	0	0.00000	1.00000	100.00
18.5	6,119,183	0	0.00000	1.00000	100.00
19.5	5,496,033	0	0.00000	1.00000	100.00
20.5	4,901,398	0	0.00000	1.00000	100.00
21.5	4,901,398	0	0.00000	1.00000	100.00
22.5	4,901,398	0	0.00000	1.00000	100.00
23.5	4,901,398	0	0.00000	1.00000	100.00
24.5	4,901,398	0	0.00000	1.00000	100.00
25.5	4,901,398	0	0.00000	1.00000	100.00
26.5	4,889,959	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account G06 - Govenors

Placement Band - 1967 - 2009 Experience Band - 2006 - 2022

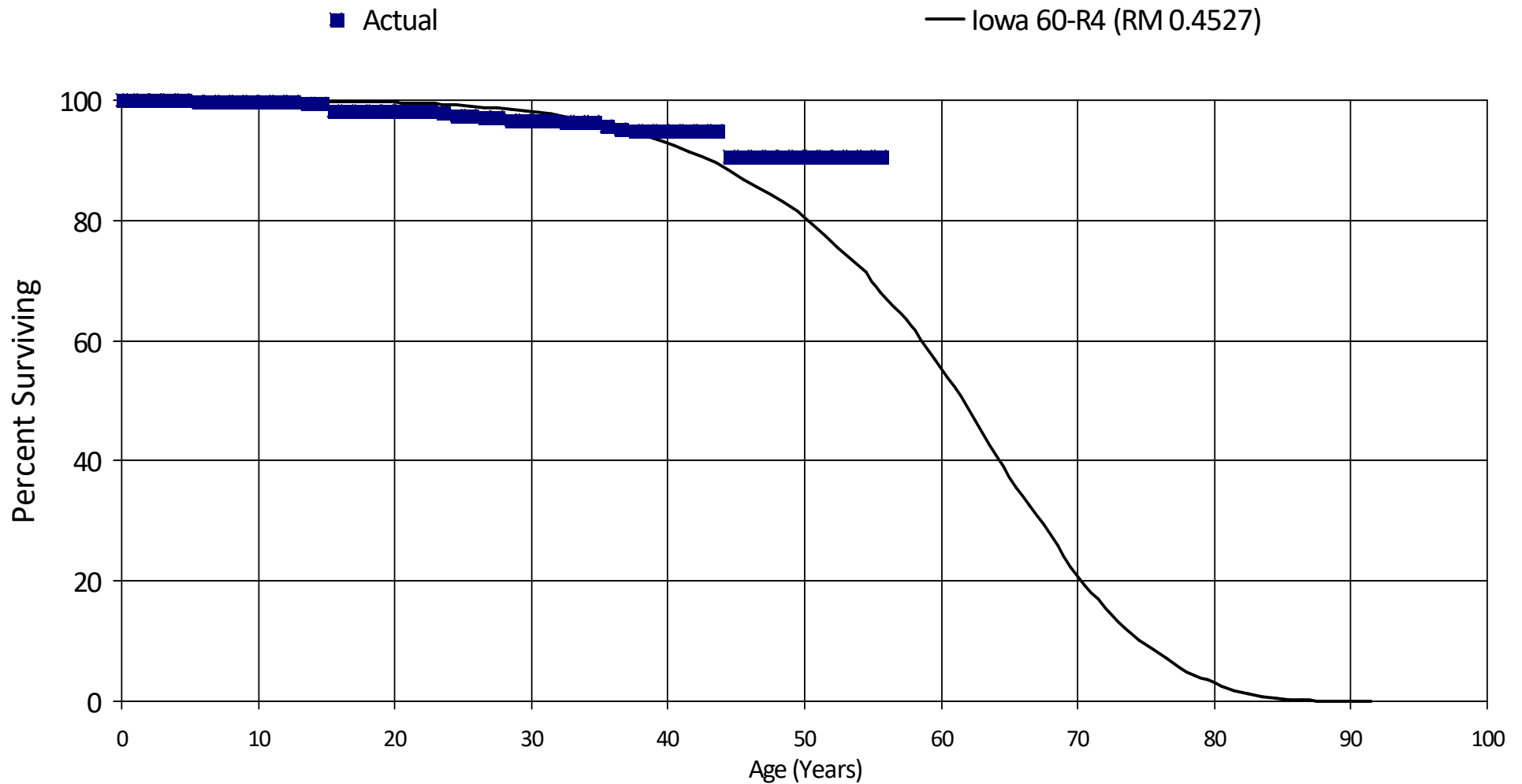
27.5	4,889,959	0	0.00000	1.00000	100.00
28.5	4,889,959	0	0.00000	1.00000	100.00
29.5	4,889,959	486,252	0.09944	0.90056	100.00
30.5	4,403,708	0	0.00000	1.00000	90.06
31.5	4,403,708	0	0.00000	1.00000	90.06
32.5	4,403,708	0	0.00000	1.00000	90.06
33.5	4,403,708	0	0.00000	1.00000	90.06
34.5	4,403,708	0	0.00000	1.00000	90.06
35.5	4,403,708	0	0.00000	1.00000	90.06
36.5	4,403,708	0	0.00000	1.00000	90.06
37.5	2,981,590	0	0.00000	1.00000	90.06
38.5	2,981,590	0	0.00000	1.00000	90.06
39.5	2,981,590	0	0.00000	1.00000	90.06
40.5	675,741	0	0.00000	1.00000	90.06
41.5	675,741	0	0.00000	1.00000	90.06
42.5	424,738	0	0.00000	1.00000	90.06
43.5	424,738	0	0.00000	1.00000	90.06
44.5	424,738	0	0.00000	1.00000	90.06
45.5	281,513	0	0.00000	1.00000	90.06
46.5	281,513	0	0.00000	1.00000	90.06
47.5	281,513	0	0.00000	1.00000	90.06
48.5	281,513	0	0.00000	1.00000	90.06
49.5	281,513	0	0.00000	1.00000	90.06
50.5	281,513	0	0.00000	1.00000	90.06
51.5	203,784	0	0.00000	1.00000	90.06
52.5	139,962	0	0.00000	1.00000	90.06
53.5	139,962	0	0.00000	1.00000	90.06
54.5	62,233	0	0.00000	1.00000	90.06
Totals:		486,252			

NEWFOUNDLAND AND LABRADOR HYDRO

Account G07 - Ground Wire System

Placement Band - 1966 - 2022 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account G07 - Ground Wire System

Placement Band - 1966 - 2022 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	30,300,537	0	0.00000	1.00000	100.00
0.5	28,568,426	0	0.00000	1.00000	100.00
1.5	28,411,587	0	0.00000	1.00000	100.00
2.5	23,887,024	2,405	0.00010	0.99990	100.00
3.5	21,648,078	23,099	0.00107	0.99893	99.99
4.5	19,630,628	2,351	0.00012	0.99988	99.88
5.5	10,697,883	11,099	0.00104	0.99896	99.87
6.5	10,631,856	2,960	0.00028	0.99972	99.77
7.5	9,998,082	0	0.00000	1.00000	99.74
8.5	9,456,767	0	0.00000	1.00000	99.74
9.5	8,813,905	510	0.00006	0.99994	99.74
10.5	8,192,697	0	0.00000	1.00000	99.73
11.5	7,915,420	0	0.00000	1.00000	99.73
12.5	7,647,698	21,116	0.00276	0.99724	99.73
13.5	7,451,744	0	0.00000	1.00000	99.45
14.5	6,398,884	73,158	0.01143	0.98857	99.45
15.5	6,325,726	10,065	0.00159	0.99841	98.31
16.5	6,263,334	806	0.00013	0.99987	98.15
17.5	6,242,596	0	0.00000	1.00000	98.14
18.5	6,233,155	0	0.00000	1.00000	98.14
19.5	5,824,603	0	0.00000	1.00000	98.14
20.5	5,760,733	0	0.00000	1.00000	98.14
21.5	5,407,369	0	0.00000	1.00000	98.14
22.5	5,298,170	6,802	0.00128	0.99872	98.14
23.5	5,291,367	28,527	0.00539	0.99461	98.01
24.5	5,262,841	230	0.00004	0.99996	97.48
25.5	5,234,957	17,549	0.00335	0.99665	97.48
26.5	5,074,853	0	0.00000	1.00000	97.15

NEWFOUNDLAND AND LABRADOR HYDRO

Account G07 - Ground Wire System

Placement Band - 1966 - 2022 Experience Band - 1992 - 2022

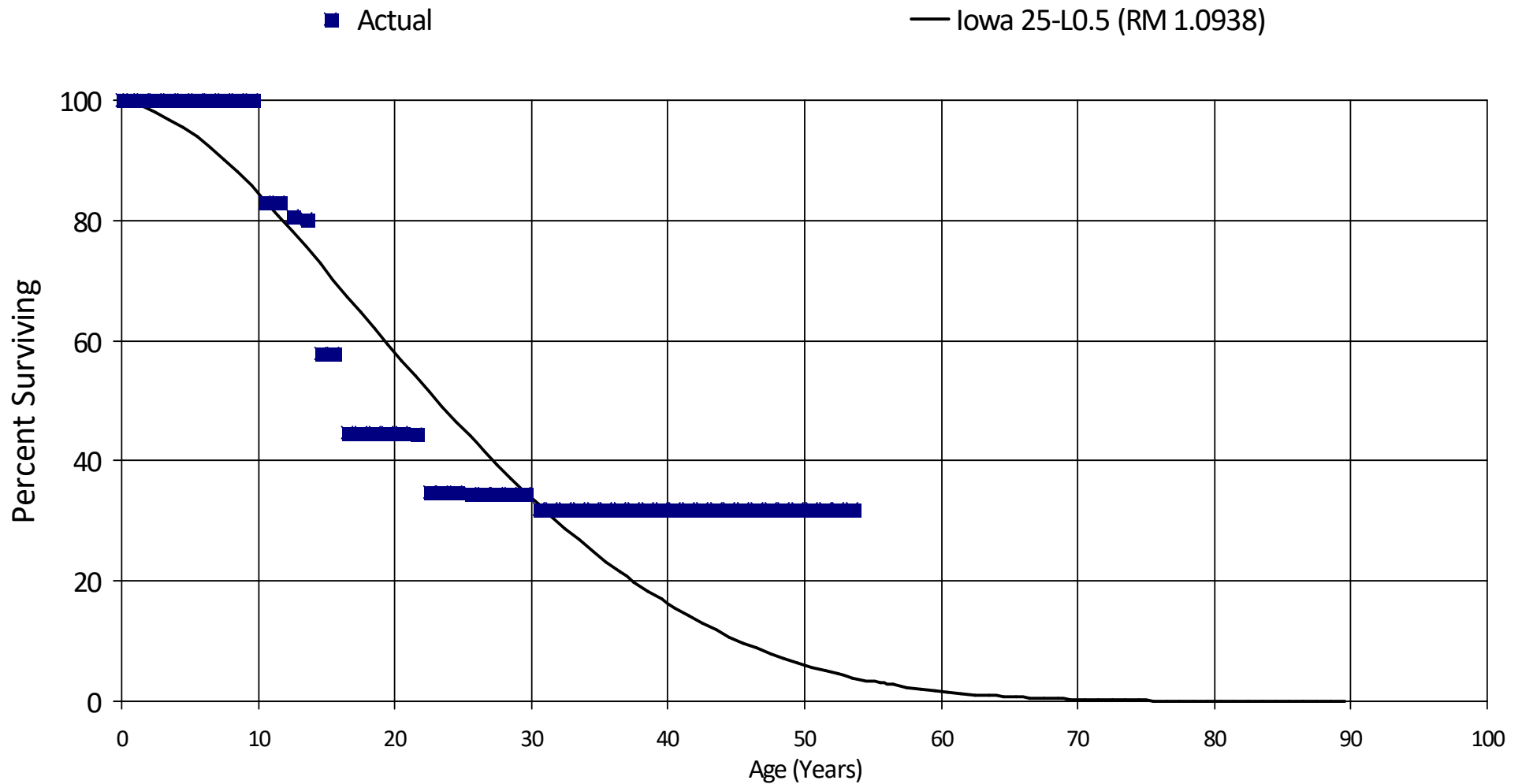
27.5	4,659,455	16,470	0.00353	0.99647	97.15
28.5	4,637,372	194	0.00004	0.99996	96.81
29.5	4,625,858	6,426	0.00139	0.99861	96.81
30.5	4,404,421	773	0.00018	0.99982	96.68
31.5	3,882,760	4,607	0.00119	0.99881	96.66
32.5	3,409,356	6,833	0.00200	0.99800	96.54
33.5	3,119,496	281	0.00009	0.99991	96.35
34.5	3,075,200	19,030	0.00619	0.99381	96.34
35.5	2,912,148	17,206	0.00591	0.99409	95.74
36.5	2,865,334	6,546	0.00228	0.99772	95.17
37.5	2,403,085	0	0.00000	1.00000	94.95
38.5	2,403,085	0	0.00000	1.00000	94.95
39.5	2,050,853	23	0.00001	0.99999	94.95
40.5	1,703,841	1,294	0.00076	0.99924	94.95
41.5	1,630,421	0	0.00000	1.00000	94.88
42.5	1,260,967	0	0.00000	1.00000	94.88
43.5	1,184,512	53,256	0.04496	0.95504	94.88
44.5	937,098	0	0.00000	1.00000	90.61
45.5	894,712	0	0.00000	1.00000	90.61
46.5	890,088	0	0.00000	1.00000	90.61
47.5	842,195	0	0.00000	1.00000	90.61
48.5	620,595	0	0.00000	1.00000	90.61
49.5	620,595	0	0.00000	1.00000	90.61
50.5	504,251	0	0.00000	1.00000	90.61
51.5	451,178	0	0.00000	1.00000	90.61
52.5	278,958	0	0.00000	1.00000	90.61
53.5	278,958	0	0.00000	1.00000	90.61
54.5	184,040	0	0.00000	1.00000	90.61
55.5	2,824	0	0.00000	1.00000	90.61
Totals:		333,616			

NEWFOUNDLAND AND LABRADOR HYDRO

Account I02 - Instrumentation

Placement Band - 1968 - 2022 Experience Band - 1995 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account I02 - Instrumentation

Placement Band - 1968 - 2022 Experience Band - 1995 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	18,068,780	0	0.00000	1.00000	100.00
0.5	17,847,968	0	0.00000	1.00000	100.00
1.5	17,609,333	0	0.00000	1.00000	100.00
2.5	16,770,987	0	0.00000	1.00000	100.00
3.5	16,770,987	0	0.00000	1.00000	100.00
4.5	16,538,203	0	0.00000	1.00000	100.00
5.5	15,922,383	3,719	0.00023	0.99977	100.00
6.5	14,926,596	0	0.00000	1.00000	99.98
7.5	14,926,596	0	0.00000	1.00000	99.98
8.5	14,926,596	0	0.00000	1.00000	99.98
9.5	14,926,596	2,527,190	0.16931	0.83069	99.98
10.5	12,354,035	0	0.00000	1.00000	83.05
11.5	12,354,035	360,630	0.02919	0.97081	83.05
12.5	11,993,405	45,673	0.00381	0.99619	80.63
13.5	11,947,731	3,351,016	0.28047	0.71953	80.32
14.5	8,596,715	0	0.00000	1.00000	57.79
15.5	8,596,715	1,953,783	0.22727	0.77273	57.79
16.5	6,145,573	798	0.00013	0.99987	44.66
17.5	6,097,492	7,009	0.00115	0.99885	44.65
18.5	6,090,483	0	0.00000	1.00000	44.60
19.5	6,090,483	0	0.00000	1.00000	44.60
20.5	6,072,035	39,474	0.00650	0.99350	44.60
21.5	6,032,561	1,309,202	0.21702	0.78298	44.31
22.5	4,723,359	0	0.00000	1.00000	34.69
23.5	4,367,017	1,036	0.00024	0.99976	34.69
24.5	4,365,981	18,112	0.00415	0.99585	34.68
25.5	4,347,869	0	0.00000	1.00000	34.54
26.5	4,347,869	0	0.00000	1.00000	34.54

NEWFOUNDLAND AND LABRADOR HYDRO

Account I02 - Instrumentation

Placement Band - 1968 - 2022 Experience Band - 1995 - 2022

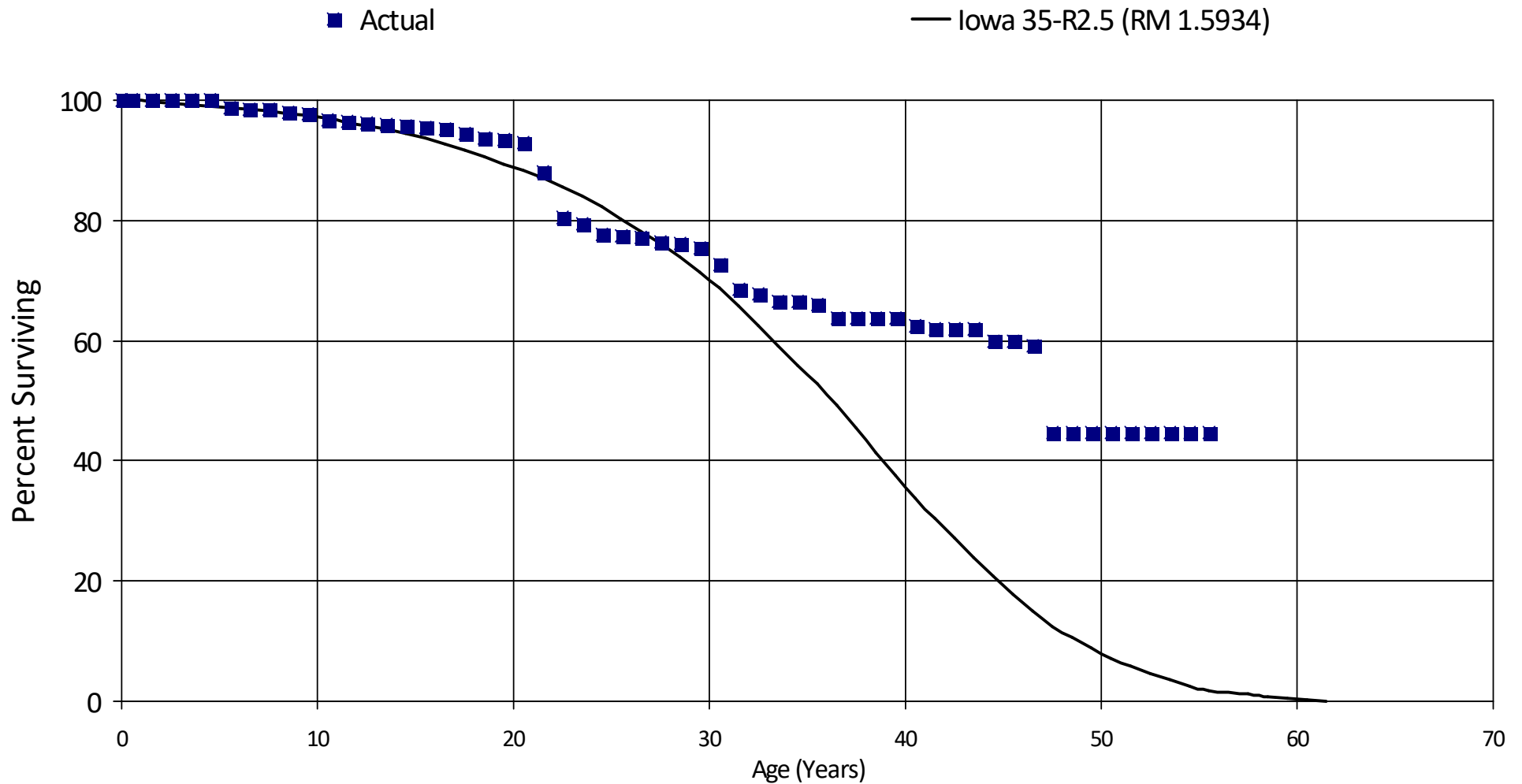
27.5	4,347,869	0	0.00000	1.00000	34.54
28.5	4,243,651	1,135	0.00027	0.99973	34.54
29.5	4,242,515	309,494	0.07295	0.92705	34.53
30.5	3,933,021	0	0.00000	1.00000	32.01
31.5	3,933,021	0	0.00000	1.00000	32.01
32.5	3,414,614	3,479	0.00102	0.99898	32.01
33.5	3,411,135	0	0.00000	1.00000	31.98
34.5	3,411,135	0	0.00000	1.00000	31.98
35.5	3,391,604	0	0.00000	1.00000	31.98
36.5	3,391,604	0	0.00000	1.00000	31.98
37.5	3,391,604	0	0.00000	1.00000	31.98
38.5	3,391,604	0	0.00000	1.00000	31.98
39.5	3,391,604	0	0.00000	1.00000	31.98
40.5	3,391,604	0	0.00000	1.00000	31.98
41.5	3,391,604	0	0.00000	1.00000	31.98
42.5	3,391,604	0	0.00000	1.00000	31.98
43.5	3,366,271	0	0.00000	1.00000	31.98
44.5	3,366,271	0	0.00000	1.00000	31.98
45.5	3,366,271	0	0.00000	1.00000	31.98
46.5	3,366,271	0	0.00000	1.00000	31.98
47.5	3,366,271	0	0.00000	1.00000	31.98
48.5	3,366,271	0	0.00000	1.00000	31.98
49.5	3,366,271	0	0.00000	1.00000	31.98
50.5	3,366,271	0	0.00000	1.00000	31.98
51.5	1,803,443	0	0.00000	1.00000	31.98
52.5	1,803,443	0	0.00000	1.00000	31.98
53.5	1,270,122	0	0.00000	1.00000	31.98
Totals:		9,931,750			

NEWFOUNDLAND AND LABRADOR HYDRO

Account I03 - Insulators

Placement Band - 1966 - 2021 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account I03 - Insulators

Placement Band - 1966 - 2021 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	54,748,393	0	0.00000	1.00000	100.00
0.5	54,748,393	9,882	0.00018	0.99982	100.00
1.5	54,387,824	0	0.00000	1.00000	99.98
2.5	53,995,500	0	0.00000	1.00000	99.98
3.5	53,766,778	0	0.00000	1.00000	99.98
4.5	51,361,953	589,748	0.01148	0.98852	99.98
5.5	48,303,104	160,151	0.00332	0.99668	98.83
6.5	45,363,121	43,594	0.00096	0.99904	98.50
7.5	45,251,569	213,239	0.00471	0.99529	98.41
8.5	42,942,343	146,912	0.00342	0.99658	97.95
9.5	42,649,114	387,738	0.00909	0.99091	97.62
10.5	41,870,439	161,496	0.00386	0.99614	96.73
11.5	41,218,169	21,157	0.00051	0.99949	96.36
12.5	40,873,121	151,853	0.00372	0.99628	96.31
13.5	38,821,928	77,779	0.00200	0.99800	95.95
14.5	38,113,483	157,757	0.00414	0.99586	95.76
15.5	34,818,761	66,360	0.00191	0.99809	95.36
16.5	33,428,143	226,632	0.00678	0.99322	95.18
17.5	32,868,340	305,937	0.00931	0.99069	94.53
18.5	29,786,433	102,486	0.00344	0.99656	93.65
19.5	27,842,605	116,445	0.00418	0.99582	93.33
20.5	25,802,568	1,345,978	0.05216	0.94784	92.94
21.5	23,774,945	2,050,269	0.08624	0.91376	88.09
22.5	20,773,280	259,059	0.01247	0.98753	80.49
23.5	19,503,607	439,868	0.02255	0.97745	79.49
24.5	18,343,290	75,091	0.00409	0.99591	77.70
25.5	17,378,322	40,990	0.00236	0.99764	77.38
26.5	15,563,807	149,312	0.00959	0.99041	77.20

NEWFOUNDLAND AND LABRADOR HYDRO

Account I03 - Insulators

Placement Band - 1966 - 2021 Experience Band - 1991 - 2022

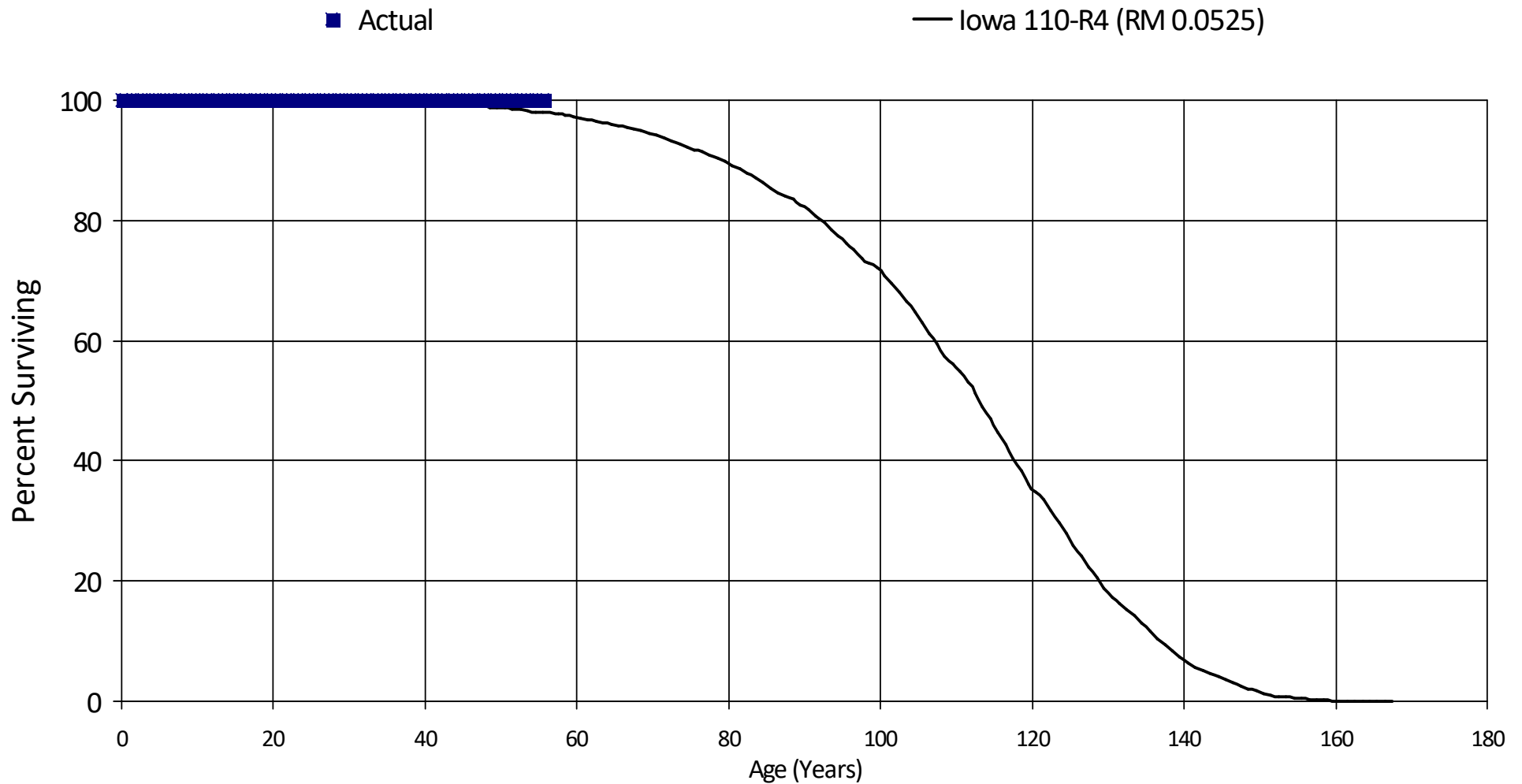
27.5	13,700,618	73,191	0.00534	0.99466	76.46
28.5	12,658,108	132,011	0.01043	0.98957	76.05
29.5	11,367,783	399,149	0.03511	0.96489	75.26
30.5	10,240,130	591,635	0.05778	0.94222	72.62
31.5	7,986,080	85,526	0.01071	0.98929	68.42
32.5	4,687,846	88,424	0.01886	0.98114	67.69
33.5	3,998,584	1,295	0.00032	0.99968	66.41
34.5	3,421,706	24,135	0.00705	0.99295	66.39
35.5	2,871,693	92,754	0.03230	0.96770	65.92
36.5	2,771,377	4,780	0.00172	0.99828	63.79
37.5	1,767,422	0	0.00000	1.00000	63.68
38.5	1,767,422	0	0.00000	1.00000	63.68
39.5	1,136,942	22,438	0.01974	0.98026	63.68
40.5	701,769	5,271	0.00751	0.99249	62.42
41.5	634,672	0	0.00000	1.00000	61.95
42.5	623,361	1,243	0.00199	0.99801	61.95
43.5	607,335	18,088	0.02978	0.97022	61.83
44.5	554,785	0	0.00000	1.00000	59.99
45.5	504,502	7,564	0.01499	0.98501	59.99
46.5	495,446	120,099	0.24241	0.75759	59.09
47.5	374,833	0	0.00000	1.00000	44.77
48.5	362,353	0	0.00000	1.00000	44.77
49.5	362,353	0	0.00000	1.00000	44.77
50.5	339,934	0	0.00000	1.00000	44.77
51.5	339,934	0	0.00000	1.00000	44.77
52.5	243,558	0	0.00000	1.00000	44.77
53.5	193,160	0	0.00000	1.00000	44.77
54.5	78,951	0	0.00000	1.00000	44.77
55.5	0	0	0.00000	0.00000	44.77
Totals:		8,967,336			

NEWFOUNDLAND AND LABRADOR HYDRO

Account I04 - Intake Structures

Placement Band - 1966 - 2021 Experience Band - 2017 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account I04 - Intake Structures

Placement Band - 1966 - 2021 Experience Band - 2017 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	25,025,492	0	0.00000	1.00000	100.00
0.5	25,025,492	0	0.00000	1.00000	100.00
1.5	19,854,893	0	0.00000	1.00000	100.00
2.5	19,854,893	0	0.00000	1.00000	100.00
3.5	19,854,893	0	0.00000	1.00000	100.00
4.5	19,725,096	0	0.00000	1.00000	100.00
5.5	19,725,096	0	0.00000	1.00000	100.00
6.5	19,436,440	0	0.00000	1.00000	100.00
7.5	19,436,440	0	0.00000	1.00000	100.00
8.5	19,436,440	0	0.00000	1.00000	100.00
9.5	19,436,440	0	0.00000	1.00000	100.00
10.5	19,436,440	0	0.00000	1.00000	100.00
11.5	19,436,440	0	0.00000	1.00000	100.00
12.5	19,436,440	0	0.00000	1.00000	100.00
13.5	19,436,440	0	0.00000	1.00000	100.00
14.5	19,436,440	0	0.00000	1.00000	100.00
15.5	19,436,440	0	0.00000	1.00000	100.00
16.5	19,436,440	0	0.00000	1.00000	100.00
17.5	19,436,440	0	0.00000	1.00000	100.00
18.5	19,436,440	0	0.00000	1.00000	100.00
19.5	15,526,626	0	0.00000	1.00000	100.00
20.5	15,502,581	0	0.00000	1.00000	100.00
21.5	15,502,581	0	0.00000	1.00000	100.00
22.5	15,502,581	0	0.00000	1.00000	100.00
23.5	15,502,581	0	0.00000	1.00000	100.00
24.5	15,502,581	0	0.00000	1.00000	100.00
25.5	15,492,009	0	0.00000	1.00000	100.00
26.5	15,492,009	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account I04 - Intake Structures

Placement Band - 1966 - 2021 Experience Band - 2017 - 2022

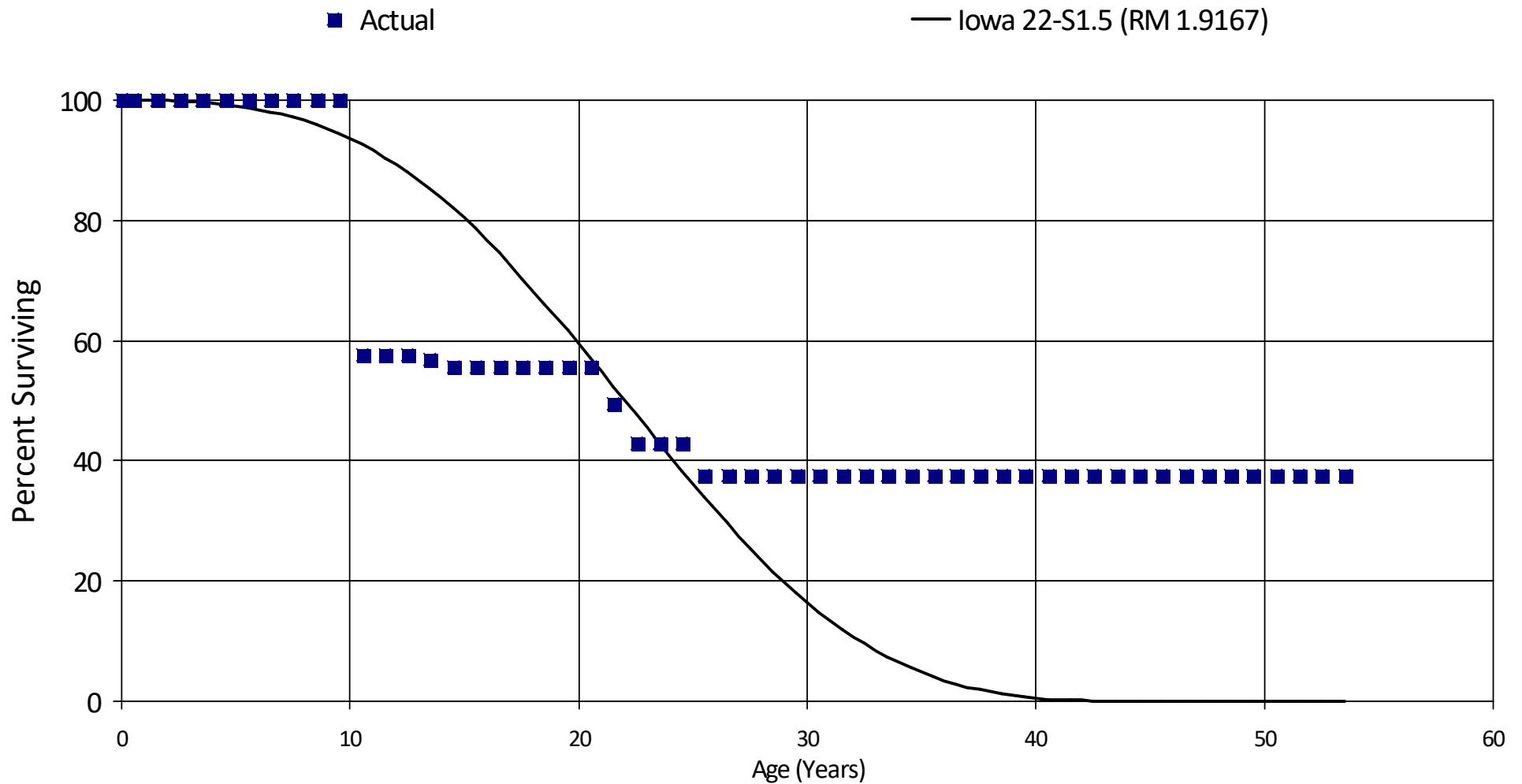
27.5	15,492,009	0	0.00000	1.00000	100.00
28.5	15,486,769	0	0.00000	1.00000	100.00
29.5	15,486,769	0	0.00000	1.00000	100.00
30.5	15,486,769	0	0.00000	1.00000	100.00
31.5	15,486,769	0	0.00000	1.00000	100.00
32.5	15,486,769	0	0.00000	1.00000	100.00
33.5	15,480,000	156	0.00001	0.99999	100.00
34.5	15,479,844	0	0.00000	1.00000	100.00
35.5	15,479,844	0	0.00000	1.00000	100.00
36.5	15,479,844	0	0.00000	1.00000	100.00
37.5	15,479,844	0	0.00000	1.00000	100.00
38.5	12,078,061	0	0.00000	1.00000	100.00
39.5	12,062,216	0	0.00000	1.00000	100.00
40.5	7,022,641	0	0.00000	1.00000	100.00
41.5	7,022,641	0	0.00000	1.00000	100.00
42.5	7,022,641	0	0.00000	1.00000	100.00
43.5	5,568,392	0	0.00000	1.00000	100.00
44.5	5,568,392	0	0.00000	1.00000	100.00
45.5	5,568,392	0	0.00000	1.00000	100.00
46.5	5,568,392	0	0.00000	1.00000	100.00
47.5	5,568,392	0	0.00000	1.00000	100.00
48.5	5,568,392	0	0.00000	1.00000	100.00
49.5	5,568,392	0	0.00000	1.00000	100.00
50.5	5,568,392	0	0.00000	1.00000	100.00
51.5	5,568,392	0	0.00000	1.00000	100.00
52.5	5,568,392	0	0.00000	1.00000	100.00
53.5	5,568,392	0	0.00000	1.00000	100.00
54.5	5,568,392	0	0.00000	1.00000	100.00
55.5	3,784,392	0	0.00000	1.00000	100.00
Totals:		156			

NEWFOUNDLAND AND LABRADOR HYDRO

Account I05 - Inverters

Placement Band - 1968 - 2022 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account I05 - Inverters

Placement Band - 1968 - 2022 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,491,376	0	0.00000	1.00000	100.00
0.5	978,643	0	0.00000	1.00000	100.00
1.5	978,643	0	0.00000	1.00000	100.00
2.5	978,643	0	0.00000	1.00000	100.00
3.5	971,766	0	0.00000	1.00000	100.00
4.5	967,303	0	0.00000	1.00000	100.00
5.5	962,654	0	0.00000	1.00000	100.00
6.5	962,654	0	0.00000	1.00000	100.00
7.5	912,849	0	0.00000	1.00000	100.00
8.5	907,206	0	0.00000	1.00000	100.00
9.5	907,206	385,595	0.42504	0.57496	100.00
10.5	516,646	0	0.00000	1.00000	57.50
11.5	516,646	0	0.00000	1.00000	57.50
12.5	516,646	6,319	0.01223	0.98777	57.50
13.5	510,328	9,811	0.01922	0.98078	56.80
14.5	500,517	0	0.00000	1.00000	55.71
15.5	500,517	0	0.00000	1.00000	55.71
16.5	484,244	0	0.00000	1.00000	55.71
17.5	481,904	0	0.00000	1.00000	55.71
18.5	481,904	0	0.00000	1.00000	55.71
19.5	481,904	0	0.00000	1.00000	55.71
20.5	481,904	53,476	0.11097	0.88903	55.71
21.5	428,428	58,409	0.13633	0.86367	49.53
22.5	358,051	0	0.00000	1.00000	42.78
23.5	358,051	0	0.00000	1.00000	42.78
24.5	358,051	44,000	0.12289	0.87711	42.78
25.5	314,051	0	0.00000	1.00000	37.52
26.5	296,446	0	0.00000	1.00000	37.52

NEWFOUNDLAND AND LABRADOR HYDRO

Account I05 - Inverters

Placement Band - 1968 - 2022 Experience Band - 1992 - 2022

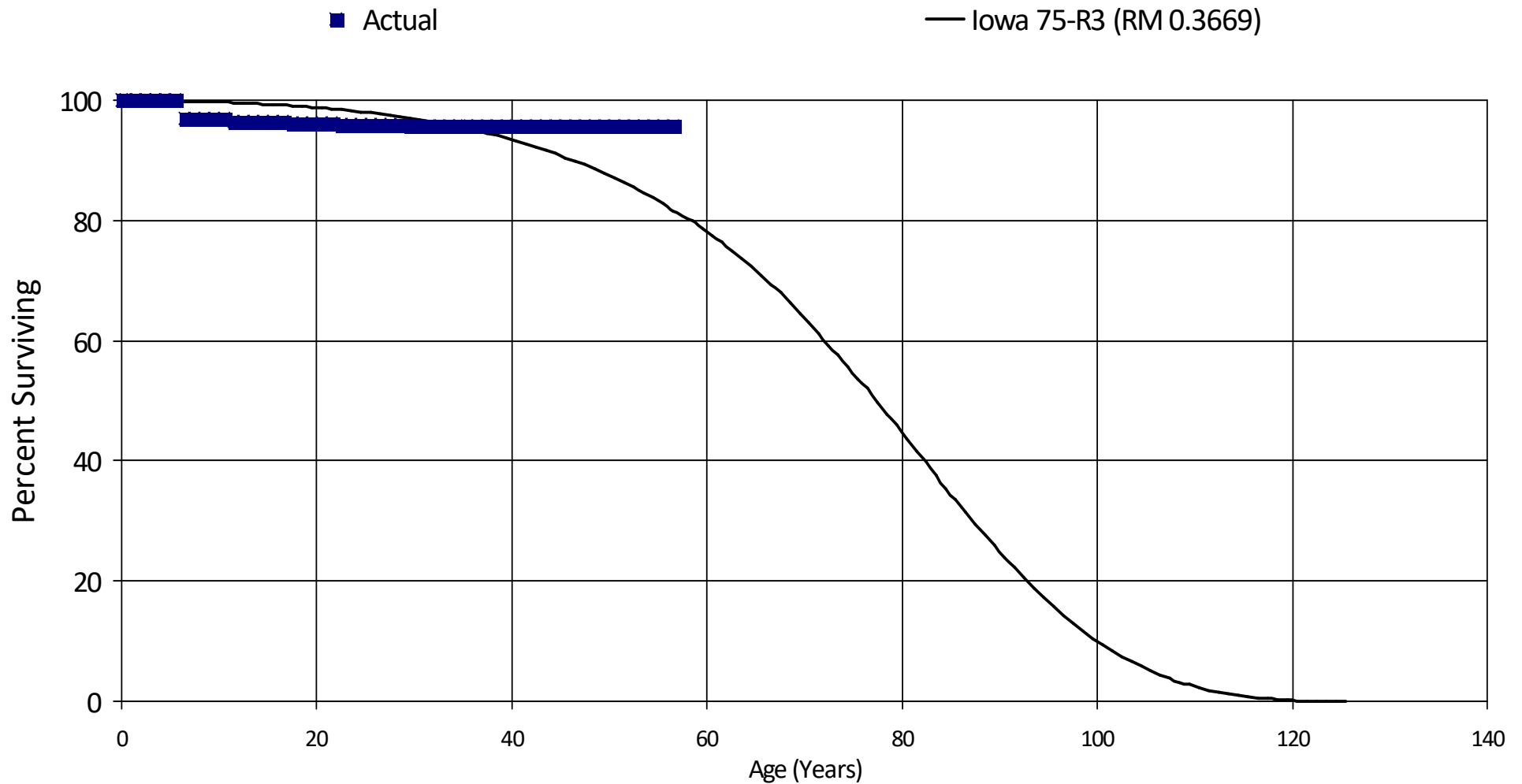
27.5	296,446	0	0.00000	1.00000	37.52
28.5	296,446	0	0.00000	1.00000	37.52
29.5	296,446	0	0.00000	1.00000	37.52
30.5	296,446	0	0.00000	1.00000	37.52
31.5	296,446	0	0.00000	1.00000	37.52
32.5	296,446	0	0.00000	1.00000	37.52
33.5	296,446	0	0.00000	1.00000	37.52
34.5	296,446	0	0.00000	1.00000	37.52
35.5	296,446	0	0.00000	1.00000	37.52
36.5	296,446	0	0.00000	1.00000	37.52
37.5	296,446	0	0.00000	1.00000	37.52
38.5	296,446	0	0.00000	1.00000	37.52
39.5	296,446	0	0.00000	1.00000	37.52
40.5	296,446	0	0.00000	1.00000	37.52
41.5	296,446	0	0.00000	1.00000	37.52
42.5	296,446	0	0.00000	1.00000	37.52
43.5	182,291	0	0.00000	1.00000	37.52
44.5	182,291	0	0.00000	1.00000	37.52
45.5	182,291	0	0.00000	1.00000	37.52
46.5	182,291	0	0.00000	1.00000	37.52
47.5	182,291	0	0.00000	1.00000	37.52
48.5	182,291	0	0.00000	1.00000	37.52
49.5	182,291	0	0.00000	1.00000	37.52
50.5	182,291	0	0.00000	1.00000	37.52
51.5	182,291	0	0.00000	1.00000	37.52
52.5	182,291	0	0.00000	1.00000	37.52
53.5	182,291	0	0.00000	1.00000	37.52
Totals:		557,610			

NEWFOUNDLAND AND LABRADOR HYDRO

Account L03 - Land Improvements

Placement Band - 1965 - 2021 Experience Band - 1999 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account L03 - Land Improvements

Placement Band - 1965 - 2021 Experience Band - 1999 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	19,018,178	0	0.00000	1.00000	100.00
0.5	19,018,178	0	0.00000	1.00000	100.00
1.5	18,703,178	0	0.00000	1.00000	100.00
2.5	16,159,344	0	0.00000	1.00000	100.00
3.5	15,800,144	0	0.00000	1.00000	100.00
4.5	15,324,610	0	0.00000	1.00000	100.00
5.5	14,622,710	434,171	0.02969	0.97031	100.00
6.5	14,188,540	0	0.00000	1.00000	97.03
7.5	13,801,229	3,813	0.00028	0.99972	97.03
8.5	13,427,632	0	0.00000	1.00000	97.00
9.5	13,427,632	18,971	0.00141	0.99859	97.00
10.5	13,358,977	42,480	0.00318	0.99682	96.86
11.5	13,251,717	0	0.00000	1.00000	96.55
12.5	13,238,333	0	0.00000	1.00000	96.55
13.5	12,969,968	0	0.00000	1.00000	96.55
14.5	12,905,427	15,446	0.00120	0.99880	96.55
15.5	12,889,981	6,107	0.00047	0.99953	96.43
16.5	12,773,383	9,618	0.00075	0.99925	96.38
17.5	12,676,336	2,739	0.00022	0.99978	96.31
18.5	12,570,980	0	0.00000	1.00000	96.29
19.5	12,342,317	6,476	0.00052	0.99948	96.29
20.5	12,163,158	12,318	0.00101	0.99899	96.24
21.5	12,150,840	11,197	0.00092	0.99908	96.14
22.5	12,066,613	13,034	0.00108	0.99892	96.05
23.5	11,953,466	0	0.00000	1.00000	95.95
24.5	11,631,960	5,711	0.00049	0.99951	95.95
25.5	11,601,811	0	0.00000	1.00000	95.90
26.5	11,345,936	0	0.00000	1.00000	95.90

NEWFOUNDLAND AND LABRADOR HYDRO

Account L03 - Land Improvements

Placement Band - 1965 - 2021 Experience Band - 1999 - 2022

27.5	11,001,145	311	0.00003	0.99997	95.90
28.5	10,813,571	12,812	0.00118	0.99882	95.90
29.5	10,668,190	7,420	0.00070	0.99930	95.79
30.5	10,094,916	0	0.00000	1.00000	95.72
31.5	9,654,166	0	0.00000	1.00000	95.72
32.5	8,888,350	0	0.00000	1.00000	95.72
33.5	6,698,882	0	0.00000	1.00000	95.72
34.5	6,510,124	0	0.00000	1.00000	95.72
35.5	5,949,284	0	0.00000	1.00000	95.72
36.5	5,863,753	0	0.00000	1.00000	95.72
37.5	5,611,365	0	0.00000	1.00000	95.72
38.5	5,519,658	350	0.00006	0.99994	95.72
39.5	5,259,052	0	0.00000	1.00000	95.71
40.5	4,742,807	0	0.00000	1.00000	95.71
41.5	4,470,853	0	0.00000	1.00000	95.71
42.5	3,448,833	0	0.00000	1.00000	95.71
43.5	3,411,707	0	0.00000	1.00000	95.71
44.5	2,633,937	0	0.00000	1.00000	95.71
45.5	2,242,422	0	0.00000	1.00000	95.71
46.5	2,181,133	0	0.00000	1.00000	95.71
47.5	2,121,180	0	0.00000	1.00000	95.71
48.5	1,858,787	0	0.00000	1.00000	95.71
49.5	1,858,787	0	0.00000	1.00000	95.71
50.5	1,572,568	0	0.00000	1.00000	95.71
51.5	575,791	0	0.00000	1.00000	95.71
52.5	262,197	0	0.00000	1.00000	95.71
53.5	262,197	0	0.00000	1.00000	95.71
54.5	180,098	0	0.00000	1.00000	95.71
55.5	5,754	0	0.00000	1.00000	95.71
56.5	5,754	0	0.00000	1.00000	95.71

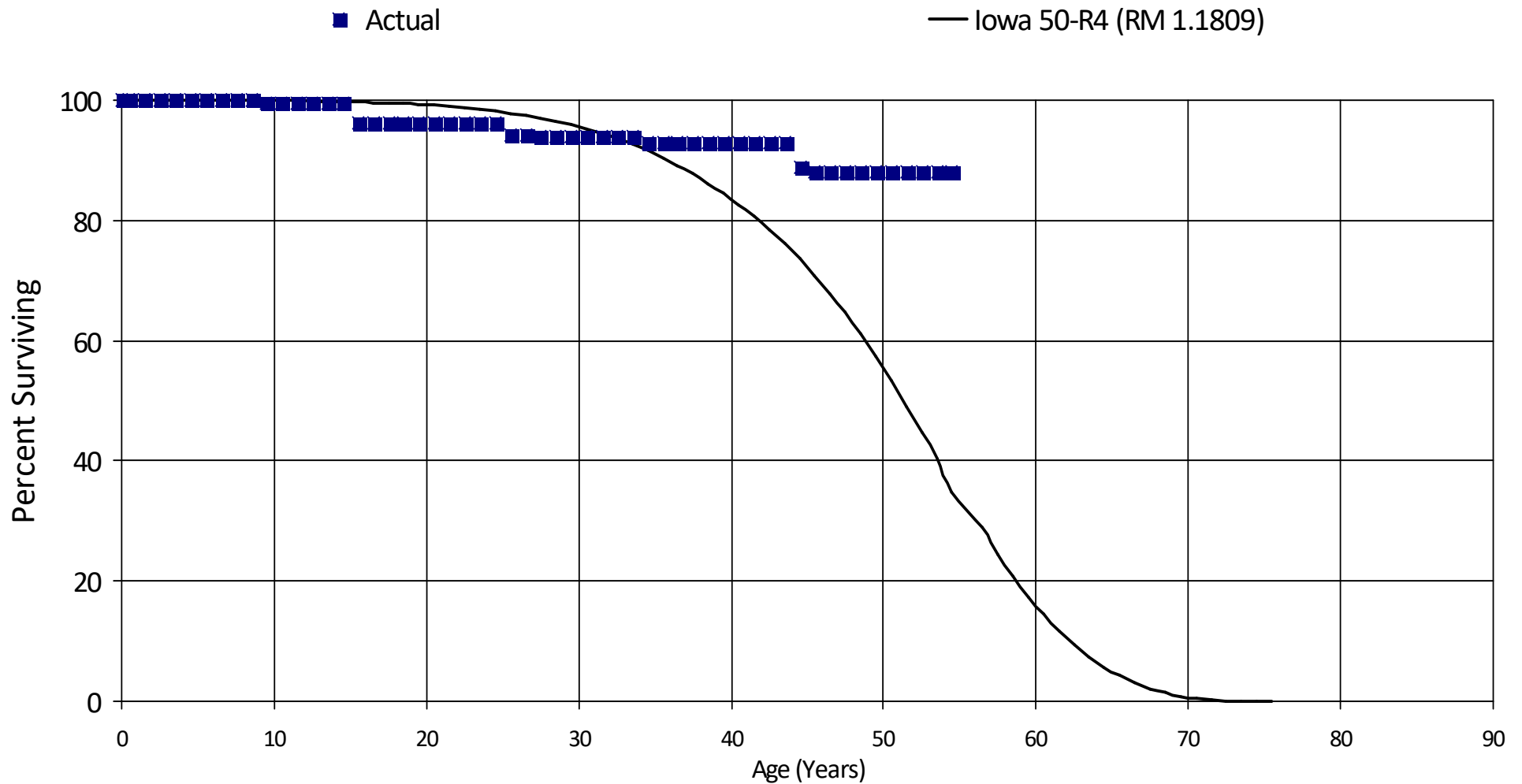
Totals: 602,974

NEWFOUNDLAND AND LABRADOR HYDRO

Account L04 - Lighting Systems

Placement Band - 1967 - 2022 Experience Band - 2000 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account L04 - Lighting Systems

Placement Band - 1967 - 2022 Experience Band - 2000 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	3,955,879	0	0.00000	1.00000	100.00
0.5	3,753,974	0	0.00000	1.00000	100.00
1.5	3,386,003	0	0.00000	1.00000	100.00
2.5	3,149,881	0	0.00000	1.00000	100.00
3.5	2,834,167	0	0.00000	1.00000	100.00
4.5	2,561,859	0	0.00000	1.00000	100.00
5.5	912,200	0	0.00000	1.00000	100.00
6.5	713,842	0	0.00000	1.00000	100.00
7.5	713,842	0	0.00000	1.00000	100.00
8.5	713,842	3,887	0.00545	0.99455	100.00
9.5	667,803	0	0.00000	1.00000	99.46
10.5	574,776	0	0.00000	1.00000	99.46
11.5	574,776	0	0.00000	1.00000	99.46
12.5	574,776	0	0.00000	1.00000	99.46
13.5	574,776	0	0.00000	1.00000	99.46
14.5	574,776	18,968	0.03300	0.96700	99.46
15.5	555,808	0	0.00000	1.00000	96.18
16.5	555,808	0	0.00000	1.00000	96.18
17.5	555,808	0	0.00000	1.00000	96.18
18.5	555,808	0	0.00000	1.00000	96.18
19.5	555,808	0	0.00000	1.00000	96.18
20.5	555,808	0	0.00000	1.00000	96.18
21.5	555,808	0	0.00000	1.00000	96.18
22.5	555,808	251	0.00045	0.99955	96.18
23.5	555,557	0	0.00000	1.00000	96.14
24.5	555,557	10,981	0.01977	0.98023	96.14
25.5	544,576	548	0.00101	0.99899	94.24
26.5	544,028	1,862	0.00342	0.99658	94.14

NEWFOUNDLAND AND LABRADOR HYDRO

Account L04 - Lighting Systems

Placement Band - 1967 - 2022 Experience Band - 2000 - 2022

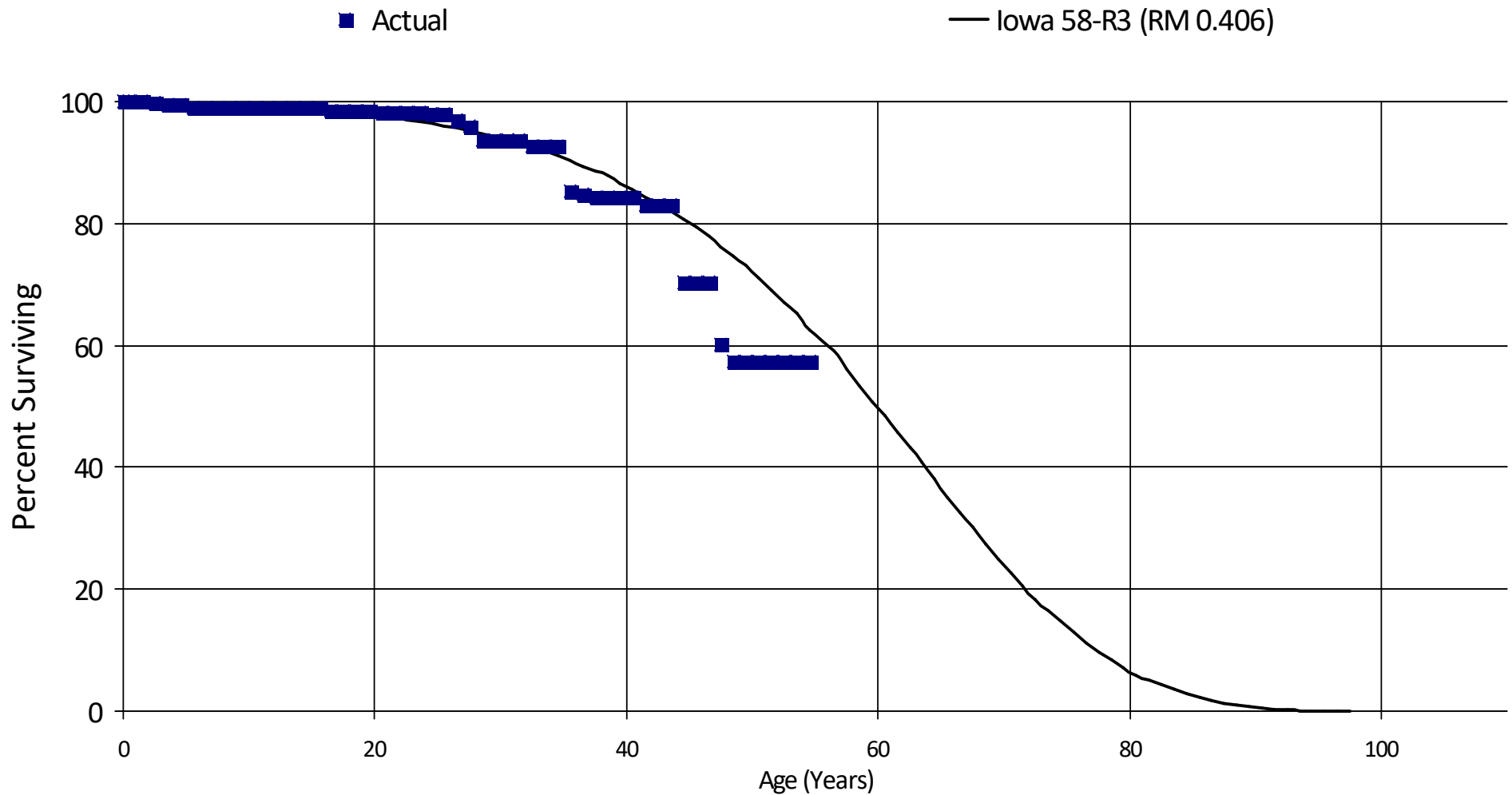
27.5	542,166	0	0.00000	1.00000	93.82
28.5	542,166	0	0.00000	1.00000	93.82
29.5	542,166	0	0.00000	1.00000	93.82
30.5	539,430	0	0.00000	1.00000	93.82
31.5	537,818	0	0.00000	1.00000	93.82
32.5	502,211	0	0.00000	1.00000	93.82
33.5	489,482	4,815	0.00984	0.99016	93.82
34.5	474,830	0	0.00000	1.00000	92.90
35.5	435,507	0	0.00000	1.00000	92.90
36.5	429,650	0	0.00000	1.00000	92.90
37.5	428,990	0	0.00000	1.00000	92.90
38.5	428,990	0	0.00000	1.00000	92.90
39.5	417,999	343	0.00082	0.99918	92.90
40.5	390,466	0	0.00000	1.00000	92.82
41.5	380,577	0	0.00000	1.00000	92.82
42.5	354,676	0	0.00000	1.00000	92.82
43.5	271,105	11,509	0.04245	0.95755	92.82
44.5	191,701	1,684	0.00878	0.99122	88.88
45.5	164,232	0	0.00000	1.00000	88.10
46.5	160,800	0	0.00000	1.00000	88.10
47.5	121,048	0	0.00000	1.00000	88.10
48.5	104,430	0	0.00000	1.00000	88.10
49.5	104,430	0	0.00000	1.00000	88.10
50.5	104,430	0	0.00000	1.00000	88.10
51.5	76,204	0	0.00000	1.00000	88.10
52.5	38,873	0	0.00000	1.00000	88.10
53.5	38,873	0	0.00000	1.00000	88.10
54.5	36,147	0	0.00000	1.00000	88.10
Totals:		54,848			

NEWFOUNDLAND AND LABRADOR HYDRO

Account L05 - Lighting Arrestors

Placement Band - 1967 - 2021 Experience Band - 1994 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account L05 - Lighting Arrestors

Placement Band - 1967 - 2021 Experience Band - 1994 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	7,207,699	6,388	0.00089	0.99911	100.00
0.5	7,201,311	314	0.00004	0.99996	99.91
1.5	7,146,692	6,749	0.00094	0.99906	99.91
2.5	6,964,980	15,026	0.00216	0.99784	99.82
3.5	6,830,528	0	0.00000	1.00000	99.60
4.5	6,787,291	40,448	0.00596	0.99404	99.60
5.5	6,205,225	0	0.00000	1.00000	99.01
6.5	6,205,225	0	0.00000	1.00000	99.01
7.5	5,925,281	8,235	0.00139	0.99861	99.01
8.5	5,826,905	0	0.00000	1.00000	98.87
9.5	5,809,212	0	0.00000	1.00000	98.87
10.5	5,743,298	131	0.00002	0.99998	98.87
11.5	5,673,174	0	0.00000	1.00000	98.87
12.5	5,650,274	0	0.00000	1.00000	98.87
13.5	5,570,273	0	0.00000	1.00000	98.87
14.5	5,517,683	0	0.00000	1.00000	98.87
15.5	5,504,551	17,444	0.00317	0.99683	98.87
16.5	5,397,136	0	0.00000	1.00000	98.56
17.5	5,317,417	0	0.00000	1.00000	98.56
18.5	5,309,749	0	0.00000	1.00000	98.56
19.5	5,309,749	14,761	0.00278	0.99722	98.56
20.5	5,294,987	0	0.00000	1.00000	98.29
21.5	5,294,987	944	0.00018	0.99982	98.29
22.5	254,607	0	0.00000	1.00000	98.27
23.5	254,607	892	0.00350	0.99650	98.27
24.5	253,715	0	0.00000	1.00000	97.93
25.5	253,715	2,829	0.01115	0.98885	97.93
26.5	248,421	2,538	0.01022	0.98978	96.84

NEWFOUNDLAND AND LABRADOR HYDRO

Account L05 - Lighting Arrestors

Placement Band - 1967 - 2021 Experience Band - 1994 - 2022

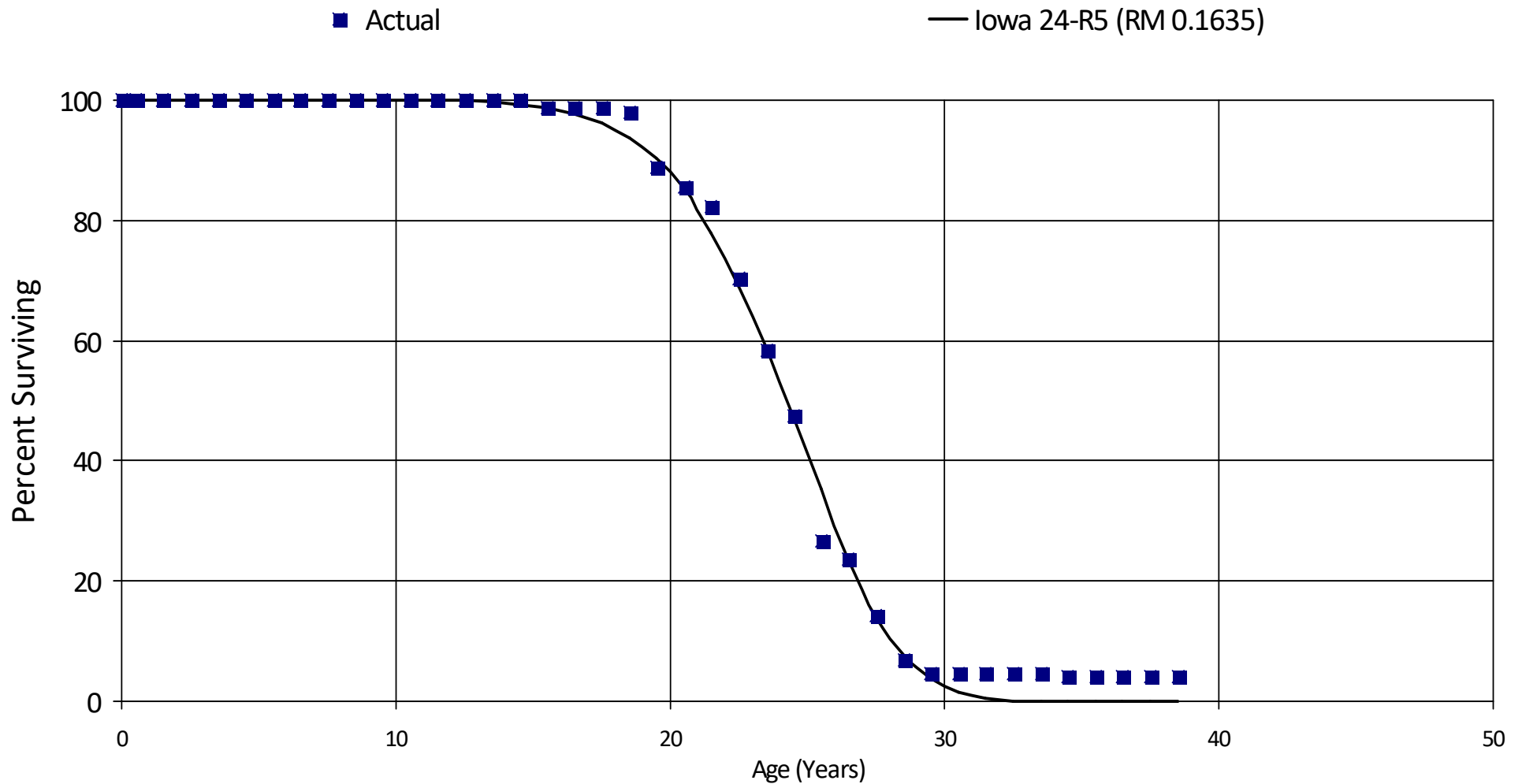
27.5	245,883	5,754	0.02340	0.97660	95.85
28.5	237,538	0	0.00000	1.00000	93.61
29.5	237,538	0	0.00000	1.00000	93.61
30.5	237,538	0	0.00000	1.00000	93.61
31.5	237,538	2,692	0.01133	0.98867	93.61
32.5	234,846	0	0.00000	1.00000	92.55
33.5	234,506	0	0.00000	1.00000	92.55
34.5	233,695	18,409	0.07877	0.92123	92.55
35.5	214,992	1,508	0.00701	0.99299	85.26
36.5	207,781	755	0.00363	0.99637	84.66
37.5	207,026	0	0.00000	1.00000	84.35
38.5	207,026	0	0.00000	1.00000	84.35
39.5	207,026	0	0.00000	1.00000	84.35
40.5	204,500	3,471	0.01697	0.98303	84.35
41.5	201,029	0	0.00000	1.00000	82.92
42.5	200,739	0	0.00000	1.00000	82.92
43.5	200,739	30,755	0.15321	0.84679	82.92
44.5	150,759	0	0.00000	1.00000	70.22
45.5	150,694	0	0.00000	1.00000	70.22
46.5	150,694	21,815	0.14476	0.85524	70.22
47.5	128,879	5,562	0.04316	0.95684	60.05
48.5	123,316	0	0.00000	1.00000	57.46
49.5	123,316	0	0.00000	1.00000	57.46
50.5	123,316	0	0.00000	1.00000	57.46
51.5	123,316	0	0.00000	1.00000	57.46
52.5	62,299	0	0.00000	1.00000	57.46
53.5	62,299	0	0.00000	1.00000	57.46
54.5	44,408	0	0.00000	1.00000	57.46
Totals:		207,420			

NEWFOUNDLAND AND LABRADOR HYDRO

Account L06 - Line Coupling Equipment

Placement Band - 1965 - 1989 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account L06 - Line Coupling Equipment

Placement Band - 1965 - 1989 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	283,845	0	0.00000	1.00000	100.00
0.5	283,845	0	0.00000	1.00000	100.00
1.5	283,845	0	0.00000	1.00000	100.00
2.5	283,845	0	0.00000	1.00000	100.00
3.5	283,845	0	0.00000	1.00000	100.00
4.5	283,845	0	0.00000	1.00000	100.00
5.5	283,845	0	0.00000	1.00000	100.00
6.5	283,845	0	0.00000	1.00000	100.00
7.5	283,845	0	0.00000	1.00000	100.00
8.5	283,845	0	0.00000	1.00000	100.00
9.5	283,845	0	0.00000	1.00000	100.00
10.5	283,845	0	0.00000	1.00000	100.00
11.5	283,845	0	0.00000	1.00000	100.00
12.5	283,845	0	0.00000	1.00000	100.00
13.5	283,845	0	0.00000	1.00000	100.00
14.5	283,845	3,500	0.01233	0.98767	100.00
15.5	280,345	0	0.00000	1.00000	98.77
16.5	280,345	0	0.00000	1.00000	98.77
17.5	280,345	2,288	0.00816	0.99184	98.77
18.5	278,057	25,956	0.09335	0.90665	97.96
19.5	252,101	9,613	0.03813	0.96187	88.82
20.5	242,488	8,841	0.03646	0.96354	85.43
21.5	233,647	33,900	0.14509	0.85491	82.32
22.5	199,747	34,202	0.17123	0.82877	70.38
23.5	165,546	31,132	0.18806	0.81194	58.33
24.5	134,414	58,470	0.43500	0.56500	47.36
25.5	75,945	9,291	0.12234	0.87766	26.76
26.5	66,654	26,127	0.39198	0.60802	23.49

NEWFOUNDLAND AND LABRADOR HYDRO

Account L06 - Line Coupling Equipment

Placement Band - 1965 - 1989 Experience Band - 1992 - 2022

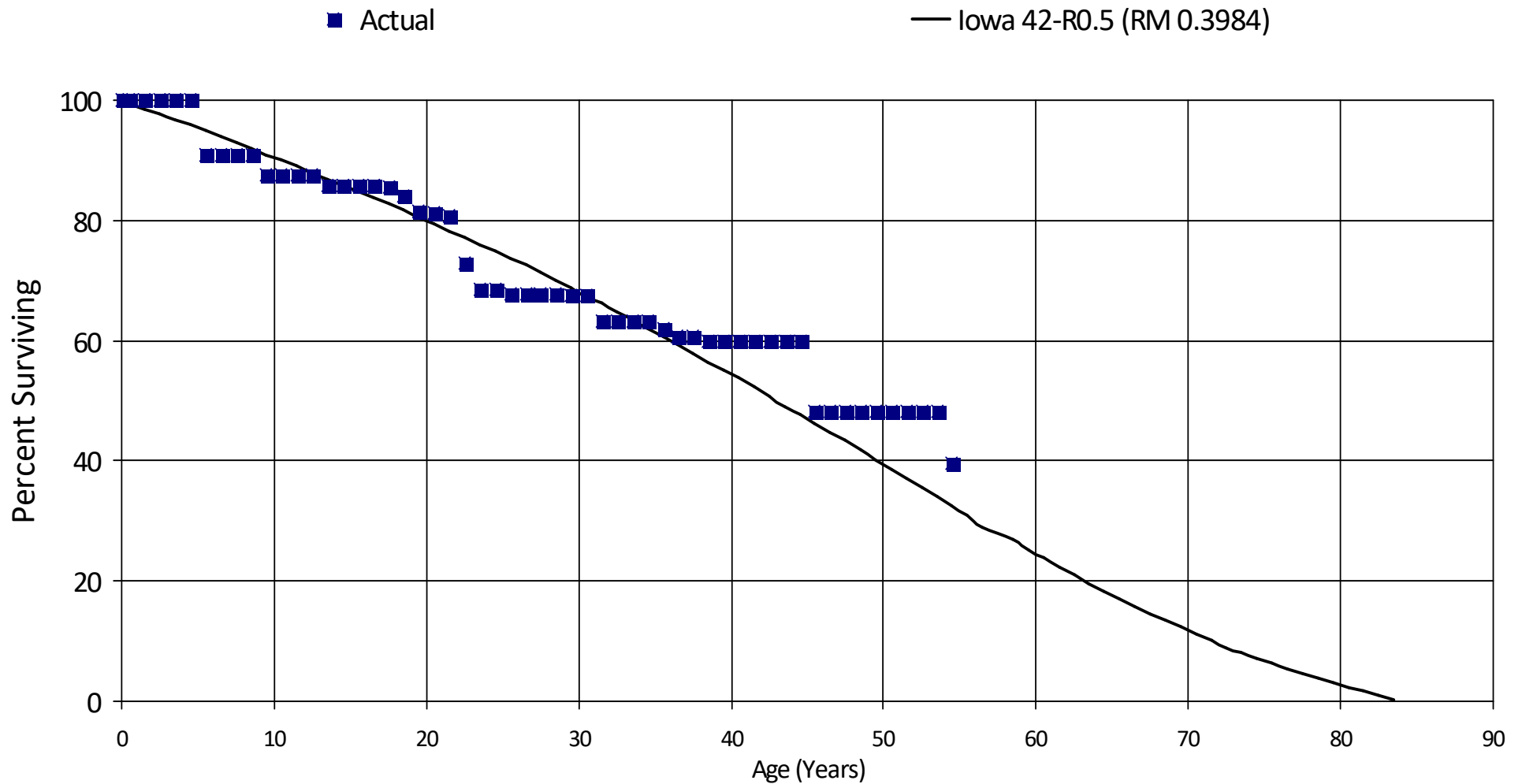
27.5	40,527	21,273	0.52492	0.47508	14.28
28.5	19,254	6,528	0.33905	0.66095	6.78
29.5	12,726	0	0.00000	1.00000	4.48
30.5	12,726	0	0.00000	1.00000	4.48
31.5	12,726	0	0.00000	1.00000	4.48
32.5	12,726	0	0.00000	1.00000	4.48
33.5	12,726	1,500	0.11787	0.88213	4.48
34.5	11,226	0	0.00000	1.00000	3.95
35.5	11,226	0	0.00000	1.00000	3.95
36.5	11,226	0	0.00000	1.00000	3.95
37.5	11,226	0	0.00000	1.00000	3.95
38.5	0	0	0.00000	0.00000	3.95
Totals:		272,621			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M01 - Main Breakers

Placement Band - 1965 - 2006 Experience Band - 1993 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M01 - Main Breakers

Placement Band - 1965 - 2006 Experience Band - 1993 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	686,469	0	0.00000	1.00000	100.00
0.5	686,469	0	0.00000	1.00000	100.00
1.5	686,469	0	0.00000	1.00000	100.00
2.5	686,469	0	0.00000	1.00000	100.00
3.5	686,469	0	0.00000	1.00000	100.00
4.5	686,469	62,132	0.09051	0.90949	100.00
5.5	624,337	0	0.00000	1.00000	90.95
6.5	624,337	0	0.00000	1.00000	90.95
7.5	624,337	0	0.00000	1.00000	90.95
8.5	624,337	23,698	0.03796	0.96204	90.95
9.5	600,638	0	0.00000	1.00000	87.50
10.5	600,638	0	0.00000	1.00000	87.50
11.5	600,638	0	0.00000	1.00000	87.50
12.5	600,638	12,000	0.01998	0.98002	87.50
13.5	588,638	0	0.00000	1.00000	85.75
14.5	588,638	0	0.00000	1.00000	85.75
15.5	588,638	0	0.00000	1.00000	85.75
16.5	469,445	1,200	0.00256	0.99744	85.75
17.5	468,245	8,319	0.01777	0.98223	85.53
18.5	432,031	13,225	0.03061	0.96939	84.01
19.5	346,330	1,200	0.00346	0.99654	81.44
20.5	345,130	2,400	0.00695	0.99305	81.16
21.5	294,772	28,313	0.09605	0.90395	80.60
22.5	266,459	15,852	0.05949	0.94051	72.86
23.5	250,607	0	0.00000	1.00000	68.53
24.5	226,996	2,278	0.01004	0.98996	68.53
25.5	224,718	0	0.00000	1.00000	67.84
26.5	128,515	0	0.00000	1.00000	67.84

NEWFOUNDLAND AND LABRADOR HYDRO

Account M01 - Main Breakers

Placement Band - 1965 - 2006 Experience Band - 1993 - 2022

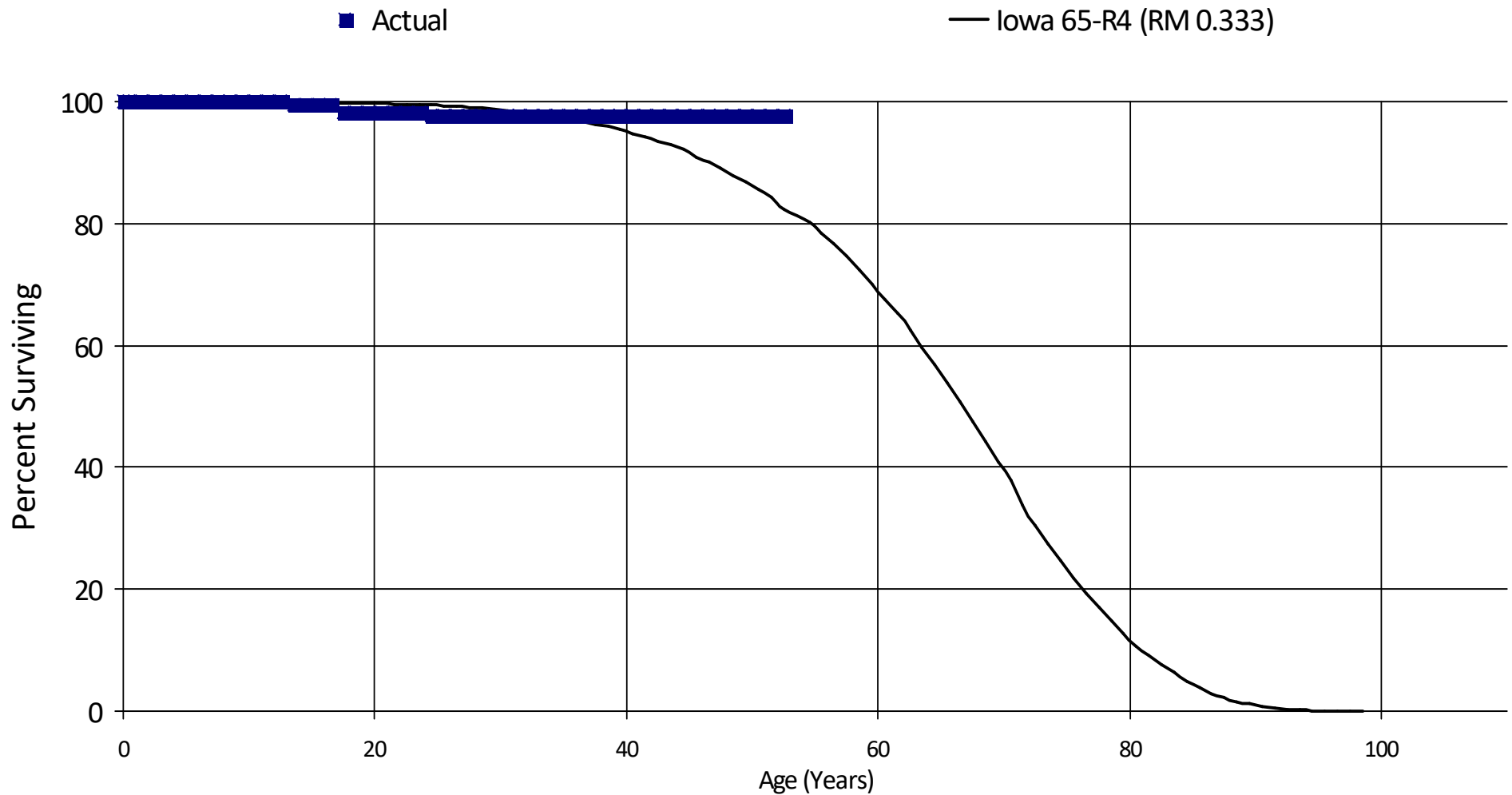
27.5	128,515	0	0.00000	1.00000	67.84
28.5	128,515	798	0.00621	0.99379	67.84
29.5	127,718	0	0.00000	1.00000	67.42
30.5	127,718	8,161	0.06390	0.93610	67.42
31.5	114,878	0	0.00000	1.00000	63.11
32.5	114,878	0	0.00000	1.00000	63.11
33.5	114,878	0	0.00000	1.00000	63.11
34.5	114,878	1,941	0.01690	0.98310	63.11
35.5	112,937	2,400	0.02125	0.97875	62.04
36.5	95,762	0	0.00000	1.00000	60.72
37.5	95,762	1,200	0.01253	0.98747	60.72
38.5	94,562	0	0.00000	1.00000	59.96
39.5	80,562	0	0.00000	1.00000	59.96
40.5	80,562	0	0.00000	1.00000	59.96
41.5	80,562	0	0.00000	1.00000	59.96
42.5	66,362	0	0.00000	1.00000	59.96
43.5	66,362	0	0.00000	1.00000	59.96
44.5	66,362	13,000	0.19589	0.80411	59.96
45.5	53,362	0	0.00000	1.00000	48.21
46.5	53,362	0	0.00000	1.00000	48.21
47.5	53,362	0	0.00000	1.00000	48.21
48.5	53,362	0	0.00000	1.00000	48.21
49.5	53,362	0	0.00000	1.00000	48.21
50.5	53,362	0	0.00000	1.00000	48.21
51.5	53,362	0	0.00000	1.00000	48.21
52.5	47,097	0	0.00000	1.00000	48.21
53.5	47,097	8,500	0.18048	0.81952	48.21
54.5	0	0	0.00000	0.00000	39.51
Totals:		206,617			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M02 - Marine Terminal

Placement Band - 1969 - 1986 Experience Band - 1994 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M02 - Marine Terminal

Placement Band - 1969 - 1986 Experience Band - 1994 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	3,033,247	0	0.00000	1.00000	100.00
0.5	3,033,247	0	0.00000	1.00000	100.00
1.5	3,033,247	0	0.00000	1.00000	100.00
2.5	3,033,247	0	0.00000	1.00000	100.00
3.5	3,033,247	0	0.00000	1.00000	100.00
4.5	3,033,247	0	0.00000	1.00000	100.00
5.5	3,033,247	0	0.00000	1.00000	100.00
6.5	3,033,247	0	0.00000	1.00000	100.00
7.5	3,033,247	0	0.00000	1.00000	100.00
8.5	3,033,247	0	0.00000	1.00000	100.00
9.5	3,033,247	0	0.00000	1.00000	100.00
10.5	3,033,247	0	0.00000	1.00000	100.00
11.5	3,033,247	0	0.00000	1.00000	100.00
12.5	3,033,247	12,192	0.00402	0.99598	100.00
13.5	3,021,056	0	0.00000	1.00000	99.60
14.5	3,021,056	0	0.00000	1.00000	99.60
15.5	3,021,056	1,114	0.00037	0.99963	99.60
16.5	3,019,941	39,909	0.01322	0.98678	99.56
17.5	2,980,032	0	0.00000	1.00000	98.24
18.5	2,980,032	0	0.00000	1.00000	98.24
19.5	2,980,032	0	0.00000	1.00000	98.24
20.5	2,980,032	0	0.00000	1.00000	98.24
21.5	2,980,032	0	0.00000	1.00000	98.24
22.5	2,980,032	0	0.00000	1.00000	98.24
23.5	2,980,032	15,069	0.00506	0.99494	98.24
24.5	2,964,963	0	0.00000	1.00000	97.74
25.5	2,964,963	0	0.00000	1.00000	97.74
26.5	2,964,963	0	0.00000	1.00000	97.74

NEWFOUNDLAND AND LABRADOR HYDRO

Account M02 - Marine Terminal

Placement Band - 1969 - 1986 Experience Band - 1994 - 2022

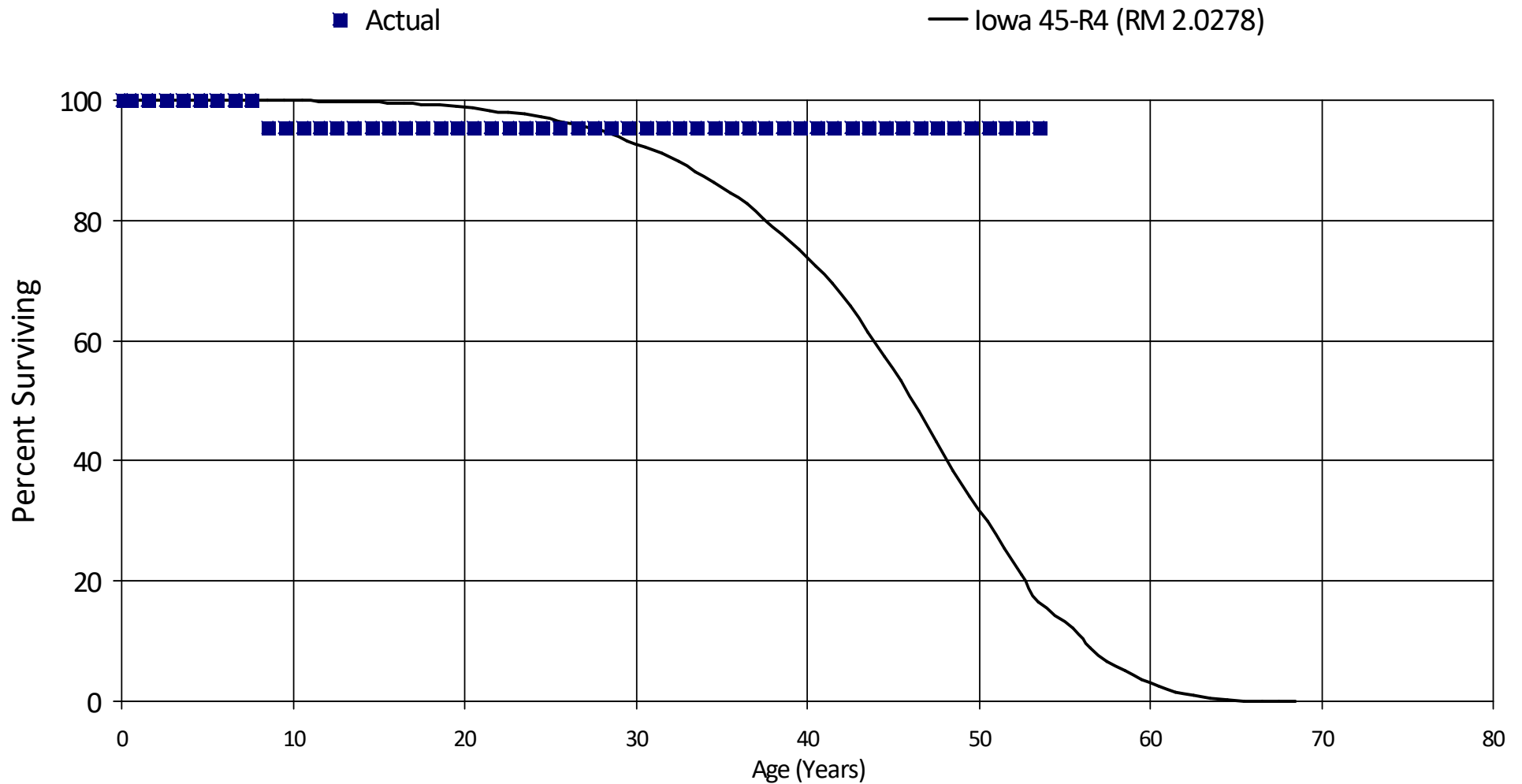
27.5	2,964,963	0	0.00000	1.00000	97.74
28.5	2,964,963	0	0.00000	1.00000	97.74
29.5	2,964,963	0	0.00000	1.00000	97.74
30.5	2,964,963	0	0.00000	1.00000	97.74
31.5	2,964,963	0	0.00000	1.00000	97.74
32.5	2,964,963	0	0.00000	1.00000	97.74
33.5	2,964,963	0	0.00000	1.00000	97.74
34.5	2,964,963	0	0.00000	1.00000	97.74
35.5	2,964,963	0	0.00000	1.00000	97.74
36.5	2,964,963	0	0.00000	1.00000	97.74
37.5	2,964,963	0	0.00000	1.00000	97.74
38.5	2,678,149	0	0.00000	1.00000	97.74
39.5	2,678,149	0	0.00000	1.00000	97.74
40.5	2,678,149	0	0.00000	1.00000	97.74
41.5	2,678,149	0	0.00000	1.00000	97.74
42.5	2,665,300	0	0.00000	1.00000	97.74
43.5	2,665,300	0	0.00000	1.00000	97.74
44.5	2,665,300	0	0.00000	1.00000	97.74
45.5	2,665,300	0	0.00000	1.00000	97.74
46.5	2,665,300	0	0.00000	1.00000	97.74
47.5	2,665,300	0	0.00000	1.00000	97.74
48.5	2,665,300	0	0.00000	1.00000	97.74
49.5	2,665,300	0	0.00000	1.00000	97.74
50.5	2,665,300	0	0.00000	1.00000	97.74
51.5	2,596,300	0	0.00000	1.00000	97.74
52.5	2,596,300	0	0.00000	1.00000	97.74
Totals:		68,284			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M03 - Metalclad Switchgear CUB/EQU 4kv/600

Placement Band - 1968 - 2021 Experience Band - 1999 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M03 - Metalclad Switchgear CUB/EQU 4kv/600

Placement Band - 1968 - 2021 Experience Band - 1999 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	3,567,344	0	0.00000	1.00000	100.00
0.5	3,567,344	0	0.00000	1.00000	100.00
1.5	2,853,954	0	0.00000	1.00000	100.00
2.5	2,553,954	0	0.00000	1.00000	100.00
3.5	2,553,954	0	0.00000	1.00000	100.00
4.5	2,553,954	0	0.00000	1.00000	100.00
5.5	2,553,954	0	0.00000	1.00000	100.00
6.5	2,321,761	0	0.00000	1.00000	100.00
7.5	1,937,987	88,117	0.04547	0.95453	100.00
8.5	1,849,870	0	0.00000	1.00000	95.45
9.5	1,849,870	0	0.00000	1.00000	95.45
10.5	1,849,870	0	0.00000	1.00000	95.45
11.5	1,849,870	0	0.00000	1.00000	95.45
12.5	1,849,870	0	0.00000	1.00000	95.45
13.5	1,849,870	0	0.00000	1.00000	95.45
14.5	1,849,870	0	0.00000	1.00000	95.45
15.5	1,849,870	0	0.00000	1.00000	95.45
16.5	1,849,870	0	0.00000	1.00000	95.45
17.5	1,849,870	0	0.00000	1.00000	95.45
18.5	1,849,870	0	0.00000	1.00000	95.45
19.5	1,849,870	0	0.00000	1.00000	95.45
20.5	1,849,870	0	0.00000	1.00000	95.45
21.5	1,849,870	0	0.00000	1.00000	95.45
22.5	1,849,870	0	0.00000	1.00000	95.45
23.5	1,849,870	0	0.00000	1.00000	95.45
24.5	1,849,870	0	0.00000	1.00000	95.45
25.5	1,849,870	0	0.00000	1.00000	95.45
26.5	1,849,870	0	0.00000	1.00000	95.45

NEWFOUNDLAND AND LABRADOR HYDRO

Account M03 - Metalclad Switchgear CUB/EQU 4kv/600

Placement Band - 1968 - 2021 Experience Band - 1999 - 2022

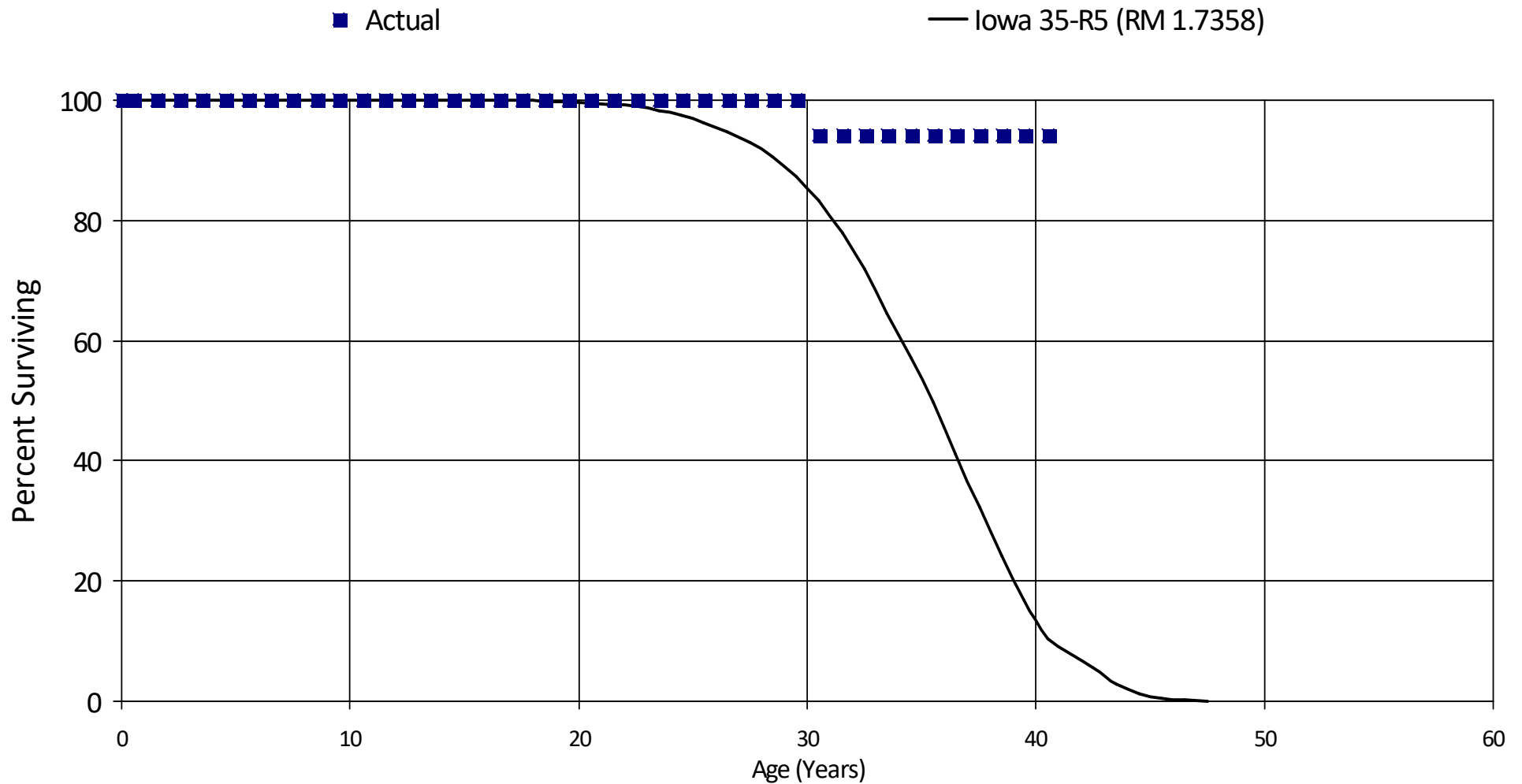
27.5	1,835,582	0	0.00000	1.00000	95.45
28.5	1,268,370	0	0.00000	1.00000	95.45
29.5	1,268,370	0	0.00000	1.00000	95.45
30.5	1,268,370	0	0.00000	1.00000	95.45
31.5	1,268,370	0	0.00000	1.00000	95.45
32.5	1,268,370	0	0.00000	1.00000	95.45
33.5	1,268,370	0	0.00000	1.00000	95.45
34.5	1,268,370	0	0.00000	1.00000	95.45
35.5	1,211,961	0	0.00000	1.00000	95.45
36.5	1,211,961	0	0.00000	1.00000	95.45
37.5	1,211,961	0	0.00000	1.00000	95.45
38.5	1,211,961	0	0.00000	1.00000	95.45
39.5	1,211,961	0	0.00000	1.00000	95.45
40.5	1,211,961	0	0.00000	1.00000	95.45
41.5	1,211,961	0	0.00000	1.00000	95.45
42.5	431,573	0	0.00000	1.00000	95.45
43.5	431,573	0	0.00000	1.00000	95.45
44.5	431,573	0	0.00000	1.00000	95.45
45.5	431,573	0	0.00000	1.00000	95.45
46.5	431,573	0	0.00000	1.00000	95.45
47.5	431,573	0	0.00000	1.00000	95.45
48.5	431,573	0	0.00000	1.00000	95.45
49.5	431,573	0	0.00000	1.00000	95.45
50.5	431,573	0	0.00000	1.00000	95.45
51.5	431,573	0	0.00000	1.00000	95.45
52.5	431,573	0	0.00000	1.00000	95.45
53.5	431,573	0	0.00000	1.00000	95.45
Totals:		88,117			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M04 - Meter Test Switches

Placement Band - 1981 - 1997 Experience Band - 2013 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M04 - Meter Test Switches

Placement Band - 1981 - 1997 Experience Band - 2013 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	60,735	0	0.00000	1.00000	100.00
0.5	60,735	0	0.00000	1.00000	100.00
1.5	60,735	0	0.00000	1.00000	100.00
2.5	60,735	0	0.00000	1.00000	100.00
3.5	60,735	0	0.00000	1.00000	100.00
4.5	60,735	0	0.00000	1.00000	100.00
5.5	60,735	0	0.00000	1.00000	100.00
6.5	60,735	0	0.00000	1.00000	100.00
7.5	60,735	0	0.00000	1.00000	100.00
8.5	60,735	0	0.00000	1.00000	100.00
9.5	60,735	0	0.00000	1.00000	100.00
10.5	60,735	0	0.00000	1.00000	100.00
11.5	60,735	0	0.00000	1.00000	100.00
12.5	60,735	0	0.00000	1.00000	100.00
13.5	60,735	0	0.00000	1.00000	100.00
14.5	60,735	0	0.00000	1.00000	100.00
15.5	60,735	0	0.00000	1.00000	100.00
16.5	60,735	0	0.00000	1.00000	100.00
17.5	60,735	0	0.00000	1.00000	100.00
18.5	60,735	0	0.00000	1.00000	100.00
19.5	60,735	0	0.00000	1.00000	100.00
20.5	60,735	0	0.00000	1.00000	100.00
21.5	60,735	0	0.00000	1.00000	100.00
22.5	60,735	0	0.00000	1.00000	100.00
23.5	60,735	0	0.00000	1.00000	100.00
24.5	60,735	0	0.00000	1.00000	100.00
25.5	55,044	0	0.00000	1.00000	100.00
26.5	55,044	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account M04 - Meter Test Switches

Placement Band - 1981 - 1997 Experience Band - 2013 - 2022

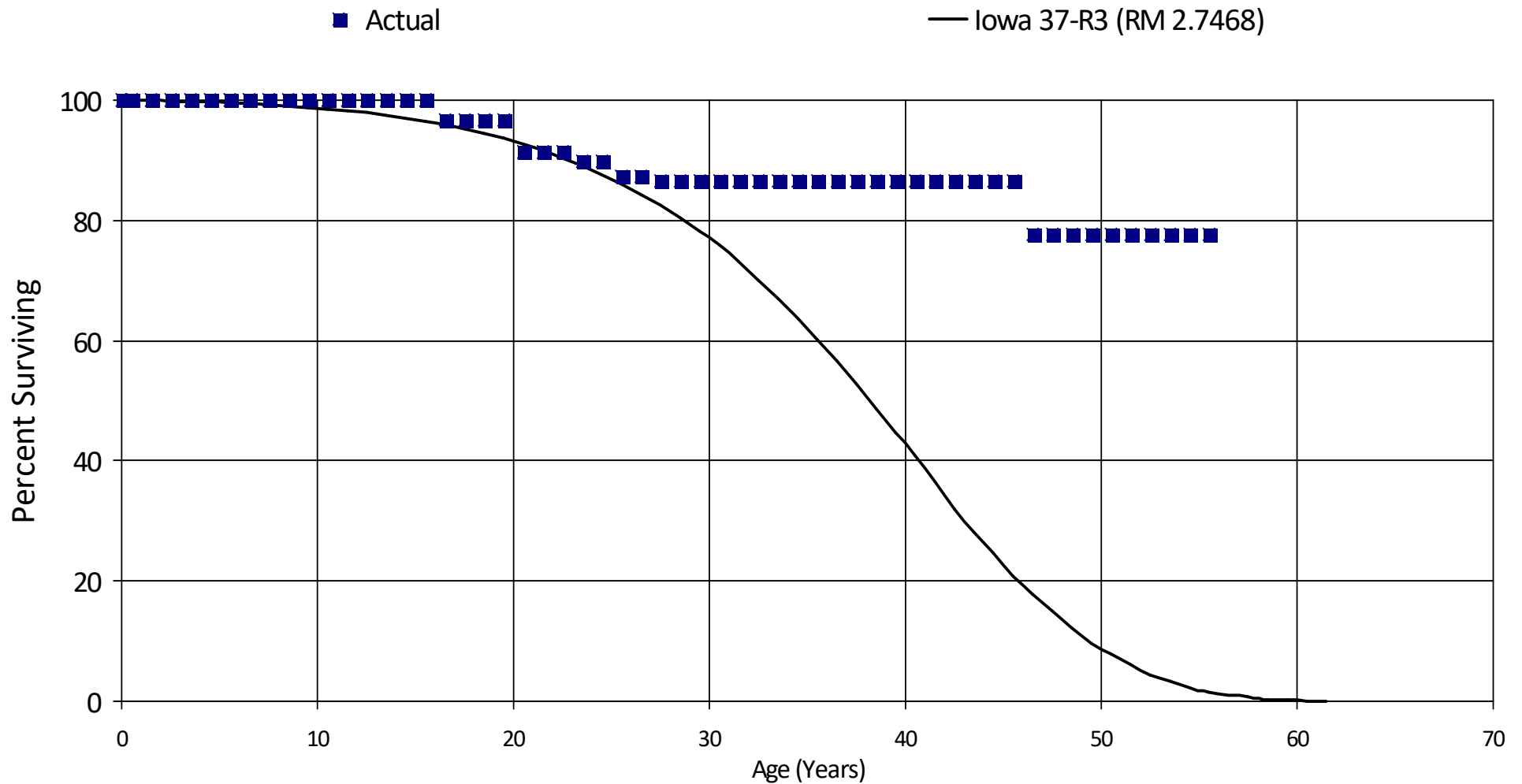
27.5	55,044	0	0.00000	1.00000	100.00
28.5	43,701	0	0.00000	1.00000	100.00
29.5	42,485	2,434	0.05729	0.94271	100.00
30.5	40,051	0	0.00000	1.00000	94.27
31.5	27,329	0	0.00000	1.00000	94.27
32.5	27,329	0	0.00000	1.00000	94.27
33.5	27,329	0	0.00000	1.00000	94.27
34.5	24,025	0	0.00000	1.00000	94.27
35.5	12,168	0	0.00000	1.00000	94.27
36.5	12,168	0	0.00000	1.00000	94.27
37.5	12,168	0	0.00000	1.00000	94.27
38.5	11,271	0	0.00000	1.00000	94.27
39.5	11,271	0	0.00000	1.00000	94.27
40.5	9,278	0	0.00000	1.00000	94.27
Totals:		2,434			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M05 - Metering Tanks

Placement Band - 1966 - 2020 Experience Band - 2003 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M05 - Metering Tanks

Placement Band - 1966 - 2020 Experience Band - 2003 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	696,647	0	0.00000	1.00000	100.00
0.5	696,647	0	0.00000	1.00000	100.00
1.5	696,647	0	0.00000	1.00000	100.00
2.5	696,647	0	0.00000	1.00000	100.00
3.5	696,647	0	0.00000	1.00000	100.00
4.5	696,647	0	0.00000	1.00000	100.00
5.5	696,647	0	0.00000	1.00000	100.00
6.5	696,647	0	0.00000	1.00000	100.00
7.5	696,647	0	0.00000	1.00000	100.00
8.5	556,614	0	0.00000	1.00000	100.00
9.5	461,171	0	0.00000	1.00000	100.00
10.5	401,256	0	0.00000	1.00000	100.00
11.5	334,687	0	0.00000	1.00000	100.00
12.5	334,687	0	0.00000	1.00000	100.00
13.5	334,687	0	0.00000	1.00000	100.00
14.5	334,687	0	0.00000	1.00000	100.00
15.5	334,687	11,420	0.03412	0.96588	100.00
16.5	323,267	0	0.00000	1.00000	96.59
17.5	323,267	0	0.00000	1.00000	96.59
18.5	323,267	0	0.00000	1.00000	96.59
19.5	323,267	17,608	0.05447	0.94553	96.59
20.5	305,658	0	0.00000	1.00000	91.33
21.5	305,658	0	0.00000	1.00000	91.33
22.5	305,658	5,184	0.01696	0.98304	91.33
23.5	300,474	0	0.00000	1.00000	89.78
24.5	300,474	8,002	0.02663	0.97337	89.78
25.5	291,226	0	0.00000	1.00000	87.39
26.5	276,895	2,500	0.00903	0.99097	87.39

NEWFOUNDLAND AND LABRADOR HYDRO

Account M05 - Metering Tanks

Placement Band - 1966 - 2020 Experience Band - 2003 - 2022

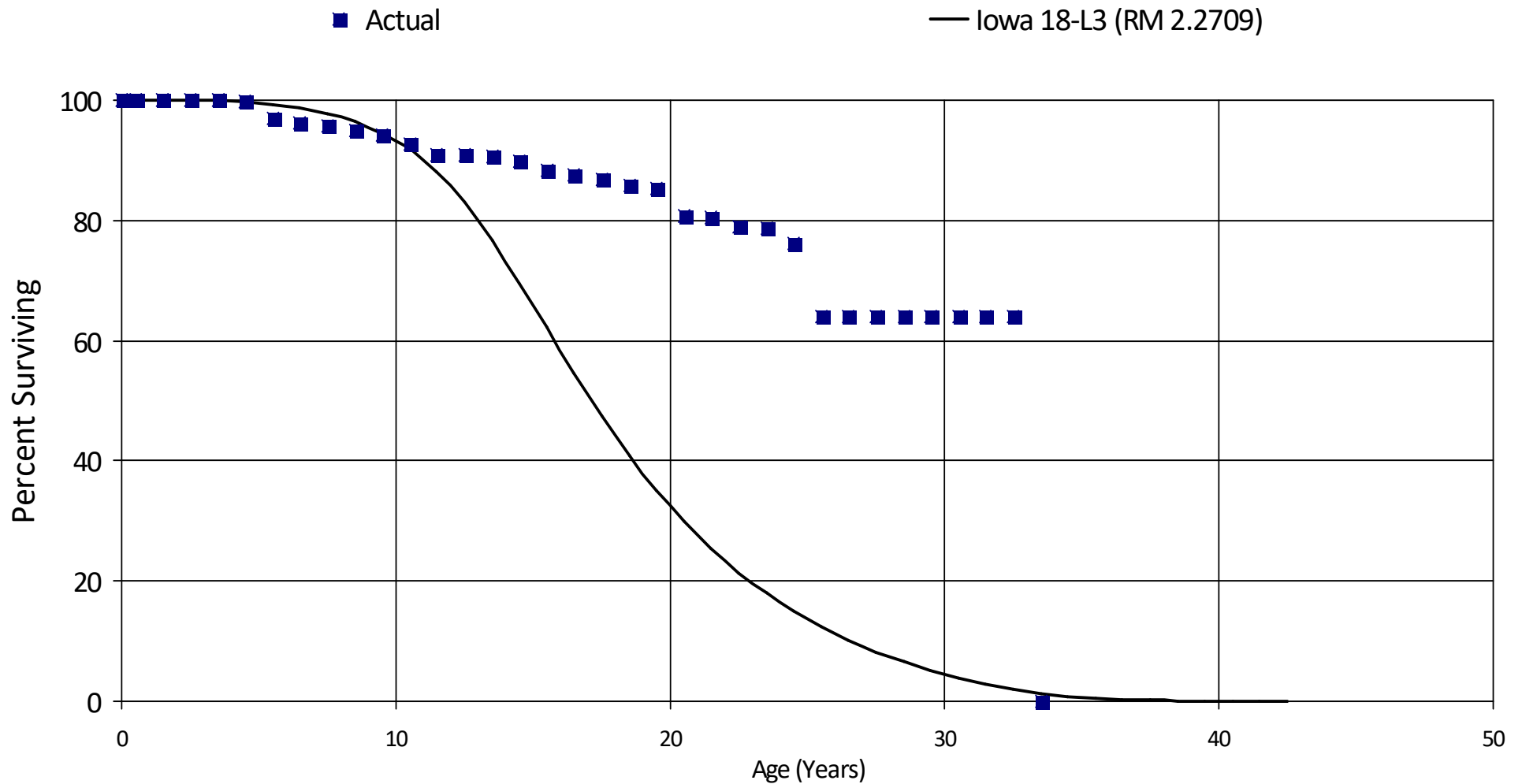
27.5	274,395	0	0.00000	1.00000	86.60
28.5	252,978	0	0.00000	1.00000	86.60
29.5	216,835	0	0.00000	1.00000	86.60
30.5	199,333	0	0.00000	1.00000	86.60
31.5	199,333	0	0.00000	1.00000	86.60
32.5	199,333	0	0.00000	1.00000	86.60
33.5	187,449	0	0.00000	1.00000	86.60
34.5	173,623	0	0.00000	1.00000	86.60
35.5	173,623	80	0.00046	0.99954	86.60
36.5	173,543	0	0.00000	1.00000	86.56
37.5	173,543	0	0.00000	1.00000	86.56
38.5	162,427	0	0.00000	1.00000	86.56
39.5	157,080	0	0.00000	1.00000	86.56
40.5	157,080	0	0.00000	1.00000	86.56
41.5	32,543	0	0.00000	1.00000	86.56
42.5	32,543	0	0.00000	1.00000	86.56
43.5	24,382	0	0.00000	1.00000	86.56
44.5	18,947	0	0.00000	1.00000	86.56
45.5	18,947	1,972	0.10408	0.89592	86.56
46.5	16,976	0	0.00000	1.00000	77.55
47.5	16,976	0	0.00000	1.00000	77.55
48.5	16,976	0	0.00000	1.00000	77.55
49.5	16,976	0	0.00000	1.00000	77.55
50.5	9,614	0	0.00000	1.00000	77.55
51.5	9,614	0	0.00000	1.00000	77.55
52.5	9,614	0	0.00000	1.00000	77.55
53.5	9,614	0	0.00000	1.00000	77.55
54.5	2,500	0	0.00000	1.00000	77.55
55.5	2,500	0	0.00000	1.00000	77.55
Totals:		46,766			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M06 - Meters - Digital

