

PUBLIC SERVICE COMMISSION OF WISCONSIN

Memorandum

April 26, 2016

FOR COMMISSION AGENDA

TO: The Commission

FROM: Janet Wheeler, Administrator
Randel Pilo, Assistant Administrator
Andrew Kell, Program and Policy Analyst
Division of Regional Energy Markets

RE: Electric Provider Renewable Portfolio Standard Compliance 5-GF-260
for Calendar Year 2015

Suggested Minute: The Commission (accepted/did not accept) the reports of Wisconsin electric providers and aggregators as to their compliance with the Compliance Year 2015 requirements of Wis. Stat. § 196.378(2)(a)2. The Commission directed the Division of Regional Energy Markets to inform each electric provider of its compliance with the statute.

2015 Renewable Portfolio Summary Report

Executive Summary

Commission staff has reviewed the 2015 Renewable Portfolio Standard (RPS) reports filed by all the electric providers, and has confirmed that each electric provider is in compliance with its 2015 RPS requirements. Electric providers accomplished compliance by retiring required amounts of Renewable Energy Certificates (REC) within the Midwest Renewable Energy Tracking System (M-RETS). M-RETS verifies that each REC represents one megawatt-hour (MWh) of renewable energy, and once retired for the RPS, the REC cannot be used for any other program. Commission staff confirmed the amount of RECs that each electric provider needed, and verified those REC retirements in M-RETS.

The 2015 RPS goal of having 10 percent of Wisconsin retail sales of electricity come from renewable resources was also met. Since the goal was met in 2013 for the first time, 2015 was the third year in a row that the 10 percent goal was exceeded. Approximately 10.38 percent of 2015 total retail sales of electricity came from renewable resources due to the RPS. If generation for green pricing programs, for which some retail customers voluntarily pay a premium, is added to the total, 10.90 percent of retail sales came from renewable resources in 2015.

Background

2005 Wisconsin Act 141 (Act 141) established, among other things, the law for the state RPS in its current form.¹ Act 141 set a statewide goal of 10 percent of total Wisconsin retail sales of electricity from renewable resources by 2015. Act 141 also established requirements for all 118 electric distribution utilities, or “electric providers” as they are legally defined. Act 141 set baseline percentages for electric provider requirements, based on their average renewable energy percentages observed over the 2001-2003 period. For the initial compliance years (2006-2009), electric providers had to maintain their baseline percentages. During the 2010-2014 period, they had to increase their renewable percentages to 2 percent above baseline. In 2015 and thereafter, they are required to increase their renewable percentages to 6 percent above baseline. For more RPS legal and technical information, refer to Appendix A of this memorandum. ([DL: 1404483.](#))

RPS Compliance in 2015

By April 15, 2016, as required by statute, all electric providers responded to Commission staff’s data request and made filings in docket 5-GF-260. This information was used by

¹ 1999 Wisconsin Act 9 created the first version of the Wisconsin RPS, but this only reached a maximum of a 2.2 renewable energy percentage. 2005 Wisconsin Act 141 modified and built upon this previous legislation.

Commission staff to determine REC retirement requirements for compliance year 2015. Electric providers also were able to make REC retirements in M-RETS by April 15. Using regulatory access, Commission staff then verified electric provider REC retirement activity within M-RETS and confirmed that each electric provider retired at least the minimum amount of RECs required for 2015. RECs used for 2015 compliance had generation vintages dated 2011 through 2015 per Wis. Stat. § 196.378(3)(c) that allows banking up to four years after the credit is created.

Using this verification process, Commission staff determined that all electric providers are in compliance with the RPS. In aggregate, 6,507,686 RECs were retired for compliance year 2015. Additional information on individual electric provider requirements and REC retirements can be found in Appendix C of this memorandum.²

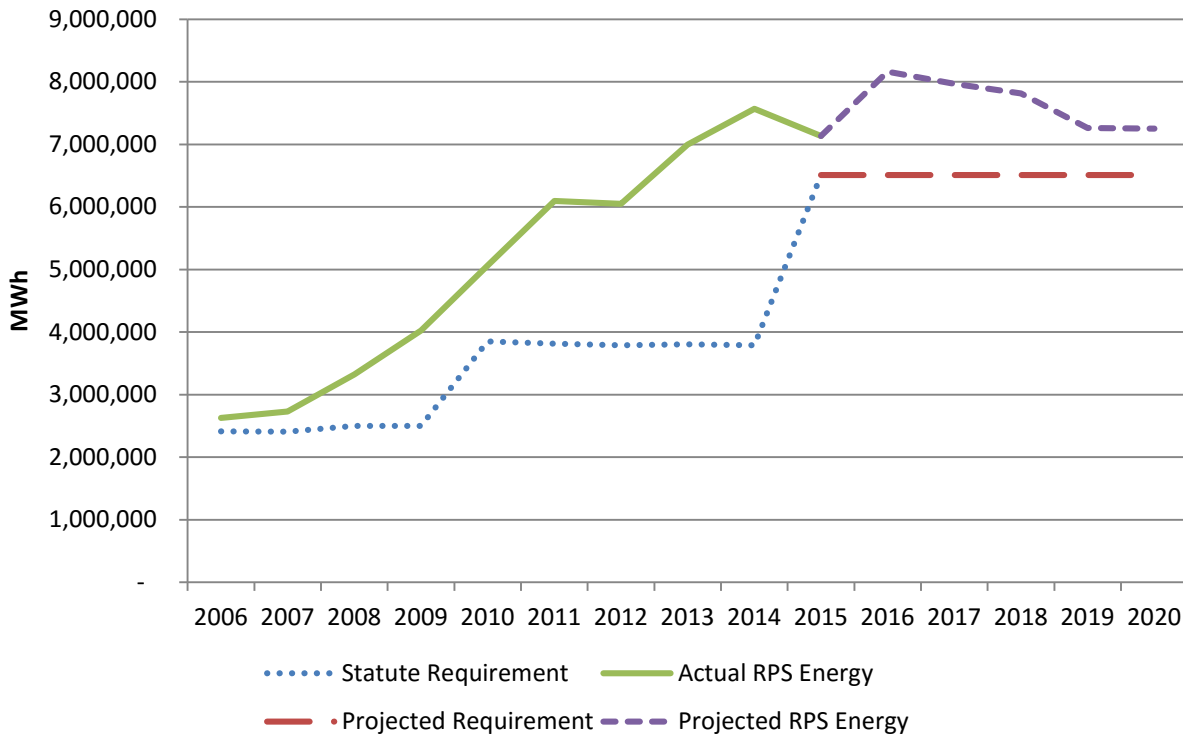
RPS Statewide Outlook through 2020

Wisconsin electric provider REC requirements can be aggregated in order to depict the quantity of RECs needed statewide, both for past years as well as projected requirements for the future.³ These requirements can then be compared to electric provider aggregate actual renewable generation and forecasts, which appear in Figure 1 below.

² Appendices B–F ([DL: 1404477.](#))

³ In order to project RPS requirements, a flat retail sales trend is assumed for Wisconsin’s electric providers through 2020. This is in line with post-recession actual retail sales levels observed over the last few years. The statewide RPS energy forecast represents an aggregation of electric provider forecasts.

Figure 1: Wisconsin Statewide REC Requirements and Actual RPS Energy



The gap between requirements and the higher amounts of RPS energy represents a rough estimate of banked RECs available to electric providers for compliance in future years. The cumulative bank statewide is currently about 18 million RECs, after 2015 compliance activities, per electric provider responses in aggregate. The amount of “RPS Energy” does not include energy intended for customer-driven green pricing programs, or applicable RPS requirements that some electric providers must also meet in other states. Based on these numbers, electric providers should be able to meet Wisconsin RPS requirements through 2020, and many are already well-positioned to exceed requirements for several years beyond 2020 as well.

Several electric providers experienced a slight dip in renewable energy from 2014 to 2015, which was primarily associated with a drop in wind energy production. This is confirmed in a figure in Appendix F-3, which shows that biomass and hydro production across electric providers from 2015 was about the same as it was for those resources in 2014. In that same

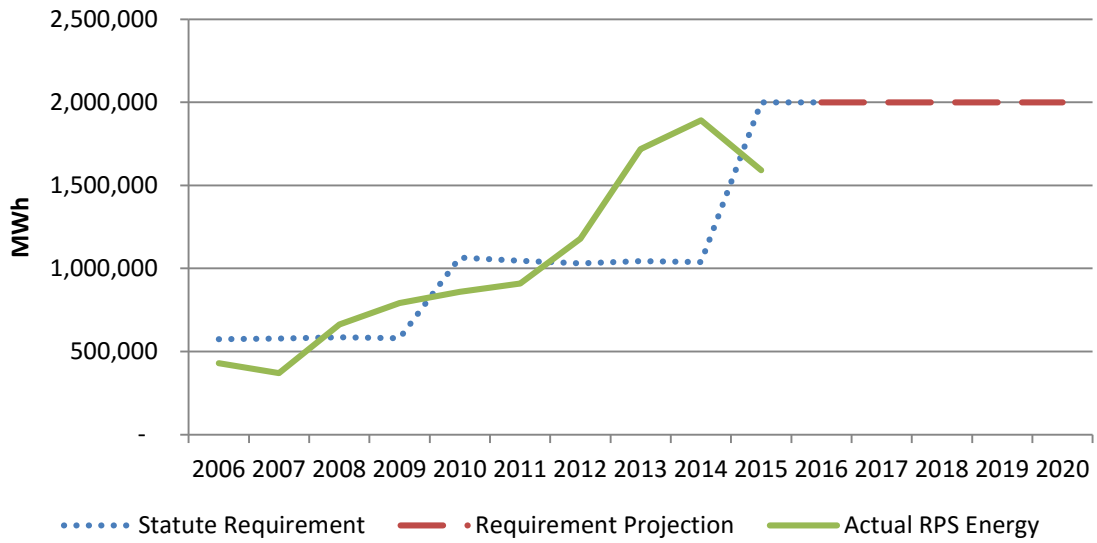
figure, wind energy production dropped from about 5 million megawatt-hours (MWh) in 2014, to about 4.6 million MWh in 2015. This likely occurred from a reduction in renewable energy procured via power purchase agreements. Individual wind facilities may have also experienced a dip in generation due to maintenance or locally observed wind regimes not being as strong in 2015.

