

Exhibit No.:
Issue(s): Depreciation
Witness: David T. Buttig, PE
Sponsoring Party: MoPSC Staff
Type of Exhibit: Surrebuttal Testimony
Case Nos.: ER-2022-0129 and
ER-2022-0130
Date Testimony Prepared: August 16, 2022

MISSOURI PUBLIC SERVICE COMMISSION
FINANCIAL & BUSINESS ANALYSIS DIVISION
PROCUREMENT ANALYSIS DEPARTMENT

SURREBUTTAL TESTIMONY

OF

DAVID T. BUTTIG, PE

Evergy Metro, Inc., d/b/a Evergy Missouri Metro
Case No. ER-2022-0129

Evergy Missouri West, Inc., d/b/a Evergy Missouri West
Case No. ER-2022-0130

Jefferson City, Missouri
August 2022

1 A. Yes. Staff witness Cedric E. Cunigan, PE responds to Mr. Spanos's rebuttal
2 testimony in regards to service lives of certain accounts and terminal net salvage for both EMM
3 and Evergy Missouri West, Inc., d/b/a Evergy Missouri West.

4 **DEPRECIATION**

5 Q. What specifically in Mr. Spanos's testimony will you be responding to?

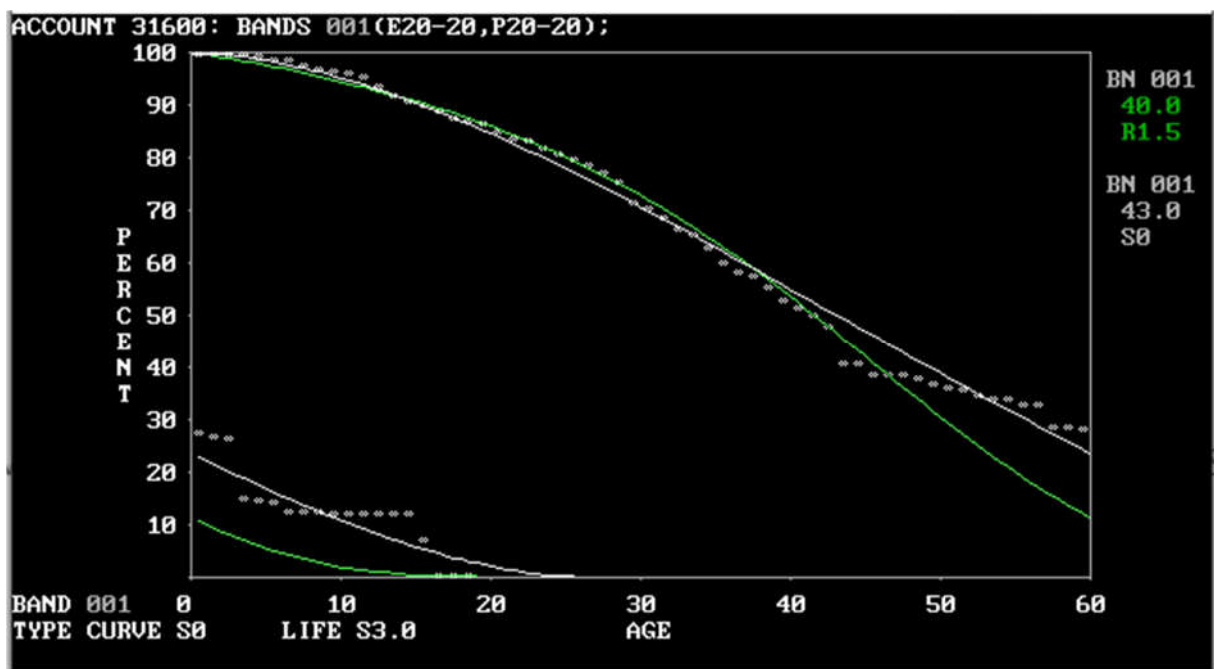
6 A. I will be responding to the differences in proposed survivor curves of Staff and
7 those of Mr. Spanos for the accounts that he has addressed in his rebuttal testimony.