Placement Band - 1965 - 2021 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M06 - Meters - Digital

Placement Band - 1965 - 2021 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	9,186,801	0	0.00000	1.00000	100.00
0.5	9,186,801	0	0.00000	1.00000	100.00
1.5	8,971,104	0	0.00000	1.00000	100.00
2.5	8,798,624	0	0.00000	1.00000	100.00
3.5	8,798,624	30,980	0.00352	0.99648	100.00
4.5	6,785,538	176,520	0.02601	0.97399	99.65
5.5	6,609,018	63,470	0.00960	0.99040	97.06
6.5	5,548,720	23,461	0.00423	0.99577	96.13
7.5	5,109,631	44,066	0.00862	0.99138	95.72
8.5	4,980,067	36,946	0.00742	0.99258	94.89
9.5	3,845,372	63,205	0.01644	0.98356	94.19
10.5	3,782,167	67,920	0.01796	0.98204	92.64
11.5	3,519,024	2,531	0.00072	0.99928	90.98
12.5	3,125,598	6,990	0.00224	0.99776	90.91
13.5	1,710,362	14,563	0.00851	0.99149	90.71
14.5	1,678,400	28,180	0.01679	0.98321	89.94
15.5	1,610,037	16,115	0.01001	0.98999	88.43
16.5	1,593,922	14,943	0.00937	0.99063	87.54
17.5	1,386,556	14,155	0.01021	0.98979	86.72
18.5	1,173,931	8,889	0.00757	0.99243	85.83
19.5	1,110,944	57,494	0.05175	0.94825	85.18
20.5	882,870	3,546	0.00402	0.99598	80.77
21.5	753,964	14,848	0.01969	0.98031	80.45
22.5	734,976	2,907	0.00396	0.99604	78.87
23.5	669,941	21,460	0.03203	0.96797	78.56
24.5	498,807	78,444	0.15726	0.84274	76.04
25.5	325,124	0	0.00000	1.00000	64.08
26.5	302,929	0	0.00000	1.00000	64.08

NEWFOUNDLAND AND LABRADOR HYDRO

Account M06 - Meters - Digital

Placement Band - 1965 - 2021 Experience Band - 1991 - 2022

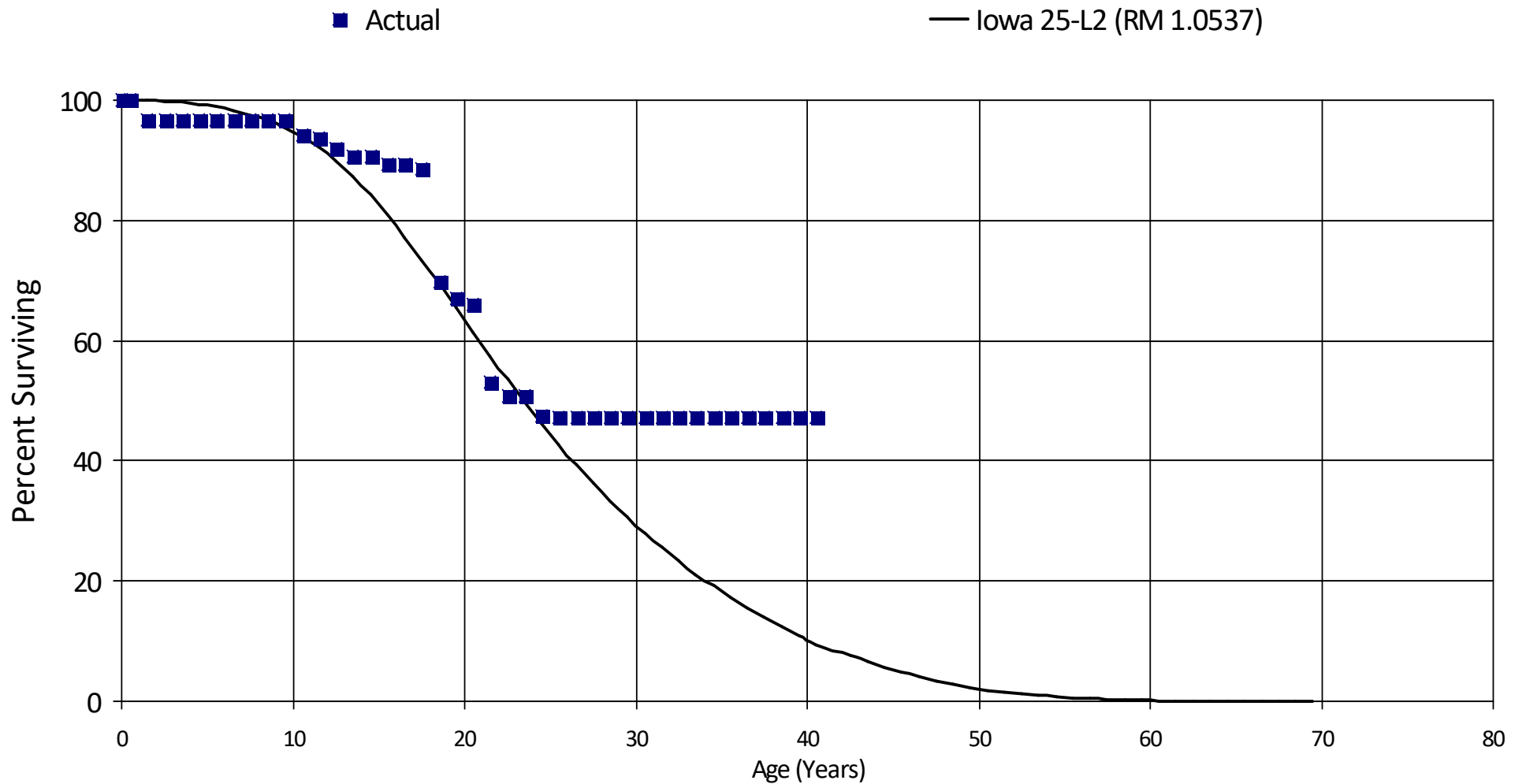
27.5	292,763	0	0.00000	1.00000	64.08
28.5	206,489	0	0.00000	1.00000	64.08
29.5	203,131	0	0.00000	1.00000	64.08
30.5	137,215	0	0.00000	1.00000	64.08
31.5	37,966	0	0.00000	1.00000	64.08
32.5	15,141	15,141	1.00003	-0.00003	64.08
33.5	0	0	0.00000	0.00000	0.00
Totals:		806,774			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M07 - Meters - Analogue

Placement Band - 1981 - 2020 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M07 - Meters - Analogue

Placement Band - 1981 - 2020 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,898,072	0	0.00000	1.00000	100.00
0.5	1,898,072	62,730	0.03305	0.96695	100.00
1.5	1,835,342	0	0.00000	1.00000	96.70
2.5	1,430,712	0	0.00000	1.00000	96.70
3.5	1,430,712	399	0.00028	0.99972	96.70
4.5	1,430,314	0	0.00000	1.00000	96.67
5.5	1,430,314	0	0.00000	1.00000	96.67
6.5	1,430,314	344	0.00024	0.99976	96.67
7.5	1,429,970	290	0.00020	0.99980	96.65
8.5	1,429,679	0	0.00000	1.00000	96.63
9.5	1,429,679	35,356	0.02473	0.97527	96.63
10.5	1,394,323	8,069	0.00579	0.99421	94.24
11.5	1,386,254	28,092	0.02026	0.97974	93.69
12.5	1,358,162	15,803	0.01164	0.98836	91.79
13.5	1,342,359	0	0.00000	1.00000	90.72
14.5	1,342,359	19,057	0.01420	0.98580	90.72
15.5	1,323,302	204	0.00015	0.99985	89.43
16.5	1,323,098	13,890	0.01050	0.98950	89.42
17.5	1,309,208	277,503	0.21196	0.78804	88.48
18.5	1,031,705	39,340	0.03813	0.96187	69.73
19.5	992,365	15,494	0.01561	0.98439	67.07
20.5	976,871	193,449	0.19803	0.80197	66.02
21.5	783,422	32,848	0.04193	0.95807	52.95
22.5	750,574	0	0.00000	1.00000	50.73
23.5	750,574	46,989	0.06260	0.93740	50.73
24.5	703,585	5,201	0.00739	0.99261	47.55
25.5	698,384	0	0.00000	1.00000	47.20
26.5	698,384	0	0.00000	1.00000	47.20

NEWFOUNDLAND AND LABRADOR HYDRO

Account M07 - Meters - Analogue

Placement Band - 1981 - 2020 Experience Band - 1991 - 2022

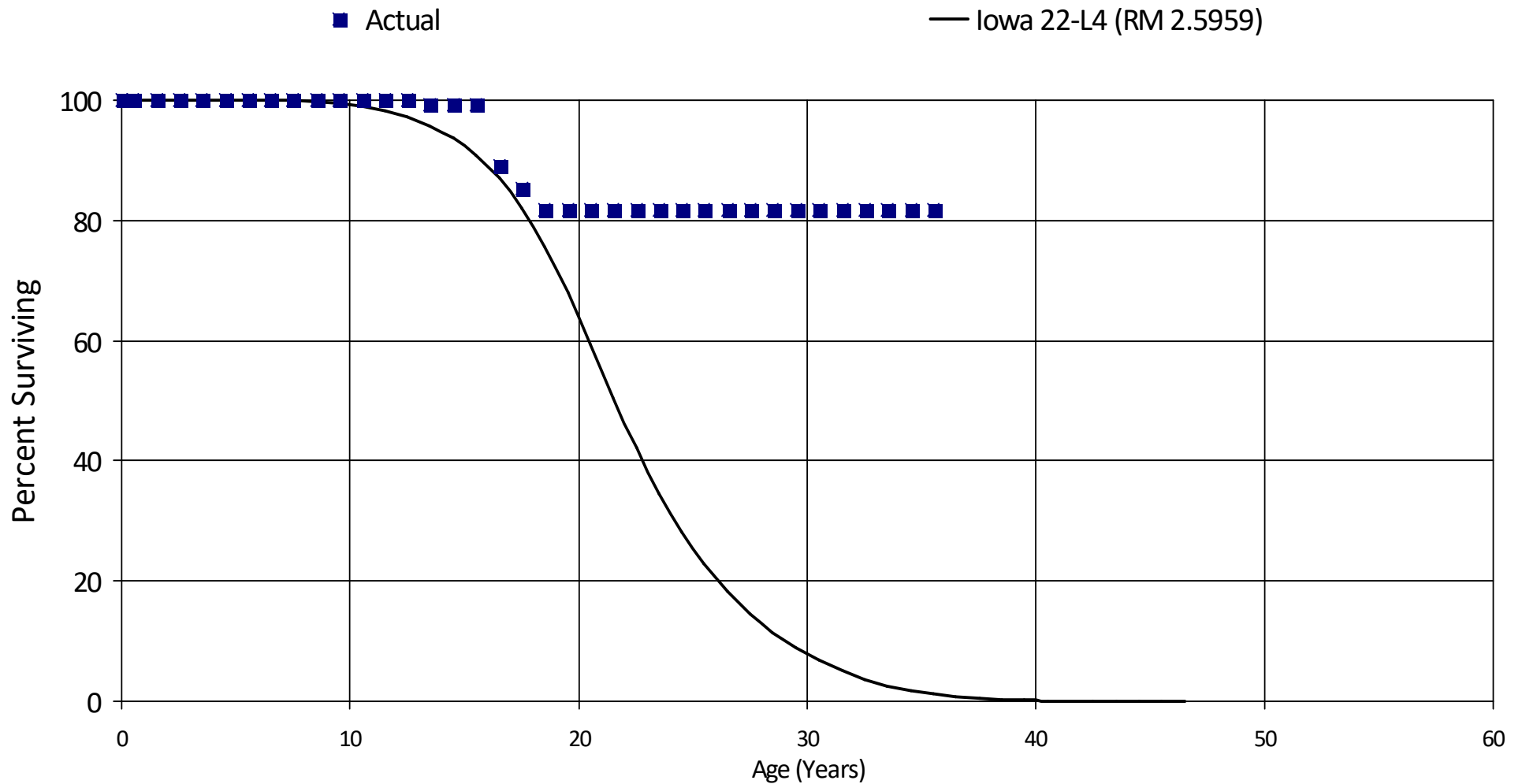
27.5	698,384	0	0.00000	1.00000	47.20
28.5	698,384	0	0.00000	1.00000	47.20
29.5	698,384	0	0.00000	1.00000	47.20
30.5	698,384	0	0.00000	1.00000	47.20
31.5	698,384	0	0.00000	1.00000	47.20
32.5	698,384	0	0.00000	1.00000	47.20
33.5	549,645	0	0.00000	1.00000	47.20
34.5	352,574	0	0.00000	1.00000	47.20
35.5	206,618	0	0.00000	1.00000	47.20
36.5	206,618	0	0.00000	1.00000	47.20
37.5	206,618	0	0.00000	1.00000	47.20
38.5	150,111	0	0.00000	1.00000	47.20
39.5	138,968	0	0.00000	1.00000	47.20
40.5	138,968	0	0.00000	1.00000	47.20
Totals:		795,058			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M08 - Meters - Other

Placement Band - 1981 - 2021 Experience Band - 1997 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M08 - Meters - Other

Placement Band - 1981 - 2021 Experience Band - 1997 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	462,172	0	0.00000	1.00000	100.00
0.5	462,172	0	0.00000	1.00000	100.00
1.5	453,184	0	0.00000	1.00000	100.00
2.5	453,184	0	0.00000	1.00000	100.00
3.5	399,098	0	0.00000	1.00000	100.00
4.5	375,384	0	0.00000	1.00000	100.00
5.5	300,408	0	0.00000	1.00000	100.00
6.5	300,408	0	0.00000	1.00000	100.00
7.5	300,408	0	0.00000	1.00000	100.00
8.5	300,408	0	0.00000	1.00000	100.00
9.5	300,408	0	0.00000	1.00000	100.00
10.5	221,165	0	0.00000	1.00000	100.00
11.5	221,165	0	0.00000	1.00000	100.00
12.5	221,165	1,588	0.00718	0.99282	100.00
13.5	219,577	0	0.00000	1.00000	99.28
14.5	219,577	0	0.00000	1.00000	99.28
15.5	219,577	22,487	0.10241	0.89759	99.28
16.5	175,340	7,513	0.04285	0.95715	89.11
17.5	140,169	5,967	0.04257	0.95743	85.29
18.5	130,448	0	0.00000	1.00000	81.66
19.5	114,627	0	0.00000	1.00000	81.66
20.5	114,627	0	0.00000	1.00000	81.66
21.5	114,627	0	0.00000	1.00000	81.66
22.5	112,862	0	0.00000	1.00000	81.66
23.5	112,862	0	0.00000	1.00000	81.66
24.5	112,029	0	0.00000	1.00000	81.66
25.5	72,459	0	0.00000	1.00000	81.66
26.5	56,346	0	0.00000	1.00000	81.66

NEWFOUNDLAND AND LABRADOR HYDRO

Account M08 - Meters - Other

Placement Band - 1981 - 2021 Experience Band - 1997 - 2022

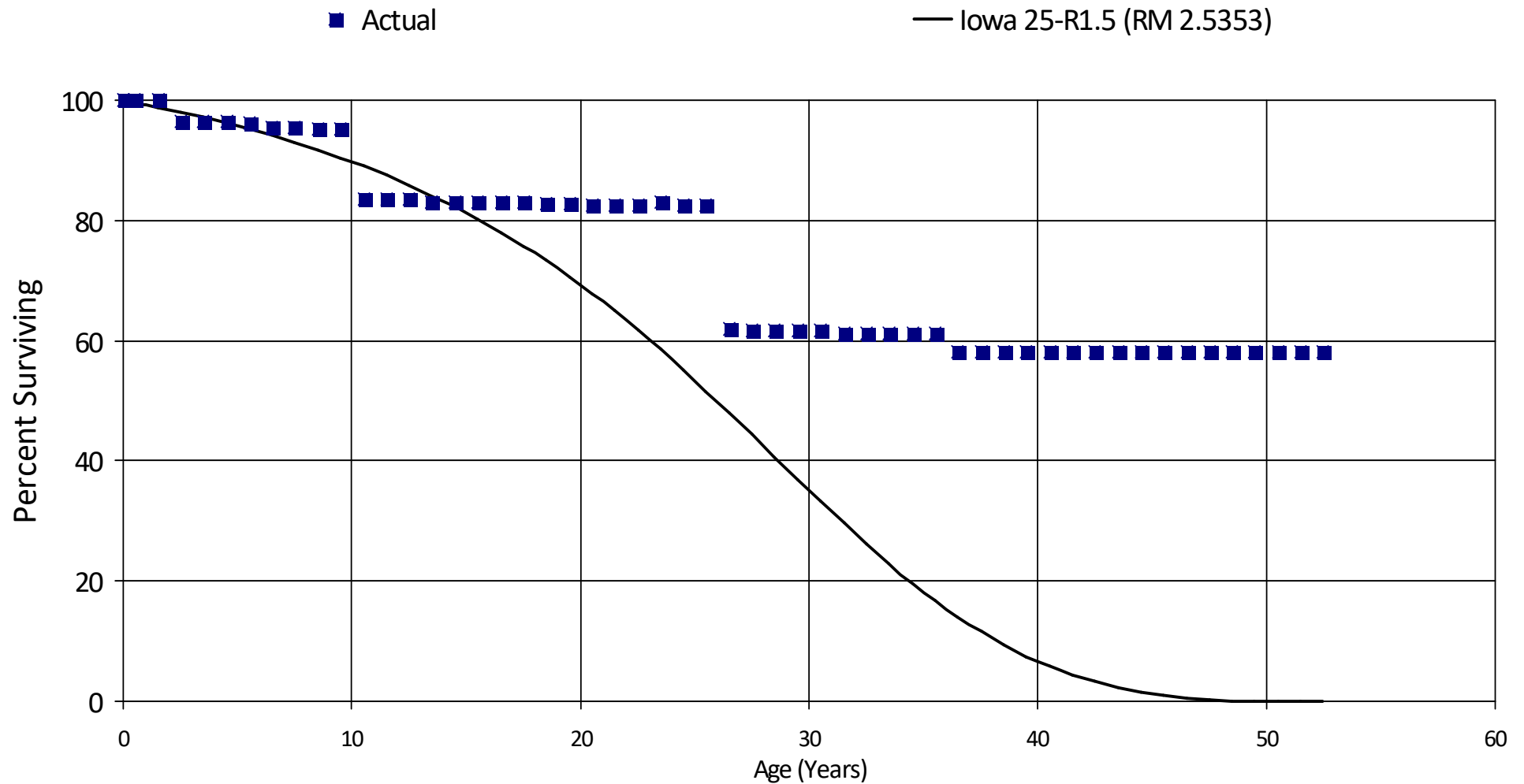
27.5	34,155	0	0.00000	1.00000	81.66
28.5	21,023	0	0.00000	1.00000	81.66
29.5	12,210	0	0.00000	1.00000	81.66
30.5	12,210	0	0.00000	1.00000	81.66
31.5	12,210	0	0.00000	1.00000	81.66
32.5	12,210	0	0.00000	1.00000	81.66
33.5	12,210	0	0.00000	1.00000	81.66
34.5	450	0	0.00000	1.00000	81.66
35.5	0	0	0.00000	0.00000	81.66
Totals:		37,555			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M10 - Miscellaneous Units of Property

Placement Band - 1966 - 2020 Experience Band - 1994 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M10 - Miscellaneous Units of Property

Placement Band - 1966 - 2020 Experience Band - 1994 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	18,624,686	0	0.00000	1.00000	100.00
0.5	18,624,686	21,599	0.00116	0.99884	100.00
1.5	18,603,087	663,327	0.03566	0.96434	99.88
2.5	17,442,920	0	0.00000	1.00000	96.32
3.5	17,439,974	0	0.00000	1.00000	96.32
4.5	17,439,974	1,987	0.00011	0.99989	96.32
5.5	17,437,987	163,508	0.00938	0.99062	96.31
6.5	17,274,478	14,534	0.00084	0.99916	95.41
7.5	16,939,797	10,016	0.00059	0.99941	95.33
8.5	16,819,403	0	0.00000	1.00000	95.27
9.5	15,237,568	1,889,486	0.12400	0.87600	95.27
10.5	13,348,083	0	0.00000	1.00000	83.46
11.5	12,008,404	0	0.00000	1.00000	83.46
12.5	2,741,353	14,678	0.00535	0.99465	83.46
13.5	2,726,675	0	0.00000	1.00000	83.01
14.5	2,726,675	0	0.00000	1.00000	83.01
15.5	2,726,675	0	0.00000	1.00000	83.01
16.5	2,726,675	1,631	0.00060	0.99940	83.01
17.5	2,725,043	4,926	0.00181	0.99819	82.96
18.5	2,720,118	2,024	0.00074	0.99926	82.81
19.5	2,718,093	8,444	0.00311	0.99689	82.75
20.5	2,709,649	0	0.00000	1.00000	82.49
21.5	2,709,649	920	0.00034	0.99966	82.49
22.5	2,708,729	-16,500	-0.00609	1.00609	82.46
23.5	2,725,230	12,800	0.00470	0.99530	82.96
24.5	2,712,429	0	0.00000	1.00000	82.57
25.5	2,712,429	682,013	0.25144	0.74856	82.57
26.5	2,030,416	600	0.00030	0.99970	61.81

NEWFOUNDLAND AND LABRADOR HYDRO

Account M10 - Miscellaneous Units of Property

Placement Band - 1966 - 2020 Experience Band - 1994 - 2022

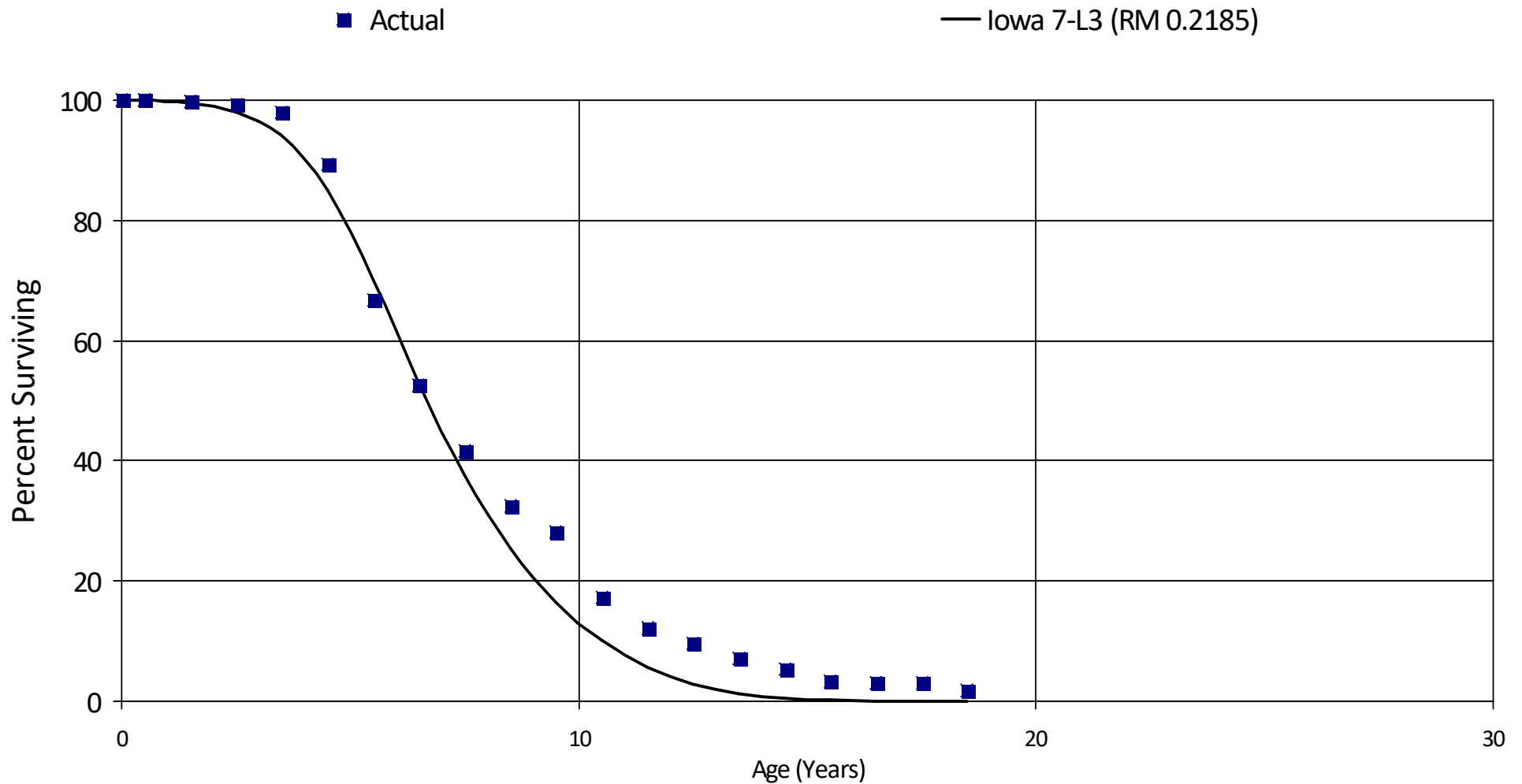
27.5	2,029,816	0	0.00000	1.00000	61.79
28.5	2,029,816	0	0.00000	1.00000	61.79
29.5	2,029,816	0	0.00000	1.00000	61.79
30.5	2,029,816	19,506	0.00961	0.99039	61.79
31.5	1,959,873	0	0.00000	1.00000	61.20
32.5	1,133,898	0	0.00000	1.00000	61.20
33.5	338,616	0	0.00000	1.00000	61.20
34.5	338,616	0	0.00000	1.00000	61.20
35.5	338,616	17,176	0.05072	0.94928	61.20
36.5	321,440	0	0.00000	1.00000	58.10
37.5	6,185	0	0.00000	1.00000	58.10
38.5	6,185	0	0.00000	1.00000	58.10
39.5	6,185	0	0.00000	1.00000	58.10
40.5	6,185	0	0.00000	1.00000	58.10
41.5	6,185	0	0.00000	1.00000	58.10
42.5	6,185	0	0.00000	1.00000	58.10
43.5	6,185	0	0.00000	1.00000	58.10
44.5	6,185	0	0.00000	1.00000	58.10
45.5	6,185	0	0.00000	1.00000	58.10
46.5	6,185	0	0.00000	1.00000	58.10
47.5	6,185	0	0.00000	1.00000	58.10
48.5	6,185	0	0.00000	1.00000	58.10
49.5	6,185	0	0.00000	1.00000	58.10
50.5	6,185	0	0.00000	1.00000	58.10
51.5	6,185	0	0.00000	1.00000	58.10
52.5	0	0	0.00000	0.00000	58.10
Totals:		3,512,675			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M11 - Mobile - A.T.V's and Snowmobiles

Placement Band - 1977 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

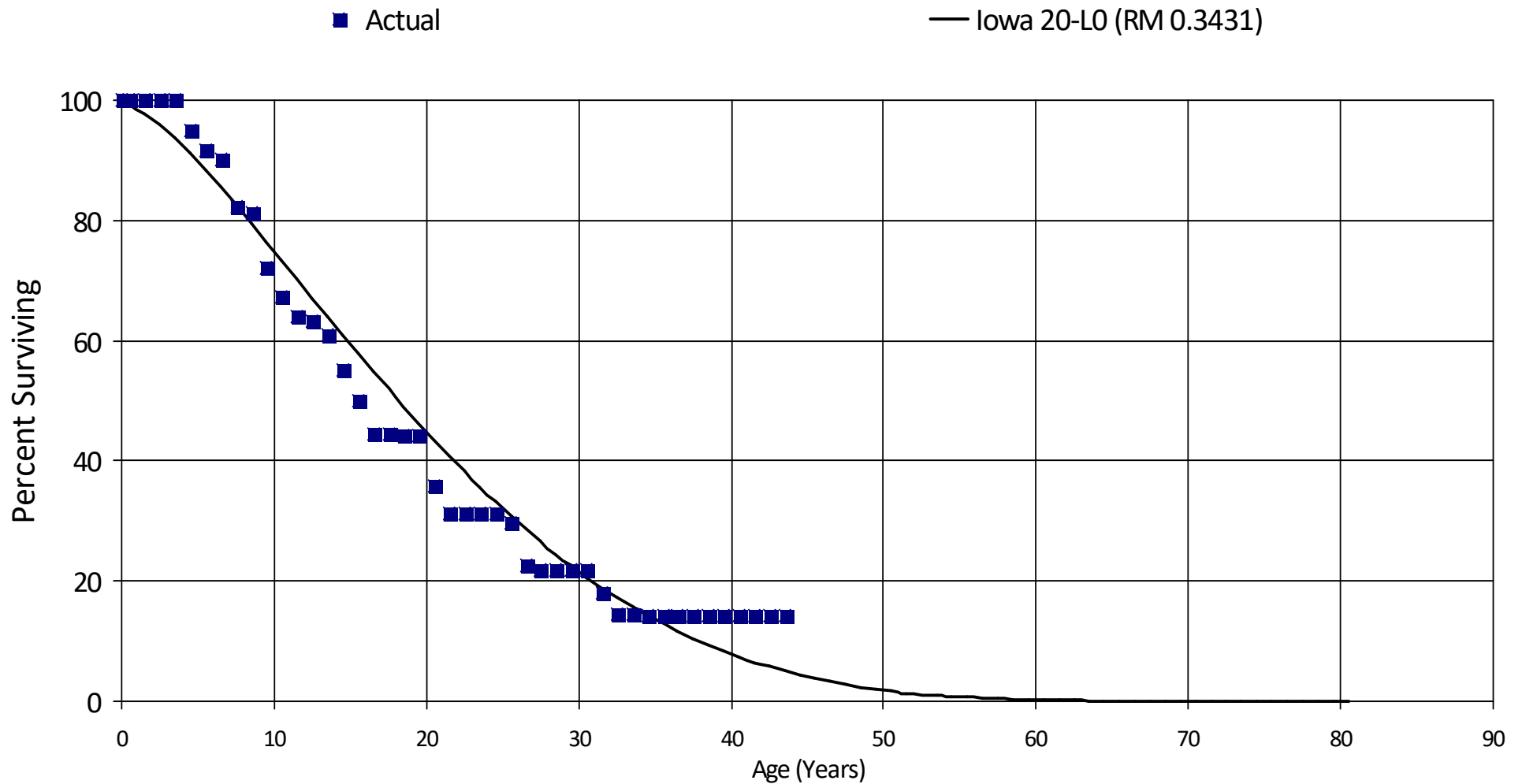
Account M11 - Mobile - A.T.V's and Snowmobiles

Placement Band - 1977 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	7,712,592	0	0.00000	1.00000	100.00
0.5	7,017,993	9,689	0.00138	0.99862	100.00
1.5	6,690,777	37,144	0.00555	0.99445	99.86
2.5	6,653,633	90,490	0.01360	0.98640	99.31
3.5	6,387,068	558,939	0.08751	0.91249	97.96
4.5	5,634,746	1,431,329	0.25402	0.74598	89.39
5.5	4,128,444	878,636	0.21283	0.78717	66.68
6.5	3,001,291	624,455	0.20806	0.79194	52.49
7.5	2,146,022	466,543	0.21740	0.78260	41.57
8.5	1,479,368	195,951	0.13246	0.86754	32.53
9.5	600,876	231,240	0.38484	0.61516	28.22
10.5	341,150	101,775	0.29833	0.70167	17.36
11.5	192,350	40,385	0.20996	0.79004	12.18
12.5	127,365	33,933	0.26642	0.73358	9.62
13.5	56,592	14,207	0.25104	0.74896	7.06
14.5	33,390	13,188	0.39497	0.60503	5.29
15.5	12,203	1,071	0.08776	0.91224	3.20
16.5	11,133	0	0.00000	1.00000	2.92
17.5	11,133	4,833	0.43412	0.56588	2.92
18.5	6,300	6,300	1.00000		1.65
Totals:		4,740,108			

NEWFOUNDLAND AND LABRADOR HYDRO
Account M12 - Mobile - Air Compressor Attachment and Boat
Placement Band - 1970 - 2020 Experience Band - 1991 - 2022
Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M12 - Mobile - Air Compressor Attachment and Boat

Placement Band - 1970 - 2020 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,167,413	0	0.00000	1.00000	100.00
0.5	1,167,413	0	0.00000	1.00000	100.00
1.5	1,167,413	0	0.00000	1.00000	100.00
2.5	1,152,105	0	0.00000	1.00000	100.00
3.5	1,152,105	59,529	0.05167	0.94833	100.00
4.5	1,072,394	37,266	0.03475	0.96525	94.83
5.5	1,025,119	16,120	0.01573	0.98427	91.53
6.5	973,117	84,500	0.08683	0.91317	90.09
7.5	888,617	12,361	0.01391	0.98609	82.27
8.5	876,257	98,926	0.11290	0.88710	81.13
9.5	777,330	50,889	0.06547	0.93453	71.97
10.5	699,701	35,526	0.05077	0.94923	67.26
11.5	639,775	7,614	0.01190	0.98810	63.85
12.5	609,473	21,388	0.03509	0.96491	63.09
13.5	515,810	49,093	0.09518	0.90482	60.88
14.5	466,717	42,870	0.09185	0.90815	55.09
15.5	423,846	47,217	0.11140	0.88860	50.03
16.5	376,629	0	0.00000	1.00000	44.46
17.5	376,629	3,364	0.00893	0.99107	44.46
18.5	373,265	0	0.00000	1.00000	44.06
19.5	373,265	69,632	0.18655	0.81345	44.06
20.5	303,633	39,071	0.12868	0.87132	35.84
21.5	264,562	0	0.00000	1.00000	31.23
22.5	246,567	0	0.00000	1.00000	31.23
23.5	246,567	0	0.00000	1.00000	31.23
24.5	244,192	12,913	0.05288	0.94712	31.23
25.5	231,280	54,660	0.23634	0.76366	29.58
26.5	176,620	6,463	0.03659	0.96341	22.59

NEWFOUNDLAND AND LABRADOR HYDRO

Account M12 - Mobile - Air Compressor Attachment and Boat

Placement Band - 1970 - 2020 Experience Band - 1991 - 2022

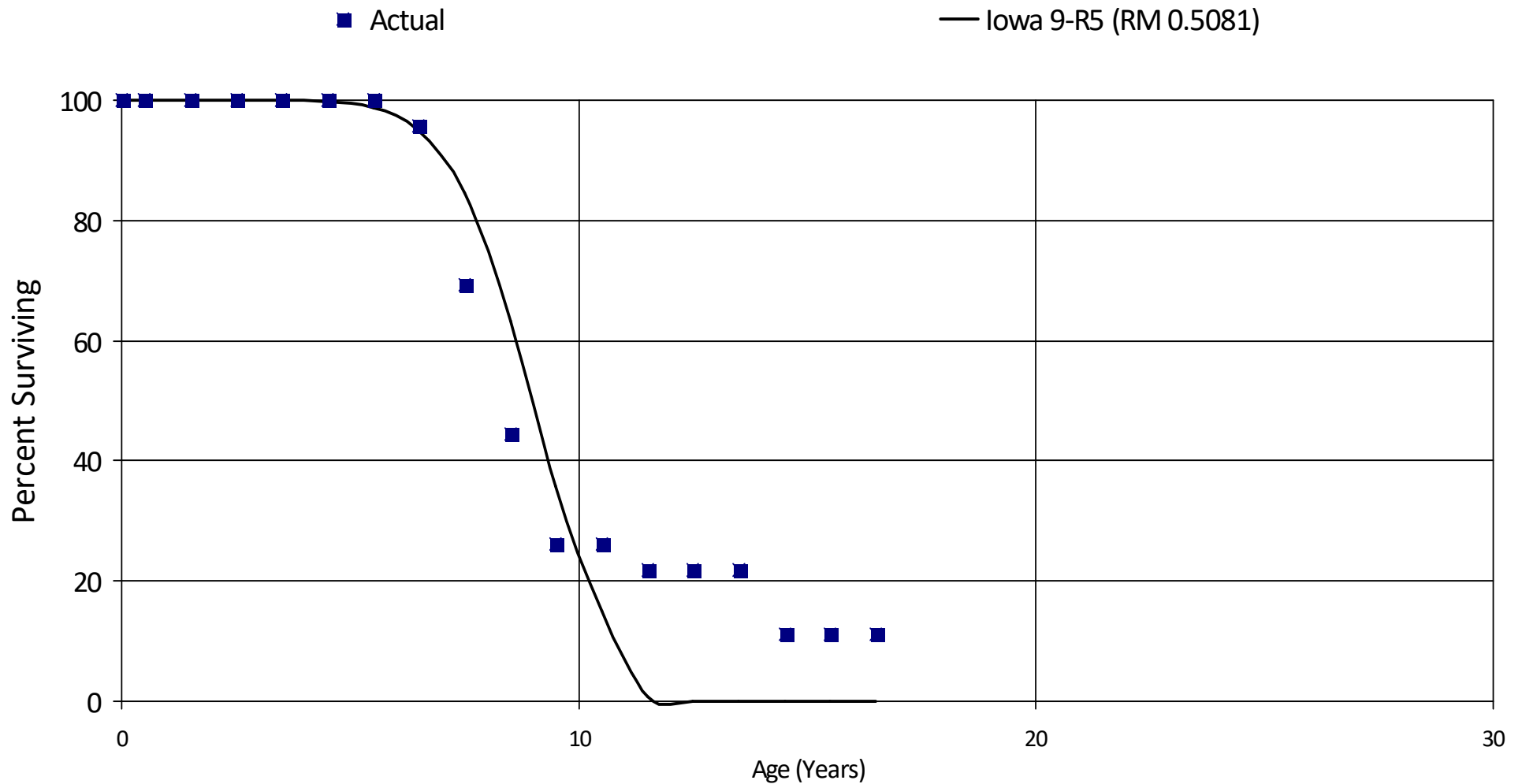
27.5	170,157	0	0.00000	1.00000	21.76
28.5	166,095	0	0.00000	1.00000	21.76
29.5	166,095	0	0.00000	1.00000	21.76
30.5	166,095	28,470	0.17141	0.82859	21.76
31.5	137,625	27,712	0.20136	0.79864	18.03
32.5	109,913	0	0.00000	1.00000	14.40
33.5	109,913	1,318	0.01199	0.98801	14.40
34.5	90,998	0	0.00000	1.00000	14.23
35.5	90,998	0	0.00000	1.00000	14.23
36.5	90,998	0	0.00000	1.00000	14.23
37.5	90,998	0	0.00000	1.00000	14.23
38.5	90,998	0	0.00000	1.00000	14.23
39.5	90,998	0	0.00000	1.00000	14.23
40.5	90,998	0	0.00000	1.00000	14.23
41.5	87,567	0	0.00000	1.00000	14.23
42.5	87,567	0	0.00000	1.00000	14.23
43.5	0	0	0.00000	0.00000	14.23
Totals:		806,902			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M13 - Mobile - Argos

Placement Band - 1991 - 2021 Experience Band - 2000 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M13 - Mobile - Argos

Placement Band - 1991 - 2021 Experience Band - 2000 - 2022

RETIREMENT RATE ANALYSIS

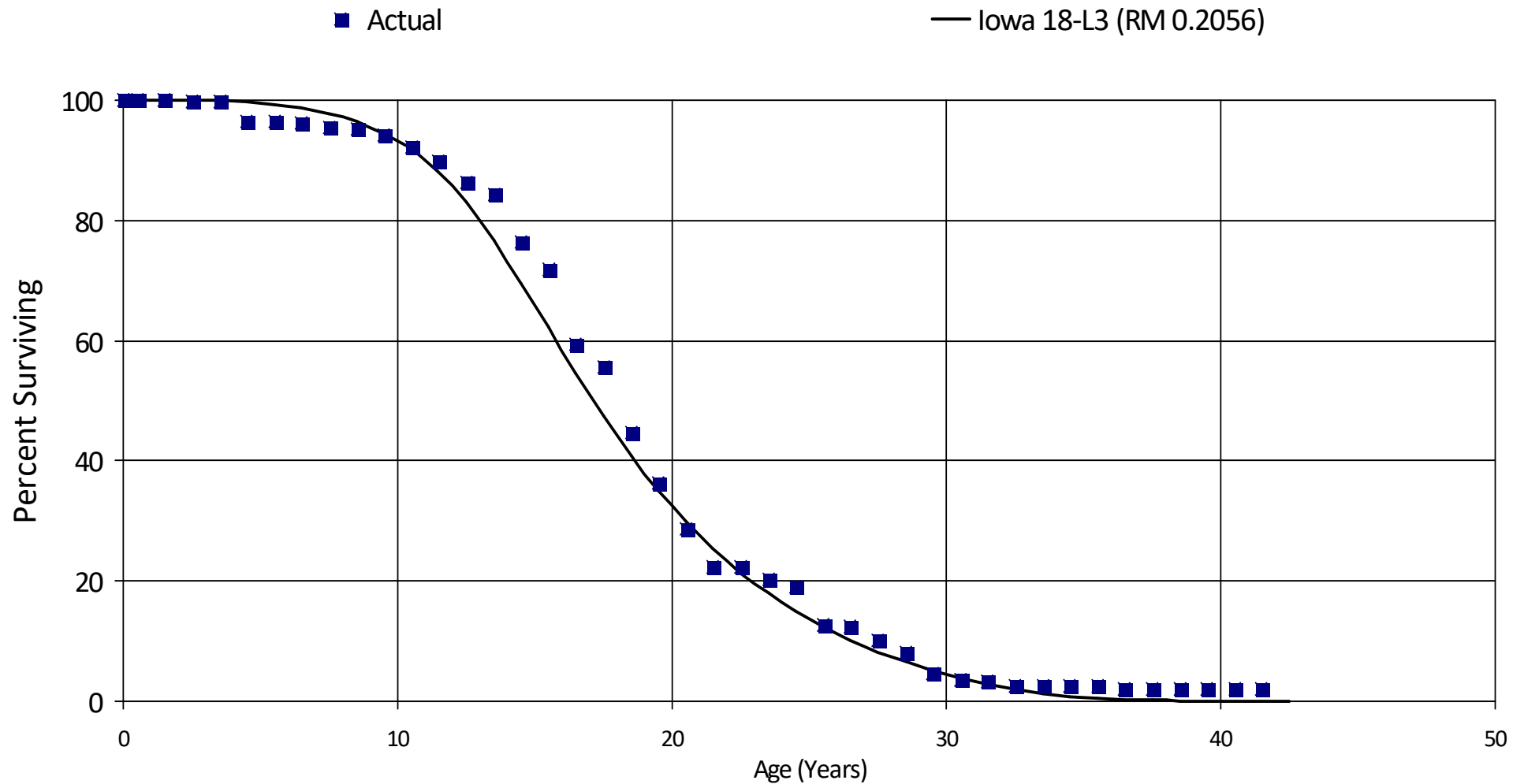
Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	451,759	0	0.00000	1.00000	100.00
0.5	451,759	0	0.00000	1.00000	100.00
1.5	336,660	0	0.00000	1.00000	100.00
2.5	336,660	0	0.00000	1.00000	100.00
3.5	237,369	0	0.00000	1.00000	100.00
4.5	237,369	0	0.00000	1.00000	100.00
5.5	237,369	10,502	0.04424	0.95576	100.00
6.5	226,867	62,638	0.27610	0.72390	95.58
7.5	164,229	59,114	0.35995	0.64005	69.19
8.5	105,115	42,785	0.40703	0.59297	44.29
9.5	32,813	0	0.00000	1.00000	26.26
10.5	32,813	5,633	0.17167	0.82833	26.26
11.5	27,179	0	0.00000	1.00000	21.75
12.5	27,179	0	0.00000	1.00000	21.75
13.5	27,179	13,188	0.48522	0.51478	21.75
14.5	13,991	0	0.00000	1.00000	11.20
15.5	13,991	0	0.00000	1.00000	11.20
16.5	13,991	13,991	1.00000		11.20
Totals:		207,851			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M14 - Mobile - Flex / Fork / Load / Grade / Musk / Trailer

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M14 - Mobile - Flex / Fork / Load / Grade / Musk / Trailer

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	18,507,656	0	0.00000	1.00000	100.00
0.5	18,205,485	16,479	0.00091	0.99909	100.00
1.5	17,473,642	16,479	0.00094	0.99906	99.91
2.5	17,393,522	9,892	0.00057	0.99943	99.82
3.5	17,248,937	559,521	0.03244	0.96756	99.76
4.5	16,034,650	23,215	0.00145	0.99855	96.52
5.5	15,753,587	22,444	0.00142	0.99858	96.38
6.5	15,428,297	117,515	0.00762	0.99238	96.24
7.5	15,061,633	57,142	0.00379	0.99621	95.51
8.5	13,518,400	146,667	0.01085	0.98915	95.15
9.5	13,021,805	291,992	0.02242	0.97758	94.12
10.5	11,939,094	268,481	0.02249	0.97751	92.01
11.5	10,544,730	440,074	0.04173	0.95827	89.94
12.5	9,809,483	230,161	0.02346	0.97654	86.19
13.5	8,806,164	815,304	0.09258	0.90742	84.17
14.5	6,890,783	399,287	0.05795	0.94205	76.38
15.5	6,095,245	1,070,658	0.17565	0.82435	71.95
16.5	4,436,230	272,025	0.06132	0.93868	59.31
17.5	3,859,647	764,909	0.19818	0.80182	55.67
18.5	3,077,240	571,122	0.18560	0.81440	44.64
19.5	2,490,120	518,478	0.20821	0.79179	36.35
20.5	1,800,940	404,290	0.22449	0.77551	28.78
21.5	1,129,885	4,981	0.00441	0.99559	22.32
22.5	1,120,779	90,283	0.08055	0.91945	22.22
23.5	948,657	66,170	0.06975	0.93025	20.43
24.5	534,134	175,879	0.32928	0.67072	19.01
25.5	358,255	10,742	0.02998	0.97002	12.75
26.5	347,513	59,597	0.17150	0.82850	12.37

NEWFOUNDLAND AND LABRADOR HYDRO

Account M14 - Mobile - Flex / Fork / Load / Grade / Musk / Trailer

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

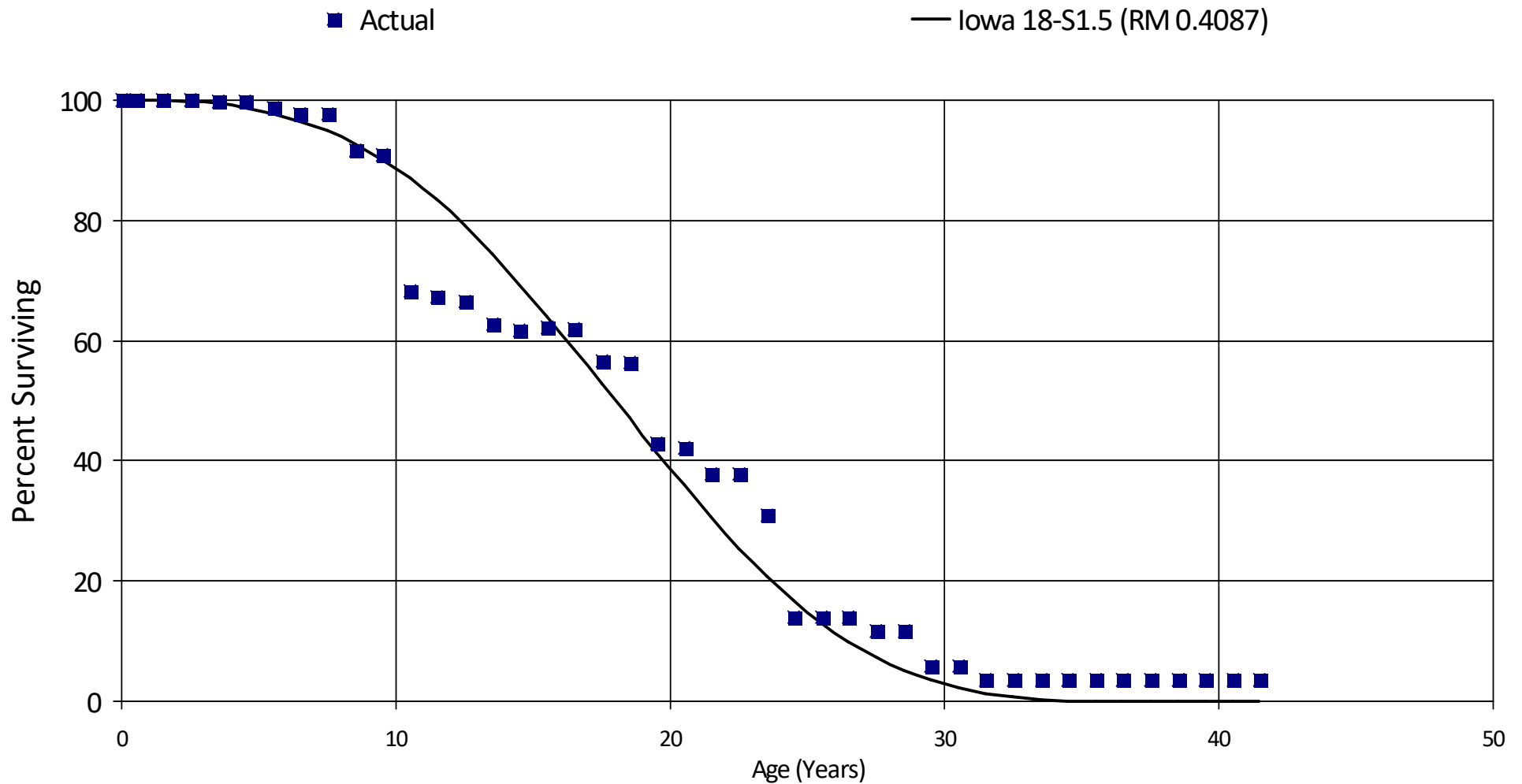
27.5	287,916	62,203	0.21605	0.78395	10.25
28.5	225,714	97,733	0.43300	0.56700	8.04
29.5	127,980	26,479	0.20690	0.79310	4.56
30.5	89,789	7,383	0.08223	0.91777	3.62
31.5	82,405	21,478	0.26064	0.73936	3.32
32.5	17,247	0	0.00000	1.00000	2.45
33.5	17,247	0	0.00000	1.00000	2.45
34.5	17,247	0	0.00000	1.00000	2.45
35.5	17,247	2,486	0.14414	0.85586	2.45
36.5	14,762	0	0.00000	1.00000	2.10
37.5	14,762	0	0.00000	1.00000	2.10
38.5	14,762	0	0.00000	1.00000	2.10
39.5	14,762	0	0.00000	1.00000	2.10
40.5	14,762	0	0.00000	1.00000	2.10
41.5	0	0	0.00000	0.00000	2.10
Totals:		7,641,549			

NEWFOUNDLAND AND LABRADOR HYDRO

Account M16 - Multiplex Equipment

Placement Band - 1980 - 2020 Experience Band - 1997 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account M16 - Multiplex Equipment

Placement Band - 1980 - 2020 Experience Band - 1997 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	6,947,887	0	0.00000	1.00000	100.00
0.5	6,947,887	0	0.00000	1.00000	100.00
1.5	6,947,887	0	0.00000	1.00000	100.00
2.5	6,851,207	9,167	0.00134	0.99866	100.00
3.5	6,467,581	0	0.00000	1.00000	99.87
4.5	6,199,908	74,748	0.01206	0.98794	99.87
5.5	4,708,926	48,660	0.01033	0.98967	98.67
6.5	4,660,265	0	0.00000	1.00000	97.65
7.5	4,660,265	290,128	0.06226	0.93774	97.65
8.5	4,370,138	39,001	0.00892	0.99108	91.57
9.5	4,331,137	1,078,192	0.24894	0.75106	90.75
10.5	3,246,975	39,795	0.01226	0.98774	68.16
11.5	3,207,180	42,344	0.01320	0.98680	67.32
12.5	2,751,012	149,749	0.05443	0.94557	66.43
13.5	2,601,263	49,046	0.01885	0.98115	62.81
14.5	2,403,743	-22,135	-0.00921	1.00921	61.63
15.5	2,425,878	11,450	0.00472	0.99528	62.20
16.5	2,414,427	202,542	0.08389	0.91611	61.91
17.5	2,149,066	16,250	0.00756	0.99244	56.72
18.5	2,132,816	510,994	0.23959	0.76041	56.29
19.5	1,243,954	20,354	0.01636	0.98364	42.80
20.5	1,048,260	107,009	0.10208	0.89792	42.10
21.5	900,022	0	0.00000	1.00000	37.80
22.5	835,718	149,665	0.17909	0.82091	37.80
23.5	648,861	354,510	0.54636	0.45364	31.03
24.5	294,351	0	0.00000	1.00000	14.08
25.5	294,351	0	0.00000	1.00000	14.08
26.5	294,351	52,098	0.17699	0.82301	14.08

NEWFOUNDLAND AND LABRADOR HYDRO

Account M16 - Multiplex Equipment

Placement Band - 1980 - 2020 Experience Band - 1997 - 2022

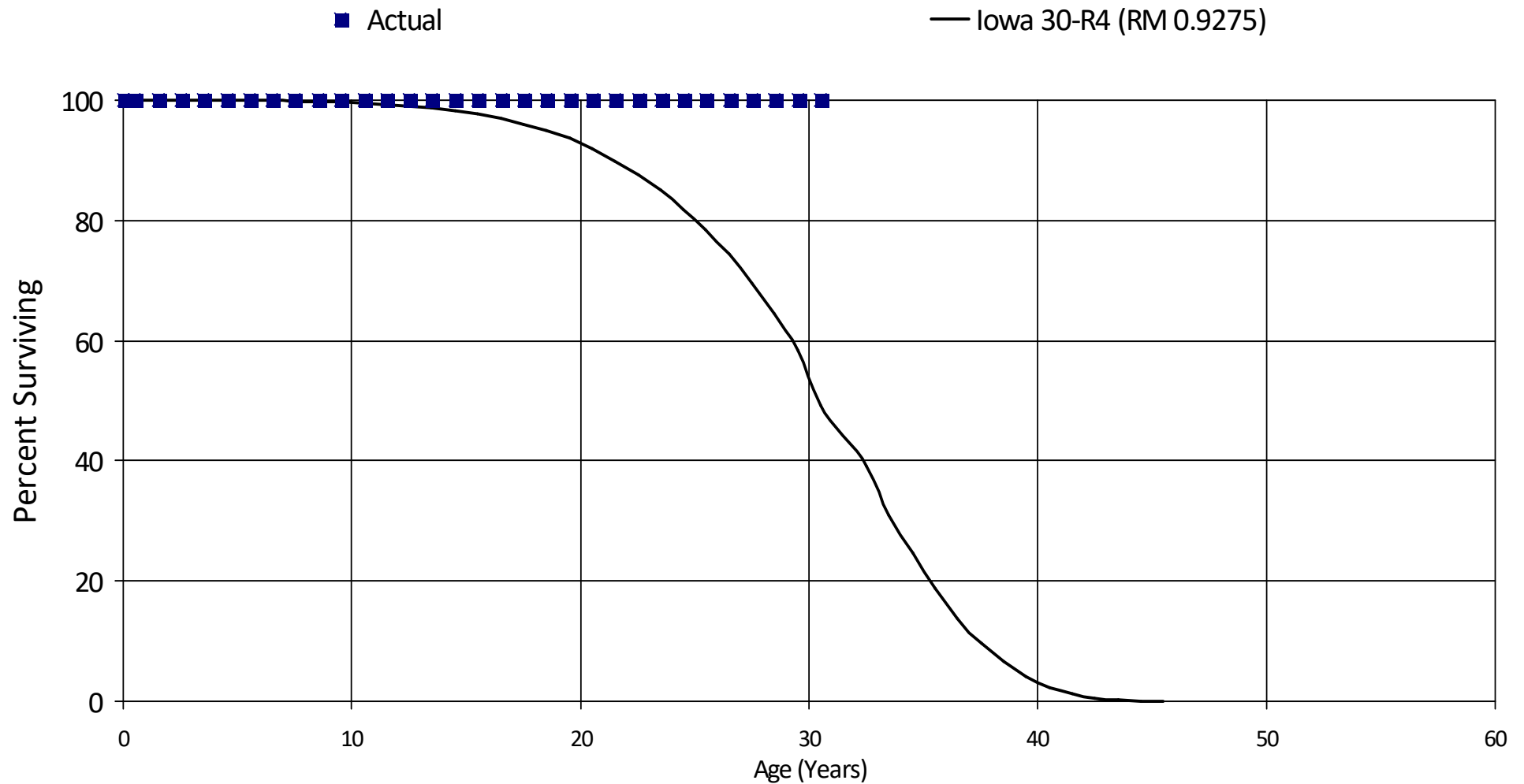
27.5	242,253	0	0.00000	1.00000	11.59
28.5	242,253	121,314	0.50077	0.49923	11.59
29.5	120,939	0	0.00000	1.00000	5.79
30.5	120,939	48,924	0.40453	0.59547	5.79
31.5	72,015	0	0.00000	1.00000	3.45
32.5	72,015	0	0.00000	1.00000	3.45
33.5	72,015	0	0.00000	1.00000	3.45
34.5	72,015	0	0.00000	1.00000	3.45
35.5	72,015	0	0.00000	1.00000	3.45
36.5	72,015	0	0.00000	1.00000	3.45
37.5	72,015	0	0.00000	1.00000	3.45
38.5	72,015	0	0.00000	1.00000	3.45
39.5	72,015	0	0.00000	1.00000	3.45
40.5	72,015	0	0.00000	1.00000	3.45
41.5	72,015	0	0.00000	1.00000	3.45
Totals:		3,393,805			

NEWFOUNDLAND AND LABRADOR HYDRO

Account P01 - P.C.B Storage Container

Placement Band - 1991 - 1991 Experience Band - 2022 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account P01 - P.C.B Storage Container

Placement Band - 1991 - 1991 Experience Band - 2022 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	42,480	0	0.00000	1.00000	100.00
0.5	42,480	0	0.00000	1.00000	100.00
1.5	42,480	0	0.00000	1.00000	100.00
2.5	42,480	0	0.00000	1.00000	100.00
3.5	42,480	0	0.00000	1.00000	100.00
4.5	42,480	0	0.00000	1.00000	100.00
5.5	42,480	0	0.00000	1.00000	100.00
6.5	42,480	0	0.00000	1.00000	100.00
7.5	42,480	0	0.00000	1.00000	100.00
8.5	42,480	0	0.00000	1.00000	100.00
9.5	42,480	0	0.00000	1.00000	100.00
10.5	42,480	0	0.00000	1.00000	100.00
11.5	42,480	0	0.00000	1.00000	100.00
12.5	42,480	0	0.00000	1.00000	100.00
13.5	42,480	0	0.00000	1.00000	100.00
14.5	42,480	0	0.00000	1.00000	100.00
15.5	42,480	0	0.00000	1.00000	100.00
16.5	42,480	0	0.00000	1.00000	100.00
17.5	42,480	0	0.00000	1.00000	100.00
18.5	42,480	0	0.00000	1.00000	100.00
19.5	42,480	0	0.00000	1.00000	100.00
20.5	42,480	0	0.00000	1.00000	100.00
21.5	42,480	0	0.00000	1.00000	100.00
22.5	42,480	0	0.00000	1.00000	100.00
23.5	42,480	0	0.00000	1.00000	100.00
24.5	42,480	0	0.00000	1.00000	100.00
25.5	42,480	0	0.00000	1.00000	100.00
26.5	42,480	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account P01 - P.C.B Storage Container

Placement Band - 1991 - 1991 Experience Band - 2022 - 2022

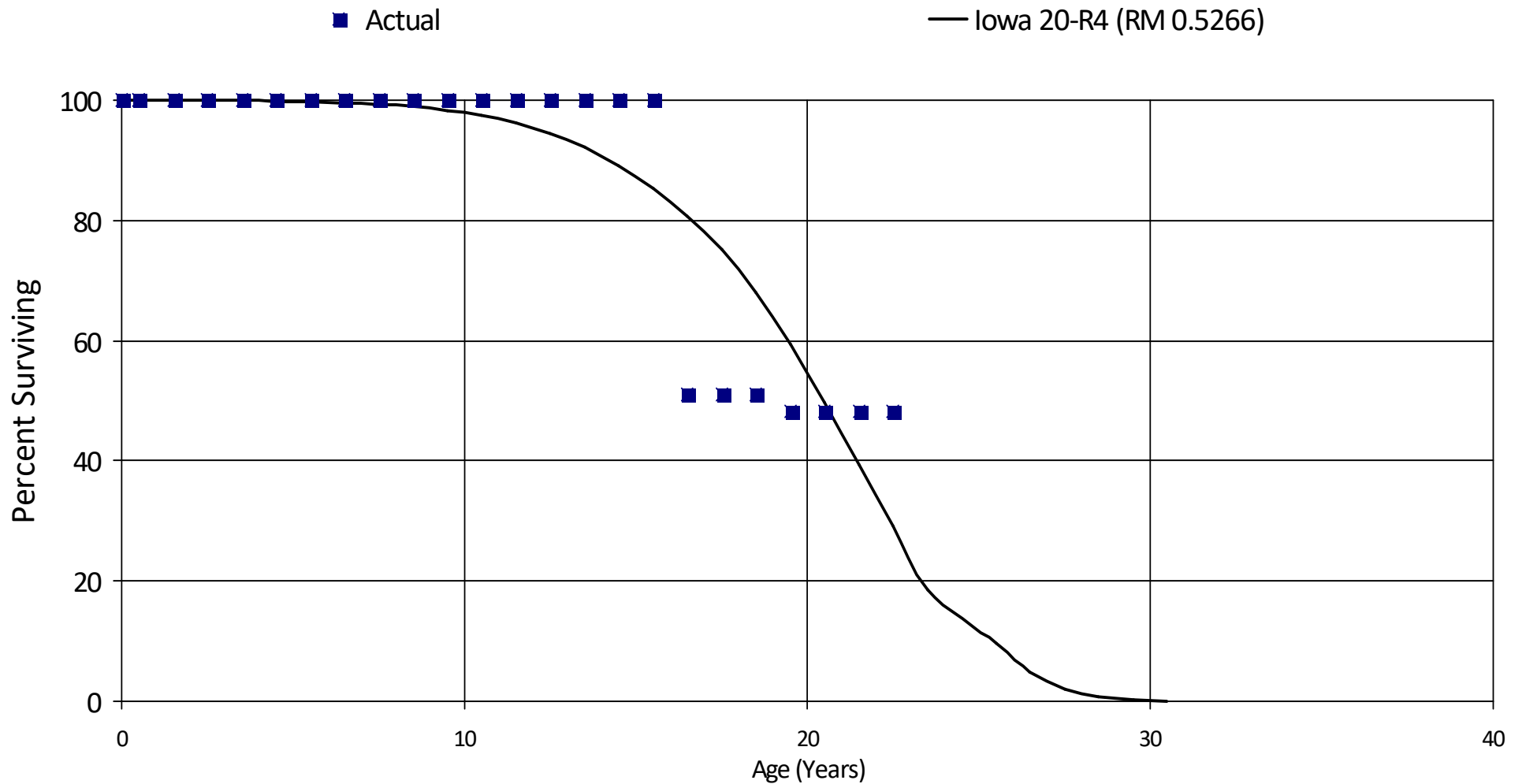
27.5	42,480	0	0.00000	1.00000	100.00
28.5	42,480	0	0.00000	1.00000	100.00
29.5	42,480	0	0.00000	1.00000	100.00
30.5	42,480	0	0.00000	1.00000	100.00
Totals:		0			

NEWFOUNDLAND AND LABRADOR HYDRO

Account P02 - PABX - Private Auto Branch Exchange

Placement Band - 1998 - 2006 Experience Band - 2020 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account P02 - PABX - Private Auto Branch Exchange

Placement Band - 1998 - 2006 Experience Band - 2020 - 2022

RETIREMENT RATE ANALYSIS

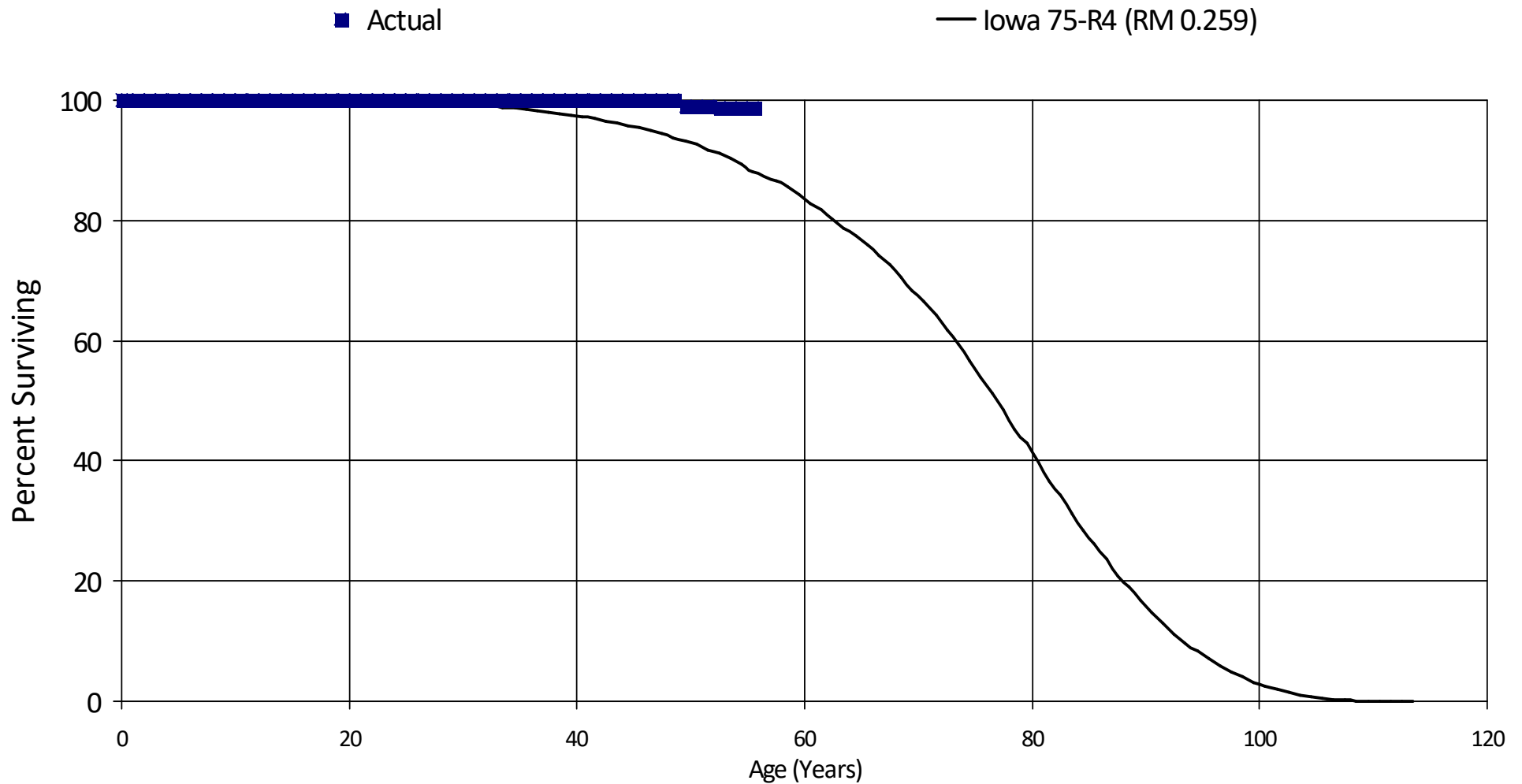
Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	536,536	0	0.00000	1.00000	100.00
0.5	536,536	0	0.00000	1.00000	100.00
1.5	536,536	0	0.00000	1.00000	100.00
2.5	536,536	0	0.00000	1.00000	100.00
3.5	536,536	0	0.00000	1.00000	100.00
4.5	536,536	0	0.00000	1.00000	100.00
5.5	536,536	0	0.00000	1.00000	100.00
6.5	536,536	0	0.00000	1.00000	100.00
7.5	536,536	0	0.00000	1.00000	100.00
8.5	536,536	0	0.00000	1.00000	100.00
9.5	536,536	0	0.00000	1.00000	100.00
10.5	536,536	0	0.00000	1.00000	100.00
11.5	536,536	0	0.00000	1.00000	100.00
12.5	536,536	0	0.00000	1.00000	100.00
13.5	536,536	0	0.00000	1.00000	100.00
14.5	536,536	0	0.00000	1.00000	100.00
15.5	536,536	263,067	0.49031	0.50969	100.00
16.5	273,469	0	0.00000	1.00000	50.97
17.5	273,469	0	0.00000	1.00000	50.97
18.5	273,469	14,811	0.05416	0.94584	50.97
19.5	258,657	0	0.00000	1.00000	48.21
20.5	258,657	0	0.00000	1.00000	48.21
21.5	258,657	0	0.00000	1.00000	48.21
22.5	0	0	0.00000	0.00000	48.21
Totals:		277,878			

NEWFOUNDLAND AND LABRADOR HYDRO

Account P03 - Penstock

Placement Band - 1966 - 2021 Experience Band - 2016 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account P03 - Penstock

Placement Band - 1966 - 2021 Experience Band - 2016 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	79,913,973	0	0.00000	1.00000	100.00
0.5	79,913,973	0	0.00000	1.00000	100.00
1.5	79,657,234	0	0.00000	1.00000	100.00
2.5	79,657,234	0	0.00000	1.00000	100.00
3.5	79,156,032	0	0.00000	1.00000	100.00
4.5	72,716,115	0	0.00000	1.00000	100.00
5.5	64,921,236	0	0.00000	1.00000	100.00
6.5	57,943,937	0	0.00000	1.00000	100.00
7.5	57,943,937	0	0.00000	1.00000	100.00
8.5	57,943,937	0	0.00000	1.00000	100.00
9.5	57,943,937	0	0.00000	1.00000	100.00
10.5	57,943,937	0	0.00000	1.00000	100.00
11.5	57,943,937	0	0.00000	1.00000	100.00
12.5	57,943,937	0	0.00000	1.00000	100.00
13.5	57,943,937	0	0.00000	1.00000	100.00
14.5	57,943,937	0	0.00000	1.00000	100.00
15.5	57,943,937	0	0.00000	1.00000	100.00
16.5	55,796,468	0	0.00000	1.00000	100.00
17.5	55,796,468	0	0.00000	1.00000	100.00
18.5	55,796,468	0	0.00000	1.00000	100.00
19.5	49,064,243	0	0.00000	1.00000	100.00
20.5	49,064,243	0	0.00000	1.00000	100.00
21.5	49,064,243	0	0.00000	1.00000	100.00
22.5	49,064,243	0	0.00000	1.00000	100.00
23.5	49,064,243	0	0.00000	1.00000	100.00
24.5	49,064,243	0	0.00000	1.00000	100.00
25.5	49,064,243	0	0.00000	1.00000	100.00
26.5	49,064,243	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account P03 - Penstock

Placement Band - 1966 - 2021 Experience Band - 2016 - 2022

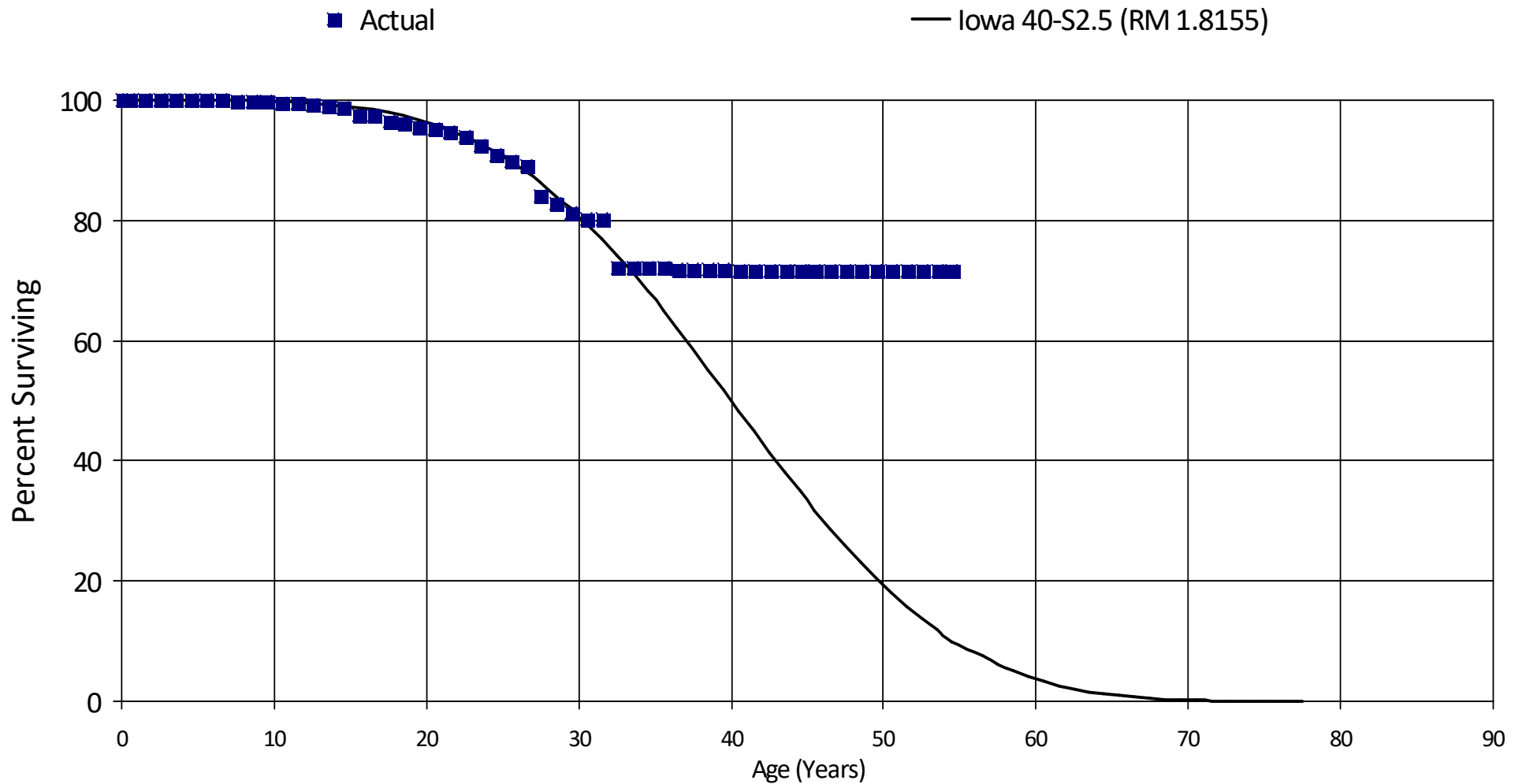
27.5	49,064,243	0	0.00000	1.00000	100.00
28.5	49,064,243	0	0.00000	1.00000	100.00
29.5	49,064,243	0	0.00000	1.00000	100.00
30.5	49,064,243	0	0.00000	1.00000	100.00
31.5	49,064,243	0	0.00000	1.00000	100.00
32.5	49,064,243	0	0.00000	1.00000	100.00
33.5	48,649,686	0	0.00000	1.00000	100.00
34.5	48,649,686	0	0.00000	1.00000	100.00
35.5	48,649,686	0	0.00000	1.00000	100.00
36.5	48,649,686	0	0.00000	1.00000	100.00
37.5	43,959,115	0	0.00000	1.00000	100.00
38.5	43,959,115	0	0.00000	1.00000	100.00
39.5	43,959,115	0	0.00000	1.00000	100.00
40.5	30,986,712	0	0.00000	1.00000	100.00
41.5	30,986,712	0	0.00000	1.00000	100.00
42.5	30,986,712	0	0.00000	1.00000	100.00
43.5	19,956,045	0	0.00000	1.00000	100.00
44.5	19,956,045	0	0.00000	1.00000	100.00
45.5	19,956,045	0	0.00000	1.00000	100.00
46.5	19,956,045	0	0.00000	1.00000	100.00
47.5	19,956,045	0	0.00000	1.00000	100.00
48.5	19,956,045	190,292	0.00954	0.99046	100.00
49.5	19,765,752	19,769	0.00100	0.99900	99.05
50.5	19,745,984	0	0.00000	1.00000	98.95
51.5	19,745,984	41,769	0.00212	0.99788	98.95
52.5	19,352,859	0	0.00000	1.00000	98.74
53.5	19,352,859	0	0.00000	1.00000	98.74
54.5	19,352,859	0	0.00000	1.00000	98.74
55.5	13,513,753	0	0.00000	1.00000	98.74
Totals:		251,830			

NEWFOUNDLAND AND LABRADOR HYDRO

Account P04 - Pole Cribs and Pole Hardware

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account P04 - Pole Cribs and Pole Hardware

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	150,706,371	13,079	0.00009	0.99991	100.00
0.5	150,233,439	1,409	0.00001	0.99999	99.99
1.5	149,509,867	168,412	0.00113	0.99887	99.99
2.5	148,399,559	334	0.00000	1.00000	99.88
3.5	147,918,039	3,838	0.00003	0.99997	99.88
4.5	141,906,222	1,365	0.00001	0.99999	99.88
5.5	140,062,410	2,253	0.00002	0.99998	99.88
6.5	126,603,521	10,701	0.00008	0.99992	99.88
7.5	118,753,719	47,163	0.00040	0.99960	99.87
8.5	117,092,214	182,808	0.00156	0.99844	99.83
9.5	101,241,229	136,209	0.00135	0.99865	99.67
10.5	93,656,198	49,983	0.00053	0.99947	99.54
11.5	86,521,078	178,942	0.00207	0.99793	99.49
12.5	81,299,383	269,870	0.00332	0.99668	99.28
13.5	75,387,164	152,914	0.00203	0.99797	98.95
14.5	69,531,709	860,124	0.01237	0.98763	98.75
15.5	64,697,701	77,359	0.00120	0.99880	97.53
16.5	60,083,208	558,617	0.00930	0.99070	97.41
17.5	56,061,775	250,930	0.00448	0.99552	96.50
18.5	52,252,440	402,278	0.00770	0.99230	96.07
19.5	48,704,403	93,421	0.00192	0.99808	95.33
20.5	43,883,235	267,280	0.00609	0.99391	95.15
21.5	41,216,828	282,015	0.00684	0.99316	94.57
22.5	38,885,319	588,961	0.01515	0.98485	93.92
23.5	36,930,735	627,221	0.01698	0.98302	92.50
24.5	34,424,833	432,090	0.01255	0.98745	90.93
25.5	29,108,217	268,305	0.00922	0.99078	89.79
26.5	26,217,348	1,474,052	0.05622	0.94378	88.96

NEWFOUNDLAND AND LABRADOR HYDRO

Account P04 - Pole Cribs and Pole Hardware

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

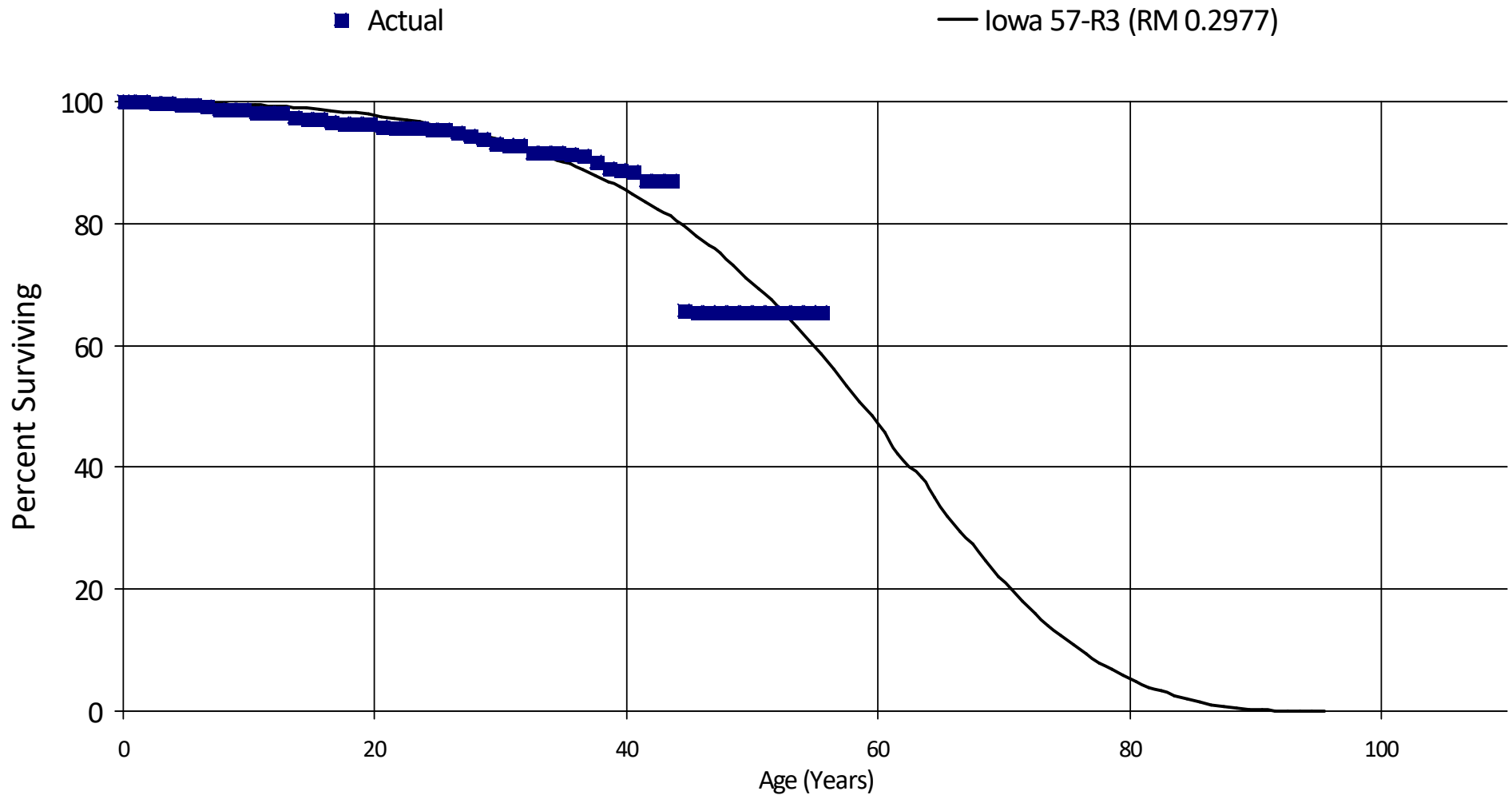
27.5	22,881,785	362,605	0.01585	0.98415	83.96
28.5	20,945,466	345,366	0.01649	0.98351	82.63
29.5	19,333,321	255,810	0.01323	0.98677	81.27
30.5	17,982,339	21,835	0.00121	0.99879	80.19
31.5	16,215,632	1,608,934	0.09922	0.90078	80.09
32.5	12,861,780	6,044	0.00047	0.99953	72.14
33.5	11,181,775	2,099	0.00019	0.99981	72.11
34.5	10,024,845	15,975	0.00159	0.99841	72.10
35.5	7,886,667	4,532	0.00057	0.99943	71.99
36.5	6,717,062	4,447	0.00066	0.99934	71.95
37.5	5,976,641	10,895	0.00182	0.99818	71.90
38.5	5,157,695	2,198	0.00043	0.99957	71.77
39.5	4,462,401	3,454	0.00077	0.99923	71.74
40.5	3,103,458	0	0.00000	1.00000	71.68
41.5	89,065	0	0.00000	1.00000	71.68
42.5	89,065	0	0.00000	1.00000	71.68
43.5	87,652	0	0.00000	1.00000	71.68
44.5	75,891	0	0.00000	1.00000	71.68
45.5	75,891	0	0.00000	1.00000	71.68
46.5	75,891	0	0.00000	1.00000	71.68
47.5	75,891	0	0.00000	1.00000	71.68
48.5	75,891	0	0.00000	1.00000	71.68
49.5	75,891	0	0.00000	1.00000	71.68
50.5	75,891	0	0.00000	1.00000	71.68
51.5	75,891	0	0.00000	1.00000	71.68
52.5	1,845	0	0.00000	1.00000	71.68
53.5	1,845	0	0.00000	1.00000	71.68
54.5	0	0	0.00000	0.00000	71.68
Totals:		10,046,127			

NEWFOUNDLAND AND LABRADOR HYDRO

Account P05 - Pole Structures - Wood

Placement Band - 1960 - 2022 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account P05 - Pole Structures - Wood

Placement Band - 1960 - 2022 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	169,387,138	0	0.00000	1.00000	100.00
0.5	167,035,920	0	0.00000	1.00000	100.00
1.5	164,050,342	337,672	0.00206	0.99794	100.00
2.5	159,106,040	0	0.00000	1.00000	99.79
3.5	155,488,769	297,235	0.00191	0.99809	99.79
4.5	151,464,456	209,475	0.00138	0.99862	99.60
5.5	145,680,455	263,457	0.00181	0.99819	99.46
6.5	141,885,933	763,218	0.00538	0.99462	99.28
7.5	132,743,607	16,188	0.00012	0.99988	98.75
8.5	127,772,953	78,410	0.00061	0.99939	98.74
9.5	125,021,389	496,930	0.00397	0.99603	98.68
10.5	121,961,611	2,485	0.00002	0.99998	98.29
11.5	118,235,907	139,088	0.00118	0.99882	98.29
12.5	112,914,330	721,588	0.00639	0.99361	98.17
13.5	109,812,319	372,531	0.00339	0.99661	97.54
14.5	106,669,532	38,620	0.00036	0.99964	97.21
15.5	106,164,942	502,530	0.00473	0.99527	97.18
16.5	101,516,071	160,921	0.00159	0.99841	96.72
17.5	99,295,582	181,456	0.00183	0.99817	96.57
18.5	98,662,167	28,403	0.00029	0.99971	96.39
19.5	94,348,079	448,206	0.00475	0.99525	96.36
20.5	92,821,128	96,313	0.00104	0.99896	95.90
21.5	88,532,433	28,205	0.00032	0.99968	95.80
22.5	81,819,027	136,865	0.00167	0.99833	95.77
23.5	81,604,589	75,469	0.00092	0.99908	95.61
24.5	78,303,099	67,071	0.00086	0.99914	95.52
25.5	77,951,538	463,896	0.00595	0.99405	95.44
26.5	71,473,451	393,220	0.00550	0.99450	94.87

NEWFOUNDLAND AND LABRADOR HYDRO

Account P05 - Pole Structures - Wood

Placement Band - 1960 - 2022 Experience Band - 1992 - 2022

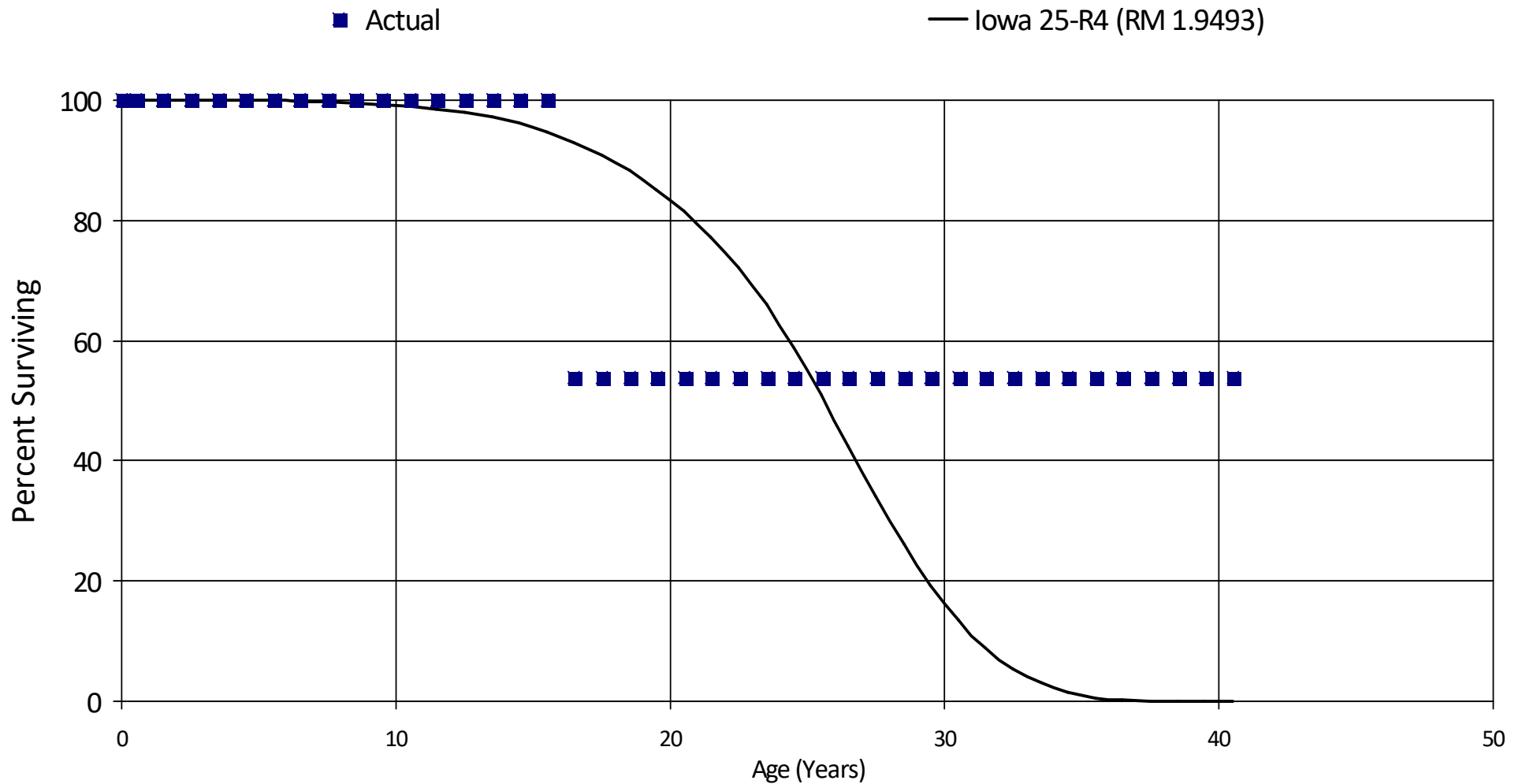
27.5	68,087,949	368,422	0.00541	0.99459	94.35
28.5	67,683,812	442,470	0.00654	0.99346	93.84
29.5	67,114,018	155,208	0.00231	0.99769	93.23
30.5	66,815,703	15,952	0.00024	0.99976	93.01
31.5	66,576,499	886,940	0.01332	0.98668	92.99
32.5	42,005,115	22,377	0.00053	0.99947	91.75
33.5	41,397,238	7,549	0.00018	0.99982	91.70
34.5	38,750,863	162,790	0.00420	0.99580	91.68
35.5	34,031,710	79,352	0.00233	0.99767	91.29
36.5	33,808,423	405,815	0.01200	0.98800	91.08
37.5	31,361,206	287,528	0.00917	0.99083	89.99
38.5	30,630,650	93,173	0.00304	0.99696	89.16
39.5	24,802,623	105,379	0.00425	0.99575	88.89
40.5	18,124,976	278,106	0.01534	0.98466	88.51
41.5	11,911,568	24,332	0.00204	0.99796	87.15
42.5	11,020,119	2,319	0.00021	0.99979	86.97
43.5	11,013,887	2,688,671	0.24412	0.75588	86.95
44.5	8,237,392	14,927	0.00181	0.99819	65.72
45.5	8,182,735	3,297	0.00040	0.99960	65.60
46.5	8,081,262	0	0.00000	1.00000	65.57
47.5	8,076,719	0	0.00000	1.00000	65.57
48.5	5,267,197	0	0.00000	1.00000	65.57
49.5	5,267,197	1,118	0.00021	0.99979	65.57
50.5	5,266,079	0	0.00000	1.00000	65.56
51.5	5,245,391	3,350	0.00064	0.99936	65.56
52.5	2,464,713	0	0.00000	1.00000	65.52
53.5	2,044,047	0	0.00000	1.00000	65.52
54.5	1,357,250	0	0.00000	1.00000	65.52
55.5	0	0	0.00000	0.00000	65.52
Totals:		12,368,527			

NEWFOUNDLAND AND LABRADOR HYDRO

Account P06 - Poles - Concrete

Placement Band - 1981 - 2014 Experience Band - 1997 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account P06 - Poles - Concrete

Placement Band - 1981 - 2014 Experience Band - 1997 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	599,885	0	0.00000	1.00000	100.00
0.5	599,885	0	0.00000	1.00000	100.00
1.5	599,885	0	0.00000	1.00000	100.00
2.5	599,885	0	0.00000	1.00000	100.00
3.5	599,885	0	0.00000	1.00000	100.00
4.5	599,885	0	0.00000	1.00000	100.00
5.5	599,885	0	0.00000	1.00000	100.00
6.5	599,885	0	0.00000	1.00000	100.00
7.5	599,885	0	0.00000	1.00000	100.00
8.5	575,788	0	0.00000	1.00000	100.00
9.5	575,788	0	0.00000	1.00000	100.00
10.5	575,788	0	0.00000	1.00000	100.00
11.5	575,788	0	0.00000	1.00000	100.00
12.5	575,788	0	0.00000	1.00000	100.00
13.5	575,788	0	0.00000	1.00000	100.00
14.5	575,788	0	0.00000	1.00000	100.00
15.5	575,788	266,125	0.46219	0.53781	100.00
16.5	309,663	0	0.00000	1.00000	53.78
17.5	293,887	0	0.00000	1.00000	53.78
18.5	293,887	0	0.00000	1.00000	53.78
19.5	293,887	0	0.00000	1.00000	53.78
20.5	293,887	0	0.00000	1.00000	53.78
21.5	293,887	0	0.00000	1.00000	53.78
22.5	293,887	0	0.00000	1.00000	53.78
23.5	293,316	0	0.00000	1.00000	53.78
24.5	293,316	0	0.00000	1.00000	53.78
25.5	291,677	0	0.00000	1.00000	53.78
26.5	291,677	0	0.00000	1.00000	53.78

NEWFOUNDLAND AND LABRADOR HYDRO

Account P06 - Poles - Concrete

Placement Band - 1981 - 2014 Experience Band - 1997 - 2022

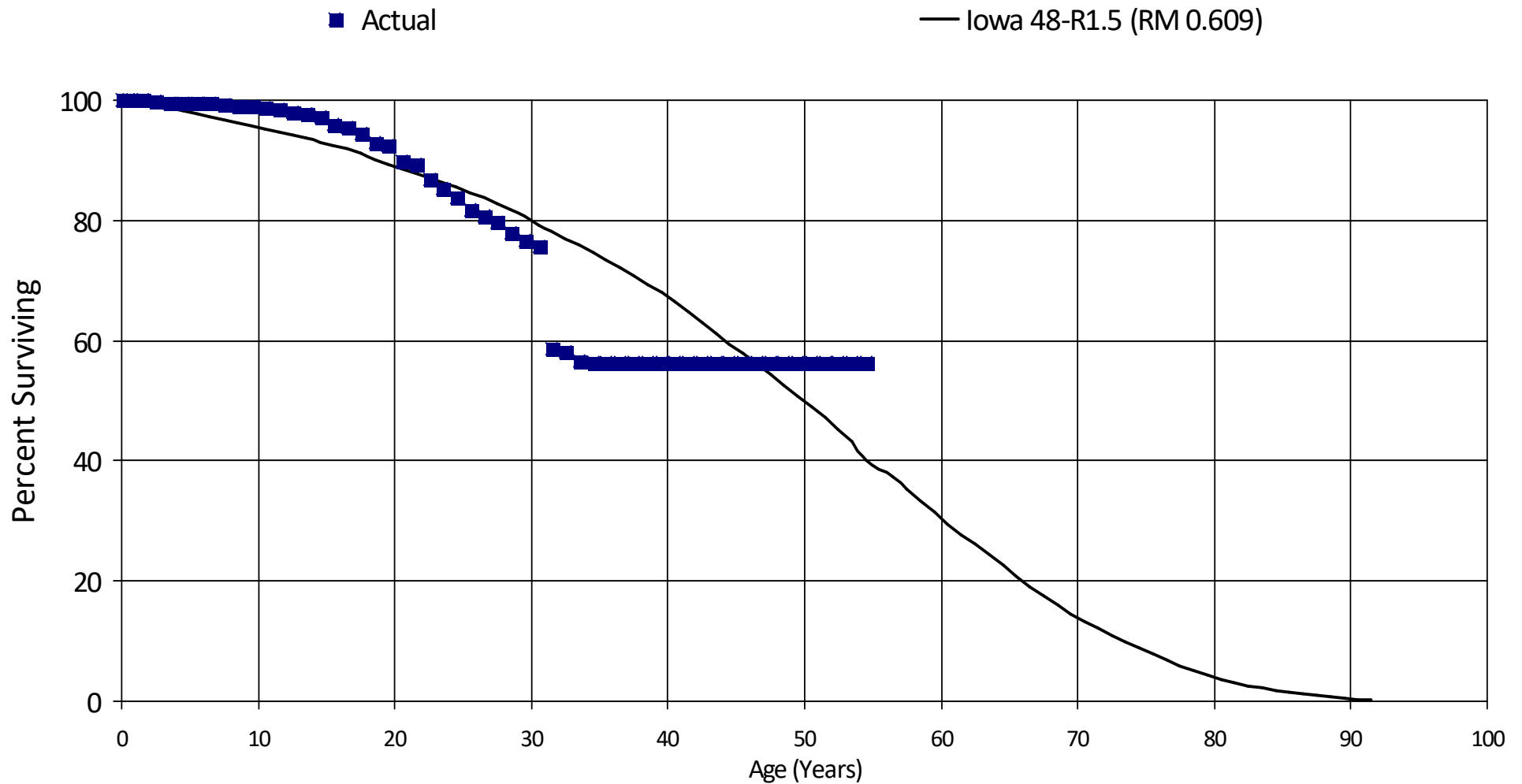
27.5	291,677	0	0.00000	1.00000	53.78
28.5	257,201	0	0.00000	1.00000	53.78
29.5	257,201	0	0.00000	1.00000	53.78
30.5	257,201	0	0.00000	1.00000	53.78
31.5	257,201	0	0.00000	1.00000	53.78
32.5	234,066	0	0.00000	1.00000	53.78
33.5	234,066	0	0.00000	1.00000	53.78
34.5	234,066	0	0.00000	1.00000	53.78
35.5	223,750	0	0.00000	1.00000	53.78
36.5	154,611	0	0.00000	1.00000	53.78
37.5	154,611	0	0.00000	1.00000	53.78
38.5	95,671	0	0.00000	1.00000	53.78
39.5	95,671	0	0.00000	1.00000	53.78
40.5	23,208	0	0.00000	1.00000	53.78
Totals:		266,125			

NEWFOUNDLAND AND LABRADOR HYDRO

Account P07 - Poles - Wood

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account P07 - Poles - Wood

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	98,672,228	40,059	0.00041	0.99959	100.00
0.5	95,248,011	36,605	0.00038	0.99962	99.96
1.5	89,558,296	208,455	0.00233	0.99767	99.92
2.5	83,113,673	68,646	0.00083	0.99917	99.69
3.5	78,792,584	67,574	0.00086	0.99914	99.61
4.5	77,042,781	39,406	0.00051	0.99949	99.52
5.5	73,629,807	73,142	0.00099	0.99901	99.47
6.5	72,479,902	103,083	0.00142	0.99858	99.37
7.5	68,355,459	112,674	0.00165	0.99835	99.23
8.5	64,098,931	84,825	0.00132	0.99868	99.07
9.5	59,822,887	66,534	0.00111	0.99889	98.94
10.5	55,973,110	260,085	0.00465	0.99535	98.83
11.5	53,274,414	239,141	0.00449	0.99551	98.37
12.5	51,466,615	165,140	0.00321	0.99679	97.93
13.5	49,861,652	260,760	0.00523	0.99477	97.62
14.5	47,690,721	519,226	0.01089	0.98911	97.11
15.5	45,131,541	267,793	0.00593	0.99407	96.05
16.5	40,626,681	473,524	0.01166	0.98834	95.48
17.5	38,214,937	614,161	0.01607	0.98393	94.37
18.5	36,190,737	225,167	0.00622	0.99378	92.85
19.5	34,515,362	884,463	0.02563	0.97437	92.27
20.5	27,411,713	199,094	0.00726	0.99274	89.91
21.5	25,947,194	734,784	0.02832	0.97168	89.26
22.5	24,077,909	427,985	0.01778	0.98222	86.73
23.5	22,705,598	406,490	0.01790	0.98210	85.19
24.5	21,148,577	511,843	0.02420	0.97580	83.67
25.5	18,702,145	221,737	0.01186	0.98814	81.65
26.5	16,914,953	228,317	0.01350	0.98650	80.68

NEWFOUNDLAND AND LABRADOR HYDRO

Account P07 - Poles - Wood

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

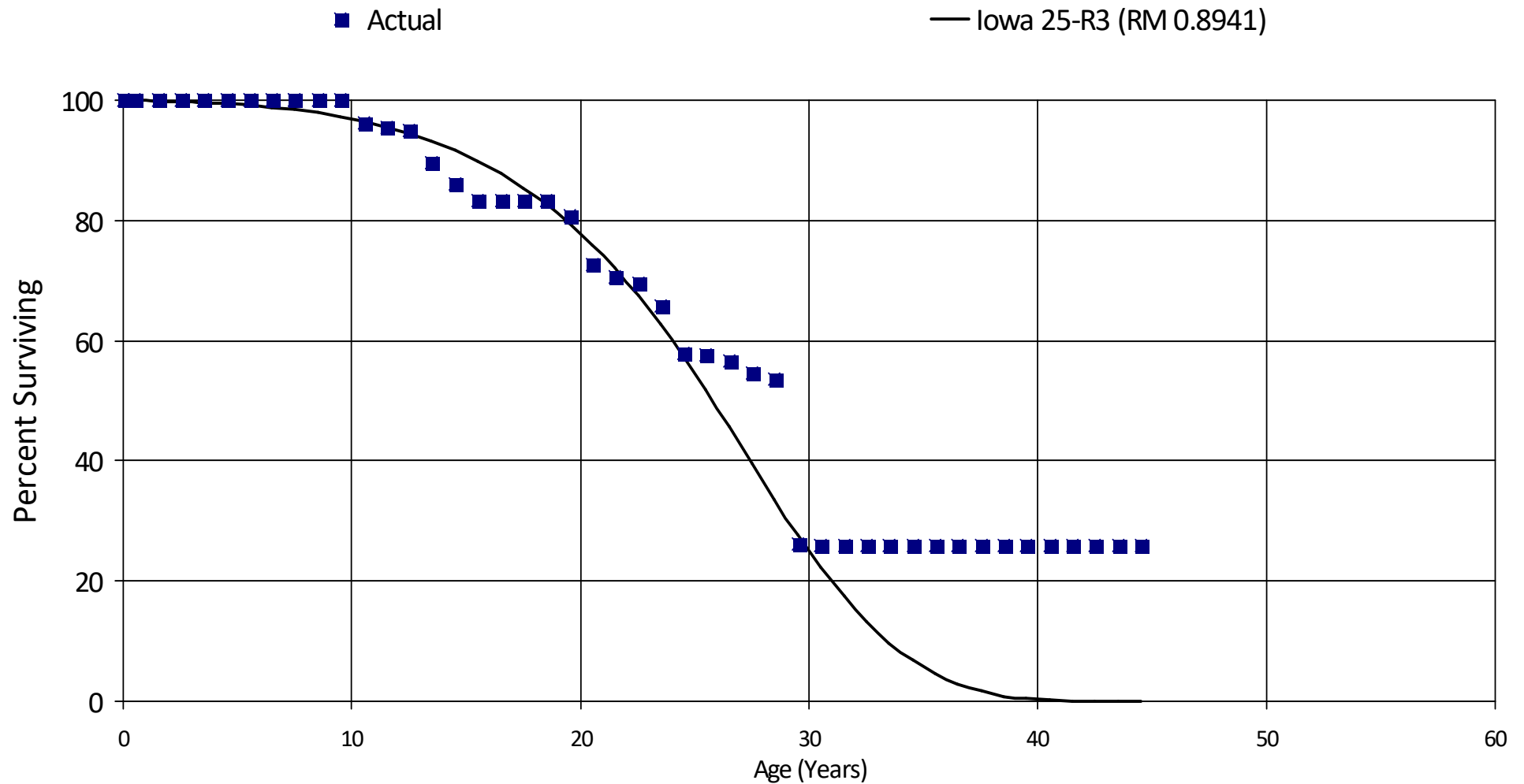
27.5	15,740,445	323,111	0.02053	0.97947	79.59
28.5	14,084,826	239,562	0.01701	0.98299	77.96
29.5	12,973,784	149,366	0.01151	0.98849	76.63
30.5	12,087,258	2,748,403	0.22738	0.77262	75.75
31.5	8,551,303	56,459	0.00660	0.99340	58.53
32.5	7,530,159	192,135	0.02552	0.97448	58.14
33.5	5,766,489	26,378	0.00457	0.99543	56.66
34.5	4,805,967	1,013	0.00021	0.99979	56.40
35.5	3,713,233	59	0.00002	0.99998	56.39
36.5	2,834,865	954	0.00034	0.99966	56.39
37.5	2,703,826	2,116	0.00078	0.99922	56.37
38.5	2,281,146	621	0.00027	0.99973	56.33
39.5	1,934,046	2,090	0.00108	0.99892	56.31
40.5	1,526,272	0	0.00000	1.00000	56.25
41.5	18,802	0	0.00000	1.00000	56.25
42.5	18,802	0	0.00000	1.00000	56.25
43.5	18,515	0	0.00000	1.00000	56.25
44.5	16,451	0	0.00000	1.00000	56.25
45.5	16,451	0	0.00000	1.00000	56.25
46.5	16,451	0	0.00000	1.00000	56.25
47.5	16,451	0	0.00000	1.00000	56.25
48.5	16,451	0	0.00000	1.00000	56.25
49.5	16,451	0	0.00000	1.00000	56.25
50.5	16,451	0	0.00000	1.00000	56.25
51.5	16,451	0	0.00000	1.00000	56.25
52.5	1,430	0	0.00000	1.00000	56.25
53.5	1,430	0	0.00000	1.00000	56.25
54.5	0	0	0.00000	0.00000	56.25
Totals:		11,282,980			

NEWFOUNDLAND AND LABRADOR HYDRO

Account P08 - Power Line Carrier

Placement Band - 1976 - 2020 Experience Band - 1999 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account P08 - Power Line Carrier

Placement Band - 1976 - 2020 Experience Band - 1999 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	6,344,415	0	0.00000	1.00000	100.00
0.5	6,344,415	0	0.00000	1.00000	100.00
1.5	6,344,415	0	0.00000	1.00000	100.00
2.5	6,316,760	0	0.00000	1.00000	100.00
3.5	5,816,178	0	0.00000	1.00000	100.00
4.5	5,816,178	0	0.00000	1.00000	100.00
5.5	5,063,079	0	0.00000	1.00000	100.00
6.5	5,063,079	0	0.00000	1.00000	100.00
7.5	5,063,079	744	0.00015	0.99985	100.00
8.5	5,062,335	0	0.00000	1.00000	99.98
9.5	5,062,335	196,397	0.03880	0.96120	99.98
10.5	4,865,938	34,114	0.00701	0.99299	96.10
11.5	4,831,825	20,092	0.00416	0.99584	95.43
12.5	4,811,733	280,286	0.05825	0.94175	95.03
13.5	4,180,179	161,080	0.03853	0.96147	89.49
14.5	3,650,546	116,380	0.03188	0.96812	86.04
15.5	3,534,165	4,683	0.00133	0.99867	83.30
16.5	3,529,482	0	0.00000	1.00000	83.19
17.5	3,529,482	0	0.00000	1.00000	83.19
18.5	3,242,408	97,722	0.03014	0.96986	83.19
19.5	2,886,506	288,410	0.09992	0.90008	80.68
20.5	2,003,441	54,146	0.02703	0.97297	72.62
21.5	1,949,295	32,534	0.01669	0.98331	70.66
22.5	1,638,693	89,404	0.05456	0.94544	69.48
23.5	1,038,178	125,054	0.12046	0.87954	65.69
24.5	913,125	3,286	0.00360	0.99640	57.78
25.5	909,838	14,196	0.01560	0.98440	57.57
26.5	779,818	30,612	0.03926	0.96074	56.67

