

Forward Energy Attribute Market Working Group

DESIGN ELEMENTS FOR AN FEAM FOR INTERESTED OPSI STATES

This document the design elements of a Forward Energy Attribute Market as agreed upon by interested OPSI states through the FEAM WG and maintains the core principals and framework as supported by OPSI¹ for procurement of state preferred and policy resources.

Design Feature	Design Elements
Demand	Options/Decisions Already Made
Market Members (+ Procurement Cost Allocation)	<ul style="list-style-type: none"> - Voluntary & State Participation - States commit to multi-year commitments. States will need to determine if the State itself wants to be a member of the market. States will make long-term commitments to the market: 5 year participant lock-in (similar to 5 year lock-in for choosing FRR v. RPM). States wishing to reduce participation may do so by reducing volume parameters of demand bids. - Non-state buyers have no long-term commitment, but can submit multi-year demand bid if credit is demonstrated. - Participants must declare participation in the market consistent RPM pre-auction timelines. - “Pre-Qualification Process” and demonstration of credit for authorization of non-member company or agency to become a participant. - New Resources are eligible for multi-year price lock: 15 years, declining to 7 years from time of commitment.
What buyers may participate?	<ul style="list-style-type: none"> - Participation must accommodate all states’ regulatory models and allow for additional voluntary potential buyers. - For all buyers: Price/quantity pair with the ability to submit preference/requirement for new (with commensurate credit posting for new resource price-lock for non-state buyers). - Sloped demand bid available for state-authorized buyers, each state may create its own demand curve. Voluntary market buyers use the default demand curve. - Streamline participation in FEAM for resources that also offer into the RPM, reduce the steps/hurdles for participation.
Product(s) to be Purchased	<ul style="list-style-type: none"> - State-defined MWh-based clean attribute products: <ul style="list-style-type: none"> A) DE Solar Carve out product B) NJ Class I REC C) PA Tier I AEPS Credit D) PA Tier I AEPS Solar PV Credits E) PA Tier II AEPS Credits F) IL locational constraint on Wind/Solar REC - New regionally-defined products: <ul style="list-style-type: none"> A) Tier I PJM REC (Wind or Solar generated within the PJM footprint) B) Tier II PJM REC (7 remaining renewable sources as defined in DE)

¹ OPSI Letter to the PJM Board regarding Resource Adequacy dated January 8, 2021

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	<p>Statute: 26 Del. C §352.7)</p> <p>C) Clean Energy Attribute Credits (“CEAC”): eligible resources to be defined by “Participating States” launching the market.</p> <ul style="list-style-type: none"> - Carbon abatement attribute product is not currently needed for compliance with state policy, therefore this product will not be included in the initial launch of the market. States are supportive of future development of such product, as the result of engagement with demand on the product definition.
Decision Maker on Product Definition	<ul style="list-style-type: none"> - State authorities will continue to oversee and update all aspects related to state defined product definitions. A Participating State may request the addition of a state defined product at any time, to be included in future auctions. - Regionally defined products to be updated consistent with expressed interest of state authorities and voluntary buyers and approved by the FEAM Board.
Provisions for Evolution of Products	<ul style="list-style-type: none"> - State authorities will continue to oversee and update all aspects related to state-defined products - State authorities will determine whether any PJM-defined products can qualify to satisfy state RPS or other state programs - Additional regionally-defined <u>unbundled</u> attribute products can be introduced, updated, or phased out over time, and should reflect features of expressed interest of states and voluntary buyers, including the potential for development of a carbon abatement attribute product and/or Clean Capacity Credit.
What bid parameters can buyers stipulate?	<ul style="list-style-type: none"> - Buy bids can stipulate either: price-quantity pairs (all bids), or a demand curve formula (for state authority bids). - Buyers can stipulate what existing products can satisfy demand bid, maximum willingness to pay and whether the bid must be served by new resources.
Participation Considerations for State-Authorized Demand Participants	<ul style="list-style-type: none"> - State Demand is defined as state agencies or entities with retail ratemaking authority enabled to submit demand bids directly, via an authorized entity, or based on an approved demand bid formula. - Demand bid will authorize settlements to the identified class of customers and their LSEs participating in PJM. - PJM-EIS will facilitate minting, tracking, and retiring attribute credits to verify transfer between buyers and sellers. - True-Up: states will determine an appropriate true-up mechanism needed to ensure compliance by public policy deadlines.
Supply	
Eligible technologies	<ul style="list-style-type: none"> - States determine eligible product for state-defined products procured in the FEAM, states have the flexibility to change the eligibility of different technologies as needed for state public policies. - Each regional product has different eligible technologies, as defined by the FEAM Board.
Offer/Parameter Structure	<ul style="list-style-type: none"> - Supply offers submitted in price-quantity pairs. Sellers select products they wish to sell (multiple products can be offered by the same resource, though the auction will prevent duplicate clearing). - A resource can sell MWH-based products, by offering RECs/CEACs (in \$/MWh). - Sellers have the option to submit "lumpy" all-or-nothing offers. - New Resources have the option to offer a separate (lower) price if clearing under a multi-year commitment. - Sellers in the FEAM will be supported with streamlined participation in the subsequent RPM auction. FEAM sellers will have the opportunity to restate their RPM capacity market offer prices based on FEAM auction outcomes (within market monitoring and mitigation limits).

