Christopher D. Anderson
Associate General Counsel
218-723-3961
e-mail canderson@allete.com

March 27, 2018

VIA ELECTRONIC FILING

Mr. Daniel P. Wolf, Executive Secretary
MN Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

RE: In the Matter of Minnesota Power's 2018 Five-Year Transmission and Distribution Plant Depreciation Petition
Docket No. E015/D-18-____

Dear Mr. Wolf:

Minnesota Power hereby electronically submits its 2018 Five-Year Transmission and Distribution Plant Depreciation Petition.

Please contact me if you have any questions regarding this filing.

Yours truly,

Christopher D. Anderson

jmn
Attachments
c: Service List

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Minnesota Power's 2018 Five-Year Transmission and Distribution Plant Depreciation Petition	Docket No. E015/D-18-_____ 2018 Five-Year Transmission and Distribution Plant Depreciation Petition

SUMMARY

Minnesota Power hereby petitions the Minnesota Public Utilities Commission ("Commission") for approval of its 2018 Five-Year Transmission and Distribution Plant Depreciation Petition ("Petition"). This Petition sets the future depreciation rates for all of Minnesota Power's transmission and distribution assets. The previous Petition was approved by the Commission on April 25, 2014 in Docket No. E-015/D-13-252.

Minnesota Power recommends that the average service lives, net salvage rates, and depreciation rates be modified, based on the results of the study, as shown in Part III of this filing. The financial impact of these changes will be to decrease Minnesota Power's annual depreciation expense for transmission and distribution plant by $1,331,691.

STATE OF MINNESOTA
BEFORE THE
MINNESOTA PUBLIC UTILITIES COMMISSION

In the Matter of Minnesota Power's 2018 Five-Year Transmission and Distribution Plant Depreciation Petition	Docket No. E015/D-18-____ 2018 Five-Year Transmission and Distribution Plant Depreciation Petition

I. INTRODUCTION

Pursuant to Minn. Stat. §§ 216B.08 and 216B.11, and Minn. Rules 7825.0600 and 7825.0700, Minnesota Power hereby requests the Commission's approval of its Petition. This Petition recommends average service lives, net salvage rates, and depreciation rates for all Minnesota Power's transmission and distribution assets. The depreciation rates will be used to determine depreciation expense for all these transmission and distribution assets effective January 1, 2018.

II. PROCEDURAL REQUIREMENTS

Pursuant to Minn. Rules 7825.3200, 7825.3500 and 7829.1300, subp. 3, Minnesota Power provides the following required information.

A. Name, Address and Telephone Number of Utility (Minn. Rules 7825.3500(A) and 7829.1300, subp. 3(A))

Minnesota Power
30 West Superior Street
Duluth, MN 55802
(218) 722-2641

B. Name, Address and Telephone Number of Utility Attorney (Minn. Rules 7825.3500(A) and 7829.1300, subp. 3(B))

Christopher D. Anderson
Associate General Counsel
Minnesota Power
30 West Superior Street
Duluth, MN 55802
(218) 723-3961
canderson@allete.com

C. Date of Filing and Date Proposed Rates Take Effect (Minn. Rules 7825.3500(B) and 7829.1300, subp. 3(C))

This Petition is being filed on March 27, 2018. Minnesota Power respectfully requests that the Commission approve its proposed Petition, with depreciation rates effective as of January 1, 2018.

D. Statute Controlling Schedule for Processing the Filing (Minn. Rule 7829.1300, subp. 3(D))

This Petition is made in accordance with Minn. Stat. § 216B.11 and prior Commission orders. No statutorily imposed time frame for a Commission decision applies to this filing.

E. Utility Employee Responsible for Filing (Minn. Rules 7825.3500(E) and 7829.1300, subp. 3(E))

Debbra A. Davey
Supervisor, Accounting
Minnesota Power
30 West Superior Street
Duluth, MN 55802
(218) 355-3714
ddavey@allete.com

F. Service List

Pursuant to Minn. Rules 7829.0700, Minnesota Power requests that the following persons be placed on the Commission's official service list for this matter:

Christopher D. Anderson
Associate General Counsel
Minnesota Power
30 West Superior Street
Duluth, MN 55802
canderson@allete.com

Debbra A. Davey
Supervisor, Accounting
Minnesota Power
30 West Superior Street
Duluth, MN 55802
ddavey@allete.com

G. Service on Other Parties

Pursuant to Minn. Stat. § 216.17, subd. 3 and Minn. Rules 7829.1300, subp. 2, Minnesota Power has eFiled this Petition with the Department of Commerce, Division of Energy Resources. A summary of the filing prepared in accordance with Minn. Rules 7829.1300, subp. 1 is being served on all parties on Minnesota Power's general service list.

H. Summary of Filing

A one-paragraph summary accompanies this Petition pursuant to Minn. Rules 7829.1300, subp. 1.

III. DESCRIPTION OF FILING

A. Background

As required by the April 25, 2014 Commission Order for Docket No. E-015/D-13-252, Minnesota Power has prepared a study reviewing the average service lives, net salvage rates, and depreciation rates for all transmission and distribution plant.

B. Asset Retirement Obligation

Since our last Average Service Life Study Petition there have been no changes in our accounting for asset retirement obligations ("AROs") for transmission and distribution assets. Minnesota Power owns and operates a transmission and distribution network of over 8,900 miles of lines and 160 substations. All of these facilities must be viewed as one large system asset, and since it is our intention to operate these facilities

indefinitely, no settlement date for the transmission and distribution system can be arrived at. Since no retirement or settlement date can be determined for the transmission and distribution assets, the recognition of any obligation shall be deferred until an actual settlement date can be determined. This is specifically allowed under Accounting Standards Codification 410-20, *Asset Retirement Obligations*, (formerly FASB No. 143, *Accounting for Asset Retirement Obligations* (Section A16)).

Transmission and distribution lines that cross private property are subject to the provisions of the license/easement agreements with the individual landowners. Based on samples of these easements, we concluded that none of our easements have clauses which require the removal of facilities or formulate any legal obligation. However, certain easements require the removal of our facilities if they interfere with mining and mineral rights. Once notified by a mining company or mineral rights owner, Minnesota Power has a limited amount of time to remove those facilities. This does not create a legal obligation until the triggering event occurs (i.e. notification from the mining company or mineral rights owner).

Additional Minnesota Power assets are located on public rights-of-way ("ROW"). These facilities are subject to Minn. Rules 7819.3300, which requires the removal of these facilities once the ROW is abandoned. This rule would create a legal obligation for these assets if and only if the date of abandonment is known. However, the ability to measure that obligation is not possible until the actual date of abandonment is known. Minnesota Power conducts an annual review and search for potential AROs, however since adoption of SFAS 143, Minnesota Power has not recorded an Asset Retirement Obligation in regards to its Transmission or Distribution assets.

C. Study Details

Due to the complex and technical nature of preparing a depreciation study, Minnesota Power engaged a consulting firm specializing in utility depreciation studies to prepare the Transmission and Distribution Property Book Depreciation Accrual Rate Study ("Study"). The Study, which describes the methodology used and interpretation of the results, is attached as Appendix II.

The Study develops depreciation rates for Minnesota Power's depreciable transmission and distribution property. The depreciation rates were designed to recover the total remaining undepreciated investment, adjusted for net salvage, over the remaining life of Minnesota Power's transmission and distribution property on a straight-line basis. The Study uses the straight line, remaining life procedure to compute depreciation rates as described on page 17 of the Study.

The Simulated Plant Record – Balances approach ("SPR") is one of the commonly accepted mortality analysis techniques for electric utility property. The SPR was used to evaluate lives of Minnesota Power's transmission and distribution assets due to the Company only having vintage transactional data available since the conversion to its current accounting system in 2000. The transactional history during this timeframe is insufficient to develop actuarial life estimates for this property.

During the Study, discussions were conducted with Minnesota Power's engineers and field operations personnel from transmission and distribution to obtain information that would be helpful in formulating life and salvage recommendations in the Study.

A comparison of Present Rates versus Proposed Rates and the estimated impact on depreciation expense is presented in Appendix I and reflects a decrease in annual depreciation expense of $1,331,691. This comparison shows that this decrease in depreciation expense is primarily due to recommended life and salvage rate changes to accounts 3530 transmission substation equipment, 3560 transmission overhead conductor, 3650 distribution overhead conductor, and salvage rate changes to account 3680 distribution line transformer. These decreases were partially offset by a recommended life change to account 3700 Distribution Meters and a salvage rate change to account 3640 distribution poles, towers, and fixtures.

The recommended average service lives, net salvage rates, and depreciation rates are as follows:

Acct. Nos.	Transmission Plant	Average Service Lives (Years)	Net Salvage Rates %	Depreciation Rates %
3520	Structures & Improvements	56	-10.0%	2.07%
3530	Station Equipment	52	-20.0%	2.27%
3531	Reserve Station Transformers	52	0.0%	0.75%
3540	Tower and Fixtures	63	-10.0%	1.47%
3550	Poles and Fixtures	63	-60.0%	2.51%
3560	Overhead Conductors and Devices	62	-40.0%	2.36%
3561	Clearing Land & Rights of Way	71	0.0%	1.38%
3580	Underground Conduit	50	0.0%	2.04%
3590	Roads and Trails	60	0.0%	1.64%

Acct. Nos.	Distribution Plant	Average Service Lives (Years)	Net Salvage Rates %	Depreciation Rates %
3610	Structures & Improvements	60	-25.0%	1.99%
3620	Station Equipment	49	-25.0%	2.33%
3621	Reserve Station Transformers	49	0.0%	1.76%
3640	Poles, Towers and Fixtures	43	-75.0%	4.81%
3650	Overhead Conductors and Devices	43	-55.0%	4.22%
3651	Clearing Land & Rights of Way	65	0.0%	1.43%
3660	Underground Conduit	68	-10.0%	1.52%
3670	Underground Conductor & Devices	48	-27.0%	2.57%
3680	Line Transformers	44	-5.0%	2.19%
3691	Services-Overhead	40	-60.0%	3.03%
3692	Services-Underground	42	-15.0%	2.49%
3700	Meters	20	0.0%	6.48%
3722	Leased Property on Cust. Prem.-Lighting	19	-40.0%	4.35%
3730	Street Lighting and Signal Systems	27	-50.0%	4.75%

IV. CONCLUSION

Minnesota Power respectfully requests that the Commission approve the 2018 Five-Year Transmission and Distribution Plant Depreciation Petition. The proposed changes to average service lives, net salvage rates, and depreciation rates will decrease Minnesota Power's annual depreciation expense from transmission and distribution plant by $1,331,691.

Date: March 27, 2018

Respectfully submitted,

/s/ Debbra A. Davey

Debbra A. Davey
Supervisor, Accounting
Minnesota Power
30 West Superior Street
Duluth, MN 55802
(218) 355-3714
ddavey@allete.com

APPENDIX I

Minnesota Power
Comparison of Depreciation Expense- Present Rates vs. Proposed

Account	Description	Plant at 12/31/2017	Present Accrual Rate	Proposed Accrual Rate	Depr Expense At Current Rates	Depr Expense At Proposed Rates	Difference
3520	Structures and Improvements	23,623,051.78	2.60%	2.07%	614,199	488,081	(126,118)
3530	Station Equipment	318,442,685.39	2.76%	2.27%	8,789,018	7,225,898	(1,563,121)
3531	Reserve Station Transformers	2,178,236.77	1.63%	0.75%	35,505	16,296	(19,209)
3540	Towers & Fixtures	26,033,934.96	1.94%	1.47%	505,058	382,924	(122,134)
3550	Poles & Fixtures	267,542,316.25	2.50%	2.51%	6,688,558	6,715,336	26,778
3560	Overhead Conductors & Devices	95,371,391.89	2.88%	2.36%	2,746,696	2,250,248	(496,448)
3561	Clearing Land & Rights of Way	23,369,804.98	1.24%	1.38%	289,786	322,074	32,288
3580	Underground Conduit	2,988,454.59	2.05%	2.04%	61,263	60,884	(379)
3590	Roads and Trails	58,613.63	1.69%	1.64%	991	961	(30)
3610	Structures and Improvements	9,458,134.11	1.58%	1.99%	149,439	188,688	39,250
3620	Station Equipment	80,957,924.18	2.50%	2.33%	2,023,948	1,885,934	(138,014)
3621	Reserve Station Transformers	1,364,886.02	2.23%	1.76%	30,437	24,032	(6,405)
3640	Poles, Towers and Fixtures	110,962,591.18	4.35%	4.81%	4,826,873	5,340,306	513,433
3650	Overhead Conductors & Devices	87,969,528.48	4.50%	4.22%	3,958,629	3,714,826	(243,802)
3651	Clearing Land & Rights of Way	5,332,726.76	1.44%	1.43%	76,791	76,004	(788)
3660	Underground Conduit	12,315,933.94	1.67%	1.52%	205,676	187,349	(18,327)
3670	Underground Conductors & Devices	99,506,297.10	2.68%	2.57%	2,666,769	2,558,765	(108,004)
3680	Line Transformers	90,973,211.96	2.43%	2.19%	2,210,649	1,989,969	(220,680)
3691	Services- Overhead	6,056,308.00	3.89%	3.03%	235,590	183,803	(51,787)
3692	Services- Underground	12,179,941.02	2.29%	2.49%	278,921	303,477	24,557
3700	Meters	60,111,500.61	4.60%	6.48%	2,765,129	3,892,720	1,127,591
3722	Leased Property on Cust. Prem- Light	2,061,798.33	6.46%	4.35%	133,192	89,771	(43,421)
3730	Street Lighting and Signal Systems	4,095,550.64	3.21%	4.75%	131,467	194,545	63,078
		1,342,954,823			39,424,584	38,092,893	(1,331,691)

APPENDIX II

MINNESOTA POWER
Transmission and Distribution Property
Book Depreciation Accrual Rate Study
At December 31, 2017

ALLIANCE
CONSULTING GROUP

MINNESOTA POWER
TRANSMISSION AND DISTRIBUTION PROPERTY
BOOK DEPRECIATION RATE STUDY
AT DECEMBER 31, 2017

Table of Contents

PURPOSE

The purpose of this study is to develop functional depreciation rates for the depreciable transmission and distribution property as recorded on the books of Minnesota Power as of December 31, 2017. The depreciation rates were designed to recover the total remaining undepreciated investment, adjusted for net salvage, over the remaining life of Minnesota Power's transmission and distribution property on a straight-line basis. Non-depreciable property and property that is amortized, such as intangible software, were excluded from this study. The Company is engaged in the transmission and distribution of electricity within northeastern Minnesota. Minnesota Power provides regulated utility electric service in northeastern Minnesota to approximately 145,000 retail customers. Minnesota Power's non-affiliated municipal customers consist of 16 municipalities in Minnesota.

Assets for Minnesota Power in 2017 include: 500 kV (8 miles), 345 kV (242 miles), 250 kV (466 miles), 230 kV (717 miles), 138 kV (190 miles), 115 kV (1,235 miles) and less than 115 kV (6,109 miles). The Company owns and operates 160 substations with a total capacity of 8,032 megavolt amperes. Some of the Company's transmission and distribution lines interconnect with other utilities. In addition, the Company needs associated equipment such as feeders, primary switches, poles, conductor, line transformers, services, meters, and streetlights to serve its customers.

STUDY RESULTS

Recommended depreciation rates for all Minnesota Power transmission and distribution depreciable property are shown in Appendix A. These rates translate into an annual depreciation accrual for Transmission and Distribution plant of $38.1 million. These accruals are based on Minnesota Power's depreciable investment at December 31, 2017 (test year-end) as shown in Appendix C. The proposed lives and curves on which these calculations are based are shown in Appendix B. The annual depreciation expense calculated by the same method using the existing approved depreciation rates was $39.4 million for Transmission and Distribution plant. Appendix C shows the effect of the change in lives and curves on depreciation accrual by account. Appendix D addresses the detailed net salvage transactions for all plant accounts.

GENERAL DISCUSSION

Definition

The term "depreciation" as used in this study is considered in the accounting sense; that is, a system of accounting that distributes the cost of assets, less net salvage (if any), over the estimated useful life of the assets in a systematic and rational manner. It is a process of allocation, not valuation. This expense is systematically allocated to accounting periods over the life of the properties. The amount allocated to any one accounting period does not necessarily represent the loss or decrease in value that will occur during that particular period. The Company accrues depreciation on the basis of the original cost of all depreciable property included in each functional property group. At retirement, the full cost of depreciable property, less the net salvage value, is charged to the depreciation reserve.

Basis of Depreciation Estimates

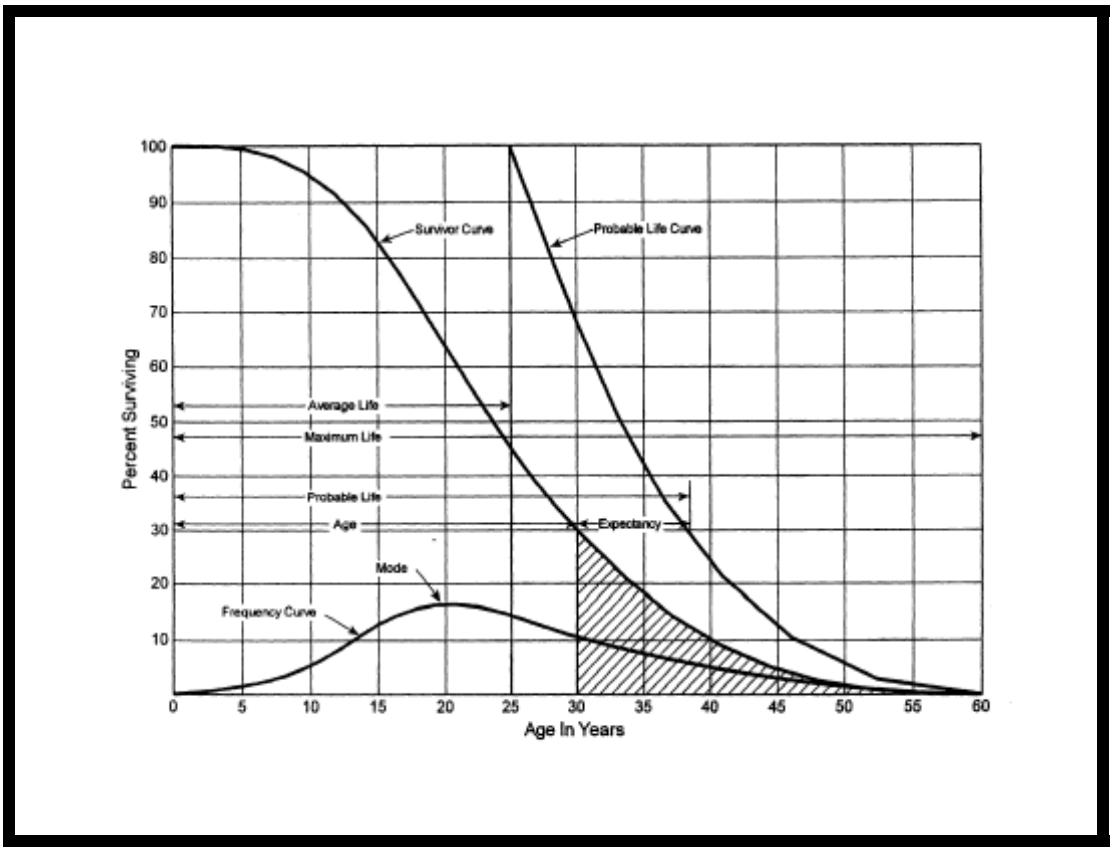
Annual and accrued depreciation were calculated in this study by the straight-line, broad group, remaining-life depreciation system. In this system, the annual depreciation expense for each group is computed by dividing the original cost of the asset group less allocated depreciation reserve less estimated net salvage by its respective average remaining life. The resulting annual accrual amounts of all depreciable property within a function were accumulated and the total was divided by the original cost of all functional depreciable property to determine the depreciation rate. The calculated remaining lives and annual depreciation accrual rates were based on attained ages of plant in service and the estimated service life and salvage characteristics of each depreciable group, and were computed in a direct weighting by multiplying each vintage or account balance times its remaining life and dividing by the plant investment in service at December 31, 2017. The computations of the annual functional depreciation rates are shown in Appendix A, and the weighted remaining life calculations are shown in Appendix B.

A variety of life estimation approaches were available to incorporate into analyses of Minnesota Power’s data. Both Simulated Plant Record (SPR) analysis

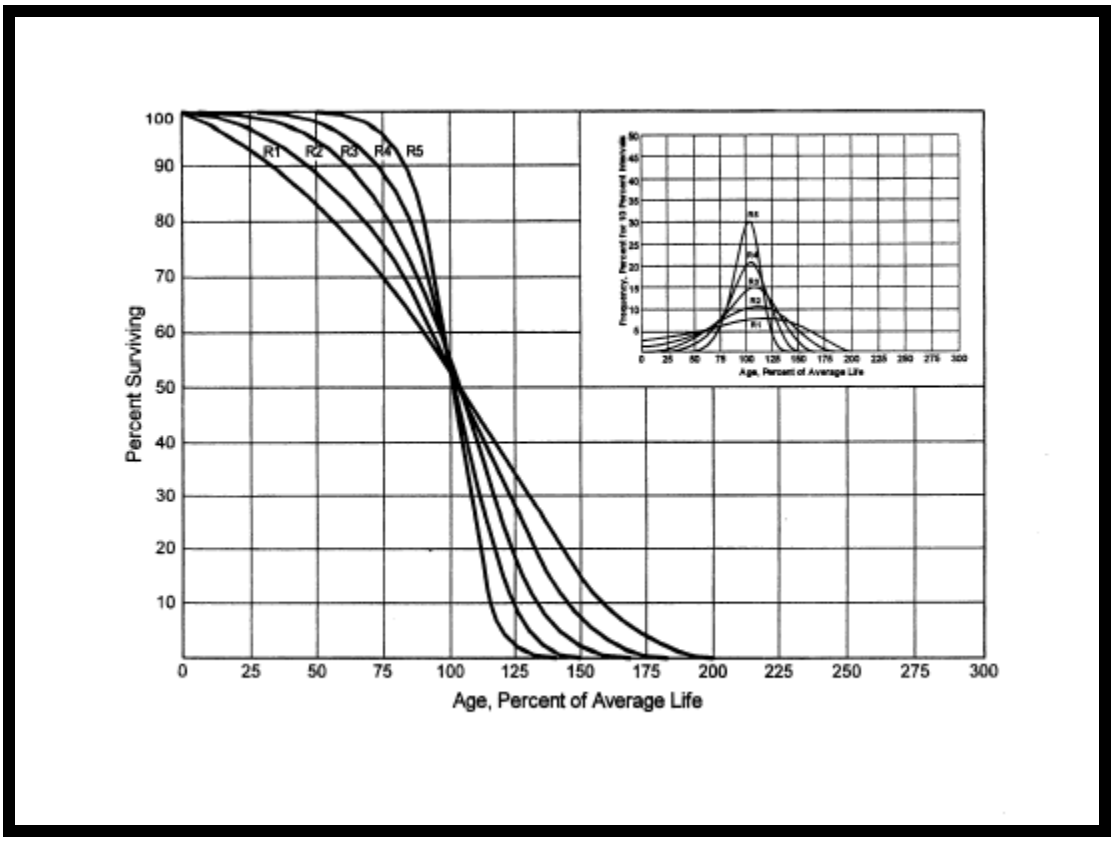
and Actuarial Analysis are commonly used mortality analysis techniques for electric utility property. Historically, Minnesota Power has used SPR analysis to evaluate lives of its transmission and distribution assets. Vintaged data is available since the Company converted to its current accounting system in 2000. However, seventeen years of transactional history is insufficient to develop actuarial life estimates for such long-lived property. Judgment was used to a greater or lesser degree on all accounts. Each approach used in this study is more fully described in a later section.

Survivor Curves

To fully understand depreciation projections in a regulated utility setting, there must be a basic understanding of survivor curves. Individual assets within a group do not normally have identical lives or investment amounts. The average life of a group can be determined by comparing actual experience against various survivor curves. A survivor curve represents the percentage of property remaining in service at various age intervals. The most widely used set of representative survivor curves are the Iowa Survivor Curves (Iowa Curves). The Iowa Curves are the result of an extensive investigation of life characteristics of physical property made at Iowa State College Engineering Experiment Station in the first half of the twentieth century. Through common usage, revalidation, and regulatory acceptance, these curves have become a descriptive standard for the life characteristics of industrial property. An example of an Iowa Curve is shown below.



There are four families in the Iowa Curves which are distinguished by the relation of the age at the retirement mode (largest annual retirement frequency) and the average life. The four families are designated as “R”— Right, “S” — Symmetric, “L” — Left, and “O” — Origin Modal. First, for distributions with the mode age greater than the average life, an "R" designation (i.e., Right modal) is used. The family of “R” moded curves is shown below.



Second, an "S" designation (i.e., Symmetric modal) is used for the family whose mode age is symmetric about the average life. Third, an "L" designation (i.e., Left modal) is used for the family whose mode age is less than the average life. Fourth, a special case of left modal dispersion is the "O" or origin modal curve family. Within each curve family, numerical designations are used to describe the relative magnitude of the retirement frequencies at the mode. A "6" indicates that the retirements are not greatly dispersed from the mode (i.e., high mode frequency) while a "1" indicates a large dispersion about the mode (i.e., low mode frequency). For example, a curve with an average life of 30 years and an "L3" dispersion is a moderately dispersed, left modal curve that can be designated as a 30 L3 Curve. An SQ, or square, survivor curve occurs where no dispersion is present (i.e., units of common age retire simultaneously).

For Transmission and Distribution property accounts, a survivor curve pattern was selected based on analyses of historical data, as well as other factors, such as general changes relevant to the Company's operations. The blending of judgment concerning current conditions and future trends, along with the matching of historical data permits the depreciation analyst to make an informed selection of an account's average life and retirement dispersion pattern. Iowa Curves were used to depict the estimated survivor curves for each account.

Actuarial Analysis

Actuarial analysis (retirement rate method) was used in evaluating historical asset retirement experience where vintage data were available and sufficient retirement activity was present. In actuarial analysis, interval exposures (total property subject to retirement at the beginning of the age interval, regardless of vintage) and age interval retirements are calculated. The complement of the ratio of interval retirements to interval exposures establishes a survivor ratio. The survivor ratio is the fraction of property surviving to the end of the selected age interval, given that it has survived to the beginning of that age interval. Survivor ratios for all of the available age intervals were chained by successive multiplications to establish a series of survivor factors, collectively known as an observed life table. The observed life table shows the experienced mortality characteristic of the account and may be compared to standard mortality curves such as the Iowa Curves. Where data was available, accounts were analyzed using this method. Placement bands were used to illustrate the composite history over a specific era, and experience bands were used to focus on retirement history for all vintages during a set period. The results from these analyses for those accounts which had data sufficient to be analyzed using this method are shown in the Life Analysis section of this report.

Simulated Plant Record Procedure

The SPR - Balances approach is one of the commonly accepted approaches to analyze mortality characteristics of utility property. SPR was applied to all Minnesota Power accounts due to the limited amount of vintaged transactional data. In this method, an Iowa Curve and average service life are selected as a starting point of the analysis and its survivor factors applied to the actual annual additions to give a sequence of annual balance totals. These simulated balances are compared with the actual balances by using both graphical and statistical analysis. Through multiple comparisons, the mortality characteristics (as defined by an average life and Iowa Curve) that are the best match to the property in the account can be found.

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

$$SSD = \sum_{1}^{n} (Calculated\ Balance_i - Observed\ Balance_i)^2$$

Where n is the number of years in the test band.

This calculation can then be used to develop other calculations, which the analyst feels might give a better indication for the “goodness of fit” for the representative curve under consideration. The residual measure (RM) is the square root of the average squared differences as developed above. The residual measure is calculated as follows:

$$RM = \sqrt{\left(\frac{SSD}{n}\right)}$$

The CI is developed from the residual measure and the average observed plant balances for the band or test year being analyzed. The calculation of conformance index is shown below:

$$CI = \frac{\sum_1^n Balances_i / n}{RM}$$

The retirement experience index (REI) gives an indication of the maturity of the account and is the percent of the property retired from the oldest vintage in the band at the end of the test year. Retirement indices range from 0 percent to 100 percent and an REI of 100 percent indicates that a complete curve was used. A retirement index less than 100 percent indicates that the survivor curve was truncated at that point. The originator of the SPR method, Alex Bauhan, suggests ranges of value for the CI and REI. The relationship for CI proposed by Bauhan is shown below[1]:

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

The relationship for REI proposed by Bauhan[2] is shown below:

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

Despite the fact there has not been empirical research to validate Bauhan's conclusions, depreciation analysts have used these measures in analyzing SPR results for 60 years, since the SPR method was developed.

1 Public Utility Depreciation Practices, p. 96.
2 Public Utility Depreciation Practices, p. 97.

Each of these statistics provides the analyst with a different perspective of the comparison between a band of simulated or calculated balances and the observed or actual balances in the account being studied. Although one statistic is not necessarily superior over the others, the conformance index is the one many analysts use in depreciation studies. The depreciation analyst should carefully weigh the data from REIs to ensure that a mature curve is being used to estimate life.

Statistics are useful in analyzing mortality characteristics of accounts as well as determining a range of service lives to be analyzed using the detailed graphical method. However, these statistics boil all the information down to one, or at most, a few numbers for comparison. Visual matching through comparison between actual and calculated balances expands the analysis by permitting the analyst to view many points of data at a time. The goodness of fit should be visually compared to plots of other Iowa Curve dispersions and average lives for the selection of the appropriate curve and life. Detailed information for each account is shown later in this study and in workpapers.

Judgment

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 understanding depreciation theory are needed to apply this informed judgment. In this depreciation study, judgment was used in areas such as survivor curve modeling and selection, depreciation method selection, simulated plant record method analysis, and net salvage analysis.

Where there are multiple factors, activities, actions, property characteristics, statistical inconsistencies, property mix in accounts or a multitude of other considerations that affect the analysis (potentially in various directions), judgment is used to take all of these considerations and synthesize them into a general direction or understanding of the characteristics of the property. Individually, no one

consideration in these cases may have a substantial impact on the analysis, but overall, the collective effect of these considerations may shed light on the use and characteristics of assets. Judgment may also be defined as deduction, inference, wisdom, common sense, or the ability to make sensible decisions. There is no single correct result from statistical analysis; hence, there is no answer absent judgment.

Theoretical Depreciation Reserve

The book accumulated provision for depreciation for each account was used to compute depreciation rates for each account. This study used a reserve model that relied on a prospective concept relating future retirement and accrual patterns for property, given current life and salvage estimates.

The theoretical reserve of a property group is developed from the estimated remaining life of the group, the total life of the group, and estimated net salvage. The theoretical reserve represents the portion of the group cost that would have been accrued if current forecasts were used throughout the life of the group for future depreciation accruals. The computation involves multiplying the vintage balances within the group by the theoretical reserve ratio for each vintage. The straight-line remaining-life theoretical reserve ratio at any given age (RR) is calculated as:

$$RR = 1 - \frac{(Average\ Remaining\ Life)}{(Average\ Service\ Life)} * (1 - Net\ Salvage\ Ratio)$$

DETAILED DISCUSSION

Depreciation Study Process

This depreciation study encompassed four distinct phases. The first phase involved data collection and field interviews. The second phase was where the initial data analysis occurred. The third phase was where the information and analysis was evaluated. After the first three stages were complete, the fourth phase began. This phase involved the calculation of deprecation rates and documenting the corresponding recommendations.

