



# Pennsylvania Update

MSSIA – 2<sup>nd</sup> Qrtly Mtg  
June 21, 2023






Ron Celentano , VP - Pennsylvania

# Solar Update Highlights in PA – 6/21/2023

- Current in-state solar PV capacity in PA is **934 MW<sub>DC</sub>**, from a total of 43,694 systems, as of 6/17/2023.
- PJM Queue for PA – 25.9 GW (631 applications: Active, Engineering/Procurement, and Under Construction-including in partial service), of which 11 projects totaling 330 MW are under construction.
- Expanding AEPS Bill introduced in the Senate (SB230) on 3/15/2023; **HOUSE COMPANION BILL (HB1467) INTRODUCED ON 6/21/2023** (with higher ACPs than SB230)
  - AEPS bill, 30% Tier 1 renewable energy goals by 2030, including 14% in-state solar, which consists of 4% DG solar (including the current 0.5%), 2% community solar, and 8 % grid-scale solar.
- Community Solar Bill introduced in the Senate (SB550) on 4/13/2023; House Memo proposing a companion bill circulated 4/10/2023.
- Local /shared EDC/utility solar bill introduced in House (HB330) on 3/13/2023; Senate Memo proposing a companion bill circulated 3/24/2023.
- Solar Schools Bill introduced in the House (HB1032) on 4/26/2023; Senate Memo proposing a bill likely to be a companion bill circulated 4/13/2023.
- 9<sup>th</sup> Annual PA Renewable Energy Summit
- Senate Hearing on Solar and Ratepayer Impacts on 6/20/2023. (Senate Consumer Protection and Professional Licensure Committee)
- Utility Solar Incentive Programs for Commercial Customers.

### Quick Reference Guide for Key Bills

| Guide   | Bill #                  | Prime Sponsors  | History   |
|---|-------------------------|---|---|
| <b>INCREASING RENEWABLE ENERGY GOALS</b>  |                         |   |   |
| <b><i>Increases Renewable Goals in the AEPS to 30% with 14% Solar by 2030 and Enables Community Solar</i></b> |                         |   |   |
|                              | <a href="#">SB 230</a>  | Steven Santarsiero<br>(D-Bucks County)  | Referred to the Senate Consumer Protection and Professional Licensure Committee, March 15, 2023 |
|   | <a href="#">HB 1467</a> | <u>Danielle Otten</u><br>(D-Chester County)   | <u>Referred to Committee on Environmental Resources and Energy, June 21, 2023</u>               |
| <b>COMMUNITY SOLAR/SHARED SOLAR</b>   |                         |   |   |
| <b><i>Enables Community or Shared Solar Programs in Pennsylvania</i></b>                                      |                         |   |   |
|                             | <a href="#">SB 550</a>  | <b>Prime:</b> Rosemary Brown<br>(R-Lackawanna, Monroe and Wayne Counties)                   | Referred to the Senate Consumer Protection and Professional Licensure Committee, April 13, 2023 |
|   | <a href="#">MEMO</a>    | <b>Prime:</b> Aaron Kaufer (R-Luzerne County) and Joseph Hohenstein (D-Philadelphia County) | Memo circulated on April 10, 2023 (this will likely be a companion bill to SB 550)              |
|                            | <a href="#">HB 330</a>  | <b>Prime:</b> Perry Stambaugh<br>(R-Perry, Juniata Counties)                                | Referred to the House Consumer Protection, Technology and Utilities Committee, March 13, 2023   |
|   | <a href="#">MEMO</a>    | <b>Prime:</b> Daniel Laughlin<br>(R-Erie County)  | Memo circulated on March 24, 2023 (this will likely be a companion bill to SB 330).             |



- Favorable for solar









- Some possible benefit or PA Solar Center Neutral



- Possibly Unfavorable

- Continued -

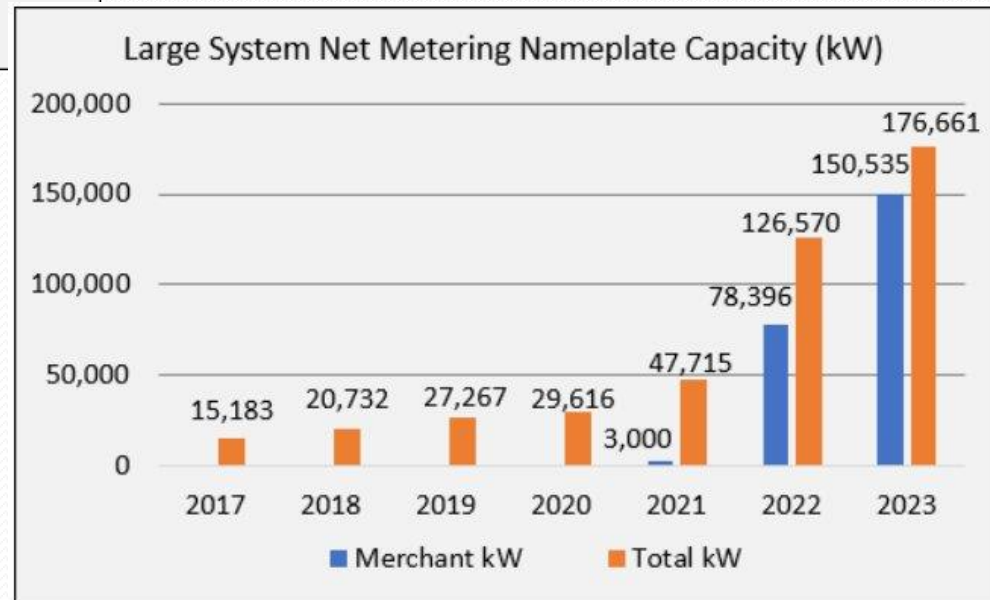
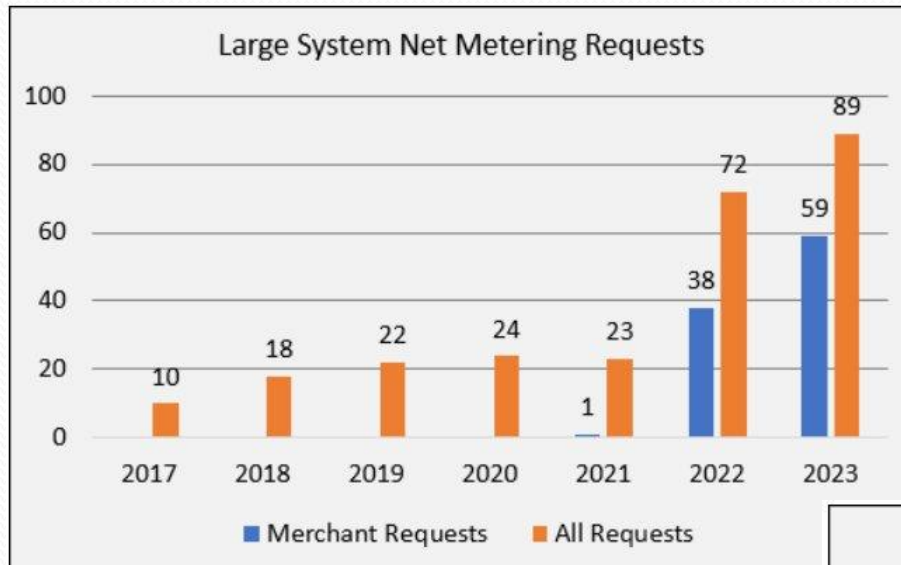
| SOLAR FOR SCHOOLS  |                         |   |   |
|--|-------------------------|---|---|
| <i>Allocates Grant Funding for Schools to go Solar</i>                             |                         |   |   |
|   | <a href="#">HB 1032</a> | <b>Prime:</b> Elizabeth Fiedler<br>(D-Bradford,<br>Philadelphia County)   | Referred to the House Consumer<br>Protection, Technology and Utilities<br>Committee, April 26, 2023                             |
|  | <a href="#">MEMO</a>    | <b>Prime:</b> Vincent Hughes<br>(D-Montgomery and<br>Philadelphia Counties) &<br>Carolyn Comitta (D-<br>Chester County) | Memo circulated on April 13, 2023 (this<br>bill will likely be a companion bill to HB<br>137)                                   |
| DECOMMISSIONING AND BONDING OF SOLAR ENERGY PROJECTS                               |                         |   |   |
| <i>Requires decommissioning plans and financial assurances</i>                     |                         |   |   |
|   | <a href="#">SB 211</a>  | <b>Prime:</b> Gene Yaw<br>(R-Bradford, Lycoming,<br>Sullivan, Tioga and<br>Union Counties)                              | Final Senate passage, March 8, 2023<br>Referred to the House Environmental<br>Resources and Energy Committee, April<br>25, 2023 |
|  | <a href="#">HB 925</a>  | <b>Prime:</b> Kathy Rapp<br>(R-Warren, Crawford<br>and Forest Counties)   | Referred to the House Consumer<br>Protection, Technology and Utilities<br>Committee, April 17, 2023                             |

