

Study: Renewable Energy Mandates Come Up Short On Economic Promises

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Executive Summary



Do renewable energy mandates foster new industry and create waves of high-tech jobs, as many advocates claim? New research debunks this claim, indicating that the mandate's costs far outweigh its benefits.

The new research, "Evaluating the Costs and Benefits of Renewable Energy Portfolio Standards," was conducted by University of Wyoming professor Dr. Timothy Considine, who evaluated 12 separate states with a Renewable Portfolio Standard (RPS), including Wisconsin.

The research describes the direct cost of the RPS to the Wisconsin electricity industry and therefore to electricity consumers. Wisconsin's RPS forces consumers to pay higher electricity costs - \$474 million in 2016 alone. By 2025, the increased cost paid by Wisconsinites attributable to the RPS is projected to increase to almost \$500 million.

Increased electricity rates caused by renewable energy mandates also result in approximately \$1 billion in lost economic activity in Wisconsin each year. Job losses attributable to the RPS are 7,000 to 10,000 jobs below employment levels without RPS mandates, even after factoring in the meager number of new "green" jobs.

Contrary to claims made by environmental advocates that RPS mandates lead to large numbers of new "green" jobs and new economic growth, the real costs in economic activity and lost jobs attributable to RPS mandates far outstrip any negligible gains in the renewable energy industry.

Key Takeaways:

- Renewable energy mandates cost Wisconsin taxpayers and ratepayers nearly half a billion dollars per year.
- Renewable energy mandates cost Wisconsin around 10,000 jobs per year, far more than the "clean energy" jobs created.
- Losses in economic activity hover around \$1 billion per year as a result of renewable energy mandates.

Background

In 1998, Wisconsin lawmakers chose to mandate how electricity is generated in the state, making Wisconsin one of the first states to adopt a renewable energy requirement, also called a Renewable Portfolio Standard (RPS).

In 2006, the state Legislature and then-Governor Jim Doyle adopted Wisconsin's current set of RPS mandates.

Their initial proposal called for a "25 by 25" renewable standard. Under that standard, 25 percent of Wisconsin's electricity would be required to come from renewable sources by the year 2025. That plan was eventually changed to a "10 by 15" standard that Gov. Doyle signed into law in March 2006.

The 2006 law required the state's electric utilities to gradually increase the amount of energy they generate using renewable sources such as wind and solar.

By 2015, the state required each electric utility to generate the mandated minimum of 10 percent from renewable sources. Utilities must maintain those levels indefinitely.

Utilities are allowed to and typically do pass the additional costs of the renewable mandates on to ratepayers by increasing their rates with permission from the Public Service Commission (PSC), the state agency responsible for the regulation of Wisconsin's public utilities.

The economic benefits of aggressive carbon reduction policies are a common refrain by supporters of renewable energy. Gov. Doyle, along with most proponents of the RPS, claimed that thousands of jobs in Wisconsin would be created by renewable energy. "Clean energy technology and high-end manufacturing are Wisconsin's future...We have more than 300 companies and thousands of jobs in the wind industry," Gov. Doyle said in his final State of the State address.

However, an investigation by the Maclver Institute revealed the dubious nature of Gov. Doyle's claims that the renewable energy industry can compensate for the steep costs of a government-mandated renewable energy standard.

During that investigation, the Office of Energy Independence - an agency created by Gov. Doyle in 2007 - directed Maclver investigators to Wisconsin Wind Works, a self-described "consortium of manufacturers representing the wind manufacturing supply chain within Wisconsin."

The advocacy group maintains an online wind energy-related supply chain database, although a routine examination of the data proved just how unreliable the figures are.

For example, Rexnord Industries was one of eight Wisconsin manufacturers listed as directly serving the wind energy industry in Wisconsin. The database shows the company has 6,000 employees. Yet a Rexnord official told the Maclver News Service that the company only has 1,500 employees in Wisconsin, and only five of those have jobs that are directly tied to the wind industry.

