BEFORE THE CORPORATION COMMISSION
OF THE STATE OF KANSAS

IN THE MATTER OF THE APPLICATION	]	
OF THE EMPIRE DISTRICT ELECTRIC	]	KCC Docket No. 21-EPDE-444-RTS
COMPANY FOR APPROVAL OF THE	]	
COMMISSION TO MAKE CERTAIN	]	
CHANGES IN CHARGES FOR ELECTRIC	]	
SERVICE	]	

DIRECT TESTIMONY OF

ANDREA C. CRANE

ON BEHALF OF

THE CITIZENS' UTILITY RATEPAYER BOARD

January 13, 2022

REDACTED VERSION

TABLE OF CONTENTS

I. STATEMENT OF QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Andrea C. Crane and my business address is 2805 East Oakland Park Boulevard, #401, Fort Lauderdale, Florida 33306.

Q. By whom are you employed and in what capacity?

A. I am President of The Columbia Group, Inc., a financial consulting firm that specializes in utility regulation. In this capacity, I analyze rate filings, prepare expert testimony, and undertake various studies relating to utility rates and regulatory policy. I have held several positions of increasing responsibility since I joined The Columbia Group, Inc. in January 1989. I have been President of the firm since 2008.

Q. Please summarize your professional experience in the utility industry.

A. Prior to my association with The Columbia Group, Inc., I held the position of Economic Policy and Analysis Staff Manager for GTE Service Corporation, from December 1987 to January 1989. From June 1982 to September 1987, I was employed by various Bell Atlantic (now Verizon) subsidiaries. While at Bell Atlantic, I held assignments in the Product Management, Treasury, and Regulatory Departments.

Q. Have you previously testified in regulatory proceedings?

A. Yes, since joining The Columbia Group, Inc., I have testified in over 400 regulatory proceedings in the states of Arizona, Arkansas, Connecticut, Delaware, Hawaii, Kansas, Kentucky, Maryland, New Jersey, New Mexico, New York, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Vermont, Washington, West Virginia and the District of Columbia. These proceedings involved electric, gas, water, wastewater, telephone, solid waste, cable television, and navigation utilities. A list of dockets in which I have filed testimony over the past five years is included in Appendix A.

Q. What is your educational background?

A. I received a Master of Business Administration degree, with a concentration in Finance, from Temple University in Philadelphia, Pennsylvania. My undergraduate degree is a B.A. in Chemistry from Temple University.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your testimony?

A. On May 27, 2021, Empire District Electric Company ("Empire" or "Company") filed an Abbreviated Rate Case Application with the Kansas Corporation Commission ("KCC" or "Commission") requesting certain changes in its rates for electric service. This filing was made pursuant to an Order of the KCC on June 23, 2020, in the Company's last base rate case proceeding, KCC Docket No. 19-EPDE-223-RTS ("19-223 Docket"). In that Order, the KCC authorized the Company to file an abbreviated rate case to include the following: (1) capital and operating costs relating to the acquisition of three wind projects – the Neosho Ridge wind project, the North Fork Ridge wind project, and the King's

Point wind project ("Wind Projects"), (2) the revenue requirement impact associated with the retirement of the Asbury coal plant, and (3) non-growth plant additions and related accumulated depreciation and accumulated deferred income taxes as of the end of the test year ending June 30, 2020.

In its original application, the Company proposed a base retail revenue increase of $4,465,956, or approximately 26.4%. Empire anticipated that net revenues from the new Wind Projects would result in incremental revenue of $2,817,422, which it proposed to flow-through the Energy Cost Adjustment ("ECA") mechanism. In addition, the Company proposed to refund $2,774,857 to ratepayers over a three-year period, or $924,952 annually, reflecting amounts associated with Asbury and collected from ratepayers between the retirement date of Asbury and the effective date of new rates in this case. Therefore, Empire originally proposed a net increase of $723,581 or 4.28%.

On September 15, 2021, Empire updated its filing to reflect updated costs for the Wind Projects. As a result of this update, the Company is now seeking a base revenue increase of $4,490,806, partially offset by incremental net wind revenues of $2,728,907. Given the Asbury refund of $924,952, Empire is now projecting an annual retail net revenue increase of $836,947 or 4.95%.

In both the original and updated filings, Empire also proposed an alternative methodology for recovering costs associated with the new wind facilities. In lieu of recovering these costs through base rates, the Company has proposed an alternative Levelized Cost of Energy ("LCOE") methodology whereby costs associated with the Wind Projects would be collected on a levelized basis from ratepayers over a period of twenty years.

The Columbia Group, Inc. was engaged by the Citizens' Utility Ratepayer Board of the State of Kansas ("CURB") to review the Company's application and to provide recommendations to the KCC regarding revenue requirement and certain policy issues. Many of the issues discussed in my testimony with regard to the Wind Projects were also addressed in my testimony filed in KCC Docket No. 18-EPDE-184-PRE ("18-184 Docket").

III. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Q. What are your conclusions and recommendations concerning the Company's requested revenue increase?

A. Based on my analysis of the Company's filing and my review of discovery responses and other documentation in this case, my conclusions and recommendations are as follows:

1. The Wind Projects proposed in this case are not needed to serve Kansas ratepayers.
2. The Wind Projects will increase the Company's rate base by over 45%.
3. The Wind Projects will increase the Company's return to shareholders by approximately $437 million (total company) over the next thirty years.
4. The LCOE for the wind projects proposed by Empire in its alternative ratemaking proposal is significantly **[redacted]** than the LCOE reflected in the Generation Fleet Savings Analysis ("GFSA"), which was filed to support the economics of the Wind Projects.

5. As proposed, there is no guarantee that ratepayers will experience any savings from the Wind Projects. However, there is certainty that Empire's shareholders will receive millions of dollars in increased profit.

6. If the KCC authorizes the Company to recover the costs of the Wind Projects in Kansas-jurisdictional rates, it should adopt a LCOE methodology which provides better protection to ratepayers than the traditional ratemaking methodology.

7. If the KCC authorizes the Company to recover the costs of the Wind Projects from Kansas-jurisdictional customers, then it should authorize a LCOE charge of **[redacted]**, which is the cost on which the GFSA is based.

8. The KCC should approve the Company's request to recover the stranded costs of the Asbury plant over 26 years, but should deny the Company's request to recover carrying costs associated with the stranded investment.

9. The KCC should approve the Company's request to establish a regulatory asset for the decommissioning costs associated with Asbury, but should not authorize any ratemaking treatment for these costs at this time.

9. In addition to the LCOE for the Wind Projects of **[redacted]**, the KCC should authorize a base revenue decrease of $345,690 for the Kansas jurisdiction, as shown in Schedule ACC-1.

