Witness OCS – 2D

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of	**)**	**Docket No. 13-035-02**
Rocky Mountain Power for Authority	**)**	**Direct Testimony of**
to Change its Depreciation Rates	**)**	**Jacob Pous**
Effective January 1, 2014	**)**	**For the Office of**
	)	**Consumer Services**

JUNE 21, 2013

DIRECT TESTIMONY OF
JACOB POUS

ON BEHALF OF THE OFFICE OF CONSUMER SERVICES

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DIRECT TESTIMONY AND EXHIBITS OF JACOB POUS

ACRONYMS

2011 DEPRECIATION STUDY	Depreciation Study based on plant ending December 31, 2011
AICPA	American Institute of Certified Public Accountants
ALG	Average Life Group
ASL	Average Service Life
CCCT	Combined-Cycle Combustion Turbines
CFR	Code of Federal Regulations
CI	Conformance Index
COMMISSION	Utah Public Service Commission
COMMONWEALTH	Commonwealth Edison Company
COMPANY or RMP	Rocky Mountain Power Company
DUCI	Diversified Utility Consultants, Inc.
FERC	Federal Energy Regulatory Commission
IMPC	Indiana Michigan Power Company
NARUC	National Association of Regulatory Utility Commissioners
OCS	Office of Consumer Services
OLT	Observed Life Table
REI	Retirement Experience Index
SPR	Simulated Plant Record Balance Method
SSD	Sum of Squares Difference

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. 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. In total, I have participated in well over 400 utility rate proceedings in the United States and Canada. In particular, I have submitted testimony on the topic of depreciation in over 200 cases, and I have analyzed Rocky Mountain Power Company's ("RMP" or the "Company") last three depreciation studies.

Q. WHAT IS YOUR PROFESSIONAL BACKGROUND?

A. I am a registered professional engineer. I am registered to practice as a Professional Engineer in several states.

Q. ON WHOSE BEHALF ARE YOU PROVIDING THIS TESTIMONY?

A. My testimony and recommendations are sponsored on behalf of the Office of Consumer Services ("OCS").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address the reasonableness of RMP's request to increase its depreciation rates, as filed before the Utah Public Service Commission ("Commission") in Docket No. 13-035-02.

SECTION II: SUMMARY

Q. PLEASE SUMMARIZE THE COMPANY'S DEPRECIATION PRESENTATION.

A. The Company developed a depreciation study based on plant as of December 31, 2011 ("2011 Depreciation Study").[1] The 2011 Depreciation Study was developed by Gannett Fleming and sponsored by Mr. John Spanos. While the 2011 Depreciation Study establishes the Company's proposed mortality characteristics (i.e., life and net salvage parameters for each of its various accounts), the Company takes the unusual action of estimating interim additions, interim retirements, and future corresponding net salvage aspects of its plant through December 31, 2013. The Company further adjusts the estimated remaining life for its investment based on the December 31, 2013 time frame compared to the December 31, 2011 time frame utilized in its 2011 Depreciation Study.

The Company's 2011 Depreciation Study establishes a total Company level of depreciation expense of $622 million, or $260.0 million when allocated to the Utah jurisdiction.[2] However, by taking the unusual step of changing the depreciation test period from historical calendar year 2011 to estimated calendar year 2013, the Company actually proposes higher depreciation rates that result in a $743 million total Company level of depreciation expense, or $310.9 million when allocated to the Utah jurisdiction.

Q. PLEASE SUMMARIZE YOUR TESTIMONY AND RECOMMENDATIONS.

A. I have reviewed and analyzed RMP's request and underlying support. Based on my analysis of RMP's 2011 Depreciation Study, direct testimony and exhibits, and responses to data requests, I recommend various adjustments to the proposed life and net salvage parameters. As shown in Exhibit OCS 2.1 (Direct) these recommendations result in an annual Utah jurisdictional level of depreciation expense of $237.5 million based on depreciable plant as of

[1] Exhibit 2011 Depreciation Study.
[2] Exhibit 2011 Depreciation Study at page III-19 and allocation factors from Exhibit RMP___(HEL-1).

December 31, 2011, compared to the Company's request of $310.9 million based on plant as of December 31, 2013, or a $73.6 million reduction to the Company's proposed $70.5 increase on a Utah jurisdictional basis.[3] Thus, my overall recommendation is a $3.1 million decrease to existing depreciation expense on a Utah jurisdictional basis.

The following is a brief synopsis of each adjustment that I recommend. The adjustments are provided at both 2011 and 2013 values, depending on whether or not the Commission allows the Company's proposal to include interim additions through year-end 2013 in establishing new depreciation rates.

- **Depreciation Rate Time Frame Interim Additions –** As noted above, the Company takes the unusual position of estimating interim additions[4] as well as other components of net plant, life, and net salvage aspects of its investment two years beyond the actual test year period utilized for its depreciation study. In other words, the Company performs life and net salvage analyses on actual plant as of December 31, 2011, but then takes the atypical action of modifying those rates to reflect its estimate of additional changes in plant, depreciation reserve, and remaining lives for an additional two-year period ending as of December 31, 2013. In particular, due to the unusual proposed cost levels associated with its Carbon production plant and the very short remaining life that results from such action, the Company's overall depreciation request and rates increase significantly due to the application of this non-standard approach. Proper depreciation and ratemaking recognizes and reflects reliance on depreciation rates established in a depreciation study applied to actual plant balances allowed for ratemaking purposes when the Company files an actual rate case. Changes in mortality characteristics and thus depreciation rates are normally limited to depreciation studies based on analyses of actual historical plant data, not future manipulated data estimates. I recommend continuation of the standard industry practice performed by the vast majority of the industry, and as previously practiced by the Company, which requires reliance on depreciation rates based on

[3] The Company operates in several jurisdictions. Its investment in production, transmission, general and mining plant is allocated to each jurisdiction using various system allocation factors. The allocation factors to Utah are listed on Exhibit RMP___(HEL-1) are approximately 42%.

[4] National Association of Regulatory Commissioners' publication "Public Utility Depreciation Practices", 1996 edition at page 321, defines interim additions as "used in life span analysis, additions made subsequent to the year in which the unit was placed in service. Interim additions are not considered in the depreciation computation until they occur."

plant as of December 31, 2011.[5] The impact of my recommendation results in a reduction in Utah jurisdictional depreciation expense of $22.4 million.

- **Production Plant Life Spans –** The Company's proposal of a 40-year life span for combined-cycle combustion turbines ("CCCT") is too short. CCCTs represent some of the most efficient generating facilities available to the Company. Economic theory mandates maximization of capital intensive assets, especially those associated with efficient operation of the system. I recommend correction of the Company's historic practice of understating life spans for new types of generation. I recommend a five-year increase in life span for CCCT units, or 45 years. The impact of my recommendation is a reduction in Utah jurisdictional depreciation expense of approximately $2.4 million and $2.7 million based on plant as of December 2011 and 2013, respectively.

- **Production Plant Interim Retirements –** The Company requests recognition of the impact of interim retirements in the calculation of production plant depreciation rates. While such practice is not unreasonable, the Company proposes a new method that inappropriately magnifies the impact of interim retirements in the depreciation calculation. Retention of the interim retirement approach previously employed by the Company along with reliance on Company specific data is more appropriate for the establishment of the intended fine tuning impact of interim retirements. My recommended adjustments result in a $11.7 million and $16.1 million reduction in Utah jurisdictional annual depreciation expense based on plant as of December 31, 2011 and 2013, respectively.

- **Production Plant Net Salvage –** The Company's proposed terminal net salvage values are based on various erroneous studies or unsubstantiated estimations. In particular, the Company proposes a $330 per kW terminal net salvage for its Carbon generating plant. This particular component of the Company's request represents a significant portion of the Company's overall depreciation requested increase. As discussed later in my direct testimony, the Company's request for the Carbon plant is based on studies that are either inaccurate, unsubstantiated, or unrealistic. In addition, the Company's request to continue the use of a $40 per kW estimate for the remainder of its coal-fired generating facilities is excessive. Finally, the Company's estimates for terminal net salvage associated with its gas and wind Other Production generating facilities are unsubstantiated and excessive. I recommend reliance on a $30 per kW, an $8 per kW, and a $5 per kW terminal net salvage estimate for steam-

[5] While the existing rates include the recognition of two months of estimated data, those rates are based on a settlement in Docket No. 07-035-13. The settlement further notes that no party acknowledges the validity of any principle or practice.

fired, Other Production – gas-fired, and Other Production – wind generating facilities, respectively. My recommendations result in a $16.3 million and $21.0 million reduction in Utah jurisdictional annual depreciation expense based on plant as of December 31, 2011 and 2013, respectively.

- **Mass Property Life Analysis –** The Company proposes estimated life parameters for its various mass property accounts. Mass property accounts include transmission, distribution, and general plant. The Company relies on actuarial or semi-actuarial analyses as part of the basis for its proposed life parameters. Based on a review of the available information, longer average service lives ("ASL") are warranted for at least five accounts impacting the Utah jurisdiction. The impact of my recommendations for these five accounts results in a Utah jurisdictional reduction in depreciation expense of $3.9 million and $5.4 million based on plant as of December 31, 2011 and 2013, respectively.

- **Combined Impact –** As shown on Exhibit OCS 2.1 (Direct), the combined impact of the various recommendations is not the summation of the individual components. The life span, net salvage, and interim retirement adjustments for production plant interact with one another and the retention of 2011 rather than 2013 values further impacts the results. Therefore the combined impact of my recommendations results in a $73.5 million reduction to requested depreciation expense on a Utah jurisdictional basis.

The following series of tables summarize the depreciation expense adjustments on a Utah jurisdictional basis. The first table presents all OCS recommendations compared to RMP's request, including the reversal of the Company's proposed 2013 based depreciation rates. The second table presents all OCS recommendations without the interim additions adjustment compared to RMP's request based on 2013 values. The third table presents all OCS recommendations compared to RMP's 2011 depreciation study rates, which the Company did not propose as it is requesting 2013 based depreciation rates.

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UTAH JURISDICTIONAL ONLY IMPACT
OCS Recommended 2011 to RMP Proposed 2013
($ Millions)

	2013 Existing RMP	2013 RMP Proposed	Existing to RMP Proposed	2011 OCS Recommended	OCS 2011 to RMP 2013
Electric Plant w/o Carbon	$ 239.0	$ 277.1	$ 38.1	$ 229.8	$ (47.3)
Carbon Plant	$ 1.5	$ 33.9	$ 32.4	$ 7.6	$ (26.3)
Electric Plant	$ 240.4	$ 310.9	$ 70.5	$ 237.5	$ (73.6)

Table 2

UTAH JURISDICTIONAL ONLY IMPACT
2013 Comparison Only
($ Millions)

	2013 Existing RMP	2013 RMP Proposed	Existing to RMP Proposed	2013 OCS Presented	OCS 2013 to RMP 2013
Electric Plant w/o Carbon	$ 239.0	$ 277.1	$ 38.1	$ 255.1	$ (22.0)
Carbon Plant	$ 1.5	$ 33.9	$ 32.4	$ 31.5	$ (2.4)
Electric Plant	$ 240.4	$ 310.9	$ 70.5	$ 286.6	$ (24.4)

Table 3

UTAH JURISDICTIONAL ONLY IMPACT
2011 Comparison Only
($ Millions)

	2011 Existing RMP	2011 RMP Presented	Existing to RMP Presented	2011 OCS Recommended	OCS 2011 to RMP 2011
Electric Plant w/o Carbon	$ 153.2	$ 246.4	$ 93.2	$ 229.8	$ (16.6)
Carbon Plant	$ 1.6	$ 14.3	$ 12.7	$ 7.6	$ (6.7)
Electric Plant	$ 154.8	$ 260.7	$ 105.9	$ 237.5	$ (23.3)

SECTION III: DEPRECIATION – GENERAL

Q. WHAT IS DEPRECIATION?

A. There are two commonly cited definitions of depreciation. The first comes from the Federal Energy Regulatory Commission ("FERC"):[6]

> 'Depreciation,' as applied to depreciable plant, means the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of electric plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, 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.

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:[7]

[6] Title 18 of the Code of Federal Regulations ("CFR") Part 101, Definition 12.

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

The remaining life technique is as follows:

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

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. 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.

Q. WHAT IS A DEPRECIATION SYSTEM?

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

[7] 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 over some period of time may be recommended.

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. The average life group ("ALG") procedure is used by the vast majority of utilities.

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. 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.

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

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. HOW DOES NET SALVAGE IMPACT THE CALCULATION OF DEPRECIATION?

A. The intent of the depreciation process is to allow the Company to recover 100% of investment less net salvage. Therefore, if net salvage is a positive 10%, then the utility should recover only 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: DEPRECIATION RATE TIME PERIOD – INTERIM ADDITIONS

Q. WHAT DO YOU ADDRESS IN THIS PORTION OF YOUR TESTIMONY?

A. I address the Company's inappropriate attempt to include interim additions in its calculation of depreciation rates. The Company is attempting to estimate additions and retirements two years beyond the actual plant analyzed in its depreciation study, which ended December 31, 2011. The Company's actions also result in estimated changes to remaining lives, which significantly attempts to accelerate capital recovery but without the benefit of any changes in mortality characteristics (life and net salvage parameters) during the same period.

Q. WHAT ARE INTERIM ADDITIONS?

A. Interim additions are theoretical or estimated future dollars of capital for either replacing existing facilities or adding new facilities. Such additions are referred to as interim since they do not reflect the dollars of investment in service as of the end of the depreciation test year.

Q. ARE INTERIM ADDITIONS APPROPRIATE FOR DEPRECIATION PURPOSES?

A. No. Interim additions are inappropriate since they reflect the estimation of potential additions to plant-in-service that currently do not exist and are not used and useful in providing service. Interim additions may never actually occur or may occur at a much different date or amount than initially assumed.

Q. CAN YOU IDENTIFY AN AUTHORITATIVE SOURCE SUPPORTING YOUR POSITION THAT ESTIMATED INTERIM ADDITIONS SHOULD NOT BE REFLECTED IN THE CALCULATION OF DEPRECIATION RATES?

A. Yes. The National Association of Regulatory Utility Commissioners' ("NARUC") 1968 publication entitled Public Utility Depreciation Practices describes, on pages 133 and 134, how interim additions are treated. It states the following.

> *Appropriate computations must be made for such interim retirements, but interim additions are not considered in the depreciation computation until they are actually made.*
>
> *It is possible to estimate the probable future retirements and additions to a particular piece of property and thus arrive at a single depreciation rate applicable over the entire life of the property. This is unsatisfactory practice inasmuch as considerable speculations would be required to make such an estimate on future additions… In any event, this is not necessary inasmuch as the depreciation accrual can be adjusted in future years as additions are made.* (Emphasis added).