8 Q. Which accounts are those?

9 A. Mr. Spanos addressed Account 316.00 Miscellaneous Power Plant Equipment,
10 Account 352.00 Structures and Improvements, and Account 368.00 Line Transformers

11 Q. How do Staff and EMM's proposed survivor curves compare for Account
12 316.00 Miscellaneous Power Plant Equipment?

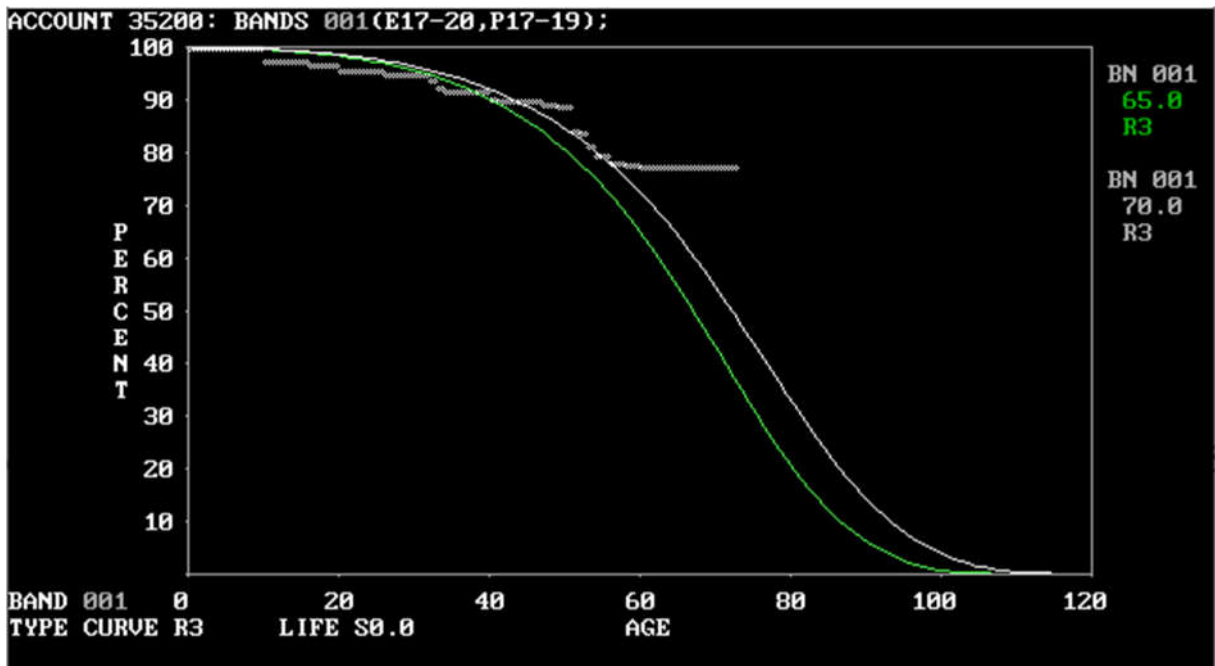
13 A. Below I have included a comparison of the two survivor curves proposed:
14



1 The white dots are the survivor data used in the analysis for the account. EMM has
2 proposed a 40-R1.5 curve (represented in green) and Staff has proposed a 43-S0 curve
3 (represented in white). Staff developed its recommendation based on the historical data
4 provided by EMM and its analysis of the assets retirements. In order to calculate the average
5 service life of the account, an empirically calculated Iowa curve is used to smooth the retirement
6 data. Staff fits Iowa curves to the data sets using both visual and mathematical methods.
7 The area under this Iowa curve is then calculated to be an estimation of the accounts average
8 service life. Staff's analysis shows that its recommended survivor curve is a better
9 representation of the account and should be used for the development of the depreciation rate.

