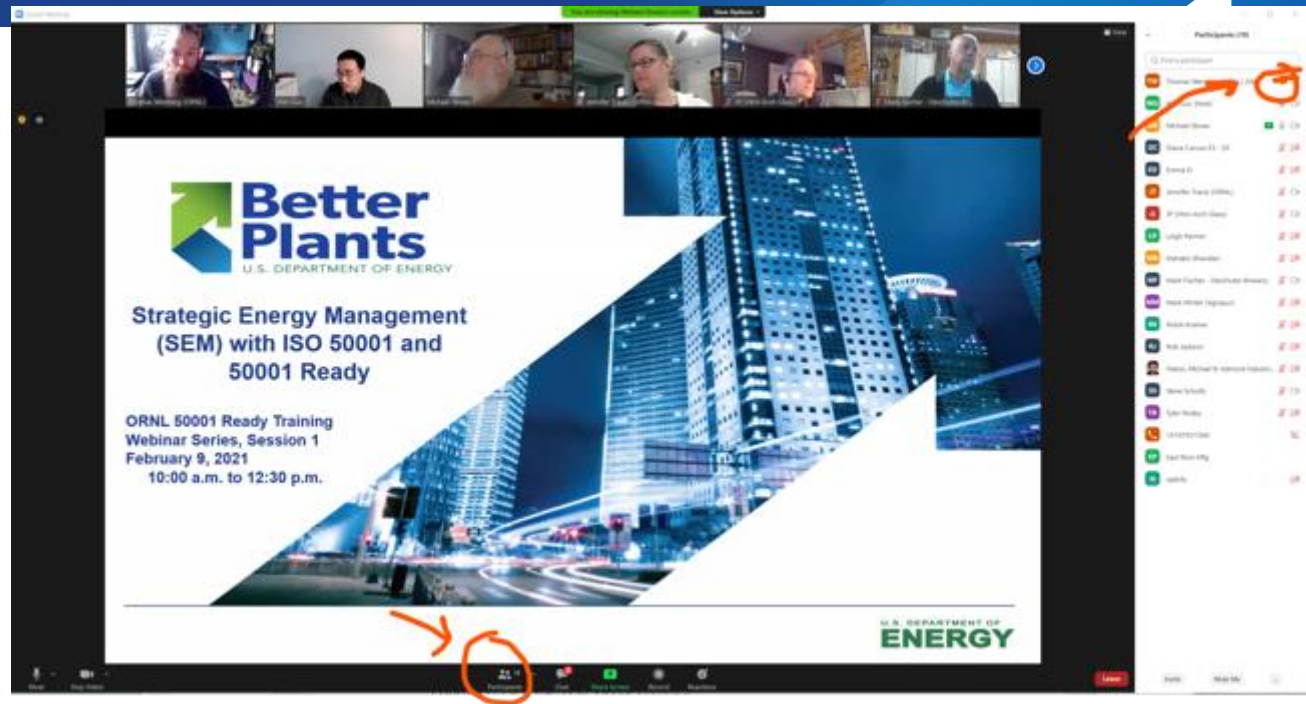
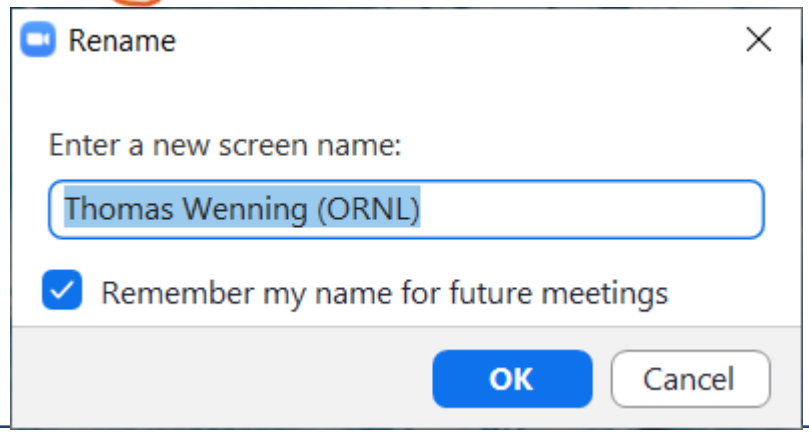
Rename Yourself to be your Real Name (Company Name)

1. Click on Participant list
2. Go to the right and hover over your name
3. Select “More” & “Rename”
4. Enter your company name in brackets
5. Turn on your camera ☺





Better Plants®
U.S. DEPARTMENT OF ENERGY

Virtual Training: Renewable Energy Contracting Options and RECs

Navigating Voluntary Electricity Markets

Session #4
August 26, 2025
10:00am – 12:00pm EST

U.S. DEPARTMENT OF ENERGY

General Information

- Schedule: Every Tuesday (Aug 5th – Sep 9th) morning @ 10am ET
- Sessions will be recorded
- We want these VT to be interactive!
- We're hoping you finish the VT with some big progress
- There will be homework – just try your best!
  - "You'll get out what you put in!"

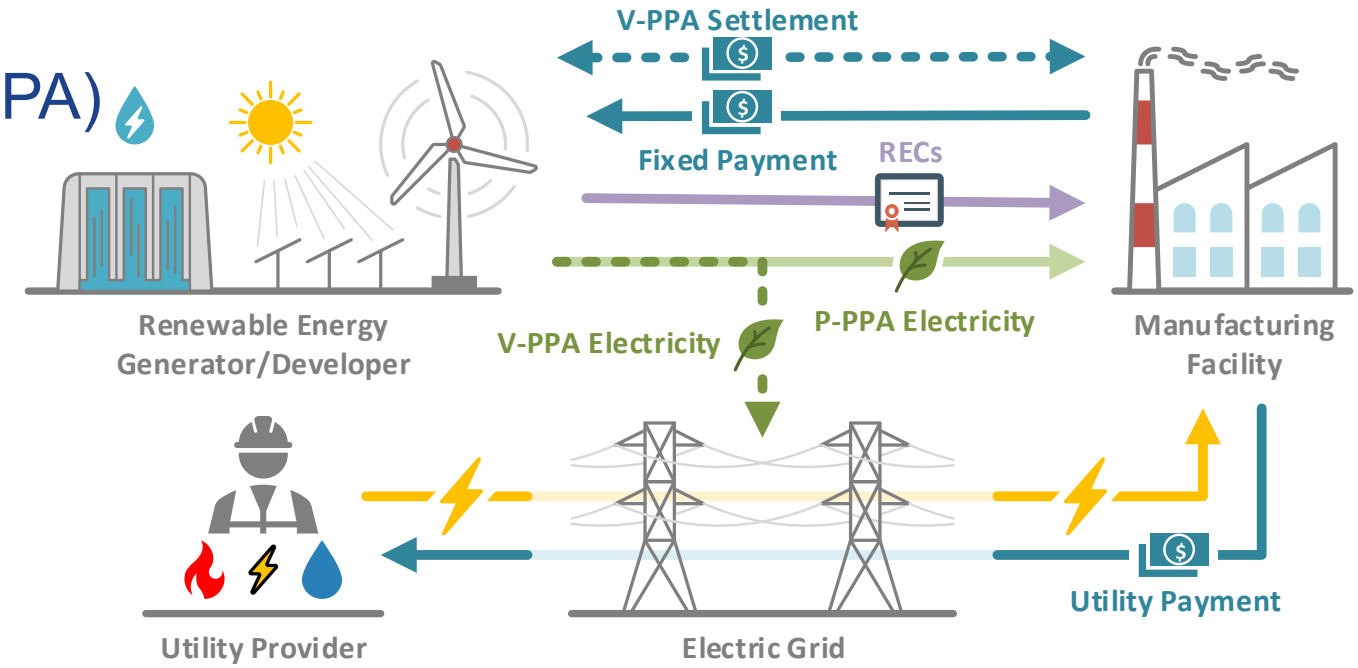
Links:
https://bptraining.ornl.gov/
http://betterbuildingssolutioncenter.energy.gov/better-plants
https://measur.ornl.gov

Review of Session #3 Homework

U.S. DEPARTMENT OF ENERGY

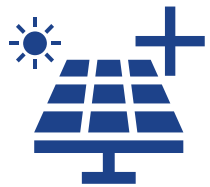
Review of Session #3 Homework

- Which of the following is a common contract type for renewable energy procurement?
  - Time-of-Use Agreement
  - Real-Time-Use Agreement
  - ✓ Power Purchase Agreement (PPA)
  - Carbon Credit Agreement



Review of Session #3 Homework

- What is the main purpose of entering into a Virtual Power Purchase Agreement (VPPA)?
  - To install solar panels onsite
  - To purchase electricity directly from the utility
  - ✓ To financially support renewable generation while receiving RECs without taking physical delivery of electricity
  - To reduce electricity demand through efficiency upgrades



RECs only

No title to electricity commodity

Payment is netted

Review of Session #3 Homework

- List two advantages of an onsite PPA versus an offsite PPA.
  - Direct connection to the facility (or on the same grid)
  - PPA price does not include grid fee

  - Visibility
  - Price stability

Review of Session #3 Homework

- Match each risk with the most relevant procurement option: (Options: Onsite PPA, VPPA, Utility Green Tariff)
  - Market price risk: VPPA
  - Contract performance risk: Onsite PPA
  - Policy/regulatory risk: Utility Green Tariff

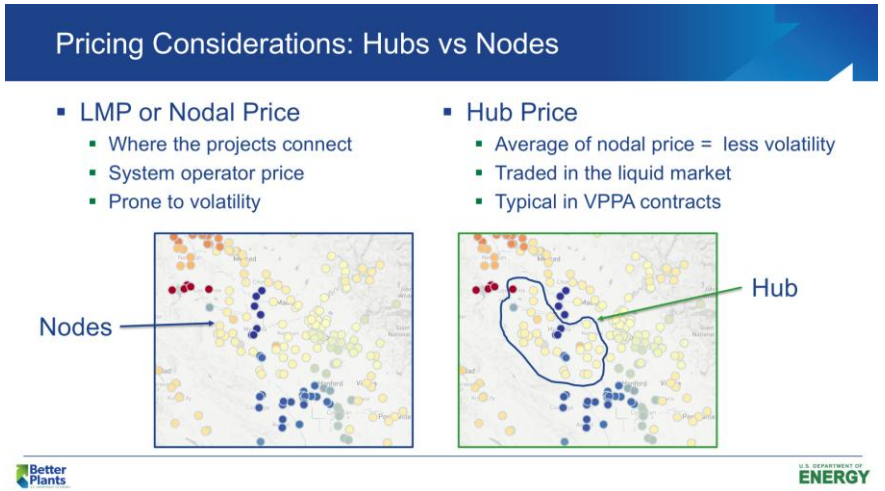
Review of Session #3 Homework

- What is the advantage of including a settlement floor/cap in a VPPA?
  - ✓ Reduces exposure to extreme market price swings
    - Help reduce long-term risks
    - Guarantees higher profits regardless of market
    - Makes the project fully additional

Mitigating Risk: Collars

Review of Session #3 Homework

- What is the main purpose of hub pricing?
  - Set a retail price for residential customers
  - ✓ Average prices across multiple nodes and reduce volatility for market participants
  - Ensure each consumer pays exactly their nodal price
  - Eliminate congestion in the transmission grid



