Q. Further to the responses to CA-NP-105, CA-NP-107, CA-NP-109 and CA-NP-118:

a) Please provide the expected timeframes for the completion of the Load Research Study and for the various stages of the Rate Design Review.

b) Please explain why both are required before Newfoundland Power believes there should be a cost of service review.

c) Please explain the process Newfoundland Power anticipates will be necessary to review the results of the study.

A. a) Newfoundland Power is currently in the process of completing a Load Research Study and Rate Design Review in consultation with the Consumer Advocate, Newfoundland and Labrador Hydro ("Hydro") and the Board (collectively, the "Parties").[1]

Newfoundland Power filed its *Load Research and Rate Design Update – March 28, 2024* (the "Load Research and Rate Design Update") with the Board as part of its 2023 Annual Report to the Board.[2] This document provides an update on activities completed to date. A copy of the Load Research and Rate Design Update is provided in Attachment A.

A description of the remaining stages and the timeframes for the Load Research Study and Rate Design Review follows.

Load Research Study – Timeline and Stages

Newfoundland Power anticipates collecting customer load data beginning in the fall of 2024. The Company's load research consultant will analyze the customer load data collected over the 2024-2025 winter season and prepare a report detailing the results. Collecting customer load data over the 2024-2025 winter season will provide the first opportunity for Newfoundland Power to assess demand allocations associated with the various customer rate classes in the Company's cost of service study.

The Company will continue to collect customer load data throughout 2025 and into the 2025-2026 winter season. This will enable Newfoundland Power to compare customer load data over two winter seasons to determine the appropriateness of demand allocations to customer rate classes.[3] The load research consultant will analyze customer load data that captures the second winter season and provide an updated report detailing the results. Newfoundland Power will use the updated

[1] The Load Research Study and Rate Design Review formed part of the Settlement Agreement signed in relation to Newfoundland Power's *2022/2023 General Rate Application*. See Order No. P.U. 3 (2022) Amended No. 2, page 21, lines 1-3.

[2] In a letter dated January 23, 2023, the Board requested that Newfoundland Power include an update on the progress of the Load Research Study and Rate Design Review as part of its annual reporting with the Board, commencing with the 2023 Annual Report.

[3] Consideration of the weather conditions that occur over the winter season is necessary when completing the load research study. For example, if the 2024-2025 winter season is mild, customer load data may not be reflective of the relative contributions of each customer rate class on Newfoundland Power's peak demand and demand related costs.

customer load data to further inform demand allocations in its cost of service study in 2026.

The need for additional customer load data to further inform the results of the load research study will be considered in consultation with Newfoundland Power's load research consultant and the Parties.[4]

Rate Design Review – Timeline and Stages

Newfoundland Power circulated the Phase 1 – Rate Design Report (the "Phase One Report") to the Parties on April 2, 2024.[5] The Company plans to engage the Parties for feedback on the Phase One Report in the second quarter of 2024. As described in the Load Research and Rate Design Framework (the "Framework"), the Parties are invited to provide a response to the Phase One Report, which may include expert reports and any additional data or analysis the Parties consider relevant to the issues.[6] Newfoundland Power also plans to commence customer engagement activities in 2024 to gauge customer interest in alternative rate designs.

At the time the Rate Design Review was established, it was anticipated that the finalization of the provincial government rate mitigation plan would be complete by 2023.[7] This, combined with a Hydro general rate application, would allow Newfoundland Power to assess potential changes in its rate designs based on updated embedded supply costs that would be reflected in Newfoundland Power's cost of service study.[8] Clarity regarding Newfoundland Power's future embedded supply costs is now not anticipated until 2025 when Hydro files its next general rate application.[9]

The timing of Phase Two of the Rate Design Review is subject to the finalization of updated supply costs associated with the integration of Muskrat Falls Project costs into customer rates, and updated customer load research data that will inform Newfoundland Power's cost of service study. As a result, Phase Two of the Rate Design Review is currently anticipated to commence in 2025. Newfoundland Power will consult with the Parties on appropriate next steps for commencing Phase Two of

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4 Newfoundland Power's previous load research study included customer load data over three winter seasons.

5 The Phase One Report was completed by Newfoundland Power's rate design consultant, Christensen Associates.

6 The Framework was prepared in consultation with the Parties and filed with the Board on December 30, 2022 in accordance with Order No. P.U. 2 (2022) Amended No. 2.