The 1996 edition of the NARUC depreciation publication reaffirms this concept.[8]

Q. HAS THE FERC RENDERED A DECISION ON THE ISSUE OF INTERIM ADDITIONS?

A. Yes. In 1983, the FERC reviewed and ruled on this issue in its Opinion No. 165, a Commonwealth Edison Company ("Commonwealth") case.[9] In that case, Commonwealth had proposed taking into account budgeted future interim additions and stated that without the inclusion of the budget interim additions, there would be a violation of the matching principle (i.e., revenues collected corresponding to the expense incurred). In Opinion No. 165, the FERC clearly opposed the recognition of interim additions:

> *... we reject its [Edison's] claim that this will leave some costs unrecovered after the plant is retired. Such a result might occur if Commonwealth would fail to adjust its depreciation rates from time to time, taking into account up-to-date information on changes in plant balances, estimated remaining life, salvage and removal cost experience, and accumulated provision for depreciation to date. However, Commonwealth not only is free to make such adjustments to its depreciation rates, but is obligated to do so to assure that as near as possible the service value of electric plant is fully recovered during its useful life. For all these reasons, we find no basis to approve Commonwealth's depreciation methodology.*[10]

Q. DO THE COMPANY'S EXISTING DEPRECIATION RATES REFLECT INTERIM ADDITIONS?

A. Yes, but such rates only include two months of estimations and only occurred as part of an overall settlement in Docket No. 07-035-13. As previously noted, no party to the settlement acknowledged any principle or practice contained therein. In other words, there is no precedence for the inclusion of interim additions in the calculation of depreciation rates.

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[8] Page 142 states "... interim additions are not considered in the depreciation base or rate until they occur."
[9] 23 FERC at paragraph 61,219 (1983).
[10] 23 FERC at paragraph 61,489.

Q. HAS THE COMPANY INCLUDED INTERIM ADDITIONS IN ITS DEPRECIATION STUDIES DURING THE PAST 20 YEARS?

A. No, not prior to its proposal to include them in Docket No. 07-035-13.[11]

Q. IS IT COMMON PRACTICE FOR UTILITIES TO PROPOSE INTERIM ADDITIONS IN THE MANNER THE COMPANY HAS PROPOSED IN THIS PROCEEDING?

A. No. I have been involved in hundreds of depreciation proceedings throughout the United States and Canada. While it is hard to recall any instances of an equivalent request by other United States utilities, this practice has occurred in at least one Canadian jurisdiction, that being Alberta. It should be noted that Gannett Fleming is the depreciation consultant that proposes such practices in Canada.

Q. DOES GANNETT FLEMING PROPOSE SUCH A PRACTICE IN THE UNITED STATES?

A. I am currently involved in the depreciation analysis for Pacific Gas & Electric ("PG&E") Company in California. That depreciation study was also prepared by Gannett Fleming, but in that specific case PG&E did not attempt to violate the prohibition against interim additions. For whatever reason, the Company has apparently directed Gannett Fleming to include interim additions here in Utah.

Q. WHY ARE INTERIM ADDITIONS IMPORTANT IN THIS CASE?

A. The Company's request represents a significant change in policy in an attempt to obtain a much greater increase in depreciation expense than otherwise would be the case. In particular, the Company's attempt to estimate interim additions and reduce the remaining life by two additional years through 2013 has a dramatic impact on depreciation for the Carbon plant. The Company's analysis identifies a $34 million total Company annual depreciation requirement for the Carbon plant

[11] Response to CCS 8.2 (g) in Docket No. 07-035-13.

based on data as of the end of 2011, but increases that amount to $82 million annually under its proposed interim addition approach.

Q. IS THERE A NEED TO SPECULATE ON THE COMPANY'S FUTURE INTERIM ADDITIONS AT THIS TIME?

A. No. The Company will have the opportunity to recover actual additions to plant from customers once they occur.

Q. DOES YOUR RECOMMENDATION TO DENY THE COMPANY'S ATTEMPT TO INCLUDE INTERIM ADDITIONS IN THE CALCULATION OF DEPRECIATION RATES DEPRIVE THE COMPANY IN ANY MANNER OF THE RECOVERY OF ITS CAPITAL?

A. No. As is the case elsewhere across the United States, depreciation rates are set based on the results of a depreciation study. Those rates are then applied in the future in the test year used in a rate case. In other words, if the Company files a general rate case in 2014, it can include all plant actually placed into service or allowed by the Commission into plant in service. The rates established in this proceeding would then be applied to the plant balances used in the rate case. The difference between the two approaches is that the Company attempts to estimate future additions in an historical depreciation analysis, and then apply the higher depreciation rates in a rate proceeding which also includes new plant additions, but potentially different additions. This approach fails to address changes in mortality characteristics that may occur by the end of 2013, as the Company's analysis of mortality characteristics is based on data only through 2011. Alternatively the standard approach is to rely on depreciation rates based on analysis of historical data and facts known at the time of the depreciation study and apply those rates to whatever plant in service values are adopted by the Commission during a future rate proceeding. The Company's approach inappropriately attempts to add an additional layer of uncertainty and assumptions to an already complex area.

Q. WHAT IS THE IMPACT OF REMOVING INTERIM ADDITIONS FROM THE COMPANY'S REQUEST AND BASING DEPRECIATION RATE ON PLANT AS OF DECEMBER 31, 2011?

A. The standalone impact of relying on the Company's depreciation rates based on plant as of December 31, 2011 rather than 2013 is a reduction to Utah jurisdictional depreciation expense of $22.4 million.

SECTION V: PRODUCTION PLANT LIFE SPANS

Q. WHAT ISSUE DO YOU ADDRESS IN THIS PORTION OF YOUR TESTIMONY?

A. I will address the Company's proposal for a 40-year life span associated with its CCCT. CCCTs are generation resources that fall in the category of "Other Production" power plants in the current depreciation study.

Q. PLEASE EXPLAIN WHAT A LIFE SPAN REPRESENTS.

A. A life span represents a time between when a utility places a generating facility into service through the date it is ultimately retired by that utility. In other words, if a utility places a power plant in service in 1970 and it had a 50-year life span, it would be expected to be retired in 2020, or 50 years later.

Q. WHAT LIFE SPANS DOES THE COMPANY PROPOSE FOR ITS VARIOUS GENERATING FACILITIES?

A. The Company proposes various life spans for different types of generation. For the most part, the Company proposes life spans between 55 years and 68 years for its coal-fired steam generating units, life spans ranging from 41 years to 143 years for its various hydroelectric generating facilities, life spans of 40 years for CCCT Other Production generation, 30-year life spans for Other Production – combustion turbines, and 30-year life spans for Other Production – wind generation.[12]

[12] 2011 Depreciation Study at pages II-30 and 31.

Q. DO YOU AGREE WITH THE COMPANY'S PROPOSED LIFE SPANS?

A. No. While I believe there are several instances where the Company has understated realistic life spans for generating facilities, I am only addressing the CCCT life spans in this testimony. . In my testimony, I recommend increasing the Company's proposed 40-year life span for CCCT units to 45 years.

Q. WHAT IS THE COMPANY'S BASIS FOR ITS PROPOSED 40-YEAR LIFE SPAN FOR ITS CCCT UNITS?

A. The Company simply states that a "life span of 40 years was estimated for the majority of the combustion turbines and combined cycle units."[13] (Emphasis added). The depreciation study also notes that life span estimates "are the result of considering experienced life spans of similar generating units, the age of surviving units, general operating characteristics of the units, major refurbishing, currently approved life spans for each facility, and discussions with management personnel concerning the long-term outlook for the units."[14] However, the Company could not identify any specific aspect of any of its considerations with the exception of the fact that the existing life span for CCCT generating units is 40 years. It must be noted that the existing life span for CCCT units has never been adjudicated and is a result of a prior settlement.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. CCCT generation has the most efficient heat rates of any of the Company's fossil fuel-based generating units. CCCT generation also represents the most flexible resources on the Company's system and can be operated in an intermediate or a base load capacity depending on changing load requirements. Moreover, from a carbon emissions standpoint, CCCT generation produce fewer environmental problems than do coal-fired generating facilities. CCCT generating units are currently one of the preferred choices for new generation. Therefore, from an

[13] 2011 Depreciation Study at page II-29.
[14] *Id.*

economic standpoint, life maximization of capital intensive investments should be the guiding factor for the establishment of useful life.

While the Company has not provided any basis for limiting the life span for CCCT generating facilities to only 40 years, there are factors that would indicate longer life expectation is warranted. First, it must be recognized that CCCT generating facilities generally combine gas turbine technology with a steam source. Many of the Company's existing steam generators have lasted well beyond 40 years, even though initially estimated to have design lives or life spans shorter than 40 years. In addition, many combustion turbine generators have been in operation for more than 40 years for other utility systems. Thus, when each separate component of the CCCT generating plant is considered from the standpoint of historical operation, there is nothing that limits the life expectation to a period of only 40 years. Indeed, the real life span will be determined by economic considerations in the future, as has been the case associated with the Company's coal-fired and other generating facilities.

While not identical technology, there are numerous instances of combined cycle generating facilities that have already been in service for more than 40 years. Indeed, the United States Energy Information Administration identifies over 70 combined cycle generating facilities that have been in operation for over 40 years.[15] While most of the combined cycle generating facilities identified are not the same as the Company's more modern CCCT units, there are many combined cycle generating facilities based on combustion turbine technology in the list of facilities that are more than 40 years old. Again, when a capital intensive resource is efficient, owners tend to find ways in order to maximize life expectancy even beyond initial design life expectations.

[15] 2011 form EIA-860 Data-Schedule 3, Schedule "Generator Data".

Q. HAS THE COMPANY AND THE INDUSTRY SHOWN A PROPENSITY FOR UNDERSTATING THE INITIAL LIFE SPANS FOR NEW GENERATING UNITS?

A. Yes, Historically, both the Company and the industry have underestimated the life expectation for each new type of generating facilities placed into service. For example, high temperature and pressure coal-fired generating facilities were assumed to operate for 30 to 35 years when first placed into service. As time passed, it became obvious that the initial life span estimates were extremely conservative, even though they were often predicated on design life expectations. As empirical data clearly proved the initial life expectancies artificially short, the industry generally moved in 5- to 10-year increments as time passed. As is the case for the Company, it now proposes life spans for coal-fired units generally in the 60-year range, or approximately double the initial life expectations for coal-fired generating facilities. This same situation occurred for nuclear generation. While initial life estimates were between 25 and 35 years, the Nuclear Regulatory Commission began issuing licenses for a 40-year period. In the 1990s, as utilities realized they would be able to operate nuclear generating facilities for a period greater than 40 years, they petitioned and received license extensions from the Nuclear Regulatory Commission to operate for 60 years. Now, utilities are beginning to seek consideration of extending the 60-year licenses to possibly 80 years. The situation is no different for hydroelectric facilities. Indeed, the Company has already sought new licenses for many of its hydroelectric facilities and undoubtedly will continue to do so in the future. In other words, it has been a continuous practice by the Company as well as the industry to artificially underestimate life spans for new generating facilities. Such practice is unreasonable, as it pertains to CCCT generating facilities, given there is empirical evidence that such technology has and can last for periods greater than 40 years.

Q. IS THERE ANOTHER BASIS FOR YOUR RECOMMENDATION?

A. Yes. Another consideration for longer life spans for CCCT generating facilities is the fact that the Company has not extended its life expectation for coal-fired

generating facilities in this case even though it has expended hundreds of millions of dollars over the last several years at such generating facilities. To the extent no additional life expectation is being assumed for coal-fired generating facilities, then another source of power must be in place to meet the demands that coal-fired generating facilities may no longer meet in the future. Based on the low heat rates for these CCCT generating facilities, it is reasonable to expect that the Company will continue to maintain and operate such facilities as it retires its fleet of coal-fired generating facilities.

In summary, while the Company provides no basis for its limitation of life expectancy to 40 years, there are several factors that warrant a longer life span for CCCT units. Indeed, both economic theory and actual physical operation by other owners of CCCT generation support a longer life span. In addition, given the Company's propensity to understate the initial life expectancy for its new generating facilities, it is reasonable and appropriate to take an initial step to extend the life expectation for CCCT by five years in this proceeding.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $5.8 million and $6.3 million reduction in annual depreciation expense based on plant as of December 31, 2011 and 2013, respectively, on a total Company basis. The Utah jurisdictional reductions are $2.4 million and $2.7 million, respectively.

SECTION VI: INTERIM RETIREMENTS

Q. WHAT ISSUE DO YOU ADDRESS IN THIS PORTION OF YOUR TESTIMONY?

A. The issue in this portion of my testimony addresses the Company's new approach for estimation of interim retirements and the ultimate interim retirement life-curve combinations proposed for production plant accounts.

Q. WHAT ARE INTERIM RETIREMENTS?

A. Interim retirements have been characterized as a fine tuning adjustment to the life span analysis. The life span method is used in estimating the retirement date for any large unit of property such as an entire generating unit. The theory behind interim retirement rates is that even though a large unit of property such as a generating unit might retire in 60 years, in the interim period many components have to be replaced in order to maintain the overall generating facility in operating condition. An analogy to this would be a car which might be anticipated to have a service life of 10 years. During the 10-year life of the car, the owner might have to replace the battery, tires, alternator and other components in order to maintain the automobile in a safe and operable condition. Therefore, even though the automobile may have an overall 10-year life span, its dollar weighted adjusted life span may be 9.8 years due to the averaging of the automobile's overall life span with the average of the individual replaced components. In other words, the interim retirement rate would be a fine tuning factor used to reduce the service life from 10 years to 9.8 years.

Q. HOW DOES THE COMPANY INCORPORATE THE IMPACT OF INTERIM RETIREMENTS IN ITS DEPRECIATION ANALYSIS?

A. The Company proposes to implement a new calculation procedure for interim retirements based on an "estimated" interim retirement survivor curve.[16] In other words, the Company performed an actuarial analysis for each production plant account, performed a visual curve-fitting process with standard Iowa survivor curves, and then selected its interpretation of a possible Iowa Survivor curve fit.

Q. IS THE COMPANY'S PROPOSED APPROACH IN THIS CASE CONSISTENT WITH ITS PRIOR APPROACH?

A. No. The Company's proposed approach in this case is noticeably different from its prior approach.

[16] 2011 Depreciation Study at page I-3.

Q. DOES THE COMPANY'S NEW APPROACH RESULT IN HIGHER DEPRECIATION RATES?

A. Yes. The Company's new approach of selecting an Iowa Survivor curve and an assumed ASL, and then truncating the assumed pattern corresponding to the estimated retirement date for each generating facility results in a higher rate of assumed interim retirements, which results in higher depreciation rates.

Q. DO YOU AGREE WITH THE COMPANY'S POSITION?

A. While I agree with the Company that interim retirements should be included in the calculation of production plant depreciation rates, I do not agree with the Company's proposed process or results. I find the Company's new proposal inappropriate and cumbersome for application in this proceeding.

