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Customer Savings
Witness: Gregory E. Macias
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Direct Testimony

of

Gregory E. Macias



Empire District™
A Liberty Utilities Company

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1 **I. INTRODUCTION**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS AFFILIATION.**

3 A. Gregory E. Macias, Principal Consultant, Black & Veatch Management Consulting, LLC
4 (“Black & Veatch”).

5 **Q. WHAT IS YOUR BUSINESS ADDRESS?**

6 A. My business address is 8400 Ward Parkway, Kansas City, Missouri 64114.

7 **Q. PLEASE SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL**
8 **EXPERIENCE.**

9 A. I have a B. S. degree in civil engineering from the University of Missouri - Columbia. I
10 joined Black & Veatch in 2007. I have worked on numerous studies involving electric,
11 natural gas, water and wastewater utilities, primarily focusing on utility rate, financial
12 and regulatory matters for investor owned and municipal utilities. The majority of the
13 projects I have conducted involved utility rate and regulatory matters, including revenue
14 requirements, cost of service, and rate design services, as well as depreciation and
15 valuation services, with additional studies in bond financing. Prior to joining Black &
16 Veatch, I was employed as a utility engineering specialist at the Missouri Public Service
17 Commission. I have filed expert testimony in proceedings in Missouri, New Mexico, and
18 Iowa.

19 **Q. ON WHOSE BEHALF ARE YOU APPEARING?**

20 A. I am appearing on behalf of The Empire District Electric Company (“Empire” or
21 “Company”) in this proceeding.

22 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

1 A. The purpose of my testimony is to present the estimated customer rate impacts that result
2 from Empire’s proposed 800 MW wind project. At Empire’s request, I have calculated
3 an estimated jurisdictional allocation of the costs associated with the proposed 800 MW
4 wind project, and then apportioned the jurisdictionally allocated amounts to Empire’s rate
5 classes in each jurisdiction. I then calculated an estimated customer rate impact for each
6 customer class in the respective jurisdictions. I do not suggest any changes to the current
7 rate designs in place in each jurisdiction; my analysis is simply a pro-forma estimate.
8 The actual rate design will be determined in future rate cases.

9 **Q. HOW IS YOUR TESTIMONY ORGANIZED?**

10 A. My testimony is organized in the following sections:

- 11 Section I - Introduction
- 12 Section II - Jurisdictional Allocation
- 13 Section III - Class Allocation
- 14 Section IV - Estimated Rate Impact
- 15 Section V- Summary and Conclusions

16 In addition, I am sponsoring the following attachments referenced in my testimony:

- 17 Direct Attachment GEM-1 – Jurisdictional Allocation of Revenue Requirement
18 Impact
- 19 Direct Attachment GEM-2 – Estimated Impact to Customer Classes

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1 **II. JURISDICTIONAL ALLOCATION**

2 **Q. PLEASE EXPLAIN HOW THE REVENUE REQUIREMENT IMPACT OF**
3 **EMPIRE’S 800 MW WIND PROPOSAL WAS ALLOCATED TO EMPIRE’S**
4 **VARIOUS JURISDICTIONS.**

5 A. The jurisdictional allocation of the revenue requirement impact of Empire’s 800 MW
6 wind proposal was based on the jurisdictional allocation factors for the twelve month
7 period ended July 2017. These factors were calculated consistent with Empire’s prior
8 practice. Because Empire’s 800 MW wind proposal relates to changing its production
9 assets, I used jurisdictional allocation factors related to the production function. The
10 demand related costs were allocated to the jurisdictions based on the 12-month average
11 coincident peak demand, and the energy related costs were allocated to the jurisdictions
12 based on annual kilowatt-hour sales.

13 **Q. HOW DID YOU DETERMINE WHETHER EMPIRE’S PROPOSED REVENUE**
14 **REQUIREMENT IMPACT OF ITS WIND PROPOSAL WAS DEMAND OR**
15 **ENERGY RELATED?**

16 A. Empire provided me with the details supporting the total revenue requirement impact of
17 the 800 MW wind proposal on an annual basis. The revenue requirement impact is
18 detailed by the general high-level categories of Revenue Requirement and Benefits. The
19 Revenue Requirement category includes operations and maintenance expense, tax equity
20 payments, property taxes, depreciation expense, interest expense, return on investment,
21 and income tax. The Benefits category contains Southwest Power Pool (“SPP”) revenue,
22 which is off-system sales revenue, and fuel costs.

1 Based on the details supporting Empire’s revenue requirement impact analysis, it is
2 evident that the Revenue Requirement category of costs consist of demand-related costs
3 related to investment in production plant and fixed O&M, whereas the Benefits category
4 of fuel is an energy-related variable costs. Regarding the Benefits category of SPP
5 revenues, the distinction between demand-related and energy-related is less clear. The
6 SPP revenues associated with the off-system sales of energy produced by the proposed
7 800 MW wind project will have no fuel associated with it and will have nominal amounts
8 of variable O&M associated with the production of energy. Therefore, it is appropriate to
9 treat the SPP revenues from the wind project as an offset to the demand-related costs of
10 investment and fixed O&M of the wind project, and allocate it based on the demand-
11 related allocation factor.

12 The absence of future SPP revenues associated with off-system sales from the
13 Asbury plant (due to its retirement) should be offset by the absence of future fuel costs
14 associated with the production of energy. Therefore, all of the Benefits category for
15 Asbury (fuel and SPP revenues) are appropriately allocated based on an energy-related
16 allocation factor.

17 **Q. WHAT IS THE RESULT OF THE JURISDICTIONAL ALLOCATION PROCESS**
18 **DESCRIBED ABOVE?**

19 A. The results of the allocation of the revenue requirement impact of Empire’s 800 MW
20 wind proposal to Empire’s jurisdictions for the 20-year period 2018-2037 is presented in
21 Table 1 below. A year-by-year summary is provided in **Direct Attachment GEM-1** to
22 this testimony.

1
2

Table 1

Jurisdictional Allocation of Revenue Requirement Impact

Jurisdiction	Allocation Percentage	Allocation Amount (2018-2037)
Missouri Wholesale	5.12%	(\$42,475,187)
Kansas Wholesale	0.19%	(\$1,596,124)
Missouri Retail	84.24%	(\$699,037,242)
Kansas Retail	5.05%	(\$41,891,046)
Oklahoma Retail	2.48%	(\$20,580,228)
Arkansas Retail	2.93%	(\$24,284,759)
Total	100.00%	(\$829,864,585)

3

4 **III. CLASS ALLOCATION**

5 **Q. PLEASE EXPLAIN HOW THE JURISDICTIONAL APPORTIONMENT OF THE**
6 **REVENUE REQUIREMENT IMPACT OF EMPIRE’S 800 MW WIND**
7 **PROPOSAL WAS ALLOCATED TO THE CUSTOMER CLASSES IN EACH OF**
8 **ITS JURISDICTIONS.**

9 A. The customer class allocation of the jurisdictionally allocated revenue requirement
10 impact was based on the most recent class cost of service study presented by Empire in
11 each jurisdiction. Using the demand and energy classifications determined in the
12 jurisdictional allocation process, the respective class allocation factors from Empire’s
13 previous class cost of service studies were used to allocate the revenue requirement
14 impact to its customer classes. Table 2 lists the case numbers of the most recent cost of

1 service study filed by Empire in each jurisdiction which were used as the basis for the
2 class allocations.

Table 2
Rate Filing Cost of Service Study Reference

Jurisdiction	Case Number	Test Year Ended
Missouri	ER-2014-0351	December 2013
Kansas	10-EDPE-314-RTS	June 2009
Oklahoma	PUD 201600468	June 2016
Arkansas	13-111-U	June 2013

3
4 For demand-related costs, an average and excess demand (“AED/12CP”) allocation
5 factor was used for Missouri, Kansas and Oklahoma. In Arkansas, an average and peak
6 1CP allocation factor was used. For energy-related costs, a kWh procurement allocation
7 factor was used.

8 **Q. PLEASE DESCRIBE THE AED/12CP ALLOCATION FACTOR.**

9 A. The AED/12CP demand allocation factor has been consistently used in the Company’s
10 previous class cost of service studies to allocate production-related costs to customer
11 classes in its Missouri, Kansas, and Oklahoma jurisdictions. Demand costs are those
12 costs that vary with some measure of maximum demand. However, for production, a
13 portion of the cost of a baseload unit is incurred for the purpose of lowering energy costs.
14 The AED/12CP allocation method recognizes a portion of the production-related costs

1 are related to energy and the excess cost is a pure demand related cost. The average and
2 peak ICP allocator is preferred in Arkansas.

3 **Q. PLEASE DESCRIBE THE KWH PROCUREMENT ALLOCATION FACTOR.**

4 A. The kWh procurement energy allocation factor has been consistently used in the
5 Company's previous class cost of service studies to allocate production-related costs in
6 each of its customer classes. Energy costs are those costs that vary directly with the
7 production of energy such as fuel costs, other fuel related expenses or purchased power
8 expense. The kWh procurement allocation method recognizes that the losses incurred on
9 the system can be different for different classes of service.

10 **Q. WHAT IS THE RESULT OF THE CLASS ALLOCATION PROCESS**
11 **DESCRIBED ABOVE?**

12 A. The results of the customer class allocation of the revenue requirement impact of
13 Empire's 800 MW wind proposal for the 20-year period 2018-2037 is presented in Table
14 3 below. A year-by-year summary is provided in **Direct Attachment GEM-2** to this
15 testimony.

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Table 3
Class Allocation of Jurisdictional Revenue Impact

Jurisdiction	Rate Class	Allocation Percent	Allocation Amount	
Missouri	Residential	45.19%	(\$315,926,350)	
	Commercial	8.42%	(\$58,838,629)	
	Small Heating	2.31%	(\$16,153,504)	
	General Power	18.58%	(\$129,869,293)	
	Special Contract – Praxair	0.74%	(\$5,159,409)	
	Total Electric Building	8.65%	(\$60,462,828)	
	Feed Mill/Grain Elevator	0.02%	(\$139,888)	
	Large Power	15.06%	(\$105,309,076)	
	Miscellaneous	0.00%	(\$17,488)	
	Municipal Street Lighting	0.49%	(\$3,423,491)	
	Private Lighting	0.42%	(\$2,925,531)	
	Special Lighting	0.12%	(\$811,755)	
	Total Missouri		100.00%	(\$699,037,242)
Kansas	Residential General	32.72%	(\$13,704,747)	
	Residential - Water Heat	4.99%	(\$2,091,952)	
	Residential Total Electric	14.34%	(\$6,005,716)	
	Commercial	7.21%	(\$3,018,552)	
	Small Heating	0.94%	(\$391,791)	
	General Power	19.54%	(\$8,186,837)	
	Total Electric Building	3.32%	(\$1,389,509)	
	Transmission	16.11%	(\$6,750,413)	
	Municipal Street Lighting	0.49%	(\$203,435)	
	Private Lighting	0.32%	(\$134,082)	
	Special Lighting	0.03%	(\$14,011)	
	Total Kansas		100.00%	(\$41,891,046)
	Oklahoma	Residential	36.48%	(\$7,508,361)
Commercial		7.93%	(\$1,631,672)	
Total Electric Building		2.30%	(\$473,631)	
General Power		17.27%	(\$3,554,289)	
Transmission		34.99%	(\$7,201,666)	
Municipal Street Lighting		0.43%	(\$87,658)	
Private Lighting		0.52%	(\$107,017)	
Special Lighting		0.08%	(\$15,934)	
Total Oklahoma			100.00%	(\$20,580,228)
Arkansas	Residential	36.33%	(\$9,311,595)	
	Commercial	8.18%	(\$2,667,018)	
	General Power	15.68%	(\$3,372,596)	
	Transmission	39.35%	(\$8,879,933)	
	Municipal Street Lighting	0.23%	(\$29,912)	
	Private Lighting	0.21%	(\$22,998)	
	Special Lighting	0.01%	(\$708)	
	Total Arkansas		100.00%	(\$24,284,759)
MO Wholesale			(\$42,475,187)	
KS Wholesale			(\$1,596,124)	
Total Empire			(\$829,864,585)	

1 **IV. ESTIMATED RATE IMPACT**

2 **Q. HOW WAS THE ESTIMATED RATE IMPACT CALCULATED?**

3 A. After the jurisdictional revenue requirement impact of Empire's wind project was
4 allocated to the customer classes as described above, I calculated an estimate of the
5 customer rate impact by dividing the total dollar amount allocated to each class by the
6 kWh sales of the respective customer classes. The kWh sales relied upon for this
7 estimated rate impact calculation were the billing units from Empire's most recent class
8 cost of service study in each jurisdiction. This is consistent with the allocation factors
9 used for the class allocation factors, and is the most current information that was readily
10 available. I calculate the rate impact on a kWh basis for simplicity of estimating and
11 presentation, and only for the purpose of demonstrating the magnitude and direction of
12 the impact.

