



Pennsylvania Manufacturers' Association

Testimony before:
Pennsylvania House of Representatives
Environmental Resources & Energy Committee

Public Hearing: Alternative Energy Portfolio Standards/HB 1467
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Good morning, Chairman Vitali, Chairman Causer, and members of the committee. I am David N. Taylor, President & CEO of the Pennsylvania Manufacturers' Association, the statewide non-profit trade organization representing the people who make things here in the commonwealth.

In every way that matters, energy is life. The manufacturing sector, which directly employs over a half-million Pennsylvanians and generates \$100 Billion in value every year, depends on abundant, reliable, affordable energy. No matter what is being made, manufacturers take raw materials or component parts and undertake a multi-stage process to yield a finished good. At every step of production, large amounts of energy are deployed, which is why our industry requires plentiful, reliable, and affordable energy to be competitive. Energy costs are a large expense for almost all manufacturers, with many firms having energy as their largest expense.

Pennsylvania's energy resources are, can be, and should be a great strength for our industrial economy, which is why PMA supports a pro-production agenda for domestic energy in a competitive marketplace.

On behalf of Pennsylvania's manufacturing sector, I appreciate the opportunity to comment on House Bill 1467 and the general expansion of the Pennsylvania Alternative Energy Portfolio Standards Act (AEPS), which we oppose as (1) an environmental disaster, (2) a threat to public safety, (3) a danger to American national security, (4) a disgrace on labor and human rights, and (5) an abuse of Pennsylvania ratepayers.

ENVIRONMENTAL DISASTER

A state mandate requiring 30% of all electricity be produced by solar panels would be an environmental disaster because the low yield, intermittency, and fragility of that technology would require an impossibly large footprint that would destroy natural habitat, threaten groundwater with excessive runoff, and cause a disposal crisis.

In 2022, Pennsylvanians used 245,935,000 MWH (megawatt hours) of electricity, 30% of which would be 73,780,500 MWH or 73,780 GWH (gigawatt hours). According to Freeing Energy, it takes 2.97 acres to host enough solar panels to generate 1 GWH of electricity.¹ Therefore HB 1467 would necessitate building 219,126 acres of solar panels. However, solar has a capacity generation factor of, at best, 25%², meaning that you must build four times as many solar arrays, totaling 876,506 acres, to actually generate 30% solar. Converting acres to square miles, 876,506 acres equals 1,369 square miles covered in solar panels necessary to meet a 30% solar

¹ Freeing Energy, "How much land does solar need to generate a megawatt hour?" 2020.

<https://www.freeingenergy.com/math/solar-pv-land-acres-hectares-miles-m118/>

² U.S. Energy Information Administration, "Southwestern states have better solar resources and higher solar PV capacity factors," June 12, 2019.

<https://www.eia.gov/todayinenergy/detail.php?id=39832#:~:text=On%20average%2C%20utility%2Dscale%20solar,values%20from%202014%20through%202017>

mandate, which doesn't even address new transmission lines, lack of storage for nighttime, and other needed infrastructure.

Philadelphia County is 134 square miles. Delaware County is 184 square miles. Chester County is 750 square miles. Combined, they total 1,068 square miles of land mass. To meet the mandate in HB 1467, you could cover every square inch of Philadelphia, Delaware, and Chester counties with solar panels and still be 300 square miles short. Again, this calculation is just for current usage, while demand is certain to increase, especially with policies favoring further electricification including vehicles.

THREAT TO PUBLIC SAFETY

HB 1467 is a threat to public safety because it will destabilize the electric grid and increase the probability of blackouts. According to the Energy Transition Report published in 2023 by PJM, it was stated,

For the first time in recent history, PJM could face decreasing reserve margins, should these trends – high load growth, increasing rates of generator retirements, and slower entry of new resources – continue. The amount of generation retirements appears to be more certain than the timely arrival of replacement generation resources, given that the quantity of retirements is codified in various policy objectives, while the impacts to the pace of new entry of the Inflation Reduction Act, post-pandemic supply chain issues, and other externalities are still not fully understood.³

Drastically expanding the AEPS standards to unachievable levels will certainly expedite the retirement of existing generation capacity – making the already existing problem of forecasted grid reliability issues within the PJM network even worse. Blackouts are not merely a potential nuisance but a deadly threat to our hospitals, nursing homes, fire and police stations, and other critical infrastructure.

