



# Best Strategies to Consider in Leveraging Renewable Energy and Meeting Decarbonization Targets

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# Who is AEP Energy?

**AEP Energy is the deregulated services and commodity supplier within AEP.  
(not AEP OHIO regulated utility)**

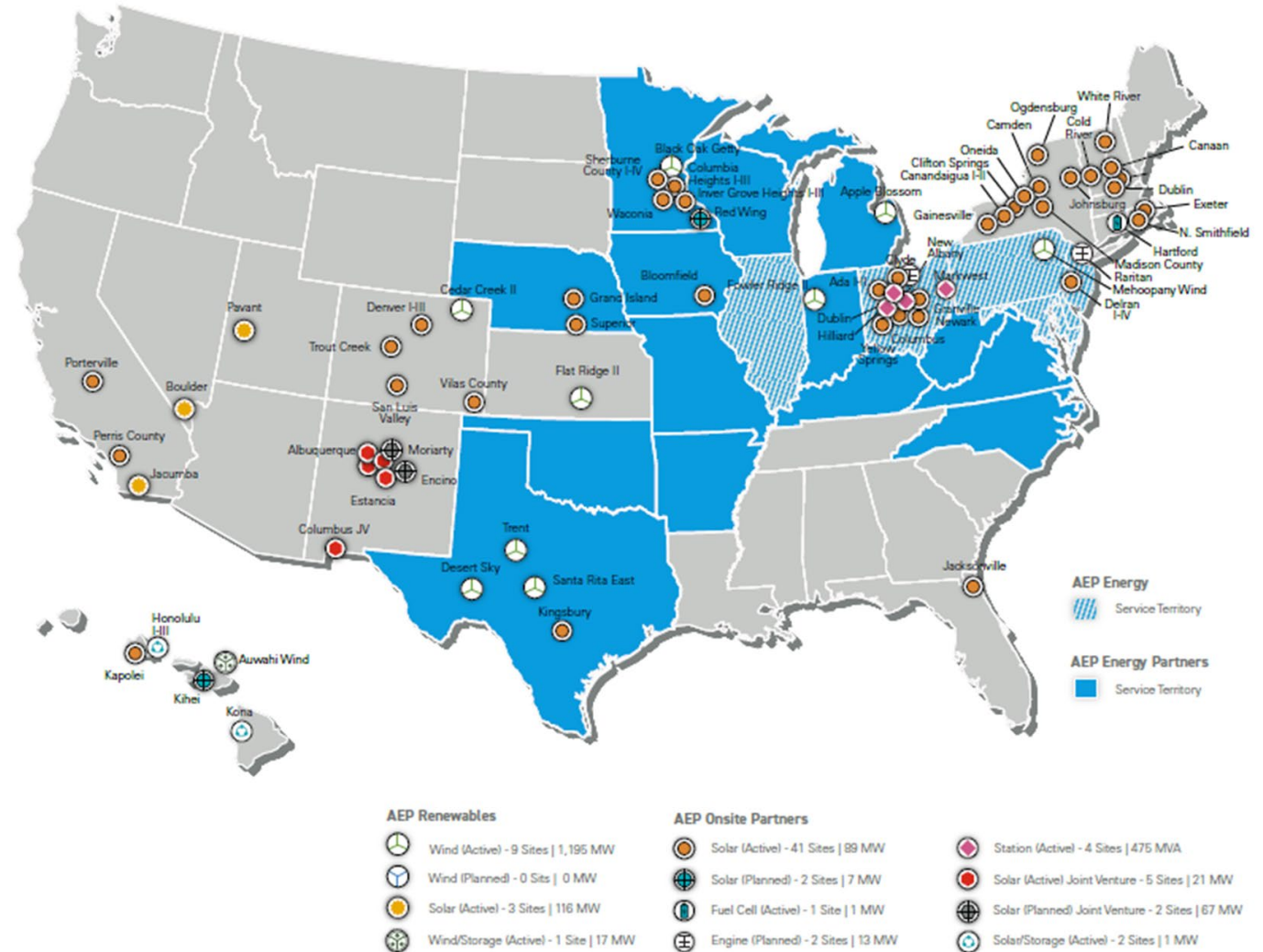
## What can AEP Energy do?