10 Q. How do Staff and EMM's proposed survivor curves compare for
11 Account 352.00 Structures and Improvements?

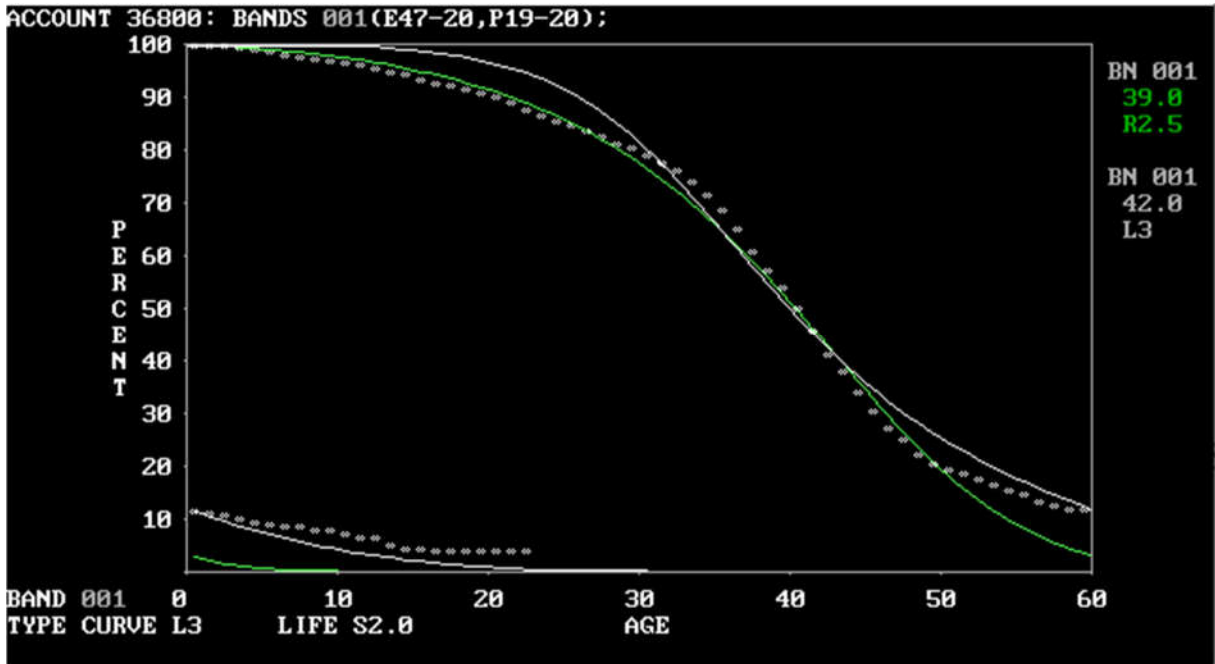
12 A. Below I have included a comparison of the two survivor curves proposed:



1 The white dots are the survivor data used in the analysis for the account. EMM has
2 proposed a 65-R3 curve (represented in green) and Staff has proposed a 70-R3 curve
3 (represented in white). Staff developed its recommendation based on the historical data
4 provided by EMM and its analysis of the assets retirements. In order to calculate the average
5 service life of the account, an empirically calculated Iowa curve is used to smooth the retirement
6 data. The area under this Iowa curve is then calculated to be an estimation of the accounts
7 average service life. Staff's analysis shows that its recommended survivor curve is a better
8 representation of the account and should be used for the development of the depreciation rate.

9 Q. How do Staff and EMM's proposed survivor curves compare for
10 Account 368.00 Line Transformers?

11 A. Below I have included a comparison of the two survivor curves proposed:



1 The white dots are the survivor data used in the analysis for the account. EMM has
2 proposed a 39-R2.5 curve (represented in green) and Staff has proposed a 42-L3 curve
3 (represented in white). Staff developed its recommendation based on the historical data
4 provided by EMM and its analysis of the assets retirements. In order to calculate the average
5 service life of the account, an empirically calculated Iowa curve is used to smooth the retirement
6 data. The area under this Iowa curve is then calculated to be an estimation of the accounts
7 average service life. Staff's analysis shows that its recommended survivor curve is a better
8 representation of the account and should be used for the development of the depreciation rate.