NEWFOUNDLAND AND LABRADOR HYDRO

Account P08 - Power Line Carrier

Placement Band - 1976 - 2020 Experience Band - 1999 - 2022

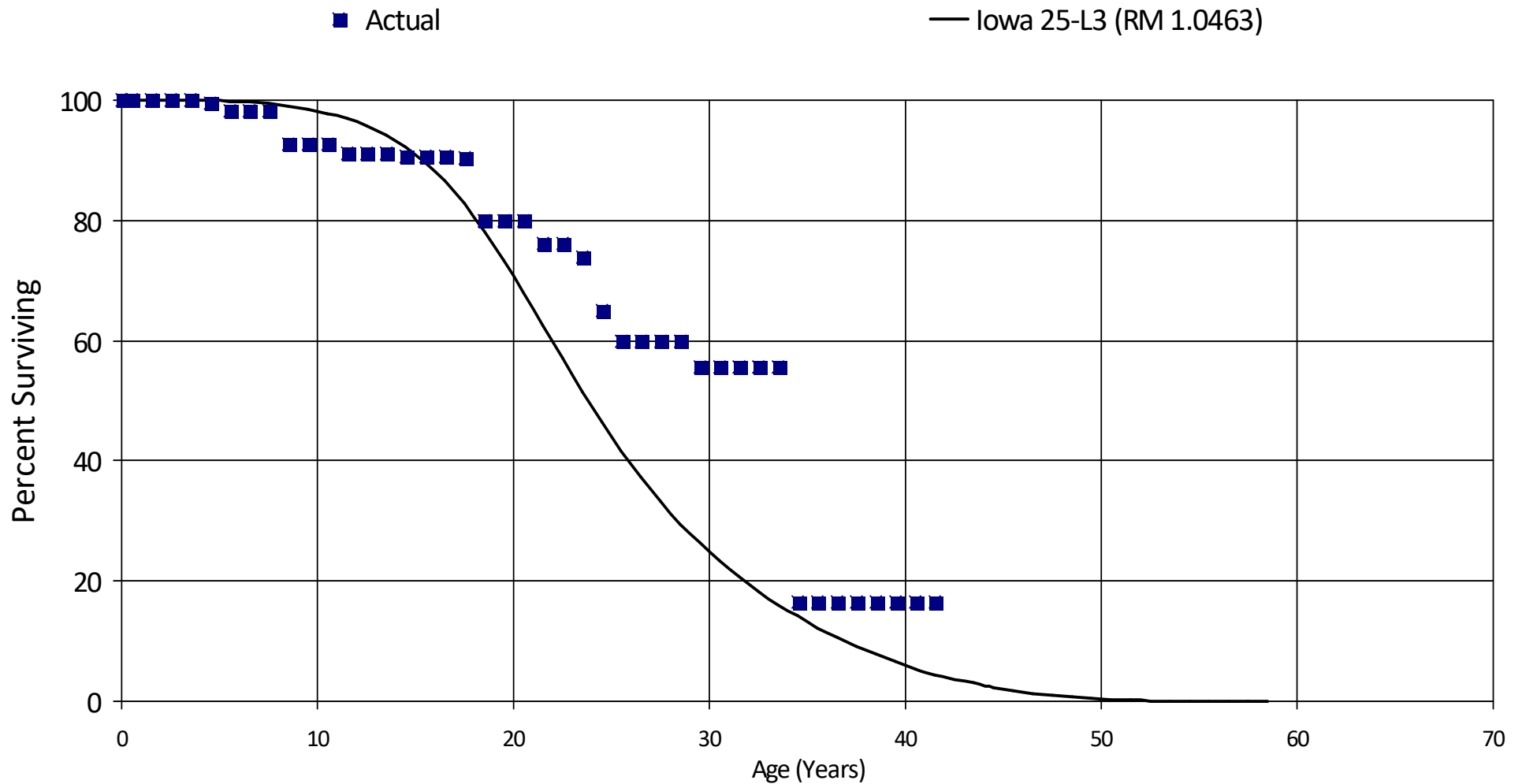
27.5	429,538	6,999	0.01629	0.98371	54.45
28.5	422,538	216,792	0.51307	0.48693	53.56
29.5	205,746	1,384	0.00673	0.99327	26.08
30.5	204,362	0	0.00000	1.00000	25.90
31.5	204,362	0	0.00000	1.00000	25.90
32.5	202,365	0	0.00000	1.00000	25.90
33.5	202,365	0	0.00000	1.00000	25.90
34.5	202,365	0	0.00000	1.00000	25.90
35.5	202,365	0	0.00000	1.00000	25.90
36.5	202,365	0	0.00000	1.00000	25.90
37.5	202,365	0	0.00000	1.00000	25.90
38.5	202,365	0	0.00000	1.00000	25.90
39.5	202,365	0	0.00000	1.00000	25.90
40.5	199,827	0	0.00000	1.00000	25.90
41.5	199,827	0	0.00000	1.00000	25.90
42.5	50,795	0	0.00000	1.00000	25.90
43.5	50,795	0	0.00000	1.00000	25.90
44.5	0	0	0.00000	0.00000	25.90
Totals:		1,774,315			

NEWFOUNDLAND AND LABRADOR HYDRO

Account P09 - Power Systems

Placement Band - 1980 - 2022 Experience Band - 2001 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account P09 - Power Systems

Placement Band - 1980 - 2022 Experience Band - 2001 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	2,895,739	0	0.00000	1.00000	100.00
0.5	2,841,200	0	0.00000	1.00000	100.00
1.5	1,887,352	0	0.00000	1.00000	100.00
2.5	1,887,352	0	0.00000	1.00000	100.00
3.5	1,887,352	8,858	0.00469	0.99531	100.00
4.5	1,634,976	22,818	0.01396	0.98604	99.53
5.5	791,382	0	0.00000	1.00000	98.14
6.5	791,382	0	0.00000	1.00000	98.14
7.5	791,382	45,059	0.05694	0.94306	98.14
8.5	732,533	0	0.00000	1.00000	92.55
9.5	670,203	0	0.00000	1.00000	92.55
10.5	638,184	10,622	0.01664	0.98336	92.55
11.5	627,562	0	0.00000	1.00000	91.01
12.5	627,562	0	0.00000	1.00000	91.01
13.5	627,562	2,673	0.00426	0.99574	91.01
14.5	624,889	344	0.00055	0.99945	90.62
15.5	624,545	0	0.00000	1.00000	90.57
16.5	528,251	1,456	0.00276	0.99724	90.57
17.5	526,795	60,879	0.11556	0.88444	90.32
18.5	436,481	0	0.00000	1.00000	79.88
19.5	62,045	0	0.00000	1.00000	79.88
20.5	62,045	2,900	0.04674	0.95326	79.88
21.5	59,145	0	0.00000	1.00000	76.15
22.5	57,580	1,774	0.03081	0.96919	76.15
23.5	55,806	6,712	0.12027	0.87973	73.80
24.5	46,421	3,531	0.07606	0.92394	64.92
25.5	13,591	0	0.00000	1.00000	59.98
26.5	13,591	0	0.00000	1.00000	59.98

NEWFOUNDLAND AND LABRADOR HYDRO

Account P09 - Power Systems

Placement Band - 1980 - 2022 Experience Band - 2001 - 2022

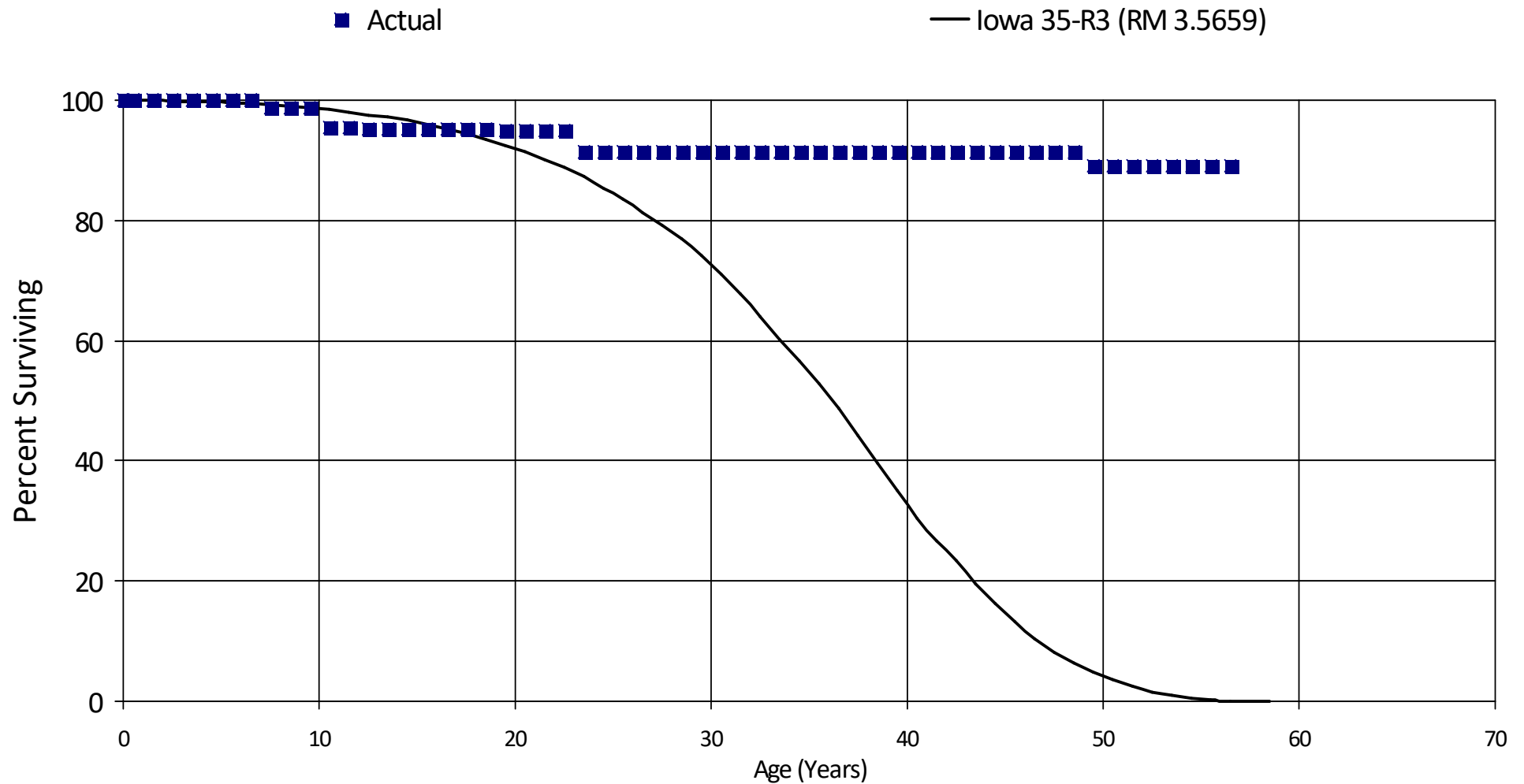
27.5	13,591	0	0.00000	1.00000	59.98
28.5	13,591	1,000	0.07358	0.92642	59.98
29.5	12,591	0	0.00000	1.00000	55.57
30.5	10,241	0	0.00000	1.00000	55.57
31.5	10,241	0	0.00000	1.00000	55.57
32.5	6,538	0	0.00000	1.00000	55.57
33.5	6,538	4,598	0.70326	0.29674	55.57
34.5	1,940	0	0.00000	1.00000	16.49
35.5	1,940	0	0.00000	1.00000	16.49
36.5	1,940	0	0.00000	1.00000	16.49
37.5	1,940	0	0.00000	1.00000	16.49
38.5	1,940	0	0.00000	1.00000	16.49
39.5	1,940	0	0.00000	1.00000	16.49
40.5	1,940	0	0.00000	1.00000	16.49
41.5	1,940	0	0.00000	1.00000	16.49
Totals:		173,224			

NEWFOUNDLAND AND LABRADOR HYDRO

Account P12 - Protective Control and Relay Panels

Placement Band - 1965 - 2022 Experience Band - 2000 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account P12 - Protective Control and Relay Panels

Placement Band - 1965 - 2022 Experience Band - 2000 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	30,750,519	0	0.00000	1.00000	100.00
0.5	27,849,851	289	0.00001	0.99999	100.00
1.5	24,388,364	19,275	0.00079	0.99921	100.00
2.5	20,978,511	4,151	0.00020	0.99980	99.92
3.5	18,720,384	0	0.00000	1.00000	99.90
4.5	17,016,750	0	0.00000	1.00000	99.90
5.5	11,664,837	0	0.00000	1.00000	99.90
6.5	10,239,034	116,342	0.01136	0.98864	99.90
7.5	9,319,722	0	0.00000	1.00000	98.77
8.5	8,918,483	7,102	0.00080	0.99920	98.77
9.5	6,176,684	200,000	0.03238	0.96762	98.69
10.5	5,884,105	0	0.00000	1.00000	95.49
11.5	4,603,443	16,280	0.00354	0.99646	95.49
12.5	4,509,211	0	0.00000	1.00000	95.15
13.5	4,365,760	0	0.00000	1.00000	95.15
14.5	4,319,921	0	0.00000	1.00000	95.15
15.5	3,902,150	0	0.00000	1.00000	95.15
16.5	3,818,010	0	0.00000	1.00000	95.15
17.5	3,681,065	0	0.00000	1.00000	95.15
18.5	3,413,181	8,740	0.00256	0.99744	95.15
19.5	1,698,933	0	0.00000	1.00000	94.91
20.5	1,698,933	0	0.00000	1.00000	94.91
21.5	1,698,933	0	0.00000	1.00000	94.91
22.5	1,698,933	64,494	0.03796	0.96204	94.91
23.5	1,510,650	0	0.00000	1.00000	91.31
24.5	1,510,650	0	0.00000	1.00000	91.31
25.5	1,510,650	0	0.00000	1.00000	91.31
26.5	1,088,133	0	0.00000	1.00000	91.31

NEWFOUNDLAND AND LABRADOR HYDRO

Account P12 - Protective Control and Relay Panels

Placement Band - 1965 - 2022 Experience Band - 2000 - 2022

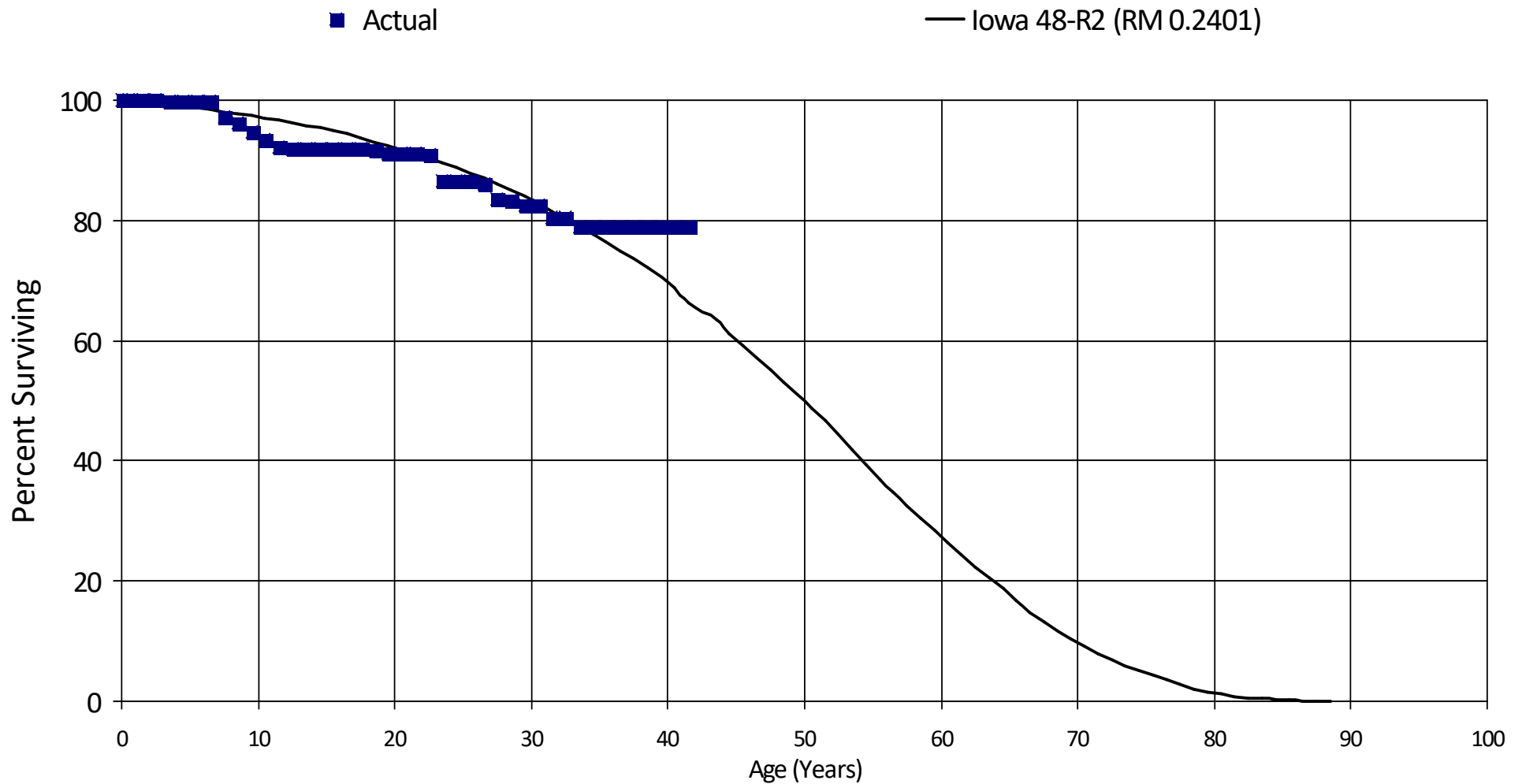
27.5	1,006,197	15	0.00001	0.99999	91.31
28.5	1,006,182	0	0.00000	1.00000	91.31
29.5	1,006,182	34	0.00003	0.99997	91.31
30.5	1,006,149	0	0.00000	1.00000	91.31
31.5	1,006,149	0	0.00000	1.00000	91.31
32.5	1,006,149	0	0.00000	1.00000	91.31
33.5	1,006,149	0	0.00000	1.00000	91.31
34.5	995,112	0	0.00000	1.00000	91.31
35.5	897,215	0	0.00000	1.00000	91.31
36.5	897,215	0	0.00000	1.00000	91.31
37.5	897,215	0	0.00000	1.00000	91.31
38.5	831,582	0	0.00000	1.00000	91.31
39.5	831,582	0	0.00000	1.00000	91.31
40.5	831,582	0	0.00000	1.00000	91.31
41.5	831,582	0	0.00000	1.00000	91.31
42.5	557,581	0	0.00000	1.00000	91.31
43.5	557,581	0	0.00000	1.00000	91.31
44.5	557,581	0	0.00000	1.00000	91.31
45.5	557,581	0	0.00000	1.00000	91.31
46.5	557,581	0	0.00000	1.00000	91.31
47.5	557,581	0	0.00000	1.00000	91.31
48.5	557,581	14,337	0.02571	0.97429	91.31
49.5	543,244	0	0.00000	1.00000	88.96
50.5	382,550	0	0.00000	1.00000	88.96
51.5	382,550	0	0.00000	1.00000	88.96
52.5	382,550	0	0.00000	1.00000	88.96
53.5	382,550	0	0.00000	1.00000	88.96
54.5	325,468	0	0.00000	1.00000	88.96
55.5	112,137	0	0.00000	1.00000	88.96
56.5	112,137	0	0.00000	1.00000	88.96
Totals:		451,059			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R01 - Radio Towers (Wood or Steel)

Placement Band - 1980 - 2021 Experience Band - 2001 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R01 - Radio Towers (Wood or Steel)

Placement Band - 1980 - 2021 Experience Band - 2001 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	10,195,523	0	0.00000	1.00000	100.00
0.5	10,195,523	0	0.00000	1.00000	100.00
1.5	10,009,998	0	0.00000	1.00000	100.00
2.5	9,809,943	26,297	0.00268	0.99732	100.00
3.5	9,783,646	0	0.00000	1.00000	99.73
4.5	9,651,200	0	0.00000	1.00000	99.73
5.5	9,651,200	0	0.00000	1.00000	99.73
6.5	9,651,200	251,091	0.02602	0.97398	99.73
7.5	9,400,110	98,626	0.01049	0.98951	97.14
8.5	9,301,484	133,839	0.01439	0.98561	96.12
9.5	9,141,347	126,415	0.01383	0.98617	94.74
10.5	9,014,932	113,599	0.01260	0.98740	93.43
11.5	8,901,333	32,144	0.00361	0.99639	92.25
12.5	8,654,543	2,789	0.00032	0.99968	91.92
13.5	8,577,036	0	0.00000	1.00000	91.89
14.5	8,577,036	1,644	0.00019	0.99981	91.89
15.5	8,214,253	0	0.00000	1.00000	91.87
16.5	8,214,253	7,025	0.00086	0.99914	91.87
17.5	7,976,037	20,792	0.00261	0.99739	91.79
18.5	7,955,245	38,639	0.00486	0.99514	91.55
19.5	3,663,945	0	0.00000	1.00000	91.11
20.5	3,663,945	1,906	0.00052	0.99948	91.11
21.5	1,752,256	2,042	0.00117	0.99883	91.06
22.5	1,750,214	84,079	0.04804	0.95196	90.95
23.5	1,666,135	0	0.00000	1.00000	86.58
24.5	1,666,135	0	0.00000	1.00000	86.58
25.5	1,666,135	11,183	0.00671	0.99329	86.58
26.5	1,654,952	48,007	0.02901	0.97099	86.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account R01 - Radio Towers (Wood or Steel)

Placement Band - 1980 - 2021 Experience Band - 2001 - 2022

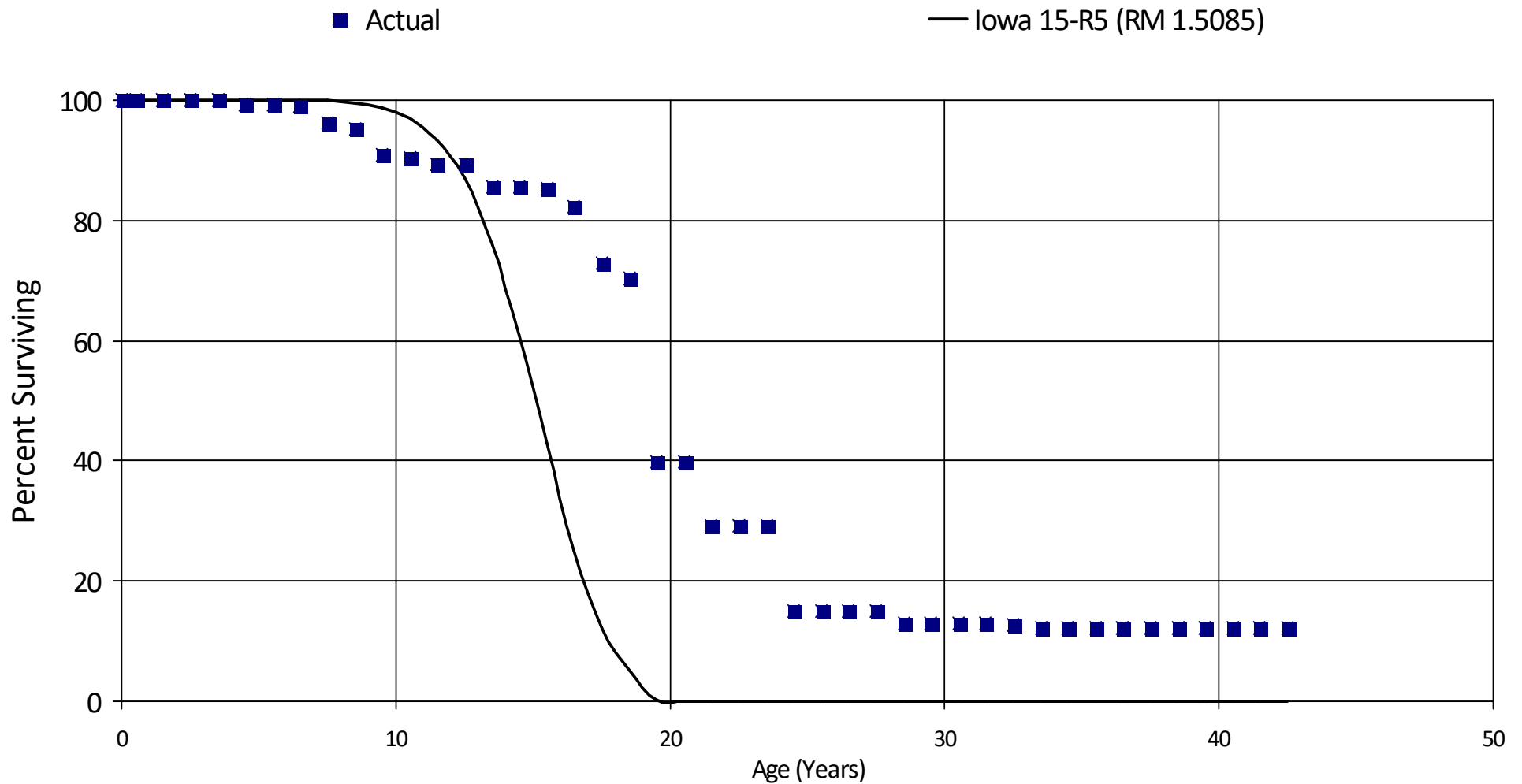
27.5	1,606,945	6,445	0.00401	0.99599	83.51
28.5	1,600,500	13,493	0.00843	0.99157	83.18
29.5	1,566,659	0	0.00000	1.00000	82.48
30.5	1,566,659	37,301	0.02381	0.97619	82.48
31.5	1,529,358	2,832	0.00185	0.99815	80.52
32.5	1,465,654	26,322	0.01796	0.98204	80.37
33.5	1,439,332	0	0.00000	1.00000	78.93
34.5	1,439,332	0	0.00000	1.00000	78.93
35.5	1,439,332	0	0.00000	1.00000	78.93
36.5	1,439,332	0	0.00000	1.00000	78.93
37.5	1,439,332	0	0.00000	1.00000	78.93
38.5	1,093,581	0	0.00000	1.00000	78.93
39.5	1,093,581	0	0.00000	1.00000	78.93
40.5	931,523	0	0.00000	1.00000	78.93
41.5	931,523	0	0.00000	1.00000	78.93
Totals:		1,086,510			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R02 - Radios - Fixed Microwave Equipment and Fixed UHF Equipment

Placement Band - 1976 - 2019 Experience Band - 1995 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R02 - Radios - Fixed Microwave Equipment and Fixed UHF Equipment

Placement Band - 1976 - 2019 Experience Band - 1995 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	9,079,867	0	0.00000	1.00000	100.00
0.5	9,079,867	0	0.00000	1.00000	100.00
1.5	9,079,867	0	0.00000	1.00000	100.00
2.5	9,079,867	0	0.00000	1.00000	100.00
3.5	8,141,988	64,764	0.00795	0.99205	100.00
4.5	8,077,224	2,571	0.00032	0.99968	99.20
5.5	7,026,080	5,955	0.00085	0.99915	99.17
6.5	7,020,125	207,005	0.02949	0.97051	99.09
7.5	6,809,734	68,126	0.01000	0.99000	96.17
8.5	5,901,410	269,626	0.04569	0.95431	95.21
9.5	5,631,784	32,490	0.00577	0.99423	90.86
10.5	5,563,388	65,138	0.01171	0.98829	90.34
11.5	5,498,250	0	0.00000	1.00000	89.28
12.5	5,445,803	226,611	0.04161	0.95839	89.28
13.5	5,169,412	0	0.00000	1.00000	85.57
14.5	5,129,891	10,053	0.00196	0.99804	85.57
15.5	4,935,411	182,232	0.03692	0.96308	85.40
16.5	4,753,180	541,022	0.11382	0.88618	82.25
17.5	4,212,157	151,765	0.03603	0.96397	72.89
18.5	4,060,393	1,755,806	0.43242	0.56758	70.26
19.5	441,942	0	0.00000	1.00000	39.88
20.5	441,942	119,058	0.26940	0.73060	39.88
21.5	322,884	0	0.00000	1.00000	29.14
22.5	322,884	0	0.00000	1.00000	29.14
23.5	322,884	157,782	0.48867	0.51133	29.14
24.5	165,102	0	0.00000	1.00000	14.90
25.5	165,102	0	0.00000	1.00000	14.90
26.5	165,102	0	0.00000	1.00000	14.90

NEWFOUNDLAND AND LABRADOR HYDRO

Account R02 - Radios - Fixed Microwave Equipment and Fixed UHF Equipment

Placement Band - 1976 - 2019 Experience Band - 1995 - 2022

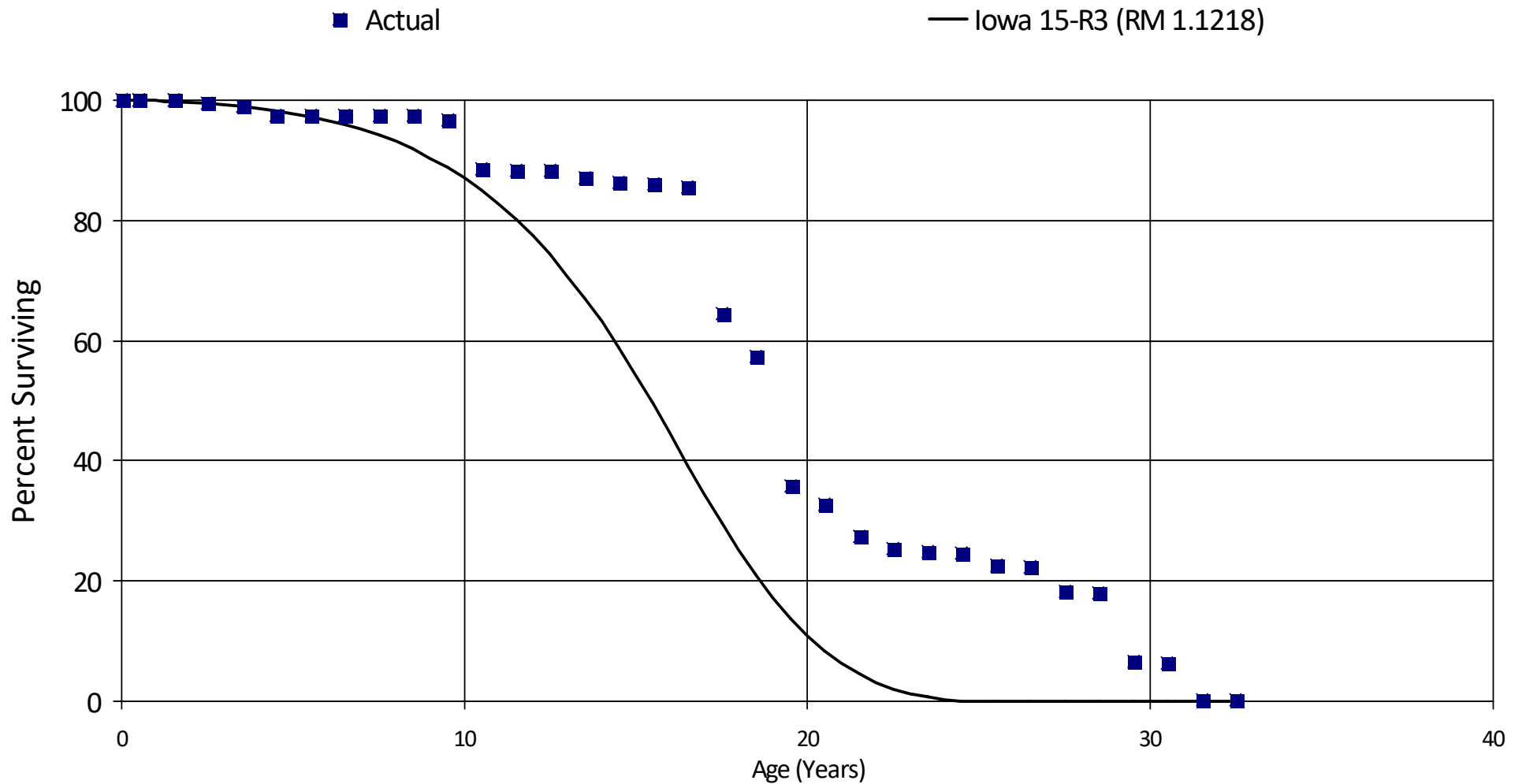
27.5	165,102	22,350	0.13537	0.86463	14.90
28.5	142,752	0	0.00000	1.00000	12.88
29.5	142,752	0	0.00000	1.00000	12.88
30.5	142,752	0	0.00000	1.00000	12.88
31.5	142,752	1,124	0.00787	0.99213	12.88
32.5	141,628	7,869	0.05556	0.94444	12.78
33.5	133,759	0	0.00000	1.00000	12.07
34.5	133,759	0	0.00000	1.00000	12.07
35.5	133,759	0	0.00000	1.00000	12.07
36.5	133,759	0	0.00000	1.00000	12.07
37.5	133,759	0	0.00000	1.00000	12.07
38.5	133,759	0	0.00000	1.00000	12.07
39.5	133,759	0	0.00000	1.00000	12.07
40.5	133,759	0	0.00000	1.00000	12.07
41.5	133,759	0	0.00000	1.00000	12.07
42.5	0	0	0.00000	0.00000	12.07
Totals:		3,891,347			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R04 - Radios - Fixed VHF Equipment and Mobile VHF Base Station

Placement Band - 1968 - 2019 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R04 - Radios - Fixed VHF Equipment and Mobile VHF Base Station

Placement Band - 1968 - 2019 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	13,298,242	0	0.00000	1.00000	100.00
0.5	13,298,242	0	0.00000	1.00000	100.00
1.5	13,298,242	82,942	0.00624	0.99376	100.00
2.5	13,215,300	54,473	0.00412	0.99588	99.38
3.5	13,160,616	194,129	0.01475	0.98525	98.97
4.5	12,966,486	0	0.00000	1.00000	97.51
5.5	12,966,486	6,366	0.00049	0.99951	97.51
6.5	12,960,121	0	0.00000	1.00000	97.46
7.5	12,960,121	10,504	0.00081	0.99919	97.46
8.5	12,949,616	79,502	0.00614	0.99386	97.38
9.5	12,870,114	1,075,792	0.08359	0.91641	96.78
10.5	11,078,976	33,905	0.00306	0.99694	88.69
11.5	11,042,421	18,417	0.00167	0.99833	88.42
12.5	10,614,725	131,964	0.01243	0.98757	88.27
13.5	10,482,761	92,449	0.00882	0.99118	87.17
14.5	10,390,312	56,440	0.00543	0.99457	86.40
15.5	9,884,635	57,549	0.00582	0.99418	85.93
16.5	4,248,039	1,040,025	0.24482	0.75518	85.43
17.5	3,208,014	361,797	0.11278	0.88722	64.52
18.5	2,846,217	1,071,305	0.37640	0.62360	57.24
19.5	1,656,668	131,184	0.07919	0.92081	35.69
20.5	1,525,483	249,527	0.16357	0.83643	32.86
21.5	1,275,956	92,579	0.07256	0.92744	27.49
22.5	1,183,377	26,047	0.02201	0.97799	25.50
23.5	1,131,366	18,377	0.01624	0.98376	24.94
24.5	1,112,989	90,645	0.08144	0.91856	24.53
25.5	1,022,344	8,536	0.00835	0.99165	22.53
26.5	1,013,808	179,152	0.17671	0.82329	22.34

NEWFOUNDLAND AND LABRADOR HYDRO

Account R04 - Radios - Fixed VHF Equipment and Mobile VHF Base Station

Placement Band - 1968 - 2019 Experience Band - 1991 - 2022

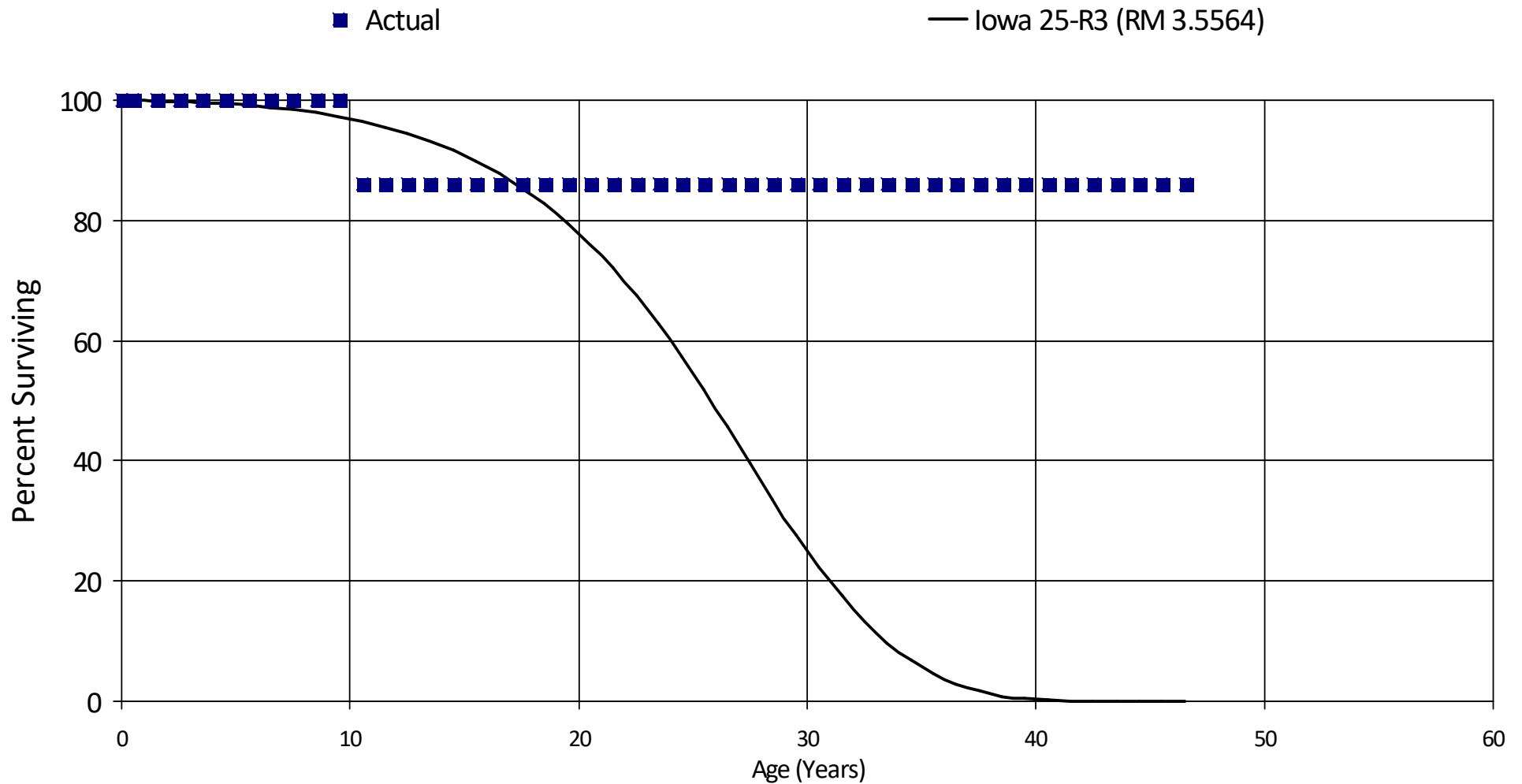
27.5	834,657	21,779	0.02609	0.97391	18.39
28.5	812,878	513,070	0.63118	0.36882	17.91
29.5	299,807	14,179	0.04729	0.95271	6.61
30.5	123,949	120,787	0.97449	0.02551	6.30
31.5	3,162	0	0.00000	1.00000	0.16
32.5	0	0	0.00000	0.00000	0.16
Totals:		5,833,421			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R06 - Ramps - Yard Storage

Placement Band - 1975 - 2020 Experience Band - 1999 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R06 - Ramps - Yard Storage

Placement Band - 1975 - 2020 Experience Band - 1999 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	2,373,747	0	0.00000	1.00000	100.00
0.5	2,373,747	0	0.00000	1.00000	100.00
1.5	2,373,747	0	0.00000	1.00000	100.00
2.5	2,293,976	0	0.00000	1.00000	100.00
3.5	2,293,976	0	0.00000	1.00000	100.00
4.5	1,816,255	0	0.00000	1.00000	100.00
5.5	1,816,255	0	0.00000	1.00000	100.00
6.5	1,816,255	0	0.00000	1.00000	100.00
7.5	1,695,776	0	0.00000	1.00000	100.00
8.5	1,664,996	0	0.00000	1.00000	100.00
9.5	1,664,996	233,772	0.14040	0.85960	100.00
10.5	1,431,224	0	0.00000	1.00000	85.96
11.5	1,431,224	0	0.00000	1.00000	85.96
12.5	1,236,644	0	0.00000	1.00000	85.96
13.5	961,407	0	0.00000	1.00000	85.96
14.5	833,138	0	0.00000	1.00000	85.96
15.5	770,614	0	0.00000	1.00000	85.96
16.5	613,297	0	0.00000	1.00000	85.96
17.5	575,925	0	0.00000	1.00000	85.96
18.5	575,925	0	0.00000	1.00000	85.96
19.5	575,925	0	0.00000	1.00000	85.96
20.5	575,925	0	0.00000	1.00000	85.96
21.5	521,151	0	0.00000	1.00000	85.96
22.5	521,151	0	0.00000	1.00000	85.96
23.5	429,890	0	0.00000	1.00000	85.96
24.5	429,890	0	0.00000	1.00000	85.96
25.5	429,890	0	0.00000	1.00000	85.96
26.5	379,924	0	0.00000	1.00000	85.96

NEWFOUNDLAND AND LABRADOR HYDRO

Account R06 - Ramps - Yard Storage

Placement Band - 1975 - 2020 Experience Band - 1999 - 2022

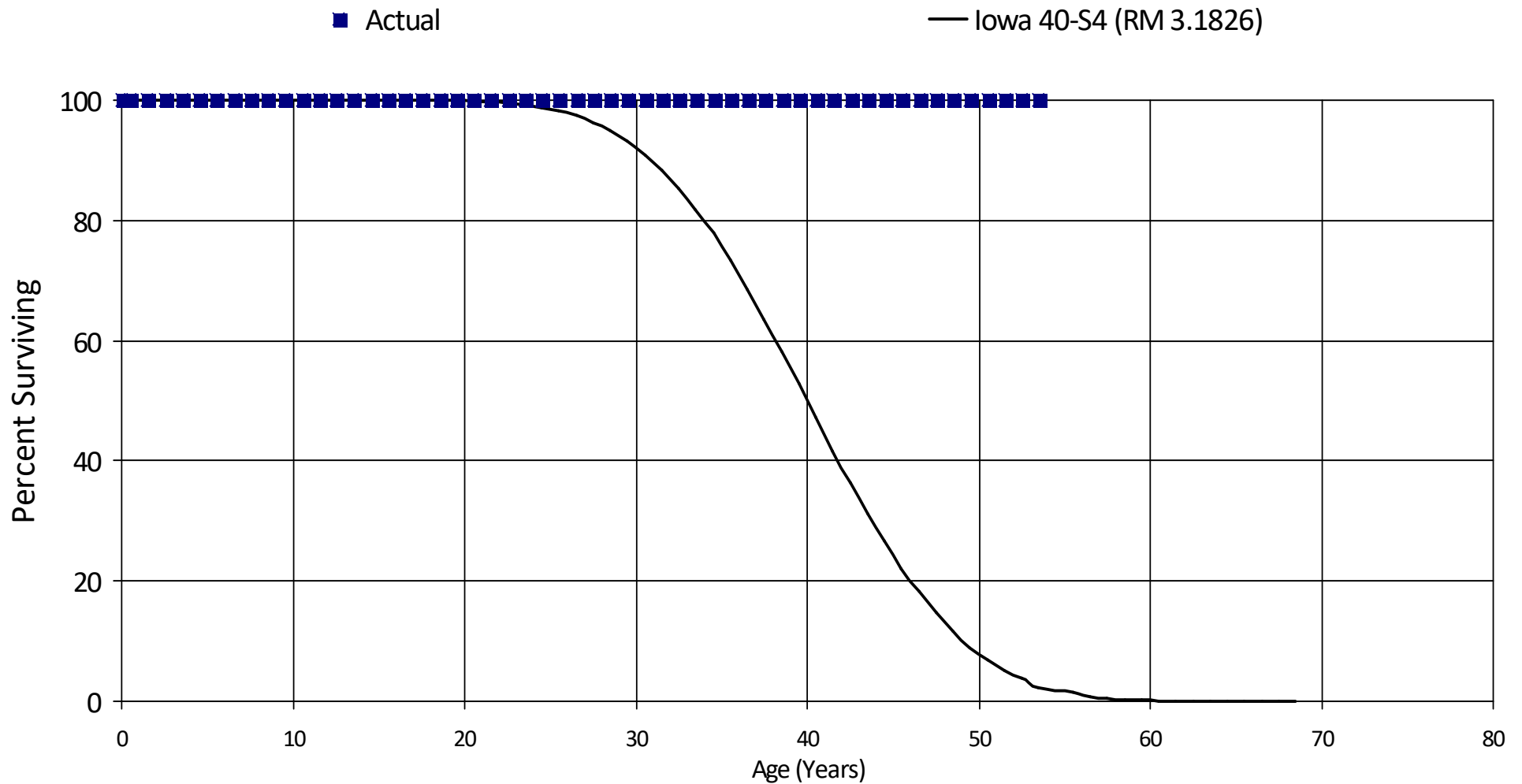
27.5	379,924	0	0.00000	1.00000	85.96
28.5	379,924	0	0.00000	1.00000	85.96
29.5	330,462	0	0.00000	1.00000	85.96
30.5	318,978	0	0.00000	1.00000	85.96
31.5	300,868	0	0.00000	1.00000	85.96
32.5	220,787	0	0.00000	1.00000	85.96
33.5	114,938	0	0.00000	1.00000	85.96
34.5	114,938	0	0.00000	1.00000	85.96
35.5	82,374	0	0.00000	1.00000	85.96
36.5	82,374	0	0.00000	1.00000	85.96
37.5	82,374	0	0.00000	1.00000	85.96
38.5	82,374	0	0.00000	1.00000	85.96
39.5	82,374	0	0.00000	1.00000	85.96
40.5	65,163	0	0.00000	1.00000	85.96
41.5	65,163	0	0.00000	1.00000	85.96
42.5	65,163	0	0.00000	1.00000	85.96
43.5	23,740	0	0.00000	1.00000	85.96
44.5	23,740	0	0.00000	1.00000	85.96
45.5	23,740	0	0.00000	1.00000	85.96
46.5	23,740	0	0.00000	1.00000	85.96
Totals:		233,772			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R07 - Reactors and Resistors

Placement Band - 1968 - 2017 Experience Band - 2018 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R07 - Reactors and Resistors

Placement Band - 1968 - 2017 Experience Band - 2018 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,381,472	0	0.00000	1.00000	100.00
0.5	1,381,472	0	0.00000	1.00000	100.00
1.5	1,381,472	0	0.00000	1.00000	100.00
2.5	1,381,472	0	0.00000	1.00000	100.00
3.5	1,381,472	0	0.00000	1.00000	100.00
4.5	1,381,472	0	0.00000	1.00000	100.00
5.5	1,199,972	0	0.00000	1.00000	100.00
6.5	1,199,972	0	0.00000	1.00000	100.00
7.5	1,125,137	0	0.00000	1.00000	100.00
8.5	1,019,557	0	0.00000	1.00000	100.00
9.5	1,019,557	0	0.00000	1.00000	100.00
10.5	1,009,683	0	0.00000	1.00000	100.00
11.5	1,009,683	0	0.00000	1.00000	100.00
12.5	1,009,683	0	0.00000	1.00000	100.00
13.5	1,009,683	0	0.00000	1.00000	100.00
14.5	1,009,683	0	0.00000	1.00000	100.00
15.5	1,009,683	0	0.00000	1.00000	100.00
16.5	993,796	0	0.00000	1.00000	100.00
17.5	993,796	0	0.00000	1.00000	100.00
18.5	993,796	0	0.00000	1.00000	100.00
19.5	993,796	0	0.00000	1.00000	100.00
20.5	993,796	0	0.00000	1.00000	100.00
21.5	993,796	0	0.00000	1.00000	100.00
22.5	791,839	0	0.00000	1.00000	100.00
23.5	791,839	0	0.00000	1.00000	100.00
24.5	791,839	0	0.00000	1.00000	100.00
25.5	791,839	0	0.00000	1.00000	100.00
26.5	760,818	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account R07 - Reactors and Resistors

Placement Band - 1968 - 2017 Experience Band - 2018 - 2022

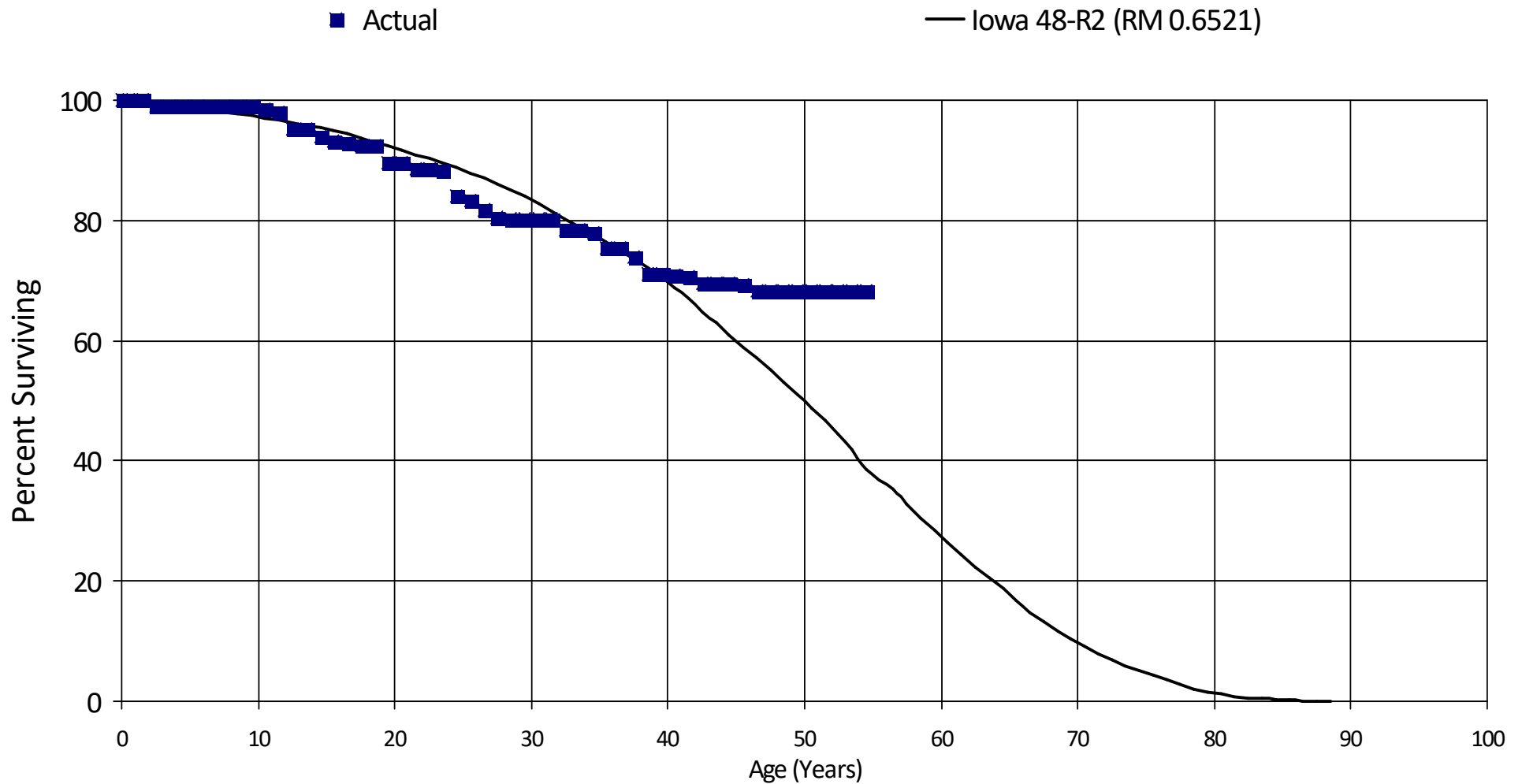
27.5	54,635	0	0.00000	1.00000	100.00
28.5	54,635	0	0.00000	1.00000	100.00
29.5	54,635	0	0.00000	1.00000	100.00
30.5	54,635	0	0.00000	1.00000	100.00
31.5	54,635	0	0.00000	1.00000	100.00
32.5	54,635	0	0.00000	1.00000	100.00
33.5	54,635	0	0.00000	1.00000	100.00
34.5	54,635	0	0.00000	1.00000	100.00
35.5	54,635	0	0.00000	1.00000	100.00
36.5	54,635	0	0.00000	1.00000	100.00
37.5	54,635	0	0.00000	1.00000	100.00
38.5	54,635	0	0.00000	1.00000	100.00
39.5	54,635	0	0.00000	1.00000	100.00
40.5	54,635	0	0.00000	1.00000	100.00
41.5	43,303	0	0.00000	1.00000	100.00
42.5	43,303	0	0.00000	1.00000	100.00
43.5	43,303	0	0.00000	1.00000	100.00
44.5	35,303	0	0.00000	1.00000	100.00
45.5	20,083	0	0.00000	1.00000	100.00
46.5	20,083	0	0.00000	1.00000	100.00
47.5	20,083	0	0.00000	1.00000	100.00
48.5	20,083	0	0.00000	1.00000	100.00
49.5	20,083	0	0.00000	1.00000	100.00
50.5	20,083	0	0.00000	1.00000	100.00
51.5	20,083	0	0.00000	1.00000	100.00
52.5	20,083	0	0.00000	1.00000	100.00
53.5	20,083	0	0.00000	1.00000	100.00
Totals:		0			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R08 - Reclosers

Placement Band - 1967 - 2022 Experience Band - 1996 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R08 - Reclosers

Placement Band - 1967 - 2022 Experience Band - 1996 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	11,342,392	0	0.00000	1.00000	100.00
0.5	10,379,497	0	0.00000	1.00000	100.00
1.5	9,386,828	92,752	0.00988	0.99012	100.00
2.5	8,852,985	0	0.00000	1.00000	99.01
3.5	7,339,288	0	0.00000	1.00000	99.01
4.5	7,234,193	0	0.00000	1.00000	99.01
5.5	6,772,925	0	0.00000	1.00000	99.01
6.5	6,770,487	0	0.00000	1.00000	99.01
7.5	6,212,325	0	0.00000	1.00000	99.01
8.5	6,013,126	0	0.00000	1.00000	99.01
9.5	5,245,543	22,351	0.00426	0.99574	99.01
10.5	4,469,179	24,536	0.00549	0.99451	98.59
11.5	4,185,472	127,709	0.03051	0.96949	98.05
12.5	3,676,685	0	0.00000	1.00000	95.06
13.5	3,485,524	45,136	0.01295	0.98705	95.06
14.5	3,332,331	21,116	0.00634	0.99366	93.83
15.5	3,311,215	11,904	0.00360	0.99640	93.24
16.5	3,254,638	16,452	0.00505	0.99495	92.90
17.5	3,053,483	0	0.00000	1.00000	92.43
18.5	3,046,073	89,298	0.02932	0.97068	92.43
19.5	2,839,411	0	0.00000	1.00000	89.72
20.5	2,803,363	34,715	0.01238	0.98762	89.72
21.5	2,694,155	0	0.00000	1.00000	88.61
22.5	2,569,043	10,513	0.00409	0.99591	88.61
23.5	2,529,976	124,022	0.04902	0.95098	88.25
24.5	2,349,369	18,115	0.00771	0.99229	83.92
25.5	2,215,675	44,260	0.01998	0.98002	83.27
26.5	2,124,602	29,755	0.01400	0.98600	81.61

NEWFOUNDLAND AND LABRADOR HYDRO

Account R08 - Reclosers

Placement Band - 1967 - 2022 Experience Band - 1996 - 2022

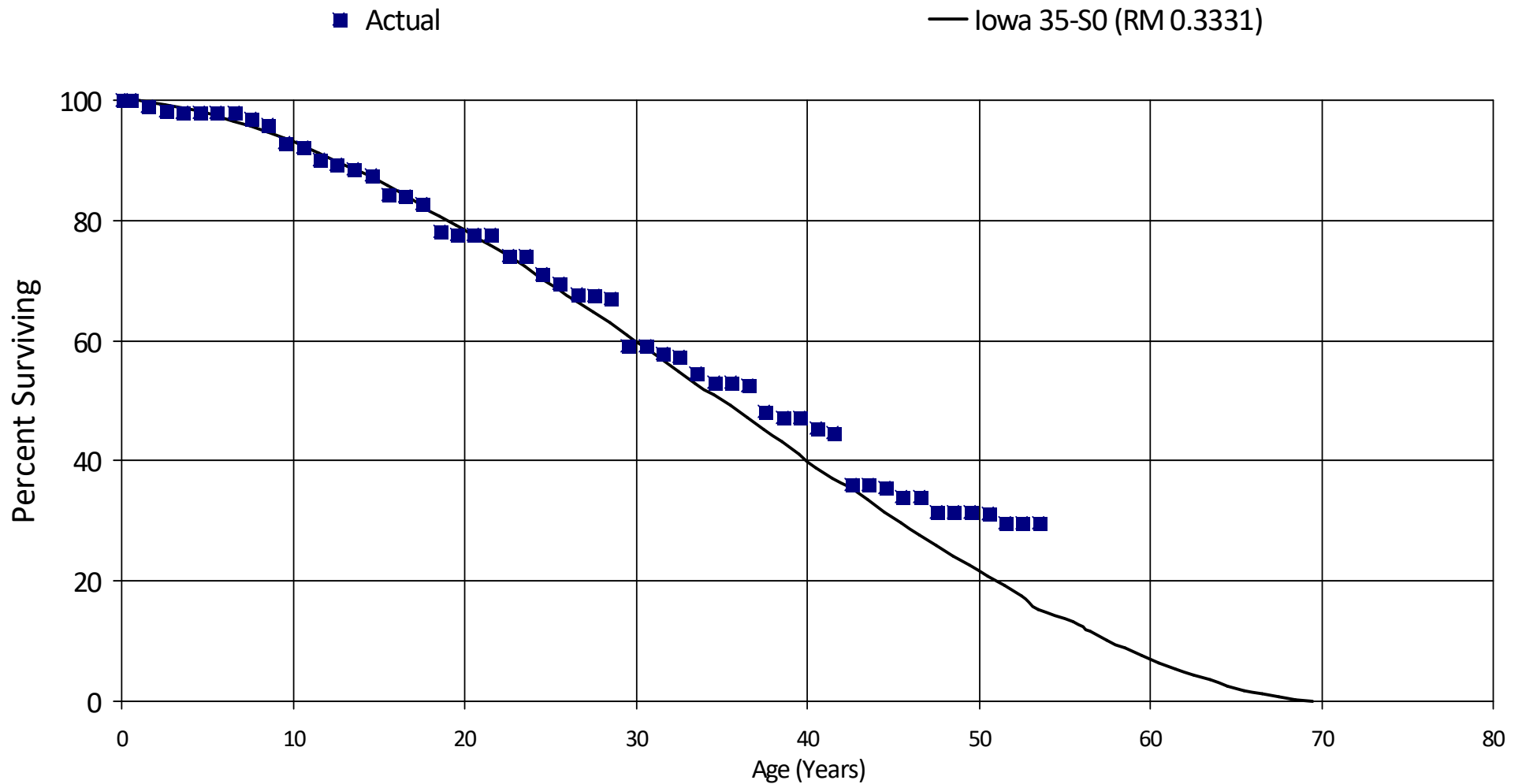
27.5	2,025,399	3,903	0.00193	0.99807	80.47
28.5	1,723,104	0	0.00000	1.00000	80.31
29.5	1,680,368	0	0.00000	1.00000	80.31
30.5	1,611,884	0	0.00000	1.00000	80.31
31.5	1,558,414	37,181	0.02386	0.97614	80.31
32.5	1,352,349	0	0.00000	1.00000	78.39
33.5	1,271,726	7,467	0.00587	0.99413	78.39
34.5	1,102,683	37,271	0.03380	0.96620	77.93
35.5	945,209	0	0.00000	1.00000	75.30
36.5	934,722	16,566	0.01772	0.98228	75.30
37.5	830,771	33,780	0.04066	0.95934	73.97
38.5	661,289	0	0.00000	1.00000	70.96
39.5	647,609	2,508	0.00387	0.99613	70.96
40.5	568,406	1,195	0.00210	0.99790	70.69
41.5	364,001	5,620	0.01544	0.98456	70.54
42.5	358,381	0	0.00000	1.00000	69.45
43.5	358,381	0	0.00000	1.00000	69.45
44.5	306,995	248	0.00081	0.99919	69.45
45.5	306,746	5,406	0.01762	0.98238	69.39
46.5	301,341	0	0.00000	1.00000	68.17
47.5	145,697	0	0.00000	1.00000	68.17
48.5	145,697	0	0.00000	1.00000	68.17
49.5	145,697	0	0.00000	1.00000	68.17
50.5	145,697	0	0.00000	1.00000	68.17
51.5	123,556	0	0.00000	1.00000	68.17
52.5	56,552	0	0.00000	1.00000	68.17
53.5	56,552	0	0.00000	1.00000	68.17
54.5	0	0	0.00000	0.00000	68.17
Totals:		863,779			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R09 - Regulators

Placement Band - 1968 - 2022 Experience Band - 1996 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R09 - Regulators

Placement Band - 1968 - 2022 Experience Band - 1996 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	10,210,426	0	0.00000	1.00000	100.00
0.5	9,419,726	103,698	0.01101	0.98899	100.00
1.5	8,320,654	62,379	0.00750	0.99250	98.90
2.5	7,892,593	23,079	0.00292	0.99708	98.16
3.5	7,172,290	0	0.00000	1.00000	97.87
4.5	6,950,671	0	0.00000	1.00000	97.87
5.5	6,585,876	0	0.00000	1.00000	97.87
6.5	6,555,410	56,973	0.00869	0.99131	97.87
7.5	6,376,270	68,334	0.01072	0.98928	97.02
8.5	6,217,696	196,749	0.03164	0.96836	95.98
9.5	5,505,095	54,142	0.00983	0.99017	92.94
10.5	4,855,892	97,766	0.02013	0.97987	92.03
11.5	4,461,687	44,275	0.00992	0.99008	90.18
12.5	4,137,740	35,132	0.00849	0.99151	89.29
13.5	3,856,087	36,943	0.00958	0.99042	88.53
14.5	3,601,777	135,900	0.03773	0.96227	87.68
15.5	3,394,149	13,021	0.00384	0.99616	84.37
16.5	3,324,249	53,241	0.01602	0.98398	84.05
17.5	3,234,439	175,355	0.05421	0.94579	82.70
18.5	2,958,780	25,228	0.00853	0.99147	78.22
19.5	2,829,691	0	0.00000	1.00000	77.55
20.5	2,807,032	0	0.00000	1.00000	77.55
21.5	2,801,714	122,071	0.04357	0.95643	77.55
22.5	2,679,643	0	0.00000	1.00000	74.17
23.5	2,679,643	114,403	0.04269	0.95731	74.17
24.5	2,565,240	53,971	0.02104	0.97896	71.00
25.5	2,440,396	61,150	0.02506	0.97494	69.51
26.5	2,379,246	13,342	0.00561	0.99439	67.77

NEWFOUNDLAND AND LABRADOR HYDRO

Account R09 - Regulators

Placement Band - 1968 - 2022 Experience Band - 1996 - 2022

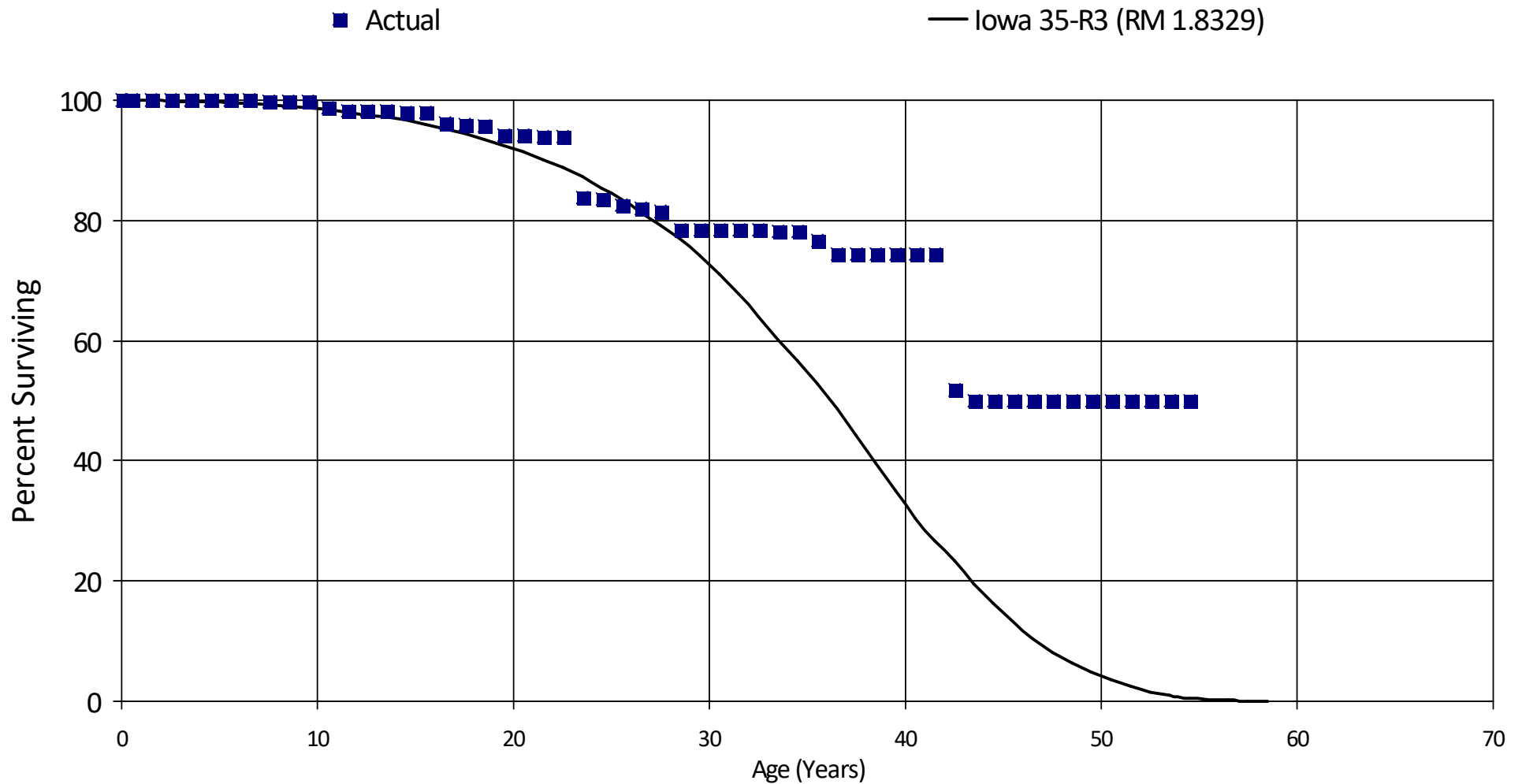
27.5	2,304,143	16,301	0.00707	0.99293	67.39
28.5	2,263,512	260,173	0.11494	0.88506	66.91
29.5	1,998,818	6,206	0.00310	0.99690	59.22
30.5	1,992,612	35,576	0.01785	0.98215	59.04
31.5	1,957,037	19,163	0.00979	0.99021	57.99
32.5	1,816,938	88,684	0.04881	0.95119	57.42
33.5	1,725,410	48,276	0.02798	0.97202	54.62
34.5	1,575,249	0	0.00000	1.00000	53.09
35.5	1,479,042	15,143	0.01024	0.98976	53.09
36.5	1,463,900	117,575	0.08032	0.91968	52.55
37.5	1,150,952	27,228	0.02366	0.97634	48.33
38.5	1,114,236	0	0.00000	1.00000	47.19
39.5	1,077,798	39,811	0.03694	0.96306	47.19
40.5	1,007,093	19,871	0.01973	0.98027	45.45
41.5	880,371	168,174	0.19103	0.80897	44.55
42.5	412,875	0	0.00000	1.00000	36.04
43.5	412,875	5,232	0.01267	0.98733	36.04
44.5	407,643	16,791	0.04119	0.95881	35.58
45.5	371,887	0	0.00000	1.00000	34.11
46.5	371,887	29,526	0.07940	0.92060	34.11
47.5	189,415	0	0.00000	1.00000	31.40
48.5	189,415	0	0.00000	1.00000	31.40
49.5	189,415	475	0.00251	0.99749	31.40
50.5	188,941	9,172	0.04854	0.95146	31.32
51.5	69,933	0	0.00000	1.00000	29.80
52.5	15,766	0	0.00000	1.00000	29.80
53.5	15,766	0	0.00000	1.00000	29.80
Totals:		2,470,529			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R11 - Revenue Metering

Placement Band - 1967 - 2018 Experience Band - 1995 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R11 - Revenue Metering

Placement Band - 1967 - 2018 Experience Band - 1995 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	3,384,853	0	0.00000	1.00000	100.00
0.5	3,384,853	0	0.00000	1.00000	100.00
1.5	3,384,853	0	0.00000	1.00000	100.00
2.5	3,384,853	0	0.00000	1.00000	100.00
3.5	3,384,853	0	0.00000	1.00000	100.00
4.5	3,095,768	0	0.00000	1.00000	100.00
5.5	2,085,476	0	0.00000	1.00000	100.00
6.5	1,455,104	2,849	0.00196	0.99804	100.00
7.5	1,081,560	0	0.00000	1.00000	99.80
8.5	1,075,758	0	0.00000	1.00000	99.80
9.5	1,075,758	11,675	0.01085	0.98915	99.80
10.5	1,064,083	5,741	0.00540	0.99460	98.72
11.5	1,058,342	0	0.00000	1.00000	98.19
12.5	1,058,342	0	0.00000	1.00000	98.19
13.5	968,645	1,423	0.00147	0.99853	98.19
14.5	967,222	0	0.00000	1.00000	98.05
15.5	967,222	18,546	0.01917	0.98083	98.05
16.5	948,676	2,216	0.00234	0.99766	96.17
17.5	946,460	3,414	0.00361	0.99639	95.94
18.5	943,046	12,997	0.01378	0.98622	95.59
19.5	922,406	0	0.00000	1.00000	94.27
20.5	835,769	4,262	0.00510	0.99490	94.27
21.5	710,022	0	0.00000	1.00000	93.79
22.5	710,022	75,135	0.10582	0.89418	93.79
23.5	634,887	3,113	0.00490	0.99510	83.87
24.5	631,774	7,155	0.01133	0.98867	83.46
25.5	615,240	3,057	0.00497	0.99503	82.51
26.5	582,719	4,300	0.00738	0.99262	82.10

NEWFOUNDLAND AND LABRADOR HYDRO

Account R11 - Revenue Metering

Placement Band - 1967 - 2018 Experience Band - 1995 - 2022

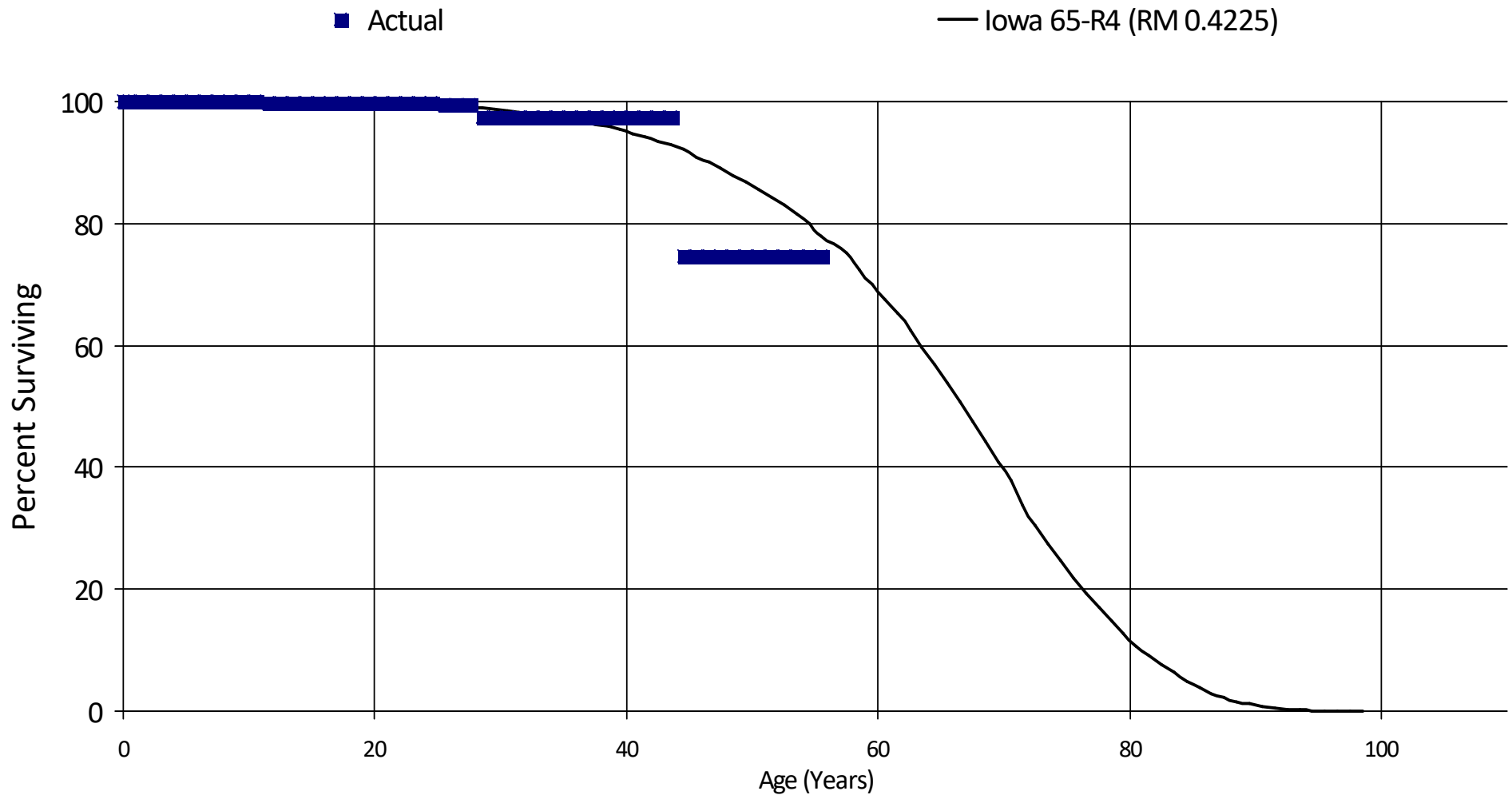
27.5	570,885	20,791	0.03642	0.96358	81.49
28.5	544,609	0	0.00000	1.00000	78.52
29.5	544,609	0	0.00000	1.00000	78.52
30.5	510,277	0	0.00000	1.00000	78.52
31.5	493,761	0	0.00000	1.00000	78.52
32.5	478,130	1,500	0.00314	0.99686	78.52
33.5	452,785	81	0.00018	0.99982	78.27
34.5	420,855	8,900	0.02115	0.97885	78.26
35.5	377,628	10,380	0.02749	0.97251	76.60
36.5	323,971	0	0.00000	1.00000	74.49
37.5	309,467	0	0.00000	1.00000	74.49
38.5	279,655	0	0.00000	1.00000	74.49
39.5	246,530	0	0.00000	1.00000	74.49
40.5	244,009	0	0.00000	1.00000	74.49
41.5	211,393	64,116	0.30330	0.69670	74.49
42.5	109,574	3,996	0.03647	0.96353	51.90
43.5	97,670	0	0.00000	1.00000	50.01
44.5	59,694	0	0.00000	1.00000	50.01
45.5	50,956	0	0.00000	1.00000	50.01
46.5	40,973	0	0.00000	1.00000	50.01
47.5	40,973	0	0.00000	1.00000	50.01
48.5	27,873	0	0.00000	1.00000	50.01
49.5	27,873	0	0.00000	1.00000	50.01
50.5	27,873	0	0.00000	1.00000	50.01
51.5	27,873	0	0.00000	1.00000	50.01
52.5	19,571	0	0.00000	1.00000	50.01
53.5	19,571	0	0.00000	1.00000	50.01
54.5	12,751	0	0.00000	1.00000	50.01
Totals:		265,647			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R12 - Right-Of-Ways

Placement Band - 1966 - 2022 Experience Band - 2001 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R12 - Right-Of-Ways

Placement Band - 1966 - 2022 Experience Band - 2001 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	45,277,577	1,600	0.00004	0.99996	100.00
0.5	45,068,299	0	0.00000	1.00000	100.00
1.5	45,049,826	0	0.00000	1.00000	100.00
2.5	44,723,302	0	0.00000	1.00000	100.00
3.5	43,819,419	0	0.00000	1.00000	100.00
4.5	43,118,469	0	0.00000	1.00000	100.00
5.5	20,803,770	0	0.00000	1.00000	100.00
6.5	20,737,279	11,091	0.00053	0.99947	100.00
7.5	20,273,468	0	0.00000	1.00000	99.95
8.5	19,999,331	0	0.00000	1.00000	99.95
9.5	19,555,281	11,848	0.00061	0.99939	99.95
10.5	19,209,986	15,824	0.00082	0.99918	99.89
11.5	19,180,283	0	0.00000	1.00000	99.81
12.5	19,082,638	0	0.00000	1.00000	99.81
13.5	18,916,282	0	0.00000	1.00000	99.81
14.5	18,766,916	0	0.00000	1.00000	99.81
15.5	18,667,459	0	0.00000	1.00000	99.81
16.5	17,538,921	0	0.00000	1.00000	99.81
17.5	17,410,233	14,319	0.00082	0.99918	99.81
18.5	17,316,615	0	0.00000	1.00000	99.73
19.5	17,283,908	1,048	0.00006	0.99994	99.73
20.5	15,853,810	0	0.00000	1.00000	99.72
21.5	15,843,278	0	0.00000	1.00000	99.72
22.5	15,828,260	0	0.00000	1.00000	99.72
23.5	15,724,518	0	0.00000	1.00000	99.72
24.5	15,134,169	27,955	0.00185	0.99815	99.72
25.5	14,976,732	0	0.00000	1.00000	99.54
26.5	14,445,086	0	0.00000	1.00000	99.54

NEWFOUNDLAND AND LABRADOR HYDRO

Account R12 - Right-Of-Ways

Placement Band - 1966 - 2022 Experience Band - 2001 - 2022

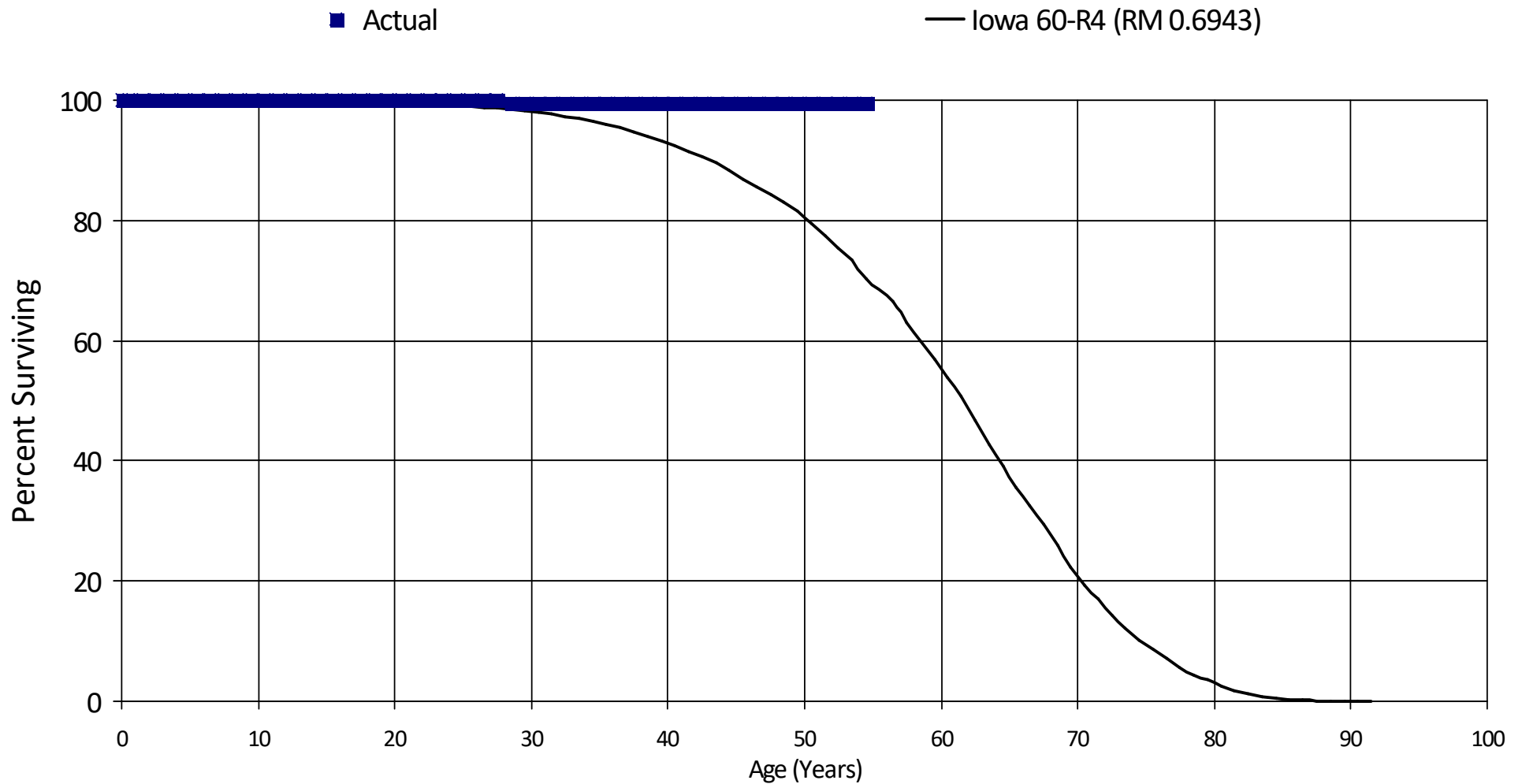
27.5	14,120,288	286,000	0.02025	0.97975	99.54
28.5	13,798,097	0	0.00000	1.00000	97.52
29.5	13,709,860	0	0.00000	1.00000	97.52
30.5	13,685,886	0	0.00000	1.00000	97.52
31.5	13,517,127	0	0.00000	1.00000	97.52
32.5	12,730,906	0	0.00000	1.00000	97.52
33.5	12,181,131	0	0.00000	1.00000	97.52
34.5	12,005,434	0	0.00000	1.00000	97.52
35.5	11,442,274	0	0.00000	1.00000	97.52
36.5	11,402,299	0	0.00000	1.00000	97.52
37.5	9,688,195	0	0.00000	1.00000	97.52
38.5	9,621,257	0	0.00000	1.00000	97.52
39.5	7,835,157	0	0.00000	1.00000	97.52
40.5	7,041,892	0	0.00000	1.00000	97.52
41.5	5,925,944	0	0.00000	1.00000	97.52
42.5	5,803,755	0	0.00000	1.00000	97.52
43.5	5,803,755	1,359,864	0.23431	0.76569	97.52
44.5	4,423,504	0	0.00000	1.00000	74.67
45.5	4,397,840	7,182	0.00163	0.99837	74.67
46.5	4,266,077	0	0.00000	1.00000	74.55
47.5	4,266,077	0	0.00000	1.00000	74.55
48.5	3,691,485	0	0.00000	1.00000	74.55
49.5	3,685,750	0	0.00000	1.00000	74.55
50.5	3,430,573	0	0.00000	1.00000	74.55
51.5	3,430,573	0	0.00000	1.00000	74.55
52.5	3,131,034	0	0.00000	1.00000	74.55
53.5	3,045,745	0	0.00000	1.00000	74.55
54.5	2,771,429	0	0.00000	1.00000	74.55
55.5	1,057,755	0	0.00000	1.00000	74.55
Totals:		1,736,731			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R13 - Roads

Placement Band - 1967 - 2020 Experience Band - 2012 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R13 - Roads

Placement Band - 1967 - 2020 Experience Band - 2012 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	89,401,457	0	0.00000	1.00000	100.00
0.5	89,401,457	0	0.00000	1.00000	100.00
1.5	89,401,457	24,102	0.00027	0.99973	100.00
2.5	88,573,041	0	0.00000	1.00000	99.97
3.5	88,573,041	0	0.00000	1.00000	99.97
4.5	88,573,041	2,866	0.00003	0.99997	99.97
5.5	87,623,452	0	0.00000	1.00000	99.97
6.5	84,572,152	0	0.00000	1.00000	99.97
7.5	83,632,342	0	0.00000	1.00000	99.97
8.5	83,126,742	1,212	0.00001	0.99999	99.97
9.5	83,073,859	0	0.00000	1.00000	99.97
10.5	82,828,267	0	0.00000	1.00000	99.97
11.5	81,774,897	0	0.00000	1.00000	99.97
12.5	80,791,639	0	0.00000	1.00000	99.97
13.5	80,467,321	0	0.00000	1.00000	99.97
14.5	80,062,456	0	0.00000	1.00000	99.97
15.5	79,128,421	0	0.00000	1.00000	99.97
16.5	79,128,421	0	0.00000	1.00000	99.97
17.5	77,770,078	0	0.00000	1.00000	99.97
18.5	77,770,078	0	0.00000	1.00000	99.97
19.5	77,002,162	0	0.00000	1.00000	99.97
20.5	76,958,149	0	0.00000	1.00000	99.97
21.5	76,525,806	0	0.00000	1.00000	99.97
22.5	76,369,935	0	0.00000	1.00000	99.97
23.5	76,369,935	0	0.00000	1.00000	99.97
24.5	76,369,935	0	0.00000	1.00000	99.97
25.5	76,354,286	0	0.00000	1.00000	99.97
26.5	76,350,327	0	0.00000	1.00000	99.97

NEWFOUNDLAND AND LABRADOR HYDRO

Account R13 - Roads

Placement Band - 1967 - 2020 Experience Band - 2012 - 2022

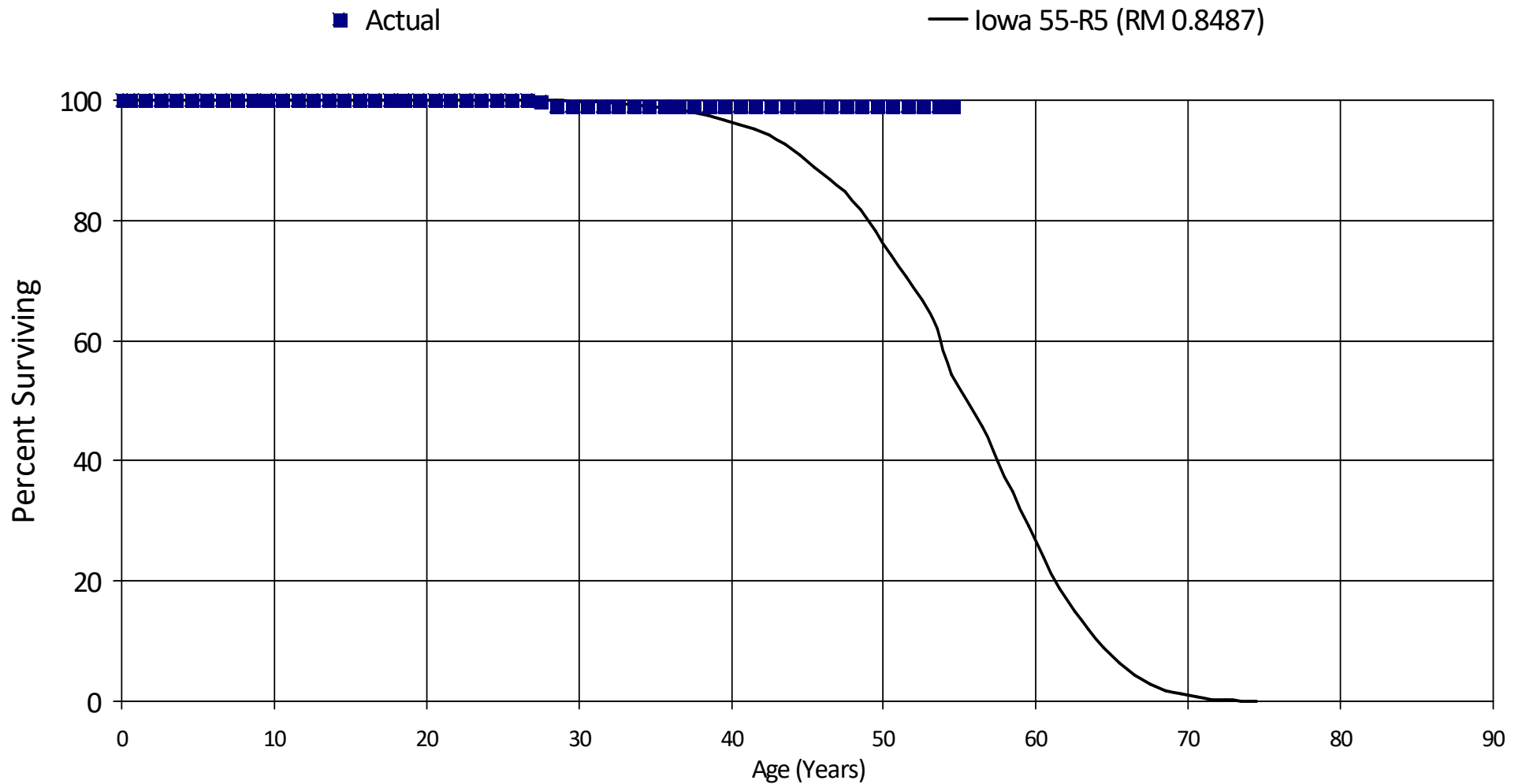
27.5	76,340,320	294,807	0.00386	0.99614	99.97
28.5	76,020,373	0	0.00000	1.00000	99.58
29.5	76,014,962	0	0.00000	1.00000	99.58
30.5	76,014,962	3,012	0.00004	0.99996	99.58
31.5	75,957,386	0	0.00000	1.00000	99.58
32.5	75,905,142	0	0.00000	1.00000	99.58
33.5	75,541,788	0	0.00000	1.00000	99.58
34.5	74,235,133	0	0.00000	1.00000	99.58
35.5	74,235,133	0	0.00000	1.00000	99.58
36.5	74,221,891	0	0.00000	1.00000	99.58
37.5	73,905,105	0	0.00000	1.00000	99.58
38.5	13,365,004	0	0.00000	1.00000	99.58
39.5	3,766,071	0	0.00000	1.00000	99.58
40.5	3,763,159	0	0.00000	1.00000	99.58
41.5	3,747,393	0	0.00000	1.00000	99.58
42.5	748,219	0	0.00000	1.00000	99.58
43.5	743,158	0	0.00000	1.00000	99.58
44.5	732,109	0	0.00000	1.00000	99.58
45.5	720,351	0	0.00000	1.00000	99.58
46.5	720,351	0	0.00000	1.00000	99.58
47.5	720,351	0	0.00000	1.00000	99.58
48.5	720,351	0	0.00000	1.00000	99.58
49.5	709,139	0	0.00000	1.00000	99.58
50.5	709,139	0	0.00000	1.00000	99.58
51.5	682,139	0	0.00000	1.00000	99.58
52.5	553,964	0	0.00000	1.00000	99.58
53.5	63,486	0	0.00000	1.00000	99.58
54.5	40,993	0	0.00000	1.00000	99.58
Totals:		325,999			

NEWFOUNDLAND AND LABRADOR HYDRO

Account R15 - Runner

Placement Band - 1967 - 2022 Experience Band - 1993 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account R15 - Runner

Placement Band - 1967 - 2022 Experience Band - 1993 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	12,100,461	0	0.00000	1.00000	100.00
0.5	11,783,932	0	0.00000	1.00000	100.00
1.5	11,783,932	0	0.00000	1.00000	100.00
2.5	11,783,932	0	0.00000	1.00000	100.00
3.5	11,783,932	0	0.00000	1.00000	100.00
4.5	11,783,932	0	0.00000	1.00000	100.00
5.5	11,783,932	0	0.00000	1.00000	100.00
6.5	11,783,932	0	0.00000	1.00000	100.00
7.5	11,783,932	0	0.00000	1.00000	100.00
8.5	11,783,932	0	0.00000	1.00000	100.00
9.5	11,783,932	0	0.00000	1.00000	100.00
10.5	11,783,932	0	0.00000	1.00000	100.00
11.5	11,783,932	0	0.00000	1.00000	100.00
12.5	11,783,932	0	0.00000	1.00000	100.00
13.5	11,783,932	0	0.00000	1.00000	100.00
14.5	11,783,932	0	0.00000	1.00000	100.00
15.5	11,783,932	0	0.00000	1.00000	100.00
16.5	11,783,932	0	0.00000	1.00000	100.00
17.5	11,783,932	0	0.00000	1.00000	100.00
18.5	11,783,932	0	0.00000	1.00000	100.00
19.5	11,783,932	0	0.00000	1.00000	100.00
20.5	11,783,932	0	0.00000	1.00000	100.00
21.5	11,783,932	0	0.00000	1.00000	100.00
22.5	11,783,932	0	0.00000	1.00000	100.00
23.5	11,783,932	0	0.00000	1.00000	100.00
24.5	11,737,244	14,002	0.00119	0.99881	100.00
25.5	11,723,242	58	0.00000	1.00000	99.88
26.5	11,663,342	28,005	0.00240	0.99760	99.88

NEWFOUNDLAND AND LABRADOR HYDRO

Account R15 - Runner

Placement Band - 1967 - 2022 Experience Band - 1993 - 2022

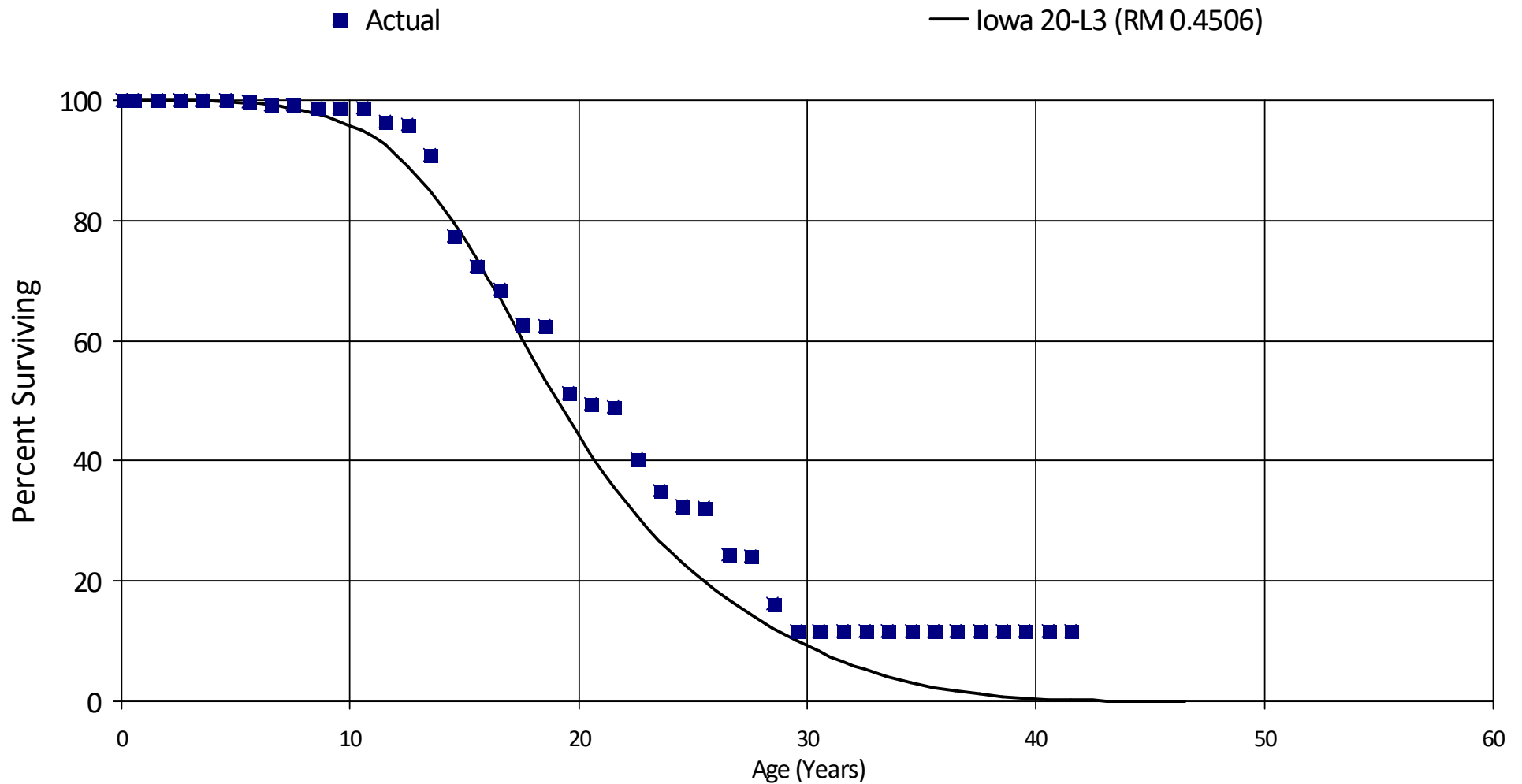
27.5	11,635,337	72,022	0.00619	0.99381	99.64
28.5	11,547,156	0	0.00000	1.00000	99.02
29.5	11,547,156	0	0.00000	1.00000	99.02
30.5	11,547,156	0	0.00000	1.00000	99.02
31.5	11,547,156	0	0.00000	1.00000	99.02
32.5	11,547,156	0	0.00000	1.00000	99.02
33.5	10,963,769	0	0.00000	1.00000	99.02
34.5	10,963,769	0	0.00000	1.00000	99.02
35.5	10,963,769	0	0.00000	1.00000	99.02
36.5	10,963,769	0	0.00000	1.00000	99.02
37.5	8,318,863	0	0.00000	1.00000	99.02
38.5	8,318,863	0	0.00000	1.00000	99.02
39.5	8,318,863	0	0.00000	1.00000	99.02
40.5	8,318,863	0	0.00000	1.00000	99.02
41.5	8,318,863	0	0.00000	1.00000	99.02
42.5	8,268,519	0	0.00000	1.00000	99.02
43.5	8,268,519	0	0.00000	1.00000	99.02
44.5	8,268,519	0	0.00000	1.00000	99.02
45.5	8,138,207	0	0.00000	1.00000	99.02
46.5	8,138,207	0	0.00000	1.00000	99.02
47.5	8,138,207	0	0.00000	1.00000	99.02
48.5	8,138,207	0	0.00000	1.00000	99.02
49.5	8,138,207	0	0.00000	1.00000	99.02
50.5	8,138,207	0	0.00000	1.00000	99.02
51.5	8,138,207	0	0.00000	1.00000	99.02
52.5	6,679,642	0	0.00000	1.00000	99.02
53.5	6,679,642	0	0.00000	1.00000	99.02
54.5	5,230,693	0	0.00000	1.00000	99.02
Totals:		114,087			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S01 - SCADA Equipment

Placement Band - 1980 - 2022 Experience Band - 1999 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S01 - SCADA Equipment

Placement Band - 1980 - 2022 Experience Band - 1999 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	8,703,893	0	0.00000	1.00000	100.00
0.5	8,451,278	0	0.00000	1.00000	100.00
1.5	8,302,922	0	0.00000	1.00000	100.00
2.5	7,435,770	0	0.00000	1.00000	100.00
3.5	7,384,946	0	0.00000	1.00000	100.00
4.5	7,152,563	9,152	0.00128	0.99872	100.00
5.5	6,793,613	39,027	0.00574	0.99426	99.87
6.5	6,648,387	0	0.00000	1.00000	99.30
7.5	5,892,023	27,324	0.00464	0.99536	99.30
8.5	5,864,699	0	0.00000	1.00000	98.84
9.5	5,655,011	0	0.00000	1.00000	98.84
10.5	5,655,011	141,749	0.02507	0.97493	98.84
11.5	5,439,164	26,444	0.00486	0.99514	96.36
12.5	5,046,091	258,673	0.05126	0.94874	95.89
13.5	4,535,424	680,370	0.15001	0.84999	90.97
14.5	3,757,767	248,412	0.06611	0.93389	77.32
15.5	3,439,475	171,933	0.04999	0.95001	72.21
16.5	3,214,800	272,794	0.08486	0.91514	68.60
17.5	2,751,960	18,448	0.00670	0.99330	62.78
18.5	2,467,051	435,419	0.17649	0.82351	62.36
19.5	1,790,397	61,397	0.03429	0.96571	51.35
20.5	1,589,692	19,714	0.01240	0.98760	49.59
21.5	1,281,623	228,460	0.17826	0.82174	48.98
22.5	1,005,530	127,565	0.12686	0.87314	40.25
23.5	769,685	56,831	0.07384	0.92616	35.14
24.5	712,854	7,398	0.01038	0.98962	32.55
25.5	705,456	174,629	0.24754	0.75246	32.21
26.5	530,827	188	0.00035	0.99965	24.24

NEWFOUNDLAND AND LABRADOR HYDRO

Account S01 - SCADA Equipment

Placement Band - 1980 - 2022 Experience Band - 1999 - 2022

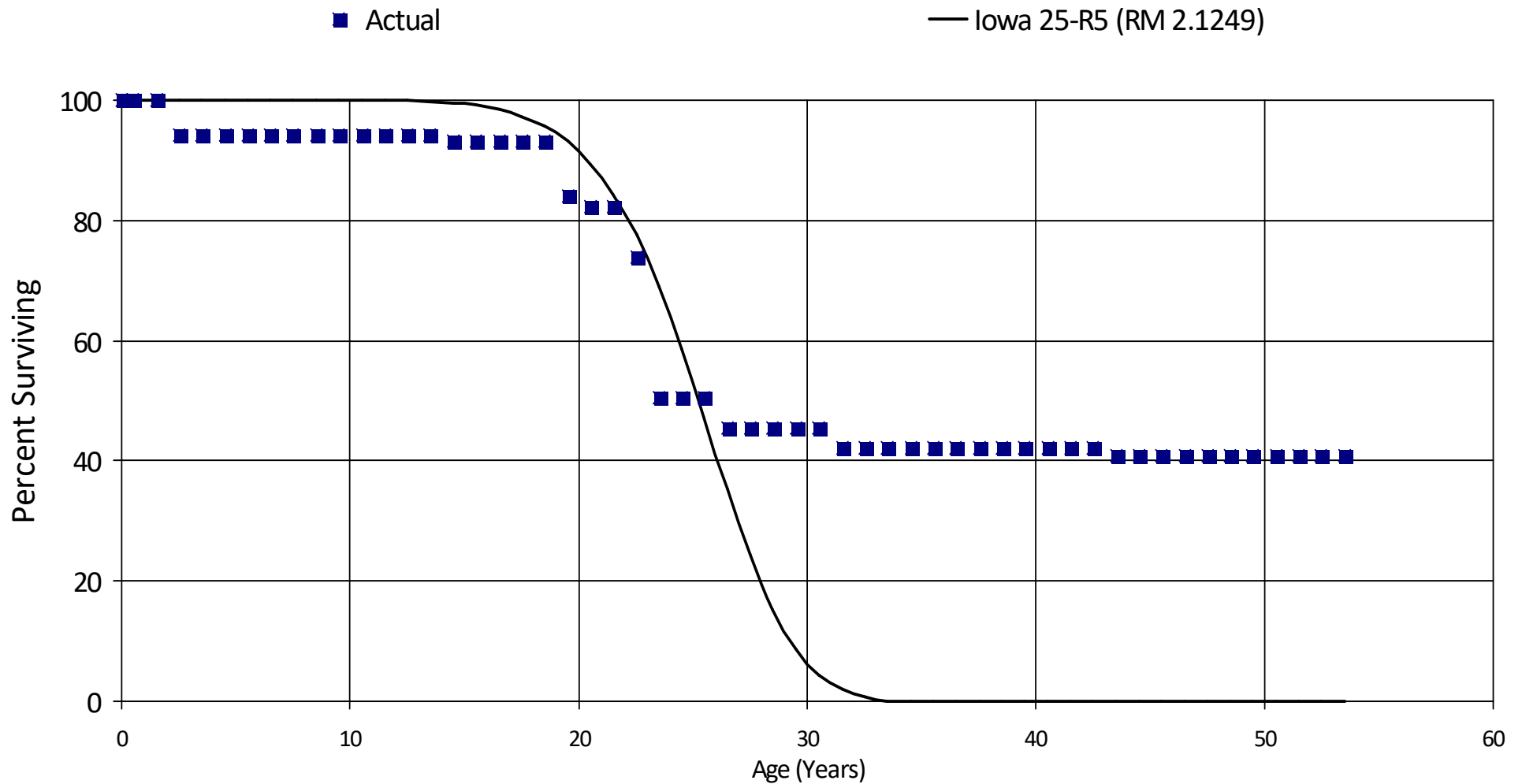
27.5	516,352	171,129	0.33142	0.66858	24.23
28.5	345,223	98,514	0.28536	0.71464	16.20
29.5	246,710	0	0.00000	1.00000	11.58
30.5	246,710	0	0.00000	1.00000	11.58
31.5	246,710	0	0.00000	1.00000	11.58
32.5	173,333	0	0.00000	1.00000	11.58
33.5	145,420	0	0.00000	1.00000	11.58
34.5	145,420	0	0.00000	1.00000	11.58
35.5	145,420	0	0.00000	1.00000	11.58
36.5	89,955	0	0.00000	1.00000	11.58
37.5	89,955	0	0.00000	1.00000	11.58
38.5	89,955	0	0.00000	1.00000	11.58
39.5	89,955	0	0.00000	1.00000	11.58
40.5	89,955	0	0.00000	1.00000	11.58
41.5	89,955	0	0.00000	1.00000	11.58
Totals:		3,275,570			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S02 - Sectionalizers

Placement Band - 1968 - 2022 Experience Band - 2002 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S02 - Sectionalizers

Placement Band - 1968 - 2022 Experience Band - 2002 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	490,901	0	0.00000	1.00000	100.00
0.5	255,303	0	0.00000	1.00000	100.00
1.5	255,303	14,645	0.05736	0.94264	100.00
2.5	240,658	0	0.00000	1.00000	94.26
3.5	192,129	0	0.00000	1.00000	94.26
4.5	192,129	0	0.00000	1.00000	94.26
5.5	192,129	0	0.00000	1.00000	94.26
6.5	192,129	0	0.00000	1.00000	94.26
7.5	192,129	0	0.00000	1.00000	94.26
8.5	192,129	0	0.00000	1.00000	94.26
9.5	192,129	0	0.00000	1.00000	94.26
10.5	192,129	0	0.00000	1.00000	94.26
11.5	192,129	0	0.00000	1.00000	94.26
12.5	186,686	0	0.00000	1.00000	94.26
13.5	186,686	2,387	0.01279	0.98721	94.26
14.5	184,299	0	0.00000	1.00000	93.05
15.5	184,299	0	0.00000	1.00000	93.05
16.5	184,299	0	0.00000	1.00000	93.05
17.5	184,299	0	0.00000	1.00000	93.05
18.5	184,299	17,768	0.09641	0.90359	93.05
19.5	166,531	3,493	0.02098	0.97902	84.08
20.5	163,038	0	0.00000	1.00000	82.32
21.5	163,038	16,621	0.10195	0.89805	82.32
22.5	142,311	45,060	0.31663	0.68337	73.93
23.5	97,251	0	0.00000	1.00000	50.52
24.5	97,251	0	0.00000	1.00000	50.52
25.5	97,251	9,889	0.10169	0.89831	50.52
26.5	87,362	0	0.00000	1.00000	45.38

