

THE EMPIRE DISTRICT ELECTRIC COMPANY ("LIBERTY")

2023 ANNUAL RENEWABLE ENERGY STANDARD COMPLIANCE PLAN

Prepared in Compliance with 20 CSR 4240-20.100

April 2023

****Indicates Highly Confidential****

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INTRODUCTION

Pursuant to the Missouri Public Service Commission's (Commission) renewable energy standards rule, 20 CSR 4240-20.100(8), The Empire District Electric Company (Liberty or Company), a Kansas corporation, is filing the Annual Renewable Energy Standard (RES) Compliance Plan. The rule became effective in September 2010, and pursuant to the rule the Company must file the RES Compliance Plan on or before April 15 for the current year and subsequent two calendar years.

Liberty began to develop its wind renewable energy portfolio on December 10, 2004, when it entered into a 20-year contract with Elk River Windfarm, LLC (owned by Avangrid Renewables) to purchase all of the energy generated at the 150-megawatt (MW) Elk River Windfarm located in Butler County, Kansas. On June 19, 2007, Liberty enhanced its renewable energy portfolio when it entered into a 20-year purchased power agreement with Cloud County Wind Farm, LLC. EDP Renewables North America LLC is an indirect parent company of Cloud County Wind Farm, LLC. Pursuant to the terms of the agreement, Liberty purchases all of the output from the 105- MW Phase 1 Meridian Way Wind Farm located in Cloud County, Kansas. In addition, the Ozark Beach Hydroelectric Project (Ozark Beach), owned by the Company has produced renewable hydropower for many years. Through purchased power agreements or owned generation, Liberty's wind and hydro renewable energy resources have provided adequate renewable energy to comply with the non-solar RES requirements in the past

The solar component of the RES requires compliance which can only be met with Solar Renewable Energy Credits (SRECs) or energy from solar generation resources. Liberty will meet the solar RES compliance obligation through customer-generated SRECs. Effective May 16, 2015, Liberty began offering rebates for Missouri customers for qualifying solar installations in accordance with the Missouri RES and Liberty's Solar Rebate Rider approved by the Commission. This requirement will continue to be in place for future compliance obligations.

At the end of 2020, construction of the North Fork Ridge Wind project was completed.

This 149MW facility is located in Missouri and started generating RECs in December of 2020. In addition to this new Wind Project, the 300MW Neosho Ridge Wind Project (located in Kansas), and the 149MW Kings Point Wind Project (located in Missouri) reached commercial operation in 2021. These additions fulfilled the Commission-approved Customer Savings Plan. Liberty also completed the addition of the 2.2MW Prosperity Solar Farm in 2021 however this facility will not be utilized for compliance.

The renewable energy available in Liberty's compliance-available portfolio includes generation by Elk River Windfarm, Kings Point Wind, Meridian Way Wind, Neosho Ridge Wind, North Fork Ridge Wind, Ozark Beach, and customer-generated solar which can be used for future compliance with the standard.

The following sections provide information required to indicate compliance with the rule:

SECTION (8) (B) 1 A: PLANNED RES COMPLIANCE

Non-solar Compliance

20 CSR 4240-20 provides the procedure by which utilities must meet statutory obligations for renewable energy. Missouri law required that by 2011, electric companies must either generate, purchase energy, or purchase renewable energy credits (RECs) equal to at least 2 percent of the electricity they sell to retail customers from renewable sources. That percentage increased to the current 15 percent in 2021. The regulation also requires the utilization of a commission designated third-party registry for REC accounting, as such the North American Renewable Registry (NARR) is utilized for tracking Liberty's retirements for Missouri compliance.

This year and in the subsequent two years, Liberty plans to comply with the non-solar portion of the RES through contracts with Neosho Ridge Wind, North Fork Ridge Wind, Kings Point Wind, Elk River Windfarm, Meridian Way Wind Farm and/or generation from its Ozark Beach Hydroelectric facility.

Liberty owns the Ozark Beach Hydroelectric Project which generates approximately

54,000 megawatt-hours (MWh) each year. Since this facility is located in Missouri, Liberty is allowed to claim the amount of MWhs generated plus an additional twenty-five hundredths (0.25) credits, as authorized by subsection (3)(G) of this rule. Consequently, Ozark Beach generation counts as one and twenty-five hundredths (1.25) RECs for purposes of compliance with this rule as allowed by 20 CSR 4240-20.100 (3) (G).