9 **CONCLUSION**

10 Q. What Does Staff recommend with this surrebuttal testimony?

11 A. Staff recommends that the Commission order the use of Staff's depreciation
12 rates. Staff's recommended depreciation rates for EMM are included as Schedule DTB-s1.

13 Q. Does this conclude your surrebuttal testimony?

14 A. Yes it does.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of Evergy Metro, Inc. d/b/a Evergy)
Missouri Metro's Request for Authority to) Case No. ER-2022-0129
Implement a General Rate Increase for Electric)
Service)

In the Matter of Evergy Missouri West, Inc.)
d/b/a Evergy Missouri West's Request for) Case No. ER-2022-0130
Authority to Implement a General Rate)
Increase for Electric Service)

AFFIDAVIT OF DAVID T. BUTTIG, PE

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

COMES NOW DAVID T. BUTTIG, PE and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Surrebuttal Testimony of David T. Buttig, PE*; and that the same is true and correct according to his best knowledge and belief.

Further the Affiant sayeth not.




DAVID T. BUTTIG, PE

JURAT

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 11th day of August 2022.

D. SUZIE MANKIN
Notary Public - Notary Seal
State of Missouri
Commissioned for Cole County
My Commission Expires: April 04, 2025
Commission Number: 12412070



Notary Public

EVERGY METRO, INC.
d/b/a Evergy Missouri Metro
SCHEDULE of DEPRECIATION RATES
(ELECTRIC)
ER-2022-0129

ACCOUNT NUMBER	ACCOUNT NAME	AVERAGE SERVICE LIFE	NET SALV. PCT.	DEPRECIATION RATE	AVERAGE AGE	AVERAGE REMAINING LIFE
	STEAM PRODUCTION PLANT					
311.00	STRUCTURES AND IMPROVEMENTS					
	HAWTHORN COMMON	85	-3%	3.62%		23.1
	HAWTHORN UNIT 5	85	-5%	3.45%		22.7
	HAWTHORN UNIT 9	85	-6%	3.46%		22.7
	IATAN COMMON	85	-11%	2.28%		43.8
	IATAN UNIT 1	85	-5%	4.62%		18.0
	LACYGNE COMMON	85	-2%	4.81%		18.2
	LACYGNE UNIT 1	85	-4%	6.34%		11.2
	LACYGNE UNIT 2	85	-4%	4.38%		17.9
312.00	BOILER PLANT EQUIPMENT					
	HAWTHORN COMMON	50	-3%	3.93%		21.5
	HAWTHORN UNIT 5	50	-5%	3.98%		21.4
	HAWTHORN UNIT 9	50	-6%	3.61%		20.4
	IATAN COMMON	50	-11%	2.70%		34.3
	IATAN UNIT 1	50	-5%	4.48%		16.7
	LACYGNE COMMON	50	-2%	4.76%		17.2
	LACYGNE UNIT 1	50	-4%	6.78%		11.0
	LACYGNE UNIT 2	50	-4%	4.63%		17.0
312.01	BOILER PLANT EQUIPMENT - UNIT TRAINS	25	0%	4.00%	15.0	
312.02	BOILER PLANT EQUIPMENT - AQC					
	LACYGNE UNIT 1	50	-4%	0.47%		10.3
312.05	BOILER PLANT EQUIPMENT - BAGS AND CATALYSTS					
	HAWTHORN UNIT 5	8	0%	12.49%		5.0
	HAWTHORN UNIT 9	8	0%	12.50%		
	IATAN COMMON	8	0%	12.47%		1.6
	IATAN UNIT 1	8	0%	12.50%		5.2
	IATAN UNIT 2	8	0%	12.49%		3.3
	LACYGNE COMMON	8	0%	12.51%		4.1
	LACYGNE UNIT 1	8	0%	12.59%		4.9
	LACYGNE UNIT 2	8	0%	12.49%		4.6