Q. PLEASE EXPLAIN THE PROBLEMS WITH THE COMPANY'S PROPOSED METHOD.

A. The Company's approach relies on an actuarial analysis of the historical data to estimate an interim retirement life-curve combination. Actuarial analyses are normally performed on more homogeneous types of investments that are not generally dependent on one another, such as poles or wires. In particular, the varying types of investments within each of the major production plant accounts do not appropriately lend themselves to actuarial analyses. In other words, the retirement forces experienced by electric motors or pumps booked in Account 312 are noticeably different than the retirement forces on smoke stacks, also booked in Account 312. However, the Company's actuarial approach treats all items in the same account as one homogeneous type of asset for life estimation purposes. Therefore, when the dispersion and life expectation between appreciably different assets within an account exists, the credibility of actuarial results declines noticeably. While there are also differences in the type of assets within mass property accounts, the differences are not as appreciable as they are for production plant accounts.

By analogy, actuarial analyses are utilized by the insurance industry to set risks in order to establish premium payments. In order to establish reasonable risk estimates, the more homogeneous the population studied, the less risk exists of inaccurately measuring life expectancy. Simply put, life insurance companies would not perform actuarial analyses on people in Swaziland which has a life expectancy of only 32.23 years with people in Andorra who have an average life expectancy of 83.52 years, and reasonably expect to rely on such results for establishing risk for determining premiums.[17] Yet the Company's use of actuarial analyses for production plant does not even rise to the equivalent level of the risk in establishing insurance for people of different countries. The Company's approach is more akin to combining life expectation data for people and horses and expecting to establish a credible and usable result. While a result can be obtained, the value of such result is more than questionable.

Another problem is that, the results of the Company's actuarial analysis in general do not provide reasonable matches between the Observed Life Table ("OLT") (actual historical data pattern) and the assumed Iowa Survivor curve the Company proposes as its best match of the OLT. For example, the Company's assumed "60L1" life-curve combination for Account 312 is *not* a particularly good fit of the data.[18] As can be seen in the depreciation study, the Company's proposal, developed through its actuarial approach, clearly begins to deviate from the OLT after 37 years of age and continues that deviation through the remainder of the data. However, use of a 60L1 life-curve combination results in a 27.2-year adjusted remaining life for the Colstrip coal plant even through the projected remaining life in 35 years (2046-2011).[19] The Company's new actuarial approach results in a 22% ((35-27.2) / 35) "fine-tuning" adjustment to the overall life span. This new interim retirement impact is approximately double the 11% impact proposed by the Company in its last study.[20]

[17] 2008 life expectancies by country from www.infoplease.com/ipa/A0934746.html.
[18] *Id.* at page III-27.
[19] *Id.* at page III-4.
[20] 2006 Depreciation Study interim retirement workpaper for Colstrip Account 312.

Q. IS THERE ANOTHER ASPECT TO THE COMPANY'S INTERIM RETIREMENT PROPOSAL THAT RAISES CONCERN WITH THE RESULTS PROPOSED BY THE COMPANY?

A. Yes. In this case the Company proposes two types of net salvage for production plant: interim retirement net salvage; and terminal net salvage. The interim retirement net salvage is associated only with the retirements that are "estimated" by employing the Company's proposed interim retirement life-curve combination approach. Given that the Company's new interim retirement approach results in higher interim retirements and the fact that the Company proposes more negative interim net salvage than terminal net salvage, the Company's new approach further unreasonably escalates depreciation rates. The significance of this is that the Company's proposed interim retirement approach, which relies on truncated Iowa Survivor Curves, projected that *$1.4 billion* of steam production plant would retire between January 1, 2012 and the projected retirement dates for its various steam-fired generating units. By changing to a new approach of calculating interim retirements that yields a greater level of interim retirements and predicting higher interim net salvage rates than terminal net salvage rates results in higher depreciation rates.

Q. CAN YOU PLACE THE $1.4 BILLION OF PROJECTED STEAM PRODUCTION PLANT INTERIM RETIREMENT ACTIVITY INTO PROPER PERSPECTIVE?

A. Yes. The Company has provided the annual historical steam plant retirement activity for the period 1910 through 2011. This time frame represents approximately a 100-year period or approximately five times the time frame the Company projects for the remaining life of the existing steam production plant.[21] During the historical 100-year period the Company reports normal retirements of approximately half the level it assumes will occur during the approximate 19-year average remaining life for steam units.[22] In other words, on an annual basis the Company's projected interim retirement values are approximately 11 *times* the

[21] 101-year historical period divided by an approximate 19-year proposed average weighted remaining life for steam production plant.
[22] 2011 Depreciation Study at pages III-23 through III-44.

historical annual retirement levels experienced by the Company.[23] There is no evidence that demonstrates that such a proposed expansion of interim retirements is reasonable or realistic.

Q. DOES INDUSTRY DATA CONFIRM THE REASONABLENESS OF THE COMPANY'S PROPOSAL?

A. No. A review of the electric industry data provided by the Company's depreciation consultant often identifies significantly longer lives than the proposals in this case. For example, Gannett Fleming's industry interim retirement values range from a low of 40 years to a high of 90 years for Account 312 – Boiler Plant Equipment.[24] This range represents an unrealistic result for the same type of investment. Indeed, due to interpretations of actuarial results based on non-homogenous investment, Gannett Fleming has estimated a high end value 2.25 times the low end value. In this case, Gannett Fleming's proposal is 30 years lower than the upper end of its own range.

The degree of variance between the upper and lower end of the range for this account, proposed for other utilities, is undoubtedly a function of both the method employed by Gannett Fleming as well as the individual transactions that have occurred for each utility. Those utilities that have incurred unusual or one-time events may have resulted in the lower end of the reported range of values. By relying on unusual events that may not reoccur in the remaining life expectations for any given utility significantly overstates that impact of estimated interim retirements, especially using the Company's proposed new approach.

Q. ARE YOU PROPOSING ANY ADJUSTMENTS TO THE LEVEL OF INTERIM RETIREMENTS REQUESTED BY THE COMPANY?

A. Yes. Given the excessive level of interim retirements that are produced by the Company's new approach, and the level of variance between what the Company

[23] $1.4 billion/19 years versus $700 million/101 years.
[24] Response to OCS 1.3 Attachment.

proposes compared to what the Company's consultants have proposed in other proceeding for the same accounts, I recommend an alternative approach.

Q. WHAT DO YOU RECOMMEND?

A. I propose an interim retirement approach that is not based on truncated Iowa Survivor Curves. In other words, I have replaced the actuarial component of the Company's new analysis, given that the plant analyzed is neither reasonably homogeneous nor independent from the life of the overall generating unit. The method I rely upon is one recognized by the NARUC in its publication entitled "Public Utility Depreciation Practices." Indeed, my recommended approach is a method that the Company supported in previous cases. Thus, the method I recommend has been employed historically and is still currently used by utilities and regulators.

Next, I developed interim retirement ratios for each of the plant accounts based on actual Company specific information. In other words, the interim retirement ratios utilized in my approach were developed from the historical reported levels of retirement activity by account for each of the steam, hydro and other production accounts. Due to the significant differences between wind and gas-fired other production plant, separate values are recommended. As can be seen in the table below, my recommended interim retirement ratios are similar, if not identical in many cases, to what the Company proposed in its last depreciation study. The only significant difference is that associated with wind generation. In the last study, the Company applied the overall Other Production ratios that were developed primarily for gas-fired resources to its limited wind generation at one plant. There currently is more data available for wind generation, which permits development of different ratios between gas and wind facilities. The resulting interim retirement ratios I recommend and the ratios proposed by the Company in its prior depreciation study are set forth below.

FUNCTION	ACCOUNT	RMP PRIOR RATIO	OCS RATIO
STEAM PRODUCTION			
	311	.0020	.0020
	312	.0050	.0045
	314	.0080	.0060
	315	.0015	.0015
	316	.0150	.0160
HYDRO			
	331	.0015	.0020
	332	.0012	.0015
	333	.0020	.0045
	334	.0050	.0050
	335	.0050	.0070
	336	.0015	.0020
OTHER PRODUCTION – GAS			
	341	.0001	.0000
	342	.0020	.0020
	343	.0020	.0060
	344	.0100	.0015
	345	.0100	.0000
	346	.0100	.0000
OTHER PRODUCTION – WIND			
	341	N/A	.0015
	342	N/A	.0000
	343	.0020	.0000
	344	.0100	.0000
	345	.0100	.0005
	346	N/A	.0000

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. The adoption of my recommended interim retirement ratios on a standalone basis result in a $27.9 million and $38.2 million reduction to depreciation expense on a total Company basis for plant as of December 31, 2011 and 2013, respectively. The corresponding Utah jurisdictional values are $11.7 million and $16.1 million, respectively.

SECTION VII: NET SALVAGE

A. Production Plant

Q. WHAT DO YOU ADDRESS IN THIS PORTION OF YOUR TESTIMONY?

A. This portion of my testimony addresses the Company's request for negative net salvage associated with the assumed retirement cost of its various steam and other production generating facilities.

Q. WHAT DOES THE COMPANY PROPOSE FOR ITS VARIOUS STEAM AND OTHER PRODUCTION GENERATING FACILITIES?

A. The Company proposes a bifurcated calculation for production plant net salvage. The first component of the Company's request reflects terminal net salvage. Terminal net salvage is the Company's assumed method of retirement for its steam and other production generating facilities, and is based on full demolition and site restoration. In addition to terminal net salvage, the Company also requests interim net salvage for its generating units. Interim net salvage corresponds to individual assets that are projected to retire before the termination of a power plant that must be replaced in order to keep the generating facility operational.

Q. DOES THE COMPANY PROPOSE DIFFERENT NET SALVAGE AMOUNTS FOR DIFFERENT GENERATING FACILITIES?

A. Yes. For terminal net salvage purposes, the Company proposes a $40 per kW amount for steam production plant with the exception of the Carbon and James River plants.[25] For the Carbon plant, the Company proposes a $330.23 per kW terminal net salvage value.[26] For its limited investment in the James River plant, the Company proposes a $13 per kW terminal net salvage value. In addition, the Company proposes a $20 per kW terminal net salvage value for its gas-fired

[25] 2011 Depreciation Study at page III-582 through 583.
[26] *Id.*

other production generating facilities and a $9 per kW cost of removal for its wind generating facilities.[27] The Company does not propose any cost of removal associated with its very limited investment in solar generating facilities.[28]

Q. BASED ON THE COMPANY'S DECEMBER 31, 2011 DEPRECIATION TEST YEAR, WHAT DOLLAR AMOUNT OF TERMINAL NET SALVAGE DOES THE COMPANY REQUEST?

A. As set forth below, the Company's $40, $20, and $9 per kW terminal net salvage proposal for its coal-fired production (other than for the Carbon plant), other production-gas and wind other production generating units, respectively, result in a total terminal net salvage request of $354,274,000.[29]

Generation Type	$ per kW	Total
Coal	$40	$249,702,000
Carbon Plant	$330.23	$56,800,000
Other Production – Gas	$20	$37,260,000
Other Production – Wind	$9	$10,512,000

B. <u>Steam Production Plant</u>

Q. WHAT IS THE COMPANY'S BASIS FOR ITS PROPOSED DEMOLITION COSTS FOR ITS COAL-FIRED GENERATING FACILITIES OTHER THAN FOR THE CARBON PLANT?

A. The Company states that it

> proposes to continue to use current decommissioning costs of $40 per kW, with the exception of the Carbon plant. This rate is based on the cost of decommissioning the Company's Hale Plant in the 1993 to 1995 time period. Based on recent studies, the current estimate of the complete decommissioning cost for the Carbon plant is $56.8 million, or $330 per kW. This includes demolition, ash

[27] 2011 Depreciation Study at page III-586.
[28] 2011 Depreciation Study at page III-587.
[29] *Id.* at pages III-4 through 15.

pile, and ash pond abatement, asbestos, and other hazardous material abatement and final site cleanup and mitigation.[30]

Q. DID THE COMPANY PROVIDE THE UNDERLYING ANALYSIS ASSOCIATED WITH THE RETIREMENT OF THE HALE PLANT APPROXIMATELY TWO DECADES AGO?

A. No.[31]

Q. DID THE COMPANY PROVIDE ANY INFORMATION ASSOCIATED WITH THE RETIREMENT OF THE HALE GENERATING PLANT?

A. Yes. While the Company claimed a $20 per kW net demolition cost for the Hale plant, it also notes that it received $3.2 million as part of the retirement process.[32] The Company actually received a positive, not negative, net salvage for the retirement of the Hale plant.[33] In fact, the Company identified a positive 18% net proceeds which corresponded to a $33 per kW positive net salvage.[34]

Q. DOES THE COMPANY CLAIM THAT IT DEMOLISHED THE HALE PLANT?

A. Yes.[35]

[30] Direct Testimony of K. Ian Andrews at pages 12 and 13.
[31] Response to DPU 2.38(a).
[32] Response to DPU 7-6 Attachment 2 ($1,197,280 cost of removal divided by 59 MW).
[33] Response to DPU 2.38(b) Attachment. While the Company incurred cost of removal to improve the site, land, it booked the sale of land to an account not associated with the depreciation reserve. If cost of removal for depreciable plant is incurred to increase the sale value of the land, then sale proceeds should be considered as an offset to demolition costs.
[34] $3,170,769 of proceeds less $1,197,280 of removal cost divided by 59,000 kW. The positive net salvage of $1,973,489 divided by $11,155,753 of original cost equals 18%.
[35] *Id.*

Q. NOTWITHSTANDING THE REPORTED POSITIVE LEVEL OF NET PROCEEDS FOR THE HALE PLANT, WOULD THERE BE SIGNIFICANT CONCERNS ASSOCIATED WITH A CLAIMED NEGATIVE $40 PER KW COST OF REMOVAL IF THE $20 PER KW VALUE WAS AN ACCURATE REPRESENTATION OF WHAT TRANSPIRED?

A. Yes. Even assuming the $20 per kW cost for full dismantlement and site restoration was accurate, much has changed in the electric industry since the early to mid-1990s in terms of plant retirement approaches and costs.

Q. HOW DOES THE HALE PLANT COMPARE TO THE COMPANY'S REMAINING COAL-FIRED GENERATING FACILITIES?

A. For the most part, there is very limited comparison between the Hale plant and the balance of the Company's generating facilities. The Hale plant consisted of two generating units, one 15 MW and another 44 MW, for a total of 59 MW.[36] These units were built in 1936 and 1950, respectively.[37] The Company's current fleet of coal-fired generating facilities are much larger and thus would benefit from economies of scale if a full demolition approach were reflected. In other words, all permitting, mobilization, infrastructure, and other similar type of costs would be spread over a much larger number of MW, thereby reducing the per unit value based on a dollar per kW basis.

