

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of the Application of The Empire)
District Electric Company d/b/a Liberty to)
Obtain a Certificate of Convenience and Necessity) Case No. EA-2023-0131
to Enhance System Resiliency)

**SECOND AMENDED APPLICATION
FOR A CERTIFICATE OF CONVENIENCE AND NECESSITY**

COMES NOW The Empire District Electric Company d/b/a Liberty (“Liberty” or the “Company”), and, pursuant to RSMo. §393.170 and Commission Rule 20 CSR 4240-20.045, submits its verified Second Amended Application for a Certificate of Convenience and Necessity and respectfully states as follows to the Missouri Public Service Commission (“Commission”):

Procedural Matters

1. On February 14, 2023, Liberty filed its Application for a Certificate of Convenience and Necessity to Enhance System Resiliency, as the Riverton project to enhance the resiliency of the Company’s electric system may require a CCN pursuant to Commission Rules 20 CSR 4240-20.045(1) and 20.045(2)(A).

2. To allow time for Liberty to address issues with the Southwest Power Pool (“SPP”) regarding generation interconnection and to allow time for Liberty to provide additional information to the Staff of the Commission and other parties to this proceeding regarding the details of the Riverton Units 10 and 11 project, Liberty requested a stay of these proceedings. The requested stay was granted by the Commission.

3. There were additional developments, Liberty requested that the stay be lifted, and on October 13, 2023, Liberty filed an Amended Application to replace the original Application. Following additional discussions with the Staff of the Commission, Liberty is filing this Second Amended Application. With the exception of this Procedural Matters section, the Second

Amended Application replaces the previously filed applications in total. Liberty will utilize the generation interconnection replacement process with SPP and would like to begin replacement of the generating units in the spring of 2025. The existing Riverton Units 10 and 11 generators would then be retired following commercial operation of the replacement units (likely to be named Riverton Units 13 and 14).

Applicable Statutory and Commission Rule Provisions

4. RSMo. §393.170.1 provides that no “electrical corporation . . . shall begin construction of a gas plant, electric plant, water system or sewer system, other than an energy generation unit that has a capacity of one megawatt or less, without first having obtained the permission and approval of the commission.”

5. RSMo. §393.170.3 then provides that the Commission “shall have the power to grant the permission and approval herein specified whenever it shall after due hearing determine that such construction or such exercise of the right, privilege or franchise is necessary or convenient for the public service.”

6. Commission Rule 20 CSR 4240-20.045(2)(A) provides, in part, that “(a)n electric utility must obtain a certificate of convenience and necessity prior to . . . (c)onstruction of an asset pursuant to section 393.170.1 . . .”

7. Commission Rule 20 CSR 4240-20.045(1)(A) defines “asset” as: “1. An electric generating plant, or a gas transmission line that facilitates the operation of an electric generating plant, that is expected to serve Missouri customers and be included in the rate base used to set their retail rates regardless of whether the item(s) to be constructed or operated is located inside or outside the electric utility’s certificated service area or inside or outside Missouri; or 2. Transmission and distribution plant located outside the electric utility’s service territory, but within

Missouri.” And, Commission Rule 20 CSR 4240-20.045(1)(B) defines “construction” as: “1. Construction of new asset(s); or 2. The improvement, retrofit, or rebuild of an asset that will result in a ten percent (10%) increase in rate base as established in the electric utility’s most recent rate case.”

8. Commission Rule 20 CSR 4240-20.045(3) provides that, in addition to the general filing requirements of Rule 2.060(1), the following additional requirements “apply to all applications for a certificate of convenience and necessity, pursuant to sections 393.170.1 and .2, RSMo: (A) The application shall include facts showing that granting the application is necessary or convenient for the public service; (B) If an asset to be operated or constructed is outside Missouri, the application shall include plans for allocating costs, other than regional transmission organization/independent system operator cost sharing, to the applicable jurisdiction; and (C) If any of the items required under this rule are unavailable at the time the application is filed, the unavailable items may be filed prior to the granting of authority by the commission, or the commission may grant the certificate subject to the condition that the unavailable items be filed before authority under the certificate is exercised.”

9. It is within the Commission’s discretion to determine when the evidence indicates the public interest would be served by the grant of a CCN. The Commission has traditionally considered the five factors set forth in *In Re Tartan Energy*, GA-94-127, 3 Mo.P.S.C.3d 173, 177 (1994): need; qualified to own, operate, control, and manage the facilities and provide the service; financial ability; economic feasibility; and promotion of the public interest.