 - Favorable for solar    - Some possible benefit or PA Solar Center Neutral    - Possibly Unfavorable

[https://pasolarcenter.org/wp-content/uploads/2023/04/Quick-Reference-Guide-for-Key-Bills\\_2023-to-2024-session-042823-1.pdf](https://pasolarcenter.org/wp-content/uploads/2023/04/Quick-Reference-Guide-for-Key-Bills_2023-to-2024-session-042823-1.pdf)

[https://pasolarcenter.org/wp-content/uploads/2023/04/PA-State-Solar-Legislative-Guide.2023-2024\\_final.pdf](https://pasolarcenter.org/wp-content/uploads/2023/04/PA-State-Solar-Legislative-Guide.2023-2024_final.pdf)

# Explosion of Merchant Generator BTM Interconnection Applications in PA





# Senate Hearing on Solar and Ratepayer Impacts

This hearing was primarily initiated because of the exponential growth of merchant generators submitting BTM interconnection applications for 3 MW facilities for new accounts with no existing loads.

Summary from Pennsylvania Legislative Services, a private legislative tracking and reporting firm (forwarded by Steve Stroman):

On June 20, 2023, a 2-hour hearing held by the Senate Consumer Protection & Professional Licensure Committee covered some familiar terrain including utility opposition to community solar and critiques of net metering. Chairman Stefano ended the hearing by endorsing legislation to change net metering laws in Pennsylvania.

The PUC witnesses supported changes to net metering and gently endorsed community solar. They made the following recommendations for community solar in their testimony:

- Consider providing the Commission flexibility to revise the value of bill credits.
- Consider providing the Commission flexibility to revise the value of any grid services payments, if applicable.
- Ensure clarification on how to deal with any unsubscribed energy.
- Include reasonable coordination between utilities and project developers without unduly burdensome requirements.

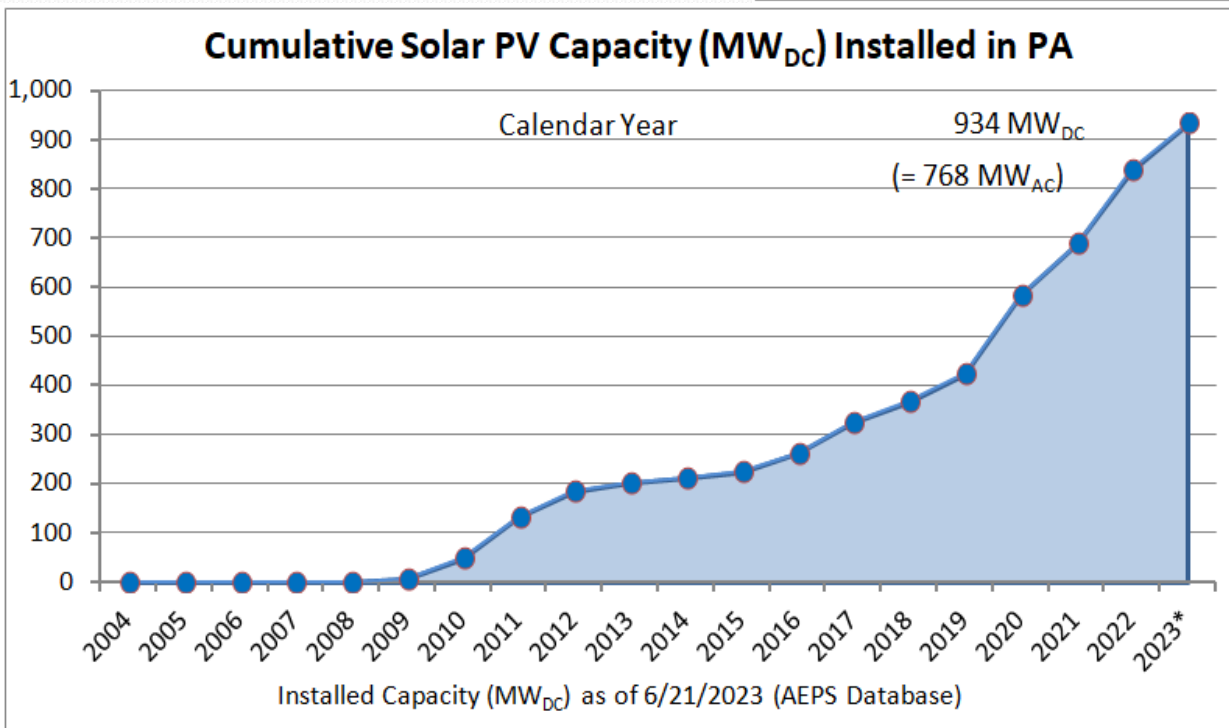
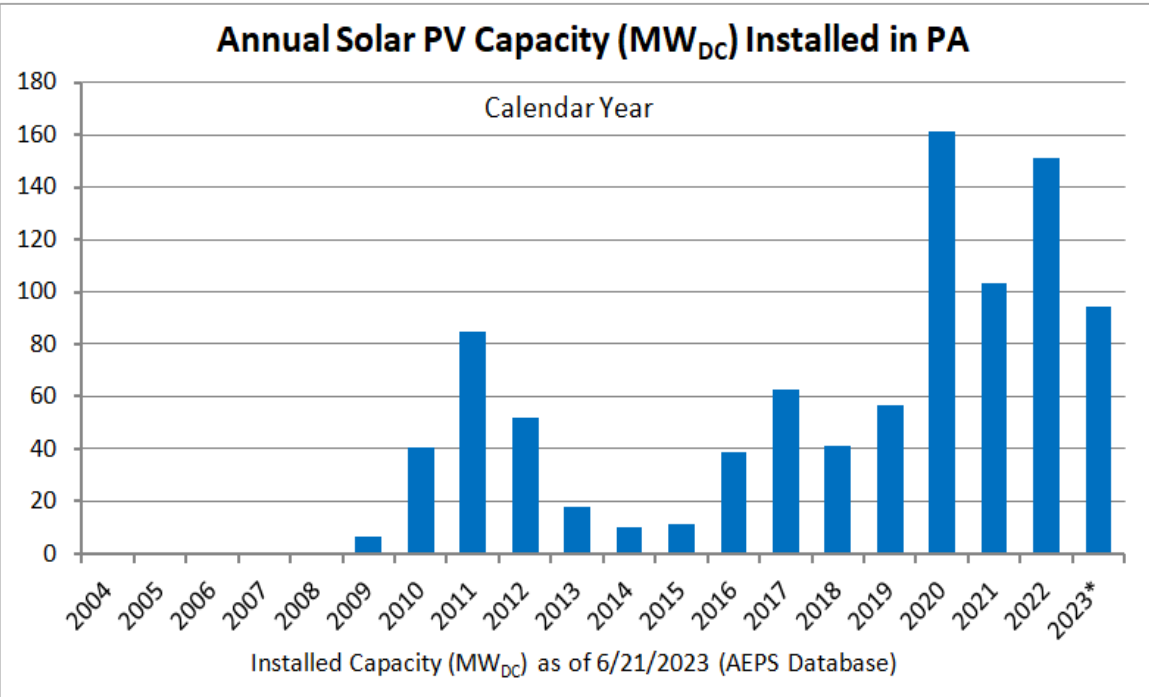
**Link to the recording of the hearing : <https://consumer.pasenategop.com/cpp1-062023/>**

