



Prepared Comments of

**Sharon Pillar, Executive Director for the Pennsylvania Solar Center, and
Matt Mahoney, Director of Government Affairs for the Pennsylvania Solar
Center**

Before the

House Environmental Resources & Energy Committee

Public Hearing on Alternative Energy Portfolio Standards/ HB 1467

December 11, 2023

December 8, 2023

Honorable Greg Vitali, Chair
Honorable Martin T. Causer, Republican Chair
House Environmental Resources & Energy Committee
Hearing Room G-50, Irvis Office Building
Harrisburg, PA 17120

Re: Public hearing on Alternative Energy Portfolio Standards/ HB 1467

Dear Representative Vitali, Representative Causer, and members of the Committee:

Please accept the enclosed comments assembled for the House Environmental Resources & Energy Committee's (Committee) public hearing on the Alternative Energy Portfolio Standards/ HB 1467 scheduled for Monday, December 11, 2023. These comments are being submitted on behalf of the Pennsylvania Solar Center, a nonprofit, nonpartisan organization. We envision a world powered by energy that is reliable, affordable, and sustainable for all. Our mission is to provide trusted guidance to usher all Pennsylvanians into the clean energy economy, building a bridge to a sustainable and resilient tomorrow. We do this through our GET Solar technical assistance program, our education and outreach work as well as our policy advocacy. Our GET Solar program is currently assisting more than 200 nonprofits, businesses, schools, and municipalities to assess their solar potential. We help them through the solar procurement process to realize thousands of dollars of savings on their electricity bills, so we see firsthand the difference solar is making in communities. I also co-lead a coalition along with the Pennsylvania Solar & Storage Industries Association (PASSIA) of more than 70 renewable energy businesses including small residential installers, commercial developers, community solar and utility-scale renewable developers, as well as energy storage companies.

We strongly support the passage of HB 1467 to expand the Tier I goals of the outdated AEPS so that Pennsylvanians can take advantage of our most abundant natural resources – the sun and the wind. We applaud the Committee for exploring the benefits of updating this important economic and energy policy.

The lack of action by previous administrations and legislatures on this critical issue is needlessly costing Pennsylvanians billions of dollars each year. **The cost of doing nothing grows larger every day. The current energy scenario is shifting the high cost of natural gas volatility to Pennsylvania ratepayers to shoulder the burden. The only solution to this problem is to increase renewable energy, energy storage, and energy efficiency.**

The lack of diversity in Pennsylvania's electricity mix, for which natural gas dominance is predicted to comprise 70% by 2030, is contributing to alarming electricity price increases already. According to the PA Public Utility Commission, **2022 rate increases ranged from 35% - 56%** across all major electric distribution companies, *"fueled in large part by shifts in supply and demand for natural gas."*¹

¹ Pennsylvania Public Utility Commission. (2022, May 9). *PUC alerts consumers of June 1 price changes for electric generation*. PA PUC. <https://www.puc.pa.gov/press-release/2022/puc-alerts-consumers-of-june-1-price-changes-for-electric-generation>

The Committee must consider the benefits of diversifying the Commonwealth's electricity generation portfolio by increasing renewable energy resources to insulate electricity ratepayers from volatility in energy markets, stabilize electricity rates, and lower consumer energy bills.

In addition, the lack of action on the AEPS to date has put Pennsylvania at a competitive disadvantage as other states reap the benefits of renewables with their more attractive policies. In fact, **Pennsylvania is now 50th in the nation for the percent growth in renewable energy since 2013 because of the lack of action on the AEPS.** ²

And new federal programs for renewables and energy storage, authorized by the Inflation Reduction Act (IRA) are an enormous growth opportunity, but **Pennsylvania is losing out to neighboring states with more competitive renewable energy goals** as investors seek to maximize their return on investment and attract the most talented workers. As a result of their state policies, Virginia has 4,703 MW of solar³, New Jersey has 4,696 MW of solar⁴, and New York has 4,937MW of solar⁵, while *Pennsylvania (the 6th largest state in the nation) has only 1,275 MW of solar⁶.*

One economic driver of the AEPS is its market-based energy credit trading system that provides alternative energy credits (AECs) to renewable energy generators that are exchanged on a marketplace. Electric utilities buy as many credits as required by the AEPS. The price of credits drives investment decisions into renewables by small (including homeowners) and large renewable purchasers alike.

Because the AEPS goals have not been updated, the price of the credits is plummeting. This situation is lowering investment activity into renewables in the state at a time when we should be ramping up renewable deployment to taking advantage of the new federal opportunities.

We also support HB 1467 because it provides separate credit incentives for utility-scale, community solar, and distributed solar which is essential to grow these various market segments appropriately with the least compliance costs. Each of these sectors is also important in reducing electricity rates to all Pennsylvanians.