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ACCOUNT NUMBER	ACCOUNT NAME	AVERAGE SERVICE LIFE	NET SALV. PCT.	DEPRECIATION RATE	AVERAGE AGE	AVERAGE REMAINING LIFE
314.00	TURBOGENERATOR UNITS					
	HAWTHORN COMMON	60	-3%	3.52%		22.6
	HAWTHORN UNIT 5	60	-5%	3.12%		21.9
	HAWTHORN UNIT 9	60	-6%	3.17%		22.2
	IATAN COMMON	60	-11%	2.26%		40.2
	IATAN UNIT 1	60	-5%	3.73%		17.3
	LACYGNE COMMON	60	-2%	4.69%		17.8
	LACYGNE UNIT 1	60	-4%	5.28%		11.1
	LACYGNE UNIT 2	60	-4%	3.22%		17.1
315.00	ACCESSORY ELECTRIC EQUIPMENT					
	HAWTHORN COMMON	50	-3%	3.28%		21.5
	HAWTHORN UNIT 5	50	-5%	3.54%		21.8
	HAWTHORN UNIT 9	50	-6%	3.15%		21.0
	IATAN COMMON	50	-11%	2.46%		35.5
	IATAN UNIT 1	50	-5%	3.70%		16.8
	LACYGNE COMMON	50	-2%	3.81%		17.2
	LACYGNE UNIT 1	50	-4%	4.67%		10.8
	LACYGNE UNIT 2	50	-4%	3.03%		16.3
316.00	MISCELLANEOUS POWER PLANT EQUIPMENT					
	HAWTHORN COMMON	43	-3%	4.51%		21.0
	HAWTHORN UNIT 5	43	-5%	4.60%		18.6
	HAWTHORN UNIT 9	43	-6%	4.60%		20.0
	IATAN COMMON	43	-11%	3.23%		31.8
	IATAN UNIT 1	43	-5%	5.61%		16.4
	LACYGNE COMMON	43	-2%	5.42%		16.7
	LACYGNE UNIT 1	43	-4%	8.22%		10.6
	LACYGNE UNIT 2	43	-4%	5.50%		15.1
	MISCELLANEOUS	43	0%	4.53%		20.6
	HAWTHORN UNIT 5 REBUILD					
311.02	STRUCTURES AND IMPROVEMENTS	85	-7%	0.48%		22.7
312.03	BOILER PLANT EQUIPMENT	50	-7%	0.68%		20.1
315.01	ACCESSORY ELECTRIC EQUIPMENT	50	-7%	0.72%		20.2
316.01	MISCELLANEOUS POWER PLANT EQUIPMENT	43	-7%	0.81%		19.1