According to the aggregation of individual electric provider forecasts, the amount of renewable energy generated for the Wisconsin RPS should rebound in 2016, and continue to increase the statewide renewable energy percentage. Commission staff is already working with electric provider staff to ensure forecasts of RPS energy are in line with electric provider procurement practices and are as accurate as possible.

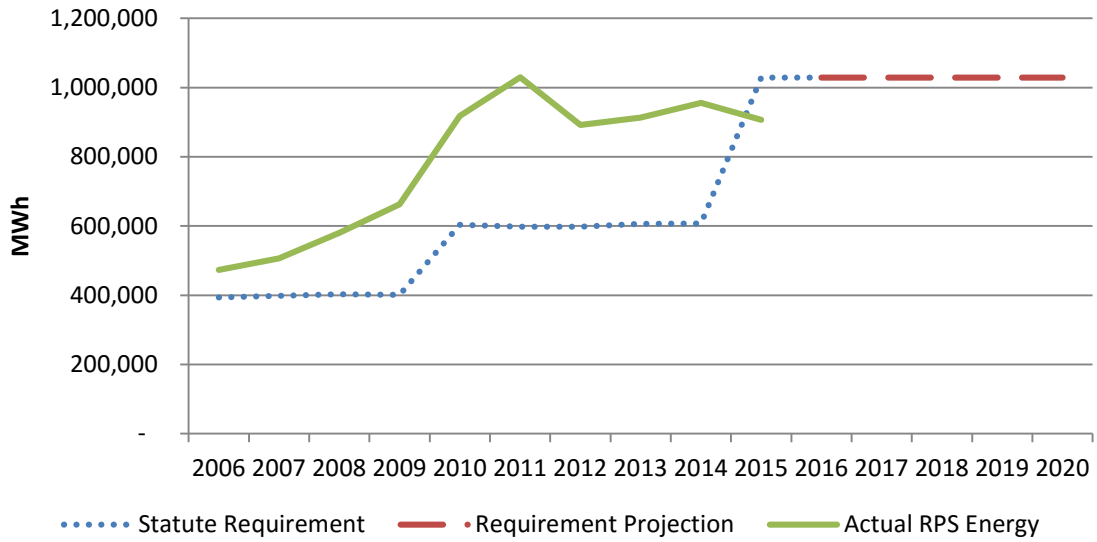
RPS Progress of Wisconsin's Largest Electric Providers and Aggregators

Below are figures that, like the statewide figure above, depict REC requirements and RPS energy reported by electric provider. The five largest electric providers are shown, along with the electric provider aggregators known as WPPI Energy and Dairyland Power Cooperative. Once again, all electric providers were in compliance with their 2015 RPS requirements. If their RPS energy levels for 2015 are below their requirements for 2015, this means they have used banked RECs from prior years, and/or purchased RECs from other electric providers that were in excess of their own requirements.

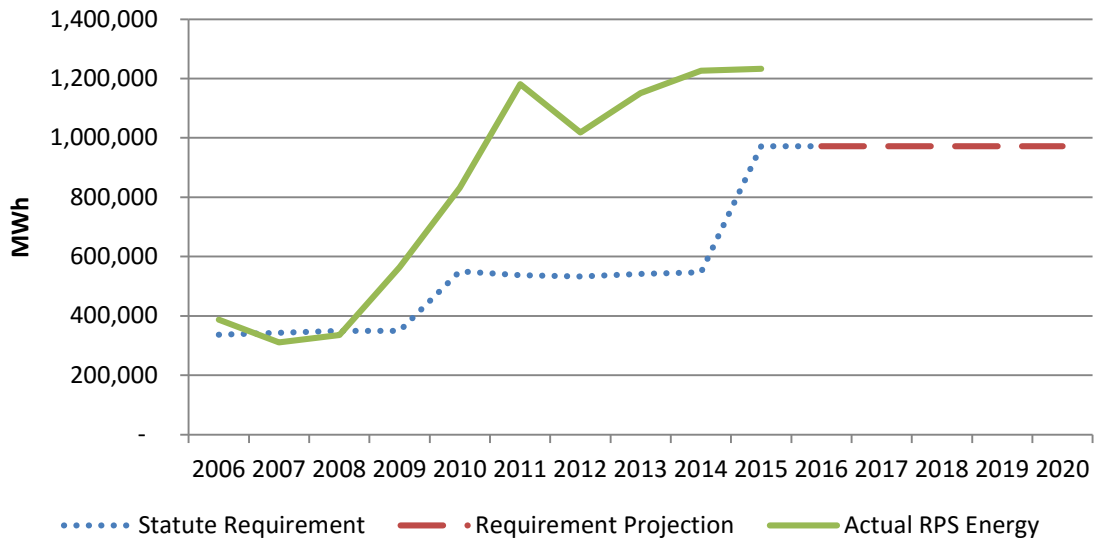
**Figure 2: Wisconsin Electric Power Company
REC Requirements and Actual RPS Energy**



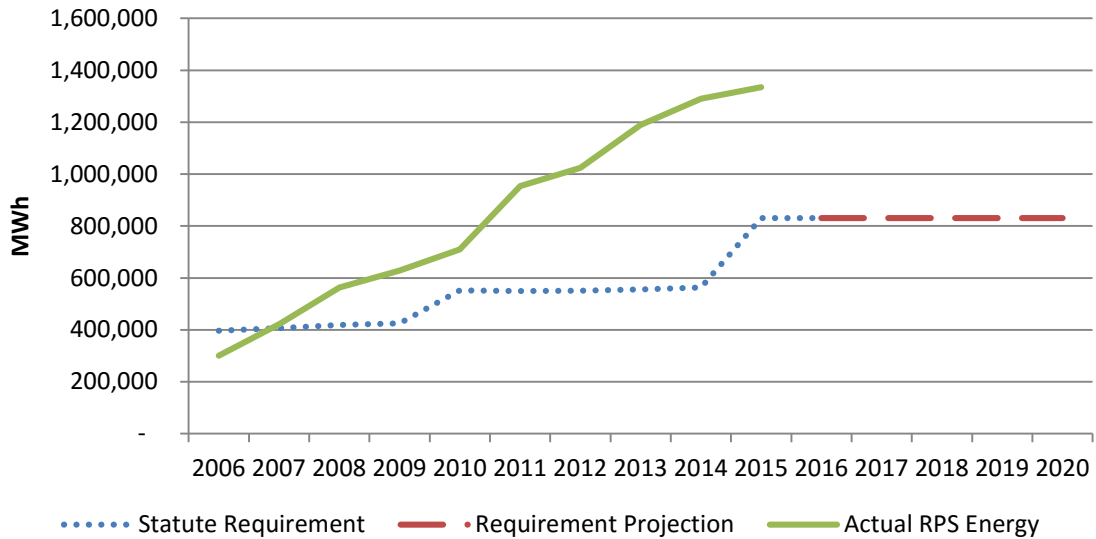
**Figure 3: Wisconsin Public Service Corporation
REC Requirements and Actual RPS Energy**



