

**Renewable, Recycled, and Conserved Energy  
Objective Compliance Report  
to the  
South Dakota Public Utilities Commission**



**Report RP14-04  
Resource Planning Department  
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## **PREFACE**

This document is the report of Otter Tail Power Company, to the South Dakota Public Utilities Commission on the Company's efforts and status on compliance with the South Dakota Renewable, Recycled, and Conserved Energy Objective contained in Statutes §49-34A-94 through §49-34A-96 and §49-34A-101 through §49-34A-106. This report is required annually commencing on July 1, 2009 and continuing through July 1, 2017.

Questions and comments regarding the information and data contained herein should be addressed to Carol Westergard at 218-739-8883 or [cwestergard@otpc.com](mailto:cwestergard@otpc.com).

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## **INTRODUCTION**

Pursuant to South Dakota Codified Laws §49-34A-105, Otter Tail Power Company (Otter Tail or Company), makes this information filing electronically to the South Dakota Public Utilities Commission. This filing is the Company's sixth annual report on efforts to meet the state renewable, recycled, and conserved energy objective that 10 percent of all electricity sold at retail be obtained from renewable, recycled, and conserved energy sources by 2015.<sup>1</sup>

As the following pages of this report demonstrate, Otter Tail is well on the way to implementing renewable resources as part of its diverse resource portfolio and expects to be in full compliance of any and all renewable energy objectives and standards within all three state jurisdictions in which Otter Tail serves.

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<sup>1</sup> South Dakota Codified Law §49-34A-101.

## JURISDICTIONAL REQUIREMENTS

Otter Tail serves retail load in Minnesota, North Dakota, and South Dakota. All three state jurisdictions have some sort of renewable energy objective (REO) or renewable energy standard (RES). Discussion of compliance efforts with any single jurisdiction also requires a discussion of the other two jurisdictions so that a complete understanding of the Company's compliance efforts can be obtained. The following sections describe the requirements in each of the state jurisdictions.

### Minnesota

Otter Tail is required to make a good faith effort to comply with the state REO through 2011.

Beginning with 2012 the requirement switches to an RES. The state requirements<sup>2</sup> increase in a step-wise fashion, consisting of:

- 2005 – 1% of retail sales
- 2010 – 7% of retail sales
- 2012 – 12% of retail sales
- 2016 – 17% of retail sales
- 2020 – 20% of retail sales
- 2025 – 25% of retail sales.

Eligible energy technologies for compliance include solar, wind, hydroelectric with a capacity of less than 100 MW, hydrogen,<sup>3</sup> or biomass. Biomass includes landfill gas, anaerobic digestion, and mixed municipal solid waste or refuse-derived-fuel from mixed municipal solid waste as a primary fuel. Electricity generated by the combustion of biomass through co-firing with other fuels counts up to the percentage amount of biomass fuel relative to total fuel, only if the generating facility was constructed in compliance with new source performance standards promulgated under the federal Clean Air Act or if the facility employs the maximum achievable or best available control technology for that type of facility.

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<sup>2</sup> These REO and RES requirements only apply to utilities without nuclear generating assets. Utilities with nuclear generating assets have a more aggressive standard as detailed in Minn. Stat. §216B.1691.

<sup>3</sup> Provided that after January 1, 2010 the hydrogen must be generated from the other eligible energy technologies listed.

In 2013, Minnesota passed legislation requiring an additional 1.5 percent of retail sales to be generated from solar energy (SES). The effective date for the SES is for the year 2020. Ten percent of the SES is to be generated from small solar installations of 20 kW or less.

#### North Dakota

The state REO is 10% of retail sales by the year 2015, and includes both renewable energy and recycled energy. The calculation contains a provision to reduce the amount of retail sales by any hydroelectric energy that cannot be counted toward the REO.<sup>4</sup> Renewable and recycled energy includes electricity generated from solar, wind, biomass,<sup>5</sup> geothermal, hydrogen,<sup>6</sup> hydroelectric (must be from a facility with an in-service date of no earlier than January 1, 2007 or from efficiency improvements to a facility existing as of August 1, 2007), and recycled energy systems producing electricity from currently unused waste heat resulting from combustion or other processes into electricity and which do not use an additional combustion process. Recycled energy does not include any system whose primary purpose is the generation of electricity.