A detailed written summary of the hearing (Pennsylvania Legislative Services ) is available as a PDF upon request (CelentanoR@aol.com)

# PV Capacity in PA

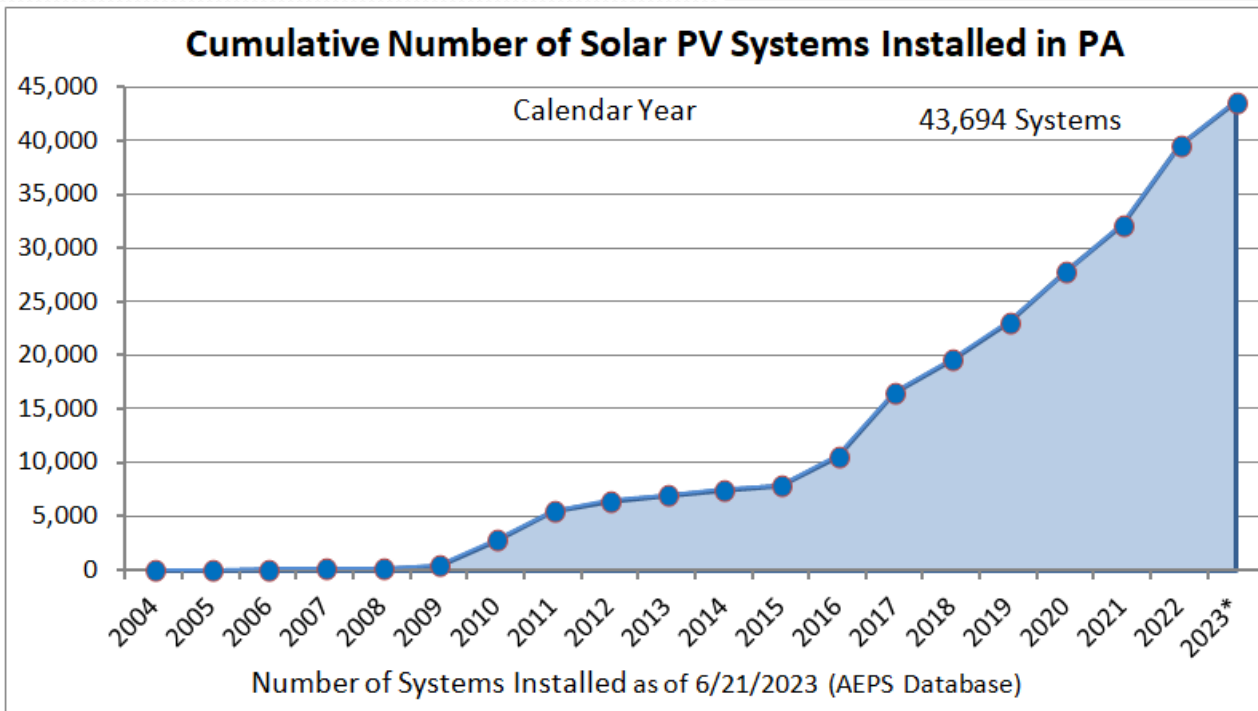
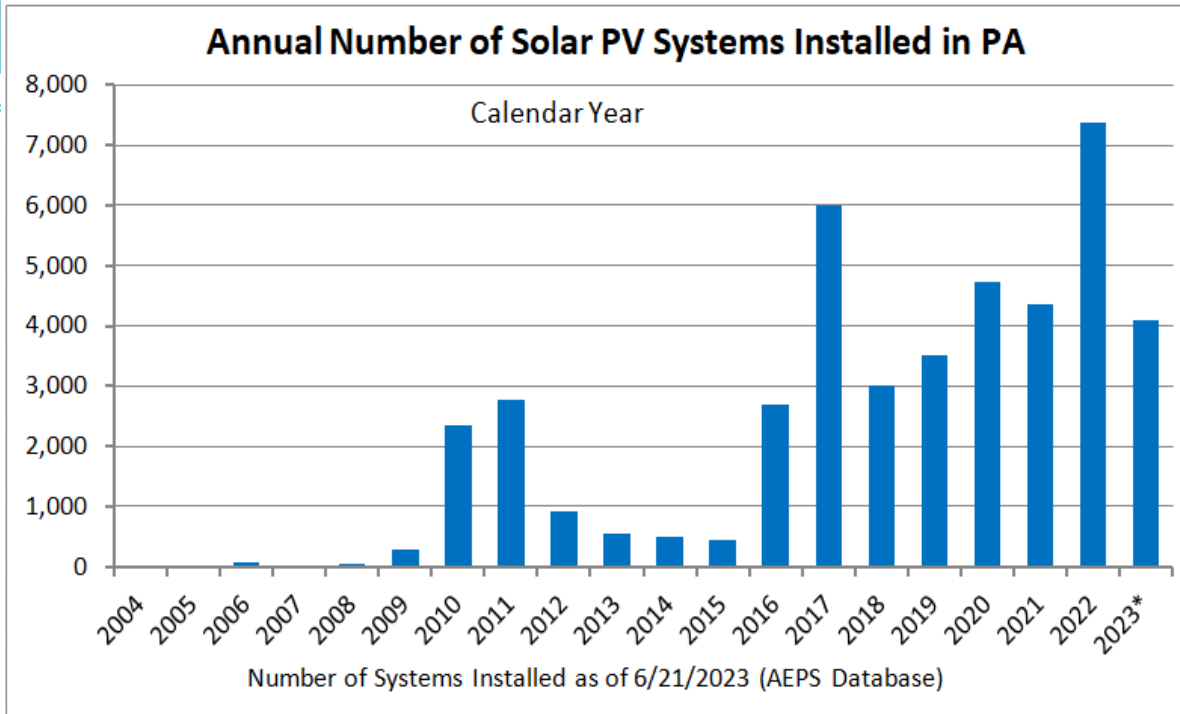
## Annual & Cumulative

As of 6/21/2023



SEIA reports 1,125 MW installed through Qrt 1-2023

# Number of PV Systems in PA Annual & Cumulative As of 6/21/2023



SEIA reports 60,651 systems  
installed through Qrt 1-2023



# Breakdown Of PV Installations in PA

## Last Year

| Cumulative PV Installed in PA |              |          |
|-------------------------------|--------------|----------|
| Capacity (DC)                 | # of Systems | Total MW |
| ≤ 15 kW                       | 28,189       | 225      |
| > 15 kW to ≤ 250 kW           | 4,700        | 153      |
| > 250 kW to ≤ 1 MW            | 175          | 86       |
| > 1 MW to ≤ 3 MW              | 47           | 75       |
| > 3 MW to ≤ 5 MW              | 14           | 52       |
| > 5 MW to ≤ 10 MW             | 1            | 6        |
| > 10 MW                       | 6            | 114      |
| Total                         | 33,132       | 711      |

\* as of 3/12/2022 as per PA AEPS (PUC)

| Cumulative PV Installed in PA |              |          |
|-------------------------------|--------------|----------|
| Capacity (DC)                 | # of Systems | Total MW |
| ≤ 15 kW                       | 36,778       | 301      |
| > 15 kW to ≤ 250 kW           | 6,642        | 200      |
| > 250 kW to ≤ 1 MW            | 196          | 96       |
| > 1 MW to ≤ 3 MW              | 51           | 80       |
| > 3 MW to ≤ 5 MW              | 16           | 60       |
| > 5 MW to ≤ 10 MW             | 2            | 14       |
| > 10 MW                       | 9            | 183      |
| Total                         | 43,694       | 934      |

\* as of 6/21/2023 as per PA AEPS (PUC)

