

Solar Power Purchase Agreements

November 3, 2023

Liz Compitello
Manager, Office of
Sustainable Energy



Pam Adams
Sustainability Planner



Partnerships

Centre County Solar Group & Sustainable Energy Partnership of Southeast PA

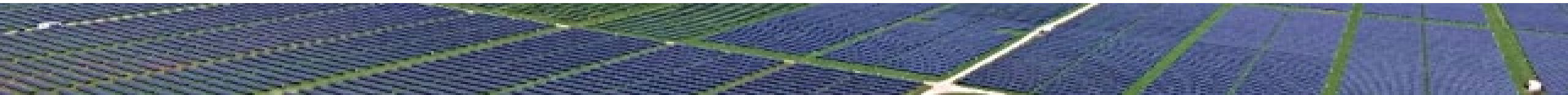
WHO? *Membership and structure*

WHY? *Setting the Stage*

WHAT? *Overview of a PPA*

HOW? *Description of process*

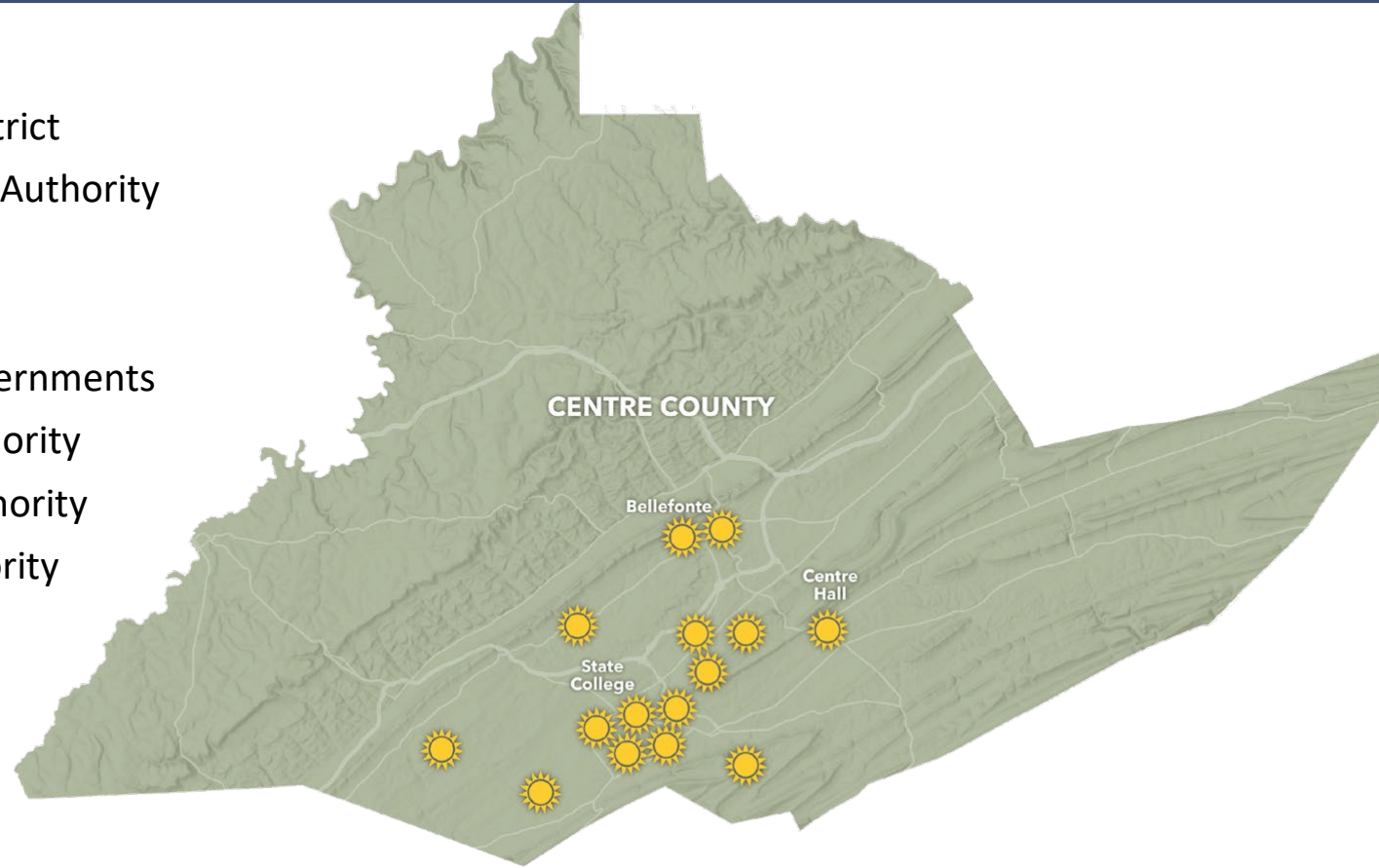
Q & A



Centre County Solar Group

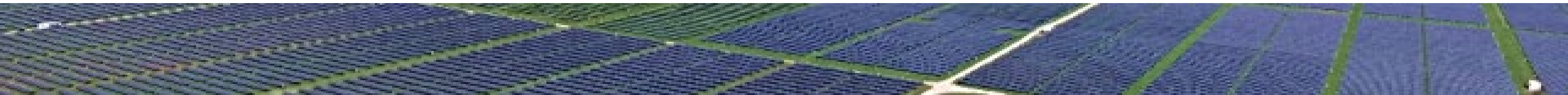
32.1
MWh
Annually

State College Area School District
State College Borough Water Authority
Centre County Government
State College Borough
Centre Region Council of Governments
College Township Water Authority
Centre Hall Potter Sewer Authority
Centre County Housing Authority
Ferguson Township
Harris Township
Patton Township
College Township

