Q. **Finance**

Page 4.15, line 15 to page 4.16, line 6 – Provide Hydro's rationale for proposing at this time each change in depreciation methodology.

A. This response has been provided by Concentric Advisors (Concentric).

The recommendations from the depreciation study are discussed below:

- <u>Use of updated estimates of service lives of assets</u>

  This is not a change in depreciation methodology. Accounting practices require periodic review of average service life estimates. International Accounting Standard 16(61) states that: "The depreciation method applied to an asset should be reviewed at least at each financial year end, and if there has been a significant change in the expected pattern of consumption of the future economic benefits embodied in the asset, the method should be changed to reflect the changed pattern." As such, companies reporting under the International Financial Reporting Standards ("IFRS") are required to review the average service lives of assets annually. Concentric Advisors note that it is widely accepted policy for regulated utilities to update the depreciation rates on a periodic basis. For regulated utilities of the size of Newfoundland and Labrador Hydro, Concentric views that a completion of a full and comprehensive study every three to five years is appropriate.

- <u>Use of the average service life group procedure applied on a remaining life basis for assets acquired prior to 2015</u>

This change is discussed at page III-2 of the Concentric depreciation study, and further addressed in the Evidence of Larry E. Kennedy Related to the Conversion to Group Accounting Methods provided as Appendix 1 to the Concentric Depreciation Study. This review was in response to the directive of the Board in Board Order No. P.U. 40(2012) to provide, at the time of Hydro's next depreciation study, a report on a limited number of groups of property, comparing the agreed to methodology to the application of depreciation on a pure group basis.

- <u>Use of the Equal Life Group procedure applied on a remaining life basis for assets acquired in 2015 and after</u>

This change is outlined at pages I-3 and IU-4 of the Concentric depreciation study report. Gannett Fleming (now Concentric) prepared a position paper on the differences between the ALS and ELG grouping procedures for review by Hydro management as part of the early stages of the depreciation study. This paper is attached as PUB-NHL-071, Attachment 1 and the supporting Iowa curve is attached as PUB-NLH-071, Attachment 3. As outlined in the position paper, the ELG procedure better aligns to IFRS than does ALS method. With the conversion of Hydro to IFRS, it was determined that conversion (on a phased in basis) at this time is appropriate.

The ELG procedure results in higher rates for the short term but over the long term will result in lower rates. Although both the ELG and ASL procedures result in 100% recovery over the life of assets, Concentric views that the ELG procedure better reflects intergenerational equity.

In order to minimize the impact of this conversion to the ELG procedure, Concentric has recommended a phased in approach that is similar to the phased in approach that was used when the ELG procedure was first implemented in Newfoundland by Newfoundland Power.

- <u>Inclusion of asset removal costs in depreciation rates</u>
  This change is outlined at pages I-5 and I-6 of the Concentric depreciation study report. Gannett Fleming (now Concentric) prepared a position paper on the issue of recovery of net salvage costs for review by Hydro management as part of the early stages of the depreciation study. This paper is attached as PUB-NHL-071, Attachment 2. As outlined in the position paper, the recovery of costs of removal through depreciation rates best meets the principles of intergenerational equity. Additionally, implementation of this change in policy aligns the cost of removal policies of both of Newfoundland's electric utilities. Implementation of the change aligns to the move to group accounting as previously discussed in this response and minimizes the deferral of this cost recovery to future generations. Additionally, it is noted that the proposed approach will reduce rate volatility when compared to the continued use of the current approach.

- <u>Inclusion of loss on asset disposal cost in depreciation rates</u>
  This change is a direct result of the decision to move to traditional group accounting and depreciation practices. This decision was a result of Board Order No. P.U. 40(2012), as previously discussed in this response.

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NEWFOUNDLAND & LABRADOR HYDRO

POSITION PAPER

AVERAGE SERVICE LIFE VS

EQUAL LIFE GROUP PROCEDURES

LARRY E KENNEDY

OCTOBER 25, 2016

COMPARISON OF AVERAGE SERVICE LIFE VS EQUAL LIFE GROUP PROCEDURES

SERVICE LIFE

Service life refers to the actual life of each individual asset comprising a particular fixed asset account's composition. For example, in a Vehicles fixed asset account, each individual vehicles in the particular fixed asset account will have a unique service life reflecting the date between each vehicle's capitalization date and each vehicle's eventual retirement date (i.e. removal from the particular Vehicle's fixed asset account). Each unique vehicle's service life is typically independent of every other vehicle's service life. Each vehicle's service life is unknown until its unique and eventual retirement date. However, the depreciation process through analysis of historical actual retirement records is able to ascertain the expected statistical service life of each inherent vehicle in the Vehicles fixed asset account.

