BEFORE THE PUBLIC SERVICE COMMISSION OF THE STATE OF MISSOURI

In the Matter of the 2024 Annual Update Filing of The Empire District Electric Company d/b/a Liberty Pursuant To Commission Rule 20 CSR 4240-22.080(3)	)))	Case No. EO-2024-0249

COMMENTS OF RENEW MISSOURI ADVOCATES

COMES NOW, Renew Missouri Advocates d/b/a Renew Missouri ("Renew Missouri") and offers the below comments in response to the 2024 Integrated Resource Plan ("IRP") Annual Update Report ("Update") and workshop ("Workshop") of The Empire District Electric Company d/b/a Liberty (herein referred to as "Liberty" or "the Company," respectively).

The below comments were prepared by Renew Missouri Staff, and reflect our organization's reactions to and opinions on the Company's most recent IRP Annual Update Report and Workshop.

All communications and inquiries regarding the below comments, and any other communications to Renew Missouri relevant to this case, should be directed to the following individuals:

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Renew Missouri appreciates the opportunity to share these comments, and welcomes further discussion.

WHEREFORE, Renew Missouri respectfully requests that the Commission accepts these comments, and orders any further relief the Commission deems proper.

Respectfully,

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Certificate of Service

I hereby certify that copies of the foregoing have been emailed to all counsel of record this 7th day of June 2024.

/s/ Nicole Mers

Comments of Renew Missouri

I. Introduction

While Renew Missouri sees optimism with portions of Liberty's Integrated Resource Plan ("IRP") Annual Update Report ("Update"), the tenor of our comments must be tempered by disappointment with the overall direction that Liberty proposes. Although this IRP Update continues a move toward increasing solar generation in the electricity market, this filing leaves significant gaps in addressing grid scale storage and renewable distributed energy resources ("DERs") to increase grid stability. This IRP update fails to specify how utilizing reciprocating internal combustion engine ("RICE") as DERs will provide ratepayers with cleaner and more affordable power as a part of a virtual power plant ("VPP") while relying on fossil fuels for updates and enhancements.

Liberty focuses on replacing retiring fossil fuel-powered plants with more fossil fuel-powered plants. Instead, the Company should commit to greater investment in energy efficiency, renewable DERs, grid-scale battery storage, and other demand-side resources and demand-side management programs to maximize what can be achieved prior to costly investments in new fossil fuel-burning generation plants.

However, despite certain weaknesses, Renew Missouri is heartened by the Company's commitment to utility-scale solar, community solar programs, and distributed solar. Renew Missouri continues to advocate for Liberty to proceed in making these investments. Importantly, the 2022 Federal Inflation Reduction Act ("IRA") has made investments in new renewable generation and battery storage more attractive than ever before, in part through the improved and expanded federal solar Investment Tax Credit ("ITC") and Production Tax Credit ("PTC"), but also through new programs that facilitate the transition to a clean energy economy. Liberty must

do everything it can to deliver these energy cost savings and other benefits to its customers as soon as possible, and before the provisions of the IRA expire.

Renew Missouri offers these comments to provide further detail for our positions, and to identify additional concerns the Company should address.

II. Planned Investments in New Natural Gas Generation and Reduction in Planned Solar Investment

As stated in our introduction, Renew Missouri is alarmed by the investments in new natural gas plants and extension of natural gas peaking resources included in Liberty's IRP Update. Instead of modeling replacement of retiring fossil fuel generators with renewable assets that qualify for IRA funding, Liberty includes investments in new natural gas generation. Investment in new gas plants is risky from economic, environmental, and societal perspectives. As with many new clean energy investments, project timing will be a critical factor in securing the best outcome for the Company's customers with IRA financing now available. The IRP Update includes natural gas fueled combustion turbine ("CT") and generators. The Company also continues to study capacity upgrades to existing State Line Combined Cycle ("CC") generator.[1]