7 See the Board's January 23, 2023 letter *Re: Newfoundland Power Inc. – Load Research and Rate Design Framework Request for Annual Updates.*

8 Supply costs from Hydro reflect a relatively large proportion, approximately two-thirds, of the cost to serve Newfoundland Power's customers.

9 In its March 28, 2024 letter *Re: Quarterly Update – Items Impacting the Delay of Hydro's Next General Rate Application,* Hydro stated that without having the required information on the final rate mitigation plan, Hydro does not have adequate certainty to develop test year forecast revenue requirements for use in the GRA filing. Hydro further stated that it is cognizant of the regulatory inefficiencies that would result if the GRA proposals are not reflective of the final rate mitigation plan. Contingent on the details of the Government's rate mitigation plan, Hydro expects to file its next GRA in 2025.

the Rate Design Review in consideration of any regulatory inefficiency that may arise due to a lack of necessary information.

b) Newfoundland Power's cost of service study includes details of revenue received from customer rates, grouped by rate class. Revenue received from customers reflects the rate designs and billing determinants for each rate class. Newfoundland Power is currently in the process of completing a rate design review to assess the appropriateness of changes in customer rate designs.

The cost of service study also includes the allocation of costs associated with serving each customer rate class. This includes the allocation of demand related costs which are determined as part of a load research study. Newfoundland Power is currently in the process of completing an updated load research study to inform changes in demand allocations associated with the various customer rate classes.

Newfoundland Power assesses the fairness of its customer rates by comparing the revenue collected from each rate class with the cost to serve that rate class (the "revenue to cost ratio"). Since the revenue collected from each rate class is dependent on customer rate designs, changes in customer rate designs will influence revenue received from that rate class. As costs associated with serving each rate class are dependent on demand allocations, the cost of serving a customer rate class is dependent on changes in demand allocations which will be determined in the updated load research study. As a result, changes in customer rate designs should be considered in the context of a cost of service study that reflects changes in cost allocations to customers.

Notwithstanding the above, Newfoundland Power can utilize updated customer load data received from its ongoing load research study to assess demand allocations in its cost of service study when customer load data is available. Newfoundland Power would also be able to assess changes in rate designs based on the updated demand allocations. However, if embedded supply costs have not been updated to reflect the Muskrat Falls Project, regulatory efficiency and costs may be negatively impacted since any analysis absent updated supply costs may need to be repeated or revisited when actual changes in supply costs are known.[10]

Newfoundland Power is not proposing a specific cost of service review at this time. However, the ongoing rate design review and load research study can be expected to influence the Company's cost of service study in the future. If necessary, as a result of the rate design review, changes to the cost of service study will be made to correspond to any new rate design proposals. As a result, any changes to the Company's cost of service study would need to be considered in the context of the ongoing load research study and rate design review. Any such changes would be put forward by the Company as part of a future general rate application.

[10] Future supply costs remain uncertain due to Muskrat Falls Project costs, the finalization of the Provincial Government rate mitigation plan, and the outcome of Hydro's next general rate application.

c) As outlined in part a), in accordance with the Framework, the load research consultant will prepare a report detailing the results of the Load Research Study following each winter season, which will be circulated to the Parties for review. When complete, the results of the Load Research Study will be integrated into Newfoundland Power's cost of service study, typically reviewed as part of a general rate application.

The Framework outlines a review process for Phase One and Phase Two of the ongoing Rate Design Review. As outlined in part a), Newfoundland Power will engage the parties for feedback on the Phase One Report.

For Phase Two, the Company anticipates distributing a Phase Two report to the parties. Similarly, the Parties will have an opportunity to provide a response to the Phase Two report. The Parties would then have an opportunity to participate in a Technical Conference hosted by the Board as described in the Framework.[11] Further review would be at the discretion of the Board and may include a review during a future general rate application.[12]

[11] See the Framework, page 9.

[12] For example, in its *2013/2014 General Rate Application*, Newfoundland Power proposed to merge General Service Rate #2.1 and General Service Rate #2.2 into a single General Service Rate for all customers with demand of less than 100 kW based on the 2010 Rate Design Review. The Board approved the Company's proposal in Order No. P.U. 13 (2013).

