DEPARTMENT OF PUBLIC SERVICE REGULATION
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MONTANA

* * * * *

IN THE MATTER OF the Application of the	)	REGULATORY DIVISION
Application of Montana-Dakota Utilities Co.	)	
for Authority to Establish Increased Rates for	)	DOCKET NO. D2015.6.51
Electric Service in the State of Montana	)	

Direct Testimony

of

Jacob Pous

On behalf of

Montana Consumer Counsel

Diversified Utility Consultants, Inc.

1912 West Anderson Lane, Suite 202

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November 20, 2015

DIRECT TESTIMONY AND EXHIBITS OF JACOB POUS

ACRONYMS

2014 STUDY	Depreciation Studies, dated December 31, 2014
AICPA	American Institute of Certified Public Accountants
ALG	Average Life Group
APFD	Accumulated Provision for Depreciation
ASL	Average Service Life
CFR	Code of Federal Regulations
COMMISSION	Montana Public Service Commission
CPI	Consumer Price Index
CPUC	California Public Utilities Commission
DUCI	Diversified Utility Consultants, Inc.
EIA	Energy Information Administration
EPR	Ethylene Propylene Rubber
FERC	Federal Energy Regulatory Commission
HWPE	High Molecular Weight Polyethylene
MCC	Montana Consumer Counsel
MDU or COMPANY	Montana-Dakota Utilities Company
NARUC	National Association of Regulatory Utility Commissioners
OLT	Observed Life Table
PILC	Paper Insulated Lead Cover
SCE	Southern California Edison
SPR	Simulated Plant Records
TR-XLPE	Tree Retardant Cross-linked Polyethylene
XLPE	Cross-linked Polyethylene

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SECTION I: INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

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

Q. WHAT IS YOUR OCCUPATION?

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

Q. PLEASE DESCRIBE DIVERSIFIED UTILITY CONSULTANTS, INC.

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

Q. HAVE YOU PREVIOUSLY TESTIFIED IN PUBLIC UTILITY PROCEEDINGS?

A. Yes. Appendix A also includes a list of proceedings in which I have previously presented testimony. In addition, I have been involved in numerous utility rate proceedings that resulted in settlements before testimony was filed. In total, I have participated in well over 400 utility rate proceedings in the United States and Canada. Also worthy of note is that I have testified on behalf of the staff of six different state regulatory commissions and one Canadian regulator, and been asked to speak to the National Association of Regulatory Utility Commissioners ("NARUC") on several occasions regarding the topic of depreciation.

Q. WHAT IS YOUR PROFESSIONAL BACKGROUND?

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

Q. ON WHOSE BEHALF ARE YOU PROVIDING THIS TESTIMONY?

A. I am testifying on behalf of the Montana Consumer Counsel ("MCC").

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to review and analyze the proposed depreciation rates of the Montana-Dakota Utilities Company ("MDU" or

"Company") as filed with the Montana Public Service Commission ("MPSC" or "Commission").

Q. PLEASE PROVIDE A SUMMARY OF YOUR TESTIMONY.

A. The Company retained AUS Consultants to perform depreciation analyses for both its Electric and Common plant divisions. Mr. Robinson of AUS Consultants developed two depreciation studies ("2014 Study"). The first study is for the Electric division of MDU as a whole and is identified as Exhibit No._(EMR-1). The Electric study reflects a $1,993,230 or 6% proposed increase in annual depreciation expense. The second study is for the Common plant and is presented as Exhibit No._(EMR-2). The Common study reflects a $275,554 or 8% proposed increase in annual depreciation expense. After review of the Company's studies, workpapers, and responses to discovery, I conclude that the results of the studies are significantly flawed and yield excessive levels of depreciation expense. A brief summary of the issues I address follows.

Electric Plant

- **<u>Production Plant Life</u>** – Two adjustments are required at a minimum to address artificially short life span proposals. First, the co-owners of the Big Stone Station rely on a 2046 rather than a 2027 estimated retirement date. MDU agrees the retirement date should be

consistent. Next, the assumed 20-year life span for wind farm facilities is noticeably short for the more modern wind farm currently in service and for the soon to be in service units. While a 30-year life span is now more realistic, only a first step to bring the life span to 25 years is recommended in this case. The standalone impact of these two adjustments results in a $2,755,373 reduction in total Company annual depreciation expense based on plant as of December 31, 2014.

- **Mass Life** – MDU fails to substantiate many of its mass property life analyses. Notwithstanding such failure, Mr. Robinson's identifiable interpretations of the results of actuarial analyses in conjunction with the limited additional information external to the statistical analyses identified yield artificially short average service lives ("ASL"). Correction of the short ASLs for four accounts results in a $1,094,366 reduction in total Company annual depreciation expense based on plant as of December 31, 2014.
- **Mass Net Salvage** – The Company fails to support or explain its various proposals. In addition, the Company employs an unusual quantitative analysis that assumes inflation is the sole driving factor of future net salvage expectations. Review of the available data and correction of the inappropriate reliance on inflation, recognition of an unsubstantiated change in the recording of cost of removal and

other problems results in the need to modify Mr. Robinson's proposal for eight accounts. Adoption of more realistic negative net salvage values for these accounts results in a $1,310,983 reduction to total Company depreciation expense based on plant as of December 31, 2014.

- **Combined Electric Impact** – The combined impact of the various life and salvage adjustments are not simply the summation of the individual standalone impacts when both life and net salvage adjustments are proposed for the same account. The combined impact of my recommendations for Electric plant depreciation expense is a total Company reduction of $4,970,155 for plant as of December 31, 2014 and is set forth on Exhibit (JP-1) page 2.

Common Plant

- **Life** – Account 390 – Structures & Improvements represents the majority of the investment at issue in Common plant. Mr. Robinson performed an actuarial analysis on the data and appears to rely on his interpretation of the results of such analyses for his proposal of a 38-year ASL. Upon review of the Company's investment in this account, and the fact that the historical database included the early retirement of 13 facilities, a much longer ASL is warranted. Adoption of a 45-year ASL results in a $231,779 reduction to total

Company depreciation expense based on plant as of December 31, 2014.

- **Net Salvage** – Without support or explanation, Mr. Robinson proposes a 5% net salvage for facilities after a 38-year ASL. Review of historical data, Mr. Robinson's unusual future forecasting analysis, as well as the actual retirement and sale of 13 buildings by the Company during the last 20 years clearly demonstrates that a 5% level of net salvage for the investment in this account is woefully inadequate. Adoption of an initial step of a positive 40% net salvage in this proceeding results in a $611,869 reduction in total Company depreciation expense based on plant as of December 31, 2014.

- **Combined Common Impact** – The combined impact of the various life and salvage adjustments are not simply the summation of the individual standalone impacts when both life and net salvage adjustments are proposed for the same account. The combined impact of my recommendations for Common plant depreciation expense is a total Company reduction of $721,788 and is set forth on Exhibit (JP-1) page 3.

Q. DO YOU HAVE A CONCERN THAT NEEDS TO BE ADDRESSED AT THE OUTSET OF YOUR TESTIMONY?

A. Yes. In Docket No. D2012.9.100 Montana-Dakota Utilities Company entered into a settlement agreement for its natural gas services division. On December 5, 2013, a stipulation amongst the parties was filed with the Commission. In its final order, the Commission adopted the stipulation but added paragraph 12 to that order, which states as follows:

> <u>One of the concerns the Commission had</u> in this case was the <u>adequacy of the supporting documentation for the depreciation study performed</u> by MDU's witness. The Stipulation resolves the issues for this rate case and establishes rates on a going forward basis. <u>MDU is strongly encouraged to ensure there is supporting documentation for any change in depreciation rates going forward</u>. The testimony of MCC's witness should provide guidance to MDU to what will be expected for supporting documentation in its depreciation studies going forward. (Emphasis added)

It should be noted I am the same MCC witness referred to in the order to which the Company was directed in order to obtain guidance of what will be expected for supporting documentation.

Q. BASED ON YOUR REVIEW OF MDU'S CURRENT DEPRECIATION STUDY, DO YOU BELIEVE IT HAS COMPLIED WITH THE COMMISSION'S ENCOURAGEMENT REGARDING PROVIDING SUPPORTING DOCUMENTATION FOR DEPRECIATION PROPOSALS?

A. No. Based on my review of the Company's current Electric and Common depreciation presentations, there appears to have been no effort made to improve the support associated with the various proposed life and net salvage parameters either in testimony, the depreciation studies, the workpapers, or responses to discovery.

The Company submitted the identical presentation in its current depreciation studies as it did in its gas depreciation study referenced in the above noted final order. Indeed, the Company's 2014 Studies fail to provide any narrative discussion associated with future expectations and considerations for net salvage, and its narrative discussions for life related future expectations and considerations are of such a generalized nature that they do not support the Company's proposals versus other values. In other words, the Company continues to believe that its limited presentation of the input data to computer programs along with the numerical output of its analyses, in conjunction with a few generalized statements indicating Mr. Robinson's reliance on judgment, and taking into account unidentified and

unsubstantiated statements or claims made by its personnel, is adequate support and justification for its proposals. This same level and quality of presentation by MDU in Docket No. D2012.9.100 is what elicited the strong encouragement by the Commission to take a major step towards improvement for this case. Again, I must note MDU's response has effectively been no movement towards any further support, justification, clarification, or identification of meaningful items of input into the judgmental process, which the Company's witness claims to have relied upon.

Q. CAN YOU PROVIDE AN EXAMPLE?

A. Yes. Electric Account 390 – General Plant Structures and Improvements is normally an account I would not thoroughly investigate given the limited nature of depreciation expense requested. However, the Company's failure to provide any, let alone more, meaningful support for its depreciation request can be clearly seen in association with its proposal for this account. Exhibit (JP-2) sets forth the two pages from Section 4 of the 2014 Study Results as filed in this case for this account. Exhibit (JP-3) sets forth the comparable two pages in MDU's recent gas depreciation study, which was the subject of the Commission's directive for improvement. As can be seen by comparing these two Study Result presentations, there is no additional expansion of meaningful basis or information that would support the

Company's life or salvage proposals. Indeed, the Company failed to add any narrative associated with its net salvage proposal, leaving the Commission and other parties in the same position as was the case with its gas depreciation study.

Q. PLEASE FURTHER DISCUSS THE PROBLEM WITH THE COMPANY'S LIFE RELATED PRESENTATION FOR THIS ACCOUNT.

A. As set forth in Exhibit (JP-2) under the Future Expectations and Considerations heading, the last of the three sentences presented states that "normal ongoing upgrades and changes have been and will continue to occur at the various sites in coming years." This statement, taken in conjunction with the Company's actuarial life analysis presentation as set forth on Exhibit (JP-4) can only be interpreted as the historical analysis reflects the normal ongoing upgrades and changes that will continue in the future. In other words, the Company's historical transactions are an appropriate life related predictor for the future investment in this account.

However, a review of Exhibit (JP-4) identifies the Company selected a 29-year ASL for office buildings. A 29-year ASL on its face is unreasonable and unrealistic for office buildings owned by MDU, absent substantial support and justification demonstrating the unique characteristics that

would result in such a short ASL. The other noticeable information set forth on Exhibit (JP-4) is the fact that the historical retirement pattern or observed life tables ("OLT"), which are the black triangles on the graph, exhibit a rather unusual or erratic pattern. However, nothing in the Company's filing addresses or explains what appears to be a rather unusual retirement pattern or resulting 29-year ASL.

Only in response to discovery requesting information associated with the sale of any buildings did the Company identify that it had sold four buildings in the last 20 years.[1] Once informed that there were four sales of Company owned buildings, it was possible to determine that the rather erratic depiction of a retirement pattern as set forth on Exhibit (JP-4) was due to these particular sales. Very little of the remaining historical retirement activity associated with this account exists outside these four sale events.[2] In addition, the Company admits that these sales occurred in association with its efforts during the 1990s to close smaller offices in its service territory.

Unless the Company plans to close many additional buildings in the relatively near term future, these historical events would not correspond to the Company's statement that its life expectations reflect "normal ongoing upgrades and changes". In other words, the predictive value of the historical

[1] Response to MCC-222 Attachment A.
[2] Response to MCC-222 Attachment A and 2014 Study at pages 5-92 and 5-93.

data relied on and presented by the Company is only appropriate if continuous sale of buildings before the end of their useful lives will be the normal ongoing mode of operation. Yet the Company has remained totally silent on this matter other than to propose a 29-year ASL, which inherently assumes it will continue to sell office buildings, with the majority of those investments being sold 17 to 20 years after being placed into service.

Q. DOES THE POSSIBILITY EXIST THAT MR. ROBINSON ACTUALLY IS OF THE OPINION THAT THE SALE OF OFFICE BUILDINGS WILL CONTINUE IN THE FUTURE IN THIS MANNER?

A. While Mr. Robinson chose to remain silent on this entire topic, his actions in the corresponding net salvage portion of his 2014 Study indicates otherwise. In other words, for Mr. Robinson's life proposal to be plausible and consistent with his net salvage proposal, he would need to propose a sizable positive net salvage for buildings. However, Mr. Robinson chose to do quite the opposite in the net salvage portion of his analyses.

Q. WHAT DID MR. ROBINSON PROPOSE FOR NET SALVAGE ASSOCIATED WITH THIS ACCOUNT?

A. Mr. Robinson proposes a -10% net salvage. In other words, he is proposing that the Company will incur cost of removal at double the rate it will incur gross salvage when it sells buildings.[3]

Q. IS MR. ROBINSON'S NET SALVAGE PROPOSAL CONSISTENT WITH HIS LIFE ANALYSIS?

A. No. The four sales of office buildings, which directly caused the short life indications that Mr. Robinson relied upon for his life proposal, yielded a combined 51% positive net salvage.[4] Moreover, Mr. Robinson's historical analysis over the past 20 years indicates a positive 41.7% net salvage taking into account not only the identified four sales, but also a major cost of removal associated with what appears to be a remodeling or demolition of another facility.[5] Indeed, for the life and net salvage results to be consistent based on Mr. Robinson's reliance on Company historical data, he should have proposed a positive 40% to 50% net salvage for this account rather than the -10% net salvage he actually proposed.

[3] Mr. Robinson assumes a 10% gross salvage and a 20% cost of removal for a -10% net salvage.
[4] Response to MCC-222 Attachment A.
[5] 2014 Study at pages 8-105 and 8-106.

Q. PLEASE FURTHER EXPLAIN HOW THIS EXAMPLE DEMONSTRATES THE COMPANY'S FAILURE TO COMPLY WITH THE STRONG DIRECTIVE ISSUED BY THE COMMISSION IN THE COMPANY'S LAST DEPRECIATION STUDY.

A. My concern regarding the lack of support and justification for the Company's proposals in this and the prior case are embodied in this example. Mr. Robinson presents the results of his life and net salvage analyses, which is the review of historical data. Mr. Robinson then presents the results of his life and net salvage estimation, which is the second phase of the depreciation study where the future expectations are presented. It is in the second phase where Mr. Robinson implicitly relies on the concept of judgment without any specificity as to how he reaches his final proposals. Since there can be both good and bad judgment, in conjunction with the fact that judgment is a process and not an answer, information must be provided that demonstrates what was done, what was considered, and how items of information were combined to arrive at the final proposal.

By analogy, I do not believe the Commission would accept a proposal for a large revenue requirement where the basis for the request was a scatter diagram of dots, with no indication whether all meaningful dots are

presented, with no indication what dots were discarded, with no analysis showing that the dots are representative of the current situation, with little to no specificity as to why certain dots were selected and connected in a particular order to arrive at the final proposal other than a conclusory statement that it is "anticipated", "indicated", "expected", etc. as reasonable.

The equivalent of the explanation and justification of how the dots that were selected and connected in a scatter diagram analogy above is precisely what is necessary in order to understand what the Company actually performed to arrive at its final depreciation proposals. In the example for Account 390, Mr. Robinson provided a few "dots" of information, those being the results of actuarial analyses, the results of averaging historical net salvage data, and a claim that normal ongoing upgrades and changes are expected. However, Mr. Robinson failed to provide "dots" associated with the sale of office buildings or any connection between the validity of his generalized net salvage analysis process to the facts reflected in the historical data.[6] Yet, absent asking the right question in discovery and putting together as many of the "dots" as were provided could one effectively get lucky and be able to actually demonstrate not only the

[6] Mr. Robinson performed no meaningful investigation of what is contained in the data, reacted to his simplistic averaging of recent three-year averages, took into account his expectation of future inflation, and reached a false conclusion based on inappropriate judgment.

fallacy in Mr. Robinson's judgment but also in his generalized procedures and practices.

Neither the Commission nor any other party should be forced into a position of being lucky when trying to investigate what analysis the Company actually performed and the basis for its proposals. The Company has an obligation to provide transparent information to support its proposal in order for it to meet its burden of proof, even without a Commission directive to specifically do so. However, the Commission has "strongly encouraged" the Company to provide more information. The Company's reliance on the implicit, but undocumented and unidentifiable, judgment of Mr. Robinson was not previously acceptable or appropriate, and should not be considered acceptable or appropriate now given the facts and circumstances before the Commission.

Q. IS THERE ANOTHER MAJOR CONCERN THAT NEEDS TO BE ADDRESSED ON THIS MATTER?

A. Yes. Again, given the Commission's directive in the last case, one would have expected, at a minimum, some indication or identification of a major change that has transpired for the Company since its last depreciation study. In this case, it was determined, again only through discovery, that the Company implemented a new accounting system in the middle of 2013. As

discussed later, based on a review of the historical data, it is clear that a dramatic shift in the recorded level of negative net salvage occurred beginning in 2013 and following on into 2014.

Absent a passing reference in response to discovery seeking the allocation of costs to cost of removal in replacement situations would I even be aware that the Company had undertaken a major modification to the identification and recording of cost of removal. However, in spite of the Commission's strong encouragement to support changes in depreciation rates, the Company failed to respond to discovery seeking the input, the analysis, and the resulting output of its new allocation of costs to cost of removal in replacement situations. This new allocation process is what appears to be driving the dramatic change in negative net salvage recorded during the past few years. The Company's actions can hardly be considered an effort to comply with the Commission's directive for the Company to "ensure" there is support for its proposed changes.

Q. HAS ANOTHER COMMISSION JUST RECENTLY ADDRESSED THIS SAME SITUATION?

A. Yes. The California Public Utilities Commission ("CPUC") ruled on the identical situation for Southern California Edison Company ("SCE").[7] The CPUC "has expressed serious concern with the quality of SCE's

[7] CPUC decision D.12-11-051 for SCE.

depreciation showing."[8] The CPUC directed SCE to be more transparent and to rely on less conclusory statements when presenting its depreciation proposals. SCE failed to comply with such directive, which resulted in significant adjustments to it new depreciation proposals based on recommendations by other parties, and the establishment of a new standard to "motivate SCE to take these concerns [CPUC's directives] seriously in developing its direct showing [for depreciation] for its next" rate case. The new motivational standard is "to shift a portion of the [depreciation] under-collection risk from future customers to SCE's shareholders."[9]

SECTION II: 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"):[10]

> '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.

[8] CPUC decision D.15-11-021 at 396 for SCE.
[9] Id.
[10] Title 18 of the Code of Federal Regulations ("CFR") Part 101, Definition 12.

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:[11]

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

The remaining life technique is as follows:

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

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

The two formulas should equal each other when the difference between the theoretical reserve and the actual accumulated provision for depreciation ("APFD") 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.

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 recovery 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 average service life 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 only recover 90% of its investment through annual depreciation charges, under the theory that it will recover the remaining 10% through net salvage at the time the asset retires (90% + 10% = 100%). Alternatively, if net salvage is a negative 10%, then the utility should be allowed to recover 110% of its investment through annual

depreciation charges so that the negative 10% net salvage that is expected to occur at the end of the property's life will still leave the utility whole (110% - 10% = 100%).

Q. WHAT ARE THE KEY ELEMENTS OF THE DEPRECIATION FORMULA AT ISSUE IN THIS PROCEEDING?

A. The net salvage and/or remaining life parameters for the Production plant function in the above formula are at issue.

SECTION III: PRODUCTION LIFE

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

A. This portion of my testimony addresses the Company's proposal for production life span associated with certain generating facilities.

Q. DOES THE COMPANY ESTABLISH ITS PRODUCTION RELATED LIFE PARAMETERS IN THE SAME MANNER AS IT DOES FOR MASS PROPERTY?

A. No. The life span method is employed for production plant life analysis while actuarial analyses are utilized when performing life analyses for mass property.

Q. PLEASE BRIEFLY DESCRIBE WHAT CONSTITUTES THE LIFE SPAN METHOD.

A. When establishing life parameters for a generating unit, the normal practice is to determine a future probable retirement date for the unit, which then establishes a remaining life for that unit as of the date of the study. For example, if a unit is placed in service in 2000 with a probable retirement date of 2060 and the current study is dated as of December 31, 2014, then the life span is 60 (2060-2000, midyear to midyear) years and the remaining life prior to any consideration of interim retirements is 45.5 (2060-2014, end of year to midyear) years.

Q. ARE YOU TAKING ISSUE WITH ANY OF THE COMPANY'S PROPOSED LIFE SPANS?

A. Yes. I am recommending adjustments to the life span for Big Stone station as well as the Company's wind farms.

Q. WHAT DOES THE COMPANY PROPOSE FOR ITS BIG STONE GENERATING FACILITY?

A. The Company proposes a 2027 probable retirement year for its Big Stone station.[12] This represents a 52-year life span.

[12] 2014 Study at pages 6-7.

Q. IN YOUR OPINION, IS THE COMPANY'S PROPOSAL REASONABLE AND APPROPRIATE?

A. No. The Big Stone station is owned by several entities. The other owners of the Big Stone station rely on a different probable retirement year for the unit.[13]

Q. WHAT PROBABLE RETIREMENT DATE DO THE OTHER OWNERS OF THE BIG STONE STATION UTILIZE?

A. The other owners rely on a 2046 probable retirement year.[14] This represents a period 19 years greater than that proposed by MDU in this case.

Q. DOES MDU NOW CONSIDER A 2046 PROBABLE RETIREMENT YEAR TO BE REASONABLE AND/OR APPROPRIATE FOR THE BIG STONE STATION?

A. Yes. The Company was requested in discovery to state whether a 2046 probable retirement year is reasonable and/or appropriate for the Big Stone station. The Company responded by stating that it agrees that a 2046 probable retirement year is appropriate for the Big Stone station in order to

[13] Otter Tail Power and Northwestern Energy are partners with MDU in ownership of the Big Stone station.
[14] Response to MCC-231.

treat the generating unit consistently with its partners, Otter Tail Power and Northwestern Energy.[15]

Q. WHAT LIFE SPAN DO YOU RECOMMEND FOR THE BIG STONE STATION?

A. I recommend a probable retirement year of 2046. This will bring the Company's capital recovery period for this facility in line with the expected life span of its partners.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION ASSOCIATED WITH THE BIG STONE STATION?

A. Reliance on a 2046 probable retirement year for the Big Stone station results in a $1,165,263 reduction in annual depreciation expense based on plant as of December 31, 2014.[16]

Q. ARE YOU RECOMMENDING ANY OTHER ADJUSTMENTS TO PRODUCTION PLANT LIFE?

A. Yes. The Company proposes a 20-year life span for its investment in wind farms.[17]

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[15] Response to MCC-231.
[16] Comparison of Table 1 in the 2014 Study at page 2-1 and the comparable value for steam production plant in response to MCC-231 Attachment Table 1.
[17] 2014 Study at Table 5 page 2-25.