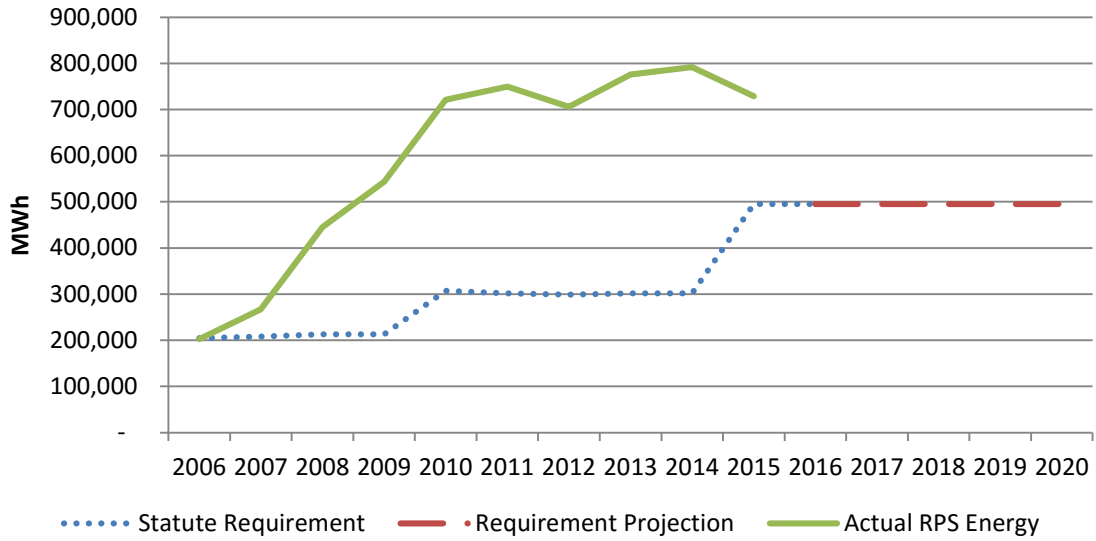
**Figure 4: Wisconsin Power and Light
REC Requirements and Actual RPS Energy**



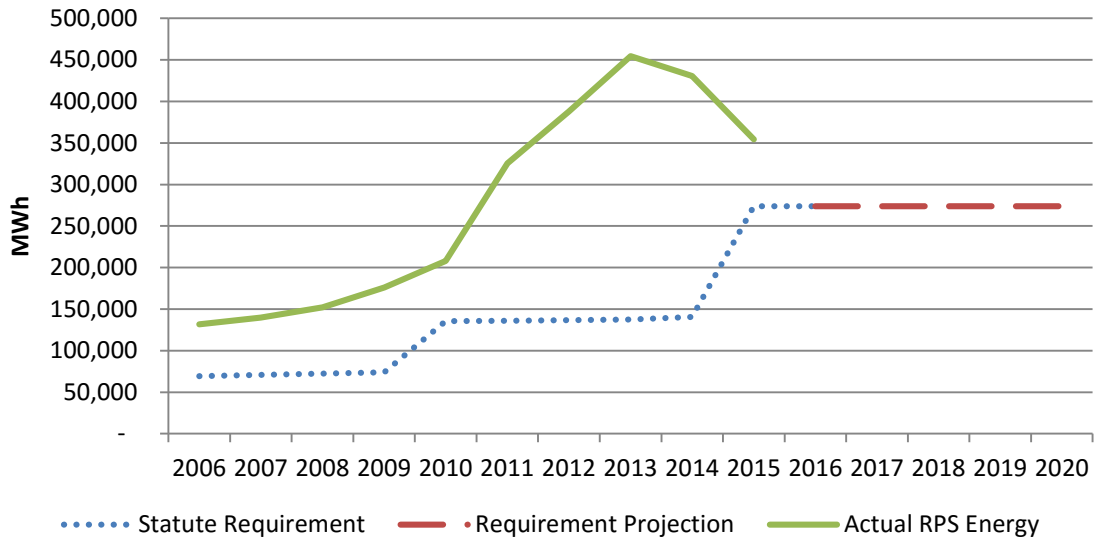
**Figure 5: Northern States Power Company – Wisconsin
REC Requirements and Actual RPS Energy**



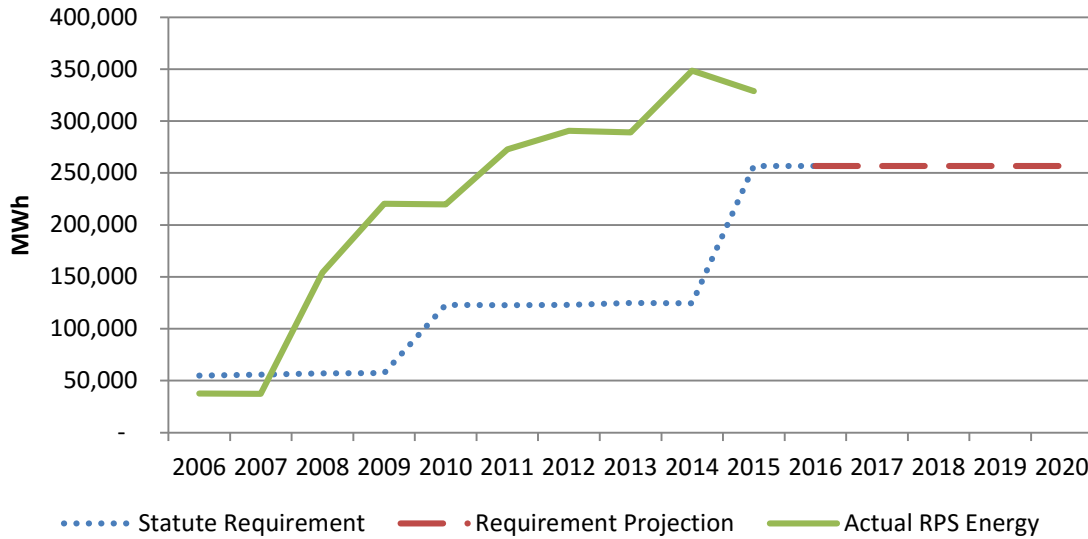
**Figure 6: WPPI Energy
REC Requirements and Actual RPS Energy**



**Figure 7: Dairyland Power Cooperative
REC Requirements and Actual RPS Energy**



**Figure 8: Madison Gas and Electric
REC Requirements and Actual RPS Energy**



Commission Alternatives

Alternative One: Accept the reports of Wisconsin electric providers and aggregators as to their compliance with the requirements of Wis. Stat. § 196.378(2)(a)2. The Division of Regional Energy Markets is directed to inform each electric provider of its compliance with the statute.

Alternative Two: Do not accept the reports of Wisconsin electric providers and aggregators as to their compliance with the requirements of Wis. Stat. § 196.378(2)(a)2. and provide further instruction to Commission staff or the providers and aggregators.

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Attachments

Appendix A: [DL: 1404483](#)

Appendices B–F: [DL: 1404477](#)

Appendix A: Wisconsin RPS Legal and Technical Information

Wisconsin Stat. § 196.378 establishes the Wisconsin Renewable Portfolio Standard (RPS) and applies to all 118 electric providers that serve retail customers in Wisconsin. These electric providers are local electric distribution companies, and include all investor-owned utilities, municipal utilities, and electric cooperatives that serve residential and business customers in the state.

The RPS Goal

The RPS has two components: (1) a statewide goal of 10 percent of total retail electric sales from renewable resources by 2015; and (2) individual electric provider requirements. The 10 percent statewide goal is not, in and of itself, a mandate. However, individual electric provider requirements drive the procurement of renewable resources to serve Wisconsin customers, either in the form of electric provider-owned generation, or purchase power agreements. This leads to renewable resource generation, the quantity of which can be measured and used to establish an annual statewide renewable energy percentage.

2013 was the first year that the 10 percent goal was achieved, two years ahead of schedule. The goal was also met in 2014 and 2015. Individual electric provider RPS requirements will continue indefinitely, and based on electric provider planning information, it is likely that the 10 percent goal will be met each year in the foreseeable future.

Electric Provider RPS Requirements

Wisconsin electric providers must provide a minimum percentage of the electricity they supply at retail from renewable resources, and annually report renewable energy generation and planning activities to the Commission. For each calendar year from 2006 through 2009, electric providers were required to meet a baseline percentage equal to the average of the electric provider's renewable energy percentage for the years 2001 through 2003. An electric

provider's requirements were determined during the 2006-2009 period by multiplying the electric provider's baseline percentage by the electric provider's total retail sales average. The sales average is taken from the previous three years, as established in the statute, so that electric providers know what their requirements will be in the upcoming year.

All Wisconsin electric providers met their baseline percentage requirements through 2009. Beginning in 2010, electric providers were required to achieve a renewable energy percentage at 2 percent above their respective baselines. All Wisconsin electric providers complied with their elevated RPS requirements through 2015.

In order to comply with the RPS in 2015 and thereafter, electric providers will need to meet and sustain a level that is 6 percent above their respective baselines. 2013 Wisconsin Act 290 exempts certain electric providers, with baseline renewable energy percentages that were above 12 percent, from meeting the 2015 elevated level of 6 percent above baseline. This will allow four electric providers (Centuria Municipal Electric Utility, Consolidated Water Power Company, North Central Power Company, Inc., and Northwestern Wisconsin Electric Cooperative) to sustain renewable percentage levels that are 2 percent above baseline in 2015 and thereafter.

Renewable Facility Certification

Electric providers achieve compliance with their RPS requirements by generating or purchasing electricity from renewable resources to serve the load of their retail customers. An electric provider must register a renewable facility that it uses to serve its retail customers with the Commission. If the facility meets criteria in Wis. Admin. Code §§ PSC 118.03(1) and 118.05, the Commission will certify that the facility as eligible for the RPS. For purposes of verification, and tracking generation from these certified facilities, electric providers are allowed to create one Renewable Energy Certificate (REC) for each megawatt-hour of renewable

energy. The RECs associated with the renewable energy generated from these certified facilities are then deemed eligible for the RPS.