Load Research and Rate Design Update
March 28, 2024

Load Research and Rate Design Update
March 28, 2024

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1.0 INTRODUCTION

On December 30, 2022, Newfoundland Power Inc. ("Newfoundland Power" or the "Company") filed its *Load Research and Rate Design Framework* (the "Framework") in accordance with Order No. P.U. 3 (2022).

In a letter dated January 23, 2023, the Board observed that the Load Research Study was anticipated to include the 2023-2024 and 2024-2025 winter seasons and possibly be extended to the 2025-2026 winter season. The Rate Design Review was planned to occur in two phases over the period 2023 to 2024 based on the expectation that the final commissioning of the Muskrat Falls Project and finalization of the provincial government rate mitigation plan would be completed in 2023.

In its letter, the Board requested that Newfoundland Power include an update on the progress of both studies as part of the Company's annual reporting to the Board, commencing with the 2023 Annual Return.

2.0 BACKGROUND

Customer load research is periodically required to ensure the appropriate allocation of costs to Newfoundland Power's customer rate classes. Periodic reviews of Newfoundland Power's rate designs are necessary to ensure the Company's rate designs are consistent with good rate making principles and consider utility cost dynamics. New load research and a review of Newfoundland Power's rate designs are timely considering changing customer end use activities and changes to supply cost dynamics resulting from the integration of the Muskrat Falls Project into the provincial electricity system.

The anticipated integration of the Muskrat Falls Project into Newfoundland Power's supply costs and customer rates has been further delayed since Newfoundland Power filed its Framework with the Board. The integration is dependent on the finalization of the Government of Newfoundland and Labrador's rate mitigation plans and Newfoundland and Labrador Hydro's ("Hydro") next general rate application. Further clarity regarding the impact of the Muskrat Falls Project on Newfoundland Power's supply costs and customer rates is anticipated in 2025 when Hydro files its next general rate application.[1]

While the integration of Muskrat Falls Project costs into Newfoundland Power's customer rates has been delayed, the Company has continued to advance its load research and rate design initiatives. Commencing the Load Research Study and initial phase of the Rate Design Review will be informative and will provide useful information to Newfoundland Power, the Board, and other stakeholders in advance of the full integration of Muskrat Falls Project costs into Newfoundland Power's customer rates.

[1] See Hydro's December 15, 2023 letter *Re: Quarterly Update – Items Impacting the Delay of Hydro's Next General Rate Application,* page 2.

3.0 LOAD RESEARCH

Load research data is used to assess the reasonableness of cost recovery among customer rate classes. The information gathered is used to determine the portion of system demand costs that should be recovered from each customer class. Load research data provides estimates of class demand on the system at specific times.

The Island Interconnected System is a winter peaking system; customer demand requirements are approximately twice as high in winter months than in summer months. Generation and transmission demand costs are allocated by customer classes in the cost of service study based on each customer classes' contribution to the winter system peak (i.e., based on coincident peak).[2] Distribution demand costs are allocated based on the relative size of the class peak demands (i.e., based on non-coincident peak).

3.1 Load Research Study Update

Newfoundland Power commenced the Load Research Study in 2023. Key tasks completed since that time include: (i) retaining a load research consultant; (ii) developing a load research study plan; (iii) designing a statistically significant customer sample; (iv) procuring and testing the necessary meters; and (v) delivering load research training to the Board staff, Hydro and the Consumer Advocate (the "Parties").

Load Research Consultant

Newfoundland Power issued a request for proposals for a load research consultant in February 2023. DNV (the "Load Research Consultant") was the successful proponent, having the necessary expertise and experience in utility load research programs and analysis to assist Newfoundland Power in completing the Load Research Study. The Load Research Consultant has been assisting Newfoundland Power with the Load Research Study since April 2023.

Load Research Study Plan

DNV developed a comprehensive *Load Research Study Plan* (the "Study Plan") which was circulated to the Parties in June 2023. The Study Plan includes information relating to: (i) sample design and selection; (ii) customer recruitment; (iii) technology validation; (iv) data requirements for analysis and reporting; (v) data validation, editing and estimation; (vi) analysis of customer load data; (vii) project timing; (viii) presentation of results; and (ix) load research training.

