

# **PUBLIC SERVICE COMMISSION OF WISCONSIN**

## **Memorandum**

July 1, 2015

### **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-258  
for CY 2014

Suggested Minute: The Commission (accepted/did 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. The Commission directed the Division of Regional Energy Markets to inform each electric provider of its compliance with the statute.

### **2014 Renewable Portfolio Standard Summary Report**

#### **Executive Summary**

For compliance year (CY) 2014, all Wisconsin electric providers submitted timely reports to the Commission, and retired their required amounts of Renewable Energy Certificates (RECs) in compliance with the Wisconsin Renewable Portfolio Standard (RPS). Based on electric provider reports, just under 11 percent of retail sales of electricity to Wisconsin customers came from renewable resources in 2014, and if voluntary programs are considered, the total increases to 11.5 percent. The achievement in 2014 marks the second year in a row that the 10 percent statewide goal was exceeded, ahead of the 2015 target year. Collectively, electric providers have built enough renewable facilities and procured enough purchase power agreements and bankable RECs to easily remain in compliance through 2020 and likely beyond.

As described later in this memorandum, electric providers have been trading excess RECs among each other as well as with other market participants. These transactions have been occurring at relatively low prices in terms of \$/REC based on a supply that far exceeds Wisconsin RPS demand over the foreseeable future. Opportunities may exist to increase the value of excess RECs by facilitating communications between Wisconsin electric providers and other market participants throughout the larger region, as demand for RECs may increase in the future due to elevated requirements and voluntary actions in other states.

## **Background**

2005 Wisconsin Act 141 established, among other things, the law for the state RPS in its current form.<sup>1</sup> A statewide goal of 10 percent of total Wisconsin retail sales of electricity from renewable resources by 2015 was set. Requirements were also established for all 118 electric distribution utilities, or electric providers as they are called in the state statute. Baseline percentages were set 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.

## **RPS Compliance in 2014**

By April 15, 2015, as required by statute, all electric providers responded to Commission staff's data request and made filings in docket 5-GF-258. This information was used by Commission staff to determine REC retirement requirements for compliance year 2014. Electric

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<sup>1</sup> 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.

providers also were able to make REC retirements in the Midwest Renewable Energy Tracking System (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 2014. Using this process, Commission staff determined that all electric providers are in compliance with the RPS. In aggregate, 3,787,289 RECs were retired for compliance year 2014, which was about 1,000 RECs more than required statewide. Additional information pertaining to excess retirement is included in the “Regional Market for RECs and Trade Facilitation” section below.

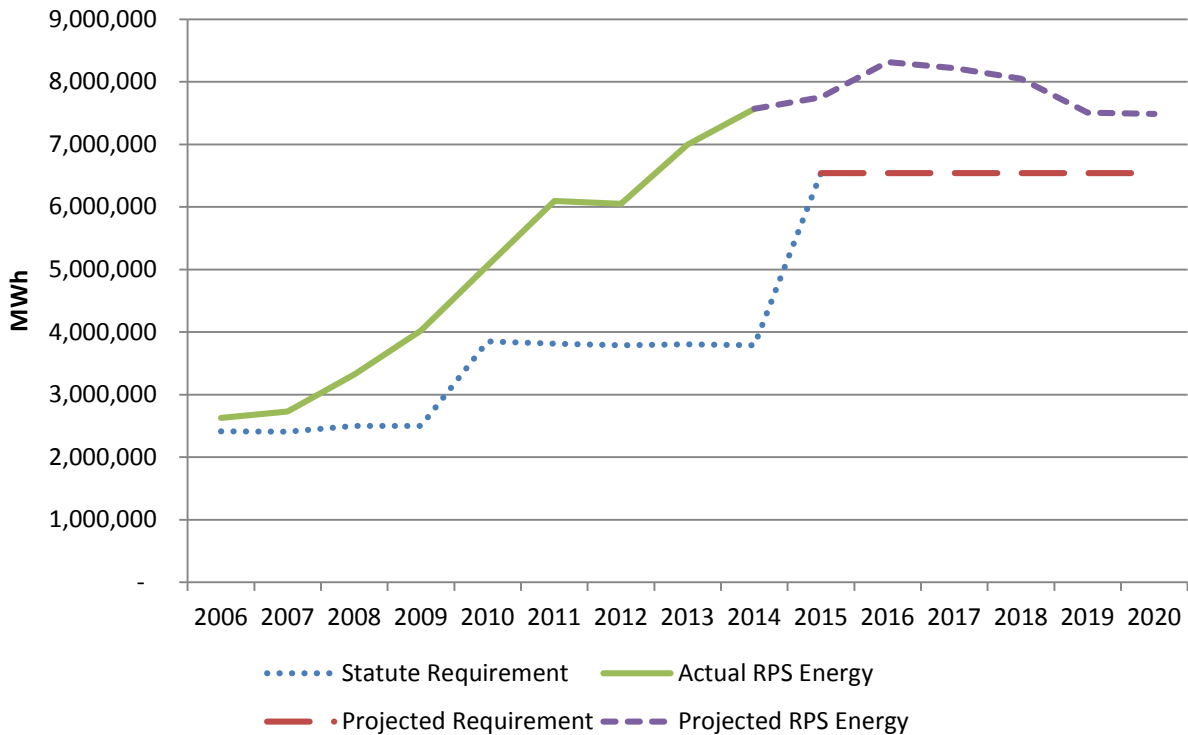
### **RPS Statewide Outlook through 2020**

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.<sup>2</sup> These requirements can then be compared to actual renewable generation for the Wisconsin RPS, as reported by electric providers in their filings. The statewide aggregation of these numbers appear in Figure 1 below.

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<sup>2</sup> 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 15 million RECs after 2014 compliance activities, and this approximate amount has been verified by individual electric provider responses added together. Compliance year 2015 will see an increase in REC requirements, as slightly more than 6.5 million RECs will be needed each year in 2015 and thereafter.

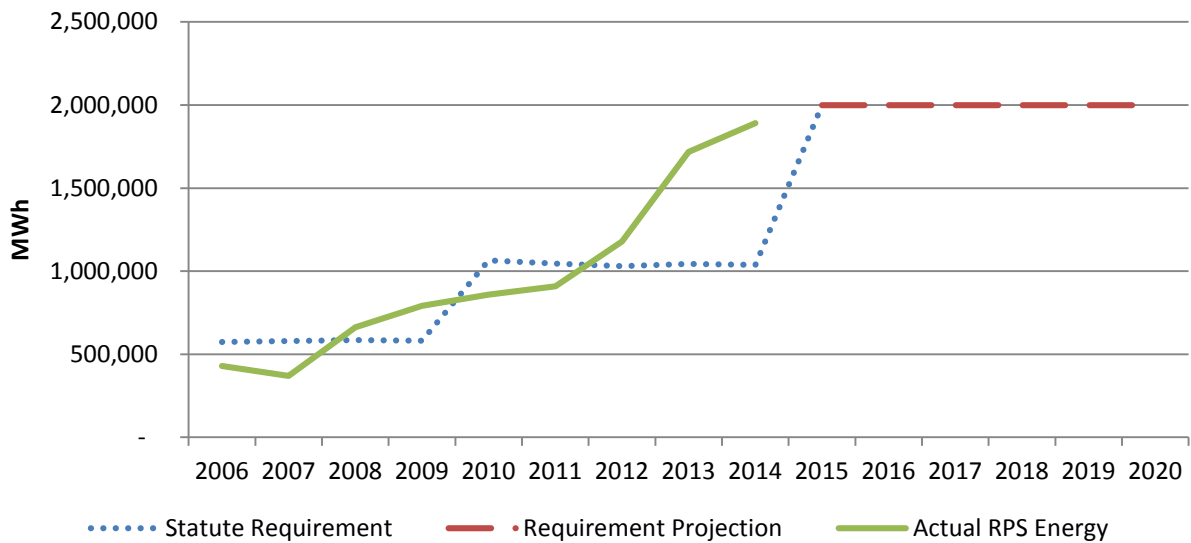
Hypothetically, if electric providers were to stop generating power from renewable resources, this cumulative bank of RECs could satisfy RPS requirements statewide for about 2.3 years, assuming electric providers traded efficiently among each other. However, according to electric provider projections, renewable resource generation will actually increase to about 8 million megawatt-hours (MWh) annually, and then level off back to current levels of about 7.5 million MWh in 2019 and 2020. This 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. With this in mind, a basic analysis of numbers in Figure 1 above shows that electric providers will have no problem meeting Wisconsin RPS requirements through 2020, and many will likely be well-positioned to exceed requirements for several years beyond 2020 as well.