According to Wis. Stat. § 196.378(3)(a)2., if a Wisconsin RPS-certified renewable facility was placed in service on or after January 1, 2004, or is owned by a retail customer of an electric provider regardless of age, the facility is also eligible to create RECs that qualify as Renewable Resource Credits (RRCs). Incremental additions to capacity of facilities with in-service dates before 2004 also create RECs that qualify as RRCs. A Wisconsin RRC carries with it the additional value of being bankable and tradable for a four-year period for purposes of the Wisconsin RPS. A renewable facility put in service after 2003, and used by a Wisconsin electric provider, would thus likely be eligible for the Wisconsin RPS and create RECs that qualify as RRCs. One REC may have multiple program eligibilities, as a facility may also seek certification with other state RPS compliance and/or voluntary programs. The Commission only has the authority to certify renewable facilities for the Wisconsin RPS and certify RECs as RRCs.

Tracking Renewable Energy and Demonstrating RPS Compliance

Electric providers are required to use the Midwest Renewable Energy Tracking System (M-RETS), an electronic renewable energy tracking database, to track their RPS renewable energy and to demonstrate RPS compliance. Besides Wisconsin, other states that participate in M-RETS include Illinois, Iowa, Minnesota, North Dakota, South Dakota, Montana, as well as the Canadian province of Manitoba. M-RETS uses a stakeholder approved set of Operating Procedures to gather, verify, and track generation data from renewable facilities and award RECs to the account holder of the facility within M-RETS. Each M-RETS REC carries with it one or more program eligibilities based on certifications it has received. However, a REC may only be used, or “retired,” once for one program, and then is no longer eligible for any other program.

Wisconsin electric providers demonstrate RPS compliance within M-RETS by retiring RECs that are eligible for the Wisconsin RPS. If a REC does not qualify as an RRC, it must be retired for the Wisconsin RPS in the compliance year associated with the calendar year generation vintage. For example, an older RPS-eligible hydroelectric facility that generates RECs in calendar year 2013 must have its RECs retired in compliance-year 2013, or its Wisconsin RPS eligibility will expire. Since April 15 is the statutory deadline for electric providers to make retirements for the previous year's RPS requirements, the compliance year for 2013 runs from April 16, 2013, through April 15, 2014. As a result, a REC from the older hydro facility discussed above with a generation vintage of January 2013 will have its Wisconsin RPS eligibility expire on April 16, 2014. If the facility has other program eligibilities, the REC may still be eligible for a different program, such as another state RPS.

If a facility creates RECs that qualify as RRCs, four additional years of Wisconsin RPS eligibility are allowed before the REC expires for purposes of the Wisconsin RPS. For example, a REC with a January 2013 vintage that qualifies as an RRC will not expire for the Wisconsin RPS until April 16, 2018 (through the 2017 compliance-year period). During this time, the electric provider may bank the RRC qualifying REC for future retirement, or trade it to another entity. All the eligibilities, expiration dates, and associated program rules and limitations will be tied to the REC within M-RETS regardless of who owns it. M-RETS also has agreements with other tracking systems, and RECs may be imported or exported if agreements are established between the two systems. Regardless, according to Wis. Stat. § 196.378(1)(o)1. and 2., only renewable energy used to serve Wisconsin load may be eligible for the Wisconsin RPS.

Appendix B: Electric Provider List			
in Order of 2015 RPS Renewable Energy as a Percent of 2015 RPS Requirements			
Electric Provider or Aggregator*	2015 RPS Renewable Energy as Percent of 2015 Total Retail Energy Sales	2015 RPS Percent Requirement	Percent of 2015 RPS Requirement Achieved in 2015
Northern States Power Co WI	20.51%	12.89%	159%
Princeton Mun Wtr & Elec Util	12.89%	8.21%	157%
Westfield Milling & Elec Co	13.68%	8.81%	155%
Northwestern WI Elec Co	22.09%	14.48%	153%
WPPI Energy*	15.07%	10.24%	147%
Pioneer Power & Light Co	12.64%	8.71%	145%
Oconto Electric Coop	15.31%	10.71%	143%
Wonewoc Electric & Water Util	12.21%	8.69%	141%
Mazomanie Electric Utility	11.76%	8.45%	139%
Pardeeville (Village of) Elec Util	11.72%	8.44%	139%
Central Wisconsin Elec Coop	12.22%	8.94%	137%
Benton Mun Elec & Water Util	12.09%	8.86%	136%
Belmont Mun Water & Elect Util	11.93%	8.76%	136%
Shullsburg Electric Utility	12.00%	8.82%	136%
Hazel Green Municipal Utility	12.03%	8.87%	136%
Wisconsin Dells Mun Elec Util	11.87%	8.89%	134%
Adams-Columbia Electric Coop	11.90%	8.92%	133%
Sauk City Mun Wtr & Light Util	11.68%	8.82%	132%
Sheboygan Falls Utilities	11.61%	8.77%	132%
Dairyland Power Cooperative*	10.96%	8.44%	130%
Cornell Mun Water & Elec Util	16.42%	12.65%	130%
Madison Gas & Electric Co	9.99%	7.73%	129%
Bangor Municipal Utility	16.23%	12.62%	129%
Black Earth Electric Utility	11.85%	9.23%	128%
Rock Energy Coop	11.20%	8.93%	125%
Wisconsin Power & Light	11.61%	9.28%	125%
Elkhorn Light & Water	11.66%	9.43%	124%
Trempealeau Mun Eic & Wtr Util	15.69%	12.78%	123%
Medford Electric Utility	15.07%	12.41%	121%
Gresham Mun Light & Pwr Util	10.03%	8.43%	119%
North Central Power Co Inc	40.86%	35.11%	116%
Shawano Municipal Utilities	8.23%	7.34%	112%
Clintonville Water & Electric Utility	8.23%	7.44%	111%
East Central Energy	6.98%	6.64%	105%
Stratford Mun Wtr & Elec Utility	9.59%	9.31%	103%
Washington Island Cooperative	9.52%	9.35%	102%
Consolidated Water Power Company	18.32%	18.47%	99%
Wisconsin Rapids WW & Light	8.23%	8.73%	94%
Manitowoc Public Utilities	8.51%	9.19%	93%
Marshfield Elec & Water Dept	8.21%	8.91%	92%
Kiel (City of) Utilities	8.23%	9.07%	91%
Wisconsin Public Service Corp	8.56%	9.74%	88%
Superior Wtr Light & Pwr Co	7.37%	8.53%	86%
Wisconsin Electric Power Co	6.72%	8.27%	81%
Dahlberg Light & Power Co	2.03%	7.37%	27%
Barron Light & Water Utility	0.00%	12.85%	0%
Bloomer Electric Utility	0.00%	12.47%	0%
Cadott Light & Water Mun Util	0.00%	12.72%	0%
Centuria Municipal Electric Util	0.00%	14.37%	0%
Rice Lake Mun Wtr & Elec Util	0.00%	12.53%	0%
Spooner Municipal Utilities	0.00%	12.55%	0%
WISCONSIN TOTAL	10.38%	N/A	N/A

Note: Largest electric providers described in the narrative of this memorandum are in bold. "WISCONSIN TOTAL" represents aggregated RPS renewable energy of all Wisconsin electric providers.

All electric providers are in compliance for 2015. If an electric provider has a percentage below its 2015 RPS requirement, it has used banked RECs and/or purchased RECs from another provider.

Appendix C: 2015 Total Retail Energy Sales & Renewable Energy by Wisconsin Electric Provider

COLUMN KEY FOR TABLE BELOW

Columns 7-9, 13, 14, and 16 highlight CY 2015 RPS and Green Pricing renewable sales and percentages. Other columns show compliance activity and information used in calculations. See below for description of each column.