Training Overview

1. 08/05: Fundamentals Of Renewable Electricity And Emissions Inventory
2. 08/12: Understanding The U.S. Electricity Markets And Procurement Roadmap
3. 08/19: Purchasing Renewable Electricity: PPAs, VPPAs, and Other Supply Options
4. **08/26: Navigating Voluntary Electricity Markets**
5. 09/02: Purchasing Renewable Electricity: Best Practices and Success Stories
6. 09/09: Renewable Electricity Supply Options: Financing Models and Strategies

Polls

Poll: Week #4

- How familiar are you with NREL's Procurement Analysis Tool (PAT)?
  - Never heard of it
  - I've heard of it, but never used it
  - Used it a few times
  - I'm comfortable using it regularly

Today's Speakers

Sushmita Jena

Renewable Energy Markets Researcher,
National Renewable Energy Laboratory

Jeff Cook

Policy Analysis Group Manager,
National Renewable Energy Laboratory

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Renewable Energy Contracting Options and Renewable Energy Certificates

Sushmita Jena
Renewable Energy Researcher
August 26, 2025

Session 6, In-Plants (INPLTs)

DOE Better Plants Program

The Electricity Markets

The Electricity Markets

Feature	Compliance Markets	Voluntary Markets
Definition	Markets mandated by law to meet renewable energy targets	Markets where participation is optional and driven by sustainability goals
Participants	Utilities, electricity suppliers, and obligated entities	Companies, institutions, and individuals
Purpose	Enforce renewable energy or emission reduction requirements	Allow entities to support renewables beyond legal requirements
Oversight	Government agencies/regulators	Independent standards/certification bodies (e.g., Green-e®)
Claims	Used to prove legal compliance; only qualifying RECs/EACs count	Used to substantiate renewable or sustainable energy use
Examples	US Renewable Portfolio Standards, EU Guarantees of Origin, I-REC	Corporate sustainability programs, RE100, green pricing options

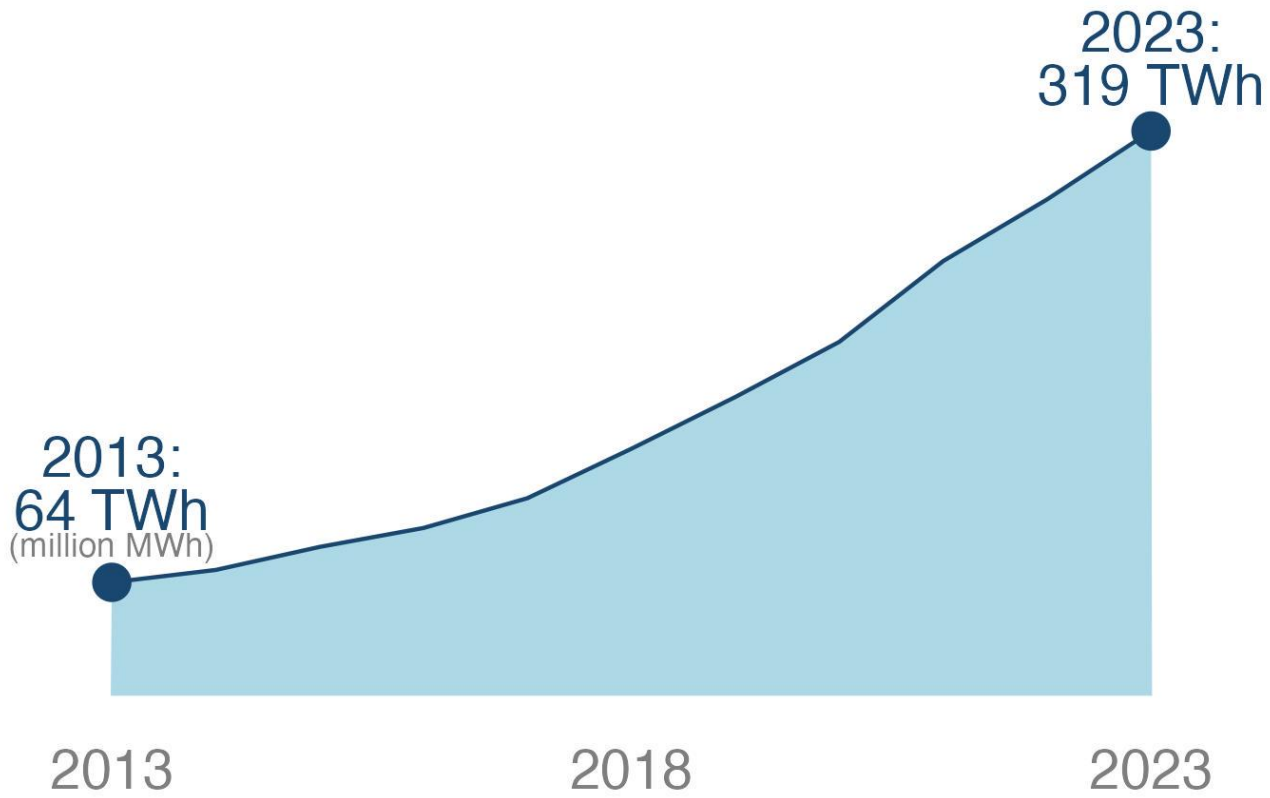
Voluntary Power Markets

- Voluntary renewable power refers to renewable electricity **voluntarily** purchased by **retail** electricity customers
- The voluntary power market refers to the suite of products that allow customers to procure renewable power:

- Utility renewable pricing programs
- Utility renewable contracts
- Competitive suppliers
- Unbundled RECs
- Community choice aggregation
- Power purchase agreements

The Big Picture

In 2023, about **9.7 million customers** procured about **319 million MWh** of renewable energy through power markets.



Total renewable power sales 2013-2023

That represents about:

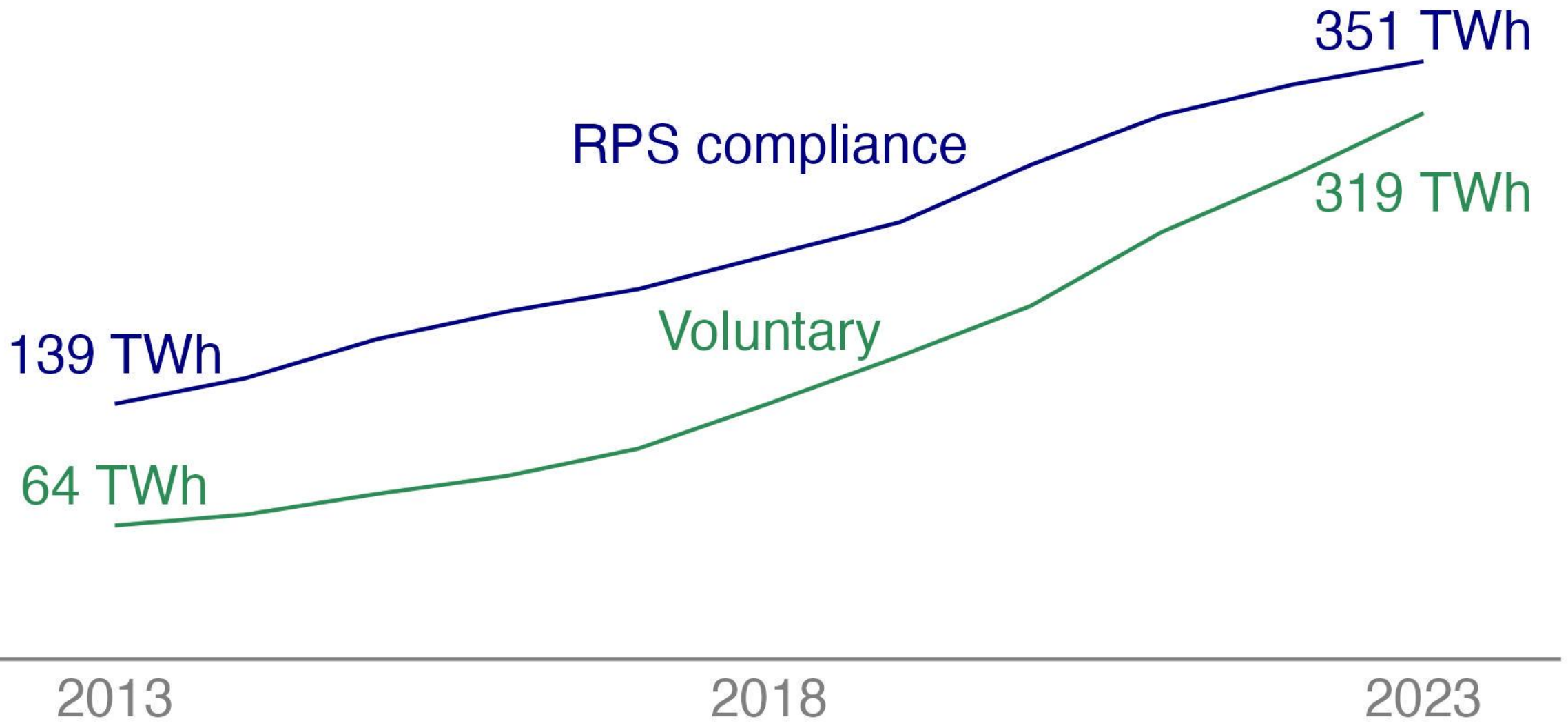
1 in 16
U.S. retail electricity customers

8%
of U.S. retail electricity sales

44%
of U.S. non-hydro renewable energy generation

Source: Status and Trends in the U.S. Voluntary Power Market: 2023 Data
https://www.nrel.gov/docs/fy25osti/92289.pdf

Closing the Gap with the Compliance Market



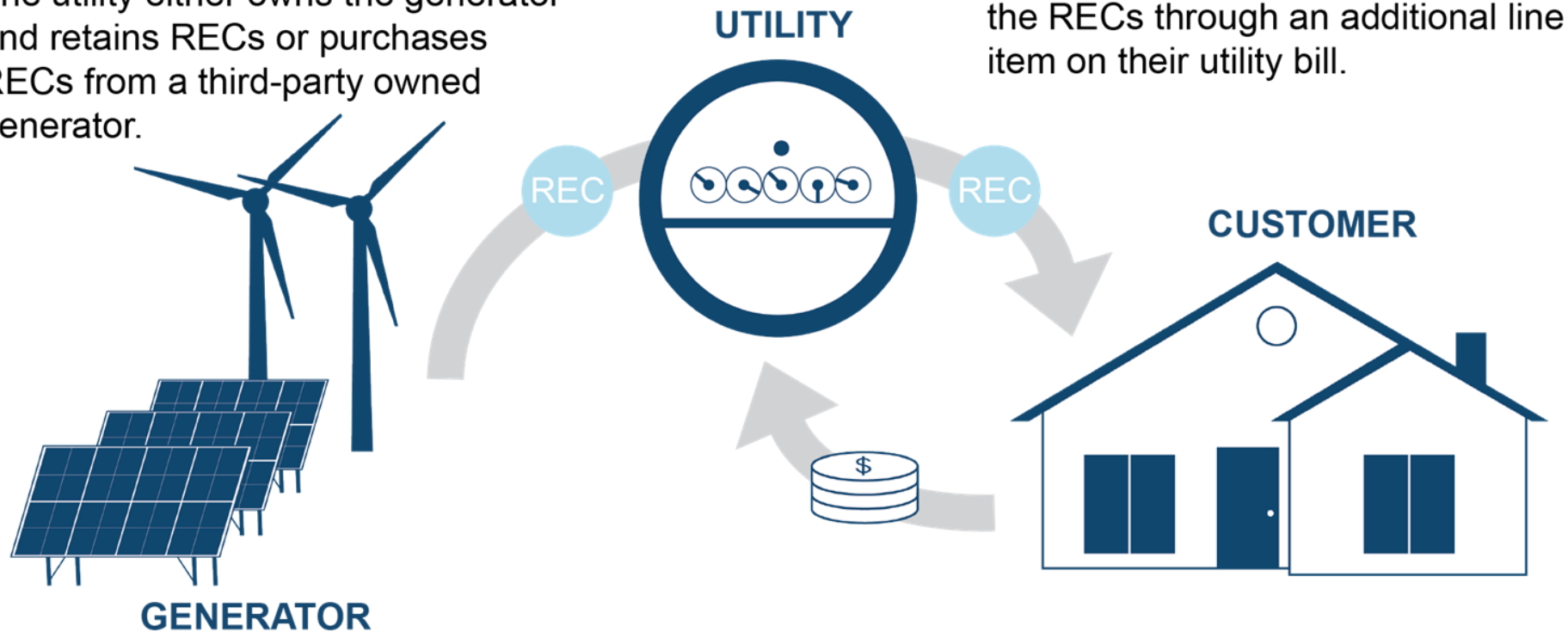
Source: Status and Trends in the U.S. Voluntary Power Market: 2023 Data
https://www.nrel.gov/docs/fy25osti/92289.pdf