- 1) Utility-scale renewables offer the largest opportunity to reduce rate payer costs because they can generate the largest amount of electricity at the cheapest cost. By placing more renewable energy onto the transmission grid, wholesale pricing is suppressed for all ratepayers.
- 2) Community solar is important to expand access to inexpensive electricity options, particularly for those who cannot install solar on their own property. HB 1467 establishes a community solar program that is not now permitted in the state and provides an incentive that is congruent with all other alternative resources. We understand there are other community solar bills in the General Assembly. While the PA Solar Center supports community solar, it must be passed in tandem or as a part of an AEPS expansion in order to not further harm the current AEC market. A strong AEPS is needed to create a robust community solar program.

² <https://environmentamerica.org/pennsylvania/articles/pennsylvania-falling-behind-in-renewable-energy-race/#:~:text=Clean%20energy%20is%20lagging%20behind,and%20geothermal%20generation%20since%202013.>

³ <https://www.seia.org/state-solar-policy/virginia-solar>

⁴ <https://www.seia.org/state-solar-policy/new-jersey-solar>

⁵ <https://www.seia.org/state-solar-policy/new-york-solar>

⁶ <https://www.seia.org/state-solar-policy/pennsylvania-solar>

- 3) Distributed generation allows homeowners, nonprofits, businesses, municipalities, schools, and industries to generate electricity onsite to reduce their electricity bills. Distributed generation reduces transmission and distribution congestion and line losses, as on-site renewable energy directly serves local electricity needs. Distributed generation also has the largest opportunity to grow jobs.

Increasing renewable energy is an enormous economic opportunity. Research shows that **moving to just 10% solar by 2030 would result in more than 60,000 direct jobs**, and thousands of people working in supporting industries such as land surveyors, pile drivers, electricians, attorneys, financiers, engineers, realtors, and others, not to mention the secondary ripple effects of these jobs to local economies.

In conclusion, renewable energy is an important and necessary component in controlling and reducing ratepayer impacts on rising energy prices by diversifying our energy mix. The state must prepare for the modern energy economy in order to take full advantage of new technologies of the 21st century grid, to provide new energy economy jobs to our citizens, and to create energy security and reliability. Pennsylvania can unlock the benefits of solar and other renewables by modernizing the AEPS to increase Tier I and solar carveout goals, and permit community solar. Thank you for the opportunity to submit comments on this important topic. The Pennsylvania Solar Center is always available to discuss the costs and benefits of solar with any member of the Committee. We applaud your efforts on this important issue of creating an affordable, reliable, and secure energy future for all Pennsylvanians.

BACKGROUND

The composition of Pennsylvania's existing electricity generation sources is important when analyzing any energy resources impacts on ratepayers. Over the past decade, Pennsylvania's electricity sector has experienced a tremendous shift in its primary electric generation resources. According to the most recent Pennsylvania Public Utility Commission (PA PUC) Alternative Energy Portfolio Standards Act of 2004 (AEPS) Compliance Report issued for the 2021-2022 compliance period⁷, coal accounted for 48% of Pennsylvania's electricity generation and natural gas accounted for 15% in 2010. In 2022, over 50% of electricity was generated using natural gas and 11.5% was generated by coal. Renewables provided only 4.5%⁸ with solar providing less than 1% of Pennsylvania's net electricity in-state generation.⁹

This relatively rapid shift in primary electricity generation resources infuses new risks and uncertainties for Electric Distribution Companies (EDCs), Electric Generation Suppliers (EGSs) and ultimately Pennsylvania's electricity consumers.

⁷ Pennsylvania Public Utility Commission in cooperation with the Pennsylvania Department of Environmental Protection. (2022). *Alternative Energy Portfolio Standards Act of 2004 Compliance for Reporting Year 2021-2022*. Pennsylvania Alternative Energy Portfolio Standard Program. <https://pennaeps.com/wp-content/uploads/2023/03/aeps-2022-report-final-032223- dm.pdf>

⁸ Pennsylvania Public Utility Commission in cooperation with the Pennsylvania Department of Environmental Protection. (2022). *Alternative Energy Portfolio Standards Act of 2004 Compliance for Reporting Year 2021-2022*. Pennsylvania Alternative Energy Portfolio Standard Program. <https://pennaeps.com/wp-content/uploads/2023/03/aeps-2022-report-final-032223- dm.pdf>

⁹ Pennsylvania Department of Environmental Protection. (accessed on June 16, 2023). *Finding Pennsylvania's Solar Future*. <https://www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/SolarFuture/Pages/Finding-Pennsylvania%E2%80%99s-Solar-Future.aspx>

