

ORECS



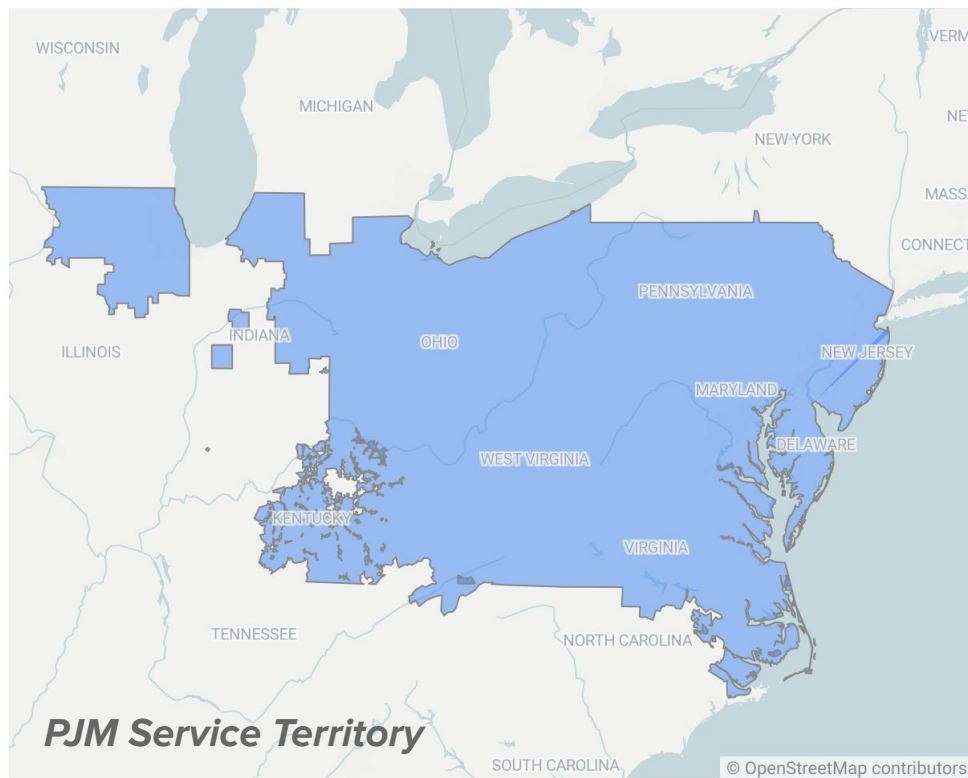
Presentation to POWER
March 13, 2024
Chris Bason

Let's Start with RECs. *What are they?*

- **Renewable Energy Credits (RECs)** are tradable certificates corresponding to the environmental attributes of 1 megawatt hour of renewable energy.
- RECs track compliance with **Renewable Energy Portfolio Standards (RPS)** which are policies created by individual states.
- RPS is the percentage of electricity sales within a state to be derived from eligible renewable energy resources by type (i.e. solar, wind, etc.).