During the Phase I data collection process, historical data was compiled from continuing property records and general ledger systems. Data was validated for accuracy by extracting and comparing to multiple financial system sources: Projects System (construction ledger), Fixed Asset System (continuing property ledger), General Ledger, and interfaces from other operating systems. Audit of this data was validated against historical data from prior periods, historical general ledger sources, and field personnel discussions. This data was reviewed extensively so that it could be put in the proper format for a depreciation study. Further discussion on data review and adjustment is found in the Salvage Consideration section of this study. Also as part of the Phase I data collection process, numerous discussions were conducted with engineers and field operations personnel to obtain information that would be helpful in formulating life and salvage recommendations in this study. One of the most important elements in performing a proper depreciation study is to understand how the Company utilizes assets and the environment of those assets. Understanding industry and geographical norms for mortality characteristics are important factors in selecting life and salvage recommendations; however, care must be used not to apply them rigorously to any particular company since no two companies would have the same exact forces of retirement acting upon their assets. Interviews with engineering and operations personnel are important ways to allow the analyst to obtain information that is helpful when evaluating the output from the life and net salvage programs in relation to the Company's actual asset utilization and environment. Information that was gleaned in these discussions is found both in

the Detailed Discussion portions of the Life Analysis and Salvage Analysis sections and also in workpapers. In addition, Alliance personnel possess a significant understanding of the property and its forces of retirement due to years of day-to-day exposure to property and operations of electric utility property.

Phase 2 is where the SPR and actuarial analysis are performed. Phase 2 and Phase 3 (to be discussed in the next paragraph) overlap to a significant degree. The detailed property records information is used in Phase 2 to develop observed life tables for life analysis and SPR graphs and statistics. It is possible that the analyst would cycle back to this phase based on the evaluation process performed in Phase 3. Net salvage analysis consists of compiling historical salvage and removal data by functional group and account to determine values and trends in gross salvage and removal cost. This information was then carried forward into Phase 3 for the evaluation process.

Phase 3 is the evaluation process, which synthesizes analysis, interviews, and operational characteristics into a final selection of asset lives and net salvage parameters. The historical analysis from Phase 2 is further enhanced by the incorporation of recent or future changes in the characteristics or operations of assets that were revealed in Phase 1. The preliminary results are then reviewed by the depreciation analyst and discussed with accounting and operations personnel. Phases 2 and 3 allow the depreciation analyst to validate the asset characteristics as seen in the accounting transactions with Company operational experience.

Finally, Phase 4 involves the calculation of accrual rates, making recommendations and documenting the conclusions in the Study. The calculation of accrual rates is found in Appendix A. Recommendations for the various accounts are contained in the Life Analysis Section of this Study. The depreciation study flow diagram shown as Figure 1[3] below also documents the steps used in conducting this Study. DEPRECIATION SYSTEMS[4], at page 289, documents the same basic processes in performing a depreciation study which are: statistical analysis, evaluation of

[3] INTRODUCTION TO DEPRECIATION FOR PUBLIC UTILITIES & OTHER INDUSTRIES, AGA EEI (2013).
[4] W. C. Fitch and F.K.Wolf, DEPRECIATION SYSTEMS, Iowa State Press, at page 289 (1994).

statistical analysis, discussions with management, forecast assumptions, and document recommendations.

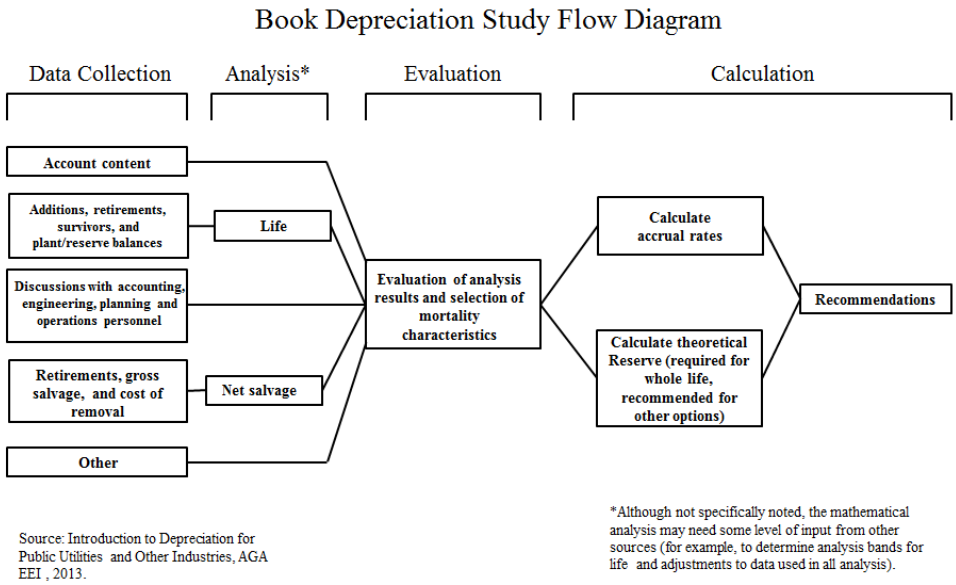


Figure 1

MINNESOTA POWER DEPRECIATION STUDY PROCESS

Transmission and Distribution Calculation Process

Annual depreciation expense amounts for Transmission and Distribution accounts were calculated by the straight line, remaining life procedure.

In a whole life representation, the annual accrual rate is computed by the following equation,

$$AnnualAccrualRate = \frac{(100\% - NetSalvagePercent)}{AverageServiceLife}$$

Use of the remaining life depreciation system adds a self-correcting mechanism, which accounts for any differences between theoretical and book depreciation reserve over the remaining life of the group. With the straight line, remaining life, average life group system using Iowa Curves, composite remaining lives were calculated according to standard broad group expectancy techniques, noted in the formula below:

$$Composite\,\mathrm{Re}\,mainingLife = \frac{\sum OriginalCost - Theoretical\,\mathrm{Re}\,serve}{\sum WholeLifeAnnualAccrual}$$

For each plant account, the difference between the surviving investment, adjusted for estimated net salvage, and the allocated book depreciation reserve, was divided by the composite remaining life to yield the annual depreciation expense as noted in this equation.

$$AnnualDepreciationExpense = \frac{OriginalCost - Book\,\mathrm{Re}\,serve - (OriginalCost) * (1 - NetSalvage\%)}{Composite\,\mathrm{Re}\,mainingLife}$$

where the net salvage percent represents future net salvage.

Within a group, the sum of the group annual depreciation expense amounts, as a percentage of the depreciable original cost investment summed, gives the annual depreciation rate as shown below:

$$AnnualDepreciationRate = \frac{\sum AnnualDepreciationExpense}{\sum OriginalCost}$$

These calculations are shown in Appendix A. The calculations of the theoretical depreciation reserve values and the corresponding remaining life calculations are shown in the workpapers for this study. Book depreciation reserves are maintained on a plant account level basis and theoretical reserve computation was used to compute composite remaining life for each account.

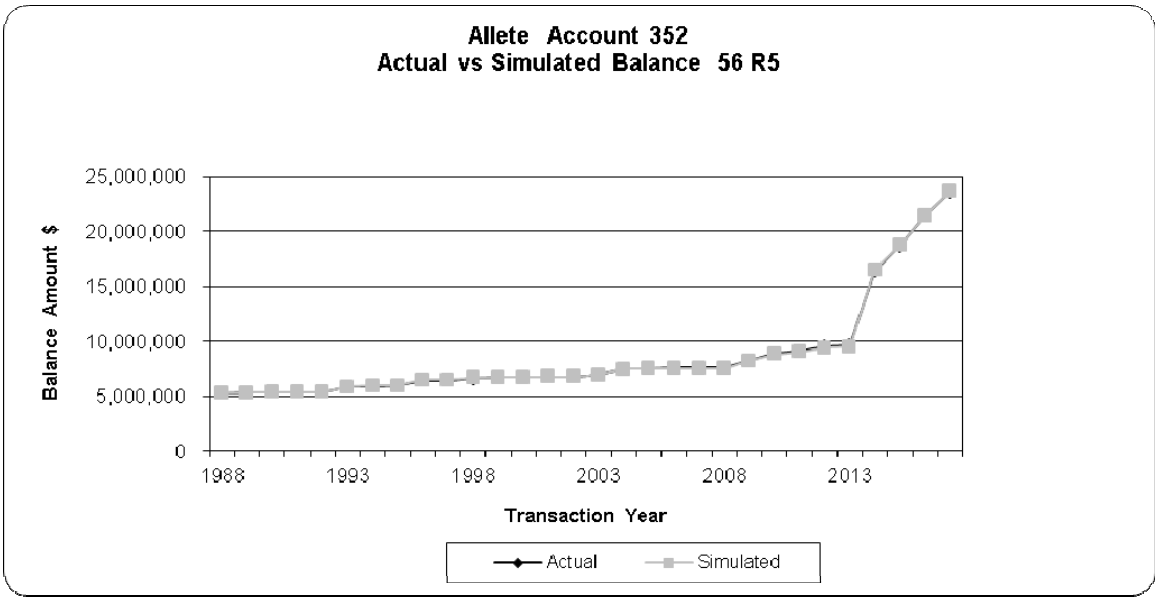
LIFE ANALYSIS

Transmission Accounts, FERC Accounts 3520-3590

Minnesota Power has a wide service territory across northeastern Minnesota. In recent years the Company has seen growth in Transmission assets in substation equipment as well as poles and overhead conductor.

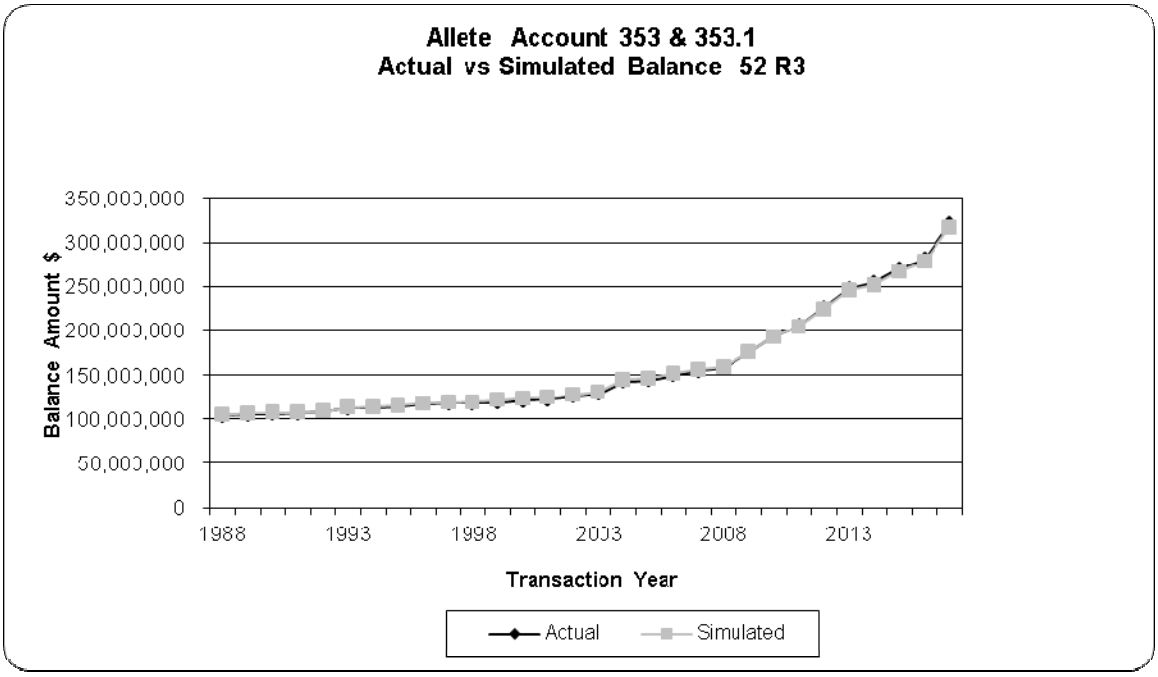
FERC Account 3520 Transmission Substation Structures and Improvements (56 R5)

This account includes structures and improvements associated with transmission facilities. Some of the main items included are buildings, air conditioning systems, heating, plumbing, and ventilation systems. The current plant balance in the account is $23.6 million, and the approved life and curve from the 2013 study is 54 S5. The SPR analysis shows an R5 as a highly ranked curve for most of the longer bands. Company personnel anticipate that life of this account may increase over time as they are typically adding on to substations rather than retiring and replacing. The plot of the 56 R5 shows a very good fit over the life of the account. This study recommends moving to a 56 year life and retaining the R5 dispersion. Shown below is a plot of the actual versus simulated balances for this account.


Allete Account 352
Actual vs Simulated Balance 56 R5
Balance Amount $
25,000,000
20,000,000
15,000,000
10,000,000
5,000,000
0
1988
1993
1998
2003
2008
2013
Transaction Year
Actual
Simulated

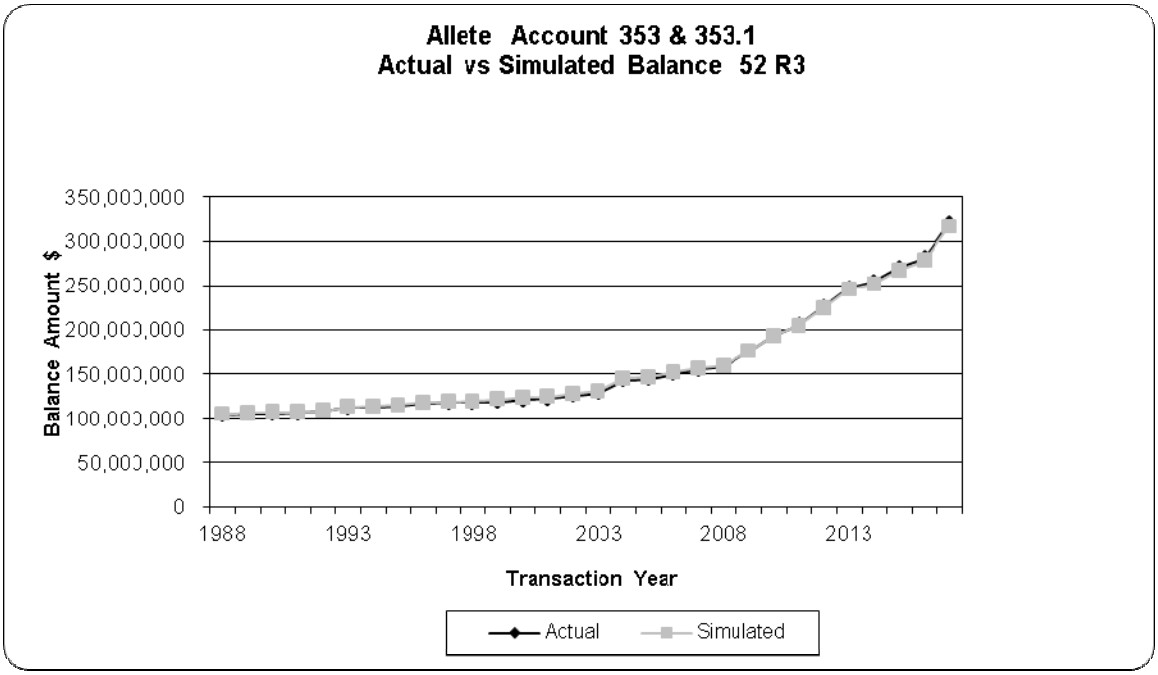
FERC Account 3530 Transmission Substation Equipment (52 R3)

This account includes transformers, circuit breakers, capacitors, system operator's control installations, wiring and other assets used in a transmission substation. The current plant balance in the account is $318.4 million, and the last depreciation study yielded a life characteristic of 44 R4. Company personnel recognize that this account has a variety of equipment with different life characteristics. For transformers, they estimate a life of 40 years or longer. Smaller items such as breakers, panels (new electronic) would have a shorter life. A significant portion of the assets in this account (approximately 30 percent) are related to the DC Substation. An average life of 50 years is reasonable for the DC Station given the variety of lives for various assets within the station. This study recommends moving from the approved 44 year life to a 52 year life and moving from an R4 to an R3 dispersion. A plot of the actual versus simulated balances for this account is shown below.



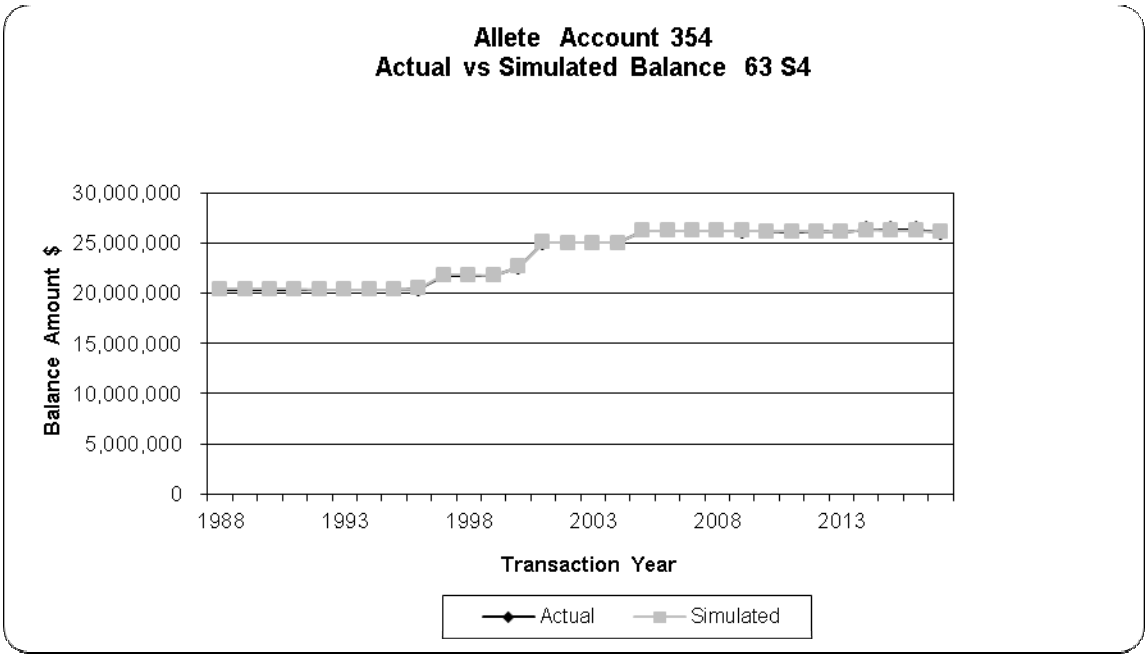
FERC Account 3531 Reserve Station Transformers (52 R3)

This account contains the cost of power transformers for transmission substations held in reserve. The balance in this account is $2.2 million, and the last depreciation study yielded a life characteristic of 44 R4 (the same as the primary 353 account.) Insufficient data exists to analyze the history on this account. Since transformers are moved out of this account into the primary 353 account, the life of this account was linked to Account 353 (as was done in the previous studies). This study recommends moving to a life of 52 years with an R3 dispersion for this account.



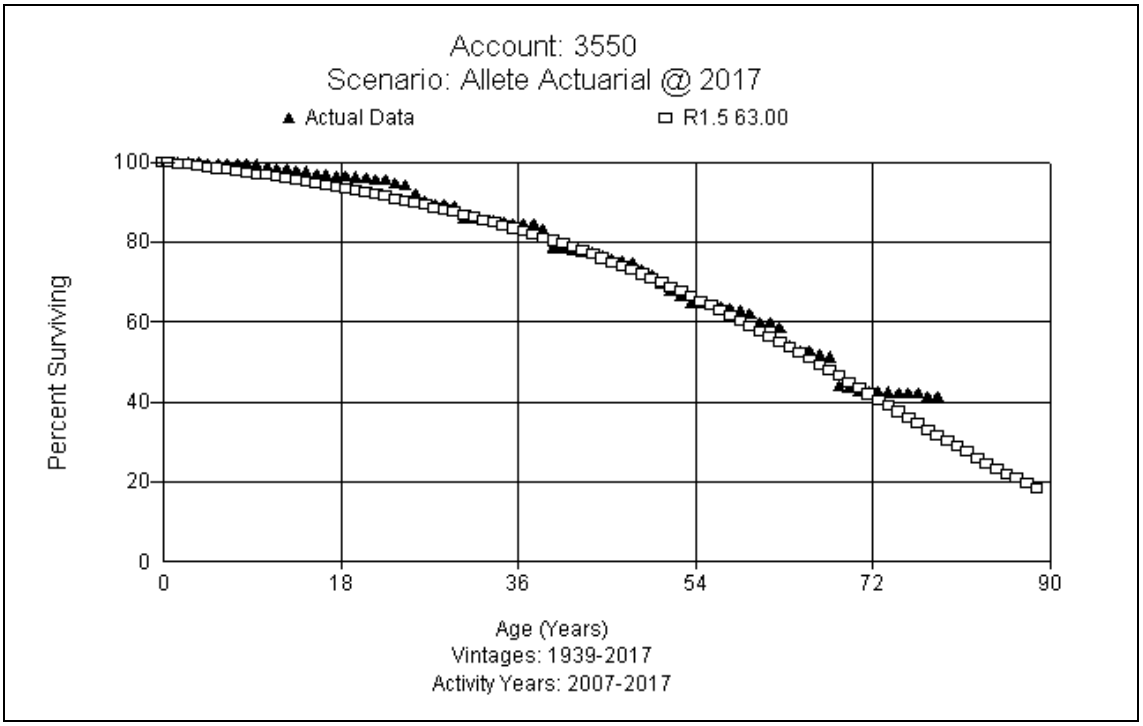
FERC Account 3540 Transmission Towers and Fixtures (63 S4)

This account includes the installed cost of towers and fixtures supporting overhead transmission conductors, which are used to transmit electricity at transmission voltages. Most of the Transmission structure assets are in FERC Account 355, Poles. The current plant balance in the account is $26 million, and the prior depreciation study established a 55 year life with an R5 dispersion as the approved life. Most of the towers are on the DC line, with 90% of those towers being aluminum. Company personnel feel that a much longer than 60 year life may be appropriate for steel towers, but not for aluminum towers. Company subject matter experts think that aluminum towers may have a life of 55 to more than 60 years. In the estimation of Company subject matter experts, the life of aluminum poles should be no higher than wood poles. After factoring in the opinions of subject matter experts, this study recommends a 63 year life. An S4 curve is selected as being representative for this account. A plot of the actual versus simulated balances for this account is shown below.



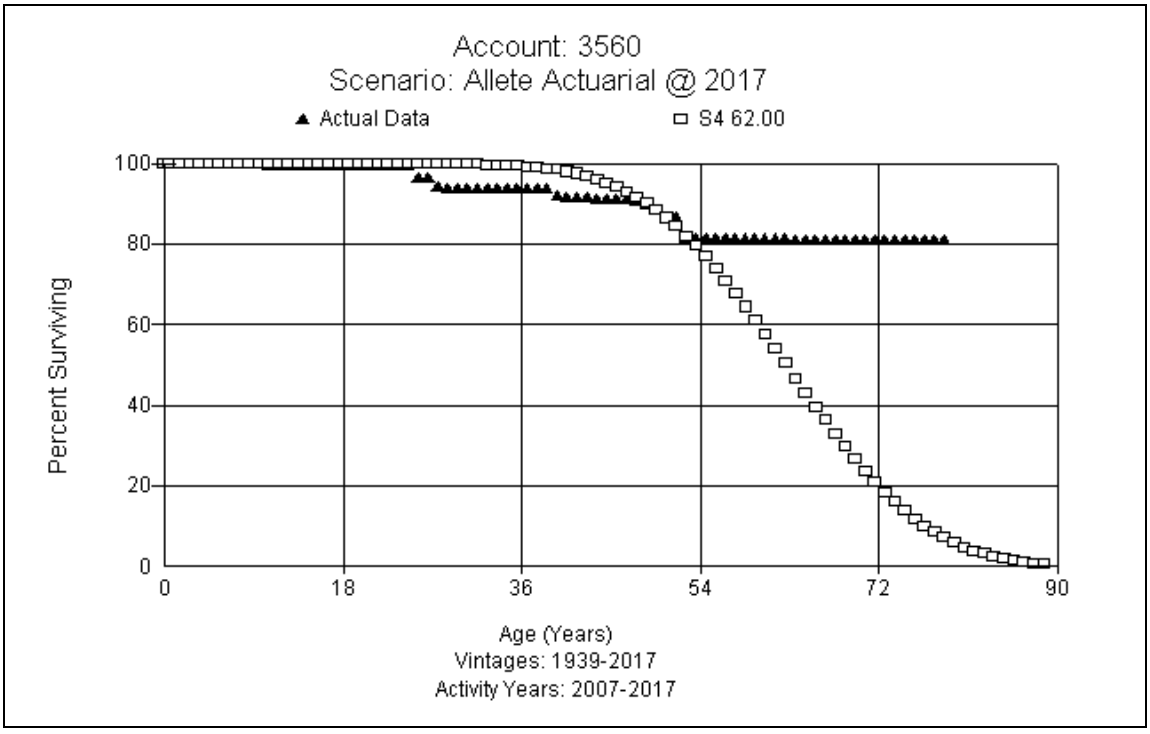
FERC Account 3550 Transmission Poles and Fixtures (63 R1.5)

This account includes the installed cost of poles and fixtures used for supporting overhead transmission conductors, which are used to transmit electricity at transmission voltages. Items include wood poles, laminated columns, steel poles, cross arms, guys, platforms and x-braces. The current plant balance in the account is $267.5 million. The 2013 depreciation study used a 54 year life with an R3 dispersion. Actuarial retirement experience was used to determine average service life for this account. Operational personnel expect the life to increase for this account due to longer useful lives for existing wood poles and the recent use of C-trusses to extend the life of poles. Based on this analysis, this study recommends moving from a 54 year life to a 63 year life and an R1.5 dispersion for this account. A graph of actual retirement experience and the selected Iowa curve for this account is shown below.



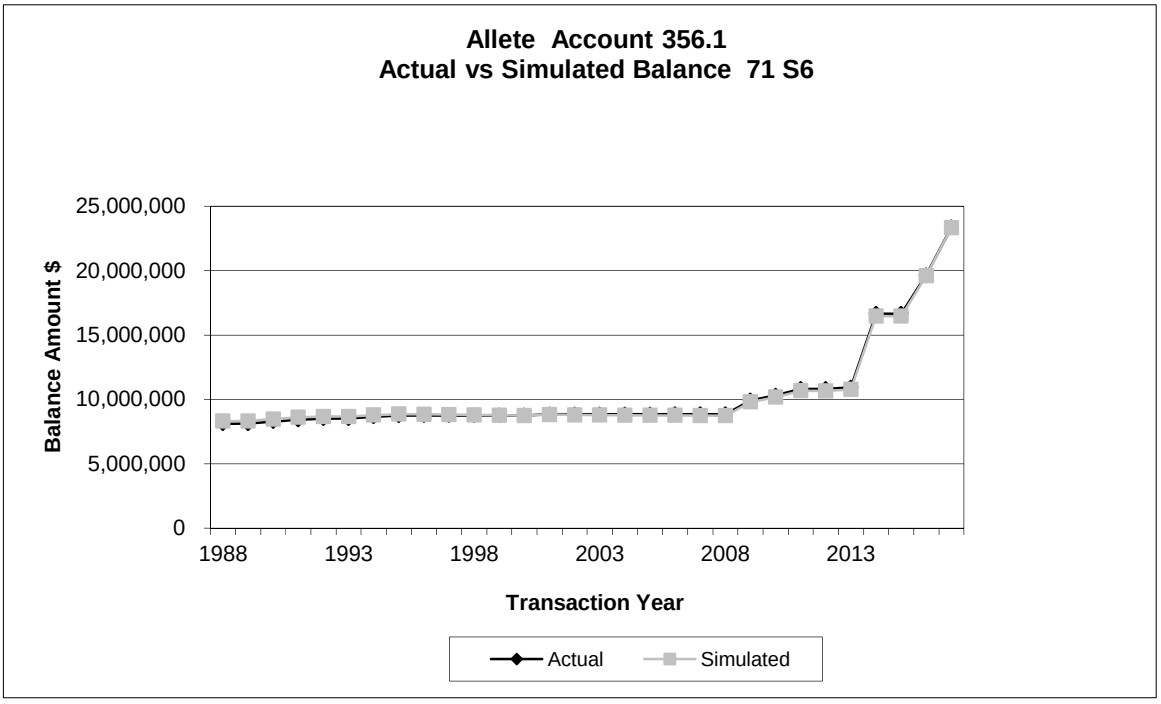
FERC Account 3560 Transmission Overhead Conductor (62 S4)

This account includes copper and aluminum conductor, arresters and switches, which are used to transmit electricity at transmission voltages. The current plant balance in the account is $95.4 million, and the approved life and curve for this account is a 55 year life with an S5 dispersion. Actuarial retirement experience was used while determining the average service life. Although there have been a small number of re-conductoring projects recently (shortening the life of that conductor), company experts expect the life for this account to be close to the life of transmission towers. Based on limited actuarial analysis results and the opinion of company experts, this study recommends moving from the approved 54 year life to a 62 year life and a move from the R3 dispersion to the S4 dispersion for this account. A graph of actual retirement experience and the selected Iowa curve for this account is shown below.



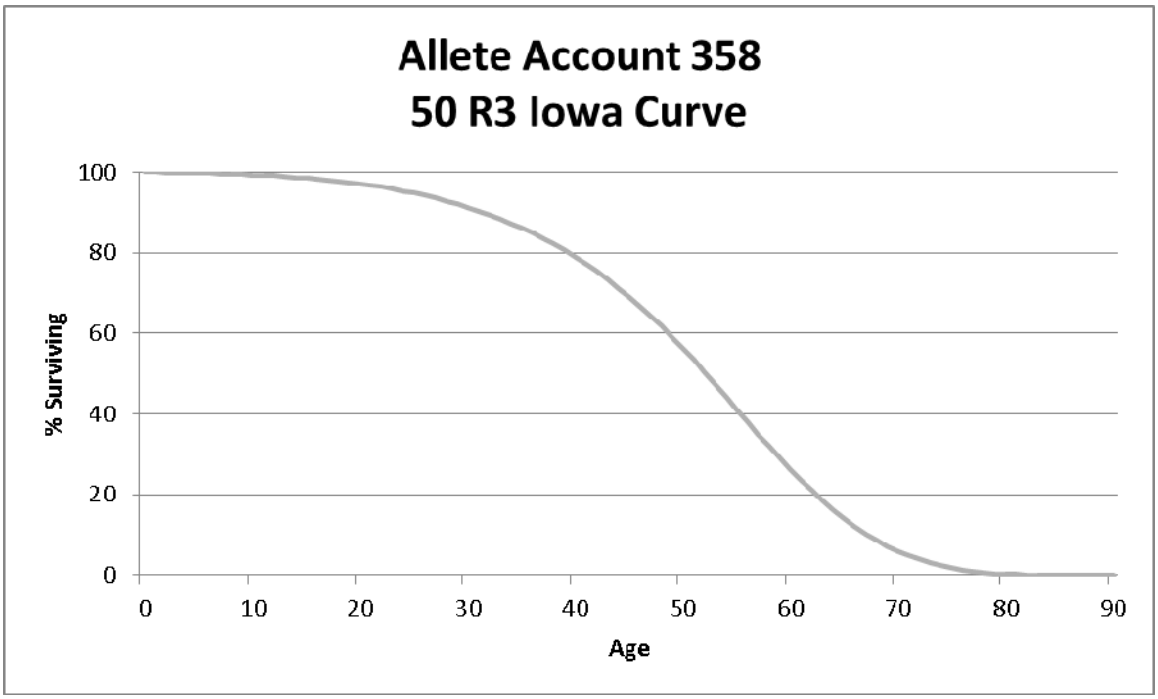
FERC Account 3561 Clearing Land and Rights of Way (71 S6)

This account includes initial costs of clearing land and rights of way for transmission lines with overhead conductors and devices. The current plant balance in the account is $23.4 million. The current approved life for this account is 67 years with an S6 dispersion. In the current analysis, curves with high Conformance Indices ("CI") were shown with unreasonably long service lives, up to 421 years. The best life and dispersion combination with an REI of 100 is the 71 year life with an S6 dispersion. The plot of the 71 S6 curve shows a very good fit over the entire life of the account. Based on SPR analysis for various bands, a life of 71 years with an S6 dispersion is recommended for this account.



