

THE EMPIRE DISTRICT ELECTRIC COMPANY

2017

ANNUAL RENEWABLE ENERGY STANDARD COMPLIANCE REPORT

Prepared in Compliance with 4 CSR 240-20.100

April 2018



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2017 ANNUAL RENEWABLE ENERGY STANDARD COMPLIANCE REPORT

INTRODUCTION

Pursuant to the Missouri Public Service Commission's (Commission) renewable energy standards rule, 4 CSR 240-20.100(8), The Empire District Electric Company (EDE or Empire), a Kansas corporation, is filing the Annual Renewable Energy Standard (RES) Compliance Report. The rule became effective in September 2010, and pursuant to the rule EDE must file the 2017 RES Compliance Report on or before April 15, 2018.

EDE 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, LLC) to purchase all of the energy generated at the 150-megawatt Elk River Windfarm located in Butler County, Kansas.

On June 19, 2007, EDE 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, EDE purchases all of the output from the 105-megawatt Phase 1 Meridian Way Wind Farm located in Cloud County, Kansas.

In addition, the Ozark Beach Hydroelectric Project, owned by EDE has produced renewable hydropower for many years. The RES rules allow for the banking of Renewable Energy Credits (REC) for up to a three year time period. This has allowed the use of eligible Ozark Beach RECs generated in 2016 and 2017 in meeting the 2017 RES requirements.

Effective May 16, 2015, Empire began offering rebates for Missouri customers for qualifying solar installations in accordance with the Missouri RES and Empire's Solar Rebate Rider approved by the Commission, which continued in 2017.

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

SECTION (8) (A) 1 A, B: TOTAL MISSOURI RETAIL ELECTRIC SALES AND REVENUE

The following table represents the number of megawatt-hours (MWh) of electricity delivered in 2017 by EDE to its Missouri retail customers, as reflected in the monthly billing statements. In addition, a column is provided capturing the revenue from total retail electric sales to Missouri customers:

Table 1: Missouri 2017 Total Retail Sales

Year	MWh	Revenue
2017	3,976,153	\$466,785,495

Data Source: Customers Kilowatt Hours Revenue Report

SECTION (8) (A) 1 C: TOTAL RETAIL ELECTRIC SALES SUPPLIED BY RENEWABLE ENERGY RESOURCES

In compliance with Section 393.1030, RSMo, EDE retired sufficient RECs to provide the equivalent of 5% of its retail electric sales for 2017. With 3,976,153 MWh total retail electric sales for 2017, 39,957 RECs were retired from EDE's Ozark Beach Hydroelectric Project (Ozark Beach), a certified renewable energy facility. Ozark Beach consists of 4 generators with individual nameplate ratings of 4MW each. The facility received Missouri Department of Natural Resources Certification of Renewable Energy Generation Facility status on September 11, 2011. Using the provision included in 4 CSR 240-20.100 (3) (G), the additional credit allowance of 0.25 per REC was claimed since the renewable energy resource is physically located in the state of Missouri.

In addition, 139,080 RECs from 2017 were retired from our Elk River Windfarm, which were received through our ongoing purchased power agreement. Elk River also received

Missouri Department of Natural Resources Certification of Renewable Energy Generation Facility status in 2011.

Finally, 7,826 Solar Renewable Energy Credits (SRECs) from customer-generated sources were retired to meet the 2% solar compliance requirement. EDE received certification for the aggregate customer solar renewable energy generation facilities from the Department of Economic Development, Division of Energy in 2016 and 2017.

All RECs retired to meet the 5% compliance requirement are shown in the table below.

Table 2: REC Retirement for Compliance with 2017 Missouri RES

Missouri Retail Sales	RES Requirement	¹ Non-Solar RECs Retired	Solar RES Requirement	² Solar RECs Retired	Total RECs Retired
3,976,153	198,808		3,977		
		39,957 (Ozark Beach 1.25 Mo Source)		7,826 (EDE Solar Aggregates 1.25 Mo Source)	
		139,080 (Elk River)			
Total		189,026		9,782	198,808

¹Vintage 2016 and 2017 RECs from Ozark Beach (Missouri source) and Vintage 2017 RECs from Elk River were retired for compliance with the Missouri RES.