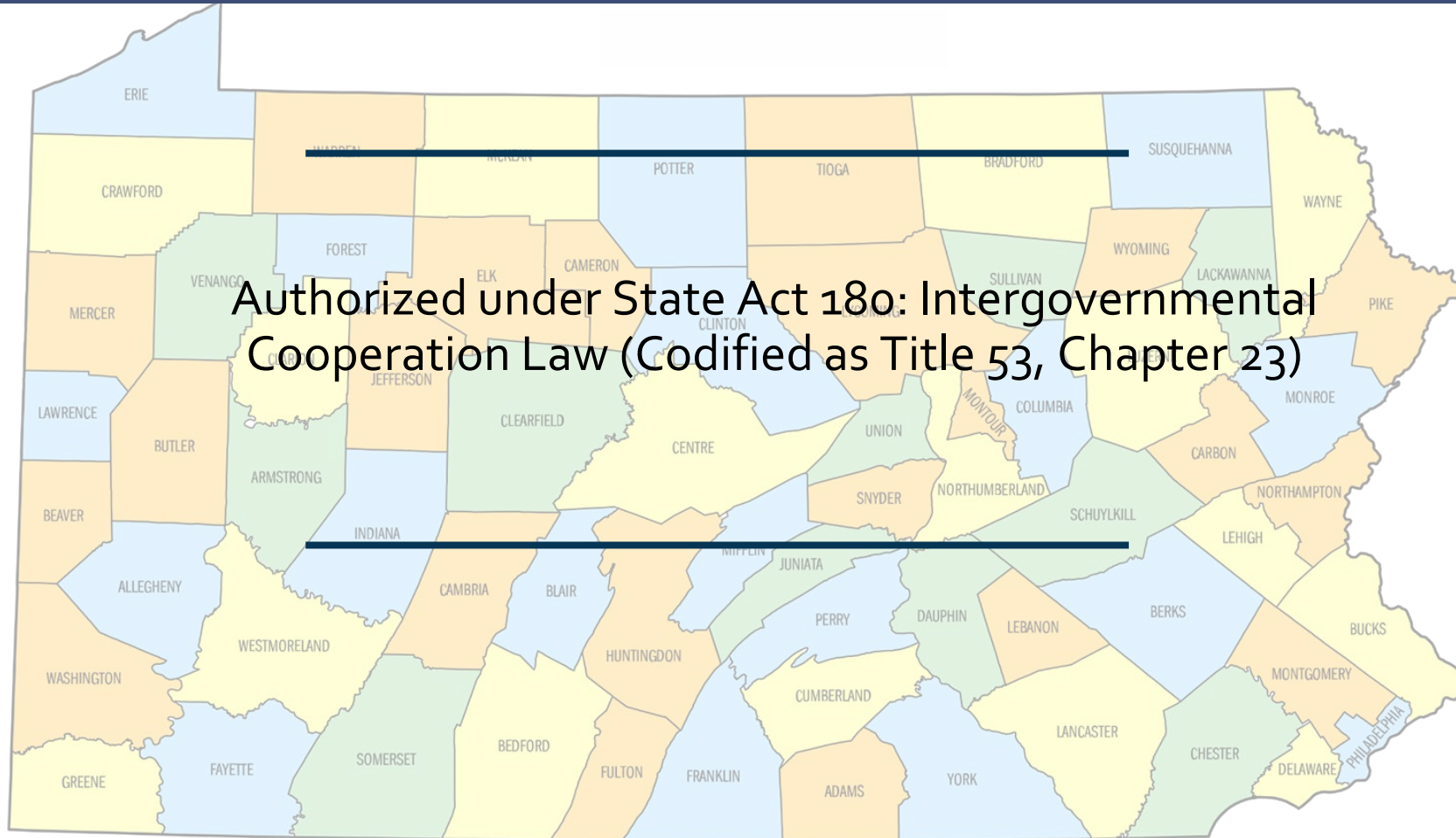


Project Management Team

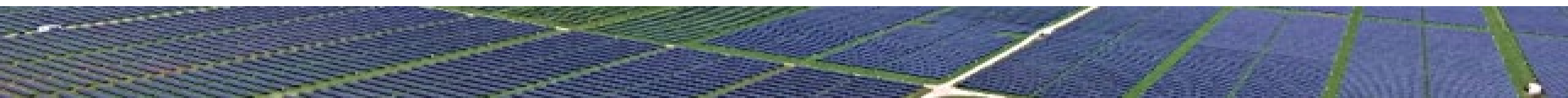
Randy Brown – SCASD
Gretchen Brandt – SCASD Board
Peter Buck – SCASD Board
Jason Grottini – SCBWA Board member
Larry Pegher – Patton
John Franek – Centre County
Pam Adams – COG
Keith Dingwall - SCASD
GreenSky Development Group
(consultant)