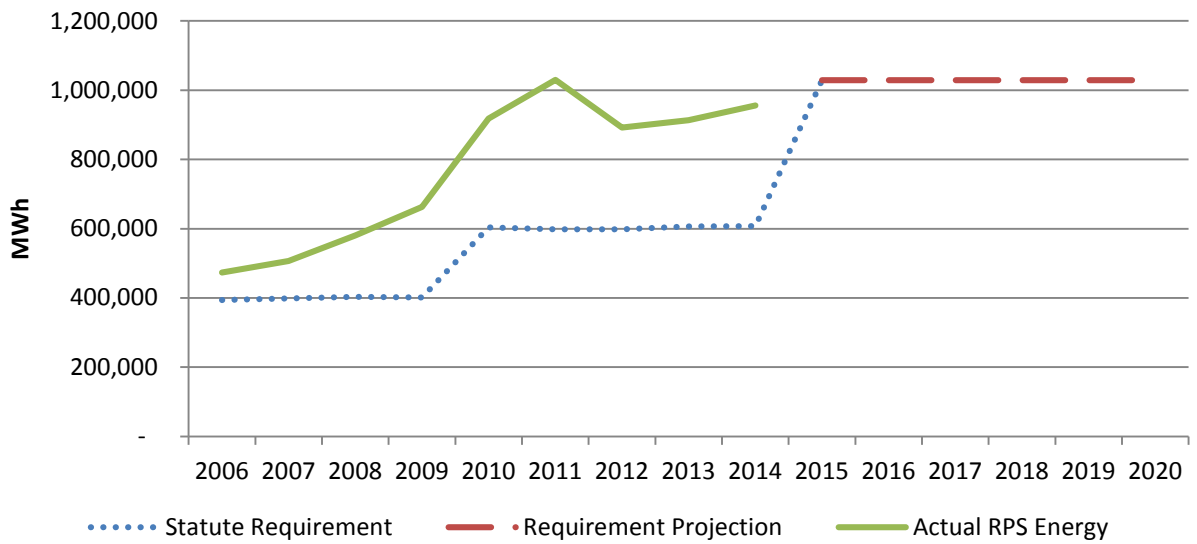
**RPS Progress of Wisconsin’s Largest Electric Providers**

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 large electric provider aggregators known as WPPI Energy and Dairyland Power Cooperative.

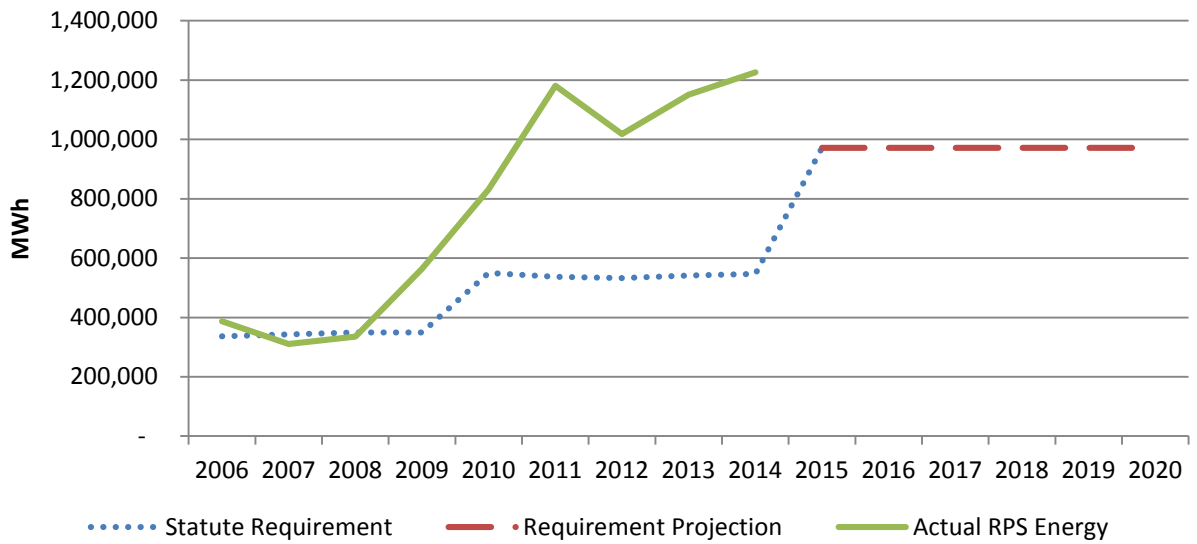
**Figure 2: Wisconsin Electric Power Company  
REC Requirements and Actual RPS Energy**



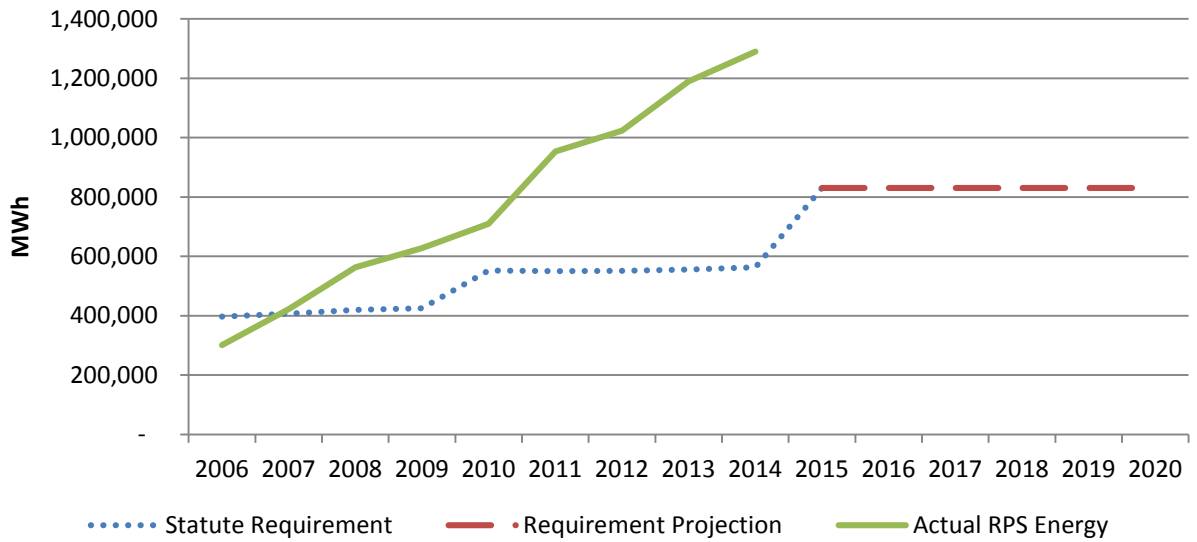
**Figure 3: Wisconsin Public Service Corporation  
REC Requirements and Actual RPS Energy**