#### South Dakota

The state REO is 10% of retail sales by the year 2015, and includes renewable, recycled, and conserved energy.<sup>7</sup> The calculation contains a provision to reduce the amount of retail sales by any hydroelectric energy from a facility with an in-service date prior to July 1, 2008.<sup>8</sup> Renewable and recycled energy include electricity generated from solar, wind, biomass,<sup>9</sup> geothermal, hydrogen,<sup>10</sup> hydroelectric (statutes imply it must be from a facility with an in-service date of no earlier than July 1, 2008), and recycled energy systems producing electricity from currently unused waste heat resulting from combustion or other processes into electricity and which do not use an additional combustion process. Recycled energy does not include any system whose primary purpose is the generation of electricity. In the case of conserved energy, the objective will be measured by methods established by rules promulgated by the commission pursuant to chapter 1-26.

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<sup>4</sup> North Dakota Century Code §49-02-30.

<sup>5</sup> Including agricultural crops and wastes and residues, wood and wood wastes and residues, animal wastes, and landfill gas.

<sup>6</sup> Provided that the hydrogen is generated from a source listed in this section of North Dakota Century Code §49-02-25.

<sup>7</sup> South Dakota Codified Laws §49-34A-101.

<sup>8</sup> South Dakota Codified Laws §49-34A-103.

<sup>9</sup> Includes agricultural crops and wastes and residues, wood and wood wastes and residues, animal and other degradable organic wastes, and landfill gas.

<sup>10</sup> Provided that the hydrogen is generated from a source listed in this section of South Dakota Codified Laws §49-34A-94.

## MIDWEST RENEWABLE ENERGY TRACKING SYSTEM

Otter Tail has registered almost all renewable energy resources within the Midwest Renewable Energy Tracking System (M-RETS). There is a number of small customer owned units, generally less than 50 kW each, which the Company has not registered. The customers self-serve a portion of their own load with Otter Tail receiving the remaining surplus energy. For 2013, the amount of energy from unregistered renewable energy resources was about 4,169 MWh.

Otter Tail has developed an account structure within M-RETS to help segregate Renewable Energy Certificates (RECs) by type and usage. The Otter Tail M-RETS accounts include a retirement account by state jurisdiction by year. Thus it is easy to verify the amount of RECs retired annually for compliance with each state's requirements. RECs associated with **TailWinds**, the Company's green pricing program, are retired into separate state jurisdiction accounts to ensure proper accounting for the green pricing tracker balance.

Retired RECs will be tracked on a calendar basis. While Otter Tail began recording energy from renewable energy resources within M-RETS in the last half of 2007, when the M-RETS system first became operational, the Company began full use of the M-RETS system for reporting verification beginning with the first full calendar year commencing January 1, 2008.

Through 2013, Otter Tail did not purchase any RECs. All energy used for compliance was energy generated by Otter Tail or energy purchased by Otter Tail under power purchase agreements that include renewable energy attributes.

During 2013, Otter Tail sold 36,397 South Dakota allocated RECs. These RECs had a 2012 and 2013 vintage, and were created by wind facilities located in the state of North Dakota and owned by Otter Tail or obtained by Otter Tail through wind energy purchased power agreements that include renewable energy attributes.

## **RENEWABLE AND RECYCLED ENERGY RESOURCES**

The breakdown of existing renewable energy resources for Otter Tail are shown in Appendix A. The data provided includes the name of the facility, kW rating, vintage, technology and energy source, whether owned or through a PPA, and state eligibility.



## SOUTH DAKOTA RENEWABLE AND RECYCLED ENERGY

The following data is for the January 1, 2013 – December 31, 2013 time period. The data assumes that energy from renewable energy resources is allocated across the Otter Tail system based on retail sales kWh. The exception to this allocation methodology is that *TailWinds* energy is based on the amount of wind energy sold under the green pricing program in South Dakota. Pursuant to South Dakota Codified Law §49-34A-103, the hydroelectric energy shown in the table below does not count toward compliance, but can be subtracted from retail sales before calculating the percentage of compliance.

