Renewable and Recycled Energy Objective Compliance Report to the North Dakota Public Service Commission

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PREFACE

This document is the report of Otter Tail Power Company, to the North Dakota Public Service Commission on the Company's efforts and status on compliance with the North Dakota Renewable and Recycled Energy Objective contained in Statutes §49-02-24 through §49-02-26 and §49-02-28 through §49-02-34. This report is required annually commencing on June 30, 2009 and continuing through June 30, 2017.

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INTRODUCTION

Pursuant to North Dakota Century Code §49-02-34, Otter Tail Power Company (Otter Tail or Company), makes this information filing electronically to the North Dakota Public Service Commission. This filing is the Company's eighth annual report on efforts to meet the state renewable and recycled energy objective that 10% of all electricity sold at retail be obtained from renewable and recycled energy sources by 2016.[1]

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.

[1] North Dakota Century Code §49-02-28.

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[2] 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,[3] 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.

[2] 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.
[3] 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 2016, 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.[4] Renewable and recycled energy includes electricity generated from solar, wind, biomass,[5] geothermal, hydrogen,[6] 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 2016, and includes renewable, recycled, and conserved energy.[7] 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.[8] Renewable and recycled energy include electricity generated from solar, wind, biomass,[9] geothermal, hydrogen,[10] 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.

[4] North Dakota Century Code §49-02-30.
[5] Including agricultural crops and wastes and residues, wood and wood wastes and residues, animal wastes, and landfill gas.
[6] Provided that the hydrogen is generated from a source listed in this section of North Dakota Century Code §49-02-25.
[7] South Dakota Codified Laws §49-34A-101.
[8] South Dakota Codified Laws §49-34A-103.
[9] Includes agricultural crops and wastes and residues, wood and wood wastes and residues, animal and other degradable organic wastes, and landfill gas.
[10] 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 2016, the amount of energy from unregistered renewable energy resources was about 6,668 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 **Tail*Winds***, the Company's green pricing program, are retired into separate state jurisdiction accounts to ensure proper accounting for the green pricing tracker balance.

Through 2016, Otter Tail has not purchased 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.

RENEWABLE AND RECYCLED ENERGY RESOURCES

The breakdown of existing and potential future renewable energy resources for Otter Tail, to the extent known, at the time of this report 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.

NORTH DAKOTA RENEWABLE AND RECYCLED ENERGY

The following data is for the January 1, 2016 – December 31, 2016 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 Tail*Winds* energy is based on the amount of wind energy sold under the green pricing program in North Dakota. Pursuant to North Dakota Century Code §49-02-34, 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.

North Dakota Renewable and Recycled Energy MWh Generated During The Period January 1, 2016 – December 31, 2016			
Resource	**Total kWh**	**ND Percentage**[11]	**ND kWh**
FPLE ND Wind II	54,901,847	37.06%	20,346,713
Customer A	10,311,737	37.25%	3,840,929
FPLE Langdon	72,677,052	37.17%	27,017,382
OTP Langdon	149,688,916	37.14%	55,597,363
Ashtabula Wind	159,793,093	37.11%	59,304,616
Luverne Wind	182,326,500	37.14%	67,723,750
North Dakota Tail*Winds*	536,013	100.0%	409,460
OTP Owned Hydro	252,587,077	37.08%	9,487,445
WAPA Hydro	30,620,765	37.18%	11,386,194[12]
Ashtabula Wind III	224,056,350	37.15%	83,230,496
GSA, Pembina	392,583	37.50%	147,224
Customer X (MN)	6,722	36.51%	2,454

[11] Energy is allocated to jurisdictions based on monthly jurisdictional retail sales.
[12] The WAPA hydroelectric energy is an allocation to five Native American tribes.

North Dakota Renewable and Recycled Energy Compliance January 1, 2016 – December 31, 2016	
North Dakota Retail Sales	1,757,853,186 kWh
Less Hydro Energy Adjustment	-20,873,639
Net ND Retail Sales for REO Compliance	1,736,979,547
North Dakota Renewable Energy	317,620,387
[13]ND REO Compliance Percentage Potential	18.29%
ND REO RECs Retired for 2015 Compliance	173,698

[13] OTP may sell RECs to third parties. RECs sold to third parties would not be eligible for regulatory compliance.

BARRIERS TO REO/RES COMPLIANCE

At this time, Otter Tail Power Company does not see any substantial obstacles to meeting the North Dakota Renewable 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 renewable resources may be added to Otter Tail's resource mix 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

Existing Renewable Energy Resources							
Name	**State**	**kW Rating**	**Vintage**	**Technology**	**Power Source**	**Owned/PPA**	**State Eligibility**
Tail*Winds*	MN and SD	1,890	2001-2003	Wind	Wind	PPA	Tail*Winds*[14]
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	47	2008	Photovoltaic	Sun	PPA	MN, ND, SD
Various Small Wind Producers	MN	1,975	1997	Wind	Wind	PPA	MN, ND, SD
Various Small Solar Producers	ND	26	2011	Photovoltaic	Sun	PPA	MN, ND, SD
Various Small Wind Producers	ND	3,234	1985	Wind	Wind	PPA	MN, ND, SD

[14] Wind energy purchased from EMS in SD and Hendricks and Borderline in MN. At this time Tail*Winds* energy counts in ND and SD, but not MN. Tail*Winds* is the Company's green pricing tariff and the energy is counted only as customers purchase the energy, not as it is generated.

Existing Renewable Energy Resources (Continued)							
Various Small Solar Producers	SD	40	2010	Photovoltaic	Sun	PPA	MN, ND, SD
Various Small Wind Producers	SD	23	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