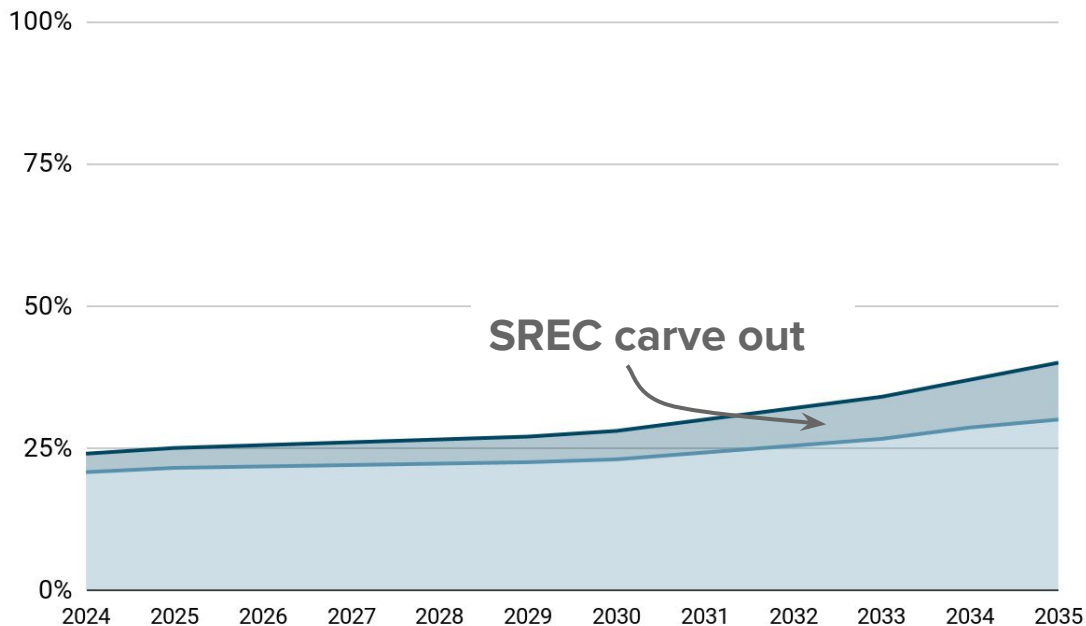
Tracking RECs

- DE RECs are generally traded within the **PJM** grid service territory.
- DE uses PJM **Generation Attributes Tracking System (GATS)** to register REC generators and track transfer of RECs from generators to consumers.
- After use, RECs are retired to prevent double counting.



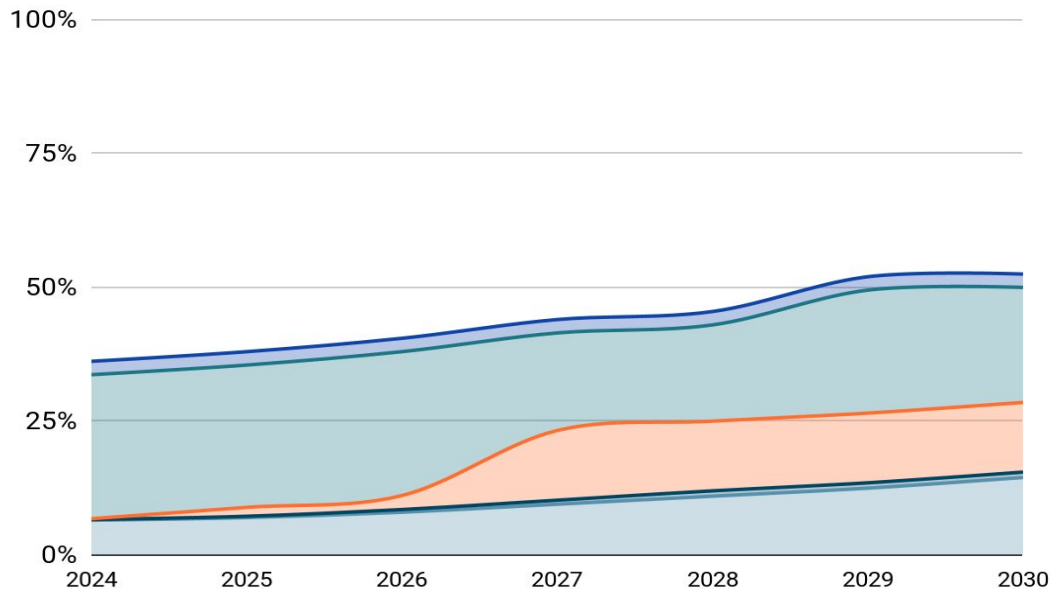
Map: Chris Bason • Source: Homeland Infrastructure Foundation Level Database • Created with Datawrapper

DE RPS from 2024 onward.



- DE has 40% RPS by 2035 – utilities to procure RECs to meet standards
- Solar RECS - required minimum of 10% by 2035.
- Wind is eligible energy resource, but not “carved out” of total like solar.
- But, offshore wind installed prior to 2017 received 350% REC multiplier.

MD RPS from 2024 onward.



- Tier 2
- Other Tier 1
- Offshore Wind
- Geothermal
- Solar

- MD requires 52.5% RPS by 2030
- Tier 2 is essentially hydroelectric power
- Offshore wind is dependent on the annual creation of **ORECs**

Offshore Wind Procurement Approaches

- States have various regulatory structures, statutory authorities, and OSW goals.
- **ORECs and Power Purchase Agreements (PPAs)** are the procurement and support mechanisms used.
 - Provide a fixed price for services,
 - through competitive bidding that,
 - provides certainty needed to finance and build the project.
 - Ratepayers cover additional costs via charges on their utility bills.
- Differences between mechanisms include how power from farm is sold.