For example, if the mobilization and other fixed costs for demolition of a coal-fired plant were assumed to be $200,000, that would result in a $3.39 per kW demolition cost for that component of the total demolition process for a station the size of the Hale plant ($200,000 / 59,000). Alternatively, the same $200,000 cost for the 1,411 MW Jim Bridger generating station would translate into a $0.14 per kW demolition cost component of overall demolition activities. Thus, the Hale plant does not represent an appropriate proxy for estimating demolition costs for larger coal-fired units when relying on a dollar per kW approach.

[36] Response to DPU 2.38(b) Attachment.
[37] *Id.*

Q. WHAT OTHER CONCERNS ARE THERE ASSOCIATED WITH RELIANCE ON OLDER DEMOLITION PROJECTS?

A. As is the case for many other activities, the process of demolition of power plants now takes advantage of different approaches and newer equipment. Changes in approaches and technology improve productivity and lower cost. For example, to the extent the Hale plant was demolished in a reverse engineering or stick-by-stick removal approach, it would greatly overstate the estimated cost of current demolition to the extent explosive techniques coupled with controlled toppling were employed. Therefore, the efficiency and cost savings associated with newer and better demolition techniques can greatly reduce the cost of future demolition projects.

In addition, newer equipment with greater capabilities now also exist. For example, there are booms that can rise over 300 feet in height and utilize power shears in order to cut steel structural members rather than having workers manually scale to the top of a plant and attempt manual cutting of steel members. These and other types of advancements render demolition cost estimates of two decades ago as inappropriate proxies for current expectations to the extent full demolition of a power plant is the assumed approach.

Q. IS IT APPROPRIATE TO ASSUME THE RETIREMENT COST ASSOCIATED WITH CURRENT POWER PLANTS MUST RESULT IN FULL DEMOLITION AND SITE RESTORATION WITH ATTENDANT COSTS?

A. No. While the Company's proposal is predicated on this worst case scenario, that is but one of the alternatives available to the Company in the future. The retirement of a power plant can take on a wide range of alternatives. While the Company assumes only the worst case scenario of total dismantlement and full site restoration, there are lower cost alternatives. In fact, certain alternatives can result in positive net salvage for the retirement of a generating facility.

Q. IS IT APPROPRIATE FOR RATEMAKING PURPOSES TO ONLY ASSUME THE WORST CASE SCENARIO WITHOUT CONSIDERATION OF OTHER ALTERNATIVES?

A. No. The concept of ratemaking has always been to establish fair and reasonable expectations that give weight to various alternatives to the extent such alternatives may be available.

Q. IS IT POSSIBLE THAT THE COMPANY COULD SELL PORTIONS OF ITS GENERATING FACILITIES WITHOUT HAVING TO DEMOLISH ANY OR ALL COMPONENTS?

A. Yes. At the time of retirement, there will undoubtedly be many relatively new items of equipment in service due to interim retirements. Those new items, as well as some older assets, may actually produce noticeable levels of positive net salvage rather than being considered scrap. The sale of relatively new and usable equipment (e.g., motors, pumps, etc.) will result in significantly greater gross salvage than simply assuming the items have only scrap value.

Q. IS THERE ANY CERTAINTY AS TO WHETHER THE COMPANY MUST DEMOLISH THE ENTIRE PLANT AND RESTORE THE SITE TO ITS ORIGINAL CONDITION?

A. Yes. In fact, the only retirement of a major generating facility by the Company resulted in a positive net salvage. That situation was the sale of the Centralia plant in 2001. The Company obtained approximately $114 million of proceeds associated with that retirement.[38] Clearly, the only empirical data associated with the retirement of a major generating station by the Company has been one reflecting the sale of the facilities without demolition rather than the worst case scenario proposed by the Company of total demolition and total site restoration.

[38] Response to DPU 2.38(b) Attachment.

Q. DID THE COMPANY GIVE ANY CONSIDERATION TO PARTIAL DISMANTLEMENT OR THE SALE OF ANY OF ITS GENERATING FACILITIES?

A. No. Again, the Company's proposal is a worst case scenario and should not be relied upon for ratemaking purposes.

Q. IS THE SALE OF GENERATING UNITS BY UTILITIES COMMON?

A. Yes. Since the late 1990s, well over 1,000 generating units have been sold across North America. In all instances, the sale of such facilities resulted in positive net salvage and eliminated the need for the demolition and site restoration associated with such power plants by the selling utility. Therefore, the sale of the Centralia station is not unusual or atypical for the industry. Unfortunately, it has not been given any consideration in the Company's request in this proceeding. This is a fatal flaw in the Company's presentation.

Q. IN YOUR OPINION, WHAT IS A MORE REALISTIC DOLLAR PER KW LEVEL ASSOCIATED WITH RETIREMENT COSTS APPLICABLE TO GENERATING UNITS, EVEN ASSUMING A HIGH PROBABILITY OF DEMOLITION AND THE COMPANY'S ASSUMED $40 PER KW ESTIMATE?

A. Under the rather restrictive assumptions that there is a high probability of the demolition of a power plant and that the $40 per kW estimate proposed by the Company is reasonable, which I do not believe it is, then a more appropriate blending of retirement alternatives for ratemaking purposes is still required. If one were to assume only a 1% probability of a sale similar to the situation of Centralia, a 10% probability associated with the retirement similar to the positive 18% net salvage for the Hale plant retirement, and the 89% balance associated with the Company's $40 per kW estimate for demolition, then the resulting blended retirement cost level would be approximately $30 per kW.[39] While I believe such approach still results in an excessive level of negative net salvage for the assumed retirement of the Company's large coal-fired generating

[39] ($40 per kW x .89) - ($113.9 million / 693.49 MW x .01) - ($2 million / 59 MW x .1) = $30.57 per kW.

facilities, it is a more realistic and appropriate value than the Company's worst case scenario proposal of $40 per kW level.

Q. HAS THERE BEEN A RETIREMENT AND DEMOLITION OF A MAJOR COAL-FIRED GENERATING FACILITY SINCE THE RETIREMENT OF THE COMPANY'S HALE PLANT?

A. Yes. The Breed generating station owned by Indiana Michigan Power Company ("IMPC") was retired in 1994. The Breed station was a 495.6 MW coal-fired unit built in 1960. The demolition of the Breed generation station was completed in 2006, 12 years after the unit was retired in 1994. While IMPC's demolition cost estimate by an outside construction firm was $28.7 million, the actual net salvage experienced for the generating plant was a negative $10.8 million. This retirement cost results in a $21.79 per kW cost of removal associated with the retirement of a major coal-fired generating facility.[40] The actual demolition of the Breed plant relied in part on explosive techniques rather than the reverse engineering approach reflected in many prior decommissioning cost estimates, including those relied upon by the Company in Docket No. 07-035-13 and by IMPC for its cost estimate.

Q. ARE THERE OTHER RECENT INSTANCES OF MUCH LOWER ACTUAL DEMOLITION COSTS FOR POWER PLANTS THAN THE COMPANY'S UNSUBSTANTIATED $40 PER KW COST ESTIMATE?

A. Yes. For example, the King power plant in Florida, a smaller gas-fired plant with asbestos, was demolished in 2010 in a situation where the contractor actually paid the utility $1 million for the right to demolish the power plant and retain all rights to scrap material and usable equipment.[41] In other words, a positive net salvage was obtained rather than a negative net salvage, even in association with full demolition of a power plant. There are also other examples of less costly

[40] Response by Public Service Company of Oklahoma to AG7-45, in Oklahoma Corporation Commission cause No. 200800144.

[41] Several conversations with John Tompeck, Capital Projects Engineer for the King generation plant demolition plant for the Fort Pierce Utility Commission, Fort Pierce, Florida.

demolition projects than the unsubstantiated $40 per kW cost proposed by the Company.

Q. WHAT IS THE IMPACT OF RELYING ON A $30 PER KW ESTIMATE FOR THE COMPANY'S COAL-FIRED GENERATING FACILITIES?

A. Relying on a $30 per kW value as a more realistic value for ratemaking purposes than the Company's proposals results in a $38.8 million and $50.0 million reduction in total Company annual depreciation expense for steam plant based on plant in service as of December 31, 2011 and 2013, respectively. The corresponding Utah jurisdictional amounts are $16.3 million and $21.0 million, respectively.

C. Carbon Plant

Q. WHAT IS THE COMPANY'S BASIS FOR ITS PROPOSED $330 PER KW COST FOR THE PROPOSED DEMOLITION OF THE CARBON PLANT?

A. The Company relies on a 2004 demolition cost estimate by Black & Veatch, inflated to more current periods, and has added other estimates for in-house oversight, asbestos, removal and pond remediation or abatements. The net estimate cost for Carbon is $56.8 million.

Q. HAS THE COMPANY DEMONSTRATED THE VALIDITY OF ANY OF ITS PROPOSED COSTS ASSOCIATED WITH ITS PROPOSED $56.8 MILLION REQUEST FOR THE DECOMMISSIONING OF THE CARBON PLANT?

A. No. While the Company previously presented its Black & Veatch study, such estimates by Black & Veatch have, on an empirical basis, been shown to be dramatically inaccurate. In addition, the Company presents no supporting analysis for the Thermal West, Inc. "conceptual" estimate for asbestos removal cost. The lack of any analytical support for estimated asbestos removal cost is significant as it is many times the cost estimated by Black & Veatch for the same activity in its study. The Company also presents unsubstantiated and

unsupported assumptions associated with estimated cost for in-house oversight of the demolition project. Finally, the Company's Black & Veatch demolition cost estimate already includes costs associated with total site restoration. Therefore, the Company's attempt to include additional cost elements for site restoration represents a double counting of estimated costs in the depreciation analyses.

Q. PLEASE EXPLAIN YOUR STATEMENT THAT THE BLACK & VEATCH STUDY HAS SHOWN TO BE DRAMATICALLY IN ERROR.

A. At approximately the same time Black & Veatch developed its cost estimate for the Carbon plant for the Company, it also produced a comparable estimate for Nevada Power Company's various generating facilities. In spite of significant concerns regarding the excessive nature of the Black & Veatch study in Nevada, the staff and the commission in Nevada adopted Black & Veatch's analyses as a reasonable proxy with minor adjustments.[42]

Q. IF THE NEVADA STAFF AND COMMISSION ADOPTED BLACK & VEATCH'S EQUIVALENT STUDY AS BEING REASONABLE, WHY DO YOU NOW CLAIM IT IS DRAMATICALLY IN ERROR?

A. Black & Veatch's Nevada cost estimate was soon put to the real test: the actual demolition of generating units. Shortly after Black & Veatch's study, Nevada Power Company issued a request for bids to demolish certain generating units. The responsive bids for actual demolition of what Black & Veatch estimated were dramatically lower than what Black & Veatch had presented. In fact, in a subsequent rate proceeding before the Nevada commission, the staff and the Nevada commission began recognizing the excessive nature of the previously adopted Black & Veatch estimate and reduced such estimates by 60%. In other words, for every dollar Black & Veatch had estimated for the demolition of the generating units, the bids being received and the ultimate adoption of

[42] Nevada Public Service Commission Docket No. 05-100004 Final Order at pages 80-81, paragraphs 256-260.

decommissioning cost estimates for ratemaking purposes declined to $0.40 on the dollar for each dollar Black & Veatch initially estimated.

Q. DID THE ACTUAL FINAL DEMOLITION COSTS FOR THE NEVADA POWER COMPANY'S GENERATING UNITS COME IN EVEN LOWER THAN THE BIDS?

A. Yes. The final demolition cost for the Nevada Power Company generating units came in at $0.28 on the dollar compared to Black & Veatch's initial estimate. In the most current Nevada rate proceeding, even Nevada Power Company filed its decommissioning cost request based on the $0.28 per dollar level of the initial Black & Veatch demolition cost estimates.

Q. WHAT WERE SOME OF THE MAJOR REASONS FOR THE DRAMATIC DIFFERENCE IN ESTIMATED VERSUS ACTUAL DEMOLITION COSTS IN THE NEVADA POWER CASE?

A. Black and Veatch used much lower scrap metal prices and an out-dated demolition approach in making its removal cost estimates in the Nevada Power case.

Q. HOW HAVE SCRAP METAL PRICES CHANGED?

A. While Black & Veatch estimated a $0.40 per pound scrap metal price for copper, actual scrap metal prices increased by over a factor of 10. Such increase coincided with the economic expansions by China and India demanding tremendous amounts of the world's raw materials. While the change in scrap copper prices is the most dramatic, increases in steel prices and other commodities have also far exceeded the impact of only inflation.

Q. ARE YOU AWARE OF OTHER SITUATIONS WHERE CHANGES IN SCRAP METAL PRICES SIGNIFICANTLY AFFECTED POWER PLANT DEMOLITION COSTS?

A. Yes, as previously noted, a Florida utility demolished one of its generating stations and actually received $1 million in net proceeds from the demolition

contractor. In that instance, he demolition contractor paid $1 million to remove the plant and retain the salvage rights to the material and equipment.[43]

In addition, other demolition cost estimators now rely on much higher levels for scrap metal prices in more recent studies, which have significantly lowered demolition cost estimates. The decrease in demolition cost estimates occur because power plants contain significant quantities of steel, copper, aluminum, inconel, brass, and other valuable scrap metals.

Q. PLEASE DISCUSS THE SECOND SIGNIFICANT AREA THAT CAUSED THE BLACK & VEATCH INITIAL ESTIMATE IN NEVADA TO BE SIGNIFICANTLY EXCESSIVE.

A. The second major problem with the Black & Veatch study was its assumed demolition approach. Black & Veatch's cost estimate in Nevada, as well as for the Company in this case, relies on a reverse engineering or stick-by-stick removal approach. This means the worst case scenario for retirement of a power plant (i.e., total demolition and site restoration) is further magnified by selection of the worst case demolition approach (i.e., reverse engineering). Black & Veatch's approach is time consuming and labor intensive, both of which combine to produce a very costly demolition approach.

Q. WHAT APPROACH DID THE ACTUAL DEMOLITION CONTRACTOR EMPLOY IN NEVADA?

A. The actual demolition process employed in Nevada was a combination of explosive techniques in conjunction with controlled toppling. The contractor recognized that it was not only safe but cost effective to implode the structural supports of the generating station and topple it to the ground where it is easier, faster, and cheaper to dismantle and haul away. Reliance on a reverse engineering approach as employed by Black & Veatch normally results in an excessively high demolition cost estimate.

[43] King power plant Fort Pierce, Florida.

Q. ARE THERE OTHER CONCERNS WITH THE COMPANY'S RELIANCE ON ITS BLACK & VEATCH ANALYSIS?

A. Yes. While the $0.28 on the dollar factor currently recognized in Nevada applicable to Black & Veatch's analyses attempts to address scrap metal prices and the demolition approach, it does not specifically address an additional significant factor associated with the Company's analyses. That additional factor is labor costs. Black & Veatch's estimate for the construction labors in 2004 dollars was a $36.81 per hour labor rate prior to fringe benefits.[44] That 2004 amount was increased to $49.69 per hour for crew members, other than those associated with asbestos related removal, when overhead burdens were added.[45]

Q. WERE THE LABOR RATES ASSUMED BY BLACK & VEATCH IN 2004 EXCESSIVE?

A. Yes. They assumed labor rates represent union-based labor rather than prevailing average labor rates in Utah. Based on information obtained from the United States Bureau of Labor Statistics for the state of Utah, it is clear that the assumed labor rates by Black & Veatch were excessive when compared to mean labor rates available in Utah even today. Given that a total site demolition process is labor intensive, but does not require an excessive level of highly skilled laborers other than to operate equipment and perform supervisory activities, a much lower overall hourly labor rate is appropriate.