IV. INTRODUCTION

Q. Please provide a brief description of Empire.

A. Empire provides regulated utility service to approximately 176,250 electric customers in four states: Kansas, Missouri, Oklahoma, and Arkansas. Approximately 9,700 customers, or 5.5%, are located in its Kansas service territory. The overwhelming majority of customers (almost 90%) are located in Missouri. The Company has a mix of generation resources including coal, gas, and hydro facilities. Empire also has two Purchased Power Agreements ("PPAs") for a total of 255 MW of wind energy. According to the response to CURB-16, the Company has accredited summer generation capacity of 1,309.1 MW and accredited winter generation capacity of 1,425.1 MW, including the wind PPAs. Empire was acquired by Liberty Utilities (Central) Co. ("Liberty"), on January 1, 2017. Liberty is an indirect subsidiary of Algonquin Power and Utilities Corp. ("APUC").

Q. Please provide a brief history of this proceeding.

A. Empire's last base rate case, the 19-223 Docket, was filed on December 10, 2018. On July 30, 2019, the KCC approved a unanimous settlement agreement in that case. In that settlement agreement, Empire agreed to notify the KCC within 180 days of any definitive decision to retire its Asbury coal plant. In addition, in the event that Asbury was retired, Empire agreed to establish a regulatory asset to capture the impact of the retirement on the Company's revenue requirement, and to propose a methodology to flow-through the impact of that change to ratepayers. On August 22, 2019, Empire notified the KCC that it had definitively decided to retire the Asbury plant.

On February 5, 2020, Empire filed a Motion with the KCC requesting authorization to file an abbreviated rate case to address three issues: (1) the retirement of Asbury and the resulting revenue requirement impact, (2) the acquisition of three Wind Projects, and (3) non-growth plant additions and related accumulated depreciation and deferred income taxes for the test year ending June 30, 2020. With regard to other issues, Empire agreed that its abbreviated rate filing would reflect the decisions made by the KCC in the 19-223 Docket, including the weighted average cost of capital ("WACC") authorized in that case. The KCC issued an Order on June 23, 2020, approving the Company's request to file an abbreviated base rate case.

The Company was originally ordered to file its abbreviated rate case in two parts. It was required to file the first part, relating to the Wind Projects, on July 1, 2020. The second filing, related to the retirement of Asbury and the non-growth test year plant additions, was due on November 2, 2020. Due to various factors, including delays caused by the COVID-19 pandemic, Empire sought and was granted further delays in the filing of its abbreviated rate case.

Q. Please briefly describe the Company's Abbreviated Base Rate Case Application.

A. Empire filed its application on May 27, 2021. In this application, the Company requested a base revenue increase of $4,465,955. The Application included the following:

- Capital and operating costs associated with three new Wind Projects. These included the 301 MW Neosho Ridge wind project, the 149.4 MW North Fork Ridge wind project, and the 149.4 MW Kings Point wind project. The Neosho Ridge wind project is located in southeastern Kansas and the other two wind projects are located in southwestern Missouri. The Company proposed two alternative ratemaking treatments for these costs – either recovery in base rates through the traditional rate case process or recovery of the revenue requirement over 20 years on a fixed LCOE basis. In both cases, the Company proposed that associated wind revenues would be credited to customers through the ECA.

- The revenue requirement impact of the retirement of the Asbury coal plant. In its filing, Empire proposed that stranded costs associated with the Asbury coal plant of $184 million (total Company) be amortized over a period of 26 years, instead of over the remaining depreciable life of 13 years based on current depreciation rates. Empire also proposed that a portion of the Asbury plant, representing approximately $15 million, be repurposed as the Asbury Renewable Operations Center and continue to be recovered based on current depreciation rates. Empire is also requesting authorization to establish an Asbury Retirement Rider ("ARR") to return to ratepayers $2,774,857 associated with amounts collected in rates from the March 1, 2020, Asbury retirement date through the effective date of new rates in this proceeding. Empire proposed to amortize this credit over a period of 3 years, for an annual credit of $924,952.
- The revenue requirement impact of non-growth plant additions through June 30, 2020, along with the associated accumulated depreciation and deferred income taxes. As shown on page 6 of Mr. Wilson's testimony, the Company originally estimated the following rate impacts of each of its proposals:

	Millions
New Wind Revenue Requirement	$4.8
Fuel Savings from Wind Projects	($2.8)
Retirement of Asbury	($0.5)
Non-Growth Capital Additions	$0.9
Taxes and Miscellaneous	($0.8)
Asbury Retirement Rider	($0.9)
Net Impact on Ratepayers	$0.7

Mr. Wilson stated that the net impact of the Company's recommendation was a net increase to customers of $723,000. The increase to a typical residential customer using 924 kWh per month was projected to be $4.97 monthly or 4.47%. The increase to a typical commercial customer was projected to be $12.87 or 7.22%.[1]

Q. Did the Company subsequently update its application?

A. Yes, on September 15, 2021, Empire filed an update to its application, as well as the Supplemental Testimony of Ms. Sanderson. In this update, Empire increased its revenue deficiency from $4,465,945 to $4,490,806. In addition, it reduced its projected incremental net wind revenues, from $2,817,422 to $2,728,907. Given these updates, the Company is currently seeking a net increase of $836,947, after consideration of the ECA and ARR, as shown below:

	Original Filing	Update
Revenue Deficiency ($)	$4,465,956	$4,490,806
Revenue Deficiency (%)	26.40%	26.55%
ECA Wind Revenues	$2,817,422	$2,728,907
Asbury Retirement Rider	$924,952	$924,952
Net Deficiency ($)	$723,581	$836,947
Net Deficiency (%)	4.28%	4.95%

Q. Did the Company previously request authorization from the KCC to own and operate certain wind projects?

A. Yes, on October 31, 2017, Empire District Electric Company ("Empire" or "Company") filed a Petition (18-184 Docket) with the KCC for approval of a "Customer Savings Plan,"

[1] Testimony of Mr. Wilson, page 12.

including preapproval to construct, own, and operate up to 800 MW of new wind generation facilities through a tax equity partnership arrangement. Additionally, in that filing, the Company also proposed to retire the Asbury generating station, and sought authorization to record a regulatory asset associated with the unrecovered investment. I filed testimony on behalf of CURB in that proceeding. In my testimony, I discussed various concerns about the Company's proposal, including: the fact that the capacity and energy from the wind projects were not needed to serve Kansas ratepayers; the significant impact that the wind projects would have on both rate base and Kansas utility rates; and the uncertainty surrounding the Company's estimates for construction costs, price of alternative fuels, capacity factors, market prices, tax rates and other factors. I concluded that it would be premature for the KCC to approve the Customer Savings Plan at that time. Empire subsequently withdrew its Petition in that case. However, it did proceed with seeking authorization for the Customer Savings Plan and associated wind projects in Missouri, and the Missouri Public Service Commission granted a Certificate of Public Convenience and Necessity to Empire in June 2019.

Q. How is the remainder of your testimony organized?

A. In Section V of my testimony, I discuss the Company's proposals regarding its three Wind Projects. This will include a history of these projects as well as a discussion of the support for the projects provided in this case. I will also address the Company's alternative ratemaking proposal for a LCOE charge associated with the Wind Projects.