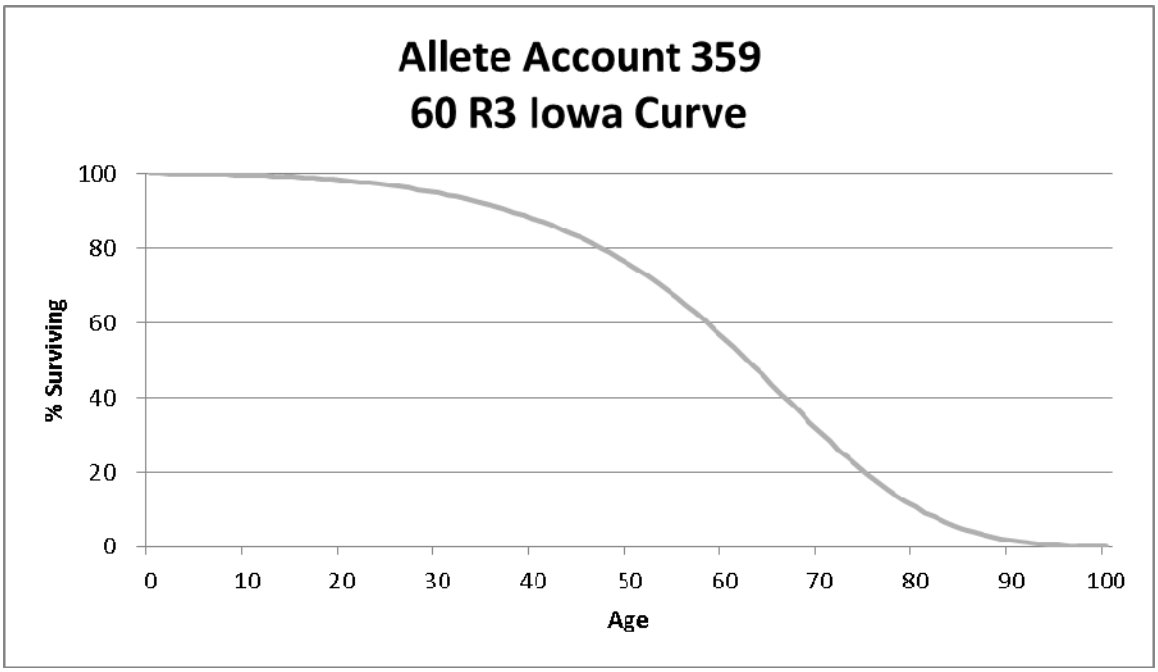
FERC Account 358 Transmission Underground Conductor (50 R3)

This account consists of underground conductor used in conducting electricity at transmission voltages. The account balance for this account is $3.0 million. The current approved life for this account is 50 years with an R3 dispersion. There has been no retirement activity over the study period, rendering both actuarial and SPR analysis of no aid in examining life characteristic. Using judgment, this study recommends retaining the current life of 50 years and an R3 dispersion for this account. A plot of the actual vs simulated balances for this account is shown below.



FERC Account 3590 Roads and Trails (60 R3)

This account includes installed costs of roads, trails, bridges and culverts on transmission plant property. The current plant balance in the account is $58 thousand. The prior depreciation study established a life of 60 years with an R3 dispersion. Insufficient transactional information was available to analyze this account using SPR analysis. Judgment was used to retain the approved 60 year life with an R3 dispersion for this account.

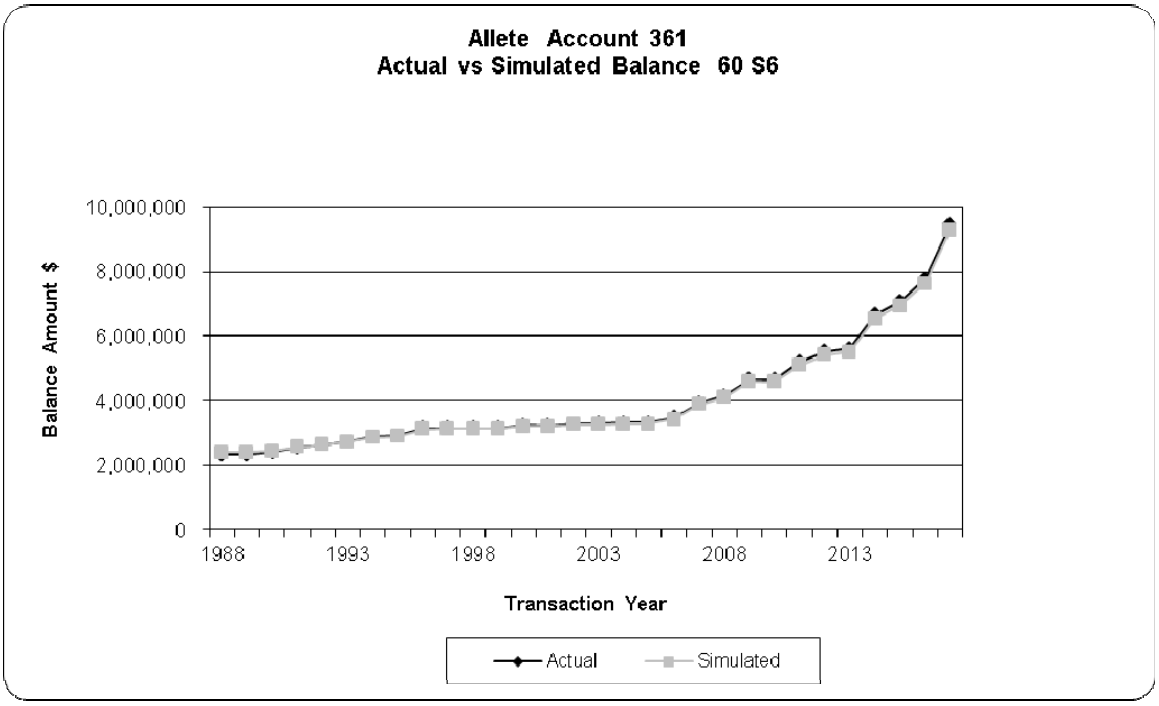


Distribution Accounts, FERC Accounts 3610-3730

Minnesota Power has a wide service territory. There are significant Distribution assets in substation equipment, poles, overhead and underground conductors, services, line transformers, meters, and street lighting.

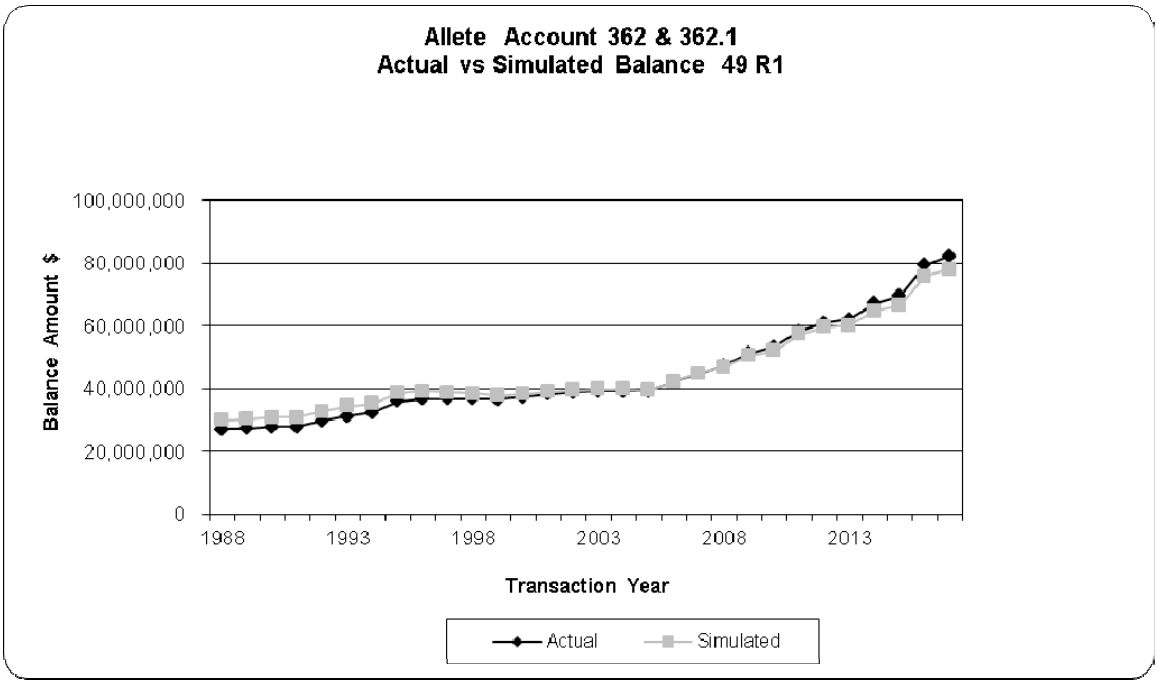
FERC Account 3610 Distribution Substation Structures and Improvements (60 S6)

This account includes the cost of structures and improvements used in conjunction with distribution substation operations. The current plant balance in the account is $9.5 million, and the approved life and curve from the 2013 study is a 60 year life with an S6 dispersion. The plot of the 60 S6 curve shows a very good fit over the entire life of the account. This study recommends retaining the approved 60 year life and S6 dispersion.



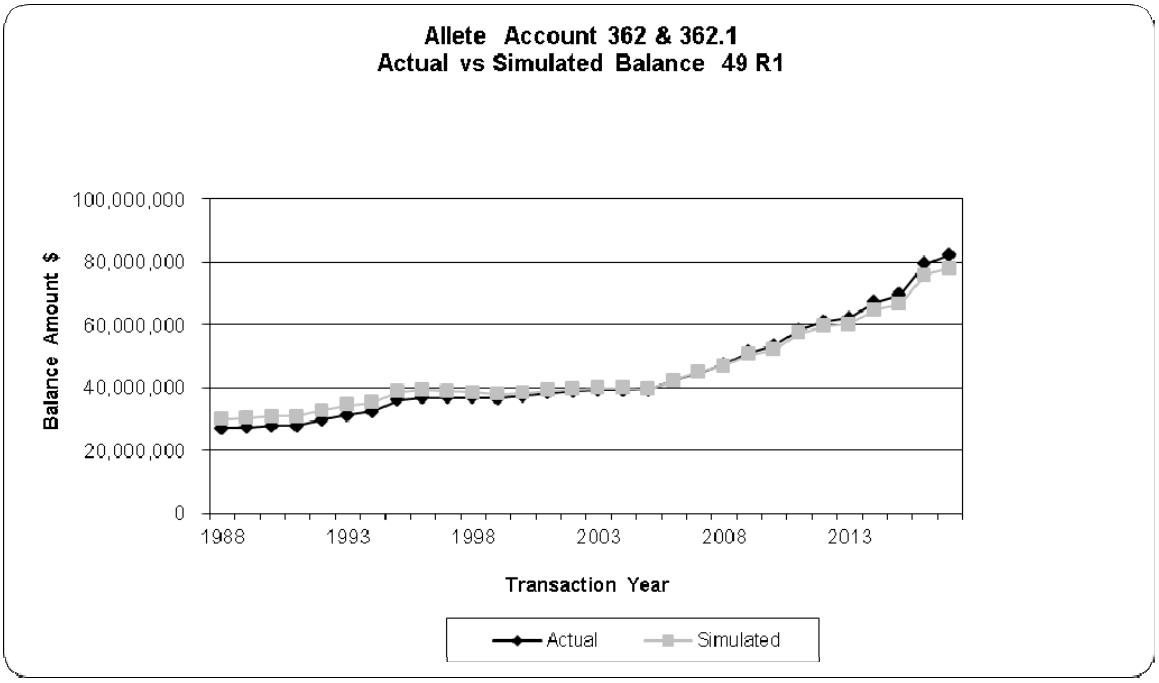
FERC Account 3620 Distribution Substations (49 R1)

This account includes the cost of control equipment, conversion equipment, switching equipment and general station equipment related to the operations of distribution substations. The current plant balance in the account is $81.0 million. The last depreciation study yielded a life characteristic of 46 R1. There is a mix of long-lived transformers, medium live assets such as circuit breakers and short-lived electronic equipment such as relays. The Company expects older generation transformer to last longer (well over the average life of the account) than the newer generations, due in part to the bigger design tolerances. Circuit Breaker life may be in the 40 year range. Distribution substations have very limited SF6 use; mostly vacuum and oil are used – with vacuum breakers generally having a shorter life than the other types. All controls are electronic in the substations now, and electronics do not last as long as other assets (in the 20 year life range). Other station components such as batteries and chargers are estimated to have a 7 year life and 20 year life respectively. SPR analysis resulted in low Conformance Indices across the bands. However, the R1 dispersion curve with a 49 year life has a poor to fair CI, but an excellent REI, and has one of the highest REI's in most of the bands. The plot of the 49 R1 curve shows a good fit over the entire life of the account. This study recommends moving from the approved 46 year life to a 49 year life and retaining the approved R1 dispersion for this account.


Allete Account 362 & 362.1
Actual vs Simulated Balance 49 R1
Balance Amount $
100,000,000
80,000,000
60,000,000
40,000,000
20,000,000
0
1988
1993
1998
2003
2008
2013
Transaction Year
Actual
Simulated

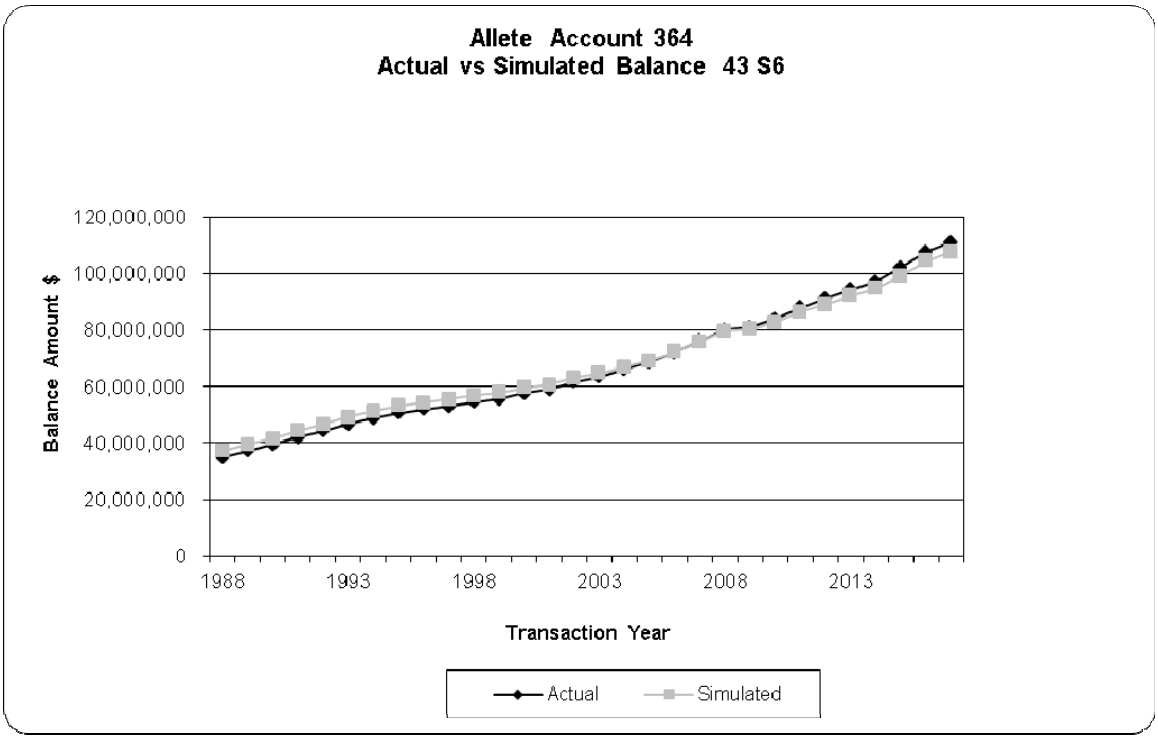
FERC Account 3621 Reserve Distribution Substation Transformers (49 R1)

This account includes the cost of distribution station transformers held in reserve. The balance in this account is $1.4 million, and the last depreciation study yielded a life characteristic of 46 R1. Insufficient data exists to analyze the history on this account. Since transformers are moved out of this account into the primary 3620 account, the life of 49 years with an R1 dispersion was linked to Account 3620 (as was done in the previous study). This study recommends a life of 49 years with a R1 dispersion.



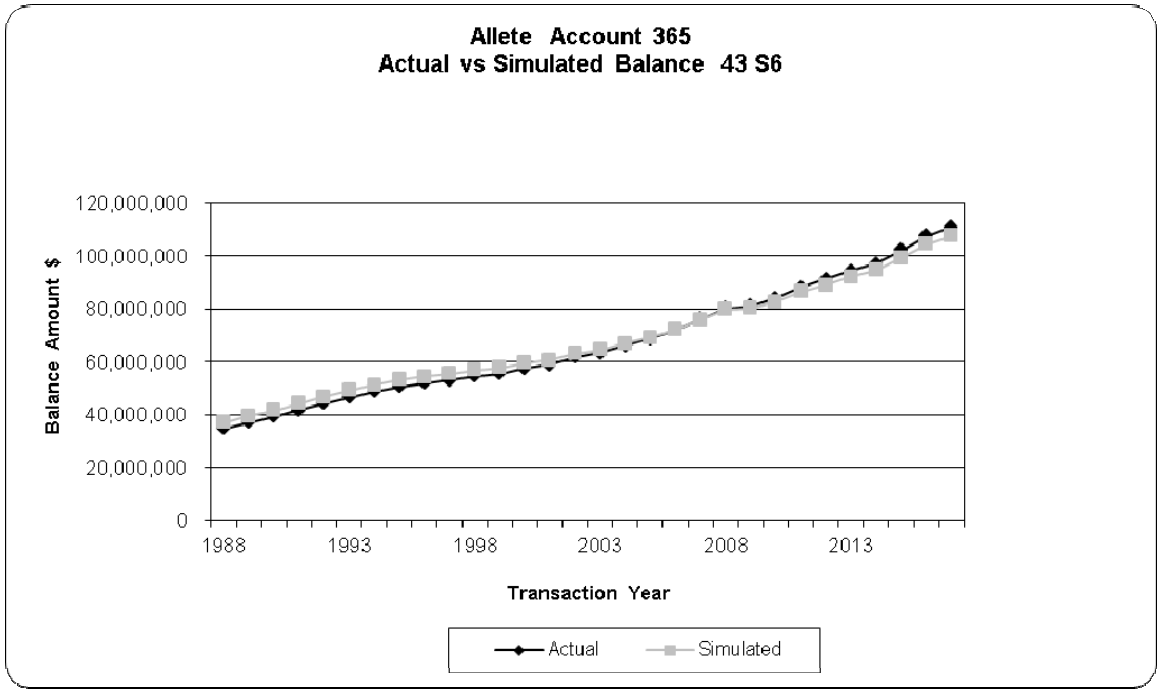
FERC Account 3640 Distribution Poles, Towers, and Fixtures (43 S6)

This account includes the cost of poles, towers and appurtenant fixtures used to support overhead distribution conductors and service wires. Specific items are anchors, brackets, cross arms, wood and steel poles, towers and transformer racks. Most of the poles across the system are made of wood but there are a few steel poles in use. The height of these assets can range generally from 30 feet to 70 feet with the prevalent sizes being 35 feet and 40 feet. The current plant balance in the account is $111.0 million. The currently approved life for this account is a 40 year life with an S6 dispersion. Although moving in the past to pine poles with Penta treatment, the Company has sustained the life of poles by its rigorous inspection and in ground treatment program. Ten percent of the poles are inspected annually, so that over a 10 year period all poles have been evaluated. Relocations are consistent through time and projected to be steady. The Company changed specifications on poles to pine in the 1990s. The S6 dispersion is the best ranked curve for all bands. The plot of the 43 S6 curve shows a good fit over the entire life of the account. This study recommends moving to a 43 year life and retaining the approved S6 dispersion for this account.



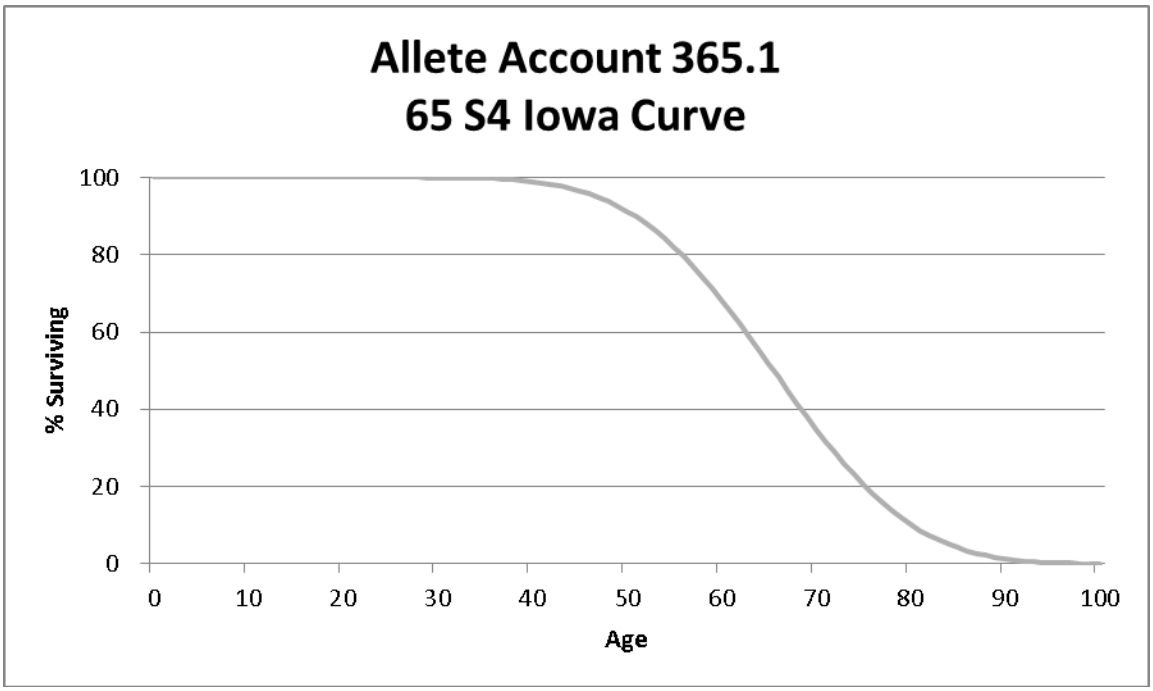
FERC Account 3650 Distribution Overhead Conductor (43 S6)

This account includes the cost of overhead conductors and devices used for distribution purposes including conductors, ground wire insulators, reclosers, highway crossing guards, switches and other line devices. The current plant balance in the account is $88.0 million. Operations typically replace long spans of conductor when replacing the poles, so they would expect a similar life used for poles, between 40 and 50. The currently approved life for this account is 41 S6. The S6 dispersion is the best ranked curve for most bands. The plot of the 43 S6 curve shows a good fit over the entire life of the account. This study recommends moving to a 43 year life and retaining the approved S6 dispersion for this account.



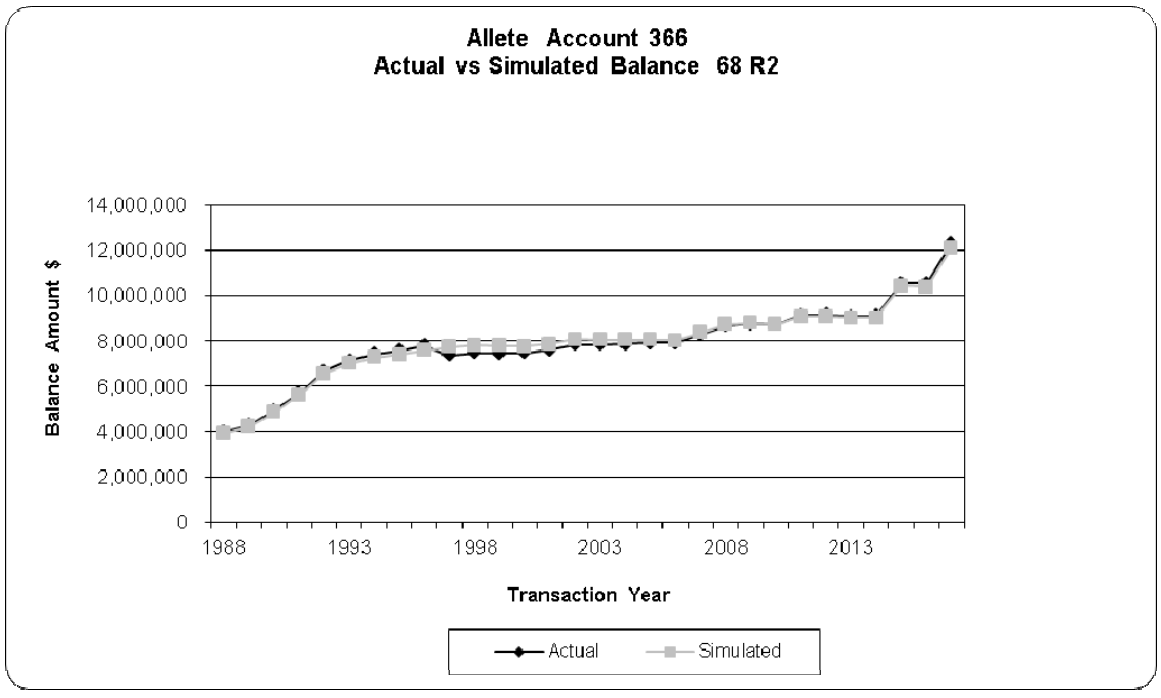
FERC Account 3651 Clearing Land and Rights of Way (65 S4)

This account consists of the cost to clear land and right of way for distribution lines. Portions of this cost are retired when at least one mile of right of way is retired. The current plant balance in the account as of 2017 is $5.3 million. The currently approved life estimate is 65 S4. Insufficient transactional information was available to analyze this account using SPR analysis. Judgment was used to retain the approved 65 year life with an S4 dispersion for this account.



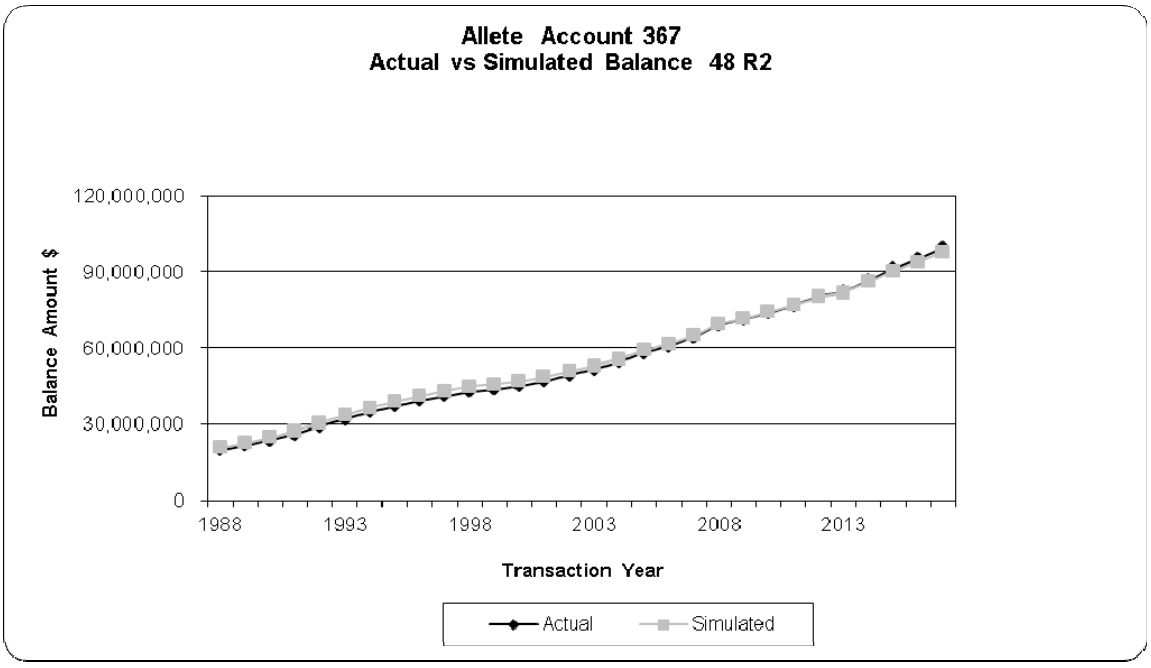
FERC Account 3660 Distribution Underground Conduit (68 R2)

This account includes the cost of underground conduit and tunnels used for housing distribution, cables or wires. Specifically it consists of conduit, excavation, foundations and settings, lighting systems, manholes, sewer connections, pumps and ventilation equipment. The current plant balance in the account is $12.3 million. The currently approved life estimate is 63 R2. The Company replaces a small portion of the underground system each year. SPR analysis resulted in fairly low Conformance Indices across the bands. However, the R2 dispersion curve with a 68 year life has a poor to fair CI, but an excellent REI throughout most of the bands. The plot of the 68 R2 curve shows a good fit over the entire life of the account. This study recommends moving to a 68 year life and retaining the approved R2 dispersion for this account.



