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| **IN THE MATTER OF THE ELECTRICAL CONTROL ACT, RSNL 1994, CHAPTER E-5.1 (THE "EPCA") AND THE PUBLIC UTILITIES ACT, RSNL 1990, CHAPTER P-47 (THE "ACT"), AS AMENDED, AND THEIR SUBORDINATE REGULATIONS; AND IN THE MATTER OF AN APPLICATION BY NEWFOUNDLAND AND LABRADOR HYDRO PURSUANT TO SUBSECTION 68 OF THE ACT, FOR THE APPROVAL OF CHANGES IN DEPRECIATION METHODOLOGY AND ASSETS SERVICE LIVES** | §<br>§<br>§<br>§<br>§<br>§<br>§<br>§<br>§<br>§<br>§<br>§<br>§ | **BEFORE THE NEWFOUNDLAND AND LABRADOR BOARD OF COMMISSIONERS OF PUBLIC UTILITIES** |

Direct Testimony

*of*

Jacob Pous

*On behalf of*

The Consumer Advocate of Newfoundland and Labrador

Diversified Utility Consultants Inc.
1912 West Anderson Lane, Suite 202
Austin, TX 78757

October 3, 2012

**DIRECT TESTIMONY AND EXHIBITS OF JACOB POUS**

**ACRONYMS**

| | |
|---|---|
| **2011 STUDY** | Gannett Fleming 2011 Depreciation Study for Newfoundland and Labrador Hydro |
| **AICPA** | American Institute of Certified Public Accountants |
| **ALG** | Average Life Group |
| **ASL** | Average Service Life |
| **BOARD** | Board of Commissioners of Public Utilities |
| **CFR** | Code of Federal Regulations |
| **CA** | Consumer Advocate of Newfoundland and Labrador |
| **DUCI** | Diversified Utility Consultants, Inc. |
| **ELG** | Equal Life Groupings |
| **FERC** | Federal Energy Regulatory Commission |
| **HYDRO** | Newfoundland and Labrador Hydro |
| **NARUC** | National Association of Regulatory Commissioners |
| **OLT** | Observed Life Tables |

| | | |
|---|---|---|
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## SECTION I: INTRODUCTION

**Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is Jacob Pous and my business address is 1912 W Anderson Lane, Suite 202, Austin, Texas 78757.

**Q. WHAT IS YOUR OCCUPATION?**

A. I am a principal in the firm of Diversified Utility Consultants, Inc. ("DUCI"). A copy of my qualifications appears as Appendix A.

**Q. PLEASE DESCRIBE DIVERSIFIED UTILITY CONSULTANTS, INC.**

A. DUCI is a consulting firm located in Austin, Texas with an international client base. The personnel of DUCI provide engineering, accounting, economic, and financial services to its clients. DUCI provides utility consulting services to municipal governments with utility systems, to end-users of utility services, and to regulatory bodies such as state public service commissions. DUCI provides complete rate case analyses, expert testimony, negotiation services, and litigation support to clients in electric, gas, telephone, water, sewer, and cable utility matters.

**Q. HAVE YOU PREVIOUSLY TESTIFIED IN PUBLIC UTILITY PROCEEDINGS?**

A. Yes. Appendix A also includes a list of proceedings in which I have previously presented testimony. In addition, I have been involved in numerous utility rate proceedings that resulted in settlements before testimony was filed. I have testified on behalf of the staff of five different state regulatory commissions and one Canadian regulator. In total, I have participated in well over 400 utility rate proceedings in the United States and Canada.

**Q. WHAT IS YOUR PROFESSIONAL BACKGROUND?**

A. I am a registered professional engineer. I am registered to practice as a Professional Engineer in the State of Texas, as well as numerous other states.

**Q. ON WHOSE BEHALF ARE YOU PROVIDING THIS TESTIMONY?**

A. I am testifying on behalf of the Consumer Advocate of Newfoundland and Labrador ("CA").

**Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

A. The purpose of my testimony is to address the level of depreciation expense and rates proposed by Newfoundland and Labrador Hydro ("Hydro") in its 2011 Gannett Fleming Depreciation Study filed before the Board of Commissioners of Public Utilities ("Board").

## SECTION II: SUMMARY

**Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

A. Hydro has retained Gannett Fleming to conduct a depreciation study based on plant as of December 31, 2009. Since this study was completed and submitted to Hydro by Mr. Kennedy of Gannett Fleming in 2011, it will be referred to as the 2011 Study. Based on the limited supportive information presented by Hydro and Mr. Kennedy, I conclude that Hydro's depreciation request is excessive, even though Hydro proposes a $1 million reduction in depreciation expense. [1] Moreover, Hydro's past and proposed practices, procedures, and proposals are, to say the least, unusual and have resulted in the presentation of an overall depreciation situation that is incorrect, inconsistent, and reflects tremendous levels of intergenerational inequity. Full correction of Hydro's depreciation presentation in this proceeding is not possible. While limited adjustments are recommended herein, a potential major problem exists with Hydro's claimed level of book accumulated provision for depreciation, often referred to as the reserve. While Hydro's reserve presentation by account is incorrect, it has not provided information that would permit full evaluation and restatement of the reserve to correct levels. To the

[1] It must be noted that while Hydro and Mr. Kennedy did provide substantial volumes of calculations and data, the information is lacking in the critical areas of meaningful and significant basis for the various assumptions reflected in the calculations and data. There is an appreciable difference between volume of papers and critical support or basis for values reflected in the calculations.

extent corrections are required to the booked reserve, it will impact both depreciation expense and rate base.

Based on available information, I recommended limited adjustments to the average service life ("ASL") and/or dispersion pattern proposed for only 10 of the 136 categories or accounts identified in the 2011 Study. The adjusted accounts are set forth in the table below. [2] The combined impact of these limited adjustments results in a $3,104,518 reduction to depreciation expense based on plant as of December 31, 2009. The December 2009 plant corresponds to the depreciation test year reflected in the 2011 Study that forms the basis for Hydro's proposal.

**Summary of Recommended Life Adjustments**

| | Life-Curve Combination | | Recommended Adjustment | |
|---|---|---|---|---|
| Account | Hydro Proposed | CA Proposed | Years | $ |
| B01 – Battery & Pwr. Sys. | 15S3 | 23L4 | 8 | $250,419 |
| F04 – Foundations | 50R4 | 64S2 | 14 | $131,181 |
| G03 – Generators | 60S4 | 65R4 | 5 | $150,746 |
| P03 – Penstock | 70R4 | 80R4 | 10 | $235,934 |
| P10 – Powerhouses | 75R3 | 85R4 | 10 | $250,144 |
| R12 – Right-of-Ways | 55R4 | 80R4 | 25 | $192,655 |
| R13 – Roads | 50R4 | 70R4 | 20 | $1,280,018 |
| S05 – Software | 7SQ | 12R3 | 5 | $174,330 |
| S16 – Studies | 5R0.5 | 7R0.5 | 2 | $172,611 |
| W01 – Water Reg. Struct. | 55S4 | 85S4 | 30 | $266,480 |
| Total | | | | $3,104,518 |

Schedule (JP-1) presents the adjusted depreciation expense and rates for all 136 categories of investment presented by Hydro in the 2011 Study.

[2] Due to the exceptionally large number of accounts, in conjunction with time and budgetary constraints, other accounts that warrant adjustments are not addressed.

**Q. BEFORE PROCEEDING WITH THE BALANCE OF YOUR TESTIMONY, ARE THERE CONCERNS THAT MUST BE RAISED AT THE OUTSET?**

A. Yes. I have performed depreciation analyses for approximately 40 years throughout Canada and the United States. While I have been exposed to various unusual proposals and circumstances, those presented by Hydro in this proceeding reflect the greatest degree of variance from normal depreciation practices that I have previously encountered.

In particular, Hydro's historic reliance on sinking fund depreciation is basically unique for the utility industry in modern times. In addition to the unusual reliance on sinking fund depreciation, the modified sinking fund formula employed by Hydro has been calculated incorrectly.

Next, while Hydro does propose the elimination of sinking fund depreciation and movement to "group accounting methods using the ASL procedure and applied on a remaining life basis"[3], Hydro also proposes to continue its unusual depreciation practices by proposing the application of the group developed depreciation rates to individual assets (not group accounting). Not only is Hydro's inconsistent proposal incorrect, it creates additional problems that will transpire in the future if adopted.

Two other extremely unusual aspects of Hydro's depreciation application are (1) its decision to exclude or assume a zero (0) level of net salvage for the depreciation calculation process, and (2) to maintain in excess of 40,000 individual asset records which it attempts to recategorize down to 136 categories in its current depreciation study. The 136 categories of plant proposed by Hydro still represent an extremely excessive number of categories compared to the industry, which normally would be under 50 accounts for similar investments.

While any one of these individual areas would normally be considered a major problem, the combination of all these areas in one utility presented in one case represents an extreme outlier situation for depreciation purposes.

[3] The Application of Newfoundland and Labrador Hydro at page 2.

## SECTION III: DEPRECIATION – GENERAL

**Q. WHAT IS DEPRECIATION?**

A. There are two commonly-cited definitions of depreciation. The first comes from the United States Federal Energy Regulatory Commission ("FERC"):[4]

> '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 gas 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, changes in demand and requirements of public authorities.

The second definition, from the American Institute of Certified Public Accountants ("AICPA"), is similar:

> Depreciation accounting is a system of accounting which aims to distribute the cost or other basic value of tangible capital assets, less salvage (if any) over the estimated useful life of the unit (which may be a group of assets) in a systematic and rational manner. It is a process of allocation, not of valuation. Depreciation for the year is a portion of the total charge under such a system that is allocated to the year. Although the allocation may properly take into account occurrences during the year, it is not intended to be a measurement of the effect of all such occurrences.

[4] Title 18 of the Code of Federal Regulations ("CFR") Part 201, Definition 12.

**Q. WHAT ARE THE TWO GENERAL FORMULAS USED IN DETERMINING DEPRECIATION RATES?**

A. The whole life and the remaining life technique are the most commonly used formulas. The whole life technique is as follows:[5]

$$\text{Depreciation Rate (\%)} = \left[\frac{\frac{(\text{Original Cost} - \text{Net Salvage})}{\text{Average Service Life}}}{\text{Original Cost}}\right]$$

The remaining life technique is as follows:

$$\text{Depreciation Rate (\%)} = \left[\frac{\frac{\text{Original Cost} - \text{Accumulated Provision For Depreciation} - \text{Net Salvage}}{\text{Remaining Service Life}}}{\text{Original Cost}}\right]$$

The two formulas should equal each other when the difference between the theoretical reserve and the actual Accumulated Provision for Depreciation is recovered over the remaining life of the investment under the whole life technique.

**Q. DOES HYDRO RELY ON EITHER OF THE TWO GENERAL FORMULAS FOR DETERMINING DEPRECIATION EXPENSE?**

A. Hydro proposes the implementation of the remaining life technique, but has historically relied on what it has identified as the modified sinking fund technique. The sinking fund or modified sinking fund approaches have generally not been utilized by utilities for an extended number of decades. The sinking fund method will be discussed later.

**Q. ARE THERE ADDITIONAL CONSIDERATIONS IN DEPRECIATION BEYOND THE DEFINITIONS?**

A. Yes. The definitions provide only a general outline of the overall utility depreciation concept. In order to arrive at a depreciation-related revenue requirement in a rate proceeding, a depreciation system must be established.

[5] A theoretical depreciation reserve calculation is developed and compared to the actual accumulated provision for depreciation in conjunction with the whole life technique. If the differential is significant, an amortization of the differential for some period of time may be recommended.

**Q. WHAT IS A DEPRECIATION SYSTEM?**

A. A depreciation system constitutes the method, procedure, and technique employed in the development of depreciation rates.

**Q. BRIEFLY DESCRIBE WHAT IS MEANT BY "METHOD."**

A. "Method" identifies whether a straight-line, liberalized, compound interest, or other type of calculation is being performed. The straight-line method is normally employed for utility depreciation proceedings.

**Q. BRIEFLY DESCRIBE WHAT IS MEANT BY "PROCEDURE."**

A. "Procedure" identifies a calculation approach or grouping. For example, procedures can reflect the grouping of only a single item, items by vintage (year of addition), items by broad group or total grouping, or equal life groupings ("ELG"). The average life group ("ALG") procedure is used by the vast majority of utilities. Both Hydro and I have utilized the ALG procedure in this case.

**Q. BRIEFLY DESCRIBE WHAT IS MEANT BY "TECHNIQUE."**

A. There are two main categories of techniques with various sub-groupings: the whole life technique and the remaining life technique. As previously noted, Hydro has historically employed the unusual sinking fund technique. The whole life technique simply reflects calculation of a depreciation rate based on the whole life (*e.g.*, a 10-year life would imply a 10% depreciation rate over the life of the plant). The remaining life technique recognizes that depreciation is a forecast or estimation process that is never precisely accurate and that requires true-ups in order to recover exactly 100% of what a utility is entitled to over the entire life of the investment. Therefore, as time passes, the remaining life technique attempts to recover the remaining unrecovered balance over the remaining life or other period of time. Most utilities rely on a remaining life technique in utility rate matters. Both the Company and I have utilized the remaining life technique for calculation of recommended depreciation rates.

**Q. DO THE METHODS, PROCEDURES, AND TECHNIQUES INTERACT WITH ONE ANOTHER?**

A. Yes. Different depreciation rates will result depending on what combination of method, procedure, and technique is employed. Differences will occur even when beginning with the same ASL and net salvage values.

**Q. WHAT IS NET SALVAGE?**

A. Net salvage is the value obtained from retired property (the gross salvage) less the cost of removal. Net salvage can be either positive, in cases where gross salvage exceeds cost of removal, or negative, in cases where cost of removal is greater than gross salvage.

**Q. IS NET SALVAGE AN ISSUE IN THIS CASE?**

A. Normally it is, but not in this case. Hydro has relied on a zero (0) level of net salvage. While I do not agree with Hydro's assumptions, it has not maintained net salvage data that would permit any alternative.

**Q. HOW DOES NET SALVAGE IMPACT THE CALCULATION OF DEPRECIATION?**

A. The intent of the depreciation process is to allow Hydro to recover 100% of investment less net salvage. Therefore, if net salvage is a positive 10%, then the utility should only recover 90% of its investment through annual depreciation charges, under the theory that it will recover the remaining 10% through net salvage at the time the asset retires (90% + 10% = 100%). Alternatively, if net salvage is a negative 10%, then the utility should be allowed to recover 110% of its investment through annual depreciation charges so that the negative 10% net salvage that is expected to occur at the end of the property's life will still leave the utility whole (110% - 10% = 100%).

## SECTION IV: SINKING FUND DEPRECIATION

**Q. WHAT IS THE ISSUE IN THIS PORTION OF YOUR TESTIMONY?**

A. This portion of my testimony addresses the problems identified with the level of accumulated provision for depreciation, often referred to as the reserve, due to Hydro's inappropriate calculation of historical sinking fund depreciation. While Hydro proposes to move away from sinking fund depreciation, it is the effects of the prior inappropriate sinking fund depreciation that is addressed in this section of the testimony.

**Q. WHAT IS SINKING FUND DEPRECIATION?**

A. There are different depreciation calculation procedures; some are accelerated while some reflect deferred collection patterns. Sinking fund depreciation is one of the most deferred calculation procedures. As stated in the 2011 Study, the:

> Sinking fund method establishes a depreciation table with depreciation rates that are lower in the early years of the asset's life and increase over time in order to fully recover the investment of the asset over its estimated service life. However, this schedule is structured in such a manner that the combined cost of debt retirement and depreciation expense are constant over the asset life.[6] (Emphasis added)

**Q. DOES HYDRO ACTUALLY EMPLOY A SINKING FUND DEPRECIATION METHOD?**

A. No, not specifically. Rather, Hydro claims that it uses a modified sinking fund formula.[7] The formula employed by Hydro is

Rate = Interest/(((1+Interest)^Remaining Life)-1).[8]

As can be seen in the formula above, the assumed interest value is one of the two major components of the modified sinking fund method employed by Hydro.

[6] 2011 Study at pages II-2 through II-3.
[7] Response to CA-NLH-251. Hydro modified the sinking fund method by applying the rate to the net plant or depreciated plant rather than the original cost.
[8] *Id.*

**Q. WHAT INTEREST RATE DOES HYDRO CLAIM IS REFLECTED IN ITS SINKING FUND CALCULATION?**

A. Prior to the early 2000s, Hydro states that it

> ...used a monthly interest rate averaged over the duration of the capital project in order to determine the applicable interest rate. However, late in 2002, Hydro switched to the weighted average cost of capital (WACC). Hydro switched to the WACC methodology at this time as it was the first General Rate Application subsequent to the 1996 legislative change resulting in Hydro being regulated on a rate of return basis. Prior to this time, Hydro was regulated on an interest coverage basis. Once a sinking fund interest rate is assigned to an asset, it remains unchanged for the full life of the asset.[9] (Emphasis added)

**Q. DID HYDRO PROVIDE ANY SUPPORT FOR ITS CALCULATION OR INPUT VALUES?**

A. No. Hydro's failure to provide any support for its calculation or impact is made in spite of the specific request that it provide "supporting documentation."[10]

**Q. IS HYDRO'S RESPONSE ASSOCIATED WITH THE INTEREST RATE EMPLOYED IN ITS MODIFIED SINKING FUND CALCULATION CONSISTENT WITH THE NORMAL SINKING FUND METHOD OR STATEMENTS MADE IN THE 2011 STUDY?**

A. No. As noted in the 2011 Study, the sinking fund method "is structured in such a manner that combined cost of debt retirement and depreciation expense are constant over the asset's life." However, Hydro elected to retain the initial interest rate assigned to an asset for the full life of the asset, in spite of the fact it admits that it repaid specific debt or rolled over or revolved debt over time.[11] These actions created a severe inconsistency in the sinking fund depreciation method.

[9] *Id.*
[10] *Id.*
[11] Response to CA-NLH-254.

**Q. WHAT IS THE INCONSISTENCY YOU REFERRED TO?**

A. To the extent Hydro did not retire, revolve, refinance, etc. its debt once issued or had not changed from an interest coverage revenue requirement mode to a WACC approach, there would be no inconsistency. However, in many cases, Hydro rolled over or revolved debt and most likely at a different interest rate.[12] In addition, as previously noted, Hydro's underlying revenue requirement associated with assets changed from a debt-related interest coverage to a WACC approach. In order to remain consistent with normal sinking fund concepts as noted in the 2011 Study, the combined retirement of debt and depreciation expense should remain constant over the asset's life. This did not happen since debt was retired and debt cost changed over time. When debt was retired, rolled over or revolved, Hydro should have revised its sinking fund calculation in order to maintain the underlying principle for sinking fund depreciation. That principle as stated by Hydro is to maintain a constant combined cost of debt retirement and depreciation expense. When debt is refinanced or retired the interest rate in the sinking fund formula must also change in order to maintain the new constant combination of cost of debt retirement and depreciation expense.

**Q. WAS HYDRO SPECIFICALLY REQUESTED TO EXPLAIN AND FULLY SUBSTANTIATE THE DEPRECIATION PERCENTAGES REFLECTED IN ITS SINKING FUND CALCULATIONS AND TO PROVIDE ALL SUPPORTING DOCUMENTS?**

A. Yes.[13] Unfortunately, the total justification, substantiation, and documentation Hydro chose to present in support of its burden of proof rests on one word in the final sentence to its response to a data request. That singular word is "practice," and the sentence provided by Hydro is as follows:

> The practice has been however, since the inception of the company, that once the sinking fund rate is established for an asset, the rate remains in place for the life of the asset.[14] (Emphasis added)

[12] *Id.*
[13] *Id.*
[14] *Id.*

**Q. DOES THE WORD "PRACTICE" OR HYDRO'S ACTIONS PROVIDE ANY SUBSTANTIATION FOR ITS CALCULATIONS?**

A. No. Despite Hydro being provided with several opportunities to fully explain and justify its historic sinking fund calculations, it fell back to the word "practice" for its justification. The word "practice" is best translated into "that's the way it's always been done." Such statement is a statement of what has been performed, not a supportive statement as to the underlying basis and justification for what has been done.

**Q. CAN YOU PROVIDE AN EXAMPLE OF THE MAGNITUDE OF WHAT IS AT ISSUE?**

A. Yes. Hydro states that its total annual depreciation expense as of December 31, 2009 for a $14,504,952 investment made for Cat Arm Dam 4 on 8/2/1985 is $48 and the total reserve value after 24 years is $351.32.[15]

**Q. CAN YOU PLACE THESE VALUES INTO PROPER PERSPECTIVE?**

A. Yes. On a straight line basis, the $14.5 million investment depreciation equally over 1,200 months would yield a depreciation expense of $12,087.46 per month for each of the 1,200 months. This compares to Hydro's monthly depreciation expense, which began at $0.14 and ended the first year of depreciation at $0.16 per month for a grand total of $1.78 for the full first year.[16] In other words, the depreciation expense for the first year under a normal straight line depreciation method would have been 81,488 times greater than the depreciation expense recognized by Hydro.

