

SECTION 4

MONTANA-DAKOTA UTILITIES - ELECTRIC

Study Analysis & Results

ACCOUNT – 311.00 Structure & Improvements

Historical Experience

Plant Statistics Plant Balance = \$72,963,295
Average Age of Survivors = 20.5 years
Original Gross Additions = \$74,916,295
Oldest Surviving Vintage = 1954
Retirements = \$2,369,499 or 3.2% of historical additions.
Average Age of Retirements = 30.5 years

Experience Band 1996– 2014 (Full Depth) – Interim Ret. Curve 63-R2.5

Historical Net Salvage: (69-14)

Three Year Average Net Salvage Percent			Full Depth
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1969-14</u>
-105%	-62%	-55%	-43%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0%	0%	0%	0%

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

The Company's property investment is related to the facilities located at five (5) different generation stations, including RM Heskett, Lewis & Clark, Big Stone, & Coyote. The RM Heskett station has two (2) operating units that were placed into service during 1954 and 1963 and the remaining stations each have one unit. Lewis & Clark was placed into service in 1958, followed by Big Stone during 1975 and Coyote in 1981. The WyGenIII Generating facility was placed into service during 2010.

The depreciation rate for the Company's investment in this property category is being developed via the Life Span Method. An interim retirement rate was identified for each property group based upon an analysis of the Company's historical experience to date. Using the location and vintage level surviving investments for each generating facility's location property, the estimated interim retirement rate and Company management's provided probable retirement/rehabilitation dates, an implicit average service life and average remaining life was produced via the life span approach. The developed depreciation

rates “do not” include any proposed component for the recovery of either interim or terminal (decommission cost) net salvage.

Notwithstanding the occurrence of actual (experienced) interim negative net salvage and the further expectation of future, end of life terminal negative net salvage (decommissioning cost), Company management requested that no such cost be included in the development of the proposed depreciation rates related to its generating facilities. Company management will address the recovery of those components of cost through a separate regulatory request.

Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

Current Depreciation Parameters

Interim Retirement ASL/Curve: 75-L2

Net Salvage: -34.3%

Proposed Depreciation Parameters

Interim Retirement ASL/Curve: 63-R2.5

Future Net Salvage: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.99%	2.87%
Av. Remaining Life	15.6 years	N/A

ACCOUNT – 312.00 Boiler Plant Equipment

Historical Experience

Plant Statistics Plant Balance = \$212,016,957
Average Age of Survivors = 20.0 years
Original Gross Additions = \$245,579,749
Oldest Surviving Vintage = 1954
Retirements = \$28,317,413 or 11.5% of historical additions.
Average Age of Retirements = 19.0 years

Experience Band 1995– 2014 (Full Depth) – Interim Ret. Curve 45-R0.5 FTA 60 years

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-25%	-24%	-27%	-18%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
2%	2%	1%	0%

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

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Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

Current Depreciation Parameters

Interim Retirement ASL/Curve 80-L0
Net Salvage: -17.0%

Proposed Depreciation Parameters

Interim Retirement ASL/Curve: 45-R0.5
Future Net Salvage: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.71%	2.46%
Av. Remaining Life	15.6 years	N/A

ACCOUNT – 314.00 Turbogenerator Units

Historical Experience

Plant Statistics Plant Balance = \$84,045,941
Average Age of Survivors = 15.4 years
Original Gross Additions = \$88,353,077
Oldest Surviving Vintage = 1954
Retirements = \$9,339,437 or 10.6% of historical additions.
Average Age of Retirements = 22.1 years

Experience Band 1995 – 2014 (Full Depth) – Interim Ret. Curve 45-R0.5

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			Full Depth
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-15%	-14%	-30%	-16%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
71%	3%	1%	4%

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

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Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

Current Depreciation Parameters

Interim Retirement AS/Curve : 60-R1.5

Net Salvage: -19.6%

Proposed Depreciation Parameters

Interim Retirement ASL/Curve: 45-R0.5

Future Net Salvage: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	3.04%	2.68%
Av. Remaining Life	19.3 years	N/A

ACCOUNT – 315.00 Accessory Electric Equipment

Historical Experience

Plant Statistics Plant Balance = \$19,746,820
Average Age of Survivors = 25.0 years
Original Gross Additions = \$20,710,188
Oldest Surviving Vintage = 1954
Retirements = \$776,991, or 3.8% of historical additions.
Average Age of Retirements = 29.0 years

Experience Bands 1997 – 2014 (Full Depth) – Interim Ret. Curve 50-R2.5

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-24%	-22%	-20%	-11%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
1%	1%	0%	0%

Forecasted Net Salvage: N/A

Future Expectations and Considerations

The Company’s property investment is related to the facilities located at five (5) different generation stations, including RM Heskett, Lewis & Clark, Big Stone, & Coyote. The RM Heskett station has two (2) operating units that were placed into service during 1954 and 1963 and the remaining stations each have one unit. Lewis & Clark was placed into service in 1958, followed by Big Stone during 1975 and Coyote in 1981. The WyGenIII Generating facility was placed into service during 2010.

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Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

Current Depreciation Parameters

Interim Retirement AS/Curve: 80-L2

Net Salv: -30.1%

Proposed Depreciation Parameters

Interim Retirement ASL/Curve: 50-R2.5

Net Salv: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.11%	1.53%
Av. Remaining Life	19.1 years	N/A

ACCOUNT – 316.00 Misc Power Plant Equipment

Historical Experience

Plant Statistics Plant Balance = \$17,600,678
Average Age of Survivors = 14.1 years
Original Gross Additions = \$22,988,474
Oldest Surviving Vintage = 1954
Retirements = \$5,286,795 or 23.0% of historical additions.
Average Age of Retirements = 12.4 years

Experience Bands 1995 – 2014 (Full Depth) - Interim Ret. Curve 30-R0.5

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
5%	-2%	1%	2%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
10%	8%	6%	0%

Forecasted Net Salvage: N/A

Future Expectations and Considerations

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Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

Current Depreciation Parameters

Interim Retirement ASL/Curve: 35-R0.5

Net Salv: -3.3%

Proposed Depreciation Parameters

Interim Retirement ASL/Curve: 30-R0.5

Net Salv: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	4.07%	4.63%
Av. Remaining Life	11.8 years	N/A

ACCOUNT – 341.10 Structures & Improvements

Historical Experience

Plant Statistics Plant Balance = \$667,455
Average Age of Survivors = 6.5 years
Original Gross Additions = \$998,590
Oldest Surviving Vintage = 1937
Retirements = \$331,135 or 33.2% of historical additions.
Average Age of Retirements = 58.1 years

Experience Band 1997 – 2014 (Full Depth) – 70-R1

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

The Company has multiple Other Production units including Glendive, Glendive II, Miles City, Heskett III, Ormat Generation, and Portable Generators at various locations. Not all of the various locations have investments in each of the Other Production property accounts.