Q. CAN YOU PLACE BLACK & VEATCH'S PROPOSED LABOR RATE FOR THE COMPANY IN PROPER CONTEXT?

A. Yes. The $36.81 per hour base wage rate without overhead burdens translates into an employee being paid $76,565 annually. Given that a significant amount of the work associated with demolition is associated with low skilled common

[44] Response to DPU 2.23 Attachment 1 Carbon Plant Removal Estimate.
[45] *Id.*

laborers removing debris, a $77,000 per year annual salary is on its face unreasonable and excessive.

Q. BASED ON YOUR ANALYSIS, WHAT IS A MORE REALISTIC LABOR RATE FOR THE AVERAGE HOURLY DEMOLITION EMPLOYEE?

A. Based on crew mixes identified in a national publication for demolition activity, which includes supervisors, machine operators, machine oilers, truck drivers, and common laborers, a more realistic average labor rate before addition of overhead burdens is $18.18.[46]

In addition, the Company includes a limited level of labor activity associated with asbestos and lead paint removal. Black & Veatch estimated a 2004 based level of $46.81 per hour base labor rate prior to overhead burdens. The U.S. Bureau of Labor Statistics for Utah currently identifies a mean average salary for asbestos removal workers in Utah at $20.03 per hour.

Q. WHAT IS THE IMPACT ON THE COMPANY'S BLACK & VEATCH STUDY EMPLOYING THE LOWER HOURLY LABOR RATES THAT YOU HAVE IDENTIFIED?

A. Beginning with the lower hourly labor rates identified above but including the same percent increase for overhead burdens to such labor rates results in an approximate $9 million standalone reduction to Black & Veatch's demolition cost estimate. This change alone presents a 32% reduction in the demolition cost estimate for the Carbon plant compared to Black & Veatch's initial cost estimate. Again, this level of reduction is above and beyond any impacts associated with the corrections identified in Nevada associated with other problems with the Black & Veatch analyses.

[46] RS Means Building Construction Costs dated 2011 Edition and U.S. Bureau of Labor Statistics for the construction industry in Utah.

Q. DOES THE COMPANY'S CURRENT REQUEST FOR CARBON PLANT DECOMMISSIONING ALSO REFLECT A SIGNIFICANT INCREASE IN THE EXPECTED COST OF REMOVAL OF ASBESTOS?

A. Yes. The Company claims that the Black & Veatch cost estimate included approximately $2.8 million relating to asbestos removal.[47] However, as part of its current cost estimate, the Company retained Thermal West Industrial, Inc. to develop a pre-demolition asbestos and lead abatement cost estimate for the Carbon plant. That "conceptual" estimate of $12.6 million included over $2 million of contingencies.[48]

Q. IS THE THERMAL WEST ESTIMATE A DETAILED AND WELL-SUPPORTED ESTIMATE?

A. No. The Company did not provide a single workpaper in association with what has been identified as a "conceptual" estimate. Indeed, Thermal West even requested, as part of its asbestos conceptual estimate, that it be allowed to perform a detailed plant-wide asbestos survey. Unfortunately, the Company has not authorized such survey.[49]

Q. ARE THERE OTHER PROBLEMS WITH THE RELIANCE ON THE CONCEPTUAL ESTIMATE PRESENTED BY THERMAL WEST?

A. Yes. Thermal West's estimate does not take into account the Company has actually incurred over $2 million of asbestos removal costs at the Carbon plant through the end of 2011.[50] Therefore, the depreciation study already reflects the impact of actual asbestos and lead removal activity, and Thermal West's conceptual estimate double counts some of these costs.

[47] Response to DPU 2.23.
[48] Response to DPU 2.23, Attachment 3.
[49] Response to OCS 3.16.
[50] Response to DPU 3.13 Attachment.

Q. DO YOU BELIEVE THERE ARE OTHER PROBLEMS WITH THE THERMAL WEST STUDY?

A. Yes. The Company presents nothing more than an undefended and unsubstantiated high-level conceptual estimate with a 20% contingency in an attempt to establish an excessively high demolition cost estimate for ratemaking purposes. At least with the Black & Veatch estimates, certain information was provided so that some test of reasonableness of the overall estimate could be performed. In the case of the Thermal West conceptual estimate, even basic supporting information is not provided.

Q. DOES THE COMPANY'S CARBON PLANT DEMOLITION COST ESTIMATE ALSO INCLUDE THE ESTIMATED COST OF IN-HOUSE LABOR?

A. Yes.[51] As part of the Company's current proposed demolition cost estimate, it now is requesting $6.7 million of estimated costs associated with in-house personnel, studies and travel costs.[52]

Q. WHAT ARE THE UNDERLYING ASSUMPTIONS ASSOCIATED WITH THE COMPANY'S REQUEST FOR $6.7 MILLION OF IN-HOUSE COST?

A. The Company assumes a $160 per hour labor cost rate for its in-house personnel and has assumed 28,746 hours of effort by in-house personnel.[53]

Q. HAS THE COMPANY SUBSTANTIATED ITS ASSUMPTIONS RELATED TO ESTIMATES OF IN-HOUSE COSTS?

A. No. When specifically requested to provide the support for its $160 per hour estimate, the Company did not even attempt to answer the request for support and justification. It simply restated that the $160 amount was an estimate of fully loaded labor activity and claimed that when actual demolition work is performed, the actual rate specific to the employee involved will be utilized.[54] Thus, the

[51] Response to DPU 2.23-Attachment 2.
[52] *Id.*
[53] *Id.*
[54] Response to OCS 3.14.

Company has failed to support or justify its assumed $160 per hour fully loaded labor rate.

Q. WHY IS THIS LACK OF SUPPORT A SIGNIFICANT CONCERN?

A. The fully loaded labor rate used by the Company translates to an annual cost to ratepayers per employee of $332,800. Unless vice presidents of the Company are performing that activity, which I do not believe is the case, such an estimate is excessive from a wage and benefits standpoint. The same concern may also be true for the number of hours assumed by the Company. Again, the Company's request demonstrates what appears to be a clear focus on obtaining an excessively high demolition cost estimate for ratemaking purposes.

Q. HAS THE COMPANY ALSO INCLUDED IN THIS PROCEEDING A REQUEST FOR EXPECTED LANDFILL CLOSURES AND REMEDIATION, COAL PILE CLOSURE AND REMEDIATION, AND BALANCE OF PLANT SITE REMEDIATION?

A. Yes. The Company's current estimate now includes its claim for approximately $20 million of costs for closure of landfills, coal piles, and remediation of the balance of the plant site.[55]

Q. DID THE COMPANY INCLUDE IN ITS OVERALL REQUEST THE LOWEST COST AND HIGHEST RANKED ALTERNATIVES FOR THESE TYPES OF ACTIVITIES?

A. No. While the Company did have an evaluation performed for various closure options for the ash landfill at the Carbon plant, it ignored the lowest cost option, which also happened to be the highest ranked option from a "risk/design consideration" standpoint.[56]

[55] Response to DPU 2.23-Attachment 2.
[56] *Id.* at Tables ES1 and ES2, and Response to DPU 2.24.

Q. HAS THE COMPANY DEMONSTRATED THAT SUCH COSTS ARE NOT ALREADY ADEQUATELY REFLECTED IN THE BLACK & VEATCH ANALYSIS?

A. No. The Company's request again appears to be an attempt to establish an excessively high demolition cost estimate for ratemaking purposes. In fact, it must be noted that the Company's updated request for these limited activities now approximately equals the total cost estimated by Black & Veatch prior to contingencies and indirect costs. Moreover, the Black & Veatch study contains over $7 million of costs, after contingencies and contractor profit but before inflation, for excavating, trenching, backfill of ponds and contaminated areas.[57]

Q. DO YOU BELIEVE THE COMPANY HAS PRESENTED A CREDIBLE REQUEST FOR DEMOLITION COSTS OF ITS CARBON PLANT?

A. No. Even if one assumes full demolition and site restoration with no sale of usable equipment other than as scrap, the Company's estimate lacks credibility and should be rejected. The Company's request for $56.8 million, which results in a $330 per kW demolition cost estimate, is in excess of eight times the level it believes is reasonable for the balance of its coal-fired generating facilities ($330 / $40).[58]

Q. GIVEN THE PROBLEMS WITH THE COMPANY'S CARBON PLANT REQUEST, WHAT DO YOU RECOMMEND?

A. I recommend the same $30 per kW level estimate previously discussed as a very conservative estimate to be applied to the Carbon plant decommissioning process.

Q. WHY DO YOU BELIEVE SUCH ESTIMATE IS REASONABLE?

A. Beginning with Black & Veatch's excessive estimate and adjusting for problems due to the decommissioning approach and current scrap metal prices reduces

[57] Black & Veatch 2004 Study at "Yard Area – Excavation/Backfill" section.
[58] ($330 / $40 = 8.3).

the Black & Veatch cost estimate by 72% as determined by the Nevada commission. In addition, the Black & Veatch estimate for the Company relies on excessively high labor cost rates. By relying instead on mean labor rates as established by the U.S. Bureau of Labor Statistics for the state of Utah, Black & Veatch's estimate is reduced by approximately 32%.[59] The net result of these adjustments on a dollar per kW basis for the Carbon plant is approximately $32.[60] Therefore, reliance on the $30 value noted for all other coal-fired units is consistent with an approach that corrects the Black & Veatch cost estimate, which in part forms the basis of the Company's estimate for this request in this case, and reflects actual project results. The dollar impact of a $30 per kW demolition cost value for the Carbon plant is already reflected in the amount noted in the prior Steam Production Plant section.

D. <u>Other Production</u>

Q. WHAT DOES THE COMPANY PROPOSE FOR TERMINAL NET SALVAGE FOR ITS VARIOUS OTHER PRODUCTION GENERATING FACILITIES?

A. The Company proposes a $20 per kW net salvage for gas-fired other production generating facilities, a $9 per kW net salvage level for wind generation other production facilities, and a zero (0) level of net salvage for its investment in solar generations.[61] In addition, the Company seeks limited levels of interim net salvage ranging from zero (0) to a -5% for various other production generating accounts.[62]

[59] Substituting an $18.18 and $20.03 labor rate before employee burden into Black & Veatch's Carbon cost estimate reduces the total estimated cost from $28.3 million to $19.2 million or a 32% reduction.
[60] The $47.30 per kW average coal demolition cost adopted in Nevada adjusted for the 32% Utah labor rate reduction ($47.30 x .68) = $32.17.
[61] 2011 Depreciation Study at pages III-586 through 587.
[62] *Id.*

Q. WHAT IS THE TOTAL LEVEL OF NET SALVAGE THE COMPANY SEEKS THROUGH ITS VARIOUS PROPOSALS FOR ITS OTHER PRODUCTION UNITS?

A. In total, the Company seeks $73,573,000 of negative net salvage for both interim and terminal net salvage associated with its other production generating facilities. The majority, or $47.8 million of the total, is attributable to its requested levels of terminal net salvage.

Q. WHAT IS THE COMPANY'S BASIS FOR ITS VARIOUS TERMINAL NET SALVAGE PROPOSALS?

A. The Company does not have any verifiable basis for its proposals. It has performed no studies, analyses, or other verifiable means of determining the reasonableness of its proposals.

Q. DO YOU AGREE WITH THE COMPANY'S PROPOSAL?

A. No. I recommend an $8 per kW terminal net salvage for gas-fired other production generating facilities and a $5 per kW level for wind other production generation.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. For gas-fired other production generating facilities, I have relied on the results of corrected analyses of Black & Veatch decommissioning studies on behalf of Nevada Power Company. Those studies were corrected to reflect the relationship between what Black & Veatch had estimated in its cost studies for Nevada Power Company and what actual demolition contractors were able to demolish a steam-fired generating facility. In addition, new CCCT generating facilities are more modular in nature compared to coal-fired generating facilities. The removal of components should be less costly on a per-unit basis than the cost for demolishing coal-fired generating facilities. As previously noted, I have recommended a $30 per kW terminal net salvage for coal-fired generating facilities.

As it pertains to wind, there is no identifiable empirical data available for removing wind resources. However, the retirement of wind generating facilities could also result in a positive net salvage given the limited physical presence of such assets. Moreover, a substantial portion of the wind investment from a physical standpoint is associated with concrete foundations, at least a certain portion of which should be able to be abandoned in place. Therefore, while a small positive or zero terminal net salvage value may be more appropriate for wind resources, I have conservatively estimated $5 per kW.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in an $868,000 and $967,000 reduction in depreciation expense on a total Company basis for plant as of December 31, 2011, and 2013, respectively. The corresponding Utah jurisdictional impacts are a reduction of $365,000 and $406,000, respectively.

SECTION VIII: MASS PROPERTY – LIFE

A. General

Q. WHAT ISSUE DO YOU ADDRESS IN THIS PORTION OF YOUR TESTIMONY?

A. This portion of my testimony addresses the Company's proposals for artificially short ASLs relating to certain transmission and distribution accounts within the area of mass property.

Q. WHAT IS THE PURPOSE OF THE LIFE PORTION OF A DEPRECIATION ANALYSIS?

A. The purpose of a life analysis is to determine the ASL, the dispersion pattern, and remaining life for each account or subaccount. This information is necessary in order to properly perform the depreciation calculation previously noted. A

longer ASL normally results in a longer remaining life and a lower annual depreciation expense. Alternatively, a shorter ASL will normally reduce the remaining life and increase annual depreciation expense. The dispersion pattern, as established by an Iowa Survivor curve, is also important in the overall process of selecting the best fitting results. The same ASL with different Iowa Survivor curves also results in different remaining lives.

Q. WHAT ARE THE MAIN TOOLS UTILIZED IN PERFORMING LIFE ANALYSES?

A. Life analyses are normally performed either through the use of actuarial or semi-actuarial analyses. Actuarial analyses rely on aged data. In other words, when an item of property is retired the age at retirement is known. This is identical to the type of analysis performed by insurance companies in obtaining life tables in order to measure risk and establish premiums. Semi-actuarial analyses are performed in instances when the age of plant retired is unknown.