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ACCOUNT NUMBER	ACCOUNT NAME	AVERAGE SERVICE LIFE	NET SALV. PCT.	DEPRECIATION RATE	AVERAGE AGE	AVERAGE REMAINING LIFE
IATAN UNIT 2						
311.04	STRUCTURES AND IMPROVEMENTS	85	-12%	1.72%		43.9
312.04	BOILER PLANT EQUIPMENT	50	-12%	2.15%		35.5
314.04	TURBOGENERATOR UNITS	60	-12%	2.15%		40.6
315.04	ACCESSORY ELECTRIC EQUIPMENT	50	-12%	2.37%		35.5
316.04	MISCELLANEOUS POWER PLANT EQUIPMENT	43	-12%	2.60%		32.8
NUCLEAR PRODUCTION PLANT						
321.00	STRUCTURES AND IMPROVEMENTS	95	-2%	1.65%		23.2
322.00	REACTOR PLANT EQUIPMENT	60	-2%	2.29%		21.6
323.00	TURBOGENERATOR UNITS	45	-2%	2.73%		18.8
324.00	ACCESSORY ELECTRIC EQUIPMENT	50	-2%	2.44%		19.4
325.00	MISCELLANEOUS POWER PLANT EQUIPMENT	45	-2%	3.10%		20.1
OTHER PRODUCTION PLANT						
341.00	STRUCTURES AND IMPROVEMENTS					
	NORTHEAST COMBUSTION TURBINES	70	-4%	3.89%		18.5
	WEST GARDNER COMBUSTION TURBINES	70	-3%	2.92%		25.7
	MIAMI COUNTY COMBUSTION TURBINES	70	-3%	2.75%		25.5
	HAWTHORN UNIT 6	70	-2%	2.92%		22.8
	HAWTHORN UNIT 7	70	-3%	2.76%		22.7
	HAWTHORN UNIT 8	70	-3%	2.69%		22.6
342.00	FUEL HOLDERS, PRODUCERS, AND ACCESSORIES					
	NORTHEAST COMBUSTION TURBINES	50	-4%	2.85%		16.6
	WEST GARDNER COMBUSTION TURBINES	50	-3%	2.57%		23.9
	MIAMI COUNTY COMBUSTION TURBINES	50	-3%	2.51%		23.9
	HAWTHORN UNIT 6	50	-2%	2.50%		21.4
	HAWTHORN UNIT 7	50	-3%	3.16%		22.4
	HAWTHORN UNIT 8	50	-3%	3.34%		22.6
344.00	GENERATORS					
	NORTHEAST COMBUSTION TURBINES	55	-4%	2.89%		17.5
	WEST GARDNER COMBUSTION TURBINES	55	-3%	2.16%		24.2
	MIAMI COUNTY COMBUSTION TURBINES	55	-3%	2.10%		24.2
	HAWTHORN UNIT 6	55	-2%	2.61%		22.4
	HAWTHORN UNIT 7	55	-3%	1.99%		21.6
	HAWTHORN UNIT 8	55	-3%	1.98%		21.6

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345.00	ACCESSORY ELECTRIC EQUIPMENT					
	NORTHEAST COMBUSTION TURBINES	50	-4%	1.33%		13.3
	WEST GARDNER COMBUSTION TURBINES	50	-3%	2.23%		24.2
	MIAMI COUNTY COMBUSTION TURBINES	50	-3%	2.24%		24.3
	HAWTHORN UNIT 6	50	-2%	2.12%		21.7
	HAWTHORN UNIT 7	50	-3%	2.26%		21.8
	HAWTHORN UNIT 8	50	-3%	2.29%		21.9
346.00	MISCELLANEOUS POWER PLANT EQUIPMENT					
	NORTHEAST COMBUSTION TURBINES	45	-4%	4.75%		17.9
	WEST GARDNER COMBUSTION TURBINES	45	-3%	3.69%		25.3
	MIAMI COUNTY COMBUSTION TURBINES	45	-3%	3.70%		25.3
	HAWTHORN UNIT 7	45	-3%	2.29%		
	SOLAR PRODUCTION PLANT					
344.01	GENERATORS - SOLAR	30	-2%	4.01%		15.4
	WIND PRODUCTION PLANT					
341.02	STRUCTURES AND IMPROVEMENTS					
	SPEARVILLE COMMON	60	0%	4.44%		8.9
	SPEARVILLE UNIT 1	60	0%	4.44%		
	SPEARVILLE UNIT 2	60	0%	4.44%		
344.02	GENERATORS					
	SPEARVILLE COMMON	45	0%	4.60%		8.9
	SPEARVILLE UNIT 1	45	0%	5.07%		5.0
	SPEARVILLE UNIT 2	45	0%	4.84%		8.9
345.02	ACCESSORY ELECTRIC EQUIPMENT					
	SPEARVILLE COMMON	45	0%	5.59%		8.9
	SPEARVILLE UNIT 1	45	0%	5.59%		
346.02	MISCELLANEOUS POWER PLANT EQUIPMENT					
	SPEARVILLE COMMON	35	0%	9.65%		9.0
	SPEARVILLE UNIT 1	35	0%	18.74%		5.0