- Retail electricity and natural gas supply
- Large-scale renewable energy
- Creative Energy Solutions:
  - Behind the meter support for resiliency, peak load reductions, and net carbon reductions
  - All-in-one asset-backed retail solutions
  - Renewable Energy structuring
  - Decarbonization and Sustainability Services

# Who is AEP Energy?

**AEP Energy has Renewable Energy and Sustainability/Decarbonization Service partnerships across the US, with project experience in front of and behind the meter.**

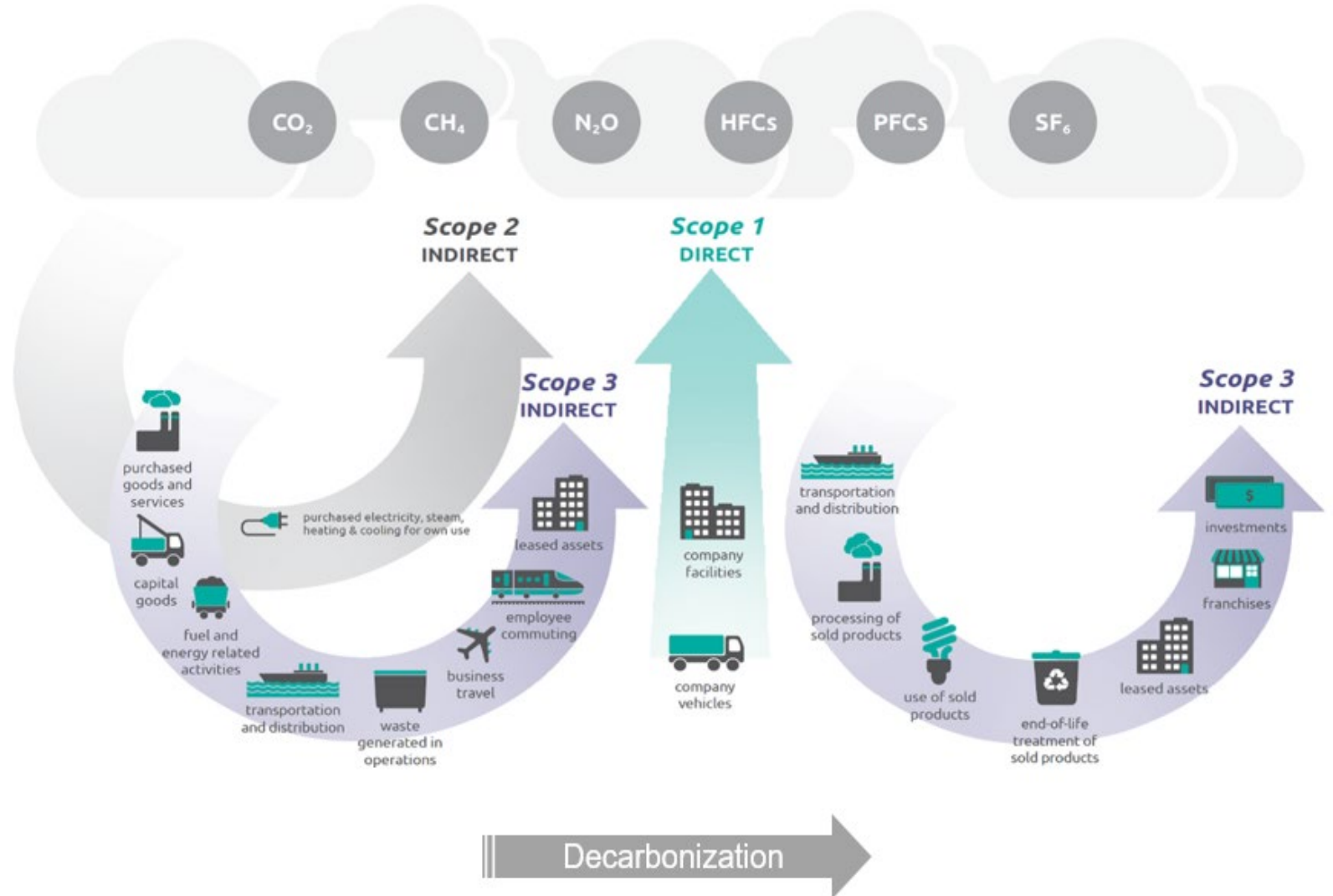
- AEP Energy has executed on contracts for more than 6,000,000 MWhs of new annual RE within just PJM in the last 3 years.
- Integrated Renewable Energy solutions
- Existing PPA integration structures
- Wholesale PPA aggregations for customers



# What is Decarbonization?

Decarbonization generally means reducing/removing the greenhouse gas emissions produced by the combustion of fossil fuels across sources noted as:

- Scope 1: What I personally burn
- Scope 2: What is burnt for the creation of electricity, steam, and heating that I need to use
- Scope 3: What is burnt by my suppliers and by my customers





# Questions / Considerations

- **Most Important: Understanding where your organization is and where you want to go.**
- Do you understand the landscape of available options?
  - Energy Conservation Measures (ECMs), Renewable Energy Credits (RECs) and Carbon Offset Equivalents
  - Offsite Renewable Energy (PPA/VPPA, Integrated Renewable Energy)
  - Onsite Renewable Energy (Behind-the-Meter Solar)
  - Electrification of non-electric assets (Boilers, Forklifts, Fleet vehicles)

# Decarbonization Options & Solutions

**Assessing a range of discrete options to form integrated solutions results in an optimized approach.  
Each option has varying complexity, emissions impact, feasibility and economic viability profiles**