Q. WHAT METHOD DID THE COMPANY USE?

A. The Company employed both methods. The Company used actuarial analyses for all Transmission accounts and Distribution Account 362 – Station Equipment. The Company used semi-actuarial analyses for the balance of the Utah Distribution accounts. The semi-actuarial analysis the Company relied upon is the Simulated Plant Record Balance method (“SPR”). This approach relies on simulation of generic Iowa Survivor curves with a corresponding ASL. The simulation matches the interrelationship of additions, retirements and balances on an annual basis. The lowest sum of least squared differences between actual balances and simulated balances, based on an assumed curve and life combination, produces a potential range of results from which to estimate the future pattern of retirements for the current investment.

Q. BASED ON YOUR REVIEW OF THE COMPANY'S LIFE ANALYSES, ARE YOU RECOMMENDING ADJUSTMENTS?

A. Yes. I am recommending adjustments for five accounts. My recommendations and the Company's proposals for each of the accounts where a change is recommended are summarized in the table below. The Utah jurisdictional impact is a reduction of $3.9 million and $5.3 million based on plant as of December 31, 2011 and 2013, respectively.

Mass Property Life

Account	Company Proposed	OCS Recommended
354 – Transmission Towers and Fixtures	68R4	75R3
355 – Transmission Poles, Towers, and Fixtures	60R2	64R1.5
356 – Transmission Overhead Conductors and Devices	60R3	64R1.5
367 – Distribution Underground Conductors and Devices	50R2	55R3
368 – Distribution Line Transformers	45R0.5	50R0.5

B. Actuarial Analyses

Q. DOES GANNETT FLEMING RELY ON ACTUARIAL ANALYSIS IN DEVELOPING ITS PROPOSED LIFE-CURVE COMBINATIONS?

A. Yes. Gannett Fleming relies heavily on its interpretation of the results of actuarial analyses. Gannett Fleming states that "generally, the information external to the statistics led to no significant departure from the indicated survivor curve."[63]

Q. HOW DID GANNETT FLEMING DEVELOP ITS PROPOSED LIFE-CURVE COMBINATIONS BASED ON AN ACTUARIAL PROCESS?

A. Gannett Fleming performed actuarial analyses on a full or all-inclusive placement and experience band combination as well as shorter 1982-2011 and 1992-2011

[63] 2011 Depreciation Study at page II-25.

experience bands.[64] Placement bands refer to the years in which plant was installed and establishes the years of data reflected in the database analyzed. For example, a 1924-2011 placement band captures all annual additions from 1924 through 2011 used to perform actuarial life analyses. Therefore, if a 1982-2011 experience band is combined with a 1924-2011 placement band, the actuarial results would yield the surviving plant pattern for plant added since 1924 taking into account only the retirements that occurred to those additions since 1982.

Q. WHAT RESULT IS OBTAINED FROM ACTUARIAL ANALYSIS?

A. The results produced by actuarial analyses are identified as an 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. 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 curve. 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 indicated 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. Both Gannett Fleming and I employed visual curve-fitting of the OLTs with standardized Iowa Survivor curves. 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

[64] Response to OCS 1.14 Attachment.

particular, the area under a survivor curve yields the ASL of the assets being analyzed. Therefore, as an OLT rises or elevates so does the ASL, all else equal.

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 levels of exposures at issue. Both Gannett Fleming and I generally rely on the portion of the OLT up to the point at which the dollar level of exposures declines to approximately 1% of the initial dollar level of exposures in the curve-fitting process.[65] The dollar level of exposures represents the plant that is subject to retirement forces during that age interval. If the lower portions of an OLT are matched with an Iowa Survivor curve in the visual curve-fitting process while sacrificing the middle or the upper portions of the OLT, then it is highly probable that an inappropriate result will be obtained. Therefore, part of the judgmental process employed by a depreciation analyst is to determine what ASL and corresponding Iowa 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. It is also important to note that mathematical matching of curves (i.e., sum of squared differences) are not normally relied upon for selection purposes unless a numerical weighting is assigned to each point in the OLT.

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

[65] Response to OCS 1.14 Attachment.

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 no 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 since they are based on limited levels of exposures. Finally, if retirement activity occurs, but to 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 levels 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 interpretations of the historical actuarial or semi-actuarial results.

Q. WHEN PERFORMING A GRAPHICAL COMPARISON OF CURVE FITS IS IT NECESSARY TO SET FORTH THE FULL 0% TO 100% SURVIVOR PRESENTATIONS?

A. No. Such a presentation often compresses the graphical values such that it becomes difficult to identify variances between the OLT and the proposed Iowa Survivor curve. The graphical presentations included in my direct testimony attempt to magnify the variances between proposals so that the differences can be more readily seen.

Q. DOES YOUR ANALYSIS AND PRESENTATION TRUNCATE MEANINGFUL OR SIGNIFICANT DATA?

A. No. As I previously indicated, the tail end of an OLT often reflects insignificant levels of activity and should be given limited or no weight in the curve-fitting process. The magnification of the graphical presentation does not truncate or eliminate useful information. The magnification simply permits a better visual representation for the Commission to consider. In all instances I have reviewed the entire smoothed Iowa Survivor curves.

Q. DID THE COMPANY PROVIDE A DETAILED EXPLANATION OF ITS CURVE SELECTION FOR EACH INSTANCE WHERE IT EMPLOYED ACTUARIAL ANALYSIS?

A. No. Gannett Fleming chose to provide a single illustrative example which it implies is applicable to all accounts. For actuarial analysis, Gannett Fleming used Account 356 for its illustrative example.[66] There Gannett Fleming states that it performed two separate actuarial band analysis. Then from its interpretation of the statistical results, it identified a 60R3 life-curve combination as a “reasonable” fit of the original survivor curve. Gannett Fleming then notes that its proposal is at

[66] 2011 Depreciation Study at page II-28.

the upper end of the typical service life for investment in this account, but that the 60-year ASL reflects "the Company's plan to replace conductor as consistently in the future as has been retired historically, which has been based on load demands and failure."[67] Thus, the Company relied on Gannett Fleming's interpretation of actuarial results, comparison with industry data, and unidentified and unsubstantiated input from Company personnel.

Q. GIVEN THE LIMITED INFORMATION BOTH IN QUANTITY AND QUALITY AS IT APPLIES TO VARIOUS ACCOUNTS WHERE THE COMPANY RELIED ON THE ACTUARIAL ANALYSIS, DID YOU SEEK FURTHER CLARIFICATION AND SUPPORT FOR THE COMPANY'S SELECTIONS, ESPECIALLY AS IT PERTAINS TO THE JUDGMENTAL ASPECT OF THE SELECTION PROCESS?

A. Yes. I specifically requested that the Company provide information in sufficient detail so as to clearly identify the role judgment played in establishing the final values for each account, along with all underlying documentation and support that verifies the reasonableness of the claimed role of judgment and experience, and a detailed narrative identifying and explaining each item of judgment and experience relied upon, by account, in establishing life parameters.[68]

Q. DID THE COMPANY PROVIDE THE REQUESTED INFORMATION?

A. No. The Company stated that providing a detailed narrative for each account was unduly burdensome. It referred back to its general illustrative presentation set forth at page II-25 of the 2011 Depreciation Study that provided a limited narrative for one transmission account as it applies to actuarial analysis for mass property. However, the Company still did not provide any documentation or support for claimed input from Company personnel or how such input impacted decision-making processes for all other accounts. The Company's claim that providing information for each account is burdensome represents a clear failure

[67] *Id.*
[68] OCS 1.14.

to support its request associated with accounts other than Account 353 as it applies to life selection based on actuarial analyses.

Q. WAS THE COMPANY ALSO ASKED TO PROVIDE ALL ADDITIONAL BASES, EVIDENCE, OPINIONS, ASSUMPTIONS, DOCUMENTS, ANALYSIS, ETC. THAT EITHER DESCRIBES, EXPLAINS, SUPPORTS, AND/OR JUSTIFIES THE SPECIFIC LIFE PARAMETERS PROPOSED FOR EACH SEPARATE ACCOUNT OR SUBACCOUNT NOT ALREADY PROVIDED?

A. Yes. However, the Company responded that there are no additional bases, evidence, opinions, assumptions, documents, analysis, etc. that either describes, explains, supports, and/or justifies the specific life parameters proposed for each separate account or subaccount.[69] In other words, given a second opportunity to provide additional support and justification for its various proposals, the Company again declined to do so. The only conclusion that can be drawn from this lack of response is that the Company has no valid support for its various proposals. By contrast, my recommendations and proposed adjustments to specific transmission and distribution accounts are better supported by analysis and industry comparisons.

C. Simulated Plant Records Analyses

Q. IN PERFORMING SPR ANALYSES, ARE THERE VARIOUS ALTERNATIVES AVAILABLE?

A. Yes. Some of the key alternatives or assumptions are the number of experience bands or which bands to rely upon, the length of experience bands to rely upon, as well as what criteria should be employed to rank and determine the best fitting results of each SPR analysis.

[69] Response to OCS 1.16.

Q. WHAT ARE EXPERIENCE BANDS?

A. Experience bands are simply the time period for which historical retirement activity is reviewed. For example, plant placed in service from 1898 through 2011 would form a placement band (i.e., the historical database). A full experience band would simulate the retirement activity over the full time frame 1898 through 2011. Alternatively, a 20-year experience band might still rely on the full placement band but only review the annual retirement activity for the period 1992 through 2011. By reviewing varying lengths of experience bands, one can identify potential trends and changing patterns in life characteristics.

Q. WHAT EXPERIENCE BANDS DID THE COMPANY SELECT?

A. Gannett Fleming claims it relied on three experience bands.[70] The three experience bands generally employed are the full band, a 1982-2011 band, and a 1992-2011 band.

Q. PLEASE EXPLAIN THE SPR METHOD.

A. In the SPR method, an Iowa Survivor curve and ASL are selected as a starting point of the analysis and its survivor factors applied to the actual annual additions to produce a sequence of annual balance totals. These simulated balances are compared with the actual balances by statistical analysis. Through multiple comparisons, the mortality characteristics (as defined by an ASL and Iowa Survivor curve) that are the best match to the property in the account can be determined.

The Conformance Index ("CI") is one measure used to evaluate various SPR analyses. CIs are also used to evaluate the "goodness of fit" between the actual data and the Iowa Survivor curve being referenced. The sum of squares difference ("SSD") is a summation of the difference between the calculated balances and the actual balances for the band or test year being analyzed. The

[70] Response to OCS 1.14, Attachment.

difference is squared and then summed to arrive at the SSD. The SSD is employed to calculate a CI.

The retirement experience index ("REI") gives an indication of the maturity of the account and is the percent of the property retired from the oldest vintage in the band at the end of the test year. REIs range from 0 to 100%. An REI of 100% indicates that a complete curve was employed in the simulation process. An REI less than 100% indicates that only a portion of the survivor curve was employed for calculating the CI value. The originator of the SPR method provided ranking ranges of values for CI and REI. The ranking relationship for CI proposed is shown below[71]:

CI Ratios	Value
Over 75	Excellent
50 to 75	Good
25 to 50	Fair
Under 25	Poor

The ranking relationship for REI proposed is shown below:

REI %	Value
Over 75	Excellent
50 to 75	Good
33 to 50	Fair
17 to 33	Poor
Under 17	Valueless

Depreciation analysts have used these measures in analyzing SPR results for nearly the past 60 years. Each of these statistics provides the analyst with a different perspective of the comparison between a band of simulated or calculated balances and the observed or actual balances in the account being studied. One statistic is not necessarily superior over the other. REIs should be

[71] Methods of Estimating Utility Plant Life, Publication No. 51-23 by Edison Electric Institute at page 62.

carefully considered to ensure that a mature curve is being used to estimate life, otherwise the results should not be accepted, even if the CIs are "excellent."

Q. DOES THE COMPANY AGREE WITH AND FOLLOW THE RANKING CRITERIA FOR SPR RESULTS?

A. Yes, generally.[72] However, Company claims it relied on informed judgment in addition to such criteria.[73] Many of the recommended life-curve combinations are different from the combination that ranks highest for a particular account. As was the case described above for actuarial analysis, the Company declined to provide information that it relied upon associated with its claimed informed judgment and input from Company personnel other than for Account 364.[74] However, as can be seen in the Company's single illustrative example provided in discovery, it is clear that other items of information had an impact at least for Account 364.

D. Account Specific

Account 354 – Transmission Towers and Fixtures

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 354 – TRANSMISSION TOWERS AND FIXTURES?

A. The Company proposes a 68R4 life-curve combination.[75]

Q. WHAT IS THE COMPANY'S BASIS FOR ITS PROPOSAL?

A. The Company presented its visual curve fit to actuarial results.[76] As previously noted, the Company refuses to provide a detailed explanation of its actual selection process for life parameters or any significant factors, items of information, input from the Company management, etc. that may have had an impact on its selection process. Instead of providing the requested account

[72] Response to OCS 1.14 Attachment.
[73] *Id.*
[74] Response to OCS 1.14 and Attachment.
[75] 2011 Depreciation Study at page III-15.
[76] 2011 Depreciation Study at page III-121.

specific information, the Company references the illustrative example for Account 356 presented on page II-28 of its depreciation study. There, the Company states that its approach is to obtain a “reasonable” fit of the original survivor curve, rather than the best fit, and to review industry data in conjunction with unidentified input from Company management.