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Eligibility	
LSE Self-Supplier under State-Authorized Demand	- Regional market to include provisions to enable competitive retailers and LSE self-supply to meet any state-authorized demand bids.
Voluntary LSE Demand	- Must demonstrate adequate credit. LSEs providing competitive supply or basic service in states that require LSE to independently satisfy RPS requirement must also demonstrate adequate credit.
Non-Voluntary LSE Demand	- Non-LSE demand participants enabled under a streamlined participation model that minimizes participation barriers for small, non-LSE buyers (e.g. no requirement to coordinate participation or settlements with the relevant LSE(s)). Must demonstrate adequate credit.
Supply	<ul style="list-style-type: none"> - Existing and planned resources may participate (physical market, no financial-only offers allowed). - Planned resources will be eligible under the same eligibility criteria used for PJM RPM planned resources. - FEAM resources do not need any capacity MW awarded, energy-only resources are still eligible to participate.
New Resource Supply	<ul style="list-style-type: none"> - New resources eligible for multi-year price lock-in (begin with 15-year term for MWh-based products, decline by one year per every two annual auctions). - Maximum volume of resources that can clear with a multi-year price lock is determined by the maximum volume of demand bids with adequate credit or settlement authority to support multi-year buy-side commitments.
Auction Clearing Structure	
Clean Attribute Auction Structure	<ul style="list-style-type: none"> - Single round, uniform price auction. - Optimized clearing to maximize social surplus, subject to constraints to prevent duplicate clearing
Market Power Mitigation Measures	<ul style="list-style-type: none"> - No mitigation provisions applied to products identified as structurally competitive. - Use RPM-like offer cap provisions to mitigate exercise of market power in highly concentrated submarkets, applied to firms with incentive and ability to profitably withhold existing supply. - CFTC requires vigorous market power mitigation practices for such a market to be established. The WG will develop a role for an Independent Market Monitor and market power mitigation tools consistent with CFTC rules and regulations. - Any actions of abuse or manipulation will be reported to both FEAM Board and state agencies.
Procurement/Platform	
Auction Integration with RPM	<ul style="list-style-type: none"> - FCEM is conducted first to procure all unbundled attributes (RECs, CEACs). - RPM is conducted second to procure all UCAP capacity needs. - Auction occurs “soon prior to” the RPM, ex.) 2 weeks.
Locational Representation	<ul style="list-style-type: none"> - Embedded in product eligibility (e.g. state REC eligibility criteria) - Entire PJM region (e.g. akin to network access) - Apply constraints in auction clearing - Utilize locational 5-min carbon emission abatement data to measure locational value (e.g. akin to LMP) - Clearing constraint: No duplicative clearing across multiple substitutable products.
Administrator and Governance	<ul style="list-style-type: none"> - FEAM Board will have the ability to select, replace, and review performance of the FEAM market administrator. - FEAM Board comprised of states representatives. - Stakeholder processes similar to that of PJM, LLC for evolution of market rules.