## Energy Conservation Measures

Projects that reduce energy and demand consumption and associated cost

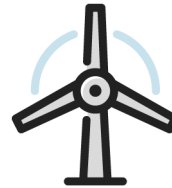
Scope 1 & 2 impact



## Onsite Renewables

Behind-the-meter renewable energy assets to offset all or a percentage of load

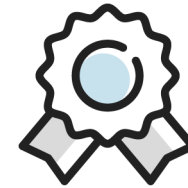
Scope 2 impact



## Offsite Renewables

Virtual purchased power agreements or integrated retail products

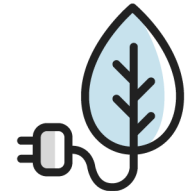
Scope 2 impact



## Renewable Energy Credits & Offsets

Ability to claim renewable energy without a direct offset or asset commitment

Scope 1 & 2 impact



## Electrification

Beneficial or transportation electrification to reduce emissions

Scope 1 impact



# Energy Conservation Measures: Start Here

**Starting with energy conservation measures is a smart first step in your decarbonization journey.**

## **Value**

- 'Negative cost' carbon reduction to prioritize
- Highest level and permanent impact with zero ambiguity
- Improved operations

## **Challenge**

- Overcoming organizational inertia
- Efficiently identifying & screening highest impact opportunities

## **What's New and Notable in EE:**

- Data analytics enables efficient & scalable identification and screening of potential EE operations
- Software & tech innovations drive improved controls & efficiency (including demand management opportunities)
- Innovative funding options can solve the capital dilemma
- Also, have you changed all your bulbs?

# Onsite Renewable Energy

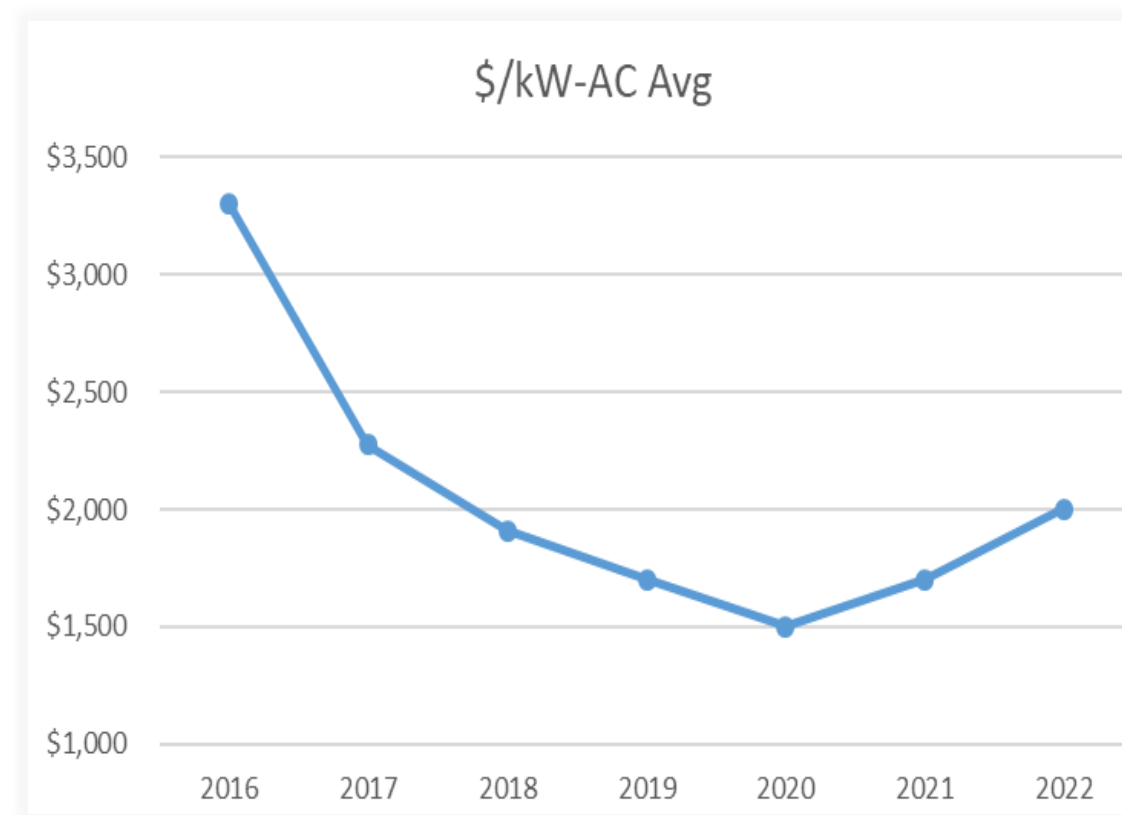
Onsite renewable energy solutions can be a viable decarbonization investment, but these are highly location dependent and may be prone to commercial faults.