Intergovernmental Act



Authorized under State Act 180: Intergovernmental Cooperation Law (Codified as Title 53, Chapter 23)



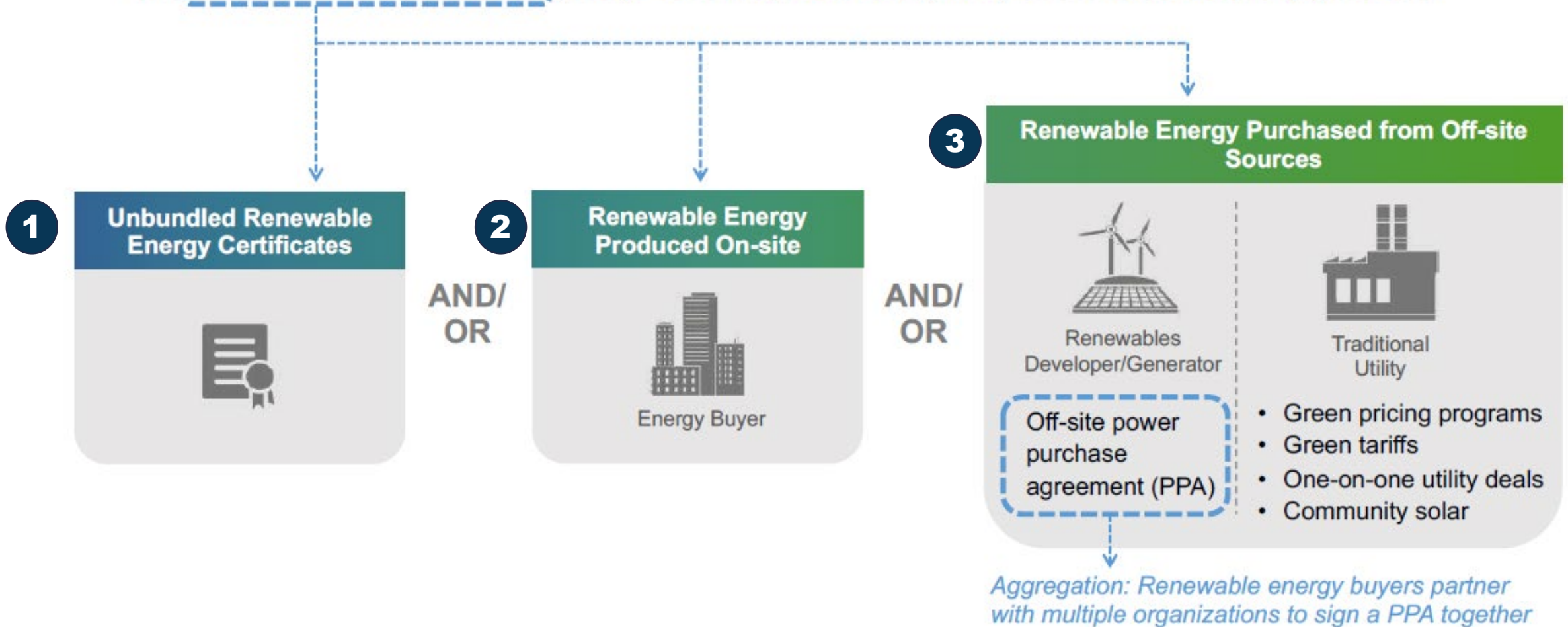
Guiding Principles

- A. Aggregate purchasing power to reduce costs – **more competitive rates**
- B. **Mitigate** exposure to **budget volatility** and price increases inherent in the electricity markets in addition to meeting sustainability and climate goals
- C. Contribute to the global effort to **mitigate** the **risks of climate change**
- D. **Promote solar** market prosperity and **jobs growth** in Pennsylvania
- E. **Educate** constituents about renewable energy benefits and risks
- F. Promote **diversity of the energy grid** and reduce dependence on fossil fuels
- G. Provide structures **aesthetically compatible** with the facilities surrounding neighborhoods



Actions to Achieve Renewable Energy Goals

One **renewable energy certificate (REC)** = One megawatt-hour (MWh) of renewable electricity generated