10. The need, or necessity, requirement does not mean “essential” or “absolutely indispensable,” but rather that the proposed project will be an improvement justifying its cost. The Commission has previously indicated that positive findings with respect to the first four *Tartan*

factors will, in most instances, support a finding that the fifth factor – promotion of the public interest – has been satisfied. The Commission has also held it is a balancing process, with a cost-benefit analysis in which all benefits and detriments in evidence are considered, and approval is granted upon a finding of no net detriment.

11. With this verified Second Amended Application for a Certificate of Convenience and Necessity, Liberty proposes the installation of two new combustion turbine generators to replace the existing combustion turbine generators at Riverton Unit 10 and Riverton Unit 11.

12. This project likely requires a CCN pursuant to the definitions of “asset” and “construction” in 20 CSR 4240-20.045(1)(A) and 20.045(1)(B)(1) and the requirements of 20.045(2)(A), and with this verified Second Amended Application for a Certificate of Convenience and Necessity, Liberty demonstrates compliance with RSMo. §393.170 and Commission Rules 20 CSR 4240-2.060 and 20.045 and satisfaction of the five *Tartan* factors.

Liberty’s Background Information and General Filing Requirements

13. Liberty is a “public utility” and an “electric corporation” pursuant to RSMo. §393.1700.1(6), with its Missouri operations subject to the jurisdiction of the Commission as provided by law.

14. Liberty is a Kansas corporation with its principal office and place of business at 602 Joplin Street, Joplin, Missouri. Liberty is qualified to conduct business and is conducting business in Missouri, as well as in the states of Arkansas, Kansas, and Oklahoma. Liberty is engaged, generally, in the business of generating, purchasing, transmitting, distributing, and selling electricity. (20 CSR 4240-2.060(1)(A), (H))

15. A certified copy of Liberty’s Restated Articles of Incorporation, as amended, was filed in Case No. EF-94-39, and a certificate from the Missouri Secretary of State that Liberty, a foreign

corporation, is authorized to do business in Missouri was filed with the Commission in Case No. EM-2000-369. This information is current and correct, and the referenced documents are incorporated herein by reference. (20 CSR 4240-2.060(1)(G))

16. Liberty has no pending actions or final unsatisfied judgments or decisions against it from any state or federal agency or court that involve customer service or rates. Liberty's annual report and assessment fees are not overdue. (20 CSR 4240-2.060(1)(K), (L))

17. All correspondence, communications, notices, orders, and decisions of the Commission with respect to this matter should be sent to the undersigned counsel. (20 CSR 4240-2.060(1)(I))

18. Commission Rule 20 CSR 4240-4.017(1) provides that "(a)ny person that intends to file a case shall file a notice with the secretary of the commission a minimum of sixty (60) days prior to filing such case." Liberty filed its Notice of Intended Case Filing to initiate this proceeding on October 12, 2022.

Location

19. The replacement units (the new assets) will be located at the Company's existing Riverton Generation Station located in Riverton, Cherokee County, Kansas. The property is located at 7240 SE Highway 66, Riverton, Kansas and is described as follows:

A tract of Land located in Section Twenty (20), Township Thirty-Four (34) South, Range Twenty-Five (25) East, of Cherokee County, Kansas described as follows: Beginning at a point in the Northwest Quarter of the Northwest Quarter of said County where the South right of way line of U.S. Highway 66 intersects with the East right of way line of County Road SE 70th, thence South parallel with the East side of the right of way of County Road SE 70th, 3,265 feet to the North Bank of Spring River; thence Northeasterly along said bank 1,564 feet to the East Bank of Spring River; thence along said bank in a Northerly direction 2,364 feet to the South right of way line of U.S. Highway 66; thence West 2,227 feet to the point of beginning, containing one hundred thirty-two (132) acres, more or less.

20. Other than Liberty’s own electric transmission lines and the gas pipeline that serves only this property, the proposed construction will cross no electric, gas, or telephone conduit, wires, cables, and lines of regulated and nonregulated utilities, railroad tracks, or underground facility, as defined in RSMo. §319.015.

21. All proposed construction will be within the existing Riverton Power Plant property boundaries. As such, no landowner notice is required in connection with the filing of this CCN application.

Liberty’s IRP
(Need for the Project)

22. To enhance the resiliency of the Company’s electric system, and as noted above, the Company proposes the installation of two new combustion turbine generators to replace the existing combustion turbine generators at Riverton Unit 10 and Riverton Unit 11 (the “new assets”).