Under this same ruling, Kings Point Wind (annual output approximately 600,000 MWh) and North Fork Ridge Wind (annual output approximately 575,000 MWh) are eligible for the Missouri-sourced multiplier.

The table below represents Liberty’s expected Missouri retail sales and the non-solar percentage requirements of Missouri retail electric sales that must be achieved by the Company either through the purchase of RECs or the production of energy, and the total expected potential of qualifying RECs that could be used for compliance. Liberty expects to sell all or a portion of its remaining RECs after all current or future state and/or federal mandates have been met.

Table 1: Projected Non-Solar Compliance

Time Period	RES Requirement Percent	Mo Retail Sales (MWh)	Non Solar Resources ¹							Total Non-Solar Requirement	Total RES Requirement ³
			Elk River	Meridian Way	Ozark Beach	North Fork Ridge Wind	Kings Point Wind	Neosho Ridge Wind	Total Potential ²		
2022	15%	4,308,795	282,000	277,000	67,500	718,750	750,000	1,325,000	3,420,250	633,393	646,319
2023	15%	4,338,622	282,000	277,000	67,500	718,750	750,000	1,325,000	3,420,250	637,777	650,793
2024	15%	4,365,882	282,000	277,000	67,500	718,750	750,000	1,325,000	3,420,250	641,785	654,882

¹Expected average operation; Ozark Beach, North Fork Ridge Wind, Kings Point Wind includes 1.25 credit for Missouri sources.

²Total expected eligible RECs not including potential 3rd party sales or other RES requirements.

³Both Non solar and Solar will make up the total RES requirement

Solar Compliance

Liberty filed a tariff to establish solar rebate payment procedures and to revise its net metering tariffs to accommodate the payment of solar rebates which became effective on May 16, 2015. Under the terms of the tariff, Liberty received SRECs from its electric customers who

installed or are installing net metered solar facilities at their homes and/or businesses according to the solar rebate tariff and net metering requirements.

For 2023 compliance, Liberty expects to obtain SRECs transferred from qualified customer-generator's operational solar electric systems as a condition of receiving the solar rebate. SRECs produced from these solar electric systems will be transferred to Liberty for a period of 10 years. Generation from these customer-owned facilities would be eligible for application of the 1.25 factor as these facilities are located in Missouri. SRECs generated by these systems will be used for the dedicated solar compliance component but can also be used for general renewable energy compliance. In the future, (2023-2025) Liberty will use customer-generated SRECs or banked SRECs. Liberty will also evaluate and monitor the feasibility and economics of constructing and operating additional utility scale solar generation.

Table 2: Projected Solar Compliance

Time Period	RES Requirement Solar %	MO Retail Sales (MWh)	Solar RES Requirement	Customer Generated Solar¹
2023	0.3%	4,887,809	14,663	44,198
2024	0.3%	4,956,383	14,869	44,198
2025	0.3%	4,988,060	14,964	44,198

¹Future Projections based on 2022 Total MO PV online.

SECTION (8) (B) 1 B: LIST OF EXECUTED CONTRACTS

Liberty's executed renewable energy contracts includes the two 20-year agreements for the output from Elk River Windfarm and Meridian Way Cloud County Wind Farm. Liberty anticipates annual generation of approximately 282,000 MWhs for Elk River and approximately 277,000 MWhs for Meridian Way.

The effective date of the Elk River agreement was December 10, 2004 and the effective date of the Meridian Way agreement was on June 19, 2007. Unless otherwise terminated in accordance with contract stipulations each of those agreements will remain in full force for a

term ending at midnight local time on the 20th anniversary of each facility's respective completion date. ATTACHMENT 1 indicates the wind generation allocation for Missouri retail customers. Additional information on the wind energy purchases and sales can be found in the HIGHLY CONFIDENTIAL ATTACHMENT 2.

In 2022, Liberty executed payment for 697 additional solar customer generated rebates. The Company expects to annually execute payment for customer generated rebates during the 2023 - 2025 timeframe.

SECTION (8) (B) 1 C: PROJECTED TOTAL RETAIL SALES

The following table represents Liberty's projected Missouri retail sales for each year of the Annual Compliance Plan period. These MWhs are the sales numbers that each non-solar and solar requirement is multiplied by in order to calculate the Company's RES requirements.