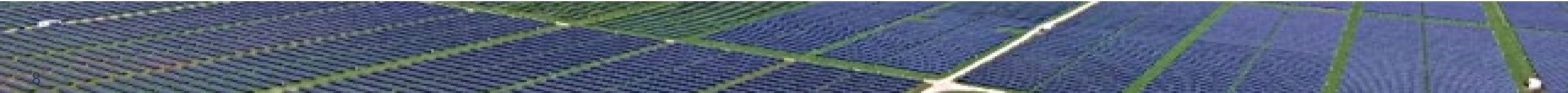
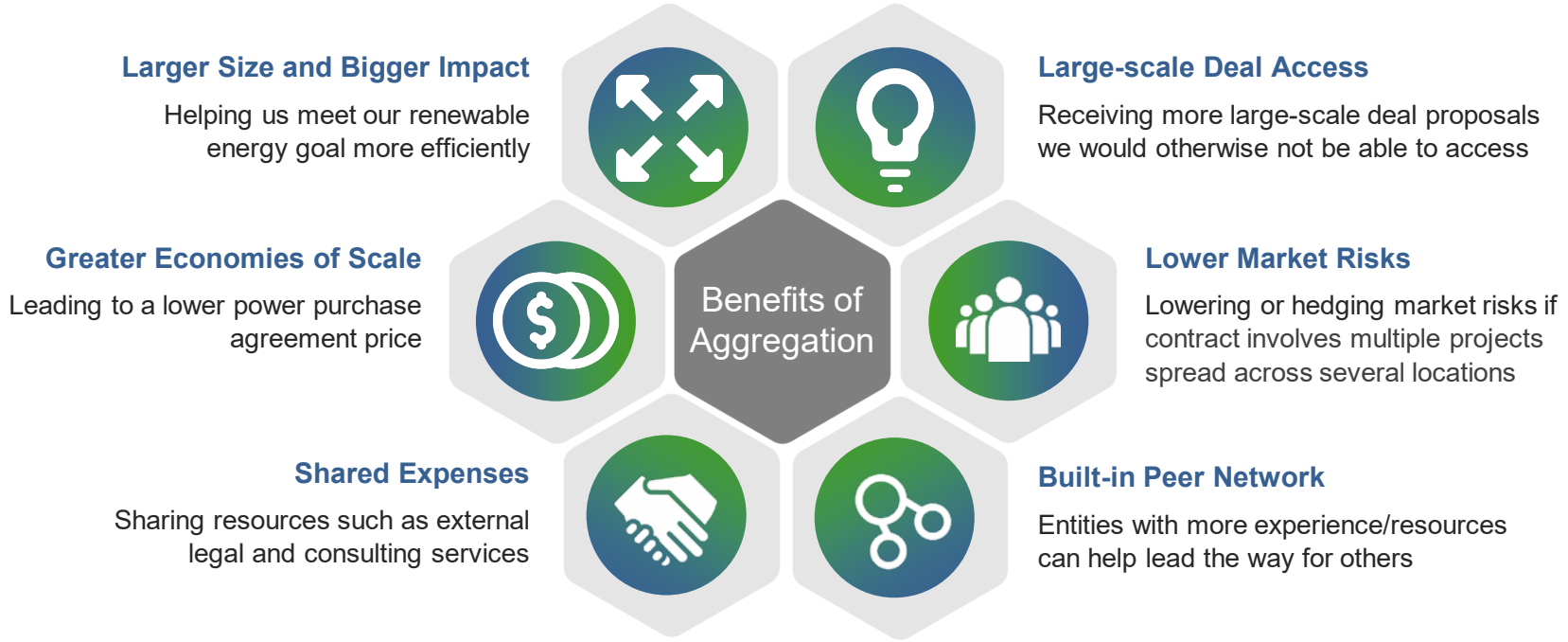


What is a PPA?

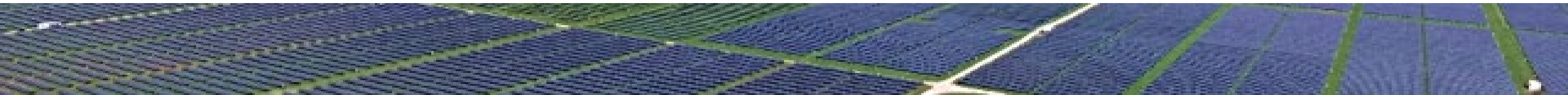
For aggregation to be possible, buyers need to be located nearby.



Benefits of a joint PPA



PPA Process



SOLAR POWER PURCHASE AGREEMENT

ANTICIPATED IMPACT

- 23 MW solar array in Centre County
- 16,000 MTCO₂e emissions reduction (for PA grid)
- Costs at and below market rate
- Savings over lifetime of project
- Education opportunities





DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION



**SUSTAINABLE
ENERGY PARTNERSHIP
OF SOUTHEAST PA**

Sustainable Pennsylvania

November 3, 2023



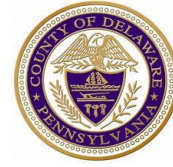
Bucks County

- Adopted the Sierra Club "Ready for 100" Resolution in 2021
- Developed model renewable energy ordinance for municipalities
- Explored on-site solar options for county facilities
- Installed EV charging stations in county parking facilities and have a small