<b>South Dakota Renewable and Recycled Energy MWh Generated During The Period January 1, 2013 – December 31, 2013</b>			
<b>Resource</b>	<b>Total kWh</b>	<b>SD Percentage<sup>11</sup></b>	<b>SD kWh</b>
FPLE ND Wind II	43,658,189	9.42%	4,111,896
Customer A	4,755,470	9.39%	446,485
FPLE Langdon	71,954,531	9.40%	6,760,627
OTP Langdon	136,019,930	9.39%	12,774,624
Ashtabula Wind	147,318,656	9.39%	13,832,784
Luverne Wind	169,216,586	9.40%	15,899,506
South Dakota <i>TailWinds</i>	157,900	100.0%	157,900
OTP Owned Hydro	18,619,242	9.39%	1,748,378
WAPA Hydro	29,870,428	9.41%	2,811,871 <sup>12</sup>
Ashtabula Wind III	60,762,975	9.11%	5,533,369
District 45 Dairy LLP	8,556,190	9.43%	806,573

<sup>11</sup> Energy is allocated to jurisdictions based on monthly jurisdictional retail sales.

<sup>12</sup> The WAPA hydroelectric energy is an allocation to five Native American tribes.

<b>South Dakota Renewable and Recycled Energy Compliance January 1, 2013 – December 31, 2013</b>	
South Dakota Retail Sales	418,427,263 kWh
Less Hydro Energy Adjustment	-4,560,249 kWh
Net SD Retail Sales for REO Compliance	413,867,014 kWh
South Dakota Renewable Energy	60,323,762 kWh
<sup>13</sup> SD REO Compliance Percentage Potential	14.58%

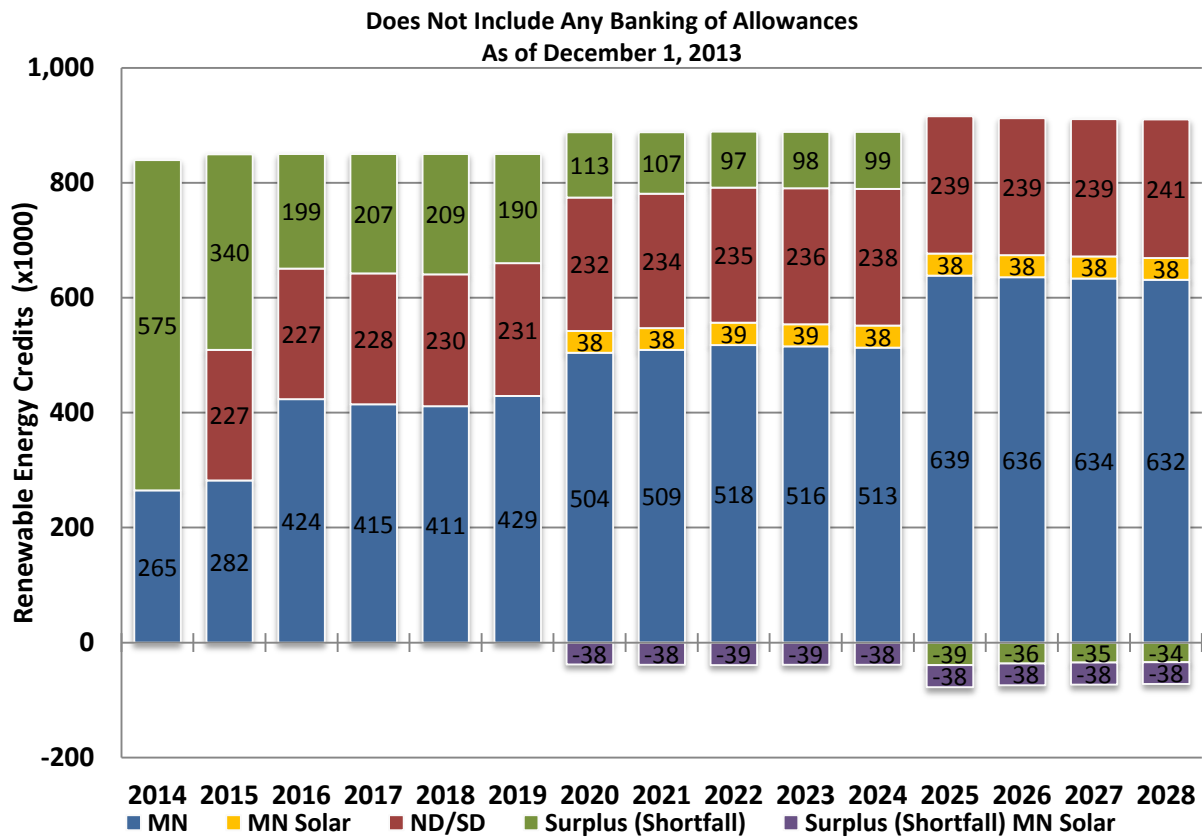
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<sup>13</sup> OTP may sell RECs to third parties. RECs sold to third parties would not be eligible for regulatory compliance.