13 **Q. WHAT IS THE RESULT OF THE ESTIMATED RATE IMPACT**
14 **CALCULATIONS?**

15 A. The 20-year average estimated impact to customer rates, on a per kWh basis, of Empire's
16 800 MW wind proposal is presented in Table 4 below. A year-by-year summary is
17 provided in **Direct Attachment GEM-2** to this testimony.

Table 4
Estimated Customer Class Rate Impact (20-Year Average)

Jurisdiction	Rate Class	Rate Impact per kWh	
Missouri	Residential	(\$0.0093)	
	Commercial	(\$0.0095)	
	Small Heating	(\$0.0091)	
	General Power	(\$0.0077)	
	Special Contract - Praxair	(\$0.0043)	
	Total Electric Building	(\$0.0082)	
	Feed Mill/Grain Elevator	(\$0.0163)	
	Large Power	(\$0.0079)	
	Miscellaneous	(\$0.0066)	
	Municipal Street Lighting	(\$0.0093)	
	Private Lighting	(\$0.0095)	
	Special Lighting	(\$0.0091)	
Kansas	Residential General	(\$0.0100)	
	Residential - Water Heat	(\$0.0087)	
	Residential Total Electric	(\$0.0087)	
	Commercial	(\$0.0079)	
	Small Heating	(\$0.0061)	
	General Power	(\$0.0087)	
	Total Electric Building	(\$0.0081)	
	Transmission	(\$0.0077)	
	Municipal Street Lighting	(\$0.0067)	
	Private Lighting	(\$0.0043)	
	Special Lighting	(\$0.0043)	
Oklahoma	Residential	(\$0.0075)	
	Commercial	(\$0.0064)	
	Total Electric Building	(\$0.0067)	
	General Power	(\$0.0065)	
	Transmission	(\$0.0060)	
	Municipal Street Lighting	(\$0.0070)	
	Private Lighting	(\$0.0059)	
	Special Lighting	(\$0.0231)	
Arkansas	Residential	(\$0.0116)	
	Commercial	(\$0.0101)	
	General Power	(\$0.0077)	
	Transmission	(\$0.0060)	
	Municipal Street Lighting	(\$0.0021)	
	Private Lighting	(\$0.0019)	
	Special Lighting	(\$0.0008)	

1 Q. HAVE YOU CALCULATED AN ESTIMATED BILL COMPARISON BY RATE
 2 CLASS?

3 A. Yes. The estimated typical bill impact for non-lighting rates is shown in Table 5 below
 4 based on the 20-year average rate impact shown in Table 4 above. A year-by-year
 5 summary is provided in Direct Attachment GEM-2 to this testimony.

Table 5
 Estimated Typical Bill Impact by Rate Class (Average over 20-Years)

Jurisdiction	Rate Class	Typical Sales (kWh/month)	Monthly Impact (20-year average)
Missouri	Residential	1,000	(\$9.33)
	Commercial	1,000	(\$9.51)
	Small Heating	2,000	(\$18.19)
	General Power	40,000	(\$307.08)
	Special Contract - Praxair	4,700,000	(\$20,285.85)
	Total Electric Building	32,000	(\$263.18)
	Feed Mill/Grain Elevator	5,000	(\$81.63)
	Large Power	1,465,000	(\$11,549.54)
	Miscellaneous	11,000	(\$72.39)
Kansas	Residential General	1,000	(\$10.02)
	Residential - Water Heat	1,000	(\$8.69)
	Residential Total Electric	2,000	(\$17.31)
	Commercial	1,000	(\$7.87)
	Small Heating	2,000	(\$12.27)
	General Power	36,000	(\$311.51)
	Total Electric Building	22,000	(\$179.15)
	Transmission	910,000	(\$7,029.56)
Oklahoma	Residential	1,000	(\$7.49)
	Commercial	1,000	(\$6.42)
	Total Electric Building	10,000	(\$66.91)
	General Power	33,000	(\$213.51)
	Transmission	945,000	(\$5,624.65)
Arkansas	Residential	1,000	(\$11.62)
	Commercial	2,000	(\$20.14)
	General Power	31,000	(\$223.08)
	Transmission	1,790,000	(\$9,247.04)

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1 V. SUMMARY AND CONCLUSIONS

2 Q. PLEASE SUMMARIZE YOUR TESTIMONY.

3 A. My testimony addresses issues related to the estimated customer rate impacts resulting
4 from Empire's 800 MW wind proposal. I presented estimates of jurisdictional allocation,
5 customer class allocation, customer rate impacts and typical bill impacts.

6 Q. IS EMPIRE PROPOSING TO CHANGE CUSTOMER RATES OR RATE
7 DESIGN AT THIS TIME?

8 A. No.

9 Q. IS EMPIRE PROPOSING THAT THE ESTIMATED RATE IMPACTS YOU
10 CALCULATED AS DESCRIBED ABOVE WILL ACTUALLY BE
11 EXPERIENCED IN ITS NEXT RATE PROCEEDINGS?

12 A. No. The rate impacts I have calculated are for informational purposes only to provide a
13 relative scale of impact to each rate class in each jurisdiction. At the time Empire seeks
14 to include costs associated with the wind project in rates, Empire would propose rates
15 based on the respective revenue requirements, jurisdictional allocation, and class cost of
16 service study conducted at that time.

17 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

18 A. Yes, it does.

The Empire District Electric Company
Jurisdictional Allocation of Revenue Requirement Impact

Line	TOTAL COMPANY REVENUE IMPACT	2018-2037 Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
1	Wind Revenue Requirement	\$1,560,237,717	\$0	\$2,398,279	\$132,624,169	\$130,146,156	\$126,597,494	\$124,964,080	\$124,715,208	\$108,598,346	\$119,913,868	\$116,686,886
2	Wind Benefits	(\$2,533,979,000)	\$0	(\$23,223,000)	(\$106,052,000)	(\$115,562,000)	(\$123,266,000)	(\$129,341,000)	(\$134,871,000)	(\$141,570,000)	(\$147,144,000)	(\$155,584,000)
3	Asbury Revenue Requirement	(\$384,174,445)	(\$9,369,545)	(\$20,433,334)	(\$26,220,441)	(\$26,124,834)	(\$25,400,416)	(\$24,961,287)	(\$24,603,487)	(\$24,244,782)	(\$23,438,197)	(\$22,752,333)
4	Asbury Benefits	\$339,856,000	\$0	\$6,639,000	\$12,782,000	\$15,370,000	\$17,250,000	\$18,936,000	\$17,886,000	\$21,275,000	\$21,046,000	\$22,303,000
5	Other Revenue Requirement	\$273,670,143	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,945,810	\$19,882,908	\$19,273,590
6	Other Benefits	(\$85,475,000)	(\$184,000)	(\$723,000)	\$2,070,000	\$2,667,000	\$2,249,000	\$2,470,000	\$2,694,000	(\$1,461,000)	(\$2,002,000)	(\$4,094,000)
7	Total	(\$829,864,585)	(\$9,553,545)	(\$35,342,055)	\$15,203,727	\$6,496,322	(\$2,569,921)	(\$7,932,207)	(\$14,179,279)	(\$21,456,626)	(\$11,741,421)	(\$24,166,858)
8	JURISDICTIONAL ALLOCATION	2018-2037 Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
9	Missouri Wholesale Jurisdictional	(\$42,475,187)	(\$523,155)	(\$1,862,913)	\$992,411	\$552,402	\$73,901	(\$197,668)	(\$547,507)	(\$952,888)	(\$431,389)	(\$1,118,350)
10	Kansas Wholesale Jurisdictional	(\$1,596,124)	(\$18,600)	(\$68,331)	\$30,653	\$13,943	(\$3,590)	(\$13,884)	(\$26,098)	(\$40,311)	(\$21,466)	(\$45,700)
11	Missouri Retail Jurisdictional	(\$699,037,242)	(\$7,996,700)	(\$29,690,253)	\$12,488,796	\$5,145,695	(\$2,469,793)	(\$6,991,012)	(\$12,208,558)	(\$18,289,787)	(\$10,142,169)	(\$20,533,047)
12	Kansas Retail Jurisdictional	(\$41,891,046)	(\$469,300)	(\$1,763,573)	\$686,243	\$244,551	(\$207,624)	(\$479,405)	(\$783,342)	(\$1,138,223)	(\$656,997)	(\$1,264,893)
13	Oklahoma Retail Jurisdictional	(\$20,580,228)	(\$250,953)	(\$898,631)	\$464,998	\$251,384	\$20,609	(\$111,186)	(\$278,466)	(\$472,448)	(\$221,563)	(\$550,640)
14	Arkansas Retail Jurisdictional	(\$24,284,759)	(\$294,837)	(\$1,058,354)	\$540,625	\$288,346	\$16,575	(\$139,053)	(\$335,308)	(\$562,969)	(\$267,837)	(\$654,227)
15	Total Allocated to Jurisdictions	(\$829,864,585)	(\$9,553,545)	(\$35,342,055)	\$15,203,727	\$6,496,322	(\$2,569,921)	(\$7,932,207)	(\$14,179,279)	(\$21,456,626)	(\$11,741,421)	(\$24,166,858)

The Empire District Electric Company
Jurisdictional Allocation of Revenue Requirement Impact