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

A. The Company's 2014 Study simply states that the Company's management provided probable retirement/rehabilitation dates.[18] Due to the lack of support presented in the Company's filing, discovery was issued specifically seeking all support and justification for the assumed 20-year life span for the Company's investment in wind farms.[19] In response to that discovery, the Company claims that its 20-year estimated life is based on an unidentified large operator of wind farms that uses "a life of around 20 years".[20] The Company's discovery response also stated that wind turbine generator purchase contracts from the manufacturers have an "indicated" design life of 20 years and further claims that once wind farms approach the 20-year age that it is not uncommon for them to be cannibalized in order to keep other units running.[21] However, the Company failed to provide any of the support and justification for its statements as requested.

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

A. No. While a 20-year life may have been closer to being realistic for initial wind farms placed in service in the 1990s that is no longer the case for newer units. Companies such as Siemens and others have relied on improved technology and superior maintenance and monitoring such that

[18] 2014 Study at page 4-19 for example.
[19] Request MCC-199.
[20] Response to MCC-200.
[21] *Id.*

any "indicated" design lives that imply a 20-year life span are no longer applicable, to the extent they might have been valid in the first place.

Q. ARE YOU AWARE OF WIND GENERATORS THAT HAVE ALREADY EXCEEDED 20 YEARS OF OPERATION?

A. Yes. The Energy Information Administration ("EIA") provides information associated with existing wind generators. As part of the database for wind generation, the EIA identifies many units placed into service in the early 1990s that are still in service.[22]

Q. ARE THERE WIND SERVICE COMPANIES THAT NOW EXPECT THE LIFE FOR WIND TURBINES TO REACH 30 YEARS OR LONGER?

A. Yes. Moreover, even in circumstances where existing components may have to be replaced prior to 30 years of operation, other components are expected to last even longer, thus increasing the overall dollar weighted life span for wind generation facilities.[23]

[22] EIA Generation Database "existcapacity_annual".
[23] For example, http://www.gamesacorp.com/recursos/doc/productos-servicios/operacion-y-mantenimiento/life-extension-eng.pdf.

Q. IS THE COMPANY'S PROPOSED LIFE SPAN INDICATIVE OF PRIOR PRACTICES?

A. Yes. The industry made it a practice of relying on what it indicates is initial design life indications when establishing life spans for different types of generation. For example, the life span for nuclear units was first established in the 25-year range. The same situation existed for high pressure high temperature coal units where the industry proposed 30-year life spans initially. My experience over the last 40-plus years has consistently been that utilities cannot provide underlying documentation associated with the claimed "indications" of initial design lives supporting the short life spans that were proposed in the past. Moreover, the concept of an indicated design life normally applies to only a portion of a generating facility and not the entire generating facility. Therefore, with proper maintenance and replacement of economically available components, the overall life span can and will last longer than the indicated design life spans indicated for certain components.

Q. WHAT DO YOU RECOMMEND?

A. While a 30-year or possibly longer life span may be appropriate for the newer wind farms such as those owned by MDU, I am recommending an initial step to approximately 25 years. My recommendation is made in

conjunction with a further recommendation that the Commission direct MDU to fully support and justify realistic life spans for its wind farm investment for its next depreciation study.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation for an approximate 25-year life span for wind farms calculated on a five-year increase in the remaining life for the Company's investment results in a $1,579,848 reduction in annual depreciation expense based on plant as of December 31, 2014.[24]

SECTION IV: MASS PROPERTY LIFE ANALYSIS

A. General

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

A. This portion of my testimony addresses mass property life analyses. The life analysis produces an ASL combined with a dispersion curve, a

[24] The recommendation and calculation of remaining life relies on a five-year addition to the Company's quantified remaining life for its investment. The calculation does not modify the calculation process for interim retirements in order to focus the issue on the appropriate production life depreciation rate on the life span itself rather than causing a distraction in this case that might occur due to challenging the calculation procedure employed by Mr. Robinson for interim retirements. While the calculation procedure and results associated with Mr. Robinson's utilization of a truncated Iowa Survivor curve is inappropriate, given the relatively short remaining life for wind farms, the potential impact of a more correct approach would be reduced. It is important to maintain the focus in this case on movement on the initial step towards a more appropriate life span for wind farm investment. The issue of interim retirements can be addressed later when the next step is taken to further increase the life span for wind generation in the next proceeding.

standardized Iowa Survivor Curve. This information is used to calculate the remaining life of the investment, which is an integral component of the depreciation rate calculation.

Q. BASED ON YOUR REVIEW, ARE YOU RECOMMENDING SPECIFIC ADJUSTMENTS?

A. Yes. While a different ASL may be warranted for other accounts, I am recommending longer ASLs for four Electric and one Common mass property accounts compared to the Company's proposals as set forth in the table below.

Summary of MCC's Recommended Mass Property Life Adjustments

Account	MDU Proposed	MCC Recommended	MCC Adjustment	Impact
355 –Transmiss. Poles & Fix.	50R3	60R3	10	$359,969
367 – UG Conductors & Dev.	40R2	48S0.5	8	$560,299
369.2 – UG Services	45R3	53R2	8	$162,867
390 – Gen. Plant Struct. & Imp.	29L2	45R2.5	16	$11,231
390 – Common Gen. Plant	38R3	45S1.5	7	$231,779
Total				$1,326,145

The combined impact of these adjustments is a $1,326,145 reduction to overall depreciation expense, comprised of a $1,094,366 reduction to

Electric depreciation expense and a $231,779 reduction to Common depreciation expense based on plant as of December 31, 2014.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDED ADJUSTMENTS?

A. I have performed an independent review of the actuarially derived life indications. I then reviewed and analyzed all significant or meaningful items of information provided by Company operation and maintenance personnel. I further relied on additional information obtained either in discovery or from performing hundreds of depreciation analyses relating to United States and Canadian based utilities to develop sound, realistic and representative ASLs and dispersion patterns that best reflect future expectations for the investment in numerous accounts.

Q. WHY DID YOU REVIEW INFORMATION OTHER THAN THE HISTORICAL INDICATIONS OBTAINED FROM ACTUARIAL ANALYSES?

A. Analysis of only historical data might provide insight into what can be expected in the future, but it must be tested to help determine its applicability to the current plant investment.

Q. HOW DID THE COMPANY DEVELOP ITS PROPOSED LIFE PARAMETERS FOR PLANT ACCOUNTS?

A. The Company proposes a life-curve combination to define the life characteristics of the investment for each plant account. The life portion of the combination establishes the ASL of the investment. The curve portion of the combination establishes an Iowa Survivor curve that identifies a pattern of retirements over a complete life cycle of assets. The Company's 2014 Study identifies what an Iowa Survivor curve is and therefore I will not repeat a similar discussion.

Q. WHAT STATISTICAL LIFE ANALYSIS APPROACH DID THE COMPANY EMPLOY?

A. The Company utilized an actuarial approach for life analysis for all of the above accounts. The Company utilizes the actuarial approach since it maintains aged data for those accounts. Aged data simply means that when plant is retired, the year in which it was placed into service is also known.

Q. HOW DID THE COMPANY DEVELOP ITS LIFE-CURVE COMBINATIONS BASED ON AN ACTUARIAL PROCESS?

A. The Company presented two actuarial analyses in certain instances. The different actuarial analyses rely on different experience bands, but the same placement band. Placement bands establish the years of data reflected in the

database analyzed, while experience bands identify the period over which retirement transactions reflected in the database are reviewed.

Q. WHAT PLACEMENT-EXPERIENCE BAND COMBINATIONS DID THE COMPANY PERFORM?

A. The Company relies on an early to mid 1900s-2014 placement band.[25] The Company normally presents a 1995-2014 and in some instances a 2014-2014 experience band.

Q. WHAT RESULT IS OBTAINED FROM ACTUARIAL ANALYSES?

A. The results produced by actuarial analyses are identified as an OLT. An OLT simply represents the pattern of actual retirement activity over history by individual year of age. In other words, at the beginning of the zero (0) age interval, 100% of the investment survives, and as additional ages are examined and retirements occur, the OLT declines from 100% surviving towards 0% surviving. If the OLT fully declines to 0% surviving, it is called a complete survivor curve. An OLT that does not decline to 0% surviving is identified as stub curve. If a stub curve is very 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 in

[25] Exhibit No._(EMR-1) Section 5.

such circumstances 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. The normal practice in the industry is to employ 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 particular, the area under a survivor curve yields the ASL of the assets being analyzed. Mathematical curve-fitting is seldom relied on for the ultimate proposal due to the different dollar levels of significance associated with different points of the OLT.[26]

Q. IN THE CURVE-FITTING PROCESS OF MATCHING AN OLT WITH AN IOWA SURVIVOR CURVE, ARE THERE AREAS THAT ARE MORE SIGNIFICANT THAN OTHERS?

A. Yes. Generally, it is more important to match a standard Iowa Survivor curve with the middle and upper middle portions of an OLT than the tail portion, depending on the dollar level of exposures at issue. The middle and

[26] A fundamental principle for proper use of a mathematical curve fitting analysis is that each point of data analyzed for closeness of fit has an equal weight or impact. Since that is not the case for each point on an OLT, the use of a mathematical curve fitting approach for anything other than an initial high level expectation would be misguided.

upper middle portions of an OLT often include the surviving data points between 80% and 30% to 40% surviving, sometimes less. If the lower portions of an OLT are matched while sacrificing the middle or the upper middle portions of the survivor curve, then an inappropriate result will be obtained. Therefore, part of the judgmental process employed by a depreciation analyst is to determine what ASL and corresponding survivor curve constitutes the "best" fit of the meaningful portion of an OLT.[27] As discussed herein, while I include all meaningful data points in my analyses, I also review and recognize the pattern of data points beyond those that are statistically stable. However, I do not assign inappropriate and excessive levels of credence to the statistically unstable tail portion of the OLT in order to select an artificially short ASL.

Q. DO YOUR GRAPHICAL PRESENTATIONS CONTAINED HEREIN PLOT THE ENTIRE IOWA SURVIVOR CURVE IN YOUR CURVE-FITTING PROCESS?

A. No, because to do so would diminish the ability of the Commission and others to more clearly interpret the results of the curve fitting process. My

[27] Published texts on the topic of depreciation refer to portions of an OLT that should be given more weight in the curve fitting process. Such texts suggest that "often the middle section of the curve (that section ranging from approximately 80% to 20% surviving for illustrative purposes) is given more weight than the first and last sections" as noted in Depreciation Systems authored by Frank Wolf and Chester Fitch. However, as noted in the same publication, the actual criterion reflected in the 80% to 20% illustrative example is the limited significance of the dollar level of exposures at older age brackets. Each analysis must stand on its own based on the actual underlying criteria, and not on the noted example. Indeed, the OLT for Account 356 does not decline below 59% surviving, and obviously cannot be relied upon down to 20% surviving.

graphical presentations magnify the meaningful portions of the curve fitting process so a better visual comparison of the various curves is possible. For example, Mr. Robinson presents a graph for Account 369.2 at Exhibit No._(EMR-1) page 5-79 that extends out to 120 years of age. However, the last data point for the OLT ends more than 50 years before the end of the graph. Not a single point of the OLT resides in the last 45 percent of the graph. All that is accomplished by Mr. Robinson's presentation is that all the data points are crunched together and differences are more difficult to distinguish. There is no quantitative benefit to enlarging the "picture frame" when the portion of the picture that is to be appreciated is much smaller.[28]

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

A. The movement in the OLT from one age to the next is affected both by the dollar level of exposures in that age interval as well as the corresponding dollar level of retirement activity that has transpired during the same age interval. As time passes and as both existing investment and new investment age, it will change the pattern of the OLT. In other words, if plant is continuously added and there are no retirements during a five-year

[28] While the full graph does identify the maximum life, such information can be easily recognized if warranted outside of relying on the graph employed for curve-fitting purposes through the statically meaningful or significant portion of the OLT. I have reviewed the maximum life for each account addressed and not found it necessary to distort the magnified presentation of the curve fits set forth herein.

period, then the OLT will elevate 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 next five years, but the existing plant aged for five additional years with no additional retirements, then the lower middle portion and tail portion of the OLT would also be expected to elevate, thus resulting in a longer ASL. Indeed, these portions of the OLT may elevate significantly between studies due to limited dollar levels of exposures. Finally, if retirement activity occurs, but not to the same degree that is reflected historically in the various age brackets, then the OLT again is expected to elevate and results in a longer ASL. The key issue is the degree of potential movement between depreciation studies due to the limited dollar level of exposures or potential for significant levels of retirement activity in different age brackets. Simply put, the tail and lower portions of the OLT that are often based on limited levels of exposures can move dramatically between one depreciation study and the next. Normally, the head or top portion of the OLT remains relatively stable, as do the upper middle portions of the OLT if they are based on significant dollar levels of plant exposures.

Q. DID MR. ROBINSON CONSISTENTLY FOLLOW ANY CRITERIA ASSOCIATED WITH ESTABLISHING THE STATISTICALLY SIGNIFICANT PORTION OF THE OLT IN THE CURVE-FITTING PROCESS?

A. No. For example, Mr. Robinson relied on a 1.9% dollar level of exposure to the initial dollar level of exposure for Account 355 in his curve fitting process; he relied on a 0.001% level of exposure to the initial dollar level of exposure for Account 369.2 in his curve fitting process.[29]

Q. HAS MR. ROBINSON SPECIFICALLY IDENTIFIED HOW HE OBTAINED HIS VARIOUS PROPOSED LIFE-CURVE COMBINATIONS?

A. No, other than he relies on informed judgment.[30] It must be noted that while Mr. Robinson does recognize that judgment is a process, he uses it as an answer.[31]

[29] Exhibit No._(EMR-1) pages 5-35 through 5-37, and 5-79 through 5-81.
[30] Response to MCC-156.
[31] Id.

Q. GIVEN THAT MR. ROBINSON RECOGNIZES THAT JUDGMENT IS A PROCESS, DID HE PROVIDE THE MEANINGFUL OR SIGNIFICANT ITEMS OF INPUT TO HIS JUDGMENTAL PROCESS?

A. No. Mr. Robinson chose not to provide a single additional item of information when requested to "provide all additional bases, evidence, opinions, assumptions, documents, analyses, etc. that either describes, explains, supports, and/or justifies the specific life and salvage parameters proposed for each separate account or subaccount that has not already been provided."[32]

B. Account Specific

Account 355 – Transmission Poles and Fixtures (Existing: 45R2, MDU: 50R3, MCC: 60R3)

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

A. The Company proposes a 50R3 life-curve combination for this account.[33] This represents a five-year increase in ASL.

[32] Response to MCC-158.
[33] 2014 Study at page 5-37.

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

A. While the Company performed actuarial analyses for this account and interpreted the results to indicate a 57R3 life-curve combination, it elected to actually reduce the actuarially-based life indication by seven years. The reduction from the analysis of the Company's historical data is based on a claim that

> Over the immediate coming five years, management anticipates building approximately 100 miles of pole transmission line, of which one half is expected to me [sic] continued growth/expansion while the remaining one half is expected to be replacement of existing property with future activity in more distant years. The significant increase in plant activity can be anticipated to continue the shorter life presently being experienced. Based upon the available recent study result, a reduction to the longer than normal average service life for the Company's property is proposed. At this time, an average service life of 50 years is estimated for the property group. As additional activity occurs in future years, a further reduction will likely be warranted. Even at the estimated average service life of 50-R3 life and curve, the recovery period is at the higher end of the industry range of service lives.[34] (Emphasis added).

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

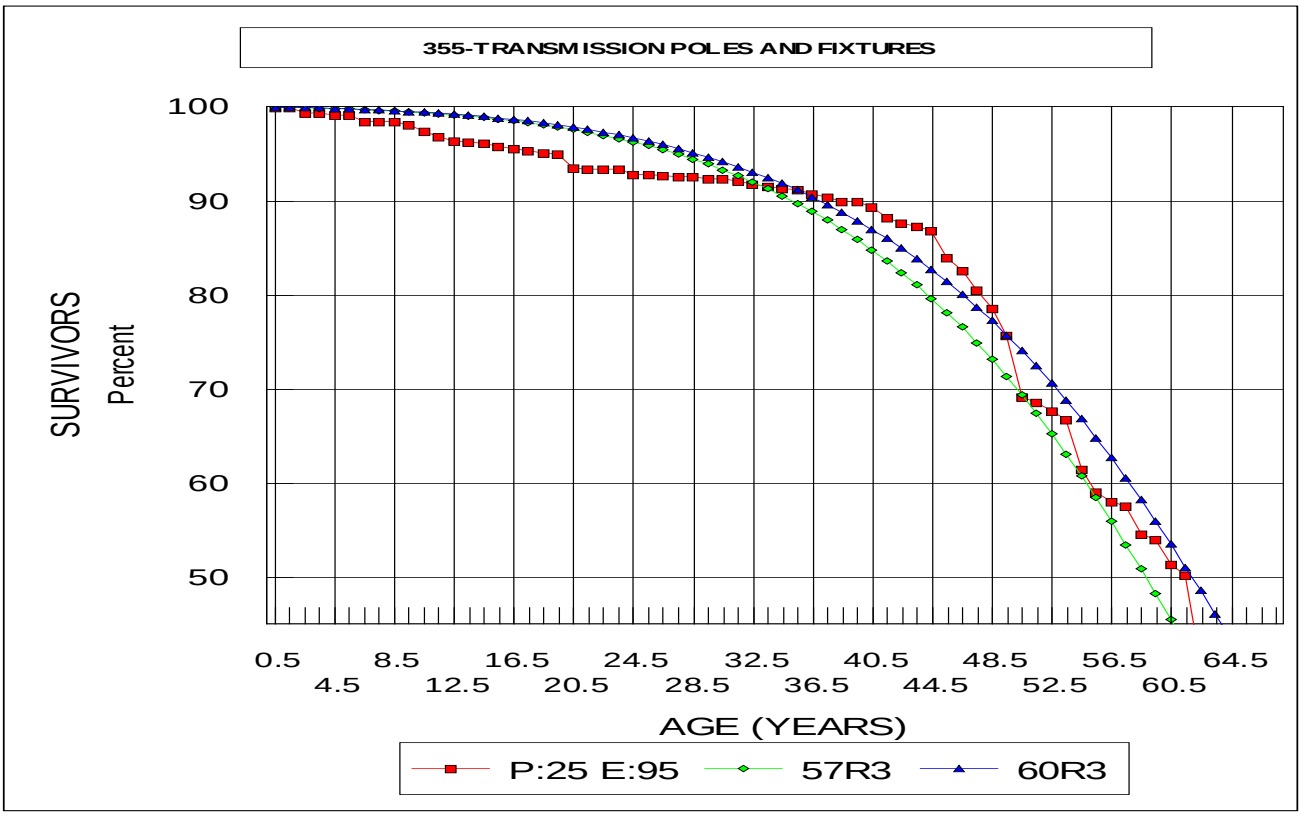
A. No. The Company's proposal is unsupported and is artificially short. I recommend a 60R3 life-curve combination.

[34] 2014 Study at pages 4-36 through 4-37.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. My recommendation is based on analyses of Company specific data. From an actuarial standpoint, my recommendation is based on interpretation of the full band actuarial analysis results. Unlike Mr. Robinson, I do not overly react to the results of the one-year experience band analysis, as that actuarial analysis represents an unstable statistical analysis. In addition, I also consider the life expectancy for the current investment in transmission poles in conjunction with the life indications obtained from analyses of historical data. As part of the my life estimation process, I especially take into consideration that more recent investments in poles will have the full benefit of pole inspections programs and chemical treatments, which will result in a longer ASL than indicated by analyses of historical data. Both life analyses and life estimation considerations warrant a longer ASL compared to the Company's proposal.

As shown on the graph below, my recommended 60R3 life-curve combination is a similar but superior fit to Mr. Robinson's interpretation of the full band actuarial analysis, not his proposed shorter ASL, through the statistically stable portion of the OLT.



In other words, prior to the life estimation process, a longer ASL is warranted than what Mr. Robinson determined in his analysis process.

Had Mr. Robinson actually proposed the 57R3 life-curve combination he assumed was the best fit of the historical data, the disagreement as to what constitutes an appropriate life-curve combination based on the Company's historical data would still exist but to a much lesser degree. However, Mr. Robinson chose to rely on his professional judgment to reduce the proposed ASL from 57 years to 50 years. While employing judgment is appropriate, the process must be identified and supported by the input information that results in the conclusion obtained from the process.

Depreciation literature clearly identifies the Company's historical data as a meaningful starting point for life expectation. The NARUC depreciation publication states that

> Trends in life or retirement dispersion can often be expected to continue. Likewise, unless there is some reason to expect otherwise, stability in life or retirement dispersion can be expected to continue, at least in the near term.
> Depreciation analysts should avoid becoming ensnared in the mechanics of the historical life study and relying solely on mathematical solutions. The reason for making an historical life analysis is to develop a sufficient understanding of history in order to evaluate whether it is a reasonable predictor of the future."[35] (Emphasis added).

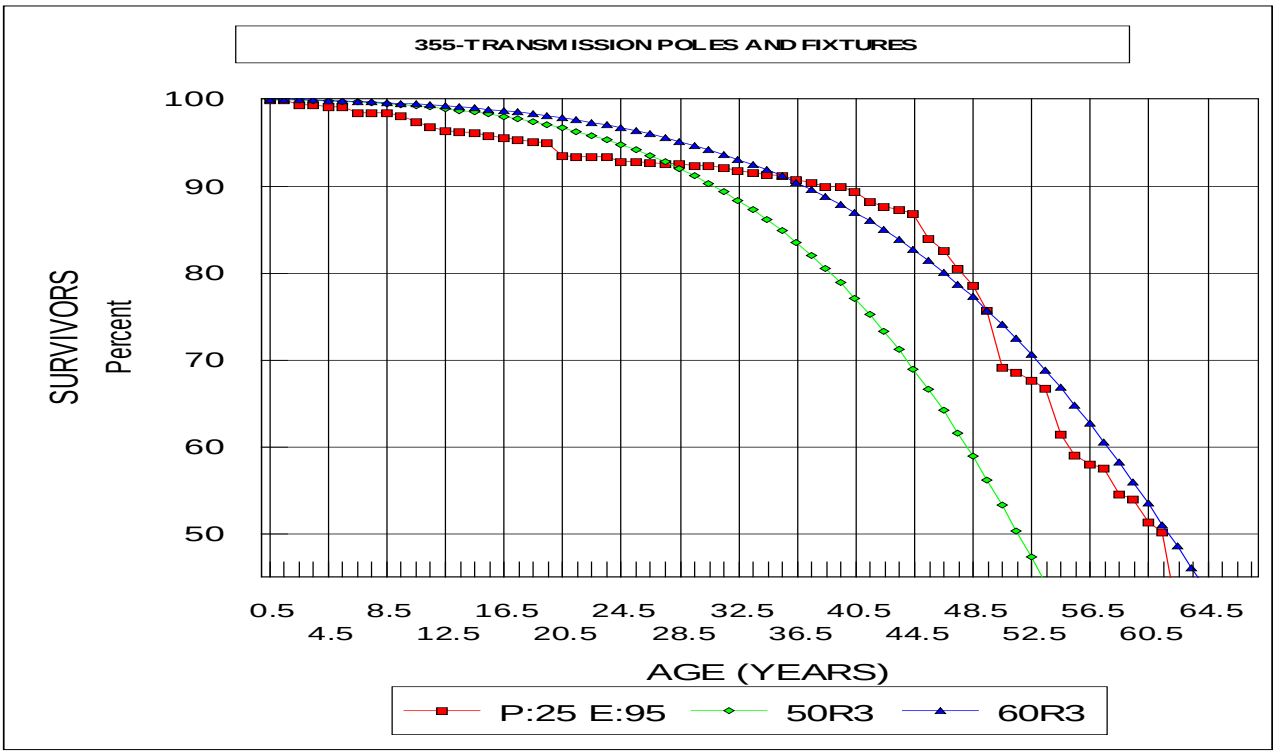
The Depreciation Systems publication states that

> If the future is expected to reflect the past, these trends can be expected to continue and forecasters would indicate future lives that are reflections of continuation of the trend.[36] …
>
> Supporting evidence rests heavily with results of the life analysis. A historical trend can be expected to continue.[37]…
>
> A convincing forecast must examine the forces causing the trend in the life characteristics and examine their likelihood of continuing into the future.[38] (Emphasis added).

