



Liberty Utilities (The Empire District Electric Company)

Case No. EA-2023-0131

Missouri Public Service Commission Data Request - 0012

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Data Request Received: 2023-03-03

Response Date: 2023-03-20

Request No. 0012

Witness/Respondent: Shaen Rooney

Submitted by: Shawn Lange, Shawn.Lange@psc.mo.gov

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**REQUEST:**

Please explain the current plans for the RICE generator(s) operations in cold weather. Does the Company expect to tune the RICE generator(s) for cold weather?

**RESPONSE:**

The generators proposed to be installed are driven by combustion turbines, not reciprocating internal combustion engines (RICE). The main consideration for enabling cold weather operations for these units currently is selection of the site design criteria. For the combustion turbines themselves, Liberty is evaluating the cost to lower the minimum design temperature from -5 degrees F to -13.6 degrees F. Liberty is also evaluating changing the specific liquid fuel used in event of natural gas scarcity to a liquid fuel with a lower propensity to gel at low temperatures. Liberty does expect the construction permit for these units to explicitly allow tuning activities as necessary, and Liberty will perform tuning as needed to operate effectively according to seasonal ambient temperature variations.



Liberty Utilities (The Empire District Electric Company)

Case No. EA-2023-0131

Missouri Public Service Commission Data Request - 0016

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Data Request Received: 2023-03-03

Response Date: 2023-03-20

Request No. 0016

Witness/Respondent: Shaen Rooney

Submitted by: Shawn Lange, Shawn.Lange@psc.mo.gov

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**REQUEST:**

Please explain what lessons learned from Winter Storm Uri will guide decisions about winter operations, additional equipment anticipated for winter operations, fuel supply for these proposed generating assets. Please explain how those lessons will guide decisions. For example, it is anticipated that the Company will purchase additional equipment for cold weather operations?

**RESPONSE:**

There are three broad categories of factors that can influence the cold weather performance of thermal generation units – equipment, fuel, and practices. Winter Storm Uri revealed areas to improve, and two of those areas (equipment and fuel) are within the scope 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 ASHRAE 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 (kerosene or Jet A, for example) that performs better in cold weather or installing heat trace and insulation on above grade fuel oil piping.



Liberty Utilities (The Empire District Electric Company)

Case No. EA-2023-0131

Office Public Counsel Data Request - 8533

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Data Request Received: 2023-12-04

Response Date: 2023-12-22

Request No. 8533

Witness/Respondent: Brian Berkstresser

Submitted by: John Robinett, John.Robinett@opc.mo.gov

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**REQUEST:**

Please provide a detailed list of lessons learned from Winter Storms Uri and Elliot with descriptions of how those lessons learned have been included in the design and selection of equipment for the Riverton CCN request.

**RESPONSE:**

**Specification Design Conditions:**

Liberty has specified that the generating equipment and the balance of plant equipment be designed to operate reliably at extreme low temperatures based on the American Society of Heating, Refrigerating, and Air-Conditioning Engineers Handbook Extreme Annual Design Conditions for the Joplin 24 N, MO weather station.

**Freeze Protection:**

The Riverton Power Plant experienced transmitter freezing due to the extreme cold temperatures during Uri. To reduce the likelihood of transmitter freezing, the new units will be installed in an insulated metal building that will be designed to the specification above.

**Fuel Oil:**

The Riverton Power Plant currently uses #2 diesel fuel as its liquid fuel. Unit 11 was unable to light on #2 diesel during Winter Storm Uri. The new units will operate on Jet A fuel. Jet A has a lower gel point, allowing it to continue to flow at lower temperatures than #2 diesel and improving starting reliability at low temperatures relative to #2 diesel.

**Kansas Department of Health and Environment (KDHE) Air Permit:**

At the time of Winter Storm Uri, the KDHE air permit for Riverton Units 10 & 11 did not allow combustion tuning while operating on fuel oil. Liberty has requested that the air permit for the new units allow for combustion tuning while operating on fuel oil to aid in cold weather reliability.