DANGER TO NATIONAL SECURITY

Maximizing domestic energy production is crucial to achieving energy independence for the United States, strengthening our domestic economy, and empowering U.S. global leadership. Anything that suppresses domestic energy production weakens America.

Under current AEPS law, Pennsylvania effectively discriminates against 95% of in-state electric generation from reliable sources of electricity - including nuclear, natural gas and coal.

³ PJM Interconnection LLC, "Energy Transition in PJM," 2023. <https://www.pjm.com/-/media/library/reports-notice/special-reports/2023/energy-transition-in-pjm-resource-retirements-replacements-and-risks.ashx p.17>

Moreover, traditional Tier I renewables comprise 8% of the current AEPS set aside. Increasing Tier I sources from the current 8% to 30% would have profound negative implications for ratepayers and families, the workers who operate and maintain baseload generating plants, and the commonwealth's overall economy.

Pennsylvania is America's number one exporter of electricity, second largest producer of natural gas, and third largest producer of coal. These are domestic energy sources produced by Pennsylvania workers under DEP, OSHA, L&I, and USDOL rules. Solar panels require strategic minerals that the U.S. does not mine in sufficient quantities and for which we have almost no refining capacity. All of the supply chains for solar panels are dominated by the dictatorship in Beijing as the national policy of that government. Handing control of our energy production to a hostile foreign power is foolhardy in the extreme.

DISGRACE ON LABOR AND HUMAN RIGHTS

For all of the differences between Democrats and Republicans, liberals and conservatives, labor and business, I hope we could agree on this much: No American worker should ever have to compete with slave labor and no American consumer should ever be exposed to slave-made goods in the U.S. marketplace.

At this moment, in occupied East Turkestan (which the Chinese Communist Party calls "Xinjiang"), more than one million prisoners of the Uigur ethnic group are being held in concentration camps where they are subjected to forced labor. Beijing holds prisoners of conscience and executes them to harvest their internal organs for transplant.⁴ Anyone who is paying attention has seen how Hong Kong's civil society has been systematically dismantled by Beijing. The same fate awaits us if we give them the chance.

According to Jenny Chase, head of solar analysis at Bloomberg New Energy Finance, "Nearly every silicon-based solar module—at least 95% of the market—is likely to have some Xinjiang silicon in it."⁵

The supply chains for solar panels and their inputs are contaminated by Chinese slave labor and related human rights atrocities. Common decency requires us to not abet or reward these practices.

⁴ Ali Iqbal, Aliya Khan, "Analysis: Killing prisoners for transplants: Forced organ harvesting in China," McMaster University, 2022. <https://brighterworld.mcmaster.ca/articles/analysis-killing-prisoners-for-transplants-forced-organ-harvesting-in-china/>

⁵ Jenny Chase, "Fears over China's Muslim forced labor loom over EU solar power," PoliticoPro, February 10, 2021. <https://www.politico.eu/article/xinjiang-china-polysilicon-solar-energy-europe/>

ABUSE OF PENNSYLVANIA RATEPAYERS

In reporting year 2022 there was a 0.5% solar mandate in place. According to the Pennsylvania Public Utilities Commission, the cost of compliance, passed on to Pennsylvania ratepayers, for the 0.5% solar mandate was \$28.65 million.⁶ If House Bill 1467 were to be in effect today, this legislation requires a 30% solar mandate, an increase of 60-times the current standard. At current compliance prices, without accounting for inflation eight years from now, this would cost Pennsylvania ratepayers \$1.8 billion, per year.

And while new capacity is added, renewable sources only function at a fraction of the capacity that is stated because of their intermittent nature. PJM reported that wind farms operate at an average capacity of 16.1%⁷; and we've already established solar capacity at 25%.⁸ So for all capacity replaced, in the case of wind, it would need to be more than six-times more – solar nearly four-times more.