Chester County

- Environmental and Energy Advisory Board – established 2019
- Facility level energy management projects, exploration of on-site solar
- Working toward converting 10% of fleet vehicles to EV by 2025
- Convening a Local Government Climate Action Cohort




Delaware County

- Established a Sustainability Commission
- 2020 - Created Sustainability Commission
- 2022 - Largest AFIG grant in history to purchase 69 EVs
- Drafting County's first Sustainability Plan



Montgomery County

- Adopted Sustainability Resolution in 2020 for renewable energy purchasing
- Facility level ESCO + LEED projects,
- Exploration of on-site solar and hydroelectric generation
- SolSmart Silver designation

- 
- Net zero emissions by 2050
 - Convene regional working groups on energy/sustainability
 - Can structure aggregate procurements and centrally manage contracts

All counties:



Adopted C-PACE



Dedicated Sustainability Staff



Climate Action Plan



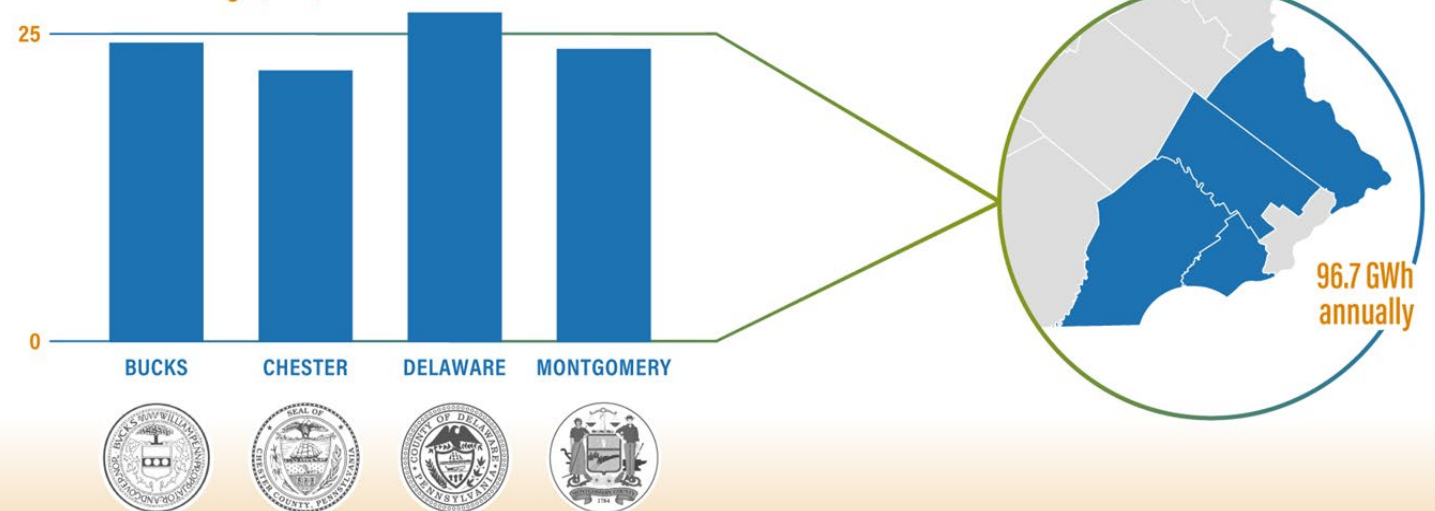
Purchasing 100% Green-e RECS

Since September 2020, Bucks, Chester, Delaware, and Montgomery counties (southeast PA) have come together to explore new approaches to procure electricity and renewable energy for county operations

Partnership Goals

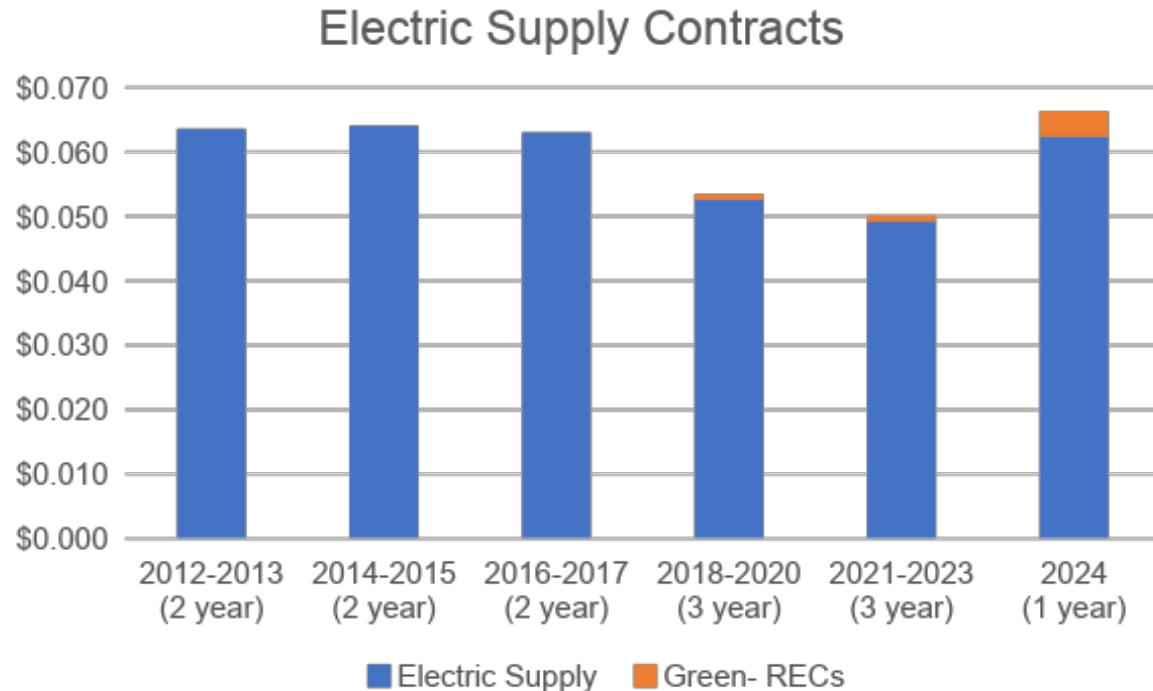
- 1 **Meet renewable energy targets** through access to large-scale renewables with **additionality**
- 2 Access low, transparent, and stable electricity prices
- 3 Ability to on-board additional parties such as municipalities, authorities, and schools