## FORECAST OF FUTURE REO/RES COMPLIANCE

The following graph shows the Company’s expected available energy from renewable energy resources compared to the REO/RES requirements going out to 2028. The graph assumes that all RECs are counted for compliance in the year they are generated and are not banked for future compliance use. The graph does not include new customer-owned facilities that may be developed.

The North Dakota and South Dakota requirements are very similar and are lumped together in the graph. As demonstrated in the graph, Otter Tail expects to have sufficient energy from renewable energy resources available to comply with state REO/RES requirements until 2025.



## **BARRIERS TO REO/RES COMPLIANCE**

At this time, Otter Tail Power Company does not see any substantial obstacles to meeting the South Dakota Renewable, Recycled, and Conserved Energy Objective. The Company has been and continues to be well ahead of current objectives and standards.

## **SUMMARY**

Otter Tail's wind additions have been part of an economic least cost mix of resources and have not been added for the sole purpose of complying with renewable energy objectives or standards. Additional resources for REO/RES compliance will likely not be needed until sometime after 2024. However, additional renewable resources may be added earlier if they are economic. There are many uncertainties going forward with all forecasts, including load growth, conservation efforts, and customer-owned renewable resources but Otter Tail remains well ahead of renewable requirements and therefore is positioned to be in compliance for many years to come.

**APPENDIX A – RENEWABLE AND RECYCLED ENERGY RESOURCES**

<b>Existing Renewable Energy Resources</b>							
<b>Name</b>	<b>State</b>	<b>kW Rating</b>	<b>Vintage</b>	<b>Technology</b>	<b>Power Source</b>	<b>Owned/PPA</b>	<b>State Eligibility</b>
TailWinds	MN and SD	1,890	2001-2003	Wind	Wind	PPA	TailWinds <sup>14</sup>
FPLE ND Wind II	ND	21,000	2003	Wind	Wind	PPA	MN, ND, SD
FPLE Langdon	ND	19,500	2007	Wind	Wind	PPA	MN, ND, SD
OTP Langdon	ND	40,500	2008	Wind	Wind	Owned	MN, ND, SD
Ashtabula Wind	ND	48,000	2008	Wind	Wind	Owned	MN, ND, SD
Luverne Wind	ND	49,500	2009	Wind	Wind	Owned	MN, ND, SD
Ashtabula III	ND	62,400	2013	Wind	Wind	PPA	MN, ND, SD
Various Small Solar Producers	MN	21	2008	Photovoltaic	Sun	PPA	MN, ND, SD
Various Small Wind Producers	MN	3,843	1997	Wind	Wind	PPA	MN, ND, SD
Biogas Producer	MN	2,130	2010	Internal Combustion	Biogas	PPA	MN, ND, SD
Various Small Solar Producers	ND	8	2011	Photovoltaic	Sun	PPA	MN, ND, SD
Various Small Wind Producers	ND	1,104	1985	Wind	Wind	PPA	MN, ND, SD

<sup>14</sup> Wind energy purchased from EMS in SD and Hendricks and Borderline in MN. At this time TailWinds energy counts in ND and SD, but not MN. TailWinds is the Company’s green pricing tariff and the energy is counted only as customers purchase the energy, not as it is generated.