Table 3: LIBERTY Projected Retail Sales and RES Requirements

Time Period	Projected Retail Electric Sales (MWh)	Non-solar Requirement (MWh)	Solar Requirement (MWh)
2023	4,887,809	733,171	14,663
2024	4,956,383	743,457	14,869
2025	4,988,060	743,259	14,964

Source: 2023-2028 Revenue Budget

SECTION (8) (B) 1 D: COMPARISON TO PREFERRED RESOURCE PLAN

Liberty will fully meet the RES compliance requirements for 2023, 2024, and 2025 with its current purchased power contracts, hydroelectric facility, customer-generated solar energy, and owned wind and solar generation. Therefore, there is no difference between the RES

Compliance Plan and the 2021 filing of the Integrated Resource Plan (IRP). Liberty continues to include a section in the IRP which discusses the impact potential or proposed changes to Renewable Energy Standards would have on Liberty. Regardless of the outcome of proposed changes, in the future, Liberty will continue to retain a sufficient amount of RECs and SRECs to meet any current or future RES.

SECTION (8) (B) 1 E: RES COMPLIANCE PLAN COST

Liberty currently meets the Missouri non-solar RES compliance requirements on a total percentage basis with hydro and wind resources for the plan period. Analysis of the IRP indicates the use of energy provided by Liberty-owned hydro generation, and long-term wind purchased power agreements is currently the least cost, most prudent methodology to achieve compliance with the RES.

To comply with the solar-specific compliance, the purchase of SRECs through an industry broker is currently the least expensive alternative. However, Liberty expects to utilize SRECs transferred from qualified customer-generator's systems for the compliance obligation.

SECTION (8) (B) 1 F: RES RETAIL RATE IMPACT

The retail rate impact was calculated by comparing non-renewable generation portfolio to a RES-compliant portfolio with sufficient renewable resources to achieve the renewable standards. Liberty has performed this rate impact calculation in accordance with Section (5) Retail Rate Impact. The calculations were completed consistent with Liberty's understanding of Staff's interpretation of the RES rules. For each year of the 2023-2025 RES Compliance Plan period, the annual retail rate impact for compliance is limited to a maximum of 1% of the 10-year average non-RES compliant revenue requirement.

Costs associated with Liberty's current or anticipated RES compliance are associated with (1) the registration of assets and RECs in the NARR, (2) costs associated with retirement of RECs, (3) the value of RECs from purchased power agreements that are used for compliance, (4) costs associated with solar rebates, and (5) costs associated with the retail rate impact modeling and calculations. Costs incurred for 2022 compliance totaled \$34,539 for the

registration, retirement, and associated costs of REC and SREC management and reporting. The purchase price of the amount of wind energy necessary for 2022 compliance totaled **[REDACTED]**. This amount reflects assets that are currently included in Liberty's portfolio through purchased power agreements and does not reflect an additional cost as they were contracted prior to the commencement of the RES. These resources will be used in the future for compliance, as needed. The Company's base rates reflect a representative level of renewable registry costs. The addition of wind resources will not be required for the period of 2023 to 2025 as current wind resources are adequate to meet compliance obligations. However, as we move towards a lower carbon future, additional renewable energy resources will be added to the Company's portfolio.

Solar costs incurred for 2022 solar rebates paid totaled \$2,158,333.70. Liberty successfully received treatment to recover the solar costs in Missouri base rates.

The total compliance cost for 2022 was \$2,158,333.70. The purchase price of the existing wind energy which was not added for compliance totaled **[REDACTED]**. Liberty will use the generation from our Ozark Beach hydro facility, energy from the windfarm purchased power agreements, owned renewable energy resources, and solar energy from customer-generated facilities but Liberty does not expect to exceed the rate cap. CONFIDENTIAL ATTACHMENT 3 further explains the retail rate impact calculations. The calculations in CONFIDENTIAL ATTACHMENT 3 are based on total company not Missouri jurisdictional.

It is important to note the rate cap calculation is *purely* a mathematical exercise and is not associated with current rates, current generation assets or even current finalized environmental rules.

SECTION (8) (B) 1 G: COMPLIANCE WITH AIR, WATER, OR LAND USE REQUIREMENTS

Pursuant to Section 393.1030.4 RSMo, any renewable energy facility located in the state of Missouri shall not cause undue adverse air, water, or land use impacts.

All generating facilities utilized by Liberty to meet the requirements of the Missouri RES have, to Liberty's knowledge, received all necessary environmental and operational permits and are in compliance with any necessary federal, state and/or local requirements related to air, water and land use. All generating facilities have received Certification as a Renewable Energy Generation Facility by the Missouri Department of Natural Resources, Division of Energy.