## Value

- Additive renewable resources
- Direct consumption of renewable energy production
- Revenue opportunity in favorable markets and environments
- Long term solution

## Challenge

- Location and natural resource-dependent
- Feasibility due to land and facility requirements
- Unfavorable economics in low energy rate markets
- Proper sizing and configuration





# Offsite Renewable Energy

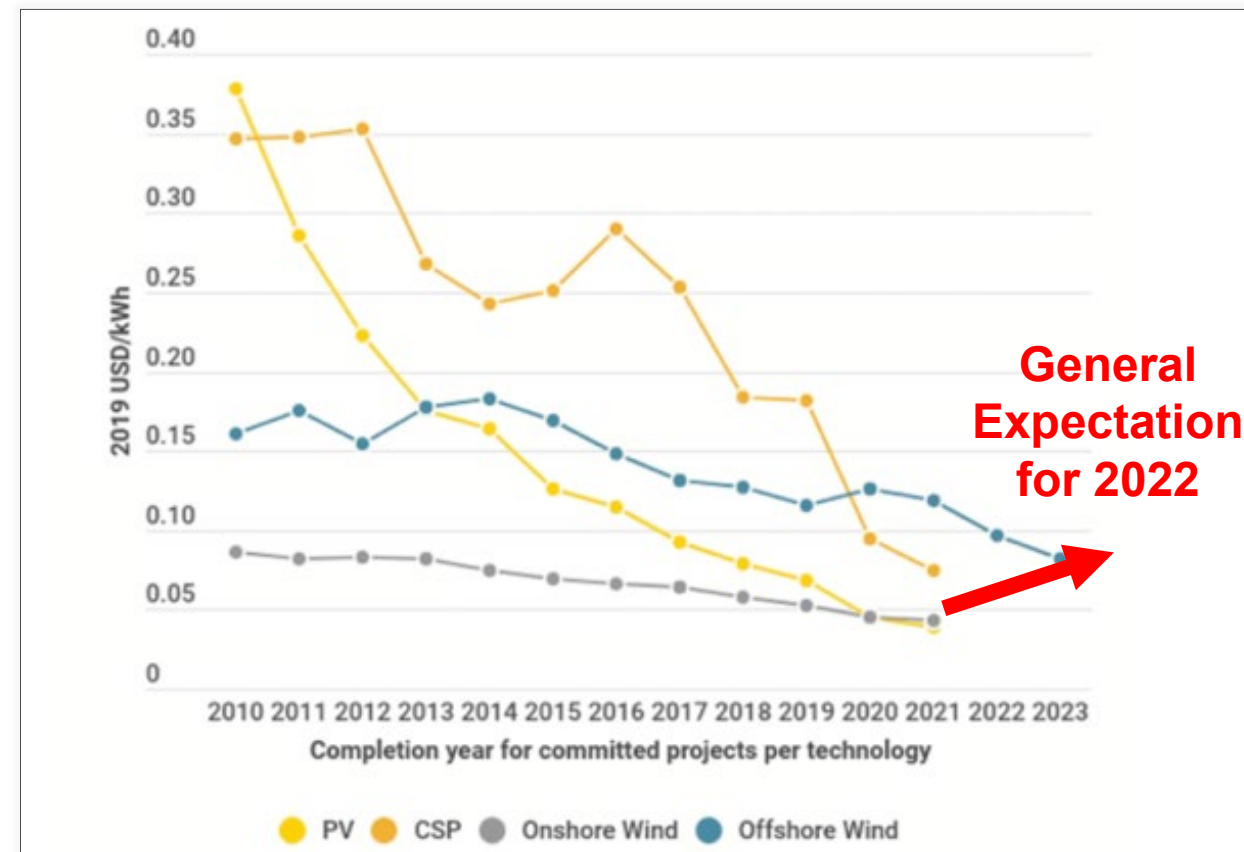
Offsite renewable energy procurement provides opportunity to sponsor new renewable energy investment at scale to meet decarbonization targets.

## Value

- Long term, scalable solution with definitive impact
- Upfront investment not required
- Integrated products can operate seamlessly

## Challenge

- Lengthy contract agreements, locational considerations and market expertise needed
- Inherent risks depending on configuration
- Requires rigorous financial, accounting assessment