Such a proposal would further discriminate against PA coal, natural gas, and nuclear plants, saddling Pennsylvania ratepayers with an additional burden as utilities are forced to purchase even more unreliable, weather dependent wind and solar power directly, or through buying credits.

Even if we could physically and technologically meet the 30% mandate in the proposed legislation, which we cannot, there would be separate billions and billions of dollars in costs tied to transmission line upgrades; these upgrades are borne by the utility customers of the state where the infrastructure is located. Maryland's recent passage of public policy has forced the early retirement of several power plants, causing PJM to call for a \$5 billion in transmission upgrades to compensate for the loss.⁹

Energy related emissions have been dropping, and dropping significantly, thanks to the emergence of new, state-of-the-art, natural gas energy generation in the last decade. But since Governor Wolf has, so far unsuccessfully, entered unilaterally entered Pennsylvania into the Regional Greenhouse Gas Initiative, not a single natural gas power plant has even been proposed in our commonwealth. In the fifteen years from 2005 to 2020, CO2 reductions have fallen by 39.27%.¹⁰ This trend is likely to continue because of the price and availability of natural gas and the further development of renewable energy being driven mainly by federal policy.

⁶ PA Public Utility Commission, "Alternative Energy Portfolio Standard Act of 2004, Compliance for Reporting Year 2021-22," 2023. <https://www.puc.pa.gov/media/2332/aeps-2022-report-final-032223-dm.pdf>, p.4, p.13

⁷ PJM Interconnection LLC, "Class Average Capacity Factors," 2017. <https://drive.google.com/file/d/1uwvyOb-y40OgZrAP5s5PWvxqe8EUpAyN7/view>

⁸ U.S. Energy Information Administration, "Southwestern states have better solar resources and higher solar PV capacity factors," June 12, 2019.

⁹ Ethan Howland, "Utility regulators urge PJM to move away from 'reactive' planning for grid reliability" Utility Dive, November 30, 2023. <https://www.utilitydive.com/news/opsi-pjm-interconnection-transmission-planning-grid-reliability/701105/>

¹⁰ EPA, Clean Air Markets, <https://19january2021snapshot.epa.gov/airmarkets/power-sector-emissions-data.html>

On that point, regulations should not be more stringent than federal regulations or laws unless there is a compelling reason that is unique to our commonwealth. Almost every project in PJM's queue for development at this moment is solar. This is because the federal government is offering states and energy companies billions of taxpayer dollars to deploy solar and other renewable resources right now. This will naturally flow to Pennsylvania with the existing AEPS standards in place and with natural market forces leading the way.

Time today is limited, and that's a problem because there are many more policy topics related to AEPS that lawmakers should consider before moving forward with legislation. Issues such as: the impact of the Regional Greenhouse Gas Initiative and its impact on existing AEPS regulations causing even more expedited retirements of our existing energy assets; existing net metering provisions harming ratepayers by paying rooftop solar customers the retail rate for electricity even though a utility can obtain electricity at a fraction of the retail rate through the wholesale market while charging those that do not have rooftop solar retail rates instead of wholesale; a deeper dive into PJM grid reliability and how policy impacts by the Pennsylvania legislature will affect all 13 states that are a part of that network; how the electrification of our grids, devices, digital storage, vehicles, and processes will constrain current marketplace capacity; the role that foreign adversaries such as China, Russia play in monopolizing green energy supply chains, and human rights and environmental abuses in places such as the Republic of Congo, Vietnam, and Brazil on the mining of needed rare earth minerals for these technologies; and much, much more.

AEPS mandates cost ratepayers, through the purchasing of credits, \$367 million in the reporting year of 2021-22, but generated less than 1.5% of Pennsylvania's electricity. This is not just disastrous energy policy, it's expensively disastrous energy policy – and it's all the consumers of Pennsylvania that are fronting the bill. For these reasons and more we, the Pennsylvania Manufacturers' Association, oppose any expansions to the Alternative Energy Portfolio Standards Act.

Thank you for the opportunity to testify and I will do my best to answer questions you have.