

A New IMAPP Proposal



NEPOOL IMAPP Meeting
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RENEW Disclaimers

- ▶ The comments expressed herein represent the views of RENEW and not necessarily those of any particular member of RENEW
- ▶ The purpose of the proposal is to stimulate discussion at NEPOOL on new ideas to incorporate state public policy goals into the ISO-NE markets. It does not reflect an opinion on state laws on the procurement of clean energy

Overall Objectives

- ▶ Create a Forward Clean Energy Market (“FCEM”) that will allow market based procurement of new non-emitting MWhs of energy and environmental attributes to meet state policies
- ▶ Create a value to monetize the contribution from existing non-emitting resources to meeting state environmental policies and insure that such resources remain in the market

Major Features of the FCEM

- ▶ Demand created through “state” bids specifying price and quantities
- ▶ Held on a three-year timetable similar to FCM
- ▶ Long-term price lock provides revenue certainty to enable financing of new projects
- ▶ Clearing rules procure the least cost offers from new resources

*“State” bids to be refined to clarify either the state or the EDC



Demand Bids establish the “Curve”

- ▶ Each state to specify annually the quantity of carbon free MWhs they wish to procure (if any) along with a price cap
- ▶ ISO-NE to publish aggregate demand quantities in advance of the auction to send a signal to investors
- ▶ If a state demand bid clears the auction, the demand bid remains for as long as the lock-in period, e.g., a 12-15 year demand bid



State Demand Bid Preferences

- ▶ States permitted to set constraints based on resource types such as off-shore wind
 - Constraints likely to add costs to the market as it would work similar to the import-constrained zone in the FCM
 - If states put in a constraint for a specific resource type or technology, they would be responsible for the incremental cost (if any)
- ▶ States prohibited from setting locational restrictions in their demand bids



FCEM Eligibility

- ▶ Process to qualify entry into the FCEM
 - Ensuring commercial viability similar to the FCM
- ▶ Existing non-emitting resources are ineligible
- ▶ Resources (or portions of resources) with PPAs also prohibited as they are already contracted for their energy/attributes
- ▶ All new non-emitting resources both internal and external to the region would be allowed
 - Demonstration of deliverability required for external
- ▶ Like in FCM, there would be a bilateral market

FCEM Lock-In Period

- ▶ Lock-in period to be determined based on a period sufficient to enable tax-equity financing, e.g., 12–15 year range
- ▶ FCEM Resources are eligible to select up to the maximum to lock in their MWh payment rate
- ▶ FCEM Resource obligated to remain in the market for the duration of their lock-in period or else they would have to financially cover that obligation or bilateral it to someone else

FCM Insufficient to Invest in Wind

- ▶ FCM is meant to drive new resource investment decisions
- ▶ Certain policy-driven resources (e.g. wind) receive most revenues through the energy market, not the capacity market
- ▶ Even if these resources are competitive in the market overall, the FCM (even with a 7-yr price lock) cannot provide sufficient revenue certainty to drive financing
 - “If a wind resource has such a low Minimum Offer Price, why does it need a PPA... or the FCEM?”
 - Example shown on next slide

FCM Insufficient to Invest in Wind

A look at the numbers, assuming FCA clearing price of \$7.03/kW-mo

	Nameplate (MW)	FCM Qualified Capacity (MW)	Overnight Cost (\$)	Locked In FCA Base Payment (\$/7-yr)	Locked in FCA Base Payment / Overnight Cost
Combined Cycle	533	533	555,386,000	314,747,160	56.7%
Simple Cycle	338	338	285,610,000	199,595,760	69.9%
Wind	52	15.6	143,676,000	9,212,112	6.4%

Note: Nameplate, Qualified Capacity, Overnight Cost from FCA 12 ORTP Recalculation

FCEM Clearing Price

- ▶ FCEM clearing price in \$/MWh represents an all-in “fixed” attribute and energy price
 - Similar in outcome to a Contract for Differences or CFD
 - FCEM resource does not receive any revenues above that fixed price even if the LMP goes higher
- ▶ Resources that clear the auction are entitled to be paid that clearing price for all production during the commitment year
 - Only paid if they produce