In other words, a trend in the data can be expected to continue absent meaningful and supporting evidence to the contrary. Mr. Robinson's reference to anticipations, expectations, estimations, and what might likely

[35] NARUC's publication *Depreciation Practices* at page 126.
[36] *Depreciation Systems* by Fitch and Wolf at page 281.
[37] Id., at 282.
[38] Id.

occur in the future without meaningful support or analyses does not constitute adequate evidence to modify the historical indications reflected in the Company's actual data. As shown on the graph below, Mr. Robinson's proposal to reduce his interpretation of the historical data by seven years reflects a life-curve combination that appreciably deviates from Company experience and my recommendation at as early as age 30.



Mr. Robinson's proposal discards all indications obtained from Company specific data without adequate basis. Mr. Robinson's proposal simply reflects an unsubstantiated estimate of the future without adequate or meaningful support from past life characteristics for the same investment or appropriate future expectations.

My recommendation for a longer ASL is not only supported by a better visual curve fitting result, but by events that are reflected in the historical data that are known and would have lengthened the ASL had they been in effect during the entire Company specific database. Examples of those considerations are pole inspection programs as well as chemical treatment for poles.

Q. CAN YOU EXPLAIN WHY YOUR REFERENCE TO POLE INSPECTION PROGRAMS AND CHEMICAL TREATMENT OF POLES HAS GREATER IMPACT IN THE LIFE ESTIMATION PROCESS THAN MR. ROBINSON'S EXPECTATIONS?

A. Yes. It is a fact that pole inspection programs can and have identified problems with poles often at stages where corrective action can be taken so that a pole does not fail at an earlier age than would be the case absent such pole inspection program. By analogy, if you inspect the oil level in your car and find out it is unacceptably low, you can take corrective action to put more oil in so that the engine is not ruined. If life analysis were performed on cars where the oil was not checked for a substantial number of vehicles in the database, one would logically and appropriately expect a shorter ASL for that database compared to the same type of cars subject to oil inspections on a continuous basis throughout the entire life of the vehicle.

Similar to the circumstances associated with the pole inspection program is the recognition of chemical treatment for wood poles. Not only is it a fact that the Company's complete history of transmission wood poles does not reflect the application of chemical treatments, but it does not reflect relatively new chemical processes that will further extend the useful life of poles. For example, the process of "through-boring" is estimated to have a significant impact on life expectation for wood poles. A major California utility now states in its depreciation studies that the new "through-boring" process will extend the design life for its wood poles by approximately 30 years compared to the design life absent such treatment.[39]

These types of items of information reflect the proper utilization of the judgmental process in modifying the historical trends reflected in the Company's actual database. They are real events that are already partially reflected in the Company's database, but not fully reflected, or they are industry items that are already in place that are lengthening the life expectation for poles for other utilities, and if not already in use by MDU are most likely to be adopted in the future. These items of information represent credible evidence in comparison to simply using the words "expectations", "anticipations", and "likely".

[39] Exhibit No. SCE-10/ResultsofOperation/Vol.03/pt.02 at page 155 of the 2015 GRC application of Southern California Edison before the California Public Utility Commission.

Q. SHOULD MANAGEMENT'S EXPECTATIONS BE IGNORED WHEN ESTABLISHING LIFE ESTIMATIONS FOR ASSETS?

A. No. However, there must be reasonable support and justification for the expectation at a minimum, as well as consideration of the type of expectation. For example, Mr. Robinson proposes a very significant reduction in ASL indications from historical life analyses. Mr. Robinson's expectations might or might not occur in the future, and even if they were to occur, they might transpire in such a manner so as not to appreciably modify the life indications through the significant portion of the OLT. In other words, we do not know whether the event will actually occur, and to the extent it occurs whether it will have any meaningful impact on life characteristics.

Indeed, this type of speculation, which is subject to potential great variance in both timing and degree, can be captured in future depreciation studies to the extent it actually transpires and it can be reasonably measured at such point in time. The reason for caution as it applies to the type of judgment employed by Mr. Robinson can be seen by review of his prior actions. For example, in the 2008 Study, Mr. Robinson selected a 47-year ASL and, as an apparent justification for his proposed short ASL, he stated, "the Company will be replacing 50-60 miles of transmission lines in the

foreseeable future."[40] Now that we have the benefit of actual transactions during the subsequent six-year period, we find even Mr. Robinson is estimating a 10-year extension in ASL from what he proposed in the 2008 Study with no indication that 50 or 60 miles of transmission lines were retired as he expected during this six-year period.

Moreover, to the extent even a portion of those expected retirements did occur, they occurred in such a manner that the life indications are longer, not shorter, than Mr. Robinson appears to have believed in the prior depreciation study. It is precisely due to this type of situation that the significant or meaningful input to the judgmental process (i.e., Mr. Robinson's expectations) must be not only identifiable, but have some reasonable certainty or undeniable logic associated with it. Unknown expectations from unknown Company personnel without any supporting documentation or studies should not result in the dismissal of the historical life indications, and most definitely should not result in a seven years reduction to the results of the life analyses as Mr. Robinson has proposed.

Q. PLEASE SUMMARIZE THE BASIS FOR YOUR RECOMMENDATION.

A. My recommendation relies on the overall actuarial band analysis for the investment in this account. My recommendation reflects a more appropriate

[40] 2008 Study at page 4-29.

life-curve combination than presented by Mr. Robinson. Moreover, the life indications from the historical data understate the expected ASL since the historical data does not fully reflect the life lengthening benefits of pole inspection programs as well as chemical treatments for poles. In other words, it is known that the historical data understates the life expectancy since it cannot reflect what is in place today throughout the entire historical time frame. Finally, while further lengthening of the ASL may be warranted at this time, limiting the ASL to 60 years gives consideration to Company expectations for the future. However, the appropriate manner for capturing meaningful adjustments due to such expectations should be withheld until the next depreciation study to see if they actually materialize and the impact they may have.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $359,969 reduction in annual depreciation expense based on plant as of December 31, 2014.

Account 367 – Underground Conductors and Devices (Existing: 30R3, MDU: 40R2, MCC: 48S0.5)

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

A. The Company now proposes a 40R2 life-curve combination.[41]

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

A. The Company's basis for its change appears to be its interpretation of actuarial results versus the reliance on its interpretation of Simulated Plant Records ("SPR") results in the prior proceeding. In fact, the narrative Future Expectations and Considerations portion of the 2014 Study are identical to that presented in the 2008 Study. In other words, it appears that Mr. Robinson has interpreted the results of the life analysis based on his understanding that "there is a lot of potential cable issues in future years relative to underground plant installed during early years. The Company has million [sic] feet of underground conductor in service. Specifically, vintages of cable installed prior to 1983 are subject to increased failure."[42]

[41] 2014 Study at page 4-53.
[42] *Id.* at page 4-52.

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

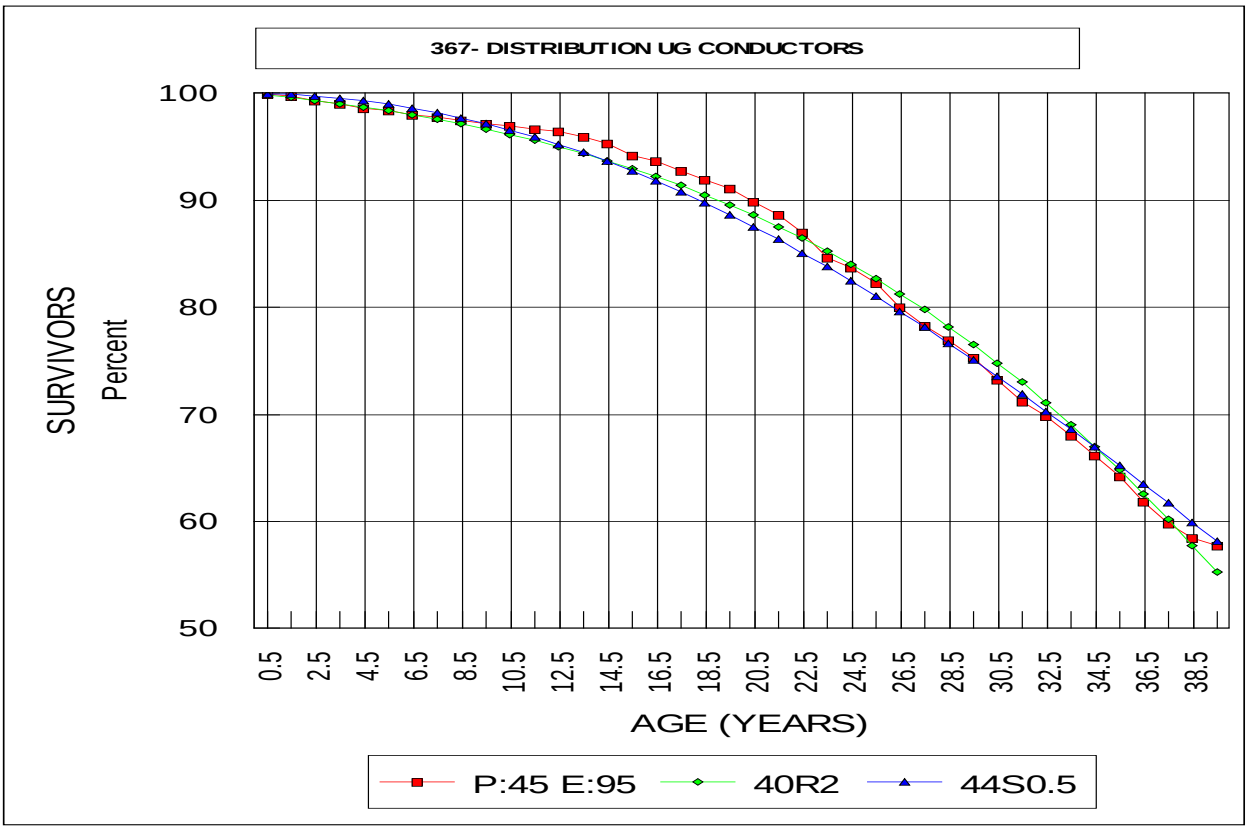
A. No. The Company's proposal, while a step in the right direction, does not adequately reflect the current situation. I recommend a 48S0.5 life-curve combination.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. My recommendation relies on my interpretation of actuarial results combined with further investigation of the underlying data, as well as knowledge of the changes in the industry as relates to underground conductor.

First, from the standpoint of interpretation of actuarial results, it is necessary to understand the change in mix of investment, the statistical stability of the OLT, and the meaningful portion of the curve for predictive purposes. In this instance, Mr. Robinson attempted to fit a standard Iowa Survivor curve through approximately 50 years of age, which exceeds the statistically significant portion of the curve.[43] As shown on the graph below, while Mr. Robinson's proposal is a good fit to the historical data, so is a 44S0.5 life-curve combination.

[43] *Id.* at page 5-69.



Therefore, from strictly a life analysis standpoint, a longer ASL than Mr. Robinson proposed is reasonable and appropriate. However, life analysis is only part of the overall depreciation process. When performing the life estimation process, taking into account the results of the life analysis process within the depreciation study, Mr. Robinson apparently failed to appropriately recognize the impact of several factors reflected in the historical data as well as the current situation. While Mr. Robinson acknowledged that early vintage cables, specifically those placed into service prior to 1983, have had significant unexpected early life terminations, there does not appear to be an appropriate reaction in his life

estimation for this account in recognition of the industry-wide response to the problem. Indeed, the industry and MDU have addressed this problem by installing new and different types of underground conductor in order to help alleviate unexpected faults and what has been identified as a "treeing" issue.[44]

Q. HOW DOES THE CHANGE IN THE TYPE OF UNDERGROUND CONDUCTOR IMPACT YOUR RECOMMENDATION?

A. Early industry underground cable was paper insulated lead cover ("PILC") cable. This type of cable was installed by the industry for many decades up until the late 1960s. PILC cable was expensive to maintain and incompatible with newer types of terminations and raised environmental concerns. The industry's reaction was to install high molecular weight polyethylene ("HWPE") as was the case for MDU.[45] While this type of conductor solved many of the problems with PILC cable, it was constructed without a protective jacket and its concentric neutral wires were susceptible to corrosion.

The industry and MDU then moved to cross-linked polyethylene ("XLPE"). XLPE was installed generally during the 1970s through approximately

[44] "Treeing" is the failure in the protective exterior of the underground conductor such that retirement forces such as moisture penetrates the protective coating and causes a fault in the conductor.
[45] Response to MCC-229.

2000 and for MDU from the late 1960s until about 1975.[46] The polyethylene insulation resulted in a longer life expectancy for underground cable. However, it was still susceptible to the treeing problem. Tree retardant cross-linked polyethylene ("TR-XLPE") was the next progression by MDU and was installed until approximately 1983. This type of cable added a tree retardant additive to the insulation material to retard the development of treeing. This type of cable resulted in further improvements to protect against moisture intrusion and resulted in substantial increases in service life for underground cable. The industry continued to improve underground cable and developed ethylene propylene rubber ("EPR") underground cable in the early 2000s, but MDU first installed EPR in 2014. This type of cable combined various conductors in a common jacket with benefits mainly attributable to cable in conduit.

In other words, when analyzing the life characteristics for this type of investment, it is necessary to understand the timing of plant additions and the remaining level of investment in older cable. This is necessary given the significant difference in life characteristics. Indeed, the industry reflects a quite wide range of values. The wide range appears to be associated with systems that either have not replaced older cable subject to heightened levels of faults as rapidly as other utilities, or have not performed more

[46] Id.

current depreciation analyses versus those that have installed newer cable and performed more current depreciation studies.

Q. DID MR. ROBINSON MAKE ANY REFERENCE IN HIS LIFE ANALYSIS TO THIS PARTICULAR SITUATION?

A. No. As previously noted, Mr. Robinson's narrative description of future expectations and considerations are identical in the study to that presented in the 2008 Study.

Q. WHAT IS THE CURRENT SITUATION FOR THE COMPANY'S INVESTMENT IN THIS ACCOUNT?

A. The Company has installed over 50% of the investment in this account since its last depreciation study. Moreover, the remaining investment in this account that was placed in service prior to 1983 is only 6% of the investment as of the end of 2014.[47] Given that depreciation is a forecast of the future, the historical analyses relied upon by Mr. Robinson for his proposal should be considered inadequate or no more than the lowest possible value that could be considered for life estimation for the investment in this account. Indeed, proper interpretation of the information should result in a value significantly greater than reflected in the historical data which incorporates additions dating back to the mid-1940s.

[47] Response to MCC-133 Attachment 1(a).

Therefore, even though Mr. Robinson's proposal and the above noted 44S0.5 life-curve combinations are both good visual fits to the historical data, the more appropriate life estimation selection should at a minimum be the longer 48S0.5 life-curve combination I recommend. My recommendation reflects only a 10% increase in ASL above the 44S0.5 life-curve combination shown in the graphs above. In my opinion, this value represents the lowest realistic value that should reasonably be selected for predictive purposes, and is still far lower than many others in the industry.[48] Therefore, my recommended life-curve combination is conservative, which should significantly increase in future depreciation studies as the life characteristics for the majority of the investment appreciably overshadow the impact of the life characteristics of the pre-1983 plant in service that exhibits a much shorter life characteristic.

Q. PLEASE SUMMARIZE YOUR RECOMMENDATION.

A. While Mr. Robinson specifically notes that life analysis relies on analytical tools such as actuarial analyses, they should not represent the end-result. Other logical and defensible factors must be taken into account. In this particular instance, Mr. Robinson appears to have limited his proposal to that reflected in the life analysis portion of a depreciation study. Alternatively, I recognize not only more realistic life analysis results as

[48] For example Public Service Company of Oklahoma is proposing a 65-year ASL in its current case before the Oklahoma Corporation Commission in Cause 201500208.

well as the significantly changing life characteristics for the investment in this account to better perform the life estimation portion of the depreciation study for this account. My recommendation to rely on a 48S0.5 life-curve combination is presented in conjunction with a further recommendation that the Company further analyze its historical data and separate its investment such that the older type of investment that has much shorter life characteristics be eliminated from future analyses. In this manner, a more appropriate, longer ASL can be established for depreciation purposes associated with the newer and better cable. To the extent the Company waits six years until its next depreciation study, it is highly probable that the vast majority of such investment would have already been retired but still will remain in the Company's database unless appropriately segregated.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $560,299 reduction in annual depreciation expense based on plant as of December 31, 2014.

Account 369.2 – Underground Services (Existing: 30R4, MDU: 45R3, MCC: 53R2)

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 369.2 – UNDERGROUND SERVICES?

A. The Company proposes a 45R3 life-curve combination.[49] This represents an increase from the existing 30R4 life-curve combination.

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

A. The only identifiable information provided by the Company is that it relied on the full depth experience band results of its actuarial analysis.[50]

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

A. No. The Company's proposal is inadequate. I recommend a minimal increase to a 53R2 life-curve combination.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

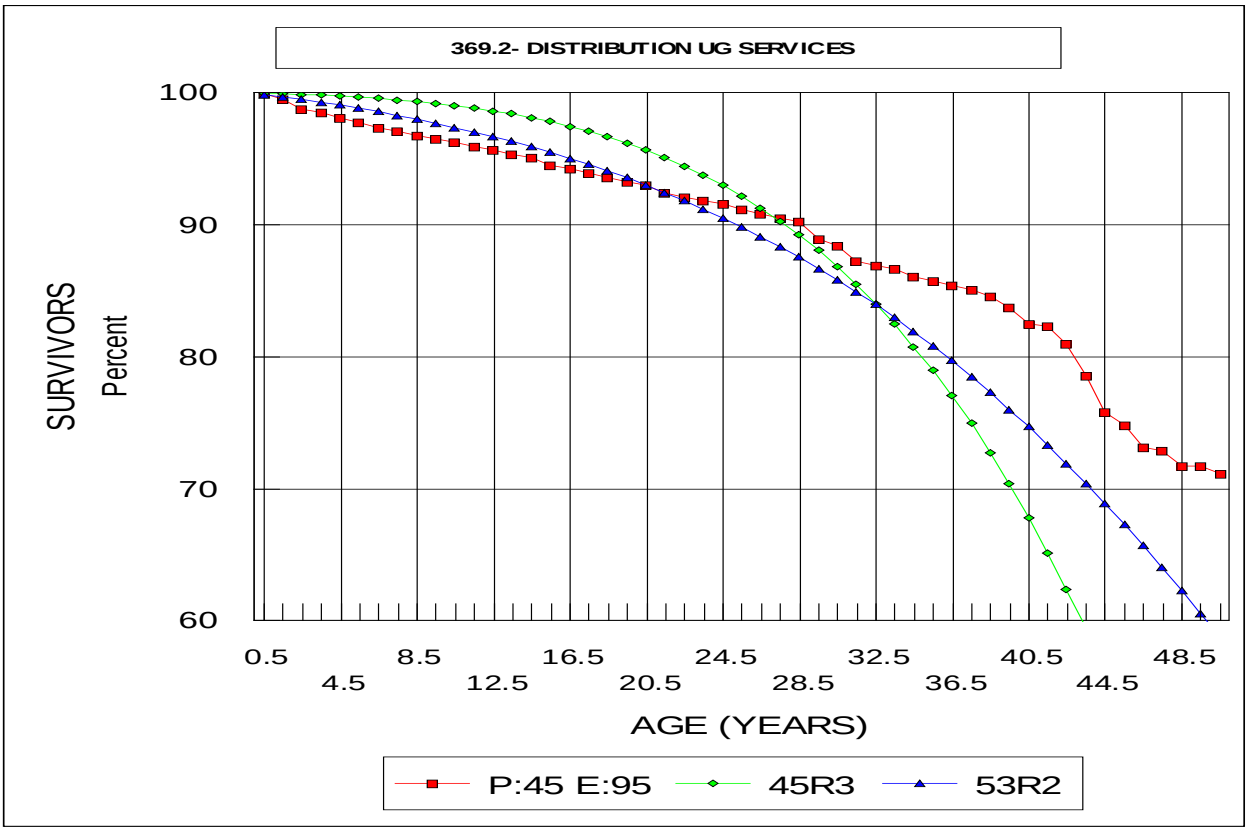
A. My recommendation relies on a more realistic but still gradual increase to the life indications that result from actuarial analyses. As shown on page 5-79 of the 2014 Study, Mr. Robinson's 45R3 life-curve combination curve

[49] 2014 Study at page 4-58.
[50] *Id.*

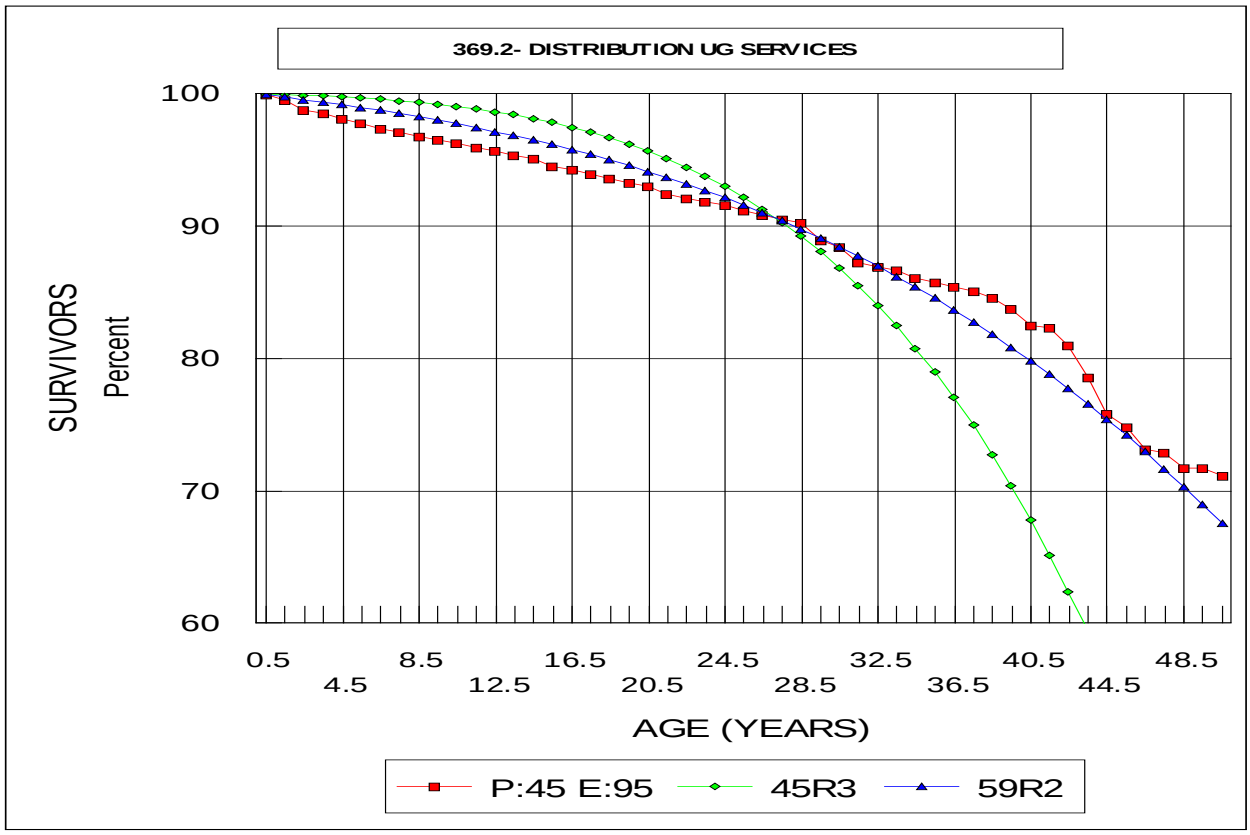
fit to the OLT is poor. In particular, while Mr. Robinson chose not to identify the point at which the data reflected in the OLT becomes statistically unstable or insignificant; his efforts to match the OLT in the mid-50-year range cannot be justified under any basis. In particular, the relatively steady pattern exhibited by the OLT through approximately age 40 is often considered the point beyond which the data is considered to be statistically unstable or insignificant, even though the relatively stable pattern continues up to about age 50. The data points on the OLT between age 55 and 65 correspond to approximately $1,000 or less of plant exposed to retirement forces in comparison to the initial dollar level of exposures of $25.6 million.[51] This relationship yields a 0.005% level of significance which represents a level far beyond reasonable bounds to be given any consideration in the curve fitting process. In other words, Mr. Robinson has selected a life-curve combination that is non-representative of the statistically stable portion of the OLT.