The investment in structures and improvements is principally related to enclosures utilized to house the prime movers and generators. The initial other production investments were placed into service during 1954 with further additions at intermittent periods.

The depreciation rate for the Company's investment in this property category is being developed via the Life Span Method. An interim retirement rate was identified for each property group based upon an analysis of the Company's total account historical experience to date. Using the location and vintage level surviving investments for each generating facility's location property, the estimated interim retirement rate and Company management's provided probable retirement/rehabilitation dates, an implicit average service life and average remaining life was produced via the life span approach. The developed depreciation rates "do not" include any proposed component for the recovery of either interim or terminal (decommission cost) net salvage.

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Current Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial)

Average Remaining Life Development: Full Mortality

ASL/Curve: 40-R3
Net Salvage: -47.9%

Proposed Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

ASL/Curve: 70-R1
Future Net Salvage: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	9.33%	3.46%
Av. Remaining Life	4.5 years	N/A

ACCOUNT – 341.20 Structures & Improvements – Wind Farm

Historical Experience

Plant Statistics Plant Balance = \$6,163,220
Average Age of Survivors = 5.4 years
Original Gross Additions = \$6,163,220
Oldest Surviving Vintage = 1937
Retirements = \$0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band 1997 – 2014 (Full Depth) – 70-R1

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

The Company has 2 wind farm sites, namely, Diamond Willow and Cedar Hills. Diamond Willow currently has 20 turbine units while the Cedar Hills is comprised of 13 turbine units. The capacity of each of the Diamond Hills turbines is 1.5 MW and the Cedar Hills turbines are 1.5 MW each.

The depreciation rate for the Company's investment in this property category is being developed via the Life Span Method. An interim retirement rate was identified for each property group based upon an analysis of the Company's total account historical experience to date. Using the location and vintage level surviving investments for each generating facility's location property, the estimated interim retirement rate and Company management's provided probable retirement/rehabilitation dates, an implicit average service life and average remaining life was produced via the life span approach. The developed depreciation rates "do not" include any proposed component for the recovery of either interim or terminal (decommission cost) net salvage.

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Current Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial)

Average Remaining Life Development: Full Mortality

ASL: 20 years

Net Salvage: 0%

Proposed Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

ASL/Curve: 70-R1

Future Net Salvage: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	5.51%	4.90%
Av. Remaining Life	13.4 years	N/A

ACCOUNT – 342.00 Fuel Holders, Producers and Accessories

Historical Experience

Plant Statistics Plant Balance = \$2,722,006
Average Age of Survivors = 7.20 years
Original Gross Additions = \$2,799,668
Oldest Surviving Vintage = 1954
Retirements = \$77,662 or 2.9% of historical additions.
Average Age of Retirements = 58.5 years

Experience Band 1978– 2014 (Full Depth) – 43-R5 FTA 45 yrs.

Historical Net Salvage: (76-14)

Three Year Average Net Salvage Percent			Full Depth
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1976-14</u>
0%	0%	0%	-16%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0%	0%	0%	0%

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

The Company has multiple Other Production units including Glendive, Glendive II, Miles City, Heskett III, Ormat Generation, and Portable Generators at various locations. Not all of the various locations have investments in each of the Other Production property accounts.

The investment in Fuel Holder is principally related to facilities used to supply a fuel source to the generating units. The initial other production investments were placed into service during 1954 with further additions at intermittent periods.

The depreciation rate for the Company's investment in this property category is being developed via the Life Span Method. An interim retirement rate was identified for each property group based upon an analysis of the Company's total account historical experience to date. Using the location and vintage level surviving investments for each generating facility's location property, the estimated interim retirement rate and Company management's provided probable retirement/rehabilitation dates, an implicit average service life and average remaining life was produced via the life span approach. The developed depreciation rates "do not" include any proposed component for the recovery of either interim or terminal (decommission cost) net salvage.

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Current Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial)

Average Remaining Life Development: Full Mortality

ASL/Curve: 43-R5

Net Salvage: -181.5%

Proposed Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

ASL/Curve: 43-R5

Future Net Salvage: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	4.11%	1.30%
Av. Remaining Life	15.2 years	N/A

ACCOUNT – 344.10 Generators

Historical Experience

Plant Statistics Plant Balance = \$96,085,719
Average Age of Survivors = 6.3 years
Original Gross Additions = \$120,138,635
Oldest Surviving Vintage = 1954
Retirements = \$1,675,806 or 1.4% of historical additions.
Average Age of Retirements = 52.5 years

Experience Band 1997– 2014 (Full Depth) - 55-R3 FTA 35 yrs.

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

The Company has multiple Other Production units including Glendive, Glendive II, Miles City, Heskett III, Ormat Generation, and Portable Generators at various locations. Not all of the various locations have investments in each of the Other Production property accounts.

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Current Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial)

Average Remaining Life Development: Full Mortality

ASL/Curve: 43-R5
Net Salvage: -10.7%

Proposed Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

ASL/Curve: 55-R3

Future Net Salvage: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	3.00%	2.60%
Av. Remaining Life	27.3 years	N/A

ACCOUNT – 344.20 Generators- Wind Farm

Historical Experience

Plant Statistics Plant Balance = \$84,200,594
Average Age of Survivors = 5.5 years
Original Gross Additions = \$106,323,915
Oldest Surviving Vintage = 2007
Retirements = \$1,608,000 or 1.5% of historical additions.
Average Age of Retirements = 5.4 years

Experience Band 1997 – 2014 (Full Depth) - 55-R3 FTA 35 years

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

The Company has 2 wind farm sites, namely, Diamond Willow and Cedar Hills. Diamond Willow currently has 20 turbine units while the Cedar Hills is comprised of 13 turbine units. The capacity of each of the Diamond Hills turbines is 1.5 MW and the Cedar Hills turbines are 1.5 MW each.