Approximately 24 years into the life of the investment for Cat Arm Dam 4 and long after Hydro refinanced or extinguished the 14% debt reflected in its sinking fund calculation and long after it has gone to WACC regulation, Hydro recognizes only $47.50 of depreciation expense on an annual basis for 2009.[17] This miniscule amount is due to its "practice" of retaining the original interest rate over the life of the investment. In other

[15] Response to CA-NLH-251.
[16] *Id.*
[17] *Id.*

words, approximately 24 years into the life of a 100-year life asset, Hydro's depreciation rate is 0.000327% on an annual basis versus 1.0% on a whole life basis.[18]

**Q. SETTING ASIDE THE IMPACT OF REFINANCING THE 14% DEBT ISSUED IN THE MID-1980S, WOULD RECOGNIZING THE WACC IN LATE 2002 HAVE A MATERIAL IMPACT ON HYDRO'S CALCULATION?**

A. Yes. Assuming a WACC rate of 7.35% applied on a monthly compounded basis, which equates to 0.6067% monthly, and beginning such calculation in September 2002, the impact is dramatic. Rather than $47.50 of annual depreciation expense as of the end of 2009, the resulting expense would be $4,218.36, or 89 times the level recorded by Hydro for the same time period. Moreover, the accumulated depreciation for the asset would be $24,986.18 rather than the $351.32 reported by Hydro. It is important to recall that the accumulated provision for depreciation or reserve is a reduction to rate base and is an integral part of the depreciation calculation proposed by Hydro. The higher the reserve, the lower the current depreciation rate and expense, and rate base.

**Q. IS THE IMPACT EVEN GREATER IS ONE ASSUMES THAT HYDRO REFINANCED ITS 14% DEBT WITH 5% DEBT IN 1992?**

A. Yes. If the sinking fund calculation was modified for a 5% annual interest rate in August 1992 and continued through to August of 2002 at which point the previously noted WACC became effective, the total accumulated depreciation, or reserve, as of December 2009 would be $117,185.73 compared to Hydro's reported $351.32. This difference is 334 times the level reported by Hydro.

**Q. HAD HYDRO RELIED ON A MONTHLY COMPOUNDED INTEREST RATE WOULD THAT ALSO RESULT IN AN IDENTIFIABLE DIFFERENCE?**

A. Yes. First, it must be noted that a compounded monthly interest rate rather than a simple interest rate is appropriate. Reliance on a monthly compounded interest rate of 0.0110527% would result in a 57% increase in values as of December 31, 2009.

[18] $47.50/$145,049,520/100.

**Q. IS THERE ANY JUSTIFICATION FOR THE HYDRO'S "PRACTICE" OF RETAINING INTEREST RATES IN THE SINKING FUND CALCULATION WHEN IT KNOWS SUCH INTEREST RATES ARE NO LONGER VALID?**

A. No. While it may be Hydro's "practice," that doesn't provide any validity for the situation in which Hydro has placed customers. Hydro changed the underlying basis for the sinking fund method by refinancing high-cost prior debt with lower cost debt and has further harmed customers by going to rate of return regulation yet retaining higher cost interest rates in sinking fund calculations for many assets.

**Q. HAS HYDRO'S PRACTICE RESULTED IN INTERGENERATIONAL INEQUITY?**

A. Absolutely. While the sinking fund method itself creates a certain level of intergenerational inequity, Hydro's "practice" of maintaining the initial interest rate even when it has refinanced the corresponding debt at lower cost has dramatically escalated the intergenerational inequity situation. This magnification of intergenerational inequity was previously demonstrated with over a $100,000 change in the reserve for the Cat Arm asset when the 14% interest rate was reduced to 5% for a 10-year period.

**Q. HAS HYDRO HISTORICALLY ONLY CHARGED CUSTOMERS FOR ITS SINKING FUND DEPRECIATION AMOUNTS IN REVENUE REQUIREMENT?**

A. The answer is unclear. Hydro states that it was regulated on an interest coverage basis until 1996 when it became subject to rate of return regulation, but did not file its first General Rate Application under rate of return regulation until 2002. When Hydro refinanced high-cost debt, such refinancing at lower interest rates did have an impact on the interest coverage level reflected in revenue requirements. While Hydro was requested to provide all supporting documentation and assumptions associated with its sinking fund calculations, it did not provide a complete picture of the entire process.[19] Therefore, it is unknown to what degree Hydro in effect has over recovered from customers. It has not recorded the appropriate depreciation benefit on behalf of customers.

[19] Responses to CA-NLH-251 through 254.

**Q. DID HYDRO USE SINKING FUND DEPRECIATION FOR ALL ASSETS?**

A. No, Hydro even uses a mix of sinking fund and straight line depreciation within the same account.

**Q. DID HYDRO SEEK BOARD APPROVAL FOR WHICH ASSETS WERE SUBJECTED TO THE SINKING FUND METHOD?**

A. No.[20]

**Q. WHAT IS THE APPROPRIATE CORRECTIVE ACTION ASSOCIATED WITH THE PROBLEM CREATED AND PRESENTED BY HYDRO'S SINKING FUND PRACTICES?**

A. The appropriate correction would be to restate the reserve to reflect lower interest rates due to refinancing of high-cost debt and to reflect the WACC after the completion of Hydro's first General Rate Application before the Board. Such action would result in materially lower levels of current depreciation proposals, lower rate base, and lower base rates.

**Q. IS IT PRACTICAL FOR YOU TO RESTATE THE RESERVE TO REFLECT APPROPRIATE HISTORICAL TRANSACTIONS?**

A. No. Hydro maintains in excess of 40,000 separate assets, many of which are subject to the sinking fund method. Restatement of the reserve to the appropriate level would require recalculations taking into account changing debt issuances and refinancing, along with allocation of costs to particular assets. In other words, such analysis would require massive levels of human resources and data, and numerous assumptions.

**Q. WHAT OPTIONS ARE AVAILABLE IN THIS PROCEEDING?**

A. In my opinion, there is only one realistic option. That option is to continue with the remaining life approach proposed by Hydro, utilizing Hydro's stated reserve levels. However, an integral component of that option is for the Board to order Hydro to investigate and present alternatives in a future proceeding as to what are the most

[20] Response to IC-NLH-74.

appropriate solutions to this problem. Those alternatives can be analyzed and judged on their merit and a more informed decision can be made at the time. It should be noted that adopting the reserves as reported by Hydro in this case for calculation purposes only simply defers the correction of the sinking fund calculation issue to the future. Some future determination must be made as to what corrective action can and should be made to Hydro's reported reserves.

**Q. WHAT IS YOUR RECOMMENDATION?**

A. At this point, based on the information available, I have proposed numerous adjustments to Hydro's proposed ASLs. In my opinion, such adjustments should be adopted, relying on the remaining life calculation with the clear understanding that such adjustments are necessary no matter what happens with the sinking fund issue, but that the impact of Hydro's inappropriate reserve presentation must be addressed in a subsequent proceeding. In other words, while no specific corrective action can be taken in this proceeding regarding the reserve issue, corrective action can be adopted by the Board as it relates to inadequate service life projections presented for numerous large plant accounts.

## SECTION V: GROUP DEPRECIATION

**Q. WHAT IS THE ISSUE IN THIS PORTION OF YOUR TESTIMONY?**

A. This portion of my testimony will address Hydro's proposal to convert to a group depreciation approach for development of depreciation rates, but inconsistently retaining item depreciation accounting.[21] This simply means that, rather than developing depreciation rates for individual items, Hydro has grouped many assets into 136 categories and has developed 136 different depreciation rates. While group depreciation requires the application of a depreciation rate derived on a group basis to the group from which it was calculated, Hydro proposes to take the 136 different group depreciation rates

[21] Response to IC-NLH-71.

and apply them on an individual asset basis within each of the 136 different groups. This creates a significant inconsistency and should not be adopted.

**Q. IS HYDRO'S PROPOSED GROUP DEPRECATION AND ITEM ACCOUNTING CONSISTENT WITH ITS APPLICATION?**

A. No. In its Application cover letter, Hydro states it proposes a change "to group accounting methods." However, Hydro has made it quite clear in discovery that it intends to apply the group depreciation approach to each separate asset within the group rather than follow group accounting.[22] There is a difference.

**Q. PLEASE DEFINE GROUP DEPRECIATION.**

A. The National Association of Regulatory Commissioners' ("NARUC") publication, Public Utility Depreciation Practices discussion on group and unit depreciation states the following at page 49:

> The difference in the entries for group and unit depreciation is in the recording of retirements. Because the estimated life and salvage factors used to compute depreciation and the actual amounts reflected in the retirement entries were the same, the entries in the preceding illustration would be the same whether the depreciation was computed on a group basis or a unit basis. If the actual life and salvage were different from the estimates, the retirement entries would be different for assets depreciated on a unit basis than for assets depreciated on a group basis.
>
> Under unit depreciation, life and salvage is estimated for individual assets and depreciation is recorded on that basis. Because of this, the accumulated depreciation and net book value (i.e., cost less accumulated depreciation) for individual assets can be determined at any time. When an asset is retired, therefore, the net book value is compared to the net salvage received (net salvage is the proceeds received from the disposition of the retired asset less cost of removal). If net salvage exceeds net book value, the retirement results in a loss. Gains and losses for retirement of assets are recorded in the period that the retirement occurs.
>
> Under group depreciation, no gain or loss is recognized for retirement of individual assets. Upon retirement of an asset from the group, the cost of the asset is debited to the accumulated depreciation account and credited to the asset account. Any gross salvage received for the retired asset is

[22] *Id.*

credited to the accumulated depreciation account and any cost of removal id debited to the accumulated depreciation account. Under group depreciation, since the accumulated depreciation relates to the entire group rather than to specific assets within the group, no gain or loss is recognized. This assumes that the group depreciation rate is accurate for the group as a whole and that the cost of the retired asset, net of gross salvage and cost of removal, is being fully provided for in the accumulated depreciation account.

**Q. DOES HYDRO RECOGNIZE THE INCONSISTENCY WITH ITS SELECTION OF GROUP DEPRECIATION AND ITEM ACCOUNTING?**

A. No. As noted later, Hydro believes that the mixing of group depreciation with item accounting yields virtually the same results.

**Q. DOES HYDRO PROPOSE A CONSISTENT DEPRECIATION SYSTEM?**

A. No. Hydro proposes the development of depreciation rates based on the proposed homogeneous group of assets, but that is where the consistency ends. Hydro proposes to take the depreciation rate developed on a group basis and apply it to individual asset investments within the group rather than to the total group. Hydro identifies this inconsistency as "a group depreciation concept as compared to a group accounting concept."[23]

**Q. WHY DOES HYDRO RELY ON AN INCONSISTENT DEPRECIATION SYSTEM?**

A. Hydro attempts to justify this inconsistent development versus application of depreciation by stating it "is just a function of ease of application."[24] (Emphasis added)

**Q. DOES HYDRO BELIEVE THAT THE INCONSISTENT DEPRECIATION SYSTEM IT PROPOSES WILL RESULT IN THE SAME LEVEL OF DEPRECIATION EXPENSE AS A CONSISTENT GROUP DEPRECIATION APPROACH?**

A. Yes. Hydro states the following:

[23] Response to IC-NLH-51.
[24] *Id.*

> The resultant depreciation expense is virtually the same when a common remaining life is applied to many assets as it would be if the value of the assets was summed and the remaining life applied to the sum of the assets.[25] (Emphasis added)

Hydro also stated the following in another data response:

> Additionally it is noted that the application of an average service life to each asset within the group will result in a similar level of depreciation as compared to applying the average service life to the total investment within the group.[26] (Emphasis added)

**Q. IS HYDRO CORRECT THAT THE INCONSISTENT APPLICATION OF GROUP DEPRECIATION AND ITEM ACCOUNTING WILL RESULT IN VIRTUALLY THE SAME OR SIMILAR LEVELS OF DEPRECIATION EXPENSE AS WOULD A CONSISTENT GROUP SYSTEM?**

A. No.

**Q. WHAT IS THE MOST SIGNIFICANT DIFFERENCE BETWEEN A GROUP DEPRECIATION SYSTEM VERSUS THE GROUP-ITEM SYSTEM PROPOSED BY HYDRO?**

A. Hydro admits that:

> The most significant different from group accounting to the implementation procedure being proposed is the ceasing of depreciation expense when an individual asset becomes fully depreciated, and the charging of losses on retirement to the income statement.[27] (Emphasis added)

[25] *Id.*
[26] Response to IC-NLH-52.
[27] *Id.*

**Q. WHAT DOES HYDRO MEAN WHEN IT STATES THAT IT CEASES THE BOOKING OF DEPRECIATION EXPENSE WHEN AN INDIVIDUAL ASSET BECOMES FULLY ACCRUED?**

A. What Hydro means by its statement is that when it unilaterally believes that an asset has become fully accrued, even though it is still in service and a Board approved depreciation rate exists, that it can cease the booking of depreciation expense to the reserve without seeking Board approval. In other words, even though plant remains in service and a Board-approved depreciation rate exists for a particular asset, Hydro will ignore such facts and, based on its unilateral opinion that an asset has become fully accrued, it will in effect change the depreciation rate to zero (0), which is precisely the equivalent of ceasing the booking of depreciation expense.

**Q. CAN YOU PROVIDE AN EXAMPLE?**

A. Yes. Assume two assets, each costing $1,000. Further assume that asset 1 is estimated to have a 1-year life while asset 2 is estimated to have a 3-year life. The group depreciation approach would arrive at a 2-year ASL ((1+3)/2=2). A 2-year group-derived ASL results in a group-derived 50% annual depreciation rate. When the 50% rate is applied to the $2,000 plant in service amount in year 1, it produces $1,000 of depreciation expense, which is recorded in the reserve. The assumption is that the first asset will retire at the end of the first year leaving only a single $1,000 remaining asset in service for years 2 and 3. Applying the same 50% depreciation rate to a $1,000 plant in service amount in years 2 and 3 produces $500 of depreciation expense each year and such amounts are also recorded in the reserve. Thus, if everything worked perfectly, at the end of 3 years the full $2,000 ($1,000 + $500 + $500) will have been recovered and recorded in the reserve. However, since depreciation is an estimate of the future, actual events do not normally follow assumed events precisely.

Continuing the above-noted example, but assuming that the first asset does not retire until the end of year 2 and the second asset does not retire until the end of year 4, Hydro would still cease the booking of all depreciation expense to the reserve at the end of year 2 after it had recovered the full $2,000 of investment (50% x $2,000 x 2 years = $2,000).

However, plant in service remains in years 3 and 4 and, absent a rate case, the depreciation expense reflected in the original estimate is being charged to customers through base rates even though Hydro ceased booking the depreciation expense to the reserve. Therefore, in year 3 while Hydro was not booking any depreciation expense at all for the account because of its fully accrued depreciation approach, in reality customers are paying $500 of depreciation expense and again in year 4. Unfortunately for customers, under Hydro's approach, they would receive no benefit for such payments. This approach is inappropriate and inconsistent with the remaining life calculation depreciation technique, which is intended to true-up the over or under recovery of depreciation expense over time. However, in order for the remaining life method (50% x $2,000 x 2 + 50% x $1,000 x 2) (as proposed by Hydro) to work properly, there can be no ceasing of the booking of depreciation when plant in service still exists and a Board approved depreciation rate is in place. What should have transpired in the above example is that an additional $1,000, or a total of $3,000 (50% x $2,000 x 2 + 50% x $1,000 x 2), of depreciation expense should have been booked to the reserve corresponding to the $2,000 investment. Then in a future analysis, the $1,000 overpayment by customers would be returned to customers as part of the remaining life true-up process.

**Q. WOULD THE FULLY ACCRUED DEPRECIATION ISSUE ARISE IF HYDRO CONSISTENTLY APPLIED GROUP DEPRECIATION AND GROUP ACCOUNTING RATHER THAN THE INCONSISTENT APPROACH IT PROPOSES IN THIS CASE?**

A. Basically no. However, fully accrued depreciation could still transpire but only when an entire account would become fully accrued. The likelihood of this occurring is dramatically different than the likelihood of an individual asset within a group becoming fully depreciated and, under Hydro's approach, triggering the ceasing of booking of depreciation expense to the reserve.

**Q. DOES HYDRO BELIEVE THAT ITS PROPOSED INCONSISTENT APPROACH WILL RESULT IN REDUCED DEPRECIATION AMOUNTS?**

A. Yes. Mr. Kennedy states on behalf of Hydro that "this proposed unit depreciation approach will reduce the depreciation amount as depreciations stops when the assets are fully depreciated."[28] However, Mr. Kennedy also believes that "the reduction will be offset in the proposed approach due to the inclusion of the losses on retirement to be included in the revenue requirement."[29]

**Q. IS MR. KENNEDY CORRECT?**

A. No, unless of course Hydro files annual depreciation studies along with annual General Rate Applications. Obviously this does not occur, therefore when Mr. Kennedy attempts to note that the depreciation amounts will be reduced that is correct only for book purposes, not for base rates charged to customers. Unfortunately, customers will continue to pay the higher depreciation expense in revenue requirements until a new depreciation study is performed and reflected in a new General Rate Application. By analogy, this situation is no different than if a mortgage company ceased recording of mortgage payments from a customer once the mortgage was fully paid off, but the customer still kept paying monthly payments. The mortgage company would claim no refund for overpayment was due since its books showed a zero (0) balance.

**Q. IS MR. KENNEDY CORRECT THAT THE REDUCTION IN DEPRECIATION EXPENSE WILL BE OFFSET WHEN ANY LOSSES ON RETIREMENT ARE INCLUDED IN REVENUE REQUIREMENT?**

A. No. As previously noted, it is unrealistic to assume that Hydro will file Annual General Rate Applications. Thus, if a disproportionate level of retirement losses are reflected in revenue requirements in the test year of a General Rate Application, customers will be inappropriately requested to pay excessive levels of capital recovery due to unusually high revenue requirements for that particular test year. Simply put, if everything worked perfectly in the real world of utility operation and ratemaking, the impact of an

[28] *Id.*
[29] *Id.*

inconsistent group depreciation approach in conjunction with an item accounting approach, may be as Hydro indicates – virtually the same. However, the reality is that depreciation studies are not performed annually and the results are not included in annual General Rate Applications. Therefore, the real world does not correspond to Hydro's theoretical approach whatsoever.

**Q. WHAT DO YOU RECOMMEND?**

A. I recommend logical and consistent application of depreciation rates on the basis that they were derived. This is the consistent system noted by NARUC. The depreciation rates were derived on an average group basis and in order to be valid must also be applied on a group accounting basis. Therefore, I recommend that the Board reject Hydro's proposed inconsistent development of group depreciation and application of item depreciation accounting.

**Q. DO YOU HAVE A FURTHER RECOMMENDATION?**

A. Yes. As it applies to Hydro's arbitrary and unilateral decision to cease the booking of depreciation when it believes an item becomes fully depreciated, such actions must also be rejected. The remaining life technique recommended by Hydro is simply the original cost less the reserve less net salvage, all divided by the remaining life. In order for the formula to function properly and perform the true-up calculation it was intended to perform, depreciation expense must be calculated by applying a Board-approved depreciation rate to plant in service, with the results being booked to the reserve as long as plant in service exists. If an account becomes fully retired (not fully accrued) then a zero depreciation expense value properly exists because a Board-approved depreciation rate would be applied to a zero balance of plant in service.

**Q. DOES HYDRO BELIEVE IT NEEDS TO SEEK APPROVAL FROM THE BOARD BEFORE CEASING THE BOOKING OF DEPRECIATION EXPENSE WHEN PLANT IN SERVICE STILL EXISTS?**

A. No. Hydro states that "a Board order or other regulation is believed to be unnecessary since Hydro is not permitted under generally accepted accounting principles, whether

historically Canadian GAAP or currently IFRS, to allow amortization to exceed costs."[30] (Emphasis added) In other words, Hydro believes it is in the unilateral position to ignore a Board-approved depreciation rate because Canadian GAAP or IFRS anticipates that an asset cannot be over recovered on an unregulated entity's books.

**Q. IS HYDRO CORRECT IN ITS ASSUMPTION?**

A. No. For an unregulated entity, Canadian GAAP and IFRS limitations that cease the booking of depreciation or amortization at the level of cost is correct. However, for regulated utilities where revenue requirements for base rate purposes are based on components including depreciation expense and the rate base offset associated with the accumulated provision for depreciation, it is not uncommon for utilities to incur negative depreciation expense in revenue requirements. Negative depreciation expense occurs when the utility has previously over recovered depreciation expense and needs to return the over-collection. In other words, regulatory consistency in the rate setting process is paramount. While GAAP may be considered for certain aspects of rate making, GAAP does not and should not dictate ratemaking decisions when such decisions are contrary to the ratemaking process and harm customers.