Customer Sample Selection

The Load Research Consultant developed a sample of customers to be included in the Load Research Study. Sample selection was based on achieving ±10% precision at the 90% level of confidence. Comments from the Parties were received and included creation of additional

[2] This is referred to as the single coincident peak method (1 CP). For the purposes of the load research study, the system peak is based on the time of Hydro's system peak because the majority of Newfoundland Power's generation and transmission demand costs are related to Hydro's assets.

domains in the sampling of residential customers to account for electric vehicles, heat pumps, and electric furnaces. The comments were incorporated into the Study Plan.[3]

Following feedback from the Parties, the customer sample was established and comprises 849 customers including: 467 residential customers; 216 General Service Rate 2.1 customers; 108 General Service Rate 2.3 customers; and 58 General Service Rate 2.4 customers.

Meters

Consistent with the Framework and the Study Plan, Newfoundland Power plans to utilize meters that are capable of recording customer interval load data and are compatible with the Company's existing meter reading infrastructure and meter reading processes. Newfoundland Power ordered the necessary meters in 2023; however, due to supply chain constraints and associated delays, the Company was unable to acquire and install the meters for the 2023-2024 winter season.

Newfoundland Power received a small quantity of meters in 2024. The Company is in the process of testing the meters and integrating them into the current meter reading and billing systems. Greater quantities of meters are anticipated throughout the year with installation on customer premises anticipated for completion by the start of the 2024-2025 winter season.

Training

Newfoundland Power and the Load Research Consultant hosted an *Introduction to Load Research* virtual training session with the Parties in December 2023. The purpose of the training session was to educate the Parties on the principles of load research and develop a more comprehensive understanding of the ongoing load research study. The training session was attended by representatives from each of the Parties.[4]

3.2 2024 Load Research Activities

Key elements of the Load Research Study that are planned for the remainder of 2024 include completion of field testing of the interval data meters and integration into Newfoundland Power's metering and billing systems; receipt of all necessary meters from the vendor; completion of customer recruitment activities including contacting customers that have been selected as part of the sample and providing educational materials; and installation of the meters on the customer premises. Completion of these activities will enable Newfoundland Power to collect customer load data for the 2024-2025 and 2025-2026 winter seasons.

[3] Following consultation with the Parties, an additional 75 residential customers were added to the sample group to account for residential customers with electric vehicles, heat pumps, and electric furnaces.

[4] The virtual training session included 28 participants including the Load Research Consultant and representatives from Newfoundland Power, Hydro, the Consumer Advocate, and Board Staff.

3.3 Updated Load Research Study Cost Estimate

Newfoundland Power has updated its cost estimate to reflect Load Research Study progress to date. Table 1 provides the updated cost estimate.

Table 1:
Updated Cost Estimate
Load Research Study
($000s)

Description	2022	2023	2024	2025	2026	Total
Internal Labour	15	73	72	100	90	350
External Labour	--	42	68	120	110	340
Metering Costs	--	--	480	60	60	600
Total	**15**	**115**	**620**	**280**	**260**	**1,290**

A delay associated with acquiring the necessary meters to complete the Load Research Study has led to lower than anticipated costs in 2023. Costs associated with delivery of the meters and work associated with the integration of the meters into Newfoundland Power's billing system is anticipated to be complete in 2024. This will permit Newfoundland Power to collect customer load data over the 2024-2025 and 2025-2026 winter seasons. The overall cost estimate for the Load Research Study remains consistent with the Framework.

4.0 Rate Design

Newfoundland Power serves approximately 275,500 customers. This includes approximately 239,800 Domestic Customers, 24,500 General Service Customers, and 11,200 Street and Area Lighting Customers. The majority of the Company's Domestic customers' rates include monthly Basic Customer Charges and a flat kWh energy rate.[5] General Service customers' rates include monthly Basic Customer Charges, demand charges that vary by season, and energy charges that vary depending on monthly consumption.[6] Street and Area Lighting customers pay a monthly rate based on the type and size of equipment installed.

The standard for assessing the appropriateness of customer rate design is guided by the Criteria of Sound Rate Structure described by James Bonbright in *Principles of Public Utility Rates.*[7] These criteria include effectiveness, practicality, stability, efficiency, and fairness. The Board has previously recognized these criteria in establishing customer rates.[8]

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5 Approximately 1,300 of Newfoundland Power's customers avail of the Domestic Seasonal – Optional rate which includes seasonal energy charges for consumption during December through April and May through November. Domestic Seasonal – Optional customers are charged the same monthly Basic Customer Charge as all other Domestic customers. Domestic customer Basic Customer Charges are dependent on the size of the customer's service (i.e. those not exceeding 200 Amp Service, and those exceeding 200 Amp Service). Newfoundland Power's Domestic customer rates also include a 1.5% early payment discount.