The depreciation rate for the Company's investment in this property category is being developed via the Life Span Method. An interim retirement rate was identified for each property group based upon an analysis of the Company's total account historical experience to date. Using the location and vintage level surviving investments for each generating facility's location property, the estimated interim retirement rate and Company management's provided probable retirement/rehabilitation dates, an implicit average service life and average remaining life was produced via the life span approach. The developed depreciation rates "do not" include any proposed component for the recovery of either interim or terminal (decommission cost) net salvage.

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Current Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial)

Average Remaining Life Development: Full Mortality

ASL: 20 years

Net Salvage: 0%

Proposed Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

ASL/Curve: 55-R3

Future Net Salvage: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	5.52%	5.06%
Av. Remaining Life	13.6 years	N/A

ACCOUNT – 345.10 Accessory Electric Equipment

Historical Experience

Plant Statistics Plant Balance = \$1,385,590
Average Age of Survivors = 9.0 years
Original Gross Additions = \$1,546,395
Oldest Surviving Vintage = 1954
Retirements = \$199,813, or 12.9% of historical additions.
Average Age of Retirements = 43.9 years

Experience Bands 1998 – 2014 (Full Depth) – 28-L2

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Future Expectations and Considerations

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Current Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial)

Average Remaining Life Development: Full Mortality

ASL/Curve: 35-L4

Net Salv: -7.6%

Proposed Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

ASL/Curve: 28-L2

Net Salv: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	6.45%	4.13%
Av. Remaining Life	8.8 years	N/A

ACCOUNT – 345.20 Accessory Electric Equipment – Wind Farm

Historical Experience

Plant Statistics Plant Balance = \$14,261,600
Average Age of Survivors = 5.6 years
Original Gross Additions = \$14,261,600
Oldest Surviving Vintage = 1954
Retirements = \$0, or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Bands 1998 – 2014 (Full Depth) – 28-L2

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Future Expectations and Considerations

The Company has 2 wind farm sites, namely, Diamond Willow and Cedar Hills. Diamond Willow currently has 20 turbine units while the Cedar Hills is comprised of 13 turbine units. The capacity of each of the Diamond Hills turbines is 1.5 MW and the Cedar Hills turbines are 1.5 MW each.

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Current Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial)

Average Remaining Life Development: Full Mortality

ASL/Curve: N/A

Net Salv: N/A

Proposed Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

ASL/Curve: 28-L2

Net Salv: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	5.82%	4.98%
Av. Remaining Life	12.6 years	N/A

ACCOUNT – 346.10 Misc Power Plant Equipment

Historical Experience

Plant Statistics Plant Balance = \$1,202,813
Average Age of Survivors = 1.7 years
Original Gross Additions = \$1,212,240
Oldest Surviving Vintage = 1953
Retirements = \$9,426 or 0.8% of historical additions.
Average Age of Retirements = 30.8 years

Experience Bands 1998 – 2014 (Full Depth) – 28-S1 FTA 20 yrs.

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Future Expectations and Considerations

The Company has multiple Other Production units including Glendive, Glendive II, Miles City, Heskett III, Ormat Generation, and Portable Generators at various locations. Not all of the various locations have investments in each of the Other Production property accounts.

The depreciation rate for the Company's investment in this property category is being developed via the Life Span Method. An interim retirement rate was identified for each property group based upon an analysis of the Company's total account historical experience to date. Using the location and vintage level surviving investments for each generating facility's location property, the estimated interim retirement rate and Company management's provided probable retirement/rehabilitation dates, an implicit average service life and average remaining life was produced via the life span approach. The developed depreciation rates "do not" include any proposed component for the recovery of either interim or terminal (decommission cost) net salvage.

Notwithstanding the occurrence of actual (experienced) interim negative net salvage and the further expectation of future, end of life terminal negative net salvage (decommissioning cost), Company management requested that no such cost be included in the development of the proposed depreciation rates related to its generating facilities. Company management will address the recovery of those components of cost through a separate regulatory request.

Current Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial)

Average Remaining Life Development: Full Mortality

ASL/Curve: 35-R2

Net Salv: -26.6%

Proposed Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

ASL/Curve: 28-S1

Net Salv: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	4.26%	2.47%
Av. Remaining Life	21.6 years	N/A

ACCOUNT – 346.20 Misc Power Plant Equipment – Wind Farm

Historical Experience

Plant Statistics Plant Balance = \$119,099
Average Age of Survivors = 5.5years
Original Gross Additions = \$119,099
Oldest Surviving Vintage = 1953
Retirements = \$0 or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Bands 1998 – 2014 (Full Depth) – 28-S1 FTA 20 yrs.

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Future Expectations and Considerations

The Company has 2 wind farm sites, namely, Diamond Willow and Cedar Hills. Diamond Willow currently has 20 turbine units while the Cedar Hills is comprise of 13 turbine units. The capacity of each of the Diamond Hills turbines is 1.5 MW and the Cedar Hills turbines are 1.5 MW each.

The depreciation rate for the Company's investment in this property category is being developed via the Life Span Method. An interim retirement rate was identified for each property group based upon an analysis of the Company's total account historical experience to date. Using the location and vintage level surviving investments for each generating facility's location property, the estimated interim retirement rate and Company management's provided probable retirement/rehabilitation dates, an implicit average service life and average remaining life was produced via the life span approach. The developed depreciation rates "do not" include any proposed component for the recovery of either interim or terminal (decommission cost) net salvage.

Notwithstanding the occurrence of actual (experienced) interim negative net salvage and the further expectation of future, end of life terminal negative net salvage (decommissioning cost), Company management requested that no such cost be included in the development of the proposed depreciation rates related to its generating facilities. Company management will address the recovery of those components of cost through a separate regulatory request.