Alternatively, as set forth on the graph below, my recommendation, while significantly superior to Mr. Robinson's proposal, still understates the realistic ASL for the investment in this account through the statistically significant portion of the OLT, which is normally reached at about age 40.

[51] *Id.* at pages 5-80 and 5-81.



It is worth noting that from a life analysis standpoint, an even better fitting life-curve combination to the OLT through the statistically significant portion of the historical data is 59R2 life-curve combination as set forth on the graph below.



Q. IF THE 59R2 IS A SUPERIOR CURVE FIT TO THE COMPANY'S ACTUAL DATA, WHY ARE YOU RECOMMENDING ONLY A 53R2 LIFE-CURVE COMBINATION?

A. As previously noted, proper estimation of life parameters for depreciation consists of both the life analyses and life estimation. When a trend exists in the data for life analysis purposes, it is normally considered to be predictive and modification should be made based on meaningful and/or significant information external to the statistical results. In this case, the 59R2 life-curve combination represents the superior fit from a life analysis standpoint, but given the somewhat limited historic database utilized for

actuarial analyses and the concept of gradualism, my recommendation is limited to a 53-year ASL.

In addition to the concerns associated with the depth of the life database and the concept of gradualism is the fact that over 40% of the existing balance has been placed in service since the last depreciation study.[52] In other words, the improvement in underground conductor discussed for Account 367 has similar implications for underground services. In fact, over 60% of the investment in the account corresponds to plant placed into service since 2000, further reinforcing the need for a significantly longer ASL than the existing value or as proposed by Mr. Robinson. These factors impact the life estimation portion of the depreciation analysis. The best results from the life estimation process in conjunction with gradualism which is supported by the depth of the historical database, in conjunction with recognition of the improved quality in underground conductor over time, results in a conservative but realistic life-curve combination as I am recommending.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $162,867 reduction in annual depreciation expense based on plant as of December 31, 2014.

[52] Response to MCC-133 Attachment 1(a).

Account 390 – General Plant Structures and Improvements (Existing: 35R2.5, MDU: 29L2, MCC: 45R2.5)

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 390 – GENERAL PLANT STRUCTURES AND IMPROVEMENTS?

A. The Company proposes to reduce the existing 35-year ASL to 29 years.[53]

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

A. As discussed at the beginning of my testimony, for this account the Company simply presents Mr. Robinson's interpretation of actuarial results and his statement that it represents normal ongoing upgrades that will continue to occur in the future.[54]

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

A. No. The Company's proposal for a 29-year ASL on its face is unrealistic. I recommend a 45R2.5 life-curve combination.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. My recommendation recognizes that the actuarial results reflect almost exclusively the impact associated with the sale of four facilities between

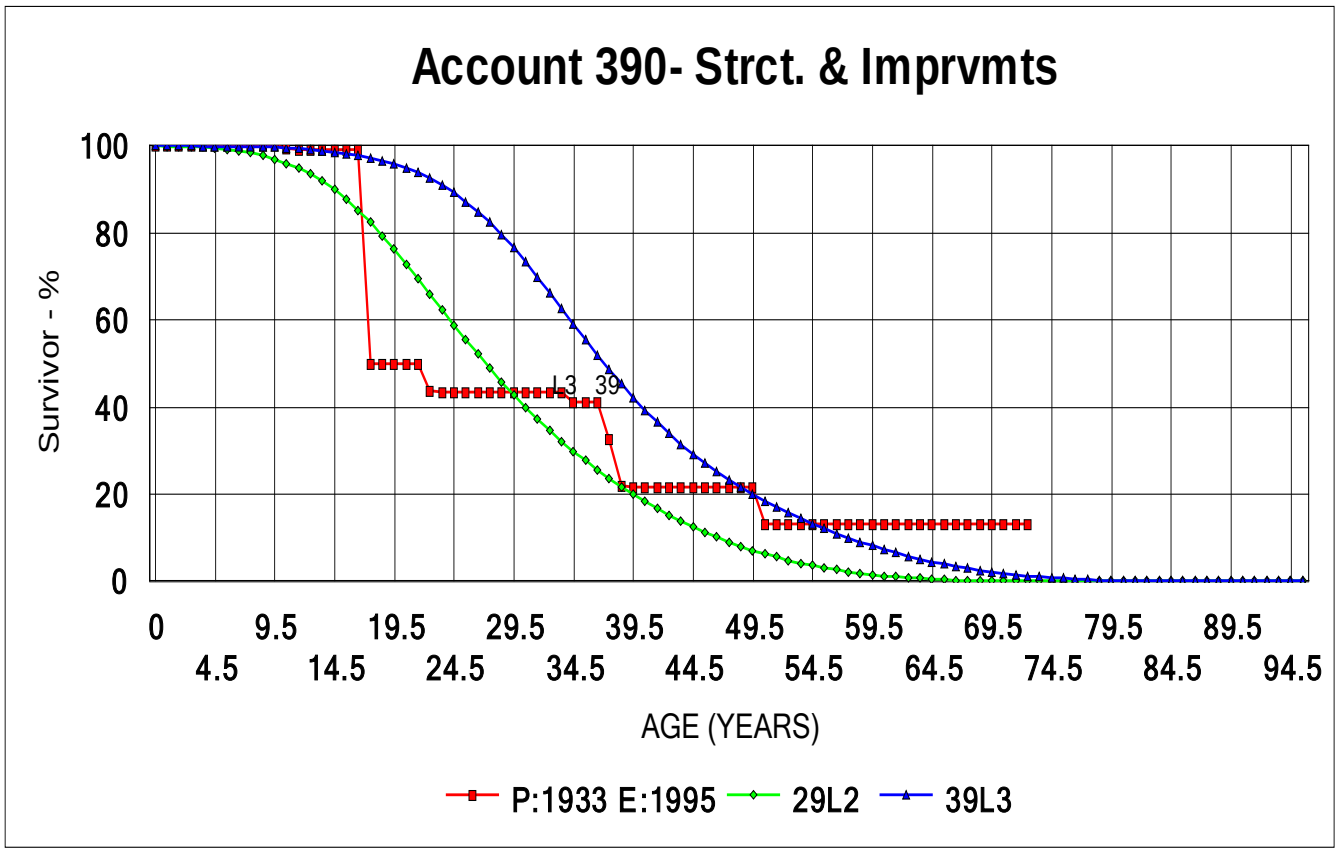
[53] 2014 Study at page 4-66.
[54] *Id.*

1995-1998.[55] This is directly contrary to the statements made by Mr. Robinson in his 2014 Study where he references normal ongoing upgrades. These sales do not represent normal ongoing upgrades to buildings; they reflect the sale of buildings long before their physical useful life had been reached. Mr. Robinson's failure to even mention the fact that the major disconnects in the OLT for this account are associated with sales represents a fatal flaw in his analyses and ultimately his proposal.

Q. IS MR. ROBINSON'S SELECTION APPROPRIATE, EVEN IF ONE WERE TO RELY ON THE HISTORIC DATABASE INCLUDING ALL FOUR SALES PREVIOUSLY NOTED?

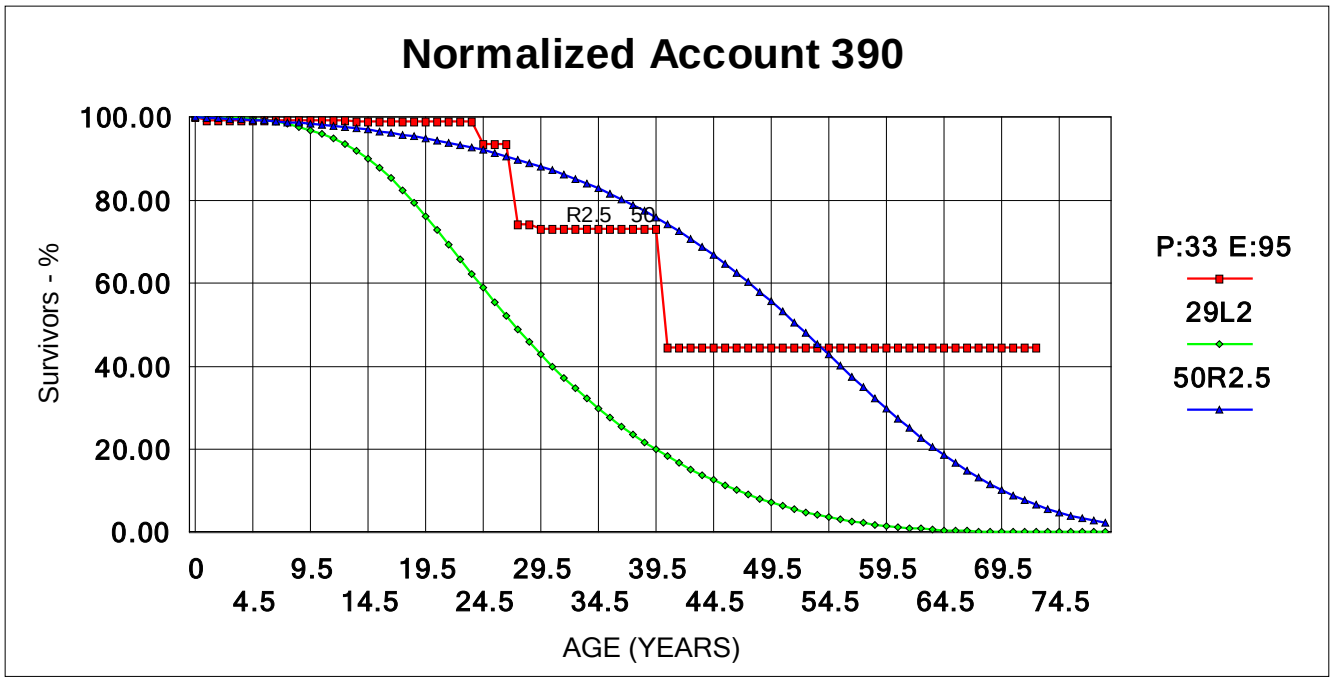
A. No. As shown on the graph below, a 39L3 life-curve combination better matches the erratic pattern reflected in the actual data but produces a more realistic result than the 29-year ASL proposal by Mr. Robinson.

[55] Response to MCC-222 Attachment A.



Q. DID YOU RELY ON THE COMPANY'S HISTORICAL DATABASE AS PRESENTED?

A. No. I believe it is unrealistic to assume the majority of the Company's investment in buildings will be shut down and sold in the future within as little as 17 years after first being placed into service. I believe a more realistic life indication can be obtained by normalizing the historical data to remove the effects associated with the sales of four general plant facilities that occurred between 1995-1998. The graph below reflects the normalized historical data along with a 50R2.5 life-curve combination as a demonstration of more realistic life characteristics.



Q. WHY ARE YOU PROPOSING A 45R2.5 LIFE-CURVE COMBINATION IF THE GRAPH ABOVE DEPICTS A GOOD CURVE FIT?

A. In order to capture not only the concept of gradualism but also the concept the Company may retire a building early and sell the facility at an age long before its physical useful life is reached, I have basically split the difference between the modified historical database and a better fit to the actual historic database than that proposed by Mr. Robinson.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in an $11,231 reduction in annual depreciation expense based on plant as of December 31, 2014.

Account 390 Common General Plant – Structures and Improvements (Existing: 35R3, MDU: 38R3, MCC: 45S1.5)

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 390 COMMON GENERAL PLANT – STRUCTURES AND IMPROVEMENTS?

A. The Company proposes a three-year increase in ASL form a 35R3 to a 38R3 life-curve combination.[56]

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

A. The Company relied on Mr. Robinson's interpretation of the full band actuarial results.[57] Mr. Robinson further referenced the fact that the retirements reflected in the database he relied upon for actuarial purposes contained the disposition of various offices due to consolidation of offices plus the Company's decision to no longer be in the service and repair business including the selling of appliances.[58]

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

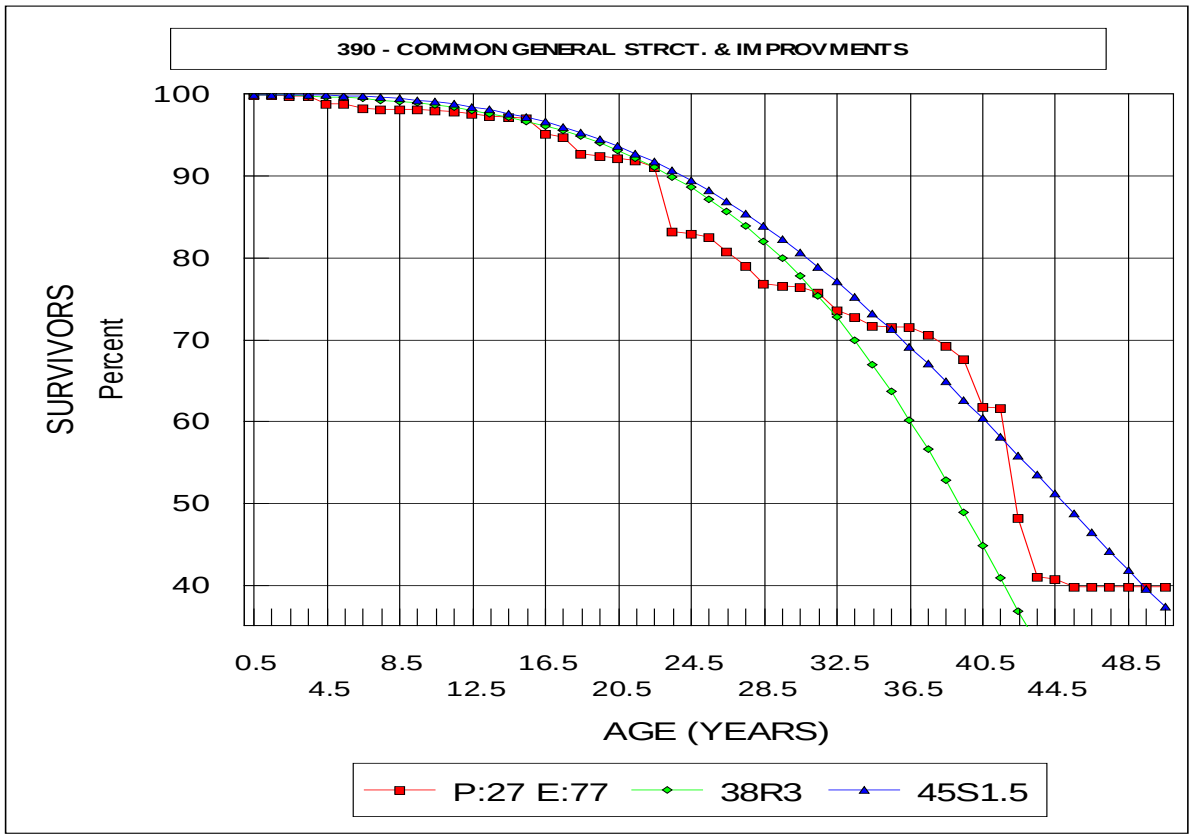
A. No. The Company's proposal is artificially short. I recommend a 45S1.5 life-curve combination.

[56] Exhibit No._(EMR-2) at pages 4-1 and 4-2.
[57] Exhibit No._(EMR-2) at page 4-1.
[58] *Id.*

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. My recommendation reflects a more appropriate interpretation of the historical data, as well as consistency between the life and salvage analyses of the investment in this account. As was the case for the electric general plant account, Mr. Robinson performed his life analysis on data that reflects the sale of 13 different facilities during the past 15 years.[59] While Mr. Robinson states the Company will continue to make changes to meet ever-changing business conditions, it is unlikely that the Company will retire 13 additional general plant facilities in the foreseeable future. Notwithstanding the reliance on a database which reflects the sale of 13 different general plant facilities prior to the end of their physical useful life, Mr. Robinson's curve fit does not reflect the best interpretation of the actuarial results. As shown on the graph below, my recommended 45S1.5 life-curve combination is a superior fit to Mr. Robinson's proposal.

[59] Response to MCC-145 Attachment A Common.



Moreover, my recommendation reflects a more realistic expectation of the future for the remaining facilities in Common general plant structures and improvements. In addition, it is more consistent with my net salvage recommendation. Another consideration for the longer service life is the fact that the majority of the investment in the account is comprised of steel, brick and metal exteriors as well as pre-cast concrete exteriors. The physical attributes of the facilities are indicative of structures that can withstand physical retirement forces to a greater extent than facilities built many decades ago.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $231,779 reduction in annual depreciation expense based on plant as of December 31, 2014.

SECTION V: NET SALVAGE

A. General

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

A. I address the Company's request to increase depreciation expense due to much more negative net salvage values than currently exist. In particular, the Company's request is unsupported by any credible evidence.

Q. HOW DID THE COMPANY ARRIVE AT ITS NET SALVAGE VALUES?

A. Unfortunately, the Company provides very little support for its proposed net salvage values. The Company identifies Mr. Robinson's generalized process. The generalized process identified and the underlying bases are:

> (1) "Net salvage <u>experience is studied</u> for a period of years <u>to determine the trend</u>."[60] (Emphasis added)

[60] Mr. Robinson's direct testimony at page 17.

(2) "These trends are considered, together with any changes that are anticipated in the future."[61] (Emphasis added)

(3) "The method used to estimate the retirement cost is a standard analysis."[62] (Emphasis added)

(4) "This information, along with the knowledge about the average age of the historical retirements that have occurred to date, allows an estimation of the level of retirement cost that will be experienced."[63] (Emphasis added)

(5) "The study methodology utilized has been the accepted practice by depreciation professionals."[64] (Emphasis added)

(6) "The cost of removal analysis is the current standard practice used for mass assets by essentially all depreciation professionals in estimating future net salvage."[65] (Emphasis added)

(7) "Future net salvage … is typically more representative of recent versus long-term historical average net salvage."[66] (Emphasis added)

(8) "The occurrence of historical retirements at an age which is significantly younger than the average service life of the property category demonstrates that the historical date does not appropriately recognize the true level of retirement cost."[67] (Emphasis added)

(9) "The level of retirement cost will increase over time until the average service life is attained. The additional inflation in the estimate of retirement cost is related to those additional years' cost increases (primarily the result of higher labor cost over time) that will occur prior to the end of the property group's average life."[68] (Emphasis added)

In summary, Mr. Robinson's net salvage related testimony presentation is that he reviews history looking for trends; he anticipates changes in the future by taking into consideration future inflation, and that essentially all depreciation textbooks and professionals reflect the same practice.

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[61] *Id.*
[62] *Id.*
[63] *Id.*
[64] *Id.*
[65] *Id.*
[66] *Id.*, at page 18.
[67] *Id.*
[68] *Id.*

Q. DO YOU HAVE COMMENTS ON MR. ROBINSON'S STATED PRACTICE?

A. Yes. Mr. Robinson's presentation is a combination of inaccurate statements that provide no meaningful information in support of his net salvage proposals. First, while Mr. Robinson identifies the concept of trends, he never identifies what he considers a trend. This lack of any definition for what constitutes a trend does not in fact support Mr. Robinson's inconsistent treatment of values; it simply highlights the use of unsubstantiated conclusory statements as the basis for his proposals. Next, vague references to "any changes that are anticipated in the future" that are never supported with any tangible evidence provide no more support or basis for his proposals than does his reference to undefined trends. In addition, Mr. Robinson's claims that all depreciation witnesses and texts support his process is not only unsubstantiated, but it is incorrect. I have been in contested cases with every major and probably minor depreciation outside consultant and many in-house depreciation witnesses over the past 40 years, and I have not found anyone who performs the net salvage analysis as does Mr. Robinson. What I do agree with Mr. Robinson on is that the process must rely on judgment. However, judgment is a process, not an answer.

The analogy regarding dots and a scatter diagram presented at the beginning of my testimony is also applicable here. Mr. Robinson provides a lot of "dots", in this case the historical data of the Company. Mr. Robinson reviews the raw data, but does so by means of simplistic averages of various historical periods. Mr. Robinson fails to test whether the historical data is properly or reasonably predicative of what will transpire in the future, rather he relies on the convenient conclusory assumption that it is. The fallacy behind blind reliance on averages based on the assumption that it is reasonable can best be demonstrated by the following: if you place your right hand in boiling water and your left hand in ice water on average you can assume you are doing fine, but in reality you are on your way to the hospital.

I will also agree with Mr. Robinson that many depreciation witnesses do take this same approach as it relates to assuming what they hope is correct, but fail to do meaningful if any actual investigation as to what is reflected in the data. The fact that others do it does not change the validity of what is being performed and relied on. It must be noted that Mr. Robinson is silent regarding the depreciation publications that identify problems with blind reliance on historical data as a valid predictor of the future.

Q. DID MR. ROBINSON PROVIDE MEANINGFUL DEFINITION TO HIS JUDGMENT PROCESS?

A. No. When discovery was submitted seeking specifics, Mr. Robinson provided the following:

> Judgment, via a dictionary definition, is defined as the process of forming
>
> and [sic] opinion or evaluation by discerning and comparing with discerning being defined as "to come to know or recognize mentally"---as opposed to a quantitative calculation.
>
> Any depreciation study requires informed judgment by the analyst conducting the study. A knowledge of the property being studied, company policies and procedures, general trends in technology and industry practice, and a sound basis of the understanding of depreciation theory are need to apply informed judgment. There are multiple factors, activities, actions, property characteristics, statistical inconsistencies, various property mixes in accounts and other considerations that impact the analysis--- often occurring in different directions. Judgment is used to

synthesize the items into a general understanding of the factors. Individually not one of these items may have a substantial bearing on the result, but collectively these considerations shed a light on the overall assessment of the property. Judgment is often defined as deduction, inference, wisdom, common sense, or the ability to make sensible decisions. There is no single correct result from statistical analysis, averages, weighting analysis, hence, there is no answer absent judgment. The inference from the data request would require a seemingly impossible task of turning judgment into purely quantitative facts. Accordingly, the expectation that judgment can be transformed into fact contradicts the concept of judgment. If judgment were quantifiable it would not be judgment.

It must be noted that historical analysis is simply a tool, along with professional knowledge and experience, used to develop estimates of future service lives and patterns. The ultimate estimate of the depreciation parameters needs to give consideration to the range of historical study results, current operations, and future expectations. That is, while statistical curve fits or salvage averages are part of the historical analysis process, the ultimate the estimation of depreciation

> parameters is not a simple mathematical exercise or ranking process.
>
> It is specifically stated in page 126 of the NARUC Depreciation Practices Manual that "Depreciation analysts should avoid becoming ensnared in the mechanics of the historical life study and relying solely on mathematical solutions. The reason for making an historical life analysis is to develop a sufficient understanding of history in order to evaluate whether it is a reasonable predictor of the future. The importance of being aware of circumstances having direct bearing on the reason for making an historical life analysis cannot be understated. These circumstances, when factored into the analysis, determining the application and limitations of an historical life analysis.[69] (Emphasis added)

In other words, Mr. Robinson provided nothing of substance in response to discovery seeking the specifics as to what he "synthesized" in his judgmental process.