Q. DO YOU AGREE WITH THE COMPANY’S PROPOSAL?

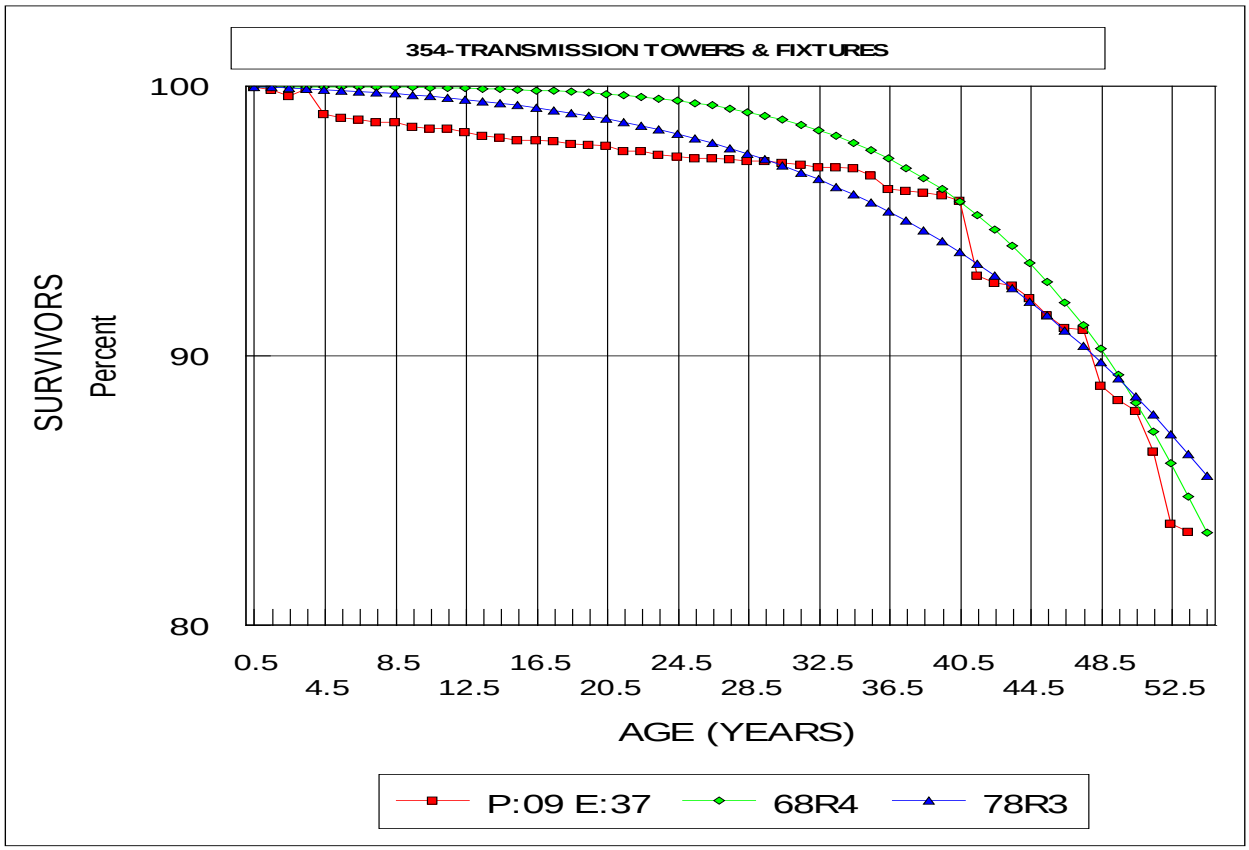
A. No. The selection process for life parameters associated with actuarial analysis is not to achieve a “reasonable” fit, but rather to obtain the “best” fit of the data prior to consideration of other factors. The Company has failed to provide any support for a different ASL than that obtained from statistical analyses.

Q. WHAT IS YOUR RECOMMENDATION FOR ACCOUNT 354?

A. I recommend a 75R3 life-curve combination.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. I have reviewed all actuarial results and performed my own independent curve-fitting process. As demonstrated in the graph below, the 78R3 life-curve combination is a superior fit to the Company’s proposal at basically all data points through the meaningful portion of the OLT, other than a few years between 38 and 41 years of age and then again after 50 years of age.



In comparing standard Iowa Survivor curves and the Company's actual OLT, it is important to note that both the Company's consultant, Gannett Fleming, and I normally rely on a one percent criteria of dollars of exposures at older age brackets compared to the zero age bracket level of exposures in determining whether the curve-fitting process should be considered meaningful beyond a given age.[77] For this account, the one percent criteria is reached at approximately 44 years of age and falls to less than 1/10 of one percent by approximately 58 years of age.[78] The curve-fitting process should attempt to give consideration to data points up to around 44 years of age when performing the curve-fitting process. As can be seen in the graph above, a 78R3 life-curve combination is a superior fit for all but a few instances, compared to the Company's proposal, and therefore represents a better or "best" fitting life-curve combination.

[77] Response to OCS 1.14 Attachment.
[78] 2011 Depreciation Study at pages III-122 and 123 for the full band.

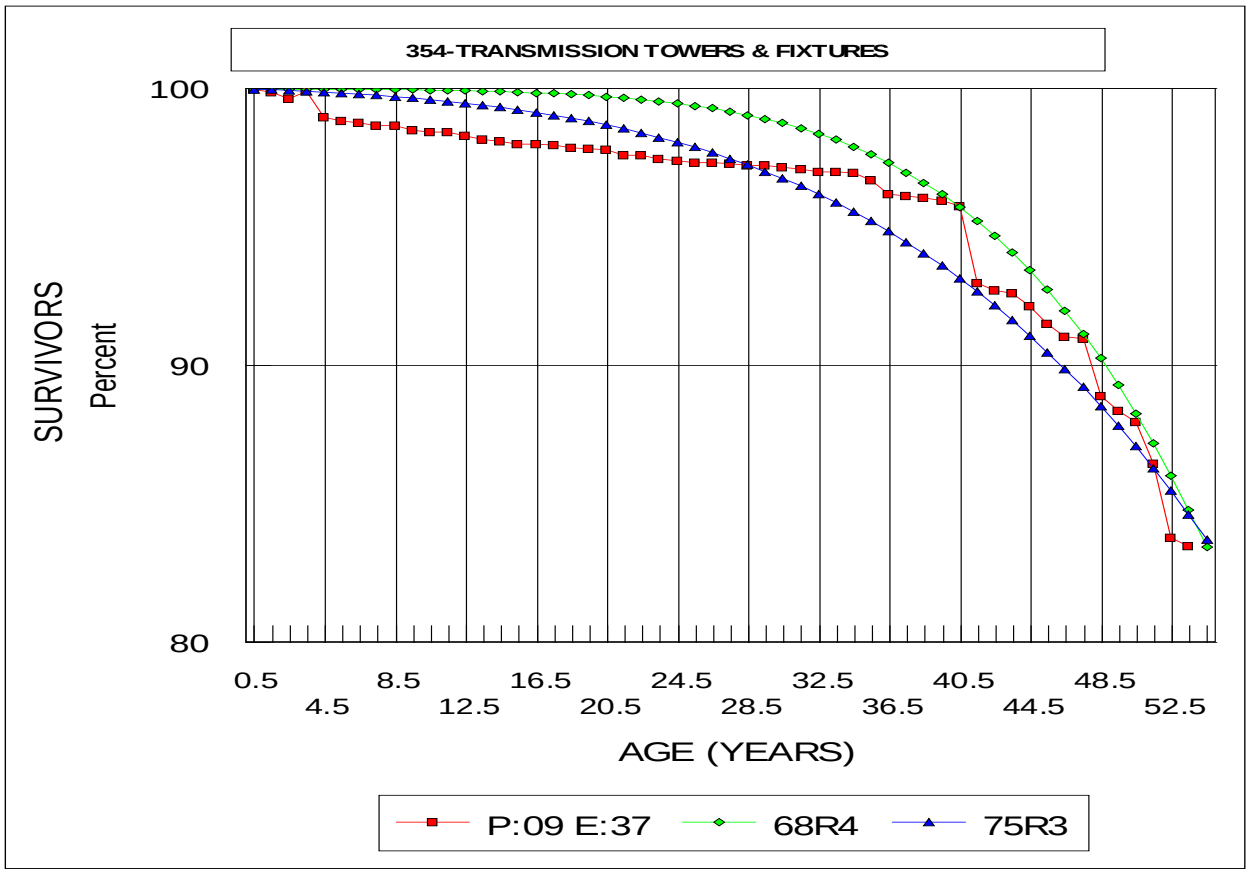
Next, Transmission towers represent the type of investment that can be expected to have some of the longest service lives of any of the assets on the Company's system. This is borne out by the Company's own recommendation for a 68-year ASL. However, Company specific data as presented through actuarial analysis indicates an even longer life is appropriate at this time.

The actuarial results for both the full band and the 1982-2011 experience band are almost identical for the meaningful portion of the OLT.[79] This means that while a long ASL is indicated by analysis of the overall investment in the account, the more current data reaffirms the statistical stability of the long-term indications. Therefore, from a statistical actuarial analysis standpoint, the Company's proposed 68-year ASL is artificially short based on all band analyses, and must be extended.

While a 78-year period places the Company near the high end of the industry range of values, this value is still appropriate from both an ASL standpoint and a maximum life standpoint. The Company's consultant, Gannett Fleming, has proposed 70- to 75-year ASLs for a number of other utilities[80]and has recommended life-curve combinations that produce maximum life values equivalent to the 78R3 life-curve combination. Therefore, from an industry comparative standpoint, the actuarially based 78R3 life-curve combination is confirmed as a realistic value.

While the 78R3 life-curve combination appears to be the most appropriate value, in order to present a conservative alternative and reflect a degree of gradualism, I am recommending limiting the increase above the Company's proposal to a 75-year ASL with the same corresponding R3 dispersion pattern. As shown on the graph below, a 75R3 life-curve combination is still a superior fit to the Company's proposed 68R4 life-curve combination.

[79] 2011 Depreciation Study at pages III-122 through 125.
[80] Response to OCS 1.3 Attachment.



Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a total Company $1.6 million and $2.1 million reduction in depreciation expense for plant as of December 31, 2011 and 2013, respectively. The corresponding Utah jurisdictional reductions are $669,000 and $871,000, respectively.

Account 355 – Transmission Poles and Fixtures

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 355 – TRANSMISSION POLES AND FIXTURES?

A. The Company proposes a 60R2 life-curve combination.[81]

[81] 2011 Depreciation Study at page III-126.

Q. WHAT IS THE BASIS FOR THE COMPANY'S PROPOSAL?

A. This is one of the accounts where the Company states that "the information external to statics led to no statistical departure from the indicated survivor curves."[82] The Company performed its actuarial analysis and apparently chose a "reasonable" fit of the OLT compared to various life-curve combinations that it investigated. However, when asked in discovery, the Company did not provide any additional information supporting its proposal.[83] The only other basis that can be derived from the illustrative example provided in the depreciation study, which the Company claims is consistent with its approach for all accounts, is that it reviewed industry information and took into account unidentified input from Company management.

Q. DO YOU AGREE WITH THE COMPANY'S PROPOSAL?

A. No. The Company's proposal results in an artificially short ASL.

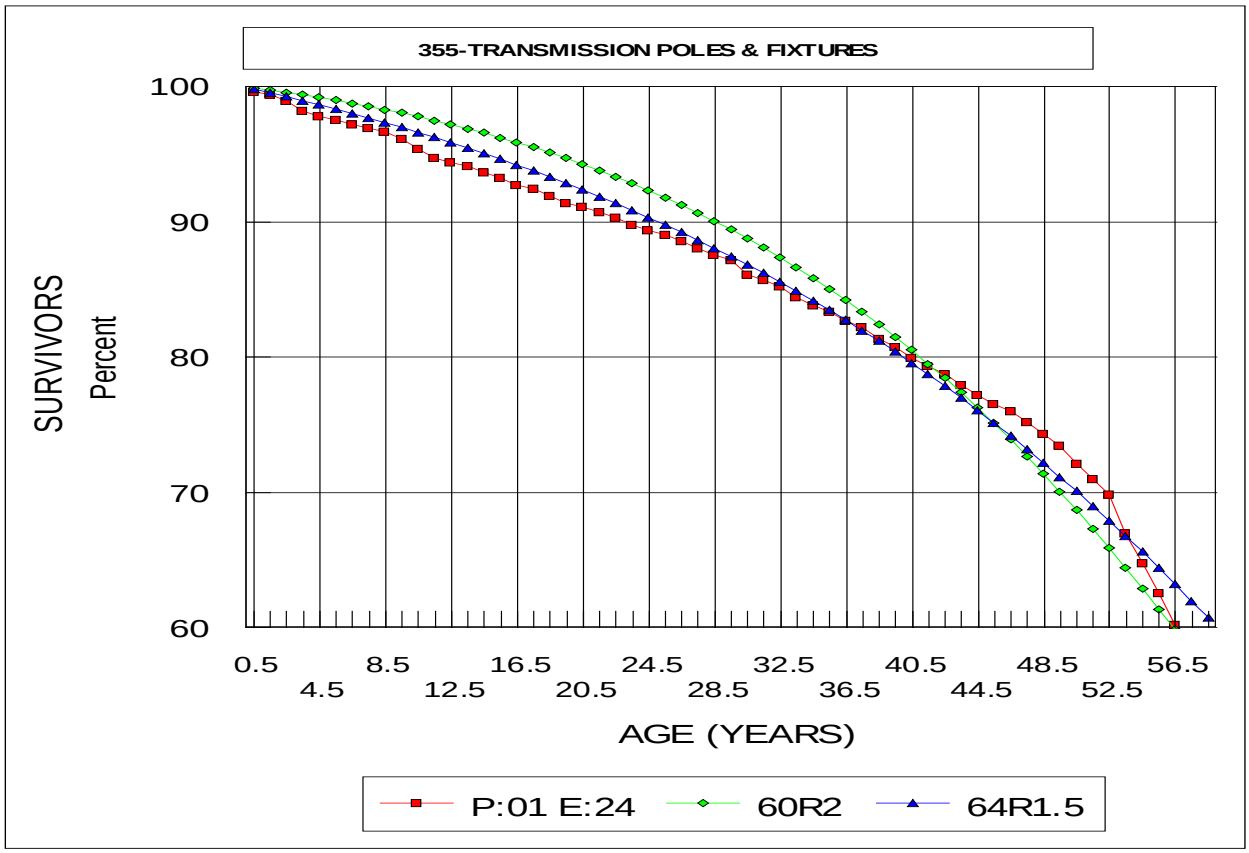
Q. WHAT IS YOUR RECOMMENDATION FOR ACCOUNT 355?

A. I recommend a 64R1.5 life-curve combination.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. Based on my independent review of the actuarial results, I determined that a 64R1.5 life-curve combination is a superior fit to the historical statistical data than is the Company's proposal. As shown on the graph below, my recommendation results in a better fit to the historical data through the meaningful portion of the OLT, with the exception of a handful of years from approximately 41 years of age through 45 years of age where a crossover occurs.

[82] 2011 Depreciation Study at page II-25.
[83] Response to OCS 1.14 and 1.16.



It is important to again note that the Company's consultant, Gannett Fleming, normally relies on a one percent criteria associated with dollars of exposures to determine the meaningful portion of the OLT to be fitted. The one percent criteria means that when the dollar level of exposures at any given age bracket declines to approximately one percent of the zero age bracket dollar level of exposures, then the data becomes statistically unsound and should be given little to no weight in the curve-fitting process. When reviewing the graphical comparison for this account, it is important to note that the one percent criteria is reached at approximately 55 years of age for the full band analysis and approximately 56 year of age for the shorter experience band analysis performed by Gannett Fleming.[84] The one percent criteria identifies the more important points to be fitted in the curve comparison process are those that occur prior to approximately

[84] 2011 Depreciation Study at pages III-127 through 131.

55 years of age.[85] As can be seen in the graph above, my recommendation results in a far superior fit through the meaningful portion of the OLT.

From an industry comparative standpoint, both the Company's proposal and my recommendation are near the high end of the industry range. It should be noted that the Company's consultant, Gannett Fleming, has recommended ASLs as high as 70 years for the investment in this account. Therefore, from the standpoint of industry comparative data, my recommendation is appropriate.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a total Company reduction of $1.2 million and $1.3 million in depreciation expense for plant as of December 31, 2011 and 2013, respectively. The corresponding Utah jurisdictional values are a reduction of $509,000 and $565,000, respectively.

Account 356 – Transmission Overhead Conductors and Devices

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 356 – TRANSMISSION OVERHEAD CONDUCTORS AND DEVICES?