Current Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial)

Average Remaining Life Development: Full Mortality

ASL/Curve: N/A

Net Salv: N/A

Proposed Depreciation Parameters

Life Analysis Method: Retirement Rate Method (Actuarial) Interim Retirement Rate

Average Remaining Life Development: Full Mortality/Life Span

ASL/Curve: 28-S1

Net Salv: N/A

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	5.89%	5.08%
Av. Remaining Life	12.9 years	N/A

ACCOUNT – 350.20 Land Rights

Historical Experience

Plant Statistics Plant Balance = \$2,886,550
Average Age of Survivors = 27.4 years
Original Gross Additions = \$2,912,312
Oldest Surviving vintage = 1977
Retirements = \$26,869 or 9.2% of historical additions.
Average Age of Retirements = 23.4 years

Experience Band Estimated 50-R3

Historical Net Salvage: (86-14)

<u>Three Year Average Net Salvage Percent</u>			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1986-14</u>
0%	0%	0%	4%

<u>Gross Salvage Trend Analysis</u>			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0%	0%	0%	0%

Forecasted Net Salvage: 0%

Plant Considerations/Future Expectations

Investments in this account are related to rights of way acquired by Company for the purpose of installing components of its utility plant.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 50-R3
Net Salvage: 0%

Proposed Depreciation Parameters

ASL/Curve: 50-R3
Future Net Salvage: 0%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	1.44%	1.30%
Av. Remaining Life	25.6 years	N/A

ACCOUNT – 352.00 Structures & Improvements

Historical Experience

Plant Statistics Plant Balance = 1,789
Average Age of Survivors = 66.5 years
Original Gross Additions = \$1,789
Oldest Surviving vintage = 1948
Retirements = \$0, or 0% of historical additions.
Average Age of Retirements = N/A

Experience Band Estimated 45-R2 FTA 60 years

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

This property investment group is principally related to building structures and yard facilities located at the Company's numerous transmission substation sites that are utilized to house various items of control equipment. This investment category includes investment component items such as not only the overall building structures, but also heaters, air conditioners, generators, station framework, fencing, etc.

Life Analysis Method: Simulated Plant Analysis Method

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 45-R2
Net Salvage: 0%

Proposed Depreciation Parameters

ASL/Curve: 45-R2
Future Net Salvage: 0%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	1.44%	9.46%
Av. Remaining Life	4.7 years	N/A

ACCOUNT – 353.00 Station Equipment

Historical Experience

Plant Statistics Plant Balance = \$118,690
Average Age of Survivors = 16.1 years
Original Gross Additions = \$123,396,322
Oldest Surviving vintage = 1946
Retirements = \$4,510,484 or 3.7% of historical additions.
Average Age of Retirements = 28.2 years

Experience Band 1995 – 2014 (Full Depth) 60-R3

Historical Net Salvage: (68-14)

<u>Three Year Average Net Salvage Percent</u>			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-13%	-12%	1%	16%

<u>Gross Salvage Trend Analysis</u>			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
17%	9%	0%	3%

Forecasted Net Salvage: -23%

Plant Considerations/Future Expectations

The costs included in this account investment are related to numerous transmission substation equipment (including items such as transformers, voltage regulators, circuit breakers, etc. used to transform power to different voltages. Currently, there are nearly 100 stations operating at voltages between 69Kv through 138 & 345Kv facilities.

During the last several years the Company has been in an increasing growth mode having increased its plant investment by approximately a third. To date the activity has been more on the growth side as opposed to replacement of existing facilities. In future years it is anticipated that replacement of existing facilities will likely occur at higher levels.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 45-R2.5
Net Salvage: -10%

Proposed Depreciation Parameters

ASL/Curve: 60-R3

Future Net Salvage: -10%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	1.58%	1.88%
Av. Remaining Life	45.2 years	N/A

ACCOUNT – 354.00 Towers & Fixtures

Historical Experience

Plant Statistics Plant Balance = \$4,992,886
Average Age of Survivors = 30.3 years
Original Gross Additions = \$4,993,402
Oldest Surviving vintage = 1960
Retirements = \$516, or 0.0% of historical additions.
Average Age of Remaining Life = 31.5 years

Experience Band Estimated 55-R5

Historical Net Salvage: (08-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>2008-14</u>
0%	0%	0%	-70%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0	0%	0%	0%

Forecasted Net Salvage: -133%

Plant Considerations/Future Expectations

This property account is principally related to metal poles and metal towers that are used in conjunction with the Company's transmission lines. MDU conducts regular structure condition inspections. From time to time structures require modification and/or replacement to accommodate system improvements such as connection of new substations, installation of new equipment, road construction, etc.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 50-R4

Net Salvage: 0%

Proposed Depreciation Parameters

ASL/Curve: 55-R5

Future Net Salvage: -5%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	1.79%	1.60%
Av. Remaining Life	24.9 years	N/A

ACCOUNT – 355.00 Poles & Fixtures

Historical Experience

Plant Statistics Plant Balance = \$56,953,023
Average Age of Survivors = 15.7 years
Original Gross Additions = \$59,333,114
Oldest Surviving vintage = 1939
Retirements = \$2,477,864, or 4.2% of historical additions.
Average Age of Retirements = 31.0 years

Experience Band 1995-2014 (Full Depth) 57-R3 FTA 70 yrs.

Historical Net Salvage: (68-14)

<u>Three Year Average Net Salvage Percent</u>			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-101%	-98%	-46%	-22%

<u>Gross Salvage Trend Analysis</u>			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
14%	12%	9%	0%

Forecasted Net Salvage: -107%

Plant Considerations/Future Expectations

This property group contains the Company's investment applicable to transmission poles and fixtures and related property. A typical pole line may be constructed using either single poles or h-frame construction techniques. The Company has an ongoing inspection program and poles that are deemed non-reinforcable are scheduled for replacement. The Transmission line voltages carried on these facilities typically range from 12,500 KV to 169,000 KV.

During the last several years the Company has been in an increasing growth mode having increased its plant investment by approximately a third. Historically, the activity has been more on the growth side as opposed to replacement of existing facilities, however, during the most recent study year replacements/retirements have accelerated rather dramatically. In fact while the overall and more 5 year experience band analysis produced life indication of an estimated 57 years' average service life, the current 2014 band produced an average service life indication of 45 years. In future years it is anticipated that replacement of existing facilities will likely occur at higher levels.

Over the immediate coming 5 years management anticipates building approximately 100 miles of pole transmission line of which one half is expected to me continued growth/expansion while the remaining one half is expected to be replacement of existing property with further activity in more distant years. This significant increase in plant activity can be anticipated to continue the shorter life presently being experience. Based upon the available recent study result a reduction to the longer than normal average

service life for the Company’s property is proposed. At the present time, an average service life of 50 years is estimated for the property group. As additional activity occurs in future years a further reduction will likely be warranted. Even at the estimated average service life of a 50-R3 life and curve, the recovery period is at the higher end of the industry range of service lives.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 45-R2

Net Salvage: -35%

Proposed Depreciation Parameters

ASL/Curve: 50-R3

Future Net Salvage: -50%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.99%	2.40%
Av. Remaining Life	36.0 years	N/A

ACCOUNT – 356.00 O/H Conductor & Devices

Historical Experience

Plant Statistics Plant Balance = \$39,782,196
Average Age of Survivors = 21.8 years
Original Gross Additions = \$41,121,519
Oldest Surviving Vintage = 1936
Retirements = \$1,371,113, or 3.3% of historical additions.
Average Age of Retirements = 34.0 years

Experience Band 1936-2014 (Full Depth) 70-R3 FTA 55 yrs.