[69] Response to MCC-156.

Q. GIVEN THE COMMISSION'S STRONG ENCOURAGEMENT TO THE COMPANY TO ENSURE THERE IS SUPPORTING DOCUMENTATION FOR ITS DEPRECIATION REQUEST, ARE YOU STATING THAT THE COMPANY FAILED TO COMPLY WITH SUCH ENCOURAGEMENT?

A. Yes. MDU's 2014 Study presents the same type and quality of support and documentation as the study previously submitted to the Commission that evoked the concern and strong encouragement for improvement regarding its depreciation presentation. Mr. Robinson is the same depreciation witness for MDU. Mr. Robinson presents little more than generalized statements that he performed historical analysis, attempted to identify trends, and was influenced by future estimates of the cost of removal based on age consideration of plant retired compared to the estimated ASL.[70] Indeed, a review of Mr. Robinson's testimony, 2014 Study, and workpapers yields the fact that the Company's proposed net salvage ratios are unsubstantiated and unsupported. It is essential to recognize that generalized phrases of performing historical analysis and considering future expectations are meaningless in establishing whether a -50%, a -30%, or any other net salvage value is the appropriate value to be utilized for ratemaking purposes for any given account.

[70] Mr. Robinson's testimony at page 17.

Q. HAS THIS SAME SITUATION OCCURRED ELSEWHERE?

A1. Yes. As previously noted, the most recent reaction to a utility's continued reliance on judgment backed by conclusory statements lacking in transparency and support for depreciation proposals was by the CPUC on November 5, 2015. The CPUC not only significantly reduced SCE's depreciation request, but also found it necessary to establish a new motivational standard so that SCE "can and must do more to explain and justify its use of judgment in its depreciation showing."[71] The CPUC also:

> Direct[s] SCE to provide considerably more detail in support of its net salvage proposals for at least five of the largest accounts, as measured by proposed annual depreciation expense. At a minimum, this detail shall include:
>
> 1. A quantitative discussion of the historical and anticipated future Cost of Removal (COR) on a per unit basis for the large (greater than 15% as measured by portion of plant balance) asset classes in the account. This discussion should identify and explain the key factors in changing or maintaining the per-unit COR.
>
> 2. A quantitative discussion of the historical and anticipated future retirement mix (i.e., retirements among different asset classes), identifying and explaining the key factors in changing or maintaining this mix.
>
> 3. A quantitative discussion of the life of assets and original cost of assets being retired, in relation to the COR, on both a historical and anticipated future basis. This discussion should be integrated with and/or cross-reference the proposal for life characteristics.
>
> 4. An account-specific discussion of the process for allocating costs to COR.

[71] D.15-11-021, a Southern California Edison General Rate Case before the CPUC at page 395 of the Proposed Decision adopted on November 5, 2015.

The CPUC also "encouraged" parties to the next rate case to propose shifting "a portion of the under-collection [depreciation] risk from future customers to SCE's shareholders if the utility exhibits the same types of shortcomings in a widespread manner." In other words, regulators are finding it necessary to motivate utilities to do what is required to meet their assigned burden of proof associated with a major area of revenue requirements. It should be noted that the witness for SCE utilized very similar language to what Mr. Robinson relied on as noted above, including relying on the word "synthesize."

Q. DID MR. ROBINSON PROVIDE ANY ADDITIONAL INFORMATION IN SUPPORT OF HIS PROCESS?

A. Yes. Mr. Robinson provides the historical raw data and his inflation calculation of what he anticipates will be the cost of retirement in the future at an age equivalent to the ASL.[72] Mr. Robinson does not present any meaningful basis in support of the specific values he proposes in the 2014 Study.[73] Mr. Robinson also states in response to discovery that he also relies on the concept of gradualism, but again fails to provide any specifics even in response to discovery.

[72] 2014 Study at Section 8, as summarized in Section 4.
[73] While the raw data and resulting averages provide some information, they do not demonstrate how Mr. Robinson actually determined the specific proposed values compared to other values.

Q. IS THERE A PARTICULAR CONCERN REGARDING MR. ROBINSON'S APPARENT PROCESS FOR ESTABLISHING NET SALVAGE VALUES?

A. Yes. Mr. Robinson incorporates his expectation of future inflation into his determination of net salvage ratios utilized for establishing current rates. Mr. Robinson identifies a methodology not utilized by others in the industry in order to develop his expected quantification of future inflation. Mr. Robinson considers the results of his inflation calculation as part of his judgmental process when determining his net salvage proposal. As part of this proceeding, Mr. Robinson assumes a 2.75% annual future inflation rate for as long as 50 years into the future for one minor account, but also as far as 38 years into the future for a major account.[74] Mr. Robinson's unique process escalates a current dollar of cost of removal estimated today to values as high as $3.88 (1.0275^50= 3.88).

Q. DOES MR. ROBINSON'S UNIQUE PROCESS OF QUANTITATIVELY INCORPORATING A CALCULATION OF FUTURE INFLATION HAVE A SIGNIFICANT IMPACT?

A. Yes. For example, Account 355 Transmission Poles and Fixtures, Mr. Robinson's assumption that future inflation is the only identifiable consideration to be recognized for estimating future net salvage results in a

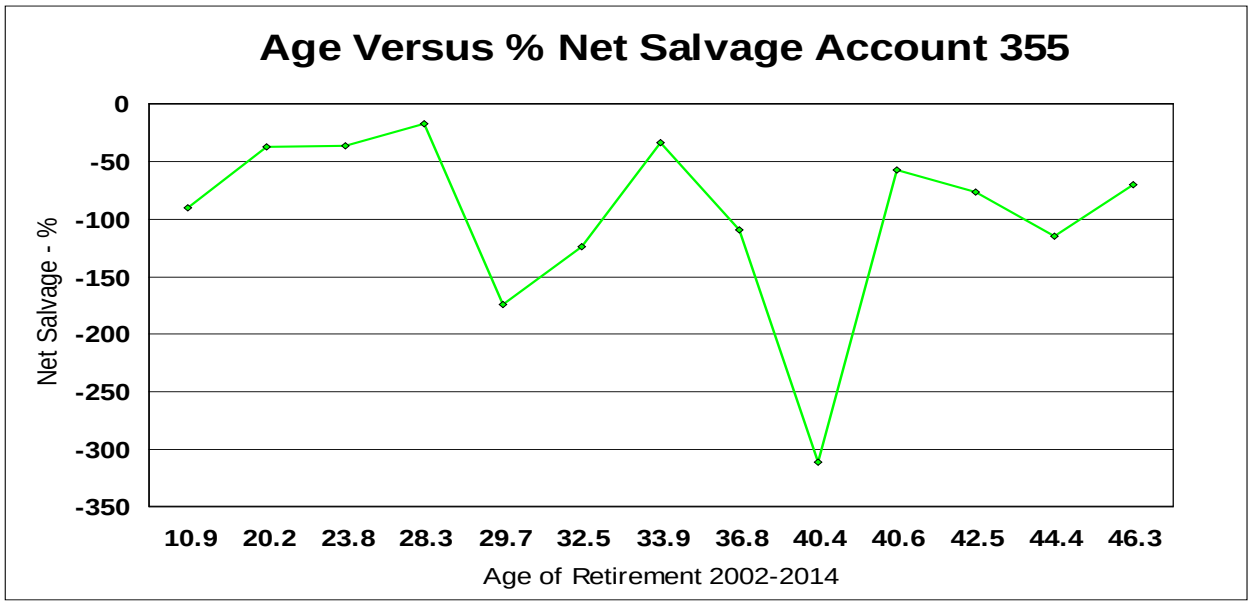
[74] 2014 Study pages 8-74 and 8-69, respectively.

current expected dollar of net salvage being increased to a level of $2.02.[75] In other words, Mr. Robinson wants current customers to pay for future escalated costs with their current dollars. This proposal is inappropriate as, at a minimum, it creates intergenerational inequity and violates the matching principle.

Q. IS MR. ROBINSON CORRECT IN ASSUMING FUTURE INFLATION APPLIED TO HISTORICAL ANALYSES IS THE APPROPRIATE APPROACH TO ESTIMATING FUTURE NET SALVAGE?

A. No, and in this particular instance there are additional problems to Mr. Robinson's analyses. First, it must be noted that if inflation were the only consideration for changes in future net salvage, there would be no need to hire a depreciation expert to quantify the impact that such a driving factor would have on the final determination of net salvage. In reality, even the historical analysis Mr. Robinson has presented clearly demonstrates that there is not a continuous increase in the level of negative net salvage as would be expected if inflation were the driving or major factor associated with cost of removal. For example, the following graph demonstrates that there is no correlation between the age of retirements and the recorded level of net salvage for Account 355 over the past 13 years.

[75] 2.75% annual inflation rate for 26 years compounded annually results in a 2.02 factor.



In fact, the year with the youngest age of retirements had a less negative level of net salvage than did the year with the oldest age of retirements.[76] In addition, the net salvage becomes less negative for annual retirements corresponding to ages after 10.9 through 28.3. Obviously, there are numerous other factors and considerations that go into net salvage analyses that can and do have a greater impact on the level of net salvage than does inflation. Unfortunately, Mr. Robinson for the most part fails to consider any factor other than his estimate of future inflation.

[76] It must be noted that when this factual relationship has previously been pointed out to Mr. Robinson (for example in MDU's last electric rate case), he responded by claiming that because the actual data is an average of various transactions within a given year it does not permit identification of specific age to cost of removal relationships. In other words, while admitting his premise that there is a direct correlation between age and cost of removal "will not necessarily exist" in MDU's recorded values, his "linear forecast of cost of removal is, in fact, valid" because his unsubstantiated judgmental process requires such premise as its foundation. Even Mr. Robinson's two car example is misleading (both in Mr. Robinson's current testimony at pages 19-20 and his rebuttal in the last case), especially when he claims it is "exactly the situation that occurs with the majority of the Company's historical net salvage data." Mr. Robinson's car example only appears to work if all other factors are assumed to be equal. This assumption is neither valid nor realistic. Even two cars with the same mileage will have different body or interior conditions. The real driving cost of removal factors do not relate to Mr. Robinson's age and inflation premise.

Q. WHAT ARE SOME OTHER FACTORS THAT SHOULD BE CONSIDERED?

A. Some of the other factors that affect net salvage are the circumstances associated with a particular retirement, the internal accounting for costs incurred between a new installation that replaces the retired plant, the actual item being retired within an account, the quantity of assets retired at any given time, as well as other considerations. For example, the per unit cost to remove a pole can be dramatically different depending on several factors. The cost to remove a damaged pole at an unknown location on a three-day holiday weekend at 2 a.m. under emergency situations is going to be dramatically higher than the cost to remove 10 identical poles that are part of a replacement of a single line segment on a planned basis during normal work hours. The per unit cost of removal between these two examples will be markedly different.

Q. EVEN IF ONE WERE TO ASSUME INFLATION WAS THE KEY FACTOR IN ESTIMATING FUTURE NET SALVAGE, HAS MR. ROBINSON'S ASSUMED 2.75% ANNUAL INFLATION RATE BEEN ACCURATE IN THE YEARS THAT HAVE PASSED SINCE THE 2008 DEPRECIATION STUDY?

A. No. Inflation as measured by the Consumer Price Index ("CPI") from the end of the 2008 Study through 2014 was 10%.[77] The 10% increase in CPI over the past six years compares to Mr. Robinson's estimation of 17.7% for the same period.[78] Indeed, during the six years subsequent to Mr. Robinson's prior depreciation study, his estimation of future inflation is in error by 77%.[79]

Q. HOW DID MR. ROBINSON TAKE INFLATION INTO ACCOUNT?

A. As with the balance of Mr. Robinson's depreciation study, his explanation of how he incorporated his concept of future inflation into the development of his final proposed net salvage parameters is extremely vague. Mr. Robinson states his inflation forecast is "simply an additional tool used to provide information."[80] He further states that his estimation process "gives consideration to the overall average, recent experience, and forecast analysis, most weight is given to the more recent years three-year rolling averages. This process is one of gradualism towards more future looking

[77] U.S. Bureau of Labor Statistics CPI Inflation Calculator for 2008-2014.
[78] 1.0275^6=17.7%.
[79] 17.7% /10%.
[80] Response to MCC-141.

calculations which is more representative of the future net salvage, as opposed to overall historical averages, that can be anticipated during future period [sic] and at the end of life of the property group."[81] In other words, even when specifically requested to explain how he employed his inflation calculation along with all other factors in determining the final proposed net salvage values, he continues the process of being exceptionally vague and nonresponsive to what he actually did to arrive at his proposed net salvage factors. This failure to identify what is the basis for his proposal is inappropriate and unacceptable given that his net salvage estimations represent a significant component of the requested depreciation expense as well as the Commission's strong encouragement to ensure supporting documentation.

Q. DO YOU HAVE OTHER SPECIFIC CONCERNS REGARDING THE COMPANY'S NET SALVAGE PRESENTATION?

A. Yes, in particular, MDU's conversion to the PowerPlan accounting system, and the data synchronization problems in conjunction with Mr. Robinson's approach. Coincident with MDU's implementation of the PowerPlan accounting system in 2013, the recorded levels of negative net salvage have taken a noticeable step towards significantly more negative levels compared to prior periods. However, MDU chose not to provide any information

[81] Response to MCC-167.

relating to the support for the new process employed in the allocation of cost to cost of removal when replacement activity transpires.[82] Therefore, Mr. Robinson's heavy reliance on the most recent data for determining his net salvage values cannot be considered credible given MDU's failure to support the validity of the noticeable change in the recorded levels of negative net salvage.

My concern with MDU's failure to synchronize the recording of retirements with the corresponding cost of removal and gross salvage is also magnified due to Mr. Robinson's generalized approach for determining net salvage. Mr. Robinson's focus on more recent data for trends or expectations of a value can be particularly impacted by data synchronization issues that disproportionately affect at least the period 2012 through 2014. As discussed in the account specific portion of my testimony, Mr. Robinson's proposals lack credibility due in part to this issue.

Q. DO YOUR REVIEW AND ANALYSES OF NET SALVAGE RELY ON THE COMPANY'S HISTORICAL DATA TO THE SAME EXTENT AS YOUR LIFE ANALYSES DID?

A. No, and they should not. Life analysis relies on actuarial analyses, a powerful analytical tool, and a much longer, robust, and meaningful

[82] Response to MCC-144.

database than is relied upon for net salvage purposes. In addition, the volatility of net salvage percentages from year to year is much greater than the vast majority of volatility experienced for life analysis purposes. In other words, due to the type of data, the sample size, and the degree of volatility of net salvage transactions compared to life transactions, a much greater level of subjectivity is required for net salvage analysis than for life analysis. However, the issue of volatility should not and does not translate into an opportunity for a depreciation expert to simply assume whatever is convenient.

Q. DOES NARUC RECOGNIZE THE GREATER SUBJECTIVITY ASSOCIATED WITH NET SALVAGE ANALYSES COMPARED TO LIFE ANALYSES?

A. Yes. NARUC states that

> One of the practical difficulties of estimating net salvage is that reported salvage is a mixture of salvage of items retired and reused internally, salvage on items sold externally as functional equipment, and salvage on items junked and sold as scrap. …
>
> The sensitivity of salvage and cost of retirement to the age of the property retired is also troublesome. …
>
> Nevertheless, a careful analysis of retirements should be made to determine if such large negative salvage values are due to unusual circumstances. An example is the retirement of old cast iron gas mains in congested metropolitan areas. Due to urban renewal, a utility may have significant amounts of such activity for a few years. Since most of the investment in this account may now be in plastic

> mains in rural or suburban areas where access is easier, the removal of old cast iron mains at today's cost may not be representative of the cost that can be expected for plastic mains. (Emphasis added).

Q. HAS MR. ROBINSON PROVIDED ANY ANALYSIS OF WHAT IS REFLECTED IN THE HISTORICAL AVERAGES HE RELIES UPON TO SUPPORT HIS RELIANCE ON THOSE VALUES?

A. No. Because of the different complexities of retirements and related cost of removal for the retirement of identical number of poles or lengths of underground conductor as well as the potential difference in the age of the retirements compared to current costs, blind reliance on simplistic historical averages can and often does yield misleading results. As NARUC notes and common sense dictates, due to the degree of volatility exhibited in net salvage transactions, even those representing an average of three, five or more years, the estimation of net salvage requires more reliance on considerations other than simplistic averages of historical data.

Q. CAN YOU PROVIDE AN EXAMPLE OF THE DEGREE OF VOLATILITY YOU ARE REFERRING TO?

A. Yes. For Account 356, MDU recorded a -221%, a -20%, a -130%, a <u>positive</u> 391% and a -27% net salvage, during the five-year period 2010-

2014, respectively.[83] What has not been presented or provided by the Company is what caused such dramatic changes in annual levels of net salvage. While Mr. Robinson assumes that by using rolling three-year averages and other averages he has compensated for unusual events or other potential problems, such a statement is no different than most of the presentation made elsewhere in the 2014 Study. In other words, Mr. Robinson consistently makes conclusory statements without support or justification.

Q. ARE THERE FACTORS OR CONSIDERATIONS THAT ARE NOT PRESENTED OR REFLECTED IN THE COMPANY'S PRESENTATION?

A. Yes. For example, most often pole or conductor related retirements are due to retirement forces that occur prior to the proposed useful life for those assets. Such transactions generally do not reflect the concept of economies of scale, a concept also recognized by NARUC. Indeed, in the future when larger portions of the system are retired on a planned and contiguous basis, the per-unit cost of removal will decline and potentially decline appreciably. In other words, the current levels of net salvage being recorded by the Company may reflect abnormal and unusual levels of complexity as well as individual and inefficient retirement of assets compared to what will

[83] 2014 Study page 8-48.

transpire in the future. The Company's failure to perform adequate or meaningful analysis to demonstrate that the historical indications are reasonable expectations of the future does not default to a situation where the Company's historical averages can be deemed to be a representative source from which arbitrary results or trends can be assumed.

Q. DOES NARUC IDENTIFY THE SAME CONTINUATION OF TRENDS FOR NET SALVAGE ANALYSIS AS IT DISCUSSES FOR LIFE ANALYSIS?

A. No, in fact quite the contrary. NARUC highlights concerns regarding investigation of data to make sure it is representative of the future of net salvage given the greater degrees of variation that can transpire for net salvage compared to life analysis.

Q. IS IT MORE COSTLY FOR THE COMPANY TO PERFORM AN IN-DEPTH ANALYSIS FOR NET SALVAGE PURPOSES THAN THE SIMPLISTIC HISTORICAL AVERAGING PERFORMED BY MR. ROBINSON?

A. Obviously, yes. NARUC has referenced the potential cost of such analysis as one reason why it was not a cost effective undertaking in the early 1990s. However, things have changed since that time. Computer software programs that collect, maintain and retrieve information on a more expedited and cost effective manner have been purchased by utilities. In

addition, the revenue requirement impact of net salvage has greatly expanded compared to the impact during the 1990s. Therefore, claims by Mr. Robinson or other depreciation analysts that it is standard for them to rely on simplistic historical averaging analyses is no longer an adequate basis to support arbitrary proposals that create more than millions of dollars of additional capital recovery requirements for MDU. Again, the applicant in a rate case is charged with supporting its request for revenue requirements. A claim that it is too costly to perform anything other than by means of historical averages is no longer valid, especially when the utility has control of what is recorded in various accounts and the depreciation analyst has control as to what data is excluded from or given an unknown level of diminished consideration in the depreciation analysis.

Q. HAVE YOU IGNORED ANY INFORMATION PROVIDED BY THE COMPANY IN YOUR ANALYSES?

A. No. While I have reviewed and considered all information provided by the Company, I may not have given the same level of importance to the information as Mr. Robinson may have. However, since Mr. Robinson has not provided any specifics regarding what, how or why as it relates to his judgmental process that can be tested, other than the final proposal, no precise comparison can be made.

Q. SHOULD REGULATORS ACCEPT THE LIMITED LEVEL OF SUPPORT FOR DEPRECIATION PROPOSALS AS MR. ROBINSON PROVIDES IN THIS CASE?

A. No. Regulators should take exception to the lack of support and substantiation for proposals that create millions of dollars of revenue requirements. It is the Company's burden to provide specific evidence in support of its request for over $30 million in annual revenue requirements. Challenged expenses should be disallowed where the Company fails to provide such support. Indeed, the trend in the industry is for regulators to demand not only more information, but also a transparent basis for depreciation proposals made by a utility.

Q. BASED ON YOUR REVIEW OF ALL AVAILABLE INFORMATION, ARE YOU RECOMMENDING ADJUSTMENTS TO THE COMPANY'S PROPOSALS?

A. Yes. I am recommending adjustments to the proposed net salvage values for nine mass Electric and Common property accounts. Those accounts are set forth in the following table, along with the Company's proposed value, my recommended value, and the dollar impact of each recommendation.

Summary of MCC's Recommended Mass Property Net Salvage Adjustments

Account	MDU Proposed	MCC Recommended	MCC Adjustment	Impact
355 –Transmission Poles & Fix.	(50%)	(35%)	15	$237,172
364 – Dist. Poles, Towers, & Fix.	(95%)	(70%)	25	$249,732
365 – Dist. OH Cond. & Dev.	(85%)	(70%)	15	$100,208
367 – UG Conductors & Dev.	(25%)	(15%)	10	$287,123
368 – Dist. Line Transformers	(20%)	(10%)	10	$159,013
369 – Dist. Services (OH)	(50%)	(70%)	(20)	$261,627[84]
369 – Dist. Services (UG)	(50%)	(20%)	30	
390 – Gen. Plant Struct. & Imp.	(10%)	25%	35	$16,108
390 – Common Gen. Plant	5%	40%	35	$611,869
Total				$1,922,852

B. Account Specific

Account 355 – Transmission Poles and Fixtures (Existing: -35%, MDU: -50%, MCC: -35%)

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

A. The Company proposes a -50% net salvage.[85] This represents a 43% increase from the existing -35% net salvage.

[84] This represents the combined impact of changes to Account 369 – Distribution Services (Overhead and Underground).
[85] 2014 Study at page 4-37.

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

A. The only identifiable basis presented by the Company are the results of simplistic averages of historical data resulting in a -22% net salvage for the overall band along with -46%, -98%, and -101% for the most recent three-year rolling bands, starting from the most recent backwards.[86] In addition, Mr. Robinsons states that he gives more weight to the most recent three-year rolling averages which takes into account the concept of gradualism and further considers future inflation.[87]

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

A. No. The Company's proposal represents an unnecessary and inappropriate movement towards a more negative value. I recommend retaining the existing -35% net salvage.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. My recommendation not only includes the review of the results of historical averages, but also relies on a review and analyses of what is reflected in the historical transactions. The additional efforts I have undertaken, above and beyond what Mr. Robinson performed include analyses associated with

[86] *Id.*
[87] Responses to MCC 1-167 and MCC 1-141.

overtime levels, contractor expenses, emergency transactions, and what constitutes a unit of property, to name a few. Analyses of what types of transactions are reflected within the historical activity is necessary in order to better understand and interpret the predictive value of historical averages as previously discussed. Due to the wide range of potential retirement costs that can occur for identical assets, the need to investigate what is reflected in the historical data is more important for net salvage analyses than it is for life analyses.

In this particular instance, an investigation of the raw average values of the historical database does not support a change from the existing -35% net salvage. First, the pattern of transactions would indicate no basis for modifying the existing level. The overall historical net salvage reflects a -22% value.[88] Even the most recent three-year average that Mr. Robinson claims to assign greater focus to reflects a raw value of -46%, with the most recent year (2014) data indicating a -37% value.[89] Moreover, the most recent three-year average in the current study is less negative than the most recent three-year average in the 2008 Study, which resulted in the existing -35% value.[90] In other words, the trend between studies, as interpreted by Mr. Robinson, is a less negative value rather than a more negative value he proposes.