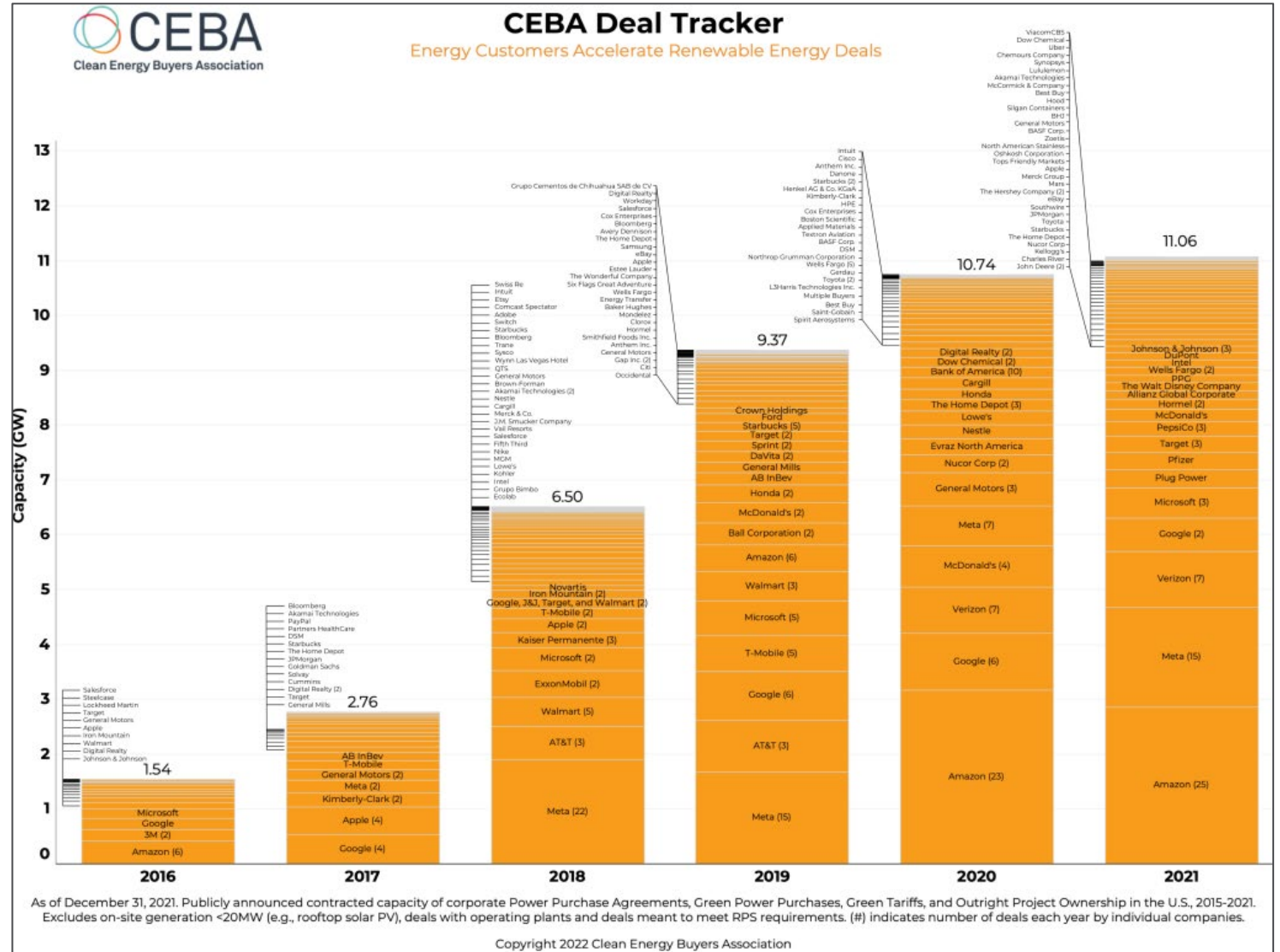


Source\*

# Renewable Energy Purchasing Appetite Remains Very Strong

Competition remains fierce amongst corporate buyers for new large-scale and “attractive” RE projects in the US.

Over half (52%) of energy customers that announced deals in 2021 were new to the market.\*



\*Credit: Clean Energy Buyers Association (CEBA) - <http://cebusers.org/deal-tracker/>