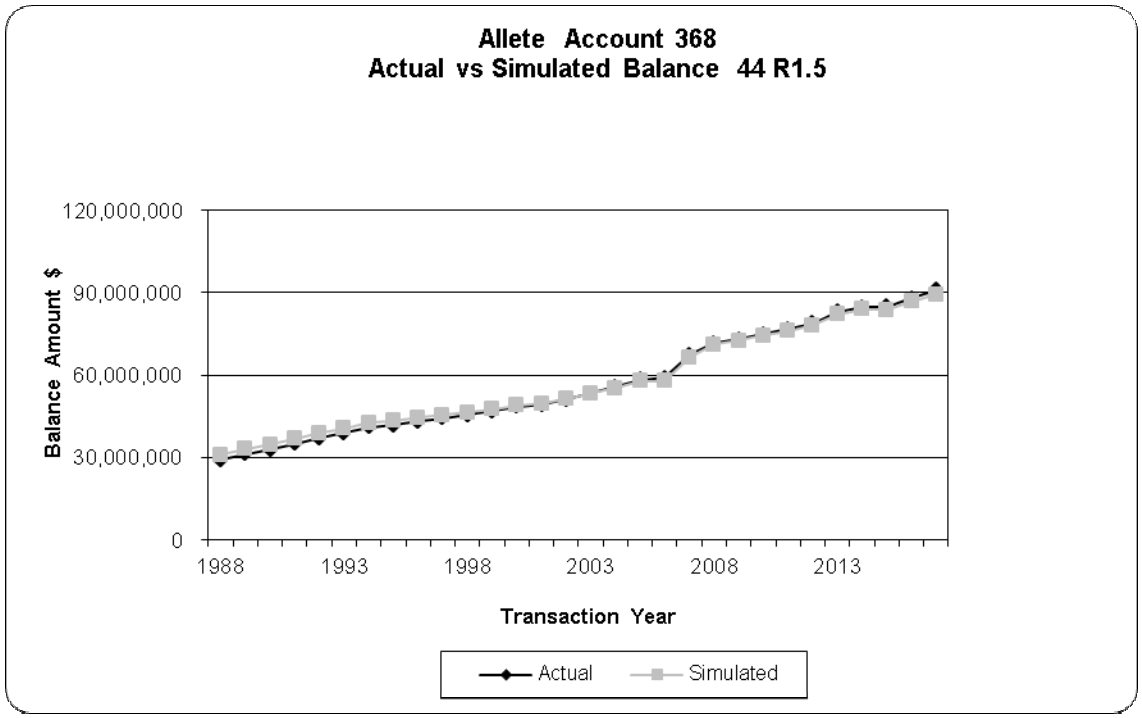
FERC Account 3670 Distribution Underground Conductor (48 R2)

This account includes the cost of underground conductors and devices used for distribution, specifically: armored conductors, cables, circuit breakers, hollow core oil-filled cable, pressure tanks, air tanks, switches and other line devices. The current plant balance in the account is $99.5 million. The currently approved life estimate is 44 R1.5. The Company does not use cable cure. When assets are at the age that treatment would be effective, the preferred option is to replace the equipment which consists of old spec XLP and bare concentric conductor. The Company has used EPR for the last 25 years. The major reasons the EPR equipment fails are installation related issues and dig-ins. Company personnel expect the life to increase slightly for this account as the assets seem to be lasting longer and they are experiencing fewer early failures from ERP cable. SPR analysis resulted in fairly low Conformance Indices across the bands. However, the R2 dispersion curve with a 48 year life has a poor to fair CI, but an excellent REI throughout most of the bands. The plot of the 48 R2 curve shows a good fit over the entire life of the account. This study recommends moving to a 48 year life and an R2 dispersion for this account.



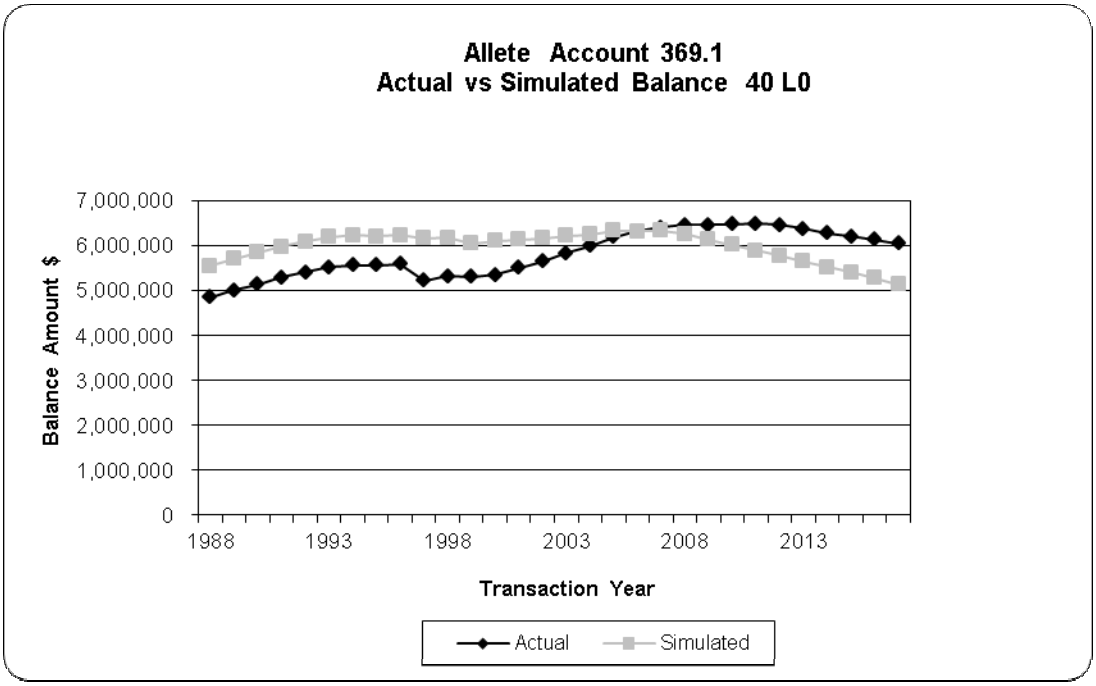
FERC Account 3680 Distribution Line Transformer (44 R1.5)

This account includes the cost of overhead and pad mounted distribution line transformers, voltage regulators, capacitors and network protectors. The current plant balance in the account is $91.0 million. The currently approved life is 44 R1.5. Company personnel report changed transformer specifications to DOE spec for efficiency in the past. They do not anticipate that would have much change in the life for this account. The plot of the 44 R1.5 curve shows a good fit over the entire life of the account. This study recommends retaining the approved 44 year life and R1.5 dispersion for this account.



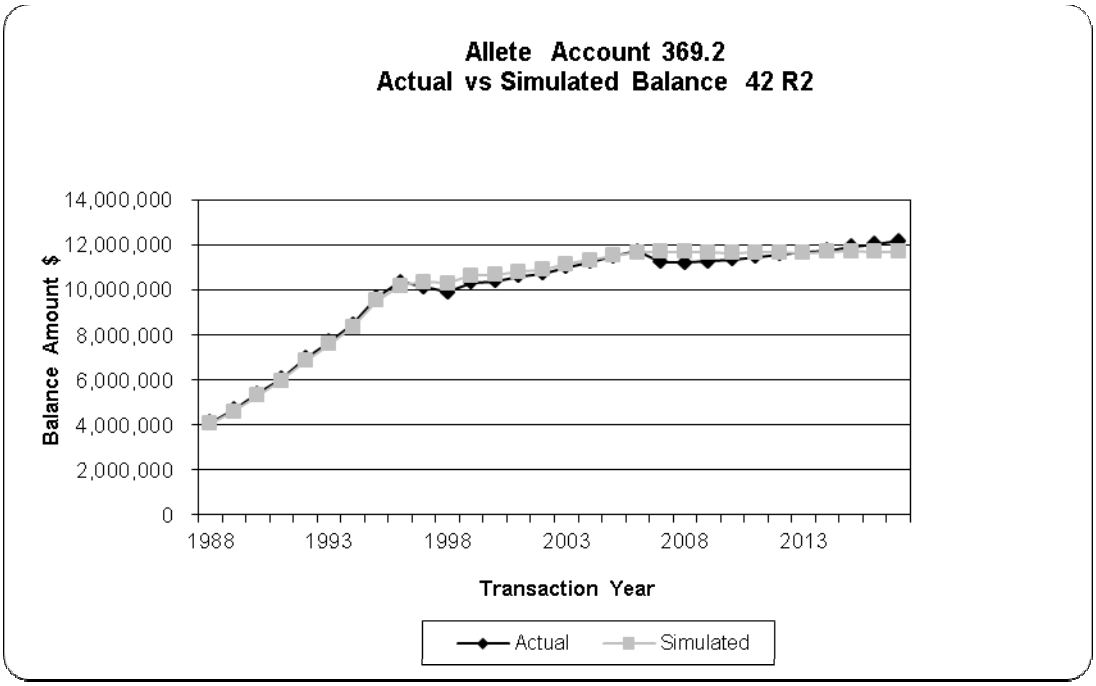
FERC Account 3691 Distribution Services-Overhead (40 L0)

This account includes the cost of overhead conductors leading from the distribution system to the customer's connection. Specifically, the items are brackets, cables and wires, insulators, and suspension wire. The current plant balance in the account is $6.1 million. The currently approved life for this account is 33 L0. Company personnel do not believe there have been many operational changes with overhead services. Storm damage and icing are among the primary causes for failure of overhead services. SPR analysis resulted in fairly low Conformance Indices across the bands. However, the LO dispersion curve with a 40 year life has an excellent REI throughout all of the bands. This study recommends moving to a 40 year life and retaining the approved L0 dispersion for this account.



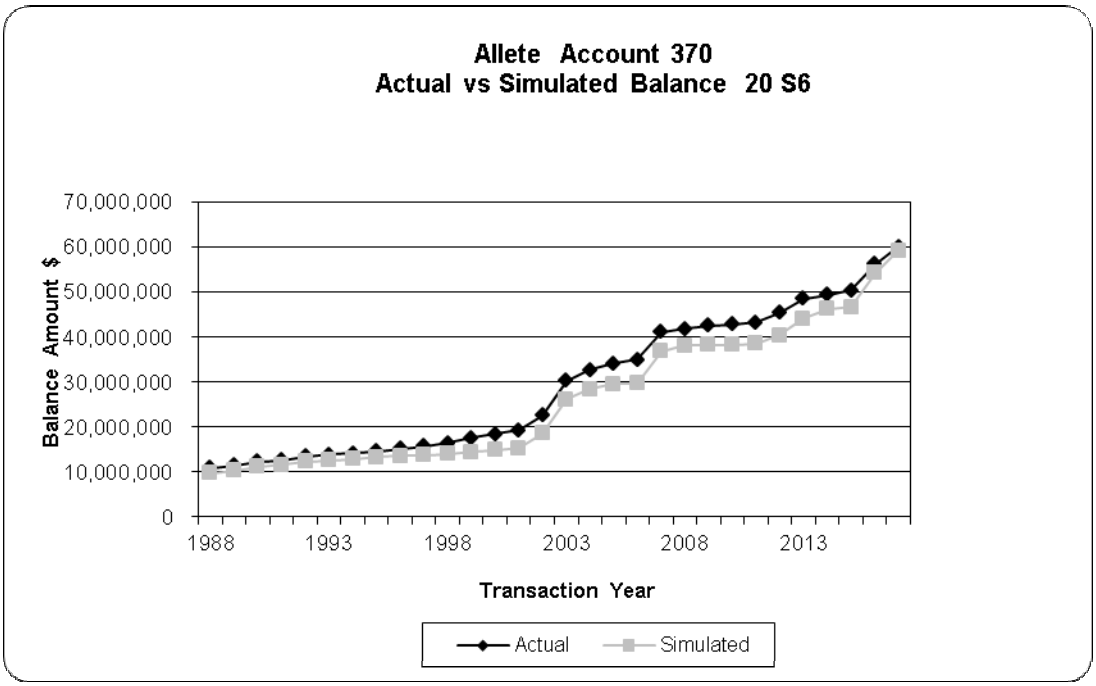
FERC Account 3692 Distribution Services- Underground (42 R2)

This account includes the cost of underground conductors leading to a point where wires leave the distribution box or manhole to the point of connection with customer's outlet or wiring. Conduit used for underground service conductors is included. Specifically, the items are brackets, cables and wires, conduit, insulators and repairs to disturbed pavement. The current plant balance in the account is $12.2 million. The currently approved life for this account is 40 R2. Company personnel report that underground services became more common in the 1980s. In 1995, “lot line” became the standard. The customer owns conductor from meter pedestal to house. Service is from secondary to meter pedestal. Before this change, 125 feet was the average service length, with lot line metering at 25 feet or less. Although with only a fair to good CI for nearly all bands but with an excellent REI, the 42 year life with an R2 dispersion was the highest ranked curve with the best REI for all bands. The plot of the 42 R2 curve shows a good fit over the entire life of the account. This study recommends moving from the approved 40 year life to a 42 year life while retaining the R2 dispersion for this account.



FERC Account 370 Distribution Meters (20 S6)

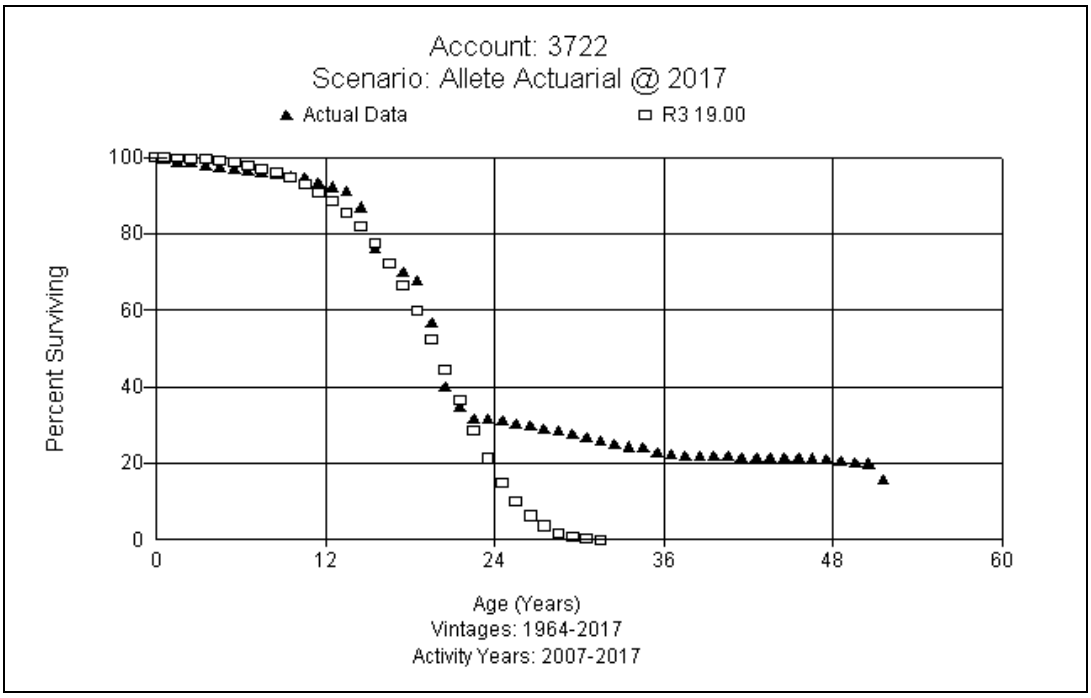
This account includes the cost of meters or devices used in measuring electricity delivered to its users. The current plant balance in the account is $60.1 million. The currently approved life for this account is 24 S6. Minnesota Power started installing electronic meters in 2008. Before 2008, they added "turtles" (electronic communications devices) to the meters and experienced significant failure rates. Currently, 98%-99% of meters are either electromechanical with turtles or microprocessor based meters. The life of the capacitors, display issues and technology change are normal failure modes. Significant temperature swings (as seen in their service territory) and power spikes can also cause failures. The life cycle of electronic meters is generally thought to be from 10 to 20 years. When electronic component fails, they will discard electromechanical meter and replace with a digital meter. In this account, SPR analysis shows low Conformance Indices and excellent REIs across the bands. The plot of the 20 S6 curve shows a good fit over the entire life of the account. Based on judgement and the information provided by company subject matter experts, this study recommends moving to a 20 year life and retaining the approved S6 dispersion for this account.



FERC Account 3722 Leased Property on Customer Premises - Lighting (19 R3)

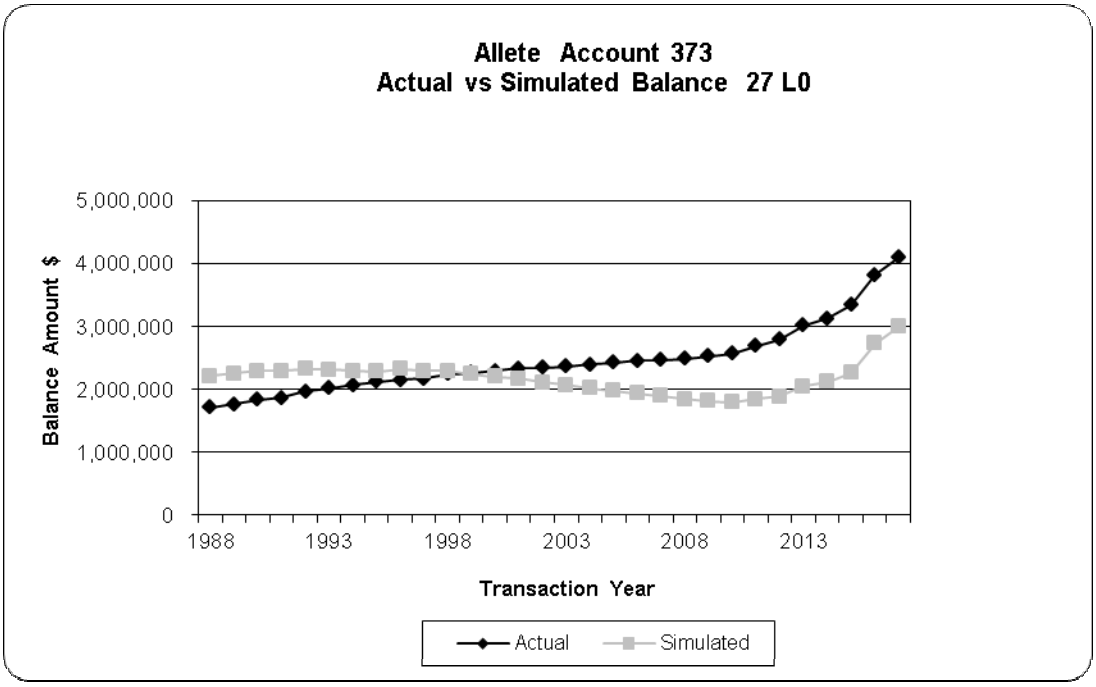
This account includes the costs of lighting fixtures leased to customers but not including property held for sale. The current plant balance in the account is $2.1 million. The current life is 18 R2.5. With the short life of the assets in this account, actual retirement experience was able to be used when determining the service life for this account. Since last rate case, the Company has changed from four options in lighting to two. They will junk the older equipment when it is pulled. There has been little change in luminaires. The Company no longer offers mercury vapor and uses HPS as the standard, and will begin using LED, but doesn't expect the life characteristics to change significantly.

Based on actuarial analysis, this study recommends moving from the approved 18 year life to a 19 year life and a move from the R2.5 dispersion to the R3 dispersion for this account. A graph of actual retirement experience and the selected Iowa curve for this account is shown below.



FERC Account 3730 Distribution Street Lighting and Signal Systems (27 L0)

This account includes the cost of equipment used wholly for public street and highway lighting or traffic, fire alarm, police and other signal systems. The current plant balance in the account is $4.1 million. The current life is 27 L0. Equipment in this account is moving from mercury vapor to HPS, and may additionally move to LED in the future. It is uncertain how the cities will respond with requests to migrate to LED lighting and what impact the equipment changes will have to the overall life for the assets in this account. Based on judgement and information from Company personnel, this study recommends retaining the approved 20 year life and L0 dispersion.



SALVAGE ANALYSIS

When a capital asset is retired, physically removed from service, and finally disposed of, terminal retirement is said to have occurred. The residual value of a terminal retirement is called gross salvage. Net salvage is the difference between the gross salvage (what the asset was sold for) and the removal cost (cost to remove and dispose of the asset).

Gross salvage and cost of removal related to retirements are recorded to the general ledger in the accumulated provision for depreciation at the time retirements occur within the system.

Net salvage data by plant account for Transmission and Distribution plant is shown in Appendix D. Removal cost percentages are calculated by dividing the current cost of removal by the original installed cost of the asset. Some plant assets can experience significant negative removal cost percentages due to the timing of the addition versus the retirement. For example, a Transmission asset in FERC Account 356 with a current installed cost of $500 (2017) would have had an installed cost of $39.49[5] in 1955. A removal cost of $50 for the asset calculated (incorrectly) on current installed cost would only have a negative 10 percent removal cost ($50/$500). However, a correct removal cost calculation would show a negative 126 percent removal cost for that asset ($50/$39.49). Inflation from the time of installation of the asset until the time of its removal must be taken into account in the calculation of the removal cost percentage because the depreciation rate, which includes the removal cost percentage, will be applied to the original installed cost of assets.

5 Using the Handy-Whitman Bulletin No. 186, E-3, line 37, $39.49 = $500 x 56/789.

Salvage - Transmission Property

Increasing levels of removal cost are experienced in nearly all accounts in this function. As seen in the salvage analysis, nearly all accounts have exhibited a swing in salvage received and removal cost in the last 24 years. The salvage received for retired assets has decreased over that time while the removal cost of assets has increased. The company has increasing cost to remove assets from service. For example, the cost of matting that is now required is significantly increasing the cost of removal and cost of projects overall. Also, asset lives have generally lengthened over the past 24 years which has the effect of increasing the net removal cost (creating a more negative net salvage percentage) for the assets.

Moving averages, which smooth out yearly fluctuations between retirements and net salvage, are used to examine data over the 1987 to 2017 period and determine net salvage estimates for each account. Detailed analysis and results by account are shown in Appendix D and individual account results are discussed below.

FERC Account 3520 Transmission Substation Structures and Improvements (- 10%)

The currently approved net salvage for this account is negative 10 percent. This account has seen few retirements in recent years. The ten year average is negative 11.34 percent through 2009 and the full history shows a negative 114.91 percent net salvage. This study recommends retaining a negative 10 percent net salvage for this account.

FERC Account 3530 Transmission Station Equipment (- 20%)

The currently approved net salvage for this account is negative 12 percent. There has been a consistent level or retirement over the entire history of this account. Salvage has dropped off in recent years and a higher focus has been placed on training to appropriately record removal cost. The five and ten year

averages are negative 29.36 percent and negative 27.00 percent, respectively. This study recommends a conservative move to negative 20 percent net salvage for this account.

FERC Account 3531 Reserve Station Transformers (0%)

This account contains reserve transformers used in a transmission substation. The currently approved net salvage for this account is 0 percent. There is no transactional history for this account. Generally, transformers are moved into the main 3530 account when placed in a field location. Therefore, this study recommends retaining 0 percent net salvage for this account.

FERC Account 3540 Transmission Tower and Fixtures (- 10%)

The currently approved net salvage for this account is negative 10 percent. The five and ten year averages are negative 123.71 percent and negative 153.01 percent, respectively. Retirements in this account are sparse, and the net salvage results from history do not contain a sufficient statistical sample to rely on the data. Judgment was used to retain the approved negative 10 percent salvage for this account.

FERC Account 3550 Transmission Poles and Fixtures (-60%)

The currently approved net salvage for these accounts is negative 35 percent. The five and ten year averages are negative 131.32 percent and negative 125.81 percent, respectively. Unlike Transmission Towers, there is a much greater level of retirement activity in the Transmission Pole account and moving conservatively toward the indications is warranted. This study recommends moving from the currently approved negative 35 percent net salvage to a negative 60 percent net salvage for this account.

FERC Account 3560 Transmission Overhead Conductor (- 40%)

The currently approved net salvage for this account is negative 30 percent.

The five and ten year averages are negative 49.10 percent and negative 55.47. Retirements and removal costs are increasing consistently for this account. As with Transmission Poles, an incremental movement toward the historical indication is warranted. This study recommends moving from the currently approved negative 30 percent net salvage to a negative 40 percent net salvage for this account.

FERC Account 3561 Clearing Land and Rights of Way (0%)

This account consists of clearing land and rights of way associated with transmission properties. The current approved net salvage for this account is 0 percent. Based on judgment, the same net salvage percent of 0 is retained for this account.

FERC Account 358 Transmission Underground Conductor (0%)

This account consists of underground conductor used for Wind Assets (at the Company's BISON and Tac Ridge facilities) and also at the Minntac 230/115kV substation. Typically these assets are abandoned in place. This study recommends retaining the approved 0 percent net salvage for this account.

FERC Account 3590 Roads and Trails (0%)

This account consists of roads and trails associated with transmission properties. The currently approved net salvage for this account is 0 percent. Based on judgment, the same net salvage percent of 0 is retained for this account.

Salvage - Distribution Property

Increasing levels of removal cost are experienced in all accounts in this function. As seen in the salvage analysis, many accounts have exhibited a significant swing in salvage received and removal cost in recent years. The salvage received for retired assets has decreased over that time while the removal cost of assets has increased dramatically.

Moving averages, which smooth out yearly fluctuations between retirements and net salvage, are used to examine data over the 1987 to 2017 period and determine net salvage estimates for each account. Detailed analysis and results by account are shown in Appendix D and individual account results are discussed below.

FERC Account 3610 Distribution Substation Structures and Improvements (- 25%)

The currently approved net salvage for this account is negative 15 percent. The five and ten year averages are negative 44.10 percent and negative 90.79. Retirement dollars have been increasing along with increasing removal costs being incurred. This study recommends conservatively moving to a negative 25 percent net salvage for this account.

FERC Account 3620 Distribution Substation Equipment (- 25%)

The currently approved net salvage for this account is negative 25 percent. The five and ten year averages are negative 29.22 percent and negative 31.51. Many of the prior-year rolling net salvage percentages in bands of 5 years or greater are at or above negative 25 percent. This study recommends retaining the currently approved negative 25 percent net salvage for this account.

FERC Account 3621 Reserve Distribution Substation Transformers (0%)

This account contains reserve transformers used in a distribution substation. The currently approved net salvage for this account is 0 percent. There is little

salvage or removal cost reflected in this account. Generally, transformers are moved into the main 3620 account when placed in a field location. Therefore, this study recommends retaining the 0 percent net salvage for this account.

FERC Account 3640 Distribution Poles, Towers, and Fixtures (- 75%)

The currently approved net salvage for this account is negative 50 percent. The five and ten year averages are negative 157.86 percent and negative 219.11 percent, respectively. Retirement dollars and removal costs have almost doubled in the last five years, while salvage has decreased significantly. The Company recently changed its policy to stop re-using poles, and anticipate salvage to decrease more in the future. This study recommends moving conservatively from the currently approved negative 50 percent net salvage to a negative 75 percent net salvage for this account.

FERC Account 365 Distribution Overhead Conductor and Devices (- 55%)

The currently approved net salvage for this account is negative 50 percent. The five and ten year averages are negative 57.25 percent and negative 79.24 percent respectively. Retirement dollars and removal costs are consistently increasing while salvage recovered is decreasing. This study recommends a conservative move from the currently approved negative 50 percent net salvage to a negative 55 percent net salvage for this account.

FERC Account 3651 Clearing Land and Rights of Way (0%)

This account consists of Distribution clearing land and rights of way. The current approved net salvage for this account is 0 percent. Based on judgment, the same net salvage percent of 0 is retained for this account.

FERC Account 3660 Distribution Underground Conduit (- 10%)

The currently approved net salvage for this account is negative 10 percent. The five and ten year averages are negative 63.86 percent and negative 128.31

percent respectively. As with Transmission Towers, this account has too little activity to completely rely on the historical percentages. This study recommends retaining the currently approved negative 10 percent net salvage for this account until a higher level of retirements occurs.

FERC Account 3670 Distribution Underground Conductor and Devices (- 27%)

The currently approved net salvage for this account is negative 22 percent. The five and ten year averages are negative 32.71 percent and negative 27.26 percent net salvage. This study recommends conservatively moving from the currently approved negative 22 percent to negative 27 percent net salvage for this account.

FERC Account 3680 Distribution Line Transformers (-5%)

The currently approved net salvage for this account is negative 13 percent. The five and ten year averages are negative 7.35 percent and negative 5.68 percent respectively. Retirement dollars and removal costs have remained consistent, but there has been an increase in the salvage costs over the last several years. This study recommends moving from the currently approved negative 13 percent to negative 5 percent net salvage for this account.

FERC Account 3691 Overhead Distribution Services (- 60%)

The currently approved net salvage for this account is negative 50 percent. The five and ten year averages are negative 65.04 percent and negative 136.53 percent. Retirement dollars and removal costs have increased significantly, while salvage has consistently decreased. This study recommends conservatively moving from the currently approved negative 50 percent to negative 60 percent net salvage for this account.

FERC Account 3692 Underground Distribution Services (- 15%)

The currently approved net salvage for this account is negative 5 percent. The

five and ten year averages are negative 20.77 percent and negative 18.61 percent, respectively. Retirement dollars and removal costs have been pretty consistent, however, there has been zero gross salvage recovered in the last seven years. This study recommends moving from the currently approved negative 5 percent net salvage to a negative 15 percent net salvage for this account.

FERC Account 3700 Distribution Meters (0%)

The currently approved net salvage for this account is 0 percent. The five and ten year averages are negative 0.52 percent and negative 0.63 percent, respectively. This study recommends retaining the currently approved 0 percent net salvage for this account.

FERC Account 3722 Distribution Installation on Customer Premises (- 40%)

The currently approved net salvage for this account is negative 60 percent. The five and ten year averages are negative 44.11 percent and negative 53.20 percent, respectively. This study recommends moving from the currently approved negative 60 percent net salvage to a negative 40 percent net salvage for this account.

FERC Account 3730 Distribution Street Lighting (- 50%)

The currently approved net salvage for this account is negative 35 percent. The five and ten year averages are negative 65.25 percent and negative 87.72 percent, respectively. All of the rolling bands since the last study exhibit a greater than negative 50 percent net salvage. This study recommends conservatively moving from the currently approved negative 35 percent net salvage to a negative 50 percent net salvage for this account.