FCEM Over and Underperformance

- ▶ Resource underperformance means that unit does not receive any payment for its shortfall
 - There would be a minimum threshold amount (e.g., 80%) determined on a three-year rolling average under which resources could be penalized
- ▶ FCEM resources are guaranteed to receive the clearing price for all production during the year up to 110% of their FCEM obligation
 - Overperformance above that 110% threshold can receive regular LMP payments and sell associated attributes on the open market but would not receive the fixed FCEM price for this overproduction

FCEM Attributes

- ▶ States are purchasing both energy and attributes in the FCEM and as such, the attributes would be distributed back to the states consistent with their cleared bid quantities and types
 - If a state put in a restriction for a specific technology and that cleared the FCEM, that state would be entitled to all the RECs associated with those resources that cleared that constraint and satisfied that bid
- ▶ Intention of the FCEM is not to eliminate or replace state renewable portfolio standards, but it is a complimentary system for market procurement of the RECs needed to meet the RPS

Cost Allocation

- ▶ Costs of FCEM demand allocated back to load in proportion to the state – or utility – demand bid
- ▶ How costs are allocated is not the primary focus of our presentation, ultimately it is up to the states to determine how the costs of their own mandates should be allocated



“Clear or Clawback” Mechanism

- ▶ Objective of this mechanism is to provide a “apples to apples” comparison for states to review the costs of competing FCEM resources, particularly where the states also want to meet capacity load obligations
- ▶ Permits FCM–related transmission costs to be included in FCEM bidding
- ▶ FCEM resources are required to either:
 - Obtain a CSO in the FCM or
 - Be subject to a clawback of FCEM revenues equal to the clearing price or base payment in the FCM

“Clear or Clawback” Mechanism

- ▶ If resource clears FCM, resource assumes all FCM rights and obligations and should factor FCM costs/risks and expected revenues into its FCEM bid
- ▶ If resource does not clear FCM, resource subject to “clawback” from its FCEM revenues equivalent to the FCM clearing price (or the base payment in the PFP structure)
- ▶ FCEM held after FCA qualification and prior to the FCA so estimated FCM–related upgrade costs are known to the FCEM resource

“Clear or Clawback” Mechanism

Tale of Two Wind Farms

(Simple Example for Illustration Only)

	CT Wind	Maine Wind
Net Revenue Requirement	\$44/MWh	\$25/MWh
FCM Eligibility	YES	NO
Projected FCM Clearing Price	\$6/kW-mo	\$6/kW-mo
Projected FCM Revenue (Loss)	\$9/MWh	(\$8/MWh)
FCEM Adj. Bid	\$35/MWh	\$33/MWh

FCM Mitigation

- ▶ Under existing MOPR, FCEM revenues meet all of the requirements to be considered in-market for purposes of FCM mitigation
- ▶ PPA resources cannot participate in FCEM but the expected FCEM revenues would be treated as in-market for PPA resources
 - Analogous to solar projects in MOPR review that have out-of-market MA SREC revenues replaced with Class I REC revenues that are in-market

Existing Non-Emitting Protections

- ▶ While existing non-emitting not allowed to participate in the FCEM, they provide same carbon free attribute and should be compensated in a way that allows them to continue operating
 - Over time, the net going-forward costs of existing non-emitting resources will converge to costs of new resources
 - Prevents endless cycle of purchasing new resources needed to replace retiring existing clean resources
- ▶ These resources provide the same product to meet current public policy goals

Carbon-Free Adder Payment

- ▶ Value to be determined for purposes of calculating a carbon-free adder payment to existing non-emitting resources
 - Can establish a reference unit price based on the non-emitting unit most likely to exit the market
 - Can also set a price based on today's market
- ▶ Carbon adder based on the difference between the LMP and the to-be-determined price
 - Reviewing how to determine this price, i.e., whether based on actual energy market performance or averaged monthly or yearly

Carbon-Free Adder Payment

- ▶ In exchange for the carbon-free adder, the resource agrees to keep attributes in the region, i.e., not export energy and attribute out of New England
- ▶ Design to consider value for resources and states to lock in amount of carbon-free adder for designated periods