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-53%	-13%	-20%	20%

Gross Salvage Trend Analysis

<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
18%	27%	47%	30%

Forecasted Net Salvage: -87%

Plant Considerations/Future Expectations

This property group contains the Company’s investment applicable to overhead conductors and related property. The load requirements are monitored on an ongoing basis with resulting modification upgrades completed, as required. That is, change outs of conductors and appurtenant equipment are driven both by physical and functional attributes including deterioration of the existing facilities, growth, and the inability of the current plant to handle the additional load, and related plant change outs.

During the last several years the Company has been in an increasing growth mode having increased its plant investment by approximately a quarter. Historically, the activity has been more on the growth side as opposed to replacement of existing facilities, however during the most recent study year replacements/retirements have accelerated rather dramatically. In fact while the overall and more 5 year experience band analysis produced life indication of an estimated 70 years’ average service life, the current 2014 experience band produced an average service life indication of 60 years. In future years it is anticipated that replacement of existing facilities will likely occur at significantly higher levels.

Over the immediate coming 5 years management anticipates building approximately 100 miles of transmission line of which one half is expected to be continued growth/expansion while the remaining one half is expected to be replacement of existing property with further activity in more distant years. This significant increase in plant activity can be anticipated to shorten the life indication presently being experienced. Based upon the available recent study result a reduction to the longer than normal average

service life for the Company’s property is proposed. At the present time, an average service life of 65 years is estimated for the property group. As additional activity occurs in future years a further reduction will likely be warranted. Even at the estimated average service life of a 65-R3 life and curve, the recovery period is longer than the maximum average service life for the property group identified in an industry survey.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curv: 48-R2.5

Net Salvage: 0%

Proposed Depreciation Parameters

ASL/Curve: 65-R3

Future Net Salvage: -15%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	1.53%	1.19%
Av. Remaining Life	45.2 years	N/A

ACCOUNT – 357.00 Underground Conduit

Historical Experience

Plant Statistics Plant Balance = \$1,947,010
Average Age of Survivors = 6.5 years
Original Gross Additions = \$1,947,010
Oldest Surviving Vintage = 2008
Retirements = \$0, or 0% of historical additions.
Average Age of Retirements = 0 years

Experience Band Estimated 50-R3

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

This property group investment is generally related to underground conduct located in the Company's numerous stations.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: N/A
Net Salvage: 0%

Proposed Depreciation Parameters

ASL/Curve: 50-R3
Future Net Salvage: 0%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.01%	2.01%
Av. Remaining Life	43.6 years	N/A

ACCOUNT – 358.00 Underground Conductors and Devices

Historical Experience

Plant Statistics Plant Balance = \$3,101,857
Average Age of Survivors = 6.5 years
Original Gross Additions = \$3,101,857
Oldest Surviving Vintage = 2008
Retirements = \$0, or 0.0% of historical additions.
Average Age of Retirements = N/A

Experience Band Estimated 50-R3

Historical Net Salvage: N/A

Forecasted Net Salvage: N/A

Plant Considerations/Future Expectations

This property group investment is related to underground conductors & devices.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 30-R2
Net Salvage: 0%

Proposed Depreciation Parameters

ASL/Curve: 50-R3
Future Net Salvage: 0%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.01%	2.01%
Av. Remaining Life	43.6 years	N/A

ACCOUNT – 360.20 Land Rights

Historical Experience

Plant Statistics Plant Balance = \$888,926
Average Age of Survivors = 11.5 years
Original Gross Additions = \$2,275,609
Oldest Surviving vintage = 1977
Retirements = \$16,222, or 0.7% of historical additions.
Average Age of Retirements = 26.4 years

Experience Bands Estimated 50-R2

Historical Net Salvage: (87-14)

<u>Three Year Average Net Salvage Percent</u>			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1987-14</u>
0%	0%	0%	-33%

<u>Gross Salvage Trend Analysis</u>			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0%	0%	0%	0%

Forecasted Net Salvage: -85%

Future Expectations and Considerations

Investments in this account are related to rights of way acquired by Company for the purpose of installing components of its utility plant.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 50-R2

Net Salv: 0%

Proposed Depreciation Parameters

ASL/Curve: 50-R2

Net Salv: 0 %

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	1.25%	1.35%
Av. Remaining life	26.7 years	N/A

ACCOUNT – 362.00 Station Equipment

Historical Experience

Plant Statistics Plant Balance = \$57,279,820
Average Age of Survivors = 14.5 years
Original Gross Additions = \$60,744,810
Oldest Surviving vintage = 1946
Retirements = \$3,125,354, or 5.1% of historical additions.
Average Age of Retirements = 27.1 years

Experience Bands 1995– 2014 (Full Depth) 57-R2.5

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			Full Depth
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
7%	-12%	-13%	20%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
47%	53%	11%	0%

Forecasted Net Salvage: -26%

Future Expectations and Considerations

The costs included in this account investment are related to the Company's approximately 250 distribution substation equipment (including items such as transformers, voltage regulators, circuit breakers, etc) used to transformer power from transmission to primary distribution (typically 34,500 and 69,000) voltages.

During the last several years the Company has been in an increasing growth mode having increased its plant investment by approximately a quarter. Historically, the activity has been more on the growth side as opposed to replacement of existing facilities, however during the most recent study year replacements/retirements have accelerated rather dramatically. In fact while the overall 5 year experience band analysis produced life indication of an estimated 57 years' average service life, the current 2012-2014 experience band produced an average service life indication of 45 years. In future years it is anticipated that replacement of existing facilities will likely occur at significantly higher levels.