In Section VI, I address the Company's proposals relating to the retirement of Asbury, including its proposal for stranded cost recovery and its proposals relating to decommissioning costs of the facility.

Finally, in Section VII, I address additional revenue requirement adjustments and summarize my conclusions and recommendations, including the revenue requirement impact of my proposals.

V. DISCUSSION OF WIND PROJECTS

A. Description of the Wind Projects

Q. Please describe the Wind Projects that are the subject of the Company's application.

A. Empire is proposing to include in its revenue requirement three new Wind Projects. Specifically, the Company is seeking to include costs associated with the 301 MW Neosho Ridge wind project in Kansas, as well as the 149.4 MW North Fork Ridge wind project and the 149.4 MW King's Point wind project, both of which are in Missouri. All three of these Wind Projects are currently completed and in-service.

Q. How were these Wind Projects financed?

A. Each of the Wind Projects was financed through a tax equity partnership arrangement. As discussed in the testimony of Mr. Mooney, the tax equity partnership arrangement allows a tax equity partner to take advantage of Production Tax Credits ("PTCs") and other tax benefits associated with the wind projects in the early years. Because Empire itself would not be able to benefit from the full tax advantages provided by the Wind Projects in the early years, aligning with a tax equity partner allows these tax benefits to be utilized sooner, thereby reducing the overall cost of the projects to regulated ratepayers. Wells Fargo Central Pacific Holdings, Inc. ("Wells Fargo") and JPM Capital Corporation ("JPM") are the tax equity partners for the Wind Projects.

Q. Please describe the tax equity partnership arrangements utilized by Empire for the Wind Projects.

A. As described in the testimony of Mr. Mooney, the Company entered into an arrangement with two tax equity partners, Wells Fargo and JPM, who are providing a portion of the financing for the Wind Projects. The project costs included in Empire's rate base exclude that portion of the Wind Projects being financed by the tax equity partners. During the first ten years of the partnership agreement, the tax equity partners receive the vast majority of the tax incentives (including 99% of the PTCs and other tax benefits such as accelerated depreciation) associated with the Wind Projects. During this ten-year period, Empire can also benefit from additional annual contributions made by the tax equity partner in the event that actual production is higher than a production threshold, which would result in additional PTCs being generated. The after-tax value of these PTCs is then monetized as a contribution to Empire, which would be credited to customers.

In addition to receiving the majority of the PTCs, the tax equity partner also receives cash distributions in the later years (e.g., years 6-10) which reflect a return on capital. Once the tax equity partner has recovered the return on and of its investment, the ownership structure "flips," with the tax equity partner retaining a small share of the ownership interest and the majority of any financial benefits accruing to the utility. At that time, the utility also has an option to purchase the equity partner's investment at fair market value.

Q. Does Empire directly own its share of the Wind Projects?

A. No, it does not. As discussed in Mr. Mooney's testimony, the Wind Projects are actually owned by three limited liability companies (Neosho Ridge Wind, LLC; North Fork Ridge Wind, LLC; and Kings Point Wind, LLC), which in turn are owned by the tax equity partners and by Empire Wind Holdings, LLC ("the LLC"), a direct subsidiary of Empire. Empire owns Class B membership interests in the LLC, while the tax equity partners hold the Class A membership interests. This ownership structure allows Empire and the tax equity partners to structure the tax equity arrangement to facilitate the allocation of tax benefits to the tax equity partners in the early years.

The LLC sells the energy from the Wind Projects to the Southwest Power Pool ("SPP") and receives all of the revenue associated with the sale of this energy. Empire and the LLC have entered into a ten-year fixed price hedging agreement whereby Empire pays a fixed price for the energy to the LLC, but also receives (or pays) the difference between the fixed price and the SPP locational marginal price. Empire also receives the Renewable Energy Credits ("RECs") generated by the Wind Projects.

The revenues received by the LLC related to the sale of the energy to the SPP and any payments made by Empire will be used to pay the expenses of the Wind Projects, including operation and maintenance expenses, administrative and general expenses, and property taxes. During the first five years, any remaining net cash flows will be paid back to Empire. In years 6–10, any remaining net cash flows will be paid to Empire and the tax equity partners in the allocations agreed upon in the tax equity partnership agreement. After the initial ten-year period, Empire's ownership share increases to 95% of the Wind

Projects. At that time, Empire has the right to purchase the tax equity partner's remaining 5% share at fair market value.

Empire is also providing various services to the Wind Projects through a series of affiliated interest agreements, including an Operations and Maintenance Agreement, an Asset Management and Administrative Services Agreement, an Energy Services Management Agreement, and other agreements. Other services may be provided by Empire affiliates through existing agreements between Empire and Liberty Utilities (Canada) Corp. or Algonquin Power and Fund (America) Inc.

Q. Were the Wind Projects selected through a competitive solicitation process?

A. While Empire did issue a Request for Proposal ("RFP") related to the Wind Projects, there were certain restrictions placed on the respondents, as discussed in the testimony of Mr. Rooney. Empire issued two separate RFPs, one of which requested that bidders develop the project and then sell the project to Empire. The second RFP required bidders to build the wind facilities on two sites (Kings Point and North Fork Ridge) already owned by Empire. Thus, Empire did not consider projects that would be provided pursuant to a PPA. Instead, Empire insisted on having an ownership interest in these Wind Projects.

Q. Does the Company need this wind generation in order to meet its service commitments?

A. No, the Company does not need the Wind Projects in order to meet its service commitments to Kansas ratepayers. Instead, Empire is promoting the wind projects on an economic basis as a cost savings to customers, which it states will result in savings to its ratepayers, primarily through lower capital costs resulting from the tax equity agreements and through lower fuel costs when the wind replaces other energy resources.

Q. Given that the wind projects are not necessary to serve Kansas ratepayers, what is the Company's rationale for requesting approval for the projects?

A. As discussed in the testimony of Mr. McMahon on page 5, "…Empire, in conjunction with its parent company, Algonquin Power & Utilities Corp., ('APUC') identified a potential opportunity to leverage its experience in developing renewable projects in concert with tax equity partners. As a result, Empire launched a new study to assess the impacts of adding wind to its portfolio prior to the expiration of federal production tax credits ('PTCs'), using the 2016 IRP as a baseline, but updating several key assumptions to reflect market, policy, technology, and regulatory trends." The Company subsequently completed the GFSA, which is the basis for its proposal in this case. This testimony suggests that Empire was predisposed to investing in wind projects prior to undertaking a reexamination of its 2016 IRP and completing the GFSA. In fact, even before the acquisition of Empire was completed, APUC had identified utility investment in renewable generation as a source of attractive returns and strong cash flow.

The Company also claims that there will be a net savings to ratepayers if these facilities are added to the supply portfolio, due to the fact that the energy from these wind facilities will replace energy from more expensive fossil fuel facilities, thereby generating fuel savings. Much of the savings relates to the availability of PTCs for the first ten years of the project, and the fact that the PTCs will allow the Company to utilize tax equity partnership financing for a significant portion of the investment. Accordingly, the Wind Projects were acquired by Empire as a purely financial play – being undertaken with the explicit intent to increase shareholder earnings while providing potential economic benefits to ratepayers.