NEWFOUNDLAND AND LABRADOR HYDRO

Account S02 - Sectionalizers

Placement Band - 1968 - 2022 Experience Band - 2002 - 2022

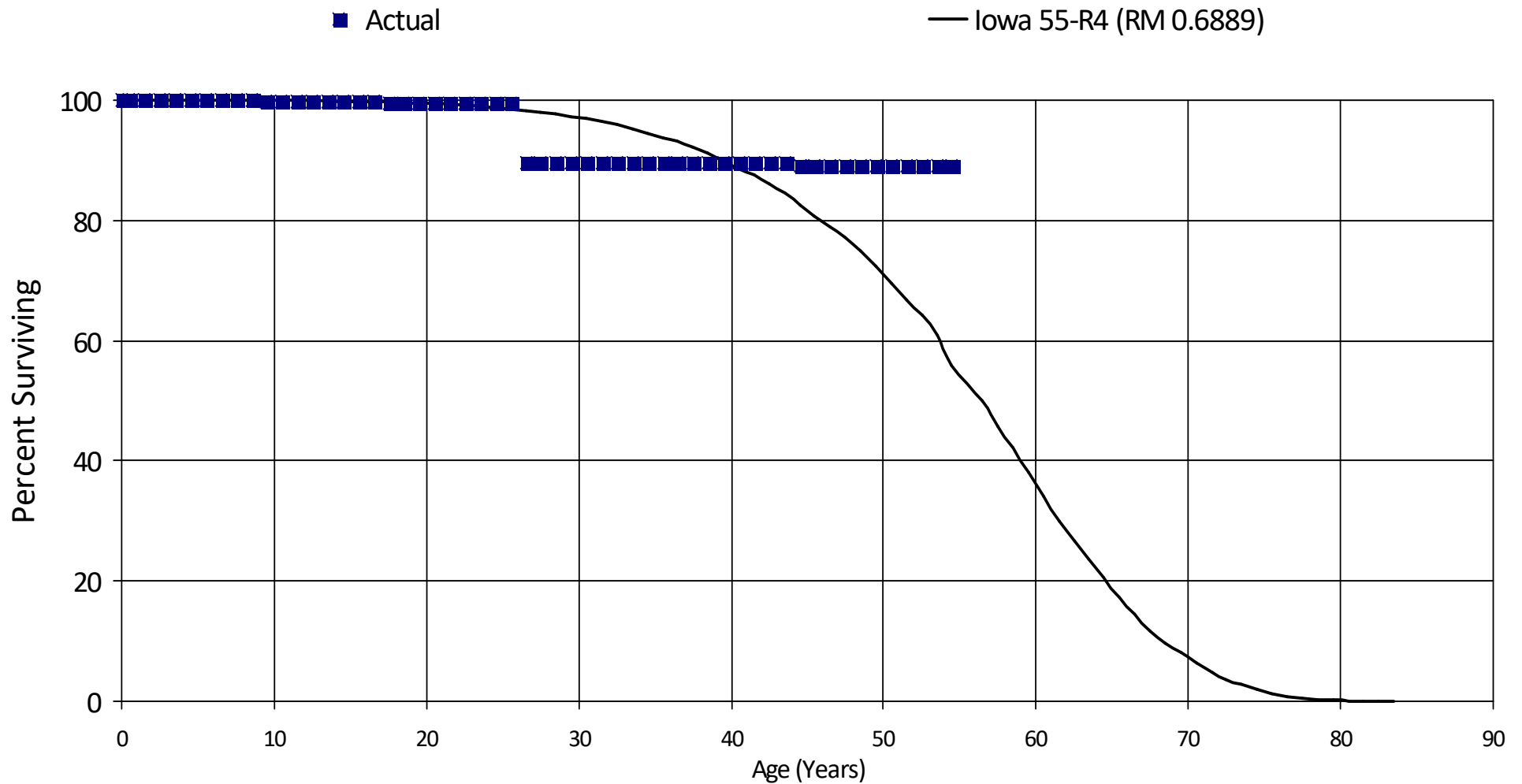
27.5	87,362	0	0.00000	1.00000	45.38
28.5	87,362	0	0.00000	1.00000	45.38
29.5	87,362	0	0.00000	1.00000	45.38
30.5	87,362	6,026	0.06898	0.93102	45.38
31.5	57,576	0	0.00000	1.00000	42.25
32.5	57,576	0	0.00000	1.00000	42.25
33.5	55,849	0	0.00000	1.00000	42.25
34.5	55,849	0	0.00000	1.00000	42.25
35.5	55,849	0	0.00000	1.00000	42.25
36.5	53,908	0	0.00000	1.00000	42.25
37.5	53,908	0	0.00000	1.00000	42.25
38.5	53,908	0	0.00000	1.00000	42.25
39.5	53,908	0	0.00000	1.00000	42.25
40.5	53,908	0	0.00000	1.00000	42.25
41.5	53,908	0	0.00000	1.00000	42.25
42.5	53,908	1,756	0.03257	0.96743	42.25
43.5	52,152	0	0.00000	1.00000	40.87
44.5	52,152	0	0.00000	1.00000	40.87
45.5	52,152	0	0.00000	1.00000	40.87
46.5	52,152	0	0.00000	1.00000	40.87
47.5	28,382	0	0.00000	1.00000	40.87
48.5	28,382	0	0.00000	1.00000	40.87
49.5	28,382	0	0.00000	1.00000	40.87
50.5	28,382	0	0.00000	1.00000	40.87
51.5	28,382	0	0.00000	1.00000	40.87
52.5	28,382	0	0.00000	1.00000	40.87
53.5	28,382	10,918	0.38468	0.61532	40.87
Totals:		128,563			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S04 - Sewage Disposal System

Placement Band - 1967 - 2022 Experience Band - 2003 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S04 - Sewage Disposal System

Placement Band - 1967 - 2022 Experience Band - 2003 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	3,089,966	0	0.00000	1.00000	100.00
0.5	3,067,357	0	0.00000	1.00000	100.00
1.5	3,067,357	0	0.00000	1.00000	100.00
2.5	3,067,357	0	0.00000	1.00000	100.00
3.5	3,067,357	0	0.00000	1.00000	100.00
4.5	3,067,357	0	0.00000	1.00000	100.00
5.5	2,936,276	0	0.00000	1.00000	100.00
6.5	2,936,276	0	0.00000	1.00000	100.00
7.5	2,936,276	0	0.00000	1.00000	100.00
8.5	2,936,276	8,327	0.00284	0.99716	100.00
9.5	2,927,949	0	0.00000	1.00000	99.72
10.5	2,927,949	0	0.00000	1.00000	99.72
11.5	2,784,583	0	0.00000	1.00000	99.72
12.5	2,658,825	0	0.00000	1.00000	99.72
13.5	2,613,946	0	0.00000	1.00000	99.72
14.5	2,569,342	0	0.00000	1.00000	99.72
15.5	2,511,212	0	0.00000	1.00000	99.72
16.5	2,475,897	3,872	0.00156	0.99844	99.72
17.5	2,472,025	0	0.00000	1.00000	99.56
18.5	2,472,025	0	0.00000	1.00000	99.56
19.5	2,381,131	0	0.00000	1.00000	99.56
20.5	2,025,304	0	0.00000	1.00000	99.56
21.5	2,025,304	899	0.00044	0.99956	99.56
22.5	2,024,405	0	0.00000	1.00000	99.52
23.5	1,048,219	0	0.00000	1.00000	99.52
24.5	992,621	0	0.00000	1.00000	99.52
25.5	988,387	98,379	0.09953	0.90047	99.52
26.5	876,525	0	0.00000	1.00000	89.61

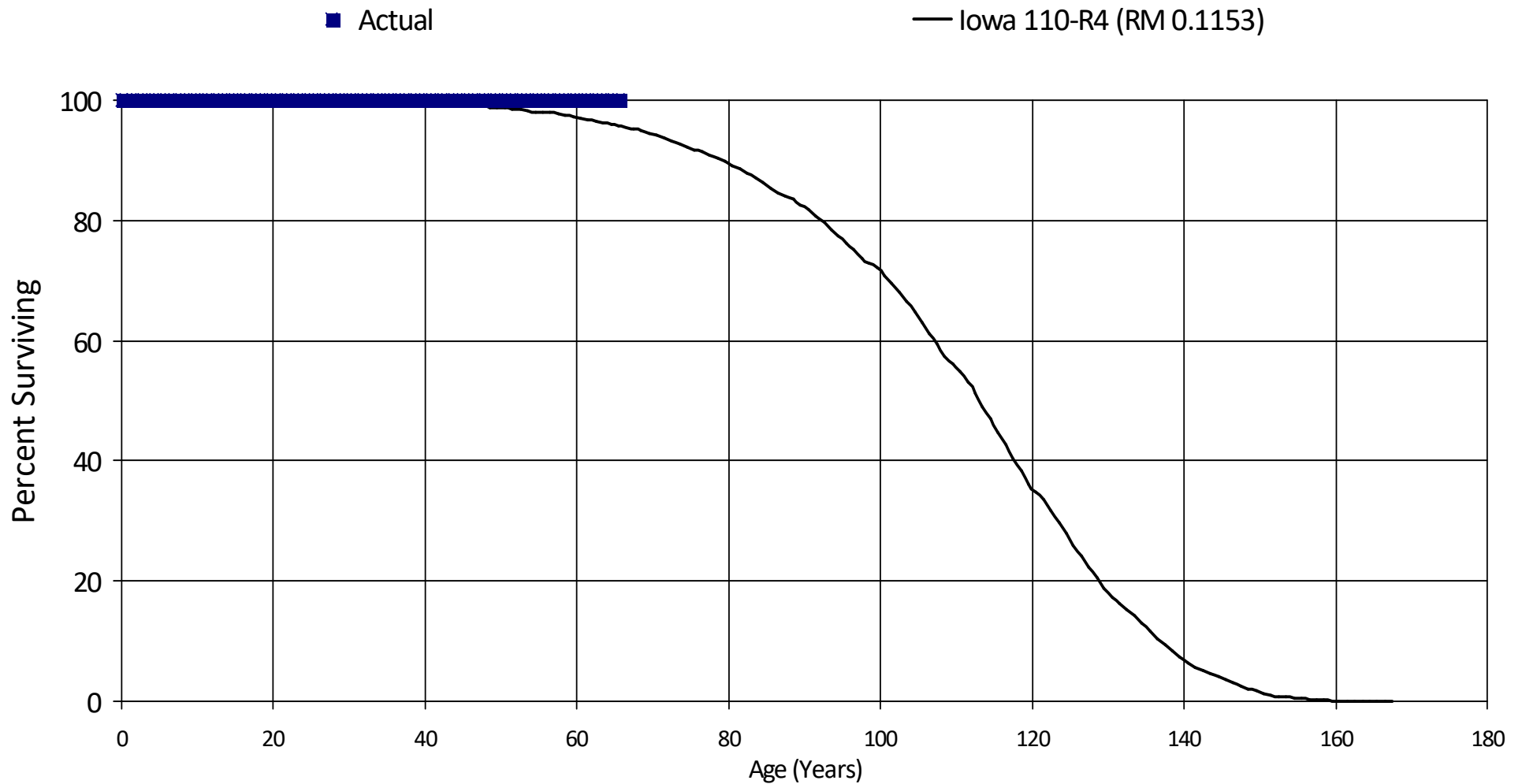
NEWFOUNDLAND AND LABRADOR HYDRO

Account S04 - Sewage Disposal System

Placement Band - 1967 - 2022 Experience Band - 2003 - 2022

27.5	747,041	0	0.00000	1.00000	89.61
28.5	747,041	0	0.00000	1.00000	89.61
29.5	747,041	0	0.00000	1.00000	89.61
30.5	731,200	0	0.00000	1.00000	89.61
31.5	731,200	0	0.00000	1.00000	89.61
32.5	681,193	0	0.00000	1.00000	89.61
33.5	373,175	0	0.00000	1.00000	89.61
34.5	370,477	0	0.00000	1.00000	89.61
35.5	370,477	0	0.00000	1.00000	89.61
36.5	370,477	0	0.00000	1.00000	89.61
37.5	370,477	0	0.00000	1.00000	89.61
38.5	370,477	0	0.00000	1.00000	89.61
39.5	362,744	0	0.00000	1.00000	89.61
40.5	359,744	0	0.00000	1.00000	89.61
41.5	357,077	0	0.00000	1.00000	89.61
42.5	213,958	0	0.00000	1.00000	89.61
43.5	213,958	1,523	0.00712	0.99288	89.61
44.5	178,419	0	0.00000	1.00000	88.97
45.5	170,558	0	0.00000	1.00000	88.97
46.5	170,558	0	0.00000	1.00000	88.97
47.5	170,558	0	0.00000	1.00000	88.97
48.5	170,558	0	0.00000	1.00000	88.97
49.5	170,558	0	0.00000	1.00000	88.97
50.5	165,904	0	0.00000	1.00000	88.97
51.5	164,517	0	0.00000	1.00000	88.97
52.5	150,432	0	0.00000	1.00000	88.97
53.5	17,904	0	0.00000	1.00000	88.97
54.5	10,112	0	0.00000	1.00000	88.97
Totals:		113,000			

NEWFOUNDLAND AND LABRADOR HYDRO
Account S06 - Spillway Structures and Water Regulating Structures
Placement Band - 1956 - 2022 Experience Band - 2022 - 2022
Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S06 - Spillway Structures and Water Regulating Structures

Placement Band - 1956 - 2022 Experience Band - 2022 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	53,477,105	0	0.00000	1.00000	100.00
0.5	53,152,051	0	0.00000	1.00000	100.00
1.5	52,995,447	0	0.00000	1.00000	100.00
2.5	52,741,867	0	0.00000	1.00000	100.00
3.5	51,944,507	0	0.00000	1.00000	100.00
4.5	51,365,031	0	0.00000	1.00000	100.00
5.5	51,117,186	0	0.00000	1.00000	100.00
6.5	50,570,656	0	0.00000	1.00000	100.00
7.5	50,520,656	0	0.00000	1.00000	100.00
8.5	50,520,656	0	0.00000	1.00000	100.00
9.5	50,520,656	0	0.00000	1.00000	100.00
10.5	50,520,656	0	0.00000	1.00000	100.00
11.5	50,520,656	0	0.00000	1.00000	100.00
12.5	50,225,182	0	0.00000	1.00000	100.00
13.5	50,225,182	0	0.00000	1.00000	100.00
14.5	50,225,182	0	0.00000	1.00000	100.00
15.5	50,225,182	0	0.00000	1.00000	100.00
16.5	50,225,182	0	0.00000	1.00000	100.00
17.5	50,225,182	0	0.00000	1.00000	100.00
18.5	50,225,182	0	0.00000	1.00000	100.00
19.5	33,146,861	0	0.00000	1.00000	100.00
20.5	33,146,861	0	0.00000	1.00000	100.00
21.5	33,146,861	0	0.00000	1.00000	100.00
22.5	33,146,861	0	0.00000	1.00000	100.00
23.5	33,095,891	0	0.00000	1.00000	100.00
24.5	33,095,891	0	0.00000	1.00000	100.00
25.5	33,095,891	0	0.00000	1.00000	100.00
26.5	33,095,891	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account S06 - Spillway Structures and Water Regulating Structures

Placement Band - 1956 - 2022 Experience Band - 2022 - 2022

27.5	33,095,891	0	0.00000	1.00000	100.00
28.5	33,095,891	0	0.00000	1.00000	100.00
29.5	33,095,891	0	0.00000	1.00000	100.00
30.5	33,089,184	0	0.00000	1.00000	100.00
31.5	33,053,602	0	0.00000	1.00000	100.00
32.5	33,053,602	0	0.00000	1.00000	100.00
33.5	33,053,602	0	0.00000	1.00000	100.00
34.5	33,024,831	0	0.00000	1.00000	100.00
35.5	33,024,831	0	0.00000	1.00000	100.00
36.5	33,024,831	0	0.00000	1.00000	100.00
37.5	33,019,764	0	0.00000	1.00000	100.00
38.5	26,508,709	0	0.00000	1.00000	100.00
39.5	24,744,924	0	0.00000	1.00000	100.00
40.5	12,914,913	0	0.00000	1.00000	100.00
41.5	12,914,913	0	0.00000	1.00000	100.00
42.5	12,892,820	0	0.00000	1.00000	100.00
43.5	7,486,751	0	0.00000	1.00000	100.00
44.5	7,486,751	0	0.00000	1.00000	100.00
45.5	7,486,751	0	0.00000	1.00000	100.00
46.5	7,486,751	0	0.00000	1.00000	100.00
47.5	7,486,751	0	0.00000	1.00000	100.00
48.5	7,486,751	0	0.00000	1.00000	100.00
49.5	7,486,751	0	0.00000	1.00000	100.00
50.5	7,486,751	0	0.00000	1.00000	100.00
51.5	7,486,751	0	0.00000	1.00000	100.00
52.5	7,486,751	0	0.00000	1.00000	100.00
53.5	7,486,751	0	0.00000	1.00000	100.00
54.5	7,486,751	908	0.00012	0.99988	100.00
55.5	2,955,072	0	0.00000	1.00000	99.99
56.5	37,231	0	0.00000	1.00000	99.99
57.5	37,231	0	0.00000	1.00000	99.99

NEWFOUNDLAND AND LABRADOR HYDRO

Account S06 - Spillway Structures and Water Regulating Structures

Placement Band - 1956 - 2022 Experience Band - 2022 - 2022

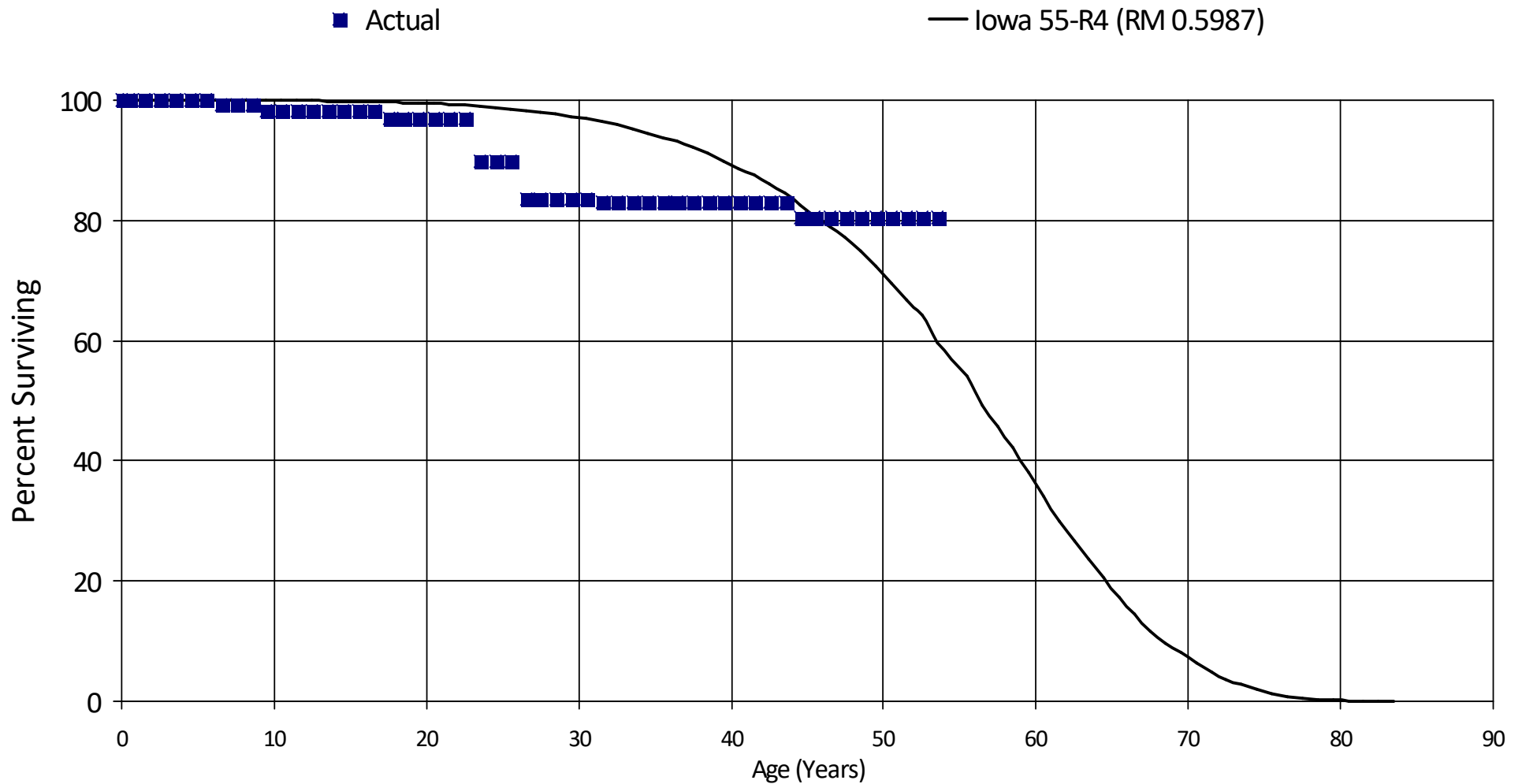
58.5	37,231	0	0.00000	1.00000	99.99
59.5	37,231	0	0.00000	1.00000	99.99
60.5	37,231	0	0.00000	1.00000	99.99
61.5	37,231	0	0.00000	1.00000	99.99
62.5	37,231	0	0.00000	1.00000	99.99
63.5	37,231	0	0.00000	1.00000	99.99
64.5	37,231	0	0.00000	1.00000	99.99
65.5	37,231	0	0.00000	1.00000	99.99
Totals:		908			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S07 - Stacks

Placement Band - 1968 - 2018 Experience Band - 1993 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S07 - Stacks

Placement Band - 1968 - 2018 Experience Band - 1993 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	8,293,803	0	0.00000	1.00000	100.00
0.5	8,293,803	0	0.00000	1.00000	100.00
1.5	8,293,803	9,927	0.00120	0.99880	100.00
2.5	8,283,876	0	0.00000	1.00000	99.88
3.5	8,283,876	0	0.00000	1.00000	99.88
4.5	7,918,386	0	0.00000	1.00000	99.88
5.5	7,918,386	50,280	0.00635	0.99365	99.88
6.5	7,819,729	0	0.00000	1.00000	99.25
7.5	4,037,908	0	0.00000	1.00000	99.25
8.5	4,037,908	42,116	0.01043	0.98957	99.25
9.5	3,995,792	0	0.00000	1.00000	98.21
10.5	3,995,792	0	0.00000	1.00000	98.21
11.5	3,467,811	0	0.00000	1.00000	98.21
12.5	3,467,811	0	0.00000	1.00000	98.21
13.5	3,467,811	0	0.00000	1.00000	98.21
14.5	3,228,198	0	0.00000	1.00000	98.21
15.5	3,120,018	0	0.00000	1.00000	98.21
16.5	3,120,018	36,649	0.01175	0.98825	98.21
17.5	3,083,370	0	0.00000	1.00000	97.06
18.5	3,083,370	0	0.00000	1.00000	97.06
19.5	3,083,370	0	0.00000	1.00000	97.06
20.5	3,083,370	0	0.00000	1.00000	97.06
21.5	2,989,347	0	0.00000	1.00000	97.06
22.5	2,989,347	225,731	0.07551	0.92449	97.06
23.5	2,763,616	0	0.00000	1.00000	89.73
24.5	2,763,616	0	0.00000	1.00000	89.73
25.5	2,763,616	195,010	0.07056	0.92944	89.73
26.5	2,447,582	0	0.00000	1.00000	83.40

NEWFOUNDLAND AND LABRADOR HYDRO

Account S07 - Stacks

Placement Band - 1968 - 2018 Experience Band - 1993 - 2022

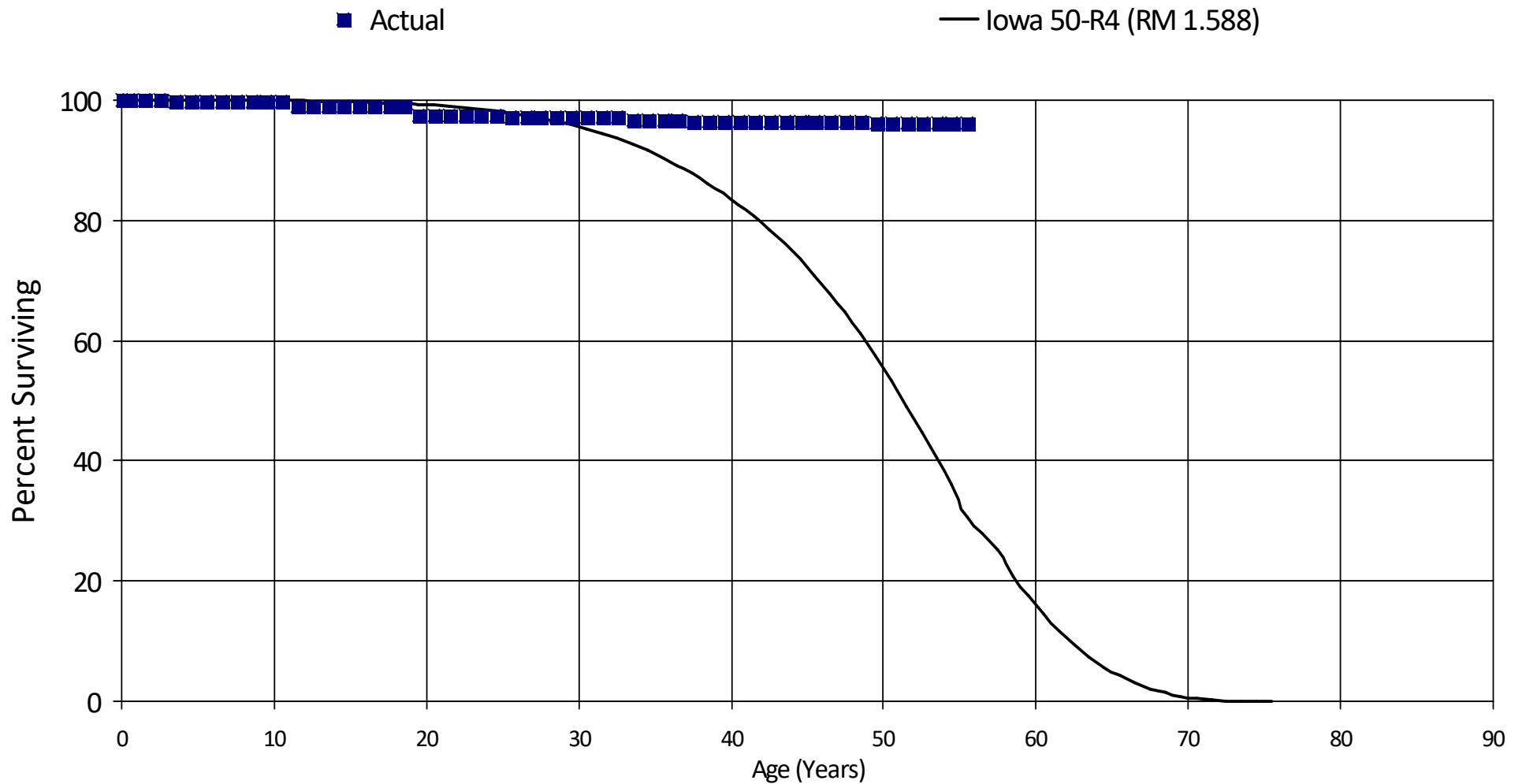
27.5	2,410,626	0	0.00000	1.00000	83.40
28.5	2,410,626	0	0.00000	1.00000	83.40
29.5	2,410,626	0	0.00000	1.00000	83.40
30.5	2,073,948	12,760	0.00615	0.99385	83.40
31.5	2,061,189	0	0.00000	1.00000	82.89
32.5	2,061,189	0	0.00000	1.00000	82.89
33.5	2,061,189	0	0.00000	1.00000	82.89
34.5	2,055,056	0	0.00000	1.00000	82.89
35.5	2,055,056	0	0.00000	1.00000	82.89
36.5	2,027,137	0	0.00000	1.00000	82.89
37.5	2,027,137	0	0.00000	1.00000	82.89
38.5	2,027,137	0	0.00000	1.00000	82.89
39.5	2,027,137	0	0.00000	1.00000	82.89
40.5	2,027,137	0	0.00000	1.00000	82.89
41.5	2,027,137	0	0.00000	1.00000	82.89
42.5	2,027,137	0	0.00000	1.00000	82.89
43.5	2,027,137	56,428	0.02784	0.97216	82.89
44.5	1,970,709	0	0.00000	1.00000	80.58
45.5	1,970,709	0	0.00000	1.00000	80.58
46.5	1,962,107	0	0.00000	1.00000	80.58
47.5	1,366,881	0	0.00000	1.00000	80.58
48.5	1,297,967	0	0.00000	1.00000	80.58
49.5	1,297,967	0	0.00000	1.00000	80.58
50.5	1,297,967	0	0.00000	1.00000	80.58
51.5	867,574	0	0.00000	1.00000	80.58
52.5	867,574	0	0.00000	1.00000	80.58
53.5	867,574	0	0.00000	1.00000	80.58
Totals:		628,901			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S10 - Station Service

Placement Band - 1966 - 2022 Experience Band - 1994 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S10 - Station Service

Placement Band - 1966 - 2022 Experience Band - 1994 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	10,367,683	0	0.00000	1.00000	100.00
0.5	10,120,333	0	0.00000	1.00000	100.00
1.5	10,002,355	0	0.00000	1.00000	100.00
2.5	10,002,355	13,370	0.00134	0.99866	100.00
3.5	7,399,724	0	0.00000	1.00000	99.87
4.5	7,386,069	0	0.00000	1.00000	99.87
5.5	5,865,432	0	0.00000	1.00000	99.87
6.5	5,342,715	0	0.00000	1.00000	99.87
7.5	3,779,216	0	0.00000	1.00000	99.87
8.5	3,750,688	0	0.00000	1.00000	99.87
9.5	3,722,760	0	0.00000	1.00000	99.87
10.5	3,632,295	32,567	0.00897	0.99103	99.87
11.5	3,573,416	0	0.00000	1.00000	98.97
12.5	3,555,161	0	0.00000	1.00000	98.97
13.5	3,215,659	0	0.00000	1.00000	98.97
14.5	2,840,333	0	0.00000	1.00000	98.97
15.5	2,840,333	0	0.00000	1.00000	98.97
16.5	2,840,333	0	0.00000	1.00000	98.97
17.5	2,840,333	0	0.00000	1.00000	98.97
18.5	2,840,333	45,266	0.01594	0.98406	98.97
19.5	2,795,066	0	0.00000	1.00000	97.39
20.5	2,793,704	0	0.00000	1.00000	97.39
21.5	2,793,704	0	0.00000	1.00000	97.39
22.5	2,793,704	0	0.00000	1.00000	97.39
23.5	2,793,704	484	0.00017	0.99983	97.39
24.5	2,793,220	2,892	0.00104	0.99896	97.37
25.5	2,790,328	0	0.00000	1.00000	97.27
26.5	2,707,372	0	0.00000	1.00000	97.27

NEWFOUNDLAND AND LABRADOR HYDRO

Account S10 - Station Service

Placement Band - 1966 - 2022 Experience Band - 1994 - 2022

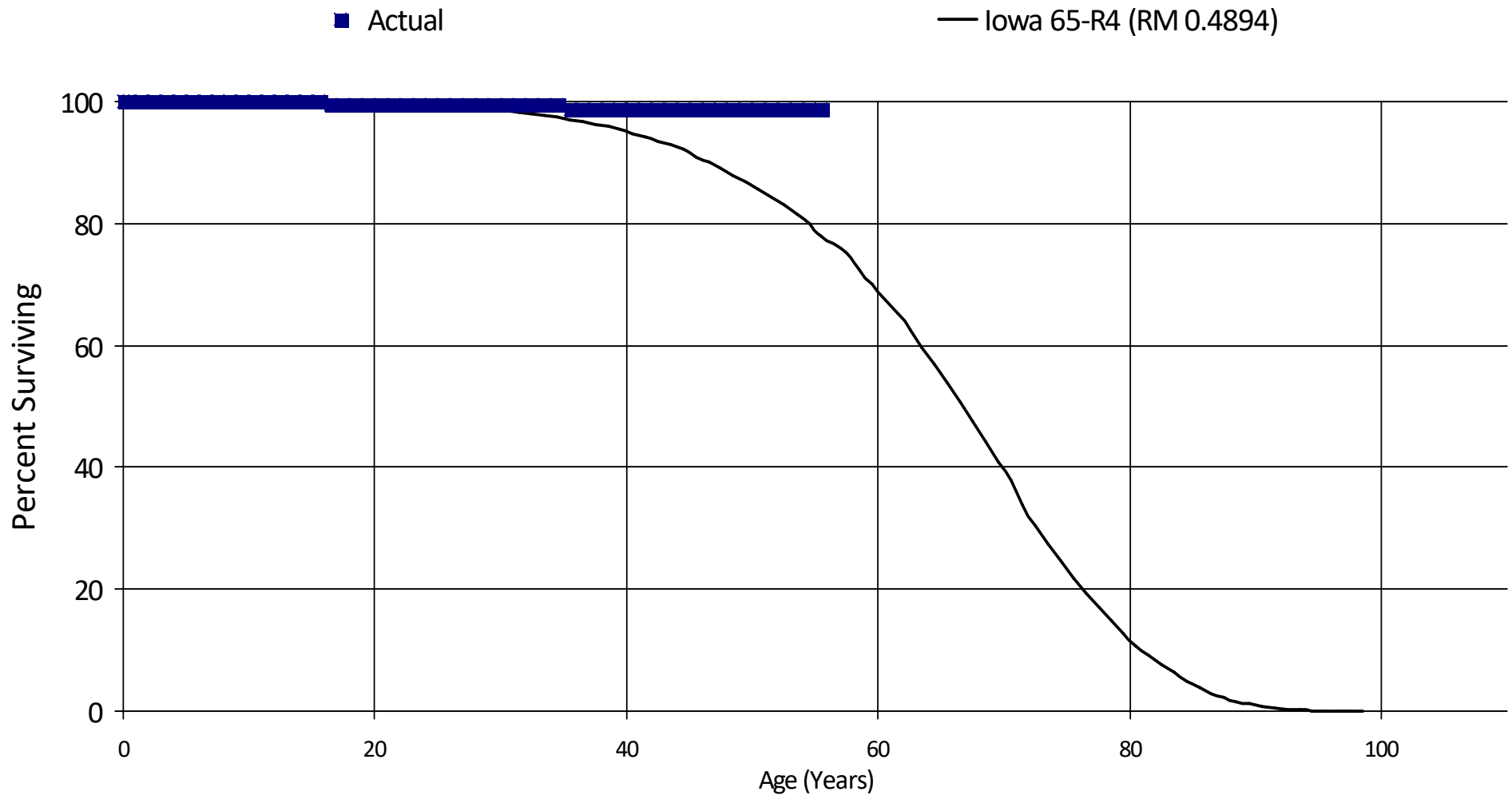
27.5	2,686,344	0	0.00000	1.00000	97.27
28.5	2,644,222	2,402	0.00091	0.99909	97.27
29.5	2,639,376	0	0.00000	1.00000	97.18
30.5	2,638,490	0	0.00000	1.00000	97.18
31.5	2,635,715	0	0.00000	1.00000	97.18
32.5	2,610,678	9,576	0.00367	0.99633	97.18
33.5	2,502,995	695	0.00028	0.99972	96.82
34.5	2,433,065	0	0.00000	1.00000	96.79
35.5	2,430,397	0	0.00000	1.00000	96.79
36.5	2,427,540	7,886	0.00325	0.99675	96.79
37.5	1,918,805	0	0.00000	1.00000	96.48
38.5	1,918,805	0	0.00000	1.00000	96.48
39.5	1,143,363	0	0.00000	1.00000	96.48
40.5	1,135,638	0	0.00000	1.00000	96.48
41.5	1,126,551	237	0.00021	0.99979	96.48
42.5	900,413	0	0.00000	1.00000	96.46
43.5	718,405	359	0.00050	0.99950	96.46
44.5	709,839	0	0.00000	1.00000	96.41
45.5	672,933	316	0.00047	0.99953	96.41
46.5	672,617	0	0.00000	1.00000	96.36
47.5	671,117	0	0.00000	1.00000	96.36
48.5	670,667	690	0.00103	0.99897	96.36
49.5	669,977	0	0.00000	1.00000	96.26
50.5	669,977	0	0.00000	1.00000	96.26
51.5	518,105	0	0.00000	1.00000	96.26
52.5	517,082	0	0.00000	1.00000	96.26
53.5	517,082	0	0.00000	1.00000	96.26
54.5	511,196	0	0.00000	1.00000	96.26
55.5	491,605	0	0.00000	1.00000	96.26
Totals:		116,740			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S11 - Stop Logs

Placement Band - 1966 - 2022 Experience Band - 2005 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S11 - Stop Logs

Placement Band - 1966 - 2022 Experience Band - 2005 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	3,318,760	0	0.00000	1.00000	100.00
0.5	3,152,017	0	0.00000	1.00000	100.00
1.5	3,139,469	0	0.00000	1.00000	100.00
2.5	3,139,469	0	0.00000	1.00000	100.00
3.5	3,139,469	0	0.00000	1.00000	100.00
4.5	3,139,469	0	0.00000	1.00000	100.00
5.5	3,139,469	0	0.00000	1.00000	100.00
6.5	3,139,469	0	0.00000	1.00000	100.00
7.5	2,853,106	0	0.00000	1.00000	100.00
8.5	2,853,106	0	0.00000	1.00000	100.00
9.5	2,853,106	0	0.00000	1.00000	100.00
10.5	2,853,106	0	0.00000	1.00000	100.00
11.5	2,853,106	0	0.00000	1.00000	100.00
12.5	2,853,106	0	0.00000	1.00000	100.00
13.5	2,853,106	0	0.00000	1.00000	100.00
14.5	2,645,784	0	0.00000	1.00000	100.00
15.5	2,645,784	16,397	0.00620	0.99380	100.00
16.5	2,629,387	0	0.00000	1.00000	99.38
17.5	2,629,387	0	0.00000	1.00000	99.38
18.5	2,629,387	0	0.00000	1.00000	99.38
19.5	2,494,375	0	0.00000	1.00000	99.38
20.5	2,494,375	0	0.00000	1.00000	99.38
21.5	2,494,375	0	0.00000	1.00000	99.38
22.5	2,494,375	0	0.00000	1.00000	99.38
23.5	2,471,527	0	0.00000	1.00000	99.38
24.5	2,448,776	0	0.00000	1.00000	99.38
25.5	2,448,776	0	0.00000	1.00000	99.38
26.5	2,448,776	0	0.00000	1.00000	99.38

NEWFOUNDLAND AND LABRADOR HYDRO

Account S11 - Stop Logs

Placement Band - 1966 - 2022 Experience Band - 2005 - 2022

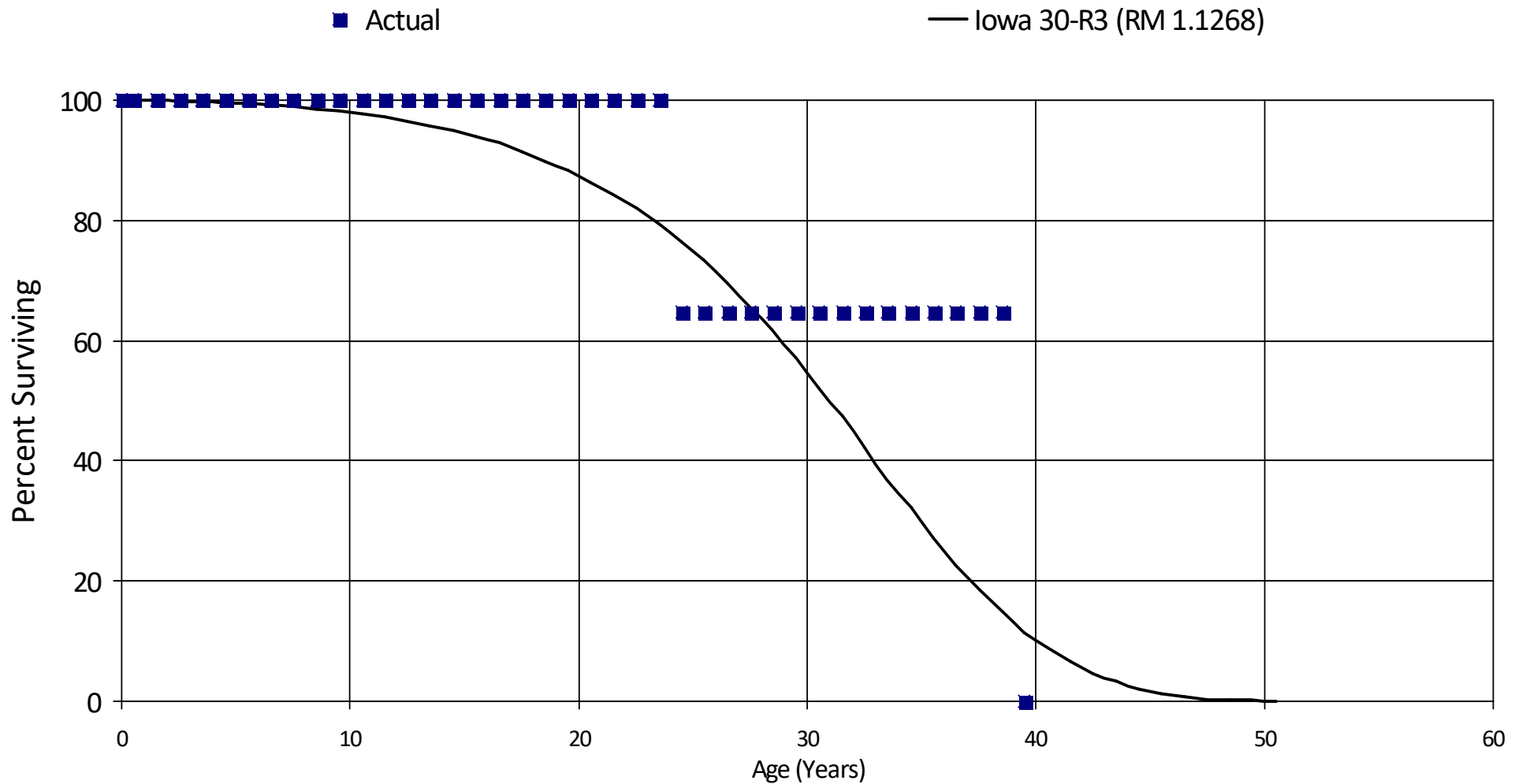
27.5	2,448,776	0	0.00000	1.00000	99.38
28.5	2,448,776	0	0.00000	1.00000	99.38
29.5	2,448,776	0	0.00000	1.00000	99.38
30.5	2,448,776	0	0.00000	1.00000	99.38
31.5	2,448,776	0	0.00000	1.00000	99.38
32.5	2,448,776	0	0.00000	1.00000	99.38
33.5	2,448,776	0	0.00000	1.00000	99.38
34.5	2,383,388	16,475	0.00691	0.99309	99.38
35.5	2,366,913	0	0.00000	1.00000	98.69
36.5	2,366,913	0	0.00000	1.00000	98.69
37.5	2,366,913	0	0.00000	1.00000	98.69
38.5	2,171,145	0	0.00000	1.00000	98.69
39.5	2,158,771	0	0.00000	1.00000	98.69
40.5	867,916	0	0.00000	1.00000	98.69
41.5	867,916	0	0.00000	1.00000	98.69
42.5	867,916	0	0.00000	1.00000	98.69
43.5	305,958	0	0.00000	1.00000	98.69
44.5	305,958	0	0.00000	1.00000	98.69
45.5	305,958	0	0.00000	1.00000	98.69
46.5	305,958	0	0.00000	1.00000	98.69
47.5	305,958	0	0.00000	1.00000	98.69
48.5	305,958	0	0.00000	1.00000	98.69
49.5	305,958	0	0.00000	1.00000	98.69
50.5	305,958	0	0.00000	1.00000	98.69
51.5	305,958	0	0.00000	1.00000	98.69
52.5	285,958	0	0.00000	1.00000	98.69
53.5	285,958	0	0.00000	1.00000	98.69
54.5	285,958	0	0.00000	1.00000	98.69
55.5	137,480	0	0.00000	1.00000	98.69
Totals:		32,872			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S12 - Storage Pallets and Rackings

Placement Band - 1973 - 1998 Experience Band - 1999 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S12 - Storage Pallets and Rackings

Placement Band - 1973 - 1998 Experience Band - 1999 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	33,439	0	0.00000	1.00000	100.00
0.5	33,439	0	0.00000	1.00000	100.00
1.5	33,439	0	0.00000	1.00000	100.00
2.5	33,439	0	0.00000	1.00000	100.00
3.5	33,439	0	0.00000	1.00000	100.00
4.5	33,439	0	0.00000	1.00000	100.00
5.5	33,439	0	0.00000	1.00000	100.00
6.5	33,439	0	0.00000	1.00000	100.00
7.5	33,439	0	0.00000	1.00000	100.00
8.5	33,439	0	0.00000	1.00000	100.00
9.5	33,439	0	0.00000	1.00000	100.00
10.5	33,439	0	0.00000	1.00000	100.00
11.5	33,439	0	0.00000	1.00000	100.00
12.5	33,439	0	0.00000	1.00000	100.00
13.5	33,439	0	0.00000	1.00000	100.00
14.5	33,439	0	0.00000	1.00000	100.00
15.5	33,439	0	0.00000	1.00000	100.00
16.5	33,439	0	0.00000	1.00000	100.00
17.5	33,439	0	0.00000	1.00000	100.00
18.5	33,439	0	0.00000	1.00000	100.00
19.5	33,439	0	0.00000	1.00000	100.00
20.5	33,439	0	0.00000	1.00000	100.00
21.5	33,439	0	0.00000	1.00000	100.00
22.5	33,439	0	0.00000	1.00000	100.00
23.5	33,439	11,790	0.35259	0.64741	100.00
24.5	17,952	0	0.00000	1.00000	64.74
25.5	17,952	0	0.00000	1.00000	64.74
26.5	17,952	0	0.00000	1.00000	64.74

NEWFOUNDLAND AND LABRADOR HYDRO

Account S12 - Storage Pallets and Rackings

Placement Band - 1973 - 1998 Experience Band - 1999 - 2022

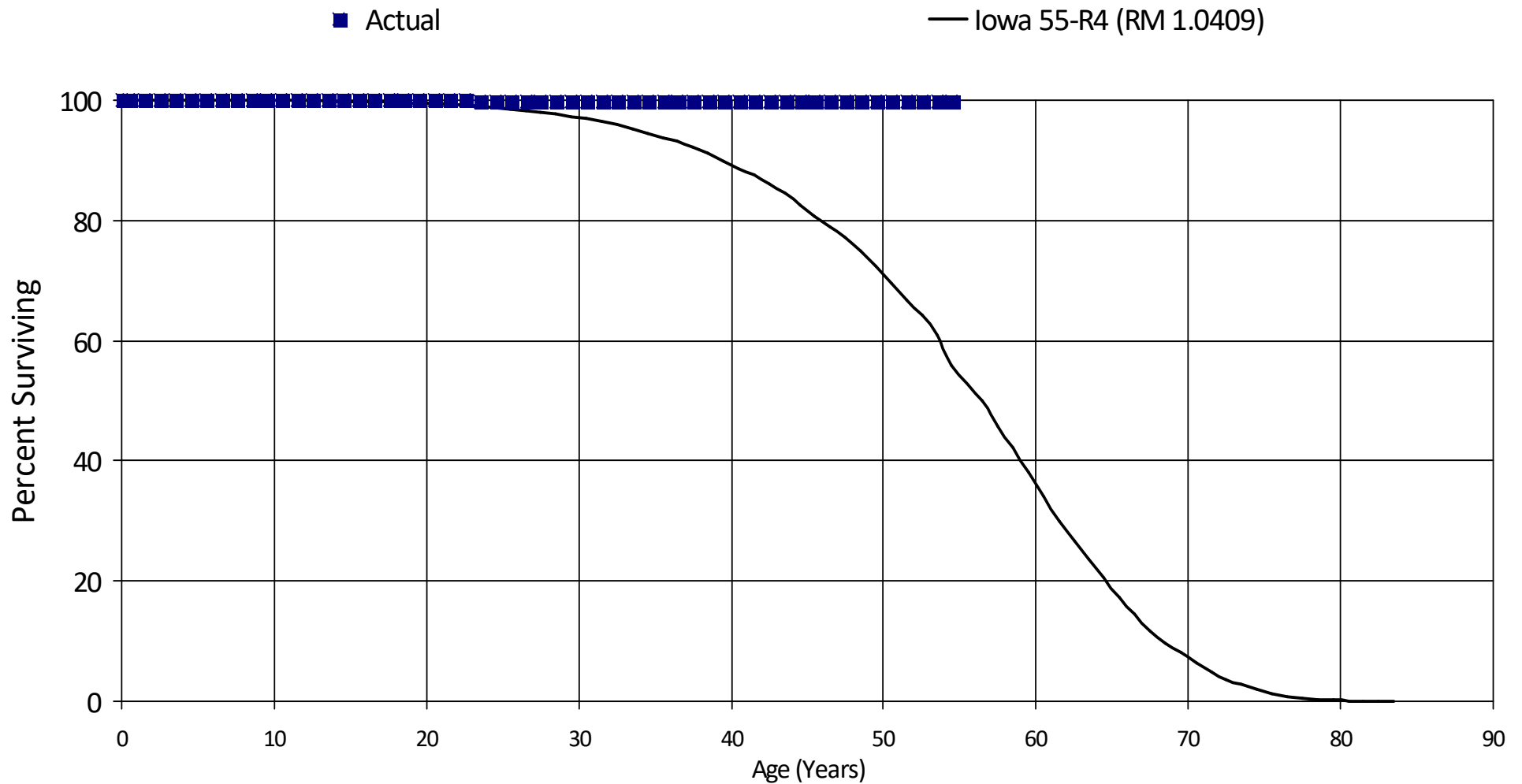
27.5	17,952	0	0.00000	1.00000	64.74
28.5	17,952	0	0.00000	1.00000	64.74
29.5	17,952	0	0.00000	1.00000	64.74
30.5	17,952	0	0.00000	1.00000	64.74
31.5	17,952	0	0.00000	1.00000	64.74
32.5	17,952	0	0.00000	1.00000	64.74
33.5	17,952	0	0.00000	1.00000	64.74
34.5	17,952	0	0.00000	1.00000	64.74
35.5	17,952	0	0.00000	1.00000	64.74
36.5	17,952	0	0.00000	1.00000	64.74
37.5	17,952	0	0.00000	1.00000	64.74
38.5	7,245	7,245	0.99994	0.00006	64.74
39.5	0	0	0.00000	0.00000	0.00
Totals:		19,035			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S13 - Storm and Yard Drainage

Placement Band - 1967 - 2014 Experience Band - 2009 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S13 - Storm and Yard Drainage

Placement Band - 1967 - 2014 Experience Band - 2009 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,311,021	0	0.00000	1.00000	100.00
0.5	1,311,021	0	0.00000	1.00000	100.00
1.5	1,311,021	0	0.00000	1.00000	100.00
2.5	1,311,021	0	0.00000	1.00000	100.00
3.5	1,311,021	0	0.00000	1.00000	100.00
4.5	1,311,021	0	0.00000	1.00000	100.00
5.5	1,311,021	0	0.00000	1.00000	100.00
6.5	1,311,021	0	0.00000	1.00000	100.00
7.5	1,311,021	0	0.00000	1.00000	100.00
8.5	1,274,643	0	0.00000	1.00000	100.00
9.5	1,199,628	0	0.00000	1.00000	100.00
10.5	1,199,628	0	0.00000	1.00000	100.00
11.5	1,199,628	0	0.00000	1.00000	100.00
12.5	1,199,628	0	0.00000	1.00000	100.00
13.5	1,132,337	0	0.00000	1.00000	100.00
14.5	1,132,337	0	0.00000	1.00000	100.00
15.5	1,132,337	0	0.00000	1.00000	100.00
16.5	1,132,337	0	0.00000	1.00000	100.00
17.5	1,132,337	0	0.00000	1.00000	100.00
18.5	1,132,337	0	0.00000	1.00000	100.00
19.5	1,132,337	0	0.00000	1.00000	100.00
20.5	1,132,337	0	0.00000	1.00000	100.00
21.5	1,132,337	0	0.00000	1.00000	100.00
22.5	1,132,337	2,307	0.00204	0.99796	100.00
23.5	1,130,030	0	0.00000	1.00000	99.80
24.5	1,130,030	0	0.00000	1.00000	99.80
25.5	1,130,030	0	0.00000	1.00000	99.80
26.5	1,130,030	0	0.00000	1.00000	99.80

NEWFOUNDLAND AND LABRADOR HYDRO

Account S13 - Storm and Yard Drainage

Placement Band - 1967 - 2014 Experience Band - 2009 - 2022

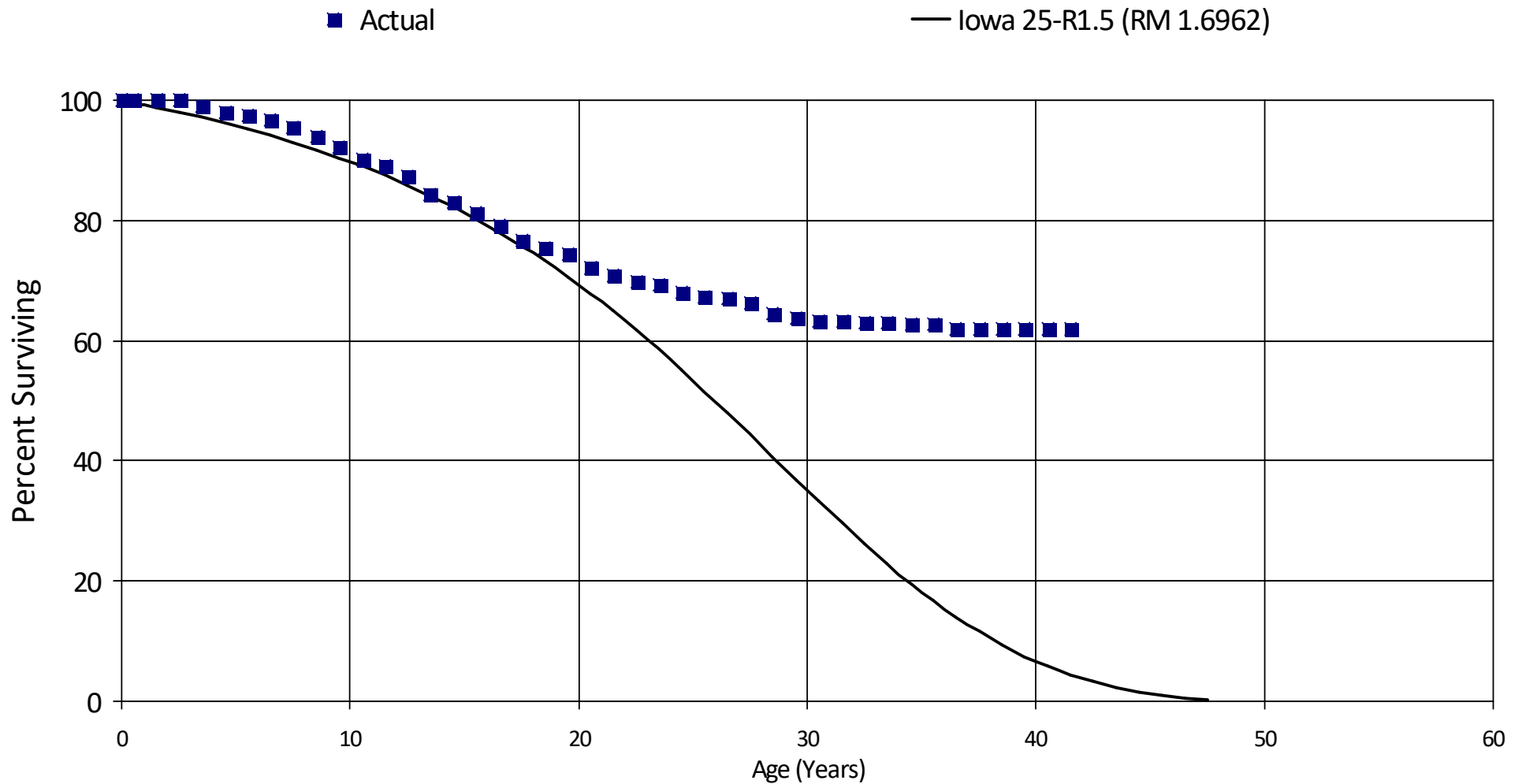
27.5	1,098,281	0	0.00000	1.00000	99.80
28.5	1,098,281	0	0.00000	1.00000	99.80
29.5	1,098,281	0	0.00000	1.00000	99.80
30.5	1,058,425	0	0.00000	1.00000	99.80
31.5	1,028,005	0	0.00000	1.00000	99.80
32.5	991,410	0	0.00000	1.00000	99.80
33.5	988,122	0	0.00000	1.00000	99.80
34.5	987,158	0	0.00000	1.00000	99.80
35.5	981,498	0	0.00000	1.00000	99.80
36.5	981,498	0	0.00000	1.00000	99.80
37.5	607,268	0	0.00000	1.00000	99.80
38.5	607,268	0	0.00000	1.00000	99.80
39.5	369,288	0	0.00000	1.00000	99.80
40.5	369,288	0	0.00000	1.00000	99.80
41.5	369,288	0	0.00000	1.00000	99.80
42.5	108,814	0	0.00000	1.00000	99.80
43.5	108,814	0	0.00000	1.00000	99.80
44.5	108,814	0	0.00000	1.00000	99.80
45.5	108,814	0	0.00000	1.00000	99.80
46.5	108,814	0	0.00000	1.00000	99.80
47.5	108,814	0	0.00000	1.00000	99.80
48.5	108,814	0	0.00000	1.00000	99.80
49.5	108,814	0	0.00000	1.00000	99.80
50.5	108,814	0	0.00000	1.00000	99.80
51.5	108,814	0	0.00000	1.00000	99.80
52.5	108,814	0	0.00000	1.00000	99.80
53.5	3,047	0	0.00000	1.00000	99.80
54.5	3,047	0	0.00000	1.00000	99.80
Totals:		2,307			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S14 - Street Lights

Placement Band - 1970 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S14 - Street Lights

Placement Band - 1970 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	8,304,830	0	0.00000	1.00000	100.00
0.5	7,219,856	911	0.00013	0.99987	100.00
1.5	5,503,268	4,244	0.00077	0.99923	99.99
2.5	5,186,314	49,254	0.00950	0.99050	99.91
3.5	5,126,043	46,465	0.00906	0.99094	98.96
4.5	4,976,346	27,973	0.00562	0.99438	98.06
5.5	4,774,837	39,482	0.00827	0.99173	97.51
6.5	4,579,790	59,281	0.01294	0.98706	96.70
7.5	4,240,484	66,299	0.01563	0.98437	95.45
8.5	3,982,755	77,856	0.01955	0.98045	93.96
9.5	3,616,808	83,047	0.02296	0.97704	92.12
10.5	3,378,166	29,961	0.00887	0.99113	90.00
11.5	3,094,375	67,367	0.02177	0.97823	89.20
12.5	2,841,381	97,337	0.03426	0.96574	87.26
13.5	2,515,572	37,280	0.01482	0.98518	84.27
14.5	2,266,500	49,439	0.02181	0.97819	83.02
15.5	2,052,915	53,890	0.02625	0.97375	81.21
16.5	1,805,460	56,221	0.03114	0.96886	79.08
17.5	1,583,818	26,773	0.01690	0.98310	76.62
18.5	1,363,599	16,120	0.01182	0.98818	75.33
19.5	1,169,901	35,349	0.03022	0.96978	74.44
20.5	1,022,888	19,531	0.01909	0.98091	72.19
21.5	876,151	12,067	0.01377	0.98623	70.81
22.5	762,905	6,504	0.00853	0.99147	69.83
23.5	679,047	12,937	0.01905	0.98095	69.23
24.5	588,634	4,708	0.00800	0.99200	67.91
25.5	424,652	3,062	0.00721	0.99279	67.37
26.5	378,703	3,757	0.00992	0.99008	66.88

NEWFOUNDLAND AND LABRADOR HYDRO

Account S14 - Street Lights

Placement Band - 1970 - 2022 Experience Band - 1991 - 2022

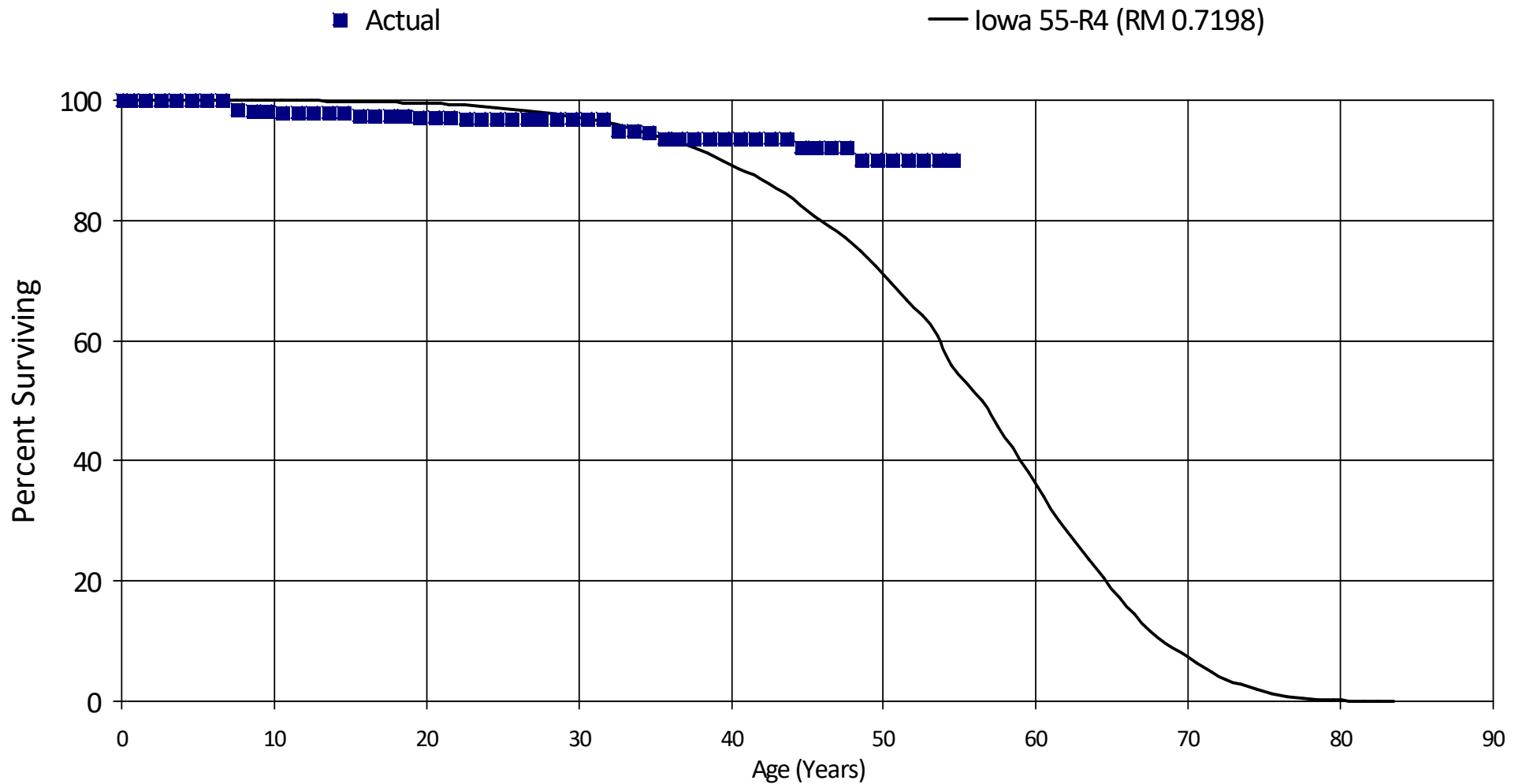
27.5	354,921	9,410	0.02651	0.97349	66.22
28.5	309,663	3,676	0.01187	0.98813	64.46
29.5	270,036	2,376	0.00880	0.99120	63.69
30.5	234,266	0	0.00000	1.00000	63.13
31.5	218,932	318	0.00145	0.99855	63.13
32.5	154,436	0	0.00000	1.00000	63.04
33.5	114,348	858	0.00750	0.99250	63.04
34.5	85,332	0	0.00000	1.00000	62.57
35.5	69,394	699	0.01007	0.98993	62.57
36.5	65,672	102	0.00155	0.99845	61.94
37.5	65,570	0	0.00000	1.00000	61.84
38.5	56,324	0	0.00000	1.00000	61.84
39.5	56,153	0	0.00000	1.00000	61.84
40.5	48,355	0	0.00000	1.00000	61.84
41.5	0	0	0.00000	0.00000	61.84
Totals:		1,004,554			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S15 - Structural Supports (Wood or Steel)

Placement Band - 1967 - 2021 Experience Band - 1992 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S15 - Structural Supports (Wood or Steel)

Placement Band - 1967 - 2021 Experience Band - 1992 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	19,495,893	0	0.00000	1.00000	100.00
0.5	19,495,893	6,195	0.00032	0.99968	100.00
1.5	16,241,053	0	0.00000	1.00000	99.97
2.5	15,500,130	0	0.00000	1.00000	99.97
3.5	15,500,130	0	0.00000	1.00000	99.97
4.5	15,005,187	0	0.00000	1.00000	99.97
5.5	13,560,825	0	0.00000	1.00000	99.97
6.5	13,222,858	207,829	0.01572	0.98428	99.97
7.5	12,877,098	21,304	0.00165	0.99835	98.40
8.5	12,547,531	0	0.00000	1.00000	98.24
9.5	11,829,623	24,028	0.00203	0.99797	98.24
10.5	10,998,733	0	0.00000	1.00000	98.04
11.5	10,974,437	0	0.00000	1.00000	98.04
12.5	10,748,182	1,793	0.00017	0.99983	98.04
13.5	10,676,402	5,431	0.00051	0.99949	98.02
14.5	10,637,624	63,993	0.00602	0.99398	97.97
15.5	10,141,533	0	0.00000	1.00000	97.38
16.5	10,122,657	502	0.00005	0.99995	97.38
17.5	10,104,186	0	0.00000	1.00000	97.38
18.5	10,089,396	8,927	0.00088	0.99912	97.38
19.5	9,907,326	500	0.00005	0.99995	97.29
20.5	9,811,702	0	0.00000	1.00000	97.29
21.5	9,759,862	26,788	0.00274	0.99726	97.29
22.5	9,428,331	5,780	0.00061	0.99939	97.02
23.5	9,403,149	3,186	0.00034	0.99966	96.96
24.5	9,186,125	0	0.00000	1.00000	96.93
25.5	9,130,494	0	0.00000	1.00000	96.93
26.5	8,851,796	0	0.00000	1.00000	96.93

NEWFOUNDLAND AND LABRADOR HYDRO

Account S15 - Structural Supports (Wood or Steel)

Placement Band - 1967 - 2021 Experience Band - 1992 - 2022

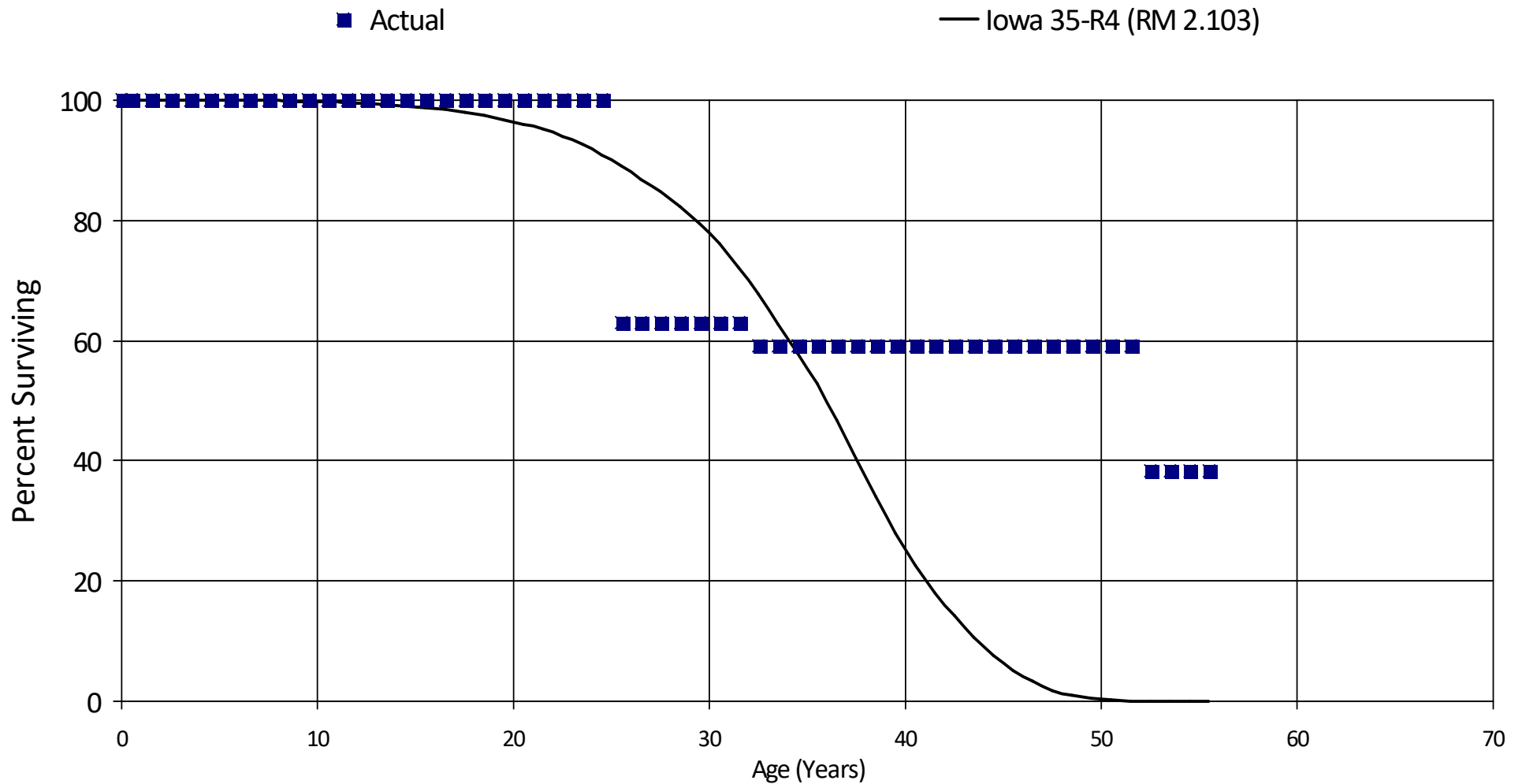
27.5	8,241,092	0	0.00000	1.00000	96.93
28.5	8,072,521	1,070	0.00013	0.99987	96.93
29.5	8,018,367	5,642	0.00070	0.99930	96.92
30.5	7,401,186	0	0.00000	1.00000	96.85
31.5	6,980,523	141,768	0.02031	0.97969	96.85
32.5	5,945,629	2,126	0.00036	0.99964	94.88
33.5	5,551,095	5,064	0.00091	0.99909	94.85
34.5	5,468,427	64,738	0.01184	0.98816	94.76
35.5	5,110,879	0	0.00000	1.00000	93.64
36.5	5,035,157	0	0.00000	1.00000	93.64
37.5	5,023,414	0	0.00000	1.00000	93.64
38.5	5,009,247	0	0.00000	1.00000	93.64
39.5	4,693,464	0	0.00000	1.00000	93.64
40.5	4,111,469	0	0.00000	1.00000	93.64
41.5	3,849,598	0	0.00000	1.00000	93.64
42.5	3,596,043	0	0.00000	1.00000	93.64
43.5	3,230,259	49,499	0.01532	0.98468	93.64
44.5	2,340,352	0	0.00000	1.00000	92.21
45.5	2,256,395	0	0.00000	1.00000	92.21
46.5	2,169,660	0	0.00000	1.00000	92.21
47.5	2,080,289	45,607	0.02192	0.97808	92.21
48.5	1,993,869	0	0.00000	1.00000	90.19
49.5	1,993,869	0	0.00000	1.00000	90.19
50.5	942,216	0	0.00000	1.00000	90.19
51.5	938,337	0	0.00000	1.00000	90.19
52.5	331,832	0	0.00000	1.00000	90.19
53.5	331,832	0	0.00000	1.00000	90.19
54.5	213,566	0	0.00000	1.00000	90.19
Totals:		691,770			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S17 - Sump Systems

Placement Band - 1966 - 2020 Experience Band - 2003 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S17 - Sump Systems

Placement Band - 1966 - 2020 Experience Band - 2003 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	1,511,376	0	0.00000	1.00000	100.00
0.5	1,511,376	0	0.00000	1.00000	100.00
1.5	1,511,376	0	0.00000	1.00000	100.00
2.5	900,857	0	0.00000	1.00000	100.00
3.5	778,200	0	0.00000	1.00000	100.00
4.5	733,200	0	0.00000	1.00000	100.00
5.5	682,931	0	0.00000	1.00000	100.00
6.5	682,931	0	0.00000	1.00000	100.00
7.5	254,325	0	0.00000	1.00000	100.00
8.5	254,325	0	0.00000	1.00000	100.00
9.5	254,325	0	0.00000	1.00000	100.00
10.5	254,325	0	0.00000	1.00000	100.00
11.5	254,325	0	0.00000	1.00000	100.00
12.5	254,325	0	0.00000	1.00000	100.00
13.5	178,705	0	0.00000	1.00000	100.00
14.5	178,705	0	0.00000	1.00000	100.00
15.5	178,705	0	0.00000	1.00000	100.00
16.5	178,705	0	0.00000	1.00000	100.00
17.5	178,705	0	0.00000	1.00000	100.00
18.5	178,705	0	0.00000	1.00000	100.00
19.5	178,705	0	0.00000	1.00000	100.00
20.5	178,705	0	0.00000	1.00000	100.00
21.5	178,705	0	0.00000	1.00000	100.00
22.5	178,705	0	0.00000	1.00000	100.00
23.5	155,851	0	0.00000	1.00000	100.00
24.5	155,851	57,819	0.37099	0.62901	100.00
25.5	98,032	0	0.00000	1.00000	62.90
26.5	98,032	0	0.00000	1.00000	62.90

NEWFOUNDLAND AND LABRADOR HYDRO

Account S17 - Sump Systems

Placement Band - 1966 - 2020 Experience Band - 2003 - 2022

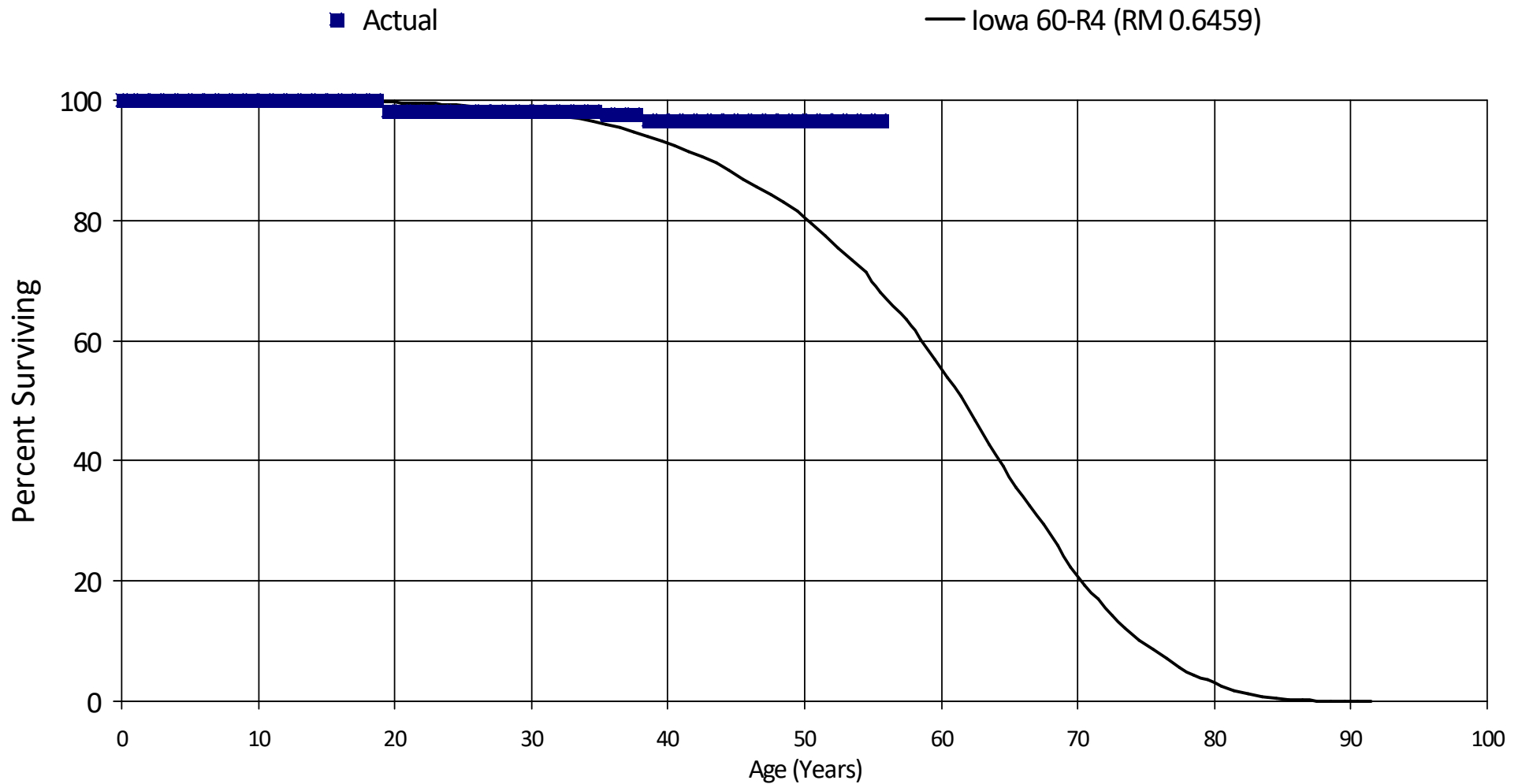
27.5	98,032	0	0.00000	1.00000	62.90
28.5	98,032	0	0.00000	1.00000	62.90
29.5	98,032	0	0.00000	1.00000	62.90
30.5	98,032	0	0.00000	1.00000	62.90
31.5	98,032	5,755	0.05871	0.94129	62.90
32.5	92,277	0	0.00000	1.00000	59.21
33.5	92,277	0	0.00000	1.00000	59.21
34.5	92,277	0	0.00000	1.00000	59.21
35.5	92,277	0	0.00000	1.00000	59.21
36.5	92,277	0	0.00000	1.00000	59.21
37.5	90,851	0	0.00000	1.00000	59.21
38.5	90,851	0	0.00000	1.00000	59.21
39.5	90,851	0	0.00000	1.00000	59.21
40.5	90,851	0	0.00000	1.00000	59.21
41.5	90,851	0	0.00000	1.00000	59.21
42.5	90,851	0	0.00000	1.00000	59.21
43.5	54,813	0	0.00000	1.00000	59.21
44.5	54,813	0	0.00000	1.00000	59.21
45.5	54,813	0	0.00000	1.00000	59.21
46.5	54,813	0	0.00000	1.00000	59.21
47.5	54,813	0	0.00000	1.00000	59.21
48.5	54,813	0	0.00000	1.00000	59.21
49.5	54,813	0	0.00000	1.00000	59.21
50.5	54,813	0	0.00000	1.00000	59.21
51.5	54,813	19,419	0.35428	0.64572	59.21
52.5	35,394	0	0.00000	1.00000	38.23
53.5	35,394	0	0.00000	1.00000	38.23
54.5	35,394	0	0.00000	1.00000	38.23
55.5	35,394	0	0.00000	1.00000	38.23
Totals:		82,993			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S18 - Surge Systems

Placement Band - 1966 - 2020 Experience Band - 2005 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S18 - Surge Systems

Placement Band - 1966 - 2020 Experience Band - 2005 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	11,863,494	0	0.00000	1.00000	100.00
0.5	11,863,494	0	0.00000	1.00000	100.00
1.5	11,863,494	0	0.00000	1.00000	100.00
2.5	11,625,900	0	0.00000	1.00000	100.00
3.5	11,256,357	0	0.00000	1.00000	100.00
4.5	9,756,357	0	0.00000	1.00000	100.00
5.5	9,756,357	0	0.00000	1.00000	100.00
6.5	7,020,677	0	0.00000	1.00000	100.00
7.5	5,846,418	0	0.00000	1.00000	100.00
8.5	4,349,467	0	0.00000	1.00000	100.00
9.5	4,349,467	0	0.00000	1.00000	100.00
10.5	4,349,467	0	0.00000	1.00000	100.00
11.5	4,349,467	0	0.00000	1.00000	100.00
12.5	4,349,467	0	0.00000	1.00000	100.00
13.5	4,349,467	0	0.00000	1.00000	100.00
14.5	4,349,467	0	0.00000	1.00000	100.00
15.5	4,349,467	0	0.00000	1.00000	100.00
16.5	4,349,467	0	0.00000	1.00000	100.00
17.5	4,349,467	0	0.00000	1.00000	100.00
18.5	4,349,467	79,504	0.01828	0.98172	100.00
19.5	4,269,963	0	0.00000	1.00000	98.17
20.5	3,970,312	0	0.00000	1.00000	98.17
21.5	3,970,312	0	0.00000	1.00000	98.17
22.5	3,970,312	0	0.00000	1.00000	98.17
23.5	3,970,312	0	0.00000	1.00000	98.17
24.5	3,970,312	0	0.00000	1.00000	98.17
25.5	3,970,312	0	0.00000	1.00000	98.17
26.5	3,970,312	0	0.00000	1.00000	98.17

NEWFOUNDLAND AND LABRADOR HYDRO

Account S18 - Surge Systems

Placement Band - 1966 - 2020 Experience Band - 2005 - 2022

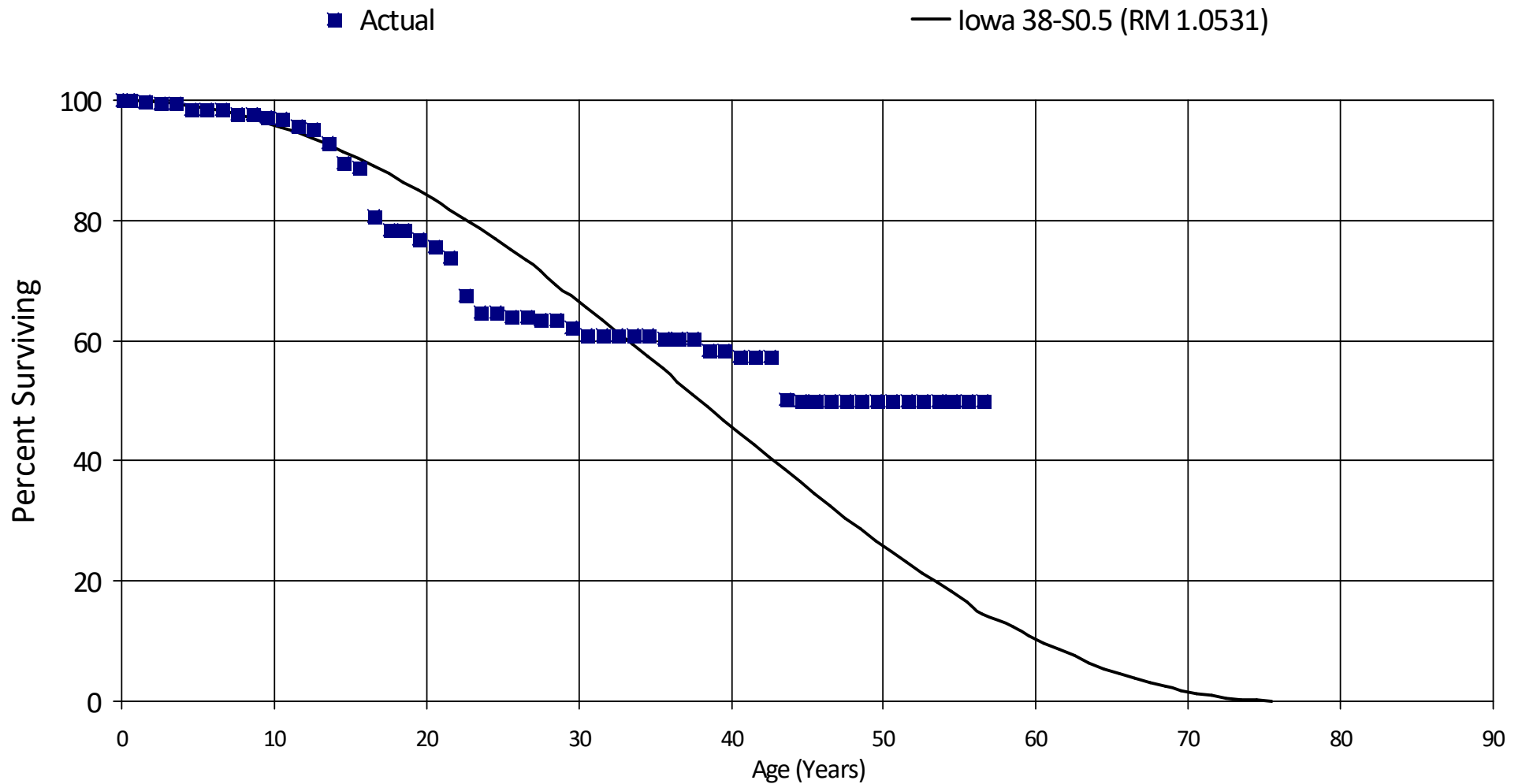
27.5	3,970,312	0	0.00000	1.00000	98.17
28.5	3,970,312	0	0.00000	1.00000	98.17
29.5	3,970,312	0	0.00000	1.00000	98.17
30.5	3,970,312	0	0.00000	1.00000	98.17
31.5	3,970,312	0	0.00000	1.00000	98.17
32.5	3,970,312	0	0.00000	1.00000	98.17
33.5	3,970,312	0	0.00000	1.00000	98.17
34.5	3,970,312	20,116	0.00507	0.99493	98.17
35.5	3,950,196	0	0.00000	1.00000	97.67
36.5	3,950,196	0	0.00000	1.00000	97.67
37.5	3,950,196	40,232	0.01018	0.98982	97.67
38.5	3,909,964	0	0.00000	1.00000	96.68
39.5	3,909,964	0	0.00000	1.00000	96.68
40.5	3,909,964	0	0.00000	1.00000	96.68
41.5	3,909,964	0	0.00000	1.00000	96.68
42.5	3,909,964	0	0.00000	1.00000	96.68
43.5	3,909,964	0	0.00000	1.00000	96.68
44.5	3,909,964	0	0.00000	1.00000	96.68
45.5	3,909,964	0	0.00000	1.00000	96.68
46.5	3,909,964	0	0.00000	1.00000	96.68
47.5	3,909,964	193	0.00005	0.99995	96.68
48.5	3,909,771	1,994	0.00051	0.99949	96.68
49.5	3,907,777	0	0.00000	1.00000	96.63
50.5	3,907,777	0	0.00000	1.00000	96.63
51.5	3,907,777	0	0.00000	1.00000	96.63
52.5	3,907,777	0	0.00000	1.00000	96.63
53.5	3,907,777	0	0.00000	1.00000	96.63
54.5	3,907,777	0	0.00000	1.00000	96.63
55.5	1,578,846	0	0.00000	1.00000	96.63
Totals:		142,039			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S19 - Station Switching

Placement Band - 1965 - 2022 Experience Band - 1997 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S19 - Station Switching

Placement Band - 1965 - 2022 Experience Band - 1997 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	15,089,955	0	0.00000	1.00000	100.00
0.5	14,919,955	30,076	0.00202	0.99798	100.00
1.5	14,889,879	30,286	0.00203	0.99797	99.80
2.5	14,859,593	0	0.00000	1.00000	99.60
3.5	14,648,696	157,316	0.01074	0.98926	99.60
4.5	14,270,046	11,835	0.00083	0.99917	98.53
5.5	14,203,098	3,666	0.00026	0.99974	98.45
6.5	14,160,317	112,047	0.00791	0.99209	98.42
7.5	14,048,269	0	0.00000	1.00000	97.64
8.5	12,625,489	68,698	0.00544	0.99456	97.64
9.5	12,272,009	28,935	0.00236	0.99764	97.11
10.5	12,243,074	141,462	0.01155	0.98845	96.88
11.5	11,891,563	73,083	0.00615	0.99385	95.76
12.5	11,818,480	296,280	0.02507	0.97493	95.17
13.5	11,522,200	388,884	0.03375	0.96625	92.78
14.5	10,338,375	95,211	0.00921	0.99079	89.65
15.5	9,932,742	915,270	0.09215	0.90785	88.82
16.5	8,873,752	238,718	0.02690	0.97310	80.64
17.5	8,381,443	13,631	0.00163	0.99837	78.47
18.5	8,359,125	139,755	0.01672	0.98328	78.34
19.5	7,617,926	133,606	0.01754	0.98246	77.03
20.5	6,877,177	162,181	0.02358	0.97642	75.68
21.5	5,999,799	511,828	0.08531	0.91469	73.90
22.5	5,312,948	232,664	0.04379	0.95621	67.60
23.5	5,056,234	0	0.00000	1.00000	64.64
24.5	4,911,551	59,992	0.01221	0.98779	64.64
25.5	4,403,488	0	0.00000	1.00000	63.85
26.5	4,257,140	31,582	0.00742	0.99258	63.85

NEWFOUNDLAND AND LABRADOR HYDRO

Account S19 - Station Switching

Placement Band - 1965 - 2022 Experience Band - 1997 - 2022

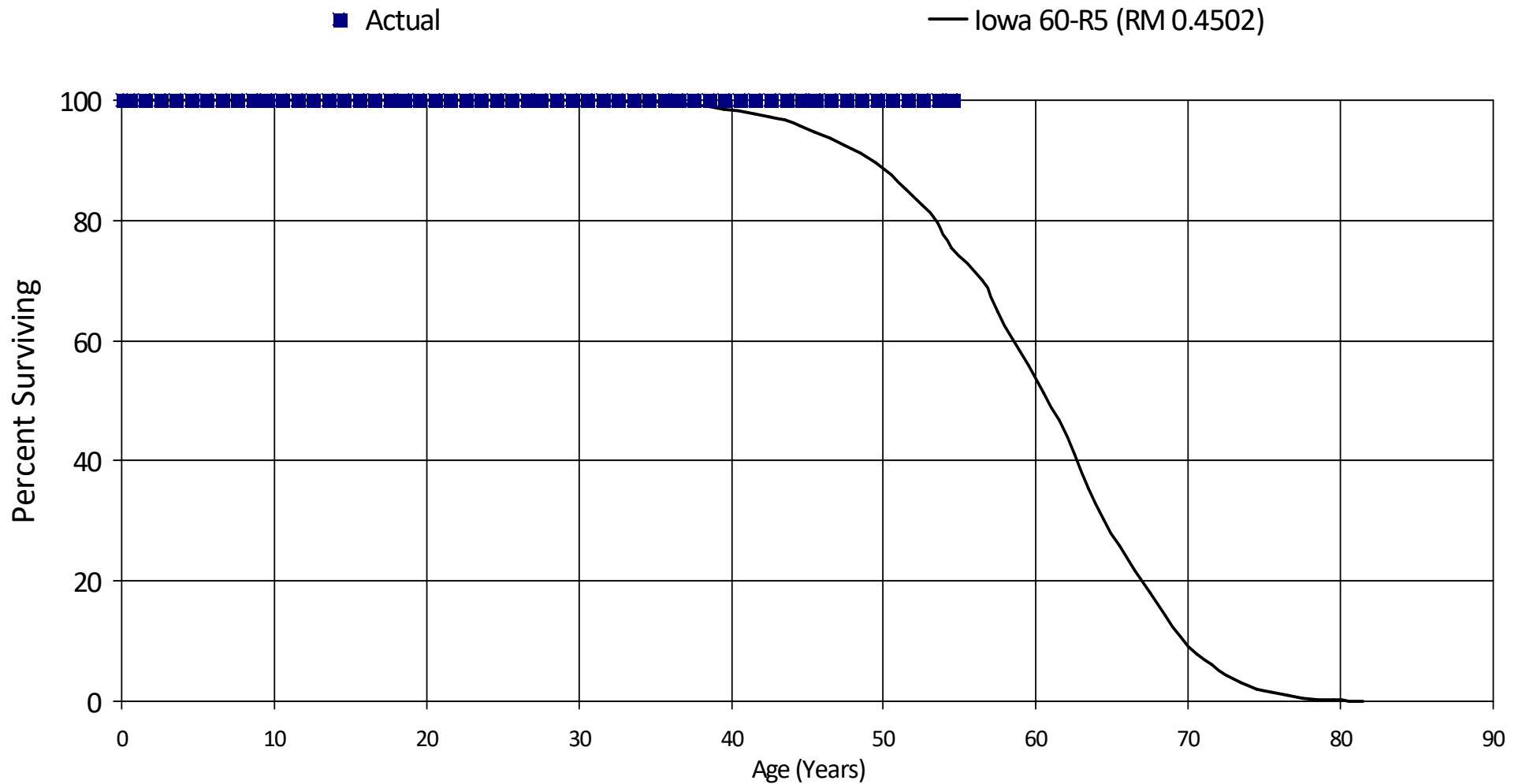
27.5	4,208,881	0	0.00000	1.00000	63.38
28.5	4,208,881	85,425	0.02030	0.97970	63.38
29.5	4,123,457	70,855	0.01718	0.98282	62.09
30.5	3,805,983	0	0.00000	1.00000	61.02
31.5	3,739,681	4,141	0.00111	0.99889	61.02
32.5	3,671,150	0	0.00000	1.00000	60.95
33.5	3,545,782	1,920	0.00054	0.99946	60.95
34.5	3,543,862	25,334	0.00715	0.99285	60.92
35.5	3,467,990	9,003	0.00260	0.99740	60.48
36.5	3,423,937	0	0.00000	1.00000	60.32
37.5	962,817	29,596	0.03074	0.96926	60.32
38.5	824,816	1,054	0.00128	0.99872	58.47
39.5	823,762	14,301	0.01736	0.98264	58.40
40.5	686,256	0	0.00000	1.00000	57.39
41.5	620,947	0	0.00000	1.00000	57.39
42.5	387,725	48,663	0.12551	0.87449	57.39
43.5	339,062	1,335	0.00394	0.99606	50.19
44.5	337,727	0	0.00000	1.00000	49.99
45.5	337,727	0	0.00000	1.00000	49.99
46.5	337,727	0	0.00000	1.00000	49.99
47.5	337,727	0	0.00000	1.00000	49.99
48.5	337,727	0	0.00000	1.00000	49.99
49.5	257,717	0	0.00000	1.00000	49.99
50.5	257,717	0	0.00000	1.00000	49.99
51.5	257,717	0	0.00000	1.00000	49.99
52.5	256,717	0	0.00000	1.00000	49.99
53.5	256,717	0	0.00000	1.00000	49.99
54.5	95,999	0	0.00000	1.00000	49.99
55.5	95,999	0	0.00000	1.00000	49.99
56.5	95,999	0	0.00000	1.00000	49.99
Totals:		4,168,633			

NEWFOUNDLAND AND LABRADOR HYDRO

Account S20 - Switching Systems - L.V.

Placement Band - 1967 - 2015 Experience Band - 2013 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account S20 - Switching Systems - L.V.

Placement Band - 1967 - 2015 Experience Band - 2013 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	2,306,330	0	0.00000	1.00000	100.00
0.5	2,306,330	0	0.00000	1.00000	100.00
1.5	2,306,330	0	0.00000	1.00000	100.00
2.5	2,306,330	0	0.00000	1.00000	100.00
3.5	2,306,330	0	0.00000	1.00000	100.00
4.5	2,306,330	0	0.00000	1.00000	100.00
5.5	2,306,330	0	0.00000	1.00000	100.00
6.5	2,306,330	0	0.00000	1.00000	100.00
7.5	1,960,879	0	0.00000	1.00000	100.00
8.5	1,811,180	0	0.00000	1.00000	100.00
9.5	1,811,180	0	0.00000	1.00000	100.00
10.5	1,809,042	0	0.00000	1.00000	100.00
11.5	1,809,042	0	0.00000	1.00000	100.00
12.5	1,809,042	0	0.00000	1.00000	100.00
13.5	1,809,042	0	0.00000	1.00000	100.00
14.5	1,809,042	0	0.00000	1.00000	100.00
15.5	1,809,042	0	0.00000	1.00000	100.00
16.5	1,809,042	0	0.00000	1.00000	100.00
17.5	1,809,042	0	0.00000	1.00000	100.00
18.5	1,809,042	0	0.00000	1.00000	100.00
19.5	1,809,042	0	0.00000	1.00000	100.00
20.5	1,809,042	0	0.00000	1.00000	100.00
21.5	1,809,042	0	0.00000	1.00000	100.00
22.5	1,809,042	0	0.00000	1.00000	100.00
23.5	1,809,042	0	0.00000	1.00000	100.00
24.5	1,809,042	0	0.00000	1.00000	100.00
25.5	1,809,042	0	0.00000	1.00000	100.00
26.5	1,809,042	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account S20 - Switching Systems - L.V.