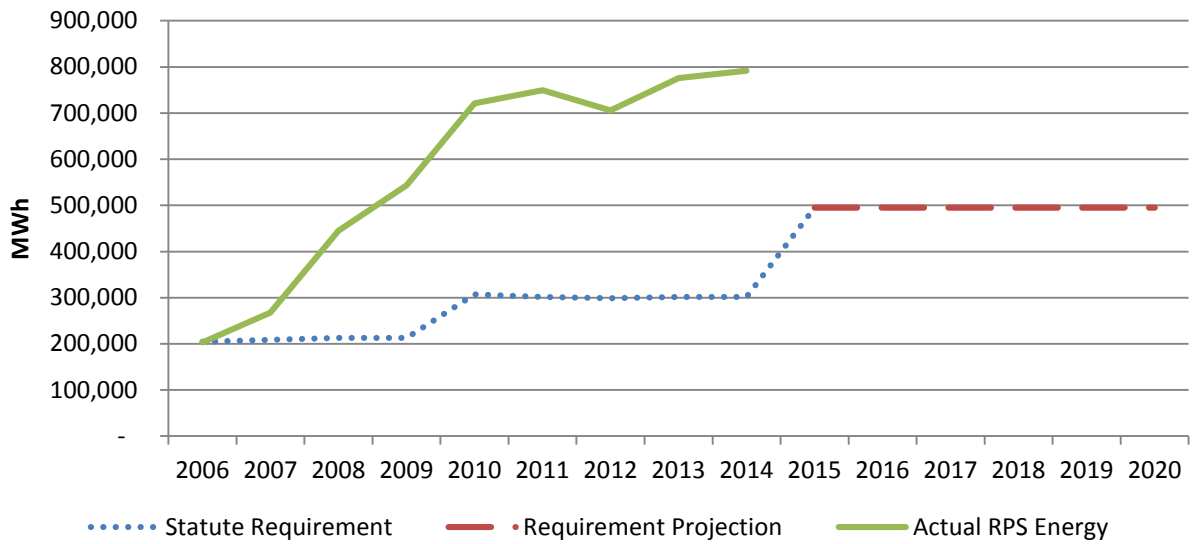
**Figure 4: Wisconsin Power and Light  
REC Requirements and Actual RPS Energy**



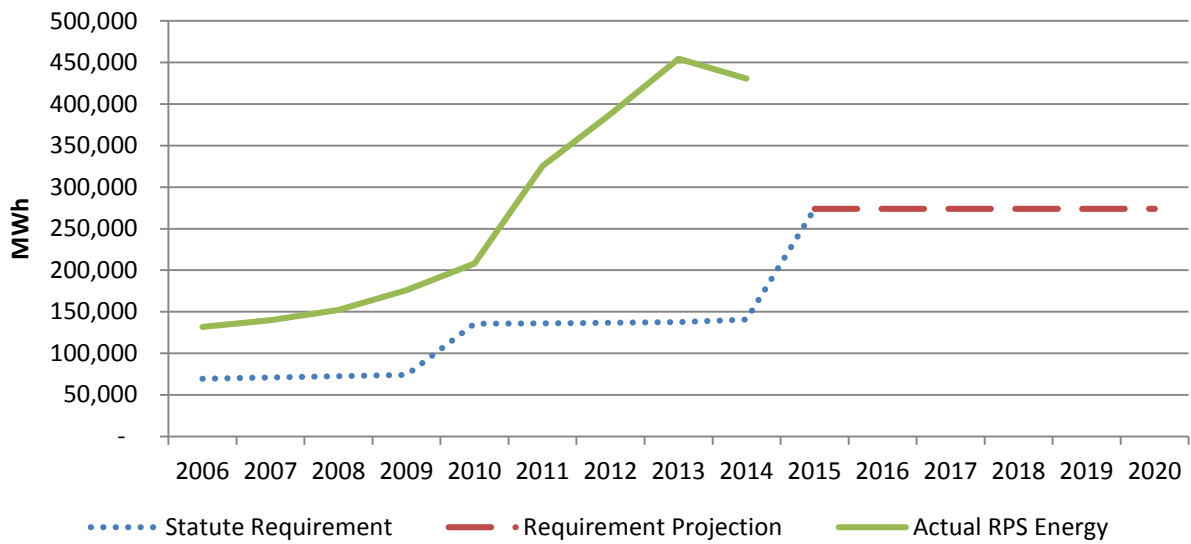
**Figure 5: Northern States Power Company – Wisconsin  
REC Requirements and Actual RPS Energy**



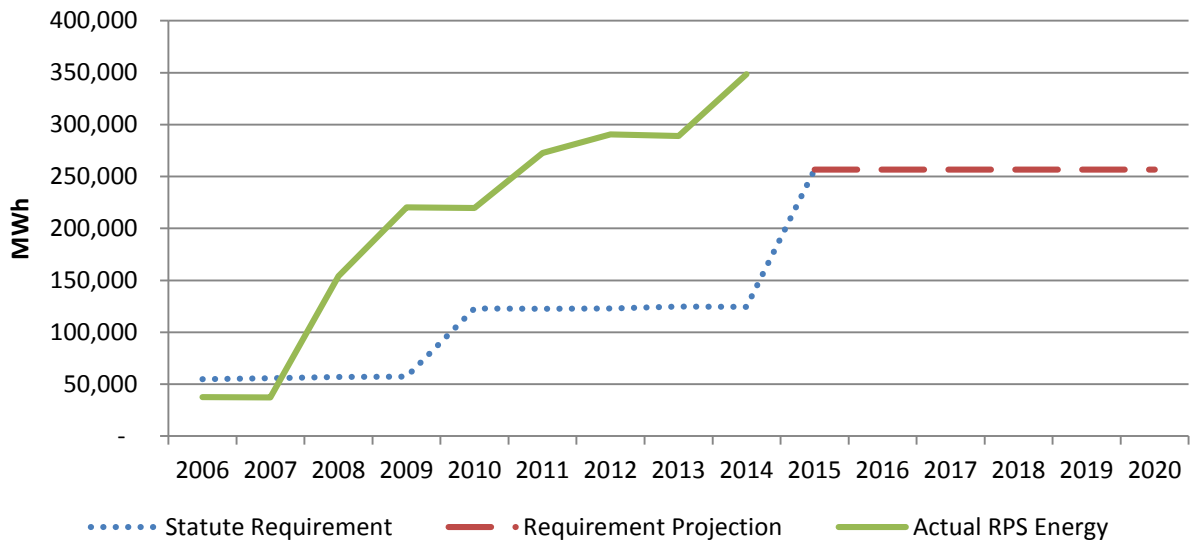
**Figure 6: WPPI Energy  
REC Requirements and Actual RPS Energy**



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



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





## **REC Trading Activities for 2014**

The large statewide REC bank mentioned above has created an opportunity for electric providers to trade RECs via bilateral contracts, sometimes established after receiving bids in response to Request for Proposals (RFP). Electric providers are also allowed to trade with non-Wisconsin electric providers and marketers. After contracts for trades are established, entities commence the exchange of RECs through their M-RETS accounts. Importing and exporting to and from other REC tracking systems are also allowed, as defined in M-RETS Operating Procedures. Currently, M-RETS allows REC trades to and from the Michigan Renewable Certification System, the North Carolina Renewable Energy Tracking System, and the North American Renewables Registry. This import/export capability allows for a larger marketplace for RECs. Regardless, in order for a REC to be eligible for the Wisconsin RPS, it must be associated with power sold to Wisconsin retail electric customers through the electric providers that serve them.

Based on electric provider reports, slightly less than 1 million RECs traded hands either between Wisconsin electric providers, or between a Wisconsin electric provider and marketing entity during compliance year 2014 activities (April 16, 2014, through April 15, 2015). In relation to this REC volume, it is worth noting that less than 20 transactions were reported by electric providers. For transactions between Wisconsin electric providers, low and high prices observed were \$1/REC and \$7/REC, respectively, with a weighted average price of about \$5.50. For transactions between a Wisconsin electric provider and a different entity, low and high prices observed were \$0.50/REC and \$5/REC, respectively, with a weighted average price of about \$1.30/REC.

There were also a minimal amount of transactions of special-value RECs due to RPS non-solar “carve-out” requirements in other states. These come from renewable resources that a state has focused on because of additional perceived benefits, which often drives demand for these special RECs and increases their prices. For these special-value RECs, transactions between a Wisconsin electric provider and another entity averaged more than \$20/REC.

### **Regional Market for RECs and Trade Facilitation**

When electric providers have more RECs than they will need in the future, they often find an entity to which they can sell the excess RECs. Despite this, over the years there have been cases in which electric providers retire more RECs than their Wisconsin RPS requirements, or simply let RECs expire after their four-year bankable shelf-life because they cannot easily find a trade partner at a reasonable price. This may have occurred because internal Wisconsin demand for RECs is relatively low in relation to supply, causing prices to fall at or below \$1/REC in some cases. At these prices, it may not be worth the administrative costs of processing an agreement and transaction.