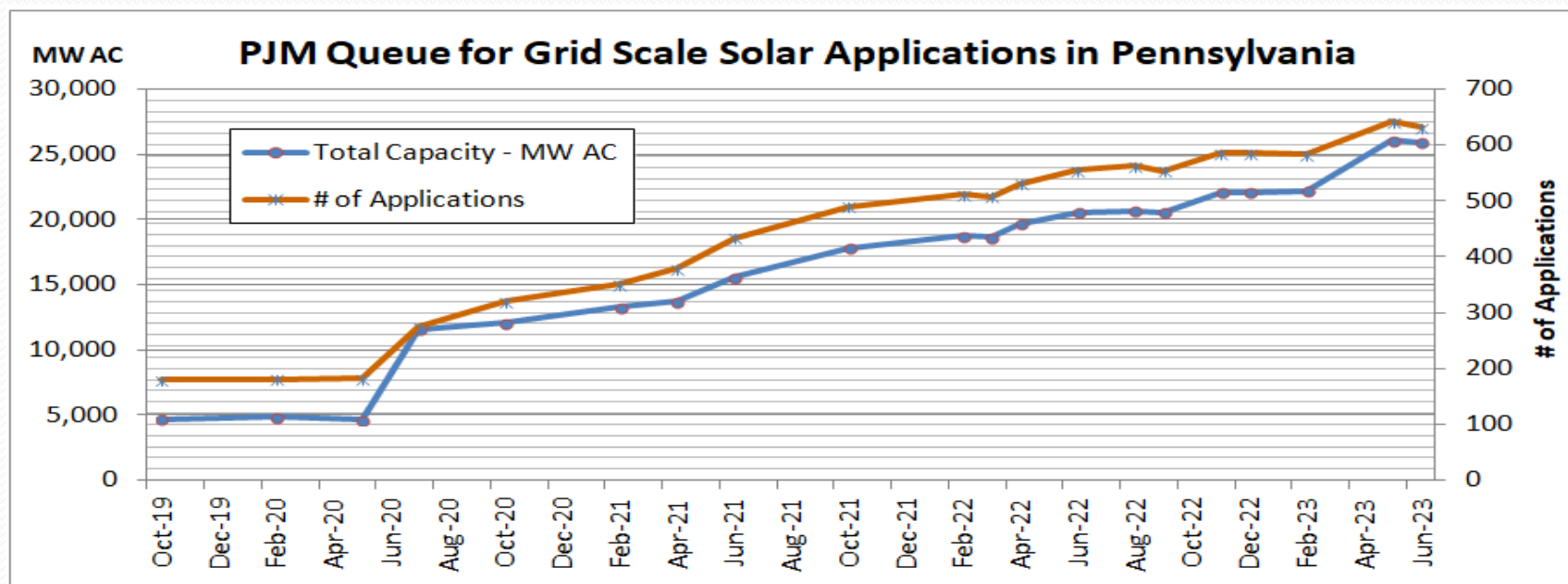
## Since March 2022: 85 MW Grid Scale

> 3 to ≤ 5 MW : 2 Projects, 8 MW  
 > 5 to ≤ 10 MW : 1 Projects, 8 MW  
 > 10 MW : 3 Projects, 69 MW

# PJM Queue for PA Solar Applications

| PJM Queue for PA           |           | As of 6/21/2023           |                |       |                                   |
|----------------------------|-----------|---------------------------|----------------|-------|-----------------------------------|
| Status                     | # of Apps | Max Facility Output (MFO) |                |       | Total Cap<br>IC Queue<br>Position |
|                            |           | Total Cap<br>AC MW        | Capacity Range |       |                                   |
|                            |           |                           | Min            | Max   |                                   |
| Active                     | 537       | 23,435                    | 1.0            | 401.6 | 10,992                            |
| Engineering/Procurement    | 83        | 2,133                     | 0.2            | 150.0 | 1,059                             |
| Under Construction         | 11        | 330                       | 11.7           | 100.0 | 191                               |
| Part in Srvc - Under Const | 0         | -                         | -              | -     | -                                 |
| Sub-Total                  | 631       | 25,897                    |                |       | 12,242                            |
|                            |           |                           |                |       |                                   |
| In Service                 | 17        | 275                       | 3.3            | 20.0  | 89                                |
| Grand Total*               | 648       | 26,172                    |                |       | 12,331                            |

\* Total Applications categorized as "Solar & Storage" = 106



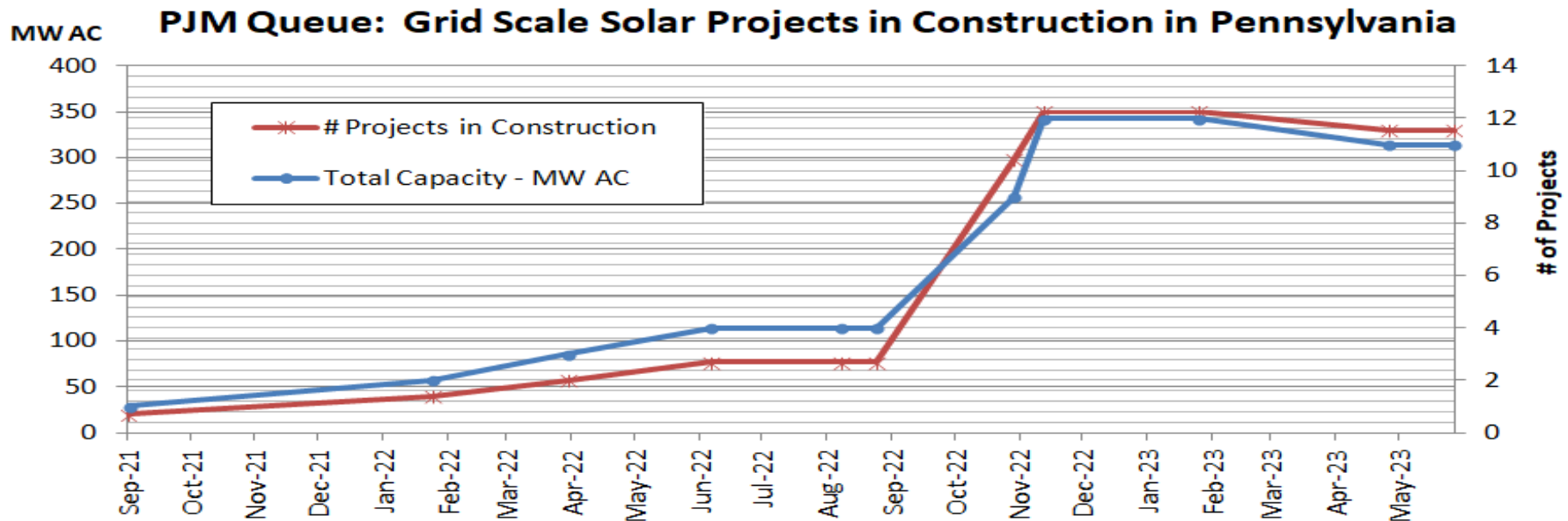
# PJM Queue for PA Solar Facilities - Under Construction

Under Construction - Solar PV Facilities in PA- 6/21/2023

| Queue # | Name                           | Commercial Name           | State | County       | Transmission Owner | MFO Capacity MW |
|---------|--------------------------------|---------------------------|-------|--------------|--------------------|-----------------|
| AC2-168 | Clinton 23kV                   | Gaucha Solar              | PA    | Washington   | DL                 | 11.7            |
| AD1-135 | Clinton 23 kV II               | Gaucha Solar              | PA    | Washington   | DL                 | 20.0            |
| AD2-009 | McConnellsburg 138 kV          | Great Cover Solar LLC     | PA    | Fulton       | APS                | 70.0            |
| AD2-116 | Hokes-Grantley 69 kV           | Cottontail Solar 2        | PA    | York         | ME                 | 20.0            |
| AE1-185 | Hokes-Jackson 69 kV            | Cottontail Solar 1        | PA    | York         | ME                 | 20.0            |
| AE1-196 | Hokes-Jackson 69 kV II         | Cottontail Solar 8        | PA    | York         | ME                 | 20.0            |
| AE2-060 | Mifflintown Bus-Mifflintown Ta | Cottontail Solar 5        | PA    | Juniata      | PPL                | 20.0            |
| AE2-114 | Midland 23 kV I                | BE-PINE 1 Cain Road       | PA    | Beaver       | DL                 | 17.1            |
| AE2-115 | Midland 23 kV II               | BE-PINE 2 Dam Road        | PA    | Beaver       | DL                 | 17.1            |
| AE2-125 | Stahlstown-Ligonier 25 kV      | Stahlstown-Ligonier 25 kV | PA    | Westmoreland | APS                | 13.8            |
| AE2-224 | Bearrock-Johnstown 230 kV      | CPV Maple Hill Solar      | PA    | Cambria      | PENELEC            | 100.0           |
| Total   |                                |                           |       |              |                    | 329.7           |