The Procurement Options

Utility Green Pricing

Utility green pricing programs begin with a renewable energy generator. The utility either owns the generator and retains RECs or purchases RECs from a third-party owned generator.

The utility retires the RECs on behalf of green pricing customers, who pay for the RECs through an additional line item on their utility bill.



Basic utility green pricing program structure

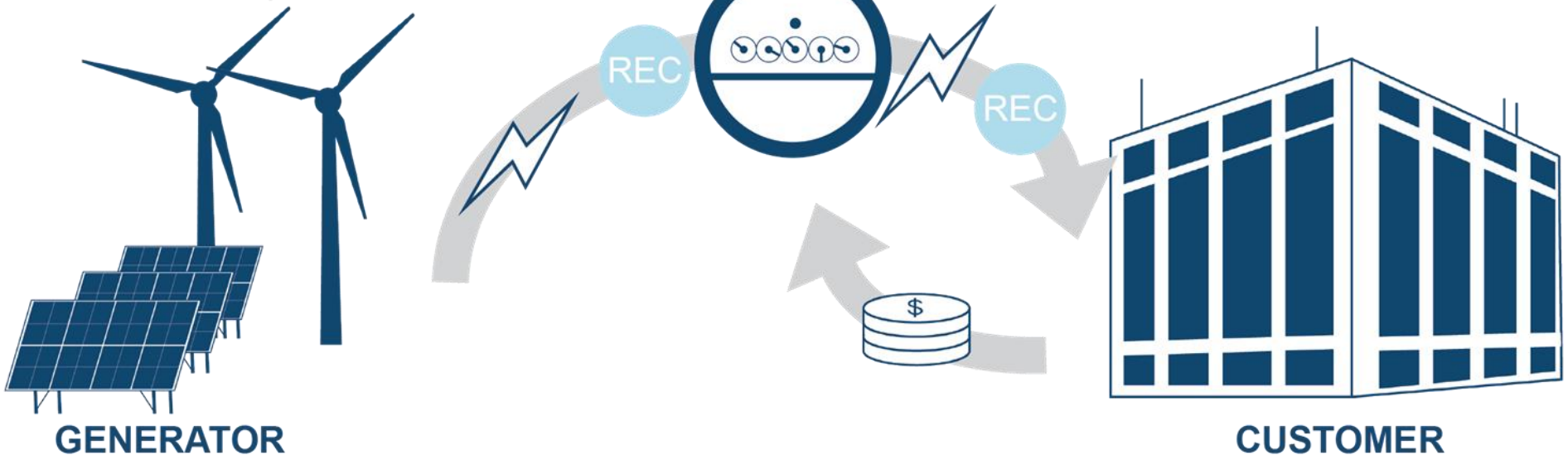
Specific program structures vary

Source: Status and Trends in the U.S. Voluntary Power Market: 2017 Data
https://docs.nrel.gov/docs/fy19osti/72204.pdf

Utility Renewable Contracts

In a utility renewable contract, the customer enters into a contract with the utility to procure power and RECs from a renewable energy provider. Unlike green pricing programs, the customer may be able to specify the resource for the product.

The utility provides the power and RECs to the customer. The customer continues to pay the utility with a modified green tariff or bilateral contract rate.



Basic utility renewable contract structure

Specific program structures vary

Source: Status and Trends in the U.S. Voluntary Power Market: 2017 Data
https://docs.nrel.gov/docs/fy19osti/72204.pdf

Comparing Green Pricing & Renewable Contracts/Green Tariffs

Comparison of Green Pricing vs. Green Tariffs

- Green tariff products have a longer contract term and potential utility cost savings, while green pricing products involve a premium and shorter contract term.
- Some convergence of products is occurring (e.g. green tariffs that have some attributes of green pricing, like shorter contract lengths).

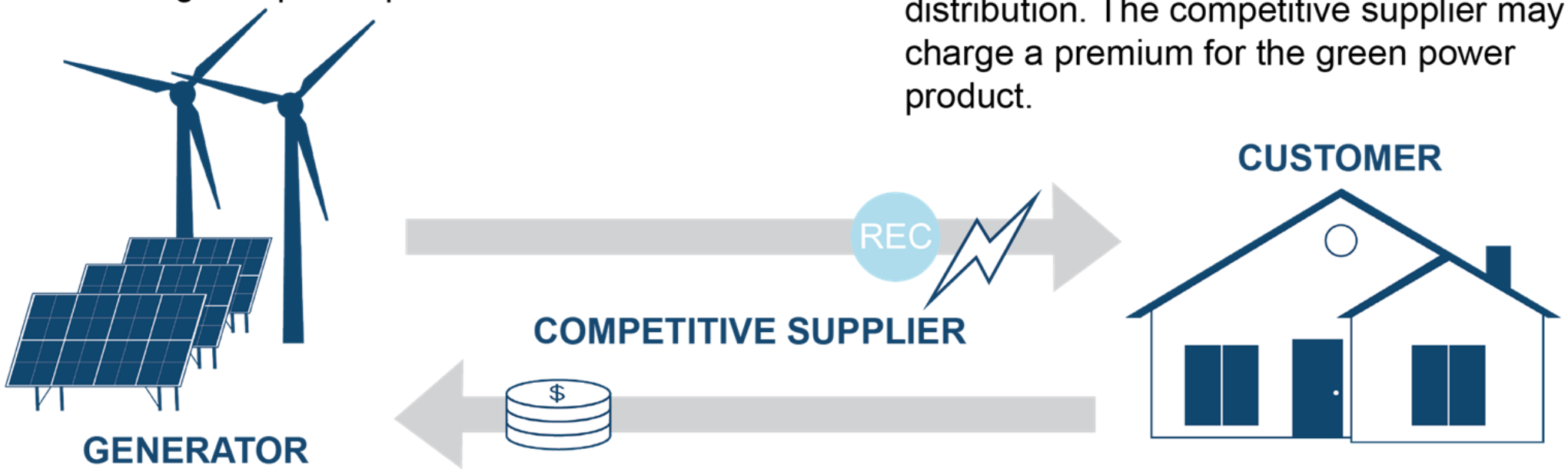
Program Characteristics	Green Pricing	Green Tariff
Cost savings potential	No, products average around 1.5 cents/kWh premium	May be cost-competitive, depending on structure and term
Price stability	No, continue to pay utility rate that is subject to change	Possible under certain program structures
Contract length	Shorter contract terms (typically month-to-month)	Longer agreements possible (10-20 years)
Ease of joining	Typically a simple sign-up process	Often limited availability, longer contract is potential barrier
Choice of RE resource	Utility determines	Customer may have input

Source: Utility Green Tariff Programs in the U.S.: Overview and Opportunities for Cost Savings
https://docs.nrel.gov/docs/fy19osti/74211.pdf

Competitive Suppliers

In restructured electricity markets, customers may choose a competitive electricity supplier that offers a green power product.

The competitive supplier provides the customer with power and RECs. The utility remains responsible for transmission and distribution. The competitive supplier may charge a premium for the green power product.



Basic competitive supplier sales structure

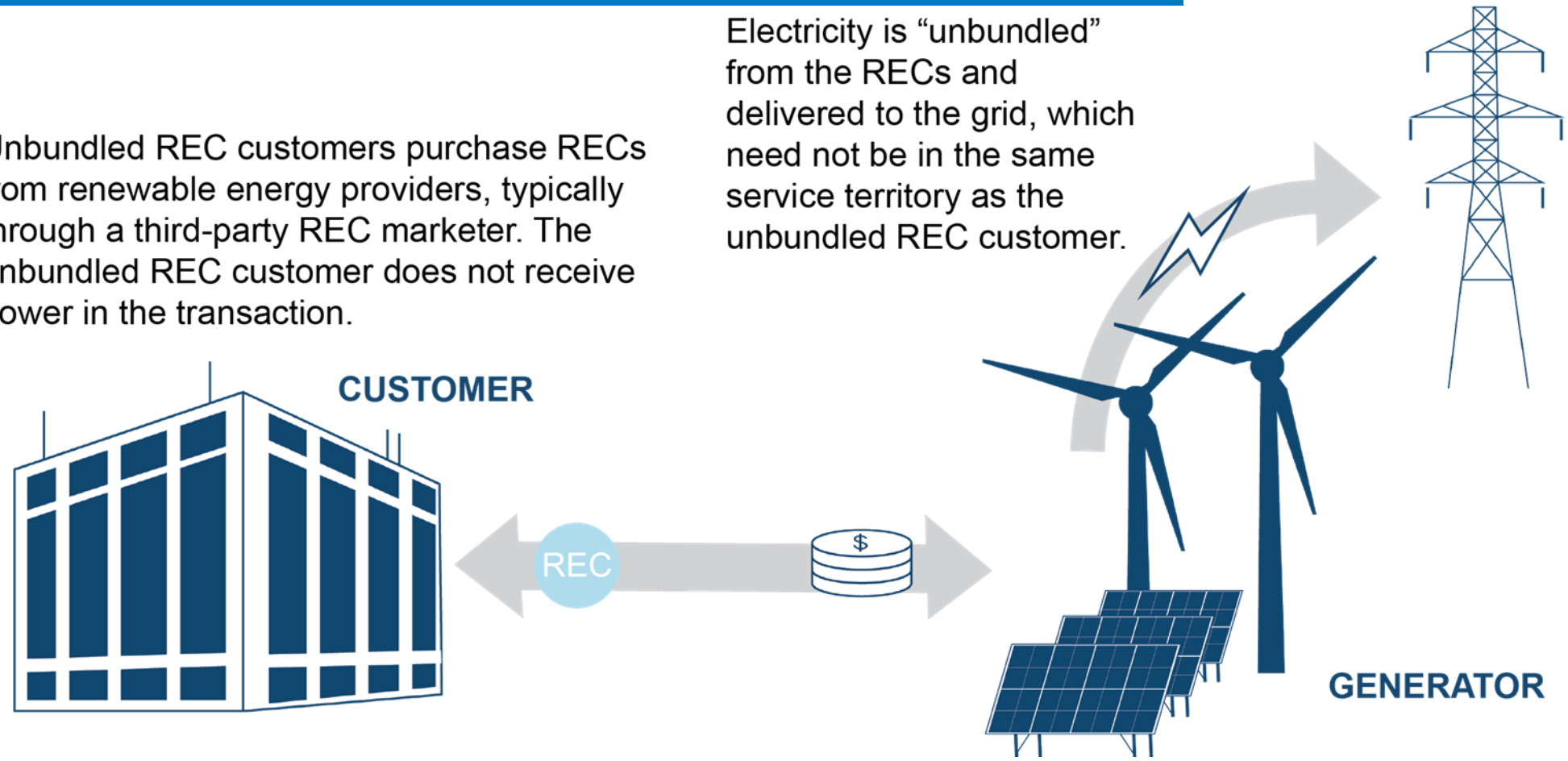
Specific program structures vary

Source: Status and Trends in the U.S. Voluntary Power Market: 2017 Data
https://docs.nrel.gov/docs/fy19osti/72204.pdf

Unbundled RECs

Unbundled REC customers purchase RECs from renewable energy providers, typically through a third-party REC marketer. The unbundled REC customer does not receive power in the transaction.