# Renewable Energy Certificates and Offsets

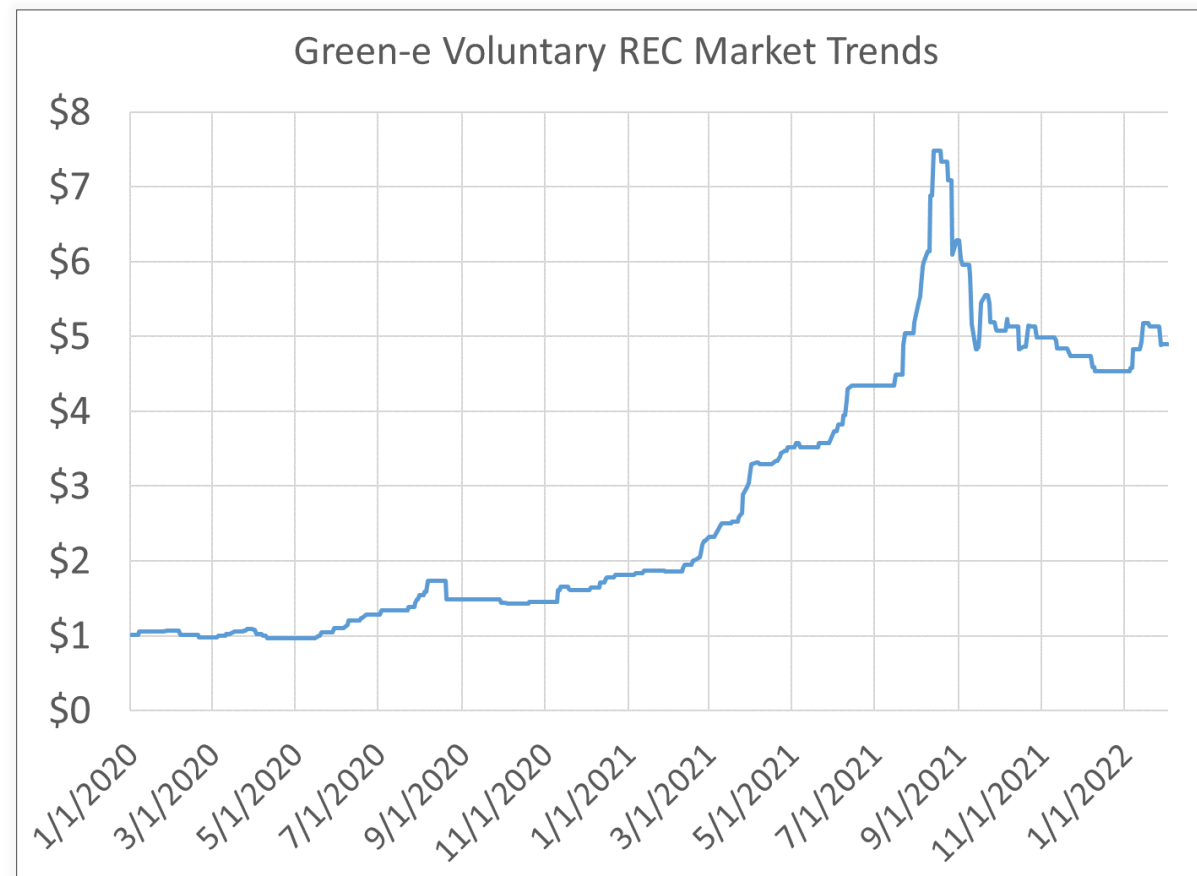
**RECs were once viewed as an easy offset solution for energy consumption, but the market is changing.**

## Value

- Fairly straightforward means to 'offset' carbon footprint
- Wide availability and low transaction costs
- Contract term flexibility

## Challenge

- Increased demand due to carbon reduction commitments leading to increasing price volatility
- Limited outlook for availability
- Dangers of the REC precedent