Liberty projects an increase in the energy forecast in the IRP Update with an increased reserve margin of 15% to 18% in summer and to 25% in winter. Delaying coal retirement and adding new gas plants are the worst solutions for short-term demand growth. Gas plants take three to five years to permit and build and are not the most reliable generation sources during extreme weather.[2] Gas plant failures during recent extreme

[1] Liberty's 2024 Integrated Resource Plan Annual Update Report p. 20.
[2] Volts. "Rising Electricity Demand Requires New Gas Plants? Not So Fast." (April 24, 2024). Accessed at: https://www.volts.wtf/p/rising-electrcity-demand-requires

winter storms have led to rolling blackouts, causing significant health and safety concerns for those without power.[3] Gas plant operators report frozen equipment such as sensing valves and transmitters as the source of failure during winter storms. Reported electrical failure during extreme winter storms due to frigid temperatures have created feedback loop disruptions, wherein outages in the electric grid prevent gas delivery to natural gas plants via their pipelines which depend on electricity. Water freezing along wells, pipelines, and other equipment can also block gas flow. Both disruptions render the natural gas plants unable to operate to alleviate outage or shortage conditions. Furthermore, the CO_2 and methane emissions from gas plants contribute to the extreme weather correlated with system failures.[4] Natural gas plants also do not operate risk-free during hot weather. During summer, the lower density of hot air leaves less fuel per intake unit available to burn and results in less efficient gas-powered electricity generation. In addition, gas plants rely on water supply for cooling systems. When the water used to cool the plants warms due to weather, the plants lose efficiency. During a drought, the unavailability water for cooling causes gas plants to shut down.[5]

Additionally, Renew Missouri has concerns about future regulations that could strand natural gas plant investment, making it an unwise choice for both short- and long-term demand needs. New Environmental Protection Agency ("EPA") rules require carbon sequester and storage ("CCS") at new gas-powered plants. However, the rules only go into

[3] Union of Concerned Scientists. "New UCS Issue Brief Examines Reliability of Gas Power Plants, Calls for Reduced Reliance on Them." (Jan. 9, 2024). Accessed at: https://www.ucsusa.org/about/news/new-ucs-issue-brief-examines-reliability-gas-power-plants

[4] Union of Concerned Scientists. "How Gas Plants Fail and Lead to Power Outages in Extreme Winter Weather." (Dec. 14, 2023). Accessed at: https://blog.ucsusa.org/paul-arbaje/extreme-summer-weather-threatens-gas-power-plants/

[5] Union of Concerned Scientists. "Extreme Summer Weather Threatens Gas Power Plants. Here's How." (September 13, 2023). Accessed at: https://blog.ucsusa.org/paul-arbaje/extreme-summer-weather-threatens-gas-power-plants

effect when a unit reaches a capacity threshold of 25MW and a capacity factor threshold of 40%, which most peaker plants do not fall under.[6] The IRP Updated replaces the 30MW generator with two 13.3 MW CT generators following a determination the two CT generators have a lower long run projected cost, while still meeting Liberty's need for blackstart capability.[7] The CT units are not equipped with post-combustion pollution controls, which may lower up-front costs but also permit the generators to emit unregulated CO_2 as well as other greenhouse gases such as methane. Renew Missouri believes the Company should account for the cost to replace new gas generators to meet its stated 2050 net-zero carbon emission goal in its long-term projected cost calculation.[8]

Renew Missouri's concerns are economic in nature as well. Grid-scale storage costs are decreasing due to market interest and the greater availability of raw materials.[9] The U.S. Energy Information Administration predicts grid-scale energy storage will double by 2026, which could lower prices further.[10] If these technologies become widely adopted and deployed throughout the country for both baseload and peaking capacity, there is a strong possibility natural gas generation may not be able to compete and plants in service may become stranded assets. Natural gas is a volatile fuel when compared to the relatively predictable price declines for renewables and storage. The Company should not begin planning for CC upgrades and new CT generation until it has no other viable options; for which they are not at that point. Liberty should also consider the ever-increasing renewable