Electricity is "unbundled" from the RECs and delivered to the grid, which need not be in the same service territory as the unbundled REC customer.



Basic unbundled RECs sales structure

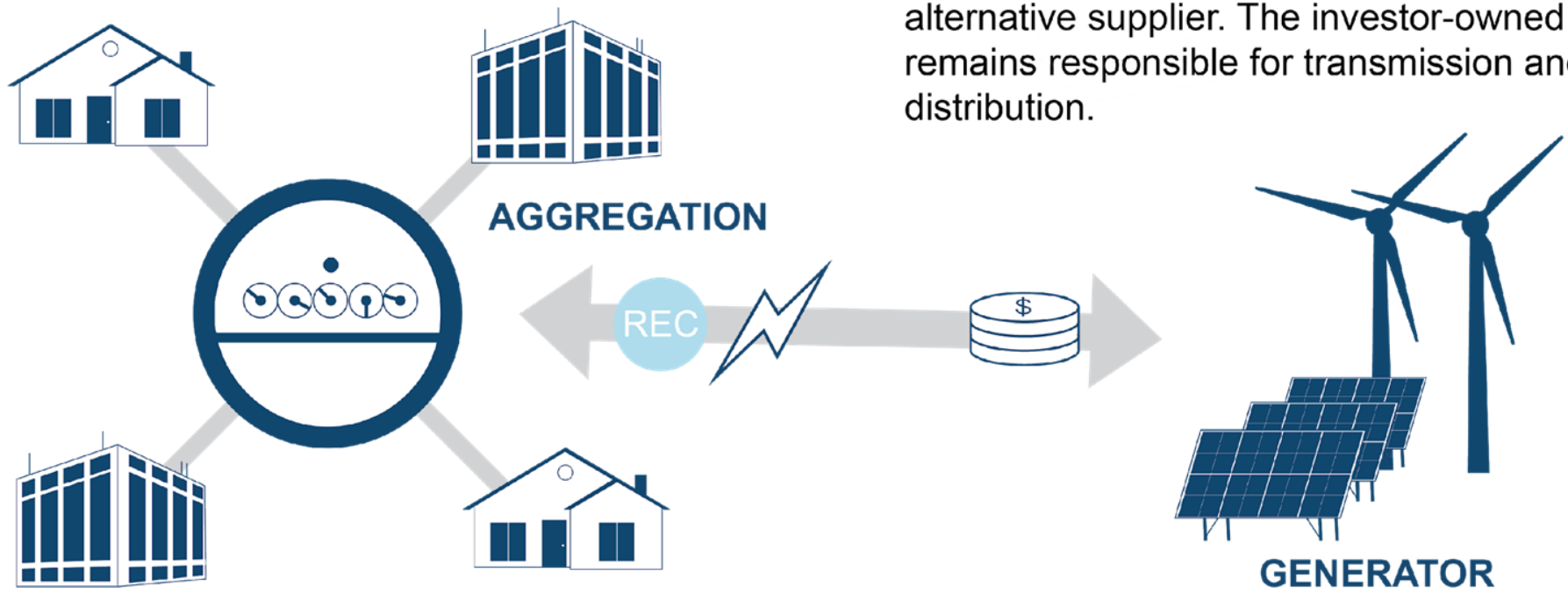
Specific program structures vary

Source: Status and Trends in the U.S. Voluntary Power Market: 2017 Data
https://docs.nrel.gov/docs/fy19osti/72204.pdf

Community Choice Aggregation

A CCA effectively "aggregates" the electricity demand of many customers (residential and non-residential) in order to procure electricity from an alternative supplier.

CCA customers "switch" from an incumbent investor-owned utility to a local government supplier with a green power product. The CCA purchases electricity and RECs from an alternative supplier. The investor-owned utility remains responsible for transmission and distribution.

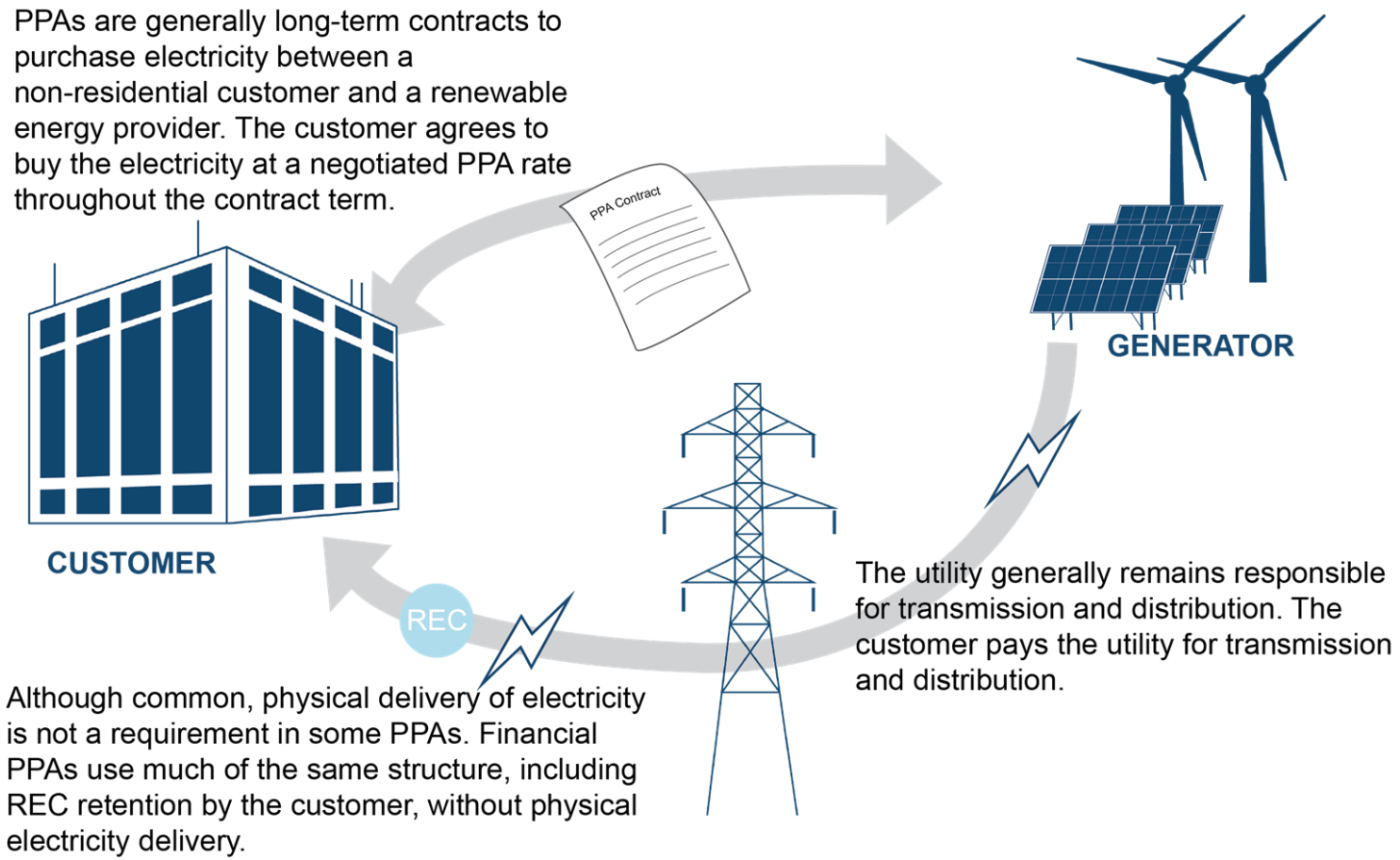


Basic CCA structure

Specific program structures vary

Source: Status and Trends in the U.S. Voluntary Power Market: 2017 Data
https://docs.nrel.gov/docs/fy19osti/72204.pdf