23. The new assets are proposed to implement the supply-side resource acquisition plan in the Company’s adopted preferred plan identified in its 2022 Integrated Resource Plan (“IRP”).

24. Liberty’s 2022 IRP acquisition plan identified the addition of 30 MW of reciprocating internal combustion engine (RICE) generation using existing interconnection. RICE was selected because RICE generators are highly efficient and can be purchased at nameplate capacities similar to the units to be replaced. Before embarking on this project, the Company performed a technology review to verify that RICE units would best meet the Company’s need at the least cost to customers.

25. In this regard, the Company engaged Black & Veatch (“B&V”) to perform a study. The study examined three models of RICE, six simple-cycle combustion turbine models, and batteries. Using the operating data and capital cost information gathered by B&V and fuel and

market pricing models available to the Company, Liberty calculated the 30-year net present value of the revenue requirement (“NPVRR”) for the models studied. This analysis demonstrated that the proposed combustion turbines (the new assets) had the lowest NPVRR.

26. For verification, Liberty requested Charles’ River Associates (“CRA”), who performed modeling of plans for Liberty’s 2022 IRP, to substitute the proposed combustion turbines (the new assets) for the RICE units in the preferred plan. CRA’s analysis demonstrated that the substitution reduced the NPVRR of the preferred plan by \$6.3 million.

The Riverton Power Plant – Existing Units
(Need for the Project)

27. The Riverton Power Plant is an approximately 300 MW (nameplate) gas-fired electric generating facility comprised of three units: (1) Riverton Unit 10, a 16.3 MW simple cycle natural gas facility placed in service in December 1988; (2) Riverton Unit 11, a 16.3 MW simple cycle natural gas facility placed in service in December 1988; and (3) Riverton Unit 12, a 267.6 MW combined cycle natural gas facility placed in service in June 2016.

28. Riverton Units 10 and 11 were purchased used and placed in service on the Company’s system in 1988. The original manufacture date of these units was the mid-1960s and thus they are well past their original life expectancy.

29. Currently, Riverton Units 10 and 11 are ** [REDACTED]

[REDACTED] ** Per the North American Electric Reliability Corporation (“NERC”) Reliability Standards, an entity is required to have a ** [REDACTED]

[REDACTED] **

30. On February 8, 2021, Riverton Unit 10 went offline as a result of a fire in the insulation around the turbine exhaust bearing. In order to minimize the fire damage, the lube oil system was shut down prior to the rotor coming to a stop, further damaging the unit. Because of the age of

Riverton Unit 10, it was deemed likely that certain replacement parts would be unavailable and would have to be manufactured.

31. Due to the age of the units and replacement parts not being available for the units, Liberty elected to analyze whether replacing Riverton Units 10 and 11 with new generation would be a more efficient and reliable option as part of the Commission's electric utility 2022 Triennial IRP process.

32. During a routine borescope inspection of Riverton Unit 11 which was performed on April 5, 2023, a significant blade migration was identified that could lead to the failure of the Unit. As such the unit was placed in a reliability run only status on April 18, 2023.

33. **

** With both units experiencing reliability concerns, each unit was subjected to inspection by borescope on May 24, 2023. During this inspection, measurements of the blade migration in Unit 11 confirmed that the migration had progressed to the point that repairs would be required. The borescope inspection of Unit 10 also identified blade migration, but not to a level requiring correction.

34. Unit 11 was called upon to run on August 1, 2023. A borescope inspection was performed on Unit 11 on August 14, 2023, to determine how blade migration was affected by operation, and it was observed that the blade migration had progressed toward failure.

35. Riverton plant staff prepared estimates to repair the two units. Because the cost of repairing Unit 10 was found to be less than the cost of repairing Unit 11, the Company made the decision to commence repairs on Unit 10. Repairs were completed on Unit 10 on January 11, 2024, and the unit was returned to service.

The New Assets
(Need for the Project, Liberty's Qualifications, Feasibility of the Project)

36. The Company anticipates that upon installation of the new assets, ** [REDACTED]

[REDACTED] **

37. The Company evaluated and considered other possible options for ** [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] **

38. These main considerations were the crux of evaluation efforts. Further compounding of the issue at hand involves the requirement to submit a new unit into the generation interconnect queue at SPP. This is predicated on whether or not the host utility is looking for capacity credit for installing a new unit. With the high cost and required permitting, CCN filings, Regional Transmission Organization (“RTO”) lead time of approximately four years to delivery of results, and the unknown number of and cost of network upgrades identified within the RTO generation interconnect study process, other existing Liberty generation sites were quickly eliminated ** [REDACTED]

[REDACTED].**

39. Additionally, Liberty considered the possibility of contracting for ** [REDACTED]

[REDACTED] ** Liberty reached out to three entities that, at the time, were not interested due to the liabilities they would incur along with contract ambiguities. If Liberty were to execute such a contract, the Company would forego accredited capacity within the SPP marketplace ** [REDACTED]

[REDACTED] ** This is ill-advised due to the detrimental impacts to Resource Adequacy.