APPENDIX A

Depreciation Rate Calculations

Minnesota Power
Computation of Depreciation Accrual Rate

Account	Description	Surviving Balance 12/31/2017	Accumulated Depreciation 12/31/2017	Net Salvage %	Net Salvage Amount	Unaccrued Balance	Remaining Life	Annual Accrual	Accrual Rate
3520	Structures and Improvements	23,623,052	4,945,604	-10.00%	(2,362,305)	21,039,753	43.11	488,081	2.07%
3530	Station Equipment	318,442,685	109,235,552	-20.00%	(63,688,537)	272,895,670	37.77	7,225,898	2.27%
3531	Reserve Station Transformers	2,178,237	1,866,741	0.00%	0	311,496	19.11	16,296	0.75%
3540	Towers & Fixtures	26,033,935	17,429,458	-10.00%	(2,603,393)	11,207,870	29.27	382,924	1.47%
3550	Poles & Fixtures	267,542,316	57,323,283	-60.00%	(160,525,390)	370,744,423	55.21	6,715,336	2.51%
3560	Overhead Conductors & Devices	95,371,392	41,586,929	-40.00%	(38,148,557)	91,933,020	40.85	2,250,248	2.36%
3561	Clearing Land & Rights of Way	23,369,805	6,769,572	0.00%	0	16,600,233	51.54	322,074	1.38%
3580	Underground Conduit	2,988,455	465,175	0.00%	0	2,523,280	41.44	60,884	2.04%
3590	Roads and Trails	58,614	29,062	0.00%	0	29,552	30.76	961	1.64%
	Subtotal Transmission	759,608,490	239,651,375		(267,328,182)	787,285,298		17,462,703	
3610	Structures and Improvements	9,458,134	3,566,189	-25.00%	(2,364,534)	8,256,479	43.76	188,688	1.99%
3620	Station Equipment	80,957,924	31,875,709	-25.00%	(20,239,481)	69,321,696	36.76	1,885,934	2.33%
3621	Reserve Station Transformers	1,364,886	754,670	0.00%	0	610,216	25.39	24,032	1.76%
3640	Poles, Towers and Fixtures	110,962,591	64,936,359	-75.00%	(83,221,943)	129,248,175	24.20	5,340,306	4.81%
3650	Overhead Conductors & Devices	87,969,528	56,780,918	-55.00%	(48,383,241)	79,571,851	21.42	3,714,826	4.22%
3651	Clearing Land & Rights of Way	5,332,727	3,058,767	0.00%	0	2,273,960	29.92	76,004	1.43%
3660	Underground Conduit	12,315,934	4,194,136	-10.00%	(1,231,593)	9,353,392	49.92	187,349	1.52%
3670	Underground Conductors & Devices	99,506,297	37,525,992	-27.00%	(26,866,700)	88,847,005	34.72	2,558,765	2.57%
3680	Line Transformers	90,973,212	34,166,891	-5.00%	(4,548,661)	61,354,981	30.83	1,989,969	2.19%
3691	Services- Overhead	6,056,308	4,876,501	-60.00%	(3,633,785)	4,813,592	26.19	183,803	3.03%
3692	Services- Underground	12,179,941	6,730,876	-15.00%	(1,826,991)	7,276,056	23.98	303,477	2.49%
3700	Meters	60,111,501	20,358,048	0.00%	0	39,753,453	10.21	3,892,720	6.48%
3722	Leased Property on Cust. Prem- Light	2,061,798	2,067,121	-40.00%	(824,719)	819,397	9.13	89,771	4.35%
3730	Street Lighting and Signal Systems	4,095,551	2,490,873	-50.00%	(2,047,775)	3,652,453	18.77	194,545	4.75%
	Subtotal Distribution	583,346,332	273,383,050		(195,189,423)	505,152,706		20,630,191	
	Total	1,342,954,823	513,034,425		(462,517,606)	1,292,438,004		38,092,893	

APPENDIX B

Life and Net Salvage Recommendations

Minnesota Power
Comparison of Life and Net Salvage Parameters

Account	Description	Present Life	Present Iowa Curve	Present Net Salvage	Proposed Life	Proposed Iowa Curve	Proposed Net Salvage
3520	Structures & Improvements	54	S5	-10.00%	56	R5	-10.00%
3530	Station Equipment	44	R4	-12.00%	52	R3	-20.00%
3531	Reserve Station Transformers	44	R4	0.00%	52	R3	0.00%
3540	Tower and Fixtures	55	R5	-10.00%	63	S4	-10.00%
3550	Poles and Fixtures	54	R3	-35.00%	63	R1.5	-60.00%
3560	Overhead Conductors and Devices	55	S5	-30.00%	62	S4	-40.00%
3561	Clearing Land & Rights of Way	67	S6	0.00%	71	S6	0.00%
3580	Underground Conductor	50	R3	0.00%	50	R3	0.00%
3590	Roads and Trails	60	R3	0.00%	60	R3	0.00%
3610	Structures & Improvements	60	S6	-15.00%	60	S6	-25.00%
3620	Station Equipment	46	R1	-25.00%	49	R1	-25.00%
3621	Reserve Station Transformers	46	R1	0.00%	49	R1	0.00%
3640	Poles, Towers and Fixtures	40	S6	-50.00%	43	S6	-75.00%
3650	Overhead Conductors and Devices	41	S6	-50.00%	43	S6	-55.00%
3651	Clearing Land & Rights of Way	65	S4	0.00%	65	S4	0.00%
3660	Underground Conduit	63	R2	-10.00%	68	R2	-10.00%
3670	Underground Conductor & Devices	44	R1.5	-22.00%	48	R2	-27.00%
3680	Line Transformers	44	R1.5	-13.00%	44	R1.5	-5.00%
3691	Services-Overhead	33	L0	-50.00%	40	L0	-60.00%
3692	Services-Underground	40	R2	-5.00%	42	R2	-15.00%
3700	Meters	24	S6	0.00%	20	S6	0.00%
3722	Leased Property on Cust. Prem. - Lighting	18	R2.5	-60.00%	19	R3	-40.00%
3730	Street Lighting and Signal Systems	27	L0	-35.00%	27	L0	-50.00%

APPENDIX C

Depreciation Expense Comparison

Minnesota Power
Comparison of Depreciation Expense- Present Rates vs. Proposed

Account	Description	Plant at 12/31/2017	Present Accrual Rate	Proposed Accrual Rate	Depr Expense At Current Rates	Depr Expense At Proposed Rates	Difference
3520	Structures and Improvements	23,623,051.78	2.60%	2.07%	614,199	488,081	(126,118)
3530	Station Equipment	318,442,685.39	2.76%	2.27%	8,789,018	7,225,898	(1,563,121)
3531	Reserve Station Transformers	2,178,236.77	1.63%	0.75%	35,505	16,296	(19,209)
3540	Towers & Fixtures	26,033,934.96	1.94%	1.47%	505,058	382,924	(122,134)
3550	Poles & Fixtures	267,542,316.25	2.50%	2.51%	6,688,558	6,715,336	26,778
3560	Overhead Conductors & Devices	95,371,391.89	2.88%	2.36%	2,746,696	2,250,248	(496,448)
3561	Clearing Land & Rights of Way	23,369,804.98	1.24%	1.38%	289,786	322,074	32,288
3580	Underground Conduit	2,988,454.59	2.05%	2.04%	61,263	60,884	(379)
3590	Roads and Trails	58,613.63	1.69%	1.64%	991	961	(30)
3610	Structures and Improvements	9,458,134.11	1.58%	1.99%	149,439	188,688	39,250
3620	Station Equipment	80,957,924.18	2.50%	2.33%	2,023,948	1,885,934	(138,014)
3621	Reserve Station Transformers	1,364,886.02	2.23%	1.76%	30,437	24,032	(6,405)
3640	Poles, Towers and Fixtures	110,962,591.18	4.35%	4.81%	4,826,873	5,340,306	513,433
3650	Overhead Conductors & Devices	87,969,528.48	4.50%	4.22%	3,958,629	3,714,826	(243,802)
3651	Clearing Land & Rights of Way	5,332,726.76	1.44%	1.43%	76,791	76,004	(788)
3660	Underground Conduit	12,315,933.94	1.67%	1.52%	205,676	187,349	(18,327)
3670	Underground Conductors & Devices	99,506,297.10	2.68%	2.57%	2,666,769	2,558,765	(108,004)
3680	Line Transformers	90,973,211.96	2.43%	2.19%	2,210,649	1,989,969	(220,680)
3691	Services- Overhead	6,056,308.00	3.89%	3.03%	235,590	183,803	(51,787)
3692	Services- Underground	12,179,941.02	2.29%	2.49%	278,921	303,477	24,557
3700	Meters	60,111,500.61	4.60%	6.48%	2,765,129	3,892,720	1,127,591
3722	Leased Property on Cust. Prem- Light	2,061,798.33	6.46%	4.35%	133,192	89,771	(43,421)
3730	Street Lighting and Signal Systems	4,095,550.64	3.21%	4.75%	131,467	194,545	63,078
		1,342,954,823			39,424,584	38,092,893	(1,331,691)

APPENDIX D

Net Salvage Analysis by Account

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
AS ADJUSTED

Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
1987	352.0 Structure And Improvements	0	0	0	0	NA									
1988	352.0 Structure And Improvements	0	0	0	0	NA	NA								
1989	352.0 Structure And Improvements	2,458	0	438	(438)	-17.81%	-17.81%	-17.81%							
1990	352.0 Structure And Improvements	0	0	0	0	NA	-17.81%	-17.81%	-17.81%						
1991	352.0 Structure And Improvements	7,050	0	104	(104)	-1.47%	-1.47%	-5.69%	-5.69%	-5.69%					
1992	352.0 Structure And Improvements	25	0	825	(825)	-3254.48%	-13.13%	-13.13%	-14.33%	-14.33%	-14.33%				
1993	352.0 Structure And Improvements	2,088	0	241	(241)	-11.55%	-50.44%	-12.77%	-12.77%	-13.83%	-13.83%	-13.83%			
1994	352.0 Structure And Improvements	123	0	0	0	0.00%	-10.90%	-47.65%	-12.60%	-12.60%	-13.69%	-13.69%	-13.69%		
1995	352.0 Structure And Improvements	21,233	0	6,081	(6,081)	-28.64%	-28.48%	-26.97%	-30.45%	-23.76%	-23.76%	-23.32%	-23.32%	-23.32%	
1996	352.0 Structure And Improvements	7,602	0	0	0	0.00%	-21.09%	-21.00%	-20.36%	-23.00%	-19.02%	-19.02%	-18.95%	-18.95%	-18.95%
1997	352.0 Structure And Improvements	0	0	0	0	NA	0.00%	-21.09%	-21.00%	-20.36%	-23.00%	-19.02%	-19.02%	-18.95%	-18.95%
1998	352.0 Structure And Improvements	0	0	0	0	NA	NA	0.00%	-21.09%	-21.00%	-20.36%	-23.00%	-19.02%	-19.02%	-18.95%
1999	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	0.00%	-21.09%	-21.00%	-20.36%	-23.00%	-19.02%	-19.02%
2000	352.0 Structure And Improvements	2,323	0	263	(263)	-11.34%	-11.34%	-11.34%	-11.34%	-2.65%	-20.36%	-20.28%	-19.74%	-22.19%	-18.58%
2001	352.0 Structure And Improvements	0	0	0	0	NA	-11.34%	-11.34%	-11.34%	-11.34%	-2.65%	-20.36%	-20.28%	-19.74%	-22.19%
2002	352.0 Structure And Improvements	0	0	0	0	NA	NA	-11.34%	-11.34%	-11.34%	-11.34%	-2.65%	-20.36%	-20.28%	-19.74%
2003	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	-11.34%	-11.34%	-11.34%	-11.34%	-2.65%	-20.36%	-20.28%
2004	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	NA	-11.34%	-11.34%	-11.34%	-11.34%	-2.65%	-20.36%
2005	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	NA	NA	-11.34%	-11.34%	-11.34%	-11.34%	-2.65%
2006	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	NA	NA	NA	-11.34%	-11.34%	-11.34%	-11.34%
2007	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	-11.34%	-11.34%	-11.34%
2008	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	-11.34%	-11.34%
2009	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	-11.34%
2010	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2011	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2012	352.0 Structure And Improvements	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2013	352.0 Structure And Improvements	45,386	0	27,984	(27,984)	-61.66%	-61.66%	-61.66%	-61.66%	-61.66%	-61.66%	-61.66%	-61.66%	-61.66%	-61.66%
2014	352.0 Structure And Improvements	215,881	0	306,824	(306,824)	-142.13%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%
2015	352.0 Structure And Improvements	0	0	0	0	NA	-142.13%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%
2016	352.0 Structure And Improvements	0	0	0	0	NA	NA	-142.13%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%	-128.15%
2017	352.0 Structure And Improvements	40,380	0	11,829	(11,829)	-29.29%	-29.29%	-29.29%	-124.35%	-114.91%	-114.91%	-114.91%	-114.91%	-114.91%	-114.91%
1987	353.0 Station Equipment	154,645	2,923	27,415	(24,492)	-15.84%									
1988	353.0 Station Equipment	251,140	8,174	32,790	(24,617)	-9.80%	-12.10%								
1989	353.0 Station Equipment	50,325	427	8,470	(8,044)	-15.98%	-10.83%	-12.53%							
1990	353.0 Station Equipment	79,523	1,280	3,941	(2,661)	-3.35%	-8.24%	-9.27%	-11.17%						
1991	353.0 Station Equipment	195,956	2,573	9,932	(7,359)	-3.76%	-3.64%	-5.54%	-7.40%	-9.18%					
1992	353.0 Station Equipment	356,654	5,737	28,138	(22,401)	-6.28%	-5.39%	-5.13%	-5.93%	-6.97%	-8.23%				
1993	353.0 Station Equipment	324,970	38,123	29,204	8,919	2.74%	-1.98%	-2.37%	-2.46%	-3.13%	-4.46%	-5.71%			
1994	353.0 Station Equipment	201,015	14,470	50,618	(36,148)	-17.98%	-5.18%	-5.62%	-5.28%	-5.15%	-5.60%	-6.32%	-7.24%		
1995	353.0 Station Equipment	176,735	0	20,024	(20,024)	-11.33%	-14.87%	-6.72%	-6.58%	-6.13%	-5.97%	-6.33%	-6.87%	-7.64%	
1996	353.0 Station Equipment	394,837	14,528	76,577	(62,049)	-15.72%	-14.36%	-15.30%	-9.96%	-9.06%	-8.43%	-8.19%	-8.41%	-8.59%	-9.10%
1997	353.0 Station Equipment	858,357	4,758	42,443	(37,684)	-4.39%	-7.96%	-8.38%	-9.56%	-7.51%	-7.32%	-7.05%	-6.93%	-7.10%	-7.34%
1998	353.0 Station Equipment	596,801	108,600	161,654	(53,054)	-8.89%	-6.24%	-8.26%	-8.53%	-9.38%	-7.84%	-7.65%	-7.40%	-7.30%	-7.43%
1999	353.0 Station Equipment	1,837,278	0	204,882	(204,882)	-11.15%	-10.60%	-8.98%	-9.70%	-9.77%	-10.18%	-9.22%	-9.00%	-8.79%	-8.71%
2000	353.0 Station Equipment	834,009	240,620	70,048	170,571	20.45%	-1.28%	-2.67%	-3.03%	-4.14%	-4.41%	-4.97%	-4.49%	-4.60%	-4.57%
2001	353.0 Station Equipment	239,767	0	17,867	(17,867)	-7.45%	14.22%	-1.79%	-3.00%	-3.27%	-4.31%	-4.56%	-5.08%	-4.62%	-4.72%
2002	353.0 Station Equipment	483,666	0	88,907	(88,907)	-18.38%	-14.76%	4.10%	-4.16%	-4.86%	-4.78%	-5.60%	-5.79%	-6.23%	-5.74%
2003	353.0 Station Equipment	845,405	0	42,593	(42,593)	-5.04%	-9.89%	-9.52%	0.88%	-4.33%	-4.89%	-4.82%	-5.52%	-5.69%	-6.07%
2004	353.0 Station Equipment	584,534	0	105,787	(105,787)	-18.10%	-10.38%	-12.40%	-11.85%	-2.83%	-6.00%	-6.32%	-6.05%	-6.63%	-6.75%
2005	353.0 Station Equipment	263,271	0	21,753	(21,753)	-8.26%	-15.04%	-10.05%	-11.90%	-11.46%	-3.27%	-6.12%	-6.41%	-6.14%	-6.69%
2006	353.0 Station Equipment	986,257	0	154,581	(154,581)	-15.67%	-14.11%	-15.38%	-12.12%	-13.08%	-12.68%	-6.16%	-7.67%	-7.78%	-7.39%
2007	353.0 Station Equipment	813,488	0	118,524	(118,524)	-14.57%	-15.17%	-14.29%	-15.13%	-12.69%	-13.38%	-13.04%	-7.51%	-8.48%	-8.52%
2008	353.0 Station Equipment	629,789	0	126,588	(126,588)	-20.10%	-16.98%	-16.45%	-15.65%	-16.09%	-13.82%	-14.30%	-13.96%	-8.91%	-9.46%
2009	353.0 Station Equipment	257,562	0	55,495	(55,495)	-21.55%	-20.52%	-17.67%	-16.94%	-16.17%	-16.48%	-14.28%	-14.68%	-14.34%	-9.46%
2010	353.0 Station Equipment	467,563	0	232,415	(232,415)	-49.71%	-39.70%	-30.59%	-24.58%	-21.80%	-20.75%	-20.37%	-17.69%	-17.76%	-17.31%
2011	353.0 Station Equipment	706,378	0	137,893	(137,893)	-19.52%	-31.54%	-29.75%	-26.80%	-23.34%	-21.38%	-20.54%	-20.24%	-17.93%	-17.96%
2012	353.0 Station Equipment	660,272	0	50,880	(50,880)	-7.71%	-13.81%	-22.96%	-22.79%	-22.17%	-20.42%	-19.38%	-18.77%	-18.70%	-16.84%
2013	353.0 Station Equipment	1,088,798	7,988	464,491	(456,503)	-41.93%	-29.01%	-26.28%	-30.03%	-29.34%	-27.81%	-25.48%	-23.76%	-23.06%	-22.61%
2014	353.0 Station Equipment	400,500	0	192,134	(192,134)	-47.97%	-43.55%	-32.54%	-29.32%	-32.19%	-31.42%	-29.73%	-27.28%	-25.37%	-24.65%
2015	353.0 Station Equipment	1,739,613	0	470,180	(470,180)	-27.03%	-30.95%	-34.65%	-30.08%	-28.45%	-30.42%	-29.99%	-28.94%	-27.21%	-25.74%
2016	353.0 Station Equipment	1,240,684	0	261,222	(261,222)	-21.05%	-24.54%	-27.32%	-30.88%	-27.89%	-26.88%	-28.57%	-28.30%	-27.58%	-26.26%
2017	353.0 Station Equipment	1,108,626	0	257,518	(257,518)	-23.23%	-22.08%	-24.19%	-26.31%	-29.36%	-27.06%	-26.30%	-27.77%	-27.57%	-27.00%

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
AS ADJUSTED

Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
1993	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA									
1994	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA								
1995	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA							
1996	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA						
1997	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA					
1998	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA				
1999	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA			
2000	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA		
2001	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2002	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2003	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2005	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2006	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2007	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2008	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2009	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2010	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2011	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2012	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2013	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2014	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2015	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2016	353.1 Station Equipment - Reserve Eq	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2017	353.1 Station Equipment - Reserve Eq	0	0	0											
1987	354.0 Towers And Fixtures	19,550	0	13,401	(13,401)	-68.55%									
1988	354.0 Towers And Fixtures	0	0	0	0	NA	-68.55%								
1989	354.0 Towers And Fixtures	0	0	0	0	NA	NA	-68.55%							
1990	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	-68.55%						
1991	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	-68.55%					
1992	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	NA	-68.55%				
1993	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	NA	NA	-68.55%			
1994	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	-68.55%		
1995	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	-68.55%	
1996	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	-68.55%
1997	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1998	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1999	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2000	354.0 Towers And Fixtures	65,757	0	0	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2001	354.0 Towers And Fixtures	0	0	0	0	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2002	354.0 Towers And Fixtures	0	0	0	0	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2003	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2004	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2005	354.0 Towers And Fixtures	0	0	0	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
2006	354.0 Towers And Fixtures	17,780	4,059	3,701	358	2.01%	2.01%	2.01%	2.01%	2.01%	2.01%	0.43%	0.43%	0.43%	0.43%
2007	354.0 Towers And Fixtures	0	0	0	0	NA	2.01%	2.01%	2.01%	2.01%	2.01%	2.01%	0.43%	0.43%	0.43%
2008	354.0 Towers And Fixtures	0	0	0	0	NA	NA	2.01%	2.01%	2.01%	2.01%	2.01%	2.01%	0.43%	0.43%
2009	354.0 Towers And Fixtures	48,466	0	5,568	(5,568)	-11.49%	-11.49%	-11.49%	-7.87%	-7.87%	-7.87%	-7.87%	-7.87%	-7.87%	-3.95%
2010	354.0 Towers And Fixtures	21,416	0	74,760	(74,760)	-349.09%	-114.95%	-114.95%	-114.95%	-91.23%	-91.23%	-91.23%	-91.23%	-91.23%	-91.23%
2011	354.0 Towers And Fixtures	30,099	2,275	94,016	(91,741)	-304.80%	-323.21%	-172.10%	-172.10%	-172.10%	-145.81%	-145.81%	-145.81%	-145.81%	-145.81%
2012	354.0 Towers And Fixtures	8,031	0	93,438	(93,438)	-1163.49%	-485.66%	-436.54%	-245.81%	-245.81%	-245.81%	-210.79%	-210.79%	-210.79%	-210.79%
2013	354.0 Towers And Fixtures	4,300	0	11,440	(11,440)	-266.07%	-850.55%	-463.40%	-425.06%	-246.59%	-246.59%	-246.59%	-212.61%	-212.61%	-212.61%
2014	354.0 Towers And Fixtures	15,177	0	46,887	(46,887)	-308.93%	-299.47%	-551.72%	-422.71%	-402.76%	-254.01%	-254.01%	-254.01%	-222.68%	-222.68%
2015	354.0 Towers And Fixtures	0	0	0	0	NA	-308.93%	-299.47%	-551.72%	-422.71%	-402.76%	-254.01%	-254.01%	-254.01%	-222.68%
2016	354.0 Towers And Fixtures	34,305	0	78,012	(78,012)	-227.40%	-227.40%	-252.41%	-253.50%	-371.73%	-349.81%	-349.68%	-248.37%	-248.37%	-248.37%
2017	354.0 Towers And Fixtures	288,305	0	286,849	(286,849)	-99.49%	-113.10%	-113.10%	-121.90%	-123.71%	-147.56%	-160.01%	-170.09%	-153.01%	-153.01%

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
AS ADJUSTED

Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
1987	355.0 Poles And Fixtures	129,158	29,063	135,447	(106,385)	-82.37%									
1988	355.0 Poles And Fixtures	95,240	1,638	33,880	(32,242)	-33.85%	-61.78%								
1989	355.0 Poles And Fixtures	65,328	6,728	27,563	(20,835)	-31.89%	-33.06%	-55.04%							
1990	355.0 Poles And Fixtures	67,612	12,710	105,876	(93,166)	-137.80%	-85.75%	-64.09%	-70.70%						
1991	355.0 Poles And Fixtures	204,964	15,165	99,077	(83,912)	-40.94%	-64.96%	-58.57%	-53.14%	-59.85%					
1992	355.0 Poles And Fixtures	385,133	9,032	195,330	(186,298)	-48.37%	-45.79%	-55.25%	-53.14%	-50.89%	-55.18%				
1993	355.0 Poles And Fixtures	141,587	10,337	94,238	(83,902)	-59.26%	-51.30%	-48.40%	-55.96%	-54.14%	-52.13%	-55.71%			
1994	355.0 Poles And Fixtures	129,984	23,359	65,977	(42,618)	-32.79%	-46.59%	-47.63%	-46.04%	-52.72%	-51.35%	-49.82%	-53.27%		
1995	355.0 Poles And Fixtures	64,861	1,200	46,934	(45,735)	-70.51%	-45.35%	-51.20%	-49.69%	-47.76%	-53.88%	-52.52%	-50.98%	-54.14%	
1996	355.0 Poles And Fixtures	94,466	2,858	56,927	(54,069)	-57.24%	-62.64%	-49.23%	-52.52%	-50.56%	-48.63%	-54.17%	-52.91%	-51.46%	-54.35%
1997	355.0 Poles And Fixtures	134,482	255	15,904	(15,649)	-11.64%	-30.45%	-39.30%	-37.30%	-42.80%	-45.06%	-44.33%	-49.49%	-48.60%	-47.59%
1998	355.0 Poles And Fixtures	68,951	42	27,281	(27,239)	-39.50%	-21.08%	-32.55%	-39.33%	-37.61%	-42.44%	-44.68%	-44.05%	-48.96%	-48.14%
1999	355.0 Poles And Fixtures	45,860	0	187,831	(187,831)	-409.57%	-187.33%	-92.55%	-82.85%	-80.89%	-69.28%	-67.19%	-60.39%	-57.25%	-61.32%
2000	355.0 Poles And Fixtures	71,829	0	36,226	(36,226)	-50.43%	-190.38%	-134.64%	-83.13%	-77.24%	-76.33%	-67.06%	-65.59%	-59.76%	-56.89%
2001	355.0 Poles And Fixtures	12,060	0	9,106	(9,106)	-75.51%	-54.04%	-179.70%	-131.05%	-82.85%	-77.19%	-76.31%	-67.23%	-65.75%	-59.93%
2002	355.0 Poles And Fixtures	89,797	1,141	42,748	(41,607)	-46.33%	-49.79%	-50.06%	-125.15%	-104.68%	-75.10%	-71.84%	-71.69%	-64.59%	-63.71%
2003	355.0 Poles And Fixtures	197,367	12,328	251,883	(239,555)	-121.38%	-97.91%	-97.01%	-87.99%	-123.36%	-111.46%	-89.82%	-85.52%	-84.27%	-76.91%
2004	355.0 Poles And Fixtures	60,854	32,656	25,246	7,410	12.18%	-89.90%	-78.66%	-78.55%	-73.88%	-106.10%	-97.70%	-80.71%	-77.85%	-77.29%
2005	355.0 Poles And Fixtures	679,865	68,483	192,737	(124,255)	-18.28%	-15.77%	-37.99%	-38.72%	-39.15%	-39.88%	-54.52%	-53.68%	-49.52%	-50.02%
2006	355.0 Poles And Fixtures	238	0	107	(107)	-45.08%	-18.29%	-15.78%	-37.99%	-38.72%	-39.15%	-39.88%	-54.52%	-53.68%	-49.52%
2007	355.0 Poles And Fixtures	1,249,840	0	436,667	(436,667)	-34.94%	-34.94%	-29.07%	-27.81%	-36.25%	-36.65%	-36.85%	-37.26%	-44.36%	-44.22%
2008	355.0 Poles And Fixtures	26,477	0	5,952	(5,952)	-22.48%	-34.68%	-34.68%	-28.98%	-27.74%	-36.08%	-36.48%	-36.69%	-37.10%	-44.12%
2009	355.0 Poles And Fixtures	157,790	18,634	91,047	(72,413)	-45.89%	-42.53%	-35.91%	-35.91%	-30.24%	-29.06%	-36.74%	-37.09%	-37.27%	-37.64%
2010	355.0 Poles And Fixtures	95,660	502	142,734	(142,231)	-148.68%	-84.69%	-78.80%	-42.96%	-42.97%	-35.37%	-34.10%	-41.08%	-41.26%	-41.42%
2011	355.0 Poles And Fixtures	237,795	6,594	218,275	(211,681)	-89.02%	-106.13%	-86.78%	-83.50%	-49.16%	-49.16%	-40.58%	-39.30%	-45.29%	-45.32%
2012	355.0 Poles And Fixtures	24,369	0	38,899	(38,899)	-159.62%	-95.58%	-109.78%	-90.23%	-86.92%	-50.66%	-50.66%	-41.76%	-40.46%	-46.31%
2013	355.0 Poles And Fixtures	38,229	0	32,326	(32,326)	-84.56%	-113.78%	-94.18%	-107.34%	-89.84%	-86.76%	-51.37%	-51.37%	-42.41%	-41.12%
2014	355.0 Poles And Fixtures	2,812	0	0	0	0.00%	-78.77%	-108.89%	-93.31%	-106.59%	-89.38%	-86.34%	-51.29%	-51.29%	-42.36%
2015	355.0 Poles And Fixtures	356,300	0	257,259	(257,259)	-72.20%	-71.64%	-72.88%	-77.89%	-81.90%	-90.36%	-82.68%	-80.98%	-54.70%	-54.69%
2016	355.0 Poles And Fixtures	2,230,396	153,516	2,757,351	(2,603,835)	-116.74%	-110.61%	-110.49%	-110.11%	-110.57%	-108.79%	-110.07%	-106.85%	-106.14%	-86.01%
2017	355.0 Poles And Fixtures	1,195,361	1,393	2,128,433	(2,127,040)	-177.94%	-138.10%	-131.89%	-131.79%	-131.32%	-131.50%	-129.03%	-129.48%	-126.44%	-125.81%
1987	356.0 Overhead Conductors & Devices	31,486	16,664	36,147	(19,483)	-61.88%									
1988	356.0 Overhead Conductors & Devices	54,763	7,269	13,220	(5,951)	-10.87%	-29.49%								
1989	356.0 Overhead Conductors & Devices	251	(12,994)	4,426	(17,419)	-6939.76%	-42.48%	-49.54%							
1990	356.0 Overhead Conductors & Devices	86,837	12,886	34,144	(21,257)	-24.48%	-44.41%	-31.46%	-36.99%						
1991	356.0 Overhead Conductors & Devices	53,509	13,129	26,959	(13,830)	-25.85%	-25.00%	-37.35%	-29.92%	-34.36%					
1992	356.0 Overhead Conductors & Devices	149,815	9,013	52,586	(43,573)	-29.08%	-28.23%	-27.11%	-33.08%	-29.56%	-32.26%				
1993	356.0 Overhead Conductors & Devices	169,143	13,696	141,009	(127,313)	-75.27%	-53.58%	-49.59%	-44.84%	-48.61%	-44.59%	-45.59%			
1994	356.0 Overhead Conductors & Devices	59,654	6,375	48,853	(42,478)	-71.21%	-74.21%	-56.35%	-52.58%	-47.87%	-51.21%	-47.36%	-48.11%		
1995	356.0 Overhead Conductors & Devices	4,293	506	3,249	(2,742)	-63.88%	-70.72%	-74.02%	-56.44%	-52.69%	-48.01%	-51.31%	-47.48%	-48.22%	
1996	356.0 Overhead Conductors & Devices	59,546	4,074	12,598	(8,524)	-14.31%	-17.65%	-43.52%	-61.87%	-50.77%	-48.08%	-44.56%	-47.53%	-44.38%	-45.21%
1997	356.0 Overhead Conductors & Devices	8,123	0	0	0	0.00%	-12.60%	-15.66%	-40.83%	-60.20%	-49.85%	-47.31%	-43.95%	-46.88%	-43.83%
1998	356.0 Overhead Conductors & Devices	54,889	0	3,185	(3,185)	-5.80%	-5.05%	-9.55%	-11.39%	-30.52%	-51.80%	-45.07%	-43.23%	-40.71%	-43.39%
1999	356.0 Overhead Conductors & Devices	4,856	0	12,933	(12,933)	-266.33%	-26.98%	-23.75%	-19.34%	-20.79%	-36.51%	-54.69%	-47.18%	-45.15%	-42.39%
2000	356.0 Overhead Conductors & Devices	0	0	0	0	NA	-266.33%	-26.98%	-23.75%	-19.34%	-20.79%	-36.51%	-54.69%	-47.18%	-45.15%
2001	356.0 Overhead Conductors & Devices	3,956	0	1,725	(1,725)	-43.61%	-43.61%	-166.34%	-28.01%	-24.84%	-20.07%	-21.46%	-36.65%	-54.57%	-47.15%
2002	356.0 Overhead Conductors & Devices	3,587	1,339	5,692	(4,353)	-121.36%	-80.58%	-80.58%	-153.33%	-32.99%	-29.43%	-22.76%	-24.03%	-38.18%	-55.23%
2003	356.0 Overhead Conductors & Devices	19,217	0	19,581	(19,581)	-101.89%	-104.95%	-95.89%	-95.89%	-122.07%	-48.29%	-44.15%	-32.63%	-33.47%	-43.79%
2004	356.0 Overhead Conductors & Devices	756,185	11,948	305,740	(293,792)	-38.85%	-40.41%	-40.79%	-40.80%	-40.80%	-42.19%	-39.82%	-39.44%	-37.80%	-37.92%
2005	356.0 Overhead Conductors & Devices	360,640	46,508	52,794	(6,287)	-1.74%	-26.87%	-28.14%	-28.43%	-28.48%	-28.48%	-29.49%	-28.41%	-28.22%	-27.57%
2006	356.0 Overhead Conductors & Devices	84	0	44	(44)	-52.64%	-1.76%	-26.87%	-28.14%	-28.43%	-28.49%	-28.49%	-29.49%	-28.41%	-28.22%
2007	356.0 Overhead Conductors & Devices	38,186	0	43,580	(43,580)	-114.12%	-113.99%	-12.51%	-29.76%	-30.94%	-31.21%	-31.25%	-31.25%	-32.21%	-31.05%
2008	356.0 Overhead Conductors & Devices	115,882	0	116,213	(116,213)	-100.29%	-103.72%	-103.69%	-32.27%	-36.19%	-37.16%	-37.40%	-37.42%	-37.42%	-38.27%
2009	356.0 Overhead Conductors & Devices	34,490	0	8,217	(8,217)	-23.82%	-82.75%	-89.10%	-89.09%	-31.74%	-35.86%	-36.82%	-37.05%	-37.07%	-37.07%
2010	356.0 Overhead Conductors & Devices	24,773	0	43,334	(43,334)	-174.93%	-86.99%	-95.79%	-99.07%	-99.05%	-37.92%	-38.45%	-39.35%	-39.57%	-39.58%
2011	356.0 Overhead Conductors & Devices	3,806	70	2,609	(2,539)	-66.71%	-160.52%	-85.76%	-95.17%	-98.50%	-98.48%	-38.11%	-38.53%	-39.43%	-39.65%
2012	356.0 Overhead Conductors & Devices	1,939	0	4,395	(4,395)	-226.70%	-120.70%	-164.72%	-89.97%	-96.58%	-99.64%	-99.62%	-38.74%	-38.80%	-39.70%
2013	356.0 Overhead Conductors & Devices	4,615	0	2,263	(2,263)	-49.03%	-101.59%	-88.77%	-149.52%	-87.25%	-95.39%	-98.59%	-98.57%	-38.82%	-38.84%
2014	356.0 Overhead Conductors & Devices	52	0	10,275	(10,275)	-19785.75%	-268.64%	-256.33%	-187.01%	-178.50%	-101.94%	-100.91%	-103.16%	-103.14%	-40.57%
2015	356.0 Overhead Conductors & Devices	140,276	0	93,154	(93,154)	-66.41%	-73.70%	-72.92%	-74.95%	-74.74%	-88.89%	-78.20%	-86.05%	-89.00%	-88.99%
2016	356.0 Overhead Conductors & Devices	664,734	119,001	329,084	(210,083)	-31.60%	-37.67%	-38.94%	-39.00%	-39.45%	-39.58%	-43.57%	-42.79%	-49.51%	-51.91%
2017	356.0 Overhead Conductors & Devices	358,356	0	257,735	(257,735)	-71.92%	-45.73%	-48.22%	-49.10%	-49.10%	-49.39%	-49.45%	-52.04%	-51.25%	-55.47%