Pennsylvania's Public Utility Code requires electric utilities and electricity suppliers to purchase power on the competitive wholesale electricity markets which is then sold to end-use customers.¹⁰ Industry,¹¹ determined by the lowest cost resource bid on the wholesale electricity market. However, when a majority of electricity is generated by a single energy resource, the cost of electricity becomes more closely coupled with the cost of that energy resource and the associated market dynamics of the resource that electricity generation is relied on. This scenario was illustrated in 2022 when, as the PA PUC noted, "higher wholesale market prices for electricity, fueled in large part by shifts in supply and demand for natural gas, have increased purchasing costs for electric distribution companies (EDCs)..."¹². As noted, natural gas accounted for over 50% of Pennsylvania's electricity generation in 2022. Natural gas also accounts for the majority of electricity generation in the PJM's service territory.¹³ Unpredictable domestic and geopolitical conditions have caused natural gas prices to become uncharacteristically unstable, consequently causing electricity prices in Pennsylvania to become uncharacteristically unstable and negatively impacting electricity consumers.

The security of Pennsylvania's energy costs is reliant on many factors, but diversification, particularly with renewables, minimizes the risk of any energy resource's potential to unpredictably disrupt other energy markets and negatively impact electricity customers. The Committee is strongly encouraged to consider the risks and resulting costs to electricity consumers by allowing any energy resource to comprise a majority share of Pennsylvania's electricity generation. The following graph titled "Annual End of Year PTC for Pennsylvania EDCs (\$/kWh) 2018-2022" and table titled "Annual End of Year YOY % PTC Change" highlight the recent price increases experienced by Pennsylvania ratepayers as a result of majority reliance on one energy resource for electricity generation.¹⁴

We encourage the Committee to consider analyzing the ratepayer cost of limited electric generation diversity as well as cost trends that could result from not requiring a more diverse electric generation portfolio. **It is the opinion of the PA Solar Center that the largest current risk to ratepayers comes from the state's lack of action to diversify its energy mix, and ratepayers will continue to be subjected to price shocks from energy resources susceptible to volatility, such as of natural gas, unless Pennsylvania's limited energy diversification issue is remedied.**

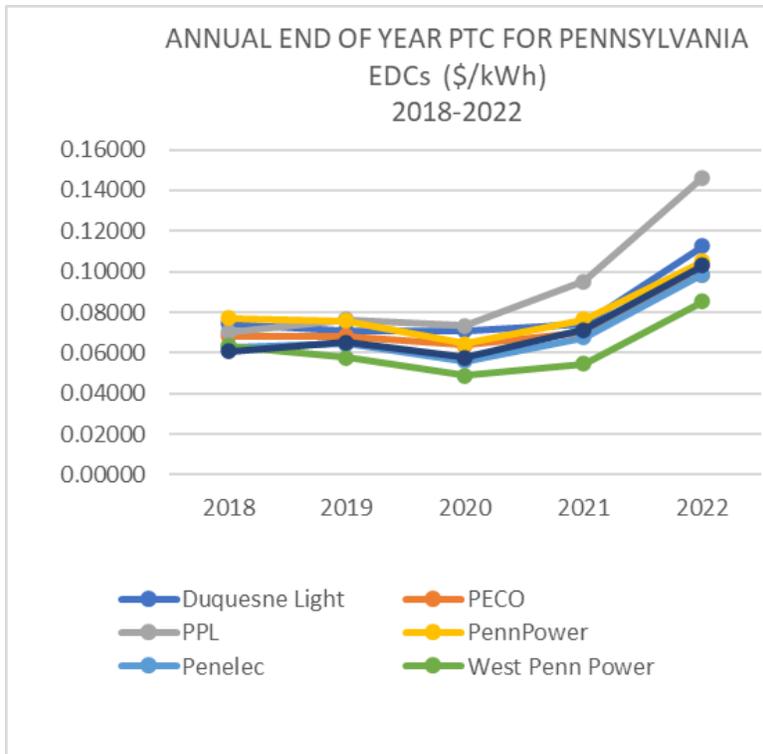
¹⁰ 52 Pa. Code Ch. 54. Electricity Generation Customer Choice

¹¹ Act No. 138 of 1996

¹² ¹² Pennsylvania Public Utility Commission. (2022, May 9). *PUC alerts consumers of June 1 price changes for electric generation*. PA PUC. <https://www.puc.pa.gov/press-release/2022/puc-alerts-consumers-of-june-1-price-changes-for-electric-generation>

¹³ PJM Interconnection. (2023, June 16). *PJM - Markets & Operations*. PJM. <https://www.pjm.com/markets-and-operations.aspx>

¹⁴ PA Power Switch the Official Electric Shopping Website of the Pennsylvania Public Utility Commission. (2023, June 16). *Shop for your home | PA power switch*. PA Power Switch. <https://www.papowerswitch.com/shop-for-electricity/shop-for-your-home/>