Power Purchase Agreements

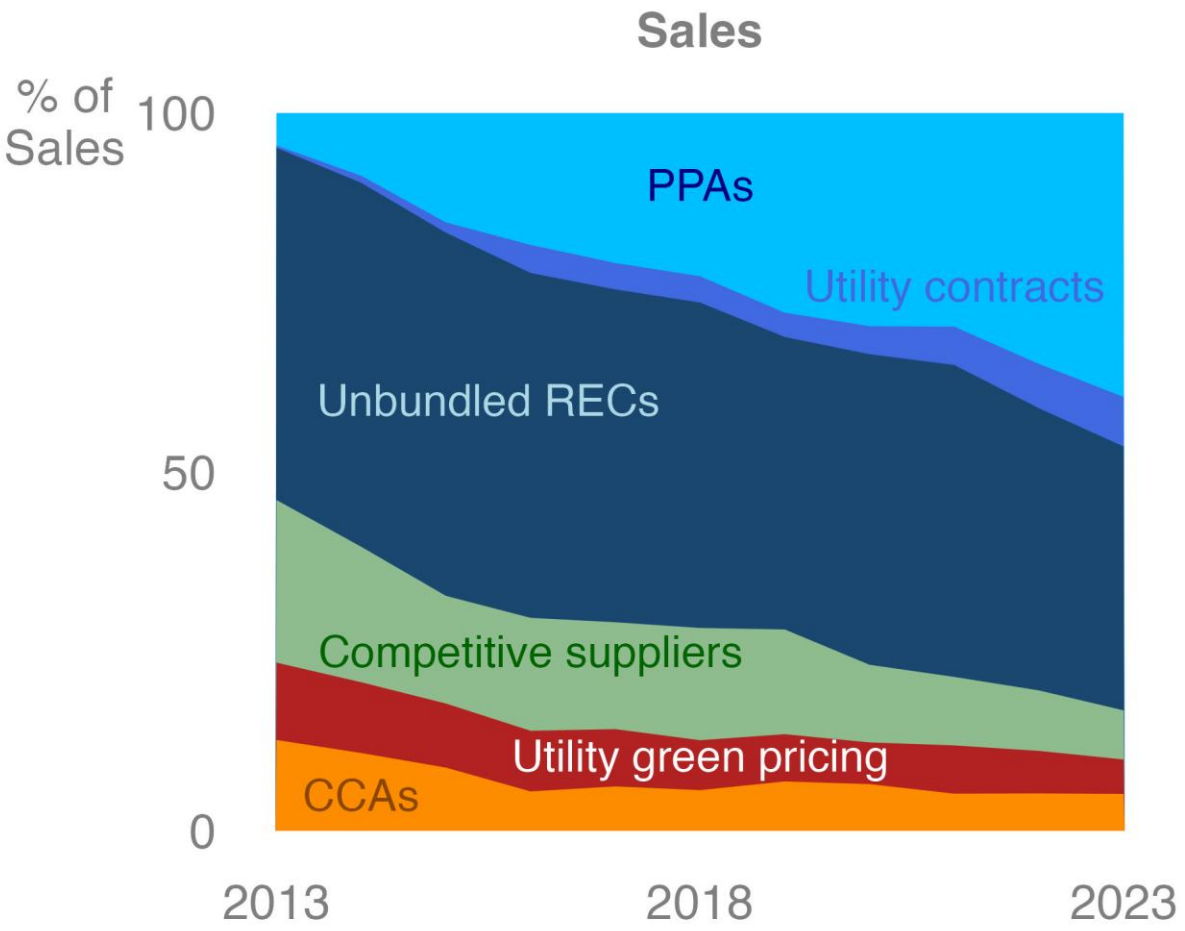


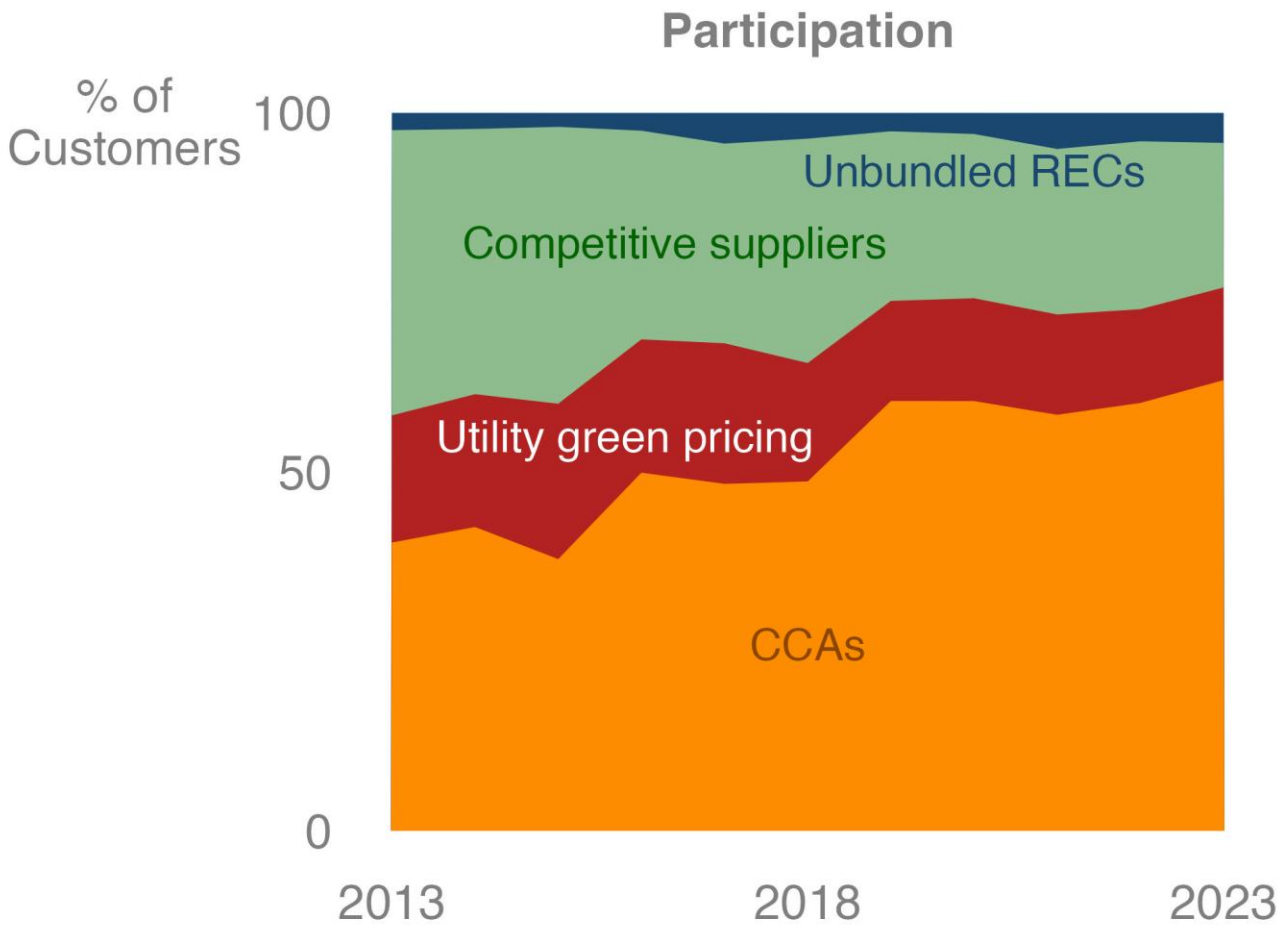
Basic PPA structure

Specific program structures vary

Source: Status and Trends in the U.S. Voluntary Power Market: 2017 Data
https://docs.nrel.gov/docs/fy19osti/72204.pdf

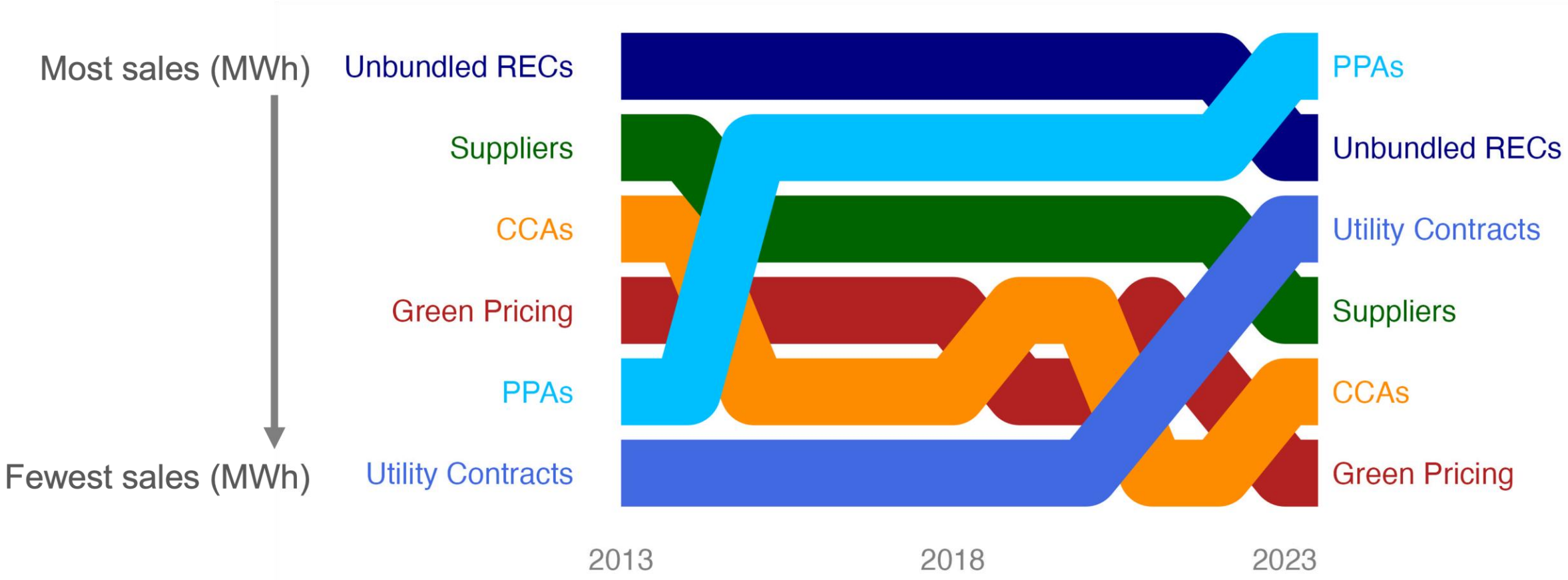
An Evolving Market





Source: Status and Trends in the U.S. Voluntary Power Market: 2023 Data
https://www.nrel.gov/docs/fy25osti/92289.pdf

Bundling Up



Source: Status and Trends in the U.S. Voluntary Power Market: 2023 Data
https://www.nrel.gov/docs/fy25osti/92289.pdf

Renewable Power Supply Options

All renewable energy procurement methods involve RECs

Self Generation

(Lease and Own Generation)

- Onsite self-generation or lease
- Offsite self-generation or lease

Direct Purchasing

(Purchase from a Generator)

- Onsite PPA
- Offsite physical PPA
- Virtual PPA
- Direct attribute-only purchase

Retail Purchasing

(Purchase from a Supplier or Utility)

- Utility green pricing
- Competitive suppliers
- Community renewables
- Direct access tariff
- Unbundled certificates

Energy Attribute Certificates (EACs)

Energy Attribute Certificates (EACs)

An energy attribute certificate (EAC) is a contractual instrument that conveys information (attributes) about a unit of energy, including the resource used to create the energy and the emissions associated with its production and use.