1. Wisconsin electric provider or aggregator that must meet RPS requirements. These entities represent all electric providers of retail electric services in the state of Wisconsin (investor-owned, municipal, and cooperative).
2. CY 2015 total retail sales per electric provider (from all generators) as reported to the Commission.
3. CY 2012-2014 average annual total retail energy sales, as reported to the Commission. Each year's RPS requirement % is applied to the average of the previous three years of retail sales.
4. 2012-2014 average total retail energy sales (Col. 3) multiplied by utility's 2015 RPS percent requirement (Col. 11).
5. Electric provider compliance retirements, as reported to PSCW and verified by Commission staff through M-RETS database.
6. Assessment of electric provider's compliance activity for CY 2015. If Col. 5 is greater or equal to Co. 4 then "YES" in compliance, otherwise "NO".
7. Electric sales to Wisconsin retail customers in 2015, which were generated by a renewable resource and eligible for RPS activity, as reported by electric provider. This column does not include green pricing sales; see Col. 13-15 for green pricing information.
8. Col. 7. divided by Col. 3 (if Col. 8 > Col. 11 the utility essentially banks excess credits, if Col. 8 < Col. 11 the utility must use other credits to comply in 2015).
9. Col. 7 divided by Col.2 (for informational purposes only; this percentage is not applicable to compliance).
10. Percentage required for years 2006-2009, equal to mean percentage renewables from years 2001-2003; per Wis. Stat. § 196.378(2)(a)2. Wisconsin aggregate baseline percentage has been updated based on current information.
11. Percentage required for years 2010-2014, equal to baseline % +2% per Wis. Stat. § 196.378(2)(a)2. Wisconsin total percentage is based on current information and is not a statewide requirement; it is an aggregation of electric provider-specific requirements.
12. Percentage required for years 2015 and beyond, equal to baseline % +6% per Wis. Stat. § 196.378(2)(a)2. There are 4 electric providers that are an exception this due to 2013 Wisconsin Act 290: requirements for Centuria Municipal Electric Utility, Consolidated Water Power Company, North Central Power Company, Inc, and Northwestern Wisconsin Electric Cooperative are set at baseline% +2% for 2015 and beyond. Wisconsin total percentage is based on current information and is not a statewide requirement; it is an aggregation of electric provider-specific requirements.
13. 2015 Electric sales to Wisconsin retail customers, which were generated by a renewable resource and part of a utility's voluntary green pricing program, as reported to the Commission.
14. 2015 Total renewable that include RPS eligible and green pricing programs (Col. 7 plus Col. 13).
15. 2015 Green pricing program energy as a percent of total 2015 RPS eligible and green pricing renewable energy (Col. 14 divided by Col. 13).
16. All renewable energy (Green Pricing and RPS Energy) divided by 2015 total retail energy sales (Col. 14 divided by Col. 2).

* Indicates Aggregator.

1	Total Retail Energy Sales Information		CY 2015 Compliance Activity			2015 RPS Renewable Energy Information			Provider RPS Requirements			Green Pricing Program (GPP) Energy Information			RPS + GPP
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Electric Provider or Aggregator*	2015 Retail Sales (MWh)	2012-2014 Ave. Retail Sales (MWh)	2015 RPS Required (MWh)	2015 M-RETS Certificates Retired	In Compliance?	Actual 2015 RPS Energy (MWh)	Actual 2015 RPS Energy as % of Ave. Sales	2015 RPS Energy as % of 2015 Retail Sales	Baseline RPS (%)	2010-2014 RPS (%)	2015 and beyond RPS (%)	2015 GPP Energy (MWh)	2015 GPP + RPS Energy (MWh)	GPP as % of Total Renewable Energy	Total Renewable Energy as % of 2015 Retail Sales
Adams-Columbia Electric Coop	495,566	501,988	44,777	44,777	YES	58,963	11.75%	11.90%	2.92%	4.92%	8.92%	398	59,361	0.67%	11.98%
Bangor Municipal Utility	25,973	26,865	3,390	3,390	YES	4,215	15.69%	16.23%	6.62%	8.62%	12.62%	-	4,215	0.00%	16.23%
Barron Light & Water Utility	78,146	83,236	10,696	10,696	YES	0	0.00%	0.00%	6.85%	8.85%	12.85%	-	-	0.00%	0.00%
Belmont Mun Water & Elect Util	22,994	22,247	1,949	1,949	YES	2,743	12.33%	11.93%	2.76%	4.76%	8.76%	-	2,743	0.00%	11.93%
Benton Mun Elec & Water Util	5,054	5,162	457	457	YES	611	11.84%	12.09%	2.86%	4.86%	8.86%	-	611	0.00%	12.09%
Black Earth Electric Utility	16,072	16,195	1,495	1,495	YES	1,904	11.76%	11.85%	3.23%	5.23%	9.23%	-	1,904	0.00%	11.85%
Bloomer Electric Utility	53,993	52,316	6,524	6,524	YES	0	0.00%	0.00%	6.47%	8.47%	12.47%	-	-	0.00%	0.00%
Cadott Light & Water Mun Util	12,869	13,162	1,674	1,674	YES	0	0.00%	0.00%	6.72%	8.72%	12.72%	-	-	0.00%	0.00%
Central Wisconsin Elec Coop	94,618	97,845	8,747	8,747	YES	11,562	11.82%	12.22%	2.94%	4.94%	8.94%	-	11,562	0.00%	12.22%
Centuria Municipal Electric Util	5,722	5,796	833	833	YES	0	0.00%	0.00%	12.37%	14.37%	14.37%	-	-	0.00%	0.00%
Clintonville Water & Electric Utility	115,935	115,404	8,586	8,586	YES	9,537	8.26%	8.23%	1.44%	3.44%	7.44%	-	9,537	0.00%	8.23%
Consolidated Water Power Company	1,017,026	1,031,713	190,557	190,558	YES	186,275	18.05%	18.32%	16.47%	18.47%	18.47%	-	186,275	0.00%	18.32%
Cornell Mun Water & Elec Util	12,323	12,771	1,616	1,616	YES	2,023	15.84%	16.42%	6.65%	8.65%	12.65%	-	2,023	0.00%	16.42%
Dahlberg Light & Power Co	102,770	104,417	7,696	7,696	YES	2,082	1.99%	2.03%	1.37%	3.37%	7.37%	-	2,082	0.00%	2.03%
Dairyland Power Cooperative*	3,235,037	3,244,272	273,817	273,836	YES	354,451	10.93%	10.96%	2.44%	4.44%	8.44%	4,487	358,938	1.25%	11.10%
East Central Energy	49,386	51,934	3,448	3,448	YES	3,448	6.64%	6.98%	0.64%	2.64%	6.64%	322	3,770	8.54%	7.63%
Elkhorn Light & Water	113,421	112,838	10,641	10,641	YES	13,223	11.72%	11.66%	3.43%	5.43%	9.43%	-	13,223	0.00%	11.66%
Gresham Mun Light & Pwr Util	23,279	23,636	1,993	1,993	YES	2,336	9.88%	10.03%	2.43%	4.43%	8.43%	-	2,336	0.00%	10.03%
Hazel Green Municipal Utility	8,111	8,388	744	744	YES	976	11.64%	12.03%	2.87%	4.87%	8.87%	-	976	0.00%	12.03%

1	Total Retail Energy Sales Information		CY 2015 Compliance Activity			2015 RPS Renewable Energy Information			Provider RPS Requirements			Green Pricing Program (GPP) Energy Information			RPS + GPP
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Electric Provider or Aggregator*	2015 Retail Sales (MWh)	2012-2014 Ave. Retail Sales (MWh)	2015 RPS Required (MWh)	2015 M-RETS Certificates Retired	In Compliance?	Actual 2015 RPS Energy (MWh)	Actual 2015 RPS Energy as % of Ave. Sales	2015 RPS Energy as % of 2015 Retail Sales	Baseline RPS (%)	2010-2014 RPS (%)	2015 and beyond RPS (%)	2015 GPP Energy (MWh)	2015 GPP + RPS Energy (MWh)	GPP as % of Total Renewable Energy	Total Renewable Energy as % of 2015 Retail Sales
Kiel (City of) Utilities	83,698	80,716	7,321	7,321	YES	6,886	8.53%	8.23%	3.07%	5.07%	9.07%	-	6,886	0.00%	8.23%
Madison Gas & Electric Co	3,292,122	3,321,861	256,780	256,780	YES	328,814	9.90%	9.99%	1.73%	3.73%	7.73%	102,218	431,032	23.71%	13.09%
Manitowoc Public Utilities	529,126	519,126	47,708	47,708	YES	45,006	8.67%	8.51%	3.19%	5.19%	9.19%	165	45,171	0.37%	8.54%
Marshfield Elec & Water Dept	372,821	373,399	33,270	33,271	YES	30,604	8.20%	8.21%	2.91%	4.91%	8.91%	-	30,604	0.00%	8.21%
Mazomanie Electric Utility	34,682	29,889	2,526	2,526	YES	4,078	13.64%	11.76%	2.45%	4.45%	8.45%	-	4,078	0.00%	11.76%
Medford Electric Utility	126,455	127,422	15,813	15,813	YES	19,052	14.95%	15.07%	6.41%	8.41%	12.41%	-	19,052	0.00%	15.07%
North Central Power Co Inc	33,499	33,416	11,732	11,733	YES	13,689	40.97%	40.86%	33.11%	35.11%	35.11%	-	13,689	0.00%	40.86%
Northern States Power Co WI	6,508,915	6,445,810	830,865	830,859	YES	1,334,893	20.71%	20.51%	6.89%	8.89%	12.89%	12,430	1,347,323	0.92%	20.70%
Northwestern WI Elec Co	167,068	171,315	24,806	24,807	YES	36,904	21.54%	22.09%	12.48%	14.48%	14.48%	-	36,904	0.00%	22.09%
Oconto Electric Coop	108,560	111,170	11,906	11,907	YES	16,621	14.95%	15.31%	4.71%	6.71%	10.71%	-	16,621	0.00%	15.31%
Pardeeville (Village of) Elec Util	19,432	19,415	1,639	1,639	YES	2,277	11.73%	11.72%	2.44%	4.44%	8.44%	-	2,277	0.00%	11.72%
Pioneer Power & Light Co	16,586	16,680	1,453	1,453	YES	2,097	12.57%	12.64%	2.71%	4.71%	8.71%	-	2,097	0.00%	12.64%
Princeton Mun Wtr & Elec Util	9,902	10,354	850	850	YES	1,276	12.32%	12.89%	2.21%	4.21%	8.21%	-	1,276	0.00%	12.89%
Rice Lake Mun Wtr & Elec Util	160,622	158,639	19,877	19,877	YES	0	0.00%	0.00%	6.53%	8.53%	12.53%	-	-	0.00%	0.00%