Beyond using their individual banks of RECs for future Wisconsin RPS requirements, Wisconsin electric providers could alternatively realize value from excess RECs by meeting demand from other programs if the RECs possess eligibility. For example, Illinois has an RPS goal of 25 percent by the year 2025, and Minnesota has a general RPS goal of 25 percent by the year 2025, with investor-owned utilities having slightly higher requirements. There are also voluntary programs, in Wisconsin and in other states, which also create demand for RECs.

While there is a public electronic Bulletin Board on the M-RETS web site where account holders may post information about RECs which they may be willing to sell, the Bulletin Board is rarely used, and there is currently no way to post an RFP or an interest to purchase RECs.

Stakeholders are discussing Bulletin Board improvements, and if desired, a change request can be implemented. Outside of M-RETS, there may be a role for the Commission to facilitate REC trading communications between electric providers and other market participants in the larger region. As demand for RECs grows outside Wisconsin, a higher value from Wisconsin investments in renewable facilities may be realized if excess RECs can meet this larger regional demand.

### **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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Key Background Documents

[Appendix A RPS Legal Info.pdf - DL: 978220](#)

[Appendices B-F 2014 RPS Compliance Report.pdf - DL: 978465](#)

## **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: a statewide goal of 10 percent of total retail electric sales from renewable resources by 2015; and 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 for 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. 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 2014.

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 are Renewable Resource Credits (RRC) eligible. Incremental additions to capacity of facilities with in-service dates before 2004 are also RRC-eligible. 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 likely be both Wisconsin RPS and RRC eligible. One REC may have multiple program eligibilities, as a facility may also seek certification with other state RPS compliance and/or voluntary programs. The Wisconsin Commission only has the authority to provide certification for Wisconsin RPS and Wisconsin RRC eligibilities.

### **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 is not eligible to create 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 is RRC eligible, 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 is RRC eligible, will not expire for the Wisconsin RPS until April 16, 2018 (through the 2017 compliance-year period). During this time, the RRC-eligible REC may be banked by the electric provider for future retirement, or traded 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 2014 RPS Renewable Energy as a Percent of 2015 RPS Requirements**

<b>Electric Provider or Aggregator*</b>	<b>2014 RPS Renewable Energy as Percent of 2014 Total Retail Energy Sales</b>	<b>2015 RPS Percent Requirement</b>	<b>Percent of 2015 RPS Requirement Achieved in 2014</b>
Shawano Municipal Utilities	16.47%	7.34%	224%
Clintonville Water & Electric Utility	16.47%	7.44%	221%
Wisconsin Rapids WW & Light	16.07%	8.73%	184%
Kiel (City of) Utilities	16.47%	9.07%	182%
<b>WPPI Energy*</b>	<b>16.30%</b>	<b>10.24%</b>	<b>159%</b>
Princeton Mun Wtr & Elec Util	12.76%	8.21%	155%
<b>Dairyland Power Cooperative*</b>	<b>12.82%</b>	<b>8.44%</b>	<b>152%</b>
<b>Northern States Power Co WI</b>	<b>19.54%</b>	<b>12.89%</b>	<b>152%</b>
Pardeeville (Village of) Elec Util	11.82%	8.44%	140%
Westfield Milling & Elec Co	12.19%	8.81%	138%
Mazomanie Electric Utility	11.67%	8.45%	138%
Wonewoc Electric & Water Util	11.98%	8.69%	138%
<b>Madison Gas &amp; Electric Co</b>	<b>10.56%</b>	<b>7.73%</b>	<b>137%</b>
Benton Mun Elec & Water Util	12.01%	8.86%	136%
Central Wisconsin Elec Coop	12.10%	8.94%	135%
Pioneer Power & Light Co	11.75%	8.71%	135%
Belmont Mun Water & Elect Util	11.72%	8.76%	134%
Black Earth Electric Utility	12.35%	9.23%	134%
Northwestern WI Elec Co	19.37%	14.48%	134%
Shullsburg Electric Utility	11.77%	8.82%	133%
Hazel Green Municipal Utility	11.83%	8.87%	133%
Oconto Electric Coop	14.27%	10.71%	133%
Wisconsin Dells Mun Elec Util	11.73%	8.89%	132%
Adams-Columbia Electric Coop	11.62%	8.92%	130%
Sauk City Mun Wtr & Light Util	11.49%	8.82%	130%
Sheboygan Falls Utilities	11.42%	8.77%	130%
Rock Energy Coop	11.25%	8.93%	126%
<b>Wisconsin Power &amp; Light</b>	<b>11.53%</b>	<b>9.28%</b>	<b>124%</b>
Elkhorn Light & Water	11.61%	9.43%	123%
Gresham Mun Light & Pwr Util	10.26%	8.43%	122%
North Central Power Co Inc	41.41%	35.11%	118%
Washington Island Cooperative	10.08%	9.35%	108%
Stratford Mun Wtr & Elec Utility	9.39%	9.31%	101%
<b>Wisconsin Electric Power Co</b>	<b>7.91%</b>	<b>8.27%</b>	<b>96%</b>
Consolidated Water Power Company	17.48%	18.47%	95%
<b>Wisconsin Public Service Corp</b>	<b>9.05%</b>	<b>9.74%</b>	<b>93%</b>
Marshfield Elec & Water Dept	8.18%	8.91%	92%
Manitowoc Public Utilities	5.39%	9.19%	59%
Superior Wtr Light & Pwr Co	4.00%	8.53%	47%
East Central Energy	2.44%	6.64%	37%
Dahlberg Light & Power Co	1.94%	7.37%	26%
Barron Light & Water Utility	0.29%	12.85%	2%
Bangor Municipal Utility	0.00%	12.62%	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%
Cornell Mun Water & Elec Util	0.00%	12.65%	0%
Medford Electric Utility	0.00%	12.41%	0%
Rice Lake Mun Wtr & Elec Util	0.00%	12.53%	0%
Spooner Municipal Utilities	0.00%	12.55%	0%
Trempealeau Mun Elc & Wtr Util	0.00%	12.78%	0%
<b>WISCONSIN TOTAL</b>	<b>10.94%</b>	<b>N/A</b>	<b>N/A</b>

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 2014. If an electric provider has a percentage below its 2014 RPS requirement, it has used banked RECs and/or purchased RECs from another provider.

## Appendix C: 2014 Total Retail Energy Sales & Renewable Energy by Wisconsin Electric Provider

### COLUMN KEY FOR TABLE BELOW

Columns 7-9, 13, 14, and 16 highlight CY 2014 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 2014 total retail sales per electric provider (from all generators) as reported to the Commission.
3. CY 2011-2013 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. 2011-2013 average total retail energy sales (Col. 3) multiplied by utility's 2014 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 2014. If Col. 5 is greater or equal to Co. 4 then "YES" in compliance, otherwise "NO".
7. Electric sales to Wisconsin retail customers in 2014, 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 2014).
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. 2014 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. 2014 Total renewable that include RPS eligible and green pricing programs (Col. 7 plus Col. 13).
15. 2014 Green pricing program energy as a percent of total 2014 RPS eligible and green pricing renewable energy (Col. 14 divided by Col. 13).
16. All renewable energy (Green Pricing and RPS Energy) divided by 2014 total retail energy sales (Col. 14 divided by Col. 2).

\* Indicates Aggregator.