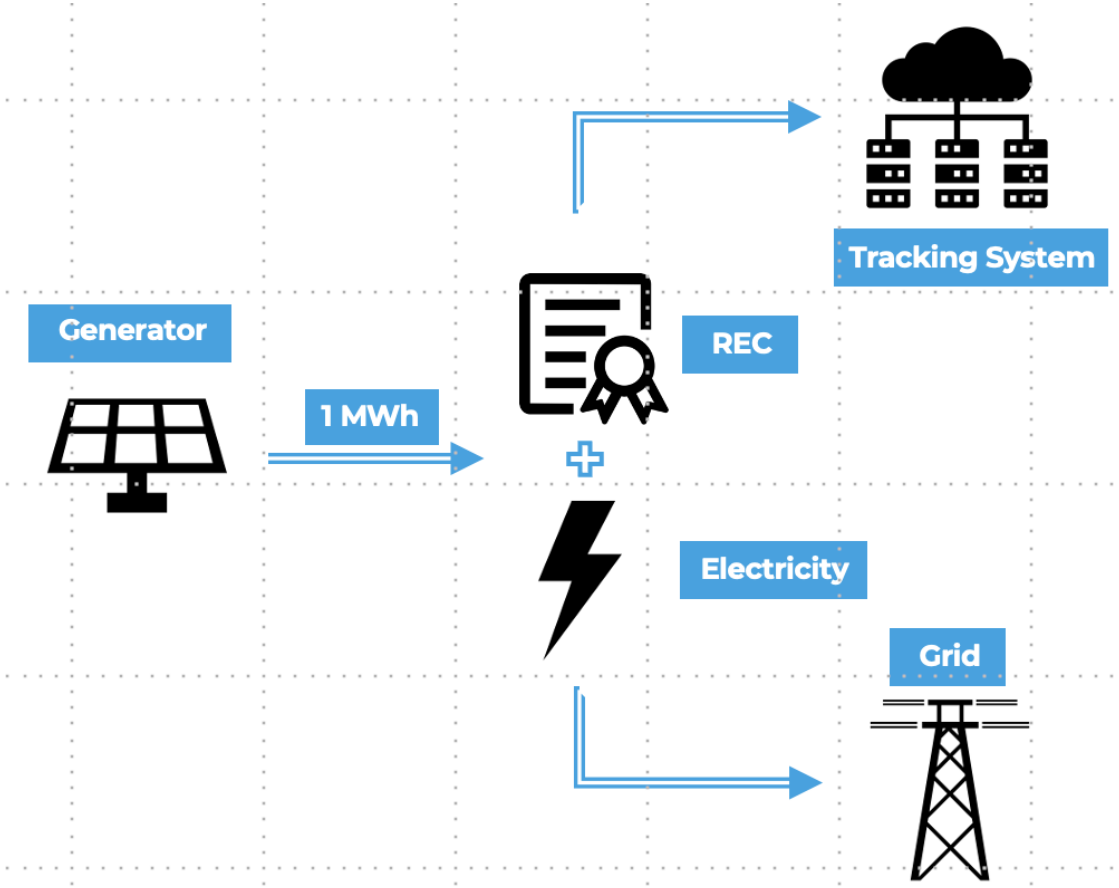
Examples of EACs

A common type of EAC in North America is the **renewable energy certificate (REC)**, used for electricity suppliers and consumers. One REC conveys one megawatt-hour of electricity generated from renewable sources.

Zero-emissions credits (ZECs), also called emission-free energy certificates, are another example. This type of EAC is often associated with nuclear generation with zero emissions.

Renewable Energy Certificates (RECs)

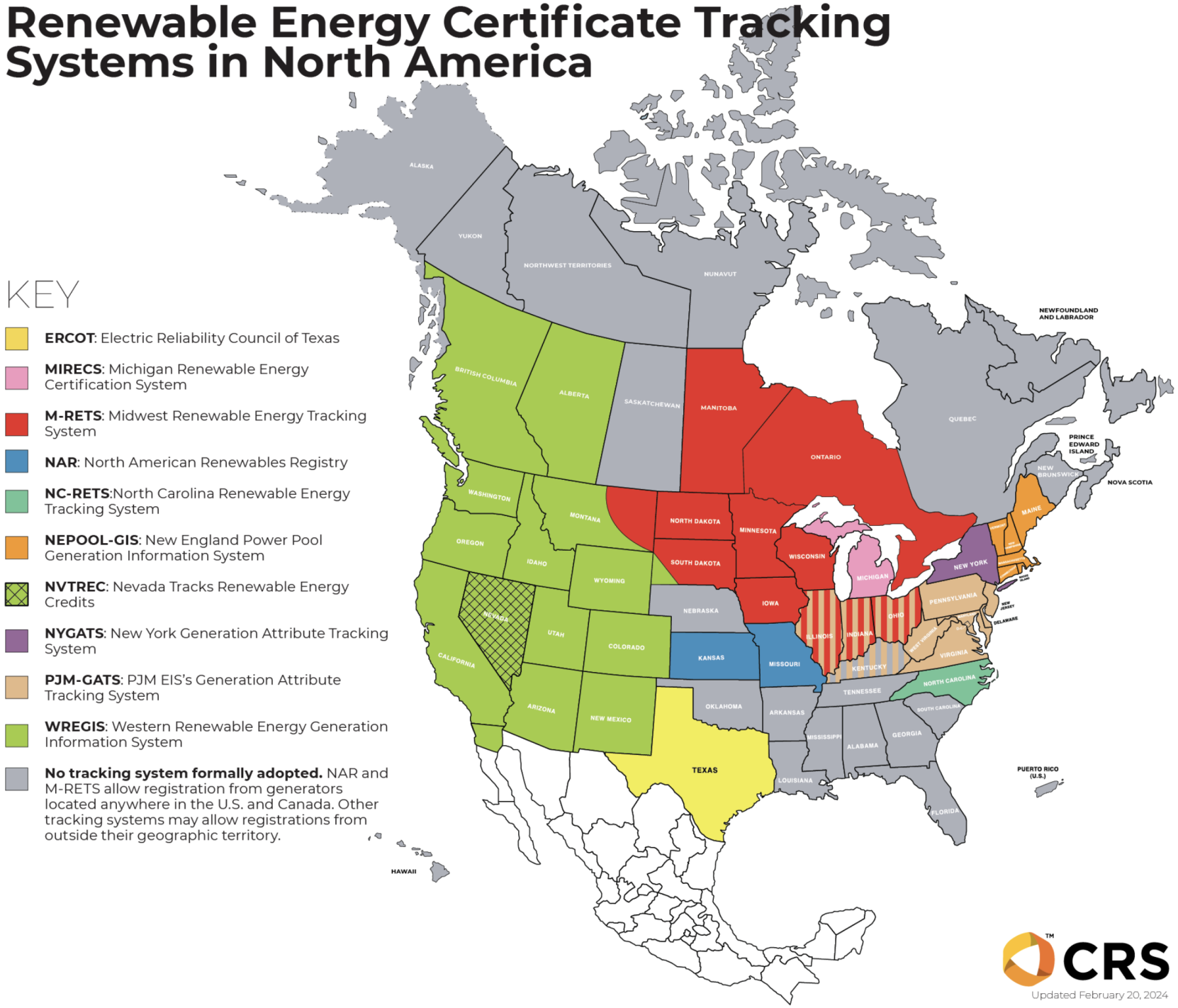
1 REC represents the renewable attributes of 1 MWh of renewable energy generation



- Tracking systems (or registries) are databases, usually electronic, with basic information about each MWh generated from generation facilities registered in the database.
- Electronic tracking systems allow RECs to be transferred among account holders much as in online banking.

Picture Source: CRS

Renewable Energy Certificate Tracking Systems in North America



CRS™

Updated February 20, 2024

Attribute Tracking

- Databases used to track, trade, and "retire" RECs
- Electronic Tracking Registries assign unique IDs to every REC.
- Registry records REC issuance, transfers, and eventual retirement. Claims are substantiated with retired RECs
- Prevents double counting and disputes by ensuring a single, unique record per MWh.
- Used for both voluntary and compliance markets

Why Are RECs Important?

- Currency of renewable energy markets, inherent in all renewable power procurements
  - Both compliance and voluntary
- Forms the backbone of all credible compliance or voluntary renewable energy claims
- Ensures transparency and trust in environmental claims

REC Arbitrage

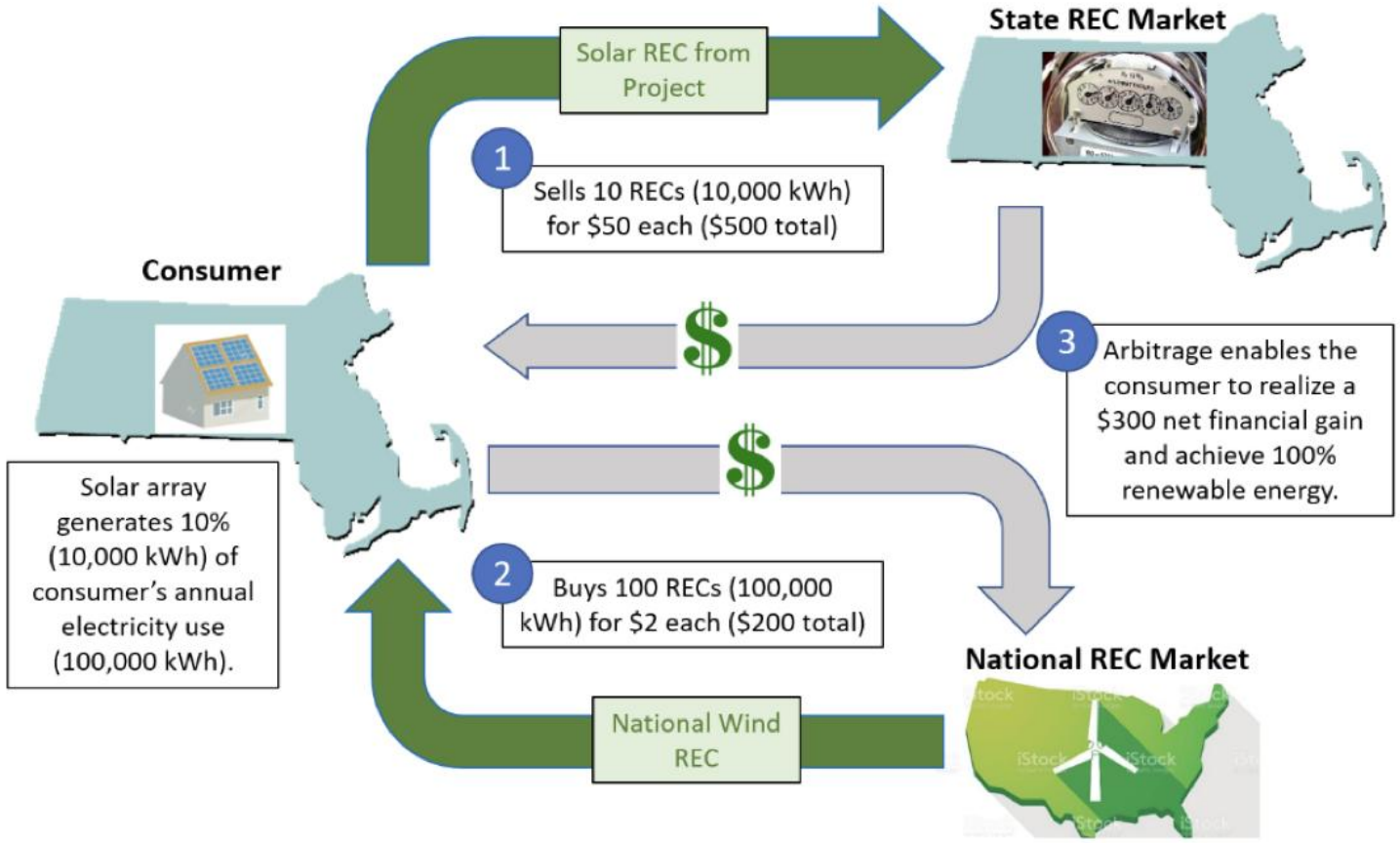
What is REC Arbitrage

- REC arbitrage (also referred to as a REC swap) is a procurement strategy used by electricity consumers to simultaneously meet two objectives:
- 1) decrease the cost of their renewable electricity use and
- 2) substantiate renewable electricity use and carbon footprint reduction claims.

- REC arbitrage occurs when RECs from one renewable electricity project are sold and replaced by less expensive RECs from another renewable electricity project.

- A prerequisite of REC arbitrage is that there are differences in REC prices.

Why REC Arbitrage?



- REC arbitrage offers consumers in markets with high REC prices a means to simultaneously achieve two competing objectives:

(1) improve the economics of their renewable electricity procurement, and

(2) substantiate renewable electricity use and carbon footprint reduction claims.