1	Total Retail Energy Sales Information		CY 2015 Compliance Activity			2015 RPS Renewable Energy Information			Provider RPS Requirements			Green Pricing Program (GPP) Energy Information			RPS + GPP
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Electric Provider or Aggregator*	2015 Retail Sales (MWh)	2012-2014 Ave. Retail Sales (MWh)	2015 RPS Required (MWh)	2015 M-RETS Certificates Retired	In Compliance?	Actual 2015 RPS Energy (MWh)	Actual 2015 RPS Energy as % of Ave. Sales	2015 RPS Energy as % of 2015 Retail Sales	Baseline RPS (%)	2010-2014 RPS (%)	2015 and beyond RPS (%)	2015 GPP Energy (MWh)	2015 GPP + RPS Energy (MWh)	GPP as % of Total Renewable Energy	Total Renewable Energy as % of 2015 Retail Sales
Rock Energy Coop	285,206	276,417	24,684	24,684	YES	31,934	11.55%	11.20%	2.93%	4.93%	8.93%	-	31,934	0.00%	11.20%
Sauk City Mun Wtr & Light Util	32,524	33,396	2,946	2,946	YES	3,799	11.38%	11.68%	2.82%	4.82%	8.82%	-	3,799	0.00%	11.68%
Shawano Municipal Utilities	260,433	282,846	20,761	20,762	YES	21,423	7.57%	8.23%	1.34%	3.34%	7.34%	-	21,423	0.00%	8.23%
Sheboygan Falls Utilities	188,633	182,336	15,991	15,991	YES	21,892	12.01%	11.61%	2.77%	4.77%	8.77%	-	21,892	0.00%	11.61%
Shullsburg Electric Utility	10,687	10,945	965	965	YES	1,282	11.71%	12.00%	2.82%	4.82%	8.82%	-	1,282	0.00%	12.00%
Spooner Municipal Utilities	29,603	31,805	3,992	3,992	YES	0	0.00%	0.00%	6.55%	8.55%	12.55%	-	-	0.00%	0.00%
Stratford Mun Wtr & Elec Utility	17,110	17,624	1,641	1,641	YES	1,641	9.31%	9.59%	3.31%	5.31%	9.31%	-	1,641	0.00%	9.59%
Superior Wtr Light & Pwr Co	788,342	713,529	60,864	60,865	YES	58,065	8.14%	7.37%	2.53%	4.53%	8.53%	-	58,065	0.00%	7.37%
Trempealeau Mun Elc & Wtr Util	13,973	14,483	1,851	1,851	YES	2,192	15.13%	15.69%	6.78%	8.78%	12.78%	-	2,192	0.00%	15.69%
Washington Island Cooperative	8,930	9,087	850	850	YES	850	9.35%	9.52%	3.35%	5.35%	9.35%	-	850	0.00%	9.52%
Westfield Milling & Elec Co	12,548	13,309	1,173	1,173	YES	1,716	12.89%	13.68%	2.81%	4.81%	8.81%	-	1,716	0.00%	13.68%
Wisconsin Dells Mun Elec Util	66,641	57,067	5,073	5,073	YES	7,912	13.86%	11.87%	2.89%	4.89%	8.89%	-	7,912	0.00%	11.87%
Wisconsin Rapids WW & Light	267,053	270,319	23,599	23,599	YES	21,968	8.13%	8.23%	2.73%	4.73%	8.73%	123	22,091	0.56%	8.27%
Wisconsin Electric Power Co	23,701,516	24,182,601	1,999,901	1,999,901	YES	1,591,612	6.58%	6.72%	2.27%	4.27%	8.27%	126,900	1,718,512	7.38%	7.25%
Wisconsin Power & Light	10,617,175	10,473,214	971,914	971,914	YES	1,232,564	11.77%	11.61%	3.28%	5.28%	9.28%	28,383	1,260,947	2.25%	11.88%
WPPI Energy*	4,836,168	4,840,086	495,625	495,626	YES	728,589	15.05%	15.07%	4.24%	6.24%	10.24%	70,990	799,579	8.88%	16.53%
Wisconsin Public Service Corp	10,596,891	10,566,988	1,029,225	1,029,226	YES	907,159	8.58%	8.56%	3.74%	5.74%	9.74%	8,821	915,980	0.96%	8.64%
Wonevoc Electric & Water Util	4,610	4,869	423	423	YES	563	11.56%	12.21%	2.69%	4.69%	8.69%	-	563	0.00%	12.21%
WISCONSIN TOTAL	68,689,826	68,930,320	6,507,662	6,507,686	N/A	7,131,708	10.35%	10.38%	N/A	N/A	N/A	355,237	7,486,945	4.74%	10.90%

Appendix D: 2015 Renewable Energy by State and Resource (MWh)

Includes both Wisconsin Renewable Portfolio Standard and Green Pricing Program Renewable Energy

Electric Provider/Aggregator*	WI Hydro	WI Wind	Landfill gas	WI Biomass - Biogas	WI Biomass - Refuse-derived fuel	WI Biomass - & Wood Waste	WI Biomass - Wood	Biomass - Other	WI Solar	WI - Other	WI Subtotal	Non WI Hydro	Non WI Wind	Landfill gas	Non WI Biomass - Biogas	Non WI Biomass - Refuse-derived fuel	Non WI Biomass - Waste	Non WI Biomass - Wood & Wood	Other	Non-WI Biomass - Other	Non WI - Solar	Non WI - Other	Subtotal	Non WI - Subtotal	Grand Total	
Adams-Columbia Electric Coop	10,957		10,156	970	297					323		22,703			36,658										36,658	59,361
Bangor Municipal Utility	-	-	-	-	-	-	-	-	-	-	-	-	-	4,215	-	-	-	-	-	-	-	-	-	-	4,215	4,215
Barron Light & Water Utility	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belmont Mun Water & Elect Util	560		456	30	9							1,055			1,688										1,688	2,743
Benton Mun Elec & Water Util	158		90	-	-							248			363										363	611
Black Earth Electric Utility	410		306	21	2							739			1,165										1,165	1,904
Bloomer Electric Utility	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadott Light & Water Mun Util	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central Wisconsin Elec Coop	2,191		1,963	180	53							4,387			7,175										7,175	11,562
Centuria Municipal Electric Util	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clintonville	773		1,157	176	12	-	-	-	2,117	-	-	4,235	202		5,100	-	-	-	-	-	-	-	-	-	5,302	9,537
Consolidated Water Power Co	186,275		-	-	-	-	-	-	-	-	-	186,275	-		-	-	-	-	-	-	-	-	-	-	-	186,275
Cornell Mun Water & Elec Util	-	-	-	-	-	-	-	-	-	-	-	-	-	2,023	-	-	-	-	-	-	-	-	-	-	2,023	2,023
Dahlberg Light & Power Co	2,082		-	-	-	-	-	-	-	-	-	2,082	-		-	-	-	-	-	-	-	-	-	-	-	2,082
Dairyland Power Cooperative	49,051		5,143	17,575	6,361	-	110,900	-	56	-		189,086	17,317		130,656	19,893	1,986	-	-	-	-	-	-		169,852	358,938
East Central Energy	-	-	-	-	-	-	-	-	-	-	-	-	-	3,770	-	-	-	-	-	-	-	-	-	-	3,770	3,770