<b>Existing Renewable Energy Resources (Continued)</b>							
Various Small Solar Producers	SD	40	2010	Photovoltaic	Sun	PPA	MN, ND, SD
Various Small Wind Producers	SD	2.6	2009	Wind	Wind	PPA	MN, ND, SD
Bemidji Hydro	MN	200	1907	Hydro	Water	Owned	MN
Taplin Gorge	MN	500	1925	Hydro	Water	Owned	MN
Hoot Lake	MN	800	1914	Hydro	Water	Owned	MN
Pisgah	MN	700	1918	Hydro	Water	Owned	MN
Wright	MN	500	1922	Hydro	Water	Owned	MN
Dayton Hollow	MN	1,000	1909	Hydro	Water	Owned	MN
WAPA Hydro	Several	5,566	Various	Hydro	Water	PPA	None

## APPENDIX B – CALENDAR YEAR 2013 RREO REPORT

Calendar Year 2013 RREO Report	Value	Comments
<b>Retail Sales</b>		
Total - All States (MWh)	4,448,591	
SD (MWh)	418,427	
<b>Generation Capacity Owned</b>		
Total - All States (MW)	1,024.0	Based on Net Dependable Capacity of owned generation facilities and contracted capacity.
SD (MW)	285.5	Based on Net Dependable Capacity of owned generation facilities and contracted capacity.
<b>Renewable Generation Capacity Owned</b>		
Total - All States (MW)		
Wind	241.0	103 MW is purchased through long-term purchased power agreements and 138 MW is owned, all located in ND
Solar	-	
New Hydro	-	
Old Hydro	2.7	Owned and located in MN
Hydrogen	-	
Biomass	2.1	Purchase 2.1 MW from a biogas producer located in MN
Geothermal	-	
Recycled	-	
<b>Total - All States (MW)</b>	<b>245.8</b>	
SD (MW)		
Wind	-	
Solar	-	
New Hydro	-	
Old Hydro	-	
Hydrogen	-	
Biomass	-	
Geothermal	-	
Recycled	-	
<b>Total SD (MW)</b>	<b>-</b>	
<b>Renewable Energy Credits Retired for SD</b>		
Total - Generated In All States (MWh)		No Renewable Energy Credits were Retired for SD in 2013
Wind	-	
Solar	-	
New Hydro	-	
Old Hydro	-	
Hydrogen	-	
Biomass	-	
Geothermal	-	
Recycled	-	
<b>Total - All States (MWh)</b>	<b>-</b>	
Generated in SD (MWh)		
Wind	-	
Solar	-	
New Hydro	-	
Old Hydro	-	
Hydrogen	-	
Biomass	-	
Geothermal	-	
Recycled	-	
<b>Total SD (MWh)</b>	<b>-</b>	
<b>Renewable Energy Credits Retired for Other States</b>		
Total - Generated In All States (MWh)		
Wind	259,734	REC's retired for MN REO/RES. From the following units-location of units: FPL Energy ND Wind II LLC; Langdon Wind Farm, ND; Langdon Wind LLC, ND; Ashtabula Wind Center, ND; Luverne Wind Farm, ND.
Solar	-	
New Hydro	-	
Old Hydro	-	
Hydrogen	-	
Biomass	-	
Geothermal	-	
Recycled	-	
<b>Total - All States (MWh)</b>	<b>259,734</b>	
Generated in SD (MWh)		
Wind	-	
Solar	-	
New Hydro	-	
Old Hydro	-	
Hydrogen	-	
Biomass	-	
Geothermal	-	
Recycled	-	
<b>Total SD (MWh)</b>	<b>-</b>	
<b>Conserved Energy &amp; Capacity</b>		
<b>Conserved Energy (MWh)</b>		
Total - All States	37,404	
SD	1,612	
<b>Conserved Capacity (MW)</b>		
Total - All States	8.2	
SD	0.5	