Q. How do the Wind Projects increase shareholder earnings?

A. The Wind Projects increase the Company's rate base and result in greater earnings to shareholders. APUC, as well as other utilities throughout the country, have been very open about their use of increased investment as a vehicle to enhance shareholder earnings. While increased investment does not change the authorized WACC, it does result in greater overall earnings, which in turn results in greater earnings per share for APUC investors. Therefore, while Empire describes the Wind Projects to regulatory agencies as a means to lower overall costs to ratepayers, the Company describes the Wind Projects (and other capital additions) to investors as a means to increase shareholder earnings.

Q. Please describe the GFSA, which is the basis for the Company's projected savings associated with the Wind Projects.

A. The GFSA, conducted after the acquisition of Empire by APUC, updated the Company's 2016 Integrated Resource Plan ("IRP") for three factors: updated capital costs associated with wind generation, updated wind capacity factors, and modeling of the SPP Integrated Marketplace ("IM"). The Company evaluated nine different plans, with various amounts of wind capacity, various assumptions about the LCOE in various locations where wind could be sited, various assumptions regarding gas, coal, and energy prices, and various assumptions regarding retirement of the Asbury plant. The Company's analysis assumed annual capacity factors of 46% in mid-LCOE regions and of 54% in low-LCOE regions.

In addition, the GFSA included a sensitivity analysis for each of the nine plans, covering eighteen discrete scenarios. These scenarios examined a range of probabilities for variations in power and fuel prices, carbon taxes, and congestion.

Q. Please summarize the results of the GFSA.

A. As shown in Table 1 to Mr. McMahon's testimony, the optimal plan resulting from the GFSA was to build 800 MW of wind generation and to retire the Asbury plant. It is not surprising that the analysis selected 800 MW of wind, since 800 MW of wind was the maximum amount that could have been included per the parameters utilized by Empire. Presumably, a larger amount of wind generation would have resulted in even greater "savings" if permitted to be included in the model. The Company utilized both 20-year and 30-year Present Value Revenue Requirements ("PVRR") to evaluate the results of the model. Twenty years is consistent with the time period used in prior IRPs while the Company claims that thirty years is a better indicator of the actual anticipated life of new wind generation. The GFSA indicated that adding 800 MW of wind generation and retiring the Asbury plant could save ratepayers between $172 million to $325 million over a twenty-year period on a net present value ("NPV") basis, with projected NPV savings between $420 million to $607 million over thirty years.[2]

Q. Please describe the impact that the Wind Projects will have on Empire's utility investment.

[2] Testimony of Mr. McMahon, Table 2.

A. The Wind Projects will have a significant impact on the Company's total rate base and on its generation portfolio. As shown on page 4 of Ms. Sanderson's supplemental testimony, the Wind Projects will increase the Company's rate base by $28.76 million, an increase of 45% over the rate base authorized in the Company's last base rate case. In addition, the base revenue requirement associated with the wind projects is $4.9 million, approximately 29% over base revenues authorized in the Company's last base rate case.

On a nominal basis, the wind projects are expected to increase after-tax shareholder earnings by $381.4 million over the next twenty years, or by $223.3 million on a NPV basis. Therefore, the proposed Wind Projects represent a major increase in utility investment and shareholder return. These increases to rate base and generation are all the more significant because this generation is not need to serve Kansas ratepayers.

In addition, it appears that the economic benefits for ratepayers are largely skewed to the later years. On a NPV basis, the projected savings based on a thirty-year analysis are approximately double those projected over the next twenty years. This is not surprising, given that a substantial benefit of the Wind Projects are the PTCs and other tax incentives, which accrue primarily to the benefit of the tax equity partners. The fact that much of the savings related to the Wind Projects occurs in the later years is troubling, given that assumptions tend to be less accurate the further out one is in the estimation process.

Q. Has the Company proposed an alternative ratemaking methodology in this case?

A. Yes, it has. As an alternative to including the Wind Projects in rate base and crediting wind revenues to the ECA, Empire has proposed an alternative ratemaking methodology based on a levelized cost of the Wind Projects over a period of twenty years. Under the

Company's proposal, ratepayers would pay a fixed cost of **[redacted]** for the wind generated by the Wind Projects, based on a projected capacity factor of **[redacted]**. Adjustments would be made based on the actual capacity factors over a rolling three-year average. Thus, if the rolling average capacity factor is greater than **[redacted]**, then Empire will be permitted to include a charge in the ECA based on the difference in generation multiplied by the per MWh levelized cost. If the actual capacity factor is less than **[redacted]**, then then there will be a corresponding credit to the ECA.

Q. Please describe the Asset Retirement Obligation ("ARO") associated with the Wind Projects that Empire included in its revenue requirement claim.

A. In addition to capital costs associated with the Wind Projects, the Company included an ARO associated with future costs related to retirement of the Wind Projects at the end of their lease terms. The land leases are thirty-year leases with the option to renew for an additional thirty years. At the end of the projects, each agreement requires the Wind Projects to be dismantled and all assets to be removed, and for the land to be restored to its prior state. The Company included an ARO even though, under the fixed LCOE approach, shareholders are entitled to all residual value after twenty-years, including any wind margins, asset or land sales. It appears that while Empire is proposing that certain benefits associated with the Wind Projects be retained for shareholders, Empire nevertheless expects ratepayers to be responsible for all of the associated costs.

B. Analysis of the Wind Projects

Q. Does the Company currently bear any risk associated with increasing fuel prices that would prompt it to invest in wind generation in order to protect its shareholders?

A. No, Empire bears no risk because it recovers its fuel costs dollar-for-dollar from ratepayers through an ECA Rider. Therefore, if the price of natural gas or other fuels increase, then ratepayers are charged higher costs through the ECA and the Company is made whole for the higher cost of fuel. While utilities have the responsibility to continually seek to implement the lowest cost options for ratepayers, this case is unique in that the Company does not need additional generation in order to serve its Kansas load. Instead, the Company is proposing to include millions of dollars of additional investments in rate base solely on the basis that this investment will result in lower costs to ratepayers.

Q. Given that the Company is not at risk for higher fuel costs and does not need additional generation, do you believe that the Company's desire to bring lower costs to ratepayers was the primary factor driving its proposal for this massive investment in wind energy?

A. No, I do not. Given that the Company is not at risk should fuel costs rise, I believe that this transaction was driven primarily by the desire for higher profits for shareholders. By owning these new facilities, and therefore, increasing its rate base, Empire will earn a return on these facilities for many years into the future. According to the Company's models, these facilities will provide an incremental after-tax return of almost $440 million to Empire shareholders over the next 30 years.