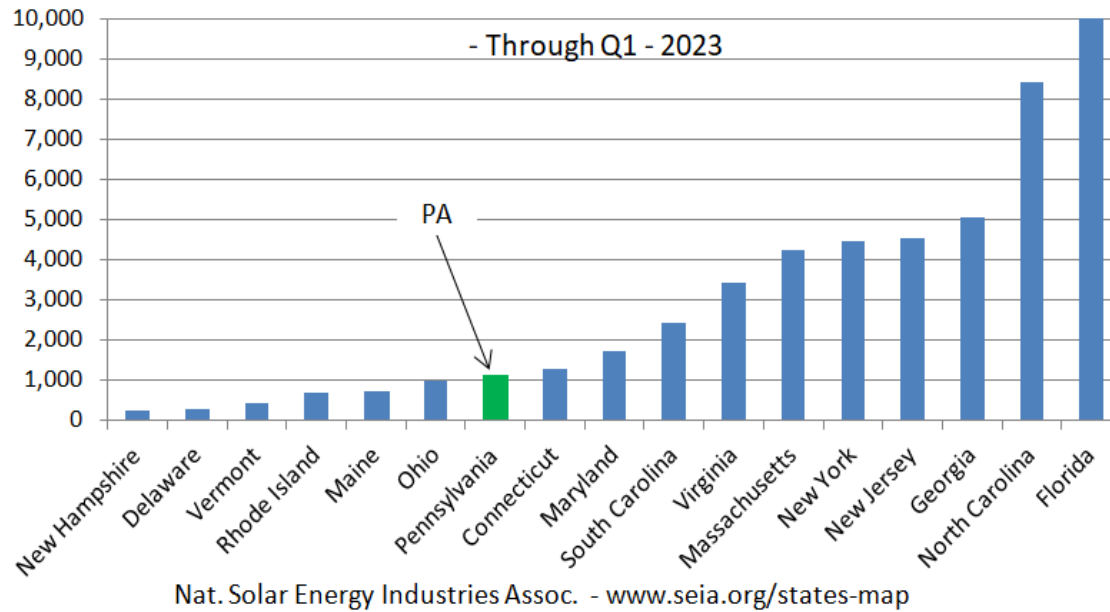
In Service - 3/23/2023

|         |                             |            |    |            |         |      |
|---------|-----------------------------|------------|----|------------|---------|------|
| AE2-126 | Dubois-Curwensville 34.5 kV | CL-Viaduct | PA | Clearfield | PENELEC | 20.0 |
|---------|-----------------------------|------------|----|------------|---------|------|



# Solar in Other East Coast States Compared to PA

**Total Solar Capacity (MW<sub>DC</sub>) Installed by State on the East Coast**



## Solar in Pennsylvania Ranks 27th in the Nation

Wood Mackenzie/SEIA US Solar Market Insight - 2022 Year in Review; March 2023

**Total Solar PV Installed per Capita (MW<sub>DC</sub>/Million)**

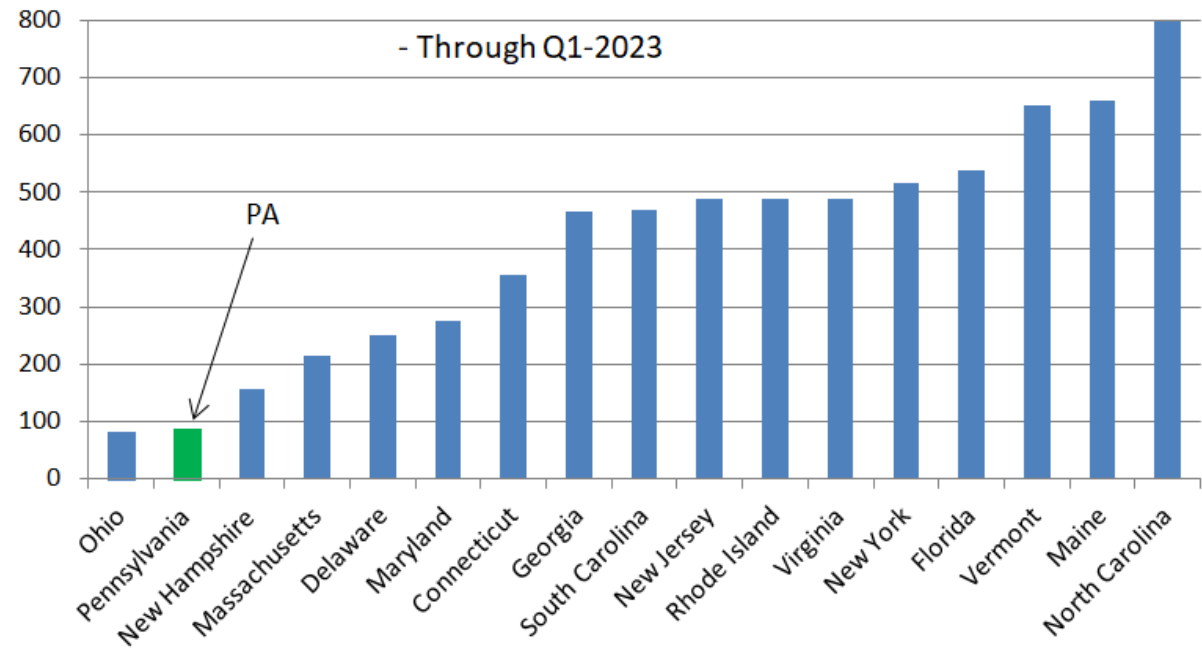
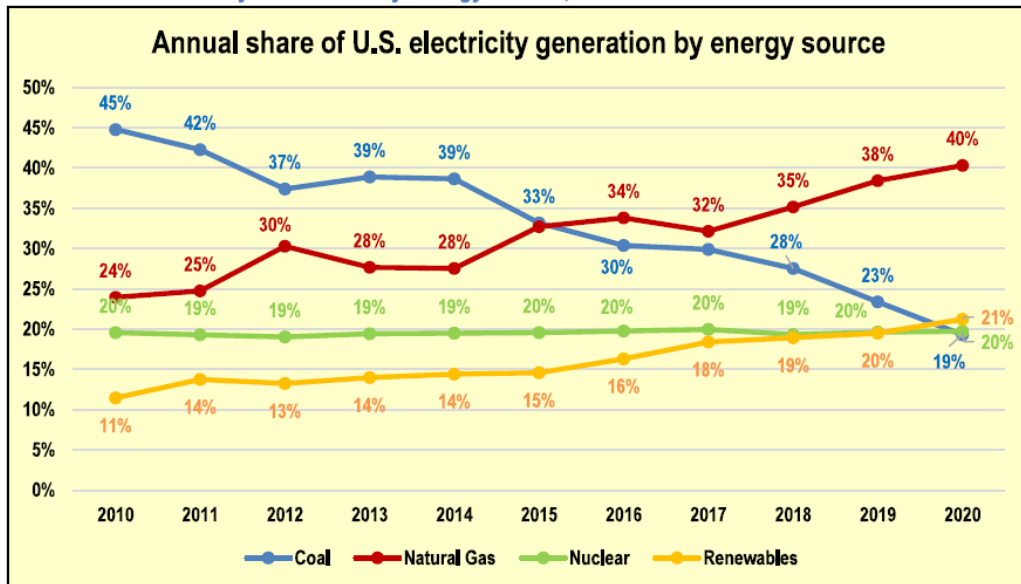