1	Total Retail Energy Sales Information		CY 2014 Compliance Activity			2014 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*	2014 Retail Sales (MWh)	2011-2013 Ave. Retail Sales (MWh)	2014 RPS Required (MWh)	2014 M-RETS Certificates Retired	In Compliance?	Actual 2014 RPS Energy (MWh)	Actual 2014 RPS Energy as % of Ave. Sales	2014 RPS Energy as % of 2014 Retail Sales	Baseline RPS (%)	2010-2014 RPS (%)	2015 and beyond RPS (%)	2014 GPP Energy (MWh)	2014 GPP + RPS Energy (MWh)	GPP as % of Total Renewable Energy	Total Renewable Energy as % of 2014 Retail Sales
Adams-Columbia Electric Coop	517,725	486,668	23,944	23,944	YES	60,167	12.36%	11.62%	2.92%	4.92%	8.92%	329	60,496	0.54%	11.68%
Bangor Municipal Utility	27,338	26,533	2,287	2,287	YES	0	0.00%	0.00%	6.62%	8.62%	12.62%	-	-	N/A	0.00%
Barron Light & Water Utility	83,708	82,166	7,272	7,272	YES	243	0.30%	0.29%	6.85%	8.85%	12.85%	-	243	0.00%	0.29%
Belmont Mun Water & Elect Util	22,826	21,728	1,034	1,034	YES	2,676	12.32%	11.72%	2.76%	4.76%	8.76%	-	2,676	0.00%	11.72%
Benton Mun Elec & Water Util	5,205	5,218	254	254	YES	625	11.98%	12.01%	2.86%	4.86%	8.86%	-	625	0.00%	12.01%
Black Earth Electric Utility	15,739	16,485	862	862	YES	1,944	11.79%	12.35%	3.23%	5.23%	9.23%	-	1,944	0.00%	12.35%
Bloomer Electric Utility	54,888	50,559	4,282	4,282	YES	0	0.00%	0.00%	6.47%	8.47%	12.47%	-	-	N/A	0.00%
Cadott Light & Water Mun Util	13,384	13,069	1,140	1,140	YES	0	0.00%	0.00%	6.72%	8.72%	12.72%	-	-	N/A	0.00%
Central Wisconsin Elec Coop	99,087	97,071	4,795	4,795	YES	11,992	12.35%	12.10%	2.94%	4.94%	8.94%	-	11,992	0.00%	12.10%
Centuria Municipal Electric Util	5,820	5,748	826	826	YES	0	0.00%	0.00%	12.37%	14.37%	14.37%	-	-	N/A	0.00%
Clintonville Water & Electric Utility	126,242	111,488	3,835	3,835	YES	20,795	18.65%	16.47%	1.44%	3.44%	7.44%	-	20,795	0.00%	16.47%
Consolidated Water Power Company	1,029,843	1,053,320	194,548	195,348	YES	180,047	17.09%	17.48%	16.47%	18.47%	18.47%	-	180,047	0.00%	17.48%
Cornell Mun Water & Elec Util	12,987	12,749	1,103	1,104	YES	0	0.00%	0.00%	6.65%	8.65%	12.65%	-	-	N/A	0.00%
Dahlberg Light & Power Co	107,311	102,818	3,465	3,465	YES	2,082	2.02%	1.94%	1.37%	3.37%	7.37%	-	2,082	0.00%	1.94%
<b>Dairyland Power Cooperative*</b>	3,357,556	3,166,577	140,596	140,600	YES	430,522	13.60%	12.82%	2.44%	4.44%	8.44%	10,870	441,392	2.46%	13.15%
East Central Energy	54,487	50,362	1,330	1,330	YES	1,330	2.64%	2.44%	0.64%	2.64%	6.64%	344	1,674	20.57%	3.07%
Elkhorn Light & Water	112,161	113,625	6,170	6,170	YES	13,024	11.46%	11.61%	3.43%	5.43%	9.43%	-	13,024	0.00%	11.61%
Gresham Mun Light & Pwr Util	23,732	23,663	1,048	1,048	YES	2,436	10.29%	10.26%	2.43%	4.43%	8.43%	-	2,436	0.00%	10.26%
Hazel Green Municipal Utility	8,615	8,326	405	405	YES	1,019	12.24%	11.83%	2.87%	4.87%	8.87%	-	1,019	0.00%	11.83%

1	Total Retail Energy Sales Information		CY 2014 Compliance Activity			2014 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*	2014 Retail Sales (MWh)	2011-2013 Ave. Retail Sales (MWh)	2014 RPS Required (MWh)	2014 M-RETS Certificates Retired	In Compliance?	Actual 2014 RPS Energy (MWh)	Actual 2014 RPS Energy as % of Ave. Sales	2014 RPS Energy as % of 2014 Retail Sales	Baseline RPS (%)	2010-2014 RPS (%)	2015 and beyond RPS (%)	2014 GPP Energy (MWh)	2014 GPP + RPS Energy (MWh)	GPP as % of Total Renewable Energy	Total Renewable Energy as % of 2014 Retail Sales
Kiel (City of) Utilities	80,744	80,701	4,092	4,092	YES	13,300	16.48%	16.47%	3.07%	5.07%	9.07%	-	13,300	0.00%	16.47%
<b>Madison Gas &amp; Electric Co</b>	3,301,173	3,340,655	124,606	124,607	YES	348,553	10.43%	10.56%	1.73%	3.73%	7.73%	104,496	453,049	23.07%	13.72%
Manitowoc Public Utilities	521,859	516,970	26,831	26,831	YES	28,149	5.45%	5.39%	3.19%	5.19%	9.19%	165	28,314	0.58%	5.43%
Marshfield Elec & Water Dept	378,209	369,453	18,140	18,141	YES	30,927	8.37%	8.18%	2.91%	4.91%	8.91%	-	30,927	0.00%	8.18%
Mazomanie Electric Utility	31,307	29,342	1,306	1,306	YES	3,653	12.45%	11.67%	2.45%	4.45%	8.45%	-	3,653	0.00%	11.67%
Medford Electric Utility	131,720	126,085	10,604	10,604	YES	0	0.00%	0.00%	6.41%	8.41%	12.41%	-	-	N/A	0.00%
North Central Power Co Inc	34,903	32,673	11,471	11,472	YES	14,452	44.23%	41.41%	33.11%	35.11%	35.11%	-	14,452	0.00%	41.41%
<b>Northern States Power Co WI</b>	6,601,861	6,334,827	563,160	563,160	YES	1,290,325	20.37%	19.54%	6.89%	8.89%	12.89%	11,984	1,302,309	0.92%	19.73%
Northwestern WI Elec Co	173,544	169,917	24,604	24,604	YES	33,617	19.78%	19.37%	12.48%	14.48%	14.48%	-	33,617	0.00%	19.37%
Oconto Electric Coop	114,256	109,096	7,320	7,499	YES	16,300	14.94%	14.27%	4.71%	6.71%	10.71%	-	16,300	0.00%	14.27%
Pardeeville (Village of) Elec Util	19,470	19,498	866	866	YES	2,301	11.80%	11.82%	2.44%	4.44%	8.44%	-	2,301	0.00%	11.82%
Pioneer Power & Light Co	16,793	16,709	787	787	YES	1,973	11.81%	11.75%	2.71%	4.71%	8.71%	-	1,973	0.00%	11.75%
Princeton Mun Wtr & Elec Util	10,146	10,538	444	444	YES	1,295	12.29%	12.76%	2.21%	4.21%	8.21%	-	1,295	0.00%	12.76%
Rice Lake Mun Wtr & Elec Util	162,568	157,164	13,406	13,406	YES	0	0.00%	0.00%	6.53%	8.53%	12.53%	-	-	N/A	0.00%