[6] See Section 111(b) of the Clean Air Act.
[7] Liberty's 2024 Integrated Resource Plan Annual Update Report p. 17.
[8] See Liberty's Letter of Transmittal and 2022 Integrated Resource Plan (Public and Confidential), Vol. 6 p. 38.
[9] See Wood Mackenzie Power & Renewables/American Clean Power Association. "U.S. Energy Storage Monitor: Q4 2023 Executive Summary." (lithium carbonate spot prices at their lowest in two years)
[10] U.S. Energy Information Administration. "Short-Term Energy Outlook." (January 9, 2024) Accessed at: https://www.eia.gov.outlooks/steo/report/elec_coal_renew.php

goals many corporations have committed to, which signal a desire for more renewables on the grid, not additional gas facilities.[11] For instance, Microsoft recently signed the largest ever corporate renewable purchase power agreement, for a total of 10.5 GWs of new clean energy to be delivered over the next five years, driven by its pledge to be 100% renewably powered by 2025.[12] If Liberty wishes to attract economic opportunities to locate in its territory, the availability of renewable facilities to power these locations is critical.

The Company decided in its 2022 IRP that two natural gas peaking resources, Energy Center Units 1 and 2 would not be retired until 2035 to maintain the generation portfolio.[13] However, Liberty had also modeled as part of that same 2022 IRP 105 MWs of utility scale 2:1 solar + storage in 2027.[14] Liberty planned to co-locate this facility on the Energy Center site but extending the retirement prevents accreditation for the new solar project due to the site's interconnection status.[15] Renew Missouri is heartened by Liberty's engagement of Charles Rivers Associates and the analysis provided supporting the economics of a standalone solar plus storage facility.[16] Renew Missouri encourages the Company to invest in more renewable generation and storage to meet demands to reduce greenhouse emissions, especially while IRA funding exists to heighten the economic value. Renewable projects qualify for IRA funding and that brings down costs for ratepayers, provide more

[11] See BloombergNEF, "Corporate Clean Power Buying Grew 12% to New Record in 2023, According to BloombergNEF", (February 13. 2024) Accessed at: https://about.bnef.com/blog/corporate-clean-power-buying-grew-12-to-new-record-in-2023-according-to-bloombergnef/
[12] See ESG Today, "Microsoft Signs Largest-Ever Corporate Renewable Energy Deal with Brookfield", (May 2, 2024) Accessed at: https://www.esgtoday.com/microsoft-signs-largest-ever-corporate-renewable-energy-purchase-deal-with-brookfield/
[13] Liberty's 2024 Integrated Resource Plan Annual Update Report at p. 18-19, 30-32.
[14] *Id.*
[15] Liberty's 2024 Integrated Resource Plan Annual Update Report p.18.
[16] *Id.* at p. 30-32.

reliability during extreme weather events than gas, and reduce overall greenhouse gas emissions, eliminating the concerns with natural gas plants discussed above.

III. Distributed Battery Storage, Virtual Power Plants, and Distributed Solar.

a. Distributed battery storage.

Liberty acknowledges the benefit of battery storage to maximize interconnection value and balance the output of the solar component in a paired system, which Renew Missouri fully supports.[17] Yet, despite the strong market and potential benefits for peak load management, Liberty's IRP update defers the plan to incorporate a new solar plus storage hybrid system. The Company should have considered alternative residential and commercial battery storage programs and we encourage the Company to go back to the drawing board to do so.

Residential customer battery storage programs are cropping up across the nation. For example, the Liberty Utilities in New Hampshire provides a Home Battery Storage Program.[18] Phase One of the program provides 200 batteries to 100 customers. Participating customers receive passed down savings for avoided transmission costs. Liberty should consider a similar program approach to incentivize the coupling of home storage systems with residential solar systems.