Electric Provider/Aggregator*	WI Hydro	WI Wind	WI Biomass - Landfill gas	WI Biomass - Biogas	WI Biomass - Refuse-derived fuel	WI Biomass - & Wood Waste	WI Biomass - Wood	Biomass - Other	WI Solar	WI - Other	WI Subtotal	Non WI Hydro	Non WI Wind	Non WI Biomass - Landfill gas	Non WI Biomass - Biogas	Non WI Biomass - Refuse-derived fuel	Non WI Biomass - Waste	Non WI Biomass - Wood & Wood	Other	Non-WI Biomass - Other	Non WI - Solar	Non WI - Other	Subtotal	Non WI -	Grand Total
Elkhorn Light & Water	2,495	2,248	211	61							5,015			8,208										8,208	13,223
Gresham Mun Light & Pwr Util	437	384	25	6							852	-		1,484	-	-	-	-	-	-	-	-	-	1,484	2,336
Hazel Green Municipal Utility	156	149	16	-							321	-		655	-	-	-	-	-	-	-	-	-	655	976
Kiel	558	836	127	9	-	-	1,528	-	-	-	3,058	146		3,682	-	-	-	-	-	-	-	-	-	3,828	6,886
Madison Gas & Electric Co	422	68,634	2,828	42,763	69	-	-	1,260	-	-	115,976	3,327		311,730	-	-	-	-	-	-	-	-	-	315,057	431,032
Manitowoc Public Utilities	46	5,318	39	1,254	4	582	14,110	261	-	-	21,614	-		23,557	-	-	-	-	-	-	-	-	-	23,557	45,171
Marshfield Elec & Water Dept	11,992	12,238	6,374	-	-	-	-	-	-	-	30,604	-		-	-	-	-	-	-	-	-	-	-	-	30,604
Mazomanie Electric Utility	730	680	130	17							1,557	-		2,521	-	-	-	-	-	-	-	-	-	2,521	4,078
Medford Electric Utility	-	-	-	-	-	-	-	-	-	-	-	-		19,052	-	-	-	-	-	-	-	-	-	19,052	19,052
North Central Power Co Inc	6,945	-	-	-	-	-	-	-	-	-	6,945	-		6,744	-	-	-	-	-	-	-	-	-	6,744	13,689
Northern States Power Co WI	153,889	-	-	-	8,031	162,224	-	-	-	-	324,144	19,782		851,249	11,026	-	-	66,287	74,835	-	-	-	-	1,023,179	1,347,323
Northwestern WI Elec Co	11,486	-	-	-	-	-	-	-	-	-	11,486	-		25,418	-	-	-	-	-	-	-	-	-	25,418	36,904
Oconto Electric Coop	10,184	4,232	-	-	2,205	-	-	-	-	-	16,621	-		-	-	-	-	-	-	-	-	-	-	-	16,621
Pardeeville (Village of) Elec Util	400	376	101	5							882	-		1,395	-	-	-	-	-	-	-	-	-	1,395	2,277
Pioneer Power & Light Co	366	347	92	5							810	-		1,287	-	-	-	-	-	-	-	-	-	1,287	2,097
Princeton Mun Wtr & Elec Util	212	275	12	-							499	-		777	-	-	-	-	-	-	-	-	-	777	1,276
Rice Lake Mun Wtr & Elec Util	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-
Rock Energy Coop	5,881	5,451	517	242							12,091	-		19,843	-	-	-	-	-	-	-	-	-	19,843	31,934

Electric Provider/Aggregator*	WI Hydro	WI Wind	WI Biomass - Landfill gas	WI Biomass - Biogas	WI Biomass - Refuse-derived fuel	WI Biomass - & Wood Waste	WI Biomass - Wood	Biomass - Other	WI Solar	WI - Other	WI Subtotal	Non WI Hydro	Non WI Wind	Non WI Biomass - Landfill gas	Non WI Biomass - Biogas	Non WI Biomass - Refuse-derived fuel	Non WI Biomass - Waste	Non WI Biomass - Wood & Wood	Other Non-WI Biomass	Non-WI Biomass	Non WI - Solar	Non WI - Other	Subtotal	Non WI -	Grand Total
Sauk City Mun Wtr & Light Util		676	711	55	14						1,456	-	2,343	-	-	-	-	-	-	-	-	-	-	2,343	3,799
Shawano		1,737	2,600	394	27	-	-	4,755	-	-	9,513	453	11,457	-	-	-	-	-	-	-	-	-	-	11,910	21,423
Sheboygan Falls Utilities		4,024	3,813	351	105						8,293	-	13,599	-	-	-	-	-	-	-	-	-	-	13,599	21,892
Shullsburg Electric Utility		212	222	12	-						446	-	836	-	-	-	-	-	-	-	-	-	-	836	1,282
Spooner Municipal Utilities		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stratford Mun Wtr & Elec Utility		611	1,030	-	-	-	-	-	-	-	1,641	-	-	-	-	-	-	-	-	-	-	-	-	-	1,641
Superior Wtr Light & Pwr Co		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58,065	-	-	-	58,065	58,065
Trempealeau Mun Eic & Wtr Util		-	-	-	-	-	-	-	-	-	-	-	2,192	-	-	-	-	-	-	-	-	-	-	2,192	2,192
Washington Island Cooperative		376	474	-	-	-	-	-	-	-	850	-	-	-	-	-	-	-	-	-	-	-	-	-	850
Westfield Milling & Elec Co		296	274	15	-						585	-	1,131	-	-	-	-	-	-	-	-	-	-	1,131	1,716
Wisconsin Dells Mun Elec Util		1,438	1,338	120	35						2,931	-	4,981	-	-	-	-	-	-	-	-	-	-	4,981	7,912
Wisconsin Rapids		1,782	2,666	404	28	-	-	4,875	1	-	9,756	464	11,871	-	-	-	-	-	-	-	-	-	-	12,335	22,091
Wisconsin Electric Power Co		40,000	685,914	221,425	6,473	6,153	78,698	1,324	305	-	1,040,292	292,859	385,361	-	-	-	-	-	-	-	-	-	-	678,220	1,718,512
Wisconsin Power & Light		228,206	222,429	26,894	6,401	-	-	-	224	-	484,154	-	776,784	-	-	-	-	-	-	-	-	9	-	776,793	1,260,947
WPPI Energy		193,311	259,493	46,778	11,259	-	1,181	-	2,165	-	514,187	7,219	278,174	-	-	-	-	-	-	-	-	-	-	285,392	799,579
Wisconsin Public Service Corp		272,617	87,096	75,201	61,217	72,470	-	-	-	-	568,601	33,447	313,932	-	-	-	-	-	-	-	-	-	-	347,379	915,980
Wonewoc Electric & Water Util		80	85	-	35						200	-	363	-	-	-	-	-	-	-	-	-	-	363	563
TOTAL per State and Resource		1,204,022	1,388,584	401,073	136,690	88,932	353,585	28,709	4,595	-	3,606,190	375,216	3,273,438	30,919	1,986	-	124,352	74,835	9	-	-	-	3,880,755	7,486,945	
% of Total 2015 Renewables		16.1%	18.5%	5.4%	1.8%	1.2%	4.7%	0.4%	0.1%	0.0%	48.2%	5.0%	43.7%	0.4%	0.0%	0.0%	1.7%	1.0%	0.0%	0.0%	0.0%	0.0%	51.8%	100.0%	

Appendix E: 2015 Statistics Generated from Electric Provider Data

Includes both RPS and Green Pricing Program Renewable Energy

2015 Total Electric Energy Sales to Wisconsin Retail Customers (renewable and nonrenewable)

	(MWh)	% of Total Energy Sales
2015 Total Wisconsin Retail Energy Sales	68,689,826	100.0%

Renewable Energy by State

State	(MWh)	% of Total Energy Sales	% of Renewable Energy
TOTAL Renewable Energy from Wisconsin	3,606,190	5.2%	48.2%
TOTAL Renewable Energy from Other States	3,880,755	5.6%	51.8%
TOTAL Renewable Energy from ALL STATES	7,486,945	10.9%	100.0%

Renewable Energy by Renewable Resource

Renewable Energy Resource	(MWh)	% of Total Energy Sales	% of Renewable Energy
Wind	4,662,022	6.8%	62.3%
Hydro	1,579,238	2.3%	21.1%
Biomass	1,241,081	1.8%	16.6%
Solar	4,604	0.0%	0.1%
TOTAL Renewable Energy from ALL RESOURCES	7,486,945	10.9%	100.0%

Biomass Energy Broken Down

Biomass Type	(MWh)	% of Total Sales	% of Renewable Energy
Refused-derived	88,932	0.1%	1.2%
Other*	103,544	0.2%	1.4%
Biogas	138,676	0.2%	1.9%
Landfill gas	431,992	0.6%	5.8%
Wood or wood waste	477,937	0.7%	6.4%
TOTAL from Biomass	1,241,081	1.8%	16.6%

*Other biomass represents waste from paper products, processed plant materials, agriculture products, and animal waste

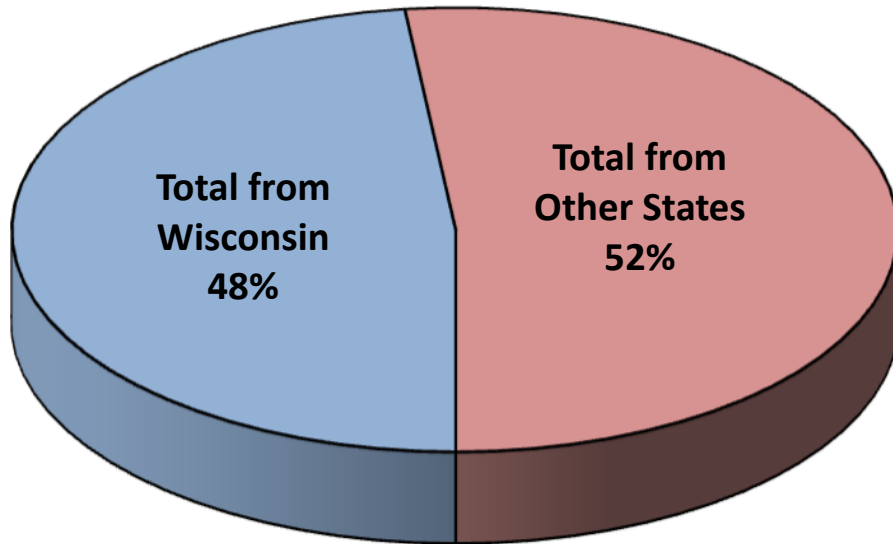
Renewable Energy by State and Renewable Resource