AVERAGE SERVICE LIFE

This term refers to the average service life of all individual assets comprising a particular fixed asset account's composition. For example, in the Vehicles fixed asset account where vehicles are expected to physically retire in a deterministic pattern from age 1 to age 20, the average service life of all vehicles in the particular fixed asset account would be, for example, 10 years. Typically it would be expected that 50% of all the vehicles capitalized in a particular year would retire before the 10 year average service life with the remaining 50% would retire after the 10 year average service life.

DISPERSION PATTERN (IOWA CURVE)

The statistical dispersion of all vehicles, in our example, from the above 10 year average service life could range linearly from age 1 to age 20 or for another example range from age 9 to age 11. Thus for the two examples although the average service life would be 10 years for both, the dispersion pattern would vary from a very wide dispersion of 1-20 years of age to a very narrow dispersion of 9-11 years of age. The exhibited dispersion pattern are represented as Iowa Curves with a wide dispersion being reflective of a low order Iowa Curve (e.g. S0, L0, R0.5) and a narrow dispersion being reflective of a high order Iowa Curve (e.g. S6, L5, R5). Please refer to Attachment 3 for graphic representations of a low order Iowa SO curve with a 10 year average service life, a high ordered Iowa S6 with a 10 year average service life, and a SQ (i.e. square curve) with a 10 year terminal date. As can be seen in Attachment 3, all three dispersions (Iowa curves) have a 10 year average service life. With the wide dispersion (i.e. Iowa 10-S0), retirements begin to occur almost immediately upon capitalization and continue on a fairly linear pattern with the last retirement occurring at approximately 20 years of age. In contrast, with the narrow dispersion (i.e. Iowa 10-S6) retirements begin to occur at age 8 with the last retirement occurring at age 12. The Iowa 10-SQ has all retirements occurring at 10 years of age.

The goal of the depreciation analyst is to determine the average service life and the Iowa Curve dispersion pattern. The resulting recommendation would be characterized as, for example, Iowa 10-S0 indicating a 10 year average service life with a wide dispersion around the 10 year average service life. An analyst determination of an Iowa 10-S6 would indicate a 10 year average service life with a very narrow dispersion around the 10 year average service life.

HISTORICAL LIFE ANALYSIS

The depreciation analyst through analysis of historical actual retirement records (assuming a significant and accurate quantum of historical records are available) is able to ascertain the expected statistical service life of each inherent vehicle in the Vehicles fixed asset account. Thus a depreciation analyst is typically able to ascertain to a high degree of confidence the expected statistical retirement date for each vehicle comprising the total vehicle capitalization for the year in question. A depreciation analyst is able to determine that, for example, approximately 1% of the vehicles capitalized in year x will physically retire within the time period x+1. These vehicles would typically retire from collisions or catastrophic events resulting in a very short service life. Similarly, statistically determinations of vehicle retirements at each successive year can be statistically determined until the complete retirement of all vehicles comprising the original capitalization year x. The last vehicle retired, say in year 20, would typically retire from age considerations resulting in a very long service life.

AVERAGE SERVICE LIFE (ASL) PROCEDURE

As detailed in Gannett Fleming's 2009 Depreciation Study, the depreciation rates for NALCOR's depreciable assets are based on the straight line method using the Average Service Life ("ASL") procedure and applied on a Remaining Life basis. The ASL procedure is also known as the Average Life Group ("ALG") procedure.

The ASL procedure, as the name implies, is based on the recovery of each asset in a fixed asset's account on the average service life for each inherent asset. With a narrow dispersion pattern (i.e. high ordered Iowa Curve) it would be expected that a high percentage of vehicles capitalized in a particular year would physically retire at the average service life of for example, 10 years. However with a wide dispersion pattern (i.e. low ordered Iowa Curve) very few vehicles would actually retire at the average service life of 10 years. That is approximately 50% of the vehicles capitalized would physically retire before the average service life of 10 years. Similarly, approximately 50% of the vehicles capitalized would physically retire after the 10 year average service life.

With the ASL procedure, all assets comprising a fixed asset account are depreciated and recovery over each fixed asset account's average service life. In the Vehicle's account example, all vehicles would be recovered over a 10 year basis equating to an approximate 10% depreciation rate (assuming 0% net salvage). Thus with the extreme example of a wide dispersion (i.e. low ordered Iowa curve), all vehicles that physically retire prior to the 10 year average service life are under depreciated. Similarly, all vehicles that physically retire after the 10 year average service life are over depreciated. The under depreciation of all the vehicles that retire before the average service life is rectified by the over recovery of all vehicles that retire after the average service life. This is the basic theory and expected results of the ASL procedure.