Placement Band - 1967 - 2015 Experience Band - 2013 - 2022

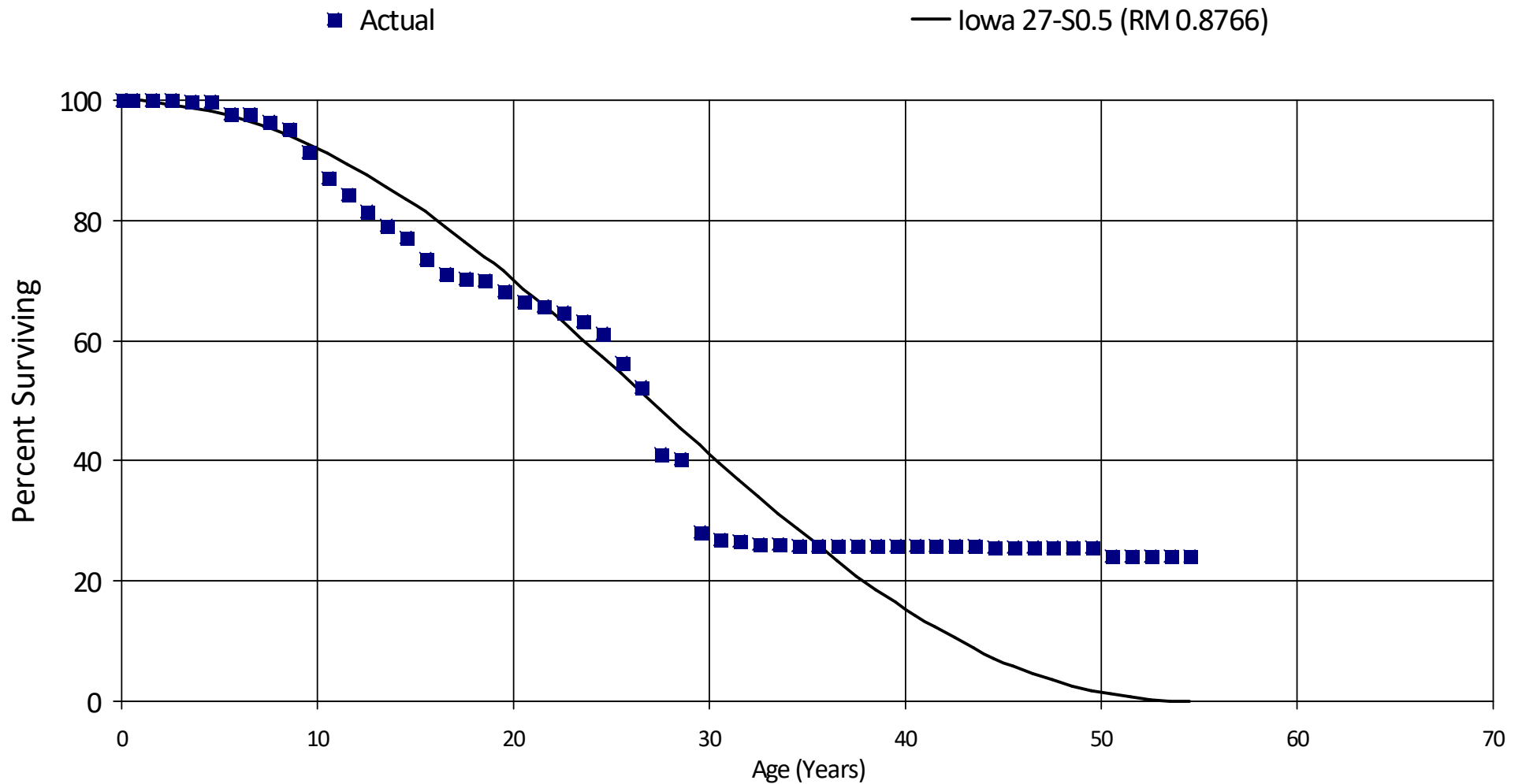
27.5	1,809,042	0	0.00000	1.00000	100.00
28.5	1,809,042	0	0.00000	1.00000	100.00
29.5	1,809,042	0	0.00000	1.00000	100.00
30.5	1,809,042	0	0.00000	1.00000	100.00
31.5	1,809,042	0	0.00000	1.00000	100.00
32.5	1,809,042	1,722	0.00095	0.99905	100.00
33.5	1,793,939	0	0.00000	1.00000	99.90
34.5	1,793,939	0	0.00000	1.00000	99.90
35.5	1,793,939	0	0.00000	1.00000	99.90
36.5	1,793,939	0	0.00000	1.00000	99.90
37.5	763,602	0	0.00000	1.00000	99.90
38.5	763,602	0	0.00000	1.00000	99.90
39.5	705,647	0	0.00000	1.00000	99.90
40.5	364,335	0	0.00000	1.00000	99.90
41.5	364,335	0	0.00000	1.00000	99.90
42.5	71,442	0	0.00000	1.00000	99.90
43.5	71,442	0	0.00000	1.00000	99.90
44.5	28,493	0	0.00000	1.00000	99.90
45.5	28,493	0	0.00000	1.00000	99.90
46.5	28,493	0	0.00000	1.00000	99.90
47.5	28,493	0	0.00000	1.00000	99.90
48.5	28,493	0	0.00000	1.00000	99.90
49.5	28,493	0	0.00000	1.00000	99.90
50.5	28,493	0	0.00000	1.00000	99.90
51.5	28,493	0	0.00000	1.00000	99.90
52.5	23,423	0	0.00000	1.00000	99.90
53.5	11,423	0	0.00000	1.00000	99.90
54.5	11,423	0	0.00000	1.00000	99.90
Totals:		1,722			

NEWFOUNDLAND AND LABRADOR HYDRO

Account T01 - Telecontrol System

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account T01 - Telecontrol System

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	21,857,997	0	0.00000	1.00000	100.00
0.5	21,767,936	1,227	0.00006	0.99994	100.00
1.5	21,729,466	1,631	0.00008	0.99992	99.99
2.5	21,660,554	38,609	0.00178	0.99822	99.98
3.5	20,515,562	11,624	0.00057	0.99943	99.80
4.5	19,566,097	374,057	0.01912	0.98088	99.74
5.5	18,400,411	15,454	0.00084	0.99916	97.83
6.5	17,332,112	209,633	0.01210	0.98790	97.75
7.5	16,568,082	219,940	0.01327	0.98673	96.57
8.5	16,230,560	659,103	0.04061	0.95939	95.29
9.5	15,290,385	737,874	0.04826	0.95174	91.42
10.5	13,939,688	435,666	0.03125	0.96875	87.01
11.5	11,400,256	370,072	0.03246	0.96754	84.29
12.5	10,916,204	323,614	0.02965	0.97035	81.55
13.5	10,172,691	262,026	0.02576	0.97424	79.13
14.5	9,229,543	410,426	0.04447	0.95553	77.09
15.5	8,663,261	319,456	0.03687	0.96313	73.66
16.5	8,299,009	70,023	0.00844	0.99156	70.94
17.5	8,160,009	27,605	0.00338	0.99662	70.34
18.5	8,003,581	207,520	0.02593	0.97407	70.10
19.5	6,988,566	178,468	0.02554	0.97446	68.28
20.5	6,542,095	88,996	0.01360	0.98640	66.54
21.5	6,027,853	91,570	0.01519	0.98481	65.64
22.5	5,703,641	135,495	0.02376	0.97624	64.64
23.5	5,191,782	152,797	0.02943	0.97057	63.10
24.5	4,918,251	401,226	0.08158	0.91842	61.24
25.5	4,286,867	297,921	0.06950	0.93050	56.24
26.5	3,838,123	815,621	0.21251	0.78749	52.33

NEWFOUNDLAND AND LABRADOR HYDRO

Account T01 - Telecontrol System

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

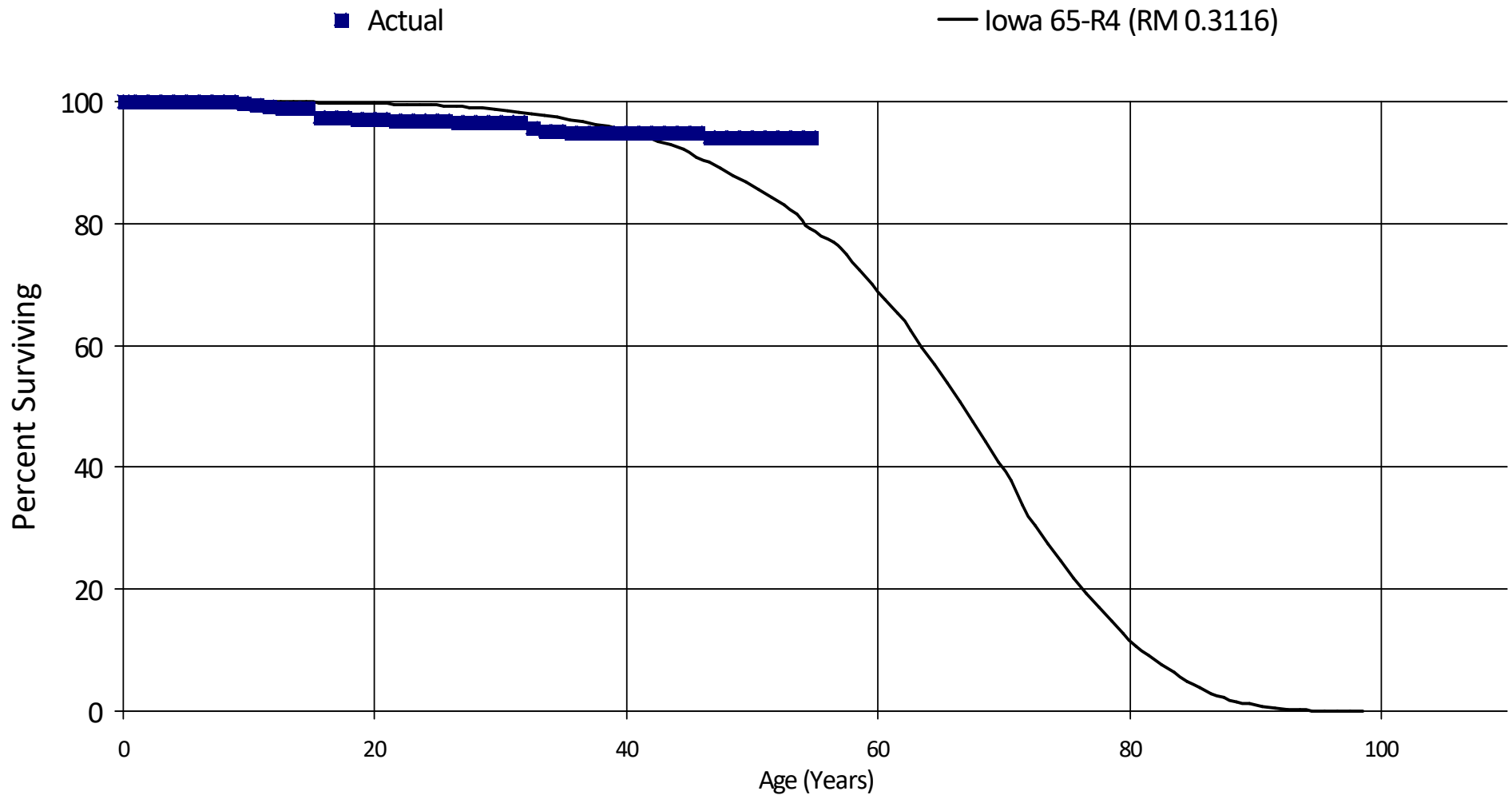
27.5	2,682,446	52,918	0.01973	0.98027	41.21
28.5	2,629,527	790,317	0.30055	0.69945	40.40
29.5	1,832,389	85,767	0.04681	0.95319	28.26
30.5	1,536,373	18,823	0.01225	0.98775	26.94
31.5	1,508,456	22,110	0.01466	0.98534	26.61
32.5	1,441,806	4,829	0.00335	0.99665	26.22
33.5	1,411,805	8,730	0.00618	0.99382	26.13
34.5	1,390,600	0	0.00000	1.00000	25.97
35.5	1,358,140	0	0.00000	1.00000	25.97
36.5	1,358,140	0	0.00000	1.00000	25.97
37.5	1,336,460	0	0.00000	1.00000	25.97
38.5	1,332,085	0	0.00000	1.00000	25.97
39.5	1,332,085	0	0.00000	1.00000	25.97
40.5	1,306,558	0	0.00000	1.00000	25.97
41.5	1,306,558	0	0.00000	1.00000	25.97
42.5	939,537	0	0.00000	1.00000	25.97
43.5	939,537	8,113	0.00864	0.99136	25.97
44.5	903,322	0	0.00000	1.00000	25.75
45.5	859,527	0	0.00000	1.00000	25.75
46.5	856,078	0	0.00000	1.00000	25.75
47.5	817,850	0	0.00000	1.00000	25.75
48.5	678,127	0	0.00000	1.00000	25.75
49.5	678,127	40,910	0.06033	0.93967	25.75
50.5	637,216	0	0.00000	1.00000	24.20
51.5	637,216	0	0.00000	1.00000	24.20
52.5	151,101	0	0.00000	1.00000	24.20
53.5	151,101	0	0.00000	1.00000	24.20
54.5	121,677	0	0.00000	1.00000	24.20
Totals:		7,890,171			

NEWFOUNDLAND AND LABRADOR HYDRO

Account T04 - Towers

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account T04 - Towers

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	139,071,959	0	0.00000	1.00000	100.00
0.5	139,034,568	0	0.00000	1.00000	100.00
1.5	138,988,186	7,600	0.00005	0.99995	100.00
2.5	138,952,688	0	0.00000	1.00000	100.00
3.5	138,804,964	39,115	0.00028	0.99972	100.00
4.5	130,228,402	0	0.00000	1.00000	99.97
5.5	73,918,477	0	0.00000	1.00000	99.97
6.5	73,727,503	2,280	0.00003	0.99997	99.97
7.5	73,725,223	17,078	0.00023	0.99977	99.97
8.5	73,708,144	177,568	0.00241	0.99759	99.95
9.5	73,504,956	232,649	0.00317	0.99683	99.71
10.5	73,272,307	195,211	0.00266	0.99734	99.39
11.5	72,989,200	171,390	0.00235	0.99765	99.13
12.5	72,810,082	0	0.00000	1.00000	98.90
13.5	72,810,082	0	0.00000	1.00000	98.90
14.5	72,810,082	989,563	0.01359	0.98641	98.90
15.5	70,322,386	0	0.00000	1.00000	97.56
16.5	70,322,386	0	0.00000	1.00000	97.56
17.5	70,322,386	236,129	0.00336	0.99664	97.56
18.5	68,033,120	44,232	0.00065	0.99935	97.23
19.5	63,793,885	0	0.00000	1.00000	97.17
20.5	57,259,126	81,674	0.00143	0.99857	97.17
21.5	53,116,679	959	0.00002	0.99998	97.03
22.5	45,452,859	3,412	0.00008	0.99992	97.03
23.5	44,638,201	30,006	0.00067	0.99933	97.02
24.5	44,608,195	23	0.00000	1.00000	96.95
25.5	44,608,172	64,654	0.00145	0.99855	96.95
26.5	44,514,786	38,423	0.00086	0.99914	96.81

NEWFOUNDLAND AND LABRADOR HYDRO

Account T04 - Towers

Placement Band - 1967 - 2022 Experience Band - 1991 - 2022

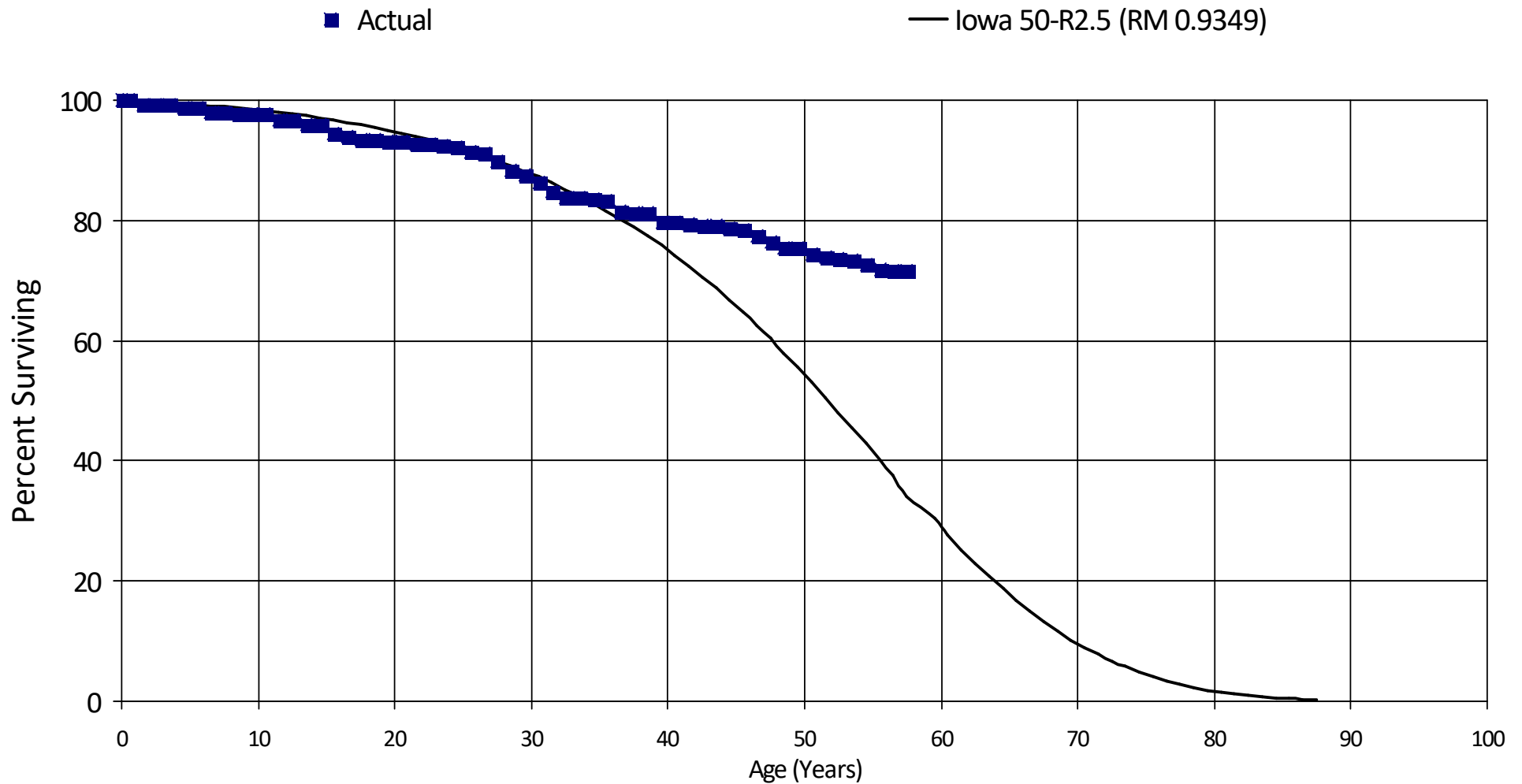
27.5	44,476,363	0	0.00000	1.00000	96.73
28.5	44,476,363	0	0.00000	1.00000	96.73
29.5	44,344,550	43,091	0.00097	0.99903	96.73
30.5	44,301,459	0	0.00000	1.00000	96.64
31.5	42,910,408	375,208	0.00874	0.99126	96.64
32.5	38,567,455	298,184	0.00773	0.99227	95.80
33.5	37,576,601	0	0.00000	1.00000	95.06
34.5	37,071,385	7,750	0.00021	0.99979	95.06
35.5	37,063,635	40,151	0.00108	0.99892	95.04
36.5	37,023,484	0	0.00000	1.00000	94.94
37.5	22,114,029	0	0.00000	1.00000	94.94
38.5	21,998,675	0	0.00000	1.00000	94.94
39.5	16,770,529	0	0.00000	1.00000	94.94
40.5	16,742,789	0	0.00000	1.00000	94.94
41.5	16,609,611	0	0.00000	1.00000	94.94
42.5	16,609,611	0	0.00000	1.00000	94.94
43.5	16,609,611	16,304	0.00098	0.99902	94.94
44.5	16,593,306	0	0.00000	1.00000	94.85
45.5	12,447,848	95,598	0.00768	0.99232	94.85
46.5	12,352,251	0	0.00000	1.00000	94.12
47.5	12,352,251	0	0.00000	1.00000	94.12
48.5	12,024,227	0	0.00000	1.00000	94.12
49.5	12,024,227	2,313	0.00019	0.99981	94.12
50.5	12,021,913	239	0.00002	0.99998	94.10
51.5	12,021,675	0	0.00000	1.00000	94.10
52.5	11,437,120	0	0.00000	1.00000	94.10
53.5	11,437,120	0	0.00000	1.00000	94.10
54.5	7,765,381	0	0.00000	1.00000	94.10
Totals:		3,210,804			

NEWFOUNDLAND AND LABRADOR HYDRO

Account T05 - Transformers - Other

Placement Band - 1964 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account T05 - Transformers - Other

Placement Band - 1964 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	176,684,460	0	0.00000	1.00000	100.00
0.5	170,155,799	1,101,684	0.00647	0.99353	100.00
1.5	164,379,403	151,777	0.00092	0.99908	99.35
2.5	159,178,190	156,830	0.00099	0.99901	99.26
3.5	151,034,159	580,105	0.00384	0.99616	99.16
4.5	142,257,840	185,889	0.00131	0.99869	98.78
5.5	135,129,387	809,604	0.00599	0.99401	98.65
6.5	117,443,056	197,488	0.00168	0.99832	98.06
7.5	107,459,097	66,227	0.00062	0.99938	97.90
8.5	96,424,132	8,554	0.00009	0.99991	97.84
9.5	91,908,978	48,717	0.00053	0.99947	97.83
10.5	87,183,339	898,806	0.01031	0.98969	97.78
11.5	84,703,848	49,496	0.00058	0.99942	96.77
12.5	83,582,189	656,629	0.00786	0.99214	96.71
13.5	79,325,516	107,246	0.00135	0.99865	95.95
14.5	78,811,663	1,246,690	0.01582	0.98418	95.82
15.5	76,726,734	270,986	0.00353	0.99647	94.30
16.5	76,191,865	457,767	0.00601	0.99399	93.97
17.5	75,130,482	76,978	0.00102	0.99898	93.41
18.5	73,189,317	46,848	0.00064	0.99936	93.31
19.5	71,288,196	72,256	0.00101	0.99899	93.25
20.5	68,619,410	309,310	0.00451	0.99549	93.16
21.5	67,857,633	159,840	0.00236	0.99764	92.74
22.5	67,476,806	187,439	0.00278	0.99722	92.52
23.5	67,047,324	71,102	0.00106	0.99894	92.26
24.5	64,866,051	498,959	0.00769	0.99231	92.16
25.5	64,189,927	183,999	0.00287	0.99713	91.45
26.5	60,988,351	879,719	0.01442	0.98558	91.19

NEWFOUNDLAND AND LABRADOR HYDRO

Account T05 - Transformers - Other

Placement Band - 1964 - 2022 Experience Band - 1991 - 2022

27.5	57,394,357	977,410	0.01703	0.98297	89.88
28.5	56,079,884	531,703	0.00948	0.99052	88.35
29.5	55,066,519	830,923	0.01509	0.98491	87.51
30.5	53,786,089	913,584	0.01699	0.98301	86.19
31.5	52,303,113	558,556	0.01068	0.98932	84.73
32.5	48,837,876	35,112	0.00072	0.99928	83.83
33.5	43,850,956	110,442	0.00252	0.99748	83.77
34.5	42,079,070	127,150	0.00302	0.99698	83.56
35.5	41,556,762	916,601	0.02206	0.97794	83.31
36.5	39,301,536	138,425	0.00352	0.99648	81.47
37.5	35,543,885	20,454	0.00058	0.99942	81.18
38.5	35,447,233	590,660	0.01666	0.98334	81.13
39.5	34,493,000	54,539	0.00158	0.99842	79.78
40.5	33,989,297	78,833	0.00232	0.99768	79.65
41.5	32,727,187	84,049	0.00257	0.99743	79.47
42.5	27,761,218	46,413	0.00167	0.99833	79.27
43.5	27,544,930	165,983	0.00603	0.99397	79.14
44.5	22,045,493	95,711	0.00434	0.99566	78.66
45.5	19,789,384	237,784	0.01202	0.98798	78.32
46.5	19,276,647	260,045	0.01349	0.98651	77.38
47.5	18,699,566	206,217	0.01103	0.98897	76.34
48.5	17,311,708	20,302	0.00117	0.99883	75.50
49.5	17,263,808	216,687	0.01255	0.98745	75.41
50.5	16,357,332	110,179	0.00674	0.99326	74.46
51.5	13,987,469	87,733	0.00627	0.99373	73.96
52.5	7,479,608	11,829	0.00158	0.99842	73.50
53.5	6,249,240	60,039	0.00961	0.99039	73.38
54.5	5,029,393	60,888	0.01211	0.98789	72.67
55.5	1,594,744	3,782	0.00237	0.99763	71.79
56.5	1,481,990	0	0.00000	1.00000	71.62
57.5	10,236	0	0.00000	1.00000	71.62

NEWFOUNDLAND AND LABRADOR HYDRO

Account T05 - Transformers - Other

Placement Band - 1964 - 2022 Experience Band - 1991 - 2022

Totals:

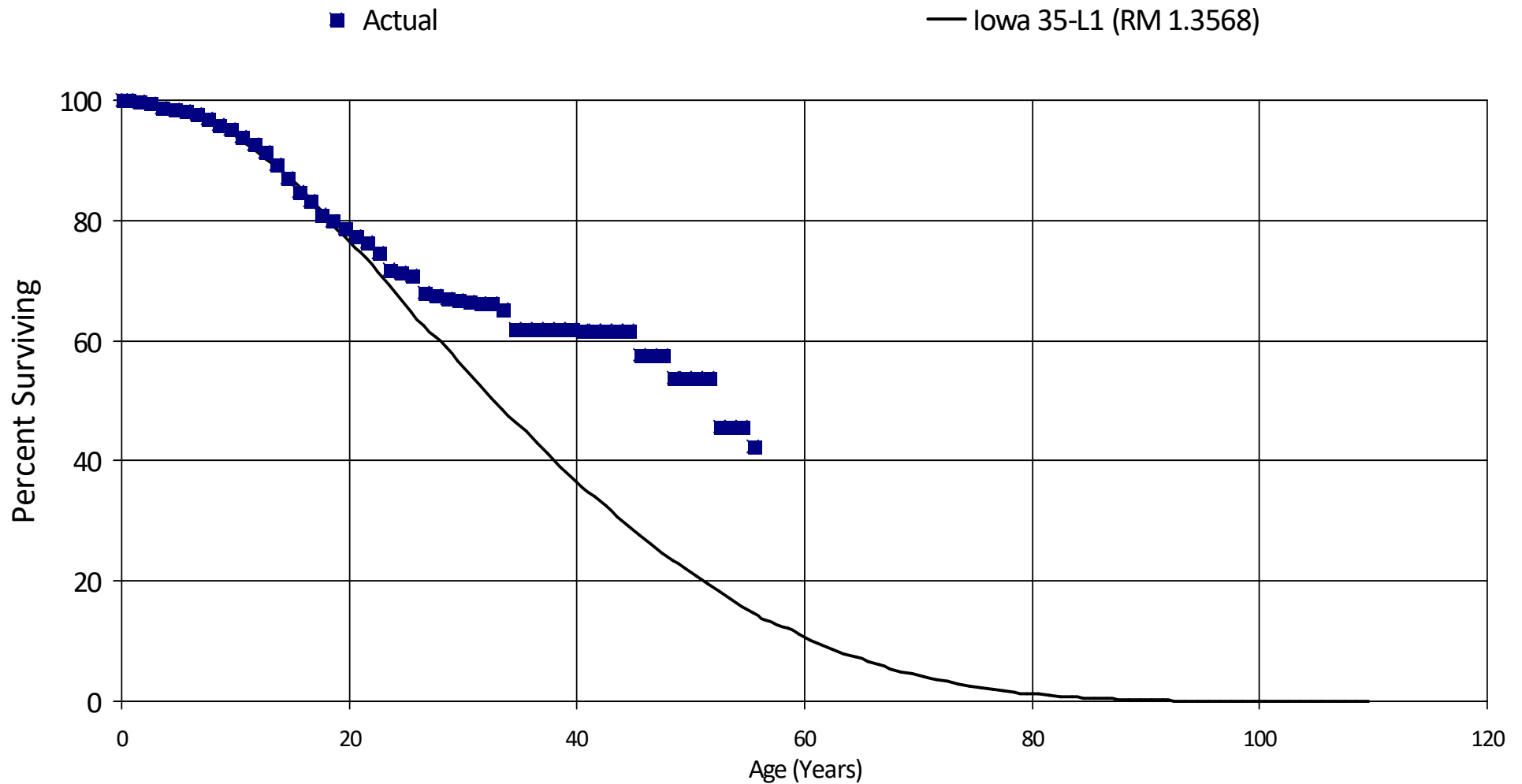
17,032,978

NEWFOUNDLAND AND LABRADOR HYDRO

Account T07 - Transformers - Pole Mounted

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account T07 - Transformers - Pole Mounted

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	59,338,784	0	0.00000	1.00000	100.00
0.5	56,842,602	156,418	0.00275	0.99725	100.00
1.5	53,160,913	106,933	0.00201	0.99799	99.72
2.5	50,095,791	415,655	0.00830	0.99170	99.52
3.5	46,443,125	142,371	0.00307	0.99693	98.69
4.5	45,597,519	134,505	0.00295	0.99705	98.39
5.5	44,262,715	157,938	0.00357	0.99643	98.10
6.5	42,610,674	379,245	0.00890	0.99110	97.75
7.5	39,758,221	389,411	0.00979	0.99021	96.88
8.5	36,067,824	305,553	0.00847	0.99153	95.93
9.5	28,281,967	375,658	0.01328	0.98672	95.12
10.5	26,103,577	318,713	0.01221	0.98779	93.86
11.5	23,470,203	317,043	0.01351	0.98649	92.71
12.5	21,694,037	508,466	0.02344	0.97656	91.46
13.5	19,547,970	499,561	0.02556	0.97444	89.32
14.5	18,000,933	478,139	0.02656	0.97344	87.04
15.5	16,272,737	276,956	0.01702	0.98298	84.73
16.5	15,044,198	403,925	0.02685	0.97315	83.29
17.5	13,663,667	204,202	0.01494	0.98506	81.05
18.5	12,666,406	174,581	0.01378	0.98622	79.84
19.5	11,523,941	186,206	0.01616	0.98384	78.74
20.5	10,527,955	154,378	0.01466	0.98534	77.47
21.5	9,745,811	204,742	0.02101	0.97899	76.33
22.5	8,856,922	334,011	0.03771	0.96229	74.73
23.5	7,842,200	72,292	0.00922	0.99078	71.91
24.5	7,165,471	39,725	0.00554	0.99446	71.25
25.5	6,000,533	238,395	0.03973	0.96027	70.86
26.5	4,875,217	45,229	0.00928	0.99072	68.04

NEWFOUNDLAND AND LABRADOR HYDRO

Account T07 - Transformers - Pole Mounted

Placement Band - 1965 - 2022 Experience Band - 1991 - 2022

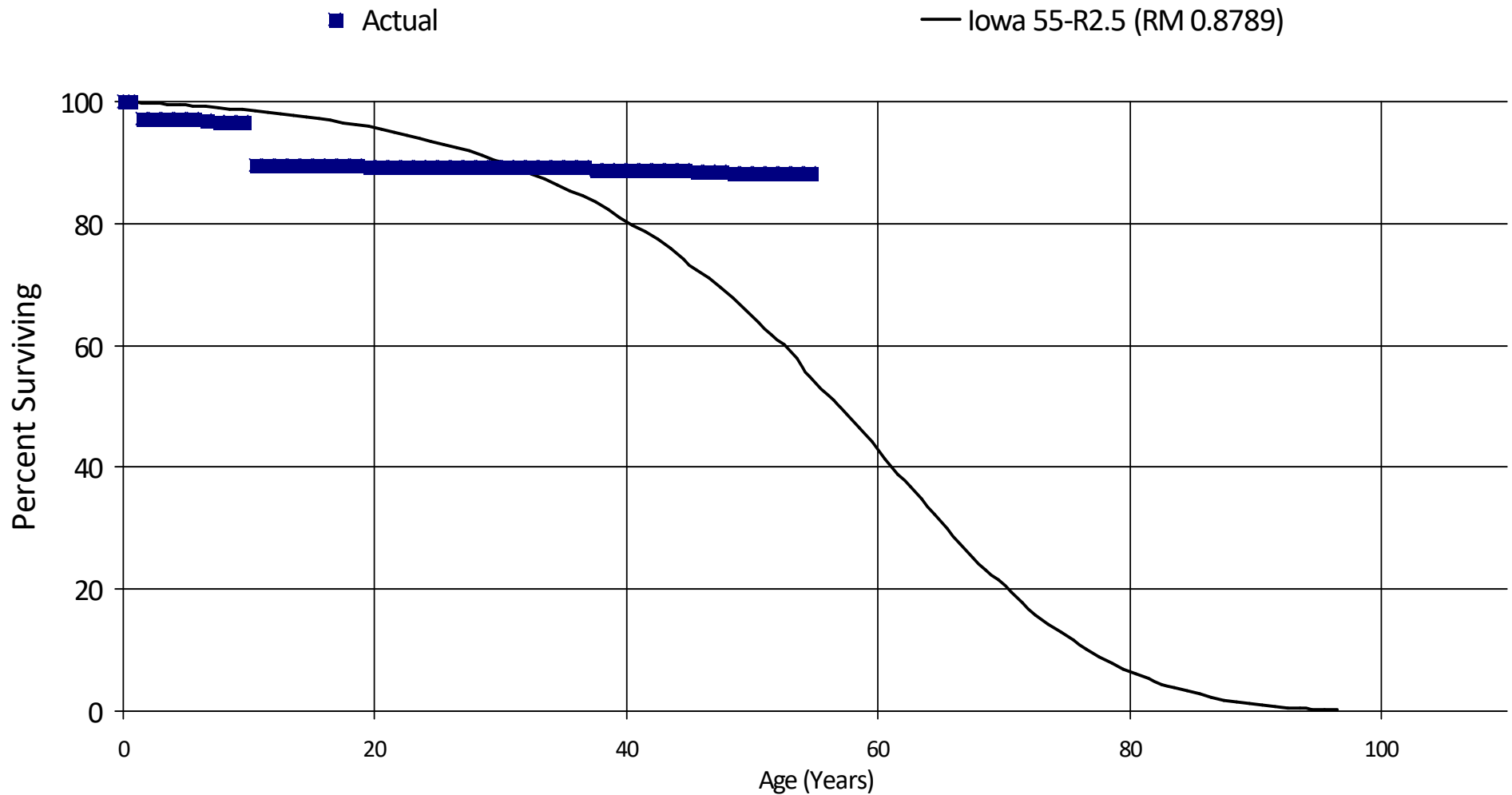
27.5	4,248,387	25,891	0.00609	0.99391	67.41
28.5	3,940,136	18,702	0.00475	0.99525	67.00
29.5	3,625,853	6,434	0.00177	0.99823	66.68
30.5	2,756,487	9,882	0.00358	0.99642	66.56
31.5	2,476,957	6,892	0.00278	0.99722	66.32
32.5	2,202,517	30,003	0.01362	0.98638	66.14
33.5	1,939,908	96,164	0.04957	0.95043	65.24
34.5	1,716,311	46	0.00003	0.99997	62.01
35.5	1,259,327	0	0.00000	1.00000	62.01
36.5	1,093,714	0	0.00000	1.00000	62.01
37.5	946,971	2,708	0.00286	0.99714	62.01
38.5	796,594	224	0.00028	0.99972	61.83
39.5	584,784	1,253	0.00214	0.99786	61.81
40.5	458,370	0	0.00000	1.00000	61.68
41.5	66,437	0	0.00000	1.00000	61.68
42.5	66,437	0	0.00000	1.00000	61.68
43.5	66,114	0	0.00000	1.00000	61.68
44.5	55,230	3,526	0.06384	0.93616	61.68
45.5	51,704	0	0.00000	1.00000	57.74
46.5	51,704	0	0.00000	1.00000	57.74
47.5	51,704	3,592	0.06947	0.93053	57.74
48.5	48,112	0	0.00000	1.00000	53.73
49.5	48,112	0	0.00000	1.00000	53.73
50.5	48,112	0	0.00000	1.00000	53.73
51.5	48,112	7,184	0.14932	0.85068	53.73
52.5	16,034	0	0.00000	1.00000	45.71
53.5	16,034	0	0.00000	1.00000	45.71
54.5	12,527	925	0.07384	0.92616	45.71
55.5	0	0	0.00000	0.00000	42.33
Totals:		7,233,677			

NEWFOUNDLAND AND LABRADOR HYDRO

Account T09 - Turbines

Placement Band - 1967 - 2019 Experience Band - 1999 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account T09 - Turbines

Placement Band - 1967 - 2019 Experience Band - 1999 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	79,965,147	0	0.00000	1.00000	100.00
0.5	79,965,147	2,215,837	0.02771	0.97229	100.00
1.5	77,749,310	0	0.00000	1.00000	97.23
2.5	77,749,310	0	0.00000	1.00000	97.23
3.5	73,577,094	0	0.00000	1.00000	97.23
4.5	71,801,709	0	0.00000	1.00000	97.23
5.5	69,978,519	134,338	0.00192	0.99808	97.23
6.5	68,331,570	214,388	0.00314	0.99686	97.04
7.5	65,211,053	0	0.00000	1.00000	96.74
8.5	64,921,503	0	0.00000	1.00000	96.74
9.5	62,687,084	4,678,499	0.07463	0.92537	96.74
10.5	58,008,585	0	0.00000	1.00000	89.52
11.5	58,008,585	0	0.00000	1.00000	89.52
12.5	58,008,585	0	0.00000	1.00000	89.52
13.5	57,941,415	0	0.00000	1.00000	89.52
14.5	57,941,415	0	0.00000	1.00000	89.52
15.5	57,941,415	0	0.00000	1.00000	89.52
16.5	57,941,415	0	0.00000	1.00000	89.52
17.5	57,941,415	0	0.00000	1.00000	89.52
18.5	57,941,415	139,945	0.00242	0.99758	89.52
19.5	46,025,140	0	0.00000	1.00000	89.30
20.5	46,025,140	0	0.00000	1.00000	89.30
21.5	46,025,140	0	0.00000	1.00000	89.30
22.5	46,025,140	0	0.00000	1.00000	89.30
23.5	46,025,140	0	0.00000	1.00000	89.30
24.5	46,025,140	0	0.00000	1.00000	89.30
25.5	46,025,140	0	0.00000	1.00000	89.30
26.5	46,025,140	0	0.00000	1.00000	89.30

NEWFOUNDLAND AND LABRADOR HYDRO

Account T09 - Turbines

Placement Band - 1967 - 2019 Experience Band - 1999 - 2022

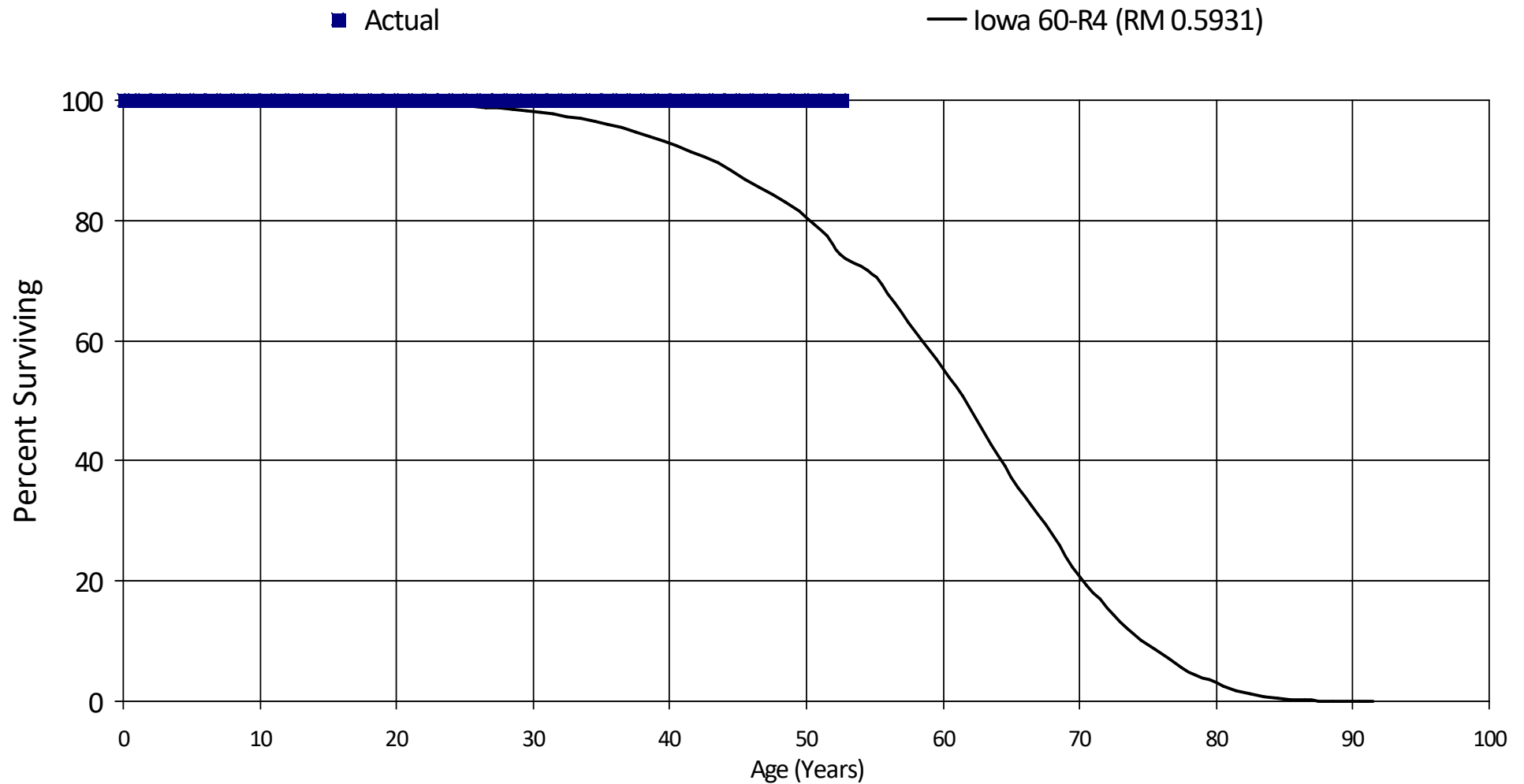
27.5	46,025,140	0	0.00000	1.00000	89.30
28.5	46,025,140	0	0.00000	1.00000	89.30
29.5	46,025,140	0	0.00000	1.00000	89.30
30.5	46,025,140	0	0.00000	1.00000	89.30
31.5	46,025,140	0	0.00000	1.00000	89.30
32.5	46,025,140	0	0.00000	1.00000	89.30
33.5	44,437,965	0	0.00000	1.00000	89.30
34.5	37,528,129	0	0.00000	1.00000	89.30
35.5	37,519,236	0	0.00000	1.00000	89.30
36.5	37,519,236	209,025	0.00557	0.99443	89.30
37.5	26,615,394	2,201	0.00008	0.99992	88.80
38.5	26,613,193	0	0.00000	1.00000	88.79
39.5	26,566,417	0	0.00000	1.00000	88.79
40.5	19,475,060	0	0.00000	1.00000	88.79
41.5	19,475,060	0	0.00000	1.00000	88.79
42.5	16,686,821	5,339	0.00032	0.99968	88.79
43.5	16,681,482	5,339	0.00032	0.99968	88.76
44.5	12,433,472	8,333	0.00067	0.99933	88.73
45.5	12,207,232	8,079	0.00066	0.99934	88.67
46.5	12,199,153	4,592	0.00038	0.99962	88.61
47.5	12,092,688	43,789	0.00362	0.99638	88.58
48.5	12,048,899	0	0.00000	1.00000	88.26
49.5	12,048,899	0	0.00000	1.00000	88.26
50.5	12,048,899	0	0.00000	1.00000	88.26
51.5	12,022,899	2,954	0.00025	0.99975	88.26
52.5	10,353,272	0	0.00000	1.00000	88.24
53.5	10,353,272	0	0.00000	1.00000	88.24
54.5	1,745,867	0	0.00000	1.00000	88.24
Totals:		7,672,658			

NEWFOUNDLAND AND LABRADOR HYDRO

Account V01 - Vacuum Cleaning System

Placement Band - 1969 - 1980 Experience Band - 2022 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account V01 - Vacuum Cleaning System

Placement Band - 1969 - 1980 Experience Band - 2022 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	72,451	0	0.00000	1.00000	100.00
0.5	72,451	0	0.00000	1.00000	100.00
1.5	72,451	0	0.00000	1.00000	100.00
2.5	72,451	0	0.00000	1.00000	100.00
3.5	72,451	0	0.00000	1.00000	100.00
4.5	72,451	0	0.00000	1.00000	100.00
5.5	72,451	0	0.00000	1.00000	100.00
6.5	72,451	0	0.00000	1.00000	100.00
7.5	72,451	0	0.00000	1.00000	100.00
8.5	72,451	0	0.00000	1.00000	100.00
9.5	72,451	0	0.00000	1.00000	100.00
10.5	72,451	0	0.00000	1.00000	100.00
11.5	72,451	0	0.00000	1.00000	100.00
12.5	72,451	0	0.00000	1.00000	100.00
13.5	72,451	0	0.00000	1.00000	100.00
14.5	72,451	0	0.00000	1.00000	100.00
15.5	72,451	0	0.00000	1.00000	100.00
16.5	72,451	0	0.00000	1.00000	100.00
17.5	72,451	0	0.00000	1.00000	100.00
18.5	72,451	0	0.00000	1.00000	100.00
19.5	72,451	0	0.00000	1.00000	100.00
20.5	72,451	0	0.00000	1.00000	100.00
21.5	72,451	0	0.00000	1.00000	100.00
22.5	72,451	0	0.00000	1.00000	100.00
23.5	72,451	0	0.00000	1.00000	100.00
24.5	72,451	0	0.00000	1.00000	100.00
25.5	72,451	0	0.00000	1.00000	100.00
26.5	72,451	0	0.00000	1.00000	100.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account V01 - Vacuum Cleaning System

Placement Band - 1969 - 1980 Experience Band - 2022 - 2022

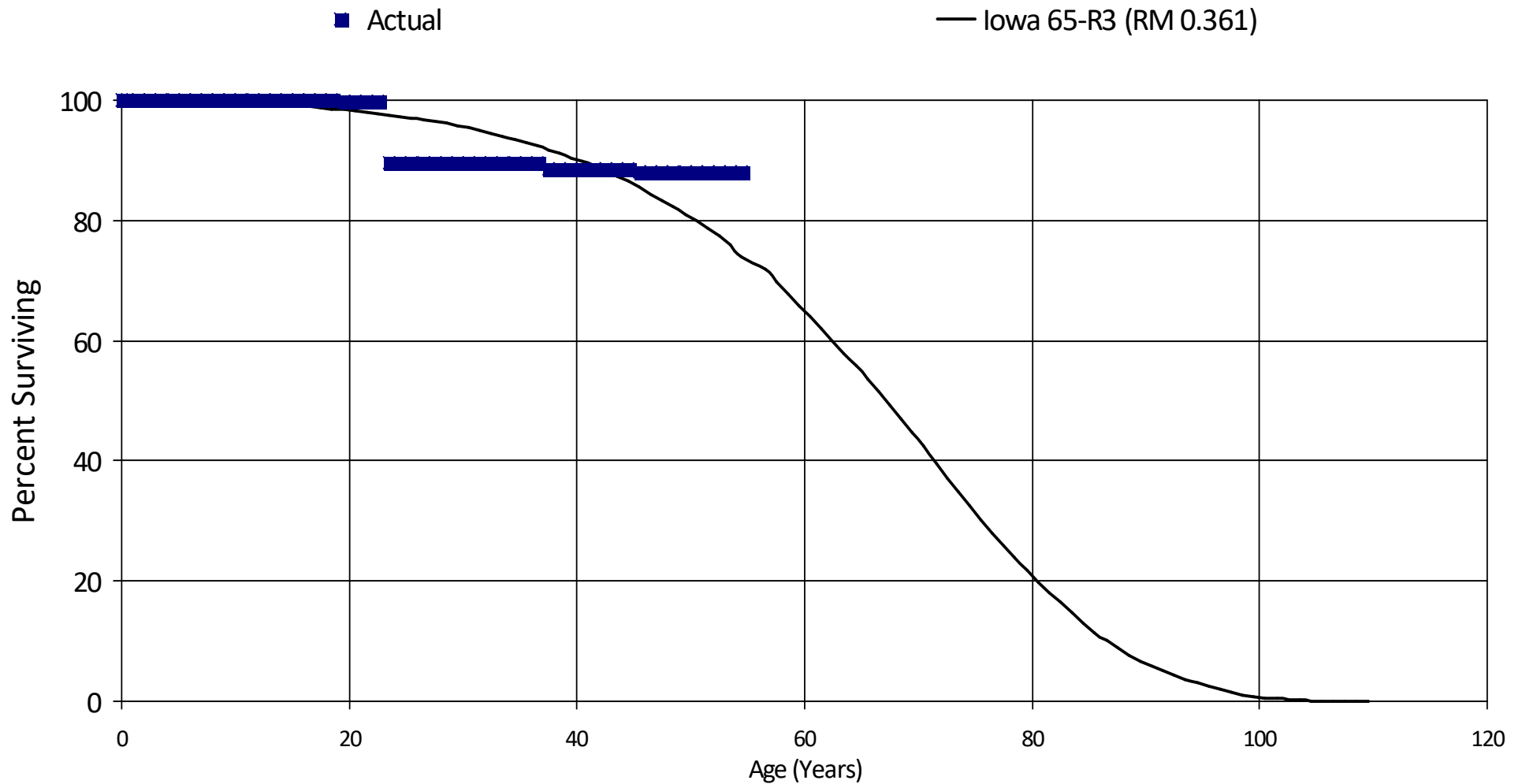
27.5	72,451	0	0.00000	1.00000	100.00
28.5	72,451	0	0.00000	1.00000	100.00
29.5	72,451	0	0.00000	1.00000	100.00
30.5	72,451	0	0.00000	1.00000	100.00
31.5	72,451	0	0.00000	1.00000	100.00
32.5	72,451	0	0.00000	1.00000	100.00
33.5	72,451	0	0.00000	1.00000	100.00
34.5	72,451	0	0.00000	1.00000	100.00
35.5	72,451	0	0.00000	1.00000	100.00
36.5	72,451	0	0.00000	1.00000	100.00
37.5	72,451	0	0.00000	1.00000	100.00
38.5	72,451	0	0.00000	1.00000	100.00
39.5	72,451	0	0.00000	1.00000	100.00
40.5	72,451	0	0.00000	1.00000	100.00
41.5	72,451	0	0.00000	1.00000	100.00
42.5	23,574	0	0.00000	1.00000	100.00
43.5	23,574	0	0.00000	1.00000	100.00
44.5	23,574	0	0.00000	1.00000	100.00
45.5	23,574	0	0.00000	1.00000	100.00
46.5	23,574	0	0.00000	1.00000	100.00
47.5	23,574	0	0.00000	1.00000	100.00
48.5	23,574	0	0.00000	1.00000	100.00
49.5	23,574	0	0.00000	1.00000	100.00
50.5	23,574	0	0.00000	1.00000	100.00
51.5	23,574	0	0.00000	1.00000	100.00
52.5	23,574	0	0.00000	1.00000	100.00
Totals:		0			

NEWFOUNDLAND AND LABRADOR HYDRO

Account V02 - Valves - Penstock

Placement Band - 1967 - 2022 Experience Band - 2005 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account V02 - Valves - Penstock

Placement Band - 1967 - 2022 Experience Band - 2005 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	8,788,361	0	0.00000	1.00000	100.00
0.5	8,322,632	0	0.00000	1.00000	100.00
1.5	8,322,632	0	0.00000	1.00000	100.00
2.5	8,322,632	0	0.00000	1.00000	100.00
3.5	8,322,632	0	0.00000	1.00000	100.00
4.5	8,322,632	0	0.00000	1.00000	100.00
5.5	8,322,632	0	0.00000	1.00000	100.00
6.5	8,063,196	0	0.00000	1.00000	100.00
7.5	7,842,689	0	0.00000	1.00000	100.00
8.5	7,842,689	0	0.00000	1.00000	100.00
9.5	7,842,689	0	0.00000	1.00000	100.00
10.5	7,842,689	0	0.00000	1.00000	100.00
11.5	7,842,689	0	0.00000	1.00000	100.00
12.5	7,842,689	0	0.00000	1.00000	100.00
13.5	7,842,689	0	0.00000	1.00000	100.00
14.5	5,967,511	6,433	0.00108	0.99892	100.00
15.5	5,831,282	0	0.00000	1.00000	99.89
16.5	5,654,384	0	0.00000	1.00000	99.89
17.5	5,442,067	0	0.00000	1.00000	99.89
18.5	5,230,715	1,982	0.00038	0.99962	99.89
19.5	4,995,784	0	0.00000	1.00000	99.85
20.5	4,995,784	0	0.00000	1.00000	99.85
21.5	4,812,595	0	0.00000	1.00000	99.85
22.5	4,812,595	497,499	0.10337	0.89663	99.85
23.5	4,315,096	0	0.00000	1.00000	89.53
24.5	4,315,096	0	0.00000	1.00000	89.53
25.5	4,315,096	0	0.00000	1.00000	89.53
26.5	4,315,096	0	0.00000	1.00000	89.53

NEWFOUNDLAND AND LABRADOR HYDRO

Account V02 - Valves - Penstock

Placement Band - 1967 - 2022 Experience Band - 2005 - 2022

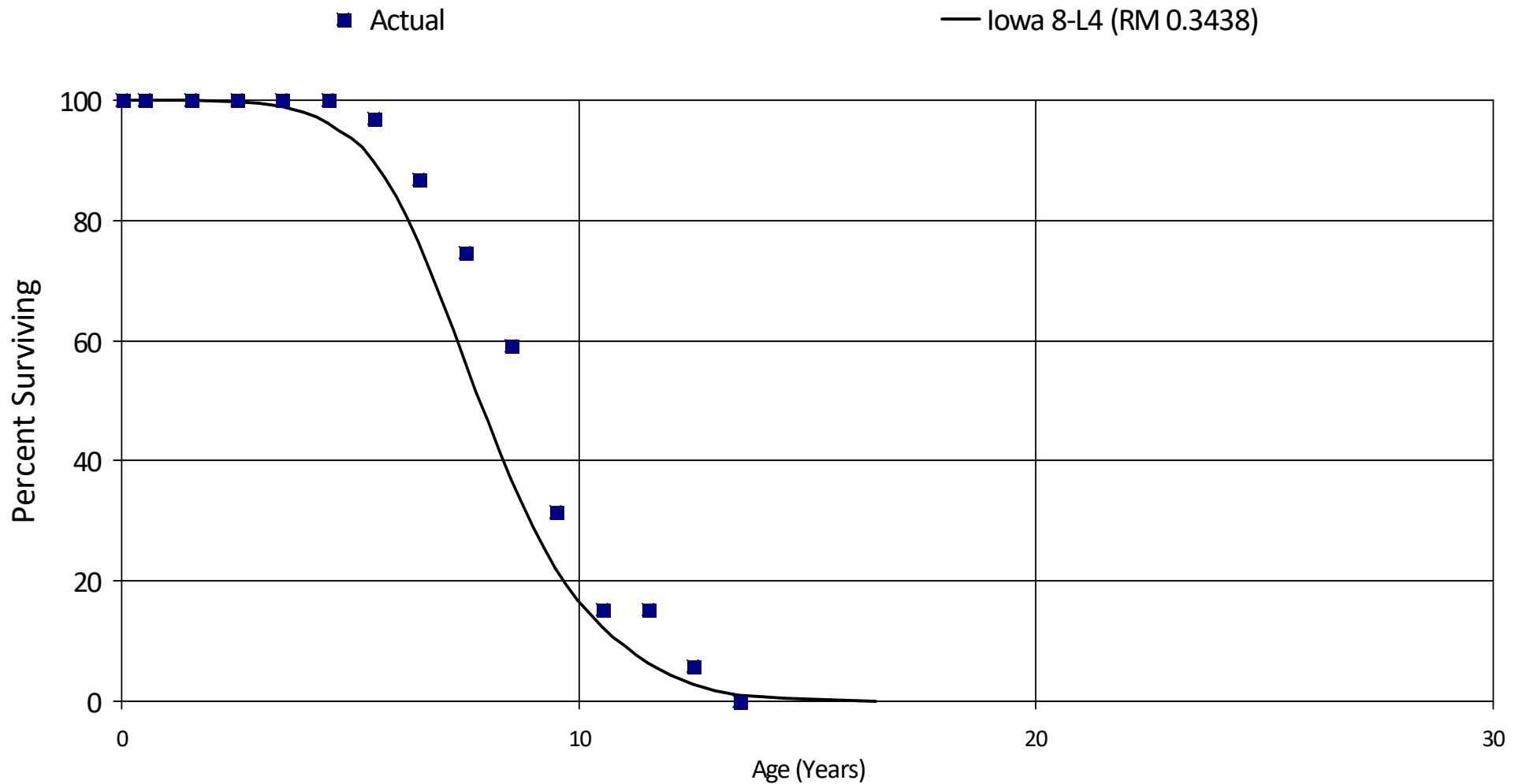
27.5	4,315,096	0	0.00000	1.00000	89.53
28.5	4,315,096	0	0.00000	1.00000	89.53
29.5	4,315,096	0	0.00000	1.00000	89.53
30.5	4,315,096	0	0.00000	1.00000	89.53
31.5	4,315,096	0	0.00000	1.00000	89.53
32.5	4,315,096	0	0.00000	1.00000	89.53
33.5	4,315,096	0	0.00000	1.00000	89.53
34.5	4,312,663	0	0.00000	1.00000	89.53
35.5	4,312,663	0	0.00000	1.00000	89.53
36.5	4,312,663	51,267	0.01189	0.98811	89.53
37.5	2,111,625	0	0.00000	1.00000	88.47
38.5	2,111,625	0	0.00000	1.00000	88.47
39.5	2,111,625	0	0.00000	1.00000	88.47
40.5	2,089,406	0	0.00000	1.00000	88.47
41.5	2,089,406	0	0.00000	1.00000	88.47
42.5	2,089,406	0	0.00000	1.00000	88.47
43.5	2,089,406	0	0.00000	1.00000	88.47
44.5	2,089,406	8,672	0.00415	0.99585	88.47
45.5	1,976,734	0	0.00000	1.00000	88.10
46.5	1,976,734	0	0.00000	1.00000	88.10
47.5	1,962,433	0	0.00000	1.00000	88.10
48.5	1,962,433	0	0.00000	1.00000	88.10
49.5	1,962,433	0	0.00000	1.00000	88.10
50.5	1,962,433	0	0.00000	1.00000	88.10
51.5	1,962,433	0	0.00000	1.00000	88.10
52.5	1,415,205	0	0.00000	1.00000	88.10
53.5	1,415,205	0	0.00000	1.00000	88.10
54.5	1,415,205	0	0.00000	1.00000	88.10
Totals:		565,853			

NEWFOUNDLAND AND LABRADOR HYDRO

Account V03 - Vehicles - 1 Ton

Placement Band - 1981 - 2018 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account V03 - Vehicles - 1 Ton

Placement Band - 1981 - 2018 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

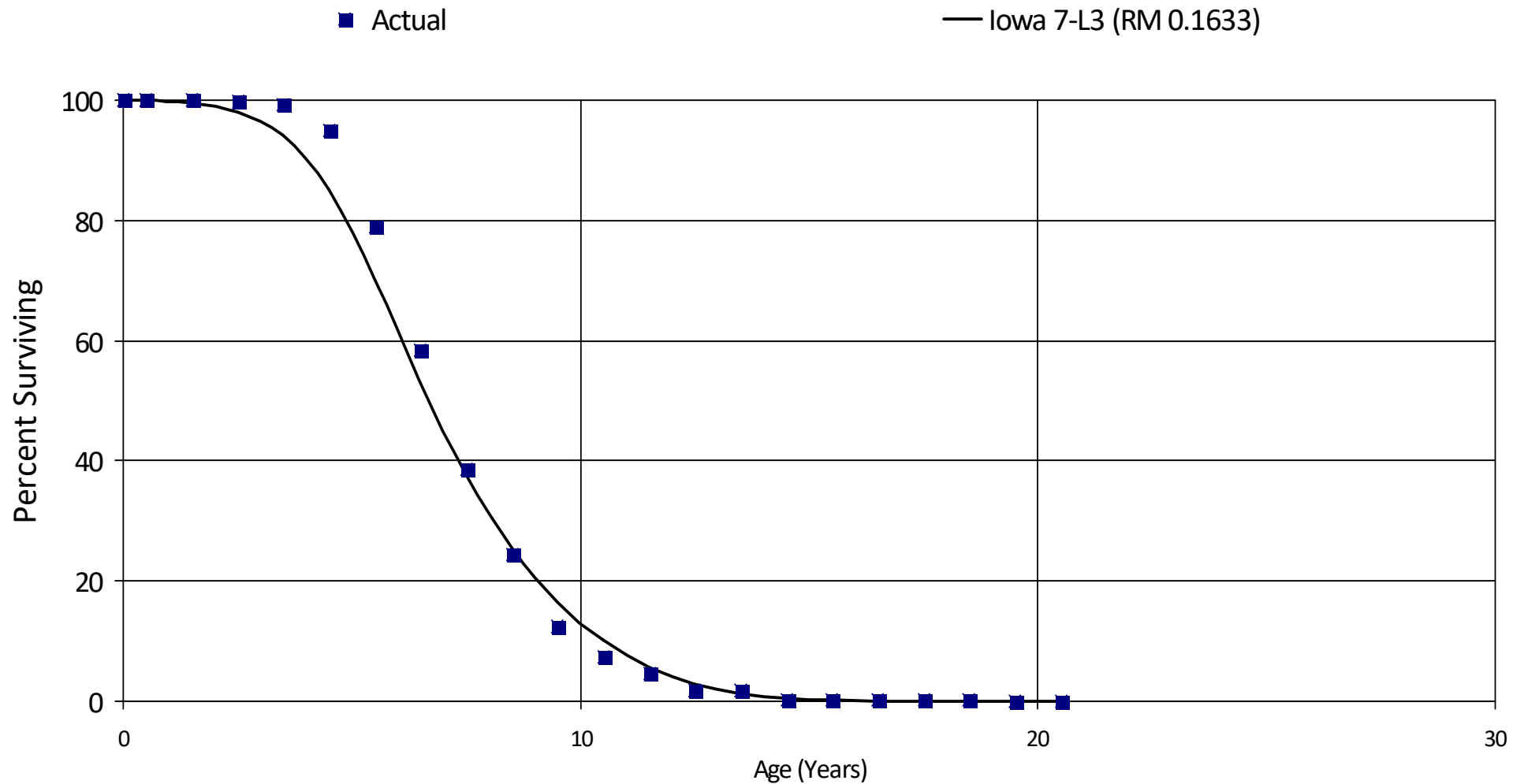
Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	487,464	0	0.00000	1.00000	100.00
0.5	487,464	0	0.00000	1.00000	100.00
1.5	487,464	0	0.00000	1.00000	100.00
2.5	487,464	0	0.00000	1.00000	100.00
3.5	487,464	0	0.00000	1.00000	100.00
4.5	436,873	13,283	0.03040	0.96960	100.00
5.5	419,131	44,240	0.10555	0.89445	96.96
6.5	321,821	45,392	0.14105	0.85895	86.73
7.5	276,428	56,766	0.20536	0.79464	74.50
8.5	219,662	102,809	0.46803	0.53197	59.20
9.5	65,206	33,491	0.51362	0.48638	31.49
10.5	31,715	0	0.00000	1.00000	15.32
11.5	31,715	19,876	0.62671	0.37329	15.32
12.5	11,838	11,838	0.99999	0.00001	5.72
13.5	0	0	0.00000	0.00000	0.00
Totals:		327,695			

NEWFOUNDLAND AND LABRADOR HYDRO

Account V04 - Vehicles - 3/4 Ton and Under

Placement Band - 1977 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account V04 - Vehicles - 3/4 Ton and Under

Placement Band - 1977 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

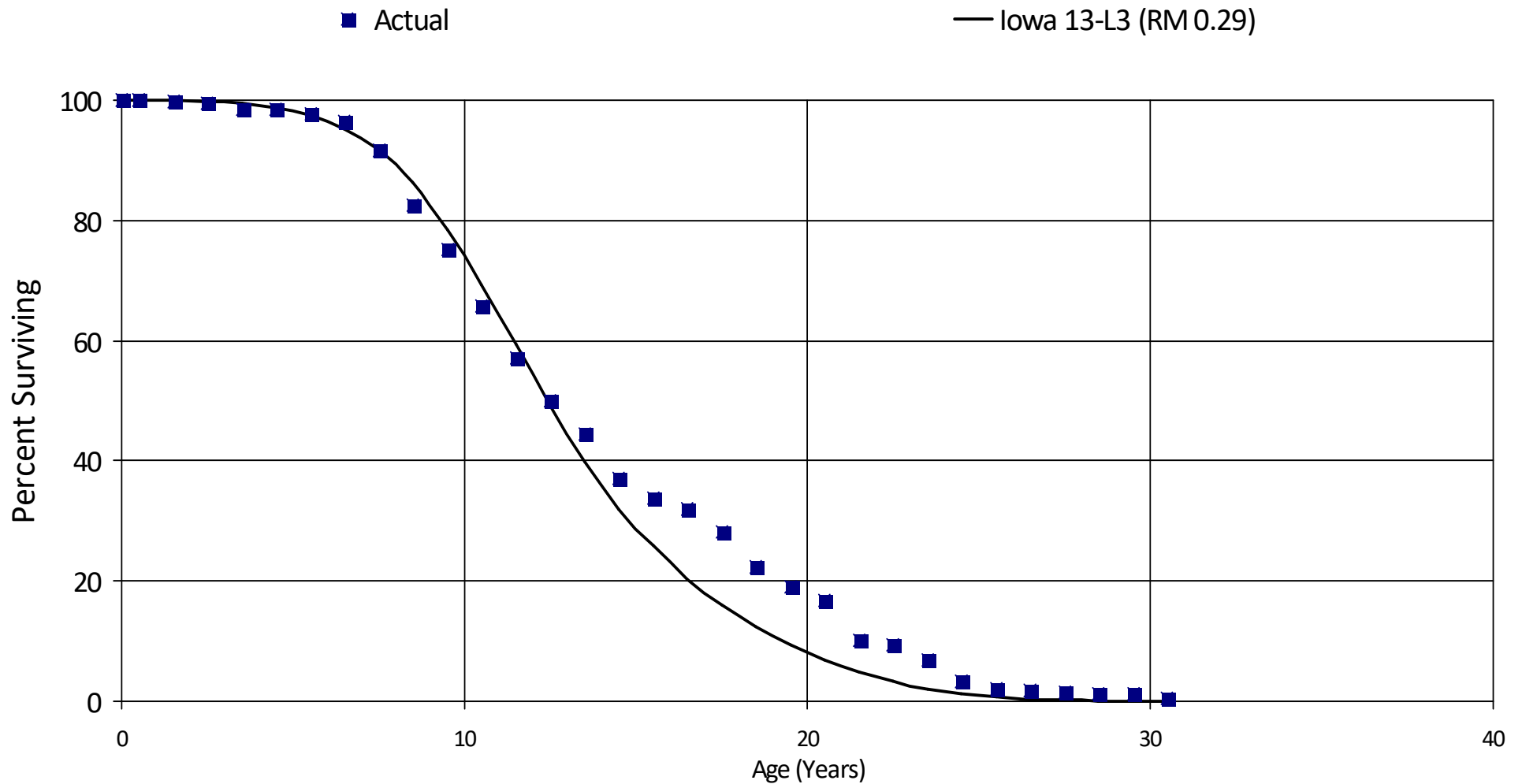
Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	17,664,248	0	0.00000	1.00000	100.00
0.5	16,506,918	0	0.00000	1.00000	100.00
1.5	15,924,224	37,184	0.00234	0.99766	100.00
2.5	15,878,712	95,361	0.00601	0.99399	99.77
3.5	15,783,351	676,628	0.04287	0.95713	99.17
4.5	14,433,748	2,431,007	0.16843	0.83157	94.92
5.5	10,733,914	2,807,352	0.26154	0.73846	78.93
6.5	6,675,929	2,253,689	0.33758	0.66242	58.29
7.5	3,452,263	1,280,807	0.37100	0.62900	38.61
8.5	1,864,141	912,862	0.48970	0.51030	24.29
9.5	882,451	358,781	0.40657	0.59343	12.40
10.5	397,331	144,442	0.36353	0.63647	7.36
11.5	225,542	141,545	0.62758	0.37242	4.68
12.5	83,997	3,550	0.04226	0.95774	1.74
13.5	80,446	62,639	0.77864	0.22136	1.67
14.5	17,807	0	0.00000	1.00000	0.37
15.5	17,807	2,532	0.14219	0.85781	0.37
16.5	15,275	8,795	0.57577	0.42423	0.32
17.5	6,480	0	0.00000	1.00000	0.14
18.5	6,480	4,537	0.70018	0.29982	0.14
19.5	1,943	1,943	0.99992	0.00008	0.04
20.5	0	0	0.00000	0.00000	0.00
Totals:		11,223,654			

NEWFOUNDLAND AND LABRADOR HYDRO

Account V05 - Vehicles - Booms / Bodies / Cranes / Cab / Chassis

Placement Band - 1971 - 2021 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account V05 - Vehicles - Booms / Bodies / Cranes / Cab / Chassis

Placement Band - 1971 - 2021 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	32,529,331	0	0.00000	1.00000	100.00
0.5	32,529,331	68,025	0.00209	0.99791	100.00
1.5	30,458,954	84,894	0.00279	0.99721	99.79
2.5	28,130,584	290,756	0.01034	0.98966	99.51
3.5	27,306,087	15,155	0.00056	0.99944	98.48
4.5	25,514,009	202,273	0.00793	0.99207	98.42
5.5	24,756,935	301,536	0.01218	0.98782	97.64
6.5	24,455,393	1,211,410	0.04954	0.95046	96.45
7.5	20,524,435	2,028,232	0.09882	0.90118	91.67
8.5	17,662,158	1,585,594	0.08977	0.91023	82.61
9.5	14,753,579	1,844,991	0.12505	0.87495	75.19
10.5	11,061,668	1,459,467	0.13194	0.86806	65.79
11.5	8,117,319	1,006,287	0.12397	0.87603	57.11
12.5	6,591,757	752,565	0.11417	0.88583	50.03
13.5	4,567,108	741,612	0.16238	0.83762	44.32
14.5	3,368,297	301,191	0.08942	0.91058	37.12
15.5	2,426,766	124,552	0.05132	0.94868	33.80
16.5	2,267,214	273,432	0.12060	0.87940	32.07
17.5	1,608,782	332,219	0.20650	0.79350	28.20
18.5	1,276,563	185,014	0.14493	0.85507	22.38
19.5	1,072,602	129,020	0.12029	0.87971	19.14
20.5	921,362	369,877	0.40145	0.59855	16.84
21.5	551,486	31,815	0.05769	0.94231	10.08
22.5	519,671	149,068	0.28685	0.71315	9.50
23.5	370,603	183,466	0.49505	0.50495	6.77
24.5	187,137	80,847	0.43202	0.56798	3.42
25.5	106,290	6,157	0.05793	0.94207	1.94
26.5	100,133	11,503	0.11488	0.88512	1.83

NEWFOUNDLAND AND LABRADOR HYDRO

Account V05 - Vehicles - Booms / Bodies / Cranes / Cab / Chassis

Placement Band - 1971 - 2021 Experience Band - 1991 - 2022

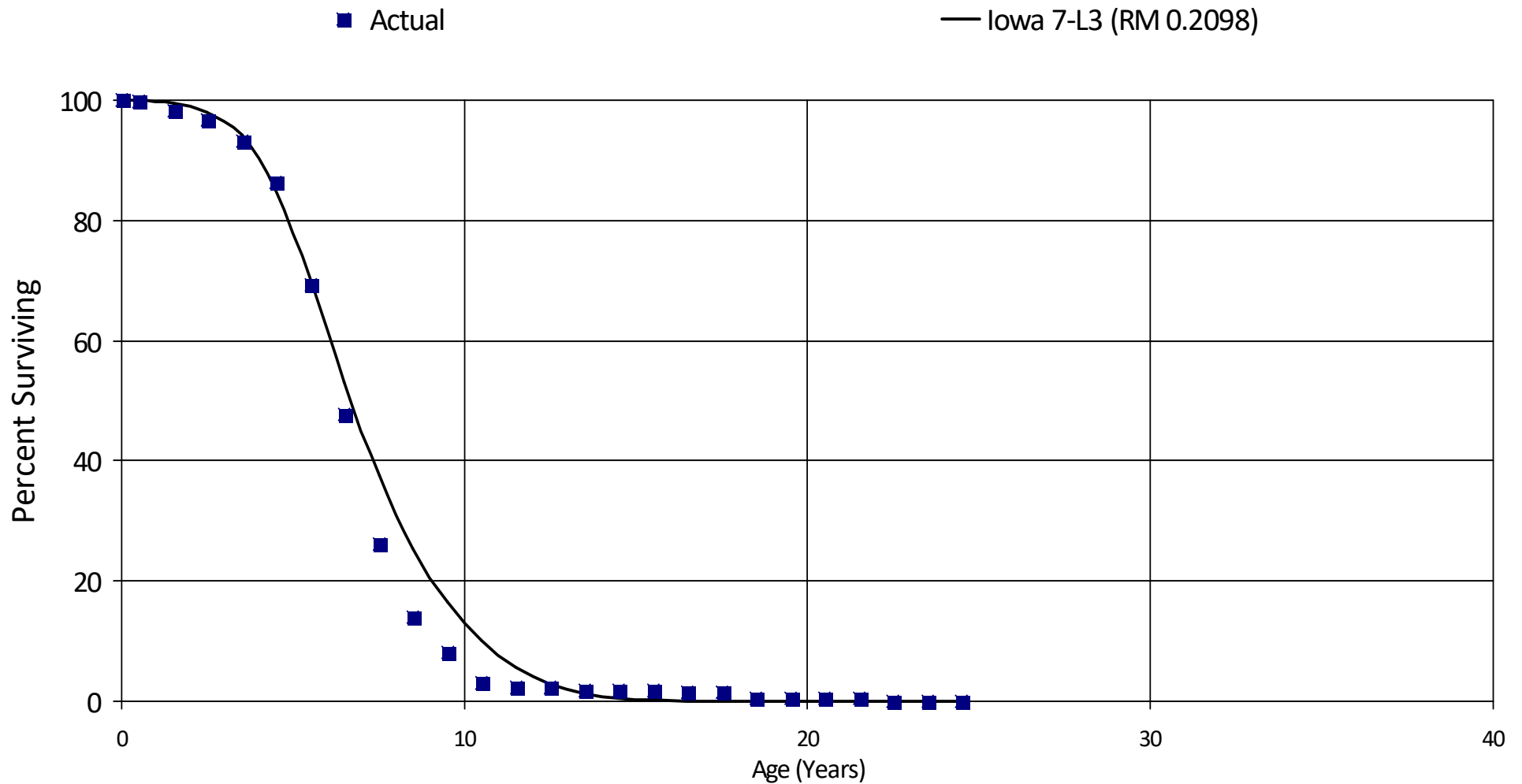
27.5	88,629	16,230	0.18312	0.81688	1.62
28.5	72,399	0	0.00000	1.00000	1.32
29.5	72,399	44,189	0.61035	0.38965	1.32
30.5	28,210	28,210	1.00000		0.51
Totals:		13,859,587			

NEWFOUNDLAND AND LABRADOR HYDRO

Account V06 - Vehicles - Cars, Station Wagons, and Vans

Placement Band - 1974 - 2022 Experience Band - 1991 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account V06 - Vehicles - Cars, Station Wagons, and Vans

Placement Band - 1974 - 2022 Experience Band - 1991 - 2022

RETIREMENT RATE ANALYSIS

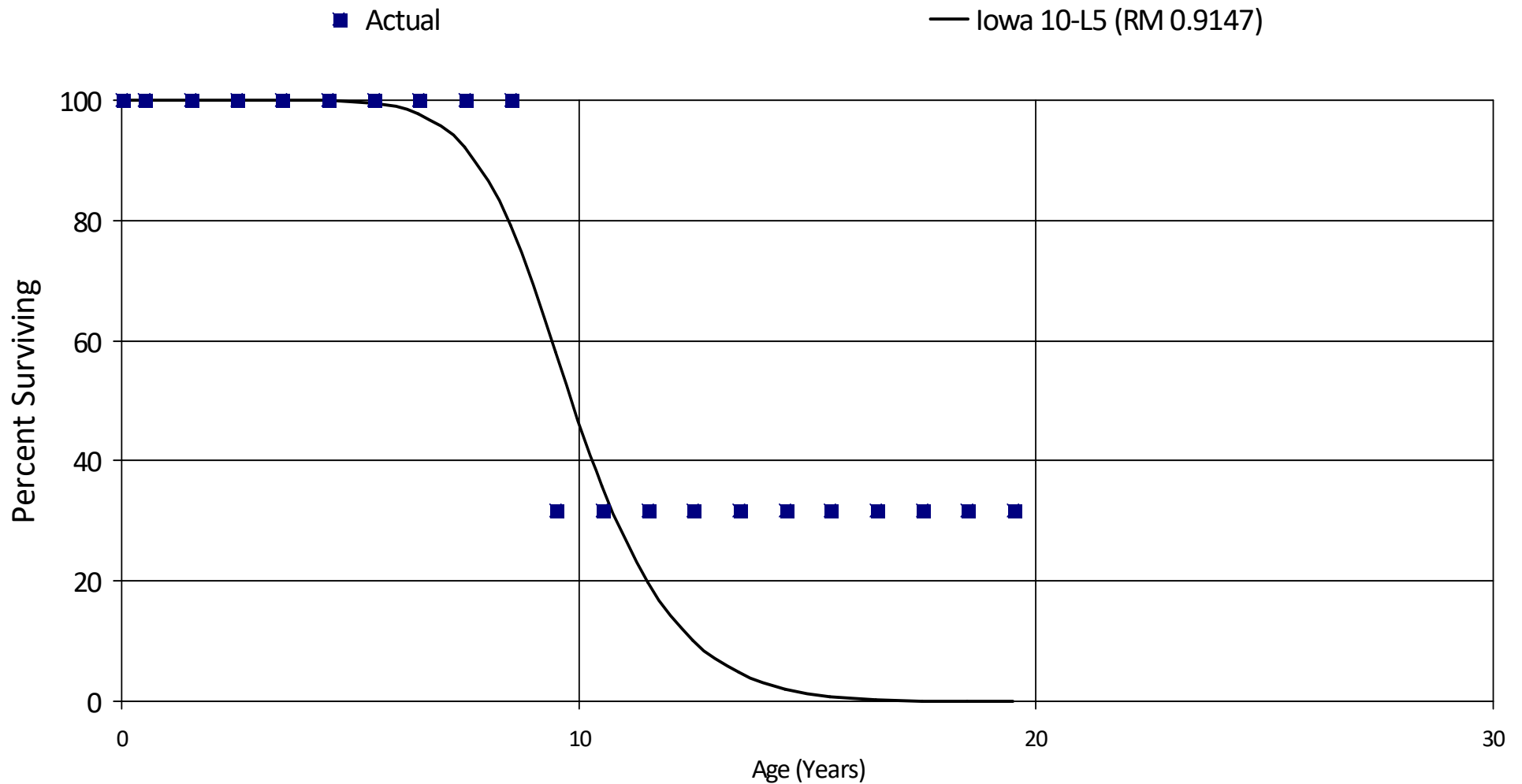
Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	10,422,596	34,490	0.00331	0.99669	100.00
0.5	10,167,075	150,355	0.01479	0.98521	99.67
1.5	9,855,287	159,717	0.01621	0.98379	98.20
2.5	9,695,570	343,570	0.03544	0.96456	96.61
3.5	9,352,000	684,758	0.07322	0.92678	93.19
4.5	8,542,732	1,700,539	0.19906	0.80094	86.37
5.5	6,488,951	2,024,921	0.31206	0.68794	69.18
6.5	4,392,567	1,974,637	0.44954	0.55046	47.59
7.5	2,333,850	1,080,029	0.46277	0.53723	26.20
8.5	1,037,055	432,118	0.41668	0.58332	14.08
9.5	546,414	349,083	0.63886	0.36114	8.21
10.5	139,236	30,157	0.21659	0.78341	2.96
11.5	26,938	0	0.00000	1.00000	2.32
12.5	26,938	5,717	0.21223	0.78777	2.32
13.5	21,221	0	0.00000	1.00000	1.83
14.5	21,221	0	0.00000	1.00000	1.83
15.5	21,221	2,230	0.10508	0.89492	1.83
16.5	18,991	0	0.00000	1.00000	1.64
17.5	18,991	12,282	0.64673	0.35327	1.64
18.5	6,709	0	0.00000	1.00000	0.58
19.5	6,709	0	0.00000	1.00000	0.58
20.5	6,709	0	0.00000	1.00000	0.58
21.5	6,709	6,208	0.92527	0.07473	0.58
22.5	502	0	0.00000	1.00000	0.04
23.5	502	502	1.00034	-0.00034	0.04
24.5	0	0	0.00000	0.00000	0.00
Totals:		8,991,313			

NEWFOUNDLAND AND LABRADOR HYDRO

Account V07 - Vehicles - Dump Trucks

Placement Band - 1989 - 2006 Experience Band - 1998 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account V07 - Vehicles - Dump Trucks

Placement Band - 1989 - 2006 Experience Band - 1998 - 2022

RETIREMENT RATE ANALYSIS

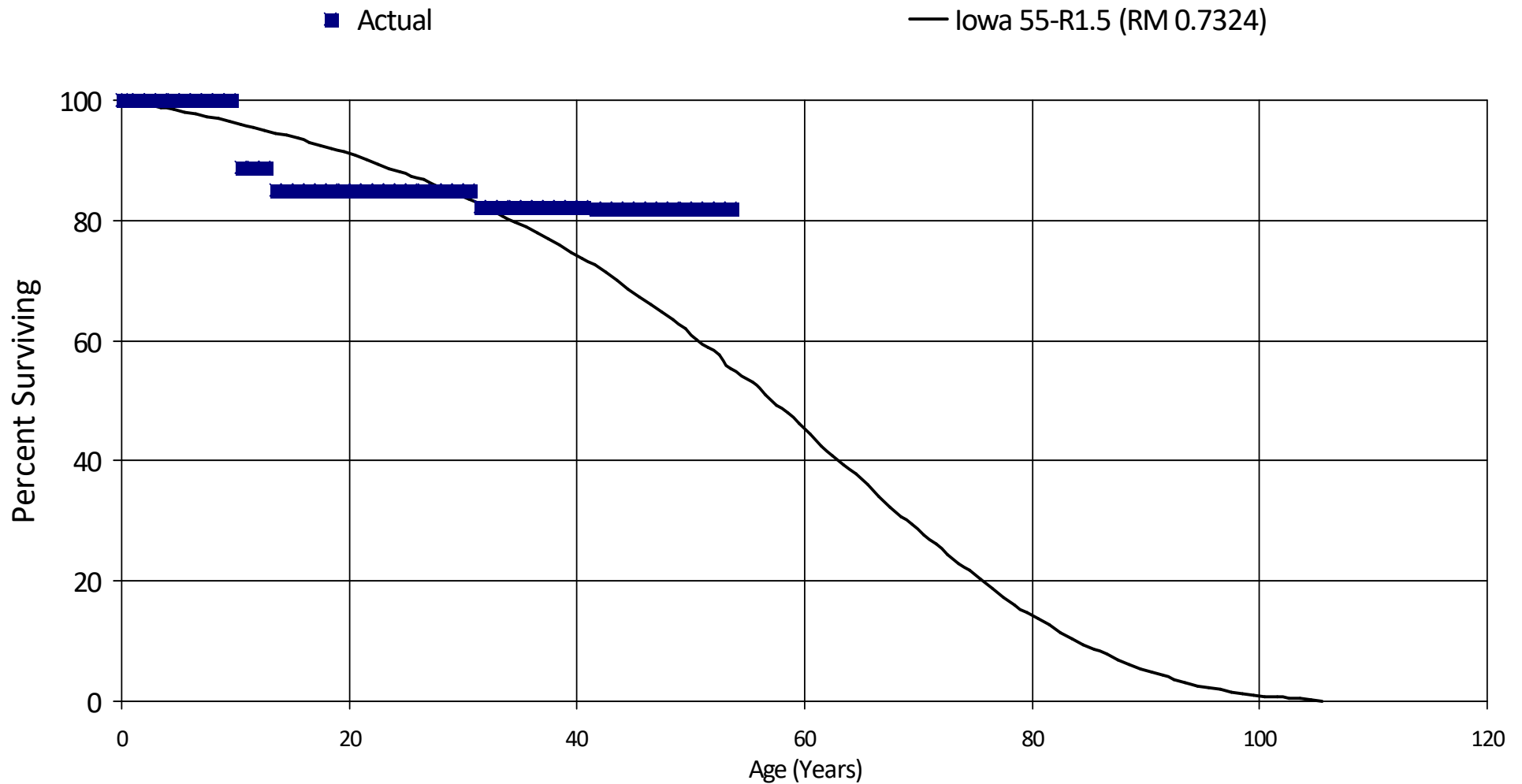
Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	36,457	0	0.00000	1.00000	100.00
0.5	36,457	0	0.00000	1.00000	100.00
1.5	36,457	0	0.00000	1.00000	100.00
2.5	36,457	0	0.00000	1.00000	100.00
3.5	36,457	0	0.00000	1.00000	100.00
4.5	36,457	0	0.00000	1.00000	100.00
5.5	36,457	0	0.00000	1.00000	100.00
6.5	36,457	0	0.00000	1.00000	100.00
7.5	36,457	0	0.00000	1.00000	100.00
8.5	36,457	24,922	0.68359	0.31641	100.00
9.5	11,535	0	0.00000	1.00000	31.64
10.5	11,535	0	0.00000	1.00000	31.64
11.5	11,535	0	0.00000	1.00000	31.64
12.5	11,535	0	0.00000	1.00000	31.64
13.5	11,535	0	0.00000	1.00000	31.64
14.5	11,535	0	0.00000	1.00000	31.64
15.5	11,535	0	0.00000	1.00000	31.64
16.5	11,535	0	0.00000	1.00000	31.64
17.5	11,535	0	0.00000	1.00000	31.64
18.5	11,535	0	0.00000	1.00000	31.64
19.5	0	0	0.00000	0.00000	31.64
Totals:		24,922			

NEWFOUNDLAND AND LABRADOR HYDRO

Account W04 - Water Treatment

Placement Band - 1968 - 2022 Experience Band - 1999 - 2022

Actual and Smooth Survivor Curves



NEWFOUNDLAND AND LABRADOR HYDRO

Account W04 - Water Treatment

Placement Band - 1968 - 2022 Experience Band - 1999 - 2022

RETIREMENT RATE ANALYSIS

Age at Begin of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retmt Ratio	Survivor Ratio	% Surviving
0	19,207,705	0	0.00000	1.00000	100.00
0.5	16,954,807	1,486	0.00009	0.99991	100.00
1.5	16,953,321	0	0.00000	1.00000	99.99
2.5	16,953,321	0	0.00000	1.00000	99.99
3.5	16,953,321	0	0.00000	1.00000	99.99
4.5	16,787,899	0	0.00000	1.00000	99.99
5.5	15,166,379	0	0.00000	1.00000	99.99
6.5	15,166,379	0	0.00000	1.00000	99.99
7.5	11,006,376	0	0.00000	1.00000	99.99
8.5	11,006,376	0	0.00000	1.00000	99.99
9.5	10,835,490	1,206,646	0.11136	0.88864	99.99
10.5	8,969,050	0	0.00000	1.00000	88.86
11.5	8,969,050	0	0.00000	1.00000	88.86
12.5	8,969,050	380,586	0.04243	0.95757	88.86
13.5	8,588,464	0	0.00000	1.00000	85.09
14.5	8,588,464	0	0.00000	1.00000	85.09
15.5	8,588,464	0	0.00000	1.00000	85.09
16.5	8,588,464	3,817	0.00044	0.99956	85.09
17.5	8,584,646	0	0.00000	1.00000	85.05
18.5	8,584,646	0	0.00000	1.00000	85.05
19.5	8,584,646	0	0.00000	1.00000	85.05
20.5	8,584,646	8,799	0.00102	0.99898	85.05
21.5	8,575,848	563	0.00007	0.99993	84.96
22.5	8,575,285	0	0.00000	1.00000	84.95
23.5	8,575,285	0	0.00000	1.00000	84.95
24.5	8,575,285	0	0.00000	1.00000	84.95
25.5	8,575,285	0	0.00000	1.00000	84.95
26.5	8,575,285	0	0.00000	1.00000	84.95

NEWFOUNDLAND AND LABRADOR HYDRO

Account W04 - Water Treatment

Placement Band - 1968 - 2022 Experience Band - 1999 - 2022

27.5	8,569,925	0	0.00000	1.00000	84.95
28.5	8,569,925	0	0.00000	1.00000	84.95
29.5	8,569,925	0	0.00000	1.00000	84.95
30.5	8,569,925	272,733	0.03182	0.96818	84.95
31.5	5,616,028	0	0.00000	1.00000	82.25
32.5	5,600,891	0	0.00000	1.00000	82.25
33.5	5,600,891	0	0.00000	1.00000	82.25
34.5	5,543,349	0	0.00000	1.00000	82.25
35.5	5,543,349	0	0.00000	1.00000	82.25
36.5	5,543,349	0	0.00000	1.00000	82.25
37.5	5,543,349	0	0.00000	1.00000	82.25
38.5	5,543,349	0	0.00000	1.00000	82.25
39.5	5,543,349	0	0.00000	1.00000	82.25
40.5	5,543,349	13,644	0.00246	0.99754	82.25
41.5	5,529,706	0	0.00000	1.00000	82.05
42.5	3,996,048	0	0.00000	1.00000	82.05
43.5	3,996,048	0	0.00000	1.00000	82.05
44.5	3,996,048	0	0.00000	1.00000	82.05
45.5	3,996,048	0	0.00000	1.00000	82.05
46.5	3,996,048	0	0.00000	1.00000	82.05
47.5	3,996,048	0	0.00000	1.00000	82.05
48.5	3,996,048	0	0.00000	1.00000	82.05
49.5	3,996,048	0	0.00000	1.00000	82.05
50.5	3,996,048	0	0.00000	1.00000	82.05
51.5	2,058,666	0	0.00000	1.00000	82.05
52.5	2,058,666	0	0.00000	1.00000	82.05
53.5	395,463	0	0.00000	1.00000	82.05
Totals:		1,888,274			



SECTION 7

7 DETAILED DEPRECIATION CALCULATIONS

7.1 TOTAL

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: A01 - Aircraft Landing Strip

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R2
ASL: 33
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1974	7,976.40	7,117	7,976	1.0000	0	3.55	0	48.5
1994	46,186.62	30,154	46,187	1.0000	0	11.46	0	28.5
2006	78,390.03	32,567	74,808	0.9543	3,582	19.29	186	16.5
2016	51,389.16	8,912	20,470	0.3983	30,919	27.28	1,134	6.5
2021	19,570.46	801	1,841	0.0941	17,730	31.65	560	1.5
TOTAL	203,512.67	79,552	151,282		52,230		1,880	

COMPOSITE ANNUAL ACCRUAL RATE	0.92%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.74
COMPOSITE AVERAGE AGE (YEARS)	16.51
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	20.10

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: A04 - Auxiliary Power Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 25

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1956	85,469.97	85,470	85,470	1.0000	0		0	67.5
1966	159,578.73	159,579	159,579	1.0000	0		0	57.5
1974	5,049.52	5,050	5,050	1.0000	0		0	49.5
1978	2,000.00	2,000	2,000	1.0000	0		0	45.5
1979	99,773.88	99,774	99,774	1.0000	0		0	44.5
1982	413,537.76	413,538	413,538	1.0000	0		0	41.5
1983	43,498.13	43,498	43,498	1.0000	0		0	40.5
1984	221,073.63	221,074	221,074	1.0000	0		0	39.5
1988	145,077.24	140,150	145,077	1.0000	0	0.85	0	34.5
1989	680,140.87	651,154	680,141	1.0000	0	1.07	0	33.5
1992	63,724.33	59,104	62,620	0.9827	1,104	1.81	609	30.5
1999	16,056.11	13,206	13,992	0.8714	2,064	4.44	465	23.5
2000	148,028.44	118,252	125,287	0.8464	22,742	5.03	4,522	22.5
2001	368,268.81	284,727	301,664	0.8191	66,605	5.67	11,744	21.5
2003	448,397.32	321,878	341,026	0.7605	107,372	7.05	15,221	19.5
2005	97,542.86	64,174	67,991	0.6970	29,551	8.55	3,455	17.5
2010	289,472.02	141,250	149,653	0.5170	139,819	12.80	10,922	12.5
2011	59,826.71	26,989	28,594	0.4780	31,232	13.72	2,276	11.5
2012	213,015.53	88,099	93,340	0.4382	119,676	14.66	8,163	10.5
2013	802,476.86	301,297	319,220	0.3978	483,257	15.61	30,951	9.5
2015	1,337,310.13	398,364	422,061	0.3156	915,249	17.55	52,142	7.5
2016	187,266.80	48,430	51,311	0.2740	135,956	18.53	7,335	6.5
2017	1,329,482.75	291,317	308,646	0.2322	1,020,837	19.52	52,292	5.5
2018	1,809,782.36	324,790	344,110	0.1901	1,465,672	20.51	71,449	4.5
2019	138,458.78	19,341	20,492	0.1480	117,967	21.51	5,485	3.5
2020	446,026.54	44,529	47,177	0.1058	398,849	22.50	17,723	2.5
2022	199,481.15	3,985	4,222	0.0212	195,259	24.50	7,970	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: A04 - Auxiliary Power Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 25
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	9,809,817.23	4,371,019	4,556,605		5,253,212		302,724	
COMPOSITE ANNUAL ACCRUAL RATE				3.09%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.46				
COMPOSITE AVERAGE AGE (YEARS)				14.45				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				13.86				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B01 - Battery and Power Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L1.5

ASL: 20

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1956	1,465.79	1,466	1,466	1.0000	0		0	66.5
1968	46,703.90	42,404	46,704	1.0000	0	1.84	0	54.5
1971	61,437.84	54,839	61,438	1.0000	0	2.15	0	51.5
1973	351.12	309	351	1.0000	0	2.41	0	49.5
1975	6,046.84	5,233	6,047	1.0000	0	2.69	0	47.5
1978	14,703.11	12,386	14,703	1.0000	0	3.15	0	44.5
1979	8,963.00	7,477	8,963	1.0000	0	3.31	0	43.5
1980	286,551.38	236,643	286,551	1.0000	0	3.48	0	42.5
1982	22,683.59	18,333	22,684	1.0000	0	3.84	0	40.5
1985	111,062.55	86,615	111,063	1.0000	0	4.40	0	37.5
1987	2,173.59	1,651	2,122	0.9763	52	4.81	11	35.5
1988	6,546.56	4,904	6,303	0.9628	244	5.02	49	34.5
1989	13,813.16	10,199	13,107	0.9489	706	5.23	135	33.5
1990	235,794.87	171,489	220,387	0.9347	15,408	5.45	2,825	32.5
1992	147,861.23	104,134	133,826	0.9051	14,035	5.91	2,373	30.5
1994	25,099.57	17,072	21,940	0.8741	3,160	6.40	494	28.5
1995	17,880.43	11,940	15,344	0.8581	2,536	6.65	382	27.5
1996	49,729.60	32,580	41,869	0.8419	7,860	6.90	1,140	26.5
1997	11,760.26	7,554	9,708	0.8255	2,052	7.15	287	25.5
1998	161,816.22	101,855	130,898	0.8089	30,918	7.41	4,172	24.5
1999	8,013.60	4,940	6,349	0.7922	1,665	7.67	217	23.5
2000	81,528.90	49,192	63,219	0.7754	18,310	7.93	2,308	22.5
2001	400,423.32	236,340	303,728	0.7585	96,695	8.20	11,799	21.5
2002	6,611.36	3,815	4,902	0.7415	1,709	8.46	202	20.5
2003	1,318,017.22	742,785	954,578	0.7243	363,439	8.73	41,637	19.5
2004	254,354.69	139,866	179,746	0.7067	74,609	9.00	8,288	18.5
2005	376,235.74	201,584	259,063	0.6886	117,173	9.28	12,621	17.5
2006	293,258.23	152,815	196,387	0.6697	96,871	9.58	10,114	16.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B01 - Battery and Power Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L1.5

ASL: 20

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2007	425,610.31	215,168	276,519	0.6497	149,091	9.89	15,076	15.5
2008	383,597.68	187,540	241,014	0.6283	142,584	10.22	13,949	14.5
2009	698,898.24	329,069	422,898	0.6051	276,000	10.58	26,079	13.5
2010	530,274.70	239,198	307,401	0.5797	222,873	10.98	20,301	12.5
2011	537,440.75	230,748	296,542	0.5518	240,899	11.41	21,107	11.5
2012	840,153.72	340,481	437,564	0.5208	402,590	11.89	33,846	10.5
2013	756,913.75	286,448	368,125	0.4863	388,789	12.43	31,275	9.5
2014	312,994.59	109,140	140,260	0.4481	172,735	13.03	13,261	8.5
2015	904,959.35	286,035	367,593	0.4062	537,366	13.68	39,285	7.5
2016	382,493.66	107,433	138,066	0.3610	244,427	14.38	16,995	6.5
2017	1,476,341.09	359,372	461,842	0.3128	1,014,499	15.13	67,045	5.5
2018	955,842.39	194,738	250,264	0.2618	705,578	15.93	44,305	4.5
2019	1,397,014.33	226,041	290,493	0.2079	1,106,522	16.76	66,006	3.5
2020	912,826.75	107,462	138,103	0.1513	774,724	17.65	43,905	2.5
2021	518,401.71	37,181	47,782	0.0922	470,620	18.57	25,349	1.5
2022	254,140.17	6,141	7,892	0.0311	246,248	19.52	12,617	0.5
TOTAL	15,258,790.86	5,722,614	7,315,802		7,942,989		589,455	

COMPOSITE ANNUAL ACCRUAL RATE 3.86%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.48

COMPOSITE AVERAGE AGE (YEARS) 11.77

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 12.50

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B02 - Boiler System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1

ASL: 40

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	14,276,809.08	11,251,234	14,276,809	1.0000	0	8.48	0	54.5
1971	795,588.25	603,943	795,588	1.0000	0	9.64	0	51.5
1979	2,040.12	1,375	2,040	1.0000	0	13.04	0	43.5
1981	314,253.38	204,470	314,253	1.0000	0	13.97	0	41.5
1982	68,031.30	43,453	68,031	1.0000	0	14.45	0	40.5
1986	142,517.51	83,920	142,518	1.0000	0	16.45	0	36.5
1987	29,961.22	17,252	29,961	1.0000	0	16.97	0	35.5
1988	480,335.28	270,236	480,335	1.0000	0	17.50	0	34.5
1989	4,309,160.53	2,366,386	4,309,161	1.0000	0	18.03	0	33.5
1993	184,491.61	90,989	184,492	1.0000	0	20.27	0	29.5
1996	19,423.10	8,721	19,423	1.0000	0	22.04	0	26.5
1997	53,585.52	23,248	53,586	1.0000	0	22.65	0	25.5
1999	92,545.14	37,294	92,544	1.0000	1	23.88	0	23.5
TOTAL	20,768,742.04	15,002,520	20,768,741		1		0	

COMPOSITE ANNUAL ACCRUAL RATE 0.00%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 1.00

COMPOSITE AVERAGE AGE (YEARS) 48.71

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 11.11

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B03 - Booms - Timber

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 25
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	38,209.00	38,209	38,209	1.0000	0		0	57.5
1970	1,982.00	1,982	1,982	1.0000	0		0	53.5
1979	46,793.75	45,858	46,794	1.0000	0	0.50	0	43.5
2014	37,008.66	11,395	15,510	0.4191	21,499	17.30	1,243	8.5
2015	51,562.11	14,100	19,191	0.3722	32,371	18.16	1,782	7.5
2017	213,290.86	43,284	58,911	0.2762	154,380	19.93	7,747	5.5
TOTAL	388,846.38	154,828	180,596		208,250		10,772	

COMPOSITE ANNUAL ACCRUAL RATE	2.77%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.46
COMPOSITE AVERAGE AGE (YEARS)	15.98
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	15.05

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B04 - Bridges

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 65

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	564,791.18	440,190	564,791	1.0000	0	14.34	0	56.5
1980	221,425.80	137,542	205,033	0.9260	16,393	24.62	666	42.5
1983	26,746.98	15,589	23,238	0.8688	3,509	27.12	129	39.5
1984	1,988,230.31	1,132,723	1,688,534	0.8493	299,696	27.97	10,715	38.5
1992	629,308.12	289,292	431,243	0.6853	198,065	35.12	5,640	30.5
1994	55,564.63	23,948	35,699	0.6425	19,866	36.99	537	28.5
1996	36,386.80	14,624	21,800	0.5991	14,587	38.88	375	26.5
1997	63,600.25	24,629	36,714	0.5773	26,886	39.83	675	25.5
2003	312,030.06	92,950	138,559	0.4441	173,471	45.64	3,801	19.5
2007	337,011.43	79,997	119,251	0.3538	217,761	49.57	4,393	15.5
2011	19,193.98	3,386	5,047	0.2630	14,147	53.53	264	11.5
2016	680,217.27	67,909	101,231	0.1488	578,986	58.51	9,895	6.5
2018	3,486,774.00	241,066	359,354	0.1031	3,127,420	60.51	51,688	4.5
2019	925,000.00	49,746	74,156	0.0802	850,844	61.50	13,834	3.5
2020	1,097,790.58	42,174	62,869	0.0573	1,034,922	62.50	16,558	2.5
2022	225,000.00	1,728	2,576	0.0114	222,424	64.50	3,448	0.5
TOTAL	10,669,071.39	2,657,494	3,870,096		6,798,975		122,618	

COMPOSITE ANNUAL ACCRUAL RATE 1.15%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.36

COMPOSITE AVERAGE AGE (YEARS) 16.87

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 48.81

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B05 - Buildings - Other

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1

ASL: 55

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	239,389.37	152,517	239,389	1.0000	0	19.96	0	55.5
1968	1,491,578.72	937,116	1,491,579	1.0000	0	20.45	0	54.5
1969	52,209.34	32,334	52,209	1.0000	0	20.94	0	53.5
1970	122,471.07	74,739	122,471	1.0000	0	21.44	0	52.5
1971	49,280.73	29,622	49,281	1.0000	0	21.94	0	51.5
1972	63,651.61	37,669	63,652	1.0000	0	22.45	0	50.5
1973	277,231.53	161,457	277,232	1.0000	0	22.97	0	49.5
1974	22,896.40	13,117	22,896	1.0000	0	23.49	0	48.5
1975	892,859.46	502,887	886,390	0.9928	6,469	24.02	269	47.5
1977	351,243.10	190,941	336,553	0.9582	14,691	25.10	585	45.5
1978	16,205.52	8,648	15,243	0.9406	963	25.65	38	44.5
1979	132,860.64	69,557	122,602	0.9228	10,259	26.21	391	43.5
1980	574,377.80	294,840	519,686	0.9048	54,692	26.77	2,043	42.5
1981	139,045.15	69,939	123,274	0.8866	15,771	27.34	577	41.5
1982	856,784.35	422,012	743,840	0.8682	112,944	27.91	4,047	40.5
1983	78,669.31	37,919	66,836	0.8496	11,833	28.49	415	39.5
1984	38,783.44	18,280	32,221	0.8308	6,562	29.08	226	38.5
1985	163,919.56	75,496	133,070	0.8118	30,850	29.67	1,040	37.5
1986	375,790.97	168,988	297,859	0.7926	77,932	30.27	2,575	36.5
1987	1,048,817.01	460,116	811,002	0.7733	237,815	30.87	7,703	35.5
1988	164,199.80	70,214	123,759	0.7537	40,441	31.48	1,285	34.5
1989	20,014,319.28	8,334,421	14,690,283	0.7340	5,324,037	32.10	165,875	33.5
1990	1,431,931.98	580,122	1,022,526	0.7141	409,406	32.72	12,513	32.5
1991	125,352.49	49,357	86,996	0.6940	38,356	33.34	1,150	31.5
1992	119,830.76	45,807	80,739	0.6738	39,092	33.98	1,151	30.5
1993	144,816.43	53,682	94,621	0.6534	50,196	34.61	1,450	29.5
1994	493,681.26	177,250	312,421	0.6328	181,260	35.25	5,142	28.5
1995	543,023.92	188,592	332,412	0.6121	210,612	35.90	5,867	27.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B05 - Buildings - Other

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1

ASL: 55

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1996	1,063,005.55	356,611	628,564	0.5913	434,442	36.55	11,887	26.5
1997	945,801.13	306,037	539,423	0.5703	406,379	37.20	10,923	25.5
1998	60,623.02	18,890	33,296	0.5492	27,327	37.86	722	24.5
1999	287,378.78	86,088	151,740	0.5280	135,639	38.52	3,521	23.5
2000	536,570.67	154,243	271,869	0.5067	264,702	39.19	6,754	22.5
2001	1,998,487.30	550,167	969,726	0.4852	1,028,761	39.86	25,810	21.5
2002	39,901.19	10,497	18,501	0.4637	21,400	40.53	528	20.5
2003	3,393,482.97	851,013	1,499,998	0.4420	1,893,485	41.21	45,950	19.5
2004	667,419.28	159,141	280,503	0.4203	386,917	41.89	9,237	18.5
2005	1,056,617.81	238,855	421,007	0.3984	635,611	42.57	14,932	17.5
2006	4,435,150.10	947,444	1,669,968	0.3765	2,765,182	43.25	63,934	16.5
2007	943,176.36	189,704	334,374	0.3545	608,803	43.94	13,856	15.5
2008	829,747.51	156,488	275,825	0.3324	553,922	44.63	12,412	14.5
2009	493,520.85	86,864	153,107	0.3102	340,414	45.32	7,511	13.5
2010	6,581,913.04	1,075,277	1,895,287	0.2880	4,686,626	46.01	101,851	12.5
2011	2,493,128.52	375,647	662,116	0.2656	1,831,012	46.71	39,197	11.5
2012	1,838,854.82	253,610	447,013	0.2431	1,391,842	47.41	29,355	10.5
2013	1,963,117.56	245,584	432,868	0.2205	1,530,250	48.12	31,801	9.5
2014	2,115,422.89	237,393	418,429	0.1978	1,696,994	48.83	34,755	8.5
2015	2,520,492.82	250,228	441,053	0.1750	2,079,439	49.54	41,975	7.5
2016	4,989,123.67	430,412	758,645	0.1521	4,230,479	50.26	84,180	6.5
2017	11,455,867.73	838,516	1,477,972	0.1290	9,977,896	50.97	195,744	5.5
2018	2,565,473.99	154,046	271,522	0.1058	2,293,952	51.70	44,373	4.5
2019	2,026,145.87	94,875	167,228	0.0825	1,858,918	52.42	35,459	3.5
2020	2,085,276.77	69,926	123,251	0.0591	1,962,025	53.16	36,911	2.5
2021	1,139,485.51	22,980	40,504	0.0355	1,098,982	53.89	20,393	1.5
2022	2,304,627.70	15,498	27,317	0.0119	2,277,311	54.63	41,686	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B05 - Buildings - Other

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R1
ASL: 55
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	90,855,034.41	21,433,671	37,562,147		53,292,887		1,179,999	
COMPOSITE ANNUAL ACCRUAL RATE				1.30%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.41				
COMPOSITE AVERAGE AGE (YEARS)				18.79				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				42.02				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B06 - Buildings - Metal

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 55

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1965	496,680.62	406,549	496,681	1.0000	0	9.98	0	57.5
1966	255,379.25	207,016	255,379	1.0000	0	10.42	0	56.5
1967	351,750.70	282,247	351,751	1.0000	0	10.87	0	55.5
1968	1,348,322.58	1,070,392	1,348,323	1.0000	0	11.34	0	54.5
1969	1,344,302.45	1,055,294	1,344,302	1.0000	0	11.82	0	53.5
1970	147,086.08	114,116	147,086	1.0000	0	12.33	0	52.5
1971	700,196.43	536,604	700,196	1.0000	0	12.85	0	51.5
1975	551,697.72	400,197	528,903	0.9587	22,795	15.10	1,509	47.5
1976	295,393.15	211,034	278,904	0.9442	16,489	15.71	1,050	46.5
1977	113,072.12	79,509	105,079	0.9293	7,993	16.33	490	45.5
1978	676,988.69	468,243	618,834	0.9141	58,155	16.96	3,429	44.5
1979	247,825.70	168,491	222,678	0.8985	25,147	17.61	1,428	43.5
1980	3,138,866.66	2,096,253	2,770,423	0.8826	368,444	18.27	20,168	42.5
1981	567,588.65	372,089	491,755	0.8664	75,833	18.94	4,003	41.5
1982	1,925,035.45	1,237,899	1,636,016	0.8499	289,019	19.63	14,722	40.5
1983	1,352,302.27	852,385	1,126,518	0.8330	225,785	20.33	11,105	39.5
1984	403,237.04	248,948	329,011	0.8159	74,226	21.04	3,527	38.5
1985	81,997.06	49,543	65,476	0.7985	16,521	21.77	759	37.5
1986	16,689.87	9,861	13,032	0.7808	3,658	22.50	163	36.5
1987	284,222.63	164,068	216,833	0.7629	67,390	23.25	2,898	35.5
1988	435,449.77	245,370	324,283	0.7447	111,167	24.01	4,630	34.5
1989	142,970.97	78,568	103,836	0.7263	39,135	24.78	1,580	33.5
1990	1,540,833.02	824,957	1,090,268	0.7076	450,565	25.55	17,632	32.5
1991	1,368,075.14	712,866	942,128	0.6887	425,947	26.34	16,170	31.5
1992	932,441.26	472,351	624,262	0.6695	308,179	27.14	11,356	30.5
1993	433,033.02	213,011	281,517	0.6501	151,516	27.95	5,422	29.5
1994	7,894.22	3,766	4,977	0.6305	2,917	28.76	101	28.5
1995	103,615.39	47,878	63,275	0.6107	40,340	29.59	1,363	27.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B06 - Buildings - Metal

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 55

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1996	510,264.42	228,036	301,374	0.5906	208,890	30.42	6,867	26.5
1998	160,883.77	66,941	88,470	0.5499	72,414	32.12	2,255	24.5
2001	68,667.67	25,320	33,464	0.4873	35,204	34.72	1,014	21.5
2002	742,394.78	261,816	346,018	0.4661	396,377	35.60	11,133	20.5
2003	166,852.30	56,138	74,193	0.4447	92,660	36.50	2,539	19.5
2004	50,241.99	16,083	21,256	0.4231	28,986	37.39	775	18.5
2005	284,953.12	86,525	114,352	0.4013	170,601	38.30	4,454	17.5
2007	49,389.10	13,352	17,646	0.3573	31,743	40.13	791	15.5
2008	17,818.02	4,517	5,970	0.3350	11,848	41.06	289	14.5
2009	165,690.59	39,199	51,806	0.3127	113,885	41.99	2,712	13.5
2010	7,299.00	1,602	2,118	0.2901	5,181	42.93	121	12.5
2011	31,646.84	6,406	8,466	0.2675	23,181	43.87	528	11.5
2014	889,193.02	133,794	176,823	0.1989	712,370	46.72	15,246	8.5
2015	10,765,584.28	1,431,748	1,892,209	0.1758	8,873,376	47.69	186,082	7.5
2018	4,123,365.55	330,544	436,849	0.1059	3,686,516	50.59	72,869	4.5
2019	9,969,988.66	622,457	822,643	0.0825	9,147,346	51.57	177,390	3.5
2020	2,212,500.00	98,791	130,562	0.0590	2,081,938	52.54	39,623	2.5
2021	2,232,059.09	59,869	79,123	0.0354	2,152,936	53.52	40,223	1.5
TOTAL	51,711,740.11	16,112,639	21,085,067		30,626,673		688,416	

COMPOSITE ANNUAL ACCRUAL RATE 1.33%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.41

COMPOSITE AVERAGE AGE (YEARS) 19.54

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 37.86

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B07 - Bus Duct Generator

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 40

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	27,238.00	26,259	27,238	1.0000	0	1.44	0	54.5
1980	311,717.00	274,176	287,672	0.9229	24,045	4.82	4,991	42.5
1988	120,878.46	93,668	98,279	0.8130	22,599	9.00	2,510	34.5
2003	365,970.58	174,397	182,982	0.5000	182,989	20.94	8,739	19.5
2015	630,303.53	117,809	123,608	0.1961	506,695	32.52	15,579	7.5
2016	78,297.66	12,690	13,315	0.1701	64,983	33.52	1,939	6.5
2017	408,868.99	56,097	58,858	0.1440	350,011	34.51	10,142	5.5
2022	25,961.04	324	340	0.0131	25,621	39.50	649	0.5
TOTAL	1,969,235.26	755,421	792,292		1,176,943		44,549	

COMPOSITE ANNUAL ACCRUAL RATE 2.26%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.40

COMPOSITE AVERAGE AGE (YEARS) 17.03

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 24.66

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B08 - Buswork and Hardware

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 50

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	264,745.93	249,165	277,983	1.0000	0	5.18	0	55.5
1968	104,589.03	97,696	109,818	1.0000	0	5.52	0	54.5
1969	18,000.00	16,679	18,900	1.0000	0	5.88	0	53.5
1970	521,630.42	479,202	547,712	1.0000	0	6.25	0	52.5
1972	6,942.96	6,256	7,275	0.9979	16	7.09	2	50.5
1974	8,694.70	7,659	8,906	0.9755	224	8.06	28	48.5
1975	68,040.25	59,175	68,810	0.9632	2,632	8.59	307	47.5
1976	2,298.22	1,972	2,293	0.9501	120	9.15	13	46.5
1977	113,025.67	95,556	111,115	0.9363	7,562	9.74	776	45.5
1978	252,995.59	210,595	244,885	0.9218	20,760	10.36	2,004	44.5
1979	155,744.87	127,536	148,303	0.9069	15,230	11.01	1,384	43.5
1980	132,765.41	106,870	124,272	0.8915	15,132	11.67	1,297	42.5
1981	212,209.10	167,796	195,117	0.8757	27,703	12.35	2,244	41.5
1982	238,384.77	185,029	215,156	0.8596	35,148	13.04	2,696	40.5
1983	166,412.59	126,700	147,330	0.8432	27,404	13.74	1,994	39.5
1985	23,798.53	17,392	20,224	0.8093	4,764	15.20	313	37.5
1986	84,174.63	60,191	69,992	0.7919	18,391	15.95	1,153	36.5
1987	110,667.31	77,358	89,954	0.7741	26,246	16.71	1,570	35.5
1988	22,543.64	15,389	17,895	0.7560	5,776	17.49	330	34.5
1989	392,311.36	261,258	303,798	0.7375	108,129	18.29	5,912	33.5
1990	150,841.82	97,887	113,826	0.7187	44,558	19.10	2,333	32.5
1991	707,463.50	446,855	519,615	0.6995	223,222	19.92	11,205	31.5
1992	523,002.85	321,135	373,424	0.6800	175,729	20.76	8,464	30.5
1993	33,128.06	19,749	22,964	0.6602	11,820	21.61	547	29.5
1994	149,377.90	86,334	100,391	0.6401	56,456	22.48	2,512	28.5
1995	460,361.34	257,582	299,523	0.6196	183,856	23.36	7,872	27.5
1996	98,866.85	53,471	62,177	0.5990	41,633	24.25	1,717	26.5
1997	55,916.37	29,184	33,936	0.5780	24,777	25.15	985	25.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: B08 - Buswork and Hardware

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 50

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1998	326,389.45	164,101	190,821	0.5568	151,888	26.06	5,829	24.5
2000	299,484.25	138,930	161,551	0.5137	152,908	27.91	5,479	22.5
2002	48,570.45	20,609	23,965	0.4699	27,034	29.79	907	20.5
2003	37,106.47	15,002	17,445	0.4477	21,517	30.75	700	19.5
2004	112,224.95	43,111	50,131	0.4254	67,706	31.71	2,135	18.5
2005	6,333.49	2,305	2,680	0.4030	3,970	32.67	122	17.5
2009	33,674.74	9,492	11,038	0.3122	24,321	36.58	665	13.5
2012	562,574.69	123,587	143,711	0.2433	446,993	39.54	11,305	10.5
2013	313,229.37	62,289	72,431	0.2202	256,460	40.53	6,328	9.5
2014	46,222.92	8,228	9,568	0.1971	38,966	41.52	938	8.5
2015	46,405.63	7,291	8,479	0.1740	40,247	42.52	947	7.5
2016	232,950.95	31,732	36,899	0.1509	207,699	43.51	4,773	6.5
2017	225,093.24	25,952	30,178	0.1277	206,170	44.51	4,632	5.5
2018	16,016.15	1,511	1,757	0.1045	15,060	45.51	331	4.5
2019	79,678.61	5,848	6,801	0.0813	76,862	46.50	1,653	3.5
2020	271,124.51	14,217	16,532	0.0581	268,149	47.50	5,645	2.5
2021	496,370.47	15,618	18,161	0.0348	503,028	48.50	10,371	1.5
TOTAL	8,232,384.01	4,371,497	5,057,740		3,586,263		120,418	

COMPOSITE ANNUAL ACCRUAL RATE 1.46%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.61

COMPOSITE AVERAGE AGE (YEARS) 27.56

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 24.71

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C01 - Cables - Telecontrol

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 30

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1982	12,612.10	12,717	13,243	1.0000	0	1.19	0	40.5
1993	112,541.10	99,895	118,168	1.0000	0	4.64	0	29.5
1999	176,607.97	133,563	169,358	0.9133	16,081	8.39	1,916	23.5
2000	22,031.28	16,100	20,414	0.8825	2,719	9.12	298	22.5
2001	129,578.38	91,268	115,727	0.8506	20,330	9.88	2,059	21.5
2002	260,377.55	176,291	223,536	0.8176	49,861	10.66	4,679	20.5
2003	892,247.63	578,987	734,153	0.7836	202,707	11.46	17,689	19.5
2010	99,451.25	42,858	54,344	0.5204	50,080	17.69	2,831	12.5
2013	11,851.59	3,910	4,957	0.3984	7,487	20.58	364	9.5
2015	2,541.47	664	842	0.3154	1,827	22.54	81	7.5
TOTAL	1,719,840.32	1,156,250	1,454,740		351,092		29,917	

COMPOSITE ANNUAL ACCRUAL RATE 1.74%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.85

COMPOSITE AVERAGE AGE (YEARS) 20.57

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 10.79

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C02 - Cables - Submarine

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 45

Net Salvage: -15%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1975	475,796.93	479,859	499,698	0.9132	47,468	5.54	8,575	47.5
1980	169,115.97	160,481	167,116	0.8593	27,367	7.87	3,479	42.5
1982	123,400.69	113,388	118,075	0.8320	23,835	9.04	2,635	40.5
1988	1,550,390.96	1,262,775	1,314,981	0.7375	467,969	13.13	35,645	34.5
1989	2,453,451.52	1,952,045	2,032,747	0.7205	788,722	13.87	56,879	33.5
1990	2,979,349.00	2,313,033	2,408,660	0.7030	1,017,592	14.62	69,599	32.5
1999	922,348.37	538,934	561,215	0.5291	499,485	22.14	22,565	23.5
2007	104,280.98	40,914	42,606	0.3553	77,317	29.65	2,608	15.5
2008	42,294.63	15,544	16,187	0.3328	32,452	30.62	1,060	14.5
2009	80,687.42	27,641	28,784	0.3102	64,007	31.60	2,026	13.5
2016	1,509,033.60	250,092	260,431	0.1501	1,474,957	38.51	38,296	6.5
2019	164,964.56	14,734	15,343	0.0809	174,366	41.50	4,201	3.5
TOTAL	10,575,114.63	7,169,442	7,465,843		4,695,539		247,568	

COMPOSITE ANNUAL ACCRUAL RATE 2.34%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.71

COMPOSITE AVERAGE AGE (YEARS) 28.62

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 18.47

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C03 - Cables - Underground

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S4

ASL: 60

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	67,835.10	61,824	63,914	0.8565	10,705	10.29	1,041	55.5
1968	67,096.88	60,561	62,608	0.8483	11,198	10.77	1,040	54.5
1970	135,075.57	119,361	123,395	0.8305	25,188	11.80	2,135	52.5
1971	28,808.00	25,164	26,015	0.8209	5,674	12.35	459	51.5
1972	12,861.35	11,098	11,473	0.8109	2,675	12.93	207	50.5
1975	15,303.23	12,671	13,099	0.7782	3,734	14.84	252	47.5
1976	3,697.85	3,015	3,117	0.7663	951	15.53	61	46.5
1977	6,782.66	5,441	5,625	0.7540	1,836	16.24	113	45.5
1978	85,112.12	67,121	69,389	0.7412	24,234	16.98	1,427	44.5
1979	84,286.46	65,280	67,486	0.7279	25,229	17.75	1,421	43.5
1980	62,069.93	47,169	48,764	0.7142	19,513	18.55	1,052	42.5
1981	47,782.87	35,594	36,797	0.7001	15,764	19.37	814	41.5
1982	99,352.11	72,474	74,923	0.6856	34,364	20.21	1,700	40.5
1983	33,221.24	23,708	24,509	0.6707	12,034	21.07	571	39.5
1987	44,595.82	28,849	29,824	0.6080	19,232	24.71	778	35.5
1989	77,293.50	47,302	48,900	0.5751	36,122	26.62	1,357	33.5
1990	80,930.60	48,092	49,718	0.5585	39,306	27.59	1,425	32.5
1991	94,095.94	54,234	56,067	0.5417	47,439	28.56	1,661	31.5
1992	52,174.86	29,133	30,118	0.5248	27,274	29.54	923	30.5
1993	6,622.24	3,578	3,699	0.5078	3,586	30.53	117	29.5
1995	166,037.71	83,673	86,501	0.4736	96,141	32.51	2,957	27.5
1996	9,885.30	4,801	4,963	0.4565	5,910	33.51	176	26.5
1998	22,326.20	10,027	10,366	0.4221	14,193	35.50	400	24.5
2000	68,281.30	28,165	29,117	0.3877	45,993	37.50	1,226	22.5
2001	17,652.00	6,958	7,193	0.3704	12,224	38.50	318	21.5
2012	271,407.25	52,246	54,012	0.1809	244,536	49.50	4,940	10.5
2013	109,168.13	19,013	19,656	0.1637	100,429	50.50	1,989	9.5
2014	464,890.58	72,445	74,894	0.1465	436,486	51.50	8,475	8.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C03 - Cables - Underground