As shown in its various Investor Presentations, APUC highlighted the investment opportunities created by replacing coal generation with renewable generation, citing the opportunity for significant incremental capital investment that would drive shareholder earnings. Given the slower growth in electric sales, utility investment has become a major driver of increased earnings growth for utilities. Therefore, while the Wind Projects are being presented as a cost-saving opportunity for ratepayers, it is clear that they are also being presented to the investment community as an earnings growth opportunity for shareholders.

Q. Did Empire evaluate the possibility of entering into a PPA for the wind energy?

A. No, while Empire states that it "considered the relative merits of ownership compared to the cost of PPAs", it did not solicit bids for PPAs. Thus, while PPAs may have been "considered", the Company clearly rejected the PPA option in favor of ownership without fully exploring the opportunities that may have been available under a PPA. In addressing why PPAs were not fully investigated, the Company referred to testimony that was submitted by Mr. Mertens in Missouri Case No. 2019-0010, and to testimony submitted by Mr. Mertens and Mr. McMahon in the 18-184 Docket.[3] In those cases, the Company claimed that "Empire is in a unique position to benefit from APUC's expertise in owning and managing wind farms, and its expertise developing such opportunities with tax equity partners…."[4] However, APUC's experience was relatively limited compared with major wind developers and the projects that it had undertaken at that time were small compared

[3] See the responses to KCC-5 and KCC-79.
4 Testimony of Mr. Mertens, Missouri Case No. 2019-0010, page 12.

with the Wind Projects. The Company went on to state in its testimonies in those dockets that ownership would allow utility customers to benefit from the Wind Projects over the entire service life of the facilities, which it estimated was at least ten years longer than the traditional twenty-year PPA. While it is true that ratepayers have the potential to benefit over a longer period through the ownership structure, it is also true that they are exposed to greater risks over this period as well. Moreover, under the alternative levelized approach proposed by Empire, shareholders will retain any residual value of the Wind Projects after twenty years. Thus, in that case, ratepayers will not necessarily benefit from project lives that exceed twenty years. In addition, a shorter commitment under a PPA may allow utility customers to benefit from new and cheaper technologies sooner, once its obligations under a PPA expire.

The Company also claimed that a PPA would be more expensive for customers than utility ownership, but since Empire did not solicit bids for PPAs in this case, there is no basis for this conclusion. The costs of a PPA relative to the costs of ownership would depend on many factors, including each party's required cost of capital. Finally, Empire states that ownership "inherently creates healthier utilities and provides better local economic development opportunities…."[5] I am not sure what the Company means by "healthier" utilities, although owned facilities certainly lead to "healthier" earnings for shareholders. While the Company stated that a PPA would have required Empire to give up certain control of the project, a PPA would also have required shareholders to forego millions of dollars in additional earnings. Finally, there is no reason why utility-owed

5 Testimony of Mr. Mertens, KCC Docket No. 18-EPDE-184-PRE, page 9, line 23 – page 10, line 1.

generation would necessarily lead to better local economic development opportunities. The construction of new wind facilities would likely create local economic development opportunities in the locations where they are sited, regardless of the entity that actually owns the facilities.

Q. Is there any guarantee that ratepayers will benefit from the Wind Projects?

A. No, there is no guarantee that the Wind Projects will actually result in cost savings for Kansas ratepayers. The Company's filing in this case is based on the cost savings projected in the GFSA, which was conducted in 2017. In the GFSA, various portfolios were compared with the preferred portfolio from the 2016 IRP, which included the continued operation of Asbury and additional wind in 2029. The analysis conducted in the GFSA demonstrated that a portfolio reflecting 800 MW of new wind and retirement of Asbury had the potential to result in cost savings relative to the preferred portfolio per the 2016 IRP. However, the GFSA was based on a LCOE of **[redacted]** for the additional wind.[6] This is significantly **[redacted]** the LCOE being proposed in this case of **[redacted]** under the Company's alternative levelized ratemaking methodology.

Q. How does the LCOE proposed by Empire compare with the LCOE approved by the KCC for the Western Plains Wind Farm in KCC Docket No. 18-WSEE-328-RTS ("18-328 Docket")?

[6] Testimony of Mr. McMahon, Schedule JM-2, Page 5, which includes return on and of new capital, variable O&M, Fixed O&M, and Fuel Costs.

A. Empire states that its LCOE ratemaking proposal is similar to the proposal approved by the KCC in the Westar case. However, the levelized rate approved for the Western Plains Wind Farms was $20.70/MWh, assuming a capacity factor of 46.57%. While the capacity factor authorized in the Westar case is **[redacted]** than the rate authorized for the Western Plains Wind Farm.

Q. How does the LCOE rate being proposed by Empire compare with Wind PPAs executed in the SPP from 2017 to 2021?

A. As shown on Exhibit ACC-1[7], Lawrence Berkeley National Laboratory reports PPA prices of less than $25.00/MWh for PPAs of projects of similar size (150 to 300 MW) executed in the SPP from 2017 through 2021. Unfortunately, Empire limited its wind solicitation to projects that would be owned by the Company, so we do not know what bids may have been available when it decided to enter into the Wind Projects that are the subject of this proceeding. However, the information from Berkeley Lab, along with the LCOE rate authorized for the Western Plains Wind Farms, suggests that the LCOE proposed by Empire in this case is **[redacted]**.

Q. If the KCC decides to authorize Empire to charge Kansas ratepayers for the costs of the Wind Projects, do you recommend a levelized charge or recovery through the base rate case process?

[7] Data from https://emp.lbl.gov/wind-power-purchase-agreement-ppa-prices.

A. If the KCC decides to authorize recovery from Kansas ratepayers, I recommend that it adopt a levelized fixed cost recovery for the Wind Projects. This mechanism will limit the risk to Kansas ratepayers. Limiting ratepayer risk is especially appropriate in this case, since the Wind Projects were built in order to increase shareholder earnings and not because of an underlying need for capacity or energy.

Q. If the KCC authorizes Empire to recover the costs of the Wind Projects from Kansas ratepayers, should it approve the LCOE rate of **[redacted] reflected in Ms. Sanderson's Supplemental Testimony?**

A. No, it should not. This rate is **[redacted] ** than the LCOE assumed in the GFSA, on which the economics of the wind projects is based. In addition, Empire's proposed rate of **[redacted].** These factors all suggest that the Company may have been able to acquire additional wind at a lower cost through a PPA, had it expanded its solicitation process to permit bidders to propose wind projects that were not owned by Empire.

Q. What rate do you recommend be approved by the KCC if it authorizes Empire to recover costs of the Wind Projects from Kansas ratepayers?

A. I recommend that the KCC authorize a fixed LCOE rate of **[redacted]**, which is the LCOE on which the recommendations in the GFSA are based. Since this analysis is being used by Empire to support its decision to invest in the Wind Projects, it is appropriate to utilize this rate for charging Kansas ratepayers for the associated energy.