OSW Procurement Mechanisms by State

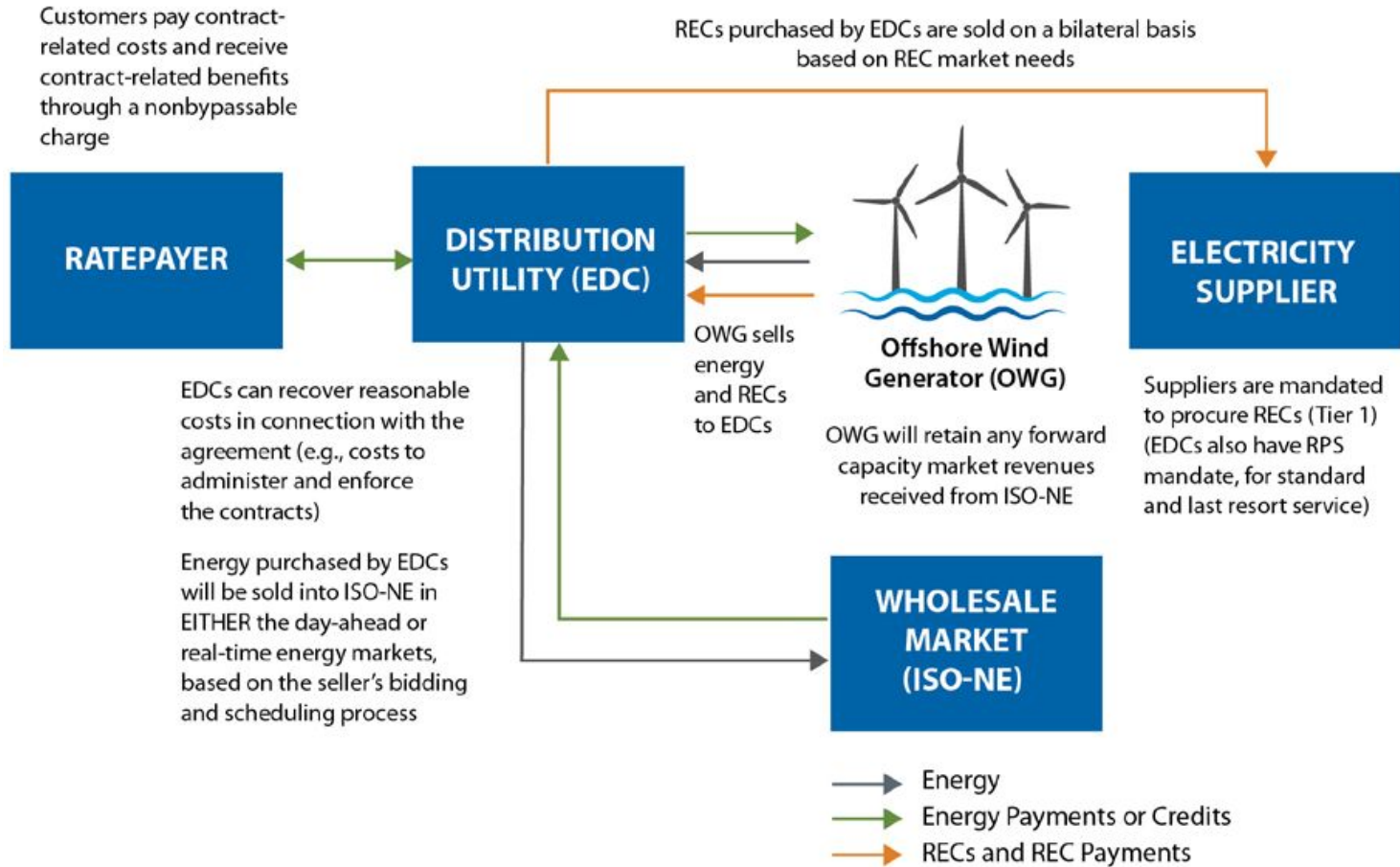
State	PPA	OREC
Massachusetts	✓	
Connecticut	✓	
Rhode Island	✓	
New York		✓
New Jersey		✓
Maryland	✓*	✓

- ❖ Maryland utilized the OREC mechanism during its last two rounds of procurement. The 2023 Power Act authorized the state General Service Administration to procure up to 5,000,000 MWh of power to meet state facility needs via a relatively simple PPA.