1	Total Retail Energy Sales Information		CY 2014 Compliance Activity			2014 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*	2014 Retail Sales (MWh)	2011-2013 Ave. Retail Sales (MWh)	2014 RPS Required (MWh)	2014 M-RETS Certificates Retired	In Compliance?	Actual 2014 RPS Energy (MWh)	Actual 2014 RPS Energy as % of Ave. Sales	2014 RPS Energy as % of 2014 Retail Sales	Baseline RPS (%)	2010-2014 RPS (%)	2015 and beyond RPS (%)	2014 GPP Energy (MWh)	2014 GPP + RPS Energy (MWh)	GPP as % of Total Renewable Energy	Total Renewable Energy as % of 2014 Retail Sales
Rock Energy Coop	275,076	277,096	13,661	13,661	YES	30,954	11.17%	11.25%	2.93%	4.93%	8.93%	-	30,954	0.00%	11.25%
Sauk City Mun Wtr & Light Util	34,193	32,705	1,576	1,576	YES	3,929	12.01%	11.49%	2.82%	4.82%	8.82%	-	3,929	0.00%	11.49%
Shawano Municipal Utilities	271,686	288,858	9,648	9,648	YES	44,753	15.49%	16.47%	1.34%	3.34%	7.34%	-	44,753	0.00%	16.47%
Sheboygan Falls Utilities	188,218	178,879	8,533	8,533	YES	21,503	12.02%	11.42%	2.77%	4.77%	8.77%	-	21,503	0.00%	11.42%
Shullsburg Electric Utility	11,015	11,002	530	530	YES	1,296	11.78%	11.77%	2.82%	4.82%	8.82%	-	1,296	0.00%	11.77%
Spooner Municipal Utilities	30,973	32,462	2,776	2,776	YES	0	0.00%	0.00%	6.55%	8.55%	12.55%	-	-	N/A	0.00%
Stratford Mun Wtr & Elec Utility	17,890	17,753	943	943	YES	1,680	9.46%	9.39%	3.31%	5.31%	9.31%	-	1,680	0.00%	9.39%
Superior Wtr Light & Pwr Co	770,427	680,526	30,828	30,828	YES	30,828	4.53%	4.00%	2.53%	4.53%	8.53%	-	30,828	0.00%	4.00%
Trempealeau Mun Eic & Wtr Util	14,286	14,240	1,250	1,250	YES	0	0.00%	0.00%	6.78%	8.78%	12.78%	-	-	N/A	0.00%
Washington Island Cooperative	9,409	8,982	481	539	YES	948	10.55%	10.08%	3.35%	5.35%	9.35%	-	948	0.00%	10.08%
Westfield Milling & Elec Co	13,240	13,296	640	640	YES	1,614	12.14%	12.19%	2.81%	4.81%	8.81%	-	1,614	0.00%	12.19%
Wisconsin Dells Mun Elec Util	58,677	56,250	2,751	2,751	YES	6,882	12.23%	11.73%	2.89%	4.89%	8.89%	-	6,882	0.00%	11.73%
Wisconsin Rapids WW & Light	271,234	269,287	12,737	12,737	YES	43,594	16.19%	16.07%	2.73%	4.73%	8.73%	118	43,712	0.27%	16.12%
<b>Wisconsin Electric Power Co</b>	23,909,330	24,307,691	1,037,938	1,037,939	YES	1,890,813	7.78%	7.91%	2.27%	4.27%	8.27%	129,548	2,020,361	6.41%	8.45%
<b>Wisconsin Power &amp; Light</b>	10,640,562	10,360,519	547,035	547,035	YES	1,226,560	11.84%	11.53%	3.28%	5.28%	9.28%	29,365	1,255,925	2.34%	11.80%
<b>WPPI Energy*</b>	4,855,562	4,836,129	301,774	301,774	YES	791,521	16.37%	16.30%	4.24%	6.24%	10.24%	83,542	875,063	9.55%	18.02%
<b>Wisconsin Public Service Corp</b>	10,557,757	10,558,848	606,078	606,078	YES	955,650	9.05%	9.05%	3.74%	5.74%	9.74%	9,070	964,720	0.94%	9.14%
Wonewoc Electric & Water Util	4,918	4,916	231	231	YES	589	11.98%	11.98%	2.69%	4.69%	8.69%	-	589	0.00%	11.98%
<b>WISCONSIN TOTAL</b>	69,191,661	68,711,239	3,786,242	3,787,289	N/A	7,566,861	11.01%	10.94%	N/A	N/A	N/A	379,832	7,946,692	4.78%	11.49%

## Appendix D: 2014 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	11,926	9,593	1,051	317	-	-	-	-	256	-	23,143	-	-	37,353	-	-	-	-	-	-	-	-	-	37,353	60,496
Bangor Municipal Utility	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barron Light & Water Utility	243	-	-	-	-	-	-	-	-	-	243	-	-	-	-	-	-	-	-	-	-	-	-	-	243
Belmont Mun Water & Elect Util	530	428	34	20	-	-	-	-	-	-	1,012	-	-	1,664	-	-	-	-	-	-	-	-	-	1,664	2,676
Benton Mun Elec & Water Util	117	106	21	-	-	-	-	-	-	-	244	-	-	381	-	-	-	-	-	-	-	-	-	381	625
Black Earth Electric Utility	402	300	19	13	-	-	-	-	-	-	734	-	-	1,210	-	-	-	-	-	-	-	-	-	1,210	1,944
Bloomer Electric Utility	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadott Light & Water Mun Util	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Central Wisconsin Elec Coop	2,349	1,911	216	63	-	-	-	-	-	-	4,539	-	-	7,453	-	-	-	-	-	-	-	-	-	7,453	11,992
Centuria Municipal Electric Util	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clintonville	1,228	1,989	347	7	8	-	-	8,703	1	-	12,283	414	-	8,098	-	-	-	-	-	-	-	-	-	8,512	20,795
Consolidated Water Power Co	180,047	-	-	-	-	-	-	-	-	-	180,047	-	-	-	-	-	-	-	-	-	-	-	-	-	180,047
Cornell Mun Water & Elec Util	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dahlberg Light & Power Co	2,082	-	-	-	-	-	-	-	-	-	2,082	-	-	-	-	-	-	-	-	-	-	-	-	-	2,082
<b>Dairyland Power Cooperative</b>	68,358	12,155	15,301	4,381	-	175,640	-	-	52	-	275,887	-	-	146,318	18,802	385	-	-	-	-	-	-	-	165,505	441,392
East Central Energy	-	-	-	-	-	-	-	-	-	-	-	-	-	1,674	-	-	-	-	-	-	-	-	-	1,674	1,674

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 -	Grand Total
Elkhorn Light & Water	2,601	2,047	224	71	-	-	-	-	-	-	4,943	-	-	8,081	-	-	-	-	-	-	-	-	-	8,081	13,024
Gresham Mun Light & Pwr Util	466	400	40	20	-	-	-	-	-	-	926	-	-	1,510	-	-	-	-	-	-	-	-	-	1,510	2,436
Hazel Green Municipal Utility	209	158	29	-	-	-	-	-	-	-	396	-	-	623	-	-	-	-	-	-	-	-	-	623	1,019
Kiel	785	1,272	222	5	5	-	5,566	-	-	-	7,855	265	5,180	-	-	-	-	-	-	-	-	-	-	5,445	13,300
<b>Madison Gas &amp; Electric Co</b>	577	72,695	3,572	34,202	89	-	-	1,223	-	-	112,358	4,549	336,142	-	-	-	-	-	-	-	-	-	-	340,691	453,049
Manitowoc Public Utilities	1,649	2,773	466	9	11	-	11,685	128	-	-	16,721	557	11,036	-	-	-	-	-	-	-	-	-	-	11,593	28,314
Marshfield Elec & Water Dept	11,547	12,792	6,588	-	-	-	-	-	-	-	30,927	-	-	-	-	-	-	-	-	-	-	-	-	-	30,927
Mazomanie Electric Utility	726	579	52	24	-	-	-	-	-	-	1,381	-	-	2,272	-	-	-	-	-	-	-	-	-	2,272	3,653
Medford Electric Utility	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Central Power Co Inc	8,758	-	-	-	-	-	-	-	-	-	8,758	-	-	5,694	-	-	-	-	-	-	-	-	-	5,694	14,452
<b>Northern States Power Co WI</b>	164,279	-	-	-	2,441	124,349	-	-	-	-	291,069	16,005	869,692	11,408	-	-	38,813	75,322	-	-	-	-	-	1,011,240	1,302,309
Northwestern WI Elec Co	12,264	-	-	-	-	-	-	-	-	-	12,264	-	-	21,353	-	-	-	-	-	-	-	-	-	21,353	33,617
Oconto Electric Coop	9,340	4,596	2,364	-	-	-	-	-	-	-	16,300	-	-	-	-	-	-	-	-	-	-	-	-	-	16,300
Pardeeville (Village of) Elec Util	443	381	43	7	-	-	-	-	-	-	874	-	-	1,427	-	-	-	-	-	-	-	-	-	1,427	2,301
Pioneer Power & Light Co	404	295	35	13	-	-	-	-	-	-	747	-	-	1,226	-	-	-	-	-	-	-	-	-	1,226	1,973
Princeton Mun Wtr & Elec Util	247	212	20	9	-	-	-	-	-	-	488	-	-	807	-	-	-	-	-	-	-	-	-	807	1,295
Rice Lake Mun Wtr & Elec Util	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rock Energy Coop	6,146	4,885	520	170	-	-	-	-	-	-	11,721	-	-	19,233	-	-	-	-	-	-	-	-	-	19,233	30,954