Out of the 7,632 "green energy" jobs listed, Maclver could only verify that 31 of the jobs were tied directly to the green energy sector.

These exaggerated numbers were not limited to just one example. At the time of our search, the database claimed 7,632 jobs among the eight manufacturers that were primary suppliers to the wind industry. Yet, our investigation was only able to identify 31 jobs at those companies that were specifically tied to wind energy related products.

This report provides further evidence that the costs of Renewable Portfolio Standards far outweigh any economic benefits.

Where We Stand

By 2014, Wisconsin utilities had fully complied with the RPS mandates adopted in 2006. Moving forward from 2015, utilities are barred from reducing their renewable energy percentage.

Wisconsin generated 65.9 million MWh of electric power in 2013. Coal power provided more than 61 percent of total generation. Nuclear facilities provided almost 18 percent, natural gas more than 12 percent, hydroelectric 3 percent, and wind provided just 2.4 percent of total generation.

According to the Energy Information Administration, the national averages for each source in 2015 were 33 percent coal, 33 percent natural gas, 20 percent nuclear, 6 percent hydropower, and 7 percent renewables, 4.7 percent of which was wind.

Many other Midwestern states also have RPS mandates. According to the National Conference of State Legislatures (NCSL), Minnesota has the most aggressive RPS, requiring between 25-31.5 percent renewable energy by 2025, depending on the type of utility. Like Wisconsin, Michigan also requires 10 percent renewable energy by 2015. Missouri requires 15 percent by 2021, and Illinois requires 25 percent by 2025-2025. Indiana is the most lenient--its goal of 10 percent renewable energy by 2025 is voluntary for utilities.

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Though Wisconsin's utilities met the RPS requirements of the 2006 law ahead of schedule, proponents of renewable energy are certainly not satisfied. In 2014, legislative Democrats proposed a new "30-by-30" requirement, hiking the renewable mandate to 30 percent by 2030.

"Increasing it to 30 percent would require building more infrastructure than we currently need to meet electric demand, putting upward pressure on electric rates at a time our economy is trying to recover," commented Bill Skewes, executive director of the Wisconsin Utilities Association.

The proposal had no chance of passing the Republican-controlled Legislature or being signed into law by Gov. Scott Walker, but proponents repeated claims that Wisconsin was missing out on economic opportunity by not passing the draconian measure.

Impact on Wisconsin's Electricity Sector

CAPACITY, GENERATION, AND UTILIZATION RATES FOR WISCONSIN, 2013

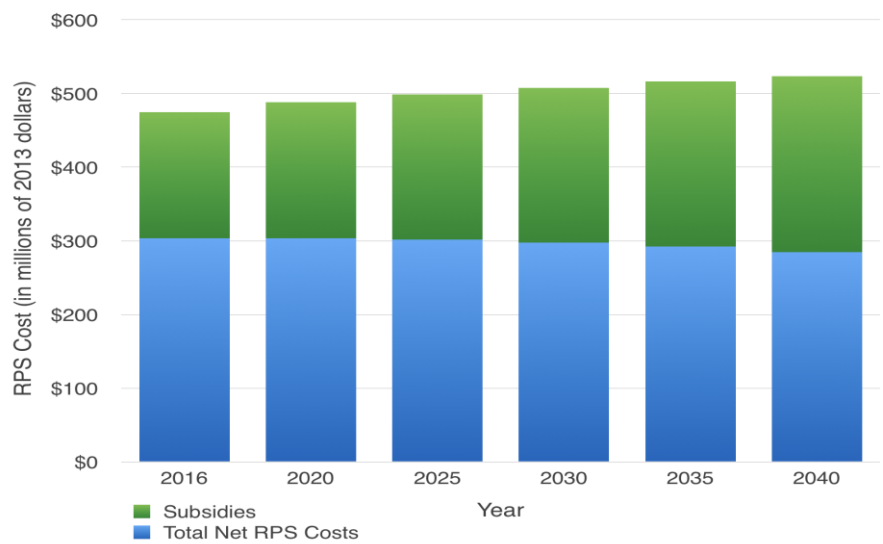
ENERGY SOURCE	CAPACITY MW	GENERATION MWhr	CAPACITY UTILIZATION %
Coal	8,263	40,645,181	0.5615
Geothermal	0	0	0.0000
Hydroelectric	519	1,978,872	0.4353
Natural gas	7,067	8,102,491	0.1309
Nuclear	1,286	11,675,194	1.0364
Other	21	66,017	0.3623
Other biomass	101	484,340	0.5458
Other gas	0	0	0.0000
Petroleum	849	303,055	0.0407
Pumped Storage	0	0	0.0000
Solar	0	0	0.0000
Wind	635	1,557,924	0.2803
Wood	325	1,149,717	0.4043
Total	19,066	65,962,791	0.3950