Annual Electric Usage (GWh)



Current Procurement Process

- Each county has its own fixed-rate contract with supplier (term 1-3 yrs)
- Since 2018, purchasing RECs, but **no renewables with "additionality"**
 - REC - Renewable Energy Credit
(1REC = MWh Renewable Energy Generated by an existing project)
 - Additionality - support new renewable capacity in the region



Methods:

1. **Leverage consultant expertise to analyze options compared to status quo**

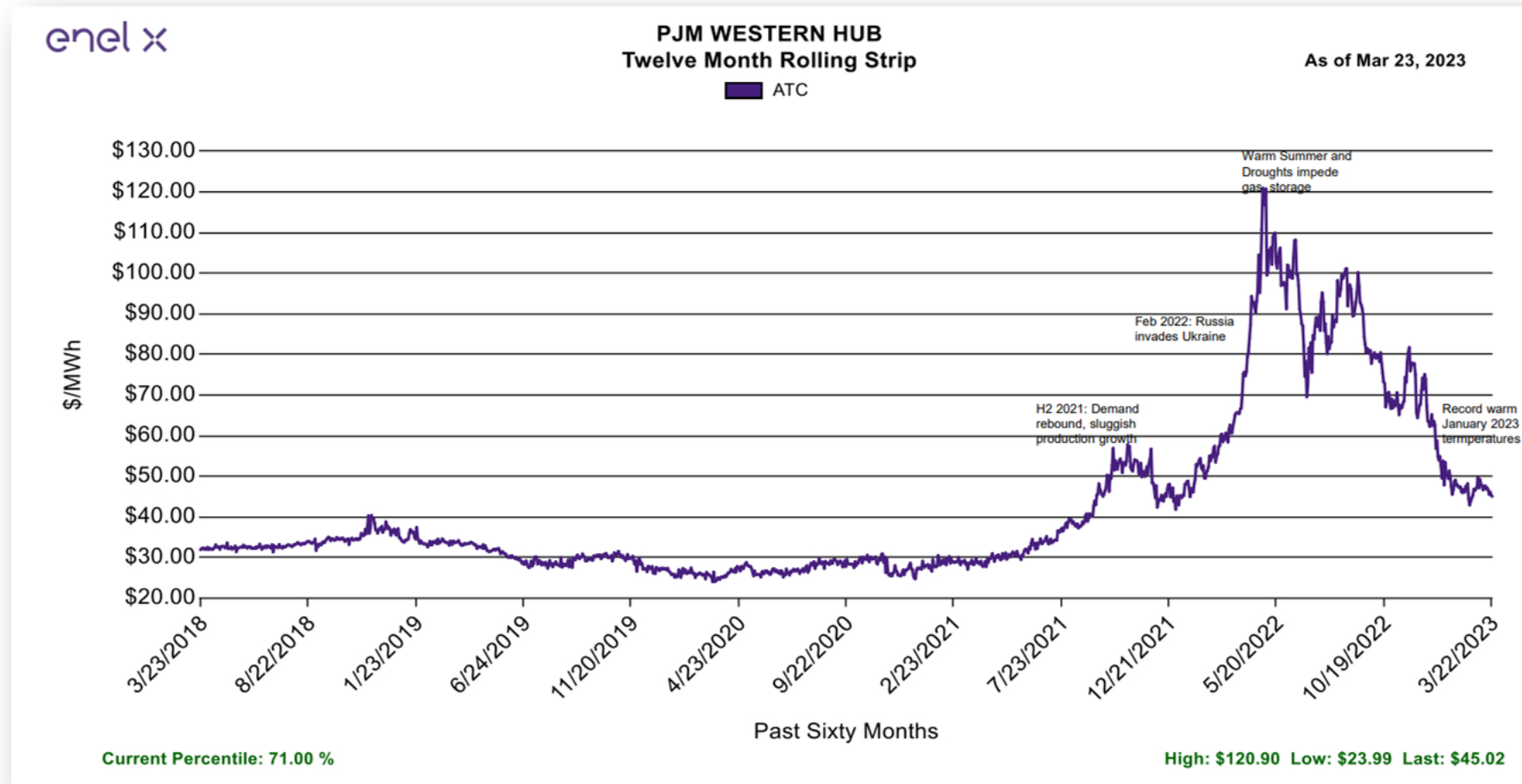
- Electricity and Renewable Energy 101 Workshops
- Goals alignment exercise
- Analytical and financial comparison of current approach vs alternatives