Resources: https://www.epa.gov/sites/default/files/2017-09/documents/gpp-rec-arbitrage.pdf

Claims 101

Definition & Scope

- Individuals, companies, or institutions purchase RECs outside of regulatory obligations to match their electricity use with renewable energy or to support sustainability reporting.
- **Voluntary RECs must be retired for voluntary claims—they cannot also be used for compliance**.

Best Practices for Making Claims

- Exclusive Ownership: You must hold and retire the REC to legitimately claim use of renewable energy.
- Certification: Preference for RECs certified by reputable programs (e.g., Green-e®), which verify sustainability standards.
- Substantiation: Claims must be supported by documentation from registry or provider.
- Reporting: Align with CDP, RE100, SBTi, or similar disclosure platforms for enhanced credibility.

Determining REC Ownership

Illustrative PPA

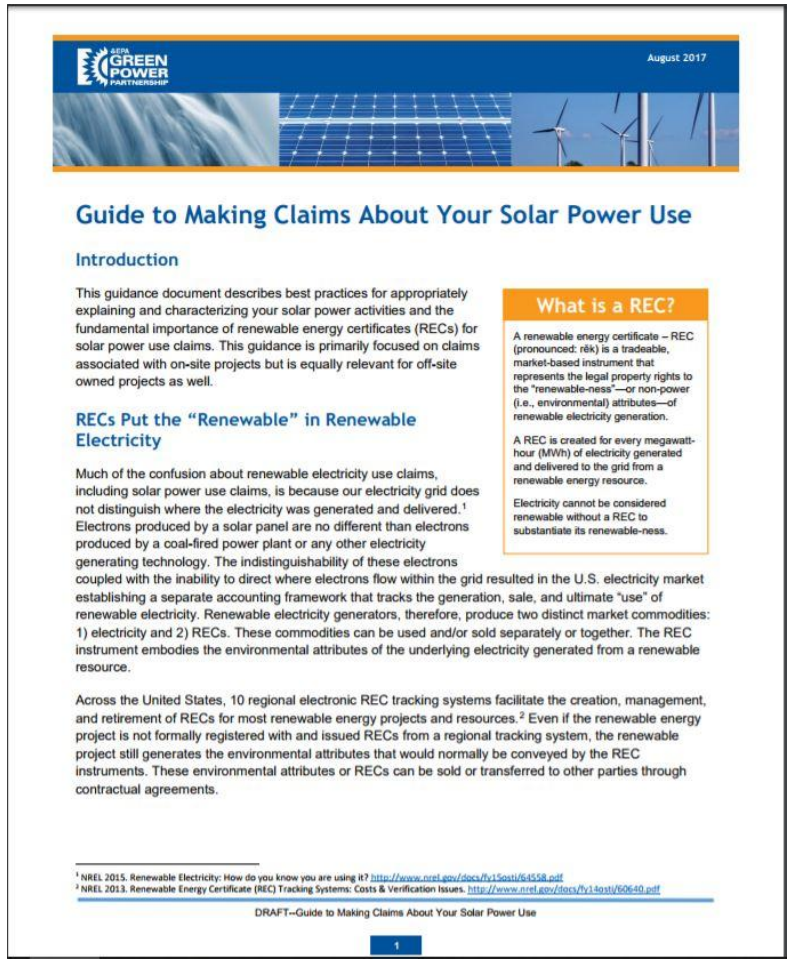
Environmental Attributes and Environmental Incentives.

Unless otherwise specified on **Exhibit 1**, Seller is the owner of all Environmental Attributes and Environmental Incentives and is entitled to the benefit of all Tax Credits, and Purchaser's purchase of electricity under this Agreement does not include Environmental Attributes, Environmental Incentives or the right to Tax Credits or any other attributes of ownership and operation of the System, all of which shall be retained by Seller. Purchaser shall cooperate with Seller in obtaining, securing and transferring all Environmental Attributes and Environmental Incentives and the benefit of all Tax Credits, including by using the electric energy generated by the System in a manner necessary to qualify for such available Environmental Attributes, Environmental Incentives and Tax Credits. Purchaser shall not be obligated to incur any out–of–pocket costs or expenses in connection with such actions unless reimbursed by Seller. If any Environmental Incentives are paid directly to Purchaser, Purchaser shall immediately pay such amounts over to Seller. To avoid any conflicts with fair trade rules regarding claims of solar or renewable energy use, Purchaser, if engaged in commerce and/or trade, shall submit to Seller for approval any press releases regarding Purchaser's use of solar or renewable energy and shall not submit for publication any such releases without the written approval of Seller. Approval shall not be unreasonably withheld, and Seller's review and approval shall be made in a timely manner to permit Purchaser's timely publication.

"**Environmental Attributes**" means any and all credits, benefits, emissions reductions, offsets, and allowances, howsoever entitled, attributable to the System, the production of electrical energy from the System and its displacement of conventional energy generation, including (a) any avoided emissions of pollutants to the air, soil or water such as sulfur oxides (SOx), nitrogen oxides (NOx), carbon monoxide (CO) and other pollutants; (b) any avoided emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride and other greenhouse gases (GHGs) that have been determined by the United Nations Intergovernmental Panel on Climate Change, or otherwise by law, to contribute to the actual or potential threat of altering the Earth's climate by trapping heat in the atmosphere; and (c) the reporting rights related to these avoided emissions, such as Green Tag Reporting Rights and Renewable Energy Credits. Green Tag Reporting Rights are the right of a party to report the ownership of accumulated Green Tags in compliance with federal or state law, if applicable, and to a federal or state agency or any other party, and include Green Tag Reporting Rights accruing under Section 1605(b) of The Energy Policy Act of 1992 and any present or future federal, state, or local law, regulation or bill, and international or foreign emissions trading program. Environmental Attributes do not include Environmental Incentives and Tax Credits. Purchaser and Seller shall file all tax returns in a manner consistent with this Section 5. Without limiting the generality of the foregoing, Environmental Attributes include carbon trading credits, renewable energy credits or certificates, emissions reduction credits, emissions allowances, green tags tradable renewable credits and Green-e® products.

Making Environmental Claims

- Big driver of renewable power procurement
- Messaging should be transparent and tangible
  - EPA's Equivalency Calculator
- Simple, safe claims
  - I use renewable electricity from a zero emissions resource
  - Precise amounts and equivalencies
- Don't Confuse "RECs" and "Offsets"



August 2017

Guide to Making Claims About Your Solar Power Use

Introduction

This guidance document describes best practices for appropriately explaining and characterizing your solar power activities and the fundamental importance of renewable energy certificates (RECs) for solar power use claims. This guidance is primarily focused on claims associated with on-site projects but is equally relevant for off-site owned projects as well.

What is a REC?

A renewable energy certificate – REC (pronounced: rĕk) is a tradeable, market-based instrument that represents the legal property rights to the "renewable-ness"—or non-power (i.e., environmental) attributes—of renewable electricity generation.

A REC is created for every megawatt-hour (MWh) of electricity generated and delivered to the grid from a renewable energy resource.

Electricity cannot be considered renewable without a REC to substantiate its renewable-ness.

RECs Put the "Renewable" in Renewable Electricity

Much of the confusion about renewable electricity use claims, including solar power use claims, is because our electricity grid does not distinguish where the electricity was generated and delivered.[1] Electrons produced by a solar panel are no different than electrons produced by a coal-fired power plant or any other electricity generating technology. The indistinguishability of these electrons coupled with the inability to direct where electrons flow within the grid resulted in the U.S. electricity market establishing a separate accounting framework that tracks the generation, sale, and ultimate "use" of renewable electricity. Renewable electricity generators, therefore, produce two distinct market commodities: 1) electricity and 2) RECs. These commodities can be used and/or sold separately or together. The REC instrument embodies the environmental attributes of the underlying electricity generated from a renewable resource.

Across the United States, 10 regional electronic REC tracking systems facilitate the creation, management, and retirement of RECs for most renewable energy projects and resources.[2] Even if the renewable energy project is not formally registered with and issued RECs from a regional tracking system, the renewable project still generates the environmental attributes that would normally be conveyed by the REC instruments. These environmental attributes or RECs can be sold or transferred to other parties through contractual agreements.

[1] NREL 2015. Renewable Electricity: How do you know you are using it? http://www.nrel.gov/docs/fy15osti/64558.pdf
[2] NREL 2013. Renewable Energy Certificate (REC) Tracking Systems: Costs & Verification Issues. http://www.nrel.gov/docs/fy14osti/60640.pdf

DRAFT--Guide to Making Claims About Your Solar Power Use

1

Resources: www.epa.gov/sites/default/files/2017-09/documents/gpp-guidelines-for-making-solar-claims.pdf

Additional NREL Resources

Find additional resources at the

NREL Voluntary Power Procurement landing page:**www.nrel.gov/analysis/green-power.html**

Sushmita Jena
sushmita.jena@nrel.gov

5 Minute Break

Procurement Analysis Tool (PAT) Informational Webinar

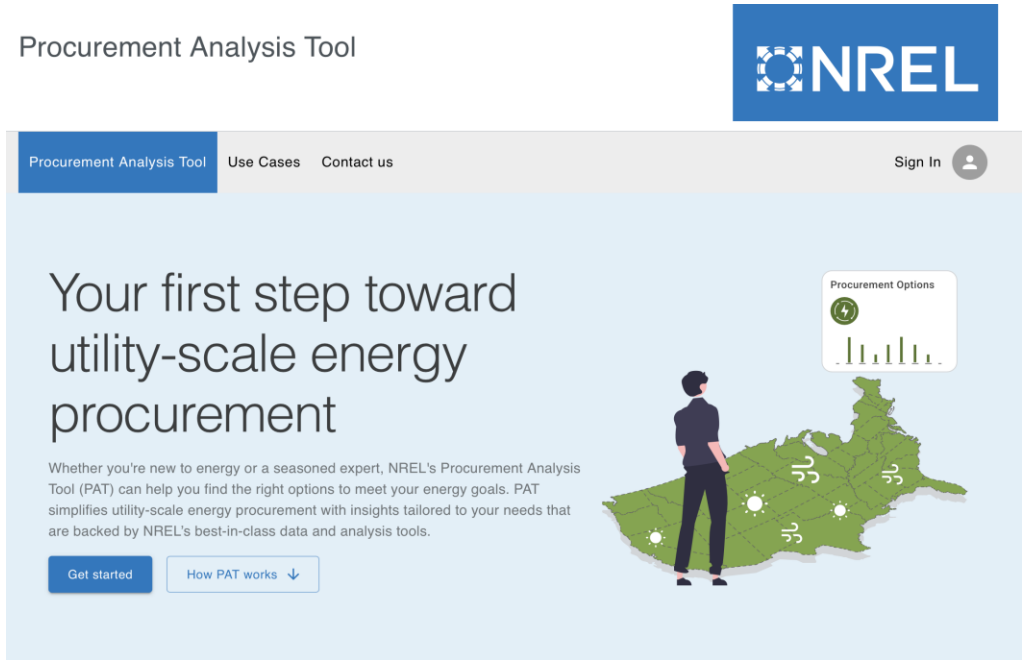
Sushmita Jena and Jeff Cook

August 26, 2025

Photo by Josh Bauer, NREL 61725

PAT: A Free Platform for Off-Site Energy Analysis

PAT HOMEPAGE



www.pat.nrel.gov

KEY QUESTIONS ADDRESSED BY PAT

- What energy procurement options exist by location?
- How do energy procurement options align with certain end user objectives?
- How does the value of different energy technologies vary by location?
- How do different resources and procurement options vary on costs/impacts?

