



# Public Service Commission of Wisconsin

Rebecca Cameron Valcq, Chairperson  
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Public Service Commission of Wisconsin  
RECEIVED: 06/24/2020 9:55:00 AM

June 24, 2020

The Honorable Tony Evers  
Governor of Wisconsin  
State Capitol, Room 115 East  
Madison, WI 53702

Mr. Jeffrey Renk, Senate Chief Clerk  
State Capitol, Room B20 Southeast  
Madison, WI 53702

Mr. Patrick E. Fuller, Assembly Chief Clerk  
Risser Justice Center  
17 West Main Street, Room 401  
Madison, WI 53703

Re: Impact of the Renewable Portfolio Standard for 2017 and  
2018

5-GF-266

Dear Governor Evers, Senate Chief Clerk Renk, and Assembly Chief Clerk Fuller:

Enclosed please find a report from the Public Service Commission (Commission) on the rate and revenue impacts of the Wisconsin Renewable Portfolio Standard (RPS) as set out in Wis. Stat. § 196.378. Wisconsin Stat. § 196.378(4r) requires the Commission to biennially submit a report, by July 1 of each even-numbered year, evaluating the impact of the RPS on the rates and revenue requirements of electric providers, and compares that impact with the impact that would have occurred if renewable energy practice of electric providers were subject to market forces in the absence of the requirements of Wis. Stat. § 196.378.

Electric providers have met individual requirements every year since 2006, and have collectively met the statewide 10 percent renewable energy goal in 2013 and every year thereafter. With this information, Commission staff's analysis capped the quantity of renewable energy driven by the RPS to facilities owned or under contract with Wisconsin electric providers and in service between 2006 and 2014. This amount of "net RPS energy" represents a quantity of approximately 5.4 million megawatt-hours of renewable energy.

This report utilizes the same methodology of prior RPS impact reports in order to determine the revenue requirement and rate impacts of the RPS for the years 2017 and 2018. Compared to prices in the wholesale energy market, prices for net RPS energy increased revenue requirements by between \$203 and \$247 million on an annual basis. In terms of rate impacts, this represents a range between 2.48 and 3.52 percent for both 2017 and 2018. These revenue requirement and rate impact ranges are based on the higher costs incurred to achieve RPS compliance when

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Mr. Jeffrey Renk  
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historical investments were made, and expected to hold constant for the foreseeable future, as those investments will continue to operate and fulfill RPS compliance requirements.

Renewable resources are becoming increasingly cost-competitive with other generation sources. The Commission recently approved multiple proposals from electric providers to add new renewable generation facilities, and more renewable facilities may be proposed for Commission approval in the coming years. These additions are not driven by RPS requirements, and therefore are not included in the analysis for this report. These new renewable investments are not expected to have comparable effects in increasing revenue requirements and rates, but can instead reduce costs for customers due to the continuing decreases in renewable costs.

Sincerely,

A handwritten signature in black ink, appearing to read 'Rebecca Cameron Valcq', with a long horizontal flourish extending to the right.

Rebecca Cameron Valcq  
Chairperson

RCV:JF:dsa:jlt:DL: 01744901

Attachment

**Report on the Impacts of the  
Renewable Portfolio Standard**

**Docket 5-GF-266**

**Public Service Commission of Wisconsin  
July 1, 2020**

## **Report on Impacts of the RPS for 2017 and 2018**

This report fulfills the requirements of Wis. Stat. § 196.378(4r) for the Commission to report on the rate and revenue requirements of the Wisconsin Renewable Portfolio Standard (RPS) by July 1 of every even-numbered year.<sup>1</sup> The Commission filed prior RPS impact reports in dockets 5-GF-220 ([PSC REF#: 166782](#)), 5-GF-245 ([PSC REF#: 207029](#)), 5-GF-262 ([PSC REF#: 286821](#)), and 5-GF-265 ([PSC REF#: 348828](#)). The conclusion of this report is that the historical investments required to meet RPS requirements had an impact to the revenue requirement of electric providers across the state that ranges between 2.84 percent and 3.52 percent for the years 2017 and 2018. Statewide total revenue requirement has increased between \$203,082,946 and \$247,100,741 as a result of the RPS. The methodology used by Commission staff to estimate these ranges is described below. These findings reflect the additional costs required to invest in renewable resources between 2006 and 2013, relative to the alternative generation sources available at the time. More recently, renewable resources have become more cost-competitive with other generation options, which in combination with other factors has led electric providers to begin pursuing additional investments in renewable resources over and above RPS requirements.