**Q. BETWEEN RATE CASES, DOES HYDRO ADD PLANT IN SERVICE THAT WAS NOT REFLECTED IN THE TEST YEAR PLANT IN SERVICE OR REVENUE REQUIREMENTS FOR DEPRECIATION PURPOSES?**

A. Yes, however that is normal ratemaking. There are many components of overall revenue requirement that change from what is built into base rates in the last rate case. It is when the overall imbalance between revenues and total revenue requirements deviate significantly that a new test year must be established and new base rates implemented. In this process, neither the utility nor customers are permitted to retroactively true-up prior over- or under recovered revenue requirements with the exception of depreciation expense. In other words, the new plant added by Hydro subsequent to the last rate case is charged a depreciation expense for accounting purposes even though such amount is not specifically reflected in base rates charged to customers nor is the impact of higher

[30] Response to IC-NLH-73.

reserves reflected after the last rate case. However, it must be recognized that the new plant in service that was added after the test year in the last rate case is still subject to the same ratemaking relationships that correspond to all other revenue requirements in a rate case. It is when the overall relationship of revenues, total expenses, and return become unacceptable that a new rate case is triggered. Therefore, any claim that Hydro's decision to cease the booking of depreciation expense to items that were in service during the test year of the last rate proceeding as compensation for depreciation on new plant in service that was not reflected in the test year of the last rate case is inappropriate.

**Q. IS THERE ANOTHER AREA OF CONCERN ASSOCIATED WITH THE COMPANY'S PROPOSAL TO CEASE THE BOOKING OF DEPRECIATION EXPENSE WHEN AN ITEM BECOMES FULLY ACCRUED?**

A. Yes. In this proceeding, Hydro has chosen not to seek net salvage for its investments. Hydro claims that it believes such investments yield a zero level of net salvage and therefore it is not required in the quantification of depreciation expense. However, to the extent Hydro is incorrect and it does incur negative net salvage in the future, then it will seek to recover such negative net salvage from customers, even for assets that it previously ceased the booking of depreciation expense when it incorrectly thought it had fully accrued the depreciable investment in the account.

For example, if Hydro recovers $100 for a $100 investment and ceases the booking of depreciation to the accumulated provision for depreciation, but later incurs $10 of cost of removal when the asset actually retires, it will book such amounts to the accumulated provision for depreciation and once again need to establish a depreciation expense necessary to recover that amount from future customers. This approach would be inappropriate and inequitable to customers who continued to pay depreciation revenue requirements in base rates, but received no benefit for such payments due to Hydro's artificial ceasing of the booking of depreciation expense for that asset. In other words, even though customers would have overpaid depreciation to Hydro for the $100 asset, they would have received credit in the reserve for only $100 at which point Hydro ceased the booking of depreciation expense. However, under the above noted example, those

same customers would be required to pay the additional $10 for net salvage through depreciation in the future. In real terms, customers would have overpaid for depreciation expense.

**Q. WHAT IS YOUR RECOMMENDATION?**

A. My recommendation is that the Board order Hydro to continue standard accounting practices for regulated entities and apply approved depreciation rates to the full plant in service for individual accounts. In the alternative, if the Board determines that Hydro should be permitted to utilize unit accounting for depreciation purposes, the Board should further order that Hydro will continue to apply the approved group depreciation rate to the plant balance as long as that plant balance remains in service. Any over accrual recorded will be trued-up in future depreciation studies.

## SECTION VI: LIFE ANALYSIS

### A. General

**Q. WHAT IS THE ISSUE IN THIS PORTION OF YOUR TESTIMONY?**

A. This portion of my testimony will address Hydro's life analysis. The life analysis produces an ASL combined with a dispersion curve, a standardized Iowa Survivor curve. This information is used to calculate the remaining life of the investment, which is an integral component of the depreciation rate calculation.

**Q. HOW HAS HYDRO ESTABLISHED ITS PROPOSED LIFE ESTIMATES?**

A. Mr. Kennedy, on behalf of Hydro, has performed actuarial analyses, relied upon discussions with Hydro operations personnel, and employed a limited Canadian peer group comparison to establish a life-curve combination estimate for over 100 different accounts.

**Q. HAVE YOU REVIEWED ALL THE UNDERLYING ANALYSIS AND BASIS THAT HYDRO HAS PRESENTED?**

A. Yes. However, due to the unrealistically large number of accounts, I have limited my review to the major accounts. For these accounts, I reviewed all actuarial analyses, input from Hydro personnel as reflected in Mr. Kennedy's interview notes, the limited Canadian peer group database relied upon by Mr. Kennedy, and the responses to hundreds of information requests. Based on this information, as well as my extensive experience and knowledge in performing hundreds of depreciation analyses throughout both Canada and the United States, I am recommending adjustments to 10 accounts. The table below identifies those accounts, Hydro's proposal, and my recommendation.

| | Life-Curve Combination | | Recommended Adjustment | |
|---|---|---|---|---|
| Account | Hydro Proposed | CA Proposed | Years | $ |
| B01 – Battery & Pwr. Sys. | 15S3 | 23L4 | 8 | $250,419 |
| F04 – Foundations | 50R4 | 64S2 | 14 | $131,181 |
| G03 – Generators | 60S4 | 65R4 | 5 | $150,746 |
| P03 – Penstock | 70R4 | 80R4 | 10 | $235,934 |
| P10 – Powerhouses | 75R3 | 85R4 | 10 | $250,144 |
| R12 – Right-of-Ways | 55R4 | 80R4 | 25 | $192,655 |
| R13 – Roads | 50R4 | 70R4 | 20 | $1,280,018 |
| S05 – Software | 7SQ | 12R3 | 5 | $174,330 |
| S16 – Studies | 5R0.5 | 7R0.5 | 2 | $172,611 |
| W01 – Water Reg. Struct. | 55S4 | 85S4 | 30 | $266,480 |
| Total | | | | $3,104,518 |

The impact of these 10 adjustments is a $3,104,518 reduction to depreciation expense based on plant as of December 31, 2009.

**B. Actuarial Analyses**

**Q. DOES MR. KENNEDY RELY ON ACTUARIAL ANALYSIS IN DEVELOPING HIS PROPOSED LIFE-CURVE COMBINATIONS?**

A. Yes. In some instances, Mr. Kennedy relies exclusively on his interpretation of the results of actuarial analyses. In other instances, Mr. Kennedy combines such information with input from operations staff and his review of limited Canadian peer group information. In certain instances, Mr. Kennedy finds actuarial results are insufficient to provide meaningful input in the establishment of an expected life-curve combination and relies on other factors.

**Q. HOW DID MR. KENNEDY DEVELOP HIS LIFE-CURVE COMBINATIONS BASED ON AN ACTUARIAL PROCESS?**

A. Mr. Kennedy performed actuarial analyses on a full placement band and a 26-year experience band combination. Placement bands refer to the years in which plant was installed and establishes the years of data reflected in the database analyzed. In other words, a 1967-2009 placement band captures all annual additions from 1967 through 2009 upon which to perform actuarial life analyses. Therefore, if a 1991-2009 experience band is combined with a 1967-2009 placement band, the actuarial results would yield the surviving plant pattern for plant added since 1967 taking into account only the retirements that occurred to those additions since 1990.

**Q. WHAT RESULT IS OBTAINED FROM ACTUARIAL ANALYSIS?**

A. The results produced by actuarial analyses are identified as on observed life tables ("OLT"), and are presented in both numerical and graphical form. An OLT simply represents the annual pattern of retirement activity, and thus survivors, by individual age groups. In other words, at the beginning of the zero (0) age interval, 100% of the investment survives, and as additional ages are examined and retirements occur, the OLT declines from 100% surviving towards zero (0)% surviving. If the OLT fully declines to zero (0)% surviving, it is called a complete survivor cure. OLTs that do not decline to zero (0)% surviving are identified as stub curves. If a stub curve is too short (i.e., it does

not decline very far from 100% surviving), then limited useful information can be garnered from such analyses. The limited information is normally that a long ASL is indicative if a significant level of years has transpired without significant decline in the OLT.

**Q. ONCE AN OLT IS OBTAINED, HOW IS IT UTILIZED TO DEVELOP A REPRESENTATIVE LIFE-CURVE COMBINATION?**

A. Mr. Kennedy and I employed visual curve-fitting of the OLTs with standardized Iowa Survivor curves.[31] Use of standardized Iowa Survivor curves provides smooth, complete survivor curves so that various calculations necessary to establish a remaining life and depreciation rate can be obtained. In particular, the area under a survivor curve yields the ASL of the assets being analyzed.

**Q. IN THE PROCESS OF MATCHING AN OLT WITH A SMOOTH IOWA SURVIVOR CURVE, ARE THERE DIFFERENT AREAS OF THE PROCESS THAT ARE SIGNIFICANT?**

A. Yes. It is more important to match a standard Iowa Survivor curve with the middle and upper portions of an OLT than the tail portion (end of the curve), depending on the dollar level of exposures at issue. The dollar level of exposures represents the plant that is subject to retirement forces during that age interval. If the lower and mid portions of an OLT are matched in the visual curve fitting process while sacrificing the middle or the upper portions of the OLT, then an inappropriate result will be obtained. Therefore, part of the judgmental process employed by a depreciation analyst is to determine what ASL and corresponding survivor curve constitutes the "best" fit of the OLT. It is important to realize that in the visual curve fitting process that life-curve combinations with noticeably different ASL may provide a good fit. Therefore, additional information is often helpful in the selection process.

[31] A detailed discussion of Iowa Survivor curves is presented in the 2011 Study at pages II-7 through 15.

**Q. WHY IS IT IMPORTANT TO SPECIFICALLY REVIEW THE DOLLAR LEVELS OF EXPOSURES AT DIFFERENT AGE INTERVALS IN THE CURVE-FITTING PROCESS?**

A. The movement in the OLT from one age to the next is affected both by the dollar level of exposures in that age interval as well as the corresponding dollar level of retirement activity that has transpired during the same age interval. As time passes between depreciation studies, and as both existing investment and new investment age, the pattern of the OLT will often change. In other words, if plant is continuously added and there are not retirements during a five-year-period, then the OLT will elevate (i.e., the curve will be higher) from the position it previously exhibited in a prior study. A higher or elevated OLT normally translates into a longer ASL.

In addition, even if no new additions were to occur during the five years between depreciation studies, but the existing plant aged for five additional years with no additional retirements, then the mid portion and tail portion of the OLT would also be expected to elevate, thus resulting in a longer ASL. Indeed, the lower portions of the OLT may elevate significantly under these circumstances. Finally, if retirement activity occurs, but to the a lesser degree than is reflected historically in the various age brackets, then the OLT again is expected to elevate and results in a longer ASL. Simply put, the tail end or lower mid sections of an OLT that is based on limited levels of exposures can move dramatically between one depreciation study and the next. Normally, the head or top portions of the OLT remains relatively stable between depreciation studies, as do the upper portions of the mid range of the OLT if they are based on significant dollar level of plant exposures.

**Q. SHOULD THE INTERPRETATION OF ACTUARIAL RESULTS BE THE EXCLUSIVE BASIS FOR LIFE EXPECTATIONS?**

A. No, not generally. Actuarial analysis represents a review of historical patterns. Historical patterns should be tested to determine their reasonable predictive capability for future expectations. For example, if there have been significant technological improvements in underground conductors that have resulted in a longer life expectancy for newer

investment compared to the life characteristics of older plant reflected in actuarial results, then such information must be taken into account in conjunction with the historical actuarial results.

### C. Input from Operational Staff

**Q. HAS MR. KENNEDY RELIED ON THE INPUT FROM OPERATIONAL STAFF AS ONE COMPONENT OF HIS DEPRECIATION STUDY?**

A. Yes. Mr. Kennedy held initial interviews with Hydro personnel and later discussed his preliminary results with Hydro's operational staff. Mr. Kennedy provided the meaningful or significant input associated with such discussions in his interview notes.[32]

**Q. HOW SHOULD INPUT FROM OPERATIONAL STAFF BE INCORPORATED INTO A DEPRECIATION ANALYSIS?**

A. The depreciation analyst should recognize the input from operational staff in making future expectations. However, if the input is not substantiated or reflects a broad range of potential outcomes, then such type of information must be given the predictive certainty it deserves based on its underlying support.

**Q. CAN YOU PROVIDE AN EXAMPLE?**

A. Yes. Operations personnel will have day-to-day experience dealing with investment but limited operating events can be associated with a very wide range of ASLs. If, for example, wood poles have been exposed to a particular type of fungus which has significantly impacted the structural integrity of the pole and it has been confirmed that such fungus is widespread throughout the service territory, then it is reasonable to expect a shorter life expectancy for the remaining investment in similar wood poles. However, if operations staff experienced only a limited number of such instances with no further study, then no modification to actuarially derived life expectancy is warranted.

[32] Response to CA-NLH-12.

The key point is that, while operations staff may have experienced an event, the degree to which operations staff have investigated, determined, and documented the severity of such event can change the entire nature of the input provided. In other words, it is important to have underlying support and justification for "expectations" that operational staff may feel or believe. Unfortunately, as is the case with most forecasting situations, "expectations" based on limited or unsupported opinions, are often inaccurate. Therefore, the degree of modification to the results of actuarial results must be tempered with the degree of support and justification that operations staff may provide as it relates to opinion-based changes in life expectancy. In addition, if operating personnel are questioned regarding the appropriateness of a single value rather than a range or other alternatives, the resulting input may not be particularly helpful. This appeared to be the case at Hydro. In particular, it must be noted that Hydro's personnel provided input to recent prior life estimates that are now in significant conflict with current operations staff expectations.

**Q. WHAT IS THE TAKEAWAY ASSOCIATED WITH INPUT FROM OPERATIONS STAFF?**

A. Operations staff input is important, but must be documented and supported. The life expectancy of a dam 30 years into its operation cannot be distinguished between a 100-year ASL and a 110-year or 120-year ASL based on the opinion of operations staff, absent adequate support. If studies and analyses exist that confirm or support operations staff opinion, then such information is very valuable and must have a direct impact in the depreciation analysis. However, if input from operations staff is that they are of the opinion that a preliminary result obtained by Mr. Kennedy is "reasonable" without any further support or justification, then actual life expectations may be many years longer or shorter. In this case, Mr. Kennedy's reliance on input from operations staff is not supported by any documentation, analyses, or verifiable studies. There is no basis to assume that input from operational staff only supports the single point estimate proposed by Mr. Kennedy or an ASL 5 to 10 or even 30 years longer in some instances.

## D. Peer Group

**Q. IS PEER GROUP COMPARISON AN IMPORTANT ASPECT OF HYDRO'S PROPOSED FUTURE EXPECTATIONS?**

A. Yes. Mr. Kennedy has relied heavily on limited Canadian peer group comparisons.

**Q. IS PEER GROUP COMPARISON A VALID APPROACH FOR ESTABLISHING FUTURE EXPECTATIONS?**

A. It can be. Peer group comparisons become more important when limited levels of utility specific data are available. Normally, peer group comparisons are used for confirmation purposes and to establish when the values are outside industry ranges, thus requiring greater levels of support and justification for such parameters.

**Q. IS MR. KENNEDY'S PEER GROUP ROBUST?**

A. No. Mr. Kennedy lists 14 potential Canadian peer group entities.[33] However, several problems exist with Mr. Kennedy's peer group database compared to Hydro's investment categories.

**Q. PLEASE IDENTIFY THOSE PROBLEMS.**

A. First, Hydro's categorization or componentization of its investment for the most part does not match the investment groupings employed by other Canadian utilities. Thus, an apple to apple comparison is not presented for most investment categories. Second, even when categories appear to be generally comparable, the comparison can still be noticeably inappropriate. For example, Hydro has a separate category for generators, Account G03. Mr. Kennedy identifies generators in three separate categories in his peer group.[34] The industry range he identifies is 18 to 75 years, which does not by itself provide any meaningful information. However, when viewed in greater detail, the limited peer group Mr. Kennedy relies upon is actually segmented between Hydroelectric investment and Other Production investment. The Hydroelectric investment has a range of 70 to 75 years,

[33] 2011 Study at pages III-6 and III-7.
[34] Response to CA-NLH-180.

while the Other Production-related generators range from 18 years to 35 years.[35] Therefore, presenting an industry range of 18 to 75 years is misleading and is not indicative of the dollar weighting associated with the type of investment Hydro has on its system. Simply looking at the overall range without specific categorization between Hydroelectric and Other Production functions does not provide sufficient information to produce a logical result.

**Q. ARE THERE FURTHER PROBLEMS WITH MR. KENNEDY'S PEER GROUP?**

A. Yes. While Mr. Kennedy lists 14 separate utilities, quite often the actual number of data points is limited to very few utilities, including at least one instance with only one utility comprises his peer group. For example, the peer group sample for Account B01-Battery consists of only one utility.[36]

**Q. IS THIS LIMITED LEVEL OF PEER GROUP DATA POINTS REASONABLE?**

A. No. This is especially true given that Gannett Fleming has a much broader database that includes utilities in the United States. However, Mr. Kennedy does not feel comfortable utilizing a much broader database for his peer group comparison since he is not personally familiar with them.

**Q. GIVEN MR. KENNEDY'S SELF-IMPOSED LIMITATION OF UTILIZING A LIMITED DATABASE CORRESPONDING TO UTILITIES HE IS FAMILIAR WITH, HAS HE PROVIDED THE UNDERLYING SUPPORT FOR THOSE UTILITIES?**

A. No. Mr. Kennedy claims that any information that he might have associated with the other utilities in his limited peer group is strictly confidential and cannot be provided. Therefore, there is no reasonable means of testing the applicability of those other utilities to the investment categories specifically for Hydro. However, if one were to assume reasonable compatibility having reviewed hundreds of different depreciation studies, one finds that a reasonable and sometimes wide variance exists for similar types of plants

[35] *Id.*
[36] Response to CA-NLH-64.

depending on unusual circumstances that may be applicable to an individual utility. Therefore, to the extent a future expectation is utilized or is proposed for Hydro predicated exclusively or significantly on peer group comparisons, then it is incumbent upon Hydro and Mr. Kennedy to provide substantiation that such comparative data is in fact appropriately comparative. In other words, if the underlying support for the comparability of a limited data base is not available and a more robust database of utilities is available, it is unreasonable to limit reliance on the more robust database for testing the reasonableness of a proposed value for confirmational purposes.

### E. Account Specific

**Account B01 – Battery and Power Systems:**

**Q. WHAT DOES HYDRO PROPOSE FOR ACCOUNT B01 – BATTERY AND POWER SYSTEMS?**

A. Hydro proposes a 15S3 life-curve combination. This represents a substantial reduction from the previously proposed 19-year ASL.

**Q. WHAT IS HYDRO'S BASIS FOR ITS PROPOSAL?**

A. Operating personnel state that lead acid batteries will have a life of 20 years. In addition, operational personnel have also stated that Hydro has kept battery systems for too long without appropriate testing and now is testing on a more frequent basis. The more frequent testing is resulting in higher instances of early retirement. In addition, operating personnel note that older battery chargers may have 30- to 35-year life expectations, but newer batter chargers would have a maximum life of not more than 20 years.[37] In addition, Mr. Kennedy relied on peer group information that yielded only one result of 15 years.[38] Therefore, based on expectations of Hydro personnel and one data point from the industry, a 15-year ASL was selected.

[37] Response to CA-NLH-12 Attachment 1.
[38] Response to CA-NLH-64.