Closer to home, Evergy Missouri received Commission approval in 2022 to implement a residential battery storage pilot program to install fifty residential storage systems for 800 kWh of total storage capability.[19] Customers participating in the Home Battery Storage Pilot must pay a monthly fee of $10 and allow Evergy to monitor and control the system for the duration of the pilot, which ends in 2026.[20] Participants have the option to purchase the battery at its depreciated

[17] Liberty's 2024 Integrated Resource Plan Annual Update Report. P.58.
[18] Liberty's 2023 Executive Summary. See Section 5.2.3, , p.34.
[19] Volts. "Rising Electricity Demand Requires New Gas Plants? Not So Fast." (April 24, 2024). Accessed at: https://www.volts.wtf/p/rising-electricity-demand-requires
[20] Union of Concerned Scientists. "New UCS Issue Brief Examines Reliability of Gas Power Plants, Calls for Reduced Reliance on Them." (Jan. 9, 2024). Accessed at: https://www.ucsusa.org/about/news/new-ucs-issue-brief-examines-reliability-gas-power-plants

value once the pilot ends in order to maintain home use of the battery in exchange for allowing Evergy to continue monitoring usage data and controlling the system. Or the customer can elect to have the system removed. Evergy's program was supported and agreed to by Renew Missouri, the Office of Public Counsel, Chargepoint, Inc., and the Staff of the Missouri Public Service Commission, indicating that there is wider appeal for such programs.[21]

b. Virtual Power Plants.

As technology continues to advance, new opportunities will proliferate for electric providers to interact with customer-owned home battery storage systems and the battery systems associated with electric vehicles. Utilities across the United States are evaluating how to integrate these technologies into new or existing programs, which create new VPP opportunities. VPPs can support the Company's resource adequacy imperative by integrating solar-plus-battery storage programs that shift demand to better align with supply availability. For example, VPPs can increase transmission and distribution efficiency by smoothing out peaks when dispatchable batteries from across the system are strategically deployed to defer investments in specific parts of the Company's transmission system. Therefore, VPPs provide affordability benefits to ratepayers by allowing utilities to defer future transmission and distribution upgrades and avoid fuel costs. VPPs will ultimately create increased reliability and resiliency by integrating dispatchable battery storage programs with existing demand-side generating activities.

FERC Order 2222 ("Order") can help with the deployment of VPPs. This IRP Update references the Order as having a main goal to better enable DERs.[22] However, Liberty improperly

[21] *In the Matter of Evergy Metro, Inc. d/b/a Evergy Missouri Metro's Request for Authority to Implement A General Rate Increase for Electric Service*, File No ER-2022-0129 and I*n the Matter of Evergy Missouri West, Inc. d/b/a Evergy Missouri West's Request for Authority to Implement A General Rate Increase for Electric Service,* File No. ER-2022-0130, ***Stipulation and Agreement Programs and Electrical Vehicle Charging Tariffs*****,** approved December 8, 2022.
[22] Liberty's 2024 Integrated Resource Plan Annual Update Report p. 50.

applies a broad definition of DERs to VPPs. While the RICE generator evaluated in the IRP Update falls within the definition of a DER according to the Order and the Southwest Power Pool for which Liberty is a member, this conflicts with information about VPPs provided by FERC and the DOE specifically.[23] FERC and DOE define VPPs as aggregations of DERs, including various renewable energy generation and battery storage.[24] Liberty should not include fossil fuel-powered generation from RICE in deployment of VPPs. Towards the ultimate end of integrating VPPs into its system, Liberty should strictly consider only renewable generation and battery storage as DERs as the federal government suggests.

[23] (i) Federal Energy Regulatory Commission. "FERC Order No. 2222 Explainer: Facilitating Participation in Electricity Markets by Distributed Energy Resources." Accessed at: https://ferc.gov/ferc-order-no-2222-explainer-facilitating-participation-electricity-markets-distributed-energy (ii)See also Department of Energy. Virtual Power Plants. Accessed at: https://www.energy.gov/lpo/virtual-power-plants

[24] *Id.*