EQUAL LIFE GROUP (ELG) PROCEDURE

The other procedure commonly used for other Canadian and North American utility companies is the ELG procedure. This procedure developed by Robly Winfrey in the 1930's, is used to better reflect the actual consumption of a companies fixed assets. The ELG procedure is described as being the most mathematically correct procedure for capital recovery.

The ELG procedure through the more detailed use of Iowa Curve dispersion patterns statistically assigns each asset in a fixed asset account to a more appropriate equal life group. For example in our vehicle example with a 10 year average service life and a wide linear dispersion pattern of 1 to 20 years, there would be 20 equal life groups assignable and applicable. Each equal life group would be expected to have 5% (i.e. 1/20) of the Year 0 capitalized assets in each of the 20 equal life groups. Each equal life group would have a corresponding rate equal to the reciprocal of the applicable ELG life. For example, for the 5% of the assets statistically expected to physically retire in year 1, the applicable ELG rate would be 1/1 or 100%. Similarly for the 5% of the assets statistically expected to physically retire in year 2, the applicable ELG rate would be 1/2 or 50%. This pattern would continue similarly down to the 5% of the assets statistically expected to physically retire in year 20. The applicable ELG rate for the 20th year ELG would be 1/20 or 5%. The composite rate for year 1 would be the mathematical sum of each of the applicable ELG's depreciation rates.

In a more simplified example, assume an asset has three ELG's with applicable expected lives of 1, 2, and 3 years and investment of $100 for each respective ELG. At the capitalization date the composite depreciation rate would be as follows:

Year 1 Depreciation Rate = (ELG_1 Expense + ELG_2 Expense + ELG_3 Expense) / (Original Cost)

Or = ($100 x 1/1 + $100 x 1/2 + $100 x 1/3) / ($100 + $100 + $100) = 61.1%

At Year 2 the first ELG would no longer factor into the calculation as it is retired. The depreciation rate calculation would be as follows:

Year 2 Depreciation Rate = (ELG_2 Expense + ELG_3 Expense) / (Remaining Original Cost)

Or = (\$100 x 1/2 + \$100 x 1/3) / (\$100 + \$100) = 41.7%

At Year 3 the second ELG would no longer factor into the calculation as it is also retired. The depreciation rate calculation would be as follows:

Year 3 Depreciation Rate = (ELG_3 Expense) / (Remaining Original Cost)

Or = (\$100 x 1/3) / (\$100) = 33.3%

With the ELG procedure, all assets comprising a fixed asset account are depreciated and recovered over each equal life group comprising the fixed asset account. In the above example, all assets that retire in year 1 will have a corresponding 100% depreciation rate, all assets that retire in year 2 will have a corresponding 50% depreciation rate and all assets that retire in year 3 will have a corresponding 33.3% depreciation rate. All assets are recovered accurately and correctly over their actual observed service life. This varying depreciation rate is a characteristic of the ELG procedure. The applicable ELG rate is the highest at year 0 for each new vintage year reflecting the inclusion of a short lived ELG and its corresponding high ELG depreciation rate. As the vintage ages, the short lived ELG's with their corresponding high ELG rates are retired and removed from the calculation. This is the basic theory and expected results of the ELG procedure.

With the ASL procedure, the above example would have a depreciation rate for all years (i.e. Year 1, Year 2, and Year 3) equal to 1 / Average Service Life or 1/2 or 50%.

<u>ASL vs ELG PROCEDURES COMPARISON</u>

As described above both the ASL procedure and the ELG procedure will result in full recovery over the life of the account however the ELG procedure will reflect the actual physical retirement of the assets while the ASL procedure will result in a under recovery in year 1 with a corresponding over recovery in year 3.