**Q. DO YOU AGREE WITH HYDRO'S PROPOSAL?**

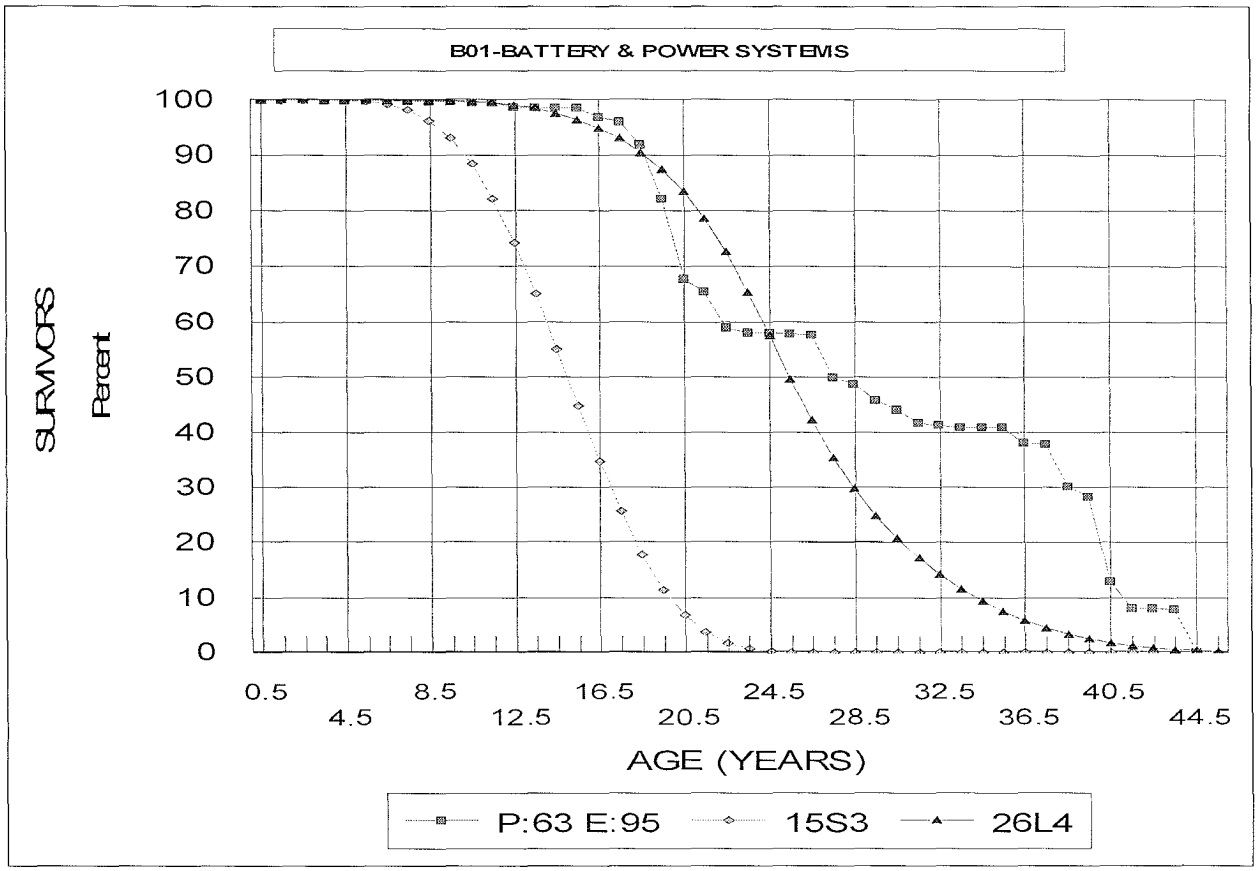
A. No. I recommend a 23L4 life-curve combination.

**Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

A. My recommendation recognizes the potential shorter life expectancy for newer batteries as identified by operations personnel, but also takes into account the fact the majority of the investment in the account is still of older-type batteries and older-type battery chargers.[39] Therefore, Hydro's proposed 8-year reduction from the existing 23-year ASL is unwarranted at this time.

As set forth in the graph below, actuarial analyses indicates that a 26L4 life-curve combination is representative of the historical data. In other words, based on actual retirement pattern exhibited during the past 15 years, an increase in ASL from the existing 23-year level is indicated. Therefore, even with the inclusion of newer types of batteries and battery chargers, the proposed 8-year reduction in ASL is unrealistic at this time.

[39] Response to CA-NLH-261.




While Hydro personnel have certain expectations for newer types of batteries and battery chargers, they also admit that substantial levels of investment still reside with older type of battery chargers and undoubtedly batteries.[40] Upon further investigating, Hydro can identify only 7% of the investment as corresponding to the newer type of batteries.[41] Therefore, it is possible that sometime in the future when a substantial majority of the investment in this account has been replaced with shorter-lived newer technology-based assets a 15-year ASL may be more so warranted. However, that is not the case currently or apparently in the near-term future. This situation represents an excellent example of why limited, generalized, and unsupported statements attributed to "operating staff" cannot be blindly accepted and relied upon.

[40] Response to CA-NLH-12.
[41] Response to CA-NLH-261.

From a peer group comparison standpoint, the reduction in ASL by 8 years is also unwarranted. Mr. Kennedy relied upon one data point without demonstrating that the one utility has the same mix of investment within the account or, for that matter, has not already completely moved to the newer technology-based assets. Moreover, given the relative newness of newer technology, even that utility most likely has not experienced adequate levels of actual retirement activity to determine whether a 15-year life is in fact appropriate. A sample of one utility, without any support for appropriate comparability, should not be allowed to override Hydro specific life characteristics.

In summary, while actuarial analyses demonstrates that an increase in ASL is warranted, comments or expectations from operating personnel should be taken into consideration. A conservative, but appropriate, blending of actual experience with future expectations results in a recommendation to retain the existing 23-year ASL which is 3 years less than actuarial indications. Movement from an actuarial-based 26-year ASL to a 15-year expectation, as proposed by Mr. Kennedy, is unwarranted and not supported. Hydro's next depreciation study will provide more insight into the potential change in mix of investment as well as more realistic life expectancy for newer technology-based systems.

**Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?**

A. My recommendation results in a $250,419 reduction to annual depreciation expense based on plant as of December 31, 2009.[42]

**Account F04 – Footings and Foundations:**

**Q. WHAT DOES HYDRO PROPOSE FOR ACCOUNT F04 – FOOTINGS AND FOUNDATIONS?**

A. Hydro proposes a 50R4 life-curve combination. This represents a significant increase from the 40R2 life-curve combination proposed in Hydro's 2005 Depreciation Study.

[42] A 23L4 life-curve combination yields a 15.43-year remaining life and a 3.64% depreciation rate.

**Q. WHAT IS HYDRO'S BASIS FOR ITS PROPOSAL?**

A. Hydro states that the ASL estimate in this account "was selected entirely on the results of the retirement rate analysis."[43] In other words, Hydro's proposal rests solely on Mr. Kennedy's interpretation of the results of actuarial analyses.

**Q. DO YOU AGREE WITH HYDRO'S PROPOSAL?**

A. No. While Hydro's proposal is a step in the right direction, it still falls significantly short of reasonable expectations and interpretations of actuarial results. I recommend a further step at this time to a 64S2 life-curve combination.

**Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

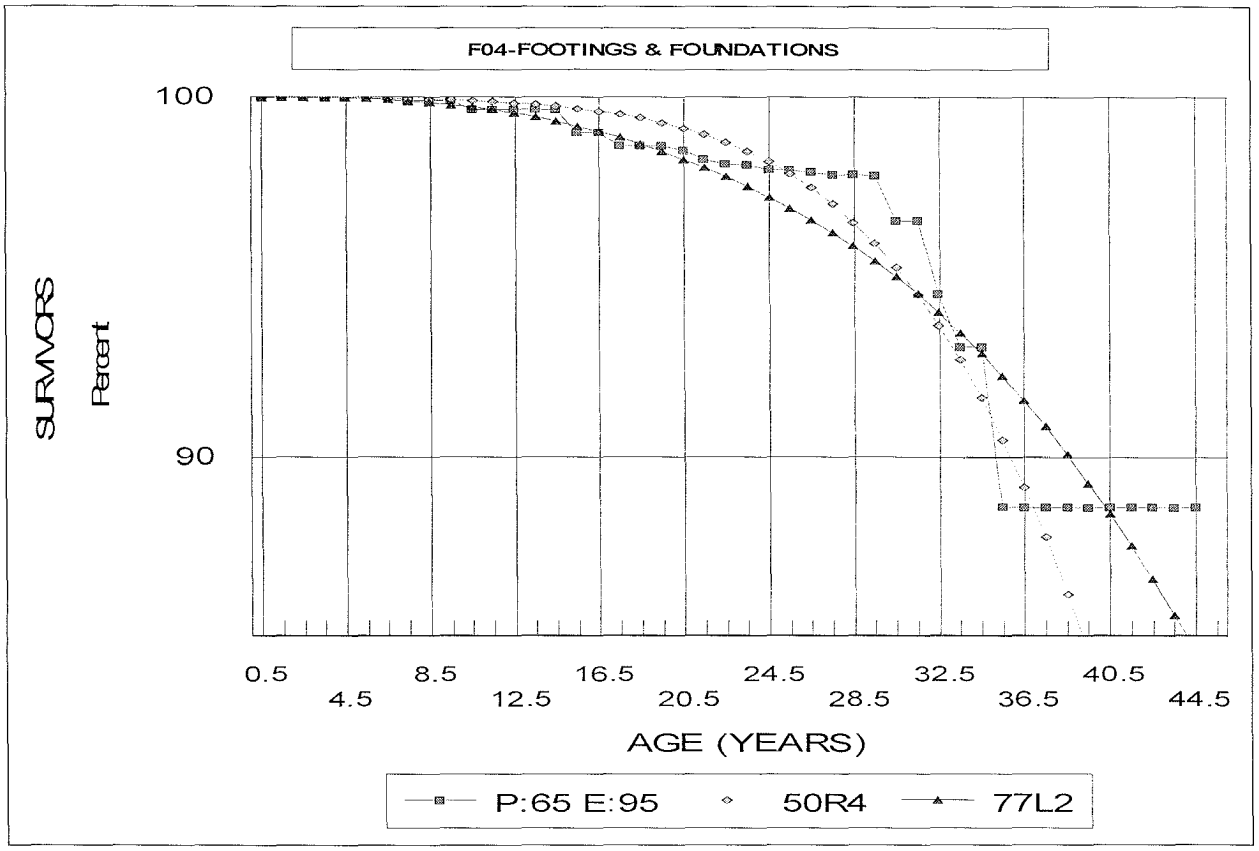
A. My recommendation also relies on actuarial results. However, it further recognizes the type of investment in the account. In addition, it also recognizes that certain early retirements may not be as representative of future expectations as Mr. Kennedy believes.

The investment in this account appears to consist of concrete foundations and concrete pillars.[44] From this standpoint, one would expect a much longer ASL than 50 years. In other words, it is reasonable to assume that a certain number of foundations may need to be retired early due to less than typical retirement forces (e.g., premature closing of facilities, or vehicles striking foundations or pillars, etc.) but realistic expectations are that for the most part concrete foundations will last at least as long as the assets that reside upon them. This understanding of the type of investment and its use would normally yield a very long ASL.

Turning to actuarial analysis, the graph below compares Mr. Kennedy's interpretation of a 50R4 life-curve combination with a 77L2 life-curve combination. As can be seen on the graph, a 77L2 life-curve combination is a superior fit through the first 22 years of age. Mr. Kennedy's interpretation is superior from about 23 years of age through about 30 years of age and again, for a few years around 34 to 36 years of age. However, at that

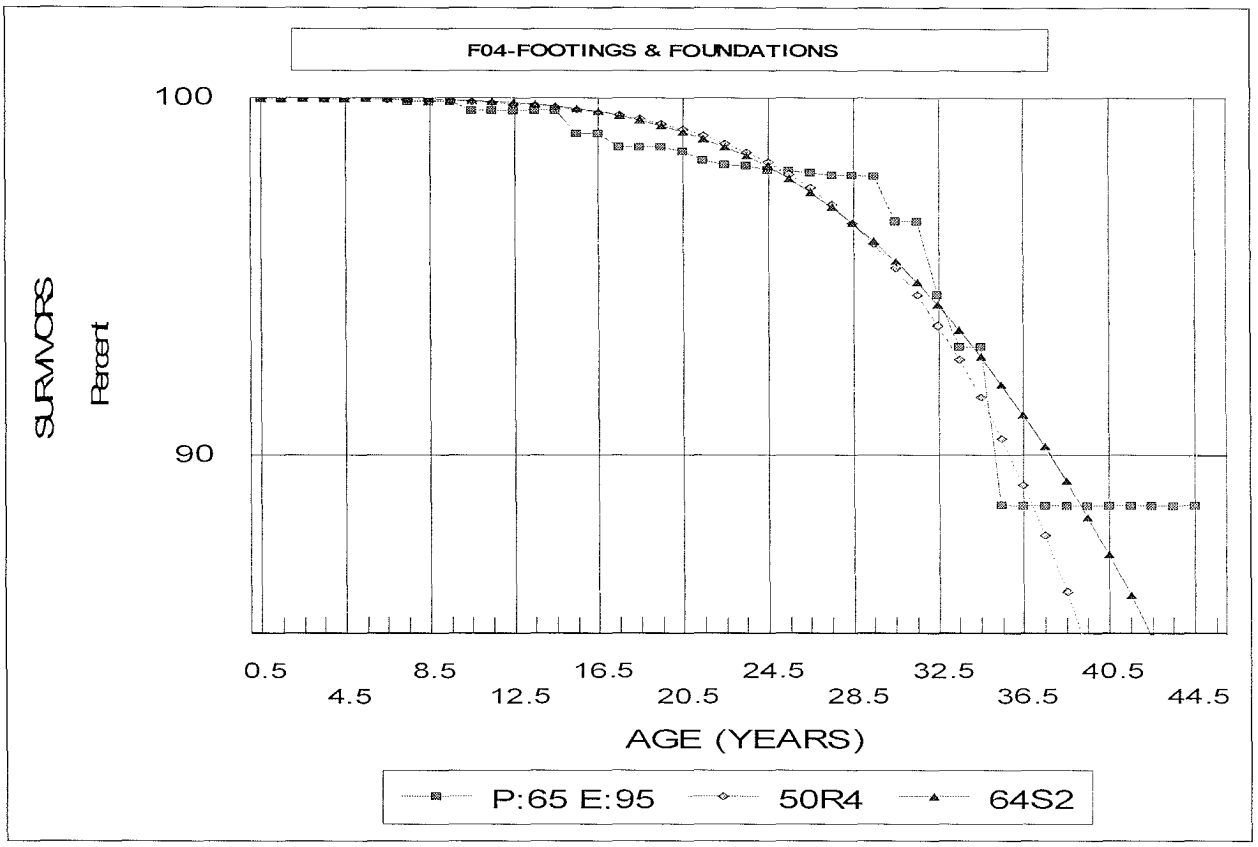
[43] Response to CA-NLH-19.
[44] Response to CA-NLH-79.

point, Mr. Kennedy's proposal begins to deviate significantly. It should be noted that the interpretation of the closeness of fit is prior to any considerations of the individual activity associated with the early retirement of the Roddicton Wood Chip Plant.[45] Absent the retirement of the Roddicton Wood Chip Plant at ages 9.5 and 14.5 years, the OLT would be elevated from its current position, thus resulting in a longer ASL derivation from actuarial results.




Another excellent curve fit corresponding to a 64S2 life-curve combination is set forth below. As can be seen in the graph below, Mr. Kennedy's interpretation and my recommendation are basically identical throughout the majority of the OLT. Mr. Kennedy's proposal begins to fall off swiftly at approximately 37 years of age and deviates from the OLT even though millions of dollars of plant exposures still exist through 42 years of age.

[45] Response to CA-NLH-79.




Given the curve-fittings for the two curves presented above, reliance entirely on actuarial results without proper consideration of the type of investment in the account and the potential for unusual retirement activity associated with the Roddicton Wood Chip Plant caused Mr. Kennedy to select an artificially short ASL. Alternatively, recognizing that concrete foundation and pillars normally can be expected to last 80, 90, or in excess of 100 years, should be taken into consideration when determining future life expectations. Indeed, Mr. Kennedy's 50R4 life-curve combination has a maximum life of approximately 75 years. In other words, for Mr. Kennedy's proposal to be realistic, it would have to be assumed that no concrete foundations or pillars could last more than 75 years. This is an unrealistic expectation.

In summary, while a 77-year ASL may be more appropriate, I order to remain conservative, I have limited my incremental ASL recommendation to 64 years with a

corresponding S2 dispersion pattern. It may be necessary in the next depreciation analysis to further extend ASL expectations for the investment in this account.

**Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?**

A. My recommendation results in a $131,181 reduction to annual depreciation expense based on plant as of December 31, 2009.[46]

**Account G03 – Generators:**

**Q. WHAT DOES HYDRO PROPOSE FOR ACCOUNT G03 - GENERATORS?**

A. Hydro proposes a 10-year increase in ASL from 50 years to 60 years with a corresponding S4 dispersion pattern.

**Q. WHAT IS HYDRO'S BASIS FOR ITS PROPOSAL?**

A. Hydro changed the mix of investment in this account by removing generator windings in order to be in compliance with IFRS.[47] Due to this change in the mix of investment, operations staff "determined" that windings should have a 40-year ASL as compared to a 60-year ASL for generators, which now excludes the windings.[48] This represents a 20% increase in ASL.

**Q. DO YOU AGREE WITH HYDRO'S PROPOSAL?**

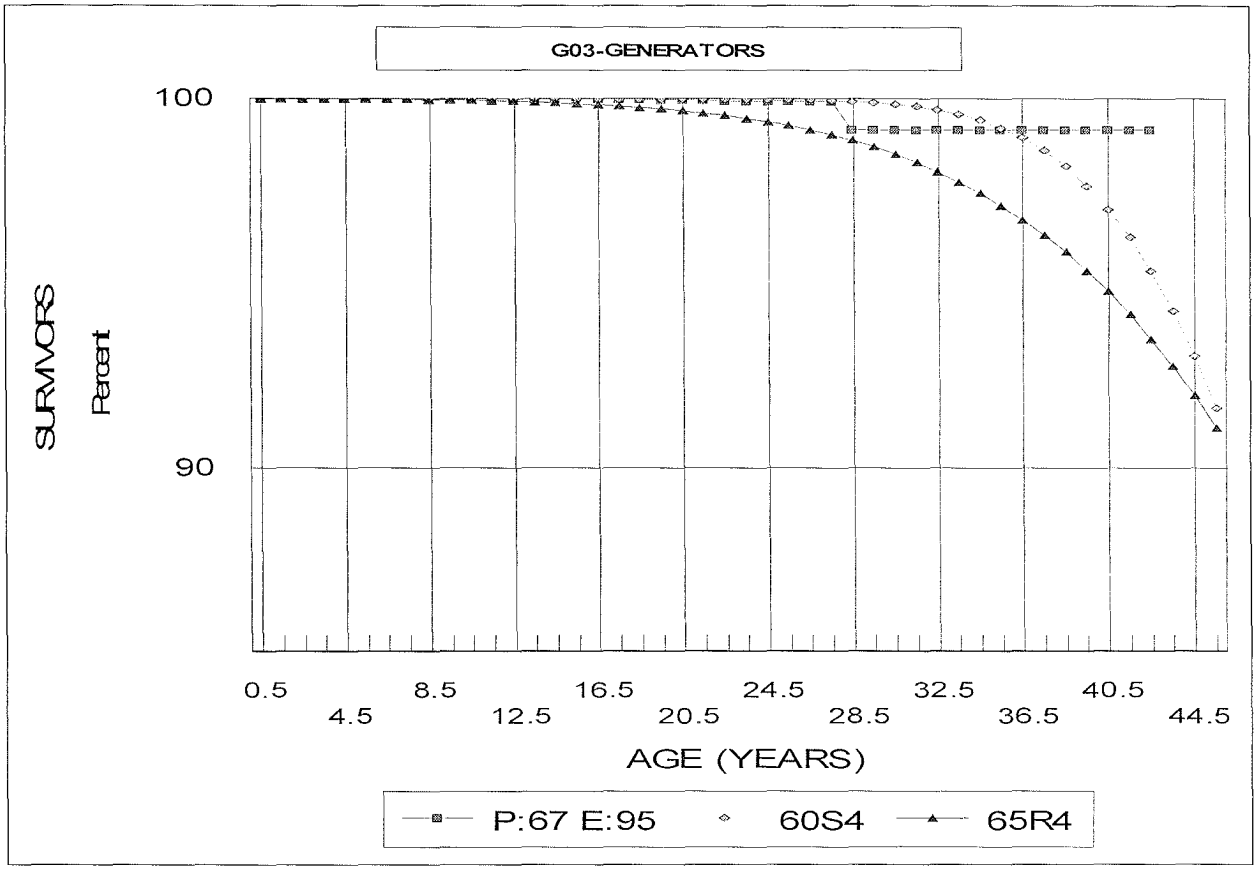
A. No. With the removal of generator windings, a longer ASL is warranted. I recommend a conservative incremental step of 5 years corresponding to a 65R4 life-curve combination.

**Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

A. My recommendation reflects both a review of the results of actuarial analyses as well as recognition of the remaining investment in this account. From a standpoint of actuarial analysis, the only meaningful retirement reflected in Hydro's historical database is the

[46] A 64S2 life-curve combination yields a 42.24-year remaining life and a 1.42% depreciation rate.
[47] Response to CA-NLH-86.
[48] *Id.*

replacement of an exciter in its 28th year of service due to condition.[49] Given this limited retirement activity, a very long life expectation should be anticipated. As shown in the graph below, a 65R4 life-curve combination better matches the limited but actual historical actuarial results. Indeed, Mr. Kennedy's proposal begins to deviate significantly from the OLT at around 30 years of age.




Moreover, based on inquiry regarding the only significant level of retirement activity reflected in the actuarial results, the OLT in the above graph should reasonable be further elevated. The only significant retirement activity reflected in the historical data corresponds to the replacement of an exciter at age 27.5 years. Mr. Kennedy gave undue weight to this point, stating that it "may be expected to reoccur in the future."[50] While such replacements may reoccur in the future, Hydro has experienced numerous instances

[49] Response to CA-NLH-85.
[50] Response to CA-NLH-85.

where generators have exceeded that timeframe without comparable retirement occurrences.[51] In other words, while an event did occur, subsequent investments have already exceeded the same age bracket without reoccurrence of the replacement of an exciter or similar event. Therefore, when interpreting the limited graphical presentation, a longer ASL is warranted.