### **Methodology for Estimating RPS Impacts**

The methodology to estimate RPS impacts was based on language in Wis. Stat. § 196.378(4r) stating that RPS costs shall be compared to “market forces” that electric providers would be subject to in the absence of the RPS. Using the same analytical approach established in

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<sup>1</sup> Wis. Stat. § 196.378(4r) provides: REPORTS. No later than July 1 of each even-numbered year, the commission shall submit a report to the governor and chief clerk of each house of the legislature for distribution to the legislature under s. 13.172 (2) that evaluates the impact of the requirements of this section on the rates and revenue requirements of electric providers and compares that impact with the impact that would have occurred if renewable energy practices of electric providers were subject to market forces in the absence of the requirements of this section.

prior RPS impact reports, Commission staff compared RPS costs to energy prices in the Midcontinent Independent System Operator, Inc. (MISO), energy market. Wholesale market energy prices, as the basis of comparison, became the “counterfactual” scenario, in that electric providers and their retail customers would have had more exposure to wholesale energy prices in absence of the RPS.

Commission staff established weighted average statewide costs for a megawatt-hour (MWh) per renewable resource by performing an analysis of data request responses by Wisconsin electric providers. Net RPS energy was defined as energy from renewable resources driven by the Wisconsin RPS and put in-service between 2005 and 2015. Compliance with 2005 Wisconsin Act 141 began in 2006, and 2015 marked the last increase in RPS requirements for Wisconsin electric providers. Statewide costs were then applied to net RPS energy by performing additional analysis of electric provider RPS compliance reports. Net RPS energy per renewable resource per year was distributed on a seasonal and hourly basis.

Commission staff then acquired MISO data on day-ahead energy market prices to determine the counterfactual. Rather than applying net RPS energy to RPS costs, the counterfactual scenario applies net RPS energy to day-ahead Locational Marginal Prices (LMP) that were observed at Wisconsin load zones. The incremental amount of revenue requirement for the RPS equals “RPS costs” minus “LMP costs.”

Energy Information Administration (EIA) data were used as well to finalize rate impact analyses. Limited to all Wisconsin electric providers, EIA-reported total revenues collected were divided by total retail sales of energy to determine actual statewide average retail rates. Additional revenue required due to the RPS, as mentioned in the previous paragraph, was then subtracted from total revenues to determine the counterfactual revenue requirement. This counterfactual revenue requirement was then divided by the same total retail sales to establish

the counterfactual statewide average rates for those years. The percent difference between the counterfactual and actual rate determines the rate impact of the RPS.

### **Determining RPS impacts for 2017 and 2018**

Electric providers have all met their individual RPS requirements since 2006, and have collectively met the 10 percent statewide renewable energy goal every year starting in 2013.<sup>2</sup> The historical analysis of RPS impacts of prior reports listed above shows rate impacts leveling off between 3.52 percent in 2013, and 2.84 percent in 2014. As the growth of net RPS Energy was minimal between 2013 and 2014, the range of rate impacts between these two years is driven primarily by fluctuations in wholesale market prices for energy, which is the basis for market forces comparison.

The renewable resource investments made by electric providers between 2006 and 2013 allowed the state to meet the 10 percent renewable energy goal by 2013, and will allow electric providers to meet individual RPS requirements and the statewide goal for the foreseeable future. Based on analysis of prior RPS reports, Tables 1 and 2 below display the largest renewable resources that have driven the net RPS energy and costs associated with the RPS. Table 1 lists the largest renewable resources owned by Wisconsin electric providers, and Table 2 lists renewable resources under long-term electric provider contracts during the 2006-to-2013 time period.

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<sup>2</sup> See Commission memorandum on 2016 RPS compliance in docket 5-RF-2016. ([PSC REF#: 326919.](#))

**Table 1 Largest Electric Provider-owned Renewable Resources**

Electric Provider <sup>3</sup> (Resource)	Location (County)	Year Installed	Capacity	Type
WEPCO (Blue Sky Green Field)	Calumet Co., WI	2008	145 MW	Wind
MGE (Top of Iowa III)	Worth Co., IA	2008	30 MW	Wind
WP&L (Cedar Ridge)	Fond du Lac Co., WI	2008	68 MW	Wind
WPSC (Crane Creek)	Howard Co., IA	2009	99 MW	Wind
WP&L (Bent Tree)	Freeborn Co., MN	2010/2011	201 MW	Wind
WEPCO (Glacier Hills)	Columbia Co., WI	2011	207 MW	Wind
WEPCO (Rothschild)	Marathon Co., WI	2013	50 MW	Biomass