Wind power provides more than 98 percent of new capacity to meet RPS goals in Wisconsin, with the remainder met by solar generating plants. The increases in average electricity costs from new RPS capacity additions are 9.6 percent in 2016, 10 percent in 2020, and 7-9 percent after 2025. With legacy costs, average electricity rates in Wisconsin increase over 4 percent in 2016 because of the RPS. The direct costs to electric utilities and thus ratepayers to achieve 10 percent of electricity consumption supplied by renewable energy amount to \$361.6 million in 2016, rising in subsequent years to over \$500 million in 2040. After adding cycling costs and deducting for fossil fuel and natural gas combined cycle (NGCC) capacity costs, the net costs to meet the RPS goal are \$206 million in 2016, \$211 million in 2020 and 2025, and over \$200 million per year thereafter. These added costs are typically passed along to electricity consumers in the form of higher rates.

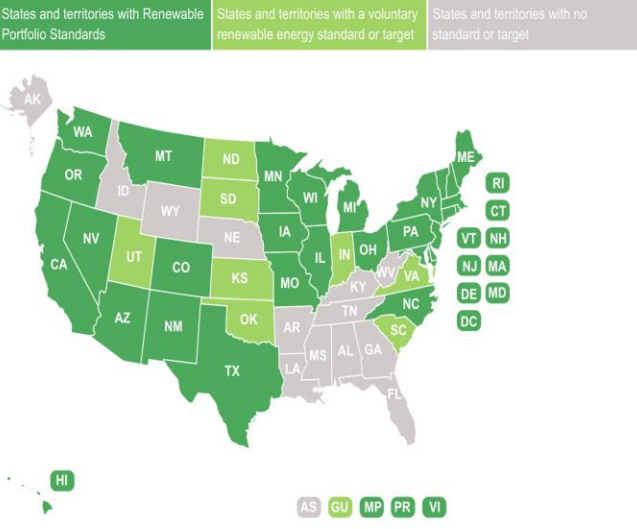
IMPACTS OF RPS ON WISCONSIN EMPLOYMENT BY SECTOR

	2016	2020	2025	2030	2035	2040
	Number of Jobs					
Metals	-269	-266	-249	-229	-210	-191
Paper	-724	-716	-669	-617	-565	-513
Wood	-399	-395	-369	-340	-312	-283
Other Manuf.	-1,983	-1,960	-1,832	-1,690	-1,547	-1,405
Textiles	-92	-91	-85	-78	-71	-65
Minerals	-39	-38	-36	-33	-30	-27
Construction	-968	-957	-894	-825	-755	-686
Transportation	-1,092	-1,080	-1,009	-931	-852	-774
Services	-4,909	-4,852	-4,534	-4,182	-3,829	-3,478
Utilities	253	250	234	216	197	179
Total	-10,222	-10,105	-9,443	-8,709	-7,974	-7,243

COSTS OF WISCONSIN RPS



Total net RPS costs includes net legacy RPS costs plus net new RPS costs



Those costs don't include taxpayer-funded subsidies provided to companies in the renewable energy industry, including the federal investment tax credit for solar and the federal production tax credit for wind.