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: S4
ASL: 60
Net Salvage: -10%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2015	545,723.84	75,037	77,573	0.1292	522,723	52.50	9,957	7.5
2016	381,271.04	45,435	46,970	0.1120	372,428	53.50	6,961	6.5
2017	1,809,738.78	182,482	188,650	0.0948	1,802,063	54.50	33,065	5.5
2018	780,980.92	64,431	66,609	0.0775	792,470	55.50	14,279	4.5
2019	611,597.52	39,244	40,571	0.0603	632,187	56.50	11,189	3.5
2020	1,452,836.14	66,588	68,839	0.0431	1,529,281	57.50	26,596	2.5
2021	668,614.23	18,387	19,008	0.0258	716,467	58.50	12,247	1.5
2022	434,155.96	3,980	4,114	0.0086	473,457	59.50	7,957	0.5
TOTAL	8,919,565.23	1,594,581	1,648,476		8,163,046		161,286	

COMPOSITE ANNUAL ACCRUAL RATE	1.81%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.18
COMPOSITE AVERAGE AGE (YEARS)	9.98
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	50.25

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C04 - Cables - Above Ground

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 65

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	176,785.73	149,581	177,618	0.9134	16,846	15.00	1,123	55.5
1968	629,433.93	525,397	623,878	0.9011	68,499	15.68	4,370	54.5
1970	301,347.04	244,500	290,330	0.8759	41,152	17.06	2,413	52.5
1971	193,228.00	154,470	183,424	0.8630	29,127	17.76	1,640	51.5
1973	1,019.00	790	938	0.8366	183	19.21	10	49.5
1974	55,053.53	41,976	49,844	0.8231	10,715	19.95	537	48.5
1975	13,512.29	10,131	12,030	0.8094	2,833	20.70	137	47.5
1976	18,193.77	13,406	15,919	0.7954	4,094	21.46	191	46.5
1977	69,160.40	50,056	59,439	0.7813	16,638	22.23	748	45.5
1978	526,233.47	373,867	443,946	0.7669	134,911	23.02	5,861	44.5
1979	144,962.66	101,036	119,974	0.7524	39,485	23.81	1,658	43.5
1980	1,157,039.66	790,586	938,775	0.7376	333,969	24.62	13,563	42.5
1981	61,027.22	40,853	48,510	0.7226	18,620	25.44	732	41.5
1982	272,572.07	178,630	212,112	0.7074	87,717	26.27	3,338	40.5
1983	564,279.89	361,764	429,573	0.6921	191,135	27.12	7,049	39.5
1984	26,779.68	16,782	19,928	0.6765	9,529	27.97	341	38.5
1985	895,378.74	548,053	650,781	0.6607	334,135	28.83	11,589	37.5
1986	84,189.34	50,289	59,716	0.6448	32,893	29.70	1,107	36.5
1987	132,477.50	77,157	91,619	0.6287	54,106	30.58	1,769	35.5
1988	117,705.66	66,780	79,297	0.6124	50,179	31.47	1,594	34.5
1989	406,872.20	224,643	266,751	0.5960	180,808	32.37	5,585	33.5
1990	221,344.07	118,812	141,082	0.5794	102,396	33.28	3,077	32.5
1991	469,171.72	244,568	290,410	0.5627	225,678	34.20	6,599	31.5
1992	380,305.11	192,308	228,355	0.5459	189,981	35.12	5,410	30.5
1993	54,650.56	26,775	31,794	0.5289	28,322	36.05	786	29.5
1994	671,843.79	318,516	378,219	0.5118	360,809	36.99	9,755	28.5
1995	227,348.10	104,158	123,682	0.4946	126,401	37.93	3,333	27.5
1996	93,595.81	41,379	49,135	0.4772	53,820	38.88	1,384	26.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C04 - Cables - Above Ground

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 65

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1997	20,857.26	8,885	10,550	0.4598	12,393	39.83	311	25.5
1998	220,824.71	90,485	107,446	0.4423	135,462	40.79	3,321	24.5
1999	87,492.36	34,426	40,879	0.4247	55,363	41.75	1,326	23.5
2000	107,670.29	40,604	48,214	0.4071	70,223	42.72	1,644	22.5
2001	115,541.04	41,675	49,486	0.3894	77,609	43.69	1,777	21.5
2002	8,701.27	2,995	3,556	0.3716	6,015	44.66	135	20.5
2003	69,661.50	22,826	27,105	0.3537	49,523	45.64	1,085	19.5
2005	114,623.60	33,753	40,080	0.3179	86,006	47.60	1,807	17.5
2006	42,472.94	11,799	14,011	0.2999	32,709	48.58	673	16.5
2010	60,549.31	12,767	15,160	0.2276	51,445	52.54	979	12.5
2011	299,364.07	58,091	68,980	0.2095	260,321	53.53	4,863	11.5
2012	411,905.55	73,002	86,686	0.1913	366,410	54.53	6,720	10.5
2013	162,111.78	26,002	30,876	0.1731	147,447	55.52	2,656	9.5
2015	101,754.69	12,891	15,307	0.1368	96,623	57.51	1,680	7.5
2016	87,383.38	9,596	11,395	0.1185	84,727	58.51	1,448	6.5
2017	2,079,523.66	193,266	229,492	0.1003	2,057,984	59.51	34,583	5.5
2018	1,774,092.52	134,922	160,212	0.0821	1,791,290	60.51	29,605	4.5
2019	61,033.00	3,611	4,287	0.0639	62,849	61.50	1,022	3.5
2020	327,756.16	13,851	16,447	0.0456	344,085	62.50	5,505	2.5
2021	1,077,639.09	27,325	32,446	0.0274	1,152,957	63.50	18,156	1.5
2022	331,652.54	2,802	3,327	0.0091	361,490	64.50	5,604	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C04 - Cables - Above Ground

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 65
Net Salvage: -10%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	15,528,121.66	5,922,835	7,033,021		10,047,912		220,599	
COMPOSITE ANNUAL ACCRUAL RATE				1.42%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.45				
COMPOSITE AVERAGE AGE (YEARS)				23.56				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				42.46				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C06 - Capacitors

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 35

Net Salvage: -3%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	44,470.98	44,846	45,805	1.0000	0	0.73	0	56.5
1970	2,823.50	2,771	2,908	1.0000	0	1.65	0	52.5
1971	260,900.32	254,197	268,727	1.0000	0	1.89	0	51.5
1976	24,435.00	22,890	25,168	1.0000	0	3.17	0	46.5
1980	73,112.99	66,146	75,306	1.0000	0	4.26	0	42.5
1982	23,267.18	20,622	23,531	0.9819	434	4.88	89	40.5
1987	83,725.72	69,393	79,181	0.9182	7,057	6.84	1,032	35.5
1995	9,531.39	6,641	7,577	0.7718	2,240	11.33	198	27.5
1996	300,497.11	203,440	232,137	0.7500	77,375	11.99	6,451	26.5
2000	156,646.75	92,818	105,911	0.6564	55,436	14.87	3,729	22.5
2021	15,447.04	670	764	0.0480	15,146	33.53	452	1.5
TOTAL	994,857.98	784,433	867,015		157,688		11,951	

COMPOSITE ANNUAL ACCRUAL RATE 1.20%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.87

COMPOSITE AVERAGE AGE (YEARS) 36.21

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 8.21

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C07 - Chemical Feed Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 45
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	50,551.82	49,150	53,079	1.0000	0	3.33	0	54.5
1969	244,559.50	236,207	256,787	1.0000	0	3.61	0	53.5
1971	72,184.00	68,746	75,793	1.0000	0	4.18	0	51.5
1979	50,551.82	44,433	49,041	0.9239	4,039	7.33	551	43.5
1997	28,676.00	16,485	18,195	0.6043	11,915	20.36	585	25.5
2014	13,291.22	2,628	2,900	0.2078	11,056	36.53	303	8.5
TOTAL	459,814.36	417,649	455,796		27,009		1,439	

COMPOSITE ANNUAL ACCRUAL RATE	0.31%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.99
COMPOSITE AVERAGE AGE (YEARS)	49.15
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	6.07

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C09 - Circuit Breakers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2

ASL: 55

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	52,945.18	40,919	43,329	0.7794	12,263	14.52	845	56.5
1967	566,722.41	432,974	458,473	0.7705	136,585	14.98	9,117	55.5
1968	306,823.97	231,627	245,268	0.7613	76,897	15.46	4,975	54.5
1969	111,883.17	83,423	88,337	0.7519	29,141	15.94	1,828	53.5
1970	434,374.54	319,758	338,590	0.7424	117,503	16.44	7,147	52.5
1971	410,891.23	298,486	316,065	0.7326	115,371	16.95	6,807	51.5
1972	392,988.85	281,589	298,173	0.7226	114,465	17.47	6,553	50.5
1974	62,872.73	43,766	46,343	0.7020	19,673	18.54	1,061	48.5
1975	270,382.74	185,369	196,286	0.6914	87,615	19.09	4,590	47.5
1977	521,857.63	346,483	366,889	0.6696	181,062	20.22	8,954	45.5
1978	260,884.29	170,313	180,343	0.6584	93,585	20.80	4,498	44.5
1979	77,376.00	49,638	52,561	0.6470	28,683	21.40	1,341	43.5
1980	752,547.60	474,110	502,033	0.6353	288,142	22.00	13,098	42.5
1981	201,796.88	124,773	132,122	0.6235	79,765	22.61	3,528	41.5
1982	913,653.07	554,067	586,698	0.6116	372,638	23.23	16,038	40.5
1983	312,136.55	185,524	196,450	0.5994	131,293	23.87	5,501	39.5
1985	39,560.00	22,537	23,864	0.5745	17,674	25.16	702	37.5
1986	18,212.75	10,146	10,744	0.5618	8,380	25.82	325	36.5
1987	74,384.82	40,489	42,873	0.5489	35,231	26.49	1,330	35.5
1988	144,831.66	76,959	81,492	0.5359	70,581	27.17	2,598	34.5
1989	584,900.94	303,133	320,985	0.5227	293,161	27.85	10,525	33.5
1990	377,794.87	190,782	202,018	0.5093	194,667	28.55	6,819	32.5
1991	101,938.30	50,107	53,058	0.4957	53,977	29.25	1,845	31.5
1992	1,090,316.93	521,115	551,806	0.4820	593,027	29.96	19,791	30.5
1993	272,449.19	126,470	133,919	0.4681	152,153	30.68	4,959	29.5
1994	25,447.73	11,459	12,134	0.4541	14,586	31.41	464	28.5
1995	829,497.19	361,865	383,176	0.4399	487,796	32.15	15,173	27.5
1996	429,268.08	181,167	191,837	0.4256	258,895	32.89	7,871	26.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C09 - Circuit Breakers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2

ASL: 55

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1997	193,557.82	78,911	83,558	0.4111	119,677	33.64	3,557	25.5
1998	154,366.88	60,696	64,271	0.3965	97,814	34.40	2,843	24.5
2000	264,854.19	96,354	102,029	0.3669	176,068	35.94	4,898	22.5
2001	18,558.77	6,475	6,856	0.3519	12,630	36.72	344	21.5
2002	421,478.53	140,713	149,000	0.3367	293,552	37.51	7,825	20.5
2003	349,437.85	111,361	117,920	0.3214	248,990	38.31	6,500	19.5
2004	80,483.15	24,418	25,856	0.3060	58,651	39.11	1,500	18.5
2005	50,011.92	14,402	15,250	0.2904	37,262	39.92	934	17.5
2006	186,607.14	50,837	53,831	0.2747	142,107	40.73	3,489	16.5
2007	289,169.14	74,245	78,618	0.2589	225,010	41.55	5,415	15.5
2008	224,453.18	54,085	57,271	0.2430	178,405	42.38	4,210	14.5
2009	564,598.44	127,068	134,552	0.2270	458,277	43.21	10,606	13.5
2010	365,112.31	76,323	80,818	0.2108	302,550	44.05	6,868	12.5
2011	1,060,268.33	204,536	216,582	0.1945	896,700	44.90	19,973	11.5
2012	2,935,832.60	518,662	549,208	0.1782	2,533,416	45.75	55,380	10.5
2013	3,304,848.38	529,805	561,007	0.1617	2,909,084	46.60	62,423	9.5
2014	2,213,959.19	318,483	337,239	0.1451	1,987,418	47.46	41,871	8.5
2015	13,406,198.59	1,706,481	1,806,982	0.1284	12,269,526	48.33	253,857	7.5
2016	10,435,165.56	1,154,426	1,222,414	0.1116	9,734,509	49.21	197,835	6.5
2017	11,885,773.91	1,115,696	1,181,404	0.0947	11,298,659	50.08	225,598	5.5
2018	14,698,158.42	1,131,832	1,198,490	0.0777	14,234,577	50.97	279,293	4.5
2019	10,809,935.67	649,120	687,349	0.0606	10,663,083	51.85	205,634	3.5
2020	6,331,235.84	272,248	288,282	0.0434	6,359,516	52.75	120,565	2.5
2021	7,890,079.18	204,071	216,090	0.0261	8,068,494	53.65	150,405	1.5
2022	3,807,757.83	32,902	34,840	0.0087	3,963,306	54.55	72,658	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C09 - Circuit Breakers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R2
ASL: 55
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	101,580,642.12	14,473,201	15,325,584		91,334,090		1,912,764	
COMPOSITE ANNUAL ACCRUAL RATE				1.88%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.15				
COMPOSITE AVERAGE AGE (YEARS)				8.89				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				47.54				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C10 - Compressed Air Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1.5

ASL: 41

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	36,402.01	29,937	36,402	1.0000	0	7.28	0	56.5
1967	134,088.28	109,252	134,088	1.0000	0	7.59	0	55.5
1968	7,040.00	5,681	7,040	1.0000	0	7.91	0	54.5
1969	18,112.98	14,473	18,113	1.0000	0	8.24	0	53.5
1970	6,003.88	4,748	6,004	1.0000	0	8.58	0	52.5
1971	115,324.40	90,240	115,324	1.0000	0	8.92	0	51.5
1972	1,213.22	939	1,213	1.0000	0	9.27	0	50.5
1974	96,150.08	72,685	96,150	1.0000	0	10.01	0	48.5
1975	10,000.00	7,466	10,000	1.0000	0	10.39	0	47.5
1976	41,950.85	30,916	41,951	1.0000	0	10.78	0	46.5
1977	138,474.81	100,675	137,487	0.9929	988	11.19	88	45.5
1978	59,767.47	42,841	58,506	0.9789	1,261	11.61	109	44.5
1979	42,011.01	29,671	40,521	0.9645	1,490	12.04	124	43.5
1980	219,800.23	152,858	208,751	0.9497	11,050	12.49	885	42.5
1982	153,558.59	103,321	141,100	0.9189	12,458	13.41	929	40.5
1983	56,543.78	37,380	51,048	0.9028	5,496	13.90	396	39.5
1984	166,456.15	108,030	147,531	0.8863	18,925	14.39	1,315	38.5
1987	36,205.07	22,118	30,205	0.8343	6,000	15.95	376	35.5
1988	114,736.03	68,566	93,637	0.8161	21,099	16.50	1,279	34.5
1989	75,207.79	43,921	59,980	0.7975	15,227	17.06	893	33.5
1990	41,543.60	23,684	32,344	0.7786	9,200	17.63	522	32.5
1991	35,627.98	19,806	27,048	0.7592	8,580	18.21	471	31.5
1992	511,601.68	277,003	378,290	0.7394	133,311	18.80	7,091	30.5
1993	44,089.54	23,222	31,714	0.7193	12,376	19.41	638	29.5
1994	234,644.19	120,065	163,967	0.6988	70,677	20.02	3,530	28.5
1995	129,037.60	64,057	87,480	0.6779	41,558	20.65	2,013	27.5
1996	10,656.00	5,124	6,998	0.6567	3,658	21.28	172	26.5
1997	28,531.93	13,270	18,123	0.6352	10,409	21.93	475	25.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C10 - Compressed Air Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1.5

ASL: 41

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1998	83,020.75	37,284	50,917	0.6133	32,104	22.59	1,421	24.5
1999	164,358.52	71,140	97,153	0.5911	67,206	23.25	2,890	23.5
2000	153,432.24	63,883	87,242	0.5686	66,191	23.93	2,766	22.5
2001	36,367.13	14,534	19,849	0.5458	16,518	24.61	671	21.5
2002	41,272.02	15,797	21,573	0.5227	19,699	25.31	778	20.5
2003	199,999.97	73,128	99,867	0.4993	100,133	26.01	3,850	19.5
2006	16,790.00	5,258	7,181	0.4277	9,609	28.16	341	16.5
2007	239,305.05	70,676	96,519	0.4033	142,786	28.89	4,942	15.5
2008	317,716.68	88,114	120,333	0.3787	197,383	29.63	6,662	14.5
2009	168,689.23	43,721	59,708	0.3540	108,982	30.37	3,588	13.5
2010	140,437.37	33,827	46,196	0.3289	94,242	31.12	3,028	12.5
2011	594,575.25	132,243	180,598	0.3037	413,977	31.88	12,985	11.5
2013	1,135,812.80	210,210	287,074	0.2527	848,739	33.41	25,402	9.5
2014	1,943,796.40	323,042	441,163	0.2270	1,502,633	34.19	43,954	8.5
2015	8,093,337.41	1,191,075	1,626,597	0.2010	6,466,741	34.97	184,943	7.5
2016	682,053.43	87,306	119,230	0.1748	562,823	35.75	15,743	6.5
2017	31,479.51	3,422	4,673	0.1484	26,807	36.54	734	5.5
2019	57,287.60	3,992	5,451	0.0952	51,836	38.14	1,359	3.5
2020	286,519.85	14,315	19,549	0.0682	266,971	38.95	6,854	2.5
2021	420,202.40	12,649	17,274	0.0411	402,928	39.77	10,133	1.5
2022	549,651.71	5,557	7,590	0.0138	542,062	40.59	13,356	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C10 - Compressed Air Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R1.5
ASL: 41
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	17,920,884.47	4,123,120	5,596,752		12,324,132		367,706	
COMPOSITE ANNUAL ACCRUAL RATE				2.05%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.31				
COMPOSITE AVERAGE AGE (YEARS)				12.63				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				31.57				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C11 - Computers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 5
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2018	908,180.46	817,362	705,252	0.7766	202,928	0.50	202,928	4.5
2019	672,811.12	470,968	406,369	0.6040	266,442	1.50	177,628	3.5
2020	537,368.80	268,684	231,831	0.4314	305,538	2.50	122,215	2.5
2021	854,012.47	256,204	221,063	0.2589	632,950	3.50	180,843	1.5
2022	1,471,399.57	147,140	126,958	0.0863	1,344,442	4.50	298,765	0.5
TOTAL	4,443,772.42	1,960,358	1,691,473		2,752,299		982,379	

COMPOSITE ANNUAL ACCRUAL RATE	22.11%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.38
COMPOSITE AVERAGE AGE (YEARS)	2.21
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	2.79

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C12 - Condensers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 55
Net Salvage: -3%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	125,930.00	102,971	123,202	0.9498	6,506	11.34	574	54.5
2020	285,000.00	13,107	15,682	0.0534	277,868	52.54	5,288	2.5
TOTAL	410,930.00	116,078	138,884		284,373		5,862	

COMPOSITE ANNUAL ACCRUAL RATE	1.43%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.34
COMPOSITE AVERAGE AGE (YEARS)	18.44
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	39.92

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C13 - Conductor - Transmission

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 60

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	4,914,310.79	3,923,093	3,734,016	0.7236	1,426,010	14.38	99,146	55.5
1968	2,408,871.94	1,899,901	1,808,334	0.7150	720,981	14.93	48,288	54.5
1969	252,646.14	196,773	187,289	0.7060	77,989	15.49	5,033	53.5
1970	773,190.55	594,364	565,718	0.6968	246,132	16.07	15,313	52.5
1974	1,715,831.21	1,245,230	1,185,216	0.6579	616,407	18.53	33,266	48.5
1976	95,496.00	67,117	63,882	0.6371	36,389	19.84	1,834	46.5
1977	3,030,568.65	2,094,288	1,993,352	0.6264	1,188,745	20.51	57,956	45.5
1978	439,979.89	298,777	284,377	0.6156	177,602	21.20	8,379	44.5
1980	181,069.54	118,510	112,798	0.5933	77,325	22.60	3,421	42.5
1981	4,145,939.87	2,661,395	2,533,127	0.5819	1,820,110	23.32	78,055	41.5
1982	3,344,098.45	2,103,994	2,002,590	0.5703	1,508,713	24.05	62,738	40.5
1983	5,998,197.19	3,696,303	3,518,157	0.5586	2,779,950	24.79	112,156	39.5
1984	47,247.22	28,496	27,123	0.5467	22,487	25.54	881	38.5
1985	5,404,547.49	3,187,816	3,034,177	0.5347	2,640,598	26.29	100,423	37.5
1987	2,718,221.55	1,529,783	1,456,054	0.5102	1,398,078	27.84	50,217	35.5
1988	1,473,940.83	809,216	770,215	0.4977	777,423	28.63	27,156	34.5
1990	10,521,540.36	5,481,902	5,217,697	0.4723	5,829,920	30.23	192,867	32.5
1991	86,132.87	43,651	41,547	0.4594	48,892	31.04	1,575	31.5
1994	60,822.38	28,174	26,817	0.4199	37,047	33.53	1,105	28.5
1995	1,422,398.39	637,841	607,100	0.4065	886,419	34.38	25,786	27.5
1996	1,224,020.27	530,596	505,024	0.3929	780,197	35.23	22,146	26.5
1997	1,145,752.44	479,394	456,289	0.3793	746,751	36.09	20,691	25.5
1998	1,573,598.67	634,488	603,908	0.3655	1,048,370	36.96	28,365	24.5
1999	21,688.99	8,413	8,007	0.3516	14,766	37.84	390	23.5
2000	2,873,034.57	1,069,959	1,018,392	0.3376	1,998,295	38.72	51,610	22.5
2001	2,311,965.35	824,998	785,236	0.3235	1,642,327	39.61	41,463	21.5
2002	2,594,819.36	885,199	842,536	0.3092	1,882,024	40.51	46,463	20.5
2003	174,558.10	56,788	54,051	0.2949	129,235	41.41	3,121	19.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C13 - Conductor - Transmission

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 60

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2004	434,397.16	134,406	127,928	0.2805	328,189	42.32	7,755	18.5
2006	705,521.48	195,602	186,175	0.2513	554,623	44.16	12,560	16.5
2009	111,767.05	25,514	24,284	0.2069	93,071	46.96	1,982	13.5
2016	193,720.57	21,544	20,506	0.1008	182,901	53.64	3,409	6.5
2017	22,541,451.08	2,124,114	2,021,741	0.0854	21,646,783	54.62	396,350	5.5
2018	2,388,932.72	184,417	175,529	0.0700	2,332,850	55.59	41,966	4.5
2019	198,815.01	11,952	11,376	0.0545	197,380	56.56	3,489	3.5
2020	394,172.01	16,945	16,128	0.0390	397,752	57.54	6,912	2.5
TOTAL	87,923,266.14	37,850,952	36,026,698		56,292,731		1,614,267	

COMPOSITE ANNUAL ACCRUAL RATE 1.84%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.41

COMPOSITE AVERAGE AGE (YEARS) 27.56

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 35.40

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C14 - Conductor - Distribution

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 48

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1971	3,753.07	3,426	4,000	0.9690	128	8.17	16	51.5
1977	656.03	557	651	0.9021	71	10.92	6	45.5
1980	680,075.68	552,194	644,777	0.8619	103,306	12.57	8,219	42.5
1981	3,701,872.22	2,956,078	3,451,704	0.8477	620,356	13.15	47,158	41.5
1982	319,034.16	250,346	292,320	0.8330	58,618	13.76	4,260	40.5
1983	365,982.33	281,977	329,254	0.8179	73,327	14.38	5,099	39.5
1984	831,408.62	628,416	733,779	0.8023	180,771	15.02	12,037	38.5
1985	1,131,140.14	838,011	978,515	0.7864	265,739	15.67	16,957	37.5
1986	648,179.20	470,260	549,105	0.7701	163,892	16.34	10,029	36.5
1987	904,137.33	641,770	749,372	0.7535	245,179	17.03	14,400	35.5
1988	910,959.24	632,013	737,978	0.7365	264,077	17.73	14,898	34.5
1989	1,267,583.16	858,720	1,002,695	0.7191	391,646	18.44	21,240	33.5
1990	798,285.42	527,507	615,950	0.7014	262,164	19.17	13,679	32.5
1991	662,612.06	426,629	498,159	0.6835	230,714	19.90	11,591	31.5
1992	209,024.16	130,982	152,943	0.6652	76,984	20.66	3,727	30.5
1993	713,935.17	434,884	507,798	0.6466	277,531	21.42	12,957	29.5
1994	522,936.57	309,248	361,098	0.6277	214,132	22.19	9,648	28.5
1995	760,328.36	435,927	509,016	0.6086	327,345	22.98	14,244	27.5
1996	732,160.70	406,391	474,528	0.5892	330,849	23.78	13,913	26.5
1997	1,384,168.06	742,642	867,156	0.5695	655,429	24.59	26,657	25.5
1998	522,694.74	270,626	316,000	0.5496	258,964	25.41	10,193	24.5
1999	504,085.58	251,406	293,557	0.5294	260,937	26.24	9,945	23.5
2000	681,829.02	326,928	381,742	0.5090	368,270	27.08	13,601	22.5
2001	576,907.14	265,383	309,878	0.4883	324,720	27.93	11,628	21.5
2002	3,842,135.81	1,691,744	1,975,387	0.4674	2,250,962	28.79	78,196	20.5
2003	442,238.40	185,918	217,089	0.4463	269,373	29.66	9,083	19.5
2004	285,827.04	114,411	133,594	0.4249	180,816	30.53	5,922	18.5
2005	211,959.87	80,536	94,039	0.4033	139,117	31.42	4,428	17.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C14 - Conductor - Distribution

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 48

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2006	835,381.58	300,272	350,617	0.3816	568,303	32.32	17,586	16.5
2007	503,436.12	170,533	199,126	0.3596	354,654	33.22	10,676	15.5
2008	513,342.62	163,168	190,526	0.3374	374,151	34.13	10,963	14.5
2009	700,782.34	207,991	242,863	0.3151	527,997	35.05	15,065	13.5
2010	257,354.34	70,921	82,812	0.2925	200,278	35.97	5,567	12.5
2011	679,683.14	172,776	201,744	0.2698	545,907	36.91	14,791	11.5
2012	1,426,060.22	331,810	387,442	0.2470	1,181,224	37.85	31,211	10.5
2013	2,354,085.41	496,743	580,028	0.2240	2,009,466	38.79	51,801	9.5
2014	1,550,851.30	293,455	342,657	0.2009	1,363,280	39.74	34,302	8.5
2015	1,173,864.41	196,400	229,329	0.1776	1,061,922	40.70	26,092	7.5
2016	110,346.78	16,032	18,720	0.1542	102,661	41.66	2,464	6.5
2017	989,738.81	121,900	142,338	0.1307	946,375	42.63	22,202	5.5
2018	705,826.88	71,249	83,195	0.1072	693,215	43.60	15,901	4.5
2019	611,447.32	48,083	56,145	0.0835	616,447	44.57	13,831	3.5
2020	1,402,167.94	78,878	92,103	0.0597	1,450,282	45.55	31,843	2.5
2021	968,400.30	32,731	38,219	0.0359	1,027,021	46.53	22,075	1.5
2022	1,067,959.87	12,047	14,067	0.0120	1,160,689	47.51	24,432	0.5
TOTAL	39,466,638.66	17,499,923	20,434,016		22,979,286		754,533	

COMPOSITE ANNUAL ACCRUAL RATE 1.91%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.52

COMPOSITE AVERAGE AGE (YEARS) 21.63

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 28.65

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C15 - Control, Meter, Relaying

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 35

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	11,394.61	11,156	11,395	1.0000	0	0.73	0	56.5
1967	2,136,256.49	2,078,823	2,125,517	0.9950	10,739	0.94	10,739	55.5
1968	127,981.04	123,718	126,497	0.9884	1,484	1.17	1,273	54.5
1969	15,677.96	15,050	15,388	0.9815	290	1.40	207	53.5
1970	391,631.57	373,217	381,600	0.9744	10,032	1.65	6,096	52.5
1974	120,963.38	111,791	114,302	0.9449	6,661	2.65	2,510	48.5
1975	595,165.02	545,683	557,940	0.9375	37,225	2.91	12,793	47.5
1976	15,568.70	14,160	14,478	0.9299	1,091	3.17	344	46.5
1977	181,697.90	163,900	167,581	0.9223	14,117	3.43	4,118	45.5
1978	373,252.25	333,857	341,356	0.9145	31,897	3.69	8,634	44.5
1979	279,761.62	248,033	253,604	0.9065	26,158	3.97	6,590	43.5
1980	455,216.20	399,842	408,824	0.8981	46,393	4.26	10,897	42.5
1981	165,517.48	143,948	147,182	0.8892	18,336	4.56	4,020	41.5
1982	648,768.97	558,262	570,801	0.8798	77,968	4.88	15,968	40.5
1983	388,062.45	330,130	337,545	0.8698	50,517	5.23	9,668	39.5
1984	92,987.45	78,136	79,891	0.8592	13,096	5.59	2,343	38.5
1985	237,071.00	196,570	200,985	0.8478	36,086	5.98	6,035	37.5
1986	336,964.88	275,400	281,586	0.8357	55,379	6.39	8,660	36.5
1987	343,035.89	276,030	282,230	0.8227	60,806	6.84	8,894	35.5
1988	261,100.34	206,600	211,240	0.8090	49,860	7.31	6,825	34.5
1989	407,409.64	316,592	323,703	0.7945	83,706	7.80	10,729	33.5
1990	770,019.54	586,856	600,038	0.7793	169,981	8.33	20,417	32.5
1991	309,733.43	231,191	236,384	0.7632	73,350	8.88	8,264	31.5
1992	1,148,367.10	838,253	857,081	0.7463	291,286	9.45	30,818	30.5
1993	57,776.54	41,182	42,107	0.7288	15,670	10.05	1,559	29.5
1994	407,969.30	283,505	289,873	0.7105	118,097	10.68	11,060	28.5
1995	1,030,705.24	697,182	712,841	0.6916	317,864	11.33	28,066	27.5
1996	291,875.54	191,848	196,157	0.6721	95,718	11.99	7,980	26.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C15 - Control, Meter, Relaying

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 35

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1997	528,260.80	336,816	344,381	0.6519	183,879	12.68	14,497	25.5
1998	124,178.75	76,661	78,383	0.6312	45,796	13.39	3,419	24.5
1999	472,615.45	281,942	288,275	0.6100	184,341	14.12	13,055	23.5
2000	633,252.16	364,293	372,476	0.5882	260,776	14.87	17,542	22.5
2001	950,459.04	526,093	537,910	0.5659	412,549	15.63	26,400	21.5
2002	239,056.24	127,010	129,863	0.5432	109,193	16.40	6,656	20.5
2003	446,753.60	227,237	232,341	0.5201	214,412	17.20	12,468	19.5
2004	368,723.38	179,036	183,058	0.4965	185,666	18.01	10,312	18.5
2005	409,373.67	189,154	193,403	0.4724	215,970	18.83	11,471	17.5
2006	235,093.86	103,006	105,320	0.4480	129,774	19.66	6,599	16.5
2008	193,317.25	75,235	76,925	0.3979	116,392	21.38	5,444	14.5
2009	617,182.80	224,747	229,795	0.3723	387,388	22.25	17,407	13.5
2010	457,330.47	154,931	158,411	0.3464	298,919	23.14	12,916	12.5
2011	450,020.75	140,887	144,052	0.3201	305,969	24.04	12,726	11.5
2012	885,999.04	254,327	260,040	0.2935	625,959	24.95	25,085	10.5
2013	805,547.58	210,035	214,753	0.2666	590,795	25.87	22,833	9.5
2014	358,631.33	83,973	85,859	0.2394	272,772	26.80	10,176	8.5
2015	6,258,617.51	1,297,468	1,326,612	0.2120	4,932,006	27.74	177,767	7.5
2016	2,515,413.00	453,373	463,556	0.1843	2,051,857	28.69	71,514	6.5
2017	5,390,356.64	824,484	843,004	0.1564	4,547,353	29.65	153,386	5.5
2018	6,454,813.18	809,962	828,155	0.1283	5,626,658	30.61	183,829	4.5
2019	4,005,123.80	391,850	400,652	0.1000	3,604,472	31.58	114,153	3.5
2020	5,474,618.63	383,432	392,044	0.0716	5,082,574	32.55	156,153	2.5
2021	3,590,374.62	151,178	154,573	0.0431	3,435,801	33.53	102,481	1.5
2022	3,333,463.26	46,866	47,918	0.0144	3,285,545	34.51	95,211	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C15 - Control, Meter, Relaying

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 35
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	56,800,508.34	17,584,907	17,979,885		38,820,624		1,529,007	
COMPOSITE ANNUAL ACCRUAL RATE				2.69%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.32				
COMPOSITE AVERAGE AGE (YEARS)				13.36				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				24.16				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C16 - Cooling Systems and Water Supply Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1.5

ASL: 40

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1965	43,527.51	36,580	43,528	1.0000	0	6.38	0	57.5
1966	172,222.99	143,447	172,223	1.0000	0	6.68	0	56.5
1967	10,039.39	8,286	10,039	1.0000	0	6.99	0	55.5
1968	10,523.69	8,604	10,524	1.0000	0	7.30	0	54.5
1969	80,762.96	65,387	80,763	1.0000	0	7.62	0	53.5
1970	5,778.10	4,631	5,778	1.0000	0	7.94	0	52.5
1971	9,746.00	7,731	9,746	1.0000	0	8.27	0	51.5
1973	19,339.13	15,006	19,339	1.0000	0	8.96	0	49.5
1976	13,007.24	9,731	13,007	1.0000	0	10.07	0	46.5
1977	316,173.39	233,428	316,173	1.0000	0	10.47	0	45.5
1978	52,656.72	38,342	52,657	1.0000	0	10.87	0	44.5
1979	303,988.80	218,173	303,989	1.0000	0	11.29	0	43.5
1980	38,668.32	27,336	38,668	1.0000	0	11.72	0	42.5
1981	41,740.16	29,045	41,740	1.0000	0	12.17	0	41.5
1982	166,052.48	113,652	166,052	1.0000	0	12.62	0	40.5
1983	8,937.20	6,012	8,859	0.9912	79	13.09	6	39.5
1984	249,308.82	164,699	242,680	0.9734	6,629	13.58	488	38.5
1985	326,739.18	211,801	312,083	0.9551	14,656	14.07	1,042	37.5
1986	10,359.04	6,583	9,700	0.9364	659	14.58	45	36.5
1987	40,022.75	24,912	36,708	0.9172	3,315	15.10	220	35.5
1988	125,915.36	76,693	113,006	0.8975	12,910	15.64	826	34.5
1989	259,668.77	154,607	227,810	0.8773	31,859	16.18	1,969	33.5
1990	44,904.42	26,108	38,469	0.8567	6,435	16.74	384	32.5
1991	28,308.25	16,054	23,655	0.8356	4,654	17.32	269	31.5
1992	126,053.08	69,644	102,619	0.8141	23,434	17.90	1,309	30.5
1993	15,945.46	8,572	12,631	0.7921	3,314	18.50	179	29.5
1994	77,937.67	40,716	59,993	0.7698	17,944	19.10	939	28.5
1995	186,170.46	94,378	139,063	0.7470	47,107	19.72	2,389	27.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C16 - Cooling Systems and Water Supply Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1.5

ASL: 40

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1996	39,359.32	19,333	28,487	0.7238	10,872	20.35	534	26.5
1998	362,777.54	166,489	245,316	0.6762	117,461	21.64	5,427	24.5
1999	18,116.97	8,015	11,810	0.6519	6,307	22.30	283	23.5
2000	79,203.04	33,713	49,675	0.6272	29,528	22.97	1,285	22.5
2002	39,354.90	15,405	22,699	0.5768	16,656	24.34	684	20.5
2003	1,297,368.23	485,222	714,961	0.5511	582,407	25.04	23,259	19.5
2005	67,709.51	22,921	33,773	0.4988	33,936	26.46	1,283	17.5
2006	44,286.56	14,193	20,913	0.4722	23,373	27.18	860	16.5
2007	99,765.63	30,156	44,434	0.4454	55,331	27.91	1,983	15.5
2008	394,667.18	112,038	165,085	0.4183	229,582	28.64	8,015	14.5
2009	471,996.01	125,231	184,525	0.3909	287,471	29.39	9,782	13.5
2010	348,761.61	86,006	126,728	0.3634	222,033	30.14	7,368	12.5
2011	390,280.49	88,880	130,962	0.3356	259,318	30.89	8,395	11.5
2013	1,930,372.48	365,877	539,110	0.2793	1,391,262	32.42	42,916	9.5
2014	307,037.06	52,262	77,007	0.2508	230,030	33.19	6,930	8.5
2015	3,720,331.10	560,822	826,355	0.2221	2,893,976	33.97	85,192	7.5
2016	549,699.91	72,081	106,209	0.1932	443,491	34.75	12,761	6.5
2017	1,764,765.22	196,529	289,581	0.1641	1,475,185	35.55	41,501	5.5
2018	3,519,322.40	321,849	474,237	0.1348	3,045,086	36.34	83,790	4.5
2019	518,623.36	37,028	54,559	0.1052	464,064	37.14	12,494	3.5
2020	1,440,120.29	73,727	108,634	0.0754	1,331,486	37.95	35,083	2.5
2021	792,703.86	24,455	36,033	0.0455	756,670	38.77	19,519	1.5
2022	532,182.43	5,514	8,125	0.0153	524,058	39.59	13,239	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C16 - Cooling Systems and Water Supply Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R1.5
ASL: 40
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	21,513,302.44	4,777,903	6,910,720		14,602,582		432,648	
COMPOSITE ANNUAL ACCRUAL RATE				2.01%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.32				
COMPOSITE AVERAGE AGE (YEARS)				12.02				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				31.12				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C17 - Counterpoise

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2.5

ASL: 55

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	431,098.26	329,854	353,845	0.8208	77,253	12.92	5,981	55.5
1968	247,792.88	187,531	201,171	0.8119	46,622	13.38	3,486	54.5
1970	546.00	404	433	0.7930	113	14.34	8	52.5
1974	15,552.35	10,899	11,691	0.7517	3,861	16.46	235	48.5
1981	9,506.07	5,928	6,359	0.6689	3,147	20.70	152	41.5
1982	27,542.40	16,846	18,071	0.6561	9,471	21.36	443	40.5
1983	15,526.13	9,308	9,985	0.6431	5,541	22.03	252	39.5
1985	214,651.00	123,337	132,307	0.6164	82,344	23.40	3,519	37.5
1986	106,804.26	60,008	64,373	0.6027	42,431	24.10	1,761	36.5
1987	11,117.41	6,103	6,547	0.5889	4,571	24.81	184	35.5
1988	215,117.18	115,268	123,651	0.5748	91,466	25.53	3,583	34.5
1989	147,661.97	77,163	82,776	0.5606	64,886	26.26	2,471	33.5
1990	34,172.01	17,398	18,663	0.5462	15,509	27.00	574	32.5
1991	558.98	277	297	0.5315	262	27.75	9	31.5
1992	161,824.60	77,955	83,625	0.5168	78,199	28.50	2,743	30.5
1993	365,268.31	170,870	183,298	0.5018	181,971	29.27	6,217	29.5
1994	331,398.89	150,357	161,292	0.4867	170,106	30.05	5,661	28.5
1995	19,011.26	8,355	8,962	0.4714	10,049	30.83	326	27.5
1996	17,886.51	7,603	8,156	0.4560	9,731	31.62	308	26.5
1997	48,442.27	19,886	21,332	0.4404	27,110	32.42	836	25.5
1999	3,158.47	1,203	1,291	0.4087	1,868	34.05	55	23.5
2000	280,787.97	102,776	110,251	0.3926	170,537	34.87	4,891	22.5
2001	216,852.36	76,098	81,633	0.3764	135,219	35.70	3,788	21.5
2002	181,203.61	60,827	65,251	0.3601	115,953	36.54	3,174	20.5
2003	352,909.92	113,042	121,264	0.3436	231,646	37.38	6,197	19.5
2017	3,055,161.90	286,110	306,920	0.1005	2,748,242	49.85	55,131	5.5
2018	361,149.73	27,727	29,744	0.0824	331,406	50.78	6,527	4.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C17 - Counterpoise

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 55
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	6,872,702.70	2,063,132	2,213,188		4,659,515		118,512	
COMPOSITE ANNUAL ACCRUAL RATE				1.72%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.32				
COMPOSITE AVERAGE AGE (YEARS)				19.45				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				38.49				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C18 - Cranes

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 70

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	658,978.00	454,966	304,951	0.4628	354,027	21.67	16,336	56.5
1967	149,688.01	101,961	68,341	0.4566	81,347	22.32	3,645	55.5
1969	234,007.00	154,954	103,861	0.4438	130,146	23.65	5,504	53.5
1979	597,576.53	334,063	223,913	0.3747	373,663	30.87	12,105	43.5
1980	136,287.00	74,689	50,062	0.3673	86,225	31.64	2,725	42.5
1982	1,501,411.45	789,295	529,043	0.3524	972,368	33.20	29,287	40.5
1984	993,957.00	499,897	335,067	0.3371	658,890	34.79	18,937	38.5
1985	123,618.00	60,744	40,715	0.3294	82,903	35.60	2,329	37.5
1988	304,605.66	138,939	93,127	0.3057	211,479	38.07	5,555	34.5
1989	23,800.39	10,572	7,086	0.2977	16,715	38.91	430	33.5
1995	3,781.63	1,401	939	0.2483	2,843	44.07	65	27.5
1996	6,207.08	2,221	1,489	0.2399	4,718	44.95	105	26.5
2002	8,414.90	2,360	1,582	0.1880	6,833	50.36	136	20.5
2003	1,560,150.29	417,100	279,571	0.1792	1,280,580	51.29	24,969	19.5
2006	93,901.29	21,359	14,317	0.1525	79,585	54.08	1,472	16.5
2008	15,189.34	3,046	2,042	0.1344	13,147	55.96	235	14.5
2014	31,583.09	3,745	2,510	0.0795	29,073	61.70	471	8.5
2015	13,442.50	1,408	944	0.0702	12,499	62.67	199	7.5
2016	580,606.70	52,778	35,375	0.0609	545,231	63.64	8,568	6.5
2017	35,426.30	2,728	1,828	0.0516	33,598	64.61	520	5.5
2019	419,158.77	20,582	13,796	0.0329	405,363	66.56	6,090	3.5
2020	21,841.52	767	514	0.0235	21,328	67.54	316	2.5
2021	489,047.48	10,310	6,911	0.0141	482,137	68.52	7,036	1.5
2022	727,996.69	5,120	3,432	0.0047	724,565	69.51	10,424	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C18 - Cranes

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 70
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	8,730,676.62	3,165,006	2,121,417		6,609,260		157,459	
COMPOSITE ANNUAL ACCRUAL RATE				1.80%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.24				
COMPOSITE AVERAGE AGE (YEARS)				28.00				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				44.62				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C21 - Cell Phones

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 3
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Depreciation	Accumulated Depreciation	Actual Booked Amount	Factor	ALG		Annual Accrual	Average Age
						Net Book Value	Remaining Life		
2021	47,144.91	23,572		13,660	0.2898	33,485	1.50	22,323	1.5
2022	48,892.14	8,149		4,722	0.0966	44,170	2.50	17,668	0.5
TOTAL	96,037.05	31,721		18,382		77,655		39,991	

COMPOSITE ANNUAL ACCRUAL RATE	41.64%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.19
COMPOSITE AVERAGE AGE (YEARS)	0.99
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	2.01

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: C22 - Charger - Charging Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 10
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2021	209,946.66	31,492	23,888	0.1138	186,059	8.50	21,889	1.5
2022	677,988.77	33,899	25,714	0.0379	652,275	9.50	68,660	0.5
TOTAL	887,935.43	65,391	49,602		838,333		90,549	

COMPOSITE ANNUAL ACCRUAL RATE	10.20%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.06
COMPOSITE AVERAGE AGE (YEARS)	0.74
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	9.26

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: D01 - Dams, Dykes, Canals, and Tunnels

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 110

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1956	615,305.93	374,823	178,866	0.2769	467,205	46.18	10,116	66.5
1966	42,865,946.03	22,520,492	10,746,802	0.2388	34,262,441	54.96	623,393	56.5
1967	27,131,965.00	14,019,473	6,690,107	0.2348	21,798,456	55.87	390,178	55.5
1969	146,223.72	73,005	34,838	0.2269	118,697	57.70	2,057	53.5
1970	4,899,824.94	2,403,300	1,146,857	0.2229	3,997,959	58.62	68,206	52.5
1978	3,644,386.00	1,526,506	728,450	0.1904	3,098,155	66.12	46,857	44.5
1979	26,954,544.28	11,045,067	5,270,717	0.1862	23,031,554	67.07	343,385	43.5
1980	8,733,611.13	3,499,036	1,669,744	0.1821	7,500,548	68.03	110,257	42.5
1982	54,770,206.67	20,939,191	9,992,204	0.1738	47,516,513	69.95	679,307	40.5
1983	21,684,267.05	8,090,577	3,860,832	0.1696	18,907,649	70.91	266,634	39.5
1984	113,124,637.53	41,164,200	19,643,599	0.1654	99,137,270	71.88	1,379,227	38.5
1985	10,995,558.61	3,899,407	1,860,801	0.1612	9,684,536	72.85	132,942	37.5
1986	48,803.37	16,855	8,043	0.1570	43,200	73.82	585	36.5
1988	11,992,331.84	3,918,749	1,870,031	0.1485	10,721,917	75.77	141,512	34.5
1989	503,088.54	159,704	76,211	0.1443	452,032	76.74	5,890	33.5
1992	38,009.96	10,999	5,249	0.1315	34,661	79.68	435	30.5
1993	4,711.97	1,319	630	0.1273	4,318	80.67	54	29.5
2003	28,219,035.47	5,237,250	2,499,221	0.0843	27,130,766	90.56	299,599	19.5
2005	2,863,283.51	477,078	227,662	0.0757	2,778,785	92.54	30,026	17.5
2009	704,177.11	90,565	43,218	0.0585	696,168	96.53	7,212	13.5
2010	496,885.77	59,179	28,240	0.0541	493,490	97.52	5,060	12.5
2012	1,302,985.46	130,384	62,220	0.0455	1,305,915	99.52	13,123	10.5
2014	158,306.95	12,826	6,121	0.0368	160,102	101.51	1,577	8.5
2016	351,080.84	21,755	10,382	0.0282	358,253	103.51	3,461	6.5
2017	53,322.71	2,796	1,334	0.0238	54,655	104.51	523	5.5
2018	27,580.00	1,183	565	0.0195	28,394	105.51	269	4.5
2019	989,541.73	33,023	15,758	0.0152	1,023,260	106.50	9,608	3.5
2020	404,559.60	9,643	4,602	0.0108	420,186	107.50	3,909	2.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: D01 - Dams, Dykes, Canals, and Tunnels

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 110
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2021	261,406.64	3,738	1,784	0.0065	272,693	108.50	2,513	1.5
TOTAL	363,985,588.36	139,742,126	66,685,088		315,499,780		4,577,915	

COMPOSITE ANNUAL ACCRUAL RATE	1.26%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.18
COMPOSITE AVERAGE AGE (YEARS)	40.81
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	69.78

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: D02 - Diesel Systems and Engines

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L0.5

ASL: 22

Net Salvage: -15%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1965	644,462.40	575,277	442,199	0.5967	298,933	4.92	60,718	57.5
1968	5,919.00	5,208	4,003	0.5882	2,803	5.17	543	54.5
1973	394,804.06	336,373	258,560	0.5695	195,465	5.70	34,287	49.5
1980	1,031,852.98	823,977	633,367	0.5338	553,264	6.72	82,287	42.5
1981	418,076.02	330,108	253,744	0.5278	227,043	6.89	32,929	41.5
1982	873,169.19	681,331	523,719	0.5216	480,425	7.07	67,928	40.5
1983	1,238,000.00	954,147	733,425	0.5152	690,275	7.26	95,133	39.5
1984	337,094.61	256,458	197,132	0.5085	190,527	7.45	25,589	38.5
1986	154,494.96	114,333	87,885	0.4947	89,785	7.84	11,448	36.5
1987	41,924.03	30,571	23,499	0.4874	24,713	8.05	3,070	35.5
1988	83,806.15	60,177	46,256	0.4799	50,121	8.26	6,065	34.5
1989	64,057.60	45,262	34,791	0.4723	38,875	8.48	4,583	33.5
1990	281,080.18	195,292	150,115	0.4644	173,127	8.71	19,881	32.5
1991	179,717.94	122,690	94,308	0.4563	112,368	8.94	12,569	31.5
1992	25,531.32	17,112	13,154	0.4480	16,207	9.18	1,766	30.5
1993	51,636.33	33,950	26,096	0.4395	33,285	9.42	3,533	29.5
1994	684,643.25	441,179	339,122	0.4307	448,218	9.67	46,339	28.5
1995	566,318.15	357,318	274,660	0.4217	376,606	9.93	37,927	27.5
1996	530,077.55	327,151	251,472	0.4125	358,117	10.19	35,133	26.5
1997	1,008,433.67	608,122	467,446	0.4031	692,253	10.46	66,158	25.5
1998	650,200.19	382,671	294,148	0.3934	453,582	10.74	42,229	24.5
1999	218,994.53	125,632	96,570	0.3835	155,274	11.03	14,083	23.5
2000	912,663.67	509,661	391,762	0.3733	657,802	11.32	58,125	22.5
2001	1,518,146.64	824,049	633,422	0.3628	1,112,446	11.62	95,768	21.5
2002	946,871.30	498,781	383,398	0.3521	705,504	11.92	59,173	20.5
2003	39,390.26	20,102	15,452	0.3411	29,847	12.24	2,439	19.5
2005	1,106,121.95	526,708	404,865	0.3183	867,175	12.89	67,272	17.5
2006	259,930.24	119,162	91,596	0.3064	207,324	13.23	15,671	16.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: D02 - Diesel Systems and Engines

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L0.5

ASL: 22

Net Salvage: -15%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2007	633,828.84	279,041	214,490	0.2943	514,413	13.58	37,886	15.5
2009	1,678,156.03	675,352	519,123	0.2690	1,410,756	14.30	98,646	13.5
2010	1,767,881.04	676,697	520,158	0.2558	1,512,905	14.68	103,077	12.5
2011	2,348,303.55	850,935	654,089	0.2422	2,046,460	15.07	135,816	11.5
2012	553,946.97	188,836	145,153	0.2279	491,886	15.48	31,778	10.5
2016	4,262,907.67	1,020,149	784,159	0.1600	4,118,185	17.42	236,379	6.5
2017	3,472,914.75	726,182	558,195	0.1398	3,435,657	18.00	190,871	5.5
2018	5,364,409.73	947,978	728,683	0.1181	5,440,388	18.62	292,190	4.5
2019	3,380,439.99	480,486	369,336	0.0950	3,518,170	19.28	182,470	3.5
2020	5,353,891.15	563,263	432,964	0.0703	5,724,011	19.99	286,382	2.5
2021	3,935,218.74	258,666	198,829	0.0439	4,326,672	20.74	208,589	1.5
2022	4,145,949.26	95,681	73,547	0.0154	4,694,295	21.56	217,747	0.5
TOTAL	51,165,265.89	16,086,066	12,364,894		46,475,161		3,024,477	

COMPOSITE ANNUAL ACCRUAL RATE 5.91%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.24

COMPOSITE AVERAGE AGE (YEARS) 12.30

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 15.99

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: D03 - Disconnect Switches

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2.5

ASL: 55

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1965	127,977.86	99,946	121,685	0.9508	6,293	12.05	522	57.5
1966	80,736.13	62,425	76,003	0.9414	4,733	12.47	379	56.5
1967	560,983.84	429,236	522,599	0.9316	38,384	12.92	2,972	55.5
1968	299,120.84	226,377	275,616	0.9214	23,505	13.38	1,757	54.5
1969	157,136.48	117,565	143,137	0.9109	14,000	13.85	1,011	53.5
1970	1,050,877.35	776,861	945,837	0.9000	105,040	14.34	7,324	52.5
1971	229,728.17	167,713	204,192	0.8888	25,536	14.85	1,720	51.5
1972	234,116.53	168,697	205,390	0.8773	28,726	15.37	1,869	50.5
1974	69,613.91	48,784	59,395	0.8532	10,219	16.46	621	48.5
1975	158,118.83	109,178	132,925	0.8407	25,193	17.02	1,480	47.5
1976	20,025.02	13,616	16,577	0.8278	3,448	17.60	196	46.5
1977	269,960.29	180,639	219,930	0.8147	50,030	18.20	2,749	45.5
1978	230,782.31	151,876	184,911	0.8012	45,871	18.80	2,439	44.5
1979	42,312.17	27,368	33,321	0.7875	8,991	19.43	463	43.5
1980	274,055.46	174,108	211,979	0.7735	62,077	20.06	3,095	42.5
1981	133,777.58	83,420	101,565	0.7592	32,213	20.70	1,556	41.5
1982	279,099.01	170,706	207,836	0.7447	71,263	21.36	3,336	40.5
1983	44,083.42	26,427	32,176	0.7299	11,908	22.03	541	39.5
1984	54,495.57	31,997	38,956	0.7149	15,539	22.71	684	38.5
1985	15,913.15	9,144	11,132	0.6996	4,781	23.40	204	37.5
1986	31,745.19	17,836	21,716	0.6841	10,030	24.10	416	36.5
1987	151,700.26	83,273	101,386	0.6683	50,314	24.81	2,028	35.5
1988	124,507.15	66,716	81,227	0.6524	43,280	25.53	1,695	34.5
1989	502,766.48	262,729	319,876	0.6362	182,891	26.26	6,965	33.5
1990	481,796.61	245,293	298,647	0.6199	183,149	27.00	6,784	32.5
1991	29,945.67	14,838	18,066	0.6033	11,880	27.75	428	31.5
1992	231,030.02	111,294	135,501	0.5865	95,529	28.50	3,351	30.5
1993	11,983.27	5,606	6,825	0.5695	5,158	29.27	176	29.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: D03 - Disconnect Switches

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 55
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1994	35,727.81	16,210	19,736	0.5524	15,992	30.05	532	28.5
1995	422,370.98	185,616	225,989	0.5350	196,382	30.83	6,370	27.5
1996	260,076.96	110,548	134,593	0.5175	125,484	31.62	3,968	26.5
1997	30,529.45	12,533	15,259	0.4998	15,271	32.42	471	25.5
1998	166,141.53	65,762	80,066	0.4819	86,075	33.23	2,590	24.5
2000	65,796.96	24,083	29,322	0.4456	36,475	34.87	1,046	22.5
2001	68,936.47	24,191	29,453	0.4273	39,483	35.70	1,106	21.5
2002	169,171.33	56,788	69,140	0.4087	100,032	36.54	2,738	20.5
2003	101,450.51	32,496	39,564	0.3900	61,886	37.38	1,655	19.5
2004	143,080.12	43,614	53,101	0.3711	89,979	38.23	2,353	18.5
2005	170,690.21	49,366	60,104	0.3521	110,587	39.09	2,829	17.5
2006	35,094.81	9,598	11,686	0.3330	23,409	39.96	586	16.5
2009	532,335.09	120,101	146,224	0.2747	386,111	42.59	9,065	13.5
2010	4,301.46	901	1,097	0.2550	3,205	43.48	74	12.5
2011	1,118,767.82	216,117	263,125	0.2352	855,643	44.38	19,282	11.5
2012	1,316,945.94	232,845	283,492	0.2153	1,033,454	45.28	22,826	10.5
2013	1,081,960.39	173,487	211,222	0.1952	870,739	46.18	18,855	9.5
2014	499,958.08	71,891	87,528	0.1751	412,430	47.09	8,758	8.5
2015	3,525,807.47	448,338	545,857	0.1548	2,979,951	48.01	62,074	7.5
2016	2,076,540.24	229,338	279,222	0.1345	1,797,318	48.93	36,736	6.5
2017	6,652,330.19	622,978	758,483	0.1140	5,893,847	49.85	118,233	5.5
2018	1,725,039.33	132,438	161,245	0.0935	1,563,794	50.78	30,797	4.5
2019	2,281,632.62	136,508	166,200	0.0728	2,115,432	51.71	40,910	3.5
2020	1,809,918.44	77,495	94,351	0.0521	1,715,568	52.65	32,587	2.5
2021	1,583,624.27	40,762	49,628	0.0313	1,533,996	53.58	28,628	1.5
2022	1,733,923.92	14,914	18,157	0.0105	1,715,766	54.53	31,466	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: D03 - Disconnect Switches

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 55
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	33,510,540.97	7,032,585	8,562,249		24,948,292		543,296	
COMPOSITE ANNUAL ACCRUAL RATE				1.62%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.26				
COMPOSITE AVERAGE AGE (YEARS)				13.58				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				43.46				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: D04 - Dykes and Liners

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L1.5

ASL: 42

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	26,479.96	18,031	27,804	1.0000	0	14.76	0	54.5
1974	142,100.00	91,236	146,299	0.9805	2,906	16.32	178	48.5
1975	213,342.87	135,579	217,405	0.9705	6,605	16.58	398	47.5
1980	53,900.59	32,472	52,070	0.9200	4,525	17.90	253	42.5
1981	213,183.92	127,002	203,652	0.9098	20,191	18.17	1,111	41.5
1982	89,895.87	52,947	84,902	0.8995	9,489	18.44	515	40.5
1983	68,476.83	39,863	63,921	0.8890	7,979	18.71	426	39.5
1985	211,511.23	120,180	192,713	0.8677	29,374	19.27	1,524	37.5
1987	118,811.80	65,791	105,499	0.8457	19,254	19.85	970	35.5
1990	264,232.48	140,219	224,845	0.8104	52,599	20.77	2,532	32.5
1992	217,059.26	111,568	178,902	0.7850	49,010	21.44	2,286	30.5
1998	39,596.79	18,014	28,887	0.6948	12,690	23.80	533	24.5
1999	134,484.01	59,635	95,627	0.6772	45,581	24.26	1,879	23.5
2002	75,888.45	30,747	49,304	0.6188	30,378	25.79	1,178	20.5
2005	16,513.92	5,957	9,552	0.5509	7,787	27.57	282	17.5
2011	478,782.72	121,937	195,529	0.3889	307,193	31.81	9,656	11.5
TOTAL	2,364,260.70	1,171,179	1,876,912		605,562		23,721	

COMPOSITE ANNUAL ACCRUAL RATE 1.00%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.79

COMPOSITE AVERAGE AGE (YEARS) 31.63

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 22.19

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: E01 - Elevators

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: S5
ASL: 45
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1971	89,800.00	84,756	89,800	1.0000	0	2.53	0	51.5
TOTAL	89,800.00	84,756	89,800		0		0	

COMPOSITE ANNUAL ACCRUAL RATE	0.00%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	1.00
COMPOSITE AVERAGE AGE (YEARS)	51.50
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	2.53

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: E02 - EMS Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: S0.5
ASL: 30
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1980	16,461.46	13,171	16,461	1.0000	0	6.00	0	42.5
1990	11,759,258.77	7,937,838	11,759,259	1.0000	0	9.75	0	32.5
1993	48,931.95	30,995	48,932	1.0000	0	11.00	0	29.5
1994	229,340.02	141,969	229,340	1.0000	0	11.43	0	28.5
1998	99,085.18	55,321	92,174	0.9303	6,911	13.25	522	24.5
1999	7,102.65	3,852	6,417	0.9035	685	13.73	50	23.5
2000	40,242.13	21,162	35,259	0.8762	4,983	14.22	350	22.5
2001	32,805.32	16,699	27,823	0.8481	4,982	14.73	338	21.5
2016	110,487.85	21,172	35,277	0.3193	75,211	24.25	3,101	6.5
2020	31,866.78	2,512	4,185	0.1313	27,682	27.64	1,002	2.5
2021	15,385.63	741	1,235	0.0803	14,150	28.55	496	1.5
TOTAL	12,390,967.74	8,245,432	12,256,363		134,604		5,859	

COMPOSITE ANNUAL ACCRUAL RATE	0.05%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.99
COMPOSITE AVERAGE AGE (YEARS)	31.95
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	10.04

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: E03 - Environmental Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 47
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	295,064.17	254,179	295,064	1.0000	0	6.51	0	54.5
1994	100,098.42	54,797	68,762	0.6869	31,336	21.27	1,473	28.5
1995	29,947.59	15,897	19,949	0.6661	9,999	22.05	453	27.5
1997	129,242.84	64,223	80,590	0.6236	48,653	23.64	2,058	25.5
2008	71,891.96	21,196	26,598	0.3700	45,294	33.14	1,367	14.5
2015	20,165.58	3,131	3,930	0.1949	16,236	39.70	409	7.5
2018	14,203.78	1,331	1,670	0.1176	12,534	42.60	294	4.5
2020	2,088.40	109	137	0.0655	1,952	44.55	44	2.5
TOTAL	662,702.74	414,864	496,700		166,003		6,098	

COMPOSITE ANNUAL ACCRUAL RATE	0.92%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.75
COMPOSITE AVERAGE AGE (YEARS)	36.69
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	17.58

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F01 - Fall Arrest Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 15

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2005	198,105.16	180,444	198,105	1.0000	0	1.34	0	17.5
2006	217,857.72	194,083	217,858	1.0000	0	1.64	0	16.5
2007	167,585.18	145,239	167,585	1.0000	0	2.00	0	15.5
2008	199,279.40	166,625	199,279	1.0000	0	2.46	0	14.5
2009	472,561.83	377,288	472,562	1.0000	0	3.02	0	13.5
2010	43,100.70	32,536	43,101	1.0000	0	3.68	0	12.5
2011	130,541.84	92,417	130,542	1.0000	0	4.38	0	11.5
2012	184,242.00	121,185	176,510	0.9580	7,732	5.13	1,506	10.5
2013	233,149.47	140,860	205,167	0.8800	27,983	5.94	4,713	9.5
2014	334,182.46	182,938	266,456	0.7973	67,727	6.79	9,976	8.5
2015	125,850.75	61,405	89,438	0.7107	36,413	7.68	4,740	7.5
2016	212,918.80	90,732	132,154	0.6207	80,765	8.61	9,383	6.5
2017	161,264.95	58,478	85,176	0.5282	76,089	9.56	7,959	5.5
2018	38,185.56	11,375	16,568	0.4339	21,618	10.53	2,053	4.5
TOTAL	2,718,825.82	1,855,604	2,400,499		318,326		40,330	

COMPOSITE ANNUAL ACCRUAL RATE 1.48%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.88

COMPOSITE AVERAGE AGE (YEARS) 11.53

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 4.76

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F02 - Fencing

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 52

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	95,307.91	78,879	95,308	1.0000	0	8.96	0	55.5
1968	43,511.68	35,664	43,512	1.0000	0	9.38	0	54.5
1969	66,173.02	53,687	66,173	1.0000	0	9.81	0	53.5
1970	117,281.68	94,135	117,282	1.0000	0	10.26	0	52.5
1971	13,312.00	10,565	13,312	1.0000	0	10.73	0	51.5
1972	65,739.16	51,554	65,739	1.0000	0	11.22	0	50.5
1973	24,667.06	19,104	24,667	1.0000	0	11.73	0	49.5
1974	51,949.96	39,711	51,950	1.0000	0	12.25	0	48.5
1975	11,288.90	8,512	11,289	1.0000	0	12.79	0	47.5
1976	59,296.08	44,069	59,296	1.0000	0	13.35	0	46.5
1977	19,241.61	14,087	19,206	0.9982	35	13.93	3	45.5
1978	145,749.97	105,038	143,211	0.9826	2,539	14.53	175	44.5
1979	18,281.62	12,960	17,670	0.9666	611	15.14	40	43.5
1980	274,156.08	191,055	260,488	0.9501	13,668	15.76	867	42.5
1981	84,283.34	57,696	78,663	0.9333	5,620	16.40	343	41.5
1982	189,624.32	127,412	173,716	0.9161	15,909	17.06	932	40.5
1983	282,397.46	186,104	253,738	0.8985	28,659	17.73	1,616	39.5
1984	85,097.82	54,960	74,934	0.8806	10,164	18.42	552	38.5
1985	245,056.33	154,978	211,300	0.8622	33,757	19.11	1,766	37.5
1986	25,867.46	16,005	21,822	0.8436	4,046	19.83	204	36.5
1987	180,106.17	108,934	148,523	0.8246	31,584	20.55	1,537	35.5
1988	75,843.42	44,800	61,081	0.8054	14,762	21.28	694	34.5
1989	182,675.48	105,281	143,542	0.7858	39,133	22.03	1,776	33.5
1990	112,235.72	63,048	85,961	0.7659	26,275	22.79	1,153	32.5
1991	137,599.47	75,261	102,613	0.7457	34,987	23.56	1,485	31.5
1992	122,833.27	65,343	89,090	0.7253	33,744	24.34	1,386	30.5
1993	43,943.39	22,709	30,961	0.7046	12,982	25.13	517	29.5
1994	83,857.05	42,044	57,324	0.6836	26,533	25.93	1,023	28.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F02 - Fencing

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 52

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1995	82,864.39	40,255	54,885	0.6623	27,980	26.74	1,046	27.5
1996	45,009.81	21,156	28,844	0.6408	16,166	27.56	587	26.5
1997	57,176.21	25,962	35,397	0.6191	21,779	28.39	767	25.5
1998	133,014.01	58,251	79,420	0.5971	53,594	29.23	1,834	24.5
1999	43,860.85	18,492	25,213	0.5748	18,648	30.08	620	23.5
2000	52,825.13	21,401	29,178	0.5524	23,647	30.93	764	22.5
2001	163,588.29	63,550	86,645	0.5297	76,944	31.80	2,420	21.5
2002	50,286.59	18,689	25,481	0.5067	24,805	32.67	759	20.5
2003	1,015,869.57	360,308	491,250	0.4836	524,619	33.56	15,634	19.5
2004	32,448.49	10,953	14,933	0.4602	17,515	34.45	508	18.5
2005	116,002.80	37,152	50,654	0.4367	65,349	35.35	1,849	17.5
2006	5,454.01	1,652	2,252	0.4129	3,202	36.25	88	16.5
2008	58,461.93	15,644	21,330	0.3648	37,132	38.08	975	14.5
2009	255,773.00	63,887	87,105	0.3406	168,668	39.01	4,324	13.5
2011	813,892.56	174,001	237,236	0.2915	576,657	40.88	14,105	11.5
2012	293,238.42	57,365	78,213	0.2667	215,025	41.83	5,141	10.5
2013	103,092.98	18,285	24,930	0.2418	78,163	42.78	1,827	9.5
2014	370,645.31	58,936	80,354	0.2168	290,291	43.73	6,638	8.5
2015	893,720.95	125,624	171,278	0.1916	722,443	44.69	16,165	7.5
2016	334,727.85	40,848	55,694	0.1664	279,034	45.65	6,112	6.5
2017	181,718.14	18,795	25,626	0.1410	156,092	46.62	3,348	5.5
2018	525,078.65	44,504	60,678	0.1156	464,401	47.59	9,758	4.5
2019	976,649.43	64,476	87,908	0.0900	888,741	48.57	18,299	3.5
2020	561,634.45	26,520	36,158	0.0644	525,476	49.54	10,606	2.5
2021	676,542.23	19,192	26,167	0.0387	650,376	50.52	12,872	1.5
2022	587,477.35	5,562	7,583	0.0129	579,895	51.51	11,258	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F02 - Fencing

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 52
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	11,288,430.83	3,295,054	4,446,780		6,841,651		164,373	
COMPOSITE ANNUAL ACCRUAL RATE				1.46%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.39				
COMPOSITE AVERAGE AGE (YEARS)				16.94				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				36.82				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F03 - Fire Fighting Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 50

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	597,273.05	535,353	597,273	1.0000	0	5.18	0	55.5
1968	39,688.85	35,308	39,689	1.0000	0	5.52	0	54.5
1969	101,232.00	89,337	101,232	1.0000	0	5.88	0	53.5
1970	9,203.91	8,053	9,204	1.0000	0	6.25	0	52.5
1971	281,955.00	244,402	281,955	1.0000	0	6.66	0	51.5
1973	19,520.50	16,570	19,521	1.0000	0	7.56	0	49.5
1975	10,000.43	8,283	10,000	1.0000	0	8.59	0	47.5
1976	58,348.31	47,673	58,348	1.0000	0	9.15	0	46.5
1977	1,742.00	1,403	1,728	0.9919	14	9.74	1	45.5
1978	51,831.00	41,090	50,621	0.9766	1,210	10.36	117	44.5
1979	115,181.72	89,829	110,664	0.9608	4,518	11.01	410	43.5
1980	214,201.74	164,212	202,301	0.9444	11,901	11.67	1,020	42.5
1981	9,401.89	7,080	8,722	0.9277	680	12.35	55	41.5
1982	406,897.98	300,785	370,552	0.9107	36,346	13.04	2,787	40.5
1983	94,525.01	68,540	84,438	0.8933	10,087	13.74	734	39.5
1984	583,752.17	414,876	511,106	0.8756	72,646	14.46	5,022	38.5
1985	185,991.75	129,453	159,479	0.8575	26,512	15.20	1,744	37.5
1986	133,978.89	91,243	112,406	0.8390	21,572	15.95	1,353	36.5
1987	54,549.04	36,315	44,738	0.8201	9,811	16.71	587	35.5
1988	217,479.69	141,391	174,186	0.8009	43,294	17.49	2,475	34.5
1989	762,666.44	483,710	595,905	0.7813	166,761	18.29	9,118	33.5
1990	28,819.90	17,812	21,943	0.7614	6,877	19.10	360	32.5
1995	24,518.16	13,065	16,096	0.6565	8,423	23.36	361	27.5
1997	133,035.40	66,127	81,465	0.6124	51,570	25.15	2,051	25.5
1998	68,518.74	32,809	40,419	0.5899	28,099	26.06	1,078	24.5
1999	66,592.60	30,660	37,772	0.5672	28,821	26.98	1,068	23.5
2001	216,064.47	91,403	112,603	0.5212	103,461	28.85	3,586	21.5
2002	629,240.42	254,281	313,262	0.4978	315,979	29.79	10,605	20.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F03 - Fire Fighting Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 50

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2003	628,607.36	242,042	298,183	0.4744	330,424	30.75	10,746	19.5
2005	55,241.78	19,144	23,585	0.4269	31,657	32.67	969	17.5
2008	238,692.84	68,766	84,716	0.3549	153,977	35.60	4,326	14.5
2009	1,916,574.45	514,518	633,860	0.3307	1,282,715	36.58	35,069	13.5
2010	3,646.74	907	1,118	0.3065	2,529	37.56	67	12.5
2011	5,201.72	1,191	1,468	0.2821	3,734	38.55	97	11.5
2012	578,640.32	121,064	149,144	0.2577	429,496	39.54	10,863	10.5
2013	558,076.76	105,695	130,211	0.2333	427,866	40.53	10,557	9.5
2014	951,159.22	161,250	198,652	0.2089	752,508	41.52	18,122	8.5
2015	3,120,060.69	466,893	575,188	0.1844	2,544,873	42.52	59,854	7.5
2016	1,685,189.99	218,624	269,333	0.1598	1,415,857	43.51	32,538	6.5
2017	426,750.63	46,859	57,728	0.1353	369,023	44.51	8,291	5.5
2018	523,996.03	47,087	58,008	0.1107	465,988	45.51	10,240	4.5
2019	1,332,685.03	93,162	114,770	0.0861	1,217,915	46.50	26,189	3.5
2020	903,012.65	45,096	55,556	0.0615	847,456	47.50	17,840	2.5
2021	2,898,755.03	86,866	107,014	0.0369	2,791,741	48.50	57,560	1.5
2022	104,276.81	1,041	1,283	0.0123	102,994	49.50	2,081	0.5
TOTAL	21,046,779.11	5,701,269	6,927,445		14,119,334		349,941	

COMPOSITE ANNUAL ACCRUAL RATE 1.66%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.33

COMPOSITE AVERAGE AGE (YEARS) 14.47

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 36.46

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F04 - Footings and Foundations

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 65

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1965	167,301.40	123,420	130,757	0.7816	36,545	17.05	2,144	57.5
1967	1,719,827.85	1,237,465	1,311,021	0.7623	408,807	18.23	22,424	55.5
1968	869,009.54	617,118	653,800	0.7524	215,210	18.84	11,422	54.5
1970	411,370.34	284,159	301,050	0.7318	110,320	20.10	5,488	52.5
1972	10,365.30	6,951	7,365	0.7105	3,001	21.41	140	50.5
1973	14,582.27	9,629	10,201	0.6996	4,381	22.08	198	49.5
1974	68,284.09	44,373	47,010	0.6884	21,274	22.76	935	48.5
1975	108,441.06	69,313	73,433	0.6772	35,009	23.45	1,493	47.5
1976	103,617.37	65,107	68,977	0.6657	34,640	24.16	1,434	46.5
1977	1,196,362.77	738,609	782,513	0.6541	413,850	24.87	16,640	45.5
1978	1,106,583.24	670,854	710,730	0.6423	395,854	25.59	15,466	44.5
1979	71,498.13	42,539	45,068	0.6303	26,430	26.33	1,004	43.5
1980	540,108.76	315,177	333,911	0.6182	206,197	27.07	7,617	42.5
1981	299,457.16	171,286	181,467	0.6060	117,990	27.82	4,241	41.5
1982	464,006.19	259,976	275,429	0.5936	188,577	28.58	6,598	40.5
1983	766,192.98	420,222	445,201	0.5811	320,992	29.35	10,937	39.5
1984	7,817.94	4,194	4,444	0.5684	3,374	30.13	112	38.5
1985	25,845.64	13,553	14,359	0.5556	11,487	30.91	372	37.5
1986	47,648.73	24,405	25,855	0.5426	21,793	31.71	687	36.5
1987	307,062.57	153,479	162,602	0.5295	144,461	32.51	4,443	35.5
1988	115,812.71	56,443	59,798	0.5163	56,014	33.32	1,681	34.5
1989	340,873.18	161,837	171,457	0.5030	169,417	34.14	4,962	33.5
1990	1,312,152.51	606,311	642,350	0.4895	669,802	34.97	19,156	32.5
1991	1,012,711.49	454,952	481,994	0.4759	530,717	35.80	14,825	31.5
1992	625,878.29	273,076	289,308	0.4622	336,570	36.64	9,186	30.5
1993	72,313.77	30,607	32,426	0.4484	39,887	37.49	1,064	29.5
1994	5,426.96	2,226	2,358	0.4345	3,069	38.34	80	28.5
1995	463,012.64	183,734	194,655	0.4204	268,357	39.21	6,845	27.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F04 - Footings and Foundations

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 65

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1996	148,954.64	57,116	60,511	0.4062	88,443	40.08	2,207	26.5
1998	114,131.79	40,675	43,093	0.3776	71,039	41.83	1,698	24.5
1999	65,572.18	22,472	23,808	0.3631	41,764	42.72	978	23.5
2000	30,492.18	10,030	10,626	0.3485	19,866	43.62	455	22.5
2001	33,856.28	10,667	11,301	0.3338	22,555	44.52	507	21.5
2002	2,508,038.49	755,169	800,057	0.3190	1,707,981	45.43	37,597	20.5
2003	1,044,934.04	299,955	317,785	0.3041	727,149	46.34	15,691	19.5
2004	9,714.31	2,651	2,809	0.2891	6,906	47.26	146	18.5
2008	29,323.54	6,322	6,698	0.2284	22,626	50.99	444	14.5
2011	40,587.70	6,976	7,390	0.1821	33,197	53.83	617	11.5
2012	22,681.06	3,565	3,777	0.1665	18,904	54.78	345	10.5
2014	657,961.14	83,959	88,949	0.1352	569,012	56.71	10,034	8.5
2015	2,835,132.12	319,640	338,640	0.1194	2,496,492	57.67	43,288	7.5
2016	1,774,272.95	173,593	183,911	0.1037	1,590,362	58.64	27,121	6.5
2017	134,760,304.82	11,169,701	11,833,638	0.0878	122,926,667	59.61	2,062,098	5.5
2018	14,830,601.85	1,006,936	1,066,790	0.0719	13,763,812	60.59	227,175	4.5
2019	1,492,387.57	78,894	83,584	0.0560	1,408,804	61.56	22,884	3.5
2020	5,695,527.33	215,292	228,089	0.0400	5,467,438	62.54	87,419	2.5
2021	1,257,961.60	28,558	30,255	0.0241	1,227,707	63.52	19,327	1.5
2022	552,473.28	4,184	4,433	0.0080	548,041	64.51	8,496	0.5
TOTAL	180,158,473.75	21,337,369	22,605,681		157,552,792		2,740,121	

COMPOSITE ANNUAL ACCRUAL RATE 1.52%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.13

COMPOSITE AVERAGE AGE (YEARS) 8.15

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 57.30

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F06 - Fuel Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R0.5

ASL: 50

Net Salvage: -15%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1956	11,785.53	9,689	13,553	1.0000	0	14.26	0	66.5
1966	63,086.31	45,607	72,549	1.0000	0	18.57	0	56.5
1968	696,771.37	489,134	801,287	1.0000	0	19.48	0	54.5
1969	757,540.47	523,754	871,172	1.0000	0	19.94	0	53.5
1970	800.00	545	908	0.9873	12	20.41	1	52.5
1971	87,288.00	58,470	97,526	0.9716	2,855	20.88	137	51.5
1973	3,244.42	2,102	3,506	0.9397	225	21.83	10	49.5
1974	290,612.82	185,051	308,660	0.9236	25,545	22.31	1,145	48.5
1975	44,415.90	27,783	46,341	0.9073	4,737	22.80	208	47.5
1976	212,487.00	130,503	217,676	0.8908	26,684	23.30	1,145	46.5
1977	16,590.50	9,999	16,679	0.8742	2,400	23.79	101	45.5
1980	179,972.65	102,172	170,419	0.8234	36,549	25.32	1,444	42.5
1981	426,424.65	237,018	395,338	0.8062	95,050	25.83	3,679	41.5
1983	17,194.91	9,143	15,251	0.7713	4,523	26.88	168	39.5
1985	194,065.86	98,444	164,201	0.7357	58,975	27.94	2,110	37.5
1986	1,552.79	768	1,282	0.7178	504	28.48	18	36.5
1987	456,056.70	219,998	366,950	0.6997	157,515	29.03	5,427	35.5
1988	13,928.85	6,544	10,915	0.6814	5,103	29.57	173	34.5
1989	277,627.18	126,915	211,689	0.6630	107,582	30.12	3,571	33.5
1990	548,755.75	243,855	406,743	0.6445	224,326	30.68	7,312	32.5
1991	337,553.41	145,665	242,964	0.6259	145,222	31.24	4,649	31.5
1992	622,357.53	260,519	434,537	0.6071	281,174	31.80	8,842	30.5
1993	220,182.46	89,304	148,956	0.5883	104,254	32.37	3,221	29.5
1994	320,472.78	125,786	209,808	0.5693	158,736	32.93	4,820	28.5
1995	214,158.39	81,239	135,505	0.5502	110,777	33.51	3,306	27.5
1996	403,902.53	147,874	246,650	0.5310	217,838	34.08	6,392	26.5
1997	88,020.10	31,055	51,799	0.5117	49,424	34.66	1,426	25.5
1998	83,733.99	28,425	47,411	0.4924	48,883	35.24	1,387	24.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F06 - Fuel Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R0.5

ASL: 50

Net Salvage: -15%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1999	409,473.61	133,509	222,689	0.4729	248,205	35.82	6,928	23.5
2000	244,674.28	76,481	127,569	0.4534	153,807	36.41	4,224	22.5
2001	673,520.39	201,429	335,977	0.4338	438,572	37.00	11,854	21.5
2002	244,451.48	69,793	116,412	0.4141	164,707	37.59	4,382	20.5
2003	260,955.23	70,955	118,350	0.3944	181,748	38.18	4,761	19.5
2005	704,855.55	172,396	287,551	0.3547	523,033	39.37	13,286	17.5
2006	545,970.78	126,050	210,248	0.3349	417,619	39.96	10,450	16.5
2007	2,548,479.38	553,359	922,985	0.3149	2,007,766	40.56	49,502	15.5
2008	315,847.99	64,232	107,137	0.2950	256,088	41.16	6,222	14.5
2009	386,574.70	73,281	122,231	0.2749	322,330	41.76	7,719	13.5
2010	535,159.47	94,048	156,869	0.2549	458,564	42.36	10,826	12.5
2011	1,403,255.20	227,160	378,895	0.2348	1,234,849	42.96	28,743	11.5
2012	584,023.35	86,430	144,162	0.2146	527,464	43.57	12,107	10.5
2013	31,276.17	4,193	6,994	0.1945	28,974	44.17	656	9.5
2014	1,217,139.73	146,192	243,844	0.1742	1,155,867	44.78	25,813	8.5
2015	8,778,369.04	931,554	1,553,801	0.1539	8,541,323	45.39	188,192	7.5
2016	1,045,555.76	96,286	160,603	0.1336	1,041,787	46.00	22,649	6.5
2017	1,124,888.59	87,771	146,398	0.1132	1,147,223	46.61	24,615	5.5
2018	1,975,593.01	126,286	210,640	0.0927	2,061,291	47.22	43,652	4.5
2019	11,645,307.89	579,719	966,952	0.0722	12,425,152	47.84	259,747	3.5
2020	1,707,444.22	60,786	101,388	0.0516	1,862,172	48.45	38,433	2.5
2021	860,672.33	18,401	30,692	0.0310	959,082	49.07	19,545	1.5
2022	1,484,514.46	10,566	17,624	0.0103	1,689,567	49.69	34,002	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: F06 - Fuel Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R0.5
ASL: 50
Net Salvage: -15%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	45,318,585.46	7,448,239	12,400,285		39,716,088		889,000	
COMPOSITE ANNUAL ACCRUAL RATE				1.96%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.27				
COMPOSITE AVERAGE AGE (YEARS)				11.97				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				42.85				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G01 - Gas Turbine Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 45

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	995,759.29	917,527	1,045,547	1.0000	0	5.51	0	54.5
1974	4,702,934.93	4,107,449	4,938,082	1.0000	0	7.57	0	48.5
1975	5,533,423.01	4,780,243	5,810,094	1.0000	0	7.98	0	47.5
1977	384,018.97	323,905	403,220	1.0000	0	8.85	0	45.5
1981	210,609.85	167,791	211,317	0.9556	9,823	10.86	905	41.5
1989	83,605.00	56,940	71,711	0.8169	16,075	15.81	1,017	33.5
1992	11,555,708.90	7,295,074	9,187,476	0.7572	2,946,018	17.94	164,174	30.5
1997	542,777.26	294,221	370,544	0.6502	199,372	21.77	9,159	25.5
1999	9,087.69	4,584	5,773	0.6050	3,769	23.38	161	23.5
2001	61,837.92	28,796	36,266	0.5585	28,663	25.04	1,145	21.5
2009	129,634.16	39,073	49,208	0.3615	86,907	32.08	2,709	13.5
2011	222,865.40	57,566	72,499	0.3098	161,510	33.93	4,760	11.5
2012	376,344.00	89,003	112,091	0.2837	283,070	34.86	8,119	10.5
2013	7,810,787.00	1,675,668	2,110,351	0.2573	6,090,976	35.81	170,112	9.5
2014	2,091,471.80	402,449	506,847	0.2308	1,689,198	36.75	45,960	8.5
2015	31,296,157.29	5,325,880	6,707,458	0.2041	26,153,508	37.71	693,604	7.5
2016	2,788,245.90	412,119	519,026	0.1773	2,408,632	38.67	62,294	6.5
2017	4,064,011.37	509,304	641,421	0.1503	3,625,791	39.63	91,493	5.5
2018	671,661.04	69,000	86,899	0.1232	618,345	40.60	15,231	4.5
2019	1,639,831.89	131,251	165,298	0.0960	1,556,525	41.57	37,444	3.5
2020	2,063,834.97	118,180	148,837	0.0687	2,018,189	42.55	47,436	2.5
2022	1,260,646.87	14,478	18,234	0.0138	1,305,445	44.51	29,331	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G01 - Gas Turbine Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 45
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	78,495,254.51	26,820,500	33,218,199		49,201,818		1,385,054	
COMPOSITE ANNUAL ACCRUAL RATE				1.76%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.42				
COMPOSITE AVERAGE AGE (YEARS)				16.97				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				30.36				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G02 - Gates

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 80

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	1,920,917.43	1,273,230	862,883	0.4492	1,058,035	26.97	39,224	56.5
1967	1,036,488.15	676,905	458,746	0.4426	577,742	27.75	20,817	55.5
1970	396,402.00	247,008	167,400	0.4223	229,002	30.15	7,595	52.5
1978	267,693.00	144,122	97,673	0.3649	170,020	36.93	4,604	44.5
1979	1,003,356.90	529,106	358,581	0.3574	644,776	37.81	17,052	43.5
1980	1,051,492.17	542,781	367,849	0.3498	683,643	38.70	17,663	42.5
1982	4,123,249.27	2,035,471	1,379,463	0.3346	2,743,787	40.51	67,735	40.5
1983	1,976,506.08	953,198	645,993	0.3268	1,330,513	41.42	32,123	39.5
1984	1,120,133.00	527,356	357,395	0.3191	762,738	42.34	18,016	38.5
1985	185,213.00	85,060	57,646	0.3112	127,567	43.26	2,949	37.5
1986	139,462.75	62,428	42,308	0.3034	97,154	44.19	2,199	36.5
1988	1,013,797.43	430,063	291,459	0.2875	722,339	46.06	15,681	34.5
1989	180,329.65	74,369	50,401	0.2795	129,929	47.01	2,764	33.5
2004	439,111.41	101,104	68,520	0.1560	370,592	61.58	6,018	18.5
2012	32,000.00	4,191	2,840	0.0888	29,160	69.52	419	10.5
2013	1,915,230.70	227,002	153,842	0.0803	1,761,389	70.52	24,978	9.5
2014	321,648.04	34,116	23,121	0.0719	298,527	71.51	4,174	8.5
2015	1,417,520.75	132,681	89,920	0.0634	1,327,601	72.51	18,309	7.5
2016	501,510.82	40,688	27,575	0.0550	473,936	73.51	6,447	6.5
2017	646,670.01	44,399	30,090	0.0465	616,580	74.51	8,275	5.5
2019	1,305,370.11	57,043	38,659	0.0296	1,266,711	76.50	16,557	3.5
2022	3,872,166.00	24,162	16,375	0.0042	3,855,791	79.50	48,500	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G02 - Gates

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 80
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	24,866,268.67	8,246,482	5,588,738		19,277,531		382,099	
COMPOSITE ANNUAL ACCRUAL RATE				1.54%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.22				
COMPOSITE AVERAGE AGE (YEARS)				27.41				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				53.47				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G03 - Generators, Windings, and Powerhouse

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2.5

ASL: 65

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	6,329,309.05	4,610,123	4,168,021	0.6272	2,477,754	19.91	124,448	56.5
1967	12,160,961.52	8,744,718	7,906,116	0.6192	4,862,894	20.49	237,383	55.5
1968	5,528,661.06	3,923,188	3,546,961	0.6110	2,258,133	21.07	107,164	54.5
1969	2,559,462.56	1,791,473	1,619,674	0.6027	1,067,761	21.67	49,273	53.5
1970	6,251,549.67	4,314,185	3,900,462	0.5942	2,663,665	22.28	119,556	52.5
1971	5,179,007.62	3,522,125	3,184,360	0.5856	2,253,598	22.90	98,410	51.5
1976	5,000.00	3,137	2,837	0.5403	2,413	26.16	92	46.5
1977	3,062,477.20	1,888,032	1,706,973	0.5308	1,508,628	26.84	56,218	45.5
1978	1,353,391.53	819,290	740,721	0.5212	680,340	27.53	24,717	44.5
1979	7,322,427.27	4,350,196	3,933,020	0.5115	3,755,529	28.22	133,067	43.5
1980	11,712,856.85	6,824,715	6,170,237	0.5017	6,128,262	28.93	211,830	42.5
1981	242,625.77	138,569	125,280	0.4918	129,477	29.64	4,368	41.5
1982	18,225,398.44	10,195,850	9,218,087	0.4817	9,918,582	30.37	326,607	40.5
1983	4,744,842.91	2,598,348	2,349,171	0.4715	2,632,914	31.10	84,660	39.5
1984	11,984,557.83	6,419,761	5,804,118	0.4612	6,779,668	31.84	212,933	38.5
1985	15,229,484.31	7,974,105	7,209,403	0.4508	8,781,555	32.59	269,481	37.5
1986	10,005.17	5,117	4,626	0.4403	5,879	33.34	176	36.5
1987	219,450.45	109,524	99,021	0.4297	131,402	34.10	3,853	35.5
1988	1,569,243.32	763,679	690,444	0.4190	957,262	34.87	27,449	34.5
1989	2,272,753.27	1,077,501	974,171	0.4082	1,412,220	35.65	39,612	33.5
1990	195,547.90	90,233	81,580	0.3973	123,746	36.43	3,396	32.5
1991	10,918.56	4,899	4,429	0.3863	7,036	37.23	189	31.5
1992	5,080,397.01	2,213,828	2,001,526	0.3752	3,332,891	38.02	87,651	30.5
1993	2,707,655.42	1,144,664	1,034,893	0.3640	1,808,145	38.83	46,566	29.5
1994	44,880.61	18,385	16,622	0.3527	30,503	39.64	769	28.5
1995	148,263.24	58,776	53,139	0.3413	102,537	40.46	2,534	27.5
1997	7,274.98	2,689	2,432	0.3183	5,207	42.11	124	25.5
1998	5,168.32	1,841	1,664	0.3067	3,762	42.95	88	24.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G03 - Generators, Windings, and Powerhouse

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2.5

ASL: 65

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1999	165,900.34	56,830	51,380	0.2950	122,815	43.79	2,804	23.5
2000	107,638.74	35,396	32,002	0.2831	81,019	44.64	1,815	22.5
2001	97,014.30	30,563	27,632	0.2713	74,233	45.50	1,632	21.5
2002	36,867.35	11,102	10,038	0.2593	28,673	46.36	619	20.5
2003	30,719,166.00	8,821,332	7,975,382	0.2473	24,279,742	47.22	514,146	19.5
2006	83,289.00	20,380	18,426	0.2107	69,028	49.85	1,385	16.5
2008	150,260.04	32,453	29,341	0.1860	128,432	51.63	2,488	14.5
2009	234,765.50	47,308	42,771	0.1735	203,732	52.53	3,879	13.5
2010	6,387,316.83	1,194,239	1,079,714	0.1610	5,626,969	53.43	105,323	12.5
2011	171,953.71	29,638	26,795	0.1484	153,756	54.33	2,830	11.5
2012	1,217,209.94	191,929	173,524	0.1358	1,104,547	55.24	19,996	10.5
2013	11,301,713.82	1,615,384	1,460,471	0.1231	10,406,328	56.15	185,325	9.5
2014	5,715,214.44	732,273	662,049	0.1103	5,338,926	57.07	93,553	8.5
2015	32,997,812.49	3,737,144	3,378,759	0.0975	31,268,944	57.99	539,222	7.5
2016	10,409,854.07	1,023,598	925,437	0.0847	10,004,910	58.91	169,825	6.5
2017	3,559,429.65	296,646	268,198	0.0718	3,469,203	59.84	57,974	5.5
2018	3,058,415.91	208,902	188,869	0.0588	3,022,468	60.77	49,735	4.5
2019	3,171,769.97	168,769	152,585	0.0458	3,177,774	61.71	51,499	3.5
2020	1,325,714.52	50,469	45,629	0.0328	1,346,371	62.64	21,493	2.5
2021	18,119,217.19	414,531	374,778	0.0197	18,650,400	63.58	293,320	1.5
2022	7,362,520.38	56,264	50,868	0.0066	7,679,778	64.53	119,017	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G03 - Generators, Windings, and Powerhouse

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 65
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	260,556,616.03	92,384,101	83,524,636		190,059,811		4,510,494	
COMPOSITE ANNUAL ACCRUAL RATE				1.73%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.32				
COMPOSITE AVERAGE AGE (YEARS)				25.69				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				43.05				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G05 - Glycol Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: S3
ASL: 40
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1974	83,699.00	76,420	87,884	1.0000	0	5.22	0	48.5
1989	9,270.24	7,098	8,614	0.8849	1,120	10.83	103	33.5
1992	437,684.30	315,689	383,118	0.8336	76,450	12.52	6,105	30.5
2022	48,607.24	638	774	0.0152	50,263	39.50	1,272	0.5
TOTAL	579,260.78	399,845	480,390		127,834		7,480	

COMPOSITE ANNUAL ACCRUAL RATE	1.29%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.83
COMPOSITE AVERAGE AGE (YEARS)	30.63
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	13.70

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G06 - Govenors

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S4

ASL: 45

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	62,233.00	63,238	50,133	0.7323	18,324	3.43	5,342	55.5
1968	77,729.00	78,598	62,309	0.7287	23,193	3.63	6,383	54.5
1970	63,822.00	63,851	50,618	0.7210	19,586	4.07	4,809	52.5
1971	77,729.00	77,308	61,286	0.7168	24,216	4.31	5,615	51.5
1977	143,225.00	136,132	107,920	0.6850	49,628	6.12	8,113	45.5
1980	251,003.31	231,191	183,278	0.6638	92,826	7.32	12,681	42.5
1982	2,305,849.08	2,070,637	1,641,513	0.6472	894,921	8.26	108,293	40.5
1985	1,422,117.29	1,219,220	966,546	0.6179	597,783	9.93	60,215	37.5
1996	11,438.67	7,367	5,840	0.4641	6,743	18.65	361	26.5
2002	594,634.45	297,851	236,124	0.3610	417,974	24.51	17,054	20.5
2003	623,150.91	296,965	235,421	0.3434	450,045	25.50	17,646	19.5
2006	912,512.80	368,037	291,764	0.2907	712,000	28.50	24,982	16.5
2009	1,295,214.64	427,420	338,841	0.2378	1,085,895	31.50	34,473	13.5
TOTAL	7,840,659.15	5,337,813	4,231,592		4,393,133		305,967	

COMPOSITE ANNUAL ACCRUAL RATE 3.90%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.54

COMPOSITE AVERAGE AGE (YEARS) 30.12

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 17.15

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G07 - Ground Wire System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 60

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	2,823.94	2,442	2,502	0.8437	463	10.58	44	56.5
1967	181,215.81	154,906	158,672	0.8339	31,605	11.15	2,834	55.5
1968	94,918.28	80,145	82,094	0.8237	17,571	11.75	1,495	54.5
1970	172,220.16	141,614	145,056	0.8022	35,775	13.01	2,749	52.5
1971	53,073.00	43,031	44,077	0.7910	11,649	13.67	852	51.5
1972	116,343.88	92,964	95,224	0.7795	26,937	14.34	1,878	50.5
1974	221,600.40	171,728	175,903	0.7560	56,778	15.72	3,612	48.5
1975	47,892.56	36,523	37,411	0.7439	12,877	16.42	784	47.5
1976	4,623.64	3,468	3,552	0.7317	1,303	17.14	76	46.5
1977	42,386.13	31,250	32,010	0.7192	12,496	17.87	699	45.5
1978	194,158.25	140,627	144,045	0.7066	59,821	18.61	3,214	44.5
1979	76,455.67	54,366	55,687	0.6937	24,591	19.37	1,270	43.5
1980	369,454.09	257,752	264,018	0.6806	123,909	20.13	6,154	42.5
1981	72,125.46	49,335	50,534	0.6673	25,198	20.91	1,205	41.5
1982	346,989.02	232,530	238,182	0.6537	126,156	21.71	5,812	40.5
1983	352,232.23	231,085	236,702	0.6400	133,142	22.51	5,915	39.5
1985	455,703.00	285,837	292,785	0.6119	185,703	24.16	7,687	37.5
1986	29,607.81	18,136	18,577	0.5975	12,512	25.00	501	36.5
1987	144,022.64	86,071	88,163	0.5830	63,060	25.85	2,439	35.5
1988	44,015.48	25,640	26,263	0.5683	19,953	26.71	747	34.5
1989	283,026.53	160,541	164,443	0.5533	132,735	27.59	4,812	33.5
1990	468,797.25	258,664	264,952	0.5383	227,285	28.47	7,983	32.5
1991	520,887.35	279,258	286,046	0.5230	260,885	29.36	8,884	31.5
1992	215,011.55	111,876	114,596	0.5076	111,166	30.27	3,673	30.5
1993	11,320.04	5,710	5,848	0.4920	6,038	31.18	194	29.5
1994	5,612.73	2,741	2,807	0.4763	3,086	32.10	96	28.5
1995	415,398.75	196,091	200,858	0.4605	235,311	33.03	7,125	27.5
1996	142,553.83	64,962	66,541	0.4445	83,141	33.96	2,448	26.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G07 - Ground Wire System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 60

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1997	27,653.81	12,146	12,442	0.4285	16,595	34.90	475	25.5
2000	109,199.72	42,500	43,533	0.3797	71,127	37.76	1,884	22.5
2001	353,363.79	131,571	134,769	0.3632	236,263	38.72	6,101	21.5
2002	63,869.83	22,700	23,251	0.3467	43,812	39.69	1,104	20.5
2003	408,552.10	138,254	141,615	0.3301	287,365	40.66	7,067	19.5
2004	9,440.40	3,034	3,107	0.3135	6,805	41.64	163	18.5
2005	19,932.54	6,064	6,211	0.2968	14,718	42.62	345	17.5
2006	52,327.25	15,020	15,385	0.2800	39,559	43.60	907	16.5
2008	1,052,859.55	265,914	272,378	0.2464	833,124	45.57	18,283	14.5
2009	174,838.48	41,134	42,134	0.2295	141,446	46.56	3,038	13.5
2010	267,722.45	58,349	59,768	0.2126	221,341	47.55	4,655	12.5
2011	277,276.56	55,621	56,973	0.1957	234,168	48.54	4,824	11.5
2012	620,698.87	113,726	116,490	0.1787	535,244	49.53	10,806	10.5
2013	642,861.66	106,604	109,196	0.1618	565,809	50.52	11,199	9.5
2014	541,315.19	80,340	82,293	0.1448	486,088	51.52	9,435	8.5
2015	630,814.55	82,630	84,638	0.1278	577,717	52.51	11,001	7.5
2016	54,927.50	6,237	6,389	0.1108	51,285	53.51	958	6.5
2017	8,930,393.76	858,203	879,064	0.0937	8,497,849	54.51	155,899	5.5
2018	1,994,350.68	156,835	160,647	0.0767	1,933,421	55.51	34,832	4.5
2019	2,236,541.43	136,815	140,141	0.0597	2,208,228	56.50	39,081	3.5
2020	4,524,562.48	197,720	202,526	0.0426	4,548,264	57.50	79,096	2.5
2021	156,839.15	4,112	4,212	0.0256	160,469	58.50	2,743	1.5
2022	1,732,111.26	15,134	15,502	0.0085	1,803,214	59.50	30,306	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: G07 - Ground Wire System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 60
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	29,966,922.49	5,769,956	5,910,212		25,555,057		519,384	
COMPOSITE ANNUAL ACCRUAL RATE				1.73%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.20				
COMPOSITE AVERAGE AGE (YEARS)				11.39				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				49.00				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: I02 - Instrumentation

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L0.5

ASL: 25

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	1,270,122.22	929,787	1,270,122	1.0000	0	6.70	0	54.5
1969	533,320.62	387,502	533,321	1.0000	0	6.84	0	53.5
1971	1,562,828.30	1,117,379	1,562,828	1.0000	0	7.13	0	51.5
1979	25,332.75	16,713	25,333	1.0000	0	8.51	0	43.5
1987	19,531.16	11,542	18,203	0.9320	1,328	10.23	130	35.5
1990	518,407.16	291,120	459,147	0.8857	59,261	10.96	5,407	32.5
1994	104,218.77	54,110	85,340	0.8189	18,879	12.02	1,571	28.5
1999	356,341.34	164,150	258,892	0.7265	97,449	13.48	7,227	23.5
2002	18,448.05	7,790	12,287	0.6660	6,161	14.44	427	20.5
2005	47,283.46	18,028	28,433	0.6013	18,851	15.47	1,219	17.5
2006	497,358.78	182,516	287,858	0.5788	209,500	15.83	13,238	16.5
2012	45,371.19	12,307	19,411	0.4278	25,960	18.22	1,425	10.5
2016	992,067.84	186,299	293,826	0.2962	698,242	20.31	34,387	6.5
2017	615,820.09	100,677	158,784	0.2578	457,036	20.91	21,854	5.5
2018	232,783.74	32,055	50,556	0.2172	182,228	21.56	8,453	4.5
2020	838,346.23	68,292	107,708	0.1285	730,639	22.96	31,817	2.5
2021	238,635.49	12,107	19,095	0.0800	219,541	23.73	9,251	1.5
2022	220,811.33	3,921	6,184	0.0280	214,627	24.56	8,740	0.5
TOTAL	8,137,028.52	3,596,293	5,197,326		2,939,703		145,146	

COMPOSITE ANNUAL ACCRUAL RATE 1.78%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.64

COMPOSITE AVERAGE AGE (YEARS) 28.46

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 13.95

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: I03 - Insulators

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2.5

ASL: 35

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	78,951.35	73,343	78,951	1.0000	0	2.49	0	55.5
1968	114,208.17	105,355	114,208	1.0000	0	2.71	0	54.5
1969	50,398.83	46,174	50,399	1.0000	0	2.93	0	53.5
1970	96,375.98	87,696	96,376	1.0000	0	3.15	0	52.5
1972	22,418.72	20,118	22,419	1.0000	0	3.59	0	50.5
1974	12,479.49	11,035	12,479	1.0000	0	4.05	0	48.5
1975	514.00	451	514	1.0000	0	4.29	0	47.5
1976	1,492.07	1,299	1,492	1.0000	0	4.53	0	46.5
1977	50,283.33	43,415	50,283	1.0000	0	4.78	0	45.5
1978	34,462.66	29,501	34,463	1.0000	0	5.04	0	44.5
1979	14,781.95	12,539	14,782	1.0000	0	5.31	0	43.5
1980	11,311.61	9,504	11,312	1.0000	0	5.59	0	42.5
1981	61,826.00	51,412	61,826	1.0000	0	5.90	0	41.5
1982	412,734.37	339,450	412,734	1.0000	0	6.21	0	40.5
1983	630,479.97	512,419	630,480	1.0000	0	6.55	0	39.5
1985	999,174.39	790,782	975,705	0.9765	23,469	7.30	3,215	37.5
1986	7,562.44	5,897	7,276	0.9621	287	7.71	37	36.5
1987	525,878.08	403,544	497,912	0.9468	27,967	8.14	3,435	35.5
1988	575,583.15	434,146	535,670	0.9307	39,913	8.60	4,641	34.5
1989	600,838.56	444,897	548,935	0.9136	51,903	9.08	5,714	33.5
1990	3,212,707.83	2,332,254	2,877,647	0.8957	335,061	9.59	34,932	32.5
1991	1,662,415.35	1,181,556	1,457,860	0.8770	204,555	10.12	20,205	31.5
1992	728,503.57	506,213	624,590	0.8574	103,914	10.68	9,730	30.5
1993	1,158,314.67	785,739	969,483	0.8370	188,832	11.26	16,773	29.5
1994	969,319.30	640,928	790,807	0.8158	178,512	11.86	15,055	28.5
1995	1,713,875.74	1,102,873	1,360,778	0.7940	353,098	12.48	28,299	27.5
1996	1,773,525.52	1,108,847	1,368,148	0.7714	405,377	13.12	30,904	26.5
1997	889,877.07	539,637	665,830	0.7482	224,047	13.78	16,264	25.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: I03 - Insulators

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2.5

ASL: 35

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1998	720,448.60	422,981	521,895	0.7244	198,554	14.45	13,740	24.5
1999	1,010,614.47	573,328	707,400	0.7000	303,215	15.14	20,022	23.5
2000	951,395.84	520,457	642,165	0.6750	309,231	15.85	19,506	22.5
2001	681,643.97	358,780	442,679	0.6494	238,965	16.58	14,415	21.5
2002	1,923,592.31	971,836	1,199,098	0.6234	724,494	17.32	41,836	20.5
2003	1,841,341.62	890,630	1,098,902	0.5968	742,440	18.07	41,085	19.5
2004	2,775,970.27	1,281,819	1,581,570	0.5697	1,194,400	18.84	63,402	18.5
2005	333,171.22	146,410	180,647	0.5422	152,524	19.62	7,774	17.5
2006	1,324,258.63	551,883	680,940	0.5142	643,319	20.41	31,514	16.5
2007	3,136,964.12	1,235,012	1,523,817	0.4858	1,613,148	21.22	76,018	15.5
2008	630,666.35	233,534	288,146	0.4569	342,521	22.04	15,541	14.5
2009	1,899,339.44	658,242	812,170	0.4276	1,087,169	22.87	47,536	13.5
2010	323,890.26	104,457	128,884	0.3979	195,007	23.71	8,224	12.5
2011	490,774.50	146,319	180,536	0.3679	310,239	24.57	12,629	11.5
2012	390,937.10	106,912	131,913	0.3374	259,024	25.43	10,186	10.5
2013	146,316.44	36,363	44,866	0.3066	101,450	26.30	3,857	9.5
2014	2,095,986.15	468,031	577,479	0.2755	1,518,507	27.18	55,859	8.5
2015	67,958.16	13,444	16,587	0.2441	51,371	28.08	1,830	7.5
2016	2,779,832.52	478,416	590,293	0.2123	2,189,540	28.98	75,563	6.5
2017	2,469,101.08	360,877	445,267	0.1803	2,023,834	29.88	67,722	5.5
2018	2,404,824.78	288,576	356,059	0.1481	2,048,765	30.80	66,518	4.5
2019	228,721.81	21,418	26,426	0.1155	202,295	31.72	6,377	3.5
2020	392,323.80	26,323	32,478	0.0828	359,845	32.65	11,021	2.5
2021	350,687.50	14,159	17,470	0.0498	333,217	33.59	9,921	1.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: I03 - Insulators

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 35
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	45,781,055.11	21,531,231	26,501,046		19,280,009		911,300	
COMPOSITE ANNUAL ACCRUAL RATE				1.99%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.58				
COMPOSITE AVERAGE AGE (YEARS)				20.03				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				18.54				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: I04 - Intake Structures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 110

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	3,784,392.00	1,893,530	983,241	0.2598	2,801,151	54.96	50,966	56.5
1967	1,784,000.00	877,922	455,873	0.2555	1,328,127	55.87	23,773	55.5
1979	1,454,249.47	567,526	294,696	0.2026	1,159,554	67.07	17,288	43.5
1982	5,039,574.77	1,834,933	952,813	0.1891	4,086,762	69.95	58,425	40.5
1983	15,844.44	5,630	2,924	0.1845	12,921	70.91	182	39.5
1984	3,401,783.55	1,178,908	612,164	0.1800	2,789,620	71.88	38,810	38.5
1989	6,768.76	2,046	1,063	0.1570	5,706	76.74	74	33.5
1994	5,240.80	1,351	701	0.1338	4,539	81.65	56	28.5
1997	10,571.59	2,440	1,267	0.1199	9,305	84.61	110	25.5
2002	24,045.32	4,467	2,320	0.0965	21,726	89.56	243	20.5
2003	3,909,814.02	691,079	358,852	0.0918	3,550,962	90.56	39,212	19.5
2016	288,655.80	17,035	8,846	0.0306	279,810	103.51	2,703	6.5
2018	129,797.02	5,304	2,754	0.0212	127,043	105.51	1,204	4.5
2021	5,170,598.70	70,422	36,568	0.0071	5,134,031	108.50	47,317	1.5
TOTAL	25,025,336.24	7,152,594	3,714,080		21,311,256		280,363	

COMPOSITE ANNUAL ACCRUAL RATE 1.12%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.15

COMPOSITE AVERAGE AGE (YEARS) 31.94

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 78.56

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: I05 - Inverters

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S1.5

ASL: 22

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	182,290.86	191,405	185,442	0.9688	5,963		5,963	54.5
1979	114,154.89	117,138	113,489	0.9468	6,374	0.50	6,374	43.5
1996	17,604.84	14,519	14,066	0.7610	4,419	4.72	936	26.5
2000	11,968.11	9,064	8,782	0.6988	3,785	6.13	617	22.5
2005	2,340.00	1,526	1,479	0.6018	978	8.34	117	17.5
2006	16,272.78	10,213	9,894	0.5791	7,192	8.85	813	16.5
2012	4,964.72	2,225	2,156	0.4136	3,057	12.61	242	10.5
2014	5,643.32	2,117	2,051	0.3461	3,875	14.14	274	8.5
2015	49,804.41	16,730	16,209	0.3100	36,085	14.96	2,412	7.5
2017	4,649.76	1,176	1,139	0.2333	3,743	16.70	224	5.5
2018	4,462.35	933	904	0.1930	3,781	17.62	215	4.5
2019	6,877.66	1,129	1,094	0.1515	6,127	18.56	330	3.5
2022	512,732.68	12,228	11,847	0.0220	526,522	21.50	24,489	0.5
TOTAL	933,766.38	380,404	368,552		611,903		43,006	

COMPOSITE ANNUAL ACCRUAL RATE 4.61%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.39