VI. RETIREMENT OF THE ASBURY GENERATING FACILITY

Q. Please summarize the Company's proposal for recovery of stranded costs associated with the retirement of Asbury.

A. Empire is seeking to recover the undepreciated investment in Asbury over a period of 26 years through a regulatory asset, which would be included in rate base and earn carrying costs at the Company's WACC. In addition to the stranded costs associated with the retirement of Asbury, Empire has repurposed certain investment at Asbury into a Renewable Operations Center. The investment utilized for the Renewable Operations Center continues to be included in rate base and depreciated at current depreciation rates. Approximately 7.9% of the total Asbury investment is being utilized for the Renewable Operations Center.

Q. Should a utility necessarily expect to recover stranded costs associated with assets that are retired?

A. No, it should not. Utility costs should reflect costs that are necessary for the provision of safe and reliable utility service. It is a basic tenet of utility regulation that investment included in rate base should be used and useful in providing service. Clearly, retired plant does not meet these criteria.

Shareholders do not have a right to expect guaranteed recovery when retiring utility assets. That is especially true in this case, given that the retirement of Asbury is part of a larger transaction that includes approximately $600 million of additional investment that is not needed to serve Kansas customers, but which will enhance shareholder earnings. The Company's proposal to recover a return of, as well as return on, the Asbury facility is an attempt to shift risk from shareholders to ratepayers. Rightfully, shareholders are never guaranteed recovery <u>of</u> the underlying cost of their investment. Nor are they guaranteed recovery of a return <u>on</u> their investment. If recovery of all investment was assured, shareholders would not be incurring any risk and therefore there would be no reason to set rates using an equity return that includes a risk premium. Instead, shareholder returns would more closely match the return on a risk-free investment.

In addition, the Company must take responsibility for its management decisions and should not expect all financial consequences of those decisions to be recovered from ratepayers. Much of the unrecovered investment in Asbury was undertaken prior to its acquisition by APUC and the reevaluation of its capital investment strategy. In the 2016 IRP, the Company proposed to retain Asbury and to delay new wind generation until 2029. Based on that assumption, in 2014, Asbury was retrofitted with "…the Air Quality Control System ("AQCS") which included a dry circulating fluidized bed scrubber for sulfur dioxide removal, powder activated carbon injection for mercury removal, a pulse jet fabric filter baghouse for removal of particulate matter from the flue gas, and the conversion from a forced draft boiler to a balanced draft," as discussed on page 5 of Mr. Graves' testimony. In addition, in 2008, the Company installed Selective Catalytic Reduction for the removal of nitrous oxides. Even though Asbury was commissioned in 1970, these two relatively recent investments account for 73% of Asbury's net book value.

On January 1, 2017, just a few years after the AQCS was installed, APUC completed its acquisition of Empire and Empire filed its Customer Savings Plan in Kansas and Missouri, which included the retirement of Asbury.

Q. Will shareholders benefit from the retirement of Asbury?

A. Yes, they will. With the Wind Projects, Empire is significantly increasing the investment on which shareholders will be able to earn a return. In addition, by increasing investment and therefore depreciation expense, the Company is also able to increase its cash flow. It would be unreasonable to ask ratepayers to continue to pay both a return on, and a return of, investment that is no longer providing them with utility service while at the same time charging ratepayers for the Wind Projects that are being undertaken for the financial benefit of shareholders.

Q. What is your recommendation regarding the stranded costs associated with the retirement of Asbury?

A. I recommend that the KCC authorize the Company to transfer these costs to a regulatory asset and to recover these costs over 26 years, as proposed by Empire. However, I also recommend that the KCC deny the Company's request to include the regulatory asset in rate base and to earn a return on the unamortized balance based on the WACC. My recommendation provides for full recovery of the Company's investment in Asbury but requires shareholders to effectively pay the carrying costs on this investment until such time as it is fully recovered. This approach provides a better allocation of risk between ratepayers and shareholders than the Company's proposal to recover both a return on, and a return of, the full amount of the undepreciated investment from Kansas ratepayers. In addition, my recommendation is consistent with the findings of the KCC in KCC Docket No. 15-KCPE-116-RTS, whereby the Commission permitted Kansas City Power and Light Company to recover the undepreciated investment in its legacy meters but to forego carrying charges on that investment.

Q. How is the Company proposing to treat decommissioning costs associated with the retirement of Asbury?

A. Empire is seeking authorization to establish a regulatory asset to track future costs, including decommissioning costs, until the facility has been fully decommissioned, which the Company anticipates will be in 2024. In the first rate case after the facility is decommissioned, the Company will propose an amortization of these costs. I am not opposed to the KCC authorizing Empire to establish this regulatory asset, provided that the KCC does not address any ratemaking treatment for these costs in this case. All parties should retain their right to oppose recovery of these costs from ratepayers, or to propose a specific ratemaking treatment for these costs, in a future rate proceeding.

VII. REVENUE REQUIREMENT SUMMARY

Q. What impact do your recommendations with regard to the Wind Projects and the retirement of Asbury have on the Company's requested revenue increase?

A. As previously stated, Empire is requesting a base revenue increase of $4,490,806, or 26.55%. Since I am recommending that the Wind Projects be recovered through a LCOE charge of **[redacted]**, I have eliminated both the rate base and net operating income adjustments associated with the Wind Projects from the Company's revenue requirement.

In addition, I have eliminated the adjustments related to Asbury from rate base, consistent with my recommendation to deny the Company's request to recover carrying costs on the regulatory asset associated with stranded costs. See Schedules ACC-2 and ACC-3 for the impact of my recommended adjustments relating to the Wind Projects and the retirement of Asbury.

Q. Are you proposing any additional revenue requirement adjustments?

A. Yes, I am proposing additional adjustments with regard to rate case costs and interest synchronization. With regard to rate case costs, I am recommending several adjustments. As shown in the Company's workpapers, Empire has included in its revenue requirement $654,787 in rate case costs, which it proposes to amortize over two years for an annual expense of $327,394. The Company's claim includes $620,739 related to the current case and $34,048 of unrecovered costs from its last base rate case. I am recommending three adjustments to rate case costs, as shown on Schedule ACC-4.

First, I believe that the Company's claim of $620,739 for costs associated with the current case is excessive for an abbreviated rate case with very limited issues. The Company incurred total rate case costs of $757,807 for its last full base rate case, which had many more issues that this abbreviated case. In addition, in response to KCC-41, Empire identified total rate case costs to date of **[redacted].** Given the costs incurred in the last case, as well as the actual costs incurred to date, I have reflected a rate case cost allowance for the current case of $380,000, which is approximately 50% of the costs incurred in its last full base rate case. This amount should be updated with actual results as the case progresses.

Second, I recommend that rate case costs be amortized over a three-year period, instead of over the two years reflected in the Company's filing. A three-year period is more reflective of the frequency with which the Company has filed rate cases and is the period that has been utilized by the KCC in many other cases.