From the standpoint of peer group review, Mr. Kennedy claims an 18- to 75-year range.[52] However, the 18-year observed value and other low values correspond to Other Production investment rather than Hydroelectric investment. Hydroelectric investment averages over 70 years for generators in Mr. Kennedy's limited peer group.[53] Given the actual historical experience, it is obvious that the investment in this account does not significantly correspond to Other Production investment, otherwise, there would be significant additional levels of retirement activity. Therefore, from a peer group review, an ASL in excess of 70 years is expected.

Finally, from a standpoint of input from operational personnel, no basis has been presented that demonstrates why a 65-year versus a 60-year ASL is not also within operational personnel expectations. Moreover, Hydro did not provide any underlying support for operational staff's expectations, which may have provided meaningful information.

In summary, the historical operation of the system prior to the exclusion of generator windings indicates a very long life. Now with the removal of generator windings from this account, a significant increase in expected ASL is warranted. From both an actuarial standpoint and a review of related peer company values, a 65-year ASL is realistic and may need to be increased in future depreciation studies.

[51] Response to CA-NLH-87 Attachment 1.
[52] Response to CA-NLH-180.
[53] 2011 Study at page III-6.

**Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?**

A. My recommendation results in a $150,746 reduction to annual depreciation expense based on plant as of December 31, 2009.[54]

**Account P03 – Penstocks:**

**Q. WHAT DOES HYDRO PROPOSE FOR ACCOUNT P03 - PENSTOCKS?**

A. While the 2011 Study initially presented a 75R4 life-curve combination as the best graphical representation for this account, Hydro corrected its presentation and now claims that a 70R4 life-curve combination is its proposal.[55]

**Q. WHAT IS HYDRO'S BASIS FOR ITS PROPOSAL?**

A. While Hydro states that there have been no retirements in this account for the 1991-2009 observation period, it also states that its proposed 70R4 life-curve combination "anticipates very few retirements through this observation period." Hydro also indicates that its operating group observed that historically penstocks have been maintained through operating expenditures rather than capital costs. Mr. Kennedy adds that "it has been the experience of Gannett Fleming that the penstock structures will eventually require capital upgrades to ensure their integrity," and further notes that given there has been significant portion of investment in penstocks during the 1980s, the 70R4 life-curve combination proposal is not inconsistent with the investment. Since historical retirement activity is absent from this account, Gannett Fleming relied primarily on a limited peer group review of Canadian utilities. Mr. Kennedy claims the peer group results range between 60 and 100 years, with most values in the 60- to 75-year range and only one utility using a life greater than 75 years. Gannett Fleming also notes that the 70R4 life-curve combination produces a maximum life expectation of approximately 107 years. Mr. Kennedy concludes the basis for his proposal by stating that "there is no evidence to

[54] A 65R4 life-curve combination yields a 41.68-year remaining life and a 1.49% depreciation rate.
[55] Response to CA-NLH-96.

suggest penstocks can be expected to last beyond the life indications reflected in its 70R4 life-curve combination.[56]

**Q. DO YOU AGREE WITH HYDRO'S PROPOSAL?**

A. No. While there is obviously no evidence that Hydro's penstock investment will last greater than 70 years or any other value, due to the relatively young age of the overall investment, other factors support a longer ASL. Therefore, I recommend a further increase to an 80R4 life-curve combination.

**Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

A. From the standpoint of actuarial analysis, limited information is available. However, the limited information does support an ASL greater than 70 years. In particular, while Gannett Fleming claims that very few retirements would be anticipated with its 70R4 life-curve combination in conjunction with a significant portion of the investment being placed in service during the 1980s, such statement is incorrect. First, even the 70R4 life-curve combination would anticipate approximately $700,000 of retirement activity for this account, yet Hydro reports zero retirement activity. Second, while a significant amount of the investment in this account was placed in service subsequent to 1980, approximately one-third was placed into service during the 1960s and 1970s, with the majority of the investment being placed in service from 1967 through 1980.[57] From an actuarial standpoint, the limited information indicates an ASL significantly longer than the 70-year value proposed by Gannett Fleming, and even the 80-year value I recommend.

Turning to input from operating staff, one can find no basis for restricting the ASL expectations to nothing greater than 70 years. Indeed, there is not a single document, analysis, study, or any other form of information that Hydro was willing to produce in discovery that supports such position. This failure to provide any information is aggravated given that Hydro was specifically requested to provide all meaningful and

[56] *Id.*
[57] 2011 Study at page V-70.

significant information that it believed was important in the determination of life characteristics.[58] Mr. Kennedy's interview notes with Hydro personnel are devoid of specific reference to penstocks.[59] Further, in follow up discovery, Hydro was encouraged again to "fully explain and justify the penstock life" that it proposed.[60] Unfortunately, Hydro chose to refer back to prior discovery responses and claim that such responses "fully explained" the life expectations for penstocks.[61] These prior responses simply reference limited historical experience, review of ASL ranges for a very limited Canadian peer group of utilities, and the views of internal operating staff, along with the statement that "there is no evidence to suggest that penstocks can be expected to last beyond the ages in accordance with the recommended 70R4 Iowa curve."[62] Moreover, in follow up discovery, Mr. Kennedy and Hydro admitted that operations staff "were not specifically requested to review alternative ASL scenarios."[63] In other words, significant effort has been expended to obtain the basis for any claim that operational staff can justify a 70-year ASL, but not a longer ASL. Such efforts have resulted in absolutely no basis for any claim that life expectations for penstocks cannot exceed 70 years. Therefore, from the standpoint of operational personnel, there is no evidence to suggest that penstocks cannot be expected to last longer than 70 years.

From the standpoint of industry information, even Mr. Kennedy's limited Canadian peer group supports an ASL longer than 70 years. Mr. Kennedy's limited Canadian database yielded four values. Those four values averaged in excess of 76 years and ranged as high as 100 years.[64] Unfortunately, when requested to provide information that would permit verification of the reasonableness of the comparative data, Mr. Kennedy claimed confidentiality regarding any documentation that would support any position, but did ultimately admit that Gannett Fleming "does not have the information with regard to the percentage of investment from each of the peer companies that would comprise the Penstock only portion of the peer group identified as Canals, Penstock, Surge Tanks and

[58] Response to CA-NLH-97.
[59] Response to CA-NLH-12.
[60] Response to CA-NLh-263.
[61] Response to CA-NLH-263, with references back to CA-NLH-96 and 163.
[62] Responses to CA-NLH-96 and 163.
[63] Response to CA-NLH-263.
[64] Response to CA-NLH-166.

Trail Races."[65] In other words, from the limited peer group information, an 80-year ASL recommendation is closer to the average than is Mr. Kennedy's 70-year proposal and is well below the 100-year value identified by Mr. Kennedy.

Finally, addressing the maximum life issue that Mr. Kennedy raises in discovery, one finds no basis for limiting the ASL to values 70 years or less. While Mr. Kennedy's proposed 70R4 life-curve combination produces a maximum life of 107 years, the 80R4 recommendation results in a maximum life of 122 years, or a value 15 years greater. However, there is no basis to assume that a maximum life in excess of 122 years is not reasonable or achievable, no more so than the 107-year maximum life corresponding to Mr. Kennedy's proposal. In other words, the maximum life issue raised by Mr. Kennedy has limited merit and in no way supports a 70-year ASL over an 80-year ASL.

In summary, Hydro and Mr. Kennedy were provided numerous opportunities to present evidence and support of the 70R4 life-curve combination proposal. In each instance, no evidence has been provided and indeed what information has been provided supports an ASL longer than 70 years. Although limited, actuarial information better matches an ASL in excess of 80 years than it does an ASL of 70 years. Peer group information also supports a value closer to 80 years than 70 years. Input from operational staff provides no support one way or the other, but it must be specifically noted that operational staff were not asked to evaluate ASL scenarios other than what Mr. Kennedy provided. Therefore, the preponderance of the identifiable information supports an ASL of 80 years or greater. However, in order to remain conservative at this point in time, an 80-year value is recommended.

**Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?**

A. My recommendation results in a $235,937 reduction to annual depreciation expense based on plant as of December 31, 2009.[66]

[65] Response to CA-NLH-263.

[66] An 80R4 life-curve combination yields a 53.64-year remaining life and a 1.58% annual depreciation rate.

**Account P10 – Powerhouses:**

**Q. WHAT DOES HYDRO PROPOSE FOR ACCOUNT P10-POWERHOUSES?**

A. Hydro proposes a 75R3 life-curve combination for this account.[67]

**Q. WHAT IS HYDRO'S BASIS FOR ITS PROPOSAL?**

A. Given the circumstances of no retirement activity, Gannett Fleming relied on "other factors."[68] Those factors are peer group analysis and the view of the internal operational staff.[69] The peer group ranged from 65 to 100 years for the three utilities.[70]

**Q. DO YOU AGREE WITH HYDRO'S PROPOSAL?**

A. No. Hydro's proposal represents too short of an ASL. I recommend an 85R4 life-curve combination.

**Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

A. As noted by Gannett Fleming, there has basically been no retirement activity in this account even though plant was placed in service over 40 years ago. Solely from a statistical standpoint, this lack of retirement activity is indicative of a very long life expectancy. However, actuarial analysis provides limited indications of how long the life should be.

Turning to the composition of the investment in this account, the vast majority of the investment is associated with concrete structures, steel structures, buildings, and super structures.[71] These types of structures can be expected to have exceptionally long expected lives, especially when maintained appropriately. There is no basis to limit the ASL for this account to 75 years based on the type of investment.

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[67] 2011Study at page III-5.
[68] Response to CA-NLH-169.
[69] *Id.*
[70] Response to CA-NLH-172, while the response states 5 utilities, page III-6 of the 2011 Study identifies only three.
[71] Response to CA-NLH-108, Attachment 1, and CA-NLH-267.

Turning to Gannett Fleming's reference to "views of the internal operational staff" as being one of the primary factors, a review of interview notes does not reflect any reference to powerhouses.[72] Moreover, when specifically requested to provide additional basis, evidence, opinions, assumptions, documents, analysis, etc. that either describes, explains, supports, or justifies the specific life proposed, Hydro failed to provide any information associated with powerhouses. In other words, the generalized statement that one of the primary factors is the "view" of internal operational staff cannot be considered as meaningful or significant factors since no underlying analyses performed by operating staff was identified or provided, with one possible exception. Mr. Kennedy's interview notes indicate that dams are reviewed every two years.[73] Such reviews will highlight any maintenance or repairs that are required. In other words, Hydro appears to be taking appropriate proactive steps to inspect its dams, and undoubtedly its powerhouses, for any required maintenance in order to allow such facilities to achieve a long expected service life. Finally, in follow up discovery, Mr. Kennedy admits that operating staff did not review other possible life scenarios other than what Mr. Kennedy proposed.[74]

Next, turning to the only other factor Hydro provides in support of its proposed ASL, review of peer utilities, a longer ASL is again warranted. As it relates to this factor, Mr. Kennedy states that there is only one indication of a Canadian utility using a life estimate in excess of 75 years for powerhouses.[75] What Mr. Kennedy fails to note is that his peer Canadian group consists of only three utilities.[76] Mr. Kennedy relied on two different categories identified as (1) Structures and Improvements, and (2) Reservoirs, Dams, and Waterways for his peer group comparison. The values identified for these groups are 65, 70, 75, and 100 years.[77] Even based on the average of this limited peer group, a life in excess of 75 years is warranted. However, review of a broader sample of Gannett Fleming-related recommendations for hydro facilities indicates that Gannett Fleming has

[72] Response to CA-NLH-12, Attachment 1.
[73] Response to CA-NLH-12 Attachment 1 at page 2.
[74] Response to IC-NLH-80.
[75] Response to CA-NLH-171 page 2.
[76] 2011 Study at page III-6.
[77] *Id.*

recommended 100 years or longer life expectancy (up to 150 years) for many hydro facilities. In fact the average is in excess of 90 years.[78]

One final consideration in support of the recommended 85R4 life-curve combination is consideration of maximum life. Mr. Kennedy takes exception with life-curve combinations that might produce maximum lives greater than 150 years. Such concern is unfounded, unsupported, and in direct conflict with Gannett Fleming's position elsewhere.[79] However, it should be noted that the maximum life associated with an 85R4 is 130 years, or within three years of the maximum life corresponding to Mr. Kennedy's proposed 75R3 life-curve combination. Therefore, while I do not agree with the level of Mr. Kennedy's unsubstantiated concern for maximum life, my recommendation is fully in line with his proposal from a maximum life standpoint. Therefore, there should be no concerns regarding the reasonableness of an 85R4 life-curve combination. Moreover, given the lack of retirement activity during the first 40-plus years of life, a high modal Iowa Survivor curve is indicated. Indeed, an R4 would appear to be more representative of life expectations for investment that has experienced basically no retirement activity for 40-plus years of exposure to retirement forces.

**Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?**

A. My recommendation for an 85R4 life-curve combination results in a $250,144 reduction to annual depreciation expense based on plant as of December 31, 2009.[80]

**Account R12 – Right-of-Ways:**

**Q. WHAT DOES HYDRO PROPOSE FOR ACCOUNT R12 – RIGHT-OF-WAYS?**

A. Hydro proposes a 55R4 life-curve combination for this account. This proposal represents a 10-year increase from the existing 45-year ASL.

[78] Response to CA-NLH-156 Attachment 1.
[79] *Id.*
[80] An 85R4 yields a 61.54 year remaining life and a 1.40% depreciation rate.

**Q. WHAT IS HYDRO'S BASIS FOR ITS PROPOSAL?**

A. Gannett Fleming recognized the limited level of retirement activity historically, and noted one exception at age 27.5 years.[81] Given the lack of retirement activity, Gannett Fleming "viewed" a significant life extension was appropriate and "as such," proposed a 10-year life increase. Gannett Fleming limited the life extension based on its peer company review, the fact that it had previously recommended a 45-year ASL, and that operation staff indicated 45 to 50 years was reasonable.[82]

**Q. DO YOU AGREE WITH HYDRO'S PROPOSAL?**

A. No. Hydro's proposal, while a step in the right direction, significantly understates realistic and logical life expectations for the investment in this account. I recommend a minimum 80-year ASL with the same R4 dispersion pattern.

**Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

A. The investment in this account is in right-of ways. Right-of-ways are usually perpetual in nature. As long as the utility is providing service, it requires the use of such right-of-ways. Hydro does have leases for some of its transmission right-of-ways with 50-year terms, but such terms are renewable after 50 years. If right-of-ways cross property lines, an easement is often obtained from the owner for a nominal fee and such easements are "for the life of the line."[83] Therefore, from the standpoint of the type of investment and its purpose, life expectancies of up to 100 years or longer are more than realistic.

Maximum life concepts recognized by Gannett Fleming for other accounts are apparently ignored in establishing the life expectancy for this account. Obviously, a land right cannot expire while the property that resides upon it is still in service. Therefore, maximum life expectancy for poles, towers, conductors, and other similar investment that resides upon land rights in theory provide minimum ASL expectancy for land rights. For example, Gannett Fleming proposes a 53R4 life-curve combination for Poles Structures – Wood, Account P05. The maximum life associated with that life-curve combination is

[81] Response to CA-NLH-116.
[82] Responses to CA-NLH-115 and CA-NLH-116.
[83] Response to CA-NLH-114.

approximately 81 years. Therefore, from a life expectancy of poles, the land rights upon which the poles reside cannot be shorter than 81 years, assuming one complete life cycle. However, poles are replaced in order to continue providing service, therefore life expectancy for right-of-ways must expect more than one complete life cycle of the investment that resides upon it.

Based on a review of industry information, a longer ASL is also warranted. Indeed, Gannett Fleming's claimed 36- to 75-year range for its limited Canadian peer group includes one outlier.[84] That one outlier is the 36-year value. When reviewed from a statistical standpoint, even including the one outlier, the resulting mean, median and mode are 67.8 years, 75 years, and 65 years, respectively.[85] In other words, even the low end of the statistical analysis of peer group information significantly exceeds the 55-year ASL proposed by Hydro. Moreover, it should be noted that the industry is recognizing even longer ASLs, and Gannett Fleming recommends values as high as 80 years.[86]

As it relates to Hydro personnel expectations, no information provided substantiates the artificially short life expectancy. Indeed, there is only one significant dollar level of retirement activity reflected in the historical data and even after taking that singular event into account, the 55R4 life-curve combination significantly overstates the expected retirement activity versus the actual retirement activity.[87] Moreover, nothing has been presented that begins to support a claim that 45 to 50 years is a realistic life expectancy, which it is not. In addition, it must be noted that operating personnel apparently were of the opinion that a 45-year ASL was appropriate in prior depreciation studies. Now, even Mr. Kennedy does not accept that low of a life expectancy anymore.

While Hydro raises the concept that a shorter ASL expectation is reasonable since it can recognize the longer life expectancy associated with renewal of easements at the time such renewals transpire for those easements with initial terms, this concept is inconsistent

[84] Response to CA-NLH-116.
[85] Response to CA-NLH-190.
[86] Response to CA-NLH-156.
[87] Response to CA-NLH-193.

with normal depreciation practices. Normal depreciation practices attempt to identify life expectancy over the entire probable life. Given that the renewal of easements in those instances where perpetual easements do not exist is highly expected, it would be inappropriate not to recognize longer life expectancies associated with renewals in current depreciation expectations.

In summary, whether viewed from any statistical, actual experience, or reasonable expectation standpoint, a longer ASL than the 55-year ASL proposed by Hydro is required. While Hydro has attempted to limit the increase from the existing 45-year ASL, such artificial limitation is inappropriate as the existing 45-year ASL was not realistic in the first place. Indeed, limiting the increase to an 80-year ASL is conservative and will most likely require further extension in the next depreciation study.

**Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?**

A. My recommendation results in a $192,655reduction to annual depreciation expense based on plant as of December 31, 2009.[88]

**Account R13 – Roads:**

**Q. WHAT DOES HYDRO PROPOSE FOR ACCOUNT R13-ROADS?**

A. Hydro proposes retaining a 50-year ASL with a corresponding R4 Iowa Survivor curve.

**Q. WHAT IS HYDRO'S BASIS FOR ITS PROPOSAL?**

A. Hydro notes that there has been no retirement activity over the observed period for this account. In addition, it identifies that Hydro will record partial retirements when roads are subject to capital upgrades under IFRS. [89] Finally, Hydro also notes that Mr. Kennedy's limited Canadian peer group comparison yields one industry value related to the hydroelectric function "as short as 50 years" (actually 55 years) and notes the harsh

[88] An 80R4 life-curve combination yields a 54.95-year remaining life and a 1.21% depreciation rate.
[89] Response to CA-NLH-118.

environment to which roads are subjected.[90] Based on these items of information, Mr. Kennedy then considered the 40-year ASL estimate used by two peer companies related to the transmission function in his database as a reason to retain the existing 50-year ASL.

**Q. DO YOU AGREE WITH HYDRO'S PROPOSAL?**

A. No. I recommend a minimal increase to a 70R4.

**Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

A. My recommendation is based on the recognition of the type of investment at issue. The vast majority of the investment in this account is associated with roads to the Cat Arm Powerhouse. Therefore, the investment will have a very long life expectancy given the 100R4 life-curve combination proposed for the Cat Arm Dam. This long life expectancy is bolstered by the fact that Hydro has not recorded any retirement activity in this account, even though Hydro has investment in this account dating back to 1967.

Future retirement activity can be expected once capital upgrades occur in the future in conjunction with the adoption of IFRS. However, such consideration still warrants a longer life expectancy than the 50-year ASL proposal even after recognizing the approximate $500,000 project recently approved by the Board for slope stability.[91]

From an industry standpoint, a longer ASL is also warranted. Indeed, Gannett Fleming, when recommending ASLs for dozens of utilities across North America, normally relies on ASLs ranging between 55 and 100 years.[92] Based on Gannett Fleming's expectations elsewhere, a 75- to 80-year ASL would be more appropriate at this time. However, in order to give significant recognition to potential future upgrades, the extension of the ASL at this time is limited to 20 years. The recommended 70-year ASL is far shorter than the 100-year ASL for the Cat Arm facility and allows for extensive road section replacements in the future.

[90] Response to CA-NLH-270 and 271.
[91] Response to CA-NLH-271.
[92] Response to CA-NLH-156 Attachment 1.

**Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?**

A. My recommendation results in a $1,280,017 reduction to annual depreciation expense based on plant as of December 31, 2009.[93]

**Account S05 – Software:**

**Q. WHAT DOES HYDRO PROPOSE FOR ACCOUNT S05 - SOFTWARE?**

A. Hydro proposes a 7SQ life-curve combination.

**Q. WHAT IS HYDRO'S BASIS FOR ITS PROPOSAL?**

A. Hydro states that the basis for its proposal is the judgment and experience of Mr. Kennedy, his review of limited Canadian utility peer life estimates, and information Mr. Kennedy gained from management and operations personnel interviews.[94]

**Q. DO YOU AGREE WITH HYDRO'S PROPOSAL?**

A. No. Given the type of software and the magnitude of dollars invested in software dating back into the 1990s, I recommend a 12R3 life-curve combination as a minimum level of be adopted at this time.

**Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

A. First, it is necessary to place Hydro's request in proper perspective. Hydro notes approximate $24.1 million of investment in this account. However, by its own presentation, a majority of the investment already is fully accrued, but still in service.[95] In addition, a majority of the investment in the account already exceeds 7 years of services at the end of the depreciation study (2009).[96] What compounds this situation even further is that Hydro admits that it has not recorded any retirements in this account in 2010 or

[93] A 70R4 life-curve combination yields a 46.40-year remaining life and a 2.05% depreciation rate.
[94] Response to CA-NLH-126.
[95] Gannett Fleming 2011 Study at page V-98.
[96] *Id.*

2011.[97] Given that the largest single investment in this account was placed in service in 1999, and such investment has not retired through the end of 2011, raises significant credibility concerns regarding a proposed life as short as 7 years.

Due to Y2K concerns, most utilities developed or purchased software that has an architectural construction which allows modular replacements of components and incorporates scalability aspects. In other words, portions of programs can be modified or replaced in order to allow the overall system to continue functioning where absent such capabilities the system would have to be replaced in its entirety. However, such aspects of newer software development come at a price, and that price is a higher cost.

As the industry now has gained more empirical data regarding the life expectancy of software installed to address Y2K concerns, the industry is moving towards a much longer life expectancy for such large software systems. Indeed, while Mr. Kennedy references numerous 2000-2003 era life estimates for various Canadian utilities, he failed to note some more recent cases. For example, in a 2010 FortisAlberta case, one where Mr. Kennedy was involved, that utility implemented a 10-year period associated with SAP software. In addition, AltaGas, in a 2011 case in which Mr. Kennedy was also involved, established a life expectancy of 10 years for software investments greater than $500,000 in cost and a 5-year life expectancy for software less than $500,000 in cost. Other utilities are also utilizing or implementing much longer life expectancies for their major software systems. For example, Florida Power & Light Company, subsequent to a recent Gannett Fleming study, is now proposing a 20-year amortization period for its investment in SAP software.

In summary, Hydro's actual books and records reflect that a majority of the investment far exceeds the 7-year life estimate proposed in this case. Other utilities are now proposing and utilizing longer life expectancy for major software systems than those referenced by Mr. Kennedy in the early 2000s. Indeed, many utilities are now proposing 15- and 20-year life expectancies for major software investments. The architectural

[97] Response to CA-NLH-126.

construction of current software systems allows for expansion and replacement rather than retirement of entire software systems, which will result in a longer overall life expectancy. In addition, while component replacement and rewrites of portions of systems will occur, the overall dollar weighted life expectancy should still exceed the 7-year amortization period proposed by Hydro. While a 15-year ASL expectancy is also reasonable at this time, in order to remain conservative, I have limited my current recommendation to a 12R3 life-curve combination. This retirement pattern allows for retirements much earlier than 12 years as well as recognition that some portion of the investment will last beyond 12 years. The investment in this account must be revisited in future depreciation analyses.

**Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?**

A. My recommendation results in a $174,330 reduction to annual depreciation expense based on plant in service as of December 31, 2009.[98]

**Account S16 – Studies:**

**Q. WHAT DOES HYDRO PROPOSE FOR ACCOUNT S16-STUDIES?**

A. Hydro proposes a 5R0.5 life-curve combination.

**Q. WHAT IS HYDRO'S BASIS FOR ITS PROPOSAL?**

A. Hydro states that the ASL is based on Hydro's practice and on the experience of Mr. Kennedy, who notes that a 5-year amortization is common.[99]

**Q. DO YOU AGREE WITH HYDRO'S PROPOSAL?**

A. No. Based on the type of investment, Hydro's life expectation is artificially short. I recommend a minimum increase to a 7R0.5.

[98] A 12R3 life-curve combination yields a 5.65-year remaining life and a 3.01% depreciation rate.
[99] Response to CA-NLH-19.

**Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

A. The value of studies is directly associated with the project being studied. Therefore, if a project does not go forward, a very short or immediate expensing may be appropriate, while if a project does go forward, part of the cost of the project is the initial planning study. Indeed, Hydro has adopted IFRS. Hydro also admits that IFRS requires the cost of pre-engineering projects become part of the capital project if the project proceeds and should be expensed if the project does not proceed.[100]

Given normal anticipated treatment of studies as well as IFRS requirements, a 5-year ASL is too short. Many projects identified by Hydro associated with historic studies indicate 10- to 25-year anticipated benefits. Contrary to Gannett Fleming's statements, the value of studies is not consumed shortly after they have been completed; the value of the study is directly tied to the project being analyzed. If a project does not go forward, the value of the study may still be beneficial for extended periods. If a project does go forward, the value of the study corresponds to the life of the project.

Given the new treatment required by IFRS, studies related to projects that do not go forward will be expensed and therefore not be subject to depreciation. Current investment reflected in the depreciation study corresponds to projects that have lives in some instances up to 25 years. Therefore, a 5-year expectation for all projects is inadequate. A 2-year increase represents the minimal increase necessary to more appropriately reflect the actual benefits that studies provide.

**Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?**

A. My recommendation results in a $172,611 reduction to annual depreciation expense based on plant as of December 31, 2009.[101]

[100] Response to CA-NLH-213.

[101] A 7R0.5 life-curve combination yields a 5.64-year remaining life and a 10.11% depreciation rate.

**Account W01 – Water Regulating Structures:**

**Q. WHAT DOES HYDRO PROPOSE FOR ACCOUNT W01-WATER REGULATING STRUCTURES?**

A. Hydro proposes a 55S4 life-curve combination for this account.[102]

**Q. WHAT IS HYDRO'S BASIS FOR ITS PROPOSAL?**

A. Hydro states that three specific facts were relied upon in determining the ASL proposal. Those three specific facts are: (1) that the ASL of peer Canadian companies reviewed, ranging from 70 to 100 years, (2) the life estimate in Gannett Fleming's 2007 study was 45 years, and (3) operations staff indicated that a life of approximately 45 to 55 years should be used.[103]

**Q. DO YOU AGREE WITH HYDRO'S PROPOSAL?**

A. No. Hydro's proposal is artificially short, therefore I recommend an 85S4.

**Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

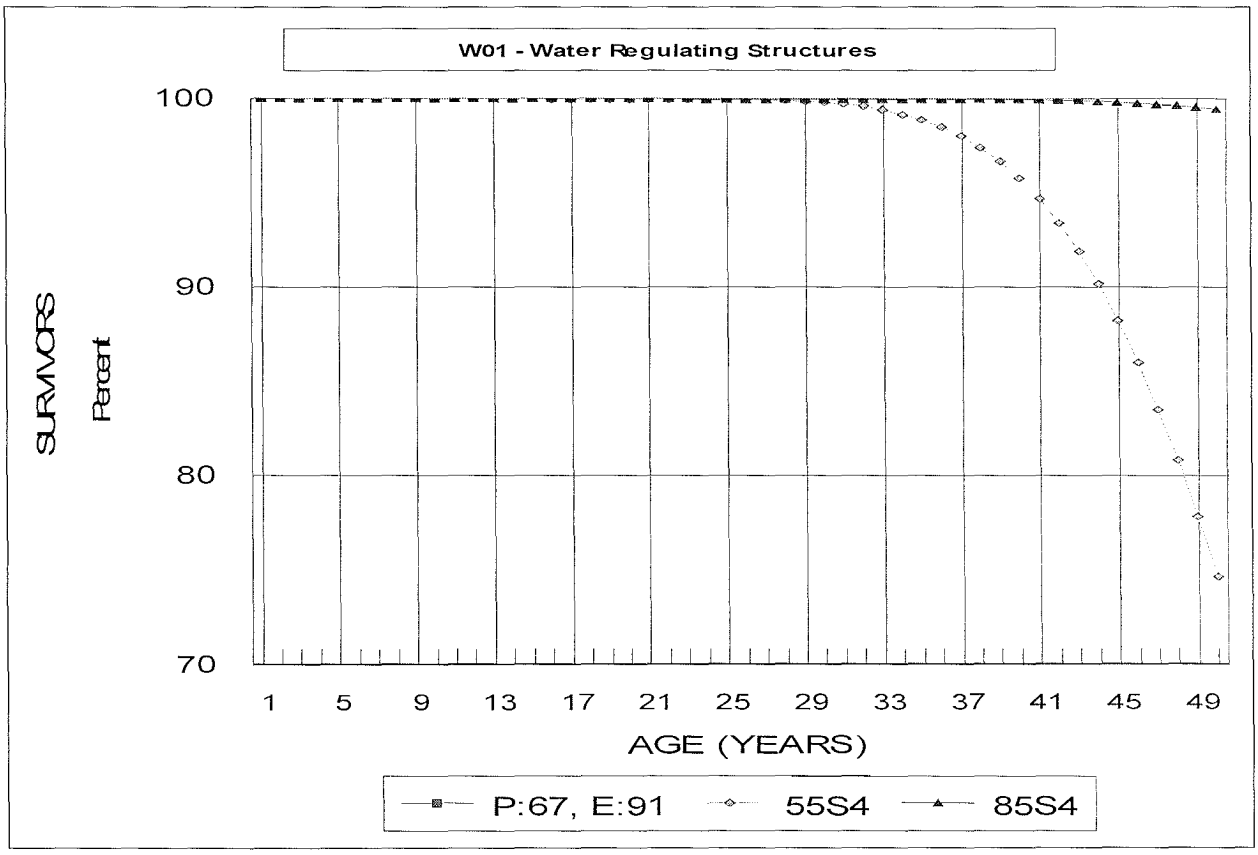
A. First, it is important to place the type of investment in this account in proper context. The majority of the investment in this account is associated with fish compensation structures as well as concrete spills and control structures.[104] In particular, some of the fish compensation structures are canals or channels designed to provide spawning and rearing habitats for fish. In other words, the majority of the investment in this account reflects very long-lived investments including those for which Hydro estimates 100-year ASLs.[105] Thus, from an internal consistency standpoint, a 55-year ASL is approximately half the life proposed by Hydro for other structures that perform the same or similar functions.

[102] Response to CA-NLH-150.
[103] *Id.*
[104] Response to CA-NLH-149 and 233.
[105] Hydro recommended average service life of 100 years for Account E01-Dams, Dikes, Canals and Tunnels as set forth on page IV-52 of the 2011Study.

An 85S4 life-curve combination is also more in line with the 70- to 100-year estimate that Gannett Fleming proposes for other peer companies.[106] Alternatively, Hydro's proposed 55-year level falls well below the lower end of the peer group range.[107]

Next, while there has been no retirement activity recorded for this account, an 85S4 life-curve combination represents a better fit of the actual historical experience as shown in the graph below. Indeed, based on Hydro's proposed life-curve combination and recognition that the initial investment in the account was placed in service in 1967, one would expect approximately 10% of the initial investment would have retired if Hydro's proposal had merit. In other words, well over $200,000 of retirement activity relating solely to the 1967 investment should have already occurred were Hydro's proposal to be reliable and have merit. Further, assuming no retirements have occurred through the middle of 2012, then the 55S4 life-curve combination would have expected a 15% level of retirements to the 1967 investment, but none have occurred.[108] Based on the fact that there are no reported retirements for the investment in this account, Hydro's artificially short ASL clearly is inadequate. Alternatively, an 85-year ASL indicates an expectation of almost no retirement activity ($2,500) during this same period. Therefore, an 85S4 life-curve combination represents a conservative estimate of the life expectations for the investment in the account.

[106] 2011 Study at page III-6.
[107] Response to CA-NLH-150 and page III-6 of the 2011 Study.
[108] Response to IC-NLH-64(c).




The actual retirement pattern as well as the expected level of retirement activity associated with proposed life-curve combinations clearly invalidates any reliance by Hydro associated with the 45-year ASL in the 2007 Gannett Fleming study or the undocumented indications from staff that a value of between 45 and 55 years should be used. For those positions to have merit would require some form of validation or support, none of which has been provided. Moreover, it does not appear that any reasonable support for these additional statements can be provided, given the actual retirement patterns over time.

**Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?**

A. My recommendation for an 85S4 life-curve combination results in a $266,480 reduction to the 2009 estimated depreciation expense.

## SECTION VII: CLOSING SUMMARY

**Q. PLEASE SUMMARIZE THE VARIOUS RECOMMENDATIONS REFLECTED IN YOUR TESTIMONY.**

A. Other than the individual account specific adjustments that I recommend, I have presented recommendations associated with historical sinking fund depreciation and the group accounting system proposed by Hydro. As it relates to the historical calculation of sinking fund depreciation, it appears Hydro's stated book reserves are in error. However, Hydro has not provided adequate information to determine the level of correction required by account for those accounts it has utilized sinking fund depreciation. Therefore, I recommend that the Board order Hydro to fully analyze and justify alternatives to the historical calculation of sinking fund, taking into account changes in interest rates during periods of interest coverage regulation, and the later change to a WACC form of regulation. The alternatives for corrected reserves by account should be presented to the Board and interested parties in a future proceeding where all parties can review the information and determine the best alternative available for the correction of such values.

In the area of group depreciation accounting, I recommend that the Board order Hydro to apply consistent group developed depreciation rates to the entire account for which a rate is developed. In other words, Hydro should not be permitted to apply a group developed depreciation rate to individual assets within the group since such actions violates standard depreciation theory and result in a much greater potential for fully accrued depreciation situations to occur while the asset is still providing service.

In conjunction with the issue of group accounting, Hydro admits that it ceases the booking of depreciation expense to the reserve once it unilaterally determines that an asset has become fully accrued. Given that a Board approved depreciation rate exists and plant also remains in service, I recommend the Board order Hydro to continue standard depreciation accounting and continue to record depreciation expense to the reserve even when it believes an asset has become fully accrued. If overcollection of depreciation

expense occurs, it can be trued-up through the remaining life technique proposed by Hydro for use in this and future proceedings. Absent the continuation of the recording of depreciation expense, the true-up mechanism implicit in the remaining life technique cannot be performed correctly.

**Q: DOES THIS CONCLUDE YOUR TESTIMONY?**

A: Yes. However, to the extent I have not addressed an issue, method, procedures, or other matter relevant to Hydro's depreciation request, it should not be construed that I am in agreement with Hydro's proposed issue, method, procedures, or proposal.

**Consumer Advocates' Depreciation Calculation For**
**Newfoundland and Labrador Hydro**
**Excluding Holyrood Assets Not Required or Synchronous Condenser Operations**

| Acct. No. | Depreciable Work | Original Cost 12/31/2009 (a) | Book Depreciation Reserve (b) | Future Accruals (c)=(a)-(b) | Composite Remaining Life (d) | Calculated Accrual Amount (e)=(c)/(d) | Calculated Accrual Rate (f)=(e)/(a) | Adjustment to Hydro's Proposal (g) |
|---|---|---|---|---|---|---|---|---|
| A01 | Aircraft Landing Strip | 394,805 | 217,451 | 177,354 | 5.98 | 29,659 | 7.51% | 0 |
| A04 | Auxillary Power Systems | 3,283,353 | 1,647,378 | 1,635,975 | 11.68 | 140,058 | 4.27% | 0 |
| B01 | Battery & Power Systems | 8,289,726 | 3,637,112 | 4,652,614 | **15.43** | 301,530 | 3.64% | -250,419 |
| B02 | Boiler System | 1,946,159 | 395,063 | 1,551,096 | 32.47 | 47,773 | 2.45% | 0 |
| B03 | Booms - Timbers | 263,995 | 236,552 | 27,443 | 22.66 | 1,211 | 0.46% | 0 |
| B04 | Bridges | 4,257,163 | 3,049,973 | 1,207,190 | 45.27 | 26,669 | 0.63% | 0 |
| B05 | Buildings - Other | 48,812,723 | 23,386,172 | 25,426,551 | 41.84 | 607,725 | 1.25% | 0 |
| B06 | Buildings - Metal | 19,943,773 | 14,357,796 | 5,585,977 | 40.16 | 139,092 | 0.70% | 0 |
| B07 | Bus Duct Generator | 825,804 | 425,560 | 400,244 | 20.56 | 19,467 | 2.36% | 0 |
| B08 | Buswork & Hardware | 5,539,615 | 2,748,318 | 2,791,297 | 19.43 | 143,629 | 2.59% | 0 |
| C01 | Cables - Telecontrol | 1,605,996 | 1,172,691 | 433,305 | 33.68 | 12,865 | 0.80% | 0 |
| C02 | Cable - Submarine | 8,901,116 | 5,618,356 | 3,282,760 | 27.81 | 118,060 | 1.33% | 0 |
| C03 | Cables - Under Ground | 1,852,852 | 1,202,958 | 649,894 | 36.13 | 17,988 | 0.97% | 0 |
| C04 | Cables - Above Ground | 9,336,561 | 5,199,675 | 4,136,886 | 28.53 | 144,987 | 1.55% | 0 |
| C06 | Capictors | 1,004,935 | 140,385 | 864,550 | 15.49 | 55,809 | 5.55% | 0 |
| C08 | Chlorination Systems | | | | | | | |
| C09 | Circuit Breakers | 16,714,614 | 6,625,080 | 10,089,534 | 34.55 | 292,052 | 1.75% | 0 |
| C10 | Compressed Air Systems | 4,662,229 | 2,395,576 | 2,266,653 | 30.13 | 75,241 | 1.61% | 0 |
| C11 | Computers | 5,619,783 | 4,065,444 | 1,554,339 | 3.00 | 518,113 | 9.22% | 0 |
| C13 | Conductor | 62,857,534 | 16,902,895 | 45,954,639 | 36.46 | 1,260,421 | 2.01% | 0 |
| C14 | Conductor - Distribution | 21,401,471 | 9,384,068 | 12,017,403 | 43.63 | 275,421 | 1.29% | 0 |
| C15 | Control, Meter/Relaying | 18,718,502 | 8,317,645 | 10,400,857 | 19.22 | 541,267 | 2.89% | 0 |
| C16 | Cooling Systems | 3,794,719 | 2,097,408 | 1,697,311 | 35.56 | 47,726 | 1.26% | 0 |
| C17 | Counterpoise | 3,558,955 | 991,815 | 2,567,140 | 30.39 | 84,482 | 2.37% | 0 |
| C18 | Cranes | 6,369,328 | 462,789 | 5,906,539 | 47.90 | 123,303 | 1.94% | 0 |
| D01 | Dames & Dykes | 351,201,751 | 1,781,039 | 349,420,712 | 72.89 | 4,794,055 | 1.37% | 0 |
| D02 | Diesel Systems & Engines | 21,346,252 | 11,394,298 | 9,951,954 | 19.27 | 516,378 | 2.42% | 0 |
| D03 | Disconnect Switches | 9,114,372 | 4,056,214 | 5,058,158 | 25.78 | 196,234 | 2.15% | 0 |
| D04 | Dykes and Liners | 1,887,138 | 1,592,485 | 294,653 | 32.88 | 8,961 | 0.47% | 0 |

