

Forward Energy Attribute Market Working Group

DESIGN ELEMENTS FOR AN FEAM FOR INTERESTED OPSI STATES

October 2023

This document captures positions taken by the OPSI, agreed upon in the CPAWG, for features of an FEAM to procure policy and state preferred resources and further identifies the remaining elements and decision options which states and PJM, through this working group, must reach consensus on in order to implement such regional market.

Design Feature	Design Elements	Questions/Action Items Required to Inform States' Positions
Demand	Options/Decisions Already Made	
Market Members (+ Procurement Cost Allocation)	<ul style="list-style-type: none"> - Voluntary State Participation - 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 - States commit to multi-year commitments. 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. - New Resources are eligible for multi-year price lock. 	<ul style="list-style-type: none"> - State long term commitment: ex) 10 years - New Resource Price Lock: ex) 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. 	<ul style="list-style-type: none"> - Is there a desire for a sloped demand bid for voluntary buyers? Is this feasible?
Product(s) to be Purchased	<ul style="list-style-type: none"> - State-defined MWh-based clean attribute products (already existing products) - New regionally-defined products (ex. PJM-REC) broad eligibility, renewables only) - Clean Energy Attribute Credits ("CEAC") - Carbon abatement attribute product - Multiple products (some combination or all of the above) 	<ul style="list-style-type: none"> - What products will attract voluntary demand? - Challenges to carbon abatement products? Ex) The market is not well-established, and the abatement quantity will depend on other resources operating during the specific time period There is no consensus yet on how that should be calculated.

	<ul style="list-style-type: none"> - States certify/approve eligible resources for each product and provide that information to EIS 	
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. Regionally defined products to be updated consistent with expressed interest of state authorities and voluntary buyers. 	-
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 Clean Capacity Credit. - Streamline participation in FEAM for resources that also offer into the RPM, reduce the steps/hurdles for participation. 	<ul style="list-style-type: none"> - Ensure that the market is developed flexible enough to allow for the evolution of products (specifically, future CCC procurement capability or ability to evolve into ICCM-like structure).
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- or retail 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. 	<ul style="list-style-type: none"> - What options are critical to attract voluntary demand? Ex) Is there a desire to specify "new" resources? Ex) Is there a desire for multi-year price-lock?
Participation Considerations for State-Authorized Demand Participants	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - How can procured attributes be transferred from sellers to buyers? - What is the timeline for settlement and true-up? - Are transactions bilateral or are there intermediaries? - Would attributes for cleared resources be transferred to a central clearing account then disbursed?
Supply		
Eligible technologies	<ul style="list-style-type: none"> - State determined (for state-defined products) - Different for each product 	
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. 	

	<ul style="list-style-type: none"> - Sellers have the option to offer a separate (lower) price if clearing under a multi-year commitment - Sellers in the FCEM will be supported with streamlined participation in the subsequent RPM auction. FCEM sellers will have the opportunity to restate their RPM capacity market offer prices based on FCEM auction outcomes (within market monitoring and mitigation limits). 	
Eligibility		
LSE Self-Supplier under State-Authorized Demand	<ul style="list-style-type: none"> - Regional market to include provisions to enable competitive retailers and LSE self-supply to meet any state-authorized demand bids. 	
Voluntary LSE Demand	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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). 	<ul style="list-style-type: none"> - How far along must a planned resource have progressed to participate? Ex) signed GIA. - Should there be differentiated credit requirements for planned resources?
New Resource Supply	<ul style="list-style-type: none"> - New resources eligible for multi-year price lock-in. 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. 	<ul style="list-style-type: none"> - Set the Parameter for Price-lock. Ex) begin with 15-year term for MWh-based products, decline by one year per every two annual auctions
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. - Any actions of abuse or manipulation referred for FERC enforcement actions and reported to state agencies. 	<ul style="list-style-type: none"> - What if not FERC jurisdictional? Who enforces market power mitigation? Structurally, is there market power concerns in this type of market? - Should there be an IMM-like structure? What can states do with this information? - Who measures market competitiveness?

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. 	<ul style="list-style-type: none"> - What is the appropriate “forward” structure (ex. Soon prior to RPM, 3-years forward)
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. 	<ul style="list-style-type: none"> - Is any locational/deliverability guarantee needed to make the market attractive? (in addition to in-state compliance requirements)
Administrator and Governance	<ul style="list-style-type: none"> - PJM affiliate/subsidiary (non FERC jurisdictional) - Separate entity (similar to RGGI) 	