

CONFIDENTIAL DESIGNATIONS

The Empire District Electric Company d/b/a Liberty

EA-2025-0299

RE: Confidential Portions of Confidential Direct Schedules SR-1 and SR-3 of Shaen T. Rooney

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Exhibit No.: _____
Issues: Site and Equipment Selection
Witness: Shaen T. Rooney
Type of Exhibit: Direct Testimony
Sponsoring Party: The Empire District
Electric Company d/b/a Liberty
Case No.: EA-2025-0299
Date Testimony Prepared: October 2025

**Before the Public Service Commission
of the State of Missouri**

Direct Testimony

of

Shaen T. Rooney

on behalf of

The Empire District Electric Company d/b/a Liberty

October 24, 2025



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THE EMPIRE DISTRICT ELECTRIC COMPANY D/B/A LIBERTY
BEFORE THE MISSOURI PUBLIC SERVICE COMMISSION
CASE NO. EA-2025-0299

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DIRECT TESTIMONY OF SHAEN T. ROONEY
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1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. My name is Shaen T. Rooney, and my business address is 602 South Joplin Avenue,
4 Joplin, Missouri, 64801.

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

6 A. I am employed by Liberty Utilities Service Corp. as the Director of Strategic Projects
7 for the Liberty Central Region. In this role, I oversee environmental compliance,
8 manage large-scale projects, coordinate capital expenditure budgeting, oversee project
9 accounting and forecasting, and support regulatory filings related to specific projects
10 for the applicant in this docket, The Empire District Electric Company d/b/a Liberty
11 (“Liberty” or the “Company”).

12 **Q. On whose behalf are you testifying in this proceeding?**

13 A. I am testifying on behalf of Liberty.

14 **Q. Please describe your educational and professional background.**

15 A. I graduated from the University of Missouri-Columbia in 2001 with a Bachelor of
16 Science degree in Chemical Engineering. In February 2002, I joined the Missouri
17 Department of Natural Resources’ Air Pollution Control Program as an environmental
18 engineer, focusing on air quality planning, construction permitting, energy production,
19 and fuels.

20 In November 2004, I joined Liberty as an Environmental Coordinator, assisting
21 with compliance for the generating fleet and securing air permits for construction

1 projects. From October 2006 to June 2008, I served as Local Projects Manager at the
2 Asbury Generating Station, supporting construction projects such as a selective
3 catalytic reduction (SCR) system and various operations and maintenance (O&M)
4 activities.

5 In June 2008, I became Plant Operations Supervisor at Asbury, leading plant
6 operators to ensure safe, efficient, and compliant operations. In November 2010, I
7 transitioned to Manager of Strategic Projects, overseeing generation resource planning,
8 project origination, contractor selection, and project execution—including the Asbury
9 Air Quality Control System retrofit and the Riverton 12 Combined Cycle Conversion.

10 In May 2015, I returned to Asbury as Plant Operations Manager, aligning plant
11 operations with Company goals. In June 2018, I became Generation Operations Project
12 Manager, resuming responsibilities similar to my previous strategic projects role. In
13 August 2019, I assumed management of the environmental department and was named
14 Senior Manager of Strategic Projects. I was promoted to Director of Strategic Projects
15 in December 2022.

16 **Q. Have you previously testified before the Missouri Public Service Commission**
17 **(“Commission”) or any other regulatory agency?**

18 A. Yes, I have testified before the Missouri Public Service Commission, the Kansas
19 Corporation Commission, the Oklahoma Corporation Commission, and the Arkansas
20 Public Service Commission.

21 **Q. What is the purpose of your direct testimony in this proceeding?**

22 A. My testimony demonstrates that the Company’s process for selecting the site and
23 generation technology for the proposed natural gas-fired unit satisfies the applicable
24 requirements for a Certificate of Convenience and Necessity (“CCN”) under Missouri

1 law and Commission rules. Specifically, my testimony explains how the Company
2 evaluated multiple locations and technologies using objective, criteria-based studies to
3 ensure the chosen site and equipment represent a prudent, cost-effective, and reliable
4 solution.

5 **II. SITE SELECTION**

6 **Q. Did the Company consider other sites prior to selecting the State Line Power Plant**
7 **for the new generating unit?**

8 A. Yes. As part of its site selection process, the Company conducted a comprehensive
9 evaluation of alternatives, including its three remaining natural gas-fired facilities and
10 seven potential greenfield locations. This review considered factors such as
11 infrastructure availability, environmental impact, cost efficiency, and operational
12 reliability before determining that the State Line Power Plant site offered the most
13 suitable and prudent option.