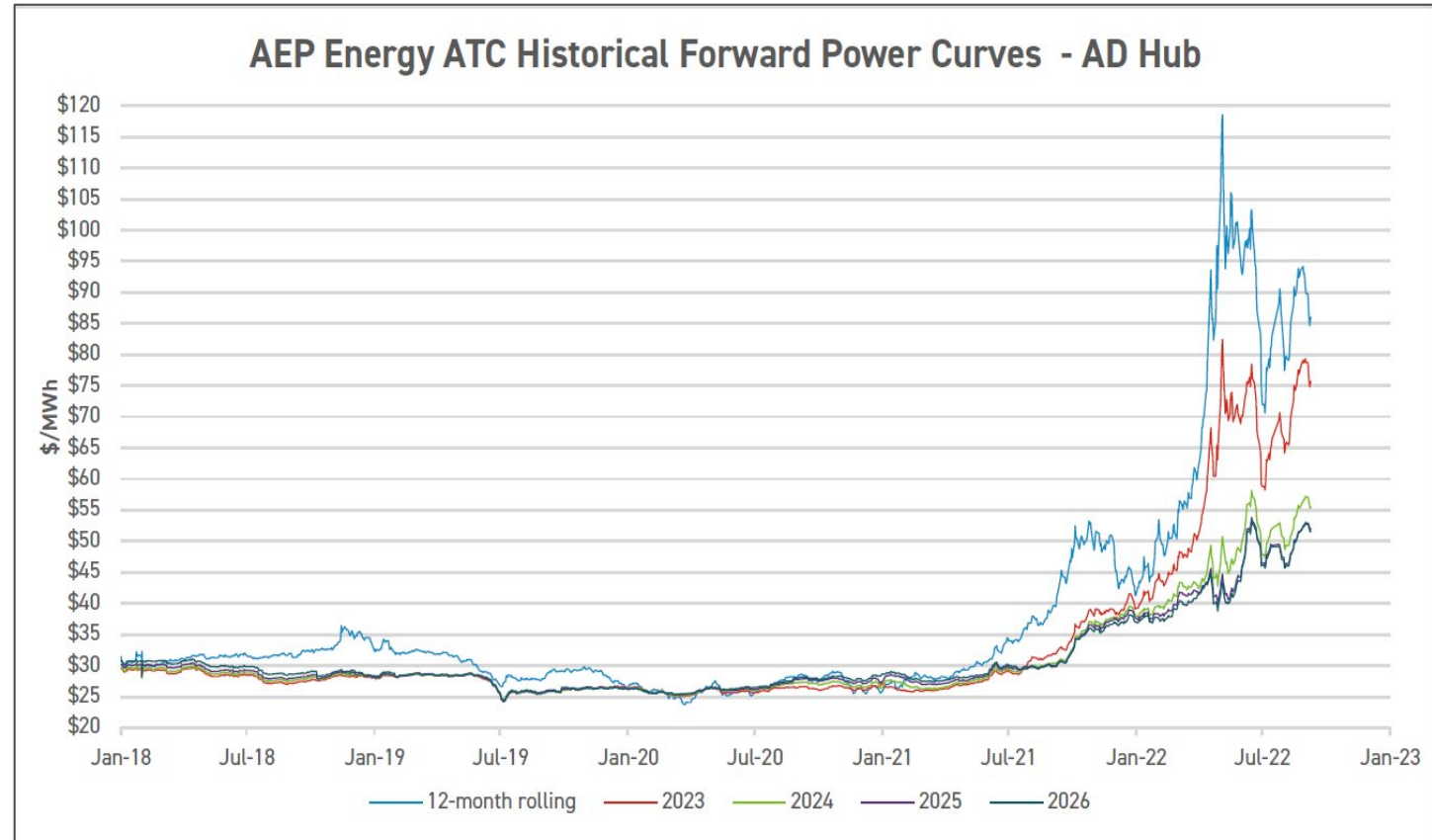


# Energy Market Pricing has Spiked since 1Q '21

**Apprehension around RE projects and other Decarbonization solutions now must overcome broader price spikes.**

## Considerations

- If Electrification is an important decarbonization component, are you prioritizing the right areas to electrify?
- How price sensitive are your RE/decarbonization goals?
- What is your long-term perspective on the energy markets?
- What percentage of overall expense budget is aligned with energy and how will that change if your strategy changes?



# Beneficial and Transportation Electrification

**Beneficial electrification and transportation electrification are effective solutions, but economic viability and feasibility are key considerations.**

## **Value**

- Addresses (more difficult) Scope 1 emissions
- Reduced localized emissions (community impact), increased operational efficiency and reduction in maintenance costs

## **Challenge**

- Levelized cost of energy considerations and energy rate locational variability
- Transportation accessibility to charging infrastructure





# Questions / Considerations

- **Most Important: Understanding where your organization is and where you want to go.**
- Do you have goals for renewable energy and or decarbonization?
  - SMART Goals matter: Specific, Measurable, Achievable, Relevant, Time-Bound
- How (and by whom) did those goals get set?
  - Ex: Informed customers, management, etc.
- Does your strategy align with your capabilities and the reality of the market?

# Internal & External Voices

**Stakeholder demands for sustainability and decarbonization are driving the need for organizations to develop a decarbonization strategy**

## Stakeholder Interests:

- Growing consensus around human-caused impact on climate change
- Environmental impact and emission transparency
- Reduction in emissions through cost-effective measures









## Expectations and Demands:

- Environmental, social and governance (ESG) – focus, sense of urgency, tailored customer demands
- ESG reporting, emission disclosure reports, material identification
- Net-zero emission targets, innovation, defined carbon reduction action plan and execution

# Sustainability: Megatrends

**Externalities are driving corporate sustainability objectives, technology innovations, greenhouse gas emission reduction strategies and more.**

-  Climate change sense of urgency
-  Extreme weather intensity and frequency
-  Finite natural resources
-  Technology innovation and cost reductions
-  Increased competition and customer choice
-  Increased policy and regulation





# Carbon Emissions as a Liability



**Increasingly, carbon can be seen as a financial and reputational liability for major corporations.**

-  Carbon compliance and regulation
-  Economic value on carbon
-  Scope emissions evaluation and reporting
-  Reputational capital, environmental stewardship
-  Decarbonization targets and risk

# Carbon Complexities need Considered

## Decarbonization Considerations



Diverse portfolio of facility characteristics



Onsite renewable resource potential



Multiple rates and structures across different markets



Data collection, standardization and analytics



Availability of off-site renewable resources



Varying energy markets



Energy efficiency assessments



Diverse asset and program portfolio management

# Questions / Considerations

- **Most Important: Understanding where your organization is and where you want to go.**
- Have you separated renewable energy from the larger decarbonization picture?
  - Tracking and reducing
- If procuring RE/RECs is your strategy, what form will work best?



# How can you tackle this problem?

Three approaches to overcome the challenges of developing a robust decarbonization strategy.