COMPOSITE AVERAGE AGE (YEARS) 17.93

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 13.46

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: L03 - Land Improvements

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 75

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1965	5,754.24	3,820	5,754	1.0000	0	25.22	0	57.5
1967	174,343.48	112,556	174,343	1.0000	0	26.58	0	55.5
1968	82,098.79	52,239	82,099	1.0000	0	27.28	0	54.5
1970	313,594.10	193,608	310,257	0.9894	3,337	28.70	116	52.5
1971	996,777.00	605,778	970,760	0.9739	26,017	29.42	884	51.5
1972	286,219.42	171,156	274,278	0.9583	11,941	30.15	396	50.5
1974	262,393.06	151,708	243,112	0.9265	19,281	31.64	609	48.5
1975	59,952.49	34,059	54,580	0.9104	5,373	32.39	166	47.5
1976	61,289.90	34,196	54,800	0.8941	6,490	33.15	196	46.5
1977	391,514.65	214,418	343,605	0.8776	47,909	33.93	1,412	45.5
1978	777,770.02	417,890	669,671	0.8610	108,099	34.70	3,115	44.5
1979	37,126.06	19,559	31,344	0.8443	5,782	35.49	163	43.5
1980	1,022,019.38	527,632	845,532	0.8273	176,487	36.28	4,865	42.5
1981	271,954.44	137,502	220,348	0.8102	51,607	37.08	1,392	41.5
1982	516,244.80	255,472	409,395	0.7930	106,849	37.88	2,820	40.5
1983	260,255.97	125,969	201,865	0.7756	58,391	38.70	1,509	39.5
1984	91,706.98	43,385	69,525	0.7581	22,182	39.52	561	38.5
1985	252,388.80	116,623	186,888	0.7405	65,501	40.34	1,624	37.5
1986	85,530.68	38,571	61,810	0.7227	23,721	41.18	576	36.5
1987	560,839.71	246,639	395,239	0.7047	165,601	42.02	3,941	35.5
1988	188,757.84	80,882	129,613	0.6867	59,144	42.86	1,380	34.5
1989	2,189,468.52	913,285	1,463,541	0.6684	725,927	43.72	16,606	33.5
1990	765,815.64	310,678	497,862	0.6501	267,954	44.57	6,011	32.5
1991	440,749.89	173,728	278,399	0.6316	162,351	45.44	3,573	31.5
1992	565,854.58	216,469	346,892	0.6130	218,962	46.31	4,728	30.5
1993	132,568.86	49,166	78,788	0.5943	53,780	47.18	1,140	29.5
1994	187,262.38	67,249	107,767	0.5755	79,495	48.07	1,654	28.5
1995	344,790.90	119,738	191,881	0.5565	152,910	48.95	3,124	27.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: L03 - Land Improvements

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 75

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1996	255,875.08	85,813	137,516	0.5374	118,359	49.85	2,374	26.5
1997	24,438.72	7,903	12,665	0.5182	11,773	50.74	232	25.5
1998	321,505.42	100,100	160,410	0.4989	161,095	51.65	3,119	24.5
1999	100,112.76	29,957	48,006	0.4795	52,107	52.56	991	23.5
2000	73,029.87	20,964	33,595	0.4600	39,435	53.47	738	22.5
2002	172,683.92	45,330	72,641	0.4207	100,043	55.31	1,809	20.5
2003	228,663.43	57,198	91,660	0.4009	137,003	56.24	2,436	19.5
2004	102,617.32	24,393	39,091	0.3809	63,527	57.17	1,111	18.5
2005	87,428.65	19,692	31,556	0.3609	55,872	58.11	962	17.5
2006	110,490.47	23,502	37,662	0.3409	72,829	59.05	1,233	16.5
2008	64,541.12	12,100	19,391	0.3004	45,150	60.94	741	14.5
2009	268,364.85	46,911	75,176	0.2801	193,189	61.89	3,122	13.5
2010	13,384.00	2,169	3,476	0.2597	9,908	62.84	158	12.5
2011	64,779.67	9,672	15,499	0.2393	49,280	63.80	772	11.5
2012	49,683.60	6,782	10,868	0.2187	38,816	64.76	599	10.5
2014	369,783.31	40,957	65,633	0.1775	304,150	66.69	4,560	8.5
2015	387,311.25	37,894	60,725	0.1568	326,586	67.66	4,827	7.5
2017	701,899.66	50,464	80,869	0.1152	621,031	69.61	8,922	5.5
2018	475,534.20	28,001	44,872	0.0944	430,663	70.58	6,101	4.5
2019	359,200.03	16,465	26,386	0.0735	332,814	71.56	4,651	3.5
2020	2,543,833.71	83,363	133,589	0.0525	2,410,245	72.54	33,225	2.5
2021	315,000.00	6,199	9,934	0.0315	305,066	73.52	4,149	1.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: L03 - Land Improvements

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 75
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	18,415,203.62	6,189,804	9,911,169		8,504,034		149,393	
COMPOSITE ANNUAL ACCRUAL RATE				0.81%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.54				
COMPOSITE AVERAGE AGE (YEARS)				27.39				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				49.79				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: L04 - Lighting Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 50

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	36,146.49	32,399	35,933	0.9941	213	5.18	41	55.5
1968	2,726.81	2,426	2,690	0.9867	36	5.52	7	54.5
1970	37,330.22	32,661	36,223	0.9703	1,107	6.25	177	52.5
1971	28,226.00	24,467	27,135	0.9614	1,091	6.66	164	51.5
1974	16,618.25	13,941	15,462	0.9304	1,157	8.06	144	48.5
1975	39,752.16	32,926	36,518	0.9186	3,234	8.59	377	47.5
1976	3,432.11	2,804	3,110	0.9062	322	9.15	35	46.5
1977	25,784.51	20,761	23,026	0.8930	2,759	9.74	283	45.5
1978	67,894.94	53,825	59,696	0.8792	8,199	10.36	791	44.5
1979	83,571.46	65,176	72,285	0.8650	11,286	11.01	1,025	43.5
1980	25,900.92	19,856	22,022	0.8502	3,879	11.67	332	42.5
1981	9,888.87	7,447	8,259	0.8352	1,630	12.35	132	41.5
1982	27,189.98	20,099	22,292	0.8198	4,898	13.04	376	40.5
1983	10,991.30	7,970	8,839	0.8042	2,152	13.74	157	39.5
1985	659.70	459	509	0.7719	150	15.20	10	37.5
1986	5,857.33	3,989	4,424	0.7553	1,433	15.95	90	36.5
1987	39,322.35	26,178	29,033	0.7383	10,289	16.71	616	35.5
1988	9,837.24	6,396	7,093	0.7210	2,744	17.49	157	34.5
1989	12,729.60	8,074	8,954	0.7034	3,775	18.29	206	33.5
1990	35,606.52	22,006	24,407	0.6855	11,200	19.10	586	32.5
1991	1,612.44	970	1,076	0.6672	537	19.92	27	31.5
1992	2,735.87	1,600	1,774	0.6486	961	20.76	46	30.5
2012	93,027.28	19,463	21,586	0.2320	71,441	39.54	1,807	10.5
2013	42,152.31	7,983	8,854	0.2100	33,298	40.53	822	9.5
2016	198,358.17	25,733	28,540	0.1439	169,818	43.51	3,903	6.5
2017	1,649,658.18	181,139	200,897	0.1218	1,448,761	44.51	32,549	5.5
2018	272,308.58	24,470	27,139	0.0997	245,170	45.51	5,388	4.5
2019	315,713.76	22,070	24,477	0.0775	291,236	46.50	6,263	3.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: L04 - Lighting Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 50
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2020	236,122.20	11,792	13,078	0.0554	223,044	47.50	4,695	2.5
2021	367,970.53	11,027	12,230	0.0332	355,741	48.50	7,335	1.5
2022	201,904.97	2,016	2,236	0.0111	199,669	49.50	4,034	0.5
TOTAL	3,901,031.05	712,124	789,798		3,111,233		72,575	

COMPOSITE ANNUAL ACCRUAL RATE	1.86%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.20
COMPOSITE AVERAGE AGE (YEARS)	9.82
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	40.87

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: L05 - Lighting Arrestors

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 58

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	44,408.00	34,507	44,408	1.0000	0	12.93	0	55.5
1968	17,891.26	13,743	17,891	1.0000	0	13.45	0	54.5
1970	61,016.99	45,725	61,017	1.0000	0	14.54	0	52.5
1977	65.00	44	61	0.9343	4	18.81	0	45.5
1978	19,225.18	12,769	17,658	0.9185	1,568	19.48	80	44.5
1980	290.19	186	257	0.8858	33	20.85	2	42.5
1982	2,526.48	1,557	2,153	0.8520	374	22.26	17	40.5
1986	5,702.63	3,222	4,456	0.7814	1,247	25.23	49	36.5
1987	293.76	162	224	0.7631	70	25.99	3	35.5
1988	811.34	437	604	0.7446	207	26.77	8	34.5
1989	339.63	178	247	0.7259	93	27.55	3	33.5
1994	2,591.45	1,179	1,630	0.6291	961	31.62	30	28.5
1995	0.03	0	0	0.6667	0	32.45	0	27.5
1996	2,464.63	1,050	1,451	0.5889	1,013	33.30	30	26.5
2000	5,039,435.78	1,845,011	2,551,450	0.5063	2,487,986	36.77	67,672	22.5
2004	7,668.29	2,334	3,228	0.4209	4,441	40.35	110	18.5
2005	79,719.06	23,009	31,820	0.3991	47,900	41.26	1,161	17.5
2006	89,970.69	24,544	33,941	0.3772	56,030	42.18	1,328	16.5
2007	13,132.00	3,373	4,665	0.3552	8,467	43.10	196	15.5
2008	52,590.01	12,665	17,514	0.3330	35,076	44.03	797	14.5
2009	80,001.12	17,976	24,859	0.3107	55,143	44.97	1,226	13.5
2010	22,899.74	4,774	6,602	0.2883	16,298	45.91	355	12.5
2011	69,992.79	13,451	18,601	0.2658	51,392	46.85	1,097	11.5
2012	65,914.52	11,587	16,024	0.2431	49,891	47.80	1,044	10.5
2013	17,692.67	2,819	3,898	0.2203	13,794	48.76	283	9.5
2014	90,140.65	12,872	17,800	0.1975	72,341	49.72	1,455	8.5
2015	279,944.51	35,328	48,855	0.1745	231,089	50.68	4,560	7.5
2017	541,617.88	50,270	69,518	0.1284	472,100	52.62	8,972	5.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: L05 - Lighting Arrestors

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 58
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2018	43,236.44	3,288	4,547	0.1052	38,690	53.59	722	4.5
2019	119,425.77	7,072	9,780	0.0819	109,646	54.57	2,009	3.5
2020	174,963.09	7,409	10,246	0.0586	164,717	55.54	2,966	2.5
2021	54,304.41	1,381	1,910	0.0352	52,394	56.52	927	1.5
TOTAL	7,000,275.99	2,193,921	3,027,313		3,972,963		97,102	

COMPOSITE ANNUAL ACCRUAL RATE	1.39%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.43
COMPOSITE AVERAGE AGE (YEARS)	19.34
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	39.82

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: L06 - Line Coupling Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R5
ASL: 24
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1984	11,225.56	11,226	11,226	1.0000	0		0	38.5
TOTAL	11,225.56	11,226	11,226		0		0	

COMPOSITE ANNUAL ACCRUAL RATE	0.00%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	1.00
COMPOSITE AVERAGE AGE (YEARS)	38.50
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	0.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M01 - Main Breakers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R0.5

ASL: 42

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	38,597.66	28,424	40,528	1.0000	0	12.54	0	54.5
1970	6,264.96	4,481	6,578	1.0000	0	13.39	0	52.5
1980	14,200.00	8,556	14,017	0.9401	893	17.90	50	42.5
1983	14,000.00	7,927	12,986	0.8834	1,714	19.35	89	39.5
1986	14,774.50	7,809	12,793	0.8247	2,720	20.86	130	36.5
1991	4,678.14	2,167	3,549	0.7226	1,363	23.47	58	31.5
1996	96,202.47	37,957	62,182	0.6156	38,831	26.22	1,481	26.5
1998	23,610.58	8,649	14,169	0.5716	10,622	27.35	388	24.5
2001	47,957.90	15,504	25,399	0.5044	24,957	29.07	859	21.5
2003	72,475.81	21,321	34,928	0.4590	41,171	30.23	1,362	19.5
2004	27,895.94	7,797	12,774	0.4361	16,517	30.82	536	18.5
2006	119,193.09	29,801	48,821	0.3901	76,332	32.00	2,385	16.5
TOTAL	479,851.05	180,392	288,725		215,119		7,338	

COMPOSITE ANNUAL ACCRUAL RATE 1.53%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.60

COMPOSITE AVERAGE AGE (YEARS) 25.70

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 26.96

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M02 - Marine Terminal

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 65
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1969	2,596,299.63	2,039,923	2,661,054	0.9761	65,061	16.36	3,977	53.5
1971	69,000.00	52,652	68,685	0.9480	3,765	17.76	212	51.5
1980	12,849.36	8,381	10,932	0.8103	2,559	24.62	104	42.5
1984	286,814.46	171,572	223,814	0.7432	77,341	27.97	2,765	38.5
TOTAL	2,964,963.45	2,272,528	2,964,485		148,726		7,058	

COMPOSITE ANNUAL ACCRUAL RATE	0.24%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	1.00
COMPOSITE AVERAGE AGE (YEARS)	51.95
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	17.55

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M03 - Metalclad Switchgear CUB/EQU 4kv/600

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 45

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	431,573.00	419,604	453,152	1.0000	0	3.33	0	54.5
1980	780,388.00	676,148	819,407	1.0000	0	7.87	0	42.5
1987	56,409.27	42,899	57,931	0.9781	1,298	12.41	105	35.5
1994	567,211.45	359,906	486,015	0.8160	109,557	17.81	6,153	28.5
1995	14,288.77	8,788	11,867	0.7909	3,137	18.64	168	27.5
2015	383,774.09	66,979	90,448	0.2245	312,515	37.52	8,329	7.5
2016	232,192.61	35,135	47,446	0.1946	196,356	38.51	5,098	6.5
2020	300,000.00	17,478	23,602	0.0749	291,398	42.50	6,856	2.5
2021	713,390.28	24,940	33,679	0.0450	715,380	43.50	16,445	1.5
TOTAL	3,479,227.47	1,651,878	2,023,549		1,629,640		43,154	

COMPOSITE ANNUAL ACCRUAL RATE 1.24%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.58

COMPOSITE AVERAGE AGE (YEARS) 23.41

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 24.65

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M04 - Meter Test Switches

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R5
ASL: 35
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1981	9,277.57	8,867	9,278	1.0000	0	1.55	0	41.5
1982	1,993.00	1,894	1,993	1.0000	0	1.74	0	40.5
1984	897.55	840	898	1.0000	0	2.23	0	38.5
1987	11,856.77	10,748	11,679	0.9850	178	3.27	54	35.5
1988	3,304.10	2,953	3,209	0.9712	95	3.72	26	34.5
1991	12,722.44	10,773	11,706	0.9201	1,017	5.36	190	31.5
1993	1,215.96	983	1,068	0.8780	148	6.72	22	29.5
1994	11,342.69	8,923	9,695	0.8548	1,647	7.47	221	28.5
1997	5,690.51	4,075	4,428	0.7781	1,263	9.94	127	25.5
TOTAL	58,300.59	50,055	53,953		4,348		640	

COMPOSITE ANNUAL ACCRUAL RATE	1.10%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.93
COMPOSITE AVERAGE AGE (YEARS)	33.28
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	4.95

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M05 - Metering Tanks

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 37

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	2,500.00	2,399	2,500	1.0000	0	1.49	0	56.5
1968	7,113.61	6,733	7,114	1.0000	0	1.98	0	54.5
1972	7,362.00	6,765	7,362	1.0000	0	3.00	0	50.5
1978	5,434.41	4,755	5,434	1.0000	0	4.63	0	44.5
1979	8,161.00	7,072	8,161	1.0000	0	4.94	0	43.5
1981	124,536.92	105,641	124,537	1.0000	0	5.61	0	41.5
1983	5,347.32	4,426	5,347	1.0000	0	6.38	0	39.5
1984	11,116.01	9,074	11,116	1.0000	0	6.80	0	38.5
1988	13,825.07	10,565	13,668	0.9887	157	8.72	18	34.5
1989	11,884.85	8,907	11,523	0.9696	362	9.27	39	33.5
1992	17,501.52	12,273	15,878	0.9073	1,623	11.05	147	30.5
1993	36,142.64	24,722	31,983	0.8849	4,160	11.69	356	29.5
1994	21,417.03	14,267	18,458	0.8618	2,959	12.35	240	28.5
1996	14,331.25	9,013	11,660	0.8136	2,671	13.73	195	26.5
1997	1,246.12	760	983	0.7886	263	14.45	18	25.5
2011	66,568.46	19,766	25,572	0.3841	40,997	26.01	1,576	11.5
2012	59,915.40	16,306	21,095	0.3521	38,820	26.93	1,441	10.5
2013	95,443.06	23,585	30,513	0.3197	64,930	27.86	2,331	9.5
2014	140,033.36	31,067	40,191	0.2870	99,842	28.79	3,468	8.5
TOTAL	649,880.03	318,096	393,096		256,784		9,829	

COMPOSITE ANNUAL ACCRUAL RATE 1.51%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.60

COMPOSITE AVERAGE AGE (YEARS) 21.99

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 18.89

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M06 - Meters - Digital

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L3

ASL: 18

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1990	22,825.78	20,140	21,732	0.9521	1,094	2.12	517	32.5
1991	99,248.67	86,372	93,197	0.9390	6,051	2.34	2,591	31.5
1992	65,915.86	56,548	61,016	0.9257	4,900	2.56	1,915	30.5
1993	3,358.12	2,838	3,062	0.9118	296	2.79	106	29.5
1994	86,274.28	71,766	77,436	0.8976	8,838	3.03	2,920	28.5
1995	10,165.31	8,317	8,974	0.8828	1,191	3.27	364	27.5
1996	22,195.18	17,849	19,259	0.8677	2,936	3.52	833	26.5
1997	95,238.91	75,230	81,174	0.8523	14,065	3.78	3,719	25.5
1998	149,674.43	116,072	125,244	0.8368	24,431	4.04	6,046	24.5
1999	62,128.04	47,297	51,034	0.8214	11,094	4.30	2,582	23.5
2000	4,140.00	3,095	3,339	0.8066	801	4.54	176	22.5
2001	125,360.00	92,117	99,396	0.7929	25,964	4.77	5,440	21.5
2002	170,580.00	123,377	133,125	0.7804	37,455	4.98	7,519	20.5
2003	54,098.12	38,573	41,621	0.7694	12,477	5.17	2,415	19.5
2004	198,470.07	139,652	150,687	0.7592	47,783	5.33	8,958	18.5
2005	192,422.73	133,605	144,162	0.7492	48,261	5.50	8,771	17.5
2007	40,183.40	26,970	29,101	0.7242	11,082	5.92	1,872	15.5
2008	17,400.00	11,393	12,294	0.7065	5,106	6.21	822	14.5
2009	1,408,245.87	892,529	963,053	0.6839	445,193	6.59	67,537	13.5
2010	390,894.05	237,426	256,186	0.6554	134,708	7.07	19,062	12.5
2011	195,223.10	112,334	121,210	0.6209	74,013	7.64	9,684	11.5
2013	1,097,748.17	544,610	587,643	0.5353	510,105	9.07	56,241	9.5
2014	85,498.14	38,527	41,572	0.4862	43,927	9.89	4,442	8.5
2015	415,628.02	167,316	180,537	0.4344	235,091	10.75	21,861	7.5
2016	996,827.61	351,484	379,257	0.3805	617,570	11.65	52,996	6.5
2018	1,982,105.53	491,699	530,551	0.2677	1,451,554	13.53	107,246	4.5
2020	172,480.29	23,945	25,837	0.1498	146,643	15.50	9,460	2.5
2021	215,696.90	17,978	19,398	0.0899	196,298	16.50	11,897	1.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M06 - Meters - Digital

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: L3
ASL: 18
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	8,380,026.58	3,949,061	4,261,100		4,118,927		417,992	
COMPOSITE ANNUAL ACCRUAL RATE				4.99%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.51				
COMPOSITE AVERAGE AGE (YEARS)				10.58				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				9.52				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M07 - Meters - Analogue

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: L2
ASL: 25
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1981	138,968.27	107,261	138,968	1.0000	0	5.70	0	41.5
1983	11,142.31	8,392	11,142	1.0000	0	6.17	0	39.5
1984	56,507.73	42,022	56,508	1.0000	0	6.41	0	38.5
1987	145,955.65	104,239	144,263	0.9884	1,693	7.15	237	35.5
1988	197,071.51	138,770	192,054	0.9745	5,018	7.40	678	34.5
1989	148,738.52	103,239	142,879	0.9606	5,859	7.65	766	33.5
2020	404,630.00	40,046	55,422	0.1370	349,208	22.53	15,503	2.5
TOTAL	1,103,013.99	543,969	741,236		361,778		17,184	

COMPOSITE ANNUAL ACCRUAL RATE	1.56%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.67
COMPOSITE AVERAGE AGE (YEARS)	23.90
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	12.67

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M08 - Meters - Other

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L4

ASL: 22

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1987	450.00	412	450	1.0000	0	1.88	0	35.5
1988	11,760.00	10,670	11,760	1.0000	0	2.04	0	34.5
1993	8,812.52	7,618	8,813	1.0000	0	2.98	0	29.5
1994	13,132.41	11,223	13,132	1.0000	0	3.20	0	28.5
1995	22,190.79	18,741	22,191	1.0000	0	3.42	0	27.5
1996	16,112.88	13,452	16,113	1.0000	0	3.63	0	26.5
1997	39,570.21	32,687	39,194	0.9905	376	3.83	98	25.5
1998	833.04	682	818	0.9815	15	3.99	4	24.5
2000	1,765.00	1,422	1,706	0.9664	59	4.27	14	22.5
2003	15,820.86	12,235	14,670	0.9273	1,150	4.99	231	19.5
2004	3,754.50	2,829	3,392	0.9034	363	5.42	67	18.5
2005	27,658.30	20,140	24,150	0.8731	3,509	5.98	587	17.5
2006	21,750.00	15,193	18,217	0.8376	3,533	6.63	533	16.5
2012	79,242.94	37,453	44,909	0.5667	34,334	11.60	2,959	10.5
2017	74,976.33	18,744	22,475	0.2998	52,501	16.50	3,182	5.5
2018	23,713.33	4,850	5,816	0.2453	17,897	17.50	1,023	4.5
2019	54,086.91	8,605	10,318	0.1908	43,769	18.50	2,366	3.5
2021	8,987.37	613	735	0.0818	8,253	20.50	403	1.5
TOTAL	424,617.39	217,569	258,858		165,759		11,467	

COMPOSITE ANNUAL ACCRUAL RATE 2.70%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.61

COMPOSITE AVERAGE AGE (YEARS) 13.98

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 10.73

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M10 - Miscellaneous Units of Property

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1.5

ASL: 25

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1970	6,185.00	6,185	6,185	1.0000	0		0	53.5
1985	315,254.84	270,539	315,255	1.0000	0	3.55	0	37.5
1989	795,281.80	644,295	795,282	1.0000	0	4.75	0	33.5
1990	825,974.72	658,419	825,975	1.0000	0	5.07	0	32.5
1991	50,436.68	39,522	50,437	1.0000	0	5.41	0	31.5
2010	9,267,050.33	3,546,656	7,458,157	0.8048	1,808,893	15.43	117,216	12.5
2011	1,339,679.15	474,992	998,847	0.7456	340,832	16.14	21,122	11.5
2013	1,581,834.50	469,403	987,094	0.6240	594,740	17.58	33,828	9.5
2014	110,378.30	29,489	62,012	0.5618	48,367	18.32	2,640	8.5
2015	320,146.61	75,928	159,668	0.4987	160,479	19.07	8,415	7.5
2019	2,946.37	334	702	0.2383	2,244	22.17	101	3.5
2020	496,839.63	40,457	85,076	0.1712	411,764	22.96	17,931	2.5
TOTAL	15,112,007.93	6,256,220	11,744,689		3,367,319		201,253	

COMPOSITE ANNUAL ACCRUAL RATE 1.33%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.78

COMPOSITE AVERAGE AGE (YEARS) 14.43

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 14.65

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M11 - Mobile - A.T.V's and Snowmobiles

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L3

ASL: 7

Net Salvage: 20%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2007	7,999.00	5,940	6,399	1.0000	0	0.50	0	15.5
2008	8,995.00	6,596	7,196	1.0000	0	0.58	0	14.5
2009	36,840.00	26,381	29,472	1.0000	0	0.73	0	13.5
2010	24,600.00	17,097	19,680	1.0000	0	0.92	0	12.5
2011	47,025.00	31,554	37,620	1.0000	0	1.13	0	11.5
2012	28,485.00	18,355	22,788	1.0000	0	1.36	0	10.5
2013	682,541.58	420,301	546,033	1.0000	0	1.61	0	9.5
2014	200,111.22	117,661	160,089	1.0000	0	1.86	0	8.5
2015	230,813.94	130,513	184,651	1.0000	0	2.05	0	7.5
2016	248,516.62	135,709	198,813	1.0000	0	2.22	0	6.5
2017	74,973.50	38,701	59,979	1.0000	0	2.48	0	5.5
2018	193,382.24	89,200	154,706	1.0000	0	2.96	0	4.5
2019	176,075.27	66,665	140,860	1.0000	0	3.69	0	3.5
2021	317,527.26	54,186	249,248	0.9812	4,774	5.51	867	1.5
2022	694,598.57	39,701	182,618	0.3286	373,061	6.50	57,395	0.5
TOTAL	2,972,484.20	1,198,562	2,000,153		377,835		58,262	

COMPOSITE ANNUAL ACCRUAL RATE 1.96%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.67

COMPOSITE AVERAGE AGE (YEARS) 5.43

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 3.47

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M12 - Mobile - Air Compressor Attachment and Boat

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L0

ASL: 20

Net Salvage: 20%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1979	87,567.04	48,770	70,054	1.0000	0	6.08	0	43.5
1981	3,430.57	1,860	2,744	1.0000	0	6.44	0	41.5
1988	17,597.64	8,557	14,078	1.0000	0	7.84	0	34.5
1994	4,062.24	1,753	3,250	1.0000	0	9.21	0	28.5
1998	2,375.00	928	1,900	1.0000	0	10.23	0	24.5
2000	17,995.00	6,641	14,396	1.0000	0	10.77	0	22.5
2009	72,275.00	18,574	45,792	0.7920	12,028	13.58	886	13.5
2010	22,689.00	5,512	13,588	0.7486	4,563	13.93	328	12.5
2011	24,400.00	5,575	13,744	0.7041	5,776	14.29	404	11.5
2012	26,740.00	5,713	14,086	0.6585	7,306	14.66	498	10.5
2016	35,882.00	5,363	13,222	0.4606	15,484	16.26	952	6.5
2017	10,008.67	1,316	3,244	0.4051	4,763	16.71	285	5.5
2018	20,181.61	2,267	5,588	0.3461	10,557	17.19	614	4.5
2020	15,307.72	1,063	2,621	0.2141	9,625	18.26	527	2.5
TOTAL	360,511.49	113,891	218,308		70,101		4,494	

COMPOSITE ANNUAL ACCRUAL RATE 1.25%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.61

COMPOSITE AVERAGE AGE (YEARS) 20.46

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 12.10

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M13 - Mobile - Argos

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R5
ASL: 9
Net Salvage: 20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2013	29,517.76	21,590	23,614	1.0000	0	0.77	0	9.5
2019	99,291.64	30,892	34,081	0.4290	45,353	5.50	8,246	3.5
2021	115,098.22	15,348	16,932	0.1839	75,146	7.50	10,020	1.5
TOTAL	243,907.62	67,830	74,627		120,499		18,266	

COMPOSITE ANNUAL ACCRUAL RATE	7.49%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.31
COMPOSITE AVERAGE AGE (YEARS)	3.28
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	5.87

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M14 - Mobile - Flex / Fork / Load / Grade / Musk / Trailer

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L3

ASL: 18

Net Salvage: 20%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1981	14,761.78	11,463	11,809	1.0000	0	0.53	0	41.5
1990	43,680.00	30,833	34,944	1.0000	0	2.12	0	32.5
1992	11,712.79	8,039	9,370	1.0000	0	2.56	0	30.5
1993	0.01	0	0	1.2500	0	2.79	0	29.5
1995	0.01	0	0	1.2500	0	3.27	0	27.5
1998	348,353.82	216,118	270,765	0.9716	7,918	4.04	1,959	24.5
1999	81,839.00	49,842	62,445	0.9538	3,027	4.30	704	23.5
2000	4,125.00	2,467	3,091	0.9366	209	4.54	46	22.5
2001	266,765.00	156,819	196,473	0.9206	16,939	4.77	3,549	21.5
2002	170,702.66	98,772	123,748	0.9062	12,814	4.98	2,573	20.5
2003	15,997.87	9,126	11,433	0.8933	1,365	5.17	264	19.5
2004	17,497.50	9,850	12,340	0.8816	1,658	5.33	311	18.5
2005	304,558.24	169,172	211,948	0.8699	31,698	5.50	5,761	17.5
2006	588,357.02	321,921	403,321	0.8569	67,364	5.69	11,841	16.5
2007	396,251.24	212,763	266,562	0.8409	50,439	5.92	8,522	15.5
2008	1,100,077.27	576,260	721,973	0.8204	158,089	6.21	25,442	14.5
2009	773,157.53	392,014	491,139	0.7940	127,387	6.59	19,325	13.5
2010	295,172.32	143,428	179,695	0.7610	56,443	7.07	7,987	12.5
2011	1,125,883.52	518,279	649,331	0.7209	251,376	7.64	32,892	11.5
2012	790,718.88	340,360	426,423	0.6741	206,152	8.32	24,793	10.5
2013	349,927.50	138,884	174,002	0.6216	105,940	9.07	11,680	9.5
2014	1,486,091.26	535,731	671,196	0.5646	517,677	9.89	52,350	8.5
2015	249,148.45	80,238	100,527	0.5044	98,792	10.75	9,187	7.5
2016	302,846.17	85,428	107,029	0.4418	135,248	11.65	11,606	6.5
2017	257,847.93	62,099	77,801	0.3772	128,477	12.58	10,212	5.5
2018	654,766.26	129,942	162,799	0.3108	361,014	13.53	26,673	4.5
2019	134,692.49	20,891	26,174	0.2429	81,580	14.51	5,622	3.5
2020	63,640.07	7,068	8,855	0.1739	42,057	15.50	2,713	2.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M14 - Mobile - Flex / Fork / Load / Grade / Musk / Trailer

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L3

ASL: 18

Net Salvage: 20%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2021	715,364.37	47,699	59,761	0.1044	512,531	16.50	31,063	1.5
2022	302,170.91	6,719	8,417	0.0348	233,319	17.50	13,333	0.5
TOTAL	10,866,106.87	4,382,223	5,483,370		3,209,515		320,408	

COMPOSITE ANNUAL ACCRUAL RATE2.95%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR0.50

COMPOSITE AVERAGE AGE (YEARS)11.17

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)8.93

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: M16 - Multiplex Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S1.5

ASL: 18

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1980	72,014.91	72,015	72,015	1.0000	0		0	42.5
1999	37,192.70	30,360	37,193	1.0000	0	3.31	0	23.5
2000	64,304.02	51,410	64,304	1.0000	0	3.61	0	22.5
2001	41,228.45	32,236	41,046	0.9956	183	3.93	47	21.5
2002	175,339.70	133,845	170,422	0.9720	4,918	4.26	1,154	20.5
2003	377,868.71	281,049	357,855	0.9470	20,014	4.61	4,340	19.5
2005	62,819.85	44,040	56,075	0.8926	6,745	5.38	1,253	17.5
2008	148,474.73	92,953	118,356	0.7971	30,119	6.73	4,475	14.5
2010	413,822.99	234,700	298,840	0.7221	114,983	7.79	14,758	12.5
2012	5,970.56	2,984	3,800	0.6364	2,171	9.00	241	10.5
2016	0.01	0	0	0.0000	0	11.94	0	6.5
2017	1,416,234.31	410,483	522,661	0.3690	893,574	12.78	69,904	5.5
2018	267,673.24	64,461	82,077	0.3066	185,597	13.67	13,582	4.5
2019	374,459.24	71,062	90,482	0.2416	283,978	14.58	19,472	3.5
2020	96,679.59	13,246	16,866	0.1745	79,813	15.53	5,138	2.5
TOTAL	3,554,083.01	1,534,843	1,931,990		1,622,093		134,364	

COMPOSITE ANNUAL ACCRUAL RATE 3.78%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.54

COMPOSITE AVERAGE AGE (YEARS) 10.20

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 10.23

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: O01 - Office Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: SQ

ASL: 20

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2003	34,717.00	33,849	34,717	1.0000	0	0.50	0	19.5
2004	32,921.94	30,453	32,617	0.9907	305	1.50	203	18.5
2006	35,796.60	29,532	30,925	0.8639	4,872	3.50	1,392	16.5
2007	17,054.54	13,217	13,840	0.8115	3,214	4.50	714	15.5
2008	78,853.72	57,169	59,864	0.7592	18,989	5.50	3,453	14.5
2009	28,238.18	19,061	19,959	0.7068	8,279	6.50	1,274	13.5
2010	143,576.04	89,735	93,966	0.6545	49,610	7.50	6,615	12.5
2011	64,130.82	36,875	38,614	0.6021	25,517	8.50	3,002	11.5
2012	10,168.04	5,338	5,590	0.5498	4,578	9.50	482	10.5
2013	33,531.71	15,928	16,679	0.4974	16,853	10.50	1,605	9.5
2014	121,923.66	51,818	54,261	0.4450	67,663	11.50	5,884	8.5
2015	6,121.97	2,296	2,404	0.3927	3,718	12.50	297	7.5
2016	42,796.04	13,909	14,564	0.3403	28,232	13.50	2,091	6.5
2017	264,525.59	72,745	76,174	0.2880	188,351	14.50	12,990	5.5
2018	7,069.00	1,591	1,666	0.2356	5,403	15.50	349	4.5
2019	48,819.98	8,544	8,946	0.1833	39,874	16.50	2,417	3.5
2021	2,617.04	196	206	0.0785	2,412	18.50	130	1.5
TOTAL	972,861.87	482,254	504,991		467,871		42,898	

COMPOSITE ANNUAL ACCRUAL RATE 4.41%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.52

COMPOSITE AVERAGE AGE (YEARS) 9.91

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 10.09

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: O02 - Office Furniture

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: SQ

ASL: 20

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2003	16,175.45	15,771	16,175	1.0000	0	0.50	0	19.5
2004	5,652.00	5,228	5,652	1.0000	0	1.50	0	18.5
2005	85,208.45	74,557	79,694	0.9353	5,514	2.50	2,206	17.5
2006	104,781.44	86,445	91,841	0.8765	12,940	3.50	3,697	16.5
2007	59,862.92	46,394	49,290	0.8234	10,573	4.50	2,350	15.5
2008	83,805.96	60,759	64,552	0.7703	19,253	5.50	3,501	14.5
2009	128,532.85	86,760	92,176	0.7171	36,357	6.50	5,593	13.5
2010	194,647.39	121,655	129,249	0.6640	65,398	7.50	8,720	12.5
2011	84,517.24	48,597	51,631	0.6109	32,886	8.50	3,869	11.5
2012	90,136.68	47,322	50,276	0.5578	39,861	9.50	4,196	10.5
2013	24,491.46	11,633	12,360	0.5047	12,132	10.50	1,155	9.5
2014	36,046.62	15,320	16,276	0.4515	19,770	11.50	1,719	8.5
2015	58,064.89	21,774	23,134	0.3984	34,931	12.50	2,794	7.5
2016	10,126.00	3,291	3,496	0.3453	6,630	13.50	491	6.5
2017	7,510.41	2,065	2,194	0.2922	5,316	14.50	367	5.5
2018	28,414.43	6,393	6,792	0.2390	21,622	15.50	1,395	4.5
2019	12,436.79	2,176	2,312	0.1859	10,124	16.50	614	3.5
2020	31,834.20	3,979	4,228	0.1328	27,607	17.50	1,578	2.5
2021	36,831.84	2,762	2,935	0.0797	33,897	18.50	1,832	1.5
2022	12,376.72	309	329	0.0266	12,048	19.50	618	0.5
TOTAL	1,111,453.74	663,192	704,595		406,859		46,695	

COMPOSITE ANNUAL ACCRUAL RATE 4.20%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.63

COMPOSITE AVERAGE AGE (YEARS) 11.93

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 8.07

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P01 - P.C.B Storage Container

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 30
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1991	42,479.84	37,152	42,399	0.9981	81	3.76	21	31.5
TOTAL	42,479.84	37,152	42,399		81		21	

COMPOSITE ANNUAL ACCRUAL RATE	0.05%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	1.00
COMPOSITE AVERAGE AGE (YEARS)	31.50
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	3.76

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P02 - PABX - Private Auto Branch Exchange

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 20
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2000	258,657.30	232,754	258,657	1.0000	0	2.00	0	22.5
TOTAL	258,657.30	232,754	258,657		0		0	

COMPOSITE ANNUAL ACCRUAL RATE	0.00%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	1.00
COMPOSITE AVERAGE AGE (YEARS)	22.50
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	2.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P03 - Penstock

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 75

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	13,513,753.01	9,911,060	7,370,857	0.5195	6,818,584	22.61	301,522	56.5
1967	5,839,105.78	4,221,644	3,139,637	0.5121	2,991,424	23.36	128,071	55.5
1970	351,355.39	242,743	180,528	0.4893	188,395	25.65	7,344	52.5
1979	11,030,667.78	6,475,872	4,816,107	0.4158	6,766,094	33.07	204,625	43.5
1982	12,972,402.67	7,137,582	5,308,221	0.3897	8,312,802	35.70	232,858	40.5
1985	4,690,571.00	2,403,340	1,787,364	0.3629	3,137,735	38.40	81,708	37.5
1989	414,557.06	190,953	142,011	0.3262	293,273	42.10	6,966	33.5
2003	6,732,225.16	1,828,115	1,359,569	0.1923	5,709,267	55.60	102,678	19.5
2006	2,147,468.60	494,085	367,451	0.1630	1,887,391	58.57	32,227	16.5
2016	6,977,298.80	633,972	471,485	0.0644	6,854,679	68.51	100,054	6.5
2017	7,794,878.78	599,373	445,754	0.0545	7,738,869	69.51	111,338	5.5
2018	6,439,917.06	405,199	301,346	0.0446	6,460,567	70.51	91,632	4.5
2019	501,202.49	24,530	18,243	0.0347	508,020	71.50	7,105	3.5
2021	256,739.28	5,385	4,005	0.0149	265,571	73.50	3,613	1.5
TOTAL	79,662,142.86	34,573,852	25,712,580		57,932,670		1,411,741	

COMPOSITE ANNUAL ACCRUAL RATE 1.77%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.32

COMPOSITE AVERAGE AGE (YEARS) 32.48

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 44.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P04 - Pole Cribs and Pole Hardware

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S2.5

ASL: 40

Net Salvage: -25%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	1,845.17	2,025	1,928	0.8358	379	4.87	78	54.5
1970	74,045.54	80,233	76,363	0.8250	16,194	5.33	3,041	52.5
1978	11,761.12	11,954	11,377	0.7739	3,324	7.48	445	44.5
1979	1,413.56	1,423	1,354	0.7663	413	7.80	53	43.5
1981	3,014,392.28	2,969,543	2,826,292	0.7501	941,698	8.48	111,100	41.5
1982	1,355,489.32	1,319,952	1,256,277	0.7414	438,085	8.84	49,563	40.5
1983	693,096.87	666,715	634,553	0.7324	231,818	9.22	25,148	39.5
1984	808,050.66	767,292	730,278	0.7230	279,785	9.61	29,102	38.5
1985	735,973.61	689,329	656,076	0.7132	263,891	10.03	26,315	37.5
1986	1,165,073.19	1,075,478	1,023,597	0.7029	432,744	10.46	41,368	36.5
1987	2,122,202.80	1,929,004	1,835,949	0.6921	816,805	10.91	74,846	35.5
1988	1,154,830.63	1,032,635	982,821	0.6808	460,717	11.39	40,464	34.5
1989	1,673,961.64	1,470,989	1,400,029	0.6691	692,423	11.88	58,284	33.5
1990	1,744,918.14	1,505,197	1,432,587	0.6568	748,561	12.40	60,386	32.5
1991	1,744,871.38	1,475,770	1,404,579	0.6440	776,510	12.94	60,031	31.5
1992	1,095,172.39	907,023	863,268	0.6306	505,697	13.50	37,466	30.5
1993	1,266,777.96	1,025,932	976,441	0.6166	607,032	14.08	43,101	29.5
1994	1,573,714.47	1,244,466	1,184,433	0.6021	782,710	14.69	53,264	28.5
1995	1,861,510.67	1,435,060	1,365,833	0.5870	961,055	15.33	62,688	27.5
1996	2,622,563.42	1,967,591	1,872,674	0.5713	1,405,530	15.99	87,890	26.5
1997	4,884,526.62	3,559,888	3,388,159	0.5549	2,717,499	16.68	162,938	25.5
1998	1,878,680.76	1,327,431	1,263,396	0.5380	1,084,955	17.39	62,391	24.5
1999	1,365,623.64	933,490	888,459	0.5205	818,571	18.13	45,160	23.5
2000	2,049,493.54	1,352,221	1,286,990	0.5024	1,274,877	18.89	67,500	22.5
2001	2,399,127.49	1,524,054	1,450,534	0.4837	1,548,375	19.67	78,710	21.5
2002	4,727,745.92	2,883,921	2,744,801	0.4645	3,164,882	20.48	154,535	20.5
2003	3,145,759.93	1,837,279	1,748,649	0.4447	2,183,551	21.31	102,464	19.5
2004	3,558,404.93	1,983,590	1,887,902	0.4244	2,560,105	22.16	115,518	18.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P04 - Pole Cribs and Pole Hardware

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S2.5

ASL: 40

Net Salvage: -25%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2005	3,462,816.60	1,836,002	1,747,433	0.4037	2,581,088	23.03	112,058	17.5
2006	4,537,133.14	2,279,417	2,169,458	0.3825	3,501,958	23.92	146,382	16.5
2007	3,973,884.13	1,883,800	1,792,926	0.3609	3,174,429	24.83	127,844	15.5
2008	5,702,540.68	2,538,842	2,416,369	0.3390	4,711,807	25.75	182,960	14.5
2009	5,642,349.74	2,346,900	2,233,686	0.3167	4,819,251	26.69	180,565	13.5
2010	5,042,753.64	1,947,955	1,853,986	0.2941	4,449,456	27.64	160,986	12.5
2011	7,085,136.89	2,524,395	2,402,619	0.2713	6,453,802	28.60	225,669	11.5
2012	7,448,821.63	2,428,396	2,311,251	0.2482	6,999,776	29.57	236,738	10.5
2013	15,668,176.57	4,629,679	4,406,344	0.2250	15,178,877	30.54	496,942	9.5
2014	1,614,341.82	427,403	406,785	0.2016	1,611,142	31.53	51,102	8.5
2015	7,839,100.21	1,833,279	1,744,842	0.1781	8,054,033	32.52	247,692	7.5
2016	13,456,636.75	2,729,658	2,597,979	0.1545	14,222,817	33.51	424,450	6.5
2017	1,842,447.15	316,424	301,160	0.1308	2,001,899	34.50	58,019	5.5
2018	6,007,978.77	844,539	803,798	0.1070	6,706,175	35.50	188,897	4.5
2019	481,186.18	52,621	50,083	0.0833	551,400	36.50	15,107	3.5
2020	941,894.94	73,582	70,032	0.0595	1,107,337	37.50	29,529	2.5
2021	722,163.98	33,851	32,218	0.0357	870,487	38.50	22,610	1.5
2022	459,852.62	7,185	6,839	0.0119	567,977	39.50	14,379	0.5
TOTAL	140,660,243.09	65,713,413	62,543,404		113,281,900		4,575,778	

COMPOSITE ANNUAL ACCRUAL RATE 3.25%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.44

COMPOSITE AVERAGE AGE (YEARS) 16.26

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 25.05

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P05 - Pole Structures - Wood

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 57

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	1,357,249.51	1,172,715	1,197,294	0.8020	295,680	12.23	24,182	55.5
1968	686,797.97	586,753	599,050	0.7929	156,428	12.73	12,288	54.5
1969	420,665.37	355,171	362,615	0.7836	100,116	13.25	7,556	53.5
1970	2,777,328.16	2,316,192	2,364,736	0.7740	690,325	13.79	50,076	52.5
1971	20,688.28	17,033	17,390	0.7641	5,368	14.34	374	51.5
1974	2,809,521.88	2,218,132	2,264,621	0.7328	825,853	16.09	51,329	48.5
1975	4,543.00	3,533	3,607	0.7218	1,390	16.70	83	47.5
1976	98,175.86	75,155	76,730	0.7105	31,263	17.33	1,804	46.5
1977	39,730.43	29,922	30,549	0.6990	13,154	17.97	732	45.5
1978	87,824.46	65,031	66,394	0.6873	30,213	18.63	1,622	44.5
1979	3,913.00	2,847	2,907	0.6753	1,398	19.30	72	43.5
1980	867,116.74	619,461	632,444	0.6631	321,384	19.98	16,084	42.5
1981	5,935,302.79	4,160,674	4,247,876	0.6506	2,280,957	20.68	110,323	41.5
1982	6,572,268.44	4,517,704	4,612,390	0.6380	2,617,105	21.38	122,405	40.5
1983	5,734,854.20	3,862,643	3,943,599	0.6251	2,364,741	22.10	107,009	39.5
1984	443,026.83	292,167	298,291	0.6121	189,039	22.83	8,281	38.5
1985	2,041,402.54	1,317,152	1,344,757	0.5989	900,785	23.57	38,224	37.5
1986	143,935.40	90,788	92,691	0.5854	65,638	24.32	2,699	36.5
1987	4,556,363.26	2,807,107	2,865,940	0.5718	2,146,060	25.08	85,584	35.5
1988	2,638,826.75	1,586,531	1,619,783	0.5580	1,282,927	25.85	49,638	34.5
1989	585,499.62	343,211	350,404	0.5441	293,646	26.62	11,029	33.5
1990	23,684,443.82	13,522,919	13,806,343	0.5299	12,246,545	27.41	446,729	32.5
1991	223,252.59	124,027	126,626	0.5156	118,951	28.21	4,216	31.5
1992	143,107.01	77,272	78,891	0.5012	78,527	29.02	2,706	30.5
1993	127,323.81	66,743	68,142	0.4865	71,914	29.84	2,410	29.5
1994	35,715.32	18,153	18,534	0.4718	20,753	30.66	677	28.5
1995	2,992,281.01	1,472,729	1,503,595	0.4568	1,787,914	31.50	56,766	27.5
1996	6,014,190.95	2,862,240	2,922,229	0.4417	3,693,381	32.34	114,208	26.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P05 - Pole Structures - Wood

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 57

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1997	284,490.40	130,723	133,462	0.4265	179,477	33.19	5,408	25.5
1998	3,226,021.07	1,428,891	1,458,839	0.4111	2,089,784	34.05	61,377	24.5
1999	77,573.44	33,061	33,754	0.3956	51,577	34.92	1,477	23.5
2000	6,685,201.39	2,736,324	2,793,674	0.3799	4,560,047	35.79	127,410	22.5
2001	4,192,381.31	1,644,620	1,679,089	0.3641	2,932,530	36.67	79,966	21.5
2002	1,078,745.34	404,666	413,147	0.3482	773,473	37.56	20,592	20.5
2003	4,285,684.52	1,533,500	1,565,641	0.3321	3,148,612	38.46	81,870	19.5
2004	451,960.09	153,839	157,063	0.3159	340,093	39.36	8,640	18.5
2005	2,059,566.98	664,864	678,799	0.2996	1,586,725	40.27	39,400	17.5
2006	4,146,340.56	1,265,187	1,291,704	0.2832	3,269,271	41.19	79,373	16.5
2007	465,969.53	133,884	136,690	0.2667	375,876	42.11	8,926	15.5
2008	2,770,256.81	746,313	761,955	0.2500	2,285,327	43.04	53,098	14.5
2009	2,380,422.27	598,378	610,919	0.2333	2,007,546	43.97	45,653	13.5
2010	5,182,488.96	1,208,794	1,234,129	0.2165	4,466,609	44.91	99,449	12.5
2011	3,723,219.33	800,547	817,325	0.1996	3,278,216	45.86	71,486	11.5
2012	2,562,848.59	504,089	514,654	0.1826	2,304,480	46.81	49,233	10.5
2013	2,673,153.89	476,574	486,563	0.1655	2,453,907	47.76	51,378	9.5
2014	4,954,466.85	791,685	808,277	0.1483	4,641,636	48.72	95,272	8.5
2015	8,379,107.26	1,183,318	1,208,119	0.1311	8,008,899	49.68	161,203	7.5
2016	3,531,065.21	432,840	441,912	0.1138	3,442,260	50.65	67,964	6.5
2017	5,574,525.54	579,046	591,182	0.0964	5,540,796	51.62	107,343	5.5
2018	3,727,077.78	317,195	323,843	0.0790	3,775,942	52.59	71,800	4.5
2019	3,617,271.44	239,748	244,773	0.0615	3,734,226	53.57	69,713	3.5
2020	4,606,629.62	218,347	222,923	0.0440	4,844,370	54.54	88,816	2.5
2021	2,985,577.85	85,002	86,784	0.0264	3,197,352	55.52	57,584	1.5
2022	2,351,218.20	22,337	22,805	0.0088	2,563,535	56.51	45,366	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P05 - Pole Structures - Wood

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 57
Net Salvage: -10%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	157,018,613.23	62,917,776	64,236,455		108,484,019		2,978,903	
COMPOSITE ANNUAL ACCRUAL RATE				1.90%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.41				
COMPOSITE AVERAGE AGE (YEARS)				22.90				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				36.24				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P06 - Poles - Concrete

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 25

Net Salvage: -25%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1981	23,208.03	29,010	24,972	0.8608	4,038		4,038	42.5
1982	72,462.60	90,578	77,971	0.8608	12,607		12,607	41.5
1984	58,940.77	73,676	63,422	0.8608	10,254		10,254	39.5
1986	69,138.28	84,604	72,829	0.8427	13,594	0.53	13,594	36.5
1987	10,316.62	12,554	10,807	0.8380	2,089	0.66	2,089	35.5
1990	23,134.24	27,412	23,597	0.8160	5,321	1.30	4,087	32.5
1994	34,476.00	39,002	33,574	0.7791	9,521	2.37	4,010	28.5
1997	1,639.61	1,767	1,521	0.7421	528	3.45	153	25.5
1999	571.34	587	506	0.7080	209	4.44	47	23.5
2005	15,775.50	12,973	11,168	0.5663	8,552	8.55	1,000	17.5
2014	24,097.27	10,147	8,735	0.2900	21,387	16.58	1,290	8.5
TOTAL	333,760.26	382,311	329,100		88,100		53,169	

COMPOSITE ANNUAL ACCRUAL RATE 15.93%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.99

COMPOSITE AVERAGE AGE (YEARS) 34.40

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 2.09

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P07 - Poles - Wood

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1.5

ASL: 48

Net Salvage: -25%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	1,429.92	1,318	1,787	1.0000	0	12.60	0	54.5
1970	15,020.65	13,526	18,776	1.0000	0	13.42	0	52.5
1978	2,064.56	1,659	2,309	0.8948	272	17.14	16	44.5
1979	287.20	227	316	0.8799	43	17.65	2	43.5
1981	1,507,469.27	1,149,887	1,600,201	0.8492	284,135	18.71	15,187	41.5
1982	405,684.28	303,692	422,623	0.8334	84,483	19.25	4,388	40.5
1983	346,479.16	254,357	353,967	0.8173	79,131	19.81	3,995	39.5
1984	420,564.68	302,546	421,027	0.8009	104,678	20.38	5,137	38.5
1985	130,084.55	91,628	127,512	0.7842	35,094	20.95	1,675	37.5
1986	878,308.90	605,254	842,281	0.7672	255,605	21.54	11,868	36.5
1987	1,091,720.55	735,374	1,023,358	0.7499	341,292	22.13	15,419	35.5
1988	934,144.75	614,497	855,144	0.7323	312,537	22.74	13,744	34.5
1989	1,571,533.93	1,008,608	1,403,595	0.7145	560,822	23.35	24,013	33.5
1990	964,685.51	603,449	839,770	0.6964	366,087	23.98	15,267	32.5
1991	787,551.77	479,656	667,497	0.6780	316,943	24.61	12,877	31.5
1992	737,160.16	436,638	607,633	0.6594	313,817	25.25	12,426	30.5
1993	871,479.76	501,432	697,801	0.6406	391,549	25.91	15,115	29.5
1994	1,332,507.83	743,829	1,035,125	0.6215	630,510	26.56	23,735	28.5
1995	946,190.53	511,741	712,147	0.6021	470,591	27.23	17,281	27.5
1996	1,565,455.90	819,147	1,139,938	0.5825	816,882	27.91	29,272	26.5
1997	1,934,588.04	977,905	1,360,868	0.5628	1,057,367	28.59	36,985	25.5
1998	1,150,531.20	560,898	780,555	0.5427	657,609	29.28	22,460	24.5
1999	944,326.52	443,219	616,791	0.5225	563,617	29.98	18,802	23.5
2000	1,134,501.73	511,665	712,041	0.5021	706,086	30.68	23,013	22.5
2001	1,265,424.36	547,275	761,597	0.4815	820,183	31.39	26,127	21.5
2002	6,219,187.14	2,573,471	3,581,284	0.4607	4,192,700	32.11	130,572	20.5
2003	1,450,207.33	572,752	797,051	0.4397	1,015,708	32.83	30,935	19.5
2004	1,410,039.18	530,088	737,679	0.4185	1,024,870	33.56	30,535	18.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P07 - Poles - Wood

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R1.5
ASL: 48
Net Salvage: -25%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2005	1,938,219.67	691,522	962,333	0.3972	1,460,442	34.30	42,579	17.5
2006	4,237,066.54	1,429,926	1,989,908	0.3757	3,306,425	35.04	94,359	16.5
2007	2,039,954.48	648,784	902,858	0.3541	1,647,085	35.79	46,024	15.5
2008	1,910,171.40	570,111	793,376	0.3323	1,594,339	36.54	43,634	14.5
2009	1,439,822.76	401,351	558,527	0.3103	1,241,251	37.30	33,281	13.5
2010	1,568,658.50	406,141	565,193	0.2882	1,395,630	38.06	36,671	12.5
2011	2,438,611.25	582,676	810,862	0.2660	2,237,402	38.82	57,628	11.5
2012	3,783,242.36	827,904	1,152,125	0.2436	3,576,928	39.60	90,334	10.5
2013	4,191,218.83	832,389	1,158,366	0.2211	4,080,658	40.37	101,072	9.5
2014	4,143,854.40	738,615	1,027,868	0.1984	4,151,950	41.16	100,885	8.5
2015	4,021,358.92	634,395	882,835	0.1756	4,143,864	41.94	98,800	7.5
2016	1,076,763.23	147,670	205,500	0.1527	1,140,454	42.73	26,687	6.5
2017	3,373,567.48	392,690	546,474	0.1296	3,670,486	43.53	84,321	5.5
2018	1,682,229.62	160,713	223,650	0.1064	1,879,137	44.33	42,388	4.5
2019	4,252,442.85	316,991	441,130	0.0830	4,874,423	45.14	107,990	3.5
2020	6,236,167.83	333,174	463,651	0.0595	7,331,559	45.95	159,561	2.5
2021	5,653,109.68	181,943	253,194	0.0358	6,813,193	46.76	145,693	1.5
2022	3,384,157.56	36,612	50,950	0.0120	4,179,247	47.58	87,828	0.5
TOTAL	87,389,246.72	25,229,349	35,109,473		74,127,085		1,940,581	

COMPOSITE ANNUAL ACCRUAL RATE 2.22%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.40

COMPOSITE AVERAGE AGE (YEARS) 14.46

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 36.91

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P08 - Power Line Carrier

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 25

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1978	50,794.89	53,335	53,335	1.0000	0		0	45.5
1980	149,031.53	156,483	156,483	1.0000	0		0	43.5
1982	2,537.79	2,604	2,665	1.0000	0	0.57	0	40.5
1990	1,997.13	1,891	2,097	1.0000	0	2.46	0	32.5
1995	319,668.37	281,969	335,652	1.0000	0	4.00	0	27.5
1996	115,824.11	100,249	121,615	1.0000	0	4.39	0	26.5
1999	511,111.35	412,212	505,408	0.9418	31,259	5.80	5,392	23.5
2000	278,067.01	217,903	267,169	0.9151	24,801	6.34	3,911	22.5
2002	594,654.98	436,126	534,728	0.8564	89,659	7.54	11,895	20.5
2003	258,180.09	182,332	223,555	0.8247	47,534	8.19	5,807	19.5
2004	287,074.34	194,572	238,562	0.7914	62,866	8.86	7,093	18.5
2008	368,553.14	203,856	249,945	0.6459	137,035	11.83	11,583	14.5
2009	351,267.78	182,507	223,770	0.6067	145,062	12.63	11,486	13.5
2017	753,098.87	168,190	206,216	0.2608	584,537	19.68	29,698	5.5
2019	500,582.16	71,742	87,962	0.1674	437,649	21.59	20,273	3.5
2020	27,654.85	2,841	3,483	0.1200	25,554	22.55	1,133	2.5
TOTAL	4,570,098.39	2,668,812	3,212,646		1,585,957		108,271	

COMPOSITE ANNUAL ACCRUAL RATE 2.37%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.70

COMPOSITE AVERAGE AGE (YEARS) 17.00

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 11.10

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P09 - Power Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L3

ASL: 25

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1980	1,939.62	1,668	1,940	1.0000	0	3.50	0	42.5
1990	3,702.71	2,815	3,703	1.0000	0	5.99	0	32.5
1992	2,349.84	1,741	2,350	1.0000	0	6.48	0	30.5
1997	29,300.16	20,590	28,912	0.9867	388	7.43	52	25.5
1998	2,672.81	1,860	2,612	0.9773	61	7.60	8	24.5
2000	1,565.00	1,065	1,496	0.9559	69	7.98	9	22.5
2003	374,436.07	241,886	339,653	0.9071	34,783	8.85	3,930	19.5
2004	29,433.83	18,533	26,024	0.8841	3,410	9.26	368	18.5
2006	96,294.52	56,657	79,557	0.8262	16,738	10.29	1,626	16.5
2012	32,019.36	12,985	18,234	0.5695	13,786	14.86	928	10.5
2013	62,329.30	23,050	32,366	0.5193	29,963	15.75	1,902	9.5
2014	13,790.40	4,595	6,452	0.4679	7,338	16.67	440	8.5
2017	820,776.39	179,704	252,338	0.3074	568,439	19.53	29,111	5.5
2018	243,517.02	43,745	61,426	0.2522	182,091	20.51	8,879	4.5
2021	953,848.59	57,246	80,384	0.0843	873,465	23.50	37,169	1.5
2022	54,538.28	1,092	1,533	0.0281	53,005	24.50	2,164	0.5
TOTAL	2,722,513.90	669,230	938,978		1,783,536		86,586	

COMPOSITE ANNUAL ACCRUAL RATE 3.18%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.34

COMPOSITE AVERAGE AGE (YEARS) 6.86

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 18.85

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P11 - Printers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 6
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2017	27,699.21	25,391	21,934	0.7919	5,765	0.50	5,765	5.5
2018	212,944.71	159,709	137,965	0.6479	74,980	1.50	49,987	4.5
2019	114,866.83	67,006	57,883	0.5039	56,984	2.50	22,794	3.5
2020	65,447.90	27,270	23,557	0.3599	41,891	3.50	11,969	2.5
2021	165,155.42	41,289	35,667	0.2160	129,488	4.50	28,775	1.5
2022	74,093.82	6,174	5,334	0.0720	68,760	5.50	12,502	0.5
TOTAL	660,207.89	326,838	282,340		377,868		131,792	

COMPOSITE ANNUAL ACCRUAL RATE	19.96%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.43
COMPOSITE AVERAGE AGE (YEARS)	2.97
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	3.03

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P12 - Protective Control and Relay Panels

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 35

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1965	112,137.03	110,344	112,137	1.0000	0	0.56	0	57.5
1967	213,331.37	207,596	213,331	1.0000	0	0.94	0	55.5
1968	57,082.00	55,181	57,082	1.0000	0	1.17	0	54.5
1972	160,693.26	150,848	157,245	0.9785	3,448	2.14	1,608	50.5
1980	274,001.64	240,671	250,879	0.9156	23,123	4.26	5,431	42.5
1984	65,632.30	55,150	57,489	0.8759	8,143	5.59	1,457	38.5
1987	97,897.63	78,775	82,116	0.8388	15,782	6.84	2,308	35.5
1988	11,036.18	8,733	9,103	0.8248	1,933	7.31	265	34.5
1995	81,935.56	55,422	57,773	0.7051	24,163	11.33	2,133	27.5
1996	422,516.97	277,718	289,496	0.6852	133,021	11.99	11,090	26.5
1999	123,789.76	73,848	76,980	0.6219	46,810	14.12	3,315	23.5
2003	1,705,507.19	867,491	904,283	0.5302	801,225	17.20	46,589	19.5
2004	267,884.42	130,073	135,590	0.5061	132,295	18.01	7,347	18.5
2005	136,944.76	63,276	65,960	0.4817	70,985	18.83	3,770	17.5
2006	84,139.78	36,866	38,429	0.4567	45,711	19.66	2,324	16.5
2007	417,771.63	172,896	180,228	0.4314	237,543	20.52	11,579	15.5
2008	45,838.89	17,840	18,596	0.4057	27,243	21.38	1,274	14.5
2009	143,451.35	52,238	54,453	0.3796	88,998	22.25	3,999	13.5
2010	77,951.21	26,408	27,528	0.3531	50,423	23.14	2,179	12.5
2011	1,280,662.18	400,934	417,938	0.3263	862,724	24.04	35,883	11.5
2012	92,578.40	26,575	27,702	0.2992	64,877	24.95	2,600	10.5
2013	2,734,697.42	713,034	743,275	0.2718	1,991,423	25.87	76,965	9.5
2014	401,238.87	93,950	97,934	0.2441	303,305	26.80	11,315	8.5
2015	802,970.72	166,463	173,523	0.2161	629,448	27.74	22,688	7.5
2016	1,425,802.49	256,984	267,883	0.1879	1,157,920	28.69	40,357	6.5
2017	5,351,912.94	818,604	853,322	0.1594	4,498,591	29.65	151,741	5.5
2018	1,703,634.76	213,775	222,842	0.1308	1,480,793	30.61	48,379	4.5
2019	2,253,975.37	220,523	229,875	0.1020	2,024,100	31.58	64,103	3.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: P12 - Protective Control and Relay Panels

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 35
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2020	3,390,579.08	237,470	247,541	0.0730	3,143,038	32.55	96,564	2.5
2021	3,461,197.84	145,738	151,919	0.0439	3,309,279	33.53	98,707	1.5
2022	2,900,667.76	40,781	42,510	0.0147	2,858,157	34.51	82,826	0.5
TOTAL	30,299,460.76	6,016,202	6,264,962		24,034,499		838,796	

COMPOSITE ANNUAL ACCRUAL RATE	2.77%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.21
COMPOSITE AVERAGE AGE (YEARS)	7.80
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	28.05

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R01 - Radio Towers (Wood or Steel)

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2

ASL: 48

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1980	931,522.68	650,339	978,099	1.0000	0	16.08	0	42.5
1982	162,058.32	109,200	170,161	1.0000	0	17.20	0	40.5
1984	345,750.61	224,212	363,038	1.0000	0	18.36	0	38.5
1990	60,871.98	34,479	63,916	1.0000	0	22.11	0	32.5
1993	20,347.95	10,626	21,365	1.0000	0	24.13	0	29.5
2001	1,909,782.98	754,680	1,558,435	0.7772	446,837	29.94	14,927	21.5
2003	4,252,661.21	1,537,223	3,174,408	0.7109	1,290,886	31.48	41,012	19.5
2005	231,191.05	75,617	156,150	0.6433	86,600	33.05	2,620	17.5
2007	361,138.62	105,450	217,758	0.5743	161,438	34.65	4,659	15.5
2009	74,718.10	19,147	39,540	0.5040	38,914	36.29	1,072	13.5
2010	214,646.98	51,120	105,565	0.4684	119,815	37.11	3,228	12.5
2013	26,296.91	4,811	9,934	0.3598	17,678	39.64	446	9.5
2018	132,445.44	11,665	24,090	0.1732	114,978	43.97	2,615	4.5
2020	200,055.29	9,848	20,337	0.0968	189,721	45.75	4,147	2.5
2021	185,525.34	5,496	11,348	0.0583	183,453	46.65	3,933	1.5
TOTAL	9,109,013.46	3,603,914	6,914,144		2,650,320		78,659	

COMPOSITE ANNUAL ACCRUAL RATE 0.86%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.76

COMPOSITE AVERAGE AGE (YEARS) 22.06

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 29.91

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R02 - Radios - Fixed Microwave Equipment and Fixed UHF Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R5

ASL: 15

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1980	133,758.69	133,759	130,502	0.9757	3,257		3,257	42.5
2003	1,862,644.67	1,800,458	1,756,619	0.9431	106,026	0.50	106,026	19.5
2007	184,426.72	168,205	164,110	0.8898	20,317	1.32	15,399	15.5
2008	39,521.58	34,905	34,055	0.8617	5,466	1.75	3,120	14.5
2009	49,779.53	42,115	41,089	0.8254	8,690	2.31	3,763	13.5
2010	52,446.64	41,990	40,968	0.7811	11,479	2.99	3,838	12.5
2012	35,905.13	24,801	24,197	0.6739	11,708	4.64	2,524	10.5
2014	840,199.07	475,064	463,497	0.5517	376,703	6.52	57,788	8.5
2015	3,385.14	1,692	1,651	0.4876	1,735	7.50	231	7.5
2017	1,048,572.19	384,483	375,121	0.3577	673,451	9.50	70,890	5.5
2019	937,879.06	218,845	213,516	0.2277	724,363	11.50	62,989	3.5
TOTAL	5,188,518.42	3,326,316	3,245,325		1,943,193		329,825	

COMPOSITE ANNUAL ACCRUAL RATE 6.36%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.63

COMPOSITE AVERAGE AGE (YEARS) 12.21

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 5.38

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R04 - Radios - Fixed VHF Equipment and Mobile VHF Base Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 15

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1990	3,162.00	3,162	3,162	1.0000	0		0	33.5
1992	161,678.78	161,679	161,679	1.0000	0		0	31.5
1999	25,964.56	24,956	25,965	1.0000	0	0.58	0	23.5
2003	118,245.16	106,393	118,245	1.0000	0	1.50	0	19.5
2006	5,579,047.58	4,681,415	5,579,048	1.0000	0	2.41	0	16.5
2007	449,236.51	364,898	449,237	1.0000	0	2.82	0	15.5
2010	409,278.96	289,158	409,122	0.9996	157	4.40	36	12.5
2011	2,650.00	1,758	2,488	0.9387	162	5.05	32	11.5
2012	715,346.02	441,455	624,603	0.8731	90,743	5.74	15,800	10.5
2019	211.38	48	67	0.3186	144	11.62	12	3.5
TOTAL	7,464,820.95	6,074,921	7,373,614		91,207		15,880	

COMPOSITE ANNUAL ACCRUAL RATE 0.21%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.99

COMPOSITE AVERAGE AGE (YEARS) 16.05

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 2.79

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R06 - Ramps - Yard Storage

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 25

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1975	23,739.53	23,740	23,740	1.0000	0		0	48.5
1979	41,423.85	41,424	41,424	1.0000	0		0	44.5
1982	17,210.71	16,820	17,211	1.0000	0	0.57	0	40.5
1987	32,563.96	30,357	32,564	1.0000	0	1.69	0	35.5
1989	105,848.63	96,528	105,849	1.0000	0	2.20	0	33.5
1990	80,081.66	72,203	80,082	1.0000	0	2.46	0	32.5
1991	18,109.67	16,135	18,110	1.0000	0	2.73	0	31.5
1992	11,484.17	10,102	11,387	0.9915	97	3.01	32	30.5
1993	49,461.82	42,912	48,368	0.9779	1,094	3.31	330	29.5
1996	49,965.87	41,188	46,424	0.9291	3,542	4.39	806	26.5
1999	91,261.53	70,098	79,010	0.8658	12,251	5.80	2,113	23.5
2001	54,773.84	39,607	44,642	0.8150	10,132	6.92	1,464	21.5
2005	37,371.68	23,070	26,003	0.6958	11,369	9.57	1,188	17.5
2006	157,317.16	92,514	104,277	0.6628	53,041	10.30	5,150	16.5
2007	62,524.29	34,881	39,316	0.6288	23,208	11.05	2,100	15.5
2008	128,268.49	67,570	76,161	0.5938	52,107	11.83	4,405	14.5
2009	275,236.83	136,194	153,510	0.5577	121,727	12.63	9,638	13.5
2010	194,580.30	89,904	101,335	0.5208	93,246	13.45	6,933	12.5
2014	30,779.66	9,954	11,219	0.3645	19,560	16.92	1,156	8.5
2015	120,479.01	34,583	38,980	0.3235	81,499	17.82	4,572	7.5
2018	477,720.85	83,505	94,122	0.1970	383,599	20.63	18,594	4.5
2020	79,771.46	7,804	8,797	0.1103	70,975	22.55	3,147	2.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R06 - Ramps - Yard Storage

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 25
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	2,139,974.97	1,081,090	1,202,528		937,447		61,628	
COMPOSITE ANNUAL ACCRUAL RATE				2.88%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.56				
COMPOSITE AVERAGE AGE (YEARS)				15.78				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				12.37				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R07 - Reactors and Resistors

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S4

ASL: 40

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	20,083.02	18,988	16,564	0.8248	3,519	2.18	1,613	54.5
1977	15,220.00	13,733	11,980	0.7871	3,240	3.91	829	45.5
1978	8,000.00	7,166	6,252	0.7814	1,748	4.17	420	44.5
1981	11,332.11	9,895	8,632	0.7617	2,700	5.07	532	41.5
1995	706,182.60	475,760	415,022	0.5877	291,161	13.05	22,308	27.5
1996	31,021.13	20,237	17,654	0.5691	13,367	13.91	961	26.5
2000	201,957.01	113,165	98,718	0.4888	103,239	17.59	5,870	22.5
2006	15,887.39	6,553	5,716	0.3598	10,171	23.50	433	16.5
2012	9,873.56	2,592	2,261	0.2290	7,613	29.50	258	10.5
2014	105,579.69	22,436	19,571	0.1854	86,008	31.50	2,730	8.5
2015	74,835.30	14,032	12,240	0.1636	62,595	32.50	1,926	7.5
2017	181,500.00	24,956	21,770	0.1199	159,730	34.50	4,630	5.5
TOTAL	1,381,471.81	729,513	636,380		745,092		42,510	

COMPOSITE ANNUAL ACCRUAL RATE 3.08%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.46

COMPOSITE AVERAGE AGE (YEARS) 21.88

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 18.88

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R08 - Reclosers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2

ASL: 48

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	56,551.87	46,454	59,379	1.0000	0	10.45	0	54.5
1970	67,004.38	53,841	70,355	1.0000	0	11.27	0	52.5
1971	22,140.91	17,585	23,248	1.0000	0	11.69	0	51.5
1975	155,643.27	117,391	162,764	0.9960	662	13.52	49	47.5
1978	51,386.25	37,070	51,397	0.9526	2,558	15.02	170	44.5
1981	203,209.48	139,427	193,316	0.9060	20,054	16.63	1,206	41.5
1982	76,694.33	51,679	71,654	0.8898	8,875	17.20	516	40.5
1983	13,679.99	9,046	12,543	0.8732	1,821	17.77	102	39.5
1984	135,702.37	88,000	122,013	0.8563	20,474	18.36	1,115	38.5
1985	87,385.83	55,527	76,988	0.8391	14,767	18.95	779	37.5
1986	10,486.97	6,524	9,046	0.8215	1,966	19.56	100	36.5
1987	120,202.29	73,149	101,421	0.8036	24,791	20.18	1,228	35.5
1988	161,575.50	96,096	133,237	0.7853	36,417	20.81	1,750	34.5
1989	80,623.21	46,818	64,913	0.7668	19,741	21.45	920	33.5
1990	168,883.99	95,659	132,632	0.7479	44,696	22.11	2,022	32.5
1991	53,470.41	29,511	40,917	0.7288	15,227	22.77	669	31.5
1992	68,483.94	36,788	51,007	0.7093	20,901	23.44	892	30.5
1993	42,735.36	22,318	30,944	0.6896	13,928	24.13	577	29.5
1994	298,392.26	151,303	209,783	0.6696	103,528	24.82	4,171	28.5
1995	69,447.33	34,146	47,344	0.6493	25,576	25.52	1,002	27.5
1996	46,812.70	22,287	30,901	0.6287	18,252	26.24	696	26.5
1997	115,578.48	53,201	73,764	0.6078	47,594	26.96	1,766	25.5
1998	56,585.19	25,141	34,859	0.5867	24,556	27.69	887	24.5
1999	28,552.97	12,224	16,949	0.5653	13,032	28.43	458	23.5
2000	125,112.26	51,513	71,424	0.5437	59,944	29.18	2,054	22.5
2001	74,492.85	29,437	40,815	0.5218	37,403	29.94	1,249	21.5
2002	36,048.05	13,641	18,913	0.4997	18,937	30.70	617	20.5
2003	117,364.30	42,424	58,821	0.4773	64,411	31.48	2,046	19.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R08 - Reclosers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2

ASL: 48

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2004	7,409.35	2,551	3,538	0.4547	4,242	32.26	132	18.5
2005	184,703.55	60,412	83,761	0.4319	110,177	33.05	3,334	17.5
2006	44,673.53	13,832	19,178	0.4088	27,729	33.85	819	16.5
2008	108,056.24	29,630	41,082	0.3621	72,377	35.46	2,041	14.5
2009	191,161.39	48,987	67,921	0.3384	132,798	36.29	3,660	13.5
2010	381,078.14	90,757	125,836	0.3145	274,296	37.11	7,391	12.5
2011	259,171.10	56,992	79,020	0.2904	193,110	37.95	5,089	11.5
2012	754,013.26	151,928	210,649	0.2661	581,065	38.79	14,980	10.5
2013	767,583.00	140,419	194,692	0.2416	611,270	39.64	15,422	9.5
2014	199,199.15	32,716	45,361	0.2169	163,798	40.49	4,045	8.5
2015	558,162.09	81,156	112,523	0.1920	473,547	41.35	11,451	7.5
2016	2,437.29	308	427	0.1669	2,132	42.22	50	6.5
2017	461,268.64	49,501	68,634	0.1417	415,698	43.09	9,646	5.5
2018	105,094.46	9,256	12,834	0.1163	97,515	43.97	2,218	4.5
2019	1,513,697.34	104,012	144,214	0.0907	1,445,169	44.86	32,216	3.5
2020	441,091.16	21,714	30,106	0.0650	433,039	45.75	9,465	2.5
2021	992,669.33	29,404	40,769	0.0391	1,001,533	46.65	21,471	1.5
2022	962,894.67	9,532	13,217	0.0131	997,823	47.55	20,986	0.5
TOTAL	10,478,610.43	2,391,308	3,305,111		7,697,430		191,457	

COMPOSITE ANNUAL ACCRUAL RATE 1.83%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.32

COMPOSITE AVERAGE AGE (YEARS) 12.79

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 37.57

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R09 - Regulators

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S0

ASL: 35

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	15,765.94	13,795	16,554	1.0000	0	5.83	0	54.5
1970	54,167.14	46,126	56,876	1.0000	0	6.62	0	52.5
1971	109,835.26	92,231	114,462	0.9925	865	7.01	123	51.5
1975	152,945.50	121,083	150,268	0.9357	10,325	8.61	1,199	47.5
1977	18,965.00	14,550	18,057	0.9068	1,857	9.43	197	45.5
1980	299,322.72	218,448	271,102	0.8626	43,187	10.67	4,046	42.5
1981	106,850.89	76,630	95,100	0.8476	17,093	11.09	1,541	41.5
1982	30,893.86	21,762	27,008	0.8326	5,431	11.52	471	40.5
1983	36,438.00	25,200	31,274	0.8174	6,986	11.95	585	39.5
1984	9,488.04	6,439	7,991	0.8021	1,972	12.38	159	38.5
1985	195,373.06	130,037	161,380	0.7867	43,762	12.81	3,415	37.5
1987	96,206.56	61,488	76,308	0.7554	24,708	13.70	1,804	35.5
1988	101,884.72	63,750	79,116	0.7395	27,863	14.14	1,970	34.5
1989	2,844.72	1,741	2,161	0.7235	826	14.59	57	33.5
1990	120,936.14	72,380	89,826	0.7074	37,157	15.05	2,469	32.5
1993	4,519.75	2,516	3,122	0.6579	1,624	16.45	99	29.5
1994	24,330.81	13,195	16,376	0.6410	9,172	16.92	542	28.5
1995	61,760.43	32,602	40,460	0.6239	24,388	17.40	1,401	27.5
1997	70,873.18	35,327	43,842	0.5891	30,575	18.38	1,663	25.5
2001	5,317.92	2,325	2,885	0.5167	2,699	20.43	132	21.5
2002	22,659.46	9,546	11,847	0.4979	11,945	20.96	570	20.5
2003	103,860.70	42,079	52,222	0.4789	56,832	21.50	2,644	19.5
2004	100,303.66	38,992	48,390	0.4595	56,928	22.04	2,583	18.5
2005	36,569.64	13,606	16,885	0.4397	21,513	22.60	952	17.5
2006	56,878.80	20,194	25,062	0.4196	34,661	23.17	1,496	16.5
2007	71,728.09	24,224	30,062	0.3992	45,252	23.74	1,906	15.5
2008	217,366.19	69,567	86,335	0.3783	141,899	24.33	5,832	14.5
2009	246,520.69	74,451	92,396	0.3570	166,450	24.93	6,676	13.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R09 - Regulators

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S0

ASL: 35

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2010	279,672.34	79,308	98,424	0.3352	195,232	25.55	7,642	12.5
2011	296,438.95	78,474	97,389	0.3129	213,872	26.18	8,171	11.5
2012	595,059.73	146,034	181,234	0.2901	443,579	26.82	16,539	10.5
2013	515,852.61	116,374	144,425	0.2666	397,221	27.48	14,455	9.5
2014	90,240.41	18,521	22,986	0.2426	71,767	28.16	2,549	8.5
2015	122,166.67	22,516	27,944	0.2178	100,331	28.86	3,477	7.5
2016	30,466.02	4,958	6,153	0.1923	25,837	29.58	874	6.5
2017	364,794.72	51,233	63,583	0.1660	319,452	30.32	10,537	5.5
2018	221,618.46	26,012	32,281	0.1387	200,418	31.09	6,447	4.5
2019	697,224.85	65,129	80,827	0.1104	651,259	31.89	20,424	3.5
2020	365,681.80	25,019	31,050	0.0809	352,916	32.72	10,786	2.5
2021	995,374.49	42,034	52,166	0.0499	992,978	33.59	29,560	1.5
2022	790,699.51	11,509	14,283	0.0172	815,951	34.51	23,641	0.5
TOTAL	7,739,897.43	2,031,407	2,520,111		5,606,782		199,634	

COMPOSITE ANNUAL ACCRUAL RATE 2.58%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.33

COMPOSITE AVERAGE AGE (YEARS) 13.19

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 26.25

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R11 - Revenue Metering

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 35

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	12,751.00	12,408	12,751	1.0000	0	0.94	0	55.5
1968	6,820.00	6,593	6,820	1.0000	0	1.17	0	54.5
1970	8,301.90	7,912	8,302	1.0000	0	1.65	0	52.5
1974	13,100.00	12,107	13,100	1.0000	0	2.65	0	48.5
1976	9,983.00	9,080	9,983	1.0000	0	3.17	0	46.5
1977	8,738.30	7,882	8,738	1.0000	0	3.43	0	45.5
1978	37,976.15	33,968	37,944	0.9992	32	3.69	9	44.5
1979	7,907.86	7,011	7,832	0.9904	76	3.97	19	43.5
1980	37,702.15	33,116	36,993	0.9812	709	4.26	167	42.5
1981	32,616.27	28,366	31,687	0.9715	930	4.56	204	41.5
1982	2,521.70	2,170	2,424	0.9612	98	4.88	20	40.5
1983	33,124.09	28,179	31,478	0.9503	1,646	5.23	315	39.5
1984	29,812.28	25,051	27,983	0.9387	1,829	5.59	327	38.5
1985	14,504.27	12,026	13,434	0.9262	1,070	5.98	179	37.5
1986	43,276.88	35,370	39,511	0.9130	3,766	6.39	589	36.5
1987	34,327.14	27,622	30,856	0.8989	3,472	6.84	508	35.5
1988	31,848.65	25,201	28,151	0.8839	3,698	7.31	506	34.5
1989	23,844.81	18,529	20,699	0.8681	3,146	7.80	403	33.5
1990	15,631.27	11,913	13,308	0.8514	2,324	8.33	279	32.5
1991	16,516.52	12,328	13,771	0.8338	2,745	8.88	309	31.5
1992	34,331.48	25,060	27,994	0.8154	6,337	9.45	671	30.5
1994	5,484.96	3,812	4,258	0.7763	1,227	10.68	115	28.5
1995	7,534.74	5,097	5,693	0.7556	1,842	11.33	163	27.5
1996	29,464.09	19,367	21,634	0.7342	7,830	11.99	653	26.5
1997	9,378.65	5,980	6,680	0.7122	2,699	12.68	213	25.5
2001	121,485.76	67,244	75,116	0.6183	46,370	15.63	2,967	21.5
2002	86,636.39	46,030	51,418	0.5935	35,218	16.40	2,147	20.5
2003	7,642.53	3,887	4,342	0.5682	3,300	17.20	192	19.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R11 - Revenue Metering

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 35
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2009	89,696.48	32,663	36,487	0.4068	53,210	22.25	2,391	13.5
2014	5,801.43	1,358	1,517	0.2616	4,284	26.80	160	8.5
2015	370,694.87	76,848	85,845	0.2316	284,850	27.74	10,267	7.5
2016	630,371.75	113,617	126,918	0.2013	503,454	28.69	17,547	6.5
2017	1,010,292.76	154,530	172,620	0.1709	837,673	29.65	28,255	5.5
2018	289,084.23	36,275	40,521	0.1402	248,563	30.61	8,121	4.5
TOTAL	3,119,204.36	948,599	1,056,808		2,062,397		77,696	

COMPOSITE ANNUAL ACCRUAL RATE	2.49%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.34
COMPOSITE AVERAGE AGE (YEARS)	12.44
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	24.36

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R12 - Right-Of-Ways

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 65

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	1,057,755.13	824,399	888,844	0.8403	168,911	14.34	11,779	56.5
1967	1,713,673.55	1,318,146	1,421,188	0.8293	292,485	15.00	19,496	55.5
1968	274,316.09	208,159	224,432	0.8181	49,885	15.68	3,182	54.5
1969	85,289.66	63,821	68,810	0.8068	16,479	16.36	1,007	53.5
1970	299,538.55	220,939	238,210	0.7953	61,328	17.06	3,596	52.5
1972	255,177.30	182,634	196,911	0.7717	58,266	18.48	3,153	50.5
1973	5,734.27	4,040	4,356	0.7596	1,379	19.21	72	49.5
1974	574,591.95	398,277	429,411	0.7473	145,181	19.95	7,279	48.5
1976	124,581.35	83,453	89,977	0.7222	34,605	21.46	1,613	46.5
1977	25,664.00	16,886	18,206	0.7094	7,458	22.23	335	45.5
1978	20,387.00	13,167	14,197	0.6964	6,190	23.02	269	44.5
1980	122,188.63	75,900	81,833	0.6697	40,356	24.62	1,639	42.5
1981	1,115,948.39	679,120	732,208	0.6561	383,740	25.44	15,082	41.5
1982	793,264.95	472,604	509,549	0.6423	283,716	26.27	10,798	40.5
1983	1,786,100.11	1,040,982	1,122,358	0.6284	663,742	27.12	24,477	39.5
1984	66,937.79	38,135	41,117	0.6142	25,821	27.97	923	38.5
1985	1,714,103.64	953,807	1,028,368	0.5999	685,736	28.83	23,785	37.5
1986	39,975.47	21,708	23,405	0.5855	16,571	29.70	558	36.5
1987	563,160.38	298,174	321,483	0.5709	241,677	30.58	7,902	35.5
1988	175,696.96	90,619	97,703	0.5561	77,994	31.47	2,478	34.5
1989	549,774.56	275,948	297,520	0.5412	252,255	32.37	7,792	33.5
1990	786,220.76	383,658	413,649	0.5261	372,572	33.28	11,195	32.5
1991	168,758.87	79,973	86,224	0.5109	82,534	34.20	2,413	31.5
1992	23,974.15	11,021	11,882	0.4956	12,092	35.12	344	30.5
1993	88,237.17	39,300	42,372	0.4802	45,865	36.05	1,272	29.5
1994	36,190.83	15,598	16,817	0.4647	19,374	36.99	524	28.5
1995	324,798.29	135,277	145,852	0.4491	178,947	37.93	4,718	27.5
1996	531,645.83	213,675	230,379	0.4333	301,267	38.88	7,750	26.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R12 - Right-Of-Ways

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 65

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1997	129,481.86	50,142	54,061	0.4175	75,421	39.83	1,894	25.5
1998	590,349.41	219,910	237,101	0.4016	353,248	40.79	8,661	24.5
1999	103,742.35	37,109	40,010	0.3857	63,733	41.75	1,527	23.5
2000	15,017.65	5,148	5,551	0.3696	9,467	42.72	222	22.5
2001	10,532.16	3,454	3,723	0.3535	6,809	43.69	156	21.5
2002	1,429,050.07	447,172	482,129	0.3374	946,921	44.66	21,203	20.5
2003	32,707.00	9,743	10,505	0.3212	22,202	45.64	486	19.5
2004	79,298.85	22,427	24,180	0.3049	55,119	46.62	1,182	18.5
2005	128,687.90	34,450	37,143	0.2886	91,545	47.60	1,923	17.5
2006	1,128,537.74	285,013	307,293	0.2723	821,244	48.58	16,904	16.5
2007	99,457.18	23,608	25,454	0.2559	74,003	49.57	1,493	15.5
2008	149,366.07	33,184	35,778	0.2395	113,588	50.56	2,247	14.5
2009	166,356.00	34,425	37,116	0.2231	129,240	51.55	2,507	13.5
2010	97,644.83	18,717	20,180	0.2067	77,465	52.54	1,474	12.5
2011	13,878.97	2,448	2,640	0.1902	11,239	53.53	210	11.5
2012	333,446.67	53,724	57,924	0.1737	275,522	54.53	5,053	10.5
2013	444,049.95	64,749	69,810	0.1572	374,240	55.52	6,740	9.5
2014	274,137.01	35,774	38,571	0.1407	235,566	56.52	4,168	8.5
2015	452,720.59	52,140	56,216	0.1242	396,505	57.51	6,894	7.5
2016	66,490.23	6,638	7,157	0.1076	59,333	58.51	1,014	6.5
2017	22,314,698.97	1,885,343	2,032,724	0.0911	20,281,975	59.51	340,826	5.5
2018	700,950.45	48,462	52,250	0.0745	648,700	60.51	10,721	4.5
2019	903,883.26	48,611	52,411	0.0580	851,473	61.50	13,844	3.5
2020	326,523.55	12,544	13,525	0.0414	312,999	62.50	5,008	2.5
2021	18,472.90	426	459	0.0249	18,014	63.50	284	1.5
2022	207,678.74	1,595	1,720	0.0083	205,959	64.50	3,193	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R12 - Right-Of-Ways

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 65
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	43,540,845.99	11,596,376	12,502,893		31,037,953		635,265	
COMPOSITE ANNUAL ACCRUAL RATE				1.46%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.29				
COMPOSITE AVERAGE AGE (YEARS)				18.11				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				47.69				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R13 - Roads

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 60

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	40,992.69	33,373	22,170	0.5408	18,823	11.15	1,688	55.5
1968	22,493.01	18,088	12,016	0.5342	10,477	11.75	892	54.5
1969	490,478.00	389,347	258,649	0.5273	231,829	12.37	18,739	53.5
1970	128,175.47	100,378	66,683	0.5202	61,493	13.01	4,726	52.5
1971	27,000.00	20,849	13,850	0.5130	13,150	13.67	962	51.5
1973	11,211.47	8,404	5,583	0.4980	5,628	15.02	375	49.5
1977	11,758.50	8,256	5,485	0.4665	6,274	17.87	351	45.5
1978	11,048.80	7,621	5,063	0.4582	5,986	18.61	322	44.5
1979	5,061.00	3,427	2,277	0.4499	2,784	19.37	144	43.5
1980	2,999,174.17	1,992,758	1,323,820	0.4414	1,675,354	20.13	83,211	42.5
1981	15,766.30	10,271	6,823	0.4328	8,943	20.91	428	41.5
1982	2,911.13	1,858	1,234	0.4240	1,677	21.71	77	40.5
1983	9,598,932.99	5,997,575	3,984,281	0.4151	5,614,652	22.51	249,418	39.5
1984	60,540,101.27	37,002,011	24,581,002	0.4060	35,959,099	23.33	1,541,450	38.5
1985	316,785.74	189,240	125,715	0.3968	191,071	24.16	7,909	37.5
1986	13,242.22	7,725	5,132	0.3875	8,110	25.00	324	36.5
1988	1,306,655.61	724,899	481,562	0.3685	825,094	26.71	30,887	34.5
1989	363,353.41	196,290	130,398	0.3589	232,955	27.59	8,444	33.5
1990	52,244.27	27,454	18,238	0.3491	34,006	28.47	1,194	32.5
1991	54,563.98	27,860	18,508	0.3392	36,056	29.36	1,228	31.5
1993	5,411.45	2,599	1,727	0.3191	3,685	31.18	118	29.5
1994	25,140.01	11,691	7,766	0.3089	17,374	32.10	541	28.5
1995	10,006.93	4,499	2,989	0.2987	7,018	33.03	213	27.5
1996	3,959.23	1,718	1,142	0.2883	2,818	33.96	83	26.5
1997	15,649.07	6,546	4,349	0.2779	11,300	34.90	324	25.5
2000	155,870.51	57,775	38,381	0.2462	117,490	37.76	3,111	22.5
2001	432,343.06	153,312	101,848	0.2356	330,495	38.72	8,535	21.5
2002	44,013.10	14,898	9,897	0.2249	34,116	39.69	860	20.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R13 - Roads

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 60

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2003	767,915.72	247,488	164,410	0.2141	603,506	40.66	14,842	19.5
2005	1,358,343.31	393,548	261,440	0.1925	1,096,903	42.62	25,739	17.5
2007	934,035.15	240,022	159,450	0.1707	774,585	44.58	17,375	15.5
2008	404,864.35	97,385	64,694	0.1598	340,170	45.57	7,465	14.5
2009	324,318.06	72,669	48,275	0.1489	276,043	46.56	5,929	13.5
2010	983,257.78	204,094	135,583	0.1379	847,675	47.55	17,829	12.5
2011	1,053,370.50	201,240	133,687	0.1269	919,683	48.54	18,948	11.5
2012	245,591.86	42,855	28,469	0.1159	217,123	49.53	4,384	10.5
2013	51,671.03	8,160	5,421	0.1049	46,250	50.52	915	9.5
2014	505,599.92	71,466	47,476	0.0939	458,124	51.52	8,892	8.5
2015	939,809.96	117,243	77,886	0.0829	861,924	52.51	16,413	7.5
2016	3,051,300.00	329,975	219,208	0.0718	2,832,092	53.51	52,925	6.5
2017	946,724.17	86,647	57,561	0.0608	889,163	54.51	16,312	5.5
2020	804,312.94	33,474	22,237	0.0276	782,076	57.50	13,601	2.5
TOTAL	89,075,458.14	49,166,989	32,662,383		56,413,075		2,188,123	

COMPOSITE ANNUAL ACCRUAL RATE 2.46%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.37

COMPOSITE AVERAGE AGE (YEARS) 34.75

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 26.88

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R14 - Routers and LAN

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 5
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2018	264,269.56	237,843	213,539	0.8080	50,730	0.50	50,730	4.5
2019	574,993.33	402,495	361,367	0.6285	213,626	1.50	142,417	3.5
2020	383,240.92	191,620	172,040	0.4489	211,201	2.50	84,480	2.5
2021	342,964.68	102,889	92,376	0.2693	250,589	3.50	71,597	1.5
2022	152,059.54	15,206	13,652	0.0898	138,407	4.50	30,757	0.5
TOTAL	1,717,528.03	950,054	852,975		864,553		379,981	

COMPOSITE ANNUAL ACCRUAL RATE	22.12%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.50
COMPOSITE AVERAGE AGE (YEARS)	2.77
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	2.23

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: R15 - Runner

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R5

ASL: 55

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	5,230,693.06	4,731,382	4,554,329	0.8707	676,364	5.25	128,827	55.5
1968	1,448,949.16	1,298,858	1,250,253	0.8629	198,696	5.70	34,876	54.5
1970	1,458,564.95	1,281,171	1,233,229	0.8455	225,336	6.69	33,687	52.5
1977	130,312.00	103,801	99,917	0.7667	30,395	11.19	2,716	45.5
1980	50,343.45	37,935	36,516	0.7253	13,828	13.56	1,020	42.5
1985	2,644,906.00	1,783,811	1,717,059	0.6492	927,847	17.91	51,817	37.5
1989	583,387.23	353,797	340,557	0.5838	242,830	21.65	11,219	33.5
1994	16,158.41	8,366	8,053	0.4984	8,105	26.52	306	28.5
1996	59,841.42	28,824	27,745	0.4636	32,096	28.51	1,126	26.5
1998	46,687.84	20,796	20,017	0.4287	26,670	30.50	874	24.5
2022	316,528.67	2,880	2,772	0.0088	313,757	54.50	5,757	0.5
TOTAL	11,986,372.19	9,651,620	9,290,447		2,695,925		272,225	

COMPOSITE ANNUAL ACCRUAL RATE 2.27%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.78

COMPOSITE AVERAGE AGE (YEARS) 48.05

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 10.71

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S01 - SCADA Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L3

ASL: 20

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1980	89,954.72	85,050	89,955	1.0000	0	1.09	0	42.5
1986	55,464.80	49,186	55,465	1.0000	0	2.26	0	36.5
1989	27,913.07	23,829	27,913	1.0000	0	2.93	0	33.5
1990	73,377.15	61,784	73,377	1.0000	0	3.16	0	32.5
1995	14,286.26	11,133	13,805	0.9663	481	4.41	109	27.5
1999	108,279.72	79,127	98,122	0.9062	10,158	5.38	1,886	23.5
2000	47,633.08	34,331	42,573	0.8938	5,061	5.59	906	22.5
2001	288,355.29	205,226	254,490	0.8826	33,865	5.77	5,873	21.5
2002	139,307.85	97,978	121,497	0.8722	17,810	5.93	3,002	20.5
2003	241,235.22	167,644	207,887	0.8618	33,348	6.10	5,466	19.5
2004	266,461.04	182,721	226,584	0.8503	39,877	6.29	6,344	18.5
2005	190,045.74	128,236	159,019	0.8367	31,027	6.50	4,770	17.5
2006	52,742.46	34,868	43,238	0.8198	9,504	6.78	1,402	16.5
2007	69,879.12	44,998	55,800	0.7985	14,080	7.12	1,977	15.5
2008	97,287.76	60,576	75,118	0.7721	22,170	7.55	2,938	14.5
2009	251,993.65	150,410	186,516	0.7402	65,478	8.06	8,121	13.5
2010	366,628.59	207,724	257,588	0.7026	109,040	8.67	12,579	12.5
2011	74,098.95	39,425	48,889	0.6598	25,210	9.36	2,694	11.5
2013	209,687.85	94,983	117,784	0.5617	91,904	10.94	8,400	9.5
2015	756,364.23	276,264	342,582	0.4529	413,782	12.69	32,594	7.5
2016	106,198.29	33,905	42,044	0.3959	64,154	13.61	4,712	6.5
2017	349,797.62	95,170	118,016	0.3374	231,782	14.56	15,921	5.5
2018	232,383.67	52,011	64,496	0.2775	167,888	15.52	10,815	4.5
2019	50,824.11	8,878	11,010	0.2166	39,814	16.51	2,412	3.5
2020	867,151.46	108,378	134,394	0.1550	732,757	17.50	41,871	2.5
2021	148,356.15	11,129	13,801	0.0930	134,556	18.50	7,273	1.5
2022	252,614.81	6,319	7,836	0.0310	244,779	19.50	12,553	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S01 - SCADA Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: L3
ASL: 20
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	5,428,322.66	2,351,284	2,889,797		2,538,525		194,618	
COMPOSITE ANNUAL ACCRUAL RATE				3.59%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.53				
COMPOSITE AVERAGE AGE (YEARS)				11.31				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				11.34				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S02 - Sectionalizers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R5

ASL: 25

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	17,463.93	17,464	17,464	1.0000	0		0	55.5
1975	23,769.58	23,770	23,770	1.0000	0		0	48.5
1986	1,941.08	1,941	1,941	1.0000	0		0	37.5
1989	1,726.87	1,692	1,727	1.0000	0	0.50	0	33.5
1991	23,760.40	23,045	23,760	1.0000	0	0.75	0	31.5
2000	4,105.58	3,476	4,106	1.0000	0	3.83	0	22.5
2010	5,443.11	2,720	4,126	0.7580	1,317	12.51	105	12.5
2019	48,528.53	6,794	10,305	0.2123	38,224	21.50	1,778	3.5
2022	235,598.37	4,714	7,149	0.0303	228,449	24.50	9,325	0.5
TOTAL	362,337.45	85,616	94,347		267,990		11,208	

COMPOSITE ANNUAL ACCRUAL RATE 3.09%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.26

COMPOSITE AVERAGE AGE (YEARS) 9.52

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 19.09

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S03 - Servers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 7
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2019	295,739.75	147,870	140,534	0.4752	155,206	3.50	44,344	3.5
TOTAL	295,739.75	147,870	140,534		155,206		44,344	

COMPOSITE ANNUAL ACCRUAL RATE	14.99%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.48
COMPOSITE AVERAGE AGE (YEARS)	3.50
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	3.50

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S04 - Sewage Disposal System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 55

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	10,112.35	9,107	10,618	1.0000	0	7.83	0	55.5
1968	7,791.63	6,948	8,181	1.0000	0	8.29	0	54.5
1969	132,528.13	116,927	139,155	1.0000	0	8.79	0	53.5
1970	14,085.17	12,286	14,789	1.0000	0	9.31	0	52.5
1971	1,387.00	1,195	1,456	1.0000	0	9.86	0	51.5
1972	4,653.28	3,958	4,886	1.0000	0	10.45	0	50.5
1977	7,861.00	6,200	8,254	1.0000	0	13.69	0	45.5
1978	34,016.40	26,380	35,717	1.0000	0	14.38	0	44.5
1980	143,118.72	107,097	150,275	1.0000	0	15.80	0	42.5
1981	2,667.48	1,959	2,801	1.0000	0	16.53	0	41.5
1982	3,000.00	2,160	3,150	1.0000	0	17.28	0	40.5
1983	7,733.00	5,457	8,120	1.0000	0	18.04	0	39.5
1988	2,697.73	1,698	2,587	0.9133	246	22.04	11	34.5
1989	308,017.92	188,880	287,840	0.8900	35,579	22.88	1,555	33.5
1990	50,007.03	29,851	45,491	0.8664	7,016	23.73	296	32.5
1992	15,841.00	8,930	13,609	0.8182	3,024	25.47	119	30.5
1995	129,483.92	66,344	101,104	0.7436	34,854	28.16	1,238	27.5
1996	13,483.21	6,673	10,169	0.7183	3,989	29.08	137	26.5
1997	4,233.64	2,020	3,079	0.6926	1,366	30.00	46	25.5
1998	55,598.68	25,543	38,926	0.6668	19,452	30.93	629	24.5
1999	976,185.68	430,966	656,763	0.6407	368,232	31.87	11,552	23.5
2002	355,826.77	137,669	209,799	0.5615	163,819	34.73	4,716	20.5
2003	90,894.70	33,494	51,043	0.5348	44,397	35.70	1,244	19.5
2006	35,314.99	11,046	16,833	0.4540	20,248	38.62	524	16.5
2007	58,129.37	17,094	26,050	0.4268	34,986	39.60	884	15.5
2008	44,604.54	12,280	18,714	0.3996	28,121	40.58	693	14.5
2009	44,878.73	11,511	17,542	0.3723	29,581	41.56	712	13.5
2010	125,757.70	29,884	45,541	0.3449	86,505	42.55	2,033	12.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S04 - Sewage Disposal System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 55
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2011	143,366.51	31,359	47,790	0.3175	102,745	43.54	2,360	11.5
2017	131,080.44	13,741	20,940	0.1521	116,695	49.51	2,357	5.5
2022	22,609.19	216	328	0.0138	23,411	54.50	430	0.5
TOTAL	2,976,965.91	1,358,872	2,001,549		1,124,265		31,536	

COMPOSITE ANNUAL ACCRUAL RATE	1.06%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.67
COMPOSITE AVERAGE AGE (YEARS)	24.93
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	31.09

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S05 - Software

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 7
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2016	1,017,004.01	944,361	858,268	0.8439	158,736	0.50	158,736	6.5
2017	1,393,410.96	1,094,823	995,013	0.7141	398,398	1.50	265,598	5.5
2018	616,108.30	396,070	359,962	0.5843	256,146	2.50	102,459	4.5
2019	321,844.85	160,922	146,252	0.4544	175,593	3.50	50,169	3.5
2020	305,144.31	108,980	99,045	0.3246	206,099	4.50	45,800	2.5
2021	754,546.35	161,689	146,948	0.1948	607,598	5.50	110,472	1.5
2022	956,402.80	68,314	62,087	0.0649	894,316	6.50	137,587	0.5
TOTAL	5,364,461.58	2,935,159	2,667,575		2,696,887		870,821	

COMPOSITE ANNUAL ACCRUAL RATE	16.23%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.50
COMPOSITE AVERAGE AGE (YEARS)	3.83
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	3.17

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S06 - Spillway Structures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 110

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1956	37,231.12	22,680	7,500	0.1918	31,593	46.18	684	66.5
1966	2,917,840.65	1,532,947	506,910	0.1655	2,556,823	54.96	46,520	56.5
1967	4,530,770.88	2,341,114	774,152	0.1627	3,983,158	55.87	71,296	55.5
1979	5,406,068.95	2,215,225	732,523	0.1290	4,943,849	67.07	73,709	43.5
1980	22,093.09	8,851	2,927	0.1262	20,271	68.03	298	42.5
1982	11,830,011.26	4,522,730	1,495,562	0.1204	10,925,950	69.95	156,200	40.5
1983	1,763,784.37	658,082	217,613	0.1175	1,634,361	70.91	23,048	39.5
1984	6,511,055.23	2,369,266	783,461	0.1146	6,053,147	71.88	84,213	38.5
1985	5,067.02	1,797	594	0.1117	4,726	72.85	65	37.5
1988	28,771.28	9,402	3,109	0.1029	27,101	75.77	358	34.5
1991	35,581.53	10,630	3,515	0.0941	33,845	78.70	430	31.5
1992	6,707.73	1,941	642	0.0911	6,401	79.68	80	30.5
1999	50,969.18	11,390	3,766	0.0704	49,751	86.59	575	23.5
2003	17,078,321.27	3,169,613	1,048,117	0.0584	16,884,120	90.56	186,448	19.5
2010	295,473.83	35,191	11,637	0.0375	298,611	97.52	3,062	12.5
2015	50,000.00	3,575	1,182	0.0225	51,318	102.51	501	7.5
2016	546,530.57	33,867	11,199	0.0195	562,658	103.51	5,436	6.5
2017	247,844.24	12,996	4,298	0.0165	255,939	104.51	2,449	5.5
2018	579,476.26	24,862	8,221	0.0135	600,229	105.51	5,689	4.5
2019	797,360.31	26,609	8,799	0.0105	828,429	106.50	7,778	3.5
2020	253,579.40	6,045	1,999	0.0075	264,260	107.50	2,458	2.5
2021	156,604.30	2,240	741	0.0045	163,694	108.50	1,509	1.5
2022	325,054.16	1,548	512	0.0015	340,795	109.50	3,112	0.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S06 - Spillway Structures

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 110
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	53,476,196.63	17,022,602	5,628,978		50,521,028		675,918	
COMPOSITE ANNUAL ACCRUAL RATE				1.26%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.11				
COMPOSITE AVERAGE AGE (YEARS)				33.78				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				76.65				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S07 - Stacks

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 55

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	867,574.37	773,635	910,953	1.0000	0	8.29	0	54.5
1971	430,393.00	370,868	447,142	0.9894	4,771	9.86	484	51.5
1974	68,913.59	56,985	68,705	0.9495	3,654	11.69	313	48.5
1975	595,226.22	484,793	584,497	0.9352	40,490	12.34	3,282	47.5
1976	8,601.34	6,896	8,314	0.9206	717	13.00	55	46.5
1986	27,918.81	18,442	22,235	0.7585	7,080	20.40	347	36.5
1988	6,132.90	3,859	4,653	0.7225	1,787	22.04	81	34.5
1992	336,677.64	189,793	228,826	0.6473	124,685	25.47	4,895	30.5
1995	36,955.81	18,935	22,830	0.5883	15,974	28.16	567	27.5
1996	121,024.55	59,893	72,211	0.5682	54,865	29.08	1,887	26.5
2001	94,022.28	38,099	45,934	0.4653	52,789	33.77	1,563	21.5
2007	108,179.45	31,812	38,355	0.3377	75,233	39.60	1,900	15.5
2008	239,612.98	65,966	79,533	0.3161	172,060	40.58	4,240	14.5
2011	527,981.53	115,488	139,240	0.2512	415,140	43.54	9,534	11.5
2015	3,781,821.18	540,318	651,441	0.1641	3,319,471	47.52	69,860	7.5
2016	48,377.00	5,992	7,224	0.1422	43,572	48.51	898	6.5
2018	365,490.00	31,353	37,801	0.0985	345,963	50.51	6,850	4.5
TOTAL	7,664,902.65	2,813,127	3,369,895		4,678,253		106,756	

COMPOSITE ANNUAL ACCRUAL RATE 1.39%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.44

COMPOSITE AVERAGE AGE (YEARS) 20.97

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 35.78

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S10 - Station Service

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 50

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	491,604.69	465,959	477,003	0.9241	39,182	4.87	8,054	56.5
1967	19,591.00	18,438	18,875	0.9176	1,696	5.18	327	55.5
1968	5,886.55	5,499	5,629	0.9107	552	5.52	100	54.5
1970	1,022.42	939	962	0.8957	112	6.25	18	52.5
1971	151,872.00	138,227	141,503	0.8874	17,963	6.66	2,697	51.5
1974	450.00	396	406	0.8588	67	8.06	8	48.5
1975	1,500.00	1,305	1,335	0.8479	240	8.59	28	47.5
1977	36,906.00	31,202	31,941	0.8243	6,810	9.74	699	45.5
1978	8,207.26	6,832	6,994	0.8116	1,624	10.36	157	44.5
1979	182,007.25	149,042	152,575	0.7984	38,533	11.01	3,501	43.5
1980	225,901.85	181,841	186,151	0.7848	51,046	11.67	4,375	42.5
1981	9,086.29	7,185	7,355	0.7709	2,186	12.35	177	41.5
1982	7,725.34	5,996	6,138	0.7567	1,973	13.04	151	40.5
1983	775,442.31	590,390	604,383	0.7423	209,832	13.74	15,266	39.5
1985	500,849.00	366,029	374,704	0.7125	151,188	15.20	9,947	37.5
1986	2,856.46	2,043	2,091	0.6972	908	15.95	57	36.5
1987	2,668.56	1,865	1,910	0.6815	892	16.71	53	35.5
1988	69,235.33	47,263	48,383	0.6655	24,314	17.49	1,390	34.5
1989	98,106.21	65,334	66,882	0.6493	36,130	18.29	1,976	33.5
1990	25,037.31	16,248	16,633	0.6327	9,656	19.10	506	32.5
1991	2,774.58	1,753	1,794	0.6158	1,119	19.92	56	31.5
1992	886.43	544	557	0.5986	374	20.76	18	30.5
1993	2,443.94	1,457	1,491	0.5812	1,075	21.61	50	29.5
1994	42,122.46	24,345	24,922	0.5635	19,307	22.48	859	28.5
1995	21,027.99	11,766	12,044	0.5455	10,035	23.36	430	27.5
1996	82,955.52	44,865	45,929	0.5273	41,174	24.25	1,698	26.5
2002	1,362.83	578	592	0.4137	839	29.79	28	20.5
2008	375,325.90	113,536	116,227	0.2949	277,866	35.60	7,806	14.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S10 - Station Service