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
AS ADJUSTED

Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
1987	355.0 & 356.0	160,644	45,727	171,594	(125,868)	-78.35%									
1988	355.0 & 356.0	150,003	8,907	47,100	(38,192)	-25.46%	-52.81%								
1989	355.0 & 356.0	65,579	(6,266)	31,988	(38,255)	-58.33%	-35.46%	-53.77%							
1990	355.0 & 356.0	154,449	25,596	140,020	(114,423)	-74.08%	-69.39%	-51.58%	-59.69%						
1991	355.0 & 356.0	258,473	28,294	126,035	(97,742)	-37.82%	-51.38%	-52.33%	-45.92%	-52.52%					
1992	355.0 & 356.0	534,949	18,044	247,915	(229,871)	-42.97%	-41.29%	-46.63%	-47.39%	-44.56%	-48.66%				
1993	355.0 & 356.0	310,730	24,033	235,247	(211,215)	-67.97%	-52.16%	-48.80%	-51.90%	-52.22%	-49.50%	-52.33%			
1994	355.0 & 356.0	189,638	29,733	114,829	(85,096)	-44.87%	-59.22%	-50.82%	-48.22%	-50.98%	-51.30%	-48.97%	-51.56%		
1995	355.0 & 356.0	69,153	1,706	50,183	(48,477)	-70.10%	-51.61%	-60.54%	-52.03%	-49.33%	-51.85%	-52.12%	-49.81%	-52.24%	
1996	355.0 & 356.0	154,012	6,933	69,526	(62,593)	-40.64%	-49.77%	-47.52%	-56.30%	-50.64%	-48.45%	-50.82%	-51.10%	-49.07%	-51.36%
1997	355.0 & 356.0	142,605	255	15,904	(15,649)	-10.97%	-26.38%	-34.64%	-38.14%	-48.84%	-46.60%	-45.23%	-47.69%	-48.06%	-46.39%
1998	355.0 & 356.0	123,840	42	30,466	(30,424)	-24.57%	-17.29%	-25.84%	-32.10%	-35.66%	-45.80%	-44.81%	-43.80%	-46.21%	-46.61%
1999	355.0 & 356.0	50,716	0	200,764	(200,764)	-395.86%	-132.44%	-77.83%	-65.67%	-66.24%	-60.69%	-62.86%	-56.11%	-53.53%	-55.13%
2000	355.0 & 356.0	71,829	0	36,226	(36,226)	-50.43%	-193.39%	-108.54%	-72.77%	-63.66%	-64.38%	-59.77%	-62.06%	-55.86%	-53.41%
2001	355.0 & 356.0	16,016	0	10,832	(10,832)	-67.63%	-53.57%	-178.85%	-106.04%	-72.57%	-63.77%	-64.47%	-59.92%	-62.14%	-55.98%
2002	355.0 & 356.0	93,384	2,480	48,440	(45,960)	-49.22%	-51.91%	-51.33%	-126.66%	-91.12%	-68.19%	-61.69%	-62.49%	-58.83%	-61.15%
2003	355.0 & 356.0	216,584	12,328	271,464	(259,136)	-119.65%	-98.43%	-96.91%	-88.52%	-123.27%	-101.92%	-83.78%	-76.13%	-75.69%	-70.51%
2004	355.0 & 356.0	817,038	44,604	330,986	(286,381)	-35.05%	-52.78%	-52.48%	-52.69%	-52.56%	-66.32%	-62.60%	-57.79%	-56.22%	-56.77%
2005	355.0 & 356.0	1,040,505	114,990	245,532	(130,542)	-12.55%	-22.44%	-32.59%	-33.31%	-33.56%	-34.10%	-42.06%	-41.16%	-39.49%	-39.56%
2006	355.0 & 356.0	322	0	152	(152)	-47.05%	-12.56%	-22.45%	-32.60%	-33.31%	-33.56%	-34.10%	-42.06%	-41.17%	-39.49%
2007	355.0 & 356.0	1,288,027	0	480,247	(480,247)	-37.29%	-37.29%	-26.23%	-28.52%	-34.39%	-34.79%	-34.95%	-35.26%	-40.35%	-39.82%
2008	355.0 & 356.0	142,359	0	122,165	(122,165)	-85.81%	-42.12%	-42.12%	-29.67%	-31.00%	-36.48%	-36.81%	-36.95%	-37.21%	-42.08%
2009	355.0 & 356.0	192,280	18,634	99,264	(80,630)	-41.93%	-60.60%	-42.09%	-42.09%	-30.55%	-31.61%	-36.77%	-37.07%	-37.20%	-37.45%
2010	355.0 & 356.0	120,432	502	186,068	(185,565)	-154.08%	-85.12%	-85.34%	-49.83%	-49.83%	-35.90%	-35.70%	-40.47%	-40.68%	-40.79%
2011	355.0 & 356.0	241,601	6,664	220,884	(214,220)	-88.67%	-110.43%	-86.67%	-86.49%	-54.56%	-54.56%	-40.11%	-39.03%	-43.34%	-43.47%
2012	355.0 & 356.0	26,308	0	43,294	(43,294)	-164.57%	-96.12%	-114.10%	-90.20%	-89.33%	-56.00%	-56.00%	-41.18%	-39.89%	-44.12%
2013	355.0 & 356.0	42,844	0	34,589	(34,589)	-80.73%	-112.63%	-94.00%	-110.78%	-89.55%	-88.85%	-56.51%	-56.51%	-41.73%	-40.33%
2014	355.0 & 356.0	2,864	0	10,275	(10,275)	-358.80%	-98.15%	-122.41%	-96.42%	-112.42%	-90.78%	-89.86%	-56.93%	-56.93%	-42.02%
2015	355.0 & 356.0	496,576	0	350,413	(350,413)	-70.57%	-72.22%	-72.89%	-77.13%	-80.57%	-90.09%	-81.84%	-82.29%	-59.59%	-59.58%
2016	355.0 & 356.0	2,895,130	272,517	3,086,435	(2,813,918)	-97.19%	-93.30%	-93.52%	-93.36%	-93.90%	-93.56%	-95.47%	-92.90%	-92.66%	-79.57%
2017	355.0 & 356.0	1,553,716	1,393	2,386,168	(2,384,775)	-153.49%	-116.85%	-112.21%	-112.35%	-112.08%	-112.35%	-111.27%	-112.22%	-109.80%	-109.20%
1987	356.1 Clearing Land & Rights-Of-Way	0	3,488	0	3,488	NA									
1988	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA								
1989	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA							
1990	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA						
1991	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA					
1992	356.1 Clearing Land & Rights-Of-Way	34	0	9	(9)	-25.72%	-25.72%	-25.72%	-25.72%	-25.72%	10275.25%				
1993	356.1 Clearing Land & Rights-Of-Way	1,951	0	1,037	(1,037)	-53.16%	-52.70%	-52.70%	-52.70%	-52.70%	-52.70%	123.05%			
1994	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	-53.16%	-52.70%	-52.70%	-52.70%	-52.70%	-52.70%	123.05%		
1995	356.1 Clearing Land & Rights-Of-Way	2,974	0	0	0	0.00%	0.00%	-21.06%	-21.09%	-21.09%	-21.09%	-21.09%	-21.09%	49.25%	
1996	356.1 Clearing Land & Rights-Of-Way	9,402	0	0	0	0.00%	0.00%	0.00%	-7.24%	-7.28%	-7.28%	-7.28%	-7.28%	-7.28%	17.00%
1997	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	0.00%	0.00%	0.00%	-7.24%	-7.28%	-7.28%	-7.28%	-7.28%	-7.28%
1998	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	0.00%	0.00%	0.00%	-7.24%	-7.28%	-7.28%	-7.28%	-7.28%
1999	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	0.00%	0.00%	0.00%	-7.24%	-7.28%	-7.28%	-7.28%
2000	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	0.00%	0.00%	0.00%	-7.24%	-7.28%	-7.28%
2001	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	-7.24%	-7.28%
2002	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	-7.24%
2003	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%
2004	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	0.00%	0.00%
2005	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00%
2006	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2007	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2008	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2009	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2010	356.1 Clearing Land & Rights-Of-Way	0	0	19	(19)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2011	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2012	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2013	356.1 Clearing Land & Rights-Of-Way	120	0	52	(52)	-43.11%	-43.11%	-43.11%	-58.59%	-58.59%	-58.59%	-58.59%	-58.59%	-58.59%	-58.59%
2014	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	-43.11%	-43.11%	-43.11%	-58.59%	-58.59%	-58.59%	-58.59%	-58.59%	-58.59%
2015	356.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	-43.11%	-43.11%	-43.11%	-58.59%	-58.59%	-58.59%	-58.59%	-58.59%
2016	356.1 Clearing Land & Rights-Of-Way	174,016	34,409	66,538	(32,129)	-18.46%	-18.46%	-18.46%	-18.48%	-18.48%	-18.48%	-18.48%	-18.49%	-18.49%	-18.49%
2017	356.1 Clearing Land & Rights-Of-Way	30,713	0	61,945	(61,945)	-201.69%	-45.95%	-45.95%	-45.95%	-45.95%	-45.95%	-45.95%	-45.96%	-45.96%	-45.96%

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
AS ADJUSTED

Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
2011	358.0 Underground Conduit	25,788	0	0	0	0.00%									
2012	358.0 Underground Conduit	0	0	0	0	NA	0.00%								
2013	358.0 Underground Conduit	0	0	0	0	NA	NA	0.00%							
2014	358.0 Underground Conduit	0	0	0	0	NA	NA	NA	0.00%						
2015	358.0 Underground Conduit	0	0	0	0	NA	NA	NA	NA	0.00%					
2016	358.0 Underground Conduit	0	0	0	0	NA	NA	NA	NA	NA	0.00%				
2017	358.0 Underground Conduit	0	0	0	0	NA	NA	NA	NA	NA	NA	0.00%			
1987	359.0 Roads And Trails	0	0	0	0	NA									
1988	359.0 Roads And Trails	0	0	0	0	NA	NA								
1989	359.0 Roads And Trails	0	0	0	0	NA	NA	NA							
1990	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA						
1991	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA					
1992	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA				
1993	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA			
1994	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA		
1995	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
1996	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1997	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1998	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1999	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2000	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2001	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2002	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2003	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2005	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2006	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2007	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2008	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2009	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2010	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2011	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2012	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2013	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2014	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2015	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2016	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2017	359.0 Roads And Trails	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
AS ADJUSTED

Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
1988	361.0 Structure & Improvements	9,547	0	781	(781)	-8.18%									
1989	361.0 Structure & Improvements	42,154	48,750	34,291	14,459	34.30%	26.46%								
1990	361.0 Structure & Improvements	8,860	0	12,258	(12,258)	-138.35%	4.32%	2.34%							
1991	361.0 Structure & Improvements	3,248	(0)	15,000	(15,001)	-461.81%	-225.12%	-23.59%	-21.28%						
1992	361.0 Structure & Improvements	12,120	9	666	(657)	-5.42%	-101.88%	-115.22%	-20.27%	-18.75%					
1993	361.0 Structure & Improvements	2,058	0	323	(323)	-15.72%	-6.91%	-91.71%	-107.43%	-20.13%	-18.67%				
1994	361.0 Structure & Improvements	0	0	0	0	NA	-15.72%	-6.91%	-91.71%	-107.43%	-20.13%	-18.67%			
1995	361.0 Structure & Improvements	11,397	(150)	1,188	(1,339)	-11.75%	-11.75%	-12.35%	-9.07%	-60.09%	-78.49%	-18.94%	-17.79%		
1996	361.0 Structure & Improvements	2,636	0	1,114	(1,114)	-42.25%	-17.48%	-17.48%	-17.25%	-12.17%	-58.59%	-76.12%	-19.68%	-18.49%	
1997	361.0 Structure & Improvements	0	0	0	0	NA	-42.25%	-17.48%	-17.48%	-17.25%	-12.17%	-58.59%	-76.12%	-19.68%	-18.49%
1998	361.0 Structure & Improvements	3,930	509	142	367	9.33%	9.33%	-11.38%	-11.61%	-11.61%	-12.03%	-9.54%	-51.05%	-68.53%	-18.36%
1999	361.0 Structure & Improvements	0	0	0	0	NA	9.33%	9.33%	-11.38%	-11.61%	-11.61%	-12.03%	-9.54%	-51.05%	-68.53%
2000	361.0 Structure & Improvements	1,788	0	231	(231)	-12.91%	-12.91%	2.37%	2.37%	-11.71%	-11.73%	-11.73%	-12.11%	-9.72%	-49.22%
2001	361.0 Structure & Improvements	10,993	0	1,764	(1,764)	-16.04%	-15.60%	-15.60%	-9.74%	-9.74%	-14.17%	-13.27%	-13.27%	-13.43%	-11.27%
2002	361.0 Structure & Improvements	2,098	0	150	(150)	-7.17%	-14.62%	-14.42%	-14.42%	-9.45%	-9.45%	-13.49%	-12.88%	-12.88%	-13.05%
2003	361.0 Structure & Improvements	0	0	0	0	NA	-7.17%	-14.62%	-14.42%	-14.42%	-9.45%	-9.45%	-13.49%	-12.88%	-12.88%
2004	361.0 Structure & Improvements	18,083	0	6,994	(6,994)	-38.68%	-38.68%	-35.40%	-28.58%	-27.73%	-27.73%	-23.78%	-23.78%	-25.01%	-22.04%
2005	361.0 Structure & Improvements	1,640	0	457	(457)	-27.89%	-37.78%	-37.78%	-34.84%	-28.54%	-27.73%	-27.73%	-23.95%	-23.95%	-25.13%
2006	361.0 Structure & Improvements	0	0	138	(138)	NA	-36.28%	-38.48%	-38.48%	-35.47%	-28.96%	-28.13%	-28.13%	-24.31%	-24.31%
2007	361.0 Structure & Improvements	34,846	43	5,306	(5,262)	-15.10%	-15.50%	-16.05%	-23.55%	-23.55%	-22.94%	-21.82%	-21.59%	-21.59%	-19.94%
2008	361.0 Structure & Improvements	17,759	0	48,327	(48,327)	-272.13%	-101.87%	-102.13%	-99.89%	-84.59%	-84.59%	-82.40%	-73.86%	-72.61%	-72.61%
2009	361.0 Structure & Improvements	1,817	4	17,559	(17,556)	-966.00%	-336.54%	-130.73%	-130.98%	-127.97%	-106.19%	-106.19%	-103.47%	-92.45%	-90.85%
2010	361.0 Structure & Improvements	0	0	363	(363)	NA	-986.00%	-338.40%	-131.40%	-131.65%	-128.61%	-106.68%	-106.68%	-103.94%	-92.87%
2011	361.0 Structure & Improvements	10,481	0	391	(391)	-3.73%	-7.20%	-148.89%	-221.70%	-110.78%	-110.99%	-108.94%	-93.93%	-93.93%	-91.83%
2012	361.0 Structure & Improvements	22,536	0	718	(718)	-3.19%	-3.36%	-4.46%	-54.63%	-128.07%	-83.05%	-83.21%	-82.19%	-74.85%	-74.85%
2013	361.0 Structure & Improvements	7,844	0	3,789	(3,789)	-48.30%	-14.84%	-11.99%	-12.88%	-53.46%	-117.72%	-80.19%	-80.33%	-79.45%	-73.04%
2014	361.0 Structure & Improvements	852	0	171	(171)	-20.06%	-45.54%	-14.98%	-12.15%	-13.02%	-52.81%	-116.36%	-79.66%	-79.80%	-78.93%
2015	361.0 Structure & Improvements	27,621	0	12,921	(12,921)	-46.78%	-45.98%	-46.48%	-29.90%	-25.95%	-26.47%	-50.47%	-94.74%	-72.32%	-72.43%
2016	361.0 Structure & Improvements	3,091	0	274	(274)	-8.86%	-42.96%	-42.34%	-43.53%	-28.85%	-25.22%	-25.72%	-48.74%	-91.86%	-70.77%
2017	361.0 Structure & Improvements	2,581	0	1,361	(1,361)	-52.74%	-28.82%	-43.72%	-43.13%	-44.10%	-29.81%	-26.16%	-26.65%	-48.87%	-90.79%
1988	362.0 Station Equipment	389,242	66,791	51,632	15,159										
1989	362.0 Station Equipment	513,835	64,648	85,605	(20,957)	-4.08%									
1990	362.0 Station Equipment	279,967	74,052	53,377	20,675	7.38%	-0.04%								
1991	362.0 Station Equipment	359,511	247,513	37,180	210,333	58.51%	36.12%	18.21%							
1992	362.0 Station Equipment	268,090	194,907	44,146	150,761	56.24%	57.54%	42.07%	25.38%						
1993	362.0 Station Equipment	456,828	8,516	54,335	(45,819)	-10.03%	14.48%	29.07%	24.62%	16.77%					
1994	362.0 Station Equipment	163,390	13,229	37,470	(24,241)	-14.84%	-11.30%	9.08%	23.32%	20.40%	14.24%				
1995	362.0 Station Equipment	194,256	(2,276)	31,294	(33,571)	-17.28%	-16.16%	-12.72%	4.35%	17.85%	16.15%	11.50%			
1996	362.0 Station Equipment	281,319	2,413	47,835	(45,422)	-16.15%	-16.61%	-16.16%	-13.60%	0.13%	12.30%	11.62%	8.41%		
1997	362.0 Station Equipment	68,115	128	40,495	(40,367)	-59.26%	-24.55%	-21.95%	-20.31%	-16.27%	-2.70%	9.58%	9.29%	6.63%	
1998	362.0 Station Equipment	84,193	5,382	12,658	(7,276)	-8.64%	-31.28%	-21.46%	-20.17%	-19.07%	-15.76%	-3.03%	8.76%	8.59%	6.15%
1999	362.0 Station Equipment	24,433	0	10,355	(10,355)	-42.38%	-16.23%	-32.82%	-22.58%	-21.00%	-19.77%	-16.27%	-3.65%	8.11%	8.01%
2000	362.0 Station Equipment	152,612	0	38,390	(38,390)	-25.16%	-27.53%	-21.44%	-29.27%	-23.22%	-21.79%	-20.62%	-17.22%	-5.59%	5.63%
2001	362.0 Station Equipment	131,066	0	34,878	(34,878)	-26.61%	-25.83%	-27.14%	-23.17%	-28.51%	-23.82%	-22.46%	-21.33%	-18.01%	-7.10%
2002	362.0 Station Equipment	238,335	0	45,405	(45,405)	-19.05%	-21.73%	-22.73%	-23.61%	-21.61%	-25.28%	-22.66%	-21.77%	-20.92%	-18.15%
2003	362.0 Station Equipment	492,272	0	264,359	(264,359)	-53.70%	-42.40%	-40.00%	-37.76%	-37.87%	-35.68%	-37.03%	-33.04%	-31.20%	-29.74%
2004	362.0 Station Equipment	481,710	0	118,549	(118,549)	-24.61%	-39.31%	-35.33%	-34.48%	-33.53%	-33.67%	-32.36%	-33.45%	-30.96%	-29.72%
2005	362.0 Station Equipment	192,763	0	30,658	(30,658)	-15.90%	-22.12%	-35.45%	-32.67%	-32.15%	-31.52%	-31.67%	-30.59%	-31.64%	-29.61%
2006	362.0 Station Equipment	247,623	14,000	69,569	(55,569)	-22.44%	-19.58%	-22.21%	-33.17%	-31.13%	-30.80%	-30.36%	-30.51%	-29.61%	-30.56%
2007	362.0 Station Equipment	684,816	1,037	77,845	(76,808)	-11.22%	-14.20%	-14.49%	-17.52%	-26.01%	-25.30%	-25.37%	-25.36%	-25.51%	-24.99%
2008	362.0 Station Equipment	89,717	0	104,678	(104,678)	-116.68%	-23.43%	-23.19%	-22.04%	-22.77%	-29.72%	-28.68%	-28.57%	-28.38%	-28.50%
2009	362.0 Station Equipment	275,783	644	195,314	(194,670)	-70.59%	-81.90%	-35.81%	-33.26%	-31.02%	-29.45%	-34.30%	-32.95%	-32.66%	-32.28%
2010	362.0 Station Equipment	197,043	16,875	93,301	(76,426)	-38.79%	-57.34%	-66.80%	-36.28%	-33.99%	-31.92%	-30.30%	-34.63%	-33.35%	-33.06%
2011	362.0 Station Equipment	1,041,866	0	198,051	(198,051)	-19.01%	-22.15%	-30.97%	-35.77%	-28.42%	-27.84%	-27.00%	-26.64%	-30.23%	-29.56%
2012	362.0 Station Equipment	187,376	0	15,963	(15,963)	-8.52%	-17.41%	-20.36%	-28.50%	-32.92%	-26.92%	-26.51%	-25.81%	-25.64%	-29.19%
2013	362.0 Station Equipment	226,738	4	67,425	(67,421)	-29.74%	-20.14%	-19.33%	-21.65%	-28.65%	-32.56%	-27.15%	-26.76%	-26.09%	-25.89%
2014	362.0 Station Equipment	139,897	0	102,651	(102,651)	-73.38%	-46.39%	-33.58%	-24.07%	-25.68%	-31.67%	-35.20%	-29.43%	-28.87%	-28.11%
2015	362.0 Station Equipment	204,456	0	37,094	(37,094)	-18.14%	-40.58%	-36.28%	-29.42%	-23.39%	-24.91%	-30.45%	-33.73%	-28.67%	-28.20%
2016	362.0 Station Equipment	319,301	0	44,992	(44,992)	-14.09%	-15.67%	-27.84%	-28.32%	-24.88%	-21.99%	-23.42%	-28.44%	-31.39%	-27.29%
2017	362.0 Station Equipment	203,537	0	67,475	(67,475)	-33.15%	-21.51%	-20.56%	-29.08%	-29.22%	-26.19%	-22.97%	-24.21%	-28.78%	-31.51%

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
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1989	362.1 Station Equipment Reserve Equi	0	0	0	0										
1990	362.1 Station Equipment Reserve Equi	11,511	884	580	304	2.64%									
1991	362.1 Station Equipment Reserve Equi	48,943	6,028	0	6,028	12.32%	10.47%								
1992	362.1 Station Equipment Reserve Equi	0	0	0	0	0.00%	12.32%	10.47%							
1993	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	0.00%	12.32%	10.47%						
1994	362.1 Station Equipment Reserve Equi	23,627	14,386	0	14,386	60.89%	60.89%	60.89%	28.13%	24.64%					
1995	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	60.89%	60.89%	60.89%	28.13%	24.64%				
1996	362.1 Station Equipment Reserve Equi	0	201	0	201	60796.97%	60796.97%	61.74%	61.74%	61.74%	28.41%	24.88%			
1997	362.1 Station Equipment Reserve Equi	8,370	71	0	70	0.84%	3.24%	3.24%	45.81%	45.81%	45.81%	25.56%	22.70%		
1998	362.1 Station Equipment Reserve Equi	11,177	255	0	255	2.28%	1.66%	2.69%	2.69%	34.54%	34.54%	34.54%	22.73%	20.50%	
1999	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	2.28%	1.66%	2.69%	2.69%	34.54%	34.54%	34.54%	22.73%	20.50%
2000	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	NA	2.28%	1.66%	2.69%	2.69%	34.54%	34.54%	34.54%	22.73%
2001	362.1 Station Equipment Reserve Equi	115,090	0	23,394	(23,394)	-20.33%	-20.33%	-20.33%	-18.33%	-17.13%	-16.99%	-16.99%	-5.36%	-5.36%	-5.36%
2002	362.1 Station Equipment Reserve Equi	90,210	0	0	0	0.00%	-11.40%	-11.40%	-11.40%	-10.69%	-10.26%	-10.17%	-10.17%	-3.41%	-3.41%
2003	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	0.00%	-11.40%	-11.40%	-11.40%	-10.69%	-10.26%	-10.17%	-10.17%	-3.41%
2004	362.1 Station Equipment Reserve Equi	29,999	850	447	404	1.35%	1.35%	0.34%	-9.77%	-9.77%	-9.77%	-9.22%	-8.89%	-8.82%	-8.82%
2005	362.1 Station Equipment Reserve Equi	4,275	0	5	(5)	-0.11%	1.16%	1.16%	0.32%	-9.60%	-9.60%	-9.60%	-9.07%	-8.75%	-8.67%
2006	362.1 Station Equipment Reserve Equi	230	0	0	0	0.00%	-0.10%	1.16%	1.16%	0.32%	-9.59%	-9.59%	-9.59%	-9.06%	-8.74%
2007	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	0.00%	-0.10%	1.16%	1.16%	0.32%	-9.59%	-9.59%	-9.59%	-9.06%
2008	362.1 Station Equipment Reserve Equi	2,810	0	0	0	0.00%	0.00%	0.00%	-0.06%	1.07%	1.07%	0.31%	-9.48%	-9.48%	-9.48%
2009	362.1 Station Equipment Reserve Equi	0	0	0	(0)	NA	-0.01%	-0.01%	-0.01%	-0.07%	1.07%	1.07%	0.31%	-9.48%	-9.48%
2010	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	NA	-0.01%	-0.01%	-0.01%	-0.07%	1.07%	1.07%	0.31%	-9.48%
2011	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	NA	NA	-0.01%	-0.01%	-0.01%	-0.07%	1.07%	1.07%	0.31%
2012	362.1 Station Equipment Reserve Equi	98,422	0	0	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.29%	0.29%
2013	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.29%
2014	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2015	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2016	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2017	362.1 Station Equipment Reserve Equi	0	0	0	0	NA	NA	NA	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%
1988	364.0 Poles, Towers And Fixtures	284,324	110,369	142,171	(31,801)	-11.18%									
1989	364.0 Poles, Towers And Fixtures	288,791	119,805	124,109	(4,304)	-1.49%	-6.30%								
1990	364.0 Poles, Towers And Fixtures	269,961	87,305	137,083	(49,778)	-18.44%	-9.68%	-10.19%							
1991	364.0 Poles, Towers And Fixtures	379,471	83,570	193,470	(109,900)	-28.96%	-24.59%	-17.48%	-16.01%						
1992	364.0 Poles, Towers And Fixtures	341,137	103,150	166,015	(62,865)	-18.43%	-23.97%	-22.47%	-17.73%	-16.54%					
1993	364.0 Poles, Towers And Fixtures	428,763	90,117	176,192	(86,075)	-20.08%	-19.35%	-22.52%	-21.74%	-18.32%	-17.30%				
1994	364.0 Poles, Towers And Fixtures	294,935	97,013	136,442	(39,430)	-13.37%	-17.34%	-17.69%	-20.65%	-20.30%	-17.59%	-16.79%			
1995	364.0 Poles, Towers And Fixtures	255,884	95,069	183,239	(88,169)	-34.46%	-23.17%	-21.81%	-20.94%	-22.73%	-22.14%	-19.50%	-18.57%		
1996	364.0 Poles, Towers And Fixtures	185,830	60,362	121,174	(60,812)	-32.72%	-33.73%	-25.58%	-23.55%	-22.39%	-23.71%	-23.05%	-20.51%	-19.54%	
1997	364.0 Poles, Towers And Fixtures	233,600	47,012	72,675	(25,663)	-10.99%	-20.62%	-25.86%	-22.06%	-21.45%	-20.86%	-22.31%	-21.87%	-19.68%	-18.86%
1998	364.0 Poles, Towers And Fixtures	299,801	59,499	80,717	(21,218)	-7.08%	-8.79%	-14.97%	-20.09%	-18.53%	-18.92%	-18.84%	-20.42%	-20.22%	-18.41%
1999	364.0 Poles, Towers And Fixtures	158,530	8,679	217,013	(208,334)	-131.42%	-50.08%	-36.88%	-36.00%	-35.65%	-31.05%	-28.52%	-26.95%	-27.25%	-26.41%
2000	364.0 Poles, Towers And Fixtures	135,942	92,268	119,289	(27,021)	-19.88%	-79.92%	-43.17%	-34.09%	-33.84%	-33.97%	-30.08%	-27.93%	-26.54%	-26.88%
2001	364.0 Poles, Towers And Fixtures	806	2,727	38,714	(35,987)	-4463.17%	-46.08%	-91.89%	-49.16%	-38.40%	-37.36%	-36.78%	-32.37%	-29.72%	-28.07%
2002	364.0 Poles, Towers And Fixtures	36,326	32,239	252,817	(220,579)	-607.22%	-690.95%	-163.85%	-148.35%	-81.27%	-62.29%	-57.06%	-52.63%	-45.40%	-40.06%
2003	364.0 Poles, Towers And Fixtures	52,135	155,120	492,564	(337,443)	-647.25%	-630.81%	-665.43%	-275.76%	-216.13%	-124.44%	-95.54%	-84.96%	-75.45%	-64.38%
2004	364.0 Poles, Towers And Fixtures	22,623	98,575	370,861	(272,287)	-1203.58%	-815.61%	-747.46%	-774.24%	-360.45%	-271.10%	-159.01%	-122.22%	-107.44%	-93.92%
2005	364.0 Poles, Towers And Fixtures	35,335	118,158	385,492	(267,335)	-756.57%	-931.06%	-796.66%	-749.66%	-770.00%	-409.88%	-309.94%	-187.49%	-145.20%	-127.20%
2006	364.0 Poles, Towers And Fixtures	55,144	126,835	466,750	(339,915)	-616.41%	-671.15%	-777.65%	-736.51%	-713.21%	-728.15%	-443.55%	-343.95%	-217.18%	-170.42%
2007	364.0 Poles, Towers And Fixtures	95,943	92,497	864,174	(771,677)	-804.31%	-735.73%	-739.68%	-789.89%	-761.41%	-742.59%	-752.64%	-523.25%	-418.46%	-280.29%
2008	364.0 Poles, Towers And Fixtures	193,728	76,203	903,610	(827,407)	-427.10%	-552.03%	-562.33%	-580.39%	-615.39%	-619.04%	-618.17%	-624.47%	-493.59%	-420.59%
2009	364.0 Poles, Towers And Fixtures	106,936	31,418	321,365	(289,947)	-271.14%	-371.63%	-476.30%	-493.40%	-512.49%	-543.17%	-552.83%	-556.13%	-561.39%	-461.22%
2010	364.0 Poles, Towers And Fixtures	119,762	78,691	782,227	(703,536)	-587.44%	-438.24%	-433.11%	-502.08%	-513.11%	-527.28%	-551.59%	-558.91%	-561.35%	-565.73%
2011	364.0 Poles, Towers And Fixtures	168,131	233,849	1,553,643	(1,319,793)	-784.98%	-702.81%	-585.89%	-533.62%	-571.56%	-574.91%	-583.19%	-600.79%	-603.64%	-603.79%
2012	364.0 Poles, Towers And Fixtures	156,785	0	32,238	(32,238)	-20.56%	-416.12%	-462.26%	-425.21%	-425.70%	-468.88%	-477.95%	-488.52%	-505.47%	-512.81%
2013	364.0 Poles, Towers And Fixtures	559,058	45,261	923,357	(878,096)	-157.07%	-127.17%	-252.28%	-292.27%	-290.24%	-310.57%	-344.39%	-354.70%	-364.23%	-376.77%
2014	364.0 Poles, Towers And Fixtures	466,650	37,182	524,647	(487,465)	-104.46%	-133.13%	-118.21%	-201.21%	-232.67%	-235.28%	-256.26%	-284.42%	-293.95%	-302.30%
2015	364.0 Poles, Towers And Fixtures	254,239	16,760	620,527	(603,767)	-237.48%	-151.37%	-153.86%	-139.31%	-206.96%	-233.38%	-235.58%	-253.90%	-278.80%	-287.35%
2016	364.0 Poles, Towers And Fixtures	636,106	22,833	508,663	(485,830)	-76.38%	-122.38%	-116.22%	-128.14%	-120.00%	-169.89%	-191.07%	-194.54%	-211.47%	-232.10%
2017	364.0 Poles, Towers And Fixtures	597,627	23,088	1,535,982	(1,512,894)	-253.15%	-162.01%	-174.90%	-158.08%	-157.86%	-149.80%	-187.42%	-203.61%	-205.97%	-219.11%