PAT: Key Inputs and Outputs

SCENARIO SETUP

User enters the scenario title, energy goals (%), and any additional notes.

LOAD AGGREGATION GROUPS

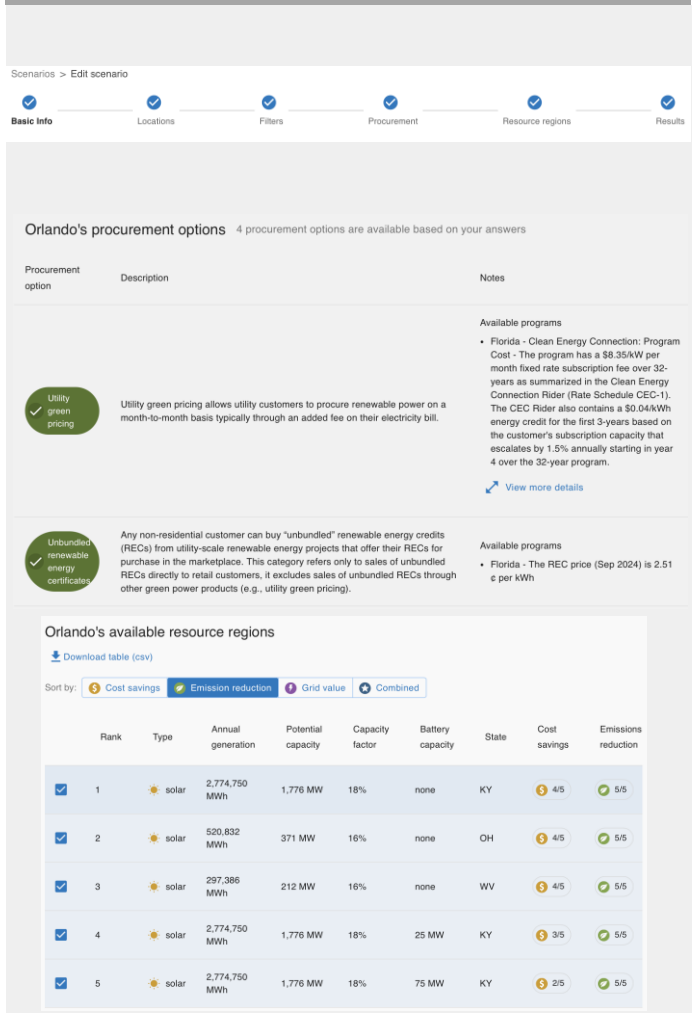
User aggregates electricity load by region, type of facility, and/or load size. User inputs specific facility information, such as annual load (MWh), address, and the utility/load-serving entity.

REFINEMENT BASED ON USER PREFERENCES

User answers 7 questions about their procurement preferences and knowledge of the process.

Contracting Experience	Price Certainty	Location Preference	Cost, Emissions, Grid Value, or a Combination
Financial Risk Tolerance	REC Ownership	Balancing Authority	

PAT



PROCUREMENT OPTIONS

PAT shows procurement options such as green tariffs, competitive suppliers, green pricing, unbundled Renewable Energy Certificates (RECs), community solar, and/or Power Purchase Agreements (PPAs) based on the combination of user preferences and available offerings from the load-serving entity.

RESOURCE REGIONS

Select resource regions are optimized based on wholesale power markets, cost, grid value, emissions reduction, or a combined score.

Under the Hood: How PAT Optimizes

Annual Technology Baseline (ATB)

Consistent set of technology design and cost data

Energy Supply Curves

Clustered to identify best resource locations for each ReEDS balancing region

Cambium

Modeled cost, hourly emission, and operational data for a range of possible futures of the U.S. electricity sector through 2050

PAT

Leverages System Advisor Model (SAM) for system performance and battery dispatch considering cost reduction and emissions if participating in the wholesale markets as a merchant plant.

Output

Comparative Data based on marginal cost, grid value, and emissions for fixed system sizes calculated over a 25-year system lifetime.

PAT Can Analyze Multiple Customer Use Cases

User Group:	How PAT Helps:
🏢 **Commercial & Industrial Buyers**	Evaluate off-site procurement options across multiple facilities nationwide.
🏛️ **Local Governments & Agencies**	Assess options for powering city operations or jurisdiction-wide demand.
🎓 **Colleges, Universities & Campuses**	Plan energy procurement for labs, classrooms, housing, and campus services.
⚡ **Utilities & Energy Providers**	Analyze customer demand and assess feasibility for procurement programs (e.g., green tariffs).
⚖️ **Regulators & Commissions**	Plan for voluntary utility-scale programs and shifting customer energy strategies.

Key Procurement Challenges And Solutions

Complexity across regions	Balancing competing priorities	Varied facility energy needs	Lack of procurement expertise	Choosing the right technology
PAT tailors recommendations based on location, utility territory, and energy goals.	PAT compares technologies by cost, grid value, emissions, and other factors.	PAT analyzes site-level data or grouped facilities to recommend best-fit options.	PAT uses simple inputs to provide actionable next steps.	PAT identifies the most suitable technologies and locations based on user needs.

Live Demo

PAT Analysis Is the First Step in Your Energy Procurement Journey

What To Do Next:

PAT provides foundational analysis to support your energy procurement journey. If you are interested in pursuing energy further, you might consider the following next steps.

1

Analyze Procurement Options

Review the available procurement options identified for your groups. Compare attributes like pricing, contract terms, and procurement processes to make informed decisions.

2

Engage Key Stakeholders

Collaborate with internal teams, regulators, and utilities to assess feasibility. If needed, initiate discussions with consultants to support your decision-making.

3

Negotiate and Develop

Partner with utilities and project developers to finalize contract terms and implementation plans. Define stakeholder roles and responsibilities for new projects.

4

Request and Evaluate Proposals

Issue Requests for Information (RFI) or Proposals (RFP) as needed. Carefully review submissions, considering associated risks and alignment with your goals.

5

Finalize Procurement and Track Benefits

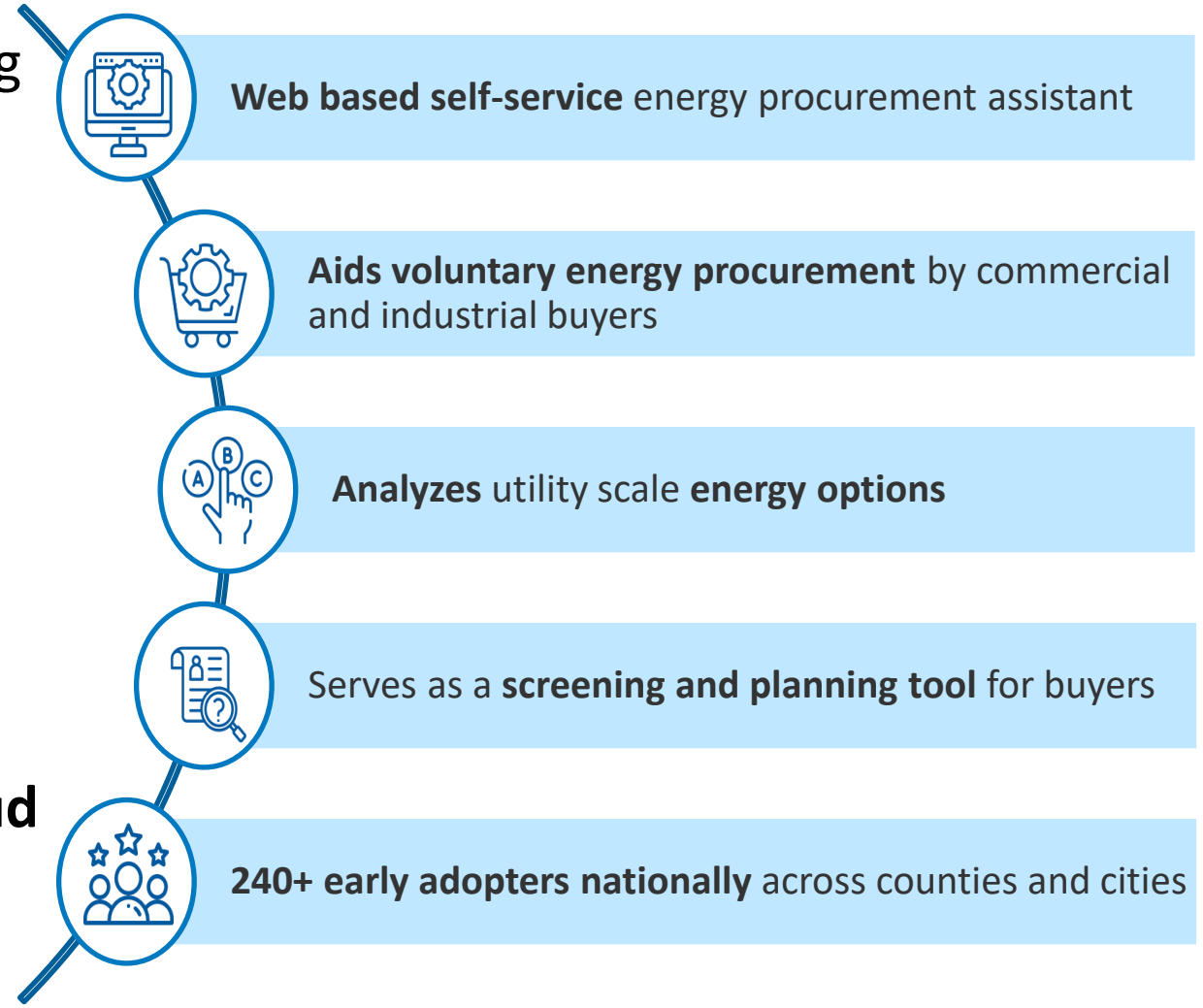
Sign contracts and begin implementation. Monitor key metrics like energy production, avoided emissions, cost savings, and price variability to ensure success.

What PAT does not do:

- PAT is not intended to present the user with a specific set of existing generation assets.
- PAT does not perform detailed financial analyses on potential resource regions.

Key Takeaways from PAT

- Supports **customized scenario analysis** using user-entered facility and consumption data.
- Helps users **evaluate energy resources** and **compare procurement pathways** (e.g., PPA, tariffs).
- Enables decisions that balance **cost, grid value, emissions, any buyer preferences**
- Serves a wide range of users: **software, cloud operators/IT, cities, campuses, companies, utilities, and regulators.**



User Support and Contact

FAQs

Here, you'll find information on topics such as setting user preferences, understanding procurement options, data updates, and more. Still have questions? Feel free to contact us at pat.support@nrel.gov.

General

- Can users import facility information in bulk and organize it into different/groups?
- Will this tool connect to the ENERGY STAR Portfolio Manager to load energy/location data for buildings in a portfolio?
- Will this tool be integrated with any other NREL tools?
- Does PAT allow for analysis in Alaska, Hawaii, or multi-national analysis?

- ❑ For questions, check out the FAQ section on the tool's site.
- ❑ For user support, and feedback, contact us at: PAT.Support@nrel.gov

Q&A

www.nrel.gov

Need help? Email us at pat.support@nrel.gov.

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Questions?

Thank you!