Over the coming years management anticipates move towards the upgrade replacement mode of construction as opposed to growth/expansion. This significant increase in plant replacement activity can be anticipated to shorten the life indication presently being experienced. Based upon the available recent study result a reduction to the longer than normal average service life for the Company's property

is proposed. At the present time, an average service life of 50 years is estimated for the property group. As additional activity occurs in future years a further reduction will likely be warranted. Even at the estimated average service life of a 50-R2.5 life and curve, the recovery period is nearly as long as the maximum average service life for the property group identified in an industry survey.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 42-R2

Net Salv: -20%

Proposed Depreciation Parameters

ASL/Curve: 50-R2.5

Net Salv: -5%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	1.92%	1.80%
Av. Remaining Life	37.6 years	N/A

ACCOUNT – 364.00 Poles, Towers & Fixtures

Historical Experience

Plant Statistics Plant Balance = \$37,559,744
Average Age of Survivors = 18.2 years
Original Gross Additions = \$40,977,310
Oldest Surviving vintage = 1935
Retirements = \$3,434,903, or 8.4% of historical additions.
Average Age of Retirements = 24.4 years

Experience Bands 1995– 2014 (Full Depth) 56-R1.5

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-76%	-142%	-158%	-56%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
4%	5%	6%	10%

Forecasted Net Salvage: -180%

Future Expectations and Considerations

Poles are identified in the field on an ongoing basis and those that require replacement are evaluated based on several design criteria and then either replaced or reinforced.

The replacement of poles with any one area of the Company's operating system varies from year to year depending upon inspection results. In addition the Company experiences ongoing pole replacements as a result of highway reconstruction/relocation and accidental damage.

During the last several years the Company has been in an increasing growth mode having increased its plant investment in the range of 15-20%. Historically, the activity has been more on the growth side as opposed to replacement of existing facilities, however during the most recent study year replacements/retirements have accelerated rather dramatically. In fact while the overall 5 year experience band analysis produced life indication of an estimated 56 years' average service life, the current 2014 experience band produced an average service life indication of 45 years. In future years it is anticipated that replacement of existing facilities will likely occur at significantly higher levels.

Over the coming years management anticipates move towards the upgrade replacement mode of construction as opposed to growth/expansion. This increase in plant replacement activity can be anticipated to shorten the life indication presently being experienced. Based upon the available recent study result a reduction to the longer than normal average service life for the Company's property is

proposed. At the present time, an average service life of 50 years is estimated for the property group. As additional activity occurs in future years a further reduction will likely be warranted. Even at the estimated average service life of a 50-R1 life and curve, the recovery period is at the higher end of the industry range of service lives.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 38-R0.5

Net Salv: -95%

Proposed Depreciation Parameters

ASL/Curve: 50-R1

Net Salv: -70%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	3.76%	4.09%
Av. Remaining Life	37.6 years	N/A

ACCOUNT – 365.00 O/H Conductor & Devices

Historical Experience

Plant Statistics Plant Balance = \$28,926,832
Average Age of Survivors = 17.1 years
Original Gross Additions = \$30,864,361
Oldest Surviving Vintage = 1935
Retirements = \$1,938,849, or 6.3% of historical additions.
Average Age of Retirements = 22.4 years

Experience Bands 1995 – 2014 (Full Depth) 60-R2

Historical Net Salvage: (68-14)

<u>Three Year Average Net Salvage Percent</u>			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-87%	-163%	-171%	-48%

<u>Gross Salvage Trend Analysis</u>			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0%	4%	5%	6%

Forecasted Net Salvage: -213%

Future Expectations and Considerations

This property group contains the Company’s investment applicable to overhead conductors and related property. Change outs of conductors and appurtenant equipment are driven by both physical attributes and load growth that are constantly occurring within the Company’s service area.

During the last several years the Company has been in an increasing growth mode having increased its plant investment in the range of 20% plus or minus. Historically, the activity has been more on the growth side as opposed to replacement of existing facilities, however during the most recent study year replacements/retirements have accelerated rather dramatically. In fact while the overall 5 year experience band analysis produced life indication of an estimated 60 years’ average service life, the current 2014 experience band produced an average service life indication of 45 years. In future years it is anticipated that replacement of existing facilities will likely occur at significantly higher levels.

Over the coming years management anticipates move towards the upgrade replacement mode of construction as opposed to growth/expansion. This increase in plant replacement activity can be anticipated to shorten the life indication presently being experienced. Based upon the available recent study result a reduction to the longer than normal average service life for the Company’s property is proposed. At the present time, an average service life of 55 years is estimated for the property group. As additional activity occurs in future years a further reduction will likely be warranted. Even at the

estimated average service life of a 55-R1 life and curve, the recovery period is at the higher end of the industry range of service lives.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 36-R1

Net Salv: -70%

Proposed Depreciation Parameters

ASL/Curve: 55-R1

Net Salv: -85%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.91%	3.91%
Av. Remaining Life	43.3 years	N/A

ACCOUNT – 366.00 U/G Conduit

Historical Experience

Plant Statistics Plant Balance = \$218,153
Average Age of Survivors = N/A
Original Gross Additions = \$218,153
Oldest Surviving Vintage = 1949
Retirements = \$0 or 0% of historical additions.
Average Age of Retirements = N/A

Experience Bands Estimated 50-R3

Historical Net Salvage: (68-14)

<u>Three Year Average Net Salvage Percent</u>			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-0%	0%	0%	-7%

<u>Gross Salvage Trend Analysis</u>			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0%	0%	0%	0%

Forecasted Net Salvage: -48%

Future Expectations and Considerations

This property equipment account is related to facilities that are used in conjunction with the Company's underground cable systems. MDU's limited conduit investments are installed in the distribution system where: 1) additional mechanical protection of cable systems are required. 2) future destructive surface construction associated with cable repairs is to be avoided. 3) faulted direct buried cable systems have been replaced with bored in conduit encased cable systems.

The primary cause for conduit system retirement is abandonment of existing conduit associated with facility relocations.

Also, replacement of conduit systems is due to damage caused by a third party.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 50-R3

Net Salv: -10%

Proposed Depreciation Parameters

ASL/Curve: 50-R3

Net Salv: 0%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	1.81%	1.88%
Av. Remaining Life	29.6 years	N/A

ACCOUNT – 367.00 U/G Conductors & Devices

Historical Experience

Plant Statistics Plant Balance = \$91,879,419
Average Age of Survivors = 9.6 years
Original Gross Additions = \$97,845,820
Oldest Surviving Vintage = 1949
Retirements = \$6,005,802 or 6.1% of historical additions.
Average Age of Retirements = 20.6 years

Experience Bands 1995 – 2014 (Full Depth) 40-R2

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-25%	-68%	-101%	-26%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
2%	2%	2%	2%

Forecasted Net Salvage: -48%

Future Expectations and Considerations

This property group includes the investment related to direct buried secondary distribution cables. Significant increases in retirement levels occurred during late 1990's and 2000's. Furthermore, industry information has shown the propensity for increased failure levels in the class of property as it continues to age. Outages on UG primary and secondary happen throughout the year in any given year. Current MDU customer outage times associated with UG cable is not considered abnormal.