14 **Q. How was this evaluation conducted?**

15 A. In May 2025, the Company retained 1898 & Co. to perform a comprehensive site
16 selection study. The study examined both existing plant locations and potential
17 greenfield sites using a structured, criteria-based approach. To ensure consistency and
18 transparency, a collaboratively developed scorecard was applied to evaluate each site
19 against multiple factors, including infrastructure readiness, environmental
20 considerations, cost implications, and operational reliability.

21 **Q. What key factors are considered when selecting a site for a natural gas-fired**
22 **power plant?**

23 A. Site feasibility is determined by several critical factors:

- 1 • Essential Requirements: reliable access to natural gas supply and proximity to the
- 2 transmission system to ensure efficient fuel delivery and power integration.
- 3 • Additional Considerations: permitting requirements, constructability, availability
- 4 of existing infrastructure, community and public engagement, and environmental
- 5 impacts, all of which influence cost, schedule, and long-term operational viability.

6 **Q. How did the site selection study incorporate these factors?**

7 A. Liberty, in collaboration with 1898 & Co., established 21 evaluation criteria organized
8 into five major categories. Each category and its associated criteria were assigned
9 weighted values totaling 100%, ensuring a balanced and objective assessment. Sites
10 were scored against each criterion, and a composite score was calculated to reflect
11 overall suitability. The site achieving the highest composite score was determined to
12 be the most favorable for development. The complete site selection study is provided
13 as Confidential Direct Schedule SR-1.

14 **Q. How did the sites rank after scoring?**

15 A. The evaluation results placed the Company's existing generation sites at the top of the
16 ranking, with State Line emerging as the highest-scoring location, followed by Riverton
17 and La Russel. All remaining sites were greenfield options located in southeast Kansas,
18 which scored lower due to factors such as infrastructure limitations and higher
19 development costs.

20 **Q. What factors contributed to the State Line site being top ranking?**

21 A. The State Line site achieved the highest composite score overall and led in three of the
22 five evaluation categories: Electric Transmission, Fuel Supply Delivery, and
23 Permitting. Existing sites, including State Line, held inherent advantages over

1 greenfield locations due to established natural gas and transmission infrastructure and
2 Company ownership, which reduces development costs and project risk.

3 Both State Line and Riverton sites scored highest in Electric Transmission and
4 Permitting; however, the State Line site was further distinguished by lower natural gas
5 transportation costs, minimal flood risk, and fewer archaeological or cultural resource
6 concerns—factors that enhance constructability and regulatory certainty.

7 **Q. Was additional work performed to confirm the suitability of the State Line Plant**
8 **site for further development?**

9 A. Yes. After the State Line site was identified as the top-ranked site, the Company
10 engaged Black & Veatch to conduct a comprehensive “red flag” permitting review
11 focused on identifying any potential fatal flaws related to air permitting. Riverton was
12 also included in this analysis due to its strong ranking in the site selection study.

13 **Q. What regulations were examined in this “red flag” permitting analysis?**

14 A. Black & Veatch reviewed key federal air permitting and emissions standards to identify
15 any potential fatal flaws. The analysis included:

- 16 • New Source Review (NSR) permitting processes,
- 17 • New Source Performance Standards (NSPS) Subparts KKKK and TTTTa,
- 18 • National Emission Standards for Hazardous Air Pollutants (NESHAP) Subparts
19 YYYYY and ZZZZ,
- 20 • National Ambient Air Quality Standards (NAAQS) for PM_{2.5} and ozone.

21 **Q. What were the findings of the “red flag” analysis?**

22 A. The analysis, provided as **Direct Schedule SR-2**, identified no fatal flaws or
23 impediments to obtaining the necessary air permits for the proposed project. However,
24 it noted that installation of a selective catalytic reduction (SCR) system may be required

1 to ensure compliance with nitrogen oxide (NO_x) emission limits under applicable
2 regulations.

3 **III. EQUIPMENT SELECTION**

4 **Q. What generating equipment is the Company proposing to use for the project?**

5 A. The Company proposes to utilize an F-class combustion turbine to drive the generator.
6 This turbine technology, first introduced in the early 1990s, is widely deployed and
7 supported by leading manufacturers, including Siemens Energy, GE Vernova, and
8 Mitsubishi Power. According to the National Energy Technology Laboratory, there are
9 approximately 863 F-class turbines operating in the United States, representing more
10 than 160 gigawatts of installed capacity. This proven technology offers a strong track
11 record of reliability, efficiency, and operational flexibility—key attributes for meeting
12 system needs and ensuring prudent investment.