	ELG-Procedure	ASL - Procedure
	Composite Rate/Expense	Composite Rate/Expense
Year 1	61.1% / $183 ($100+$50+33)	50% / $150 ($50+$50+$50)
Year 2	41.7% / $ 83 ($50+33)	50% / $100 ($50+$50)
Year 3	33.3% / $ 33 ($33)	50% / $ 50 ($50)
Total Recovery	$300	$300

UNDER RECOVERY (LOSS)/OVER RECOVERY (GAIN)

As described above, the ASL procedure inherently will result in an under recovery (i.e. loss) for each asset that is retired before the prescribed average service life of the asset account. Similarly the ASL procedure will result in an over recovery (i.e. gain) for each asset that is retired after the prescribed average service life. Again, this under recovery and over recovery is the defining characteristic of the ASL procedure. The only time that a under or over recovery will not occur is when a retirement occurs at the average service life. However, as described above under DISPERSION PATTERN (IOWA CURVE) a retirement will seldom occur at the average service life. In addition the amount of the under and over recovery will increase with the observed dispersion pattern. That is the wider the dispersion pattern (i.e. lower ordered Iowa curve) the less likely a retirement will occur at the average service life and the amount of the under and over recovery will also similarly increase. Conversely the narrower the dispersion pattern (i.e. high ordered Iowa curve) the more likely a retirement will occur at the average service life and the amount of the under or over recovery will become less pronounced. To graphically reflect the “losses” and “gains” expectations for a range of dispersions as depicted for the Iowa 10-S0 vs the Iowa 10-S6, refer to Attachment 3.

In the vehicles example, a wide dispersion pattern (i.e. low order Iowa Curve) is typically expected. And an expectation of retirements occurring evenly over, for example, a life from 1 to 20 years with an average service life of 10 years, is not unusual. Using an ASL procedure will result in significant losses and gains and does not reflect on the accuracy of the selected Iowa Curve and Average Service Life parameters. This under recovery (i.e. loss) and over recovery (i.e. gain) is a defining characteristic of the ASL procedure. The occurrence of a loss or gain does not reflect on the life parameters (i.e. Iowa Curve and Average Service Life) derived for any fixed asset account for any utility company.

INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) CONSIDERATIONS

IFRS accounting requires a significant amount of homogeneity in the component assets inherent to each fixed asset account. That is, all assets in an account are expected to exhibit the same average service life. Thus fixed asset accounts are expected to all exhibit the same service life with a very narrow level of expected life dispersion. As such, more accounts are required to meet this IFRS componentization requirement. In addition, under IFRS accounting, retirements before or after the prescribed account average service life are required to be recognized by the company and gains and losses. As described above, the ALG procedure will result in a loss for each asset that is retired before the prescribed average service life and similarly a gain will occur for each asset that is retired after the prescribed average service life. Over the total account life, the cumulative losses will be offset by the cumulative gains.

Under the ELG procedure as described above, all retirements are considered fully depreciated. As such no gains or losses are required for IFRS purposes.

GANNETT FLEMING RECOMMENDATIONS

Gannett Fleming recommends for NL Hydro a change in procedure for current plant from the ASL procedure to the ELG procedure. Gannett Fleming proposes a gradual phased in approach to the ELG procedure to more accurately align the depreciation expense to the consumption of the service value of the assets providing utility service. The Board has long accepted the better accuracy of ELG depreciation rates for Newfoundland Power. In the circumstances of Newfoundland Power, the Board first accepted ELG rates for new plant in 1978. In 1982, the Board accepted that ELG rates would be used for all plant, and the procedure has been in place ever since for Newfoundland Power.

Other jurisdictions in Canada and the United States have also concluded that ELG is the most appropriate depreciation procedure. In the United States, more utilities use ASL, although ELG is still used in some states. However, in Canada the use of ELG is much more pronounced. The ELG procedure is widely accepted for depreciation rates in Canada, and is the long-standing practice of Newfoundland Power. Its use for more than three decades by Newfoundland Power provides a net benefit to current customers and the transition of NL Hydro to ELG provides a net benefit for future customers for NL Hydro as well.

Gannett Fleming

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NEWFOUNDLAND AND LABRADOR HYDRO

POSITION PAPER

ACCOUNTING FOR REMOVAL COSTS

LARRY E KENNEDY

OCTOBER 25, 2016

ACCOUNTING FOR REMOVAL COSTS

Depreciation accounting is the process of charging the book cost (generally stated as original cost in utility accounting) of depreciable property, adjusted for net salvage value, to operations over its useful life. Depreciation for accounting purposes is based on the matching principle. Under the matching principle, expense are assigned to accounting periods in a manner that matches expenses with revenues. Because depreciable assets are acquired for use in the earning process over a period of years, the matching principle requires that a portion of the cost of the assets be charged to depreciations expense each period to property measured net income. When depreciation expense is recorded, the net book value of the property is simultaneously reduced by an equal amount.