Continued quality control and inspection of cable deliveries by MDU Standards department is anticipated to minimize the possibility of increased outages of newly installed plant due to cable failures, however, there is a lot of potential cable issue in future years relative to underground plant installed during earlier years. The Company has million feet of underground conductors in service. Specifically, vintages of cable installed prior to 1983 are subject to increasing failure.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 30-R3

Net Salv: -15%

Proposed Depreciation Parameters

ASL/Curve: 40-R2

Net Salv: -25%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	3.00%	3.15%
Av. Remaining Life	32.0 years	N/A

ACCOUNT – 368 Line Transformers

Historical Experience

Plant Statistics Plant Balance = \$64,877,478
Average Age of Survivors = 15.5 years
Original Gross Additions = \$68,185,864
Oldest Surviving Vintage = 1936
Retirements = \$3,303,579 or 4.8% of historical additions.
Average Age of Retirements = 27.5 years

Experience Bands 1995– 2014 (Full depth) 55-R3

Historical Net Salvage: (68-14)

<u>Three Year Average Net Salvage Percent</u>			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-21%	-7%	-22%	-8%

<u>Gross Salvage Trend Analysis</u>			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
16%	17%	13%	3%

Forecasted Net Salvage: -32%

Future Expectations and Considerations

This investment category is related to customer transformers located in conjunction with customer services. This class of plant serves to reduce the distribution voltage to the voltage level required by the customers.

While limited inspection cost is incurred before disposing and/or placing any transformers back into stores, cost is incurred to removing and returning the equipment to stores. Also, the cost of disposing retired transformers is increasing. A technician will inspect bushings as well as any equipment damage before placing back into inventory for potential further use. Increasing amount of pad mounted transformers require replacement due to failures.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 45-R3
Net Salv: 0%

Proposed Depreciation Parameters

ASL/Curve: 55-R3

Net Salv: -20%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.10%	2.22%
Av. Remaining Life	40.8 years	N/A

ACCOUNT – 369.10 Overhead Services

Historical Experience

Plant Statistics Plant Balance = \$4,548,918
Average Age of Survivors = 19.4
Original Gross Additions = \$5,518,845
Oldest Surviving Vintage = 1953
Retirements = \$970,161, or 17.6% of historical additions.
Average Age of Retirements = 26.0 years

Experience Bands 1995– 2014 (Full Depth) 37-R1.5

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-40%	-39%	-33%	-43%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0%	2%	3%	2%

Forecasted Net Salvage: -104%

Future Expectations and Considerations

The property investment within this account is related to aerial customer services. Outages related to failed service are deemed to be normal and therefore future replacements are not anticipated to be materially different than occurred during recent years.

Life Analysis Method: Retirement Rate Method (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 30-R2

Net Salv: -70%

Proposed Depreciation Parameters

ASL/Curve: 37-R1.5

Net Salv: -50

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.69%	1.83%
Av. Remaining Life	23.1 years	N/A

ACCOUNT – 369.20 Underground Services

Historical Experience

Plant Statistics Plant Balance = \$28,517,307
Average Age of Survivors = 13.6 years
Original Gross Additions = \$29,788,433
Oldest Surviving Vintage = 1955
Retirements = \$1,270,891, or 4.3% of historical additions.
Average Age of Retirements = 17.1 years

Experience Bands 1995 - 2014 (Full Depth) 45-R3

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-40%	-39%	-33%	-43%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0%	2%	3%	2%

Forecasted Net Salvage: -104%

Future Expectations and Considerations

The property investment within this account is related to underground customer services. Outages related to failed service are deemed to be normal and therefore future replacements are not anticipated to be materially different than occurred during recent years.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 30-R4

Net Salv: -70%

Proposed Depreciation Parameters

ASL/Curve: 45-R3

Net Salv: -50%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.64%	1.83%
Av. Remaining Life	32.7 years	N/A

ACCOUNT – 370.00 Meters

Historical Experience

Plant Statistics Plant Balance = \$16,972,527
Average Age of Survivors = 5.3
Original Gross Additions = \$27,360,630
Oldest Surviving Vintage = 1946
Retirements = \$10,388,103, or 38.0% of historical additions.
Average Age of Retirements = 19.2 years

Experience Bands 1995 – 2014 (Full Depth) 15-L3 ---Estimate 25-R2

Historical Net Salvage: (68-14)

<u>Three Year Average Net Salvage Percent</u>			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-9%	-8%	-6%	-3%

<u>Gross Salvage Trend Analysis</u>			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0%	1%	1%	0%

Forecasted Net Salvage: -3%

Future Expectations and Considerations

In more recent years, the Company replaced the overwhelming majority of its electric meters in conjunction with an AMR conversion project. Accordingly, the historical analysis of recent data, in which there was a wholesale change out of property, produced a shorter life indication for the property group than might be experienced for the current property. That is, the conversion project resulted in the Company now having a completely different automated metering reading (AMR) technology of Meters than which previously existed. This current new technologically driven property is routinely influenced by greater levels of upgrades, obsolescence, etc. than the prior mechanical meters.

For example, while the AMR technology provides improved efficiencies and enhanced technology capabilities, it only captures a limited part of the ultimate transformation to the current state of the art meter reading and plant utilization capabilities. Advanced Meter Infrastructure (AMI) and related Smart Grid will further expand the control capabilities of the electric network. Accordingly, it is only a matter of time until it will be necessary to complete further upgrades to its present Meter facilities. Thus, an average service life of 20 years is initially estimated for the present property group investment. The life of this property group needs to be monitored on an ongoing basis in conjunction with changing technology and the Company's needs to address such rapid changes.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 35-R3
Net Salv: 0%

Proposed Depreciation Parameters

ASL/Curve: 20-L3
Net Salv: -5%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	7.19%	3.44%
Av. Remaining Life	20.4 years	N/A

ACCOUNT – 371.00 Installation on Customers Premises

Historical Experience

Plant Statistics Plant Balance = \$2,742,626
Average Age of Survivors = 11.0 years
Original Gross Additions = \$3,971,265
Oldest Surviving Vintage = 1971
Retirements = \$1,229,278, or 31.0% of historical additions.
Average Age of Retirements = 17.1 years

Experience Bands 1995– 2014 (Full Depth) 22-R0.5

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-14%	-37%	-46%	0%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
10%	9%	8%	0%