ANNUAL END OF YEAR YOY % PRICE TO COMPARE CHANGE

	2019	2020	2021	2022
Duquesne Light	<u>-4.70%</u>	<u>+0.14%</u>	<u>+4.22%</u>	<u>+51.82%</u>
PECO	<u>+0.15%</u>	<u>-6.75%</u>	<u>+10.24%</u>	<u>+40.36%</u>
PPL	<u>+8.41%</u>	<u>-4.13%</u>	<u>+29.86%</u>	<u>+53.78%</u>
PennPower	<u>-1.82%</u>	<u>-14.83%</u>	<u>+18.77%</u>	<u>+37.27%</u>
Penelec	<u>+2.54%</u>	<u>-13.21%</u>	<u>+20.78%</u>	<u>+45.76%</u>
West Penn Power	<u>-9.29%</u>	<u>-15.09%</u>	<u>+11.37%</u>	<u>+56.36%</u>
Met-Ed	<u>+7.25%</u>	<u>-11.57%</u>	<u>+23.57%</u>	<u>+44.83%</u>

Data included in graph and table above retrieved from PA Power Switch, The Official Electric Shopping Website of the Pennsylvania Public Utility Commission. <https://www.papowerswitch.com/shop-for-electricity/shop-for-your-home/>

To protect ratepayers from future price fluctuations, Pennsylvania must diversify its electricity mix by increasing its renewable energy generation goals from the current 8% goal defined in the Alternative Energy Portfolio Standards Act of 2004 (AEPS) to 30% by 2030. The U.S. average for a state’s utility-scale net electricity generation that comes from renewables is 24.5%, but in Pennsylvania, the Commonwealth currently gets less than 5.0% from renewables, which is a direct result of Pennsylvania’s outdated AEPS.¹⁵

¹⁵ U.S. Energy Information Administration. (2023, June 16). *State energy profile data*. U.S. Energy Information Administration (EIA). <https://www.eia.gov/state/data.php?sid=PA>

THE ALTERNATIVE ENERGY PORTFOLIO STANDARDS ACT OF 2004 (AEPS)

The most effective and proven mechanism for diversifying Pennsylvania’s electricity mix has been and continues to be the AEPS. The AEPS framework mandates that EDCs and EGSs purchase and sell the least cost resource through a competitive procurement process to meet incremental purchasing of alternative electricity generation resources. It requires electricity to be purchased from a diverse portfolio of electricity generation sources which protects consumers from having one resource with too much influence on electricity prices. The AEPS also encourages “the sale of electric energy generated from renewable and environmentally beneficial sources,”¹⁶ recognizing the opportunity for innovation in clean energy and environmental protection in Pennsylvania’s electricity generation sector.

The AEPS Tier I renewable resources provides multiple benefits to ratepayers and offers some of the lowest cost electricity available. For one, the fuel sources for wind turbines and solar panels are free, providing for near zero variable operating costs. The primary cost of solar and wind energy is focused on the initial capital needed for labor, equipment, and the cost of construction. These initial costs are incurred at the beginning of a solar and wind electricity generation asset’s life and remain largely unchanged for the lifetime of the system, which can be 30 years or more. This combination of very low operating costs and fixed upfront capital costs provides a stable, reliable, and very low price offering for electricity generated by wind and solar on the wholesale market.

Currently, the AEPS requires 18% of Pennsylvania’s electricity bought by consumers to come from alternative sources, with only 8% coming from renewable resources, and only 0.5% required from in-state solar. These goals, established in 2004, were easily achieved by 2021, a timeframe mandated in the AEPS. Since its adoption, the AEPS has successfully delivered numerous economic benefits to farmers, commercial building owners, homeowners, local governments, and businesses across Pennsylvania. Large institutions such as universities, large businesses, municipalities and others are entering into long-term contracts to purchase power from utility-scale solar projects that are delivering stable and reduced energy costs for 20 years or more. When the AEPS was adopted, Pennsylvania’s solar industry was non-existent. Today, over 1,275 MW of solar capacity is installed across Pennsylvania with over 65,000 solar installations, enough to power 163,602 homes, activating 4,288 jobs and attracting over \$3.5 billion in investment.¹⁷ The AEPS has also resulted in a total of almost 10,000 jobs across all renewable energy sectors. In short – the policy has been effective and achieved its objectives at a minimal price to the citizens of the state.

The primary policy in Pennsylvania that supports homeowners, businesses, farmers, schools, and municipalities that install solar energy systems on their properties is the AEPS. The AEPS allows these stakeholders who install solar on their property to obtain a credit on their electricity bill for the energy produced from the solar system, a process called net metering. On a monthly basis throughout the year, onsite solar owners receive credit for excess generation that provides compensation for energy generated and provided to the grid. Net metering is an important policy to build renewable energy markets, and the PA Solar Center strongly urges that the state keep net metering rules intact for the foreseeable future. There may be some opportunity for reform once the state reaches a much higher penetration of solar as other states have seen, but altering the basic net metering rules at this time would cause irreparable damage to the distributed solar market at a time when the state should be focusing on building a strong renewables base. Further, there may be some opportunity to review excess generation and so-called “merchant generators.”