Depreciation is defined as (Cost - Net Salvage)/Life. Net salvage is the amount of expected proceeds from the sale of assets less the cost to retire and remove the asset from utility operations. Cost of removal is the cost of demolishing, dismantling, or otherwise removing plant, including the cost of transportation and handling. Therefore cost of removal, or negative net salvage, is properly accounted through depreciation expense over the life of the asset. Cost of removal is essentially labor, although transportation, cost of disposing of wastes, repaving costs, and other items are also includable. As such at the time assets are removed from service , the cost of removal expenditure is recorded by a debit to the accumulated depreciation account and a credit to the accounts affected by the removal project.

When depreciable plant facilities are retired from service and physically removed, costs may be incurred and/or cash or other value may be realized if they are sold or retained for reuse. The abandonment of utility property in place can also cause costs to be incurred, (e.g., the cost of filling an abandoned gas pipe line with an inert gas). The term gross salvage refers to the amount received for retired property sold or junked, reimbursement received from insurance for other sources, or the amount at which reusable material is charged to a utility's Material and Supplies Account. Cost of removal is the expenditure incurred in connection with retiring, removing, and dispersing of property. Net salvage is the difference between gross salvage and cost of removal.

Historically, most regulatory commissions have allowed that both gross salvage and cost of removal be reflected in depreciation rates. The theory behind this requirement is that, since most physical plant placed in service will have some residual value at the time of its retirement, the original cost recovered through depreciation should be reduced by that amount. Closely associated with this reasoning is the accounting principle that revenues be matched with costs and the regulatory principle that utility customers who benefit from the consumption pf plant pay for the cost of that plant, no more, no less. The application of the latter principle also required that the estimated cost of removal of plant be recovered over its life.

Some commissions have abandoned the above procedure and moved to current-period accounting for gross salvage and /or cost of removal or Asset Retirement Obligation account. In some jurisdictions gross salvage and cost of removal are accounted for as income and expense, respectively, when they are realized. Other jurisdictions consider only gross salvage in depreciation rates, with the cost of removal being expensed in the year incurred.

Determining a reasonably accurate estimate of the average or future net salvage is not an easy task; estimates can be the subject of considerable discussion and controversy between regulators and utility personnel. This is one of the reasons advanced in support of current-period accounting for these items. When estimating future net salvage, every effort should be made to ensure that the estimate is as accurate as possible. Normally the process should start by analyzing past salvage and cost of removal data and by using the results of this analysis to project future gross salvage and cost of removal.

When performing an analysis of net salvage, data, certain considerations should be kept in mind. Generally, if transfers or sales of plant have contributed significantly to realized salvage, and such transactions are considered to be unrepresentative of the future, these transactions should be eliminated from the data. If the account consists of several categories of plant, such as several radically different types and size of building, the realized salvage should be analysed to determine whether the related retirements are a representative cross-section of the account. The age of the retired plant, market conditions prevailing at the time of retirement, company policy regarding reuse in the past, environmental remediation costs, and reimbursements in instances of damage , condemnation or forced relocation resulting from highway construction should be considered in preparation for projecting future net salvage.

It is frequently the case that net salvage for a class of property is negative, that is, cost of removal exceeds gross salvage. This circumstance has increasingly become dominate over the past 50 years; in some cased negative net salvage even exceeds the original cost of plant. Today few utility plant categories experience positive net salvage; this means that most depreciation rates must be designed to recover more than the original cost of plant. The predominance of this circumstance is another reason by some utility commission have switched to current-period account of gross salvage and, in particular, cost of removal.

Gannett Fleming views that due to the matching principle and to ensure intergenerational equity, future cost of removal estimates (including gross salvage) should be incorporated into a company's depreciation rates and charged to accumulated depeciation as incurred.

GANNETT FLEMING RECOMMENDATIONS

Gannett Fleming recommends for NL Hydro the incorporation of net salvage into their depreciation rates. The inclusion of an allowance for net salvage provides for the proper matching of expenses to revenues and ensures for accurate intergenerational equity. In other words, customers of NL Hydro that benefit from the usage of their assets should also pay proportionately for those asset's eventual costs of demolishing, dismantling, tearing down or otherwise removing including the cost of transportation and handling incidential thereto. Allocating net salvage costs during the life of the related plant is more appropriate and equitable and is in accordance with authoritative texts and most Uniform Systems of Accounting including those published in Alberta, Ontario, the National Energy Board of Canada and the Federal Energy Regulatory Commission. Delaying collection until such costs are incurred results in a charge to customers for plant from which they did not receive service and, as a result of the delay in recovery, also results in higher revenue requirements related to net salvage. The appropriateness and accuracy of included net salvage costs into NL Hydro's rates should be reviewed during each depreciation study to ensure they reflect that the most up to date information has been incorporated into net salvage rate development.

ACCOUNT 12345
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