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 50

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2009	339,502.31	95,699	97,967	0.2748	258,510	36.58	7,068	13.5
2010	18,254.70	4,768	4,881	0.2547	14,286	37.56	380	12.5
2011	26,312.12	6,327	6,477	0.2344	21,151	38.55	549	11.5
2012	90,464.93	19,873	20,345	0.2142	74,644	39.54	1,888	10.5
2013	27,928.40	5,554	5,686	0.1939	23,639	40.53	583	9.5
2014	28,527.93	5,078	5,199	0.1735	24,756	41.52	596	8.5
2015	1,563,499.52	245,664	251,486	0.1532	1,390,188	42.52	32,697	7.5
2016	522,716.98	71,204	72,892	0.1328	475,961	43.51	10,938	6.5
2017	1,520,636.39	175,321	179,476	0.1124	1,417,192	44.51	31,840	5.5
2018	13,655.12	1,288	1,319	0.0920	13,019	45.51	286	4.5
2019	2,589,261.45	190,053	194,558	0.0716	2,524,167	46.50	54,278	3.5
2021	117,977.90	3,712	3,800	0.0307	120,077	48.50	2,476	1.5
2022	247,349.22	2,594	2,655	0.0102	257,061	49.50	5,193	0.5
TOTAL	10,250,942.45	3,128,010	3,202,148		7,561,341		209,204	

COMPOSITE ANNUAL ACCRUAL RATE 2.04%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.31

COMPOSITE AVERAGE AGE (YEARS) 15.86

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 35.47

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S11 - Stop Logs

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 65

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	137,480.00	107,150	73,733	0.5363	63,747	14.34	4,445	56.5
1967	148,478.00	114,208	78,590	0.5293	69,888	15.00	4,658	55.5
1970	20,000.00	14,752	10,151	0.5076	9,849	17.06	577	52.5
1979	561,958.08	356,066	245,019	0.4360	316,940	23.81	13,308	43.5
1982	1,290,854.99	769,054	529,207	0.4100	761,648	26.27	28,988	40.5
1983	12,373.49	7,212	4,962	0.4011	7,411	27.12	273	39.5
1984	195,768.00	111,532	76,748	0.3920	119,020	27.97	4,255	38.5
1988	65,388.47	33,725	23,207	0.3549	42,181	31.47	1,340	34.5
1998	22,751.29	8,475	5,832	0.2563	16,919	40.79	415	24.5
1999	22,847.30	8,173	5,624	0.2461	17,224	41.75	413	23.5
2003	135,012.07	40,218	27,675	0.2050	107,337	45.64	2,352	19.5
2008	207,322.36	46,060	31,695	0.1529	175,627	50.56	3,474	14.5
2015	286,363.07	32,981	22,695	0.0793	263,668	57.51	4,584	7.5
2021	12,547.50	289	199	0.0159	12,348	63.50	194	1.5
2022	166,742.78	1,281	881	0.0053	165,861	64.50	2,571	0.5
TOTAL	3,285,887.40	1,651,175	1,136,218		2,149,669		71,847	

COMPOSITE ANNUAL ACCRUAL RATE 2.19%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.35

COMPOSITE AVERAGE AGE (YEARS) 34.40

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 32.34

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S12 - Storage Pallets and Rackings

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R3
ASL: 30
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1984	10,706.05	9,609	10,706	1.0000	0	3.08	0	38.5
1998	3,696.62	2,574	3,697	1.0000	0	9.11	0	24.5
TOTAL	14,402.67	12,183	14,403		0		0	

COMPOSITE ANNUAL ACCRUAL RATE	0.00%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	1.00
COMPOSITE AVERAGE AGE (YEARS)	34.91
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	4.62

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S13 - Storm and Yard Drainage

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 55

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	3,047.17	2,614	3,047	1.0000	0	7.83	0	55.5
1969	105,766.52	88,872	105,767	1.0000	0	8.79	0	53.5
1980	260,474.54	185,633	260,475	1.0000	0	15.80	0	42.5
1983	237,980.07	159,926	229,290	0.9635	8,690	18.04	482	39.5
1985	374,229.91	240,875	345,349	0.9228	28,881	19.60	1,474	37.5
1987	5,660.27	3,477	4,985	0.8807	675	21.21	32	35.5
1988	963.97	578	828	0.8592	136	22.04	6	34.5
1989	3,287.74	1,920	2,753	0.8373	535	22.88	23	33.5
1990	36,594.92	20,805	29,828	0.8151	6,767	23.73	285	32.5
1991	30,419.95	16,816	24,110	0.7926	6,310	24.60	257	31.5
1992	39,856.38	21,398	30,679	0.7697	9,177	25.47	360	30.5
1995	31,748.63	15,493	22,212	0.6996	9,537	28.16	339	27.5
2009	67,290.58	16,437	23,567	0.3502	43,724	41.56	1,052	13.5
2013	75,014.75	12,920	18,524	0.2469	56,490	45.53	1,241	9.5
2014	36,378.00	5,608	8,041	0.2210	28,337	46.52	609	8.5
TOTAL	1,308,713.40	793,372	1,109,454		199,260		6,160	

COMPOSITE ANNUAL ACCRUAL RATE 0.47%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.85

COMPOSITE AVERAGE AGE (YEARS) 35.79

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 21.66

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S14 - Street Lights

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1.5

ASL: 25

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1981	48,354.50	47,917	53,190	1.0000	0	2.48	0	41.5
1982	7,797.99	7,640	8,578	1.0000	0	2.73	0	40.5
1983	171.84	166	189	1.0000	0	2.99	0	39.5
1984	9,245.70	8,842	10,170	1.0000	0	3.27	0	38.5
1986	3,022.54	2,815	3,325	1.0000	0	3.83	0	36.5
1987	15,938.15	14,636	17,532	1.0000	0	4.13	0	35.5
1988	28,158.16	25,482	30,974	1.0000	0	4.43	0	34.5
1989	40,088.51	35,725	44,097	1.0000	0	4.75	0	33.5
1990	64,177.85	56,275	70,596	1.0000	0	5.07	0	32.5
1991	15,333.76	13,217	16,867	1.0000	0	5.41	0	31.5
1992	33,394.44	28,265	36,734	1.0000	0	5.76	0	30.5
1993	35,951.41	29,844	39,547	1.0000	0	6.13	0	29.5
1994	35,848.17	29,146	39,433	1.0000	0	6.52	0	28.5
1995	20,026.05	15,923	22,029	1.0000	0	6.93	0	27.5
1996	42,887.00	33,292	47,176	1.0000	0	7.36	0	26.5
1997	159,274.51	120,498	172,515	0.9847	2,687	7.81	344	25.5
1998	77,475.85	57,014	81,626	0.9578	3,598	8.28	435	24.5
1999	77,352.93	55,255	79,107	0.9297	5,981	8.77	682	23.5
2000	101,179.10	69,998	100,215	0.9004	11,082	9.28	1,195	22.5
2001	127,206.51	85,027	121,732	0.8700	18,196	9.81	1,855	21.5
2002	111,663.70	71,925	102,974	0.8383	19,857	10.36	1,916	20.5
2003	177,577.82	109,913	157,360	0.8056	37,976	10.93	3,474	19.5
2004	193,446.29	114,704	164,219	0.7717	48,572	11.52	4,215	18.5
2005	165,420.56	93,649	134,075	0.7368	47,887	12.13	3,947	17.5
2006	193,565.23	104,239	149,237	0.7009	63,685	12.76	4,991	16.5
2007	164,145.52	83,742	119,892	0.6640	60,668	13.41	4,526	15.5
2008	211,791.59	101,894	145,880	0.6262	87,091	14.07	6,192	14.5
2009	228,471.96	103,124	147,641	0.5875	103,678	14.74	7,033	13.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S14 - Street Lights

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R1.5
ASL: 25
Net Salvage: -10%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2010	185,626.32	78,147	111,881	0.5479	92,308	15.43	5,982	12.5
2011	253,829.94	98,997	141,732	0.5076	137,481	16.14	8,520	11.5
2012	155,594.64	55,777	79,855	0.4666	91,299	16.85	5,417	10.5
2013	288,091.55	94,039	134,634	0.4248	182,267	17.58	10,367	9.5
2014	191,429.77	56,257	80,542	0.3825	130,030	18.32	7,097	8.5
2015	280,025.17	73,054	104,590	0.3395	203,438	19.07	10,667	7.5
2016	155,565.45	35,385	50,660	0.2960	120,462	19.83	6,075	6.5
2017	173,535.67	33,598	48,102	0.2520	142,787	20.60	6,931	5.5
2018	103,232.37	16,450	23,551	0.2074	90,005	21.38	4,210	4.5
2019	11,017.09	1,373	1,966	0.1623	10,152	22.17	458	3.5
2020	312,710.52	28,010	40,101	0.1166	303,880	22.96	13,233	2.5
2021	1,715,676.73	92,767	132,812	0.0704	1,754,432	23.77	73,805	1.5
2022	1,084,973.98	19,706	28,213	0.0236	1,165,259	24.59	47,393	0.5
TOTAL	7,300,276.84	2,203,727	3,095,546		4,934,759		240,960	

COMPOSITE ANNUAL ACCRUAL RATE	3.30%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.42
COMPOSITE AVERAGE AGE (YEARS)	9.54
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	18.14

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S15 - Structural Supports (Wood or Steel)

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 55

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	213,565.83	192,336	203,336	0.9068	20,908	7.83	2,672	55.5
1968	118,266.43	105,461	111,492	0.8978	12,688	8.29	1,530	54.5
1970	606,504.86	529,034	559,288	0.8782	77,543	9.31	8,329	52.5
1971	3,879.00	3,343	3,534	0.8676	539	9.86	55	51.5
1972	1,051,652.56	894,523	945,678	0.8564	158,557	10.45	15,180	50.5
1974	40,813.35	33,749	35,679	0.8326	7,175	11.69	614	48.5
1975	89,370.64	72,790	76,952	0.8200	16,887	12.34	1,369	47.5
1976	86,734.84	69,537	73,514	0.8072	17,557	13.00	1,350	46.5
1977	83,957.15	66,219	70,006	0.7941	18,149	13.69	1,326	45.5
1978	840,408.57	651,738	689,009	0.7808	193,420	14.38	13,452	44.5
1979	365,784.41	278,739	294,679	0.7672	89,394	15.08	5,926	43.5
1980	253,554.46	189,736	200,587	0.7534	65,645	15.80	4,154	42.5
1981	261,871.02	192,300	203,297	0.7394	71,667	16.53	4,334	41.5
1982	581,995.40	419,096	443,063	0.7250	168,032	17.28	9,724	40.5
1983	315,782.64	222,821	235,563	0.7104	96,009	18.04	5,322	39.5
1984	14,166.81	9,787	10,347	0.6956	4,528	18.81	241	38.5
1985	11,743.67	7,937	8,391	0.6805	3,940	19.60	201	37.5
1986	75,722.14	50,019	52,879	0.6651	26,629	20.40	1,305	36.5
1987	292,810.22	188,868	199,669	0.6494	107,782	21.21	5,081	35.5
1988	77,603.29	48,831	51,623	0.6335	29,860	22.04	1,355	34.5
1989	392,408.53	240,629	254,390	0.6174	157,639	22.88	6,890	33.5
1990	893,125.26	533,144	563,632	0.6010	374,149	23.73	15,766	32.5
1991	420,663.60	244,170	258,133	0.5844	183,564	24.60	7,463	31.5
1992	611,539.56	344,739	364,453	0.5676	277,663	25.47	10,901	30.5
1993	53,083.28	29,026	30,686	0.5505	25,052	26.36	950	29.5
1994	168,570.90	89,289	94,395	0.5333	82,605	27.25	3,031	28.5
1995	610,703.97	312,909	330,803	0.5159	310,436	28.16	11,023	27.5
1996	278,697.88	137,923	145,810	0.4983	146,823	29.08	5,049	26.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S15 - Structural Supports (Wood or Steel)

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 55

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1997	55,631.15	26,549	28,067	0.4805	30,346	30.00	1,011	25.5
1998	213,837.59	98,242	103,860	0.4626	120,669	30.93	3,901	24.5
1999	19,402.49	8,566	9,056	0.4445	11,317	31.87	355	23.5
2000	304,743.10	129,030	136,409	0.4263	183,572	32.82	5,593	22.5
2001	51,839.87	21,006	22,207	0.4080	32,225	33.77	954	21.5
2002	95,124.17	36,804	38,908	0.3895	60,972	34.73	1,755	20.5
2003	173,142.72	63,802	67,451	0.3710	114,349	35.70	3,203	19.5
2004	14,790.11	5,177	5,473	0.3524	10,057	36.67	274	18.5
2005	17,969.12	5,955	6,296	0.3337	12,572	37.64	334	17.5
2006	18,876.25	5,904	6,242	0.3149	13,578	38.62	352	16.5
2007	432,097.80	127,067	134,334	0.2961	319,369	39.60	8,066	15.5
2008	33,346.06	9,180	9,705	0.2772	25,308	40.58	624	14.5
2009	69,987.69	17,951	18,978	0.2582	54,509	41.56	1,311	13.5
2010	226,254.53	53,765	56,840	0.2393	180,728	42.55	4,247	12.5
2011	24,295.92	5,314	5,618	0.2202	19,892	43.54	457	11.5
2012	806,862.62	161,217	170,437	0.2012	676,769	44.53	15,197	10.5
2013	717,907.98	129,835	137,259	0.1821	616,544	45.53	13,542	9.5
2014	308,262.78	49,899	52,753	0.1630	270,923	46.52	5,824	8.5
2015	137,931.75	19,707	20,834	0.1439	123,995	47.52	2,610	7.5
2016	337,966.44	41,859	44,253	0.1247	310,612	48.51	6,403	6.5
2017	1,444,361.73	151,406	160,065	0.1055	1,356,515	49.51	27,399	5.5
2018	494,943.38	42,458	44,886	0.0864	474,805	50.51	9,401	4.5
2020	740,922.73	35,320	37,340	0.0480	740,629	52.50	14,106	2.5
2021	3,248,644.98	92,925	98,239	0.0288	3,312,838	53.50	61,920	1.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S15 - Structural Supports (Wood or Steel)

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 55
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	18,804,123.23	7,497,631	7,926,396		11,817,933		333,432	
COMPOSITE ANNUAL ACCRUAL RATE				1.77%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.42				
COMPOSITE AVERAGE AGE (YEARS)				22.37				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				34.11				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S17 - Sump Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 35

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	35,394.24	35,394	35,394	1.0000	0		0	56.5
1979	36,037.72	33,667	36,038	1.0000	0	2.30	0	43.5
1985	1,426.00	1,259	1,426	1.0000	0	4.10	0	37.5
1999	22,854.33	14,521	17,781	0.7780	5,073	12.76	397	23.5
2009	75,619.94	28,806	35,275	0.4665	40,345	21.67	1,862	13.5
2015	428,606.40	91,492	112,038	0.2614	316,568	27.53	11,500	7.5
2017	50,268.62	7,879	9,649	0.1919	40,620	29.51	1,376	5.5
2018	45,000.03	5,774	7,071	0.1571	37,929	30.51	1,243	4.5
2019	122,656.88	12,245	14,995	0.1223	107,662	31.51	3,417	3.5
2020	610,519.15	43,549	53,329	0.0873	557,191	32.50	17,143	2.5
TOTAL	1,428,383.31	274,586	322,996		1,105,387		36,938	

COMPOSITE ANNUAL ACCRUAL RATE 2.59%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.23

COMPOSITE AVERAGE AGE (YEARS) 7.58

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 28.27

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S18 - Surge Systems

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 60

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1966	1,578,845.51	1,300,451	1,560,368	0.9883	18,477	10.58	1,746	56.5
1967	2,328,931.08	1,896,008	2,274,957	0.9768	53,974	11.15	4,839	55.5
2002	299,651.03	101,426	121,698	0.4061	177,953	39.69	4,483	20.5
2014	1,496,950.24	211,592	253,882	0.1696	1,243,068	51.52	24,128	8.5
2015	1,174,259.37	146,490	175,769	0.1497	998,490	52.51	19,013	7.5
2016	2,735,680.18	295,843	354,972	0.1298	2,380,708	53.51	44,490	6.5
2018	1,500,000.00	112,342	134,796	0.0899	1,365,204	55.51	24,595	4.5
2019	369,543.00	21,529	25,832	0.0699	343,711	56.50	6,083	3.5
2020	237,593.26	9,888	11,865	0.0499	225,729	57.50	3,926	2.5
TOTAL	11,721,453.67	4,095,570	4,914,139		6,807,314		133,303	

COMPOSITE ANNUAL ACCRUAL RATE 1.14%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.42

COMPOSITE AVERAGE AGE (YEARS) 23.25

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 39.04

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S19 - Station Switching

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S0.5

ASL: 38

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1965	95,998.62	80,031	94,729	0.9868	1,269	6.32	201	57.5
1968	160,718.28	129,597	153,398	0.9544	7,321	7.36	995	54.5
1970	1,000.00	788	932	0.9325	68	8.06	8	52.5
1973	80,010.49	60,754	71,911	0.8988	8,099	9.15	886	49.5
1980	233,222.40	160,729	190,247	0.8157	42,976	11.81	3,638	42.5
1981	65,308.50	44,321	52,460	0.8033	12,848	12.21	1,052	41.5
1982	123,205.18	82,296	97,409	0.7906	25,796	12.62	2,044	40.5
1984	108,404.79	70,045	82,909	0.7648	25,496	13.45	1,896	38.5
1985	2,461,120.55	1,562,783	1,849,789	0.7516	611,332	13.87	44,074	37.5
1986	35,050.06	21,859	25,874	0.7382	9,176	14.30	642	36.5
1987	50,537.58	30,937	36,619	0.7246	13,919	14.74	944	35.5
1989	125,368.04	73,789	87,340	0.6967	38,028	15.63	2,432	33.5
1990	64,390.22	37,120	43,937	0.6824	20,453	16.09	1,271	32.5
1991	66,301.23	37,406	44,275	0.6678	22,026	16.56	1,330	31.5
1992	246,618.65	136,047	161,032	0.6530	85,587	17.04	5,023	30.5
1995	16,676.25	8,549	10,119	0.6068	6,557	18.52	354	27.5
1996	146,348.10	73,047	86,463	0.5908	59,886	19.03	3,146	26.5
1997	448,071.64	217,474	257,413	0.5745	190,658	19.56	9,749	25.5
1998	144,682.17	68,187	80,710	0.5578	63,972	20.09	3,184	24.5
1999	24,050.34	10,989	13,008	0.5409	11,043	20.64	535	23.5
2000	175,022.65	77,407	91,623	0.5235	83,400	21.19	3,935	22.5
2001	715,196.43	305,593	361,716	0.5058	353,481	21.76	16,242	21.5
2002	607,143.41	250,130	296,066	0.4876	311,077	22.34	13,922	20.5
2003	601,443.56	238,361	282,137	0.4691	319,307	22.94	13,919	19.5
2004	8,687.61	3,304	3,911	0.4501	4,777	23.55	203	18.5
2005	253,591.03	92,286	109,235	0.4308	144,356	24.17	5,972	17.5
2006	143,720.54	49,891	59,053	0.4109	84,668	24.81	3,413	16.5
2007	310,421.80	102,428	121,238	0.3906	189,183	25.46	7,430	15.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S19 - Station Switching

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S0.5

ASL: 38

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2008	794,940.97	248,316	293,920	0.3697	501,021	26.13	19,174	14.5
2011	210,049.45	53,969	63,880	0.3041	146,169	28.24	5,177	11.5
2013	284,781.27	61,971	73,352	0.2576	211,429	29.73	7,111	9.5
2014	1,422,780.64	280,531	332,051	0.2334	1,090,730	30.51	35,753	8.5
2016	39,115.12	6,052	7,163	0.1831	31,952	32.12	995	6.5
2017	55,112.68	7,310	8,652	0.1570	46,460	32.96	1,410	5.5
2018	221,334.09	24,343	28,814	0.1302	192,520	33.82	5,692	4.5
2019	210,897.67	18,289	21,648	0.1026	189,250	34.70	5,453	3.5
2022	170,000.00	2,205	2,610	0.0154	167,390	37.51	4,463	0.5
TOTAL	10,921,322.01	4,729,132	5,597,642		5,323,680		233,668	

COMPOSITE ANNUAL ACCRUAL RATE 2.14%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.51

COMPOSITE AVERAGE AGE (YEARS) 23.59

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 21.55

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: S20 - Switching Systems - L.V.

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R5

ASL: 60

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	11,423.00	9,846	6,563	0.5745	4,860	8.28	587	55.5
1969	12,000.00	10,099	6,731	0.5609	5,269	9.51	554	53.5
1970	5,070.00	4,211	2,807	0.5536	2,263	10.17	223	52.5
1978	42,949.00	31,241	20,823	0.4848	22,126	16.36	1,353	44.5
1980	292,893.12	204,523	136,318	0.4654	156,575	18.10	8,649	42.5
1982	341,312.01	228,067	152,011	0.4454	189,301	19.91	9,509	40.5
1983	57,955.20	37,837	25,219	0.4351	32,736	20.83	1,572	39.5
1985	1,030,337.00	640,457	426,876	0.4143	603,461	22.70	26,579	37.5
1989	13,381.22	7,457	4,970	0.3714	8,411	26.56	317	33.5
2012	2,137.86	374	249	0.1166	1,888	49.50	38	10.5
2014	149,698.41	21,208	14,136	0.0944	135,563	51.50	2,632	8.5
2015	345,451.74	43,184	28,783	0.0833	316,669	52.50	6,032	7.5
TOTAL	2,304,608.56	1,238,505	825,486		1,479,123		58,045	

COMPOSITE ANNUAL ACCRUAL RATE 2.52%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.36

COMPOSITE AVERAGE AGE (YEARS) 32.54

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 27.76

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T01 - Telecontrol System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S0.5

ASL: 27

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	121,677.13	121,677	121,677	1.0000	0		0	56.5
1968	29,424.20	29,424	29,424	1.0000	0		0	55.5
1970	486,115.14	474,538	486,115	1.0000	0	0.64	0	52.5
1974	139,723.79	129,688	139,724	1.0000	0	1.94	0	48.5
1975	38,228.01	35,012	38,228	1.0000	0	2.27	0	47.5
1976	3,448.87	3,116	3,449	1.0000	0	2.60	0	46.5
1977	43,794.87	39,036	43,795	1.0000	0	2.93	0	45.5
1978	28,102.56	24,702	28,103	1.0000	0	3.27	0	44.5
1980	367,020.32	313,487	367,020	1.0000	0	3.94	0	42.5
1982	25,527.39	21,160	25,527	1.0000	0	4.62	0	40.5
1984	4,374.50	3,514	4,375	1.0000	0	5.31	0	38.5
1985	21,679.89	17,132	21,680	1.0000	0	5.66	0	37.5
1987	32,460.35	24,787	32,460	1.0000	0	6.38	0	35.5
1988	12,474.58	9,356	12,475	1.0000	0	6.75	0	34.5
1989	25,171.86	18,533	25,172	1.0000	0	7.12	0	33.5
1990	44,539.95	32,169	44,540	1.0000	0	7.50	0	32.5
1991	9,093.53	6,438	9,094	1.0000	0	7.88	0	31.5
1992	210,249.91	145,807	210,250	1.0000	0	8.28	0	30.5
1993	6,821.00	4,630	6,679	0.9792	142	8.67	16	29.5
1995	340,055.68	220,458	318,041	0.9353	22,015	9.50	2,318	27.5
1996	150,823.71	95,412	137,645	0.9126	13,178	9.92	1,329	26.5
1997	230,157.88	141,908	204,723	0.8895	25,435	10.35	2,457	25.5
1998	120,734.75	72,461	104,535	0.8658	16,200	10.80	1,501	24.5
1999	376,363.91	219,562	316,749	0.8416	59,615	11.25	5,300	23.5
2000	232,641.59	131,715	190,018	0.8168	42,624	11.71	3,639	22.5
2001	425,246.72	233,262	336,513	0.7913	88,734	12.19	7,279	21.5
2002	268,003.29	142,158	205,083	0.7652	62,920	12.68	4,963	20.5
2003	807,494.51	413,311	596,259	0.7384	211,236	13.18	16,027	19.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T01 - Telecontrol System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: S0.5

ASL: 27

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2004	128,822.63	63,475	91,572	0.7108	37,251	13.70	2,720	18.5
2005	68,977.27	32,632	47,076	0.6825	21,901	14.23	1,539	17.5
2006	44,795.86	20,286	29,265	0.6533	15,531	14.77	1,051	16.5
2007	155,855.93	67,329	97,131	0.6232	58,725	15.34	3,829	15.5
2008	681,121.71	279,600	403,362	0.5922	277,760	15.92	17,451	14.5
2009	419,898.83	163,057	235,232	0.5602	184,667	16.52	11,182	13.5
2010	113,980.51	41,650	60,086	0.5272	53,895	17.13	3,146	12.5
2011	2,103,765.82	718,945	1,037,180	0.4930	1,066,586	17.77	60,012	11.5
2012	612,824.37	194,434	280,498	0.4577	332,327	18.43	18,028	10.5
2013	281,071.72	82,059	118,382	0.4212	162,690	19.12	8,510	9.5
2014	117,582.55	31,246	45,076	0.3834	72,506	19.83	3,657	8.5
2015	554,396.57	132,273	190,822	0.3442	363,574	20.56	17,685	7.5
2016	1,052,845.11	221,584	319,666	0.3036	733,179	21.32	34,393	6.5
2017	791,629.76	143,517	207,044	0.2615	584,586	22.11	26,446	5.5
2018	937,840.93	141,667	204,375	0.2179	733,466	22.92	31,999	4.5
2019	1,106,382.92	132,436	191,057	0.1727	915,325	23.77	38,511	3.5
2020	67,281.00	5,864	8,459	0.1257	58,822	24.65	2,387	2.5
2021	37,242.54	1,987	2,866	0.0770	34,376	25.56	1,345	1.5
2022	90,060.89	1,639	2,364	0.0262	87,697	26.51	3,308	0.5
TOTAL	13,967,826.81	5,600,132	7,630,866		6,336,960		332,028	

COMPOSITE ANNUAL ACCRUAL RATE 2.38%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.55

COMPOSITE AVERAGE AGE (YEARS) 15.95

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 16.17

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T02 - Test Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: SQ

ASL: 20

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2004	49,875.29	46,135	49,455	0.9916	420	1.50	280	18.5
2005	104,172.87	91,151	97,712	0.9380	6,461	2.50	2,584	17.5
2006	125,767.44	103,758	111,226	0.8844	14,541	3.50	4,155	16.5
2007	87,588.49	67,881	72,767	0.8308	14,821	4.50	3,294	15.5
2008	102,997.25	74,673	80,048	0.7772	22,949	5.50	4,173	14.5
2009	236,357.07	159,541	171,025	0.7236	65,333	6.50	10,051	13.5
2010	139,690.85	87,307	93,591	0.6700	46,100	7.50	6,147	12.5
2011	77,755.41	44,709	47,927	0.6164	29,828	8.50	3,509	11.5
2012	44,277.18	23,246	24,919	0.5628	19,358	9.50	2,038	10.5
2013	35,952.88	17,078	18,307	0.5092	17,646	10.50	1,681	9.5
2014	279,290.00	118,698	127,242	0.4556	152,048	11.50	13,222	8.5
2015	64,570.87	24,214	25,957	0.4020	38,614	12.50	3,089	7.5
2016	19,879.32	6,461	6,926	0.3484	12,954	13.50	960	6.5
2017	48,664.04	13,383	14,346	0.2948	34,318	14.50	2,367	5.5
2018	224,052.92	50,412	54,040	0.2412	170,012	15.50	10,969	4.5
2019	60,179.90	10,531	11,290	0.1876	48,890	16.50	2,963	3.5
2021	97,476.81	7,311	7,837	0.0804	89,640	18.50	4,845	1.5
2022	75,746.72	1,894	2,030	0.0268	73,717	19.50	3,780	0.5
TOTAL	1,874,295.31	948,382	1,016,645		857,650		80,107	

COMPOSITE ANNUAL ACCRUAL RATE 4.27%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.54

COMPOSITE AVERAGE AGE (YEARS) 10.12

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 9.88

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T03 - Tools and Equipment

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: SQ

ASL: 20

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2003	324,081.44	315,979	324,081	1.0000	0	0.50	0	19.5
2004	148,747.32	137,591	141,614	0.9520	7,133	1.50	4,755	18.5
2005	452,386.88	395,839	406,420	0.8984	45,967	2.50	18,387	17.5
2006	1,127,912.27	930,528	955,403	0.8471	172,510	3.50	49,288	16.5
2007	606,546.65	470,074	482,640	0.7957	123,907	4.50	27,535	15.5
2008	612,599.12	444,134	456,007	0.7444	156,592	5.50	28,471	14.5
2009	1,969,604.49	1,329,483	1,365,023	0.6930	604,581	6.50	93,013	13.5
2010	429,346.17	268,341	275,515	0.6417	153,831	7.50	20,511	12.5
2011	774,551.44	445,367	457,273	0.5904	317,279	8.50	37,327	11.5
2012	467,058.66	245,206	251,761	0.5390	215,298	9.50	22,663	10.5
2013	712,768.76	338,565	347,616	0.4877	365,153	10.50	34,776	9.5
2014	658,642.49	279,923	287,406	0.4364	371,236	11.50	32,281	8.5
2015	560,861.32	210,323	215,945	0.3850	344,916	12.50	27,593	7.5
2016	456,515.82	148,368	152,334	0.3337	304,182	13.50	22,532	6.5
2017	534,629.28	147,023	150,953	0.2824	383,676	14.50	26,460	5.5
2018	1,957,482.80	440,434	452,207	0.2310	1,505,275	15.50	97,115	4.5
2019	5,788,300.25	1,012,953	1,040,031	0.1797	4,748,269	16.50	287,774	3.5
2020	1,079,275.72	134,909	138,516	0.1283	940,760	17.50	53,758	2.5
2021	792,037.96	59,403	60,991	0.0770	731,047	18.50	39,516	1.5
2022	1,368,317.55	34,208	35,122	0.0257	1,333,195	19.50	68,369	0.5
TOTAL	20,821,666.39	7,788,650	7,996,858		12,824,808		992,124	

COMPOSITE ANNUAL ACCRUAL RATE 4.76%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.38

COMPOSITE AVERAGE AGE (YEARS) 7.48

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 12.52

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T04 - Towers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R4

ASL: 65

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	7,765,380.80	5,973,076	5,157,229	0.6641	2,608,151	15.00	173,848	55.5
1968	3,671,739.67	2,786,226	2,405,663	0.6552	1,266,077	15.68	80,765	54.5
1970	584,554.04	431,166	372,274	0.6369	212,280	17.06	12,446	52.5
1974	328,024.10	227,369	196,313	0.5985	131,711	19.95	6,604	48.5
1977	4,145,457.94	2,727,601	2,355,045	0.5681	1,790,413	22.23	80,534	45.5
1981	133,177.73	81,046	69,977	0.5254	63,201	25.44	2,484	41.5
1982	27,740.73	16,527	14,270	0.5144	13,471	26.27	513	40.5
1983	5,228,146.18	3,047,090	2,630,896	0.5032	2,597,250	27.12	95,781	39.5
1984	115,353.95	65,719	56,742	0.4919	58,612	27.97	2,096	38.5
1985	14,909,454.99	8,296,311	7,163,140	0.4804	7,746,315	28.83	268,680	37.5
1988	505,215.54	260,575	224,984	0.4453	280,231	31.47	8,903	34.5
1989	692,670.62	347,672	300,184	0.4334	392,486	32.37	12,123	33.5
1990	3,967,744.87	1,936,168	1,671,712	0.4213	2,296,033	33.28	68,988	32.5
1991	1,391,051.50	659,202	569,164	0.4092	821,888	34.20	24,034	31.5
1993	131,812.19	58,708	50,689	0.3846	81,123	36.05	2,250	29.5
1996	28,732.47	11,548	9,971	0.3470	18,762	38.88	483	26.5
1999	811,245.78	290,184	250,548	0.3088	560,697	41.75	13,430	23.5
2000	7,662,860.96	2,627,044	2,268,223	0.2960	5,394,638	42.72	126,290	22.5
2001	4,060,773.88	1,331,530	1,149,660	0.2831	2,911,114	43.69	66,637	21.5
2002	6,534,758.53	2,044,829	1,765,531	0.2702	4,769,228	44.66	106,789	20.5
2003	4,195,002.97	1,249,641	1,078,956	0.2572	3,116,047	45.64	68,279	19.5
2004	2,053,137.11	580,651	501,341	0.2442	1,551,796	46.62	33,288	18.5
2007	1,498,132.33	355,615	307,043	0.2050	1,191,089	49.57	24,028	15.5
2010	7,728.50	1,481	1,279	0.1655	6,449	52.54	123	12.5
2011	87,896.27	15,506	13,388	0.1523	74,509	53.53	1,392	11.5
2013	25,620.47	3,736	3,226	0.1259	22,395	55.52	403	9.5
2016	190,974.07	19,066	16,462	0.0862	174,512	58.51	2,983	6.5
2017	56,309,925.74	4,757,559	4,107,737	0.0729	52,202,189	59.51	877,226	5.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T04 - Towers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 65
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2018	8,537,446.43	590,257	509,635	0.0597	8,027,811	60.51	132,678	4.5
2019	147,723.90	7,945	6,859	0.0464	140,864	61.50	2,290	3.5
2020	27,898.79	1,072	925	0.0332	26,973	62.50	432	2.5
2021	46,381.34	1,069	923	0.0199	45,458	63.50	716	1.5
2022	37,391.20	287	248	0.0066	37,143	64.50	576	0.5
TOTAL	135,861,155.59	40,803,474	35,230,236		100,630,919		2,298,092	

COMPOSITE ANNUAL ACCRUAL RATE	1.69%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.26
COMPOSITE AVERAGE AGE (YEARS)	20.38
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	45.48

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T05 - Transformers - Pad Mount and Other, and Static Excitation System and Transformers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2.5

ASL: 50

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1964	10,236.25	8,886	9,350	0.8700	1,398	8.66	161	58.5
1965	1,471,753.81	1,267,549	1,333,705	0.8630	211,637	8.99	23,546	57.5
1966	108,971.86	93,070	97,927	0.8559	16,493	9.33	1,768	56.5
1967	3,373,761.28	2,856,127	3,005,193	0.8483	537,256	9.69	55,461	55.5
1968	1,159,807.45	972,771	1,023,541	0.8405	194,257	10.06	19,309	54.5
1969	1,218,539.03	1,012,060	1,064,881	0.8323	214,585	10.45	20,535	53.5
1970	6,420,128.53	5,277,431	5,552,869	0.8237	1,188,266	10.86	109,452	52.5
1971	2,259,683.90	1,837,377	1,933,273	0.8148	439,395	11.28	38,952	51.5
1972	689,789.22	554,484	583,423	0.8055	140,855	11.72	12,017	50.5
1973	27,597.45	21,918	23,062	0.7959	5,915	12.18	486	49.5
1974	1,181,640.21	926,652	975,016	0.7858	265,707	12.66	20,993	48.5
1975	317,035.78	245,335	258,140	0.7755	74,748	13.15	5,684	47.5
1976	274,952.78	209,820	220,771	0.7647	67,929	13.66	4,972	46.5
1977	2,160,398.36	1,624,689	1,709,484	0.7536	558,934	14.19	39,392	45.5
1978	5,333,454.87	3,949,972	4,156,128	0.7421	1,444,000	14.73	98,010	44.5
1979	169,874.23	123,810	130,272	0.7304	48,096	15.29	3,145	43.5
1980	4,881,920.24	3,499,053	3,681,674	0.7182	1,444,342	15.87	91,013	42.5
1981	1,183,277.54	833,405	876,902	0.7058	365,539	16.46	22,206	41.5
1982	449,162.91	310,637	326,850	0.6930	144,771	17.07	8,482	40.5
1983	363,573.86	246,708	259,584	0.6800	122,168	17.69	6,907	39.5
1984	76,197.45	50,690	53,336	0.6666	26,672	18.32	1,456	38.5
1985	3,619,226.71	2,358,478	2,481,571	0.6530	1,318,617	18.97	69,515	37.5
1986	1,338,625.26	853,758	898,317	0.6391	507,240	19.63	25,841	36.5
1987	395,158.08	246,445	259,307	0.6250	155,609	20.30	7,665	35.5
1988	1,661,443.24	1,012,289	1,065,122	0.6106	679,394	20.99	32,373	34.5
1989	4,951,808.27	2,944,646	3,098,332	0.5959	2,101,067	21.68	96,900	33.5
1990	2,906,681.46	1,685,300	1,773,259	0.5810	1,278,757	22.39	57,112	32.5
1991	569,391.64	321,543	338,325	0.5659	259,536	23.11	11,231	31.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T05 - Transformers - Pad Mount and Other, and Static Excitation System and Transformers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2.5

ASL: 50

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1992	449,507.48	246,960	259,850	0.5505	212,133	23.84	8,899	30.5
1993	481,662.06	257,146	270,567	0.5350	235,178	24.58	9,569	29.5
1994	337,062.61	174,643	183,758	0.5192	170,158	25.33	6,718	28.5
1995	2,714,275.10	1,363,062	1,434,203	0.5032	1,415,786	26.09	54,273	27.5
1996	3,017,576.95	1,466,638	1,543,185	0.4870	1,625,271	26.86	60,519	26.5
1997	177,165.36	83,212	87,554	0.4707	98,469	27.63	3,563	25.5
1998	2,110,170.40	956,203	1,006,109	0.4541	1,209,570	28.42	42,558	24.5
1999	242,043.47	105,630	111,143	0.4373	143,003	29.22	4,894	23.5
2000	220,986.53	92,702	97,540	0.4204	134,496	30.02	4,480	22.5
2001	452,468.09	182,071	191,573	0.4032	283,518	30.84	9,194	21.5
2002	2,596,529.70	999,977	1,052,167	0.3859	1,674,189	31.66	52,879	20.5
2003	1,854,272.49	681,769	717,351	0.3684	1,229,635	32.49	37,845	19.5
2004	1,864,186.94	652,579	686,638	0.3508	1,270,758	33.33	38,126	18.5
2005	603,615.65	200,572	211,040	0.3330	422,756	34.18	12,370	17.5
2006	263,883.47	82,952	87,281	0.3150	189,797	35.03	5,418	16.5
2007	838,239.06	248,338	261,299	0.2969	618,852	35.89	17,242	15.5
2008	406,606.75	113,047	118,947	0.2786	307,990	36.76	8,378	14.5
2009	3,600,044.40	934,731	983,516	0.2602	2,796,531	37.64	74,305	13.5
2010	1,072,162.11	258,525	272,018	0.2416	853,752	38.52	22,165	12.5
2011	1,580,685.53	351,659	370,013	0.2229	1,289,707	39.41	32,729	11.5
2012	4,676,921.15	952,651	1,002,371	0.2041	3,908,396	40.30	96,982	10.5
2013	4,506,600.63	832,765	876,228	0.1852	3,855,702	41.20	93,584	9.5
2014	10,968,737.39	1,818,240	1,913,137	0.1661	9,604,037	42.11	228,090	8.5
2015	9,786,470.30	1,434,994	1,509,889	0.1469	8,765,905	43.02	203,775	7.5
2016	16,876,727.46	2,149,882	2,262,088	0.1277	15,458,476	43.93	351,857	6.5
2017	6,942,563.84	750,084	789,232	0.1083	6,500,460	44.86	144,921	5.5
2018	8,196,214.58	726,161	764,061	0.0888	7,841,965	45.78	171,293	4.5
2019	7,987,201.39	551,594	580,383	0.0692	7,806,179	46.71	167,115	3.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T05 - Transformers - Pad Mount and Other, and Static Excitation System and Transformers

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 50
Net Salvage: -5%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2020	5,049,436.33	249,612	262,640	0.0495	5,039,268	47.65	105,765	2.5
2021	4,674,711.70	138,950	146,202	0.0298	4,762,246	48.58	98,020	1.5
2022	6,528,661.79	64,855	68,240	0.0100	6,786,855	49.53	137,034	0.5
TOTAL	159,651,482.38	54,467,109	57,309,837		110,324,219		3,189,144	

COMPOSITE ANNUAL ACCRUAL RATE	2.00%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.36
COMPOSITE AVERAGE AGE (YEARS)	19.74
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	33.75

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T07 - Transformers - Pole Mounted

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L1

ASL: 35

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	11,602.59	8,841	12,739	0.9981	24	10.75	2	55.5
1968	3,506.89	2,646	3,812	0.9881	46	11.00	4	54.5
1970	24,894.16	18,393	26,501	0.9678	882	11.49	77	52.5
1978	10,884.00	7,323	10,552	0.8813	1,421	13.59	105	44.5
1979	323.10	215	309	0.8699	46	13.87	3	43.5
1981	391,932.87	253,290	364,946	0.8465	66,180	14.44	4,584	41.5
1982	125,160.20	79,746	114,900	0.8346	22,776	14.73	1,547	40.5
1983	211,585.95	132,859	191,427	0.8225	41,318	15.02	2,751	39.5
1984	147,669.51	91,343	131,608	0.8102	30,828	15.32	2,012	38.5
1985	146,742.75	89,377	128,777	0.7978	32,640	15.62	2,090	37.5
1986	165,613.25	99,277	143,041	0.7852	39,134	15.93	2,457	36.5
1987	456,937.53	269,450	388,230	0.7724	114,401	16.24	7,046	35.5
1988	127,433.87	73,884	106,454	0.7594	33,724	16.55	2,037	34.5
1989	232,605.92	132,523	190,942	0.7463	64,924	16.87	3,848	33.5
1990	267,547.21	149,701	215,693	0.7329	78,609	17.20	4,571	32.5
1991	269,648.17	148,085	213,365	0.7193	83,248	17.53	4,750	31.5
1992	862,931.27	464,841	669,754	0.7056	279,470	17.86	15,648	30.5
1993	295,581.29	156,071	224,871	0.6916	100,269	18.20	5,509	29.5
1994	282,360.08	146,033	210,408	0.6774	100,188	18.54	5,403	28.5
1995	581,601.91	294,403	424,183	0.6630	215,579	18.89	11,410	27.5
1996	886,921.47	439,053	632,597	0.6484	343,016	19.25	17,820	26.5
1997	1,125,213.10	544,256	784,177	0.6336	453,557	19.61	23,129	25.5
1998	604,436.78	285,400	411,211	0.6185	253,669	19.98	12,699	24.5
1999	680,711.37	313,452	451,630	0.6032	297,153	20.35	14,603	23.5
2000	684,146.94	306,904	442,194	0.5876	310,367	20.73	14,974	22.5
2001	627,766.65	274,032	394,831	0.5718	295,712	21.11	14,008	21.5
2002	809,779.26	343,544	494,987	0.5557	395,771	21.50	18,407	20.5
2003	967,884.12	398,473	574,129	0.5393	490,544	21.90	22,399	19.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T07 - Transformers - Pole Mounted

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L1

ASL: 35

Net Salvage: -10%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2004	793,059.73	316,217	455,613	0.5223	416,753	22.31	18,677	18.5
2005	976,605.31	376,211	542,053	0.5046	532,213	22.74	23,401	17.5
2006	951,583.15	353,083	508,730	0.4860	538,011	23.19	23,196	16.5
2007	1,250,056.52	445,161	641,398	0.4665	733,664	23.67	30,997	15.5
2008	1,047,476.13	356,491	513,640	0.4458	638,583	24.17	26,419	14.5
2009	1,637,600.83	529,990	763,622	0.4239	1,037,739	24.70	42,010	13.5
2010	1,459,122.48	446,449	643,254	0.4008	961,781	25.26	38,068	12.5
2011	2,314,660.54	664,971	958,105	0.3763	1,588,021	25.86	61,411	11.5
2012	1,802,732.39	482,327	694,948	0.3505	1,288,058	26.49	48,630	10.5
2013	7,480,303.58	1,845,628	2,659,223	0.3232	5,569,111	27.15	205,128	9.5
2014	3,300,985.63	742,186	1,069,359	0.2945	2,561,725	27.85	91,996	8.5
2015	2,473,208.49	499,291	719,390	0.2644	2,001,139	28.58	70,027	7.5
2016	1,494,103.01	265,770	382,928	0.2330	1,260,586	29.34	42,964	6.5
2017	1,200,297.97	183,490	264,377	0.2002	1,055,951	30.14	35,040	5.5
2018	703,235.00	89,241	128,580	0.1662	644,978	30.96	20,831	4.5
2019	3,237,011.64	323,790	466,524	0.1310	3,094,189	31.82	97,249	3.5
2020	2,958,188.71	213,899	308,190	0.0947	2,945,818	32.70	90,088	2.5
2021	3,525,270.59	154,544	222,670	0.0574	3,655,127	33.61	108,767	1.5
2022	2,496,182.52	36,713	52,897	0.0193	2,692,904	34.53	77,983	0.5
TOTAL	52,105,106.43	13,848,866	19,953,769		37,361,848		1,366,775	

COMPOSITE ANNUAL ACCRUAL RATE 2.62%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.38

COMPOSITE AVERAGE AGE (YEARS) 12.13

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 26.54

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T09 - Turbines

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R2.5

ASL: 55

Net Salvage: -20%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	1,745,866.72	1,603,017	1,416,653	0.6762	678,387	12.92	52,520	55.5
1968	8,607,404.86	7,816,969	6,908,183	0.6688	3,420,703	13.38	255,741	54.5
1970	1,666,672.91	1,478,506	1,306,618	0.6533	693,390	14.34	48,349	52.5
1971	26,000.00	22,777	20,129	0.6452	11,071	14.85	746	51.5
1975	101,873.10	84,410	74,596	0.6102	47,651	17.02	2,799	47.5
1977	217,905.93	174,969	154,628	0.5913	106,859	18.20	5,872	45.5
1978	4,242,670.89	3,350,490	2,960,969	0.5816	2,130,237	18.80	113,281	44.5
1980	2,788,239.51	2,125,651	1,878,527	0.5614	1,467,361	20.06	73,155	42.5
1982	7,091,357.09	5,204,762	4,599,666	0.5405	3,909,962	21.36	183,049	40.5
1983	46,776.00	33,650	29,738	0.5298	26,393	22.03	1,198	39.5
1985	10,694,816.14	7,374,178	6,516,870	0.5078	6,316,909	23.40	269,982	37.5
1987	8,893.22	5,858	5,177	0.4851	5,495	24.81	221	35.5
1988	6,909,835.55	4,443,054	3,926,513	0.4735	4,365,290	25.53	170,994	34.5
1989	1,587,174.93	995,287	879,577	0.4618	1,025,033	26.26	39,036	33.5
2003	11,776,329.63	4,526,562	4,000,312	0.2831	10,131,283	37.38	271,015	19.5
2009	67,170.20	18,185	16,071	0.1994	64,533	42.59	1,515	13.5
2013	2,234,418.47	429,932	379,949	0.1417	2,301,353	46.18	49,833	9.5
2014	289,550.40	49,963	44,154	0.1271	303,306	47.09	6,441	8.5
2015	2,906,129.53	443,449	391,894	0.1124	3,095,461	48.01	64,480	7.5
2016	1,512,610.90	200,468	177,162	0.0976	1,637,971	48.93	33,479	6.5
2017	1,823,190.02	204,886	181,066	0.0828	2,006,762	49.85	40,257	5.5
2018	1,775,384.73	163,564	144,549	0.0678	1,985,913	50.78	39,110	4.5
2019	4,172,215.95	299,544	264,720	0.0529	4,741,939	51.71	91,704	3.5

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T09 - Turbines

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R2.5
ASL: 55
Net Salvage: -20%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
TOTAL	72,292,486.68	41,050,133	36,277,721		50,473,263		1,814,777	
COMPOSITE ANNUAL ACCRUAL RATE				2.51%				
THEORETICAL ACCUMULATED DEPRECIATION FACTOR				0.50				
COMPOSITE AVERAGE AGE (YEARS)				31.50				
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)				28.97				

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T10 - Holyrood Gas Turbine - Combustor Overhaul

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 3
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2018	3,028,925.67	3,028,926	3,028,926	1.0000	0		0	5.5
TOTAL	3,028,925.67	3,028,926	3,028,926		0		0	

COMPOSITE ANNUAL ACCRUAL RATE	0.00%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	1.00
COMPOSITE AVERAGE AGE (YEARS)	5.50
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	0.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T11 - Holyrood Gas Turbine - Turbine Overhaul

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 6
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2018	5,667,022.23	4,250,267	4,012,790	0.7081	1,654,232	1.50	1,102,821	4.5
2019	58,833.08	34,319	32,402	0.5507	26,431	2.50	10,573	3.5
TOTAL	5,725,855.31	4,284,586	4,045,192		1,680,663		1,113,394	

COMPOSITE ANNUAL ACCRUAL RATE	19.45%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.71
COMPOSITE AVERAGE AGE (YEARS)	4.49
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	1.51

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T12 - Holyrood Gas Turbine - Combustor Overhaul

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 12
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2015	3,088,487.29	1,930,305	2,062,608	0.6678	1,025,879	4.50	227,973	7.5
TOTAL	3,088,487.29	1,930,305	2,062,608		1,025,879		227,973	

COMPOSITE ANNUAL ACCRUAL RATE	7.38%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.67
COMPOSITE AVERAGE AGE (YEARS)	7.50
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	4.50

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: T14 - Transformer - Charging Station

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: SQ
ASL: 10
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Depreciation	Accumulated Depreciation	Actual Booked Amount	Factor	ALG		Annual Accrual	Average Age
						Net Book Value	Remaining Life		
2021	115,666.46	17,350		12,671	0.1095	102,996	8.50	12,117	1.5
2022	449,451.93	22,473		16,412	0.0365	433,040	9.50	45,583	0.5
TOTAL	565,118.39	39,823		29,082		536,036		57,700	

COMPOSITE ANNUAL ACCRUAL RATE	10.21%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.05
COMPOSITE AVERAGE AGE (YEARS)	0.70
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	9.30

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: V01 - Vacuum Cleaning System

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: R4
ASL: 60
Net Salvage: 0%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1969	23,574.00	18,713	23,574	1.0000	0	12.37	0	53.5
1980	48,877.00	32,476	44,884	0.9183	3,993	20.13	198	42.5
TOTAL	72,451.00	51,189	68,458		3,993		198	

COMPOSITE ANNUAL ACCRUAL RATE	0.27%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.94
COMPOSITE AVERAGE AGE (YEARS)	46.08
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	17.61

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: V02 - Valves - Penstock

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R3

ASL: 65

Net Salvage: 0%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1967	1,415,205.48	1,018,280	979,286	0.6920	435,919	18.23	23,911	55.5
1970	547,228.00	378,005	363,529	0.6643	183,699	20.10	9,139	52.5
1975	14,300.75	9,141	8,791	0.6147	5,510	23.45	235	47.5
1977	104,000.00	64,207	61,749	0.5937	42,251	24.87	1,699	45.5
1982	22,218.67	12,449	11,972	0.5388	10,247	28.58	359	40.5
1985	2,149,771.70	1,127,331	1,084,160	0.5043	1,065,611	30.91	34,470	37.5
1988	2,432.20	1,185	1,140	0.4687	1,292	33.32	39	34.5
2001	183,189.12	57,716	55,506	0.3030	127,683	44.52	2,868	21.5
2003	232,949.56	66,870	64,309	0.2761	168,641	46.34	3,639	19.5
2004	211,351.90	57,682	55,473	0.2625	155,879	47.26	3,298	18.5
2005	212,317.84	54,928	52,825	0.2488	159,493	48.18	3,310	17.5
2006	176,897.79	43,235	41,580	0.2350	135,318	49.11	2,755	16.5
2007	129,795.39	29,858	28,715	0.2212	101,081	50.05	2,020	15.5
2008	1,875,177.71	404,283	388,801	0.2073	1,486,376	50.99	29,153	14.5
2015	220,507.28	24,861	23,909	0.1084	196,599	57.67	3,409	7.5
2016	259,435.73	25,383	24,411	0.0941	235,025	58.64	4,008	6.5
2022	465,728.95	3,527	3,392	0.0073	462,337	64.51	7,167	0.5
TOTAL	8,222,508.07	3,378,941	3,249,547		4,972,961		131,479	

COMPOSITE ANNUAL ACCRUAL RATE 1.60%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.40

COMPOSITE AVERAGE AGE (YEARS) 29.93

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 38.29

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: V03 - Vehicles - 1 Ton

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: L4
ASL: 8
Net Salvage: 15%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2013	51,647.92	36,265	41,770	0.9515	2,130	1.39	1,531	9.5
2016	53,070.76	33,219	38,263	0.8482	6,848	2.11	3,247	6.5
2017	4,458.64	2,470	2,845	0.7508	945	2.79	339	5.5
2018	50,591.00	23,622	27,208	0.6327	15,795	3.61	4,381	4.5
TOTAL	159,768.32	95,576	110,086		25,717		9,498	

COMPOSITE ANNUAL ACCRUAL RATE	5.94%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	0.69
COMPOSITE AVERAGE AGE (YEARS)	6.81
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	2.37

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: V04 - Vehicles - 3/4 Ton and Under

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L3

ASL: 7

Net Salvage: 15%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2011	27,346.95	19,497	23,245	1.0000	0	1.13	0	11.5
2012	126,339.41	86,500	107,389	1.0000	0	1.36	0	10.5
2013	68,828.23	45,033	58,504	1.0000	0	1.61	0	9.5
2014	307,315.12	191,988	249,886	0.9566	11,332	1.86	6,108	8.5
2015	969,975.93	582,751	758,493	0.9200	65,987	2.05	32,152	7.5
2016	1,250,633.63	725,624	944,452	0.8884	118,587	2.22	53,373	6.5
2017	1,268,826.34	695,898	905,761	0.8398	172,741	2.48	69,562	5.5
2018	672,974.88	329,820	429,285	0.7505	142,744	2.96	48,160	4.5
2020	8,327.42	2,469	3,213	0.4540	3,865	4.56	848	2.5
2021	582,693.89	105,652	137,514	0.2776	357,776	5.51	64,970	1.5
2022	1,157,330.31	70,284	91,479	0.0930	892,252	6.50	137,272	0.5
TOTAL	6,440,592.11	2,855,514	3,709,220		1,765,284		412,445	

COMPOSITE ANNUAL ACCRUAL RATE 6.40%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.58

COMPOSITE AVERAGE AGE (YEARS) 4.94

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 3.35

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: V05 - Vehicles - Booms / Bodies / Cranes / Cab / Chassis

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L3

ASL: 13

Net Salvage: 15%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2002	22,220.00	15,661	18,887	1.0000	0	2.22	0	20.5
2003	18,947.63	13,050	16,105	1.0000	0	2.47	0	19.5
2005	385,000.00	252,270	326,454	0.9976	796	2.98	267	17.5
2006	35,000.00	22,357	28,932	0.9725	818	3.23	253	16.5
2007	640,339.43	399,317	516,743	0.9494	27,546	3.46	7,955	15.5
2008	457,199.26	279,077	361,144	0.9293	27,476	3.66	7,498	14.5
2009	1,272,083.86	762,011	986,093	0.9120	95,179	3.84	24,796	13.5
2010	519,275.73	305,359	395,154	0.8953	46,230	4.01	11,539	12.5
2011	1,484,881.71	853,700	1,104,744	0.8753	157,406	4.21	37,415	11.5
2012	1,846,919.39	1,028,348	1,330,750	0.8477	239,131	4.48	53,326	10.5
2013	1,322,985.14	702,771	909,432	0.8087	215,106	4.88	44,117	9.5
2014	834,045.14	414,257	536,076	0.7562	172,863	5.40	31,990	8.5
2015	2,719,548.03	1,232,775	1,595,292	0.6901	716,324	6.07	118,066	7.5
2016	6.20	3	3	0.6129	2	6.84	0	6.5
2017	554,801.28	192,483	249,086	0.5282	222,495	7.69	28,919	5.5
2018	1,776,923.38	511,779	662,275	0.4385	848,110	8.60	98,674	4.5
2019	533,742.14	120,926	156,486	0.3449	297,195	9.53	31,169	3.5
2020	2,243,475.35	365,698	473,238	0.2482	1,433,716	10.51	136,454	2.5
2021	2,002,352.06	196,381	254,129	0.1493	1,447,870	11.50	125,901	1.5
TOTAL	18,669,745.73	7,668,224	9,921,021		5,948,263		758,339	

COMPOSITE ANNUAL ACCRUAL RATE 4.06%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.53

COMPOSITE AVERAGE AGE (YEARS) 7.84

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 6.72

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: V06 - Vehicles - Cars, Station Wagons, and Vans

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: L3

ASL: 7

Net Salvage: 15%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2011	82,141.11	58,563	69,820	1.0000	0	1.13	0	11.5
2012	58,094.31	39,775	49,380	1.0000	0	1.36	0	10.5
2013	58,523.34	38,290	49,745	1.0000	0	1.61	0	9.5
2014	216,766.37	135,420	184,251	1.0000	0	1.86	0	8.5
2015	84,079.61	50,514	71,468	1.0000	0	2.05	0	7.5
2016	71,463.26	41,463	60,744	1.0000	0	2.22	0	6.5
2017	353,242.67	193,739	300,256	1.0000	0	2.48	0	5.5
2018	124,509.49	61,021	98,048	0.9264	7,785	2.96	2,627	4.5
2021	161,433.77	29,271	47,032	0.3427	90,187	5.51	16,377	1.5
2022	221,030.36	13,423	21,568	0.1148	166,308	6.50	25,586	0.5
TOTAL	1,431,284.29	661,478	952,312		264,280		44,590	

COMPOSITE ANNUAL ACCRUAL RATE 3.12%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.67

COMPOSITE AVERAGE AGE (YEARS) 5.52

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 3.19

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: V07 - Vehicles - Dump Trucks

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION
BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life
Survivor Curve: L5
ASL: 10
Net Salvage: 15%
Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
2003	11,535.00	9,805	11,535	1.1765	-1,730		-1,730	20.5
TOTAL	11,535.00	9,805	11,535		-1,730		-1,730	

COMPOSITE ANNUAL ACCRUAL RATE	-15.00%
THEORETICAL ACCUMULATED DEPRECIATION FACTOR	1.00
COMPOSITE AVERAGE AGE (YEARS)	20.50
DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS)	0.00

NEWFOUNDLAND AND LABRADOR HYDRO

Account #: W04 - Water Treatment and Water Systems - Feed

CALCULATED ANNUAL ACCRUAL AND ACCRUED DEPRECIATION

BASED ON ORIGINAL COST AS OF December 31, 2022

ALG - Remaining Life

Survivor Curve: R1.5

ASL: 55

Net Salvage: -5%

Truncation Year:

Year	Original Cost	Calculated Accumulated Depreciation	Allocated Actual Booked Amount	Accumulated Depreciation Factor	Net Book Value	ALG Remaining Life	Annual Accrual	Average Age
1968	395,463.12	280,017	415,236	1.0000	0	17.91	0	54.5
1969	1,663,202.51	1,162,448	1,740,220	0.9965	6,142	18.39	334	53.5
1971	1,937,382.00	1,317,564	1,972,434	0.9696	61,817	19.38	3,190	51.5
1980	1,533,657.94	899,427	1,346,470	0.8361	263,870	24.28	10,867	42.5
1988	57,541.66	28,311	42,383	0.7015	18,036	29.23	617	34.5
1990	15,137.27	7,068	10,581	0.6657	5,313	30.54	174	32.5
1991	2,681,164.08	1,217,726	1,822,974	0.6475	992,249	31.21	31,793	31.5
1995	5,359.72	2,154	3,225	0.5730	2,403	33.95	71	27.5
2012	659,794.84	106,285	159,112	0.2297	533,672	46.56	11,462	10.5
2013	170,885.85	24,973	37,385	0.2084	142,045	47.35	3,000	9.5
2015	4,160,003.20	482,517	722,343	0.1654	3,645,660	48.92	74,516	7.5
2017	1,621,519.70	138,679	207,606	0.1219	1,494,990	50.52	29,592	5.5
2018	165,421.86	11,607	17,376	0.1000	156,317	51.32	3,046	4.5
2022	2,252,898.14	17,890	26,782	0.0113	2,338,761	54.58	42,847	0.5
TOTAL	17,319,431.89	5,696,666	8,524,128		9,661,276		211,509	

COMPOSITE ANNUAL ACCRUAL RATE 1.22%

THEORETICAL ACCUMULATED DEPRECIATION FACTOR 0.49

COMPOSITE AVERAGE AGE (YEARS) 23.85

DIRECTED WEIGHTED ALG COMPOSITE REMAINING LIFE (YEARS) 37.77



SECTION 8

8 ESTIMATION OF SURVIVOR CURVES

8.1 Average Service Life

All assets have a service life, which is defined as “the period of time from its installation until it is retired from service”³. All account groups of property are made up of various assets with differing service lives and investment values. To calculate a depreciation rate, one must first calculate an average life for all assets in a single account. This can be done by ascertaining the age at retirement for every asset in an account and plotting it as a percentage of the units surviving at each age interval (a “Survivor Curve”). From the average life for each account, remaining lives can then be found which are then used to calculate the annual depreciation accruals and ultimately depreciation rate. A discussion of the general concept of survivor curves is presented and the Iowa type survivor curves are reviewed.

8.2 Survivor Curves

A survivor curve is defined as “a graph of the percent of units remaining in service expressed as a function of age”⁴. To calculate the average life of the group, the remaining life expectancy, the probable life and the frequency curve, one must first create a survivor curve. Figure 1 shows a typical 40-R4 smoothed survivor curve as well as the accompanying derived curves. The type 40-R4 refers to the Iowa type curve, whose designation will be explained in further detail in the next section

To calculate the average service life, one must calculate the area under the survivor curve and divide by the percent surviving at age zero. The remaining life is equal to the area under the survivor curve and to the right of the current age, divided by the percent surviving at the current age. In Figure 1, for example, the hatched area to the right of age 45 divided by 28.9 percent surviving balance represents the remaining life for an asset that has reached that age. The probable life is “the total life expectancy of the property surviving at any age and is equal to the remaining life plus the current age.”⁵ If the probable life of the property is calculated for each year of age, the probable life curve shown in the chart can be developed. The frequency curve is calculated by taking the difference between the percent surviving on successive years on the survivor curve⁶. Alternatively, frequency can be empirically determined by finding the amount of retirements at any given age. Plotting retirement frequency from the youngest to oldest ages and then taking the cumulative frequencies will generate percent surviving versus age.

³ Wolf, Frank K. and W. Chester Fitch, *Depreciation Systems* (Iowa State University Press, 1994), 21.

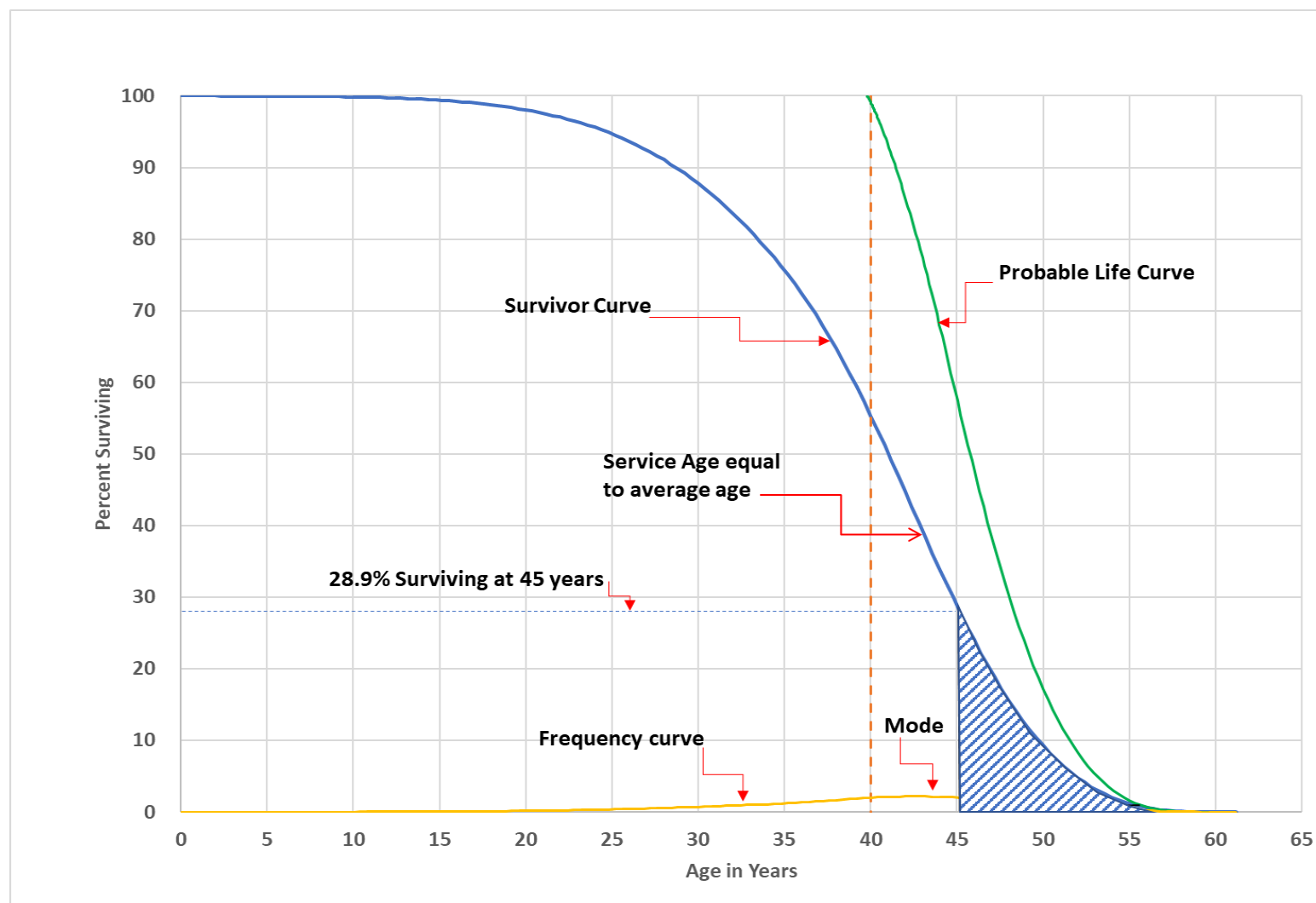
⁴ *Ibid*, 23.

⁵ *Ibid*, 29.

⁶ *Ibid*, 23-24.



FIGURE 1: TYPICAL SURVIVOR CURVE (40-R4) AND DERIVED CURVES





8.3 Iowa Type Curves

In 1931, Robley Winfrey and Edwin Kurtz of the Engineering Research Institute at Iowa State University published Bulletin 103, which laid the groundwork for what would eventually be known as the Iowa Curves. “The 13 type curves can be used as valuable aids in forecasting the probable future service lives of individual items and of groups of items of different kinds of physical equipment”⁷. The 13 curves described in Bulletin 103 eventually became a series of 22 generalized survivor curves which are used throughout the regulated utility industry. These 22 curves were described in Bulletin 125, published in 1967 by Harold A. Cowles, which became known as the Iowa curves.

The Iowa curves are organized with three variables: the average life of the plant; the location of the mode; and the variation of the life. All Iowa curves have both a letter and a number to represent the shape and height of the mode. The L curves, or left-moded curves, are used when the mode of the curve should be to the left of the average life. There are six L curves are presented in Figure 2. The R curves, or right-moded, are used when the mode of the curve should be to the right of the average life. There are five R curves, which are presented in Figure 3. The S curves, or symmetrically-moded, are used when the mode is equal to the average life. There are seven S curves, which are presented in Figure 4. The O curves, or origin curves, are used when the mode occurs at age 0. There are four O curves, which are presented in Figure 5. There are some occasions where it is appropriate to use a half curve. In these cases, the curve is assumed to be exactly half way between the two curves.

In addition to Bulletin 125, Iowa curves have also been presented in subsequent Experiment Station bulletins and in the text *Engineering Valuation and Depreciation*⁸. In 1957, Frank V. B. Couch, Jr., an Iowa State College graduate student, submitted a thesis⁹ presenting his development of the fourth family consisting of the four O-type survivor curves.

⁷ *Ibid*, 21

⁸ Marston, Anson, Robley Winfrey and Jean C. Hempstead, *Engineering Valuation and Depreciation* (The Iowa State University Press, 1953)

⁹ Couch, Frank V. B., Jr., *Classification of Type O Retirement Characteristics of Industrial Property* Unpublished M.S. Thesis (Engineering Valuation, Library, Iowa State College, Ames, Iowa, 1957)



FIGURE 2: LEFT MODAL OR "L" IOWA TYPE SURVIVOR CURVES

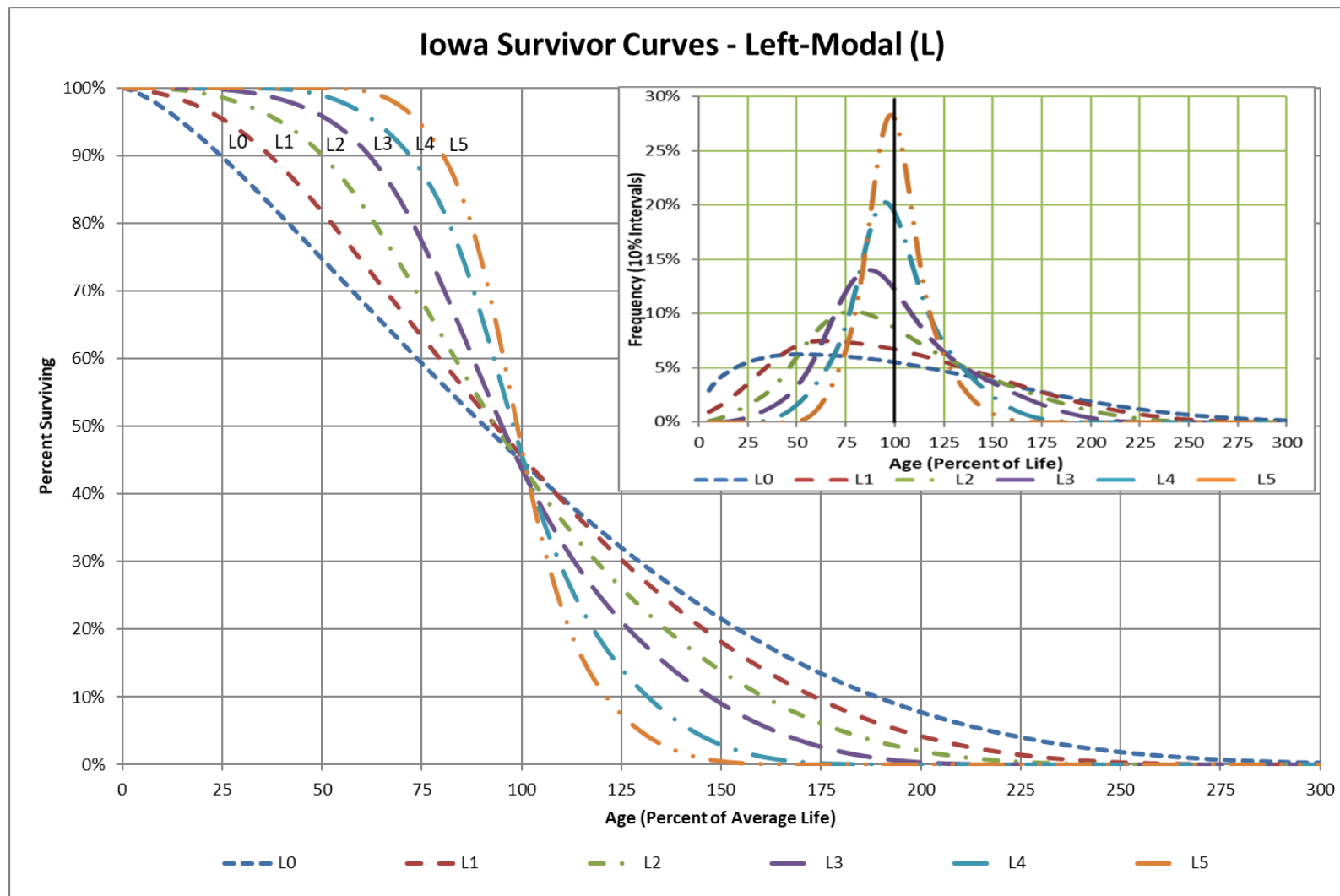




FIGURE 3: RIGHT MODAL OR "R" IOWA TYPE SURVIVOR CURVES

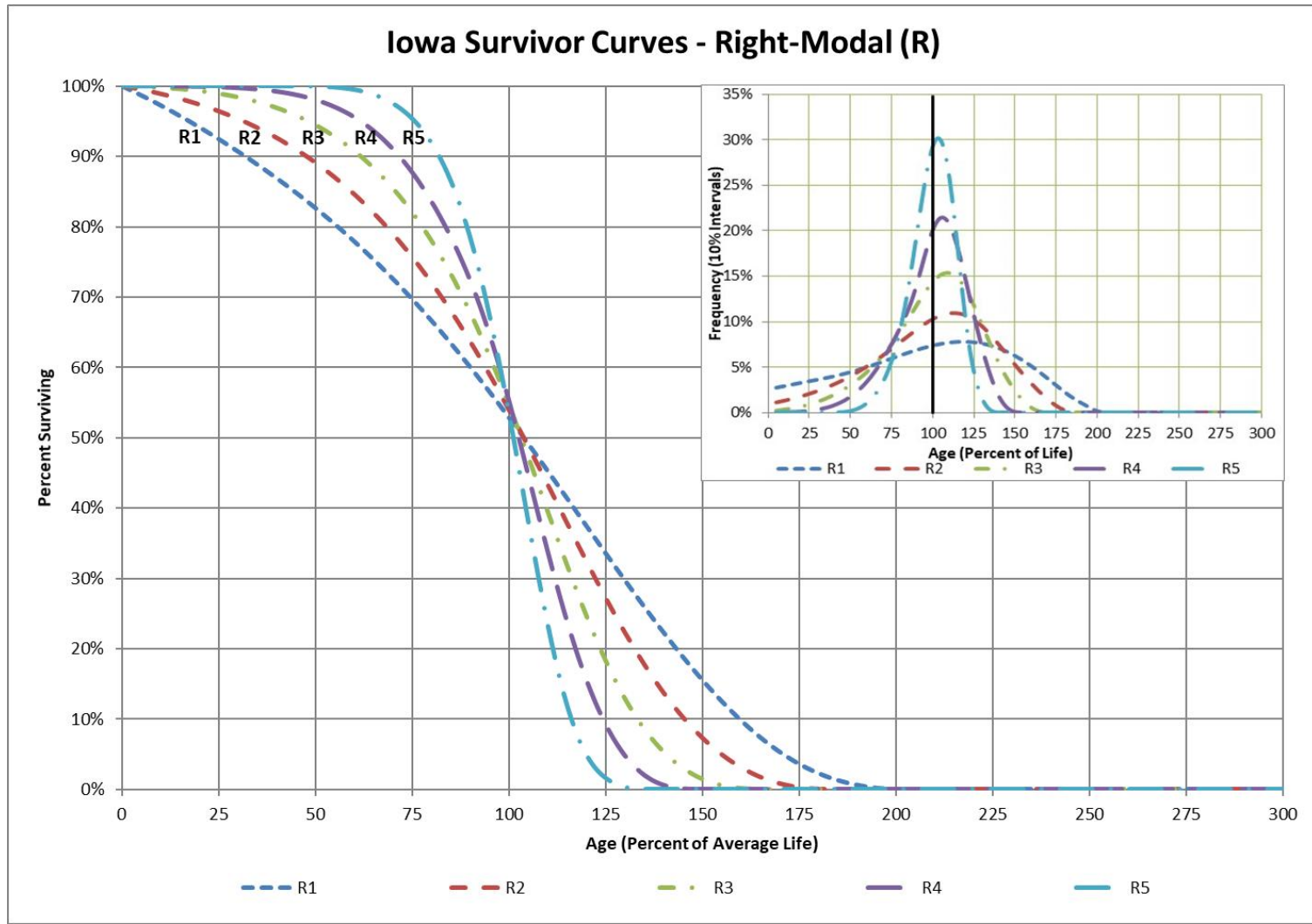




FIGURE 4: SYMMETRICAL OR "S" IOWA TYPE SURVIVOR CURVES

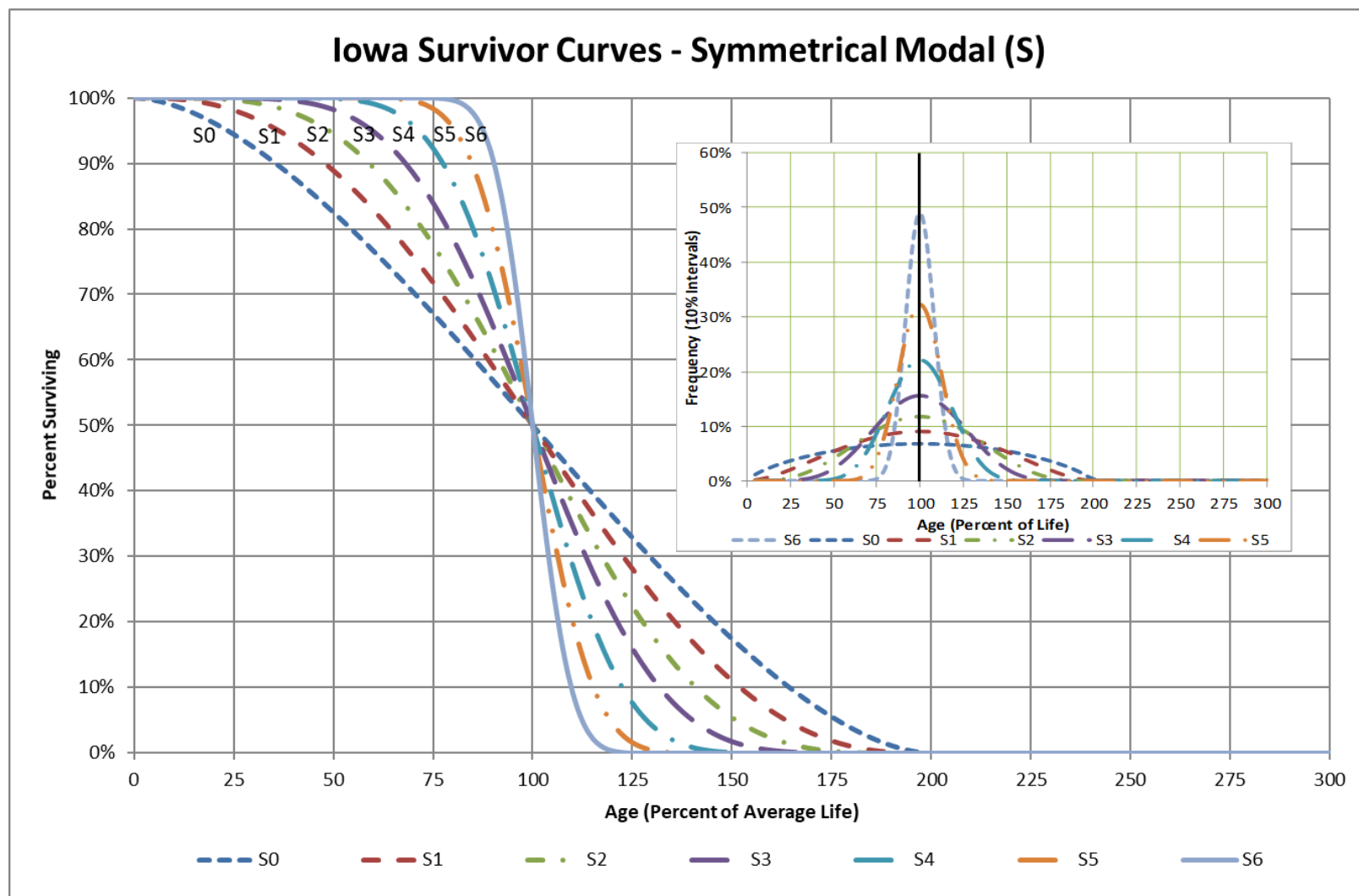
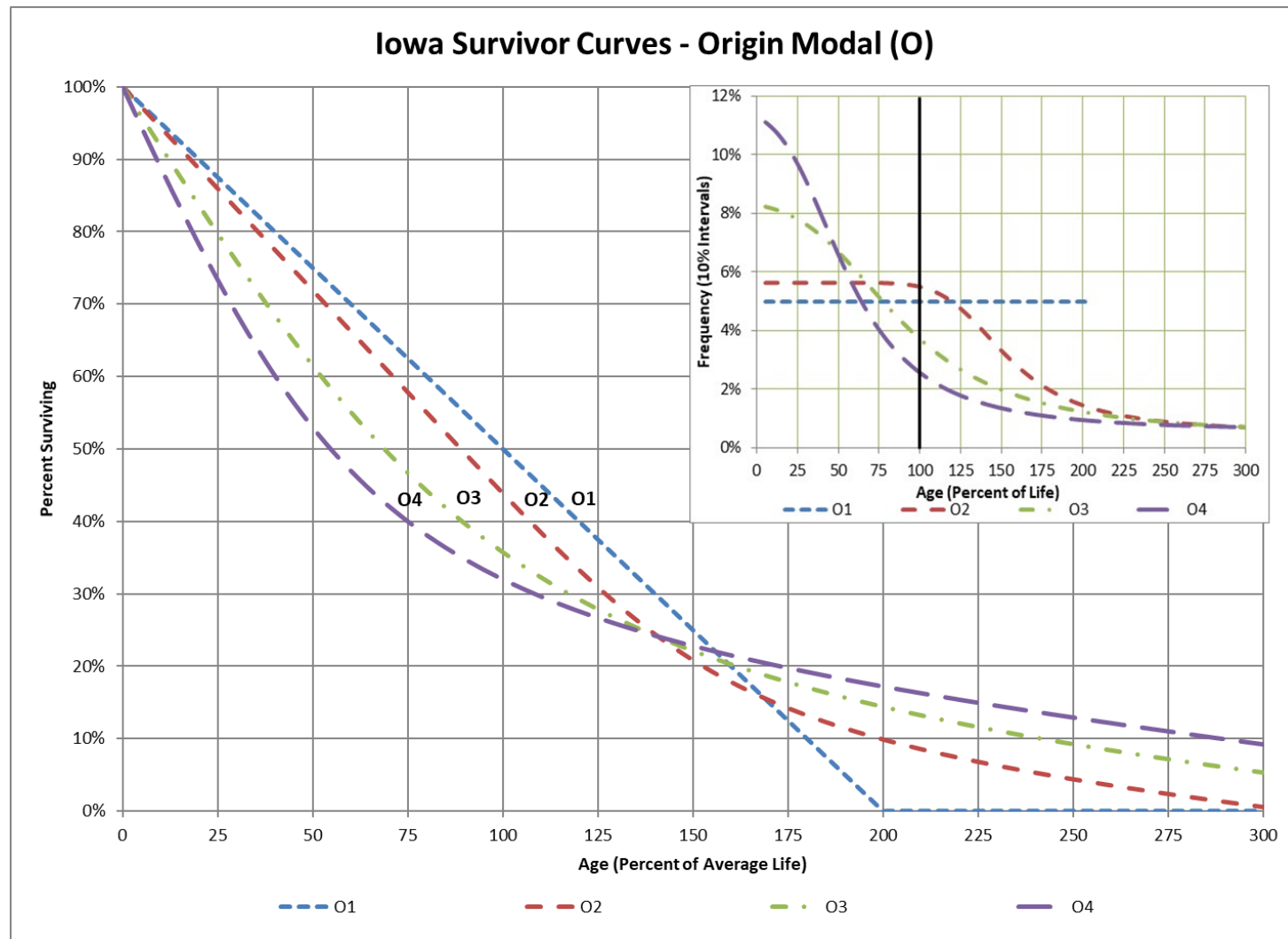




FIGURE 5: ORIGIN MODAL OR "O" IOWA TYPE SURVIVOR CURVES





8.4 Retirement Rate Method of Analysis

The retirement rate method is a widely accepted actuarial method used to create survivor curves. This method is also referred to as an original life table. These survivor curves can then be used to determine the average service life of a plant account. The retirement rate method is thoroughly explained in several publications, including Statistical Analyses of Industrial Property Retirements,¹⁰ Engineering Valuation and Depreciation¹¹ and Depreciation Systems¹².

The retirement rate method is a subgroup of the placement and the experience band methods, as described in “Depreciation Systems”. The placement band method creates a survivor curve which describes the life characteristics of assets placed into service during a selected timeframe. The experience band method creates a survivor curve which describes the life characteristics of assets removed from service during a selected time frame. The retirement rate method creates both placement and experience bands to give the most complete or representative data. An example of the calculations used in the development of a life table follows. The example includes schedules of annual aged property transactions, a schedule of plant exposed to retirement, a life table and illustrations of smoothing the stub survivor curve.

8.5 Schedules of Annual Transactions in Plant Records

The property group used to illustrate the retirement rate method is observed for the experience band 2008-2017 during which there were placements during the years 2003-2017. In order to illustrate the summation of the aged data by age interval, the data was compiled in the manner presented in Schedules 1 and 2. In Schedule 1 (page 8-10), the year of installation (year placed) and the year of retirement are shown. The age interval during which a retirement occurred is determined from this information. In the example which follows, \$10,000 of the asset invested in 2003 were retired in 2008. The \$10,000 retirement occurred during the age interval between 4 ½ and 5 ½ years (2008 - 2003) on the basis that approximately one-half of the amount of property was installed prior to and after July 1 of each year. That is, on the average, property installed during a year is placed in service at the midpoint of the year for the purpose of the analysis. All retirements also are stated as occurring at the midpoint of a one-year age interval of time, except the first age interval which encompasses only one-half year.

The total retirements occurring in each age interval in a band are determined by summing the amounts for each transaction year-installation year combination for that age interval. For example, the total of \$143,000 retired for age interval 4½-5½ is the sum of the retirements entered on Schedule 1 immediately above the stair step line drawn on the table beginning with the 2008 retirements of 2003 installations and ending with the 2016 retirements of the 2011 installations. Thus, the total amount of \$143,000 for age interval 4½-5½ equals the sum of:

$$\$10 + \$12 + \$13 + \$11 + \$13 + \$13 + \$15 + \$17 + \$19 + \$20 = \$143 \text{ k}$$

¹⁰ Anson, Winfrey & Hempstead, supra note 7

¹¹ Anson, Winfrey & Hempstead, supra note 7

¹² Wolf & Fitch, supra note 2



Other transactions which affect the group are recorded in a similar manner in Schedule 2 (page 8-11). The entries illustrated include transfers and sales. The entries which are credits to the plant account are shown in parentheses. The items recorded on this schedule are not totaled with the retirements but are used in developing the exposures at the beginning of each age interval.



SCHEDULE 1. RETIREMENTS FOR EACH YEAR 2008-2017 – SUMMARIZED BY AGE INTERVAL

Experience Band 2008-2017

Placement Band 2003-2017

Retirements (Thousands of Dollars)
Annual Survivors at the Beginning of the Year

Year Placed (1)	2008 (2)	2009 (3)	2010 (4)	2011 (5)	2012 (6)	2013 (7)	2014 (8)	2015 (9)	2016 (10)	2017 (11)	Total Durring Age Interval (12)	Age Interval (13)
2003	10	11	12	13	14	16	23	24	25	26	26	13½-14½
2004	11	12	13	15	16	18	20	21	22	19	44	12½-13½
2005	11	12	13	14	16	17	19	21	22	18	64	11½-12½
2006	8	9	10	11	11	13	14	15	16	17	83	10½-11½
2007	9	10	11	12	13	14	16	17	19	20	93	9½-10½
2008	4	9	10	11	12	13	14	15	16	20	105	8½-9½
2009		5	11	12	13	14	15	16	18	20	113	7½-8½
2010			6	12	13	15	16	17	19	19	124	6½-7½
2011				6	13	15	16	17	19	19	131	5½-6½
2012					7	14	16	17	19	20	143	4½-5½
2013						8	18	20	22	23	146	3½-4½
2014							9	20	22	25	150	2½-3½
2015								11	23	25	151	1½-2½
2016									11	24	153	½-1½
2017										13	80	0-½
Total	53	68	86	106	128	157	196	231	273	308	1,606	



SCHEDULE 2. OTHER TRANSACTIONS FOR EACH YEAR 2008-2017 – SUMMARIZED BY AGE INTERVAL

Experience Band 2008-2017

Placement Band 2003-2017

Acquisitions, Transfers and Sales (Thousands of Dollars)
Annual Survivors at the Beginning of the Year

Year Placed (1)	2008 (2)	2009 (3)	2010 (4)	2011 (5)	2012 (6)	2013 (7)	2014 (8)	2015 (9)	2016 (10)	2017 (11)	Total Durring Age Interval (12)	Age Interval (13)
2003	-	-	-	-	-	-	60 ^a	-	-	-	-	13½-14½
2004	-	-	-	-	-	-	-	-	-	-	-	12½-13½
2005	-	-	-	-	-	-	-	-	-	-	-	11½-12½
2006	-	-	-	-	-	-	-	(5) ^b	-	-	60	10½-11½
2007	-	-	-	-	-	-	-	6 ^a	-	-	-	9½-10½
2008	-	-	-	-	-	-	-	-	-	-	(5)	8½-9½
2009	-	-	-	-	-	-	-	-	-	-	-	7½-8½
2010	-	-	-	-	-	-	-	-	-	-	-	6½-7½
2011	-	-	-	-	-	-	-	(12) ^b	-	-	-	5½-6½
2012	-	-	-	-	-	-	-	-	22 ^a	-	-	4½-5½
2013	-	-	-	-	-	-	-	(19) ^b	-	-	10	3½-4½
2014	-	-	-	-	-	-	-	-	-	-	-	2½-3½
2015	-	-	-	-	-	-	-	-	-	(102) ^c	(121)	1½-2½
2016	-	-	-	-	-	-	-	-	-	-	-	½-1½
2017	-	-	-	-	-	-	-	-	-	-	-	0-½
Total	-	-	-	-	-	-	60	(30)	22	(102)	(50)	

^a Transfer Affecting Exposures at Beginning of Year

^b Transfer Affecting Exposures at End of Year

^c Sale with Continued Use

Parentheses denote Credit amount.



8.6 Schedule of Plant Exposed to Retirement

The development of the amount of plant exposed to retirement at the beginning of each age interval is illustrated in Schedule 3 (page 8-13). The surviving plant at the beginning of each year from 2007 through 2016 is recorded by year in the portion of the table titled "Annual Survivors at the Beginning of the Year." The last amount entered in each column is the amount of new plant added to the group during the year. The amounts entered in Schedule 3 for each successive year following the beginning balance or addition, are obtained by adding or subtracting the net entries shown on Schedules 1 and 2. For the purpose of determining the plant exposed to retirement, transfers-in are considered as being exposed to retirement in this group at the beginning of the year in which they occurred, and the sales and transfers-out are considered to be removed from the plant exposed to retirement at the beginning of the following year. Thus, the amounts of plant shown at the beginning of each year are the amounts of plant from each placement year considered to be exposed to retirement at the beginning of each successive transaction year. For example, the exposures for the installation year 2013 are calculated in the following manner:

Exposures at age 0	=	amount of addition	=	\$750,000
Exposures at age ½	=	\$750,000 - \$ 8,000	=	\$742,000
Exposures at age 1½	=	\$742,000 - \$18,000	=	\$724,000
Exposures at age 2½	=	\$724,000 - \$20,000 - \$19,000	=	\$685,000
Exposures at age 3½	=	\$685,000 - \$22,000	=	\$663,000

For the entire experience band 2008-2018, the total exposures at the beginning of an age interval are obtained by summing diagonally in a manner similar to the summing of the retirements during an age interval (Schedule 1). For example, the figure of 3,789, shown as the total exposures at the beginning of age interval 4½-5½, is obtained by summing:

$$\$255 + \$268 + \$ 284 + \$311 + \$334 + \$374 + \$405 + \$448 + \$501 \$ \$609 = \$3,789k$$



SCHEDULE 3 – PLANT EXPOSED TO RETIREMENT AT THE BEGINNING OF EACH YEAR, 2008 -2017 – SUMMARIZED BY AGE INTERVAL

Experience Band 2008 - 2017

Placement Band 2003-2017

Exposures (Thousands of Dollars)
Annual Survivors at the Beginning of the Year

Year Placed (1)	2008 (2)	2009 (3)	2010 (4)	2011 (5)	2012 (6)	2013 (7)	2014 (8)	2015 (9)	2016 (10)	2017 (11)	Total at Beginning of Age Interval (12)	Age Interval (13)
2003	255	245	234	222	209	195	239	216	192	167	167	13½-14½
2004	279	268	256	243	228	212	194	174	153	131	323	12½-13½
2005	307	296	284	271	257	241	224	205	184	162	531	11½-12½
2006	338	330	321	311	300	289	276	262	242	226	823	10½-11½
2007	376	367	257	346	334	321	307	267	280	261	1,097	9½-10½
2008	420 ^a	416	407	397	386	374	361	347	332	316	1,503	8½-9½
2009		460 ^a	455	444	432	419	405	390	374	356	1,952	7½-8½
2010			510 ^a	504	492	479	464	448	431	412	2,463	6½-7½
2011				580 ^a	574	561	546	530	501	482	3,057	5½-6½
2012					660 ^a	653	639	623	628	609	3,789	4½-5½
2013						750 ^a	742	724	685	663	4,332	3½-4½
2014							850 ^a	841	821	799	4,955	2½-3½
2015								960 ^a	949	923	5,719	1½-2½
2016									1,080 ^a	1,069	6,579	½-1½
2017										1,220 ^a	7,490	0-½
Total	1,975	2,382	2,724	3,318	3,872	4,494	5,247	5,987	6,852	7,796	44,780	

^a Additions during the year.

1555	1922	2214	2738	3212	3744	4397	5027	5772	6576	44780
420	460	510	580	660	750	850	960	1080	1220	0
1975	2382	2724	3318	3872	4494	5247	5987	6852	7796	44780



8.7 Original Life Tables

The original life table, illustrated in Schedule 4 (page 8-15) is developed from the totals shown on the schedules of retirements and exposures, Schedules 1 and 3, respectively. The exposures at the beginning of the age interval are obtained from the corresponding age interval of the exposure schedule, and the retirements during the age interval are obtained from the corresponding age interval of the retirement schedule. The retirement ratio is the result of dividing the retirements during the age interval by the exposures at the beginning of the age interval. The percent surviving at the beginning of each age interval is derived from survivor ratios, each of which equals one minus the retirement ratio. The percent surviving is developed by starting with 100 percent at age zero and successively multiplying the percent surviving at the beginning of each interval by the survivor ratio, i.e., one minus the retirement ratio for that age interval. The calculations necessary to determine the percent surviving at age 5½ are as follows:

Percent surviving at age 4½	=	88.15	
Exposures at age 4½	=	\$3,789,000	
Retirements from age 4½ to 5½	=	\$143,000	
Retirement Ratio	=	$\$143,000 \div \$3,789,000$	= 0.0377
Survivor Ratio	=	$1.000 - 0.0377$	= 0.9623
Percent surviving at age 5½	=	$(88.15) \times (0.9623)$	= 84.83

The totals of the exposures and retirements (columns 2 and 3) are shown for the purpose of checking with the respective totals in Schedules 1 and 3. The ratio of the total retirements to the total exposures, other than for each age interval, is meaningless. The original survivor curve is plotted from the original life table (column 6, Schedule 4). When the curve terminates at a percent surviving greater than zero, it is called a stub survivor curve. Survivor curves developed from retirement rate studies generally are stub curves.



SCHEDULE 4: ORIGINAL LIFE TABLE - CALCULATED BY THE RETIREMENT RATE METHOD

Experience Band 2008-2017				Placement Band 2003-2017	
Age at Beginning of Interval	Exposures at Beginning of Age Interval	Retirements During Age Interval	Retirement Ratio	Survivor Ratio	% Surviving at Beginning of Age Interval
0	7,490	80	0.0107	0.9893	100.00
0.5	6,579	153	0.0233	0.9767	98.93
1.5	5,719	151	0.0264	0.9736	96.62
2.5	4,955	150	0.0303	0.9697	94.07
3.5	4,332	146	0.0337	0.9663	91.22
4.5	3,789	143	0.0377	0.9623	88.15
5.5	3,057	131	0.0429	0.9571	84.83
6.5	2,463	124	0.0503	0.9497	81.19
7.5	1,952	113	0.0579	0.9421	77.11
8.5	1,503	105	0.0699	0.9301	72.65
9.5	1,097	93	0.0848	0.9152	67.57
10.5	823	83	0.1009	0.8991	61.84
11.5	531	64	0.1205	0.8795	55.6
12.5	323	44	0.1362	0.8638	48.9
13.5	167	26	0.1557	0.8443	42.24
					35.66
Total	44,780	1,606			

- Exposure and Retirement Amounts are in Thousands of Dollars
- Column 2 from Schedule 3, Column 12, Plant Exposed to Retirement.
- Column 3 from Schedule 1, Column 12, Retirements for Each Year.
- Column 4 = Column 3 divided by Column 2.
- Column 5 = 1.0000 minus Column 4.
- Column 6 = Column 5 multiplied by Column 6 as of the Preceding Age Interval.



8.8 Smoothing the Original Survivor Curve

The smoothing of the original survivor curve eliminates any irregularities and serves as the basis for the preliminary extrapolation to zero percent surviving of the original stub curve. Even if the original survivor curve is complete from 100 percent to zero percent, it is desirable to eliminate any irregularities, as there is still an extrapolation for the vintages which have not yet lived to the age at which the curve reaches zero percent. In this study, the smoothing of the original curve with established type curves was used to eliminate irregularities in the original curve.

The Iowa type curves are used in this study to smooth those original stub curves which are expressed as percentages surviving at ages in years. Each original survivor curve was compared to the Iowa curves using visual and mathematical matching in order to determine the better fitting smooth curves. In Figures 6, 7, and 8, the original curve developed in Schedule 4 is compared with the L, S, and R Iowa type curves which most nearly fit the original survivor curve. In Figure 6, the L1 curve with an average life between 12 and 13 years appears to be the best fit. In Figure 7, the S0 type curve with a 12-year average life appears to be the best fit and appears to be better than the L1 fitting. In Figure 8, the R1 type curve with a 12-year average life appears to be the best fit and appears to be better than either the L1 or the S0.

In Figure 9, the three fittings, 12-L1, 12-S0 and 12-R1 are drawn for comparison purposes. It is probable that the 12-R1 Iowa curve would be selected as the most representative of the plotted survivor characteristics of the group.



FIGURE 6: ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH A L1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

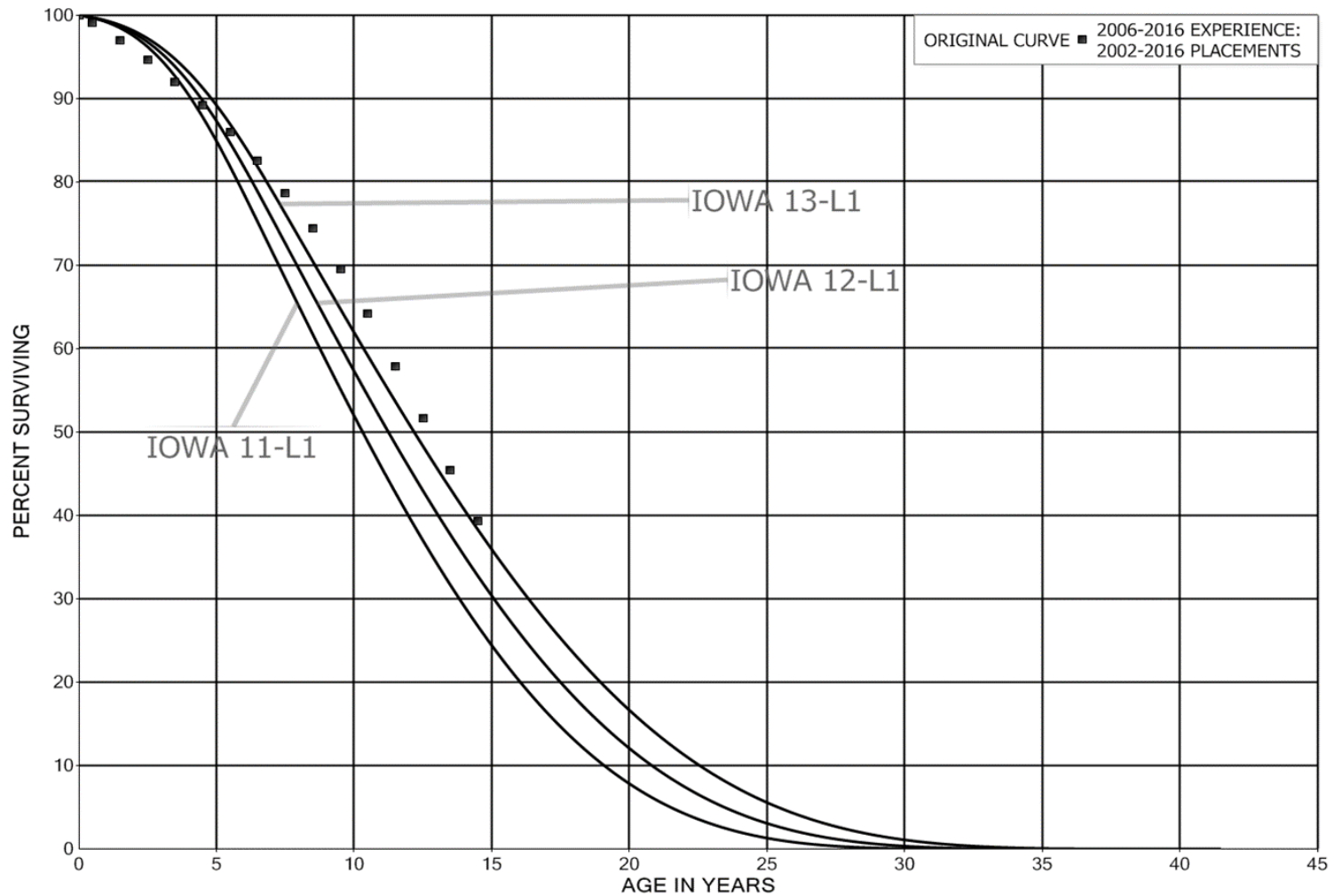




FIGURE 7: ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH A SO IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

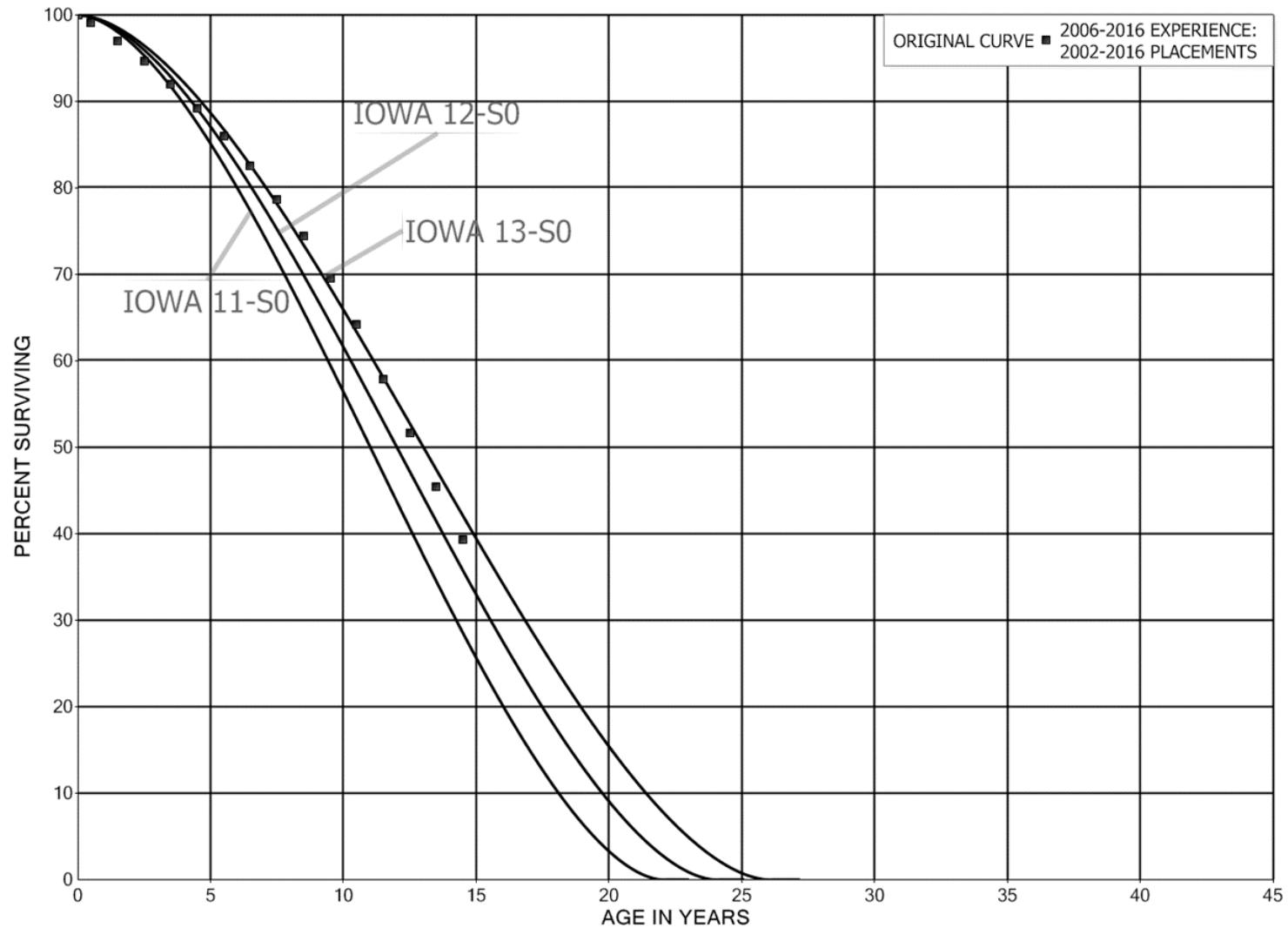




FIGURE 8: ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH A R1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

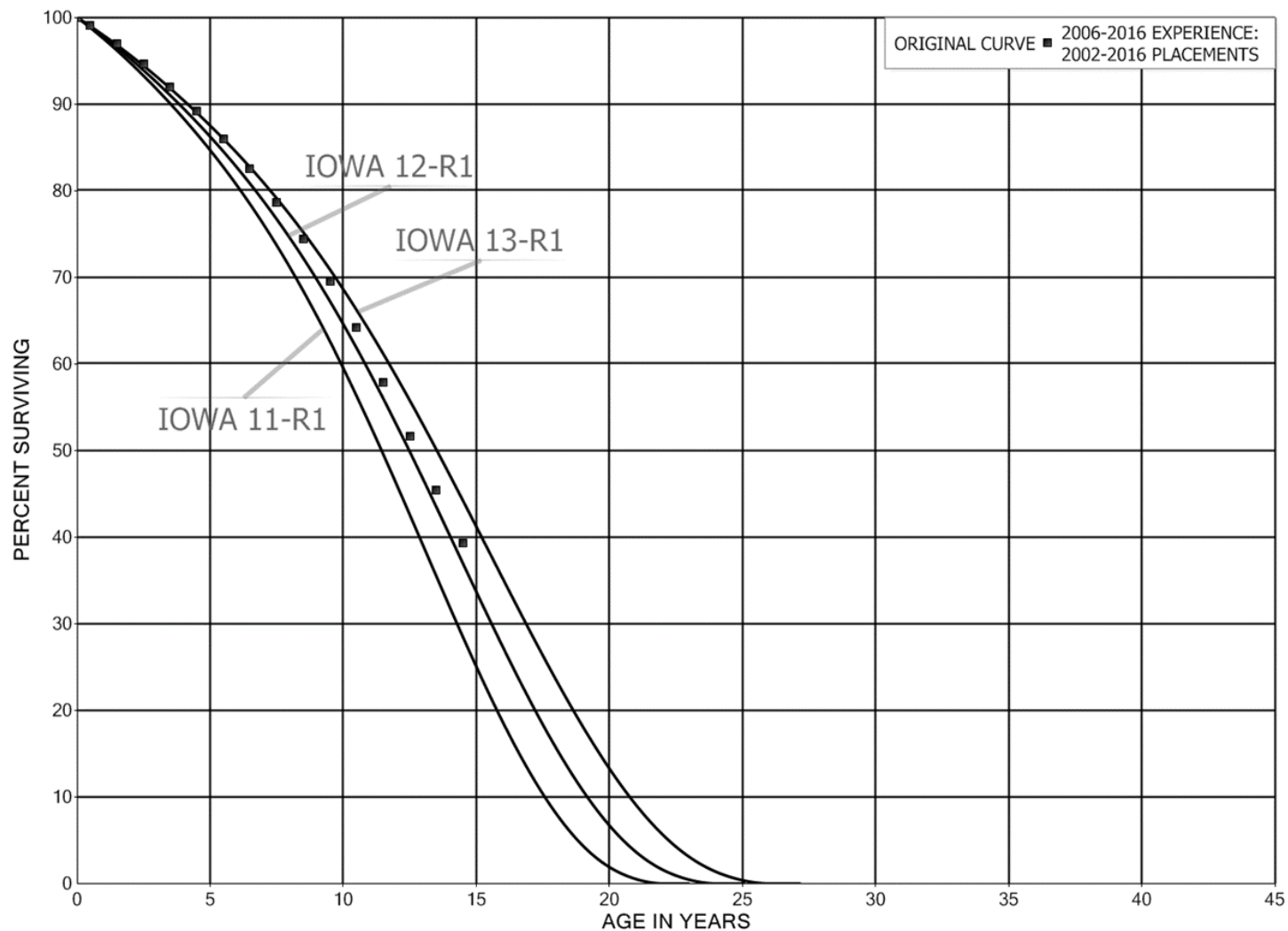




FIGURE 9: ILLUSTRATION OF THE MATCHING OF AN ORIGINAL SURVIVOR CURVE WITH A L1 IOWA TYPE CURVE ORIGINAL AND SMOOTH SURVIVOR CURVES