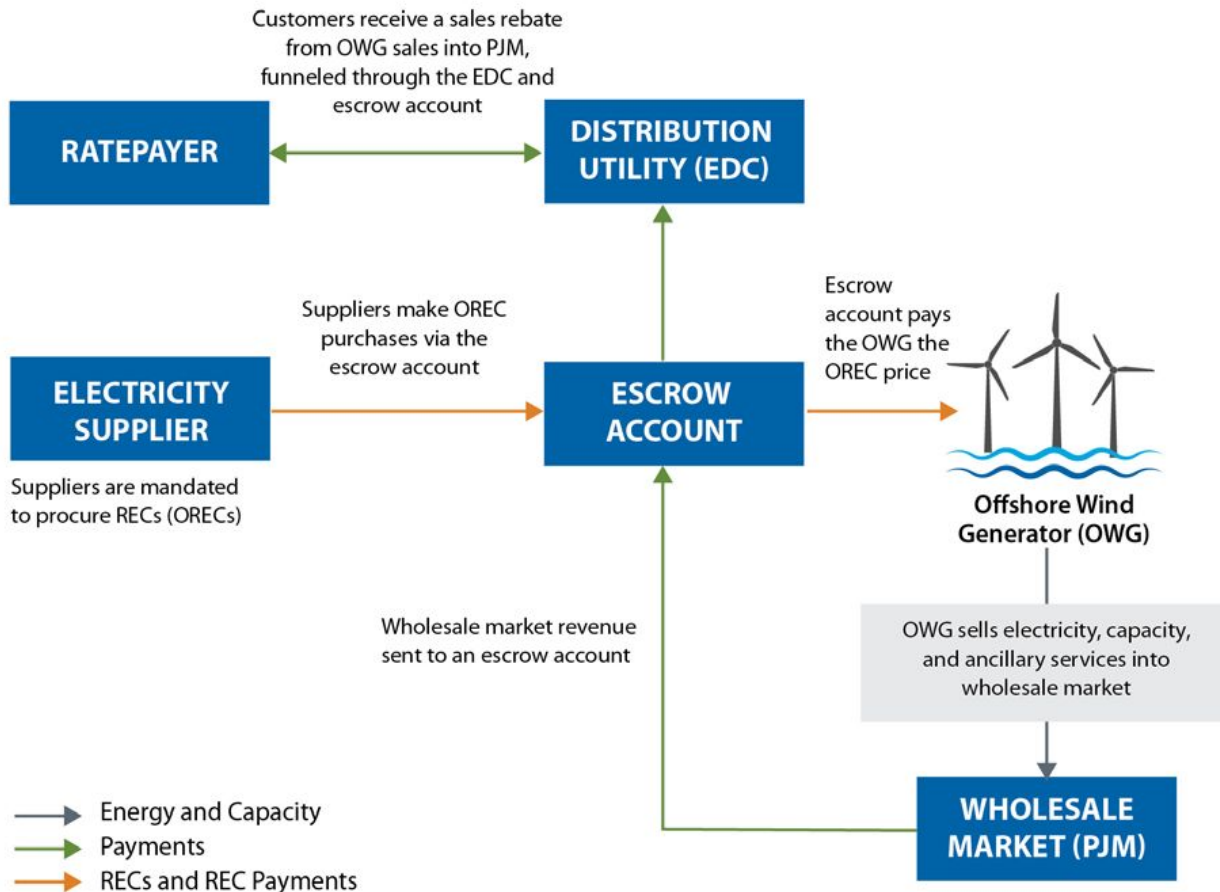
Maryland's OREC Procurement Summary

	Round 1		Round 2	
	Orsted	US Wind	Orsted	US Wind
Capacity (MW)	120	248	846	809
Levelized Cost (2012\$)	\$132	\$132	\$71.61	\$54.17
Annual Price Escalator	1%	1%	3%	2%
ORECs (#)	455,482	913,845	3,279,207	2,513,752
Residential Ratepayer Cap	\$1.50/mnth (combined total)		\$0.88/mnth (combined total)	
Direct in-state expenditures	34% CAPEX	19% CAPEX	\$410,000,000	\$570,000,000

Connecticut PPA Mechanism



Maryland's OREC Mechanism



OREC or PPA for DE? *No clear answer.*

- PPAs may be appropriate for potential standardized regional procurement, but ORECs are used by neighboring states.
- OREC agreements have tended to support more extensive economic and workforce development, but PPAs can also accommodate this.
- OREC Agreement in MD was easily abandoned – a PPA could provide more contractual control, but an OREC structure could also accommodate this.
- SLOW report recommends a PPA but this was based on assumptions of declining OSW costs and market REC prices, but trends which have reversed.
- PPA may provide more price visibility for ratepayers.

Conclusions

- Either ORECs or PPAs could best serve Delaware.
- Decision will be influenced by key stakeholders (utility, public advocate, PSC).
- Price priority and appropriate local content can be delivered through either.
- Choice not expected to significantly influence developer participation.
- Maintain focus on bidding criteria and project requirements
 - Low ratepayer impact without encouraging a developers race to the bottom
 - Flexible inter-regional approach
 - Labor involvement
 - Local environmental protections and restoration
 - Clear process to access ROW for transmission
 - Appropriate type of local economic content (facilities and jobs)

Resources

- U.S. State Renewables Portfolio & Clean Electricity Standards: 2023 Status Update. Berkeley Lab. https://eta-publications.lbl.gov/sites/default/files/lbnl_rps_ces_status_report_2023_edition.pdf
- How Wholesale Power Markets Work. 2021. Bentham Paulos for 100% Clean Energy Collaborative. <https://www.cesa.org/wp-content/uploads/How-Wholesale-Power-Markets-Work.pdf>
- National Renewable Energy Laboratory 2020. Comparing Offshore Wind Energy Procurement and Project Revenue Sources Across U.S. States. <https://www.nrel.gov/docs/fy20osti/76079.pdf>