1. **Conduct additional interviews with similar organizations**

- Western Pennsylvania Energy Consortium (WPEC)
- Baltimore Regional Cooperative Purchasing Consortium (BRCPC)
- Eastern Shore Maryland Educational Consortium – Energy Trust
- City of Philadelphia
- Centre Region COG

1. **Engage Provident Energy** to understand possible modifications to status quo and their ability to support a new path

Electricity prices have increased in recent years



To achieve renewables goals you will need ALL three types of renewable energy products



Voluntary RECs

Renewable Energy Certificates (RECs) that are sold, delivered, or purchased separately from electricity.

1 REC = 1MWh of renewable electricity generated



Renewable Energy Produced On-site

Primarily on-site solar photovoltaic (PV) projects, which are installed on rooftops, parking lots, or land at the same locations where electricity is consumed.



Large-scale Renewables

Off-site, 10MW or greater physical or virtual power purchase agreement (PPA)

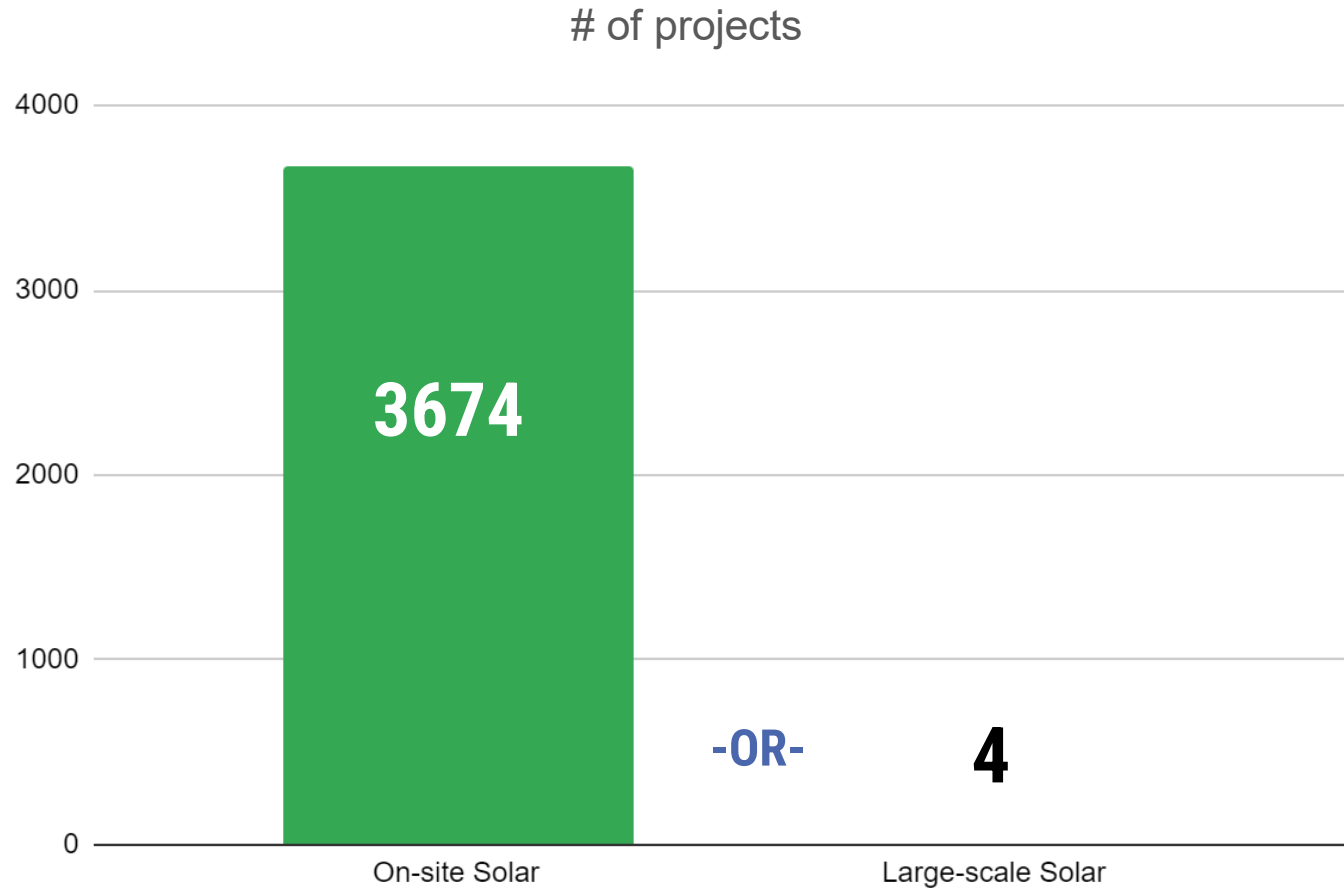
PPA: A contract for the power of a renewable energy facility at fixed price over a long term.