In addition to the review of the various raw values, my recommendation is further based on a more informative investigation of what is reflected in the historical database. First, the Company reports an unusual and

[88] 2014 Study at page 8-46.
[89] *Id.* at pages 8-43 and 8-45.
[90] *Id.* at page 4-36 and 2008 Study at page 7-56.

disproportionate level of emergency-related expense for the retirement activity in 2011 for this account.[91] This particular value impacts two out of the three most recent rolling averages relied on by Mr. Robinson for his proposal. Next, the Company reports a disproportionate level of overtime expense applicable to retirement work in progress for 2013.[92] In addition, the level of contractor activity in comparison to in-house personnel performing cost of removal related activities again appears to be disproportionately high for many of the recent years, which affects the most recent three-year rolling bands Mr. Robinson relies on for his proposal.[93]

Further consideration associated with proper interpretation of the historical data is that the types of activities reflected in that data are normally associated with a limited number of towers being retired at any one particular time and location. In other words, the historical data most likely reflects a more negative level of net salvage than would be the case in the future when a greater number of poles are retired at a given time and location; the concept of economies of scale.

Finally, the Company has indicated that cross-arms are a retirement unit in some instances.[94] Therefore, when cross-arms are retired, the per unit net salvage value is normally more negative than would be the case when an

[91] Response to MCC-134 Attachment A.
[92] Response to MCC-162 Attachment.
[93] *Id.*
[94] Response to MCC-213.

entire pole including the cross-arm is retired. Unfortunately, MDU does not maintain such information.

In summary, this account represents a situation where the lack of proper investigation into what is reflected in the historical database can and has caused Mr. Robinson to inappropriately react to what he perceives as a gradual movement towards his anticipated future inflated retirement cost levels. Mr. Robinson's focus only on the concept of inflation is simply incorrect and is not exhibited in the historical data in the manner he envisions. Therefore, the only reliable analysis of historical data based on appropriate investigation and assumptions dictates the retention of a -35% net salvage.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $237,172 reduction in annual depreciation expense based on plant as of December 31, 2014.

Account 364 – Distribution Poles, Towers and Fixtures (Existing: -70%, MDU: -95%, MCC: -70%)

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 364 – DISTRIBUTION POLES, TOWERS AND FIXTURES?

A. The Company proposes a -95% net salvage.[95] This represents a 25 percentage point increase in the level of negative net salvage, or approximately a 36% (95%-70%=25%, 25%/70%=36%) increase.

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

A. As is the case with other net salvage proposals presented by the Company, its basis is not known with any certainty. Mr. Robinson has presented the raw values of the most recent three rolling three-year averages as well as the full or overall average in his 2014 Study.[96] In addition, Mr. Robinson's generalized process reflects incorporating inflation at the rate of 2.75% annually into the future in order to establish an expectation which he then takes into consideration along with the concept of gradualism. However, there is no specific basis presented for the Company's proposal.

[95] 2014 Study Table 5 at page 2-26. It should be noted that the Company's 2014 Study summary at page 4-47 is incorrect and reverses the currently proposed net salvage values.
[96] 2014 Study at page 4-46.

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

A. No. Based on the available information, the Company has not presented any information that would warrant its proposal. I recommend retaining the existing -70% net salvage.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. The rolling three-year averages presented by Mr. Robinson generally exhibited a -70% to -80% range until 2013.[97] At that point, the Company's net salvage relationship basically doubles from what was recorded for prior periods.[98] Based on this unusual situation, I investigated additional information to obtain a better understanding of what is reflected in the simple historical averages relied upon by Mr. Robinson.

The additional information identified that in May of 2013, the Company implemented a new accounting system, PowerPlan.[99] As part of this conversion, the determination of what MDU considers as cost of removal in situations where replacement activity transpires changed from the process previously employed. I further reviewed information regarding overtime pay, use of contractors versus use of in-house personnel, emergency retirement activity, the number of poles retired on an annual basis, as well

[97] 2014 Study at page 8-63.
[98] 2014 Study at page 8-63.
[99] Response to MCC-144.

as the time synchronization situation and other issues. Based on the review of the various factors, I conclude that the change in the accounting system as well as the time synchronization problems are issues that undoubtedly have resulted in what appears to be skewed historical averages.

From a time synchronization standpoint, it must be noted that the Company has recorded a gross salvage value for every single year in its database until 2014 (1968-2013).[100] However, for 2014, the Company reported a 0 (zero) value for gross salvage. Given the Company's admission that its data is "generally" time synchronized, in conjunction with Mr. Robinson's process of focusing on the most recent averages of historical data for his proposal, raises the issue of credibility associated with such proposal as a valid predictor of the future.

Q. HOW DID THE CHANGE TO THE POWERPLAN ACCOUNTING SYSTEM INFLUENCE YOUR RECOMMENDATION?

A. While the Company admits to changing its accounting process employed to establish cost of removal at a time that corresponds to when its recorded cost of removal percentage levels doubled compared to prior periods, it failed to respond to discovery seeking information relating to its new process.[101] While the implemented change in accounting systems and the

[100] 2014 Study at pages 8-60 and 8-61.
[101] Response to MCC-144.

corresponding dramatic change in recorded levels of cost of removal are significant items of information, neither the Company nor Mr. Robinson made any reference to this situation in MDU's initial filing that I am aware of. Moreover, MDU's failure to provide any underlying support or justification for its new process in response to discovery further diminishes the credibility of the historical database relied on by Mr. Robinson for his proposals.

My recommendation to retain the existing -70% net salvage is made in conjunction with a further recommendation that the Commission direct the Company to fully explain, justify, and document the new proposed levels of allocation between the cost of a new installation when replacement activity occurs in its next depreciation study. The presentation should be fully and completely explained in narrative format along with underlying support and documentation validating the assumptions contained therein for each of the activities required to retire and remove a pole.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $249,732 reduction in annual depreciation expense based on plant as of December 31, 2014.

Account 365 – Distribution Overhead Conductors and Devices (Existing: -70%, MDU: -85%, MCC: -70%)

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 365 – DISTRIBUTION OVERHEAD CONDUCTORS AND DEVICES?

A. The Company proposes a -85% net salvage.[102] This represents a value 21% more negative than the existing value.

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

A. Again, the Company presents no specific basis other than the results of its most recent rolling three-year averages for the past three years, along with the overall average. As was the case with prior accounts previously discussed, responses to discovery identified the concept of gradualism as well as Mr. Robinson's expectations based on future inflation.

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

A. No. The Company's proposal is excessively negative. I recommend retaining the existing -70% net salvage.

[102] 2014 Study at page 4-49.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. My recommendation is based on a review of the Company's historical data as well as further investigation into the credibility and reasonableness for its predictive capabilities.

In this particular instance, the most recent three-year averages reflect negative levels in general much greater than previously experienced by the Company. For example, in 2013, the Company reported a -368% net salvage which is almost eight times the average level experienced during the past 47 years.[103] The 2013 value corresponds to the first year of the Company's conversion to the PowerPlan accounting system. As previously noted, the Company chose not to provide the underlying basis for the new assumed percent allocation of cost to cost of removal in situations where replacement activity transpires. In other words, Mr. Robinson has chosen to react to the new higher values without any investigation as to whether the limited data is actually indicative of future expectations or simply a function of an inappropriate new allocation factor based on a new accounting system.

Not only does the excessively negative 2013 outlier value impact the results for 2013, but based on Mr. Robinson's focus on the simple average of the most recent three-year rolling bands, this particular value impacts the two

[103] 2014 Study at pages 8-66 and 8-69.

most current three-year rolling values. In fact, the impact of this single outlier can be seen in the progression of negative net salvage values for the three most recent three-year averages, which listed from the oldest to the most current are -87%, -163%, and -171%.[104]

In addition to the concerns associated with the 2013 outlier value is the fact that the Company has also recorded a zero level of gross salvage in 2014 under its new accounting system. Given that the Company has recorded a gross salvage value in every single year for the past 47 years in its net salvage database, Mr. Robinson should have investigated whether time synchronization of the data was an issue. In other words, the 2014 value as well as even the 2013 or 2012 values could present a timing difference rather than a true trend of what is transpiring with the Company's retired assets.

In summary, Mr. Robinson chose to react to the unusual trend in the data towards a much more negative level of net salvage exhibited based on a review of the three most recent three-year rolling averages and his expectation of future inflation. Alternatively, my more in-depth review of the Company's recent historical data identifies various reasons why Mr. Robinson's reaction is inappropriate. Indeed, the most recent three-year period includes a substantial outlier, the conversion to a new accounting

[104] 2014 Study at page 4-48.

system that relies on unidentified and unsubstantiated new allocations of costs to cost of removal, apparent data synchronization issues and significant variance in the quantity of conductor retired.[105] These factors render any increase in the level of negative net salvage for this account inappropriate based on Mr. Robinson's reliance on the historical database as a valid predictor of future expectations. Indeed, Mr. Robinson discounted the recent trends he identified by 50% with the untempered use of gradualism. In my opinion, Mr. Robinson's decision to employ a 50% discount to what he believes is the recent trend for this account is more an admission of the lack of credibility of his analyses rather than the concept of gradualism.

In addition, it must be noted that Mr. Robinson's reaction to the trend in the most recent three-year rolling averages for this account is contrary to his reaction to the same information in the prior depreciation study. In the 2008 Study the trend in the net salvage data was to a less negative level of net salvage, one most definitely less than the existing -70% net salvage proposed by Mr. Robinson. However, in that study, Mr. Robinson's reaction was to apply a different set of criteria in order to continue an effort to support an excessively negative level of net salvage.

[105] Response to MCC-136.

Finally, in recognition of Mr. Robinson's limited recent industry experience regarding this account, only one identifiable testimony for another electric utility in the recent past, where his proposal was approximately half the level he is proposing in this case[106], I have an additional recommendation. I recommend that the Commission direct the Company to perform more meaningful investigation into the cause of retirements for the plant in this account for its next study. The more meaningful study should provide a detailed presentation along with all support, justification, and documentation associated with the development of proposed allocation factors used in the Company's new PowerPlan software system as it applies to this and all other accounts.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $100,208 reduction in annual depreciation expense based on plant as of December 31, 2014.

[106] Docket No. 090079-EI, a Progress Energy Florida, Inc. proceeding before the Florida Public Service Commission where Mr. Robinson proposed a -45% net salvage for Account 365 and the Florida Commission adopted my recommended -20% net salvage in that proceeding.

Account 367 – Distribution Underground Conductors and Devices (Existing: -15%, MDU: -25%, MCC: -15%)

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

A. The Company proposes a -25% net salvage.[107] This represents a 67% increase in the level of net salvage from the existing -15%

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

A. Again, the Company only presents the overall average as well as the three most recent three-year simplistic averaging of historical recorded results. In addition, Mr. Robinson refers to the concept of gradualism and future inflation expectations in response to discovery.

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

A. No. The Company's proposal is unsubstantiated and excessively negative. Therefore, I recommend retaining the existing -15% net salvage.

[107] 2014 Study at page 4-53.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. This account possibly more than any other clearly identifies the problem with the Company's presentation. For this account, Mr. Robinson's approach of relying on the results of simple historical averages and his expectation of future inflation without any meaningful investigation into what is reflected in the account or the type of investment in the account has resulted in what is clearly an unrealistic and inappropriate proposal.

A review of the historical data that Mr. Robinson relies on demonstrates that only two out of the 26 years prior to the implementation of the new PowerPlan system reached a level as negative as the -25% value he proposes. The two years referenced both reflected a -26% value or only one percentage point more negative than Mr. Robinson's proposal in this case.[108] Moreover, the overall average for the period prior to when the PowerPlan system was initiated yielded only a -12% value. In comparison to these relationships, the last two years in the Company's database, which correspond to the period when it operated under the new PowerPlan accounting system, yielded a -138% and a -102%

[108] 2014 Study at pages 4-75 and 4-76.

value for 2013 and 2014, respectively. In other words, the Company's entire recorded net salvage history averages a -12%, and it had never reached an annual value even 50% of the negative net salvage level recorded in 2013 or 2014, yet Mr. Robinson focused on capturing the impact of these two most recent years.

Absent any explanation, the 2013 and 2014 values would normally be considered as outliers and given limited weight in establishing a net salvage value. However, neither MDU nor Mr. Robinson presented any net salvage explanation in testimony or the 2014 Study that addressed or discussed these values. Indeed, the combination of (1) Mr. Robinson's failure to investigate or identify what is reflected in the historical database, (2) his reliance on an approach that focuses on the most recent data supplemented only by his expectation of future inflation and a claim of gradualism, and (3) the fact that MDU's data synchronization problems disproportionately impact the precise years that Mr. Robinson focuses on for his analyses, demonstrates why reliance on the results of simplistic averaging of the historical database can result and has resulted in significantly distorted proposals. Absent meaningful and well supported investigation into the reasonableness and credibility of the predictive value of a historical

database, no acceptable assumption can be made as to validity of the results of simplistic averaging of various combinations of historical periods.

As previously discussed, the Company chose not to provide the underlying information associated with its new allocation of costs to cost of removal in replacement situations when requested to do so. Yet, the results for this account strongly point to that conversion to the new accounting program with its unidentified and unsubstantiated new allocation factors as the reason for the five to 10-fold increase in the net salvage relationship for this account. This situation renders Mr. Robinson's proposal and procedure flawed and inappropriate.

Q. ARE THERE OTHER FACTORS THAT YOU TOOK INTO CONSIDERATION OTHER THAN THE UNSUBSTANTIATED CHANGE IN THE COMPANY'S ACCOUNTING PRACTICES?

A. Yes. This is an account that contains cable buried underground. The industry practice and that of the Company is to abandon such investment in place to the extent possible.[109] While there are still costs associated with abandoning plant at the time of retirement, to give any credence to the Company's reported values in excess of 100% cost of removal is, on its

[109] Response to MCC-225.

face, not reasonable. Moreover, increasing the existing negative net salvage from a -15% to a -25% for an account that should experience the majority of its retirements by means of abandonment is also inappropriate.

In addition to the other problems reflected in the Company's presentation is the fact that it again recorded a zero level of gross salvage for this account in 2014 while recording a gross salvage value for every other year for the past 47 years. This again raises the issue and concern associated with the time synchronization of the data. In other words, the most recent periods, that being the 2012-2014 recorded data points could, and apparently do to some extent, reflect the timing difference between the recording of retirements and any corresponding gross salvage or cost of removal.

Therefore, given the dramatic disconnect between the most recent two years of data and the balance of the Company's history, Mr. Robinson's failure to investigate and substantiate any cause for such transition, coupled with the Company's failure to provide justification for its allocation of costs to cost of removal in its new accounting system, along with the policy of abandoning plant in service where possible supports my recommendation to retain the existing -15% net salvage. However, my recommendation, rather than a less negative value, is made in conjunction with two additional recommendations. My first additional recommendation is for the Commission to direct MDU to identify and fully substantiate its process

and values within the process to allocate cost to cost of removal when replacement activity transpires. Secondly, I recommend the Commission direct MDU to identify and fully support the cost associated with abandoning assets in this account versus removing such assets on an annual basis.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $287,123 reduction in annual depreciation expense based on plant as of December 31, 2014.

Account 368 – Distribution Line Transformers (Existing: 0%, MDU: -20%, MCC: -10%)

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

A. The Company proposes a major shift in the level of net salvage. The current value is set at 0% (zero) while Mr. Robinson has proposed a -20% net salvage.[110]

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

A. As was the situation with previous accounts, Mr. Robinson simply presented the results of his three most recent three-year rolling averages and

[110] 2014 Study at pages 4-54 and 4-55.

the overall average in conjunction with his future expectations based on inflation. The three most recent three-year averages starting from the most current are -22%, -7%, -21%, and the overall average is a -8%.[111] In addition to the numerical presentation in the 2014 Study, Mr. Robinson also indicates in response to discovery that he relies on the concept of gradualism and his expectations of the future based on inflation.

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

A. No. The Company's proposal suffers from the same situation discussed for other accounts. I recommend a -10% net salvage.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. As was the case for other accounts, the Company's implementation of a new accounting system and inherent unknown and unsubstantiated allocation factors employed to apportion costs to cost of removal, renders the recent data as unreliable and skewed. In addition, there is the greater concern regarding time synchronization of the most recent data given the failure to record any gross salvage in 2014 or any cost of removal in 2013.[112] Moreover, the Company's recorded net salvage value for 2014 is by far the most negative value recorded over the last 47 years. Therefore,

[111] *Id.*
[112] 2014 Study at page 8-81.

little credence can be given to the Company's historical values as a valid predictor of future expectations.

Notwithstanding the problems with the Company's database, including the change to a new accounting system, it is difficult to capture the concept of gradualism employed by Mr. Robinson for this particular account. Indeed, comparing the recent rolling three-year averages and overall average between the prior study and the current study does not realistically result in a 10 percentage point increase in the level of negative net salvage if gradualism is a guiding principle.[113] However, Mr. Robinson has proposed a 20 percentage point increase in negative net salvage. Therefore, if anything, Mr. Robinson has abandoned the concept of gradualism for this account without stating such position.

Given the continuous problem with the Company's database presentation and support for any change, retention of the existing net salvage would not be unreasonable. However, in recognition of the fact of a decline in the scrap value of copper contained in transformers that has occurred from the level exhibited in 2008, a limited level of negative net salvage might also be reasonable. Therefore, based on a more appropriate application of the concept of gradualism and recognition of what assets are reflected within the account, a -10% net salvage is also reasonable. My recommendation for

[113] The level of negative net salvage became more negative by 7, 15, 11 and 8 percentage points for the 3rd, 2nd, 1st, and overall averages between the 2008 Study and the 2014 Study.

a -10% net salvage is conservative in comparison to retention of the existing 0 % (zero) net salvage level.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $159,013 reduction in annual depreciation expense based on plant as of December 31, 2014.

Account 369 – Distribution Services (Existing: -70%, MDU: -50%, MCC: OH -70%, MCC: UG -20%)

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 369 – DISTRIBUTION SERVICES?

A. The Company proposes one combined net salvage proposal of a -50% for its investment for both overhead and underground services. This represents a 20 percentage point reduction from the existing -70%.[114]

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

A. As was the situation with previous accounts, Mr. Robinson simply presented the results of his three most recent three-year rolling averages and the overall average in conjunction with his future expectations based on inflation. The three most recent three-year averages from the most current

[114] 2014 Study at pages 4-58 and 4-56.

are -33%, -39%, -40%, and the overall average is a -43%.[115] In addition to the presentation in the 2014 Study, Mr. Robinson also indicated in response to discovery that he relies on the concept of gradualism and his expectations of the future based on inflation.

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

A. No. The Company's proposal for a combined net salvage for the account is inappropriate. I recommend a -70% net salvage for overhead services and a -20% net salvage for underground services.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. First, it must be recognized that the Company does maintain retirements, gross salvage, and cost of removal data segregated between overhead and underground services. As one might imagine, there are different costs involved in both the installation and the retirement of overhead versus underground services. Indeed, the ability to abandon in place underground services normally results in a lower cost of removal per unit of investment for cost of removal associated with underground versus overhead services in the industry.

Through discovery, the segregation of costs between overhead and underground services was obtained. Review of the segregated costs

[115] *Id.*

confirms my expectations. For example, the five-year average for underground services is a -18% while the overhead services exhibited a -76% net salvage over the most recent five-year period.[116] If one were to rely on the most recent rolling three-year bands, as Mr. Robinson normally does, the corresponding result would be approximately -15% for underground services and a -60% to -70% net salvage for overhead taking into consideration the downward trend in the data. Therefore, I recommend relying on a -20% net salvage for underground and a -70% net salvage for overhead services.

Q. WHY IS IT IMPORTANT TO SEGREGATE THE NET SALVAGE BETWEEN OVERHEAD AND UNDERGROUND SERVICES?

A. First, it must be noted that the Company proposed different life characteristics for overhead and underground services in recognition of the different characteristics of the investment and corresponding retirement forces. The same situation exists for net salvage considerations between overhead and underground services. In addition, the rate of growth in investment for underground services is much greater than that for overhead services. Since the last depreciation study, the investment in underground services has grown by 70% while the growth in overhead services was only 25%. Moreover, the remaining lives for the two subaccounts are also

[116] Response to MCC-140 attachment A.

noticeably different. The Company proposed a 23.1-year remaining life for overhead services and a 32.7-year remaining life for underground services. Therefore, whatever the appropriate net salvage is ultimately determined for these subaccounts, the recovery periods for the net salvage portions of each subaccount are recovered over noticeably different time periods. In fact, Mr. Robinson's proposal to combine net salvage for the two subaccounts results in a more rapid recovery of cost of removal than is warranted for underground services and creates intergenerational inequity.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation for segregating the account into two subparts and assigning a -70% net salvage for overhead and a -20% for underground services results in a $39,385 <u>increase</u> in overhead services and a decrease of $261,627 for underground services based on plant as of December 31, 2014.

Account 390 – General Plant Structures and Improvements (Existing: -10%, MDU: -10%, MCC: +25%)

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 390 – GENERAL PLANT STRUCTURES AND IMPROVEMENTS?

A. The Company proposes to retain the existing -10% net salvage for this account.[117]

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

A. The Company has remained silent from a narrative standpoint regarding its proposal in the 2014 Study. The Company does present the historical results relating to the three most recent three-year averages as well as the overall averages. The three most recent three-year averages was 0% and the overall average was a positive 28%. In addition, the Company did respond to discovery by claiming it also incorporates the concept of gradualism in conjunction with its expectation of the future based solely on incorporating inflation into a trend analysis.

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

A. No. The Company's proposal does not reflect reality and is inconsistent with its life proposal. I recommend a positive 25% net salvage.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. During the last 20 years, the Company has sold four facilities before they reached the end of their physical useful life. In doing so, the Company relied on the artificially short lives associated with these four facilities

[117] 2014 Study at page 4-66.

when proposing a 29-year ASL for buildings. While that estimate was inappropriate, Mr. Robinson's generalized procedure relying on the most recent three-year rolling average of historical data failed to capture a single one of the sales that transpired over the last 20 years. Mr. Robinson failed to even consider the obvious fact that general plant facilities are not sold on a yearly basis, but normally occur over extended periods, as reflected in the overall positive 28% net salvage level noted in his 2014 Study. Yet, Mr. Robinson ignored such value and chose to propose a -10% net salvage indicative of an inadequate assumed level of sales occurring in the future. Again, it must be noted that such net salvage proposal is incompatible with Mr. Robinson's life proposal which recognizes and expects substantial levels of such sales.

Relying on the sales information provided only through the last 20 years, the overall average for this period is a positive 42% while the net salvage received for the four sales alone represented a positive 51% net salvage. Given that the sale of the four buildings during the past 20 years comprises 94% of all retirements during this period, it could be reasonably argued that a positive 40% to 50% net salvage is most appropriate. However, as was the situation in my adjustment to my life analysis for this account, I incorporate both the concept of gradualism and an expectation that a more limited level of sales will occur in each 20-year period. My

recommendation for a positive 25% recognizes that a limited level of sales may transpire in conjunction with a limited level of remodeling related retirements or similar activities and is consistent with the gradual extension of ASL for this account.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $16,108 reduction in annual depreciation expense based on plant as of December 31, 2014.