**Consumer Advocates' Depreciation Calculation For**
**Newfoundland and Labrador Hydro**
**Excluding Holyrood Assets Not Required or Synchronous Condenser Operations**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| E01 | Elevators | 89,800 | 89,800 | | | | | |
| E02 | EMS Equipment | 13,446,886 | 13,184,644 | 262,242 | 20.47 | 12,810 | 0.10% | 0 |
| E03 | Environmental Equipment | 10,396 | 2,630 | 7,766 | 28.55 | 272 | 2.62% | 0 |
| F01 | Fall Arrest Equipment | 1,318,154 | 103,513 | 1,214,641 | 7.93 | 153,076 | 11.61% | 0 |
| F02 | Fencing | 4,825,160 | 2,883,646 | 1,941,514 | 37.91 | 51,216 | 1.06% | 0 |
| F03 | Fire Fighting Equipment | 9,222,528 | 4,799,183 | 4,423,345 | 37.65 | 117,471 | 1.27% | 0 |
| F04 | Footings & Foundations | 16,144,467 | 6,483,604 | 9,660,863 | **42.24** | 228,714 | 1.42% | -131,181 |
| F05 | FREQ Conversion | 869,212 | 36,565 | 832,647 | 39.21 | 21,233 | 2.44% | 0 |
| F06 | Fuel Systems | 14,784,748 | 7,307,166 | 7,477,582 | 45.75 | 163,431 | 1.11% | 0 |
| G01 | Gas Turbine Systems | 30,993,023 | 25,552,246 | 5,440,777 | 20.02 | 271,761 | 0.88% | 0 |
| G02 | Gates | 15,312,219 | 1,743,278 | 13,568,941 | 51.70 | 262,474 | 1.71% | 0 |
| G03 | Generators | 64,312,111 | 24,318,003 | 39,994,108 | **41.68** | 959,552 | 1.49% | -150,746 |
| G04 | Generator - Windings | 6,766,231 | 6,392,535 | 373,696 | 17.21 | 21,714 | 0.32% | 0 |
| G05 | Glycol Systems | 620,704 | 495,234 | 125,470 | 22.66 | 5,537 | 0.89% | 0 |
| G06 | Govenors | 7,685,239 | 394,699 | 7,290,540 | 24.81 | 293,835 | 3.82% | 0 |
| G07 | Ground Wire System | 7,302,893 | 2,167,951 | 5,134,942 | 36.67 | 140,028 | 1.92% | 0 |
| H01 | Hrdwired Suprvsry Equip | | | | | | | |
| I01 | Information Delivery Sys - ECC | | | | | | | |
| I02 | Instrumentation | 4,018,333 | 1,212,524 | 2,805,809 | 22.62 | 124,014 | 3.09% | 0 |
| I03 | Insulators | 36,376,196 | 10,491,724 | 25,884,472 | 18.71 | 1,383,214 | 3.80% | 0 |
| I04 | Intake Structures | 18,844,445 | 100,300 | 18,744,145 | 73.74 | 254,192 | 1.35% | 0 |
| I05 | Inverters | 466,598 | 312,787 | 153,811 | 16.20 | 9,496 | 2.04% | 0 |
| L03 | Land Improvements | 12,638,776 | 7,147,132 | 5,491,644 | 29.69 | 184,973 | 1.46% | 0 |
| L04 | Lighting Systems | 550,250 | 390,331 | 159,919 | 16.66 | 9,599 | 1.74% | 0 |
| L05 | Lightning Arrestors | 5,619,880 | 1,764,959 | 3,854,921 | 49.09 | 78,524 | 1.40% | 0 |
| L06 | Line Coupling Equipment | 12,726 | 12,726 | | | | | |
| M01 | Main Breakers | 551,508 | 210,996 | 340,512 | 37.02 | 9,197 | 1.67% | 0 |
| M03 | Metalclas Switchgear Cub/Eq 4kv | 1,849,870 | 1,442,814 | 407,056 | 8.35 | 48,728 | 2.63% | 0 |
| M04 | Meter Test Switches | 48,911 | 31,786 | 17,125 | 16.86 | 1,016 | 2.08% | 0 |
| M05 | Metering Tanks | 208,167 | 108,522 | 99,645 | 17.26 | 5,773 | 2.77% | 0 |
| M06 | Meters - Digital | 3,430,944 | 745,450 | 2,685,494 | 13.83 | 194,142 | 5.66% | 0 |
| M07 | Meters - Analogue | 488,014 | 370,459 | 117,555 | 8.08 | 14,557 | 2.98% | 0 |
| M08 | Meters - Other | 194,392 | 72,936 | 121,456 | 11.73 | 10,353 | 5.33% | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| M10 | Misc. Units of Prop | 2,035,856 | 1,205,671 | 830,185 | 7.19 | 115,490 | 5.67% | 0 |
| M11 | Mobile - A.T.V.'s & Snowmobiles | 1,369,874 | 550,216 | 819,658 | 5.08 | 161,322 | 11.78% | 0 |
| M12 | Mobile - Air Compressor, At & Boat | 410,664 | 325,669 | 84,995 | 18.91 | 4,495 | 1.09% | 0 |
| M13 | Mobile - Argo's | 30,211 | 28,589 | 1,622 | 3.00 | 541 | 1.79% | 0 |
| M14 | Mobile - Flex/Fork/Load/Grade | 8,248,425 | 5,220,195 | 3,028,230 | 17.67 | 171,332 | 2.08% | 0 |
| M16 | Multiplex Equipment | 2,889,207 | 2,096,283 | 792,924 | 12.02 | 65,964 | 2.28% | 0 |
| O01 | Office Equipment | 1,195,348 | 877,289 | 318,059 | 18.12 | 17,556 | 1.47% | 0 |
| O02 | Office Furniture | 4,269,330 | 3,839,669 | 429,661 | 17.01 | 25,252 | 0.59% | 0 |
| P01 | P.C.B. Storage Container | 42,480 | 38,586 | 3,894 | 12.28 | 317 | 0.75% | 0 |
| P02 | PBAX - Priv Auto Branch Exch | 819,535 | 427,128 | 392,407 | 16.39 | 23,938 | 2.92% | 0 |
| P03 | Penstock | 56,215,065 | 8,625,533 | 47,589,532 | **53.64** | 887,202 | 1.58% | -235,934 |
| P04 | Pole Cribs & Pole Hardware | 65,911,265 | 22,355,247 | 43,556,018 | 42.33 | 1,028,846 | 1.56% | 0 |
| P05 | Pole Structures - Wood | 104,505,267 | 25,429,257 | 79,076,010 | 33.03 | 2,394,419 | 2.29% | 0 |
| P06 | Poles - Concrete | 215,305 | 160,922 | 54,383 | 5.87 | 9,266 | 4.30% | 0 |
| P07 | Poles - Wood | 40,210,866 | 16,899,802 | 23,311,064 | 29.11 | 800,789 | 1.99% | 0 |
| P08 | Power Line Carrier | 5,006,763 | 3,748,600 | 1,258,163 | 15.37 | 81,860 | 1.63% | 0 |
| P09 | Power Systems | 590,183 | 116,245 | 473,938 | 11.42 | 41,511 | 7.03% | 0 |
| P10 | Powerhouse | 93,181,236 | 13,007,098 | 80,174,138 | **61.54** | 1,302,797 | 1.40% | -250,144 |
| P11 | Printers | 1,010,720 | 572,117 | 438,603 | 3.11 | 141,116 | 13.96% | 0 |
| P12 | Protective Control & Relay Panels | 4,458,228 | 909,807 | 3,548,421 | 19.06 | 186,149 | 4.18% | 0 |
| R01 | Radio Towers (Wood or Steel) | 9,331,365 | 6,073,961 | 3,257,404 | 28.92 | 112,622 | 1.21% | 0 |
| R02 | Radios - Fixed Microwave Equip. | 5,431,982 | 3,846,942 | 1,585,040 | 15.05 | 105,328 | 1.94% | 0 |
| R03 | Radios - Fixed UHF Equipment | 114,224 | 18,190 | 96,034 | 13.72 | 6,998 | 6.13% | 0 |
| R04 | Radios - Fixed VHF Equipment | 330,530 | 275,437 | 55,093 | 12.82 | 4,296 | 1.30% | 0 |
| R05 | Radios - Mobile VHFBase Station | 4,027,815 | 971,834 | 3,055,981 | 12.43 | 245,822 | 6.10% | 0 |
| R06 | Ramps - Yard Storage | 1,236,644 | 525,696 | 710,948 | 20.67 | 34,391 | 2.78% | 0 |
| R07 | Reactors & Resistors | 860,434 | 69,734 | 790,700 | 25.78 | 30,667 | 3.56% | 0 |
| R08 | Reclosers | 3,465,828 | 1,683,894 | 1,781,934 | 27.25 | 65,403 | 1.89% | 0 |
| R09 | Regulators | 3,777,180 | 1,618,625 | 2,158,555 | 24.40 | 88,451 | 2.34% | 0 |
| R10 | Reservoir Power | | | | | | | |
| R11 | Revenue Metering | 761,706 | 202,490 | 559,216 | 16.64 | 33,616 | 4.41% | 0 |
| R12 | Right-of-Ways | 18,020,542 | 5,989,582 | 12,030,960 | **54.95** | 218,944 | 1.21% | -192,655 |
| R13 | Roads | 80,846,787 | 3,979,048 | 76,867,739 | **46.40** | 1,656,632 | 2.05% | -1,280,018 |

**Consumer Advocates' Depreciation Calculation For**
**Newfoundland and Labrador Hydro**
**Excluding Holyrood Assets Not Required or Synchronous Condenser Operations**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| R14 | Routers & LAN | 6,097,246 | 4,797,798 | 1,299,448 | 3.00 | 433,149 | 7.10% | 0 |
| R15 | Runner | 11,669,902 | 3,427,671 | 8,242,231 | 14.28 | 577,150 | 4.95% | 0 |
| S01 | SCADA Equipment | 3,427,679 | 1,934,879 | 1,492,800 | 15.97 | 93,488 | 2.73% | 0 |
| S02 | Sectionalizers | 152,709 | 93,118 | 59,591 | 9.65 | 6,174 | 4.04% | 0 |
| S03 | Servers | 5,081,125 | 3,626,053 | 1,455,072 | 3.00 | 485,024 | 9.55% | 0 |
| S04 | Sewage Disposal System | 2,745,342 | 1,708,195 | 1,037,147 | 36.74 | 28,232 | 1.03% | 0 |
| S05 | Software | 24,077,182 | 19,989,114 | 4,088,068 | **5.65** | 723,552 | 3.01% | -174,330 |
| S06 | Spillway Structures | 26,949,270 | 252,588 | 26,696,682 | 73.56 | 362,935 | 1.35% | 0 |
| S07 | Stacks | 2,126,667 | 1,368,383 | 758,284 | 33.02 | 22,965 | 1.08% | 0 |
| S08 | Static Excittion Systme | 8,295,339 | 4,208,323 | 4,087,016 | 17.63 | 231,836 | 2.79% | 0 |
| S09 | Static Excitation - Xformers | 873,229 | 727,374 | 145,855 | 7.18 | 20,302 | 2.32% | 0 |
| S10 | Station Service | 3,399,371 | 800,120 | 2,599,251 | 17.63 | 147,423 | 4.34% | 0 |
| S11 | Stop Logs | 2,780,642 | 275,711 | 2,504,931 | 41.69 | 60,078 | 2.16% | 0 |
| S12 | Storage Pallets & Rackings | 21,648 | 21,648 | | | | | |
| S13 | Storm & Yard Drainage | 1,194,342 | 982,815 | 211,527 | 27.20 | 7,776 | 0.65% | 0 |
| S14 | Street Lights | 2,546,774 | 637,293 | 1,909,481 | 13.33 | 143,203 | 5.62% | 0 |
| S15 | Structural Supports (Wood or Steel | 8,609,350 | 3,876,232 | 4,733,118 | 22.36 | 211,680 | 2.46% | 0 |
| S16 | Studies | 3,358,184 | 1,444,249 | 1,913,935 | **5.64** | 339,350 | 10.11% | -172,611 |
| S17 | Sump Systems | 238,639 | 84,300 | 154,339 | 24.59 | 6,277 | 2.63% | 0 |
| S18 | Surge Systems | 3,348,521 | 1,702,117 | 1,646,404 | 15.61 | 105,503 | 3.15% | 0 |
| S19 | Station Switching | 10,667,171 | 3,862,529 | 6,804,642 | 34.61 | 196,609 | 1.84% | 0 |
| S20 | Switching Systems - L.V. | 1,805,689 | 116,296 | 1,689,393 | 33.63 | 50,232 | 2.78% | 0 |
| T01 | Teleconrol system | 10,919,785 | 8,230,476 | 2,689,309 | 22.91 | 117,403 | 1.08% | 0 |
| T02 | Test Equipment | 2,128,465 | 1,876,474 | 251,991 | 18.43 | 13,671 | 0.64% | 0 |
| T03 | Tools & Equipment | 11,281,656 | 7,613,134 | 3,668,522 | 18.14 | 202,266 | 1.79% | 0 |
| T04 | Towers | 71,559,610 | 13,980,497 | 57,579,113 | 44.33 | 1,298,875 | 1.82% | 0 |
| T05 | Transformers | 66,582,133 | 25,739,897 | 40,842,236 | 35.53 | 1,149,555 | 1.73% | 0 |
| T06 | Transformers - Padmount | 2,379,223 | 807,836 | 1,571,387 | 31.40 | 50,050 | 2.10% | 0 |
| T07 | Transformers - Pole Mounted | 16,385,241 | 4,804,173 | 11,581,068 | 23.18 | 499,684 | 3.05% | 0 |
| T09 | Turbines | 42,852,399 | 3,835,012 | 39,017,387 | 28.15 | 1,385,887 | 3.23% | 0 |
| V01 | Vacuum Cleaning System | 72,451 | 65,210 | 7,241 | 31.21 | 232 | 0.32% | 0 |
| V02 | Valves - Penstock | 6,882,405 | 1,183,261 | 5,699,144 | 46.51 | 122,523 | 1.78% | 0 |
| V03 | Vehicles - 1 Ton | | | | | | | |

**Consumer Advocates' Depreciation Calculation For**
**Newfoundland and Labrador Hydro**
**Excluding Holyrood Assets Not Required or Synchronous Condenser Operations**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| V04 | Vehicles 3/4 Ton and Under | 3,157,850 | 1,627,287 | 1,530,563 | 4.67 | 327,819 | 10.38% | 0 |
| V05 | Vehicles - Booms/Bodies/Cranes | 10,935,866 | 7,626,020 | 3,309,846 | 13.47 | 245,782 | 2.25% | 0 |
| V06 | Vehicles - Cars, St. Wagons & Van | 2,088,515 | 1,153,743 | 934,772 | 3.92 | 238,370 | 11.41% | 0 |
| V07 | Vehicles - Dum[ trucks | 20,135 | 18,415 | 1,720 | 16.54 | 104 | 0.52% | 0 |
| W01 | Water Regulating Structures | 21,392,991 | 2,437,259 | 18,955,732 | **69.74** | 271,806 | 1.27% | -266,480 |
| W02 | Water Systems | 2,833,440 | 1,121,179 | 1,712,261 | 15.87 | 107,888 | 3.81% | 0 |
| W03 | Water Systems - Feed | 4,197,894 | 3,857,403 | 340,491 | 21.69 | 15,700 | 0.37% | 0 |
| W04 | Water Treatment | 2,793,278 | 2,101,734 | 691,544 | 15.82 | 43,702 | 1.56% | 0 |
| | **Total Depreciable Plant** | 1,851,258,223 | 529,577,511 | 1,321,680,717 | | 35,978,665 | | -3,104,518 |

# JACOB POUS, P.E.

PRESIDENT, DIVERSIFIED UTILITY CONSULTANTS, INC.

B.S. INDUSTRIAL ENGINEERING, M.S. MANAGEMENT

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I graduated from the University of Missouri in 1972, receiving a Bachelor of Science Degree in Engineering, and I graduated with a Master of Science in Management from Rollins College in 1980. I have also completed a series of depreciation programs sponsored by Western Michigan University, and have attended numerous other utility related seminars.

Since my graduation from college, I have been continuously employed in various aspects of the utility business. I started with Kansas City Power & Light Company, working in the Rate Department, Corporate Planning and Economic Controls Department, and for a short time in a power plant. My responsibilities included preparation of testimony and exhibits for retail and wholesale rate cases. I participated in cost of service studies, a loss of load probability study, fixed charge analysis, and economic comparison studies. I was also a principal member of project teams that wrote, installed, maintained, and operated both a computerized series of depreciation programs and a computerized financial corporate model.

I joined the firm of R. W. Beck and Associates, an international consulting engineering firm with over 500 employees performing predominantly utility related work, in 1976 as an Engineer in the Rate Department of its Southeastern Regional Office. While employed with that firm, I prepared and presented rate studies for various electric, gas, water, and sewer systems, prepared and assisted in the preparation of cost of service studies, prepared depreciation and decommissioning analyses for wholesale and retail rate proceedings, and assisted in the development of power supply studies for electric systems. I resigned from that firm in November 1986 in order to co-found Diversified Utility Consultants, Inc. At the time of my resignation, I held the titles of Executive Engineer, Associate and Supervisor of Rates in the Austin office of R. W. Beck and Associates.

As a principal of the firm of Diversified Utility Consultants, Inc., I have presented and prepared numerous electric, gas, and water analyses in both retail and wholesale proceedings. These analyses have been performed on behalf of clients, including public utility commissions, throughout the United States and Canada.

I have been involved in over 400 different utility rate proceedings, many of which have resulted in settlements prior to the presentation of testimony before regulatory bodies. I am registered to practice as a Professional Engineer in many states.

# UTILITY RATE PROCEEDINGS IN WHICH TESTIMONY HAS BEEN PRESENTED BY JACOB POUS

| ALASKA | | |
|---|---|---|
| **ALASKA REGULATORY COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Beluga Pipe Line Company | P-04-81 | Refundable Rates |
| Beluga Pipe Line Company | U-07-141 | Depreciation |
| Kenai Nikiski Pipeline | U-04-81 | Rate Base |
| **ARIZONA** | | |
| **ARIZONA CORPORATION COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Citizens Utilities Company | E-1032-93-111 | Depreciation |
| **ARKANSAS** | | |
| **ARKANSAS PUBLIC SERVICE COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Reliant Energy ARKLA | 01-0243-U | Depreciation |
| **CALIFORNIA** | | |
| **CALIFORNIA PUBLIC SERVICE COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Pacific Gas & Electric Company | App. No. 97-12-020 | Depreciation, Net Salvage, and Amortization of True-Up |
| Pacific Gas & Electric Company | App. No. 02-11-017 | Mass Property Salvage, Net Salvage, Mass Property Life, Life Analysis, Remaining Life, Depreciation |
| San Diego Gas & Electric Company | | Value of Power Plants |
| Southern California Edison Company | App 02-05-004 | Depreciation, Net Salvage |
| Southern California Edison Company | App 10-11-015 | Mass Property Life and Net Salvage |
| Southern California Gas & San Diego Gas & Electric Company | Apps 10-12-005 & 10-12-006 | Mass Property Life, Mass Property Net Salvage |
| **CANADA** | | |
| **ALBERTA ENERGY AND UTILITIES BOARD** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| AltaLink Management/ Transalta Utilities Corporation | App. Nos. 1279345 and 1279347 | Depreciation |
| Epcor Distribution, Inc. | App. No. 1306821 | Depreciation |
| Enmax Corporation | App. No. 1306818 | Depreciation |
| Transalta Utilities Corporation | TFO Tariff App. 1287507 | Depreciation |
| UtiliCorp Networks Canada (Alberta) Ltd. | App. No. 1250392 | Depreciation |
| Atco Electric | App. No. 1275494 | Depreciation |
| **ALBERTA PUBLIC UTILITIES BOARD** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Alberta Power Limited | E 91095 | Depreciation |
| Alberta Power Limited | E 97065 | Depreciation |

| | | |
|---|---|---|
| Canadian Western Natural Gas Company, Ltd. | | Depreciation |
| Centra Gas Alberta, Inc. | | Depreciation |
| Edmonton Power Company | E 97065 | Depreciation |
| Edmonton Power Generation, Inc. | 1999/2000 | GUR Compliance, Depreciation |
| Northwestern Utilities, Ltd | E 91044 | Depreciation |
| NOVA Gas Transmission, Ltd. | RE95006 | Depreciation |
| TransAlta Utilities Corporation | E 91093 | Depreciation |
| TransAlta Utilities Corporation | E 97065 | Depreciation |
| TransAlta Utilities Corporation | App. No. 200051 | Gain on Sale |
| **ALBERTA UTILITIES COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| AltaGas Utilities | 1606694 | Life Analysis, Net Salvage |
| AltaLink Management, Ltd. | 1606895 | Life Analysis, Net Salvage |
| ATCO Gas | 1606822 | Life Analysis, Net Salvage |
| FortisAlberta | 1607159 | Life Analysis, Net Salvage |
| **NORTHWEST TERRITORIES PUBLIC UTILITIES BOARD** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Northwest Territories Power Corporation | 1995/96 and 1996-97 | Depreciation |
| Northwest Territories Power Corporation | 2001 | Depreciation |
| **NOVA SCOTIA UTILITY AND REVIEW BOARD** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Nova Scotia Power, Inc. | M03665 | Production Plant Life and Net Salvage (Inflation), Interim Retirements, Mass Property Life and Net Salvage, ELG vs. ALG, Remaining Life, Fully Accrued |
| **COURTS** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| 7th Judicial Circuit Court of Florida | 2008-30441-CICI | Depreciation Valuation |
| 112th Judicial District Court of Texas | 5093 | Ratemaking Principles, Calculation of damages |
| 253rd Judicial District Court of Texas | 45,615 | Ratemaking Principles, Level of Bond |
| 126th Judicial District Court of Texas | 91-1519 | Ratemaking Principles, Level of Bond |
| 172 Judicial District Court of Texas | | Franchise Fees |
| United States Bankruptcy Court Eastern District of Texas | 93-10408S | Level of Harm, Ratemaking, Equity for Creditors |
| 3rd Judicial District Court of Texas | | Adequacy of Notice |
| **DISTRICT OF COLUMBIA** | | |
| **PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Washington Gas Light Company | 768 | Depreciation |
| **FLORIDA** | | |
| **FLORIDA PUBLIC SERVICE COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Progress Energy Florida, Inc. | 090079-EI | Depreciation, Excess Reserve |
| Progress Energy Florida, Inc. | 050078-EL | Depreciation, Excess Reserve |
| Florida Power & Light Company | 790380-EU | Territorial Dispute |