**Table 2 Large Electric Provider-contracted Renewable Resources**

Resource (Electric Provider)	Location	Year in Contract	Capacity	Type
Top Of Iowa II (WPPI)	Worth Co., IA	2007	50 MW	Wind
Forward Energy LLC (WPSC, WP&L, MGE, WPPI)	Dodge/Fond du Lac Co., WI	2008	129 MW	Wind
Top of Iowa II (MGE)	Worth Co., IA	2008	30 MW	Wind
Endeavor II (MGE)	Dickinson Co., IA	2008	50 MW	Wind
Winnebago (DPC)	Forest City, IA	2008	20 MW	Wind
St. Leon (WPSC)	Manitoba, Canada	2009	35 MW	Wind
Barton I (WPPI)	Worth Co., IA	2009	30 MW	Wind
Barton II (WEPCO)	Worth Co., IA	2009	50 MW	Wind
Crystal Lake (WP&L)	Hancock, IA	2009	200 MW	Wind
Butler Ridge (WPPI)	Dodge Co., WI	2009	54 MW	Wind

These renewable resource investments came at a time when renewable resources were not yet cost-competitive with traditional and fossil fuel resources. The RPS served as a mandate for electric providers to procure energy from renewable resources, even though these resources were not the most economical alternative at the time, causing electric providers and their ratepayers to pay additional costs for early adoption of renewable energy.

As noted in the Commission memorandum on 2016 RPS compliance, renewable resources are becoming more cost-competitive. As a result, current and future renewable resources investments made by electric providers are increasingly driven by market forces, as

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<sup>3</sup> Acronyms as follows: Wisconsin Electric Power Company (WEPCO), Madison Gas and Electric Company (MGE), Wisconsin Power and Light Company (WP&L), Wisconsin Public Service Corporation (WPSC), WPPI Energy (WPPI), and Dairyland Power Cooperatives (DPC).

well as other influences such as customer demand for additional renewable energy and provider goals to decrease carbon dioxide emissions. ([PSC REF#: 326919](#).) It is therefore reasonable to place a cap on net RPS energy estimated in the prior report analyzing impacts for 2013 and 2014. The approximate 5.2 to 5.4 million MWh of net RPS energy, captured in years 2013 and 2014 is ultimately the quantity of renewable energy required to satisfy the RPS. Any renewable energy reported by electric providers above the amount produced in 2014 is not driven primarily by the RPS, and is not included in net RPS energy as part of Commission staff's analysis for 2017 and 2018.

Therefore, the Commission concludes that the rate impacts estimated for 2013 and 2014, a range between 2.84 and 3.52 percent, remain an appropriate estimation of rate impacts for years 2017 and 2018 as the focus of this biennial report. The corresponding range for annual, incremental revenue requirements of the RPS for 2017 and 2018 is between \$203,082,946 and \$247,100,741. As noted above, the ranges for rate and revenue requirement impacts are dependent upon fluctuations in wholesale market prices. When wholesale market prices are high as a basis of comparison, RPS impacts are lower; and vice-versa, when wholesale market prices are low, RPS impacts appear comparatively higher within these ranges.

### **Electric Provider Renewable Investments and Programs Beyond the RPS**

As noted above, cost decreases for renewable resources have made renewable resources increasingly cost-competitive with other generation sources. Between 2010 and 2019, total solar generation costs per kilowatt-hour have declined 63 percent in the Midwest region, and costs for wind generation have declined 30 percent. After factoring in available tax benefits and other accounting benefits that further reduce prices for many individual projects, electric providers considering new generation additions at present are increasingly identifying renewables as a cost-competitive option.



As of May 2020, 750 MW of additional solar capacity in Wisconsin has received regulatory approval. As shown in Table 3, if those projects meet their expected in-service dates, the share of renewable generation would increase by slightly more than 2 percent, to approximately 13 percent of projected statewide sales by 2023.

**Table 3**

Statewide Retail Sales (MWh) Statewide 2018: 70,938,007	Solar Facility Additions	Expected In-Service	Expected Renewable Annual Generation (MWh) Statewide: 7,638,136	Statewide Renewable Energy 10.8 %
	Badger Hollow	2020	630,720	
	Two Creeks	2020	315,360	
	Richland County Solar Farm	2021	104,069	
	Point Beach	2021	210,240	
	Badger State	2022	313,258	
Statewide 2023: 71,000,000			Statewide: 9,211,783	13.0%

Future regulatory approval of other planned solar developments would further increase the amount of renewable energy used by Wisconsin electric providers in the coming years. Wisconsin Power and Light has announced plans to add 1,000 MW of additional solar capacity, and submitted applications for Commission authorization of 650 MW of those additions in May 2020.<sup>4</sup> Table 3 also does not include multiple in-state solar facilities presently under development by independent firms, which may be leased by electric providers at a future date.

Continued use of the historical generation investments in Tables 1 and 2 will maintain providers’ compliance with RPS requirements, and those investments will continue to account for increased revenue requirements due to the higher costs borne when those investments were made. By contrast, new renewable investments made for reasons other than RPS compliance will not have comparable effects on revenue requirements, but can instead reduce costs for customers due to the newly cost-competitive nature of renewable investments.

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<sup>4</sup> See docket 6680-CE-182.