Line	TOTAL COMPANY REVENUE IMPACT	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
1	Wind Revenue Requirement	\$112,547,363	\$120,700,661	\$91,237,532	\$62,138,893	\$31,391,426	(\$3,499,590)	\$340,816	\$79,824,156	\$39,025,754	\$39,886,221
2	Wind Benefits	(\$161,651,000)	(\$146,175,000)	(\$152,654,000)	(\$124,729,000)	(\$128,831,000)	(\$135,238,000)	(\$142,447,000)	(\$149,298,000)	(\$155,818,000)	(\$160,525,000)
3	Asbury Revenue Requirement	(\$22,106,352)	(\$14,414,949)	(\$23,067,035)	(\$19,684,441)	(\$26,774,030)	(\$18,998,610)	(\$16,338,993)	(\$23,829,076)	\$4,253,072	\$4,334,623
4	Asbury Benefits	\$24,309,000	\$23,589,000	\$25,221,000	\$26,698,000	\$26,482,000	\$29,243,000	\$30,827,000	\$0	\$0	\$0
5	Other Revenue Requirement	\$18,402,082	(\$7,388,401)	(\$3,957,882)	\$22,518,396	\$23,972,710	\$73,937,015	\$65,951,812	\$29,165,872	(\$2,051,268)	(\$1,982,500)
6	Other Benefits	(\$3,163,000)	\$1,728,000	\$1,414,000	(\$9,717,000)	(\$15,931,000)	(\$21,177,000)	(\$21,906,000)	(\$9,755,000)	(\$5,033,000)	(\$5,621,000)
7	Total	(\$31,661,907)	(\$21,960,689)	(\$61,806,385)	(\$42,775,151)	(\$89,689,894)	(\$75,733,185)	(\$83,572,365)	(\$73,892,048)	(\$119,623,442)	(\$123,907,656)
8	JURISDICTIONAL ALLOCATION	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
9	Missouri Wholesale Jurisdictional	(\$1,494,949)	(\$919,964)	(\$3,079,029)	(\$2,146,893)	(\$4,776,635)	(\$4,042,596)	(\$4,460,827)	(\$4,137,828)	(\$6,580,577)	(\$6,820,732)
10	Kansas Wholesale Jurisdictional	(\$60,070)	(\$40,894)	(\$118,319)	(\$81,992)	(\$173,731)	(\$146,757)	(\$161,947)	(\$144,464)	(\$233,094)	(\$241,472)
11	Missouri Retail Jurisdictional	(\$26,856,934)	(\$18,801,573)	(\$52,188,014)	(\$36,094,760)	(\$75,274,195)	(\$63,546,978)	(\$70,125,085)	(\$61,714,789)	(\$100,085,133)	(\$103,662,952)
12	Kansas Retail Jurisdictional	(\$1,645,901)	(\$1,185,934)	(\$3,151,959)	(\$2,175,370)	(\$4,456,960)	(\$3,759,899)	(\$4,149,172)	(\$3,595,119)	(\$5,864,911)	(\$6,073,260)
13	Oklahoma Retail Jurisdictional	(\$733,631)	(\$460,840)	(\$1,498,108)	(\$1,043,363)	(\$2,300,631)	(\$1,946,429)	(\$2,147,814)	(\$1,978,554)	(\$3,154,573)	(\$3,269,389)
14	Arkansas Retail Jurisdictional	(\$870,422)	(\$551,484)	(\$1,770,956)	(\$1,232,774)	(\$2,707,744)	(\$2,290,525)	(\$2,527,520)	(\$2,321,293)	(\$3,705,153)	(\$3,839,850)
15	Total Allocated to Jurisdictions	(\$31,661,907)	(\$21,960,689)	(\$61,806,385)	(\$42,775,151)	(\$89,689,894)	(\$75,733,185)	(\$83,572,365)	(\$73,892,048)	(\$119,623,442)	(\$123,907,656)

The Empire District Electric Company
 Estimated Impact to Customer Classes

1 **MISSOURI**

<u>2 Revenue Impact by Class</u>		2018-2037 Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	
3	Residential Service	RG	(\$315,926,350)	(\$3,549,476)	(\$13,316,309)	\$5,239,315	\$1,909,931	(\$1,504,517)	(\$3,553,323)	(\$5,854,485)	(\$8,540,675)	(\$4,904,223)
4	Commercial Service	CB	(\$58,838,629)	(\$658,170)	(\$2,475,485)	\$957,661	\$337,112	(\$297,577)	(\$679,394)	(\$1,105,421)	(\$1,602,919)	(\$927,711)
5	Small Heating Service	SH	(\$16,153,504)	(\$182,549)	(\$682,548)	\$274,546	\$104,488	(\$70,544)	(\$175,211)	(\$293,806)	(\$432,174)	(\$245,487)
6	General Power Service	GP	(\$129,869,293)	(\$1,530,083)	(\$5,586,145)	\$2,598,749	\$1,241,889	(\$191,741)	(\$1,027,949)	(\$2,036,408)	(\$3,208,976)	(\$1,663,767)
7	Special Contract - Praxair	SC-P	(\$5,159,409)	(\$71,981)	(\$239,611)	\$173,420	\$121,371	\$59,679	\$27,405	(\$22,517)	(\$79,878)	(\$10,549)
8	Total Electric Building Service	TEB	(\$60,462,828)	(\$700,344)	(\$2,581,745)	\$1,134,586	\$500,886	(\$161,481)	(\$551,808)	(\$1,010,735)	(\$1,545,078)	(\$834,201)
9	Feed Mill and Grain Elevator Service	PFM	(\$139,888)	(\$1,416)	(\$5,651)	\$1,345	(\$155)	(\$1,601)	(\$2,522)	(\$3,404)	(\$4,443)	(\$2,943)
10	Large Power Service	LP	(\$105,309,076)	(\$1,224,847)	(\$4,504,641)	\$2,007,771	\$904,882	(\$250,910)	(\$930,321)	(\$1,734,086)	(\$2,669,621)	(\$1,427,894)
11	Miscellaneous Service	MS	(\$17,488)	(\$215)	(\$767)	\$409	\$228	\$31	(\$81)	(\$225)	(\$392)	(\$178)
12	Municipal Street Lighting Service	SPL	(\$3,423,491)	(\$38,386)	(\$144,179)	\$56,292	\$20,201	(\$16,767)	(\$38,975)	(\$63,843)	(\$92,878)	(\$53,526)
13	Private Lighting Service	PL	(\$2,925,531)	(\$31,913)	(\$121,801)	\$42,524	\$11,535	(\$19,679)	(\$38,732)	(\$59,199)	(\$83,153)	(\$50,157)
14	Special Lighting Service	LS	(\$811,755)	(\$7,320)	(\$31,372)	\$2,179	(\$6,674)	(\$14,685)	(\$20,102)	(\$24,430)	(\$29,599)	(\$21,532)
15	Total		(\$699,037,242)	(\$7,996,700)	(\$29,690,253)	\$12,488,796	\$5,145,695	(\$2,469,793)	(\$6,991,012)	(\$12,208,558)	(\$18,289,787)	(\$10,142,169)

<u>16 Rate Impact per Kwh</u>		2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026	
17	Residential Service	RG	(\$0.0093)	(\$0.0021)	(\$0.0079)	\$0.0031	\$0.0011	(\$0.0009)	(\$0.0021)	(\$0.0035)	(\$0.0050)	(\$0.0029)
18	Commercial Service	CB	(\$0.0095)	(\$0.0021)	(\$0.0080)	\$0.0031	\$0.0011	(\$0.0010)	(\$0.0022)	(\$0.0036)	(\$0.0052)	(\$0.0030)
19	Small Heating Service	SH	(\$0.0091)	(\$0.0021)	(\$0.0077)	\$0.0031	\$0.0012	(\$0.0008)	(\$0.0020)	(\$0.0033)	(\$0.0049)	(\$0.0028)
20	General Power Service	GP	(\$0.0077)	(\$0.0018)	(\$0.0066)	\$0.0031	\$0.0015	(\$0.0002)	(\$0.0012)	(\$0.0024)	(\$0.0038)	(\$0.0020)
21	Special Contract - Praxair	SC-P	(\$0.0043)	(\$0.0012)	(\$0.0040)	\$0.0029	\$0.0020	\$0.0010	\$0.0005	(\$0.0004)	(\$0.0013)	(\$0.0002)
22	Total Electric Building Service	TEB	(\$0.0082)	(\$0.0019)	(\$0.0070)	\$0.0031	\$0.0014	(\$0.0004)	(\$0.0015)	(\$0.0027)	(\$0.0042)	(\$0.0023)
23	Feed Mill and Grain Elevator Service	PFM	(\$0.0163)	(\$0.0033)	(\$0.0132)	\$0.0031	(\$0.0004)	(\$0.0037)	(\$0.0059)	(\$0.0079)	(\$0.0104)	(\$0.0069)
24	Large Power Service	LP	(\$0.0079)	(\$0.0018)	(\$0.0067)	\$0.0030	\$0.0014	(\$0.0004)	(\$0.0014)	(\$0.0026)	(\$0.0040)	(\$0.0021)
25	Miscellaneous Service	MS	(\$0.0066)	(\$0.0016)	(\$0.0058)	\$0.0031	\$0.0017	\$0.0002	(\$0.0006)	(\$0.0017)	(\$0.0030)	(\$0.0013)

<u>29 Typical Bill Impact by Class</u>		kWh/Mo	2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026
30	Residential Service	1,000	(\$9.33)	(\$2.10)	(\$7.86)	\$3.09	\$1.13	(\$0.89)	(\$2.10)	(\$3.46)	(\$5.04)	(\$2.90)
31	Commercial Service	1,000	(\$9.51)	(\$2.13)	(\$8.00)	\$3.09	\$1.09	(\$0.96)	(\$2.20)	(\$3.57)	(\$5.18)	(\$3.00)
32	Small Heating Service	2,000	(\$18.19)	(\$4.11)	(\$15.38)	\$6.18	\$2.35	(\$1.59)	(\$3.95)	(\$6.62)	(\$9.74)	(\$5.53)
33	General Power Service	40,000	(\$307.08)	(\$72.36)	(\$264.17)	\$122.90	\$58.73	(\$9.07)	(\$48.61)	(\$96.30)	(\$151.75)	(\$78.68)
34	Special Contract - Praxair	4,700,000	(\$20,285.85)	(\$5,660.31)	(\$18,842.12)	\$13,637.12	\$9,544.14	\$4,692.91	\$2,155.03	(\$1,770.63)	(\$6,281.33)	(\$829.55)
35	Total Electric Building Service	32,000	(\$263.18)	(\$60.97)	(\$224.75)	\$98.77	\$43.60	(\$14.06)	(\$48.04)	(\$87.99)	(\$134.51)	(\$72.62)
36	Feed Mill and Grain Elevator Service	5,000	(\$81.63)	(\$16.53)	(\$65.95)	\$15.70	(\$1.81)	(\$18.69)	(\$29.43)	(\$39.72)	(\$51.86)	(\$34.35)
37	Large Power Service	1,465,000	(\$11,549.54)	(\$2,686.65)	(\$9,880.73)	\$4,403.96	\$1,984.82	(\$550.36)	(\$2,040.62)	(\$3,803.64)	(\$5,855.70)	(\$3,132.02)
38	Miscellaneous Service	11,000	(\$72.39)	(\$17.83)	(\$63.50)	\$33.84	\$18.84	\$2.53	(\$6.73)	(\$18.65)	(\$32.47)	(\$14.70)

<u>39 Annual Bill Impact by Class</u>		2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026	
40	Residential Service		(\$111.96)	(\$25.20)	(\$94.32)	\$37.08	\$13.56	(\$10.68)	(\$25.20)	(\$41.52)	(\$60.48)	(\$34.80)
41	Commercial Service		(\$114.12)	(\$25.56)	(\$96.00)	\$37.08	\$13.08	(\$11.52)	(\$26.40)	(\$42.84)	(\$62.16)	(\$36.00)
42	Small Heating Service		(\$218.28)	(\$49.32)	(\$184.56)	\$74.16	\$28.20	(\$19.08)	(\$47.40)	(\$79.44)	(\$116.88)	(\$66.36)
43	General Power Service		(\$3,684.96)	(\$868.32)	(\$3,170.04)	\$1,474.80	\$704.76	(\$108.84)	(\$583.32)	(\$1,155.60)	(\$1,821.00)	(\$944.16)
44	Special Contract - Praxair		(\$243,430.20)	(\$67,923.72)	(\$226,105.44)	\$163,645.44	\$114,529.68	\$56,314.92	\$25,860.36	(\$21,247.56)	(\$75,375.96)	(\$9,954.60)
45	Total Electric Building Service		(\$3,158.16)	(\$731.64)	(\$2,697.00)	\$1,185.24	\$523.20	(\$168.72)	(\$576.48)	(\$1,055.88)	(\$1,614.12)	(\$871.44)
46	Feed Mill and Grain Elevator Service		(\$979.56)	(\$198.36)	(\$791.40)	\$188.40	(\$21.72)	(\$224.28)	(\$353.16)	(\$476.64)	(\$622.32)	(\$412.20)
47	Large Power Service		(\$138,594.48)	(\$32,239.80)	(\$118,568.76)	\$52,847.52	\$23,817.84	(\$6,604.32)	(\$24,487.44)	(\$45,643.68)	(\$70,268.40)	(\$37,584.24)
48	Miscellaneous Service		(\$868.68)	(\$213.96)	(\$762.00)	\$406.08	\$226.08	\$30.36	(\$80.76)	(\$223.80)	(\$389.64)	(\$176.40)