² 2016 Vintage SRECs were retired from EDE Solar Aggregates (Missouri source).

SECTION (8) (A) 1 D: CURRENT NUMBER AND VALUE OF RECS CREATED BY EDE OWNED FACILITY.

In 2017, EDE-owned Ozark Beach generated energy which allowed for the creation of 33,928 RECs. Using the provision of the Missouri RES allowing for additional credit of 0.25, the resultant RECs available for compliance totaled 42,410 RECs ($33,928 \times 1.25$). The RECs generated from the EDE-owned source are utilized first to meet compliance as additional costs are not incurred to the rate payer in order to acquire RECs. The RECs generated from Ozark Beach have little value as they typically cannot be used to meet Renewable Portfolio Standards (RPS) in other states. The value of the energy generated by Ozark Beach for calendar year 2017 was $\$xx.xx^C/\text{MWh}$ as determined by the locational marginal pricing through the Southwest Power Pool (SPP). The value of the customer generated solar energy was $\$79.98/\text{SREC}$. This value is determined using the rebate amount of $\$13,268,967$ paid in solar rebates divided by 16,590.67 (the amount of SRECs received). The rebate entitles EDE to receive SRECs from these systems for 10 years.

SECTION (8) (A) 1 E, F: SOURCE AND NUMBER OF RECS ACQUIRED, SOLD, TRANSFERRED, RETIRED

EDE receives renewable energy from four sources: ownership of Ozark Beach; two purchased power agreements (one with the Elk River Windfarm and the other with the Meridian Way Wind Farm); and customer-generated solar. (See ATTACHMENT 1)

Pursuant to the terms of the two 20-year windfarm agreements, EDE will purchase all of the output from the 150-megawatt Elk River Windfarm, and 105-megawatts from the Meridian

Way Wind Farm. EDE anticipates annual generation of approximately 550,000 MWhs from Elk River and approximately 330,000 MWhs from Meridian Way.

During 2017, 25,908 vintage 2016 and 2017 RECs from hydroelectric generation at Ozark Beach were retired to help fulfill the non-solar Missouri compliance obligation. In addition, 136,400 vintage 2017 RECs from generation at the Elk River Windfarm were retired for the non-solar RES obligation for 2017. In February of 2018, 14,049 additional 2017 RECs from hydroelectric generation at Ozark Beach, plus 2,680 RECs generated in 2017 at the Elk River Windfarm were retired.

To meet the compliance obligation, 7,826 SRECs generated from EDE customers in 2015 and 2016 were utilized. In total, 7,826 SRECs were retired in December of 2017 to fulfill the Missouri compliance obligation. Any remaining SRECs will be banked for future use. RECs from Ozark Beach and SRECs from customer installed net metered systems are entitled to the 1.25 multiplying factor as they represent Missouri based generation.

EDE utilizes the North American Renewable Registry (NARR) as recommended by Staff and approved by the Commission for tracking all RECs. In total, 179,037 RECs and 7,826 SRECs were retired to fulfill the 2017 compliance obligation. (See ATTACHMENT 2)

SECTION (8) (A) 1 G: IDENTIFICATION OF RECS CARRIED FORWARD

As indicated earlier, RECs and SRECs generated by Ozark Beach, Elk River Windfarm, and EDE Solar Aggregates 1 through 15 which were used for compliance are registered with the NARR. Registration of additional EDE Solar Aggregates 16 – 17 has been approved by the NARR. ATTACHMENT 3 included with this report indicates by source and serial number RECs registered with the NARR that have been carried forward for future use. For 2017 compliance, 2016 and 2017 Ozark Beach vintage RECs totaling 39,957 were retired for compliance using the 3-year banking provision. For the 2017 compliance year 139,080 Elk River RECs vintage

2017 RECs were retired for compliance. Carried forward are additional 2017 Elk River RECs totaling 151,150. The majority of the remaining RECs will be sold after all compliance obligations are met. A portion of the Elk River RECs were retired for compliance with the Kansas voluntary RES. Solar SRECS totaling 17,539 will be carried forward for use in future compliance.