State and Renewable Resource	(MWh)	% of Total Energy Sales	% of Renewable Energy
WI Wind	1,388,584	2.0%	18.5%
WI Hydro	1,204,022	1.8%	16.1%
WI Biomass	1,008,989	1.5%	13.5%
WI Solar	4,595	0.0%	0.1%
Non WI Wind	3,273,438	4.8%	43.7%
Non WI Hydro	375,216	0.5%	5.0%
Non WI Biomass	232,092	0.3%	3.1%
Non WI Solar	9	0.0%	0.0%
TOTAL Renewable Energy from ALL STATES AND RESOURCES	7,486,945	10.9%	100.0%

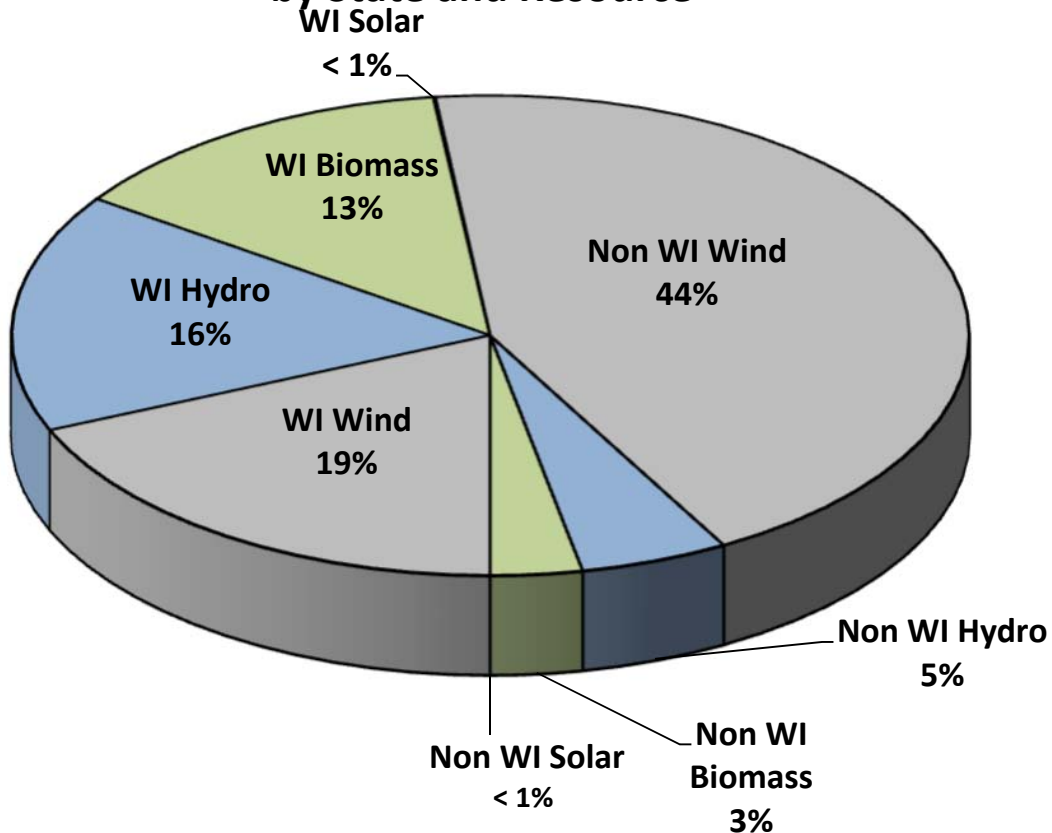
Appendix F: 2015 Figures of Statistics Generated from Electric Provider Data

Includes both Wisconsin RPS and Green Pricing Program Renewable Energy

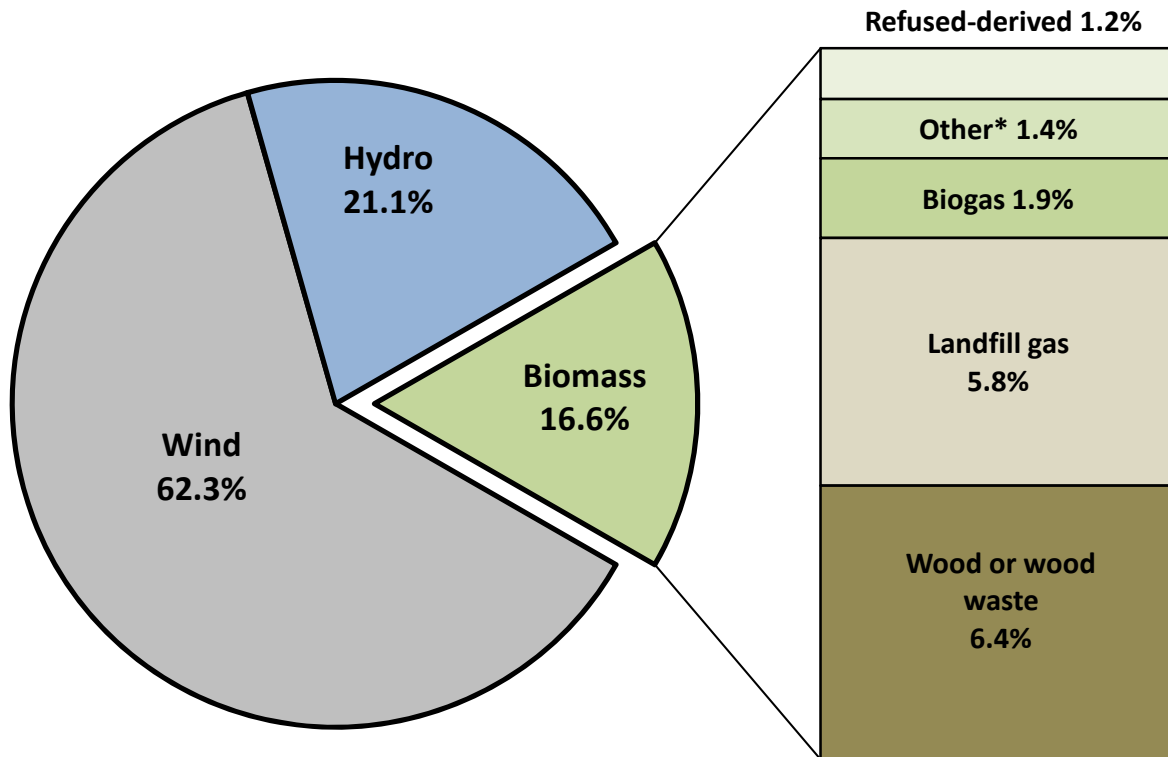
2015 Renewable Energy by State



2015 Renewable Energy by State and Resource

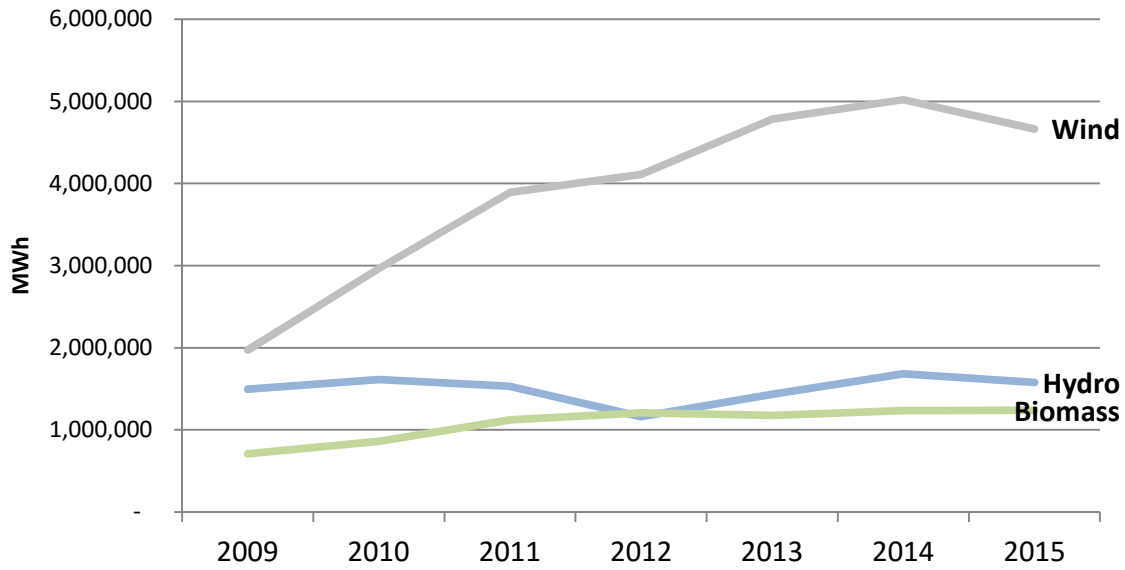


2015 Renewable Energy by Resource



*Other biomass represents waste from paper products, processed plant materials, agriculture products, and animal waste

Renewable Energy by Renewable Resource (2010-2015)



Renewable Energy from Solar Photovoltaic (2010-2015)