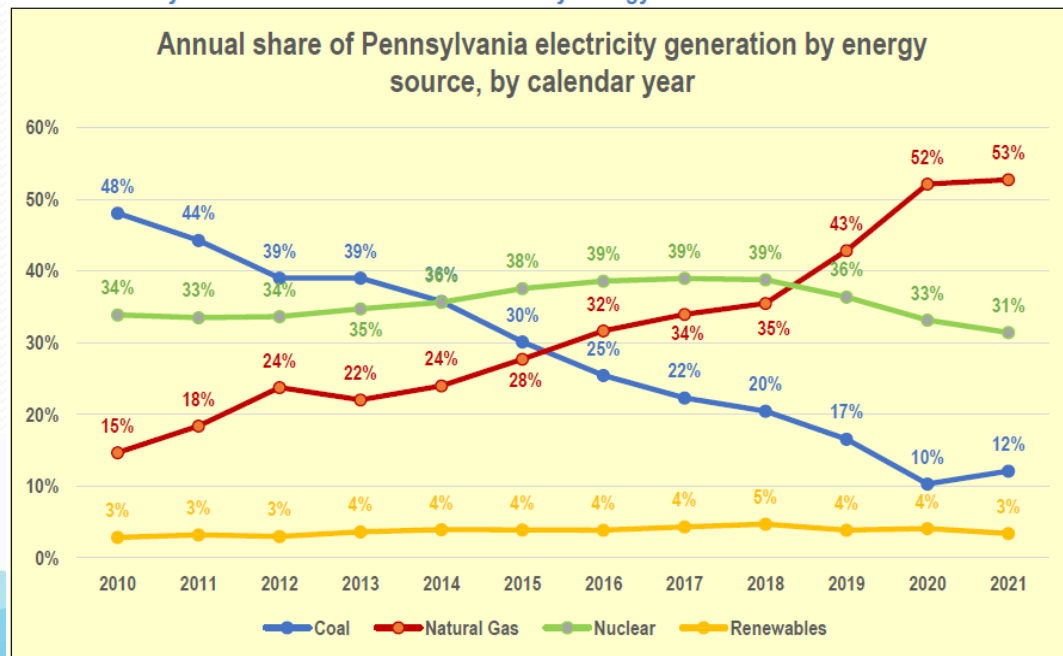
Chart 6: U.S. Electricity Generation by Energy Source, 2020 Calendar Year



Source: Energy Information Administration Electricity Data Browser

# AEPS Report 2022 – Observations on Renewable Energy Resources

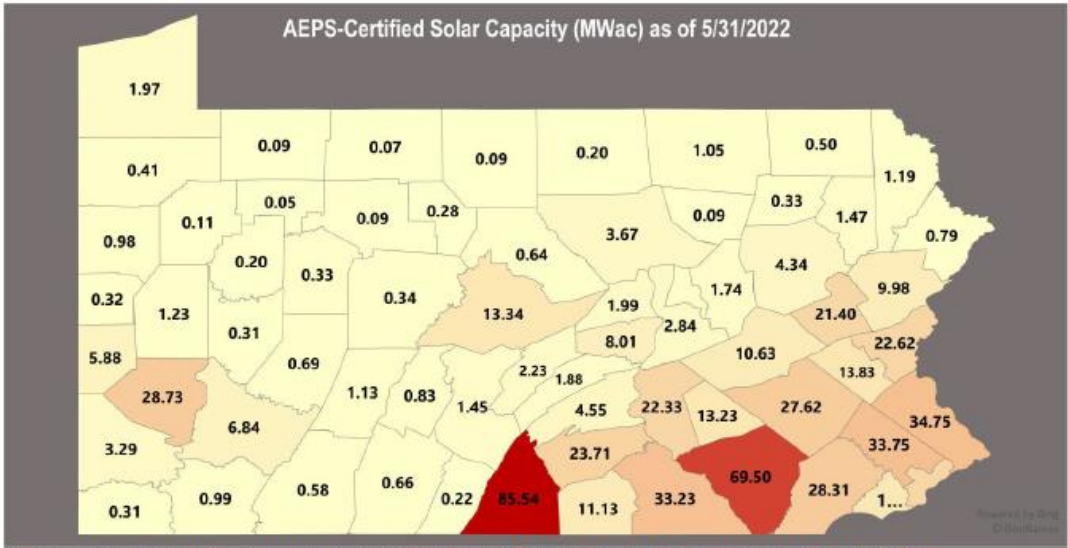
Chart 9: Pennsylvania Annual Electric Generation by Energy Source



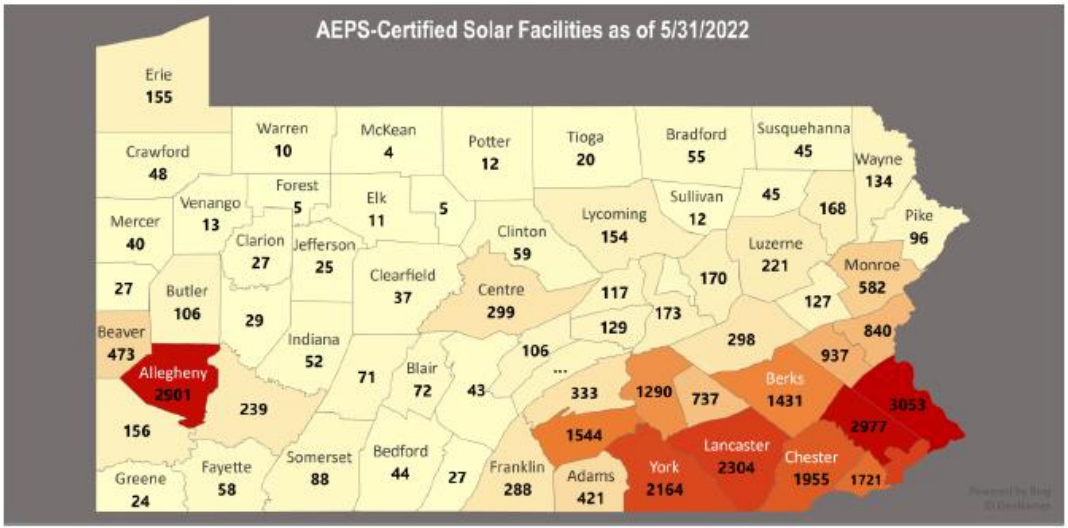
Source: Energy Information Administration Electricity Data Browser



# AEPS Report 2022 – Observations on Solar Resources



Note: As of 5/31/2022, the AEPS certified solar generation capacity was 12.55 MWac in Delaware County and 21.94 MWac in Philadelphia County.



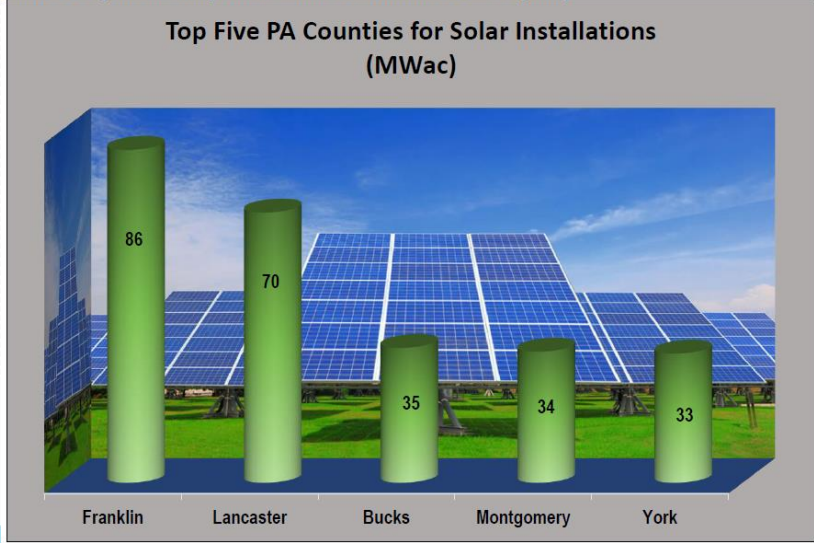
Note: As of 5/31/2022, Philadelphia County has 2,277 AEPS certified solar generation facilities.