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
AS ADJUSTED

Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
1988	365.0 Overhead Conductors & Devices	311,237	126,295	148,923	(22,628)	-7.27%									
1989	365.0 Overhead Conductors & Devices	312,397	154,762	131,080	23,682	7.58%	0.17%								
1990	365.0 Overhead Conductors & Devices	213,373	101,342	120,957	(19,615)	-9.19%	0.77%	-2.22%							
1991	365.0 Overhead Conductors & Devices	295,718	79,992	111,487	(31,495)	-10.65%	-10.04%	-3.34%	-4.42%						
1992	365.0 Overhead Conductors & Devices	186,602	100,810	108,555	(7,745)	-4.15%	-8.14%	-8.46%	-3.49%	-4.38%					
1993	365.0 Overhead Conductors & Devices	261,853	80,982	120,781	(39,799)	-15.20%	-10.60%	-10.62%	-10.30%	-5.90%	-6.17%				
1994	365.0 Overhead Conductors & Devices	270,717	92,128	107,984	(15,856)	-5.86%	-10.45%	-8.82%	-9.35%	-9.32%	-5.90%	-6.13%			
1995	365.0 Overhead Conductors & Devices	191,353	130,195	97,180	33,016	17.25%	3.71%	-3.13%	-3.34%	-5.13%	-5.74%	-3.34%	-3.94%		
1996	365.0 Overhead Conductors & Devices	118,427	45,308	73,839	(28,531)	-24.09%	1.45%	-1.96%	-6.07%	-5.73%	-6.83%	-7.15%	-4.67%	-5.04%	
1997	365.0 Overhead Conductors & Devices	287,663	58,914	61,995	(3,081)	-1.07%	-7.78%	0.23%	-1.66%	-4.80%	-4.71%	-5.80%	-6.20%	-4.18%	-4.57%
1998	365.0 Overhead Conductors & Devices	218,642	67,911	45,602	22,310	10.20%	3.80%	-1.49%	2.91%	0.72%	-2.37%	-2.58%	-3.89%	-4.44%	-2.85%
1999	365.0 Overhead Conductors & Devices	130,799	5,602	82,472	(76,870)	-58.77%	-15.61%	-9.05%	-11.41%	-5.61%	-5.67%	-7.35%	-7.00%	-7.55%	-7.71%
2000	365.0 Overhead Conductors & Devices	153,988	0	111,467	(111,467)	-72.39%	-66.13%	-32.98%	-21.38%	-21.73%	-14.95%	-13.16%	-13.49%	-12.53%	-12.27%
2001	365.0 Overhead Conductors & Devices	3,423	5,873	33,452	(27,579)	-805.73%	-88.33%	-74.92%	-38.20%	-24.76%	-24.67%	-17.40%	-15.13%	-15.14%	-14.02%
2002	365.0 Overhead Conductors & Devices	73,108	3,405	121,170	(117,765)	-161.08%	-189.92%	-111.41%	-92.35%	-53.69%	-36.24%	-34.78%	-26.33%	-22.50%	-21.38%
2003	365.0 Overhead Conductors & Devices	110,718	38,467	289,343	(250,875)	-226.59%	-200.54%	-211.60%	-148.78%	-123.84%	-81.41%	-57.78%	-54.15%	-43.54%	-37.00%
2004	365.0 Overhead Conductors & Devices	67,410	12,451	214,608	(202,157)	-299.89%	-254.33%	-227.20%	-234.97%	-173.71%	-145.84%	-100.83%	-73.39%	-68.38%	-56.29%
2005	365.0 Overhead Conductors & Devices	60,491	13,560	213,294	(199,734)	-330.19%	-314.22%	-273.56%	-247.18%	-253.25%	-193.88%	-164.43%	-117.78%	-87.43%	-81.31%
2006	365.0 Overhead Conductors & Devices	82,997	27,694	346,703	(319,008)	-384.36%	-361.52%	-341.82%	-302.15%	-276.03%	-280.58%	-222.52%	-191.15%	-142.32%	-108.16%
2007	365.0 Overhead Conductors & Devices	96,300	22,518	713,030	(690,512)	-717.04%	-563.04%	-504.30%	-459.45%	-397.76%	-362.52%	-365.59%	-295.96%	-256.14%	-197.79%
2008	365.0 Overhead Conductors & Devices	167,871	(4,324)	436,397	(440,721)	-262.54%	-428.22%	-417.73%	-404.74%	-389.87%	-359.01%	-337.05%	-339.47%	-289.09%	-257.28%
2009	365.0 Overhead Conductors & Devices	61,692	19,489	110,427	(90,938)	-147.41%	-231.60%	-375.06%	-376.95%	-370.92%	-362.00%	-338.84%	-320.81%	-323.10%	-279.13%
2010	365.0 Overhead Conductors & Devices	106,020	30,502	213,707	(183,205)	-172.80%	-163.46%	-213.02%	-325.41%	-334.91%	-334.41%	-330.79%	-315.48%	-301.83%	-303.90%
2011	365.0 Overhead Conductors & Devices	174,709	60,052	549,768	(489,716)	-280.30%	-239.71%	-223.08%	-236.06%	-312.42%	-321.08%	-321.81%	-320.00%	-308.86%	-298.07%
2012	365.0 Overhead Conductors & Devices	98,679	0	14,849	(14,849)	-15.05%	-184.56%	-181.27%	-176.54%	-200.24%	-270.81%	-282.77%	-286.15%	-287.16%	-280.63%
2013	365.0 Overhead Conductors & Devices	972,443	4,561	308,227	(303,666)	-31.23%	-29.74%	-64.87%	-73.34%	-76.57%	-96.31%	-131.94%	-143.84%	-150.03%	-155.38%
2014	365.0 Overhead Conductors & Devices	562,451	3,363	247,359	(243,996)	-43.38%	-35.68%	-34.43%	-58.19%	-64.54%	-67.12%	-82.43%	-109.71%	-119.52%	-124.86%
2015	365.0 Overhead Conductors & Devices	206,249	1,680	246,429	(244,749)	-118.67%	-63.58%	-45.51%	-43.88%	-64.38%	-69.80%	-72.00%	-85.61%	-110.46%	-119.45%
2016	365.0 Overhead Conductors & Devices	968,502	2,894	301,934	(299,040)	-30.88%	-46.29%	-45.35%	-40.28%	-39.39%	-53.50%	-57.60%	-59.36%	-69.63%	-87.89%
2017	365.0 Overhead Conductors & Devices	641,200	13,286	840,138	(826,852)	-128.95%	-69.94%	-75.48%	-67.89%	-57.25%	-56.04%	-66.85%	-69.86%	-71.12%	-79.24%
1988	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA									
1989	365.1 Clearing Land & Rights-Of-Way	1,255	1,921	732	1,189	94.77%	94.77%								
1990	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	94.77%	94.77%							
1991	365.1 Clearing Land & Rights-Of-Way	0	183	0	183	NA	NA	109.35%	109.35%						
1992	365.1 Clearing Land & Rights-Of-Way	0	(92)	0	(92)	NA	NA	NA	102.05%	102.05%					
1993	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	102.05%	102.05%				
1994	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	102.05%	102.05%			
1995	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	102.05%	102.05%		
1996	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	102.05%	102.05%	
1997	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	102.05%	102.05%
1998	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	102.05%
1999	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2000	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2001	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2002	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2003	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2005	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2006	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2007	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2008	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2009	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2010	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2011	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2012	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2013	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2014	365.1 Clearing Land & Rights-Of-Way	1,599	0	0	0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2015	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2016	365.1 Clearing Land & Rights-Of-Way	0	0	0	0	NA	NA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2017	365.1 Clearing Land & Rights-Of-Way	0	0	0											

MINNESOTA POWER
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Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
1988	366.0 Underground Conduit	17,744	(5,315)	4,945	(10,260)	-57.82%									
1989	366.0 Underground Conduit	560	(1,258)	209	(1,467)	-261.84%	-64.07%								
1990	366.0 Underground Conduit	8,640	13,679	3,656	10,023	116.01%	93.00%	-6.32%							
1991	366.0 Underground Conduit	5,711	27,256	1,362	25,894	453.45%	250.29%	231.05%	74.08%						
1992	366.0 Underground Conduit	0	(1,783)	0	(1,783)	NA	422.23%	237.87%	219.09%	68.62%					
1993	366.0 Underground Conduit	85	30,092	34	30,059	35172.64%	33086.50%	934.61%	444.68%	418.28%	160.25%				
1994	366.0 Underground Conduit	0	23,982	0	23,982	NA	63234.39%	61148.24%	1348.38%	610.80%	578.20%	233.50%			
1995	366.0 Underground Conduit	28	(10,513)	11	(10,525)	-37308.15%	47702.73%	38282.29%	36713.87%	1161.14%	536.85%	507.07%	201.18%		
1996	366.0 Underground Conduit	2,033	874	599	275	13.51%	-497.25%	666.15%	2039.78%	1956.74%	864.18%	472.35%	448.24%	190.21%	
1997	366.0 Underground Conduit	593,687	24,991	23,569	1,422	0.24%	0.28%	-1.48%	2.54%	7.59%	7.29%	11.52%	13.00%	12.75%	10.76%
1998	366.0 Underground Conduit	1,960	142	167	(24)	-1.23%	0.23%	0.28%	-1.48%	2.53%	7.56%	7.26%	11.48%	12.96%	12.71%
1999	366.0 Underground Conduit	15,633	268	712	(445)	-2.84%	-2.66%	0.16%	0.20%	-1.52%	2.39%	7.29%	7.00%	11.12%	12.56%
2000	366.0 Underground Conduit	0	0	0	0	NA	-2.84%	-2.66%	0.16%	0.20%	-1.52%	2.39%	7.29%	7.00%	11.12%
2001	366.0 Underground Conduit	0	0	0	0	NA	NA	-2.84%	-2.66%	0.16%	0.20%	-1.52%	2.39%	7.29%	7.00%
2002	366.0 Underground Conduit	0	0	128	(128)	NA	NA	NA	-3.66%	-3.39%	0.14%	0.18%	-1.54%	2.37%	7.27%
2003	366.0 Underground Conduit	393	0	953	(953)	-242.33%	-274.79%	-274.79%	-274.79%	-9.51%	-8.61%	-0.02%	0.02%	-1.69%	2.22%
2004	366.0 Underground Conduit	0	0	0	0	NA	-242.33%	-274.79%	-274.79%	-274.79%	-9.51%	-8.61%	-0.02%	0.02%	-1.69%
2005	366.0 Underground Conduit	267	0	466	(466)	-174.93%	-174.93%	-215.09%	-234.43%	-234.43%	-234.43%	-12.22%	-11.04%	-0.10%	-0.05%
2006	366.0 Underground Conduit	0	0	0	0	NA	-174.93%	-174.93%	-215.09%	-234.43%	-234.43%	-234.43%	-12.22%	-11.04%	-0.10%
2007	366.0 Underground Conduit	0	0	1,072	(1,072)	NA	NA	-577.08%	-577.08%	-377.62%	-396.96%	-396.96%	-396.96%	-18.80%	-16.92%
2008	366.0 Underground Conduit	3,521	0	0	0	0.00%	-30.46%	-30.46%	-40.63%	-40.63%	-59.59%	-62.65%	-62.65%	-62.65%	-15.46%
2009	366.0 Underground Conduit	6,351	0	2,782	(2,782)	-43.80%	-28.18%	-39.04%	-39.04%	-42.62%	-42.62%	-50.07%	-51.28%	-51.28%	-51.28%
2010	366.0 Underground Conduit	37,880	0	113,954	(113,954)	-300.83%	-263.92%	-244.46%	-246.71%	-246.71%	-246.31%	-246.31%	-246.28%	-246.54%	-246.54%
2011	366.0 Underground Conduit	998	0	28,158	(28,158)	-2821.90%	-365.53%	-320.36%	-297.22%	-299.42%	-299.42%	-298.74%	-298.74%	-298.29%	-298.55%
2012	366.0 Underground Conduit	0	0	0	0	NA	-2821.90%	-365.53%	-320.36%	-297.22%	-299.42%	-299.42%	-298.74%	-298.74%	-298.29%
2013	366.0 Underground Conduit	71,987	0	343	(343)	-0.48%	-0.48%	-39.05%	-128.49%	-123.91%	-120.29%	-121.18%	-121.18%	-121.30%	-121.30%
2014	366.0 Underground Conduit	36,924	0	0	0	0.00%	-0.31%	-0.31%	-25.93%	-96.39%	-94.22%	-92.12%	-92.80%	-92.80%	-92.94%
2015	366.0 Underground Conduit	4,188	0	6,217	(6,217)	-148.42%	-15.12%	-5.80%	-5.80%	-30.43%	-97.83%	-95.66%	-93.58%	-94.24%	-94.24%
2016	366.0 Underground Conduit	4,127	0	74,672	(74,672)	-1809.54%	-972.80%	-178.80%	-69.30%	-69.30%	-92.53%	-143.07%	-139.19%	-136.24%	-136.89%
2017	366.0 Underground Conduit	10,542	0	360	(360)	-3.41%	-511.51%	-430.86%	-145.66%	-63.86%	-63.86%	-85.23%	-134.24%	-130.92%	-128.31%
1988	367.0 Underground Conductors & Devic	274,391	63,005	50,175	12,829	4.68%									
1989	367.0 Underground Conductors & Devic	154,613	50,996	51,324	(328)	-0.21%	2.91%								
1990	367.0 Underground Conductors & Devic	252,273	42,816	42,246	569	0.23%	0.06%	1.92%							
1991	367.0 Underground Conductors & Devic	283,991	114,842	45,442	69,400	24.44%	13.05%	10.08%	8.54%						
1992	367.0 Underground Conductors & Devic	133,014	26,881	26,167	714	0.54%	16.81%	10.56%	8.54%	7.57%					
1993	367.0 Underground Conductors & Devic	264,346	111,916	50,633	61,283	23.18%	15.60%	19.28%	14.13%	12.10%	10.60%				
1994	367.0 Underground Conductors & Devic	312,161	35,064	69,808	(34,745)	-11.13%	4.60%	3.84%	9.73%	7.80%	6.92%	6.55%			
1995	367.0 Underground Conductors & Devic	282,577	50,766	74,812	(24,047)	-8.51%	-9.89%	0.29%	0.32%	5.69%	4.79%	4.33%	4.38%		
1996	367.0 Underground Conductors & Devic	188,277	30,470	84,125	(53,655)	-28.50%	-16.50%	-14.36%	-4.89%	-4.27%	1.29%	1.14%	1.03%	1.49%	
1997	367.0 Underground Conductors & Devic	262,517	29,110	44,087	(14,976)	-5.70%	-15.22%	-12.64%	-12.19%	-5.05%	-4.53%	0.23%	0.23%	0.20%	0.71%
1998	367.0 Underground Conductors & Devic	399,141	34,292	63,638	(29,346)	-7.35%	-6.70%	-11.53%	-10.77%	-10.85%	-5.59%	-5.14%	-1.19%	-1.04%	-0.99%
1999	367.0 Underground Conductors & Devic	126,983	8,753	35,127	(26,374)	-20.77%	-10.59%	-8.96%	-12.73%	-11.78%	-11.65%	-6.64%	-6.15%	-2.30%	-2.04%
2000	367.0 Underground Conductors & Devic	61,961	0	12,904	(12,904)	-20.83%	-20.79%	-11.67%	-9.83%	-13.21%	-12.21%	-12.00%	-7.10%	-6.60%	-2.79%
2001	367.0 Underground Conductors & Devic	2,544	18	4,527	(4,509)	-177.25%	-27.00%	-22.87%	-12.38%	-10.33%	-13.61%	-12.52%	-12.26%	-7.33%	-6.81%
2002	367.0 Underground Conductors & Devic	153,374	263	51,175	(50,912)	-33.19%	-35.54%	-31.36%	-27.46%	-16.67%	-13.81%	-16.13%	-14.67%	-14.05%	-9.26%
2003	367.0 Underground Conductors & Devic	90,654	13,184	56,988	(43,804)	-48.32%	-38.81%	-40.24%	-36.34%	-31.80%	-20.11%	-16.66%	-18.40%	-16.61%	-15.70%
2004	367.0 Underground Conductors & Devic	197,010	3,583	49,071	(45,488)	-23.09%	-31.04%	-31.79%	-32.62%	-31.18%	-29.09%	-20.68%	-17.64%	-19.02%	-17.34%
2005	367.0 Underground Conductors & Devic	183,096	3,494	50,386	(46,893)	-25.61%	-24.30%	-28.93%	-29.98%	-30.57%	-29.70%	-28.31%	-21.42%	-18.63%	-19.74%
2006	367.0 Underground Conductors & Devic	88,494	9,422	43,806	(34,384)	-38.85%	-29.93%	-27.05%	-30.50%	-31.08%	-31.60%	-30.74%	-29.34%	-22.61%	-19.77%
2007	367.0 Underground Conductors & Devic	141,205	14,868	46,068	(31,200)	-22.10%	-28.55%	-27.25%	-25.90%	-28.81%	-29.59%	-30.03%	-29.41%	-28.36%	-22.56%
2008	367.0 Underground Conductors & Devic	441,830	28,016	37,157	(9,141)	-2.07%	-6.92%	-11.13%	-14.23%	-15.89%	-18.46%	-20.21%	-20.52%	-20.53%	-20.55%
2009	367.0 Underground Conductors & Devic	218,413	11,971	55,092	(43,120)	-19.74%	-7.92%	-10.41%	-13.24%	-15.35%	-16.55%	-18.67%	-20.14%	-20.40%	-20.42%
2010	367.0 Underground Conductors & Devic	538,331	3,510	147,040	(143,530)	-26.66%	-24.66%	-16.34%	-16.94%	-18.30%	-19.13%	-19.56%	-20.93%	-21.85%	-22.04%
2011	367.0 Underground Conductors & Devic	329,844	16,596	181,649	(165,053)	-50.04%	-35.54%	-32.37%	-23.61%	-23.48%	-24.25%	-24.38%	-24.26%	-25.24%	-25.75%
2012	367.0 Underground Conductors & Devi	139,817	0	422	(422)	-0.30%	-35.23%	-30.66%	-28.71%	-21.66%	-21.69%	-22.49%	-22.76%	-22.79%	-23.77%
2013	367.0 Underground Conductors & Devi	311,474	1,374	90,385	(89,011)	-28.58%	-19.82%	-32.58%	-30.16%	-28.68%	-22.74%	-22.70%	-23.35%	-23.52%	-23.49%
2014	367.0 Underground Conductors & Devi	485,379	182	38,579	(38,397)	-7.91%	-15.99%	-13.65%	-23.13%	-24.18%	-23.70%	-19.82%	-19.95%	-20.57%	-20.89%
2015	367.0 Underground Conductors & Devi	131,668	1,102	84,802	(83,700)	-63.57%	-19.79%	-22.74%	-19.80%	-26.93%	-26.86%	-26.14%	-22.04%	-22.04%	-22.57%
2016	367.0 Underground Conductors & Devi	347,084	257	64,022	(63,766)	-18.37%	-30.80%	-19.28%	-21.55%	-19.45%	-25.23%	-25.57%	-25.06%	-21.61%	-21.63%
2017	367.0 Underground Conductors & Devi	438,630	1,037	286,824	(285,787)	-65.15%	-44.49%	-47.23%	-33.62%	-32.71%	-30.26%	-33.25%	-31.95%	-31.04%	-27.26%

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
AS ADJUSTED

Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
1988	368.0 Line Transformers	189,697	28,784	21,860	6,924	3.65%									
1989	368.0 Line Transformers	204,975	43,188	15,111	28,077	13.70%	8.87%								
1990	368.0 Line Transformers	263,749	35,618	25,934	9,684	3.67%	8.06%	6.79%							
1991	368.0 Line Transformers	217,444	27,247	18,166	9,081	4.18%	3.90%	6.83%	6.14%						
1992	368.0 Line Transformers	247,222	39,021	21,516	17,505	7.08%	5.72%	4.98%	6.89%	6.35%					
1993	368.0 Line Transformers	292,104	33,864	24,248	9,616	3.29%	5.03%	4.78%	4.50%	6.04%	5.72%				
1994	368.0 Line Transformers	325,953	40,586	29,626	10,960	3.36%	3.33%	4.40%	4.36%	4.22%	5.47%	5.28%			
1995	368.0 Line Transformers	231,223	28,891	30,861	(1,970)	-0.85%	1.61%	2.19%	3.29%	3.44%	3.48%	4.65%	4.56%		
1996	368.0 Line Transformers	330,954	79,534	21,251	58,283	17.61%	10.02%	7.57%	6.51%	6.61%	6.29%	5.93%	6.68%	6.43%	
1997	368.0 Line Transformers	235,327	38,297	9,962	28,335	12.04%	15.30%	10.61%	8.51%	7.43%	7.38%	7.01%	6.60%	7.22%	6.95%
1998	368.0 Line Transformers	275,800	40,321	10,495	29,826	10.81%	11.38%	13.83%	10.67%	8.96%	7.98%	7.87%	7.50%	7.08%	7.60%
1999	368.0 Line Transformers	202,932	623	(377)	1,000	0.49%	6.44%	8.29%	11.24%	9.05%	7.89%	7.18%	7.17%	6.89%	6.57%
2000	368.0 Line Transformers	54,375	5	41,516	(41,511)	-76.34%	-15.74%	-2.00%	2.30%	6.91%	5.56%	5.13%	4.85%	5.10%	5.02%
2001	368.0 Line Transformers	498,543	4,597	30,565	(25,967)	-5.21%	-12.20%	-8.80%	-3.55%	-0.66%	3.13%	2.62%	2.74%	2.80%	3.19%
2002	368.0 Line Transformers	358,001	906	50,398	(49,492)	-13.82%	-8.81%	-12.84%	-10.41%	-6.20%	-3.56%	0.02%	-0.07%	0.38%	0.68%
2003	368.0 Line Transformers	275,230	9,035	87,012	(77,977)	-28.33%	-20.13%	-13.56%	-16.44%	-13.96%	-9.86%	-7.15%	-3.47%	-3.23%	-2.46%
2004	368.0 Line Transformers	336,116	24,450	67,463	(43,013)	-12.80%	-19.79%	-17.59%	-13.38%	-15.63%	-13.74%	-10.35%	-8.00%	-4.69%	-4.38%
2005	368.0 Line Transformers	364,915	15,524	82,878	(67,354)	-18.46%	-15.74%	-19.29%	-17.83%	-14.39%	-16.18%	-14.56%	-11.60%	-9.46%	-6.41%
2006	368.0 Line Transformers	23,864	4,289	51,339	(47,050)	-197.15%	-29.43%	-21.72%	-23.54%	-20.98%	-16.74%	-18.44%	-16.62%	-13.45%	-11.17%
2007	368.0 Line Transformers	926,325	6,003	90,857	(84,854)	-9.16%	-13.88%	-15.15%	-14.67%	-16.62%	-16.19%	-14.22%	-15.41%	-14.35%	-12.26%
2008	368.0 Line Transformers	1,094,558	5,891	79,557	(73,666)	-6.73%	-7.84%	-10.05%	-11.33%	-11.51%	-13.04%	-13.12%	-12.10%	-12.99%	-12.33%
2009	368.0 Line Transformers	649,423	6,586	4,629	1,957	0.30%	-4.11%	-5.86%	-7.56%	-8.86%	-9.25%	-10.68%	-10.96%	-10.33%	-11.11%
2010	368.0 Line Transformers	731,544	86,212	83,387	2,825	0.39%	0.35%	-2.78%	-4.52%	-5.86%	-7.07%	-7.54%	-8.84%	-9.21%	-8.84%
2011	368.0 Line Transformers	978,340	185,899	388,194	(202,295)	-20.68%	-11.67%	-8.37%	-7.85%	-8.13%	-9.15%	-9.86%	-10.06%	-10.99%	-11.17%
2012	368.0 Line Transformers	704,229	137,007	34,279	102,728	14.59%	-5.92%	-4.01%	-3.09%	-4.05%	-4.98%	-5.88%	-6.72%	-7.07%	-8.03%
2013	368.0 Line Transformers	659,487	120,371	231,580	(111,210)	-16.86%	-0.62%	-9.00%	-6.77%	-5.53%	-5.81%	-6.35%	-7.14%	-7.81%	-8.07%
2014	368.0 Line Transformers	1,029,203	94,500	120,894	(26,394)	-2.56%	-8.15%	-1.46%	-7.04%	-5.71%	-4.89%	-5.23%	-5.77%	-6.44%	-7.06%
2015	368.0 Line Transformers	658,108	21,145	94,665	(73,521)	-11.17%	-5.92%	-9.00%	-3.55%	-7.71%	-6.47%	-5.65%	-5.84%	-6.25%	-6.86%
2016	368.0 Line Transformers	957,708	92,651	100,823	(8,172)	-0.85%	-5.06%	-4.09%	-6.64%	-2.91%	-6.39%	-5.53%	-4.93%	-5.20%	-5.63%
2017	368.0 Line Transformers	740,045	125,594	203,703	(78,109)	-10.55%	-5.08%	-6.78%	-5.50%	-7.35%	-4.10%	-6.93%	-6.10%	-5.52%	-5.68%
1988	369.1 Services - Overhead	69,351	10,844	25,224	(14,380)	-20.74%									
1989	369.1 Services - Overhead	78,182	12,407	27,781	(15,374)	-19.66%	-20.17%								
1990	369.1 Services - Overhead	109,937	15,321	38,105	(22,785)	-20.73%	-20.28%	-20.41%							
1991	369.1 Services - Overhead	87,926	9,894	24,887	(14,993)	-17.05%	-19.09%	-19.25%	-19.55%						
1992	369.1 Services - Overhead	89,451	6,569	34,418	(27,850)	-31.13%	-24.15%	-22.84%	-22.16%	-21.93%					
1993	369.1 Services - Overhead	109,722	6,386	32,556	(26,170)	-23.85%	-27.12%	-24.04%	-23.12%	-22.55%	-22.32%				
1994	369.1 Services - Overhead	102,024	6,303	38,494	(32,191)	-31.55%	-27.56%	-28.62%	-26.01%	-24.84%	-24.14%	-23.78%			
1995	369.1 Services - Overhead	72,537	6,310	31,419	(25,108)	-34.61%	-32.82%	-29.36%	-29.79%	-27.36%	-26.08%	-25.31%	-24.87%		
1996	369.1 Services - Overhead	130,879	3,659	54,650	(50,991)	-38.96%	-37.41%	-35.45%	-32.39%	-32.17%	-29.92%	-28.48%	-27.60%	-27.04%	
1997	369.1 Services - Overhead	420,883	13,709	25,427	(11,718)	-2.78%	-11.37%	-14.07%	-16.52%	-17.48%	-18.80%	-18.65%	-18.85%	-18.91%	-19.01%
1998	369.1 Services - Overhead	21,036	1,751	(2,587)	4,337	20.62%	-1.67%	-10.19%	-12.94%	-15.48%	-16.55%	-17.93%	-17.85%	-18.13%	-18.23%
1999	369.1 Services - Overhead	24,257	1,471	23,610	(22,139)	-91.27%	-39.30%	-6.33%	-13.48%	-15.77%	-17.86%	-18.61%	-19.76%	-19.54%	-19.65%
2000	369.1 Services - Overhead	134,193	0	38,096	(38,096)	-28.39%	-38.02%	-31.14%	-11.26%	-16.22%	-17.88%	-19.42%	-19.90%	-20.81%	-20.53%
2001	369.1 Services - Overhead	76	211	4,651	(4,440)	-5819.69%	-31.68%	-40.80%	-33.60%	-12.00%	-16.83%	-18.43%	-19.91%	-20.33%	-21.21%
2002	369.1 Services - Overhead	4,791	1,374	250,061	(248,687)	-5190.72%	-5200.58%	-209.42%	-191.87%	-167.63%	-52.99%	-50.50%	-49.07%	-47.11%	-44.61%
2003	369.1 Services - Overhead	7,875	5,572	(60,424)	65,996	838.04%	-1442.38%	-1468.59%	-153.28%	-144.50%	-126.43%	-41.55%	-41.09%	-40.52%	-39.52%
2004	369.1 Services - Overhead	2,315	4,982	90,968	(85,986)	-3714.31%	-196.18%	-1793.46%	-1813.86%	-208.52%	-192.13%	-169.12%	-55.37%	-52.49%	-50.91%
2005	369.1 Services - Overhead	4,934	4,926	84,118	(79,193)	-1605.04%	-2278.64%	-655.80%	-1746.78%	-1762.32%	-253.21%	-231.19%	-204.64%	-67.69%	-62.69%
2006	369.1 Services - Overhead	2,644	3,479	104,357	(100,877)	-3815.65%	-2376.29%	-2689.40%	-1125.97%	-1989.24%	-2002.15%	-313.26%	-283.53%	-251.87%	-83.60%
2007	369.1 Services - Overhead	63,883	1,700	90,776	(89,076)	-139.44%	-285.53%	-376.64%	-481.37%	-354.11%	-622.18%	-626.77%	-262.95%	-245.95%	-224.87%
2008	369.1 Services - Overhead	6,416	1,047	99,843	(98,797)	-1539.74%	-267.25%	-395.86%	-472.47%	-566.05%	-440.50%	-685.59%	-689.80%	-299.02%	-278.97%
2009	369.1 Services - Overhead	8,489	233	38,252	(38,020)	-447.87%	-917.89%	-286.71%	-401.28%	-470.05%	-554.74%	-441.15%	-665.67%	-669.55%	-304.38%
2010	369.1 Services - Overhead	1,222	1,857	78,431	(76,574)	-6265.43%	-1180.01%	-1323.13%	-378.03%	-487.99%	-550.91%	-632.37%	-513.95%	-732.40%	-736.18%
2011	369.1 Services - Overhead	942	7,516	203,426	(195,910)	-20793.08%	-12589.64%	-2914.59%	-2397.80%	-615.64%	-716.84%	-766.34%	-841.47%	-707.49%	-915.00%
2012	369.1 Services - Overhead	45,637	0	861	(861)	-1.89%	-422.44%	-571.83%	-553.14%	-654.09%	-394.37%	-464.36%	-506.31%	-560.73%	-484.42%
2013	369.1 Services - Overhead	100,430	264	87,177	(86,913)	-86.54%	-60.09%	-192.97%	-243.04%	-254.13%	-304.70%	-258.19%	-299.15%	-326.61%	-359.71%
2014	369.1 Services - Overhead	106,114	1,439	70,701	(69,261)	-65.27%	-75.61%	-62.27%	-139.44%	-168.87%	-177.88%	-210.34%	-196.74%	-225.23%	-245.22%
2015	369.1 Services - Overhead	90,396	365	33,164	(32,799)	-36.28%	-51.94%	-63.64%	-55.41%	-112.29%	-134.11%	-141.65%	-166.59%	-162.49%	-185.16%
2016	369.1 Services - Overhead	83,164	850	39,328	(38,478)	-46.27%	-41.07%	-50.25%	-59.84%	-53.63%	-99.42%	-117.03%	-123.47%	-143.99%	-143.42%
2017	369.1 Services - Overhead	73,869	185	67,992	(67,807)	-91.79%	-67.68%	-56.21%	-58.93%	-65.04%	-59.27%	-98.30%	-113.32%	-118.88%	-136.53%