Third, I recommend that the KCC exclude unrecovered costs associated with the Company's last base rate case. Although the settlement agreement in that case reflected a three-year amortization period for rate case costs, the parties reserved their rights to argue whether any future unamortized rate case expense should be included in future rates, and KCC Staff specifically reserved its right to recommend denial of any unamortized rate case expense. Therefore, I recommend that these costs be excluded from the revenue requirement established in this case. (See Schedule ACC-4)

Q. Do you have any other comments regarding the Company's rate case costs?

A. Yes, I have not been able to verify that the Company's rate case expense adjustment includes the elimination of the amortization expense that is currently included in base rates resulting from the 19-223 Docket. If these costs, or a portion thereof, are still embedded in the Company's proposed revenue requirement, then an additional adjustment may be necessary.

Q. In addition to your rate case expense adjustments, what additional revenue requirement adjustment are you recommending?

A. As shown in Schedule ACC-5, I have made an interest synchronization adjustment to reflect the impact of the rate base adjustments to the Wind Projects and to Asbury discussed above. My interest synchronization adjustment includes a weighted cost of debt of 2.27% and an income tax rate of 21%, consistent with the Company's filing.

Q. Please summarize the revenue impact of your recommendations.

A. The recommendations contained in my testimony result in a base revenue reduction of $345,690 , as shown in Schedule ACC-1. In addition, I recommend that the KCC authorize Empire to recover the costs of the Wind Projects through a fixed LCOE charge of **[redacted]**.

Q. Does this conclude your testimony?

A. Yes, it does.

VERIFICATION

STATE OF FLORIDA)
) ss:
COUNTY OF BROWARD)

Andrea C. Crane, President of The Columbia Group, Inc., upon being duly sworn upon her oath, deposes and states that she is a consultant for the Citizens' Utility Ratepayer Board, that she has read and is familiar with the foregoing Direct Testimony of Andrea C. Crane, and that the statements made therein are true and correct to the best of her knowledge, information and belief.

SIGNED this 13th day of January, 2022.

ANDREA C. CRANE

SUBSCRIBED AND SWORN TO before me by Andrea C. Crane on this 13th day of January, 2022.

NOTARY PUBLIC IN AND FOR THE STATE OF FLORIDA

My Commission Expires: 5/5/23

ELIZABETH JACOBS
Notary Public-State of Florida
Commission # GG 330722
My Commission Expires
May 05, 2023

The Columbia Group, Inc., Testimonies of Andrea C. Crane

Company	Utility	State	Docket	Date	Topic	On Behalf Of
Empire District Electric Company	E	Kansas	21-EPDE-444-RTS	1/22	Abbreviated Rate Case	Citizens' Utility Ratepayer Board
Southwestern Public Service Company	E	New Mexico	21-00148-UT	10/21	Grid Modernization Program	Office of Attorney General
Black Hills/Kansas Gas Utility Company	G	Kansas	21-BHCG-418-RTS	9/21	Revenue Requirements	Citizens' Utility Ratepayer Board
Public Service Company of New Mexico	E	New Mexico	21-00083-UT	8/21	Decertification of 114 MW of Palo Verde	Office of Attorney General
Public Service Company of New Mexico	E	New Mexico	21-00017-UT	7/21	Abandonment of Four Corners Power Plant	Office of Attorney General
Evergy Kansas Metro Evergy Kansas Central	E	Kansas	21-EKME-320-TAR	6/21	Electric Vehicle Program	Citizens' Utility Ratepayer Board
Southwestern Public Service Company	E	New Mexico	20-00238-UT	5/21	Revenue Requirements	Office of Attorney General
Avista Corporation	E/G	Washington	UE-200900/UG-200901	4/21	Revenue Requirements	Public Counsel Unit
Public Service Company of New Mexico / Avangrid	E	New Mexico	20-00222-UT	4/21	Merger Transaction	Office of Attorney General
PSEG Nuclear and Exelon Generation Company	E	New Jersey	ER20080557-559	1/21	Nuclear Subsidies	Division of Rate Counsel
Utilities, Inc. of Florida	W/WW	Florida	20200139-WS	11/20	Revenue Requirements	Office of Public Counsel
El Paso Electric Company	E	New Mexico	20-00104-UT	10/20	Revenue Requirements	Office of Attorney General
Public Service Company of New Mexico	E	New Mexico	20-00121-UT	9/20	Regulatory Disincentive Mechanism	Office of Attorney General
Peoples Gas System	G	Florida	20200051-GU	9/20	Revenue Requirements	Office of Public Counsel
New Mexico Gas Company	G	New Mexico	19-00317-UT	7/20	Revenue Requirements	Office of Attorney General
El Paso Electric Company	E	New Mexico	19-00317-UT	4/20	CCN For Newman Unit 6	Office of Attorney General
Public Service Company of New Mexico	E	New Mexico	19-00195-UT	12/19	Replacement Resources for SJGS Units 1 and 4	Office of Attorney General
Southwestern Public Service Company	E	New Mexico	19-00170-UT	11/19	Revenue Requirements	Office of Attorney General
Atmos Energy Company	G	Kansas	19-ATMG-525-RTS	10/19	Revenue Requirements	Citizens' Utility Ratepayer Board
Public Service Company of New Mexico	E	New Mexico	19-00018-UT	10/19	Abandonment of SJGS and Stranded Cost Recovery	Office of Attorney General
Rockland Electric Company	E	New Jersey	ER19050552	10/19	Revenue Requirements	Division of Rate Counsel
Avista Corporation	E/G	Washington	UE-190334/UG-190335	10/19	Revenue Requirements	Public Counsel Unit
Westar Energy, Inc.	E	Kansas	19-WSEE-355-TAR	6/19	JEC Capacity Purchase	Citizens' Utility Ratepayer Board
Empire District Electric Company	E	Kansas	19-EPDE-223-RTS	5/19	Revenue Requirements	Citizens' Utility Ratepayer Board
Public Service Electric and Gas Co.	E/G	New Jersey	EO18060629/ G018060630	3/19	Energy Strong II Program	Division of Rate Counsel
Southwestern Public Service Company	E	New Mexico	18-00308-UT	2/19	Voluntary Renewable Energy Program	Office of Attorney General
Zero Emission Certificate Program (Various Applicants)	E	New Jersey	EO18080899	1/19	Zero Emission Certificates Subsidy	Division of Rate Counsel

