



Caesar Rodney Institute
Center for Energy & Environment
420 Corporate Blvd.
Newark, DE 19702
WWW.CaesarRodney.org

Public comments on Senate Bill 33

Most legislators serving on the Senate and House Energy Committees in 2021 are serving for the first time. I recommend reading this document to learn both the history of Delaware's Renewable Portfolio Standard Act (REPSA), and current electric industry trends. Following is a quick snapshot.

Did you know?

- Regional grid manager PJM concluded intermittent wind and solar power will impact electric grid reliability if they account for more than 30% of generating capacity¹
- California has had rolling black outs when its 25% wind and solar capacity failed to deliver enough power which contributed to blackouts²
- Texas saw wholesale power prices spike by 250 times normal when its 20% wind and solar capacity failed to deliver enough power during peak use in August, 2019³
- A 2010 REPSA amendment had bipartisan support as large energy users were exempted to keep high paying union jobs in Delaware, and consumer protection was included in the form of a cost cap to protect the 20% of families who forego food and medicine to pay energy bills⁴
- Exceeding the Cost Cap was to lead to a temporary freeze in the ever increasing mandates. We have not kept that promise. Large energy users now pay up to \$1 million a year, and the poor are paying up to six times the promised cap
- The Delaware Public Service Commission (PSC) used a duly adopted Cost Cap Calculation to determine Delmarva Power is adding 19% to power supply cost compared to a 3% cost cap, and the cap has likely been exceeded since 2013 with no freeze.
- Nine municipal utilities and the Delaware Electric Cooperative meet the 3% Cost Cap
- DNREC delayed finalizing a required Cost Cap Calculation regulation for six years, and sued and lost two cases in Superior Court delaying the PSC from finalizing its calculation by another three years, and then sued the PSC again to stop implementation of an ordered freeze
- The rush to pass SB33 is to end the DNREC lawsuit that is scheduled to move forward in February. DNREC is clearly concerned they will lose again. DNREC should drop the lawsuit
- An RPS freeze will not impact the Delaware solar industry. Higher upfront Green Energy Fund Grants replace lost twenty year energy credit income, and utility scale solar is being built to actually lower electric rates in Delaware and doesn't need energy credit revenue
- The proposed new cost cap system adopts an Alternative Compliance Payment of \$150 for solar when current solar energy credits are selling for \$10 to \$35, and Delmarva caps its purchases at \$50
- Maryland reduces its solar ACP each year and will reach \$22 in 2030⁵
- Delaware's current 21% renewable requirement is being met with only 2% in state generation⁶
- Renewable mandates peaked at 37 states, but current laws will leave only 13 states with such mandates after 2026⁷
- In 2018 only 11% of new wind and solar generation was mandate based⁸. Renewables now compete with conventional power plants, and 80% of new power plant construction over the last four years has been renewable⁹
- Northeastern states with high renewable power mandates currently only generate about 4% of their power from renewable sources⁷ making up the difference by buying energy credits from other states



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Broken promises on consumer protection¹⁰

The first RPS bill was passed in 2007 with a major amendment in 2010. Both bills had bipartisan support as large energy users were exempted to keep high paying union jobs in Delaware, and consumer protection was included in the form of a cost cap on electric bills. The protection was needed for both the poorest among us, and to protect jobs.

There was recognition it would be difficult to calculate externality benefits such as less air pollution that would offset the premium cost of wind and solar power at the time so the cost cap was set at 3% to allow for those benefits. It was also recognized the premium cost for wind and solar would likely fall with time as it has in dramatic fashion. The job of writing the cost cap calculation formula was given to the Public Service Commission who had regulatory authority over the state's public utilities, and had the experience of balancing electric industry cost, reliability, and the environment. Any freeze of the RPS due to costs rising over 3% would be done in consultation with DNREC.

Normally it is expected regulations will follow legislation by six months to a year. In this case it took six years before the first cost cap calculation was ever made, and nine years before any honest calculation was made by which time the PSC determined costs had risen by 19%, and that didn't include the cost of the Green Energy Fund grant program. I estimate, and no one has disputed the calculation, the cost cap was most likely exceeded by Delmarva Power in 2013. Both the Delaware Electric Cooperative, and the municipal electric utilities have met comparable standards and have stayed under the cost cap.

So what happened at Delmarva? To be blunt single legislators, DNREC, the Governor, and the Renewable Energy Task Force members, all influenced Delmarva energy credit purchase decisions. Delmarva entered into contracts without adequately allowing for a range of possible impacts on the cost cap. In 2011, when premium costs were at their peak for wind and solar, Delmarva signed long term contracts for three out of state wind projects, and the Dover Sun Park instead of moving more slowly to take advantage of falling costs like other utilities in Delaware, and utilities in other states. Twenty other states' have cost caps and only one other state exceeded its cost cap (Ohio)¹¹. Also in 2011 the Qualified Fuel Cell Project tariff was approved to support the Bloom Energy production plant in Newark with DNREC support in initiating the project, supporting it being declared renewable even though it uses natural gas, and finally allowing double counting of energy credits to justify the high cost of the project. Solar energy credit auctions added more cost. All of these expensive options came on line in 2012 and 2013. By 2032 all these contracts will end after Delmarva Power customers have paid about \$1.7 billion dollars in premium charges.