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TRANSMISSION PLANT						
352.00	STRUCTURES AND IMPROVEMENTS	70	-10%	1.57%	22.2	
353.00	STATION EQUIPMENT	60	-18%	1.97%	16.3	
353.03	STATION EQUIPMENT - COMMUNICATION EQUIPMENT	25	-10%	4.40%	28.3	
354.00	TOWERS AND FIXTURES	70	-20%	1.72%	47.9	
354.05	TOWERS AND FIXTURES - SUBTRANSMISSION	70	-20%	1.71%	68.0	
355.00	POLES AND FIXTURES	62	-85%	2.98%	17.4	
355.05	POLES AND FIXTURES - SUBTRANSMISSION	62	-85%	2.98%	24.7	
356.00	OVERHEAD CONDUCTORS AND DEVICES	60	-50%	2.50%	24.8	
356.05	OVERHEAD CONDUCTORS AND DEVICES - SUBTRANSMISSION	60	-50%	2.50%	26.4	
357.00	UNDERGROUND CONDUIT	65	0%	1.54%	26.9	
357.05	UNDERGROUND CONDUIT - SUBTRANSMISSION	65	0%	1.54%	10.0	
358.00	UNDERGROUND CONDUCTORS AND DEVICES	60	0%	1.67%	29.2	
358.05	UNDERGROUND CONDUCTORS AND DEVICES - SUBTRANSMISSION	60	0%	1.67%	10.1	
DISTRIBUTION PLANT						
361.00	STRUCTURES AND IMPROVEMENTS	60	-10%	1.84%	25.5	
362.00	STATION EQUIPMENT	57	-10%	1.92%	17.4	
362.03	STATION EQUIPMENT - COMMUNICATION EQUIPMENT	25	-5%	4.20%	23.3	
363.00	STORAGE BATTERY EQUIPMENT	15	0%	6.67%	9.0	
364.00	POLES, TOWERS, AND FIXTURES	47	-80%	3.83%	16.6	
365.00	OVERHEAD CONDUCTORS AND DEVICES	50	-50%	3.00%	17.9	
366.00	UNDERGROUND CONDUIT	65	-45%	2.23%	17.2	
367.00	UNDERGROUND CONDUCTORS AND DEVICES	53	-20%	2.27%	15.0	
368.00	LINE TRANSFORMERS	42	5%	2.26%	17.3	
369.00	SERVICES	60	-50%	2.50%	15.9	
370.00	METERS	30	0%	3.33%	27.8	
370.20	METERS - AMI	20	0%	5.00%	3.3	
371.00	INSTALLATIONS ON CUSTOMERS' PREMISES	22	-15%	5.23%	12.7	
371.10	INSTALL ON CUSTOMERS' PREMISES - EV STATIONS	10	0%	10.00%	4.2	
373.00	STREET LIGHTING AND SIGNAL SYSTEMS	23	-10%	4.79%	14.2	

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	GENERAL PLANT					
390.00	STRUCTURES AND IMPROVEMENTS	45	-20%	2.66%	14.2	
	OFFICE FURNITURE AND EQUIPMENT					
391.00	FURNITURE AND EQUIPMENT	20	0%	5.00%	9.9	
391.01	FURNITURE AND EQUIPMENT - WOLF CREEK	20	0%	5.00%	9.0	
391.02	COMPUTER EQUIPMENT	8	0%	12.50%	3.9	
	TRANSPORTATION EQUIPMENT					
392.00	AUTOS	8	23%	9.62%	1.8	
392.01	LIGHT TRUCKS	7	23%	11.00%	4.9	
392.02	HEAVY TRUCKS	10	23%	7.70%	5.9	
392.03	TRACTORS	13	23%	5.92%	1.6	
392.04	TRAILERS	28	23%	2.75%	9.3	
393.00	STORES EQUIPMENT	25	0%	4.00%	12.2	
394.00	TOOLS, SHOP, AND GARAGE EQUIPMENT	30	0%	3.33%	9.5	
395.00	LABORATORY EQUIPMENT	30	0%	3.33%	13.2	
396.00	POWER OPERATED EQUIPMENT	15	20%	5.34%	8.1	
397.00	COMMUNICATION EQUIPMENT	35	0%	2.86%	13.7	
398.00	MISCELLANEOUS EQUIPMENT	30	0%	3.33%	7.7	