A. The Company proposes a 60R3 life-curve combination.[86]

Q. WHAT IS THE BASIS FOR THE COMPANY'S PROPOSAL?

A. This is an account where the Company provided some limited detail in support of its proposal. In particular, the Company's consultant, Gannett Fleming, uses Account 356 as an illustration of the manner in which it conducted its study. Gannett Fleming performed two separate actuarial analyses, one reflecting the full band of available data and the second one reflecting the experience band from 1982-2011. Based on visual fitting of the actuarial results, Gannett Fleming concluded that a 60R3 life-curve combination "is a reasonable fit of the original

[85] It should also be noted that data points at or around 55 years of age also have less statistical significance than prior data points.
[86] 2011 Depreciation Study at page III-15.

survivor curve."[87] In the depreciation study, Gannet Fleming further notes that the 60-year life "reflects the Company's plan to replace conductors consistently in the future as has been retired historically, which has been based on load demands and failure."[88] Gannett Fleming's statements, presented for illustrative purposes, are consistent with its other general reference listing this account as one of the accounts where "the information external to statistics led to no significant departure from the indicated survivor curves."[89] These statements represent the entirety of the Company's support for its recommendation for Account 356, despite being asked to specifically provide a detailed narrative identifying significant items of information used in developing its proposal.

Q. DO YOU AGREE WITH THE COMPANY'S PROPOSAL?

A. No. The Company's proposal is artificially short.

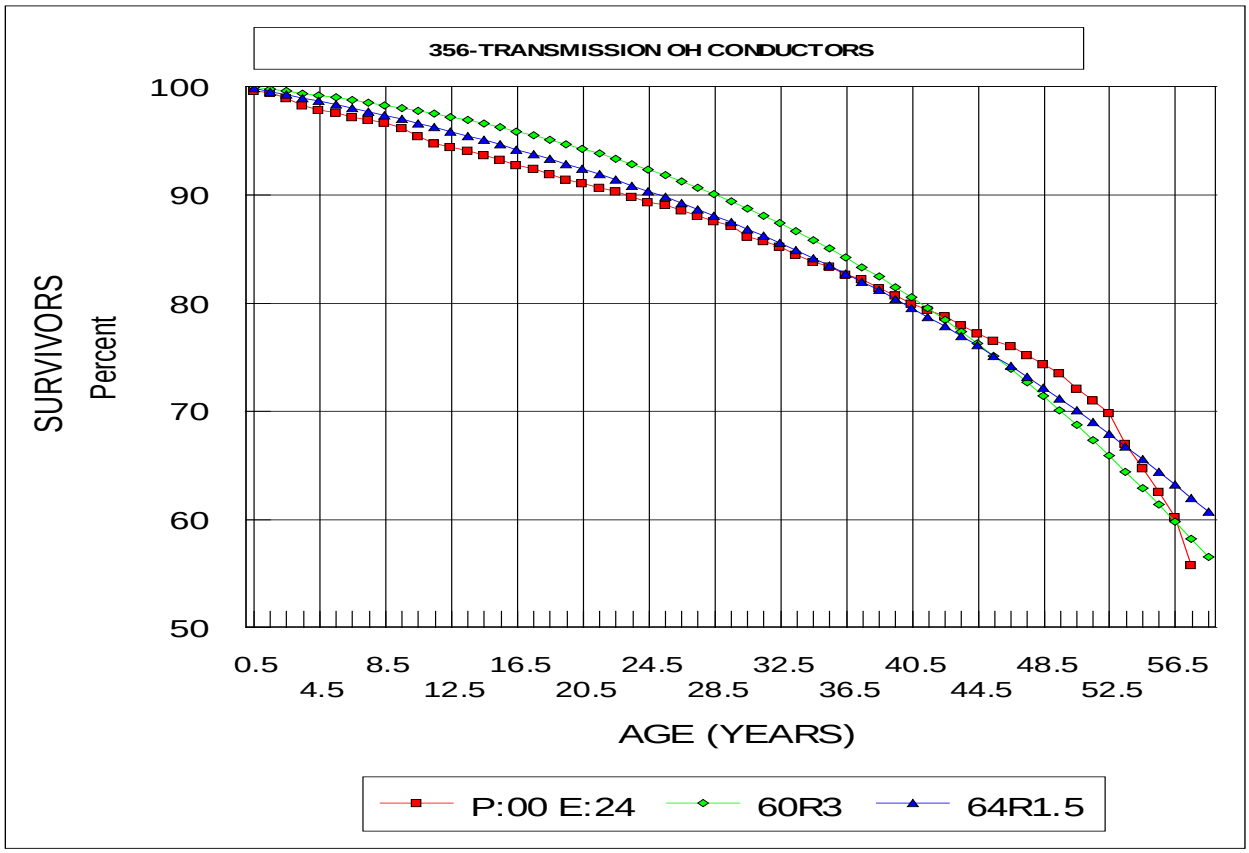
Q. WHAT IS YOUR RECOMMENDATION FOR ACCOUNT 356?

A. I recommend a 64R1.5 life-curve combination.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. While I relied on the Company specific results associated with its actuarial analysis, I identified more appropriate results. As shown on the graph below, a 64R1.5 life-curve combination is a superior fit to the Company's proposal through the first 40 years of age, then for a handful of years the Company's proposal is slightly superior but almost identical to the 64R1.5 life-curve combination. Beginning around age 48, my recommendation again is superior to the Company's curve yet still somewhat similar until approximately 56 years of age. At that point, the data being matched is no longer statistically meaningful due to the one percent criteria previously discussed.

[87] 2011 Depreciation Study at page II-28.
[88] *Id.*
[89] *Id.* at page II-25.



As can be seen in the graph above, a 64R1.5 life-curve combination is an overall superior fit to the OLT compared to the Company's proposal and, absent other meaningful information, presents a more appropriate selection.

Lastly, industry comparative information confirms that a 64R1.5 life-curve combination is reasonable. The Company's consultant, Gannett Fleming, has proposed longer ASLs in many instances, including up to 72 years.[90]

Another consideration is the fact that I am also recommending longer ASLs for Accounts 354 and 355 – Transmission Towers and Poles. Since conductors hang from the towers and poles, the 64-year ASL recommended for this account better reflects the interrelationship with the longer lives I recommend for Transmission Towers and Poles. In other words, the necessary correction to the

[90] Response to OCS 1.3 Attachment.

life selection process used by the Company that under estimated the life for towers and poles is also applicable to this account.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in reductions in depreciation expense on a total Company basis of $2.0 million and $2.3 million for plant ending as of December 31, 2011 and 2013, respectively. On a Utah jurisdictional basis, the values corresponding values are $850,000 and $950,000, respectively.

Account 367 – Distribution Underground Conductors and Devices

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 367 – DISTRIBUTION UNDERGROUND CONDUCTORS AND DEVICES?

A. The Company proposes a 50R2 life-curve combination.[91]

Q. WHAT IS THE BASIS FOR THE COMPANY'S PROPOSAL?

A. The Company provides no specific basis for its proposal for Account 367. The Company failed to provide specific information when asked to identify significant items of information obtained from Company personnel, as well as a detailed narrative identifying the basis for its proposal.[92] Rather, the Company chose to reference its illustrative example for Account 364 presented at page II-28 of its depreciation study, and indicated that the Company's proposal for this account is based on similar considerations. For Account 364, the Company identifies that it relied on SPR analyses and did a simulated curve analysis on the 20-year period 1992-2011. The Company then performed graphical comparisons between actual balances and simulated balances, and stated that its proposal "produces simulated plant balances that conform very closely to the actual book balances." The Company then presented a wide range of industry comparative values and noted that its recommendation is within the "typical" range. It concludes by

[91] 2011 Depreciation Study at page III-17.
[92] Response to OCS 1.14 and 1.16.

stating that its recommendation is strongly supported by SPR analysis. Again, it must be noted that the only basis the Company was willing to present for its proposal for Account 367 is that associated with the illustrative information for Account 364. Therefore, it can only be concluded that the above noted information is also applicable to the Company's basis for Account 367.

Q. DO YOU AGREE WITH THE COMPANY'S PROPOSAL?

A. No. Based on the available information and taking into account the type of investment in the account, a longer ASL is warranted.

Q. WHAT IS YOUR RECOMMENDATION FOR ACCOUNT 367?

A. I recommend a 55R3 life-curve combination.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. Reliance on historical SPR analyses is less appropriate for this account than for many other accounts. There have been significant changes in the type of underground cable used by the industry as technological advancements have significantly increased life expectations. Those utilities that relied on direct buried cable and older technology underground cable in their depreciation analyses often propose ASLs in the upper-20 to mid-30-year range.[93] ASLs of this nature are normally reflective of older analyses and companies that have not appreciably improved the type of underground conductor for their systems. Alternatively, when utilities rely on more current technology for their underground conductor or have a higher percentage of investment in underground conductor in conduit rather than in direct buried cable, ASLs in the 50- to 60-year range are more common.[94] In any instance, sole reliance on the review of historical SPR analyses should be tempered with the fact that such analyses will underreport the life expectation for current and future investment in this account (i.e., newer and better cable).

[93] Response to OCS 1.3 Attachment.
[94] *Id.*

Turning to the actual SPR analyses, one finds that the results for an R2 Iowa Survivor curve proposal by the Company ranges from 75 to 76 years. Those values are noticeably different than the 50-year ASL proposed by the Company.[95] Therefore, when the Company tries to rely on its illustrative example for Account 364 and claims that its SPR analysis resulted in balances that conformed very closely to the actual book balances, the Company is wrong. The statistically best-fitting R2 ASLs, as set forth in the Company's analyses, are much longer than proposed in the depreciation study. Moreover, the SPR analysis for this account clearly demonstrates that excellent CIs and REIs are obtained with R2.5 to R3 Iowa Survivor curve patterns and yield ASL values ranging between 50 and 61 years. Therefore, whether viewed from the Company's proposed R2 Iowa Survivor curve pattern or excellent-fitting R2.5 and R3 dispersion patterns, an ASL greater than 50 years proposed by the Company is warranted.

In addition, the Company's claimed basis that the graphical comparison between the actual and simulated balances produces results that conform very closely to the actual book balances is again incorrect. As set forth on page III-509 of the Company's depreciation study, it can be seen that the simulated balance understates actual balance values from the very beginning through 2011, and in fact grows to greater differentials as one gets closer to 2011. This again would be indicative of underestimation of ASL, which is confirmed by the actual statistical results obtained from the SPR analyses.

While an ASL of approximately 60 years is justified both from SPR analyses and industry data, I conservatively recommend an increase only to 55 years, with a corresponding R2.5 Iowa Survivor curve. This recommendation not only recognizes the concept of gradualism, but is made in conjunction with a recommendation noted at the end of my direct testimony that the Commission

[95] Response to DPU 2.2 Attachment 16.

order the Company to provide full and complete justification for its proposals in the next depreciation study.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a Utah jurisdictional reduction of $915,000 in depreciation expense for plant as of 2011, and a corresponding $113,000 reduction in depreciation expense based on plant as of 2013.

Account 368 – Distribution Line Transformers

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 368 – DISTRIBUTION LINE TRANSFORMERS?

A. The Company proposes a 45R0.5 life-curve combination.[96]

Q. WHAT IS THE BASIS FOR THE COMPANY'S PROPOSAL?

A. As was the case for Account 367, the Company did not provide any specific information associated with its proposed 45R0.5 life-curve combination. Rather, the Company relied on references to the illustrative information for Account 364 presented in its depreciation study at page II-28. As such, the only identifiable basis the Company is willing to present is that it relied on the same process as identified for Account 364 with no additional significant input that would result in a change in life parameters from that obtained from SPR analyses.

Q. DO YOU AGREE WITH THE COMPANY'S PROPOSAL?

A. No. The Company's proposal understates the appropriate ASL.

Q. WHAT IS YOUR RECOMMENDATION FOR ACCOUNT 368?

A. I recommend a 50R0.5 life-curve combination.

[96] 2011 Depreciation Study at page III-17.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. Unlike the Company's proposal, my recommendation precisely corresponds with the results of the Company's SPR analyses. While the Company claims that its SPR analyses yielded a 45R0.5 life-curve combination, it is wrong. Specifically, the full band and 30-year band SPR analyses both resulted in 51-year ASLs corresponding to an R0.5 Iowa Survivor curve, and for the 20-year SPR band analysis, the Company's result was a 50-year ASL corresponding to an R0.5 Iowa Survivor curve.[97] Therefore, the Company's proposal bears no relationship to the results of its own analyses.

Next, the SPR results for the 20-year band produce both an excellent CI and REI corresponding to a 51R0.5 life-curve combination. In the other two SPR analyses performed by the Company, the best-fitting results in each had excellent REIs but the CIs declined to the good to fair categories. However, those values were still the best-fitting results out of all Iowa Survivor curves analyzed.

In addition, the Company's graphical presentation of the simulated and actual balances form 1992-2011, as set forth on page III-511 of its depreciation study, clearly demonstrates that its proposed 45-year ASL understates the comparison with the actual balance in basically all years.

While the Company specific SPR results clearly demonstrate that a 50-year ASL is appropriate for this account, it is still reasonable to perform a confirmation of such value with industry information. The Company's consultant, Gannett Fleming, has a database indicating that 50-year ASLs are within the range of values recommended by Gannett Fleming elsewhere in the industry.[98] This confirmation only reinforces the understatement of ASL by the Company, which is also contrary to its own SPR analyses. Therefore, the results of the statistical

[97] Response to DPU 2.2 Attachment 16.
[98] Response to OCS 1.3 Attachment.

analysis of Company specific information should be relied on in setting the ASL for Account 368.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $991,000 and $2.9 million reduction for plant as of December 31, 2011 and 2013, respectively, on a Utah jurisdictional basis.

Q. DO YOU HAVE A FINAL RECOMMENDATION FOR THE COMMISSION?

A. Yes. Given the Company's failure in this case to explain and provide detailed support for its life selections for most accounts in the mass property area, I recommend that the Commission order the Company to provide a clear and complete basis for each of its life and net salvage selections in future depreciation studies. The Commission and parties are entitled to know with reasonable specificity how each life and net salvage parameter was determined, along with the supporting documentation. While the Company did provide a significant amount of documents with its request, it still failed to provide many critical items of information that demonstrate how it actually arrived at its various proposals.

Q. REGARDING THE COMPANY'S RESPONSES TO DATA REQUESTS AND CERTAIN WORKPAPERS REFERENCED IN YOUR DIRECT TESTIMONY, DID YOU PREPARE AN EXHIBIT THAT INCLUDES THESE DOCUMENTS?

A. Yes. OCS Exhibit 2.2 (Direct) includes the Company's responses to data requests and other materials referenced in my direct testimony.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes. However, to the extent I have not addressed an issue, method, procedures, or other matter relevant to the Company's proposals in its filed depreciation case, it should not be construed that I am in agreement with the Company's proposed issue, method, or procedures.