The Empire District Electric Company
 Estimated Impact to Customer Classes

1 **MISSOURI**

2 <u>Revenue Impact by Class</u>		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
3 Residential Service	RG	(\$9,503,957)	(\$12,375,277)	(\$8,882,969)	(\$23,745,682)	(\$16,393,136)	(\$33,668,203)	(\$28,405,360)	(\$31,346,178)	(\$27,219,192)	(\$44,367,555)	(\$45,945,077)
4 Commercial Service	CB	(\$1,780,061)	(\$2,315,414)	(\$1,671,635)	(\$4,429,573)	(\$3,056,676)	(\$6,254,690)	(\$5,276,194)	(\$5,822,460)	(\$5,039,258)	(\$8,224,365)	(\$8,516,400)
5 Small Heating Service	SH	(\$482,258)	(\$628,853)	(\$447,852)	(\$1,211,508)	(\$836,871)	(\$1,727,255)	(\$1,457,551)	(\$1,608,445)	(\$1,402,788)	(\$2,282,765)	(\$2,364,074)
6 General Power Service	GP	(\$3,660,507)	(\$4,826,249)	(\$3,227,707)	(\$9,585,885)	(\$6,650,565)	(\$14,226,519)	(\$12,022,203)	(\$13,266,401)	(\$11,928,153)	(\$19,189,418)	(\$19,881,257)
7 Special Contract - Praxair	SC-P	(\$106,577)	(\$150,589)	(\$61,386)	(\$353,170)	(\$250,297)	(\$626,120)	(\$532,098)	(\$587,094)	(\$590,426)	(\$912,334)	(\$946,657)
8 Total Electric Building Service	TEB	(\$1,745,895)	(\$2,291,094)	(\$1,574,440)	(\$4,492,545)	(\$3,111,214)	(\$6,558,010)	(\$5,538,674)	(\$6,111,958)	(\$5,428,289)	(\$8,773,015)	(\$9,087,775)
9 Feed Mill and Grain Elevator Service	PFM	(\$4,748)	(\$6,051)	(\$4,862)	(\$10,898)	(\$7,452)	(\$14,061)	(\$11,820)	(\$13,045)	(\$10,433)	(\$17,561)	(\$18,165)
10 Large Power Service	LP	(\$3,023,337)	(\$3,971,882)	(\$2,712,087)	(\$7,812,268)	(\$5,412,577)	(\$11,449,667)	(\$9,671,365)	(\$10,672,372)	(\$9,507,090)	(\$15,347,730)	(\$15,899,035)
11 Miscellaneous Service	MS	(\$460)	(\$615)	(\$379)	(\$1,268)	(\$884)	(\$1,967)	(\$1,665)	(\$1,837)	(\$1,704)	(\$2,710)	(\$2,809)
12 Municipal Street Lighting Service	SPL	(\$103,256)	(\$134,386)	(\$96,719)	(\$257,507)	(\$177,738)	(\$364,421)	(\$307,436)	(\$339,265)	(\$294,155)	(\$479,750)	(\$496,798)
13 Private Lighting Service	PL	(\$91,326)	(\$118,111)	(\$87,966)	(\$222,251)	(\$152,991)	(\$306,570)	(\$258,386)	(\$285,143)	(\$242,102)	(\$398,043)	(\$412,067)
14 Special Lighting Service	LS	(\$30,666)	(\$38,413)	(\$33,571)	(\$65,459)	(\$44,358)	(\$76,712)	(\$64,226)	(\$70,887)	(\$51,200)	(\$89,886)	(\$92,840)
15 Total		(\$20,533,047)	(\$26,856,934)	(\$18,801,573)	(\$52,188,014)	(\$36,094,760)	(\$75,274,195)	(\$63,546,978)	(\$70,125,085)	(\$61,714,789)	(\$100,085,133)	(\$103,662,952)

16 <u>Rate Impact per Kwh</u>		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
17 Residential Service	RG	(\$0.0056)	(\$0.0073)	(\$0.0052)	(\$0.0140)	(\$0.0097)	(\$0.0199)	(\$0.0168)	(\$0.0185)	(\$0.0161)	(\$0.0262)	(\$0.0271)
18 Commercial Service	CB	(\$0.0058)	(\$0.0075)	(\$0.0054)	(\$0.0143)	(\$0.0099)	(\$0.0202)	(\$0.0171)	(\$0.0188)	(\$0.0163)	(\$0.0266)	(\$0.0275)
19 Small Heating Service	SH	(\$0.0054)	(\$0.0071)	(\$0.0050)	(\$0.0136)	(\$0.0094)	(\$0.0195)	(\$0.0164)	(\$0.0181)	(\$0.0158)	(\$0.0257)	(\$0.0266)
20 General Power Service	GP	(\$0.0043)	(\$0.0057)	(\$0.0038)	(\$0.0113)	(\$0.0079)	(\$0.0168)	(\$0.0142)	(\$0.0157)	(\$0.0141)	(\$0.0227)	(\$0.0235)
21 Special Contract - Praxair	SC-P	(\$0.0018)	(\$0.0025)	(\$0.0010)	(\$0.0059)	(\$0.0042)	(\$0.0105)	(\$0.0089)	(\$0.0098)	(\$0.0099)	(\$0.0153)	(\$0.0158)
22 Total Electric Building Service	TEB	(\$0.0047)	(\$0.0062)	(\$0.0043)	(\$0.0122)	(\$0.0085)	(\$0.0178)	(\$0.0151)	(\$0.0166)	(\$0.0148)	(\$0.0239)	(\$0.0247)
23 Feed Mill and Grain Elevator Service	PFM	(\$0.0111)	(\$0.0141)	(\$0.0113)	(\$0.0254)	(\$0.0174)	(\$0.0328)	(\$0.0276)	(\$0.0305)	(\$0.0244)	(\$0.0410)	(\$0.0424)
24 Large Power Service	LP	(\$0.0045)	(\$0.0059)	(\$0.0041)	(\$0.0117)	(\$0.0081)	(\$0.0171)	(\$0.0145)	(\$0.0160)	(\$0.0142)	(\$0.0230)	(\$0.0238)
25 Miscellaneous Service	MS	(\$0.0035)	(\$0.0046)	(\$0.0028)	(\$0.0095)	(\$0.0067)	(\$0.0148)	(\$0.0125)	(\$0.0138)	(\$0.0128)	(\$0.0204)	(\$0.0211)

29 <u>Typical Bill Impact by Class</u>		kWh/Mo	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
30 Residential Service	1,000		(\$5.61)	(\$7.31)	(\$5.25)	(\$14.02)	(\$9.68)	(\$19.88)	(\$16.77)	(\$18.51)	(\$16.07)	(\$26.20)	(\$27.13)
31 Commercial Service	1,000		(\$5.75)	(\$7.48)	(\$5.40)	(\$14.32)	(\$9.88)	(\$20.21)	(\$17.05)	(\$18.82)	(\$16.29)	(\$26.58)	(\$27.52)
32 Small Heating Service	2,000		(\$10.86)	(\$14.17)	(\$10.09)	(\$27.29)	(\$18.85)	(\$38.91)	(\$32.83)	(\$36.23)	(\$31.60)	(\$51.42)	(\$53.25)
33 General Power Service	40,000		(\$173.11)	(\$228.23)	(\$152.64)	(\$453.32)	(\$314.51)	(\$672.77)	(\$568.53)	(\$627.37)	(\$564.08)	(\$907.47)	(\$940.19)
34 Special Contract - Praxair	4,700,000		(\$8,380.81)	(\$11,841.77)	(\$4,827.18)	(\$27,772.01)	(\$19,682.41)	(\$49,235.76)	(\$41,842.23)	(\$46,166.96)	(\$46,428.95)	(\$71,742.60)	(\$74,441.64)
35 Total Electric Building Service	32,000		(\$151.99)	(\$199.45)	(\$137.06)	(\$391.10)	(\$270.85)	(\$570.91)	(\$482.17)	(\$532.08)	(\$472.56)	(\$763.73)	(\$791.14)
36 Feed Mill and Grain Elevator Service	5,000		(\$55.42)	(\$70.63)	(\$56.75)	(\$127.20)	(\$86.97)	(\$164.11)	(\$137.96)	(\$152.26)	(\$121.77)	(\$204.97)	(\$212.01)
37 Large Power Service	1,465,000		(\$6,631.56)	(\$8,712.15)	(\$5,948.84)	(\$17,135.87)	(\$11,872.25)	(\$25,114.34)	(\$21,213.71)	(\$23,409.38)	(\$20,853.38)	(\$33,664.57)	(\$34,873.84)
38 Miscellaneous Service	11,000		(\$38.11)	(\$50.95)	(\$31.35)	(\$104.94)	(\$73.17)	(\$162.82)	(\$137.80)	(\$152.05)	(\$141.05)	(\$224.32)	(\$232.50)

39 <u>Annual Bill Impact by Class</u>		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
40 Residential Service		(\$67.32)	(\$87.72)	(\$63.00)	(\$168.24)	(\$116.16)	(\$238.56)	(\$201.24)	(\$222.12)	(\$192.84)	(\$314.40)	(\$325.56)
41 Commercial Service		(\$69.00)	(\$89.76)	(\$64.80)	(\$171.84)	(\$118.56)	(\$242.52)	(\$204.60)	(\$225.84)	(\$195.48)	(\$318.96)	(\$330.24)
42 Small Heating Service		(\$130.32)	(\$170.04)	(\$121.08)	(\$327.48)	(\$226.20)	(\$466.92)	(\$393.96)	(\$434.76)	(\$379.20)	(\$617.04)	(\$639.00)
43 General Power Service		(\$2,077.32)	(\$2,738.76)	(\$1,831.68)	(\$5,439.84)	(\$3,774.12)	(\$8,073.24)	(\$6,822.36)	(\$7,528.44)	(\$6,768.96)	(\$10,889.64)	(\$11,282.28)
44 Special Contract - Praxair		(\$100,569.72)	(\$142,101.24)	(\$57,926.16)	(\$333,264.12)	(\$236,188.92)	(\$590,829.12)	(\$502,106.76)	(\$554,003.52)	(\$557,147.40)	(\$860,911.20)	(\$893,299.68)
45 Total Electric Building Service		(\$1,823.88)	(\$2,393.40)	(\$1,644.72)	(\$4,693.20)	(\$3,250.20)	(\$6,850.92)	(\$5,786.04)	(\$6,384.96)	(\$5,670.72)	(\$9,164.76)	(\$9,493.68)
46 Feed Mill and Grain Elevator Service		(\$665.04)	(\$847.56)	(\$681.00)	(\$1,526.40)	(\$1,043.64)	(\$1,969.32)	(\$1,655.52)	(\$1,827.12)	(\$1,461.24)	(\$2,459.64)	(\$2,544.12)
47 Large Power Service		(\$79,578.72)	(\$104,545.80)	(\$71,386.08)	(\$205,630.44)	(\$142,467.00)	(\$301,372.08)	(\$254,564.52)	(\$280,912.56)	(\$250,240.56)	(\$403,974.84)	(\$418,486.08)
48 Miscellaneous Service		(\$457.32)	(\$611.40)	(\$376.20)	(\$1,259.28)	(\$878.04)	(\$1,953.84)	(\$1,653.60)	(\$1,824.60)	(\$1,692.60)	(\$2,691.84)	(\$2,790.00)