6 Newfoundland Power's three General Service Rate Classes include: Rate 2.1 0-100 kW (110 kVA); Rate 2.3 110 kVA (100 kW) – 1000 kVA; and Rate 2.4 1000 kVA and Over. General Service customer charges also include a 1.5% early payment discount, a Minimum Monthly Charge, and a Maximum Monthly Charge.

7 Bonbright, *Principles of Public Utility Rates,* Public Utilities Reports, 1988, Pages 383-384.

8 See, for example, Order No. P.U. 19 (2003).

4.1 Rate Design Review Update

Newfoudlandland Power commenced the Rate Design Review in 2023. Key tasks completed since that time include: (i) developing a scope of work in consultation with the Parties; (ii) obtaining a rate design consultant; (iii) presentation of the Rate Design Study Plan to the Parties; and (iv) a phase-one Rate Design Review report.

Rate Design Review Scope of Work

Newfoundland Power developed the *2023 Rate Design Review Scope of Work* which was circulated to the Parties in July 2023. The Scope of Work outlined the purpose and objective of the Rate Design Review and provided specifications and work activities to be undertaken. Feedback from the Parties was received and incorporated into the Scope of Work which was subsequently included in the request for proposal for a rate design consultant.

Rate Design Consultant

Newfoundland Power issued a request for proposals for a rate design consultant in August 2023. Christensen Associates (the "Rate Design Consultant") was the successful proponent, having the necessary expertise and experience in utility rate design reviews to assist Newfoundland Power in completing the Rate Design Review. The Rate Design Consultant has been assisting Newfoundland Power with the Rate Design Review since September 2023.

Rate Design Study Plan

Newfoundland Power's Rate Design Consultant presented its Phase One Rate Design Study Plan to the Parties in October 2023. The Rate Design Consultant provided a background of its expertise and familiarity with the Newfoundland and Labrador electricity sector. The Rate Design Consultant also outlined near-term tasks including: (i) reviewing Newfoundland Power's current customer rates in anticipation of changing supply costs; (ii) reviewing customer rates in other jurisdictions; (iii) identifying possible alternative rate designs for Newfoundland Power; (iv) implementation considerations associated with possible alternative rate designs; and (v) preparing the Phase One Rate Design Review Report (the "Phase One Report").

Phase One Report

The Phase One Report was prepared by the Rate Design Consultant in late 2023 and early 2024 and is expected to be provided to the parties in April 2024. Consistent with the Rate Design Study Plan, it will include: (i) a review of Newfoundland Power's current customer rates in consideration of changing supply cost dynamics; (ii) a review rate designs in other jurisdictions; and (iii) a review of possible alternative rate designs for Newfoundland Power.

4.2 2024 Rate Design Review Activities

Newfoundland Power will engage the Parties for feedback on the Phase One Report beginning in the second quarter of 2024. The Parties will have an opportunity to provide a response to the Phase One Report which may include expert reports, and any additional data or analysis the Parties consider relevant to the issues. Newfoundland Power also plans to commence customer engagement activities in 2024 to gauge customer interest in alternative rate designs.

4.3 Updated Rate Design Review Cost Estimate

Newfoundland Power has updated its cost estimate to reflect Rate Design Review progress to date. Table 2 provides the updated cost estimate.

Table 2:
Updated Cost Estimate
Rate Design Review
($000s)

Description	2022	2023	2024	2025	Total
Internal Labour	13	57	65	65	200
External Labour	--	70	90	200	360
Customer Engagement	--	--	50	--	50
Total	**13**	**127**	**205**	**265**	**610**

The timing of the Rate Design Review is subject to matters that have not been finalized, including updated supply costs associated with the integration of Muskrat Falls Project costs into customer rates and updated load research data. As a result, Phase Two of the Rate Design Review is currently anticipated for 2025. Newfoundland Power will consult with the Parties on appropriate next steps for commencing Phase Two of the Rate Design Review. The overall cost estimate for the Rate Design Review remains consistent with the Framework.