Delmarva Power RPS Contract Cost 2012 to 2032 - \$ millions

Contract	Yearly Cost	End Date	Life Cost
Bloom Fuel Cell	\$35 first 15 years	2027	\$525
Bloom Fuel Cell	\$24 last 5 years	2032	\$120
3 PA wind projects	\$20 first 8 years	2020	\$160
3 PA wind projects	\$16 last 7 years	2027	\$112
Dover Sun Park	\$2.5	2032	\$50
First SREC auction	\$1.6	2032	\$33
Total 2011 to 2012 contracts	\$59	2032-2038	\$1,000



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2013-2019 SREC auctions	\$5	2033 to 2039	\$100
Spot market solar	\$19	2032	\$380
Spot market wind	\$11	2032	<u>\$220</u>
Total RPS thru 2032			\$1,700

Note: spot market estimates, and long term cost of the Dover Sun Park, and three PA wind projects, are based roughly on the 2016 Delmarva IRP Table 8 and 9, page 73

Why has it taken so long to calculate the cost cap? Unfortunately, The PSC delegated the responsibility for writing the cost cap calculation to DNREC. DNREC is a renewable energy advocate with no responsibility for electric cost or reliability. DNREC wrote, and withdrew four different versions of the regulation and the first three versions included the fuel cell project cost. The final version, ignoring the fuel cell project, including distribution and transmission cost in the divisor, and subtracting exaggerated externality costs that were used to justify the 3% allowable rise in electric costs was finally made in 2016. Viola, the cost cap was not exceeded. The Public Advocate, the PSC staff, and CRI opposed the final regulation.

A lawsuit by the Public Advocate eventually sent this responsibility back to the PSC after a Superior Court decision. It took another three years, including another lawsuit loss by DNREC and DNREC refusal to cooperate with the PSC, for the PSC to complete the calculation that led to a freeze order over the shocking 19% result. DNREC sued yet again to stop the freeze, and won a stay to delay a court decision that runs out February 1. It has been stated by Senator Hansen SB33 needs to be rushed to end the suit. Unsaid is DNREC may lose the suit again.

DNREC has had a heavy hand in breaking the consumer protection process, and in hiding the true cost from the public. Passing SB33 rewards DNREC for their obstruction by making sure there will never be a freeze in the RPS program regardless of the cost.

The proposed new consumer protections will not work

Utilities must buy energy credits from wind and solar projects to comply with REPSA, and that cost is what is added to electric bills. If there are not enough available energy credits the utility can pay a fee to DNREC called an Alternative Compliance Payment (ACP). A high ACP cap was designed to encourage utilities to find enough lower priced energy credits. SB33 turns the ACP into a cost cap mechanism claiming to set the ACP at a low enough level that it will send a price signal keeping credit cost down.

However, SB33 sets the ACP price so high it will be ignored as a market signal. Recently solar credits have sold for \$10 to \$35 each, but the proposed ACP is \$150 and will be locked in for fifteen years no matter how low the cost of renewable energy falls. Delmarva has used discretionary authority to cap its energy credit auction purchases at \$50. To offer any protection the ACP should start at no more than \$50 and should be reduced automatically each year. Maryland passed a similar program, started with a \$100 ACP, and reduced the number yearly to \$22 by 2030.



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A freeze will have limited impact on in state renewable energy expansion in Delaware

Delaware has low wind speeds so only solar is likely to be used here. The cost of installing utility scale solar projects has fallen 90% over the last decade, and is now comparable to building conventional power plants. No subsidies, such as the sale of energy credits are needed. If a project is located in a utilities service area regional transmission fees are avoided which actually means these projects can lower cost compared to buying power from the regional grid.

Small scale projects for residential and small business use cost four times as much as large scale projects and are not a competitive source of power. Solar module prices have fallen steadily over the last four years, but the installed cost of small systems have not. Small scale projects receive a 26% federal tax incentive, a generous, upfront state Green Energy Fund grant, and any excess power is purchased by the power company at full retail cost. With so many subsidies, installers have not had much pressure to lower the installed price. It has been found small systems will sell if there is a six to seven year payback. Without energy credits the other subsidies result in a 6.7 year payback, and a 13% return in investment that beats just about any other currently available low risk investment option (see spreadsheet attached).