The Empire District Electric Company
Estimated Impact to Customer Classes

49 **KANSAS**

50 <u>Revenue Impact by Class</u>		2018-2037 Total	2018	2019	2020	2021	2022	2023	2024	2025	2026	
51	Residential General Service	RG	(\$13,704,747)	(\$149,122)	(\$569,989)	\$196,858	\$51,627	(\$94,437)	(\$183,724)	(\$279,274)	(\$391,128)	(\$236,822)
52	Residential General - Water Heat	RG	(\$2,091,952)	(\$23,479)	(\$88,138)	\$34,543	\$12,493	(\$10,106)	(\$23,675)	(\$38,891)	(\$56,655)	(\$32,593)
53	Residential Total Electric Service	RH	(\$6,005,716)	(\$67,468)	(\$253,130)	\$99,554	\$36,262	(\$28,643)	(\$67,591)	(\$111,330)	(\$162,387)	(\$93,264)
54	Commercial Service	CB	(\$3,018,552)	(\$34,697)	(\$128,470)	\$54,972	\$23,291	(\$9,665)	(\$29,174)	(\$51,851)	(\$78,271)	(\$42,970)
55	Small Heating Service	SH	(\$391,791)	(\$4,819)	(\$17,174)	\$9,115	\$5,055	\$644	(\$1,861)	(\$5,083)	(\$8,816)	(\$4,010)
56	General Power Service	GP	(\$8,186,837)	(\$91,902)	(\$344,952)	\$135,280	\$48,991	(\$39,458)	(\$92,556)	(\$152,119)	(\$221,653)	(\$127,475)
57	Total Electric Building Service	TEB	(\$1,389,509)	(\$15,837)	(\$58,924)	\$24,458	\$9,852	(\$5,261)	(\$14,253)	(\$24,573)	(\$36,604)	(\$20,450)
58	Transmission Service	PT	(\$6,750,413)	(\$77,474)	(\$287,110)	\$122,183	\$51,315	(\$22,333)	(\$65,971)	(\$116,578)	(\$175,546)	(\$96,688)
59	Municipal Street Lighting Service	SPL	(\$203,435)	(\$2,443)	(\$8,823)	\$4,359	\$2,241	(\$24)	(\$1,330)	(\$2,950)	(\$4,831)	(\$2,378)
60	Private Lighting Service	PL	(\$134,082)	(\$1,862)	(\$6,214)	\$4,455	\$3,101	\$1,501	\$662	(\$628)	(\$2,111)	(\$315)
61	Special Lighting Service	LS	(\$14,011)	(\$195)	(\$649)	\$466	\$324	\$157	\$69	(\$66)	(\$221)	(\$33)
62	Total		(\$41,891,046)	(\$469,300)	(\$1,763,573)	\$686,243	\$244,551	(\$207,624)	(\$479,405)	(\$783,342)	(\$1,138,223)	(\$656,997)

63 <u>Rate Impact per Kwh</u>		2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026	
64	Residential General Service	RG	(\$0.0100)	(\$0.0022)	(\$0.0083)	\$0.0029	\$0.0008	(\$0.0014)	(\$0.0027)	(\$0.0041)	(\$0.0057)	(\$0.0035)
65	Residential General - Water Heat	RG	(\$0.0087)	(\$0.0020)	(\$0.0073)	\$0.0029	\$0.0010	(\$0.0008)	(\$0.0020)	(\$0.0032)	(\$0.0047)	(\$0.0027)
66	Residential Total Electric Service	RH	(\$0.0087)	(\$0.0019)	(\$0.0073)	\$0.0029	\$0.0010	(\$0.0008)	(\$0.0019)	(\$0.0032)	(\$0.0047)	(\$0.0027)
67	Commercial Service	CB	(\$0.0079)	(\$0.0018)	(\$0.0067)	\$0.0029	\$0.0012	(\$0.0005)	(\$0.0015)	(\$0.0027)	(\$0.0041)	(\$0.0022)
68	Small Heating Service	SH	(\$0.0061)	(\$0.0015)	(\$0.0054)	\$0.0029	\$0.0016	\$0.0002	(\$0.0006)	(\$0.0016)	(\$0.0028)	(\$0.0013)
69	General Power Service	GP	(\$0.0087)	(\$0.0019)	(\$0.0073)	\$0.0029	\$0.0010	(\$0.0008)	(\$0.0020)	(\$0.0032)	(\$0.0047)	(\$0.0027)
70	Total Electric Building Service	TEB	(\$0.0081)	(\$0.0019)	(\$0.0069)	\$0.0029	\$0.0012	(\$0.0006)	(\$0.0017)	(\$0.0029)	(\$0.0043)	(\$0.0024)
71	Transmission Service	PT	(\$0.0077)	(\$0.0018)	(\$0.0066)	\$0.0028	\$0.0012	(\$0.0005)	(\$0.0015)	(\$0.0027)	(\$0.0040)	(\$0.0022)
72	Municipal Street Lighting Service	SPL	(\$0.0067)	(\$0.0016)	(\$0.0058)	\$0.0029	\$0.0015	(\$0.0000)	(\$0.0009)	(\$0.0019)	(\$0.0032)	(\$0.0016)
73	Private Lighting Service	PL	(\$0.0043)	(\$0.0012)	(\$0.0040)	\$0.0028	\$0.0020	\$0.0010	\$0.0004	(\$0.0004)	(\$0.0013)	(\$0.0002)
74	Special Lighting Service	LS	(\$0.0043)	(\$0.0012)	(\$0.0040)	\$0.0028	\$0.0020	\$0.0010	\$0.0004	(\$0.0004)	(\$0.0013)	(\$0.0002)

75 <u>Typical Bill Impact by Class</u>		kWh/Mo	2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026
76	Residential General Service	1,000	(\$10.02)	(\$2.18)	(\$8.34)	\$2.88	\$0.76	(\$1.38)	(\$2.69)	(\$4.08)	(\$5.72)	(\$3.46)
77	Residential General - Water Heat	1,000	(\$8.69)	(\$1.95)	(\$7.32)	\$2.87	\$1.04	(\$0.84)	(\$1.97)	(\$3.23)	(\$4.71)	(\$2.71)
78	Residential Total Electric Service	2,000	(\$17.31)	(\$3.89)	(\$14.60)	\$5.74	\$2.09	(\$1.65)	(\$3.90)	(\$6.42)	(\$9.36)	(\$5.38)
79	Commercial Service	1,000	(\$7.87)	(\$1.81)	(\$6.70)	\$2.86	\$1.21	(\$0.50)	(\$1.52)	(\$2.70)	(\$4.08)	(\$2.24)
80	Small Heating Service	2,000	(\$12.27)	(\$3.02)	(\$10.75)	\$5.71	\$3.17	\$0.40	(\$1.17)	(\$3.18)	(\$5.52)	(\$2.51)
81	General Power Service	36,000	(\$311.51)	(\$69.94)	(\$262.51)	\$102.95	\$37.28	(\$30.03)	(\$70.44)	(\$115.76)	(\$168.68)	(\$97.01)
82	Total Electric Building Service	22,000	(\$179.15)	(\$40.84)	(\$151.95)	\$63.07	\$25.40	(\$13.57)	(\$36.75)	(\$63.37)	(\$94.39)	(\$52.73)
83	Transmission Service	910,000	(\$7,029.56)	(\$1,613.56)	(\$5,979.65)	\$2,544.72	\$1,068.74	(\$465.12)	(\$1,373.99)	(\$2,427.98)	(\$3,656.11)	(\$2,013.72)

84 <u>Annual Bill Impact by Class</u>		2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026	
85	Residential General Service		(\$120.24)	(\$26.16)	(\$100.08)	\$34.56	\$9.12	(\$16.56)	(\$32.28)	(\$48.96)	(\$68.64)	(\$41.52)
86	Residential General - Water Heat		(\$104.28)	(\$23.40)	(\$87.84)	\$34.44	\$12.48	(\$10.08)	(\$23.64)	(\$38.76)	(\$56.52)	(\$32.52)
87	Residential Total Electric Service		(\$207.72)	(\$46.68)	(\$175.20)	\$68.88	\$25.08	(\$19.80)	(\$46.80)	(\$77.04)	(\$112.32)	(\$64.56)
88	Commercial Service		(\$94.44)	(\$21.72)	(\$80.40)	\$34.32	\$14.52	(\$6.00)	(\$18.24)	(\$32.40)	(\$48.96)	(\$26.88)
89	Small Heating Service		(\$147.24)	(\$36.24)	(\$129.00)	\$68.52	\$38.04	\$4.80	(\$14.04)	(\$38.16)	(\$66.24)	(\$30.12)
90	General Power Service		(\$3,738.12)	(\$839.28)	(\$3,150.12)	\$1,235.40	\$447.36	(\$360.36)	(\$845.28)	(\$1,389.12)	(\$2,024.16)	(\$1,164.12)
91	Total Electric Building Service		(\$2,149.80)	(\$490.08)	(\$1,823.40)	\$756.84	\$304.80	(\$162.84)	(\$441.00)	(\$760.44)	(\$1,132.68)	(\$632.76)
92	Transmission Service		(\$84,354.72)	(\$19,362.72)	(\$71,755.80)	\$30,536.64	\$12,824.88	(\$5,581.44)	(\$16,487.88)	(\$29,135.76)	(\$43,873.32)	(\$24,164.64)