Forecasted Net Salvage: -31%

Future Expectations and Considerations

This account investment is related to equipment located on customer premises.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 18-R1.5
Net Salv: -5%

Proposed Depreciation Parameters

ASL/Curve: 22-R0.5
Net Salv: -15%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	4.84%	4.72%
Av. Remaining Life	15.6 years	N/A

ACCOUNT – 373.00 Street Lighting Systems

Historical Experience

Plant Statistics Plant Balance = \$7,173,899
Average Age of Survivors = 22.7 years
Original Gross Additions = \$8,593,377
Oldest Surviving Vintage = 1946
Retirements = \$1,379,656, or 16.1% of historical additions.
Average Age of Retirements = 25.9 years

Experience Bands 1995– 2014 (Full Depth) 43-R1

Historical Net Salvage: (68-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1968-14</u>
-42%	-65%	-96%	-28%

Gross Salvage Trend Analysis

<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
1%	2%	2%	3%

Forecasted Net Salvage: -68%

Future Expectations and Considerations

This property group contains the Company’s overhead conductors related to street lighting equipment. High Pressure Sodium Vapor lighting is a primary type of installed facilities. The Company will continue to monitor and replace these facilities as required. Factors contributing to future change outs of property, as in the past, are vehicular accidents as well as change outs resulting local government entities requests. Furthermore, in conjunction with anticipated future load growth, highway relocations and related plant changes, street lighting will also be impacted inasmuch as the street lighting equipment is mounted on the distribution facilities.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 35-R2

Net Salv: -25%

Proposed Depreciation Parameters

ASL/Curve: 43-R1

Net Salv: -40%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	2.88%	3.73%
Av. Remaining Life	28.0 years	N/A

ACCOUNT – 390.00 Structures and Improvements

Historical Experience

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

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

Historical Net Salvage: 73-14

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

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
0%	0%	0%	0%

Forecasted Net Salvage: -19%

Future Expectations and Considerations

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

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

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

Proposed Depreciation Parameters

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

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

ACCOUNT – 392.10 Transportation Equip-Non Unitized

Historical Experience

Plant Statistics Plant Balance = \$972,408
Average Age of Survivors = 8.7 years
Original Gross Additions = \$943,334
Oldest Surviving Vintage = 1992
Retirements = \$42,990, or 4.6% of historical additions.
Average Age of Retirements = 34.0 years

Experience Bands Estimated 15-R4

Historical Net Salvage: (04-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>2004-14</u>
22%	28%	10%	12%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
12%	12%	12%	23%

Forecasted Net Salvage: 23%

Future Expectations and Considerations

This property group contains investments related to cars and light trucks. The Company's general replacement policy is 5 years or 100,000 miles.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 10-R3
Net Salv: 0%

Proposed Depreciation Parameters

ASL/Curve: 15-R4
Net Salv: 20%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	4.54%	7.99%
Av. Remaining Life	8.3 years	N/A

ACCOUNT – 392.20 Transportation Equipment

Historical Experience

Plant Statistics Plant Balance = \$6,980,855
Average Age of Survivors = 6.2 years
Original Gross Additions = \$12,818,745
Oldest Surviving Vintage = 1995
Retirements = \$5,510,588, or 43.0% of historical additions.
Average Age of Retirements = 10.2 years

Experience Bands 1995– 2014 (Full Depth) 11-L3

Historical Net Salvage: (95-14)

<u>Three Year Average Net Salvage Percent</u>			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1995-14</u>
24%	25%	15%	20%

<u>Gross Salvage Trend Analysis</u>			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
21%	21%	21%	19%

Forecasted Net Salvage: 19%

Future Expectations and Considerations

This property group contains investments related to heavier construction trucks which are used in constructing and maintaining distribution and transmission lines. The Company’s general replacement policy is 8 years or 100,000 miles.

Life Analysis Method: Retirement Rate (Actuarial)

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 7-R3
Net Salv: 20%

Proposed Depreciation Parameters

ASL/Curve: 11-L3
Net Salv: 20%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	5.48%	7.71%
Av. Remaining Life	6.0 years	N/A

ACCOUNT – 396.10 Trailers-Work Equipment

Historical Experience

Plant Statistics Plant Balance = \$469,900
Average Age of Survivors = N/A
Original Gross Additions = \$359,809
Oldest Surviving Vintage = 1971
Retirements = \$32,263, or N/A of historical additions.
Average Age of Retirement = 26.2 years

Experience Bands 1995– 2014 (Full Depth) 20-L3

Historical Net Salvage: (08-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>2008-14</u>
19%	0%	0%	0%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
9%	9%	9%	0%

Forecasted Net Salvage: 0%

Future Expectations and Considerations

This investment in this account is related to work trailers used by the Company’s workforce.

Life Analysis Method: Simulated Plant Analysis Method

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 20-L2
Net Salv: 0%

Proposed Depreciation Parameters

ASL/Curve: 20-L3
Net Salv: 0%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	5.44%	5.33%
Av. Remaining Life	11.5 years	N/A

ACCOUNT – 396.20 Power Operated Equipment

Historical Experience

Plant Statistics Plant Balance = \$12,819,698
Average Age of Survivors = N/A
Original Gross Additions = \$6,312,535
Oldest Surviving Vintage = 1977
Retirements = \$6,648,394, or N/A of historical additions.
Average Age of Retirements = 12.2 years

Experience Bands 1995– 2014 (Full Depth) 9-L0

Historical Net Salvage: (69-14)

Three Year Average Net Salvage Percent			<u>Full Depth</u>
<u>2010-12</u>	<u>2011-13</u>	<u>2012-14</u>	<u>1969-14</u>
49%	64%	41%	22%

Gross Salvage Trend Analysis			
<u>20 Year</u>	<u>15 Year</u>	<u>10 Year</u>	<u>5 Year</u>
36%	41%	53%	67%

Forecasted Net Salvage: 67%

Future Expectations and Considerations

The investment in this account is related to power operated equipment, such as welders, portable generators, backhoes, etc., used by the Company's workforce.

Average Remaining Life Development: Full Mortality

Current Depreciation Parameters

ASL/Curve: 15-R2.5
Net Salv: 20%

Proposed Depreciation Parameters

ASL/Curve: 9-L0
Net Salv: 20%

	<u>New Rate @New Parameters</u>	<u>Old Rate @ Old Parameters</u>
Rate	5.39%	7.36%
Av. Remaining Life	8.7 years	N/A