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		756	628	75	24	-	-	-	-	-	-	1,483	-	2,446	-	-	-	-	-	-	-	-	-	-	2,446	3,929
Shawano		2,643	4,280	747	15	17	-	18,729	1	-	26,432	892	17,429	-	-	-	-	-	-	-	-	-	-	-	18,321	44,753
Sheboygan Falls Utilities		4,269	3,397	379	110	-	-	-	-	-	8,155	-	13,348	-	-	-	-	-	-	-	-	-	-	-	13,348	21,503
Shullsburg Electric Utility		267	200	12	9	-	-	-	-	-	488	-	808	-	-	-	-	-	-	-	-	-	-	-	808	1,296
Spoooner Municipal Utilities		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stratford Mun Wtr & Elec Utility		552	744	384	-	-	-	-	-	-	1,680	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,680
Superior Wtr Light & Pwr Co		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30,828	-	-	-	-	30,828	30,828
Trempealeau Mun Eic & Wtr Util		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Washington Island Cooperative		312	420	216	-	-	-	-	-	-	948	-	-	-	-	-	-	-	-	-	-	-	-	-	-	948
Westfield Milling & Elec Co		302	268	32	1	-	-	-	-	-	603	-	1,011	-	-	-	-	-	-	-	-	-	-	-	1,011	1,614
Wisconsin Dells Mun Elec Util		1,372	1,079	126	38	-	-	-	-	-	2,615	-	4,267	-	-	-	-	-	-	-	-	-	-	-	4,267	6,882
Wisconsin Rapids		2,574	4,269	728	15	17	-	18,244	1	-	25,848	869	16,995	-	-	-	-	-	-	-	-	-	-	-	17,864	43,712
<b>Wisconsin Electric Power Co</b>		41,683	745,950	208,579	10,063	7,147	83,786	-	1,484	-	1,098,692	314,574	607,095	-	-	-	-	-	-	-	-	-	-	-	921,669	2,020,361
<b>Wisconsin Power &amp; Light</b>		243,047	205,704	28,035	6,649	-	-	-	971	-	484,406	-	771,508	-	-	-	-	-	-	-	-	11	-	-	771,518	1,255,925
<b>WPPI Energy</b>		207,155	270,259	44,200	19,215	-	2,504	-	1,977	-	545,310	12,066	317,687	-	-	-	-	-	-	-	-	-	-	-	329,753	875,063
<b>Wisconsin Public Service Corp</b>		312,015	82,047	75,089	57,468	-	79,633	-	-	-	606,252	28,681	329,787	-	-	-	-	-	-	-	-	-	-	-	358,468	964,720
Wonewoc Electric & Water Util		96	105	-	10	-	-	-	-	-	211	-	378	-	-	-	-	-	-	-	-	-	-	-	378	589
<b>TOTAL per State and Resource</b>		1,304,766	1,448,917	389,766	132,948	9,735	465,912	62,927	6,093	-	3,821,065	378,872	3,571,186	30,210	385	-	69,641	75,322	11	-	-	-	-	-	4,125,627	7,946,692
<b>% of Total 2014 Renewables</b>		16.4%	18.2%	4.9%	1.7%	0.1%	5.9%	0.8%	0.1%	0.0%	48.1%	4.8%	44.9%	0.4%	0.0%	0.0%	0.9%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	51.9%	100.0%



### Appendix E: 2014 Statistics Generated from Electric Provider Data

*Includes both RPS and Green Pricing Program Renewable Energy*

#### 2014 Total Electric Energy Sales to Wisconsin Retail Customers (renewable and nonrenewable)

	(MWh)	% of Total Energy Sales
2014 Total Wisconsin Retail Energy Sales	69,191,661	100.0%

#### Renewable Energy by State

State	(MWh)	% of Total Energy Sales	% of Renewable Energy
TOTAL Renewable Energy from Wisconsin	3,821,065	5.5%	48.1%
TOTAL Renewable Energy from Other States	4,125,627	6.0%	51.9%
<b>TOTAL Renewable Energy from ALL STATES</b>	<b>7,946,692</b>	<b>11.5%</b>	<b>100.0%</b>

#### Renewable Energy by Renewable Resource

Renewable Energy Resource	(MWh)	% of Total Energy Sales	% of Renewable Energy
Wind	5,020,103	7.3%	63.2%
Hydro	1,683,639	2.4%	21.2%
Biomass	1,236,847	1.8%	15.6%
Solar	6,104	0.0%	0.1%
<b>TOTAL Renewable Energy from ALL RESOURCES</b>	<b>7,946,692</b>	<b>11.5%</b>	<b>100.0%</b>

#### Biomass Energy Broken Down

Biomass Type	(MWh)	% of Total Sales	% of Renewable Energy
Refused-derived	9,735	0.0%	0.1%
Other*	138,249	0.2%	1.7%
Biogas	133,333	0.2%	1.7%
Landfill gas	419,976	0.6%	5.3%
Wood or wood waste	535,553	0.8%	6.7%
<b>TOTAL from Biomass</b>	<b>1,236,847</b>	<b>1.8%</b>	<b>15.6%</b>

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

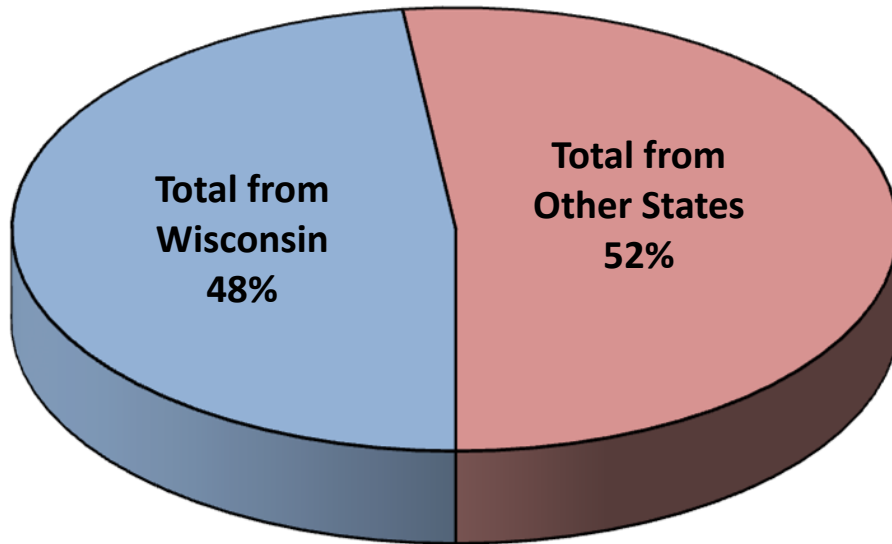
#### Renewable Energy by State and Renewable Resource

State and Renewable Resource	(MWh)	% of Total Energy Sales	% of Renewable Energy
WI Wind	1,448,917	2.1%	18.2%
WI Hydro	1,304,766	1.9%	16.4%
WI Biomass	1,061,289	1.5%	13.4%
WI Solar	6,093	0.0%	0.1%
Non WI Wind	3,571,186	5.2%	44.9%
Non WI Hydro	378,872	0.5%	4.8%
Non WI Biomass	175,558	0.3%	2.2%
Non WI Solar	11	0.0%	0.0%
<b>TOTAL Renewable Energy from ALL STATES AND RESOURCES</b>	<b>7,946,692</b>	<b>11.5%</b>	<b>100.0%</b>