¹⁶ Act No. 213 of 2004

¹⁷ Solar Energy Industries Association. (2023, June 16). *Pennsylvania Solar*. SEIA. <https://www.seia.org/state-solar-policy/pennsylvania-solar>

In addition, every 1,000 kWh of generation from a renewable energy system earns one Alternative Energy Credit (AEC). This AEC is earned by the owner of the solar array which can be sold to EDCs and EGSs that are required to purchase AECs to meet their obligated number of credits to satisfy the EDCs and EGSs AEPS requirements. Oftentimes, solar owners will sell AECs to companies that aggregate AECs from across the United States to purchase from generators and sell to EDCs and EGSs that need to meet AEPS obligations.

The cost of these benefits from the AEPS is supplemented by electricity customers in Pennsylvania, and the 2020 AEPS Compliance Report calculated that “approximately \$0.012 (1.2 cents) of every electric service-related dollar is spent on AEPS compliance”, which also includes compliance with Tier I, Tier II, and the solar carveout.¹⁸ Tier II requires the largest portion of the AEPS - requiring 10% of our electricity to come from alternative resources such as waste coal, large-scale hydro and other resources. Tier II credits are currently trading on a spot market at a higher price than Tier I or solar carve out credits. Therefore, electricity customers ratepayers are going to be paying more for a limited number of facilities that were built before the AEPS passage in 2004 and which have created few jobs. Tier I and the solar carveout, on the other hand, which includes wind, geothermal, solar and other renewable resources, spawned the build out of more than 46,000 new facilities since the passage of the AEPS, created 10,000 jobs, infused billions of dollars in investment into the state, and saved consumers money.

When compared to other states with restructured electricity markets that have adopted policies similar to the AEPS, Pennsylvania ranks as one of the lowest costs of compliance for electric utilities purchasing Alternative Energy Credits (AECs) and Alternative Compliance Payments (ACPs).¹⁹ Comparing the relative benefits enabled by the AEPS to its costs is difficult, but it is unquestionable that the AEPS has contributed to the growth of new electricity generation sectors in Pennsylvania that are in strong positions to support the stabilization of Pennsylvania’s electricity prices, strengthen energy security, ensure freedom from external threats to electricity prices, and to create jobs and generate billions of dollars in economic development and private investment into for the state.

SOLAR ENERGY’S BENEFITS TO PENNSYLVANIA’S RATEPAYERS

Completed in 2018, Pennsylvania’s Department of Environmental Protection Energy Programs Office assembled a statewide partnership of experts to collaborate over a year to identify strategies to achieve a 10% increase in solar powered electricity.²⁰ “Pennsylvania’s Solar Future Plan” identified fifteen strategies for Pennsylvania to increase electricity generation from in-state solar energy. It found that **moving to 10% in-state solar on Pennsylvania’s grid decreases wholesale electricity price while creating tens of thousands of jobs and billions in economic benefit to local communities and to the state without compromising grid reliability.** Solar energy is growing in Pennsylvania,

¹⁸ Pennsylvania Public Utility Commission in cooperation with the Pennsylvania Department of Environmental Protection. (2020). *Alternative Energy Portfolio Standards Act Compliance for Reporting Year 2020*. Pennsylvania Public Utility Commission | Regulating Utility Services | PA PUC. <https://www.puc.pa.gov/media/1410/aeps-annreport2020.pdf>

¹⁹ Pennsylvania Department of Environmental Protection. (June 16, 2023). *Finding Pennsylvania's Solar*

Future. <https://www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/SolarFuture/Pages/Finding-Pennsylvania%E2%80%99s-Solar-Future.aspx>

²⁰ Pennsylvania Department of Environmental Protection. (June 16, 2023). *Pennsylvania's Solar Future*

Plan. <https://www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/SolarFuture/Pages/Pennsylvania's-Solar-Future-Plan.aspx>

however, solar currently provides less than 1% of Pennsylvania’s electricity while over a quarter of the United States is currently achieving over 5% of energy from solar.²¹

Several researchers have found that Pennsylvanians will benefit from increasing the state’s solar goals:

1. The Pennsylvania Department of Environmental Protection Energy Program’s Office “Finding Pennsylvania Solar Future” report shows results of modeling that demonstrate “the combination of fuel savings (free sunlight) and anticipated cost savings (avoided public health and environmental damages) **could result in a net benefit of over \$1.6 billion annually from 2018 to 2030” by moving to 10% solar.**²²
2. A Power Grid Engineering and Markets (POWERGEM) study commissioned by Community Energy found that transitioning to *10% solar in PA would lower Pennsylvania’s wholesale energy cost by \$619 million annually.* These savings start with 5% solar penetration. **Moving to 10% solar would also result in \$9.2 billion in Private Capital Investment, \$5.3 billion in Local Economic Benefit, and \$4.1 billion in Wages, \$2.3 Billion in Farmer Lease Payments, \$228 million in Local Tax Revenue from Grid Scale Projects, and 66,507 jobs.**²³
3. PJM’s Renewable Integration Study found that the **PJM system would not have any significant reliability issues operating with up to 30 percent of its energy (as distinct from capacity) provided by wind and solar generation.** Every scenario examined resulted in lower PJM fuel and VOM costs as well as lower average Locational Marginal Prices. The lower LMPs, when combined with the reduced capacity factors, resulted in lower gross and net revenues for the conventional generation resources. The renewable generation increased the amount of cycling (start up, shut down and ramping) on the existing fleet of generators, which will result in increased VOM costs on these units. However, these increased costs were small relative to the value of the fuel displacement.²⁴

Solar’s benefits to ratepayers uniquely span across customer classes and electricity markets. Solar works most efficiently during the middle of the day when electricity use is typically at its highest. When electricity demand is at its highest, electricity prices are also at their highest because the grid’s current peaker plants are expensive and inefficient. Peak solar energy generation coincides closely with peak demand, and reducing peak demand is one of the most important means of lowering electric ratepayer costs. Solar’s low cost pulls down the peak price curves and results in reduced wholesale electricity prices. Further innovations in solar plus storage systems provide a new opportunity for grid operators to address peak demand throughout the year,²⁵ but this scenario only occurs once significant solar penetration is achieved on the grid, which based on research mentioned above is about 5% percent solar penetration in Pennsylvania.

Distributed solar generators provide for lower transmission and distribution infrastructure because the energy generation is closer to the location of energy demand and doesn’t need to travel as far. And as

²¹ Glover, E. (2023, March 14). *The best and worst states for solar energy 2023.* Forbes Home. <https://www.forbes.com/home-improvement/solar/best-worst-states-solar/>

²² Pennsylvania Department of Environmental Protection. (June 16, 2023). *Pennsylvania’s Solar Future Plan.* <https://www.dep.pa.gov/Business/Energy/OfficeofPollutionPrevention/SolarFuture/Pages/Pennsylvania's-Solar-Future-Plan.aspx>

²³ Power Grid Engineering and Markets. (2019, June 18). *PA Solar Study.* Community Energy. <https://www.communityenergyinc.com/pasolarstudy>

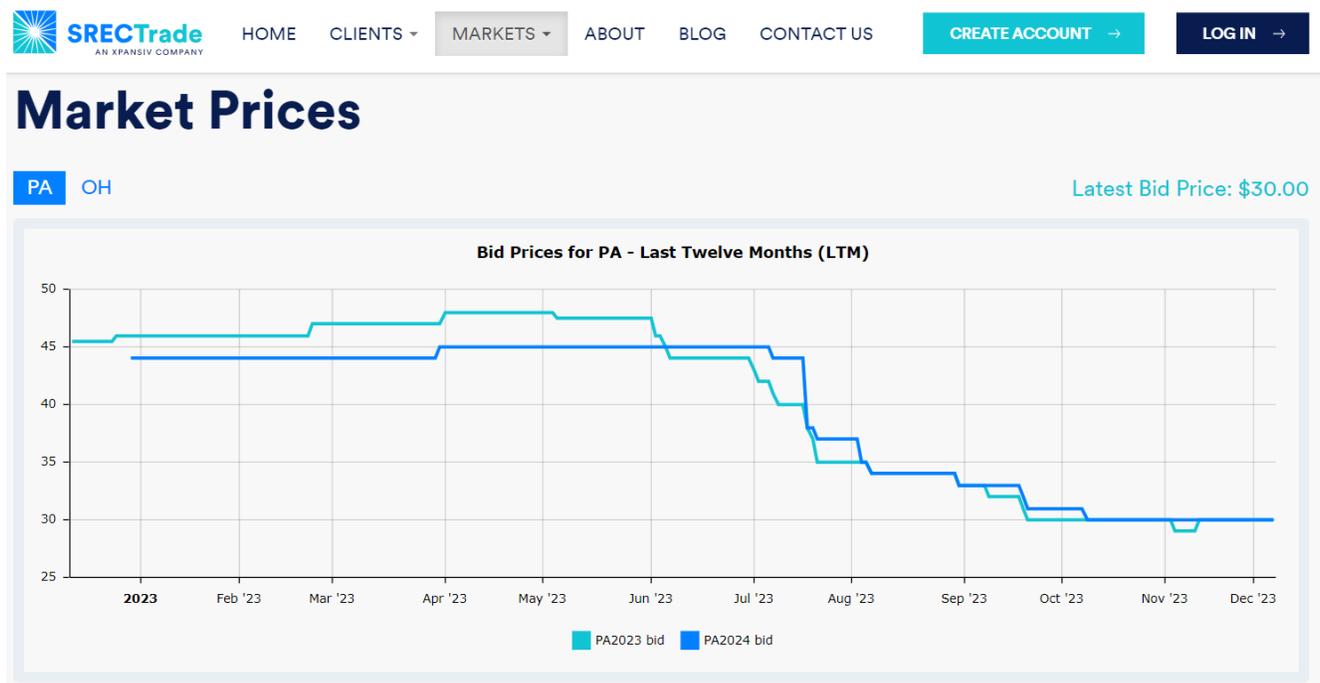
²⁴ PJM Interconnection. (2016, September). *PJM - Renewable integration study reports.* <https://www.pjm.com/committees-and-groups/closed-groups/irs/pris.aspx>