40. Regarding the proposed new assets, each generator has a nominal net output of 13.3 MW. The turbines are fast-starting and are dual fuel capable, providing resiliency for periods of natural gas scarcity and the capability to start when no off-site power is available. Since the turbines are dual fuel capable, they are capable of operating on natural gas or fuel oil. The turbines will operate with natural gas as the primary fuel source and have fuel oil as a backup. Liberty has multiple suppliers of fuel oil and volumes are purchased on the capacity and inventory onsite to maintain run-time targets.

41. Winter weather operations will greatly improve with the new capabilities of the proposed project. The Company has specified that the minimum design temperature be no greater than -13.6 degrees Fahrenheit. This is the 99.6% heating dry bulb temperature for the Joplin area as presented in the 2021 American Society of Heating, Refrigerating and Air-Conditioning Engineers Handbook. The design specification will determine the need for additional equipment. With respect to fuel, Liberty will implement improvements to make sure that liquid fuels do not gel and are delivered to generating units at or above the required temperature for ignition. Options under consideration include switching from fuel oil to a liquid fuel that performs better in cold weather or installing heat trace and insulation on above grade fuel oil piping.

42. The new assets will be included in the current Riverton Plant Cold Weather Plan. Some operations and maintenance practices in the Riverton Plant Cold Weather Plan include inspection of heat trace and insulation; verification of heater operation and review of cold weather operating procedures, cold weather supplies, and cold weather safety topics.

43. The two new turbines will have no post-combustion pollution controls but will employ dry low NOx combustion to limit NOx formation. The new units have a nominal heat rate of 10,906

Btu/kWh, meaning they will consume approximately 37% less fuel per kWh generated than the units they will replace.

44. The new assets will share a common generator step-up transformer. A short transmission line will tap into existing transmission lines and interconnect the new generators at the same position in the existing substation as the units to be retired. This transformer will be separate and distinct from the generator step-up transformers that serve Riverton 12. The scope of construction includes site preparation; foundation installation; electrical, gas, and fuel oil interconnects; mechanical installation and electrical installation of the owner-provided equipment; and commissioning and testing.

45. The new assets will be operated by Riverton Power Plant personnel. Liberty employees are experienced and well trained, and Liberty, as a utility, has significant experience operating, controlling, and managing electrical power facilities.

46. Routine maintenance on the generating units and any balance of plant assets will be performed by Riverton Power Plant personnel, while routine maintenance on the substation will be performed by Liberty Substation Operations personnel. Major maintenance to be performed on intervals defined in the generating units' operation and maintenance manuals will be performed by the original equipment manufacturer's service personnel under a long-term service agreement.

47. Any significant forced outage of one or both units would be managed in the same way that Liberty manages such an outage on its similar generation units such as State Line Unit 1 or the units at the Energy Center. Diagnosis of the cause of an outage and the scope of repair would begin with review of data available from the unit's instrumentation and controls. Based on the scope of repair, Liberty will determine whether the unit's prompt return to service can best be accomplished by Liberty personnel, original equipment manufacturer's personnel, a contractor, or

some combination of the above. If the failure were to occur during the new asset's warranty period, Liberty would utilize whatever warranty provisions exist in the supply agreements or engineering, procurement, and engineering (EPC) contract to bring about a timely return to service of the asset and protect its customers from the expense to complete the repair.

48. Regarding the required Kansas Department of Health and Environment permit, the Company will request the permit to allow operation of both natural gas and fuel oil. The Company expects that this permit will be more flexible with respect to fuel oil operation. The Company also expects the construction permit to explicitly allow tuning activities as necessary, and Liberty will perform tuning as needed to operate effectively according to seasonal ambient temperature variations.

Need for the Replacement Units

49. There are two specific, primary needs to be served by replacing the two units as opposed to only one unit. The first is resiliency. ** [REDACTED]

[REDACTED]

[REDACTED] ** A unit could be taken out of service by a planned (maintenance outage) or unplanned (mechanical breakdown, etc.) event.