The Empire District Electric Company
 Estimated Impact to Customer Classes

49 KANSAS		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	
50	<u>Revenue Impact by Class</u>												
51	Residential General Service RG	(\$429,117)	(\$554,670)	(\$414,315)	(\$1,042,065)	(\$717,159)	(\$1,434,099)	(\$1,208,595)	(\$1,333,753)	(\$1,130,235)	(\$1,859,631)	(\$1,925,099)	
52	Residential General - Water Heat RG	(\$63,015)	(\$82,033)	(\$58,963)	(\$157,295)	(\$108,579)	(\$222,809)	(\$187,974)	(\$207,435)	(\$179,987)	(\$293,465)	(\$303,897)	
53	Residential Total Electric Service RH	(\$180,693)	(\$235,278)	(\$168,906)	(\$451,420)	(\$311,640)	(\$639,990)	(\$539,948)	(\$595,849)	(\$517,360)	(\$843,327)	(\$873,311)	
54	Commercial Service CB	(\$88,087)	(\$115,361)	(\$80,195)	(\$224,945)	(\$155,656)	(\$325,951)	(\$275,216)	(\$303,704)	(\$268,226)	(\$434,413)	(\$449,964)	
55	Small Heating Service SH	(\$10,337)	(\$13,812)	(\$8,523)	(\$28,416)	(\$19,811)	(\$44,026)	(\$37,258)	(\$41,113)	(\$38,102)	(\$60,616)	(\$62,827)	
56	General Power Service GP	(\$246,554)	(\$320,977)	(\$230,658)	(\$615,533)	(\$424,905)	(\$872,044)	(\$735,709)	(\$811,878)	(\$704,538)	(\$1,148,683)	(\$1,189,514)	
57	Total Electric Building Service TEB	(\$41,018)	(\$53,600)	(\$37,722)	(\$103,881)	(\$71,820)	(\$149,307)	(\$126,030)	(\$139,077)	(\$122,064)	(\$198,160)	(\$205,236)	
58	Transmission Service PT	(\$197,406)	(\$258,422)	(\$180,054)	(\$503,342)	(\$348,244)	(\$728,277)	(\$614,885)	(\$678,533)	(\$598,591)	(\$969,877)	(\$1,004,581)	
59	Municipal Street Lighting Service SPL	(\$5,574)	(\$7,391)	(\$4,782)	(\$14,902)	(\$10,361)	(\$22,536)	(\$19,056)	(\$21,028)	(\$19,164)	(\$30,675)	(\$31,787)	
60	Private Lighting Service PL	(\$2,798)	(\$3,944)	(\$1,645)	(\$9,199)	(\$6,515)	(\$16,227)	(\$13,788)	(\$15,213)	(\$15,258)	(\$23,599)	(\$24,486)	
61	Special Lighting Service LS	(\$292)	(\$412)	(\$172)	(\$961)	(\$681)	(\$1,696)	(\$1,441)	(\$1,590)	(\$1,594)	(\$2,466)	(\$2,559)	
62	Total	(\$1,264,893)	(\$1,645,901)	(\$1,185,934)	(\$3,151,959)	(\$2,175,370)	(\$4,456,960)	(\$3,759,899)	(\$4,149,172)	(\$3,595,119)	(\$5,864,911)	(\$6,073,260)	
63	<u>Rate Impact per Kwh</u>												
64	Residential General Service RG	(\$0.0063)	(\$0.0081)	(\$0.0061)	(\$0.0152)	(\$0.0105)	(\$0.0210)	(\$0.0177)	(\$0.0195)	(\$0.0165)	(\$0.0272)	(\$0.0282)	
65	Residential General - Water Heat RG	(\$0.0052)	(\$0.0068)	(\$0.0049)	(\$0.0131)	(\$0.0090)	(\$0.0185)	(\$0.0156)	(\$0.0172)	(\$0.0150)	(\$0.0244)	(\$0.0253)	
66	Residential Total Electric Service RH	(\$0.0052)	(\$0.0068)	(\$0.0049)	(\$0.0130)	(\$0.0090)	(\$0.0185)	(\$0.0156)	(\$0.0172)	(\$0.0149)	(\$0.0243)	(\$0.0252)	
67	Commercial Service CB	(\$0.0046)	(\$0.0060)	(\$0.0042)	(\$0.0117)	(\$0.0081)	(\$0.0170)	(\$0.0143)	(\$0.0158)	(\$0.0140)	(\$0.0226)	(\$0.0235)	
68	Small Heating Service SH	(\$0.0032)	(\$0.0043)	(\$0.0027)	(\$0.0089)	(\$0.0062)	(\$0.0138)	(\$0.0117)	(\$0.0129)	(\$0.0119)	(\$0.0190)	(\$0.0197)	
69	General Power Service GP	(\$0.0052)	(\$0.0068)	(\$0.0049)	(\$0.0130)	(\$0.0090)	(\$0.0184)	(\$0.0156)	(\$0.0172)	(\$0.0149)	(\$0.0243)	(\$0.0251)	
70	Total Electric Building Service TEB	(\$0.0048)	(\$0.0063)	(\$0.0044)	(\$0.0122)	(\$0.0084)	(\$0.0175)	(\$0.0148)	(\$0.0163)	(\$0.0143)	(\$0.0232)	(\$0.0241)	
71	Transmission Service PT	(\$0.0045)	(\$0.0059)	(\$0.0041)	(\$0.0115)	(\$0.0080)	(\$0.0167)	(\$0.0141)	(\$0.0155)	(\$0.0137)	(\$0.0222)	(\$0.0230)	
72	Municipal Street Lighting Service SPL	(\$0.0037)	(\$0.0048)	(\$0.0031)	(\$0.0098)	(\$0.0068)	(\$0.0148)	(\$0.0125)	(\$0.0138)	(\$0.0126)	(\$0.0201)	(\$0.0208)	
73	Private Lighting Service PL	(\$0.0018)	(\$0.0025)	(\$0.0010)	(\$0.0059)	(\$0.0042)	(\$0.0104)	(\$0.0088)	(\$0.0097)	(\$0.0097)	(\$0.0151)	(\$0.0156)	
74	Special Lighting Service LS	(\$0.0018)	(\$0.0025)	(\$0.0010)	(\$0.0059)	(\$0.0042)	(\$0.0104)	(\$0.0088)	(\$0.0097)	(\$0.0097)	(\$0.0151)	(\$0.0156)	
75	<u>Typical Bill Impact by Class</u>	<u>kWh/Mo</u>											
76	Residential General Service	1,000	(\$6.28)	(\$8.11)	(\$6.06)	(\$15.24)	(\$10.49)	(\$20.97)	(\$17.67)	(\$19.51)	(\$16.53)	(\$27.20)	(\$28.15)
77	Residential General - Water Heat	1,000	(\$5.24)	(\$6.82)	(\$4.90)	(\$13.07)	(\$9.02)	(\$18.51)	(\$15.62)	(\$17.24)	(\$14.96)	(\$24.39)	(\$25.25)
78	Residential Total Electric Service	2,000	(\$10.42)	(\$13.57)	(\$9.74)	(\$26.03)	(\$17.97)	(\$36.90)	(\$31.13)	(\$34.36)	(\$29.83)	(\$48.62)	(\$50.35)
79	Commercial Service	1,000	(\$4.59)	(\$6.01)	(\$4.18)	(\$11.72)	(\$8.11)	(\$16.99)	(\$14.34)	(\$15.83)	(\$13.98)	(\$22.64)	(\$23.45)
80	Small Heating Service	2,000	(\$6.47)	(\$8.65)	(\$5.34)	(\$17.79)	(\$12.40)	(\$27.57)	(\$23.33)	(\$25.74)	(\$23.86)	(\$37.96)	(\$39.34)
81	General Power Service	36,000	(\$187.63)	(\$244.27)	(\$175.53)	(\$468.43)	(\$323.36)	(\$663.63)	(\$559.88)	(\$617.85)	(\$536.16)	(\$874.16)	(\$905.23)
82	Total Electric Building Service	22,000	(\$105.77)	(\$138.22)	(\$97.27)	(\$267.88)	(\$185.20)	(\$385.01)	(\$324.99)	(\$358.63)	(\$314.76)	(\$510.99)	(\$529.24)
83	Transmission Service	910,000	(\$4,111.39)	(\$5,382.18)	(\$3,750.00)	(\$10,483.13)	(\$7,252.89)	(\$15,167.86)	(\$12,806.24)	(\$14,131.85)	(\$12,466.89)	(\$20,199.69)	(\$20,922.47)
84	<u>Annual Bill Impact by Class</u>												
85	Residential General Service		(\$75.36)	(\$97.32)	(\$72.72)	(\$182.88)	(\$125.88)	(\$251.64)	(\$212.04)	(\$234.12)	(\$198.36)	(\$326.40)	(\$337.80)
86	Residential General - Water Heat		(\$62.88)	(\$81.84)	(\$58.80)	(\$156.84)	(\$108.24)	(\$222.12)	(\$187.44)	(\$206.88)	(\$179.52)	(\$292.68)	(\$303.00)
87	Residential Total Electric Service		(\$125.04)	(\$162.84)	(\$116.88)	(\$312.36)	(\$215.64)	(\$442.80)	(\$373.56)	(\$412.32)	(\$357.96)	(\$583.44)	(\$604.20)
88	Commercial Service		(\$55.08)	(\$72.12)	(\$50.16)	(\$140.64)	(\$97.32)	(\$203.88)	(\$172.08)	(\$189.96)	(\$167.76)	(\$271.68)	(\$281.40)
89	Small Heating Service		(\$77.64)	(\$103.80)	(\$64.08)	(\$213.48)	(\$148.80)	(\$330.84)	(\$279.96)	(\$308.88)	(\$286.32)	(\$455.52)	(\$472.08)
90	General Power Service		(\$2,251.56)	(\$2,931.24)	(\$2,106.36)	(\$5,621.16)	(\$3,880.32)	(\$7,963.56)	(\$6,718.56)	(\$7,414.20)	(\$6,433.92)	(\$10,489.92)	(\$10,862.76)
91	Total Electric Building Service		(\$1,269.24)	(\$1,658.64)	(\$1,167.24)	(\$3,214.56)	(\$2,222.40)	(\$4,620.12)	(\$3,899.88)	(\$4,303.56)	(\$3,777.12)	(\$6,131.88)	(\$6,350.88)
92	Transmission Service		(\$49,336.68)	(\$64,586.16)	(\$45,000.00)	(\$125,797.56)	(\$87,034.68)	(\$182,014.32)	(\$153,674.88)	(\$169,582.20)	(\$149,602.68)	(\$242,396.28)	(\$251,069.64)