The sale of solar energy credits over a twenty year period also subsidized small scale solar projects. These contracts have not been available for the last year and a half since the PSC stopped energy credit auctions. DNREC increased the size of Green Energy Fund grants to compensate for the lost energy credit income and that has worked. Consumers have a hard time understanding the energy credit system, and when offered upfront money instead of spreading it over twenty years most consumers prefer the upfront money even when they receive half the present value of the energy credits.

The bottom line is the solar industry will do just fine without energy credits, or even without a REPSA mandate.

Renewable Portfolio Standard trends

Renewable mandates peaked at 37 states, but current laws will leave only 13 states with such mandates after 2026. In 2018 only 11% of new wind and solar generation was mandate based. Renewables now compete with conventional power plants, and 80% of new power plant construction over the last four years has been wind or solar powered. REPSA style mandates are last decades' solution to reduce carbon dioxide emissions.

Northeastern states have been raising their mandates, but the increases are hypocritical. These same states are currently only generating about 4% of their power from wind and solar sources. They make up the difference required by high mandates by buying energy credits from other states. For example, Delaware's current mandate requires 21% of electric demand must be renewable, but in state generation is only 2% from solar with another 3% from non-renewable fuel cells. The rest of the energy credits come from out of state projects funded by Delaware electric customers resulting in exporting jobs to other states.

Virginia just moved to a Clean Energy Standard¹² to encourage existing nuclear and hydro power, and innovative energy sources. Every administration since President Carter has supported alternative energy research, and the Biden Administration is expected to accelerate that effort. The research pipe line is full of



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ideas on how to use carbon dioxide capture, hydrogen and nuclear as fuel, energy efficiency, smart grids, demand side management, converting demand from fossil fuels to electricity, and hybrid generation and storage options. These options have an extra benefit of operating essentially all the time to protect electric reliability.

Conclusion

SB33 ends consumer protections that were never enforced because of obstruction by DNREC. The bill rewards DNREC by legislating everything they want to continue avoiding a freeze in the REPSA mandate no matter how high cost to electric consumers rise. Expanding the mandate to 40% threatens electric reliability as reported by our regional grid manager, and as shown by real world experience. REPSA style regulations are last decades' solution to carbon dioxide emission reductions. If energy policy is to be changed at all we need to consider a Clean Energy Standard that makes room for new sources that reduce emissions while being available all the time.

David T. Stevenson
Director, Center for Energy & Environment
Caesar Rodney Institute
e-mail: DavidStevenson@CaesarRodney.org
Phone: 302-236-2050

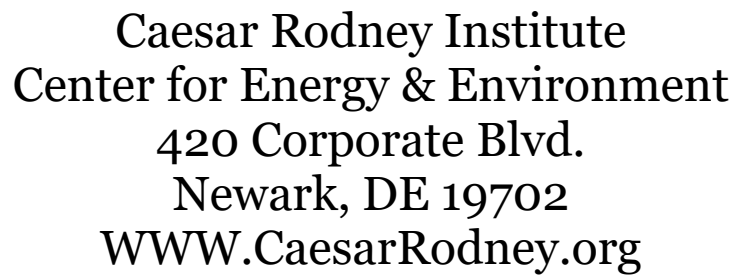
Notes

- 1) Renewable Energy World, "PJM Grid Operators: We Can Handle 30 Percent Renewable Energy Integration" <https://www.renewableenergyworld.com/articles/2014/03/pjm-grid-operators-we-can-handle-30-percent-renewable-energy-integration-and-heres-how.html>
- 2) Forbes, "Why California Climate Policies are causing electric blackouts", 8/15/2020, <https://www.forbes.com/sites/michaelshellenberger/2020/08/15/why-californias-climate-policies-are-causing-electricity-black-outs/?sh=601afc1591>
- 3) Power Magazine, "Texas impending reliability issues with wind power", 9/19/2019, <https://www.powermag.com/texas-impending-reliability-issues-with-wind-power/>
- 4) EIA's residential energy consumption survey found in 2015 that "about one in five households reported reducing or forgoing basic necessities like food and medicine to pay an energy bill.", Green Energy Mandates Are Making Poor People Poorer, Climate Change Dispatch, May 2018, <https://climatechangedispatch.com/green-energy-making-poor-people-poorer/>
- 5) MD Code Annotated Public Utilities § 7-705(b)(2)(i)1. & 2..
- 6) US Energy Information Agency Electric Power Monthly, <https://www.eia.gov/electricity/monthly/>
- 7) Caesar Rodney Institute, "Energy Trends", <https://www.caesarrodney.org/cri-focus-area/Energy-Trends.htm>
- 8) Wood Mackenzie, "How the US Solar Industry Will Weather the ITC Phasedown", https://www.greentechmedia.com/articles/read/how-the-us-solar-industry-will-weather-the-itc-phasedown?utm_medium=email&utm_source=Daily&utm_campaign=GTMDaily#gs.aeaijz
- 9) US Energy Information Agency projected new electricity capacity additions for 2021, <https://www.eia.gov/todayinenergy/detail.php?id=46416>