Account 390 Common General Plant – Structures and Improvements (Existing: -10%, MDU: +5%, MCC: +40%)

Q. WHAT DOES THE COMPANY PROPOSE FOR ACCOUNT 390 COMMON GENERAL PLANT – STRUCTURES AND IMPROVEMENTS?

A. The Company proposes a positive 5% net salvage.[118] This represents a change in direction from the existing -10%.

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

A. The Company failed to provide any narrative explanation associated with its net salvage proposal. In fact, the Company's depreciation study identifies a zero future net salvage for this account in spite of the fact it

[118] Exhibit No._(EMR-2) at page 2-15.

relied on a positive 5% for calculation purposes.[119] The Company did provide the most recent three three-year rolling net salvage averages which from the most recent backwards are 1%, 8%, 5%, as well as the overall full band average of a -6%.[120]

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

A. No. The Company's proposal is artificially low. I recommend a positive 40% net salvage.

Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?

A. First, I did not rely on the net salvage analysis presented by Mr. Robinson in his depreciation study. That analysis is skewed due to the exclusion of substantial gross salvage associated with the sale of numerous general plant facilities. In response to discovery, the Company identified the sale of 13 facilities for this account during the past 15 years.[121] However, that same discovery response indicates that in 2014 the Company identified $1.2 million of gross salvage associated with the sale of two general plant facilities.[122] Yet, when Mr. Robinson's depreciation study is reviewed, the total gross salvage recorded for 2014 is $1,212, or approximately $1,220,000 short. Another problem is the sale of office facilities in 2009.

[119] Exhibit No._(EMR-2) at page 4-2.
[120] *Id.* at page 4-1.
[121] Response to MCC-146 Attachment 1.
[122] Exhibit No._(EMR-2) at page 7-2.

As obtained through discovery, the Company identifies $526,000 of gross salvage, yet the 2009 value in Mr. Robinson's depreciation study identifies zero dollars of activity in 2009.[123] The same situation exists for other sales made by the Company during the past 15 years.

Mr. Robinson's failure to include gross salvage associated with the sale of buildings reported by the Company is striking for two reasons. First, the failure to recognize the gross salvage associated with the sale of these facilities is inconsistent with Mr. Robinson's database and life analysis associated with determining the ASL for these facilities. In other words, Mr. Robinson's presentation shortens the life of general plant facilities due to prior sales while at the same time ignoring the gross salvage associated with such sales in the net salvage portion of the depreciation study. Each of these separate life and net salvage related actions artificially increases depreciation expense. Such practice is inappropriate. Second, and more disturbing, is that Mr. Robinson stated in response to discovery that "[n]o data was identified and/or was excluded due to consideration of atypical or abnormal status."[124] Yet, that is exactly what he did.

Notwithstanding the above noted situation, incorporating the gross salvage and cost of removal associated only with the sale of the 13 common plant facilities during the past 15 years yields a 93% positive gross salvage.

[123] Exhibit No._(EMR-2) at page 7-2.
[124] Response to MCC-152.

When the gross salvage associated with the sales of facilities during just the past 15 years is incorporated into the net salvage data reflected in Mr. Robinson's depreciation study, the resulting overall gross salvage level is a positive 69%. In other words, the sale of facilities can be expected to generate a noticeable level of positive net salvage, which must be offset by situations where buildings are remodeled, or where roofs and other components of buildings are replaced prior to the ultimate retirement of the entire facility. While I have not increased the ASL to reflect a lower level of buildings or facilities being sold in the future, I am reducing the positive level of net salvage indicated by the inclusion of the sale of 13 facilities. While I believe that a value closer to the 60% or 70% positive net salvage level is appropriate for the overall gross salvage associated with the investment in this account, I am only recommending a first step to a positive 40% level.

Q. WHAT IS THE IMPACT OF YOUR RECOMMENDATION?

A. My recommendation results in a $611,869 reduction in annual depreciation expense based on plant as of December 31, 2014.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes. However, to the extent I have not addressed an issue, method, procedures, or other matter relevant to 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.

APPENDIX A

D2015.6.51

Montana-Dakota Utilities

Direct Testimony of

Jacob Pous

on behalf of the

Montana Consumer Counsel

November 20, 2015

JACOB POUS, P.E.

PRESIDENT, DIVERSIFIED UTILITY CONSULTANTS, INC.

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

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

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

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

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

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

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

ALASKA		
ALASKA REGULATORY COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Beluga Pipe Line Company	P-04-81	Refundable Rates
Beluga Pipe Line Company	U-07-141	Depreciation
Kenai Nikiski Pipeline	U-04-81	Rate Base
ARIZONA		
ARIZONA CORPORATION COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Citizens Utilities Company	E-1032-93-111	Depreciation
ARKANSAS		
ARKANSAS PUBLIC SERVICE COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Reliant Energy ARKLA	01-0243-U	Depreciation
CALIFORNIA		
CALIFORNIA PUBLIC SERVICE COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Pacific Gas & Electric Company	App. No. 97-12-020	Depreciation, Net Salvage, and Amortization of True-Up
Pacific Gas & Electric Company	App. No. 02-11-017	Mass Property Salvage, Net Salvage, Mass Property Life, Life Analysis, Remaining Life, Depreciation
Pacific Gas & Electric Company	App. No. 12-11-009	Depreciation, Mass Property Net Salvage, Mass Property Life, Hydroelectric
Pacific Gas & Electric Company	App. No. 13-12-012	Depreciation, Life, Net Salvage
San Diego Gas & Electric Company		Value of Power Plants
Southern California Edison Company	App 02-05-004	Depreciation, Net Salvage
Southern California Edison Company	App 10-11-015	Mass Property Life and Net Salvage
Southern California Edison Company	App 13-11-003	Production Life Span, Decommissioning, Life, Net Salvage
Southern California Gas & San Diego Gas & Electric Company	Apps 10-12-005 & 10-12-006	Mass Property Life, Mass Property Net Salvage
CANADA		
ALBERTA ENERGY AND UTILITIES BOARD		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
AltaLink Management/ Transalta Utilities Corporation	App. Nos. 1279345 and 1279347	Depreciation
Epcor Distribution, Inc.	App. No. 1306821	Depreciation
Enmax Corporation	App. No. 1306818	Depreciation
Transalta Utilities Corporation	TFO Tariff App. 1287507	Depreciation

UtiliCorp Networks Canada (Alberta) Ltd.	App. No. 1250392	Depreciation
Atco Electric	App. No. 1275494	Depreciation
ALBERTA PUBLIC UTILITIES BOARD		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Alberta Power Limited	E 91095	Depreciation
Alberta Power Limited	E 97065	Depreciation
Canadian Western Natural Gas Company, Ltd.		Depreciation
Centra Gas Alberta, Inc.		Depreciation
Edmonton Power Company	E 97065	Depreciation
Edmonton Power Generation, Inc.	1999/2000	GUR Compliance, Depreciation
Northwestern Utilities, Ltd	E 91044	Depreciation
NOVA Gas Transmission, Ltd.	RE95006	Depreciation
TransAlta Utilities Corporation	E 91093	Depreciation
TransAlta Utilities Corporation	E 97065	Depreciation
TransAlta Utilities Corporation	App. No. 200051	Gain on Sale
ALBERTA UTILITIES COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
AltaGas Utilities	1606694	Life Analysis, Net Salvage
AltaLink Management, Ltd.	1606895	Life Analysis, Net Salvage
AltaLink Management, Ltd.	1608711	Life Analysis, Net Salvage
AltaLink Management, Ltd.	1611000-1	Life Analysis, Net Salvage
ATCO Gas	1606822	Life Analysis, Net Salvage
FortisAlberta	1607159	Life Analysis, Net Salvage
NEWFOUNDLAND AND LABRADOR BOARD OF COMMISSIONERS OF PUBLIC UTILITIES		
Newfoundland & Labrador Hydro		Depreciation, Life Analysis
Newfoundland Power, Inc.	2013/2014 GRA	Depreciation, Life Analysis, Net Salvage, ELG vs. ALG
NORTHWEST TERRITORIES PUBLIC UTILITIES BOARD		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Northwest Territories Power Corporation	1995/96 and 1996-97	Depreciation
Northwest Territories Power Corporation	2001	Depreciation
NOVA SCOTIA UTILITY AND REVIEW BOARD		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Nova Scotia Power, Inc.	M03665	Production Plant Life and Net Salvage (Inflation), Interim Retirements, Mass Property Life and Net Salvage, ELG vs. ALG, Remaining Life, Fully Accrued
COLORADO		
CONNECTICUT PUBLIC UTILITIES REGULATORY AUTHORITY		

JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Public Service Company of Colorado	14AL-0660E	Depreciation, Production Plant Decommissioning Costs, Interim Retirements, Life Analysis, Mass Property Net Salvage, Amortization of Reserve Differences
CONNECTICUT		
CONNECTICUT PUBLIC UTILITIES REGULATORY AUTHORITY		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Connecticut Natural Gas Co.	13-06-08	Depreciation, Life, Net Salvage
Connecticut Light & Power	14-05-06	Depreciation Life and Net Salvage
COURTS		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
7th Judicial Circuit Court of Florida	2008-30441-CICI	Depreciation Valuation
112th Judicial District Court of Texas	5093	Ratemaking Principles, Calculation of damages
253rd Judicial District Court of Texas	45,615	Ratemaking Principles, Level of Bond
126th Judicial District Court of Texas	91-1519	Ratemaking Principles, Level of Bond
172 Judicial District Court of Texas		Franchise Fees
United States Bankruptcy Court Eastern District of Texas	93-10408S	Level of Harm, Ratemaking, Equity for Creditors
3rd Judicial District Court of Texas		Adequacy of Notice
DISTRICT OF COLUMBIA		
PUBLIC SERVICE COMMISSION OF THE DISTRICT OF COLUMBIA		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Washington Gas Light Company	768	Depreciation
FLORIDA		
FLORIDA PUBLIC SERVICE COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Progress Energy Florida, Inc.	090079-EI	Depreciation, Excess Reserve
Progress Energy Florida, Inc.	050078-EL	Depreciation, Excess Reserve
Florida Power & Light Company	790380-EU	Territorial Dispute
Florida Power & Light Company	080677-EI 090130-EI	Depreciation, Excess Reserve
Florida Power & Light Company	120015-EI	Excess Reserve
Florida Power & Light Company	120015-EI	Settlement Analysis
Tampa Electric Co.	13-0040-EI	Depreciation, Amortization
Gulf Power Co.	130140-EI	Depreciation
FEDERAL ENERGY REGULATORY COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Alabama Power Company	ER83-369	Depreciation
Connecticut Municipal Electric Energy Cooperative v. Connecticut Light & Power Company	EL83-14	Decommissioning
Florida Power & Light Company	ER84-379	Depreciation, Decommissioning

Florida Power & Light Company	ER93-327-000	Transmission Access
Georgia Power Company	ER76-587	Rate Base
Georgia Power Company	ER79-88	Depreciation
Georgia Power Company	ER81-730	Coal Fuel Stock Inventory, Depreciation
ISO New England, Inc.	ER07-166-000	Depreciation
Maine Yankee Atomic Power Company	ER84-344-001	Depreciation, Decommissioning
Maine Yankee Atomic Power Company	ER88-202	Decommissioning
Pacific Gas & Electric	ER80-214	Depreciation
Public Service of Indiana	ER95-625-000, ER95-626-000 & ER95-039-000	Depreciation, Dismantlement
Southern California Edison Company	ER81-177	Depreciation
Southern California Edison Company	ER82-427	Depreciation, Decommissioning
Southern California Edison Company	ER84-75	Depreciation, Decommissioning
Southwestern Public Service Company	EL 89-50	Depreciation, Decommissioning
System Energy Resource, Inc.	ER95-1042-000	Depreciation, Decommissioning
Vermont Electric Power Company	ER83 342000 & 343000	Decommissioning
Virginia Electric and Power Company	ER78-522	Depreciation, Rate Base
INDIANA		
INDIANA UTILITY REGULATORY COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Indianapolis Water Company	39128	Depreciation
Indiana Michigan Power Company	39314	Depreciation, Decommissioning
KANSAS		
KANSAS CORPORATION COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Arkansas Louisiana Gas Company	181,200-U	Depreciation
United Cities Gas Company	181,940-U	Depreciation
LOUISIANA		
LOUISIANA PUBLIC SERVICE COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Louisiana Power & Light Company	U-16945	Nuclear Prudence, Depreciation
CITY OF NEW ORLEANS		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Entergy New Orleans, Inc.	UD-00-2	Rate Base, Depreciation
MASSACHUSETTS		
MASSACHUSETTS TELECOMMUNICATION AND ENERGY		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Bay State Gas	D.T.E.-0527	Depreciation
National Grid/KeySpan	07-30	Quality of Service
NSTAR	DPU 14-150	Depreciation
Fitchburg Gas & Electric (Electric)	15-80	Depreciation
Fitchburg Gas & Electric (Gas)	15-81	Depreciation

MISSISSIPPI		
MISSISSIPPI PUBLIC SERVICE COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Mississippi Power Company	U-3739	Cost of Service, Rate Base, Depreciation
MONTANA		
MONTANA PUBLIC SERVICE COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Montana Power Company (Gas)	90.6.39	Depreciation
Montana Power Company (Electric)	90.3.17	Depreciation, Decommissioning
Montana Power Company (Electric and Gas)	95.9.128	Depreciation
Montana-Dakota Utilities	D2007.7.79	Depreciation
Montana-Dakota Utilities	D2010.8.82	Depreciation, Interim Retirements, Production Plant Life and Net Salvage
Montana-Dakota Utilities	D2012.9.100	Depreciation
NEVADA		
PUBLIC UTILITIES COMMISSION OF NEVADA		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Nevada Power Company	81-602, 81-685 Cons.	Depreciation
Nevada Power Company	83-667, Consolidated	Depreciation
Nevada Power Company	91-5032	Depreciation, Decommissioning
Nevada Power Company	03-10002	Depreciation
Nevada Power Company	08-12002	Depreciation, CWC
Nevada Power Company	06-06051	Depreciation, Life Spans, Decommissioning Costs, Deferred Accounting
Nevada Power Company	06-11022	General Rate Case
Nevada Power Company	10-02009	Production Life Spans
Nevada Power Company	11-06007	Early Retirement, Production Plant Net Salvage, Mass Property Life, Mass Property Net Salvage, Excess APFD
Sierra Pacific Gas Company	06-07010	Depreciation, Generating Plant Life Spans, Decommissioning Costs, Carrying Costs
Sierra Pacific Power Company	83-955	Depreciation (Electric, Gas, Water, Common)
Sierra Pacific Power Company	86-557	Depreciation, Decommissioning
Sierra Pacific Power Company	89-516, 517, 518	Depreciation, Decommissioning (Electric, Gas, Water, Common)
Sierra Pacific Power Company	91-7079, 80, 81	Depreciation, Decommissioning (Electric, Gas, Water, Common)
Sierra Pacific Power Company	03-12002	Allowable Level of Plant in Service

Sierra Pacific Power Company	05-10004	Depreciation
Sierra Pacific Power Company	05-10006	Depreciation
Sierra Pacific Power Company	07-12001	Depreciation, CWC
Sierra Pacific Power Company	10-06003	Depreciation, Excess Reserve, Life Spans, Net Salvage
Sierra Pacific Power Company	10-06004	Depreciation, Net Salvage
Sierra Pacific Power Company	12-08009	IRP-Coal Plant Service Life
Sierra Pacific Power Company	13-06004	Depreciation, Life, Net Salvage
Southwest Gas Corporation	93-3025 & 93-3005	Depreciation
Southwest Gas Corporation	04-3011	Depreciation
Southwest Gas Corporation	07-09030	Depreciation
Southwest Gas Corporation	12-04005	Depreciation
NORTH CAROLINA		
NORTH CAROLINA UTILITIES COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
North Carolina Natural Gas	G-21, Sub 177	Cost of Service, Rate Design, Depreciation
OKLAHOMA		
OKLAHOMA CORPORATION COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Arkansas Oklahoma Gas Corporation	PUD 200300088	CWC, Legal Expenses, Factoring, Cost Allocation, Depreciation
Oklahoma Natural Gas Company	PUD 980000683	Depreciation, Calculation Procedure, Depreciation on CWIP
Reliant Energy ARKLA	PUD 200200166	Depreciation, Net Salvage, Software Amortization
Public Service Company of Oklahoma	PUD 960000214	Depreciation, Interim Activity, Net Salvage, Mass Property, Rate Calculation Technique
Public Service Company of Oklahoma	PUD 200600285	Depreciation
Public Service Company of Oklahoma	PUD 200800144	Depreciation
Public Service Company of Oklahoma	PUD 201000050	Depreciation, Evaluation vs. Measurement, Interim and Terminal Net Salvage, Economies of Scale
Public Service Company of Oklahoma	PUD 201300217	Depreciation, Interim Retirements, Life Analysis, Net Salvage
Public Service Company of Oklahoma	PUD 201500208	Depreciation, Life Analysis, Net Salvage
Oklahoma Gas & Electric	PUD 201100087	Depreciation
SOUTH DAKOTA		
PUBLIC UTILITIES COMMISSION OF THE STATE OF SOUTH DAKOTA		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Montana-Dakota Utilities Co.	NG12-008	Depreciation
TEXAS		
PUBLIC UTILITY COMMISSION OF TEXAS		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
CenterPoint Energy Houston Electric, LLC	29526	Stranded Costs

CenterPoint Energy Houston Electric, LLC	36918	Hurricane Cost Recovery
CenterPoint Energy Houston Electric, LLC	38339	Depreciation, Net Salvage, Excess Reserve, Gain on Sale
Central Power & Light Company	6375	Depreciation, Rate Base, Cost of Service
Central Power & Light Company	8439	Fuel Factor
Central Power & Light Company	8646	Rate Base, Excess Capacity, Depreciation, Rate Design, Rate Case Expense
Central Power & Light Company	9561	Depreciation, Excess Capacity, Cost of Service, Rate Base, Taxes
Central Power & Light Company	11371	Economic Development Rate
Central Power & Light Company	12820	Nuclear Fuel and Process, OPEB, Pension, Factoring, Depreciation
Central Power & Light Company	14965	Depreciation, Cash Working Capital, Pension, OPEB, Factoring, Demonstration and Selling Expense, Non-Nuclear Decommissioning
Central Power & Light Company	22352	Depreciation
Central Telephone & United Telephone Company of Texas d/b/a Sprint	17809	Rate Case Expenses
City of Fredericksburg	7661	Territorial Dispute
El Paso Electric Company	9165	Depreciation
Entergy Gulf States, Inc.	16705	Depreciation, Prepayments, Payroll Expense, Pension Expense, OPEB, CWC, Transfer of T&D Depreciation
Entergy Gulf States, Inc.	21111	Reconcilable Fuel Costs
Entergy Gulf States, Inc.	21384	Fuel Surcharge
Entergy Gulf States, Inc.	23000	Fuel Surcharge
Entergy Gulf States, Inc.	22356	Unbundling, Competition, Cost of Service
Entergy Gulf States, Inc.	23550	Reconcilable Fuel Costs
Entergy Gulf States, Inc.	24336	Price to Beat
Entergy Gulf States, Inc.	24460	Implement PUC Subst.R.25.41(f)(3)(D)
Entergy Gulf States, Inc.	24469	Delay of Deregulation
Entergy Gulf States, Inc.	24953	Interim Fuel Surcharge
Entergy Gulf States, Inc.	26612	Fuel Surcharge
Entergy Gulf States, Inc.	28504	Interim Fuel Surcharge
Entergy Gulf States, Inc.	28818	Cert. for Independent Organization
Entergy Gulf States, Inc.	29408	Fuel Reconciliation
Entergy Gulf States, Inc.	30163	Interim Fuel Surcharge
Entergy Gulf States, Inc.	31315	Incremental Purchase Capacity Rider
Entergy Gulf States, Inc.	31544	Transition to Competition Cost
Entergy Gulf States, Inc.	32465	Interim Fuel Surcharge

Entergy Gulf States, Inc.	32710	River Bend 30%, Explicit Capacity, Imputed Capacity, IPCR, SGSF Operating Costs and Depreciation Recovery, Option Costs
Entergy Gulf States, Inc.	33687	Transition to Competition
Entergy Gulf States, Inc.	33966	Interim Fuel Surcharge
Entergy Gulf States, Inc.	32907	Hurricane Reconstruction
Entergy Gulf States, Inc.	34724	IPCR
Entergy Gulf States, Inc.	34800	JSP, Depreciation, Decommissioning, Amortization, CWC, Franchise Fees, Rate Case Exp.
Entergy Texas Inc.	37744	Depreciation, Property Insurance Reserve, Cash Working Capital, Decommissioning Funding, Gas Storage
Entergy Texas Inc.	39896	Depreciation, Amortization, Property Insurance Reserve, Cash Working Capital
Entergy Texas Inc.	41791	Nuclear License Extension, Fund After Tax Earnings, Nuclear Cost Escalation Factors
Gulf States Utilities Company	5560	Depreciation, Fuel Cost Factor
Gulf States Utilities Company	5820	Fuel Cost, Capacity Factors, Heat Rates
Gulf States Utilities Company	6525	Depreciation, Rate Case Expenses
Gulf States Utilities Company	7195 & 6755	Depreciation, Interim Cash Study, Excess Capacity, Rate Case Expense
Gulf States Utilities Company	8702	Rate Case Expenses, Depreciation
Gulf States Utilities Company	10,894	Fuel Reconciliation, Rate Case Expenses
Gulf States Utilities Company & Entergy Corporation	11292	Acquisition Adjustment Regulatory Plan, Base Rate, Rate Case Expenses
Gulf States Utilities Company & Entergy Corporation	12423	North Star Steel Agreement
Gulf States Utilities Company & Entergy Corporation	12852	Depreciation, OPEB, Pensions, Cash Working Capital, Other Cost of Service, and Rate Base Items
Houston Light & Power Company	6765	Depreciation, Production Plant, Early Retirement
Lower Colorado River Authority	8400	Rate Design
Magic Valley Electric Cooperative, Inc.	10820	Cost of Service, Financial Integrity, Rate Case Expenses
Oncor Electric Delivery, LLC	35717	Depreciation, Self-Insurance, Payroll, Automated Meters, Regulatory Assets, PHFU
Southwestern Bell Telephone Company	18513	Rate Case Expenses
Southwestern Electric Power Company	3716	Depreciation
Southwestern Electric Power Company	4628	Depreciation

Southwestern Electric Power Company	5301	Depreciation, Fuel Charges, Franchise Fees
Southwestern Electric Power Company	24449	Fuel Factor Component of Price to Beat Rates
Southwestern Electric Power Company	24468	Delay of Deregulation
Southwestern Electric Power Company	40443	Depreciation, Interim Retirements
Southwestern Public Service Company	11520	Depreciation, Cash Working Capital, Rate Case Expenses
Southwestern Public Service Company	32766	Depreciation Expense Revenue Requirements
Southwestern Public Service Company	35763	Depreciation
Southwestern Public Service Company	42004	Depreciation
Southwestern Public Service Company	43096	Depreciation
Texas-New Mexico Power Company	9491	Avoided Cost, Rate Case Expenses
Texas-New Mexico Power Company	10200	Jurisdictional Separation, Cost Allocation, Rate Case Expenses
Texas-New Mexico Power Company	17751	Rate Case Expenses
Texas-New Mexico Power Company	36025	Depreciation
Texas-New Mexico Power Company	38480	Depreciation, Mass Property Life, Net Salvage
Texas Utilities Electric Company	5640	Franchise Fees
Texas Utilities Electric Company	9300	Depreciation, Rate Base, Cost of Service, Fuel Charges, Rate Case Expenses
Texas Utilities Electric Company	11735	Cost Allocation, Rate Design, Rate Case Expenses
Texas Utilities Electric Company	18490	Depreciation Reclassification
West Texas Utilities Company	7510	Depreciation, Decommissioning, Rate Base, Cost of Service, Rate Design, Rate Case Expenses
West Texas Utilities Company	10035	Fuel Reconciliation, Rate Case Expenses
West Texas Utilities Company	13369	Depreciation, Payroll, Pension, OPEB, Cash Working Capital, Fuel Inventory, Cost Allocation
West Texas Utilities Company	22354	Depreciation
RAILROAD COMMISSION OF TEXAS		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Atmos Energy Corporation	9530	Gas Cost, Gas Purchases, Price Mitigation, Rate Case Expense
Atmos Energy Corporation	9670	CWC, Depreciation, Expenses, Shared Services, Taxes Other Than FIT, Excess Return
Atmos Energy Corporation	9695	Rate Case Expense
Atmos Energy Corporation	9762	Depreciation, O&M Expense
Atmos Energy Corporation	9732	Rate Case Expense
Atmos Energy Corporation	9869	Revenue Requirements
Atmos Energy Corporation	10041	Mass Property Life, Net Salvage
Atmos Energy Corporation	10170	Depreciation, Mass Property Life, Net Salvage