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|---|---|---|
| Florida Power & Light Company | 080677-EI<br>090130-EI | Depreciation, Excess Reserve |
| Florida Power & Light Company | 120015-EI | Excess Reserve |
| **FEDERAL ENERGY REGULATORY COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Alabama Power Company | ER83-369 | Depreciation |
| Connecticut Municipal Electric Energy Cooperative v. Connecticut Light & Power Company | EL83-14 | Decommissioning |
| Florida Power & Light Company | ER84-379 | Depreciation, Decommissioning |
| Florida Power & Light Company | ER93-327-000 | Transmission Access |
| Georgia Power Company | ER76-587 | Rate Base |
| Georgia Power Company | ER79-88 | Depreciation |
| Georgia Power Company | ER81-730 | Coal Fuel Stock Inventory, Depreciation |
| ISO New England, Inc. | ER07-166-000 | Depreciation |
| Maine Yankee Atomic Power Company | ER84-344-001 | Depreciation, Decommissioning |
| Maine Yankee Atomic Power Company | ER88-202 | Decommissioning |
| Pacific Gas & Electric | ER80-214 | Depreciation |
| Public Service of Indiana | ER95-625-000,<br>ER95-626-000 &<br>ER95-039-000 | Depreciation, Dismantlement |
| Southern California Edison Company | ER81-177 | Depreciation |
| Southern California Edison Company | ER82-427 | Depreciation, Decommissioning |
| Southern California Edison Company | ER84-75 | Depreciation, Decommissioning |
| Southwestern Public Service Company | EL 89-50 | Depreciation, Decommissioning |
| System Energy Resource, Inc. | ER95-1042-000 | Depreciation, Decommissioning |
| Vermont Electric Power Company | ER83 342000 &<br>343000 | Decommissioning |
| Virginia Electric and Power Company | ER78-522 | Depreciation, Rate Base |
| **INDIANA** | | |
| **INDIANA UTILITY REGULATORY COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Indianapolis Water Company | 39128 | Depreciation |
| Indiana Michigan Power Company | 39314 | Depreciation, Decommissioning |
| **KANSAS** | | |
| **KANSAS CORPORATION COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Arkansas Louisiana Gas Company | 181,200-U | Depreciation |
| United Cities Gas Company | 181,940-U | Depreciation |
| **LOUISIANA** | | |
| **LOUISIANA PUBLIC SERVICE COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Louisiana Power & Light Company | U-16945 | Nuclear Prudence, Depreciation |
| **CITY OF NEW ORLEANS** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Entergy New Orleans, Inc. | UD-00-2 | Rate Base, Depreciation |

| MASSACHUSETTS | | |
|---|---|---|
| **MASSACHUSETTS TELECOMMUNICATION AND ENERGY** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Bay State Gas | D.T.E.-0527 | Depreciation |
| National Grid/KeySpan | 07-30 | Quality of Service |
| **MISSISSIPPI** | | |
| **MISSISSIPPI PUBLIC SERVICE COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Mississippi Power Company | U-3739 | Cost of Service, Rate Base, Depreciation |
| **MONTANA** | | |
| **MONTANA PUBLIC SERVICE COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Montana Power Company (Gas) | 90.6.39 | Depreciation |
| Montana Power Company (Electric) | 90.3.17 | Depreciation, Decommissioning |
| Montana Power Company (Electric and Gas) | 95.9.128 | Depreciation |
| Montana-Dakota Utilities | D2007.7.79 | Depreciation |
| Montana-Dakota Utilities | D2010.8.82 | Depreciation, Interim Retirements, Production Plant Life and Net Salvage |
| **NEVADA** | | |
| **PUBLIC UTILITIES COMMISSION OF NEVADA** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Nevada Power Company | 81-602, 81-685 Cons. | Depreciation |
| Nevada Power Company | 83-667, Consolidated | Depreciation |
| Nevada Power Company | 91-5032 | Depreciation, Decommissioning |
| Nevada Power Company | 03-10002 | Depreciation |
| Nevada Power Company | 08-12002 | Depreciation, CWC |
| Nevada Power Company | 06-06051 | Depreciation, Life Spans, Decommissioning Costs, Deferred Accounting |
| Nevada Power Company | 06-11022 | General Rate Case |
| Nevada Power Company | 10-02009 | Production Life Spans |
| Nevada Power Company | 11-06007 | Early Retirement, Production Plant Net Salvage, Mass Property Life, Mass Property Net Salvage, Excess APFD |
| Sierra Pacific Gas Company | 06-07010 | Depreciation, Generating Plant Life Spans, Decommissioning Costs, Carrying Costs |
| Sierra Pacific Power Company | 83-955 | Depreciation (Electric, Gas, Water, Common) |
| Sierra Pacific Power Company | 86-557 | Depreciation, Decommissioning |
| Sierra Pacific Power Company | 89-516, 517, 518 | Depreciation, Decommissioning (Electric, Gas, Water, Common) |
| Sierra Pacific Power Company | 91-7079, 80, 81 | Depreciation, Decommissioning (Electric, Gas, Water, Common) |

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|---|---|---|
| Sierra Pacific Power Company | 03-12002 | Allowable Level of Plant in Service |
| Sierra Pacific Power Company | 05-10004 | Depreciation |
| Sierra Pacific Power Company | 05-10006 | Depreciation |
| Sierra Pacific Power Company | 07-12001 | Depreciation, CWC |
| Sierra Pacific Power Company | 10-06003 | Depreciation, Excess Reserve, Life Spans, Net Salvage |
| Sierra Pacific Power Company | 10-06004 | Depreciation, Net Salvage |
| Southwest Gas Corporation | 93-3025 & 93-3005 | Depreciation |
| Southwest Gas Corporation | 04-3011 | Depreciation |
| Southwest Gas Corporation | 07-09030 | Depreciation |
| Southwest Gas Corporation | 12-04005 | Depreciation |
| **NORTH CAROLINA** | | |
| **NORTH CAROLINA UTILITIES COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| North Carolina Natural Gas | G-21, Sub 177 | Cost of Service, Rate Design, Depreciation |
| **OKLAHOMA** | | |
| **OKLAHOMA CORPORATION COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Arkansas Oklahoma Gas Corporation | PUD 200300088 | CWC, Legal Expenses, Factoring, Cost Allocation, Depreciation |
| Oklahoma Natural Gas Company | PUD 980000683 | Depreciation, Calculation Procedure, Depreciation on CWIP |
| Reliant Energy ARKLA | PUD 200200166 | Depreciation, Net Salvage, Software Amortization |
| Public Service Company of Oklahoma | PUD 960000214 | Depreciation, Interim Activity, Net Salvage, Mass Property, Rate Calculation Technique |
| Public Service Company of Oklahoma | PUD 200600285 | Depreciation |
| Public Service Company of Oklahoma | PUD 200800144 | Depreciation |
| Public Service Company of Oklahoma | PUD 201000050 | Depreciation, Evaluation vs. Measurement, Interim and Terminal Net Salvage, Economies of Scale |
| Oklahoma Gas & Electric | PUD 201100087 | Depreciation |
| **TEXAS** | | |
| **PUBLIC UTILITY COMMISSION OF TEXAS** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| CenterPoint Energy Houston Electric, LLC | 29526 | Stranded Costs |
| CenterPoint Energy Houston Electric, LLC | 36918 | Hurricane Cost Recovery |
| CenterPoint Energy Houston Electric, LLC | 38339 | Depreciation, Net Salvage, Excess Reserve, Gain on Sale |
| Central Power & Light Company | 6375 | Depreciation, Rate Base, Cost of Service |
| Central Power & Light Company | 8439 | Fuel Factor |
| Central Power & Light Company | 8646 | Rate Base, Excess Capacity, Depreciation, Rate Design, Rate Case Expense |

| | | |
|---|---|---|
| Central Power & Light Company | 9561 | Depreciation, Excess Capacity, Cost of Service, Rate Base, Taxes |
| Central Power & Light Company | 11371 | Economic Development Rate |
| Central Power & Light Company | 12820 | Nuclear Fuel and Process, OPEB, Pension, Factoring, Depreciation |
| Central Power & Light Company | 14965 | Depreciation, Cash Working Capital, Pension, OPEB, Factoring, Demonstration and Selling Expense, Non-Nuclear Decommissioning |
| Central Power & Light Company | 22352 | Depreciation |
| Central Telephone & United Telephone Company of Texas d/b/a Sprint | 17809 | Rate Case Expenses |
| City of Fredericksburg | 7661 | Territorial Dispute |
| El Paso Electric Company | 9165 | Depreciation |
| Entergy Gulf States, Inc. | 16705 | Depreciation, Prepayments, Payroll Expense, Pension Expense, OPEB, CWC, Transfer of T&D Depreciation |
| Entergy Gulf States, Inc. | 21111 | Reconcilable Fuel Costs |
| Entergy Gulf States, Inc. | 21384 | Fuel Surcharge |
| Entergy Gulf States, Inc. | 23000 | Fuel Surcharge |
| Entergy Gulf States, Inc. | 22356 | Unbundling, Competition, Cost of Service |
| Entergy Gulf States, Inc. | 23550 | Reconcilable Fuel Costs |
| Entergy Gulf States, Inc. | 24336 | Price to Beat |
| Entergy Gulf States, Inc. | 24460 | Implement PUC Subst.R.25.41(f)(3)(D) |
| Entergy Gulf States, Inc. | 24469 | Delay of Deregulation |
| Entergy Gulf States, Inc. | 24953 | Interim Fuel Surcharge |
| Entergy Gulf States, Inc. | 26612 | Fuel Surcharge |
| Entergy Gulf States, Inc. | 28504 | Interim Fuel Surcharge |
| Entergy Gulf States, Inc. | 28818 | Cert. for Independent Organization |
| Entergy Gulf States, Inc. | 29408 | Fuel Reconciliation |
| Entergy Gulf States, Inc. | 30163 | Interim Fuel Surcharge |
| Entergy Gulf States, Inc. | 31315 | Incremental Purchase Capacity Rider |
| Entergy Gulf States, Inc. | 31544 | Transition to Competition Cost |
| Entergy Gulf States, Inc. | 32465 | Interim Fuel Surcharge |
| Entergy Gulf States, Inc. | 32710 | River Bend 30%, Explicit Capacity, Imputed Capacity, IPCR, SGSF Operating Costs and Depreciation Recovery, Option Costs |
| Entergy Gulf States, Inc. | 33687 | Transition to Competition |
| Entergy Gulf States, Inc. | 33966 | Interim Fuel Surcharge |
| Entergy Gulf States, Inc. | 32907 | Hurricane Reconstruction |
| Entergy Gulf States, Inc. | 34724 | IPCR |
| Entergy Gulf States, Inc. | 34800 | JSP, Depreciation, Decommissioning, Amortization, CWC, Franchise Fees, Rate Case Exp. |
| Entergy Texas Inc. | 37744 | Depreciation, Property Insurance Reserve, Cash Working Capital, Decommissioning Funding, Gas Storage |

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|---|---|---|
| Entergy Texas Inc. | 39896 | Depreciation, Amortization, Property Insurance Reserve, Cash Working Capital |
| Gulf States Utilities Company | 5560 | Depreciation, Fuel Cost Factor |
| Gulf States Utilities Company | 5820 | Fuel Cost, Capacity Factors, Heat Rates |
| Gulf States Utilities Company | 6525 | Depreciation, Rate Case Expenses |
| Gulf States Utilities Company | 7195 & 6755 | Depreciation, Interim Cash Study, Excess Capacity, Rate Case Expense |
| Gulf States Utilities Company | 8702 | Rate Case Expenses, Depreciation |
| Gulf States Utilities Company | 10,894 | Fuel Reconciliation, Rate Case Expenses |
| Gulf States Utilities Company & Entergy Corporation | 11292 | Acquisition Adjustment Regulatory Plan, Base Rate, Rate Case Expenses |
| Gulf States Utilities Company & Entergy Corporation | 12423 | North Star Steel Agreement |
| Gulf States Utilities Company & Entergy Corporation | 12852 | Depreciation, OPEB, Pensions, Cash Working Capital, Other Cost of Service, and Rate Base Items |
| Houston Light & Power Company | 6765 | Depreciation, Production Plant, Early Retirement |
| Lower Colorado River Authority | 8400 | Rate Design |
| Magic Valley Electric Cooperative, Inc. | 10820 | Cost of Service, Financial Integrity, Rate Case Expenses |
| Oncor Electric Delivery, LLC | 35717 | Depreciation, Self-Insurance, Payroll, Automated Meters, Regulatory Assets, PHFU |
| Southwestern Bell Telephone Company | 18513 | Rate Case Expenses |
| Southwestern Electric Power Company | 3716 | Depreciation |
| Southwestern Electric Power Company | 4628 | Depreciation |
| Southwestern Electric Power Company | 5301 | Depreciation, Fuel Charges, Franchise Fees |
| Southwestern Electric Power Company | 24449 | Fuel Factor Component of Price to Beat Rates |
| Southwestern Electric Power Company | 24468 | Delay of Deregulation |
| Southwestern Public Service Company | 11520 | Depreciation, Cash Working Capital, Rate Case Expenses |
| Southwestern Public Service Company | 32766 | Depreciation Expense Revenue Requirements |
| Southwestern Public Service Company | 35763 | Depreciation |
| Texas-New Mexico Power Company | 9491 | Avoided Cost, Rate Case Expenses |
| Texas-New Mexico Power Company | 10200 | Jurisdictional Separation, Cost Allocation, Rate Case Expenses |
| Texas-New Mexico Power Company | 17751 | Rate Case Expenses |
| Texas-New Mexico Power Company | 36025 | Depreciation |
| Texas-New Mexico Power Company | 38480 | Depreciation, Mass Property Life, Net Salvage |
| Texas Utilities Electric Company | 5640 | Franchise Fees |
| Texas Utilities Electric Company | 9300 | Depreciation, Rate Base, Cost of Service, Fuel Charges, Rate Case Expenses |
| Texas Utilities Electric Company | 11735 | Cost Allocation, Rate Design, Rate Case Expenses |

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|---|---|---|
| Texas Utilities Electric Company | 18490 | Depreciation Reclassification |
| West Texas Utilities Company | 7510 | Depreciation, Decommissioning, Rate Base, Cost of Service, Rate Design, Rate Case Expenses |
| West Texas Utilities Company | 10035 | Fuel Reconciliation, Rate Case Expenses |
| West Texas Utilities Company | 13369 | Depreciation, Payroll, Pension, OPEB, Cash Working Capital, Fuel Inventory, Cost Allocation |
| West Texas Utilities Company | 22354 | Depreciation |
| **RAILROAD COMMISSION OF TEXAS** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Atmos Energy Corporation | 9530 | Gas Cost, Gas Purchases, Price Mitigation, Rate Case Expense |
| Atmos Energy Corporation | 9670 | CWC, Depreciation, Expenses, Shared Services, Taxes Other Than FIT, Excess Return |
| Atmos Energy Corporation | 9695 | Rate Case Expense |
| Atmos Energy Corporation | 9762 | Depreciation, O&M Expense |
| Atmos Energy Corporation | 9732 | Rate Case Expense |
| Atmos Energy Corporation | 9869 | Revenue Requirements |
| Atmos Energy Corporation | 10041 | Mass Property Life, Net Salvage |
| Atmos Energy Corporation | 10170 | Depreciation, Mass Property Life, Net Salvage |
| Atmos Pipeline-Texas | 10000 | Rate Base, Depreciation Life and Net Salvage, Incentive Compensation, Merit Increase, Outside Director Retirement Costs, SEBP |
| CenterPoint Energy Entex – City of Tyler | 9364 | Capital Investment, Affiliates |
| CenterPoint Energy Entex – Gulf Coast Division | 9791 | Rate Base, Cost Allocation, Affiliate Expenses, Depreciation Net Salvage, Call Center, Litigation, Uncollectibles, Post Test Year Adjustments |
| CenterPoint Energy Entex – City of Houston | 9902 | CWC, Plant Adjustments, Depreciation, Payroll, Pensions, Cost Allocation |
| CenterPoint Energy Entex – South Texas Division | 10038 | CWC, Incentive Compensation, Payroll, Depreciation |
| CenterPoint Energy – Texas Coast Division | 10007 | Cost of Service Adjustment, CWC, ADIT, Incentive Compensation, Pension, Meter Reading, Customer Records and Collection, Investor Relations/Investor Services |
| CenterPoint Energy – Texas Coast Division | 10097 | Pension, Severance Expense |
| Energas Company | 5793 | Depreciation |
| Energas Company v. Westar Transmissions Company | 5168 & 4892 Cons. | Cost of Service, Refunds, Contracts, Depreciation |

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| Energas Company | 8205 | Cost of Service, Rate Base, Depreciation, Affiliate Transactions, Sale/Leaseback, Losses, Income Taxes |
| Energas Company | 9002-9135 | Depreciation, Pension, Cash Working Capital, OPEB, Rate Design |
| Lone Star Gas Company | 8664 | Cash Working Capital, Depreciation Expense, Gain on Sale of Plant, OPEB, Rate Case Expenses |
| Rio Grande Valley Gas Company | 7604 | Depreciation |
| Southern Union Gas Company | 2738, 2958, 3002, 3018, 3019 Cons. | Cost of Service, Rate Design, Depreciation |
| Southern Union Gas Company | 6968 Interim & Cons. | Affiliate Transactions, Rate Base, Income Taxes, Revenues, Cost of Service, Conservation, Depreciation |
| Southern Union Gas Company | 8033 Consolidated | Acquisition Adjustment, Depreciation, Excess Reserve, Distribution Plant, Cost of Gas Clause, Rate Case Expenses |
| Southern Union Gas Company | 8878 | Depreciation, Cash Working Capital, Gain on Sale of Building, Rate Case Expenses, Rate Design |
| Texas Gas Service Company | 9988 & 9992 Cons. | Cash Working Capital, Post Test Year Plant, ADFIT, Excess Reserve, Depreciation Expense, Amortization of General Plant, Corporate and Division Expenses, Incentive Compensation, Hotel and Meals Expense, Pipeline Integrity Costs |
| TXU Gas Distribution | 9145-9147 | Depreciation, Cash Working Capital, Revenues, Gain on Sale of Assets, Clearing Accounts, Over-Recovery of Clearing Accounts, SFAS 106, Wages and Salaries, Merger Costs, Intra System Allocation, Zero Intercept, Customer Weighting Factor, Rate Design |
| TXU Gas Distribution | 9400 | Depreciation, Net Salvage, Cash Working Capital, Affiliate Transactions, Software Amortization, Securitization, O&M Expenses, Safety Compliance |
| TXU Lone Star Pipeline | 8976 | Depreciation, Net Salvage, Cash Working Capital, ALG vs. ELG |
| Westar Transmissions Company | 5787 | Depreciation, Rate Base, Cost of Service, Rate Design, Contract Issues, Revenues, Losses, Income Taxes |
| **TEXAS WATER COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| City of Harlingen-Certificate for Convenience & Necessity | 8480C/8485C/8512C | Rate Impact for CCN |
| City of Round Rock | 8599/8600M | Rate Discrimination, Cost of Service |

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| Devers Canal System | 8388-M | Affiliate Transactions, O&M Expense, Return, Allocation, Acquisition Adjustment, Retroactive Ratemaking, Rate Case Expenses, Depreciation |
| Devers Canal System | 30102-M | Cost of Service, Rate Base, Ratemaking Principles, Affiliate Transactions |
| Southern Utilities Company | 7371-R | Affiliate Transactions, Cost of Service |
| Scenic Oaks Water Supply Corporation | 8097-G | Affiliate Transactions, Cost of Service, Rate base, Cost of Capital, Rate Design, Depreciation |
| Sharyland Water Supply vs. United Irrigation District | 8293-M | Rate Discrimination, Cost of Service, Rate Case Expenses |
| Southern Water Corporation | 2008-1811-UCR | Cost of Service |
| Travis County Water Control & Improv. District No. 20 | | Cost of Service |
| **EL PASO PUBLIC UTILITY REGULATION BOARD** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| Southern Union Gas Company | 1991 | Depreciation, Calculation Procedure |
| Southern Union Gas Company | 1997 | Depreciation, Calculation Procedure |
| Southern Union Gas Company | GUD 8878 – 1998 | Depreciation, Cash Working Capital, Rate Design, Rate Case Expenses |
| Texas Gas Services Company | 2007 | Revenue Requirements |
| Texas Gas Services Company | 2011 | Revenue Requirements |
| **UTAH** | | |
| **UTAH PUBLIC SERVICE COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| PacifiCorp | 98-2035-03 | Production Plant Net Salvage, Production Life Span, Interim Additions, Mass Property, Depreciation |
| Questar | 05-057-T01 | Conservation Enabling Tariff Adjustment Option and Accounting Orders |
| Rocky Mountain Power | 07-035-13 | Depreciation |
| **WYOMING** | | |
| **WYOMING PUBLIC SERVICE COMMISSION** | | |
| JURISDICTION / COMPANY | DOCKET NO. | TESTIMONY TOPIC |
| PacifiCorp | 20000-ER-00-162 | Rate Parity |