²⁵ U.S. Department of Energy Office of Energy Efficiency and Renewable Energy. (2023, June 16). *Solar integration: Solar energy and storage basics.* Energy.gov. <https://www.energy.gov/eere/solar/solar-integration-solar-energy-and-storage-basics>

electrification increases, a distributed grid becomes vital for the reliability of the grid as utilities build infrastructure to meet the new electricity demands of customers. Utility scale solar has the benefit of being the lowest cost resource in the wholesale electricity market, so when its available consumer prices are reduced. However, as mentioned above, the penetration of solar must reach at least 5% to begin to see wholesale price reductions. These are some of the reasons why solar is an attractive energy source to include in any grid’s diverse set of electricity generation needs.

STATE OF THE CURRENT SOLAR ALTERNATIVE ENERGY CREDIT

Due to the outdated goals of the current AEPS, the supply of solar Alternative Energy Credits (AECs or credits) in the market currently exceeds the demand to purchase those credits by utilities as outlined in the AEPS. Therefore, the price of those credits is dropping dramatically. This situation is lowering investor interest and confidence in developing solar projects in Pennsylvania. Increasing the AEPS solar goals will increase the price of the credits and spawn more development. The following graph from SREC Trade illustrates the change in solar AEC prices (also known as SRECs) in the past year.



Source: SREC Trade, <https://www.sretrade.com/markets/rps/srec/pennsylvania> , December 8, 2023

OVERVIEW OF HOUSE BILL 1467 (HB 1467)

Several legislative proposals have been introduced in Pennsylvania’s 2023-2024 session of the General Assembly that would impact the Commonwealth’s solar industry, and thus impact Pennsylvania ratepayers. It is important to note that state government intervention in Pennsylvania energy markets has consistently resulted in benefits to ratepayers over the past few decades. Pennsylvania’s Electricity Generation Customer Choice and Competition Act of 1996 allowed customers to shop for their electric generation provider for the first time and shifted the capital risk for constructing and operating new electricity generators from ratepayers to the private sector. In 2004,

the Alternative Energy Portfolio Standards Act was adopted which enabled innovation in Pennsylvania's electricity generation sector, growing jobs and investments in the solar industry.

When analyzing the impacts of legislation on solar, it is important to consider the three distinct market segments of the solar industry. The customer-generator (Rooftop Solar/on-site solar) market consists of small installations, typically providing local electricity needs in the range of 3 kilowatts (kW) and up to 3,000 kW (and up to 5,000 kW in special cases) with any excess going directly into the distribution grid. These also include residential markets (up to 50kW) and commercial systems that are typically 50kW to 3,000 kW. The Utility Scale solar market includes large solar installations that provide electricity to the transmission grid for regional transmission operators to dispatch and are typically sized in the range of 5 megawatts (MW) to 100 MW or more. The Community Solar market represents an innovative business model that enables access to solar power for electricity users who cannot install solar energy generation on-site; however, this is not currently available in Pennsylvania. Community Solar installations could range from small shared systems up to 5,000 kW, depending on the program enabled by legislation in Pennsylvania. Each of these market segments experience different economies of scale, customer classes, and other market factors that result in different benefits and impacts to different ratepayers.

Currently, HB 1467 would amend the Alternative Energy Portfolio Standards Act and have positive benefits to Pennsylvania electricity consumers:

House Bill 1467 : Modernizing Pennsylvania's Renewable Energy Standards ²⁶

- Amends the Alternative Energy Portfolio Standards (AEPS) to increase the Tier I goal from 8% to 30% by 2030 and increase the solar carveout from 0.5% to 14%.
- This bill would enable community solar under the AEPS to ensure equivalent treatment of solar Alternative Energy Credits (AECs) administered through an existing and operational program. Community solar growth and performance would be predictable and the program would be administered under existing procedures currently implemented by electric utilities, developers and other solar stakeholders.
- The solar carveout would be segmented under three distinct categories with separate goals to appropriately recognize their varying market costs and benefits: customer-generator (rooftop/on-site solar) would be 4%, utility-scale would be 8%, and community solar would be 2%.
- For customer-generator and community solar, the lifetime of the AECs is 15 years at which time will transition to Tier I AECs.
- This bill also includes modifications to the Alternative Compliance Payments (ACPs) for solar projects respective of the differing market conditions each solar category experiences.
- Based on the cost of compliance and compared to existing proposals, HB 1467 proposes the least cost and most benefit to ratepayers.