Atmos Pipeline-Texas	10000	Rate Base, Depreciation Life and Net Salvage, Incentive Compensation, Merit Increase, Outside Director Retirement Costs, SEBP
CenterPoint Energy Entex – City of Tyler	9364	Capital Investment, Affiliates
CenterPoint Energy Entex – Gulf Coast Division	9791	Rate Base, Cost Allocation, Affiliate Expenses, Depreciation Net Salvage, Call Center, Litigation, Uncollectibles, Post Test Year Adjustments
CenterPoint Energy Entex – City of Houston	9902	CWC, Plant Adjustments, Depreciation, Payroll, Pensions, Cost Allocation
CenterPoint Energy Entex – South Texas Division	10038	CWC, Incentive Compensation, Payroll, Depreciation
CenterPoint Energy – Beaumont/East Texas	10182	Rate Base, Expense, Incentive Compensation, Pension, Payroll, Injuries & Damages
CenterPoint Energy – Texas Coast Division	10007	Cost of Service Adjustment, CWC, ADIT, Incentive Compensation, Pension, Meter Reading, Customer Records and Collection, Investor Relations/Investor Services
CenterPoint Energy – Texas Coast Division	10097	Pension, Severance Expense
Energas Company	5793	Depreciation
Energas Company v. Westar Transmissions Company	5168 & 4892 Cons.	Cost of Service, Refunds, Contracts, Depreciation
Energas Company	8205	Cost of Service, Rate Base, Depreciation, Affiliate Transactions, Sale/Leaseback, Losses, Income Taxes
Energas Company	9002-9135	Depreciation, Pension, Cash Working Capital, OPEB, Rate Design
Lone Star Gas Company	8664	Cash Working Capital, Depreciation Expense, Gain on Sale of Plant, OPEB, Rate Case Expenses
Rio Grande Valley Gas Company	7604	Depreciation
Southern Union Gas Company	2738, 2958, 3002, 3018, 3019 Cons.	Cost of Service, Rate Design, Depreciation
Southern Union Gas Company	6968 Interim & Cons.	Affiliate Transactions, Rate Base, Income Taxes, Revenues, Cost of Service, Conservation, Depreciation

Southern Union Gas Company	8033 Consolidated	Acquisition Adjustment, Depreciation, Excess Reserve, Distribution Plant, Cost of Gas Clause, Rate Case Expenses
Southern Union Gas Company	8878	Depreciation, Cash Working Capital, Gain on Sale of Building, Rate Case Expenses, Rate Design
Texas Gas Service Company	9988 & 9992 Cons.	Cash Working Capital, Post Test Year Plant, ADFIT, Excess Reserve, Depreciation Expense, Amortization of General Plant, Corporate and Division Expenses, Incentive Compensation, Hotel and Meals Expense, Pipeline Integrity Costs
TXU Gas Distribution	9145-9147	Depreciation, Cash Working Capital, Revenues, Gain on Sale of Assets, Clearing Accounts, Over-Recovery of Clearing Accounts, SFAS 106, Wages and Salaries, Merger Costs, Intra System Allocation, Zero Intercept, Customer Weighting Factor, Rate Design
TXU Gas Distribution	9400	Depreciation, Net Salvage, Cash Working Capital, Affiliate Transactions, Software Amortization, Securitization, O&M Expenses, Safety Compliance
TXU Lone Star Pipeline	8976	Depreciation, Net Salvage, Cash Working Capital, ALG vs. ELG
Westar Transmissions Company	5787	Depreciation, Rate Base, Cost of Service, Rate Design, Contract Issues, Revenues, Losses, Income Taxes
TEXAS WATER COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
City of Harlingen-Certificate for Convenience & Necessity	8480C/8485C/8512C	Rate Impact for CCN
City of Round Rock	8599/8600M	Rate Discrimination, Cost of Service
Devers Canal System	8388-M	Affiliate Transactions, O&M Expense, Return, Allocation, Acquisition Adjustment, Retroactive Ratemaking, Rate Case Expenses, Depreciation
Devers Canal System	30102-M	Cost of Service, Rate Base, Ratemaking Principles, Affiliate Transactions
Southern Utilities Company	7371-R	Affiliate Transactions, Cost of Service

Scenic Oaks Water Supply Corporation	8097-G	Affiliate Transactions, Cost of Service, Rate base, Cost of Capital, Rate Design, Depreciation
Sharyland Water Supply vs. United Irrigation District	8293-M	Rate Discrimination, Cost of Service, Rate Case Expenses
Southern Water Corporation	2008-1811-UCR	Cost of Service
Travis County Water Control & Improv. District No. 20		Cost of Service
EL PASO PUBLIC UTILITY REGULATION BOARD		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
Southern Union Gas Company	1991	Depreciation, Calculation Procedure
Southern Union Gas Company	1997	Depreciation, Calculation Procedure
Southern Union Gas Company	GUD 8878 – 1998	Depreciation, Cash Working Capital, Rate Design, Rate Case Expenses
Texas Gas Services Company	2007	Revenue Requirements
Texas Gas Services Company	2011	Revenue Requirements
UTAH		
UTAH PUBLIC SERVICE COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
PacifiCorp	98-2035-03	Production Plant Net Salvage, Production Life Span, Interim Additions, Mass Property, Depreciation
Questar	05-057-T01	Conservation Enabling Tariff Adjustment Option and Accounting Orders
Rocky Mountain Power	07-035-13	Depreciation
Rocky Mountain Power	13-035-02	Depreciation, Interim Additions, Production Plant Life Spans, Interim Retirements, Net Salvage, Mass Property Life
WYOMING		
WYOMING PUBLIC SERVICE COMMISSION		
JURISDICTION / COMPANY	DOCKET NO.	TESTIMONY TOPIC
PacifiCorp	20000-ER-00-162	Rate Parity

Exhibit JP-1

D2015.6.51

Montana-Dakota Utilities

Direct Testimony of

Jacob Pous

on behalf of the

Montana Consumer Counsel

November 20, 2015

MONTANA CONSUMER COUNSEL'S
RECOMMENDED DEPRECIATION RATES
FOR MONTANA-DAKOTA UTILITIES COMPANY
FOR ELECTRIC PLANT AS OF DECEMBER 31, 2014

Acct. No.	Description	Balance 12/31/2014 (a)	Total Net Salvage % (b)	Net Salvage $ (c)	Reserve 12/31/2014 (d)	Net Depreciable (e)	Remaining Life (f)	Annual $ (g)	Annual % (h)	MDU Request $ (i)	MCC Adjustment (j)
STEAM PRODUCTION PLANT											
311	Structures & Improvements	$72,963,295	0.0%	$0	$39,069,922	$33,893,373	16.53	$2,050,269	2.81%	$2,181,603	($131,334)
312	Boiler Plant Equipment	$212,016,957	0.0%	$0	$122,432,189	$89,584,767	17.83	$5,024,802	2.37%	$5,745,660	($720,858)
314	Turbogenerator Units	$84,045,941	0.0%	$0	$34,744,551	$49,301,390	21.25	$2,319,668	2.76%	$2,554,997	($235,329)
315	Accessory Electric Equip.	$19,746,820	0.0%	$0	$11,808,236	$7,938,585	21.73	$365,316	1.85%	$416,658	($51,342)
316	Misc Power Plant Equip.	$17,600,678	0.0%	$0	$9,192,738	$8,407,939	12.19	$689,947	3.92%	$716,348	($26,401)
	Total Steam	$406,373,691	0.0%	$0	$217,247,636	$189,126,055		$10,450,001		$11,615,264	($1,165,263)
OTHER PRODUCTION PLANT											
341	Structures & Improvements	$6,830,675	0.0%	$0	$356,995	$6,473,680	20.97	$308,679	4.52%	$401,867	($93,188)
342	Fuel Holders, Prdcrs & Acs.	$2,722,006	0.0%	$0	$165,221	$2,556,785	22.85	$111,874	4.11%	$111,874	$0
344.1	Generators	$96,085,719	0.0%	$0	$62,941,451	$33,144,268	11.50	$2,882,572	3.00%	$2,882,572	$0
344.2	Wind Farms	$84,200,594	0.0%	$0	$2,971,600	$81,228,994	24.03	$3,380,444	4.01%	$4,647,873	($1,267,429)
345	Accessory Electric Equip.	$15,647,189	0.0%	$0	$338,783	$15,308,406	22.48	$680,878	4.35%	$919,396	($238,518)
346	Misc Power Plant Equip.	$1,321,913	0.0%	$0	$37,539	$1,284,374	22.82	$56,280	4.26%	$58,255	($1,975)
	Total Other	$206,808,097	0.0%	$0	$66,811,589	$139,996,508		$7,420,726		$9,021,836	($1,601,110)
	Total Production	$613,181,788	0.0%	$0	$284,059,225	$329,122,563		$17,870,727		$20,637,100	($2,766,373)
	TRANSMISSION PLANT										
350.20	Land Rights	$2,886,550	0.0%	$0	$1,820,389	$1,066,160	25.65	$41,566	1.44%	$41,566	$0
352.00	Structures and Improvements	$1,789	0.0%	$0	$1,667	$122	4.72	$26	1.44%	$26	$0
353.00	Station Equipment	$118,690,876	-10.0%	($11,869,088)	$45,642,362	$84,917,602	45.28	$1,875,316	1.58%	$1,875,316	$0
354.00	Towers and Fixtures	$4,992,886	-5.0%	($249,644)	$3,019,294	$2,223,237	24.88	$89,373	1.79%	$89,373	$0
355.00	Poles and Fixtures	$56,953,023	-35.0%	($19,933,558)	$24,165,760	$52,720,820	45.69	$1,153,881	2.03%	$1,702,895	($549,014)
356.00	Overhead Conductors & Devices	$39,782,196	-15.0%	($5,967,329)	$18,259,141	$27,490,385	45.16	$608,668	1.53%	$608,668	$0
357.00	Underground Conduit	$1,947,010	0.0%	$0	$238,511	$1,708,498	43.66	$39,135	2.01%	$39,135	$0
358.00	UG Conductors & Devices	$3,101,857	0.0%	$0	$385,126	$2,716,732	43.57	$62,347	2.01%	$62,347	$0
	Total Transmission Plant	$228,356,187		($38,019,619)	$93,532,250	$172,843,557		$3,870,311		$4,419,326	($549,014)

MONTANA CONSUMER COUNSEL'S
RECOMMENDED DEPRECIATION RATES
FOR MONTANA-DAKOTA UTILITIES COMPANY
FOR ELECTRIC PLANT AS OF DECEMBER 31, 2014

Acct. No.	Description	Balance 12/31/2014 (a)	Total Net Salvage % (b)	Net Salvage $ (c)	Reserve 12/31/2014 (d)	Net Depreciable (e)	Remaining Life (f)	Annual $ (g)	Annual % (h)	MDU Request $ (i)	MCC Adjustment (j)
	DISTRIBUTION PLANT										
360.20	Rights of Ways	$888,926	0.0%	$0	$591,840	$297,087	26.74	$11,112	1.25%	$11,112	$0
362.00	Station Equipment	$57,279,820	-5.0%	($2,863,991)	$18,763,339	$41,380,472	37.63	$1,099,773	1.92%	$1,099,773	$0
364.00	Poles, Towers & Fixtures	$37,559,744	-70.0%	($26,291,820)	$20,178,373	$43,673,191	37.57	$1,162,338	3.09%	$1,412,246	($249,908)
365.00	Overhead Conductor & Devices	$28,926,832	-70.0%	($20,248,783)	$17,194,207	$31,981,408	43.30	$738,601	2.55%	$841,771	($103,170)
366.00	Underground Conduit	$218,153	0.0%	$0	$101,555	$116,598	29.53	$3,949	1.81%	$3,949	$0
367.00	UG Conductor & Devices	$91,879,419	-15.0%	($13,781,913)	$26,779,598	$78,881,734	40.18	$1,963,209	2.14%	$2,756,383	($793,174)
368.00	Line Transformers	$64,877,478	-10.0%	($6,487,748)	$22,290,988	$49,074,237	40.78	$1,203,342	1.85%	$1,362,427	($159,085)
	Services										
369.10	Services - Overhead	$4,548,918	-70.0%	($3,184,243)	$4,000,762	$3,732,400	23.07	$161,807	3.56%	$122,366	$39,441
369.20	Services - Underground	$28,517,307	-20.0%	($5,703,461)	$18,164,248	$16,056,520	41.73	$384,772	1.35%	$752,857	($368,085)
	Total Account 369 -Services	$33,066,225		($8,887,704)	$22,165,009	$19,788,920		$546,578		$875,223	($328,644)
370.00	Meters	$16,972,527	-5.0%	($848,626)	($374,452)	$18,195,605	14.91	$1,220,325	7.19%	$1,220,325	$0
371.00	Installation Customers Premises	$2,742,626	-15.0%	($411,394)	$1,081,412	$2,072,608	15.61	$132,743	4.84%	$132,743	$0
373.00	Street Lighting System	$7,173,899	-40.0%	($2,869,560)	$4,250,139	$5,793,320	28.04	$206,608	2.88%	$206,608	$0
	Total Distribution	$341,585,650		($82,691,539)	$133,022,007	$291,255,182		$8,288,577		$9,922,558	($1,633,981)
	GENERAL PLANT										
390.00	Structures & Improvements	$835,304	25.0%	$208,826	$418,774	$207,704	30.64	$6,779	0.81%	$27,565	($20,786)
391-98	Other General Plant	$29,059,753	13.6%	$3,960,111	$11,674,117	$13,425,526	7.16	$1,873,901	6.45%	$1,873,901	($0)
	Total General	$29,895,058		$12,092,891	$12,092,891	$12,092,891		$1,880,680		$1,901,466	($20,786)
	Total Depreciable Electric Plant	$1,213,018,682		($108,618,267)	$522,706,373	$805,314,192		$31,910,296		$36,880,451	**($4,970,155)**

MONTANA CONSUMER COUNSEL'S
RECOMMENDED DEPRECIATION RATES
FOR MONTANA-DAKOTA UTILITIES COMPANY
FOR COMMON PLANT AS OF DECEMBER 31, 2014

Acct. No.	Description	Balance 12/31/2014 (a)	Total Net Salvage % (b)	Net Salvage $ (c)	Reserve 12/31/2014 (d)	Net Depreciable (e)	Remaining Life (f)	Annual $ (g)	Annual % (h)	MDU Request $ (i)	MCC Adjustment (j)
	GENERAL PLANT										
390.00	Structures & Improvements	$49,299,196	40.0%	$19,719,678	$14,804,363	$14,775,155	35.43	$417,024	0.85%	$1,138,811	($721,788)
391	Office Furniture & Fixtures	$6,478,580	0.0%	$0	$3,089,665	$3,388,915	3.57	$949,179	14.65%	$949,179	$0
392	Transportation Equipment	$7,055,908	20.0%	$1,411,182	$3,344,336	$2,300,390	4.90	$469,053	6.55%	$469,053	$0
393	Stores Equipment	$97,054	0.0%	$0	$39,609	$57,445	17.76	$3,235	3.33%	$3,235	$0
394	Tools, Shop & Garage Equip.	$633,811	0.0%	$0	$324,689	$309,122	8.95	$34,549	5.45%	$34,549	$0
397	Communication Equipment	$3,212,048	0.0%	$0	$920,723	$2,291,325	8.56	$267,808	8.34%	$267,808	$0
398	Miscellaneous Equipment	$1,238,732	0.0%	$0	$420,200	$818,532	13.22	$61,937	5.00%	$61,937	$0
	Total Common General Plant	$68,015,330		$21,130,860	$22,943,586	$23,940,884		$2,202,785		$2,924,572	**($721,788)**

Exhibit JP-2

D2015.6.51

Montana-Dakota Utilities

Direct Testimony of

Jacob Pous

on behalf of the

Montana Consumer Counsel

November 20, 2015

ACCOUNT – 390.00 Structures and Improvements

Historical Experience

Plant Statistics
Plant Balance = $835,304
Average Age of Survivors = 19.2 years
Original Gross Additions = $1,115,784
Oldest Surviving Vintage = 1933
Retirements = $280,479 or 25.1% of historical additions.
Average Age of Retirements = 24.8 years

Experience Bands 1995– 2014 (Full Depth) 29-L2

Historical Net Salvage: 73-14

Three Year Average Net Salvage Percent			Full Depth
2010-12	2011-13	2012-14	1973-14
0%	0%	0%	28%

Gross Salvage Trend Analysis			
20 Year	15 Year	10 Year	5 Year
0%	0%	0%	0%

Forecasted Net Salvage: -19%

Future Expectations and Considerations

This property group is related to structures used by the Company's operating work force in the course of providing customer service. The facilities house office, storage, work areas, warehouse space, maintenance areas, etc. Normal ongoing upgrades and changes have been and will continue to occur at the various sites in coming years.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 35-R2.5
Net Salv: -10%

Proposed Depreciation Parameters

ASL/Curve: 29-L2
Net Salv: -10%

(ASL – Average Service Life; NS – Net Salvage; FTA – Fit to Age; N/A—Not Available, Not Applicable

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.30%	3.79%
Av. Remaining Life	18.2 years	N/A

(ASL – Average Service Life; NS – Net Salvage; FTA – Fit to Age; N/A—Not Available, Not Applicable

Exhibit JP-3

D2015.6.51

Montana-Dakota Utilities

Direct Testimony of

Jacob Pous

on behalf of the

Montana Consumer Counsel

November 20, 2015

ACCOUNT – 390.00 Structures And Improvements

Historical Experience

Plant Statistics
Plant Balance = $5,835,295
Original Gross Additions = $7,544,536
Oldest Surviving Vintage = 1928
Retirements - $2,183,743 or 28.9% of historical additions.

Experience Bands 1928-2008 (Simulated) 31-R4

Historic Net Salvage: (68-08)

Three Year Average Net Salvage Percent			Full Depth
2004-06	2005-07	2006-08	1968-2008
-1%	108%	115%	62%

Gross Salvage Trend Analysis			
20 Year	15 Year	10 Year	5 Year
80%	51%	100%	126%

Forecasted Net Salvage: 120%

Plant Considerations/Future Expectations

This investment is related to cost of various General related structures and improvements. Ongoing changes occur due to required component upgrades as well as changes in business environment conditions. End of life costs relative to rehabilitation or disposal is routinely experienced within this property class.

Life Analysis Method: Simulated Plant Analysis Method

Current Depreciation Parameters

ASL/Curve: 35-R3
Net Salv: -10%

Proposed Depreciation Parameters

ASL/Curve: 31-R4
Future Net Salv: -10%

	New Rate @New Parameters	Old Rate @ Old Parameters
Rate	3.46%	3.73%
Average Remaining Life	21.9 years	N/A

(ASL – Average Service Life; NS – Net Salvage; FTA – Fit to Age; N/A—Not Available, Not Applicable

Exhibit JP-4

D2015.6.51

Montana-Dakota Utilities

Direct Testimony of

Jacob Pous

on behalf of the

Montana Consumer Counsel

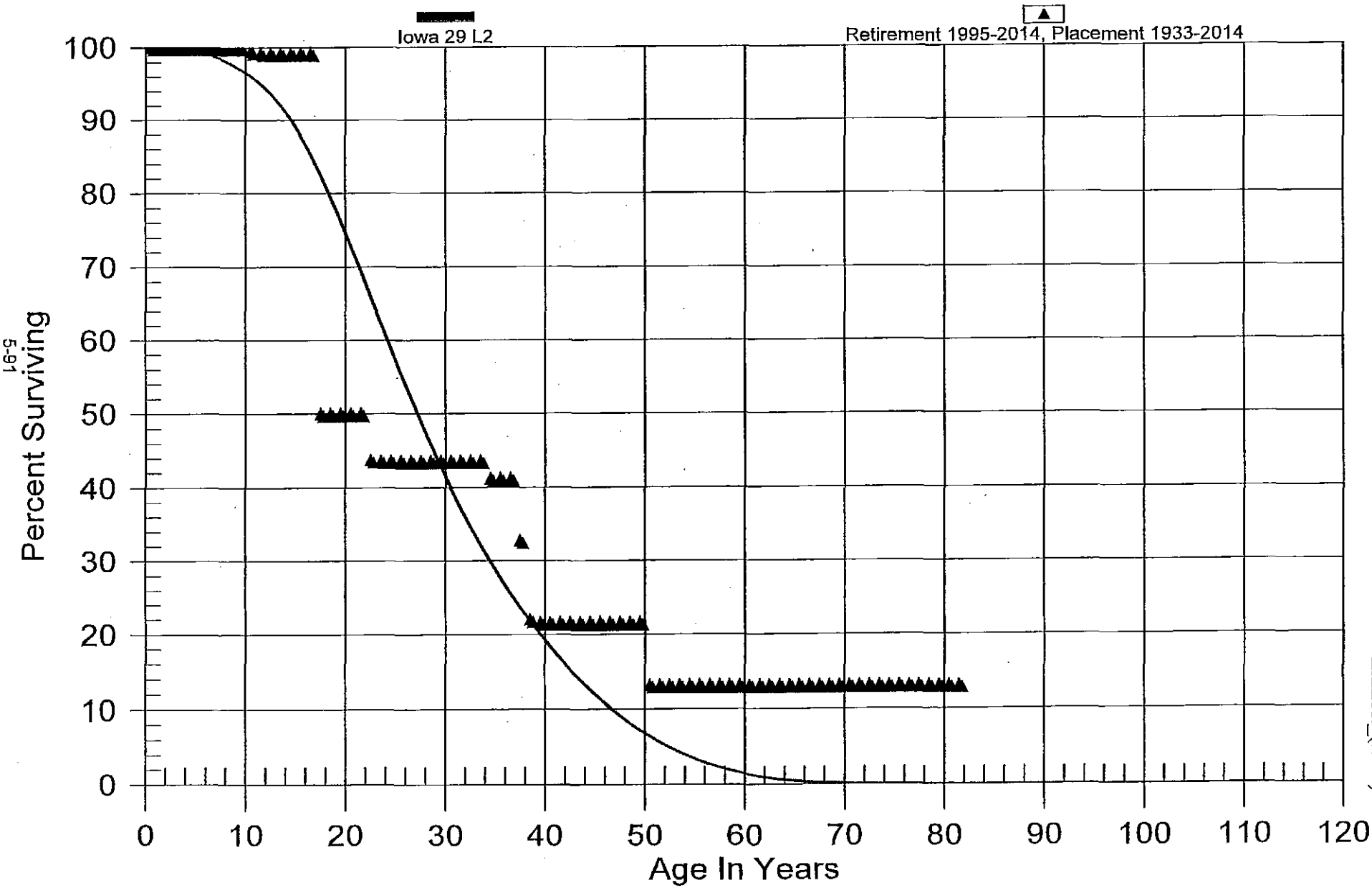
November 20, 2015

Montana-Dakota Utilities Company

Electric Plant

390.00 General Structures & Improvements

Original And Smooth Survivor Curves



Exhibit_(JP-4)