LOCAL BENEFITS

← PASSIVE

ACTIVE →

Large-scale Renewables are Needed to Meet our Goals



Source: EIA's 2018 Annual Electric Generator Report; Community Solar Hub's Online Database; Renewable Energy Buyer's Alliance (REBA).

It is increasingly important to be market ready in order to access renewables

- Renewable Energy and Demand Response markets more dynamic & prominent
 - Market intelligence, governance, and planning needed.
- Challenges affecting renewable industry are impacting pricing and availability
 - Improvement over time is expected with IRA (reduced cost, increased domestic supply) and lifting of PJM interconnection moratorium (2026)
 - Challenges result from supply chain, consumer demand, PJM interconnection queue stalling



Chart: Clean energy to make up 84% of new US power capacity in 2023

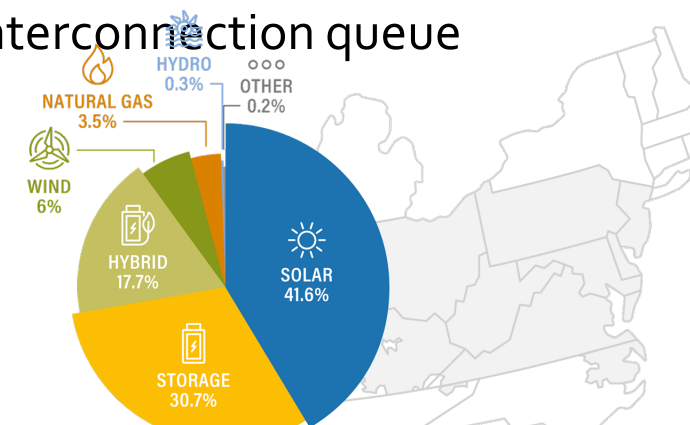
Solar, wind, nuclear and grid batteries will account for nearly all power plant construction, with batteries beating gas for the first time.

10 March 2023

PJM, flooded with interconnection requests, proposes two-year review pause

With a backlog of over 1,200 energy projects, the nation's largest electrical grid operator is proposing a review process that it claims will better prioritize construction-ready projects, and streamline and speed up interconnection as a whole.

FEBRUARY 3, 2022 TIM SYLVIA



Generation in PJM Interconnection Queue. Source: PJM, DVRP

Three Ways to Buy Electricity

CURRENT APPROACH



Fixed Retail Contract

A fixed price contract of conventional energy for a period of one to three years.



Not Recommended



Supplier Customized Contract

A fixed price retail contract that includes a percentage (>50%) of renewable energy with additionality.



Not Recommended



Managed Portfolio Subaccount

A dedicated wholesale account established by a supplier for RPPA member accounts. Guided by a consultant, the supplier builds a portfolio of energy procurements according to an RPPA cost management strategy.



Recommended

Recommended Outcome

The Partnership recommends that we pursue a **Self-Managed Portfolio** in PJM (subaccount). This is a more flexible, engaged, and transparent procurement strategy that will allow the Partnership to aggregate purchasing power and be market ready and meet our shared goals through proactive and collaborative action in energy markets over time.



Flexibility



Transparency



Cost-effective



Expert Guided



Renewables
Integration



Expand
membership





Partnership Goal #1: Large-scale Renewables

Partnership Goal #1

Meet renewable energy targets through access to large-scale renewables



Managed Portfolio Benefits

-  Control of when to buy large-scale renewables
-  Easier to execute PPAs with suppliers and partners because of organized structure
-  Timely and ongoing renewable market intelligence
-  Flexibility to include additional energy efficiency services

Partnership Goal #2

Access low,
transparent, and stable
electricity prices



Managed Portfolio Benefits


- ✓ Control of when to buy electricity - **and long-term risk management timeframe**
- ✓ Access to wholesale markets and visibility of bids and cost components
- ✓ Full pass through of system credits and no supplier risk premiums
- ✓ Timely and on-going electric and renewables market intelligence
- ✓ Costs are billed via a budget \$ per kWh

Partnership Goal #3

Ability to on-board additional parties such as municipalities, authorities, and schools



Managed Portfolio Benefits

-  Ability to on-board qualified members at anytime
-  Continuity and institutionalization of energy knowledge despite staff turnover
-  Larger portfolio size will result in improved cost and market presence

SEP Timeline