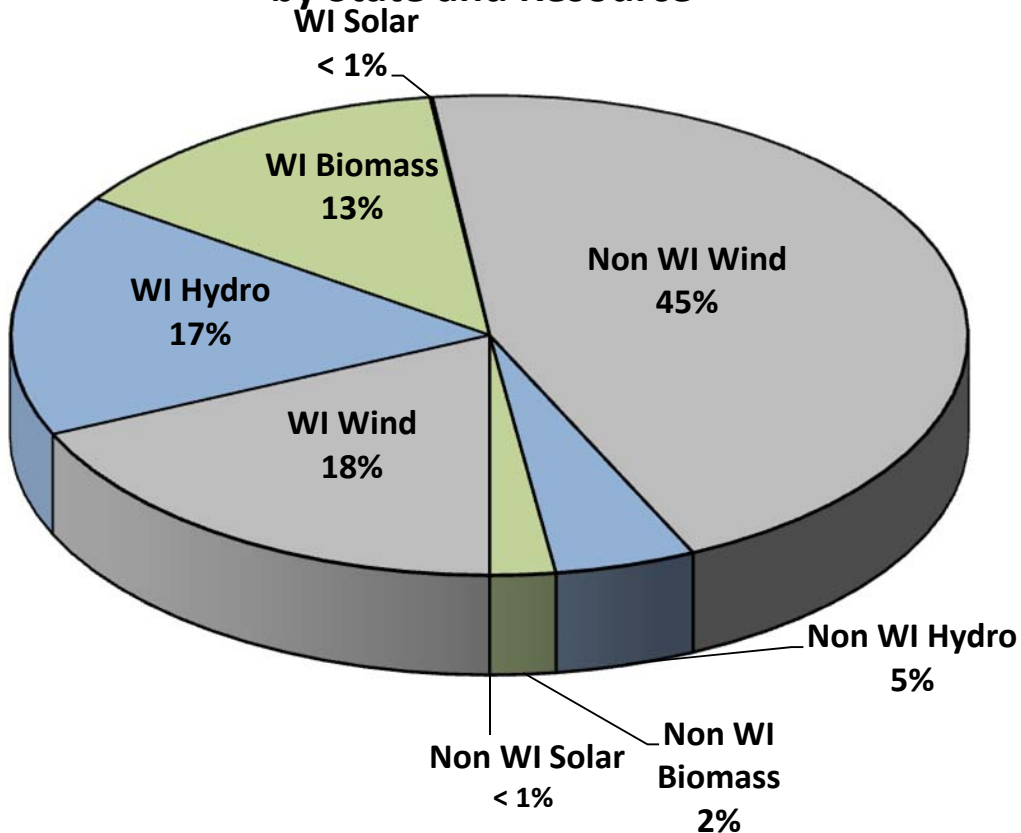
## Appendix F: 2014 Figures of Statistics Generated from Electric Provider Data

*Includes both Wisconsin RPS and Green Pricing Program Renewable Energy*

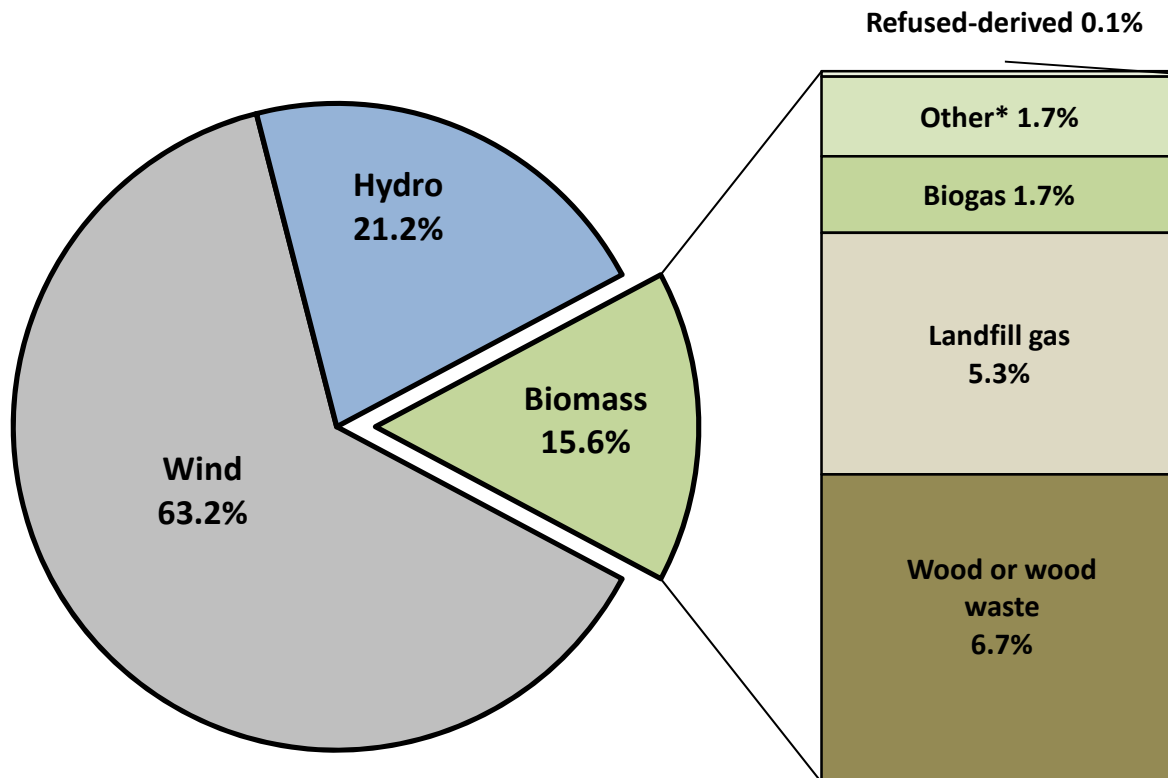
### 2014 Renewable Energy by State



### 2014 Renewable Energy by State and Resource

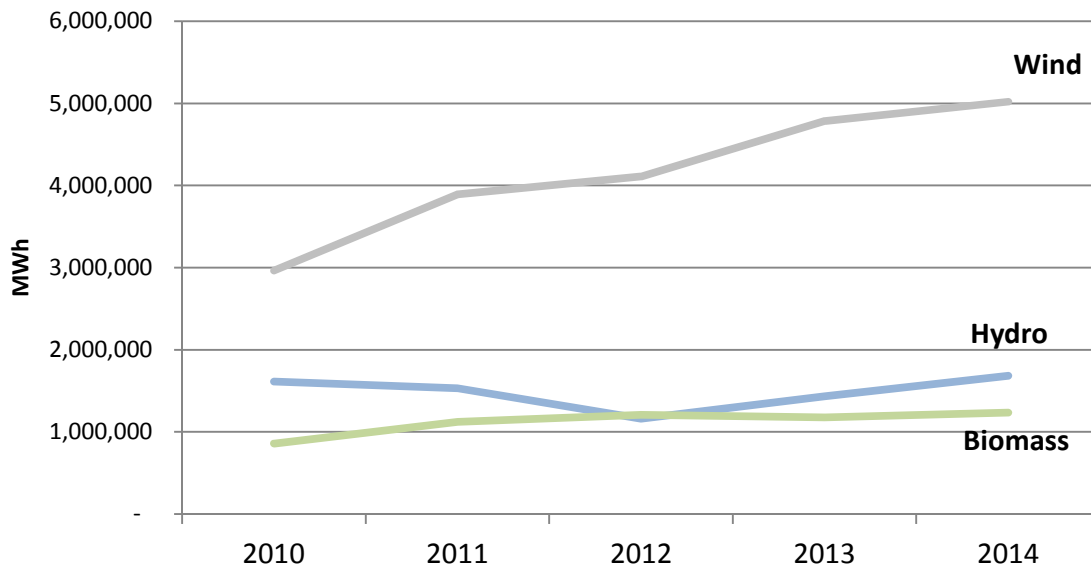


## 2014 Renewable Energy by Resource



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

## Renewable Energy by Renewable Resource (2010-2014)



## Renewable Energy from Solar Photovoltaic (2010-2014)