The Empire District Electric Company
Estimated Impact to Customer Classes

93 OKLAHOMA												
94 Revenue Impact by Class			2018-2037 Total	2018	2019	2020	2021	2022	2023	2024	2025	2026
95 Residential Service	RG, RH		(\$7,508,361)	(\$88,661)	(\$323,276)	\$151,495	\$73,081	(\$9,888)	(\$58,216)	(\$116,696)	(\$184,679)	(\$95,202)
96 Commercial Service	CB		(\$1,631,672)	(\$20,128)	(\$71,612)	\$38,317	\$21,419	\$3,025	(\$7,405)	(\$20,871)	(\$36,473)	(\$16,418)
97 Total Electric Building Service	TEB		(\$473,631)	(\$5,772)	(\$20,676)	\$10,680	\$5,763	\$454	(\$2,580)	(\$6,427)	(\$10,888)	(\$5,116)
98 General Power Service	GP		(\$3,554,289)	(\$43,673)	(\$155,723)	\$82,393	\$45,556	\$5,560	(\$17,174)	(\$46,356)	(\$80,178)	(\$36,614)
99 Transmission Service	PT		(\$7,201,666)	(\$90,153)	(\$318,152)	\$177,368	\$103,006	\$21,261	(\$24,660)	(\$85,255)	(\$155,385)	(\$65,935)
100 Municipal Street Lighting Service	SPL		(\$87,658)	(\$1,055)	(\$3,805)	\$1,893	\$981	\$4	(\$559)	(\$1,259)	(\$2,072)	(\$1,013)
101 Private Lighting Service	PL		(\$107,017)	(\$1,357)	(\$4,755)	\$2,744	\$1,642	\$420	(\$261)	(\$1,177)	(\$2,236)	(\$894)
102 Special Lighting Service	LS		(\$15,934)	(\$154)	(\$632)	\$108	(\$64)	(\$226)	(\$331)	(\$426)	(\$537)	(\$371)
103 Total			(\$20,580,228)	(\$250,953)	(\$898,631)	\$464,998	\$251,384	\$20,609	(\$111,186)	(\$278,466)	(\$472,448)	(\$221,563)
104 Rate Impact per Kwh			2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026
105 Residential Service	RG, RH		(\$0.0075)	(\$0.0018)	(\$0.0065)	\$0.0030	\$0.0015	(\$0.0002)	(\$0.0012)	(\$0.0023)	(\$0.0037)	(\$0.0019)
106 Commercial Service	CB		(\$0.0064)	(\$0.0016)	(\$0.0056)	\$0.0030	\$0.0017	\$0.0002	(\$0.0006)	(\$0.0016)	(\$0.0029)	(\$0.0013)
107 Total Electric Building Service	TEB		(\$0.0067)	(\$0.0016)	(\$0.0058)	\$0.0030	\$0.0016	\$0.0001	(\$0.0007)	(\$0.0018)	(\$0.0031)	(\$0.0014)
108 General Power Service	GP		(\$0.0065)	(\$0.0016)	(\$0.0057)	\$0.0030	\$0.0017	\$0.0002	(\$0.0006)	(\$0.0017)	(\$0.0029)	(\$0.0013)
109 Transmission Service	PT		(\$0.0060)	(\$0.0015)	(\$0.0053)	\$0.0029	\$0.0017	\$0.0004	(\$0.0004)	(\$0.0014)	(\$0.0026)	(\$0.0011)
110 Municipal Street Lighting Service	SPL		(\$0.0070)	(\$0.0017)	(\$0.0061)	\$0.0030	\$0.0016	\$0.0000	(\$0.0009)	(\$0.0020)	(\$0.0033)	(\$0.0016)
111 Private Lighting Service	PL		(\$0.0059)	(\$0.0015)	(\$0.0052)	\$0.0030	\$0.0018	\$0.0005	(\$0.0003)	(\$0.0013)	(\$0.0025)	(\$0.0010)
112 Special Lighting Service	LS		(\$0.0231)	(\$0.0045)	(\$0.0183)	\$0.0031	(\$0.0019)	(\$0.0066)	(\$0.0096)	(\$0.0123)	(\$0.0156)	(\$0.0108)
113 Typical Bill Impact by Class		kWh/Mo	2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026
114 Residential Service		1,000	(\$7.49)	(\$1.77)	(\$6.45)	\$3.02	\$1.46	(\$0.20)	(\$1.16)	(\$2.33)	(\$3.69)	(\$1.90)
115 Commercial Service		1,000	(\$6.42)	(\$1.58)	(\$5.64)	\$3.02	\$1.69	\$0.24	(\$0.58)	(\$1.64)	(\$2.87)	(\$1.29)
116 Total Electric Building Service		10,000	(\$66.91)	(\$16.31)	(\$58.42)	\$30.18	\$16.28	\$1.28	(\$7.29)	(\$18.16)	(\$30.76)	(\$14.46)
117 General Power Service		33,000	(\$213.51)	(\$52.47)	(\$187.09)	\$98.99	\$54.73	\$6.68	(\$20.63)	(\$55.69)	(\$96.33)	(\$43.99)
118 Transmission Service		945,000	(\$5,624.65)	(\$1,408.23)	(\$4,969.66)	\$2,770.57	\$1,608.99	\$332.11	(\$385.21)	(\$1,331.71)	(\$2,427.18)	(\$1,029.93)
119 Annual Bill Impact by Class			2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026
120 Residential Service			(\$89.88)	(\$21.24)	(\$77.40)	\$36.24	\$17.52	(\$2.40)	(\$13.92)	(\$27.96)	(\$44.28)	(\$22.80)
121 Commercial Service			(\$77.04)	(\$18.96)	(\$67.68)	\$36.24	\$20.28	\$2.88	(\$6.96)	(\$19.68)	(\$34.44)	(\$15.48)
122 Total Electric Building Service			(\$802.92)	(\$195.72)	(\$701.04)	\$362.16	\$195.36	\$15.36	(\$87.48)	(\$217.92)	(\$369.12)	(\$173.52)
123 General Power Service			(\$2,562.12)	(\$629.64)	(\$2,245.08)	\$1,187.88	\$656.76	\$80.16	(\$247.56)	(\$668.28)	(\$1,155.96)	(\$527.88)
124 Transmission Service			(\$67,495.80)	(\$16,898.76)	(\$59,635.92)	\$33,246.84	\$19,307.88	\$3,985.32	(\$4,622.52)	(\$15,980.52)	(\$29,126.16)	(\$12,359.16)

The Empire District Electric Company
 Estimated Impact to Customer Classes

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94 Revenue Impact by Class		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
95 Residential Service	RG, RH	(\$210,940)	(\$278,296)	(\$185,420)	(\$553,714)	(\$384,253)	(\$823,587)	(\$696,030)	(\$768,062)	(\$691,697)	(\$1,112,100)	(\$1,152,220)
96 Commercial Service	CB	(\$42,854)	(\$57,314)	(\$35,155)	(\$118,204)	(\$82,434)	(\$183,661)	(\$155,446)	(\$171,527)	(\$159,276)	(\$253,205)	(\$262,450)
97 Total Electric Building Service	TEB	(\$12,684)	(\$16,896)	(\$10,626)	(\$34,486)	(\$24,016)	(\$52,928)	(\$44,778)	(\$49,411)	(\$45,498)	(\$72,553)	(\$75,193)
98 General Power Service	GP	(\$93,943)	(\$125,478)	(\$77,602)	(\$257,907)	(\$179,779)	(\$399,140)	(\$337,776)	(\$372,721)	(\$345,169)	(\$549,266)	(\$569,299)
99 Transmission Service	PT	(\$184,576)	(\$248,130)	(\$147,307)	(\$518,461)	(\$362,200)	(\$817,784)	(\$692,491)	(\$764,124)	(\$716,690)	(\$1,135,196)	(\$1,176,801)
100 Municipal Street Lighting Service	SPL	(\$2,394)	(\$3,176)	(\$2,046)	(\$6,415)	(\$4,461)	(\$9,723)	(\$8,222)	(\$9,073)	(\$8,282)	(\$13,249)	(\$13,730)
101 Private Lighting Service	PL	(\$2,683)	(\$3,624)	(\$2,086)	(\$7,662)	(\$5,361)	(\$12,246)	(\$10,374)	(\$11,448)	(\$10,830)	(\$17,100)	(\$17,729)
102 Special Lighting Service	LS	(\$566)	(\$716)	(\$597)	(\$1,259)	(\$858)	(\$1,562)	(\$1,311)	(\$1,447)	(\$1,113)	(\$1,903)	(\$1,967)
103 Total		(\$550,640)	(\$733,631)	(\$460,840)	(\$1,498,108)	(\$1,043,363)	(\$2,300,631)	(\$1,946,429)	(\$2,147,814)	(\$1,978,554)	(\$3,154,573)	(\$3,269,389)

104 Rate Impact per Kwh

104 Rate Impact per Kwh		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
105 Residential Service	RG, RH	(\$0.0042)	(\$0.0056)	(\$0.0037)	(\$0.0110)	(\$0.0077)	(\$0.0164)	(\$0.0139)	(\$0.0153)	(\$0.0138)	(\$0.0222)	(\$0.0230)
106 Commercial Service	CB	(\$0.0034)	(\$0.0045)	(\$0.0028)	(\$0.0093)	(\$0.0065)	(\$0.0145)	(\$0.0122)	(\$0.0135)	(\$0.0125)	(\$0.0199)	(\$0.0207)
107 Total Electric Building Service	TEB	(\$0.0036)	(\$0.0048)	(\$0.0030)	(\$0.0097)	(\$0.0068)	(\$0.0150)	(\$0.0127)	(\$0.0140)	(\$0.0129)	(\$0.0205)	(\$0.0212)
108 General Power Service	GP	(\$0.0034)	(\$0.0046)	(\$0.0028)	(\$0.0094)	(\$0.0065)	(\$0.0145)	(\$0.0123)	(\$0.0136)	(\$0.0126)	(\$0.0200)	(\$0.0207)
109 Transmission Service	PT	(\$0.0031)	(\$0.0041)	(\$0.0024)	(\$0.0086)	(\$0.0060)	(\$0.0135)	(\$0.0114)	(\$0.0126)	(\$0.0118)	(\$0.0188)	(\$0.0195)
110 Municipal Street Lighting Service	SPL	(\$0.0038)	(\$0.0051)	(\$0.0033)	(\$0.0102)	(\$0.0071)	(\$0.0155)	(\$0.0131)	(\$0.0145)	(\$0.0132)	(\$0.0211)	(\$0.0219)
111 Private Lighting Service	PL	(\$0.0029)	(\$0.0040)	(\$0.0023)	(\$0.0084)	(\$0.0059)	(\$0.0134)	(\$0.0114)	(\$0.0126)	(\$0.0119)	(\$0.0188)	(\$0.0195)
112 Special Lighting Service	LS	(\$0.0164)	(\$0.0208)	(\$0.0173)	(\$0.0365)	(\$0.0249)	(\$0.0453)	(\$0.0380)	(\$0.0420)	(\$0.0323)	(\$0.0552)	(\$0.0571)

113 Typical Bill Impact by Class

113 Typical Bill Impact by Class		kWh/Mo	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
114 Residential Service	1,000		(\$4.21)	(\$5.55)	(\$3.70)	(\$11.05)	(\$7.67)	(\$16.43)	(\$13.89)	(\$15.33)	(\$13.80)	(\$22.19)	(\$22.99)
115 Commercial Service	1,000		(\$3.37)	(\$4.51)	(\$2.77)	(\$9.30)	(\$6.49)	(\$14.46)	(\$12.24)	(\$13.50)	(\$12.54)	(\$19.93)	(\$20.66)
116 Total Electric Building Service	10,000		(\$35.84)	(\$47.74)	(\$30.03)	(\$97.44)	(\$67.86)	(\$149.55)	(\$126.52)	(\$139.62)	(\$128.56)	(\$205.00)	(\$212.46)
117 General Power Service	33,000		(\$112.86)	(\$150.75)	(\$93.23)	(\$309.85)	(\$215.99)	(\$479.53)	(\$405.81)	(\$447.79)	(\$414.69)	(\$659.90)	(\$683.96)
118 Transmission Service	945,000		(\$2,883.15)	(\$3,875.89)	(\$2,301.00)	(\$8,098.58)	(\$5,657.72)	(\$12,774.12)	(\$10,816.99)	(\$11,935.94)	(\$11,194.99)	(\$17,732.23)	(\$18,382.12)

119 Annual Bill Impact by Class

119 Annual Bill Impact by Class		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
120 Residential Service		(\$50.52)	(\$66.60)	(\$44.40)	(\$132.60)	(\$92.04)	(\$197.16)	(\$166.68)	(\$183.96)	(\$165.60)	(\$266.28)	(\$275.88)
121 Commercial Service		(\$40.44)	(\$54.12)	(\$33.24)	(\$111.60)	(\$77.88)	(\$173.52)	(\$146.88)	(\$162.00)	(\$150.48)	(\$239.16)	(\$247.92)
122 Total Electric Building Service		(\$430.08)	(\$572.88)	(\$360.36)	(\$1,169.28)	(\$814.32)	(\$1,794.60)	(\$1,518.24)	(\$1,675.44)	(\$1,542.72)	(\$2,460.00)	(\$2,549.52)
123 General Power Service		(\$1,354.32)	(\$1,809.00)	(\$1,118.76)	(\$3,718.20)	(\$2,591.88)	(\$5,754.36)	(\$4,869.72)	(\$5,373.48)	(\$4,976.28)	(\$7,918.80)	(\$8,207.52)
124 Transmission Service		(\$34,597.80)	(\$46,510.68)	(\$27,612.00)	(\$97,182.96)	(\$67,892.64)	(\$153,289.44)	(\$129,803.88)	(\$143,231.28)	(\$134,339.88)	(\$212,786.76)	(\$220,585.44)