0.5% Solar PV Requirement = 525.0 MW<sub>AC</sub> Solar PV Capacity

534.4 MW<sub>AC</sub> had been installed in PA by 5/31/2021

Currently, 767 MW<sub>AC</sub> is installed (as of 6/21/2023), or the solar share = 0.731%

Chart 12: Top Five Pennsylvania Counties for Installed Solar Capacity





# AEPS Reports 2021/2022 – Observations on Solar Resources

RY 2021

## Source of Tier I Solar RECs Retired

- Pennsylvania – 78.2%
- Other States – 21.8%

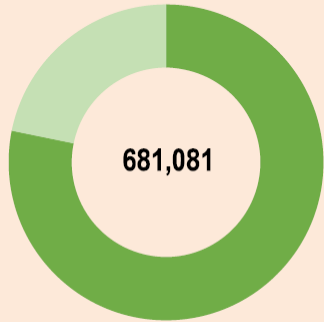
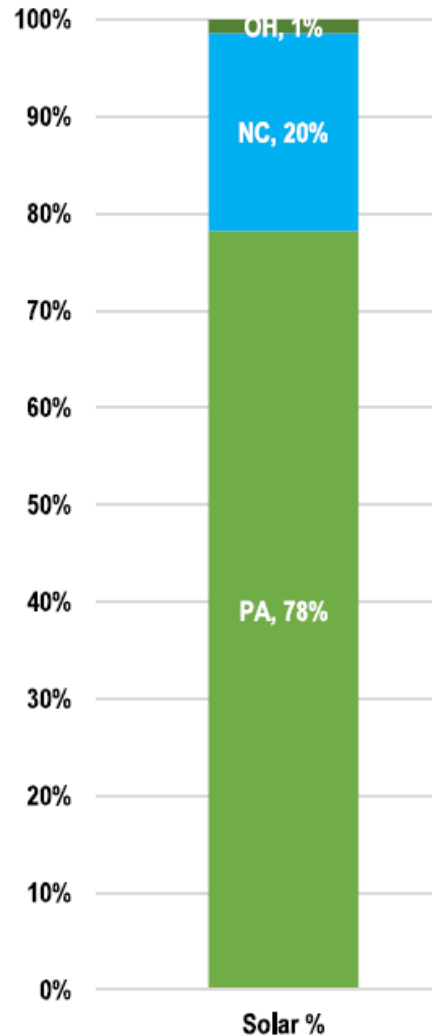


Chart 1: Percentage of AECs Retired in 2021



RY 2022

## Source of Tier I Solar RECs Retired

- Pennsylvania – 92.8%
- Other States – 7.2%

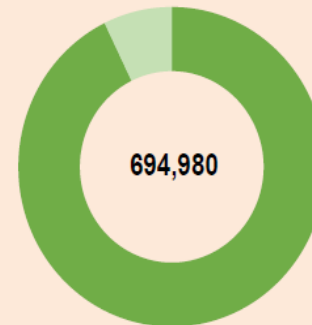
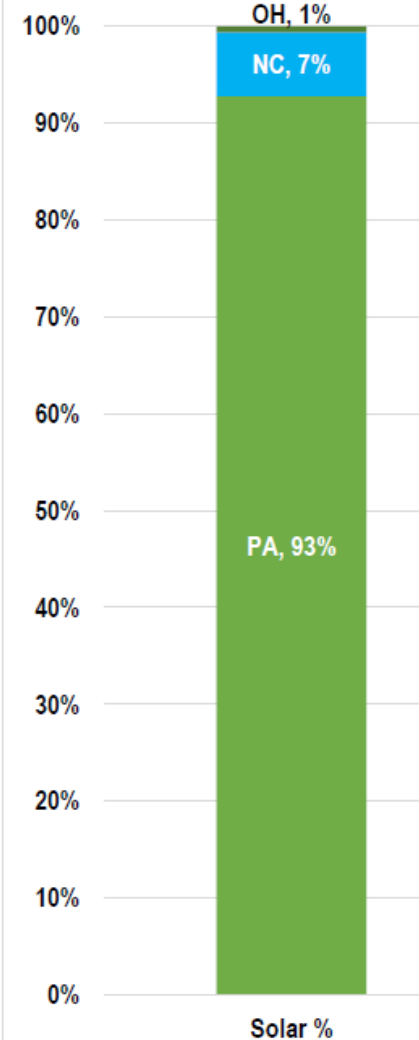
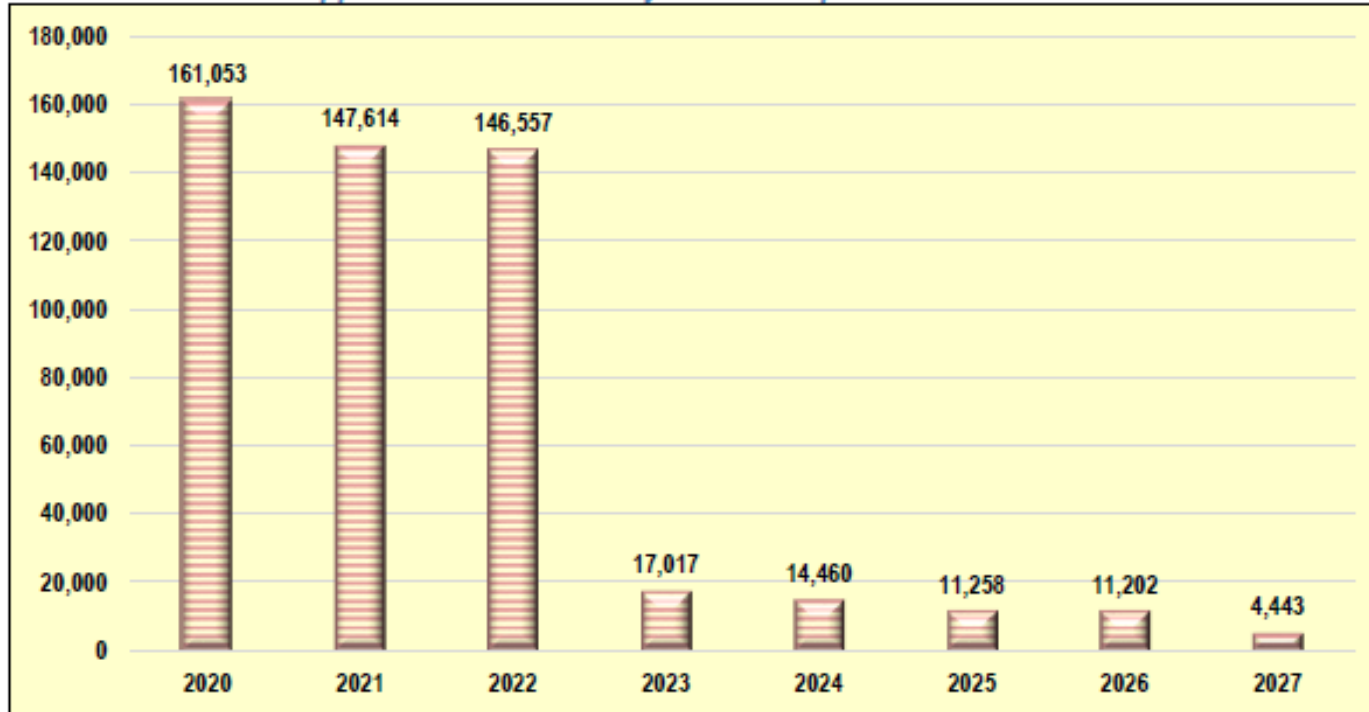


Chart 1: Percentage of AECs Retired in 2022



# AEPS Report 2022 – Observations on Solar Resources

Chart 20: *Estimated Approved NSTI Credits by AEPS Compliance Year*



Due to nuances associated with the multitude of contracts, the numbers shown in the chart above are approximate.