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
AS ADJUSTED

Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
1988	369.2 Services - Underground	8,186	651	2,266	(1,615)	-19.72%									
1989	369.2 Services - Underground	6,873	477	3,229	(2,752)	-40.04%	-29.00%								
1990	369.2 Services - Underground	32,672	681	8,441	(7,760)	-23.75%	-26.58%	-25.41%							
1991	369.2 Services - Underground	24,735	2,302	6,738	(4,436)	-17.93%	-21.25%	-23.25%	-22.86%						
1992	369.2 Services - Underground	16,300	498	6,577	(6,079)	-37.29%	-25.62%	-24.79%	-26.09%	-25.51%					
1993	369.2 Services - Underground	15,088	9,786	4,573	5,213	34.55%	-2.76%	-9.45%	-14.71%	-16.53%	-16.78%				
1994	369.2 Services - Underground	14,164	2,663	5,492	(2,829)	-19.97%	8.15%	-8.11%	-11.57%	-15.43%	-16.97%	-17.16%			
1995	369.2 Services - Underground	18,002	4,689	5,805	(1,116)	-6.20%	-12.27%	2.68%	-7.57%	-10.47%	-14.06%	-15.46%	-15.71%		
1996	369.2 Services - Underground	15,766	(296)	7,665	(7,960)	-50.49%	-26.88%	-24.84%	-10.62%	-16.10%	-16.54%	-18.26%	-19.30%	-19.33%	
1997	369.2 Services - Underground	445,819	20,081	31,811	(11,730)	-2.63%	-4.27%	-4.34%	-4.79%	-3.62%	-4.67%	-5.26%	-6.30%	-6.69%	-6.87%
1998	369.2 Services - Underground	238,275	10,978	15,306	(4,327)	-1.82%	-2.35%	-3.43%	-3.50%	-3.82%	-3.05%	-3.78%	-4.22%	-5.00%	-5.29%
1999	369.2 Services - Underground	0	282	2,953	(2,670)	NA	-2.94%	-2.74%	-3.81%	-3.87%	-4.18%	-3.40%	-4.13%	-4.56%	-5.32%
2000	369.2 Services - Underground	0	0	1,523	(1,523)	NA	NA	-3.58%	-2.96%	-4.03%	-4.09%	-4.39%	-3.61%	-4.33%	-4.75%
2001	369.2 Services - Underground	0	0	151	(151)	NA	NA	NA	-3.64%	-2.98%	-4.05%	-4.11%	-4.41%	-3.63%	-4.35%
2002	369.2 Services - Underground	56,422	13	2,600	(2,587)	-4.58%	-4.85%	-7.55%	-12.28%	-3.82%	-3.10%	-4.09%	-4.14%	-4.43%	-3.69%
2003	369.2 Services - Underground	43,927	1,850	7,277	(5,427)	-12.36%	-7.99%	-8.14%	-9.65%	-12.32%	-4.93%	-3.62%	-4.55%	-4.58%	-4.84%
2004	369.2 Services - Underground	18,585	17	4,444	(4,427)	-23.82%	-15.76%	-10.46%	-10.59%	-11.87%	-14.11%	-5.91%	-4.09%	-4.98%	-5.01%
2005	369.2 Services - Underground	28,178	53	7,035	(6,983)	-24.78%	-24.40%	-18.57%	-13.20%	-13.31%	-14.34%	-16.16%	-7.29%	-4.79%	-5.64%
2006	369.2 Services - Underground	12,529	933	(6,699)	7,632	60.91%	1.60%	-6.37%	-8.92%	-7.39%	-7.48%	-8.43%	-10.11%	-5.14%	-3.82%
2007	369.2 Services - Underground	638,757	1	7,098	(7,096)	-1.11%	0.08%	-0.95%	-1.56%	-2.20%	-2.37%	-2.38%	-2.58%	-2.91%	-2.66%
2008	369.2 Services - Underground	118,930	99	5,877	(5,778)	-4.86%	-1.70%	-0.68%	-1.53%	-2.04%	-2.56%	-2.69%	-2.71%	-2.87%	-3.16%
2009	369.2 Services - Underground	31,723	22	1,625	(1,603)	-5.05%	-4.90%	-1.83%	-0.85%	-1.67%	-2.15%	-2.65%	-2.77%	-2.78%	-2.94%
2010	369.2 Services - Underground	17,502	558	6,268	(5,710)	-32.63%	-14.86%	-7.78%	-2.50%	-1.53%	-2.30%	-2.77%	-3.23%	-3.31%	-3.32%
2011	369.2 Services - Underground	29,613	254	22,604	(22,350)	-75.47%	-59.56%	-37.62%	-17.92%	-5.08%	-4.11%	-4.77%	-5.17%	-5.51%	-5.45%
2012	369.2 Services - Underground	20,273	0	0	0	0.00%	-44.80%	-41.64%	-29.93%	-16.25%	-4.96%	-4.02%	-4.67%	-5.06%	-5.39%
2013	369.2 Services - Underground	46,943	0	10,224	(10,224)	-21.78%	-15.21%	-33.64%	-33.48%	-27.31%	-17.23%	-5.84%	-4.93%	-5.52%	-5.87%
2014	369.2 Services - Underground	94,326	0	11,771	(11,771)	-12.48%	-15.57%	-13.62%	-23.20%	-23.99%	-21.49%	-15.98%	-6.47%	-5.63%	-6.15%
2015	369.2 Services - Underground	19,001	0	9,284	(9,284)	-48.86%	-18.58%	-19.52%	-17.32%	-25.52%	-26.06%	-23.49%	-17.64%	-7.26%	-6.43%
2016	369.2 Services - Underground	53,537	0	9,819	(9,819)	-18.34%	-26.33%	-18.50%	-19.22%	-17.56%	-24.06%	-24.59%	-22.61%	-17.72%	-7.81%
2017	369.2 Services - Underground	23,649	0	8,220	(8,220)	-34.76%	-23.37%	-28.41%	-20.52%	-20.77%	-19.14%	-24.94%	-25.38%	-23.47%	-18.61%
1988	370.0 Meters	92,886	6,216	0	6,216	6.69%									
1989	370.0 Meters	91,400	1,858	0	1,858	2.03%	4.38%								
1990	370.0 Meters	195,455	7,923	0	7,923	4.05%	3.41%	4.21%							
1991	370.0 Meters	279,176	1,248	0	1,248	0.45%	1.93%	1.95%	2.62%						
1992	370.0 Meters	126,198	3,932	706	3,226	2.56%	1.10%	2.06%	2.06%	2.61%					
1993	370.0 Meters	237,856	1,221	353	868	0.36%	1.12%	0.83%	1.58%	1.63%	2.09%				
1994	370.0 Meters	313,297	5,192	0	5,192	1.66%	1.10%	1.37%	1.10%	1.60%	1.63%	1.99%			
1995	370.0 Meters	240,082	10,321	628	9,694	4.04%	2.69%	1.99%	2.07%	1.69%	2.02%	2.02%	2.30%		
1996	370.0 Meters	258,714	2,740	0	2,740	1.06%	2.49%	2.17%	1.76%	1.85%	1.58%	1.87%	1.88%	2.12%	
1997	370.0 Meters	129,817	1,212	18	1,194	0.92%	1.01%	2.17%	2.00%	1.67%	1.75%	1.52%	1.80%	1.81%	2.04%
1998	370.0 Meters	193,254	1,756	6	1,750	0.91%	0.91%	0.98%	1.87%	1.81%	1.56%	1.65%	1.46%	1.71%	1.73%
1999	370.0 Meters	143,969	14,225	365	13,860	9.63%	4.63%	3.60%	2.69%	3.03%	2.69%	2.33%	2.34%	2.07%	2.25%
2000	370.0 Meters	207,425	0	2,867	(2,867)	-1.38%	3.13%	2.34%	2.07%	1.79%	2.25%	2.12%	1.88%	1.93%	1.73%
2001	370.0 Meters	173,885	2,873	(1,692)	4,565	2.63%	0.45%	2.96%	2.41%	2.18%	1.92%	2.30%	2.18%	1.95%	1.99%
2002	370.0 Meters	561,482	530	1,020	(491)	-0.09%	0.55%	0.13%	1.39%	1.31%	1.28%	1.24%	1.60%	1.60%	1.48%
2003	370.0 Meters	471,806	2,589	5,490	(2,901)	-0.61%	-0.33%	0.10%	-0.12%	0.78%	0.79%	0.80%	0.83%	1.16%	1.22%
2004	370.0 Meters	252,120	2,479	2,724	(245)	-0.10%	-0.43%	-0.28%	0.06%	-0.12%	0.66%	0.68%	0.70%	0.74%	1.04%
2005	370.0 Meters	329,483	1,321	(1,324)	2,645	0.80%	0.41%	-0.05%	-0.06%	0.20%	0.04%	0.68%	0.70%	0.71%	0.74%
2006	370.0 Meters	44,882	3,930	15,737	(11,807)	-26.31%	-2.45%	-1.50%	-1.12%	-0.77%	-0.45%	-0.54%	0.13%	0.19%	0.23%
2007	370.0 Meters	1,662,449	1,615	2,496	(881)	-0.05%	-0.74%	-0.49%	-0.45%	-0.48%	-0.41%	-0.26%	-0.32%	0.05%	0.09%
2008	370.0 Meters	1,289,127	3,403	5,069	(1,666)	-0.13%	-0.09%	-0.48%	-0.35%	-0.33%	-0.37%	-0.33%	-0.23%	-0.27%	0.00%
2009	370.0 Meters	210,811	385	4,220	(3,835)	-1.82%	-0.37%	-0.20%	-0.57%	-0.44%	-0.42%	-0.44%	-0.40%	-0.29%	-0.34%
2010	370.0 Meters	505,513	16,681	27,708	(11,027)	-2.18%	-2.07%	-0.82%	-0.47%	-0.79%	-0.66%	-0.62%	-0.62%	-0.57%	-0.47%
2011	370.0 Meters	537,723	2,306	14,359	(12,053)	-2.24%	-2.21%	-2.15%	-1.12%	-0.70%	-0.97%	-0.84%	-0.80%	-0.79%	-0.72%
2012	370.0 Meters	588,843	0	0	0	0.00%	-1.07%	-1.41%	-1.46%	-0.91%	-0.61%	-0.85%	-0.75%	-0.72%	-0.71%
2013	370.0 Meters	1,298,340	30,803	19,043	11,761	0.91%	0.62%	-0.01%	-0.39%	-0.48%	-0.38%	-0.29%	-0.48%	-0.42%	-0.40%
2014	370.0 Meters	2,012,123	44,558	8,607	35,951	1.79%	1.44%	1.22%	0.80%	0.50%	0.40%	0.30%	0.23%	0.08%	0.11%
2015	370.0 Meters	30,189	14,328	9,627	4,701	15.57%	1.99%	1.57%	1.33%	0.90%	0.59%	0.49%	0.37%	0.28%	0.14%
2016	370.0 Meters	2,611,491	1,411	6,727	(5,316)	-0.20%	-0.02%	0.76%	0.79%	0.72%	0.50%	0.32%	0.26%	0.20%	0.16%
2017	370.0 Meters	1,853,618	1,239	89,130	(87,891)	-4.74%	-2.09%	-1.97%	-0.81%	-0.52%	-0.49%	-0.59%	-0.68%	-0.70%	-0.63%

MINNESOTA POWER
RETIREMENTS, GROSS SALVAGE, AND REMOVAL COST
AS ADJUSTED

Transaction Year	Description	Retirements	Gross Salvage	Cost of Removal	Net Salvage	Net Salv. %	2- yr Net Salv. %	3- yr Net Salv. %	4- yr Net Salv. %	5- yr Net Salv. %	6- yr Net Salv. %	7- yr Net Salv. %	8- yr Net Salv. %	9- yr Net Salv. %	10- yr Net Salv. %
1988	372.2 Leased Prop On Cust Pr,Lightng	38,685	9,711	12,316	(2,604)	-6.73%									
1989	372.2 Leased Prop On Cust Pr,Lightng	40,665	6,952	14,171	(7,218)	-17.75%	-12.38%								
1990	372.2 Leased Prop On Cust Pr,Lightng	49,472	7,570	17,516	(9,946)	-20.10%	-19.04%	-15.35%							
1991	372.2 Leased Prop On Cust Pr,Lightng	59,220	8,837	16,883	(8,047)	-13.59%	-16.55%	-16.88%	-14.79%						
1992	372.2 Leased Prop On Cust Pr,Lightng	38,526	7,356	17,729	(10,374)	-26.93%	-18.85%	-19.27%	-18.94%	-16.86%					
1993	372.2 Leased Prop On Cust Pr,Lightng	41,399	6,540	13,462	(6,922)	-16.72%	-21.64%	-18.21%	-18.71%	-18.54%	-16.83%				
1994	372.2 Leased Prop On Cust Pr,Lightng	41,071	6,910	12,048	(5,138)	-12.51%	-14.62%	-18.54%	-16.91%	-17.60%	-17.62%	-16.26%			
1995	372.2 Leased Prop On Cust Pr,Lightng	38,564	6,982	16,468	(9,486)	-24.60%	-18.36%	-17.80%	-20.00%	-18.27%	-18.61%	-18.49%	-17.18%		
1996	372.2 Leased Prop On Cust Pr,Lightng	51,566	7,499	19,560	(12,061)	-23.39%	-23.91%	-20.34%	-19.47%	-20.83%	-19.24%	-19.38%	-19.19%	-17.99%	
1997	372.2 Leased Prop On Cust Pr,Lightng	50,289	3,152	4,745	(1,593)	-3.17%	-13.41%	-16.48%	-15.58%	-15.79%	-17.43%	-16.72%	-17.18%	-17.23%	-16.33%
1998	372.2 Leased Prop On Cust Pr,Lightng	54,707	5,698	11,758	(6,060)	-11.08%	-7.29%	-12.59%	-14.97%	-14.54%	-14.86%	-16.33%	-15.90%	-16.39%	-16.51%
1999	372.2 Leased Prop On Cust Pr,Lightng	20,110	1,011	7,798	(6,788)	-33.75%	-17.17%	-11.54%	-15.00%	-16.72%	-16.05%	-16.14%	-17.38%	-16.81%	-17.17%
2000	372.2 Leased Prop On Cust Pr,Lightng	25,892	0	16,199	(16,199)	-62.56%	-49.97%	-28.84%	-20.29%	-21.08%	-21.64%	-20.31%	-19.85%	-20.61%	-19.62%
2001	372.2 Leased Prop On Cust Pr,Lightng	1,218	117	1,555	(1,437)	-118.02%	-65.05%	-51.72%	-29.91%	-21.07%	-21.66%	-22.13%	-20.73%	-20.22%	-20.93%
2002	372.2 Leased Prop On Cust Pr,Lightng	38,159	5,036	17,818	(12,782)	-33.50%	-36.11%	-46.60%	-43.58%	-30.88%	-23.56%	-23.53%	-23.67%	-22.25%	-21.62%
2003	372.2 Leased Prop On Cust Pr,Lightng	50,512	11,523	40,995	(29,472)	-58.35%	-47.65%	-48.61%	-51.73%	-49.07%	-38.16%	-30.86%	-29.54%	-28.96%	-27.15%
2004	372.2 Leased Prop On Cust Pr,Lightng	25,787	7,957	30,422	(22,465)	-87.12%	-68.07%	-56.54%	-57.19%	-58.17%	-55.14%	-44.00%	-36.30%	-34.21%	-33.17%
2005	372.2 Leased Prop On Cust Pr,Lightng	25,549	5,263	29,771	(24,508)	-95.93%	-91.50%	-75.06%	-63.73%	-64.20%	-63.95%	-60.70%	-49.48%	-41.51%	-38.79%
2006	372.2 Leased Prop On Cust Pr,Lightng	54,432	8,416	29,908	(21,491)	-39.48%	-57.51%	-64.73%	-62.67%	-56.94%	-57.32%	-57.94%	-55.92%	-47.64%	-41.19%
2007	372.2 Leased Prop On Cust Pr,Lightng	44,861	4,493	24,406	(19,913)	-44.39%	-41.70%	-52.80%	-58.67%	-58.59%	-54.59%	-54.91%	-55.65%	-54.12%	-47.22%
2008	372.2 Leased Prop On Cust Pr,Lightng	42,068	4,580	31,597	(27,017)	-64.22%	-53.99%	-48.40%	-55.68%	-59.88%	-59.56%	-56.03%	-56.30%	-56.82%	-55.41%
2009	372.2 Leased Prop On Cust Pr,Lightng	36,321	1,601	7,183	(5,582)	-15.37%	-41.59%	-42.61%	-41.65%	-48.47%	-52.82%	-53.82%	-51.38%	-51.64%	-52.46%
2010	372.2 Leased Prop On Cust Pr,Lightng	28,321	5,866	41,509	(35,643)	-125.86%	-63.77%	-63.95%	-58.16%	-53.23%	-57.94%	-60.86%	-60.45%	-57.48%	-57.69%
2011	372.2 Leased Prop On Cust Pr,Lightng	30,050	11,279	68,705	(57,425)	-191.10%	-159.44%	-104.18%	-91.89%	-80.16%	-70.78%	-73.23%	-74.48%	-72.07%	-68.15%
2012	372.2 Leased Prop On Cust Pr,Lightng	39,567	0	0	0	0.00%	-82.49%	-95.03%	-73.48%	-71.27%	-65.82%	-60.62%	-63.61%	-65.47%	-64.51%
2013	372.2 Leased Prop On Cust Pr,Lightng	63,873	703	38,263	(37,560)	-58.80%	-36.31%	-71.16%	-80.73%	-68.75%	-67.95%	-64.25%	-60.28%	-62.77%	-64.38%
2014	372.2 Leased Prop On Cust Pr,Lightng	75,610	521	38,242	(37,721)	-49.89%	-53.97%	-42.04%	-63.47%	-70.91%	-63.54%	-63.63%	-61.24%	-58.38%	-60.56%
2015	372.2 Leased Prop On Cust Pr,Lightng	45,677	521	17,928	(17,407)	-38.11%	-45.45%	-50.06%	-41.24%	-58.92%	-65.62%	-59.90%	-60.40%	-58.64%	-56.37%
2016	372.2 Leased Prop On Cust Pr,Lightng	93,745	920	23,449	(22,529)	-24.03%	-28.64%	-36.11%	-41.31%	-36.18%	-49.54%	-55.27%	-51.76%	-52.91%	-52.15%
2017	372.2 Leased Prop On Cust Pr,Lightng	71,638	0	39,399	(39,399)	-55.00%	-37.45%	-37.59%	-40.83%	-44.11%	-39.63%	-50.47%	-55.23%	-52.24%	-53.20%
1988	373.0 Street Lighting And Signal Sys	17,205	6,150	4,738	1,412	8.21%									
1989	373.0 Street Lighting And Signal Sys	59,049	15,393	8,810	6,583	11.15%	10.48%								
1990	373.0 Street Lighting And Signal Sys	33,474	9,935	4,833	5,102	15.24%	12.63%	11.94%							
1991	373.0 Street Lighting And Signal Sys	44,746	8,634	5,740	2,894	6.47%	10.22%	10.62%	10.35%						
1992	373.0 Street Lighting And Signal Sys	9,436	1,430	5,059	(3,629)	-38.46%	-1.36%	4.98%	7.46%	7.54%					
1993	373.0 Street Lighting And Signal Sys	8,983	542	3,108	(2,566)	-28.56%	-33.63%	-5.23%	1.86%	5.39%	5.67%				
1994	373.0 Street Lighting And Signal Sys	11,934	1,156	3,594	(2,438)	-20.43%	-23.92%	-28.44%	-7.64%	-0.59%	3.55%	3.98%			
1995	373.0 Street Lighting And Signal Sys	12,608	1,332	5,507	(4,175)	-33.11%	-26.94%	-27.38%	-29.81%	-11.30%	-3.97%	0.98%	1.61%		
1996	373.0 Street Lighting And Signal Sys	95,136	10,319	26,755	(16,436)	-17.28%	-19.13%	-19.26%	-19.91%	-21.18%	-14.41%	-9.82%	-5.33%	-4.53%	
1997	373.0 Street Lighting And Signal Sys	28,860	1,821	3,388	(1,567)	-5.43%	-14.52%	-16.23%	-16.57%	-17.26%	-18.45%	-13.19%	-9.31%	-5.34%	-4.61%
1998	373.0 Street Lighting And Signal Sys	12,841	2,784	2,797	(13)	-0.10%	-3.79%	-13.17%	-14.85%	-15.26%	-15.96%	-17.14%	-12.44%	-8.85%	-5.12%
1999	373.0 Street Lighting And Signal Sys	6,408	224	2,323	(2,099)	-32.76%	-10.98%	-7.65%	-14.04%	-15.59%	-15.93%	-16.57%	-17.68%	-13.00%	-9.43%
2000	373.0 Street Lighting And Signal Sys	5,326	0	4,828	(4,828)	-90.64%	-59.03%	-28.24%	-15.92%	-16.79%	-18.07%	-18.23%	-18.74%	-19.71%	-14.75%
2001	373.0 Street Lighting And Signal Sys	0	(61)	395	(456)	NA	-99.21%	-62.92%	-30.10%	-16.77%	-17.10%	-18.35%	-18.49%	-18.99%	-19.95%
2002	373.0 Street Lighting And Signal Sys	21,458	2,841	3,742	(900)	-4.20%	-6.32%	-23.09%	-24.96%	-18.02%	-13.17%	-15.47%	-16.69%	-16.92%	-17.43%
2003	373.0 Street Lighting And Signal Sys	10,006	9,907	27,107	(17,200)	-171.90%	-57.53%	-58.98%	-63.56%	-58.99%	-45.50%	-31.88%	-24.16%	-24.75%	-24.50%
2004	373.0 Street Lighting And Signal Sys	2,820	1,615	3,260	(1,646)	-58.36%	-146.94%	-57.60%	-58.93%	-63.19%	-58.95%	-46.12%	-32.73%	-24.69%	-25.23%
2005	373.0 Street Lighting And Signal Sys	6,119	5,852	6,253	(401)	-6.55%	-22.90%	-101.60%	-49.87%	-51.00%	-55.61%	-52.80%	-42.39%	-31.02%	-24.10%
2006	373.0 Street Lighting And Signal Sys	4,801	1,962	6,377	(4,415)	-91.96%	-44.10%	-47.03%	-99.65%	-54.34%	-55.35%	-59.07%	-56.11%	-45.80%	-33.99%
2007	373.0 Street Lighting And Signal Sys	26,416	4,275	15,157	(10,882)	-41.19%	-49.00%	-42.04%	-43.19%	-68.86%	-49.49%	-50.13%	-52.93%	-51.38%	-44.54%
2008	373.0 Street Lighting And Signal Sys	5,554	2,900	20,072	(17,172)	-309.20%	-87.75%	-88.30%	-76.64%	-75.51%	-92.82%	-68.18%	-68.77%	-70.18%	-67.49%
2009	373.0 Street Lighting And Signal Sys	8,907	0	3,348	(3,348)	-37.59%	-141.90%	-76.82%	-78.41%	-69.92%	-69.33%	-85.21%	-65.01%	-65.54%	-67.01%
2010	373.0 Street Lighting And Signal Sys	4,647	549	32,036	(31,487)	-677.58%	-257.00%	-272.17%	-138.14%	-133.74%	-119.95%	-117.02%	-124.95%	-96.39%	-96.89%
2011	373.0 Street Lighting And Signal Sys	8,283	6,745	31,023	(24,278)	-293.11%	-431.29%	-270.70%	-278.51%	-162.00%	-156.26%	-142.11%	-138.61%	-142.91%	-112.85%
2012	373.0 Street Lighting And Signal Sys	9,550	0	468	(468)	-4.90%	-138.77%	-250.15%	-189.82%	-207.77%	-138.32%	-135.05%	-124.47%	-122.05%	-127.78%
2013	373.0 Street Lighting And Signal Sys	20,627	62	26,677	(26,615)	-129.03%	-89.75%	-133.54%	-192.19%	-165.72%	-179.56%	-136.04%	-133.65%	-125.46%	-123.52%
2014	373.0 Street Lighting And Signal Sys	27,721	0	18,966	(18,966)	-68.42%	-94.28%	-79.53%	-106.26%	-143.75%	-131.89%	-143.43%	-119.26%	-118.13%	-112.56%
2015	373.0 Street Lighting And Signal Sys	13,181	53	11,934	(11,882)	-90.14%	-75.42%	-93.39%	-81.50%	-103.59%	-135.34%	-125.97%	-136.30%	-116.18%	-115.29%
2016	373.0 Street Lighting And Signal Sys	59,448	454	8,727	(8,273)	-13.92%	-27.75%	-38.98%	-54.34%	-50.72%	-65.18%	-85.02%	-82.25%	-90.23%	-83.20%
2017	373.0 Street Lighting And Signal Sys	76,439	0	63,085	(63,085)	-82.53%	-52.51%	-55.84%	-57.81%	-65.25%	-62.47%	-71.34%	-84.16%	-82.34%	-87.72%

STATE OF MINNESOTA	)	AFFIDAVIT OF SERVICE VIA
	) ss	ELECTRONIC FILING
COUNTY OF ST. LOUIS	)	

Jodi Nash of the City of Duluth, County of St. Louis, State of Minnesota, says that on the 27th day of March, 2018, she served Minnesota Power's 2018 Five-Year Transmission and Distribution Plant Depreciation Petition on the Minnesota Public Utilities Commission and the Energy Resources Division of the Minnesota Department of Commerce via electronic filing. The persons on the attached service list were served as requested.

Jodi Nash

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Christopher	Anderson	canderson@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022191	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
Generic Notice	Commerce Attorneys	commerce.attorneys@ag.state.mn.us	Office of the Attorney General-DOC	445 Minnesota Street Suite 1800 St. Paul, MN 55101	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
Riley	Conlin	riley.conlin@stoel.com	Stoel Rives LLP	33 S. 6th Street Suite 4200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
Ian	Dobson	residential.utilities@ag.state.mn.us	Office of the Attorney General-RUD	1400 BRM Tower 445 Minnesota St St. Paul, MN 551012130	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
Sharon	Ferguson	sharon.ferguson@state.mn.us	Department of Commerce	85 7th Place E Ste 280 Saint Paul, MN 551012198	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
Michael	Krikava	mkrikava@briggs.com	Briggs And Morgan, P.A.	2200 IDS Center 80 S 8th St Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
James D.	Larson	james.larson@avantenergy.com	Avant Energy Services	220 S 6th St Ste 1300 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
Pam	Marshall	pam@energycents.org	Energy CENTS Coalition	823 7th St E St. Paul, MN 55106	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
Herbert	Minke	hminke@allete.com	Minnesota Power	30 W Superior St Duluth, MN 55802	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
David	Moeller	dmoeller@allete.com	Minnesota Power	30 W Superior St Duluth, MN 558022093	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition

First Name	Last Name	Email	Company Name	Address	Delivery Method	View Trade Secret	Service List Name
Andrew	Moratzka	andrew.moratzka@stoel.com	Stoel Rives LLP	33 South Sixth St Ste 4200 Minneapolis, MN 55402	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
Susan	Romans	sromans@allete.com	Minnesota Power	30 West Superior Street Legal Dept Duulth, MN 55802	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
Eric	Swanson	eswanson@winthrop.com	Winthrop & Weinstine	225 S 6th St Ste 3500 Capella Tower Minneapolis, MN 554024629	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition
Daniel P	Wolf	dan.wolf@state.mn.us	Public Utilities Commission	121 7th Place East Suite 350 St. Paul, MN 551012147	Electronic Service	No	GEN_SL_Minnesota Power_Average Service Life Petition