Because the AEPS Tier I goal of 8% resources has been met, the state will need to add an additional 22% of these resources to the grid by 2030 or about 42,800,000 MWh of generation in order to reach 30% renewables as proposed in HB 1467. Below outlines the in-state solar carve out prescribed by the bill, which states that 14% (including the current 0.5% in-state solar carve out) come from in-state solar and the remaining 16% (including the current 7.5% Tier I) come from Tier I non-solar carve out,

²⁶ Pennsylvania General Assembly. (2023, March 15). *Regular Session 2023-2024 Senate Bill 230*. <https://www.legis.state.pa.us/cfdocs/billInfo/billInfo.cfm?sYear=2023&slnd=0&body=s&type=b&bn=230>

which will continue to permit in-state and out-of-state Tier I PJM resources. This chart summarizes the proposed changes compared to the current AEPS bill.

Table. Current AEPS Goals and Proposed Additions by HB 1467

	Current AEPS Tier I Goal by 2021	Proposed Addition in HB 1467 by 2030	Proposed Total by 2030 by HB 1467
Tier I resources (permitted from PJM)	7.5%	8.5%	16%
Tier I In-State Solar Carve out:	0.5%		
Utility Scale	Not specified	8%	8%
Community Solar	Not permitted	2%	2%
Customer Generated	Not specified	3.5%	4%*
Total Tier I goal	8%	22%	30%

*includes original 0.5% solar carve out goal

PA SOLAR CENTER POSITION ON HOUSE BILL 1467

The PA Solar Center supports this bill with modifications that include prevailing wage requirements for projects larger than 1MWac to align with the provisions in the federal Inflation Reduction Act as well as addressing excess generation language that allows so-called "merchant generators." HB 1467 provides a necessary increase to the state's renewable energy and in-state solar goals that will send important market signals to investors. The bill also enables community solar in an equitable process in line with other renewable resources. With the recent federal Inflation Reduction Act, Pennsylvania needs to act swiftly so the state can take full advantage of building its renewable energy market as well as the potential 60,000+ jobs and billions in private investment that this bill is estimated to bring.

ADDITIONAL BACKGROUND ON COMMUNITY SOLAR

Community solar is a business model that requires enabling legislation in Pennsylvania to allow solar projects to benefit multiple customers from an off-site solar array. In other states where community solar is permitted, electric customers can buy or lease a percentage of an off-site solar array and receive credit on their electric bills for the electricity generated commensurate with their share. The intent of a community solar program is to provide the option for renters, homeowners, businesses, nonprofits, and others the benefit of locally generated solar because they may be restricted in their ability to install solar panels on-site for some reason.²⁷

Over the past several years, there have been many community solar proposals considered by Pennsylvania's General Assembly. Some of the issues being discussed in Pennsylvania include ownership opportunities of community solar installations, minimum subscription requirements, the incentive mechanism, and maximum capacity requirements. It is important to underscore the intent of community solar legislation in the context of Pennsylvania's energy landscape, which is that community solar programs should both attract investments from firms that specialize in developing and commissioning community solar installations as well as protect electricity customers from unforeseeable changes to Pennsylvania's energy landscape with the overall goal of ensuring more electricity customers can access the benefits of solar that specifically guarantee savings.

²⁷ U.S. Department of Energy Office of Energy Efficiency and Renewable Energy. (2023, June 16). *Community solar basics*. Energy.gov. <https://www.energy.gov/eere/solar/community-solar-basics>

In addition, while the PA Solar Center supports community solar, it must be passed in tandem or as a part of an AEPS expansion to not further harm the current AEC market. A strong AEPS is also needed to create a robust community solar program.

CONCLUSION

In conclusion, renewable energy is an important and necessary component to control and reduce ratepayer impacts of rising energy prices because it diversifies our energy mix. The state must prepare for the modern energy economy in order to take full advantage of new technologies of the 21st century grid, to provide thousands of new energy economy jobs to our citizens, and to create energy security and reliability. Pennsylvania can unlock the benefits of solar and other renewables by modernizing the AEPS to increase Tier I and solar carveout goals, and permit community solar.

Thank you for the opportunity to submit comments on this important topic. The Pennsylvania Solar Center is always available to discuss the costs and benefits of solar with any member of the Committee. We applaud your efforts on this important issue of creating an affordable, reliable, and secure energy future for all Pennsylvanians.