The Columbia Group, Inc., Testimonies of Andrea C. Crane

Company	Utility	State	Docket	Date	Topic	On Behalf Of
Public Service Company of New Mexico	E	New Mexico	18-00043-UT	12/18	Removal of Energy Efficiency Disincentives	Office of Attorney General
Kansas Gas Service	G	Kansas	18-KGSG-560-RTS	10/18	Revenue Requirements	Citizens' Utility Ratepayer Board
New Mexico Gas Company	G	New Mexico	18-00038-UT	9/18	Testimony in Support of Stipulation	Office of Attorney General
Kansas City Power and Light Company	E	Kansas	18-KCPE-480-RTS	9/18	Revenue Requirements	Citizens' Utility Ratepayer Board
Public Service Electric and Gas Co.	E/G	New Jersey	ER18010029/ GR18010030	8/18	Revenue Requirements	Division of Rate Counsel
Westar Energy, Inc.	E	Kansas	18-WSEE-328-RTS	6/18	Revenue Requirements	Citizens' Utility Ratepayer Board
Southwestern Public Service Company	E	New Mexico	17-00255-UT	4/18	Revenue Requirements	Office of Attorney General
Empire District Electric Company	E	Kansas	18-EPDE-184-PRE	3/18	Approval of Wind Generation Facilities	Citizens' Utility Ratepayer Board
GPE/ Kansas City Power & Light Co., Westar Energy, Inc.	E	Kansas	18-KCPE-095-MER	1/18	Proposed Merger	Citizens' Utility Ratepayer Board
Public Service Electric and Gas Co.	E	New Jersey	GR17070776	1/18	Gas System Modernization Program	Division of Rate Counsel
Southwestern Public Service Company	E	New Mexico	17-00044-UT	10/17	Approval of Wind Generation Facilities	Office of Attorney General
Kansas Gas Service	G	Kansas	17-KGSG-455-ACT	9/17	MGP Remediation Costs	Citizens' Utility Ratepayer Board
Atlantic City Electric Company	E	New Jersey	ER17030308	8/17	Base Rate Case	Division of Rate Counsel
Public Service Company of New Mexico	E	New Mexico	16-00276-UT	6/17	Testimony in Support of Stipulation	Office of Attorney General
Westar Energy, Inc.	E	Kansas	17-WSEE-147-RTS	5/17	Abbreviated Rate Case	Citizens' Utility Ratepayer Board
Kansas City Power and Light Company	E	Kansas	17-KCPE-201-RTS	4/17	Abbreviated Rate Case	Citizens' Utility Ratepayer Board

APPENDIX B

SUPPORTING SCHEDULES

EMPIRE DISTRICT ELECTRIC COMPANY

TEST YEAR ENDED JUNE 30, 2020

REVENUE REQUIREMENT SUMMARY

	Company Claim	Recommended Adjustment	Recommended Position	
	(A)			
1. Pro Forma Rate Base	$99,888,518	($36,506,595)	$63,381,923	(B)
2. Required Cost of Capital	7.08%	0.00%	7.08%	
3. Required Return	$7,068,219	($2,583,246)	$4,484,973	
4. Operating Income @ Present Rates	3,520,482	1,237,586	4,758,068	(C)
5. Operating Income Deficiency	$3,547,737	($3,820,832)	($273,095)	
6. Revenue Multiplier	1.2658	0.0000	1.2658	
7. Required Base Revenue Increase	**$4,490,806**	**($4,836,496)**	**($345,690)**	

Sources:
(A) Company Filing (Update), Section 3, Revenue Requirement.
(B) Schedule ACC-2.
(C) Schedule ACC-3.

EMPIRE DISTRICT ELECTRIC COMPANY

TEST YEAR ENDED JUNE 30, 2020

RATE BASE ADJUSTMENTS

1.	Wind Plant Adjustment	($28,923,550)	(A)
2.	Wind ADIT Adjustment	165,301	(B)
3.	Asbury AAO Asset Adjustment	(7,748,346)	(C)
4.	Total Rate Base Adjustments	**($36,506,595)**	

Sources:
(A) Company Filing (Update), Section 14, RB Adj. 6&7.
(B) Company Filing (Update), Section 14, RB Adj. 5.
(C) Company Filing (Update), Section 14, RB Adj. 2.

EMPIRE DISTRICT ELECTRIC COMPANY

TEST YEAR ENDED JUNE 30, 2020

OPERATING INCOME ADJUSTMENTS

1.	Wind Revenue Adjustment	($111,061)	(A)
2.	Wind Investment Depreciation Expense	954,962	(B)
3.	Wind Amortization Expense	43,810	(C)
4.	Wind Revenues and O&M Expense Adjustment	698,414	(D)
5.	Rate Case Expense	200,727	(E)
6.	Total Adjustments Before Income Taxes	$1,786,852	
7.	Income Taxes @ 21%	(375,239)	
8.	Operating Income Impact	$1,411,613	
9.	Interest Synchronization Adjustment	(174,027)	(F)
10.	Total Operating Income Impact	**$1,237,586**	

Sources:
(A) Company Filing (Update), Section 9.1, IS Adj 1.
(B) Company Filing (Update), Section 9.1, IS Adj. 2.
(C) Company Filing (Update), Section 9.1, IS Adj. 3.
(D) Company Filing (Update), Section 9.1, IS Adj. 8.
(E) Schedule ACC-4.
(F) Schedule ACC-5.

EMPIRE DISTRICT ELECTRIC COMPANY

TEST YEAR ENDED JUNE 30, 2020

RATE CASE EXPENSE

1.	Recommended Rate Case Expense Allowance	$380,000	(A)
2.	Recommended Amortization Period	3	(A)
3.	Recommended Annual Expense	$126,667	
4.	Company Claim	327,394	(B)
5.	Recommended Expense Adjustment	**($200,727)**	

Sources:
(A) Recommendation of Ms. Crane.
(B) Company Filing (Update), Section 9.1, IS Adj 7.

EMPIRE DISTRICT ELECTRIC COMPANY

TEST YEAR ENDED JUNE 30, 2020

INTEREST SYNCHRONIZATION ADJUSTMENT

1. Rate Base Adjustments		($36,506,595)	(A)
2. Weighted Cost of Debt		2.27%	(B)
3. Pro Forma Interest Expense		($828,700)	
4. Income Taxes @	21.00%	**$174,027**	

Sources:
(A) Schedule ACC-2.
(B) Company Filing (Update), Section 7.

APPENDIX C

EXHIBIT ACC-1

Wind Power Purchase Agreement (PPA) Prices

BERKELEY LAB

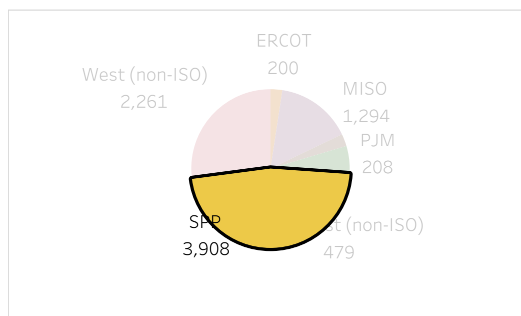
Select range of years
2015 to 2021
and Null values

Select range of project capacity (MW)
150 to 301
and Null values

Click region to highlight
SPP

- Click on the region in the legend or pie chart to show projects by region.
- Use sliders to filter by project capacity (MW) and contract date.
- Circle size indicates project size.
- PPA prices include the effect of any state and federal incentives, including the federal Production Tax Credit

Share of MW by region
Click region to see projects only from that region. Click again to reset.



For more information on US wind energy from Berkeley Lab see http://windreport.lbl.gov

CERTIFICATE OF SERVICE

21-EPDE-444-RTS

I, the undersigned, hereby certify that a true and correct copy of the above and foregoing document was served by electronic service on this 13th day of January, 2022, to the following:

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