50. The second need being served by the replacement of both units is accredited generating capacity. As detailed in the Company's recent IRP annual report, SPP has recently increased its required planning reserve margin, and further increases are under consideration. SPP is developing changes to accreditation processes for all generation types that will likely reduce the Company's current accredited capacity. To reduce the total accredited capacity available to the Company by retiring two units and constructing only one unit of like kind at a site with available interconnection

capacity exposes the Company and its customers to the risk of not having adequate generation capacity and subsequent deficiency payments.

Timing

51. Liberty would like to begin the physical replacement of the generating units in the spring of 2025.

52. The date for start of construction is dependent upon this CCN proceeding and receipt of a construction permit from the Kansas Department of Health and Environment.

53. Construction and commissioning duration is expected to be approximately one year, rendering the new assets available for service in July 2026.

54. The existing Riverton Units 10 and 11 generators would then be retired following commercial operation of the replacement units.

Financial Ability, Economic Feasibility, Financing and Procurement

55. The Empire District Electric Company, the applicant herein, is a subsidiary of Liberty Utilities Co. (“LUCo”), which is a subsidiary of Algonquin Power & Utilities Corp. (“APUC”).

56. Through its operating utilities, LUCo provides safe and reliable regulated water, wastewater, electric, and natural gas services to over 1.2 million customer connections, with the support of more than 3,000 skilled employees.

57. APUC and its subsidiaries are managed by a capable, innovative, and diverse team of individuals committed to building and growing the business, operational excellence, and sustainability.

58. The estimated cost for the complete scope of the construction project described in this CCN application is \$53 million.

59. The project is expected to be balance sheet financed or financed off balance sheet via

a bill of exchange or similar financial instrument. The Company will use its cash generated from operations to finance the project. Any cash shortfalls would be made up with borrowings from the Company's participation in the money pool. A bill of exchange is a document that obliges a buyer to timely pay a seller for purchased goods. The use of a bill of exchange for procurement of major equipment may result in lower overall financing costs for the purchase of that equipment. An alternative to the use of a bill of exchange would be a promissory note. By use of this method, the Company would not anticipate a material impact on its capital structure.

60. The final financing decision will depend on market conditions at the time of the project funding and will be based on providing the lowest customer rate impact.

61. Liberty received a proposal for two Siemens SGT-400 combustion turbine generating units on February 10, 2023. The Company entered into a contract with Siemens to purchase the units on November 30, 2023. According to the terms of that contract, the first of the two units is scheduled for delivery in April 2025, and the second is scheduled for delivery in May 2025.

62. The Company has also contracted B&V to develop a specification for a request for proposals ("RFP"). The RFP is planned for release on February 7, 2024, for competitive bid to contractors with demonstrated experience in successful delivery of projects of similar scope and scale. The successful bidder's scope will be for engineering, procurement, and construction and commissioning of the project. The project will be managed by Liberty personnel with external engineering support.

Conclusion: Promotion of the Public Interest

63. As detailed above, there is a need for the new assets, Liberty is qualified and has the financial ability to own and operate the new assets, and Liberty's proposal is economically feasible.

64. Liberty thoroughly considered various options for fulfilling the need for the new assets and is engaging in a thoughtful and reasonable procurement process. The replacement assets will assist Liberty with meeting the SPP's planning reserve requirement and will otherwise increase the resiliency of the Company's electric system, allowing the Company to continue providing its customers with safe and reliable electric service.

65. Considering the potential benefits and detriments of the project, as set forth above, Liberty has demonstrated that there will be no net detriment and that the grant of the requested CCN and completion of the proposed project will be in the public interest.

WHEREFORE, Liberty requests an order granting the Company a certificate of convenience and necessity to enhance the resiliency of its electric system by replacing Riverton Units 10 and 11, as well as a determination of the prudence of the decision to construct/operate the new assets subject to the Commission's subsequent review of costs.

Respectfully submitted,

/s/ Diana C. Carter

Diana C. Carter MBE #50527

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CERTIFICATE OF SERVICE

I hereby certify that the above document was filed in EFIS on this 19th day of January, 2024, and sent by electronic transmission to the Staff of the Commission and the Office of the Public Counsel.

/s/ Diana C. Carter

VERIFICATION

On behalf of The Empire District Electric Company d/b/a Liberty, and pursuant to Commission Rules, the undersigned, upon his oath and under penalty of perjury, hereby states that the above filing is true and correct to the best of his information, knowledge, and belief.

/s/ Tim Wilson
Central Region President - Electric