13 **Q. Why is the F-class combustion turbine a popular choice for power generation?**

14 A. The F-class turbine is widely adopted because it combines efficiency, flexibility, and
15 proven reliability:

- 16 • High Efficiency: delivers thermal efficiency in the range of 35–40% in simple-cycle
17 configuration, supporting cost-effective generation.
- 18 • Fuel Flexibility: capable of operating on natural gas, hydrogen blends (up to 30%),
19 industrial byproduct gases, and liquid fuels, providing adaptability for future energy
20 transitions.
- 21 • Proven Reliability: features a modular design that simplifies maintenance,
22 supported by a robust global service network and a long track record of dependable
23 performance across hundreds of installations.

24 **Q. How did the Company select the F-class turbine?**

1 A. Following the Southwest Power Pool’s (“SPP”) approval of the Expedited Resource
2 Adequacy Study (“ERAS”), the Company identified an opportunity to add a new
3 natural gas resource by 2029, consistent with its 2025 IRP – Preferred Plan Update. To
4 ensure a prudent and cost-effective technology choice, the Company engaged 1898 &
5 Co. to conduct a comprehensive technology selection study in parallel with the site
6 selection process. This study evaluated multiple turbine technologies against criteria
7 such as efficiency, reliability, fuel flexibility, and lifecycle cost. The F-class turbine
8 emerged as the preferred option due to its proven performance, operational flexibility,
9 and alignment with the Company’s long-term resource strategy. For additional detail
10 on the ERAS process and its role in shaping this decision, Company witness Aaron J.
11 Doll provides an in-depth discussion in his testimony.

12 **Q. What was the scope of the technology selection study?**

13 A. The study, included as Confidential Direct Schedule SR-3, provided a screening-level
14 assessment of peaking generation technologies to address a capacity need of
15 approximately 250 MW. The evaluation considered key factors such as technical
16 features, capital and operating costs, performance characteristics, and emissions
17 profiles. In addition, one larger generation option was analyzed because Liberty was
18 eligible under the ERAS framework to apply for more than 400 MW of capacity.

19 **Q. What generation technologies were evaluated?**

20 A The technology selection study examined a range of options to meet the identified
21 capacity need, including:

- 22 • One F-class combustion turbine – a proven, large-scale solution offering high
23 efficiency and reliability.

- 1 • Five 50 MW aeroderivative combustion turbines – smaller, flexible units designed
- 2 for rapid start capability.
- 3 • Twelve 18 MW reciprocating internal combustion engines (RICE) – modular units
- 4 providing operational flexibility and fast ramping capability.
- 5 • One 420 MW J-class combustion turbine – a larger-scale option considered because
- 6 Liberty was eligible under ERAS to apply for more than 400 MW of capacity.

7 **Q. What were the study's findings?**

8 A. The study concluded that all technologies evaluated were technically feasible.

9 Aeroderivative turbines and RICE units demonstrated superior heat rates and faster

10 startup and ramping capabilities, with RICE offering the greatest shaft diversity.

11 However, RICE also carried higher maintenance costs. Frame units—both F-class and

12 J-class—provided the lowest installed capacity cost per kilowatt, with the J-class option

13 approximately \$200/kW less expensive than the F-class. Despite this, the Company

14 selected the F-class turbine because it offers a strong balance of affordability, proven

15 reliability, and operational flexibility, aligning with customer and stakeholder priorities

16 for cost-effective and dependable generation.

17 **IV. CONCLUSION**

18 **Q. In conclusion, how does your testimony support the Company's request for a**

19 **Certificate of Convenience and Necessity?**

20 A. My testimony demonstrates that the Company's decisions regarding site selection and

21 technology choice for the proposed natural gas-fired generating unit were made through

22 a transparent, objective, and criteria-based process consistent with Missouri's CCN

23 requirements. The State Line site was selected after a comprehensive evaluation of

24 multiple alternatives, considering infrastructure readiness, environmental impacts, cost

1 efficiency, and regulatory feasibility. Additional permitting analysis confirmed the
2 absence of fatal flaws, reinforcing the prudence of this choice.

3 Similarly, the F-class combustion turbine was chosen following a structured
4 technology assessment that weighed efficiency, reliability, fuel flexibility, and lifecycle
5 cost. This proven technology offers a strong balance of affordability and operational
6 performance, aligning with customer and stakeholder priorities.

7 Together, these decisions satisfy CCN criteria by demonstrating that the
8 proposed facility is necessary and convenient for public service, represents a reasonable
9 and cost-effective solution, and serves the public interest through reliable and efficient
10 generation.

11 **Q. Does this conclude your direct testimony at this time?**

12 **A. Yes.**

VERIFICATION

I, Shaen T. Rooney, under penalty of perjury, on this 24th day of October, 2025, declare that the foregoing is true and correct to the best of my knowledge and belief.

/s/ Shaen T. Rooney