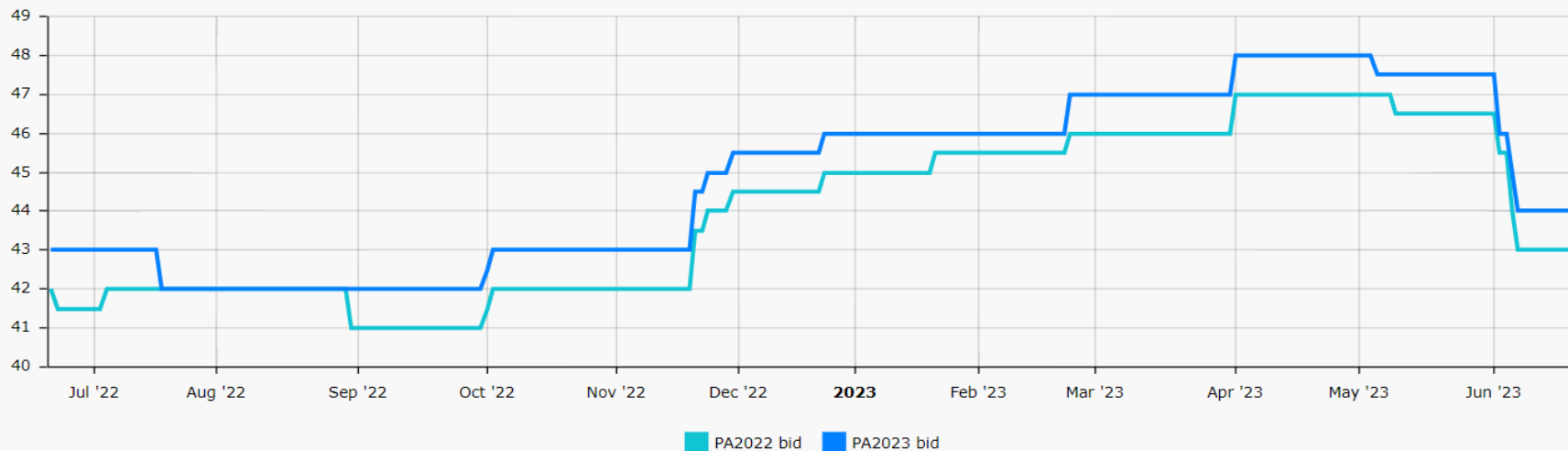
According to the above, by May 31, 2023, end of RY 2023, > 99% of all Required SRECs will come from PA solar projects

# Current & Historic PA SREC Prices

PA

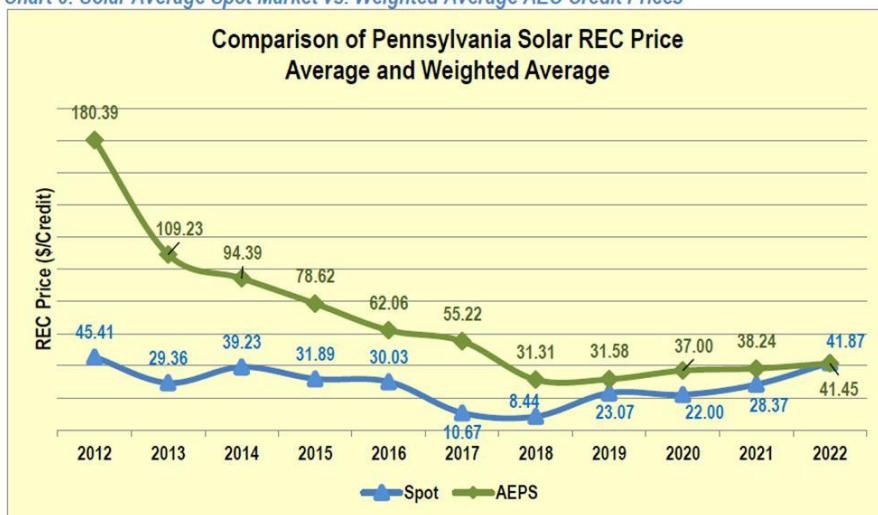
Latest Bid Price: \$44.00

Bid Prices for PA - Last Twelve Months (LTM)



This graph is protected by copyright laws and contains material proprietary to SRECTrade, Inc. All bid pricing and notes included are indicative and subject to change. Please contact us for most current markets. If a market is not quoted herein, please [contact us](#) directly for further information.

Chart 6: Solar Average Spot Market vs. Weighted Average AEC Credit Prices



**Current PA SACP = \$82.90/SREC**

# PA Utility Solar Incentive Programs



Met-Ed • Penelec • Penn Power • West Penn Power

## Solar Photovoltaic Program

### Energy efficiency rebates

Incentives are paid at 3¢ per kWh for retail energy usage displaced from FirstEnergy's Pennsylvania utility distribution system. Incentives are capped at 50 percent of total PV project cost, up to \$500,000.

Pennsylvania commercial, industrial, governmental and institutional customers of FirstEnergy's Pennsylvania utilities (Met-Ed, Penn Power, Penelec, West Penn Power) may apply for energy efficiency rebate incentives for qualifying Solar Photovoltaic (PV) projects under the Program.

The project must be completed or installed on or after June 1, 2021, and no later than May 31, 2026.

[www.energysavepa-bizsolutions.com/segment-solar](http://www.energysavepa-bizsolutions.com/segment-solar)



## Save energy with commercial and industrial solar

\* Program availability and incentive levels are effective June 1, 2023, and are subject to change and/or termination without prior notice. Incentives and discounts offered are subject to customer meeting program eligibility. The costs of energy efficiency programs are recovered through customer rates in accordance with the Pennsylvania Act 129 of 2008.

The PECO solar incentive is \$0.10/kWh, based on net solar kWh production (gross solar PV output less any net metering) over a one-year period. This incentive is capped at project cost.

All solar project incentives will be calculated and paid based on energy usage displaced from PECO. Customers without kWh load offset by solar are not eligible for incentives.



- What documents are required for incentive submission and pre-approval?
  1. Copy of current PECO bill
  2. Scope of work or proposal and project quote
  3. Manufacturers' specification sheets for qualifying equipment
  4. Estimation of energy savings
  5. W-9 with tax identification for payee
  6. Confirmation of PECO service and interconnection agreement
  7. Confirmation of capability to obtain system trend data

- How is the incentive pre-approval amount determined?

The pre-approval amount is based on a PVWatts model of gross estimated energy production, adjusted for estimated energy fed back to the grid (net metered)
- How long is the measurement and verification (M&V) period?

The M&V period will take a minimum of six months, with at least one month from the June through August time period.

<https://solutions.peco-energy.com/solar-incentives>



## Incentives for Investing in Energy Efficiency

### Business Incentive Structure

| Program      | Incentive Rate | Cap        |
|--------------|----------------|------------|
| Custom/Solar | \$0.075 / kWh  | \$250 / kW |

Eligible incentive amounts will revert to the previous phase incentive levels beginning June 1, 2023: Lighting & Efficient Equipment: \$0.05/kWh, Custom Projects: \$0.06/kWh, CHP/Solar: \$0.03/kWh, and Direct Discount Program: \$0.10/kWh. All applications submitted, in good order, by May 31, 2023 at 11:59 pm will be grandfathered in at the current incentive rates.

Installing a photovoltaic (PV) solar system is more affordable than ever. Your business' solar incentive is based on summer coincident peak demand energy production, which occurs June through August (excluding weekends and holidays) from 2 p.m. to 6 p.m. Incentives require pre-approval and are capped at 50 percent of the project cost, up to \$500,000.

Effective December 7, 2022, all solar project incentives will be calculated and paid based on energy usage displaced from PPL Electric Utilities' system. Customers without kWh load offset by solar are not eligible for incentives.

### Important Note:

PPL has updated the program's Total Resource Cost effectiveness requirement. All CHP projects have to meet a minimum TRC of 0.70. All other projects have to meet a minimum TRC of 0.85.

<https://www.pplelectricbusinesssavings.com/ppl-business/incentives/overview/>

# PA Utility Solar Incentive Programs - Continued



## Solar Rebate Program

DLC has a solar rebate program for C & I, but does not publicize it at all. Managed by Franklin Energy, contact Liz McQuaide.

- Solar rebate \$0.05 cents/kwh
- Capped at \$500,000 or 90% of total project cost (materials and labor)
- Only pays for current usage offset not on any overproduction
- DLC rebate can be combined/stacked with other funding, including grants. There is no interest in how the project will be funded.
- No virtual net metering projects accepted.
- DLC does look for a TRC score as close to 1 as possible. TRC of 0.9 may be acceptable.