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- 10) Much of the following is based on personal involvement over the last decade in commenting formally on cost cap regulations, as a consultant to the Public Advocate on SREC auctions, as an intervener in PSC dockets, and as a co-plaintiff in a Superior Court case
- 11) National Conference of State Legislatures, Renewable Portfolio Standards by state, <https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx>
- 12) Virginia Clean Energy Act, <https://lis.virginia.gov/cgi-bin/legp604.exe?201+sum+SB851>



Solar Panel Financial Analysis - Average Residential System 2023									
System Core Metrics				Electrical System Details			Financial Projections		
Year	System Cost	State Rebate	Federal Tax Credit	Electricity Cost (\$/kWh)	Electric Usage (kWh/yr)	Net System \$/Watt	SECI Value	First Year Savings (\$/kWh)	System Size (kW)
2016	\$ 120,500	\$ 30,640	5,395	\$ 0.1400	11,750	\$ 2.85	50	\$ 5000	7000
2017	\$	\$	\$	0.1426	\$ 1,678	8935	\$ 426	\$ 1,252	\$
2018	\$	\$	\$	0.1457	\$ 1,711	8910	\$ 489	\$ 1,279	\$
2019	\$	\$	\$	0.1486	\$ 1,746	8816	\$ 439	\$ 1,307	\$
2020	\$	\$	\$	0.1515	\$ 1,781	8821	\$ 445	\$ 1,316	\$
2021	\$	\$	\$	0.1544	\$ 1,816	8777	\$ 451	\$ 1,345	\$
2022	\$	\$	\$	0.1577	\$ 1,853	8735	\$ 457	\$ 1,315	\$
2023	\$	\$	\$	0.1608	\$ 1,890	8690	\$ 455	\$ 1,416	\$
2024	\$	\$	\$	0.1640	\$ 1,927	8646	\$ 470	\$ 1,458	\$
2025	\$	\$	\$	0.1673	\$ 1,966	8603	\$ 476	\$ 1,450	\$
2026	\$	\$	\$	0.1707	\$ 2,005	8560	\$ 482	\$ 1,524	\$
2027	\$	\$	\$	0.1741	\$ 2,045	8517	\$ 488	\$ 1,518	\$
2028	\$	\$	\$	0.1776	\$ 2,086	8475	\$ 484	\$ 1,593	\$
2029	\$	\$	\$	0.1811	\$ 2,128	8432	\$ 490	\$ 1,618	\$
2030	\$	\$	\$	0.1847	\$ 2,171	8390	\$ 525	\$ 1,655	\$
2031	\$	\$	\$	0.1884	\$ 2,214	8348	\$ 511	\$ 1,703	\$
2032	\$	\$	\$	0.1922	\$ 2,258	8306	\$ 517	\$ 1,741	\$
2033	\$	\$	\$	0.1960	\$ 2,303	8265	\$ 523	\$ 1,780	\$
2034	\$	\$	\$	0.2000	\$ 2,349	8224	\$ 529	\$ 1,801	\$
2035	\$	\$	\$	0.2040	\$ 2,396	8182	\$ 534	\$ 1,812	\$
2036	\$	\$	\$	0.2080	\$ 2,444	8141	\$ 540	\$ 1,856	\$
2037	\$	\$	\$	0.2122	\$ 2,493	8101	\$ 546	\$ 1,901	\$
2038	\$	\$	\$	0.2164	\$ 2,543	8060	\$ 552	\$ 1,937	\$
2039	\$	\$	\$	0.2208	\$ 2,594	8020	\$ 557	\$ 2,007	\$
2040	\$	\$	\$	0.2252	\$ 2,646	7980	\$ 563	\$ 2,083	\$
Total	\$ 120,500	\$ 30,640	5,395			212,056	\$ 40,079	\$ -	
Key Metrics Summary:									
Initial Investment: \$120,500				Annual Savings: \$1,252			Payback Period: 10.4 years		
Net System Cost: \$89,860				First Year Savings: \$1,252			Total System Size: 7.0 kW		
Federal Tax Credit: \$5,395				Electricity Cost: \$0.1400/kWh			System Efficiency: 18.5%		
State Rebate: \$30,640				Electricity Usage: 11,750 kWh/yr			SECI Value: 50		
Net System \$/Watt: 2.85				First Year Savings: \$1,252			System Size: 7.0 kW		
Electricity Cost: \$0.1400/kWh				First Year Savings: \$1,252			System Size: 7.0 kW		
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Electricity Cost: \$0.1400/kWh				First Year Savings: \$1,252			System Size: 7.0 kW		
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