In addition to the RECs registered with the NARR EDE receives additional RECs from the Meridian Way Wind Farm. Currently, the Meridian Way Wind Farm is in the process of being added to the registry, pending NARR review. The RECs from Meridian Way are not being used for Missouri compliance; therefore they are not included in this reporting section. EDE does not anticipate utilizing RECs from the Meridian Way Wind Farm for compliance throughout the entirety of the RES compliance period specified in Section 393.1030, RSMo.

SECTION (8) (A) 1 H: GAINS AND LOSSES FROM SALE OR PURCHASE

EDE utilized wind RECs from the Elk River Windfarm purchased power agreement in order to comply with the Missouri non-solar RES. SRECs from customer generation were utilized in order to comply with the solar portion of the Missouri RES.

ATTACHMENTS 4 and 5 include a REC report indicating sales of RECs, and the amount of wind generation allocated for Missouri retail customers by each wind farm. Any gains from sale or purchase were returned to the customers through the fuel adjustment.

SECTION (8) (A) 1 I: ACQUISITION OF RENEWABLE ENERGY

Non-Solar renewable energy is purchased for EDE from the following non-utility owned facilities:

Elk River

Wind (Resource)

Avangrid Renewables (Owner)

14980 SE 190th Rd.

Latham, KS 67072

Meridian Way I

Wind (Resource)

EDP Renewables North America LLC (Owner)

1409 Iron Road

Concordia, KS 66901

All energy was derived from eligible renewable energy technology (wind, hydro and solar). ATTACHMENT 6 includes information to certify that the renewable energy attributes of the energy from Elk River Windfarm and the Meridian Way Wind Farm, have not been used to meet the requirements of any other local or state mandate.

SECTION (8) (A) 1 J: ACQUISITION OF ELECTRICAL ENERGY AND/OR RECS FROM CUSTOMER GENERATORS

ATTACHMENT 7 shows the system operational dates and estimated amounts of SRECs generated from customer generators using the Commission–approved estimation method, PVWatts. The SRECS were acquired by EDE as a condition of receiving the solar rebate instituted in May of 2015 and extending through 2017.

SECTION (8) (A) 1 K: CUSTOMERS RECEIVING SOLAR REBATE

For the calendar year 2017, the annual number of customers that applied and received a solar rebate by December 31, 2017 in accordance with section (4) of the Rule was 336. A total of 1,236 Missouri solar net metering customers have been connected to the Empire system as of that date.

SECTION (8) (A) 1 L: CUSTOMERS DENIED SOLAR REBATE

There were no customers that were denied a solar rebate

SECTION (8) (A) 1 M: FUNDS EXPENDED BY EDE FOR SOLAR REBATES

Annual funds expended by EDE for 2017 solar rebates totaled \$1,708,378. Since the beginning of the rebate program over \$13.2 million has been expended for solar rebates.

SECTION (8) (A) 1 N: ANNUAL COMPLIANCE WITH RES COMPLIANCE PLAN

See Affidavit of Compliance with 2017 Compliance Plan, ATTACHMENT 8.

SECTION (8) (A) 1 O: NON-COMPLIANCE WITH RES COMPLIANCE PLAN

EDE has made every effort to comply and believes it has achieved compliance with the Missouri RES Compliance Plan for the 2017 compliance period.

SECTION (8) (A) 1 P: CALCULATION OF ACTUAL CALENDAR YEAR RETAIL RATE IMPACT

See ATTACHMENT 9. The calculations in ATTACHMENT 9 are based on total company not Missouri jurisdictional.