Forward Capacity Market
Accounting for Increasing Risk in Contracts

Abigail Krich
President, Boreas Renewables LLC

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Presentation Outline

- Forward Capacity Market background
- Impending market changes
  - FCM Redesign
  - Performance Incentives
- Implications for long-term contracting

FCM, A Timeline

- New England Forward Capacity Market (FCM) held first annual auction (FCA 1) in 2007 for capacity delivery in 2010 – 2011.
- FCA 7 held February 2013 for capacity delivery in 2016-2017
- FCA 8 to be held February 2014
  – Minimum Offer Price Rule, no price floor
- FCA 9 to be held February 2015
  – New performance incentives proposed

FCM Market Rules: Market Rule 1 Section 13
http://iso-ne.com/regulatory/tariff/sect_3/index.html

Renewables in the FCM Qualification by Type

- Biomass and hydro with pondage are conventional generators. Qualified capacity is maximum unit capability.
- Wind, solar, run-of-river hydro are intermittent generators. Qualified capacity is median output from 1-6pm summer, 5-7pm winter.
- Distributed generation not considered here

Renewables in the FCM
Historical Qualification of Intermittents

- 13 wind farms have on average qualified at 22.7% of nameplate in summer, 40.8% winter
- 8 community wind projects have averaged 5.2% summer, 15.5% winter
- 13 PV generation projects have averaged about 30% summer, 0% winter
- 199 RoR hydro projects totaled 201 MW summer, 335 MW winter qualified capacity

FCA 7 Results: http://iso-ne.com/markets/othrmkts_data/fcm/cal_results/ccp17/fca17/index.html

Renewables in the FCM Availability Penalties

- Intermittents already docked for performance, not subject to additional availability penalties.
- Other generation subject to penalty if not "available" during system shortage events.
  - No shortage events have occurred since start of market in June 2010.
  - Penalty capped at FCM revenue.
- Little to no risk of participating today.

Current Shortage Event trigger: III.13.7.1.1.1

Renewables in the FCM Past Revenue Potential

- FCA 1 to 7 all cleared at the administrative auction floor price with excess capacity
- Payment rates ranged from 4.254 to 2.336 $/kW-month
- An average 50 MW wind farm would have earned between $487k and $887k per year over that period

"FCM Redesign" – FCA 8
No Floor Price

- FCA 8 will be the first auction without a floor price.
- Widespread speculation that auction will clear under $1.00/kW-month
  - Avg 50 MW wind farm revenue < $170k
- Many renewables may be shut out of the FCA
  - Unless an individual new renewable project is approved to offer below $1.00/kW-month, it will not clear.

"FCM Redesign" – FCA 8
Minimum Offer Price Rule

- FERC ordered buyer-side market power mitigation known as the Minimum Offer Price Rule (MOPR)
- Prevents buyers from subsidizing uneconomic entry in order to suppress auction clearing price

Resource Type	Offer Review Trigger Price ($/kW-month)
Combustion Turbine	$10.00
Combined Cycle Gas Turbine	$11.00
Biomass	$24.00
On-Shore Wind	$14.00
Real-Time Demand Response	$1.00
Energy Efficiency	$0.00
All Other Resource Types	Forward Capacity Auction Starting Price

“FCM Redesign” – FCA 8

- MOPR does not apply to reconfiguration auctions or bilateral transactions, leaving some room for trading into the market if shut out of the FCA.
- FERC encouraged ISO to develop a renewable resource exemption from the MOPR given the large number of stakeholders that supported this concept.
  - Won’t be in time for FCA 8
  - Will likely have to include a sloped demand curve

Performance Incentives – FCA 9

- ISO is proposing to implement strong incentives for capacity resource performance during times of system stress (scarcity events).
- Resources over-performing their capacity obligation during event would be paid an extra $5,000/MWh.
- Resources under-performing would be penalized $5,000/MWh.
- Initially no penalty cap, but ISO is now developing a stop-loss provision.

FCM Performance Incentives White Paper: http://www.iso-ne.com/committees/comm_wkgrps/strategic_planning_discussion/materials/fcm_performance_white_paper.pdf

Performance Incentives – FCA 9
The Concept

- Conceptually, the strong incentive allows existing resources to justify spending money on upgrades, fuel supply, and staffing to improve performance.
- Conceptually, the incentive structure encourages development of new capacity that is efficient (likely to be dispatched) and flexible (can respond when event occurs).

Performance Incentives – FCA 9
The Concern

- Intermittents cannot pay any amount to increase the wind/sun/water when events occur.
- All they can do is price the risk of under-performance into auction bid prices.
- Very uncertain, variable risk makes it hard to price.
- If MOPR didn't drive all wind and solar out of the market, this **may** finish the job.

Performance Incentives – FCA 9
The Silver Lining

- Generators with no capacity obligation that produce power during events will receive incentive payments.
- Resources that exit the market will still get paid something.
- Resources that were never able to get into the FCM in the first place due to transmission bottlenecks will finally have revenue opportunity.

How This Impacts Long Term Contracts RI

- Block Island Wind amended PPA
  - Reduces energy payment rate by amount seller receives from FCM.
  - If not qualified or cleared, reduced by amount seller would have received had it cleared.
  - How do performance incentives fit into this construct? Can amount be negative if seller loses money or would have lost money in the FCM?
- Orbit Energy PPA (biogas)
  - COD, and obligation to purchase Products under the PPA, does not occur until unit clears in an FCA.
  - What if MOPR prevents unit from clearing?

How This Impacts Long Term Contracts MA

- 2010 MA RFP - NSTAR purchased capacity from Bull Hill Wind contingent on project
  - qualifying for FCM (which it hasn't yet) and
  - bidding in (is there a clearing requirement?).
- 2013 MA RFP - Capacity not an eligible product
  - Threshold requirement for project to commit its capacity to New England market exclusively.
  - Draft PPA not released yet.

How This Impacts Long Term Contracts ME

- 2008 ME RFP purchased capacity from Rollins Wind.
  - Rollins must pay market value of its capacity until it qualifies at which time it must pass capacity revenue on.
  - What is market value under performance incentives?
- 2010 ME RFP purchased capacity from Verso Bucksport (biomass) in financial transaction.
  - Verso pays 10% of capacity clearing price for 30 of 60 months of initial term, 5% for all of second term.
  - Must use commercially reasonable efforts to qualify capacity in FCM.
- 2012 ME RFP says resource should be likely to be recognized as capacity within FCM or else provide significant benefit if not so recognized.

MA Class I RPS
225 CMR 14.00

- If capacity factor is >50%, unit must attempt to qualify and <u>must clear</u> in the first FCA for which it has qualified
- Problematic under both MOPR and Performance Incentive market rules

BOREAS RENEWABLES

Questions?

Abigail Krich

Boreas Renewables

Krich@BoreasRenewables.com

www.BoreasRenewables.com