Including subsidies, the total costs of Wisconsin's RPS are \$474 million in 2016, \$488 million in 2020, almost \$500 million in 2025, and more than \$500 million annually from 2030 to 2040. The costs can also be viewed per ton of carbon emissions that are avoided as a result of the RPS. The direct cost per ton of avoided carbon emissions are \$34.67 per ton in 2016, \$31.82 per ton in 2020, \$29.94 per ton in 2025, and \$23.95 per ton in 2040. Tax subsidies add about \$20 per ton to these costs.

The EPA social cost of carbon is from \$12 to \$24 per ton. Viewed on a per-ton basis, RPS mandates in Wisconsin are an inefficient greenhouse gas reduction strategy.

Tax subsidies add about \$20 per ton of carbon emitted to these costs.

Economic Impact

RPS mandates raise retail prices for electricity, increasing electricity bills for residential, commercial, and industrial customers. This increases the costs of providing goods and services in Wisconsin, reducing economic output. Annual losses in economic value added - essentially reduced economic activity as a result of increased electricity prices - range from \$1.1 billion in 2016 to \$1 billion in 2025, and remain about \$800 million per year out to 2040, the study's horizon.

Reduced economic activity in Wisconsin as a result of increased electricity prices ranges from \$1.1 billion in 2016 to \$1 billion in 2025.

The RPS mandates also cost jobs. Employment levels are 7,000 to 10,000 jobs annually below employment levels without RPS mandates, even after factoring in the meager number of new "green" jobs.

Like in other states, the stimulus effect from RPS investment is not large enough to offset the massive negative impacts of higher electricity rates. On balance, net annual losses in economic value added from Wisconsin's RPS goals are \$1 billion in 2016, \$1.1 billion in 2020, and remain near \$1 billion annually through 2040.

The service sector of Wisconsin's economy is projected to be hit hardest, losing \$744 million in value added in 2016 and \$735 million in 2020, with losses declining to \$527 million in 2040. The service sector is projected to lose the largest share of jobs, losing 4,909 jobs in 2016, 4,852 jobs in 2020, and with similarly large losses through 2040.

NET IMPACTS OF RPS ON WISCONSIN VALUE ADDED AND EMPLOYMENT

	2016	2020	2025	2030	2035	2040
Millions of 2013 Dollars						
RPS Invest.	447.54	96.91	97.87	103.32	106.63	112.56
Value Added						
Electric Prices	-1,147.62	-1,134.44	-1,059.94	-977.78	-895.11	-813.19
RPS Invest.	86.84	18.8	18.99	20.04	20.68	21.83
NGCC Invest.	-4.19	-0.41	0.01	0.02	0.1	0.08
Net Change	-1,064.97	-1,116.05	-1,040.95	-957.72	-874.33	-791.27
Employment						
Number of Jobs						
Electric Prices	-10,223	-10,105	-9,442	-8,710	-7,973	-7,244
RPS Invest.	1,140	247	249	263	271	286
NGCC Invest.	-38	-4	0	0	1	1
Net Change	-9,121	-9,862	-9,193	-8,447	-7,701	-6,957

All sectors of the Wisconsin economy are projected to lose value added and jobs as a result of RPS, with the exception of meager increases in the utilities sector.

Conclusion

Wisconsin's RPS mandate has imposed significant costs on our state's economy by displacing relatively cheap energy sources with more expensive, lower-output sources like wind and solar. The RPS raises electricity costs for all consumers, resulting in a significant reduction in Wisconsin's economic output and steep job losses - even after accounting for the insignificant economic stimulus from mandating renewable power supplies.

While advocates of the RPS insist that renewable energy mandates benefit the economy and create waves of new jobs in the renewable energy industry, the data presented in this report demonstrates that the economic harm and job losses these mandates inflict dwarf any such gains. [Download the PDF report here.](#)

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