The Empire District Electric Company
 Estimated Impact to Customer Classes

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126 Revenue Impact by Class		2018-2037 Total	2018	2019	2020	2021	2022	2023	2024	2025	2026
127 Residential Service	RG	(\$9,311,595)	(\$103,387)	(\$390,540)	\$146,711	\$48,377	(\$51,740)	(\$112,230)	(\$178,971)	(\$256,959)	(\$150,652)
128 Commercial Service	CB	(\$2,667,018)	(\$30,623)	(\$113,456)	\$48,361	\$20,364	(\$8,739)	(\$25,980)	(\$45,986)	(\$69,297)	(\$38,131)
129 General Power Service	GP	(\$3,372,596)	(\$41,641)	(\$148,078)	\$79,434	\$44,513	\$6,477	(\$15,078)	(\$42,945)	(\$75,230)	(\$33,750)
130 Transmission Service	PT	(\$8,879,933)	(\$117,945)	(\$403,009)	\$261,220	\$170,652	\$66,988	\$10,939	(\$69,749)	(\$162,753)	(\$47,646)
131 Municipal Street Lighting Service	SPL	(\$29,912)	(\$666)	(\$1,782)	\$2,562	\$2,302	\$1,839	\$1,673	\$1,165	\$593	\$1,171
132 Private Lighting Service	PL	(\$22,998)	(\$546)	(\$1,423)	\$2,183	\$1,988	\$1,618	\$1,493	\$1,072	\$600	\$1,069
133 Special Lighting Service	LS	(\$708)	(\$31)	(\$66)	\$155	\$151	\$134	\$131	\$106	\$78	\$102
134 Total		(\$24,284,759)	(\$294,837)	(\$1,058,354)	\$540,625	\$288,346	\$16,575	(\$139,053)	(\$335,308)	(\$562,969)	(\$267,837)

135 Rate Impact per Kwh		2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026
136 Residential Service	RG	(\$0.0116)	(\$0.0026)	(\$0.0097)	\$0.0037	\$0.0012	(\$0.0013)	(\$0.0028)	(\$0.0045)	(\$0.0064)	(\$0.0038)
137 Commercial Service	CB	(\$0.0101)	(\$0.0023)	(\$0.0086)	\$0.0037	\$0.0015	(\$0.0007)	(\$0.0020)	(\$0.0035)	(\$0.0052)	(\$0.0029)
138 General Power Service	GP	(\$0.0077)	(\$0.0019)	(\$0.0068)	\$0.0036	\$0.0020	\$0.0003	(\$0.0007)	(\$0.0020)	(\$0.0034)	(\$0.0015)
139 Transmission Service	PT	(\$0.0060)	(\$0.0016)	(\$0.0055)	\$0.0035	\$0.0023	\$0.0009	\$0.0001	(\$0.0009)	(\$0.0022)	(\$0.0006)
140 Municipal Street Lighting Service	SPL	(\$0.0021)	(\$0.0009)	(\$0.0025)	\$0.0036	\$0.0032	\$0.0026	\$0.0024	\$0.0016	\$0.0008	\$0.0016
141 Private Lighting Service	PL	(\$0.0019)	(\$0.0009)	(\$0.0023)	\$0.0036	\$0.0033	\$0.0027	\$0.0025	\$0.0018	\$0.0010	\$0.0018
142 Special Lighting Service	LS	(\$0.0008)	(\$0.0007)	(\$0.0015)	\$0.0036	\$0.0035	\$0.0031	\$0.0030	\$0.0025	\$0.0018	\$0.0024

143 Typical Bill Impact by Class		kWh/Mo	2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026
144 Residential Service		1,000	(\$11.62)	(\$2.58)	(\$9.75)	\$3.66	\$1.21	(\$1.29)	(\$2.80)	(\$4.47)	(\$6.41)	(\$3.76)
145 Commercial Service		2,000	(\$20.14)	(\$4.63)	(\$17.14)	\$7.30	\$3.08	(\$1.32)	(\$3.92)	(\$6.95)	(\$10.47)	(\$5.76)
146 General Power Service		29,000	(\$223.08)	(\$55.09)	(\$195.89)	\$105.08	\$58.89	\$8.57	(\$19.95)	(\$56.81)	(\$99.52)	(\$44.65)
147 Transmission Service		1,537,000	(\$9,247.04)	(\$2,456.41)	(\$8,393.39)	\$5,440.39	\$3,554.14	\$1,395.15	\$227.82	(\$1,452.65)	(\$3,389.63)	(\$992.31)

148 Annual Bill Impact by Class		2018-2037 Average	2018	2019	2020	2021	2022	2023	2024	2025	2026
149 Residential Service		(\$139.44)	(\$30.96)	(\$117.00)	\$43.92	\$14.52	(\$15.48)	(\$33.60)	(\$53.64)	(\$76.92)	(\$45.12)
150 Commercial Service		(\$241.68)	(\$55.56)	(\$205.68)	\$87.60	\$36.96	(\$15.84)	(\$47.04)	(\$83.40)	(\$125.64)	(\$69.12)
151 General Power Service		(\$2,676.96)	(\$661.08)	(\$2,350.68)	\$1,260.96	\$706.68	\$102.84	(\$239.40)	(\$681.72)	(\$1,194.24)	(\$535.80)
152 Transmission Service		(\$110,964.48)	(\$29,476.92)	(\$100,720.68)	\$65,284.68	\$42,649.68	\$16,741.80	\$2,733.84	(\$17,431.80)	(\$40,675.56)	(\$11,907.72)

The Empire District Electric Company
 Estimated Impact to Customer Classes

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126 Revenue Impact by Class		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
127 Residential Service	RG	(\$284,388)	(\$369,270)	(\$269,162)	(\$702,918)	(\$484,700)	(\$985,638)	(\$831,230)	(\$917,296)	(\$789,448)	(\$1,291,203)	(\$1,336,948)
128 Commercial Service	CB	(\$77,945)	(\$102,049)	(\$71,054)	(\$198,831)	(\$137,570)	(\$287,810)	(\$243,002)	(\$268,156)	(\$236,642)	(\$383,375)	(\$397,095)
129 General Power Service	GP	(\$88,447)	(\$118,329)	(\$72,442)	(\$244,229)	(\$170,341)	(\$379,824)	(\$321,481)	(\$354,740)	(\$329,605)	(\$523,865)	(\$542,996)
130 Transmission Service	PT	(\$204,054)	(\$281,025)	(\$141,138)	(\$622,528)	(\$438,176)	(\$1,045,276)	(\$886,877)	(\$978,577)	(\$954,318)	(\$1,490,609)	(\$1,546,053)
131 Municipal Street Lighting Service	SPL	\$244	\$40	\$1,127	(\$1,434)	(\$1,142)	(\$4,982)	(\$4,294)	(\$4,736)	(\$6,009)	(\$8,617)	(\$8,967)
132 Private Lighting Service	PL	\$305	\$155	\$1,069	(\$1,019)	(\$836)	(\$4,015)	(\$3,466)	(\$3,823)	(\$4,973)	(\$7,079)	(\$7,369)
133 Special Lighting Service	LS	\$58	\$56	\$116	\$3	(\$8)	(\$199)	(\$174)	(\$192)	(\$298)	(\$405)	(\$422)
134 Total		(\$654,227)	(\$870,422)	(\$551,484)	(\$1,770,956)	(\$1,232,774)	(\$2,707,744)	(\$2,290,525)	(\$2,527,520)	(\$2,321,293)	(\$3,705,153)	(\$3,839,850)

135 Rate Impact per Kwh

135 Rate Impact per Kwh		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
136 Residential Service	RG	(\$0.0071)	(\$0.0092)	(\$0.0067)	(\$0.0175)	(\$0.0121)	(\$0.0246)	(\$0.0207)	(\$0.0229)	(\$0.0197)	(\$0.0322)	(\$0.0334)
137 Commercial Service	CB	(\$0.0059)	(\$0.0077)	(\$0.0054)	(\$0.0150)	(\$0.0104)	(\$0.0217)	(\$0.0184)	(\$0.0203)	(\$0.0179)	(\$0.0290)	(\$0.0300)
138 General Power Service	GP	(\$0.0040)	(\$0.0054)	(\$0.0033)	(\$0.0111)	(\$0.0078)	(\$0.0173)	(\$0.0147)	(\$0.0162)	(\$0.0150)	(\$0.0239)	(\$0.0248)
139 Transmission Service	PT	(\$0.0028)	(\$0.0038)	(\$0.0019)	(\$0.0084)	(\$0.0059)	(\$0.0142)	(\$0.0120)	(\$0.0133)	(\$0.0129)	(\$0.0202)	(\$0.0209)
140 Municipal Street Lighting Service	SPL	\$0.0003	\$0.0001	\$0.0016	(\$0.0020)	(\$0.0016)	(\$0.0070)	(\$0.0060)	(\$0.0067)	(\$0.0084)	(\$0.0121)	(\$0.0126)
141 Private Lighting Service	PL	\$0.0005	\$0.0003	\$0.0018	(\$0.0017)	(\$0.0014)	(\$0.0066)	(\$0.0057)	(\$0.0063)	(\$0.0082)	(\$0.0117)	(\$0.0122)
142 Special Lighting Service	LS	\$0.0013	\$0.0013	\$0.0027	\$0.0001	(\$0.0002)	(\$0.0046)	(\$0.0041)	(\$0.0045)	(\$0.0069)	(\$0.0094)	(\$0.0098)

143 Typical Bill Impact by Class

143 Typical Bill Impact by Class		kWh/Mo	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
144 Residential Service		1,000	(\$7.10)	(\$9.22)	(\$6.72)	(\$17.55)	(\$12.10)	(\$24.60)	(\$20.75)	(\$22.90)	(\$19.71)	(\$32.23)	(\$33.37)
145 Commercial Service		2,000	(\$11.77)	(\$15.41)	(\$10.73)	(\$30.03)	(\$20.78)	(\$43.47)	(\$36.70)	(\$40.50)	(\$35.74)	(\$57.90)	(\$59.98)
146 General Power Service		29,000	(\$117.01)	(\$156.54)	(\$95.83)	(\$323.09)	(\$225.34)	(\$502.46)	(\$425.28)	(\$469.28)	(\$436.03)	(\$693.01)	(\$718.32)
147 Transmission Service		1,537,000	(\$4,249.79)	(\$5,852.85)	(\$2,939.46)	(\$12,965.27)	(\$9,125.82)	(\$21,769.77)	(\$18,470.84)	(\$20,380.65)	(\$19,875.42)	(\$31,044.64)	(\$32,199.37)

148 Annual Bill Impact by Class

148 Annual Bill Impact by Class		2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
149 Residential Service		(\$85.20)	(\$110.64)	(\$80.64)	(\$210.60)	(\$145.20)	(\$295.20)	(\$249.00)	(\$274.80)	(\$236.52)	(\$386.76)	(\$400.44)
150 Commercial Service		(\$141.24)	(\$184.92)	(\$128.76)	(\$360.36)	(\$249.36)	(\$521.64)	(\$440.40)	(\$486.00)	(\$428.88)	(\$694.80)	(\$719.76)
151 General Power Service		(\$1,404.12)	(\$1,878.48)	(\$1,149.96)	(\$3,877.08)	(\$2,704.08)	(\$6,029.52)	(\$5,103.36)	(\$5,631.36)	(\$5,232.36)	(\$8,316.12)	(\$8,619.84)
152 Transmission Service		(\$50,997.48)	(\$70,234.20)	(\$35,273.52)	(\$155,583.24)	(\$109,509.84)	(\$261,237.24)	(\$221,650.08)	(\$244,567.80)	(\$238,505.04)	(\$372,535.68)	(\$386,392.44)

AFFIDAVIT OF GREGORY E. MACIAS

STATE OF MISSOURI)
) **ss**
COUNTY OF JACKSON)

On the 26th day of October, 2017, before me appeared Gregory E Macias, to me personally known, who, being by me first duly sworn, states that he is a Principal with Black & Veatch Management Consulting, LLC and acknowledged that he has read the above and foregoing document and believes that the statements therein are true and correct to the best of his information, knowledge and belief.



Gregory E. Macias

Subscribed and sworn to before me this 26th day of October, 2017



Notary Public

My commission expires: 12-17-2019