## Incremental Solutions

Pursue strategy based on one-by-one review of vendor driven proposals or solutions. Limited view of options, not integrated or holistic, not optimized



## Do-it-Yourself

Look to develop a comprehensive roadmap relying on internal resources. Massive complexity and scale of task can set up inertia, delays, confusion, etc.



## Partnership

Collaborate with partners to develop a strategic decarbonization roadmap weighing various options and solutions through a systematic approach, transparent approach

# Required Skills for Decarbonization Roadmap Development

- ✓ Detailed knowledge of available ECMs, behind-the-meter and off-site renewables options, REC and electrification expertise
- ✓ Comprehensive understanding of energy markets and rates
- ✓ Deep technical expertise in utilizing analytical frameworks to evaluate Technologies
- ✓ Ability to synthesize potentials into prioritized opportunities
- ✓ Capability of consolidating opportunities into holistic programs with flawless execution

# The Value of Experienced Partners

**National leaders in the renewable energy space should possess the versatility, resources and scale to support your sustainability and decarbonization efforts, wherever you are on your journey.**



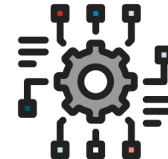
GHG Inventory,  
Reporting &  
Program Management



Decarbonization  
Roadmap & Strategy  
Development



Technical & Financial  
Assessment and  
Valuation

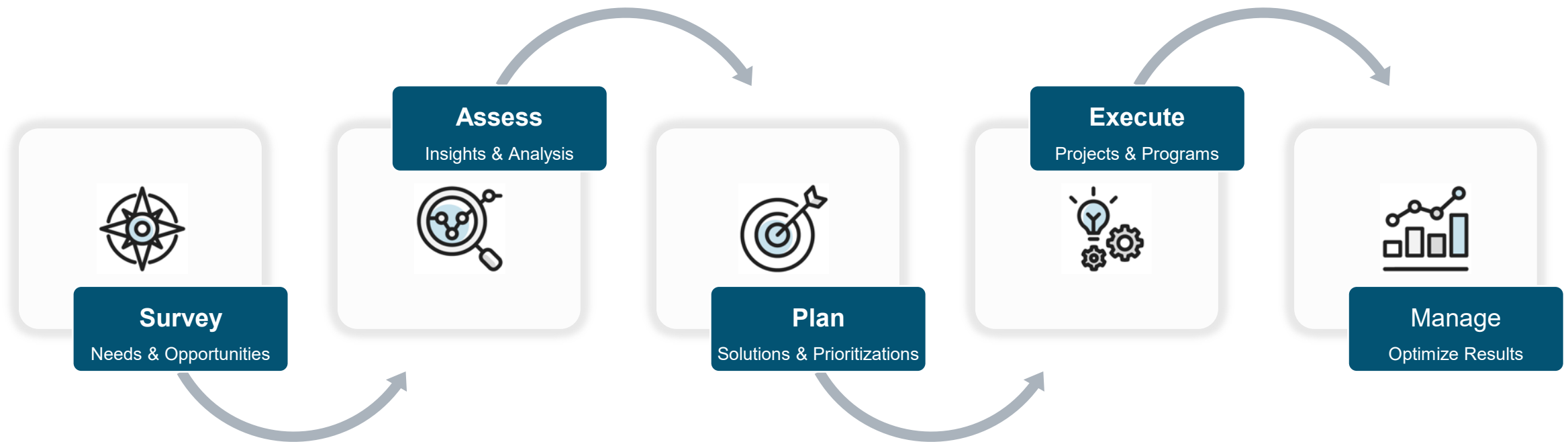


Turnkey Execution on  
Project Capital,  
Ownership, Operation  
and Market Integration



End-to-end  
Program  
Development &  
Implementation

# The Decarbonization Roadmap



# Done Right, Decarbonization can make a difference

**Transform a liability into an asset through robust strategic planning and execution, positioning your organization for market growth and additional sustainable opportunities.**

- ✓ Stakeholder inclusive strategy
- ✓ Accurate and transparent GHG emissions reporting
- ✓ Effective execution plan
- ✓ Stagnant inertia broken to meet the sense of urgency
- ✓ Flexible and successful program management
- ✓ Optimization and growth opportunities







**Thank You**

## **Biographical Information**

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Todd Altenburger is the Director of Energy Solutions for AEP Energy and works with medium to large customers throughout Ohio and beyond in support of energy cost management through creative initiatives around supply, renewable energy, behind-the-meter assets and decarbonization/sustainability services.

Todd is a Certified Energy Manager and has worked with many diverse customers including universities, tech companies, government agencies, and of course manufacturers. Todd is an expert in the development and implementation of energy solutions across the areas of retail commodity supply, behind-the-meter assets, and renewable energy integration.

Todd received his Master of Business Administration from the McDonough School of Business at Georgetown University, DC, and his bachelor's degree in Electrical Engineering from the University of Toledo.

Todd lives in Dublin, Ohio, with his wife and 3 children.