WIND ENERGY'S ROLE IN THE NEW ENGLAND FORWARD CAPACITY MARKET

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WIND IN NEW ENGLAND

223 MW installed and 106.5 MW under construction at the end of 2009 (80% in Maine). Approximately 4,000 MW in the interconnection queue in early 2010.

New England Governors’ Renewable Energy Blueprint estimates at 10 GW of potential, even with siting constraints.

New England Wind Projects

Wind in northern Maine must import into ISO-NE through New Brunswick to participate in FCM.

Options and Requirements

The Forward Capacity Market (FCM)

Forward nature of the market intended to incentivize new capacity development and allows new capacity to set the market price.

The only U.S. energy-only market. High energy price caps (around $3,000/MWh) and an energy-only market, extremely volatile. (2009)

Prior to Commercial Operation

• Project submits claimed capacity rating based on measured and recorded site-specific data.
• ISO-NE reviews for reasonability.

After Commercial Operation

• Summer seasonal rating: median of net output from 1:00pm - 6:00pm and system shortage events.
• Winter seasonal rating: median of net output from 5:01pm - 7:00pm and system shortage events.
• Qualified capacity updated each season by averaging five years of seasonal medians or project lifetime if less than five years.

PJM Reliability Pricing Model (RPM)

Three year forward resource adequacy requirement, downward sloping demand curve determines required reserve margins as a function of capacity prices, centralized, locational market, demand and transmission compete with generation. (Initial market implementation in 2007)

MSO Fixed resource adequacy requirement, voluntary centralized market (not a forward market), extremely volatile. (2009)

NYISO Unbundled Capacity Market (UCAP) Resource adequacy standard (not forward), downward sloping demand curve, locational, centralized market, uniform clearing price. (2001)

CAISO Locational Resource Adequacy Requirement (LRAR) One year forward resource adequacy requirement, locational, no centralized market. (2006)

SPR Reserve adequacy standard (not forward), no centralized market or specific enforcement provisions. Typical style of market design in regulated U.S. power markets.

ERCOT The only U.S. energy-only market. High energy price caps (around $3,000/MWh) and an annual Pruner Net Margin cap.

PAYS AND PERFORMANCE

All resources are paid the auction clearing price times the summer kW cleared in the auction.

Wind is also paid for any additional qualified winter kW without additional action required.

Capacity payments are made monthly during the commitment period.

Wind is subject to Peak Energy Rent (PER), a reduction in capacity payments to account for energy price spikes. PER has been averaging about $0.20/kW/Month.

FCA payment minus PER may never be negative.

If a wind resource over-performs, it cannot supplement under-performing generators to alleviate their availability penalties.

If a wind project performs 25% below its upcoming capacity obligation in the previous season, it will be forced to cover that capacity through a bilateral or reconfirmation auction.

Capacity Zones

There can be import-constrained zones and export-constrained zones. Everything else is considered Rest-of-Pool.

In the 2012-2013 auction, Maine separated for the first time as an export-constrained capacity zone with a clearing price lower than the Rest-of-Pool.

For the upcoming 2013-2014 Auction, Maine has a Maximum Capacity limit of 3,187 MW.

The Maine MCL has been steadily decreasing from 3,855 MW in the 2010-2011 FCA to 3,395 MW in the 2011-2012 FCA to 3,257 MW in the 2012-2013 FCA.

EXCESS SUPPLY

The auction has cleared with excess supply at the floor price in all auctions to date and is expected to continue doing so in the near future.

All resources remaining in the auction when the floor price is reached receive a prorated commitment to account for the excess supply.

WIND RESOURCE PERFORMANCE IN PREVIOUS FORWARD CAPACITY AUCTIONS

All wind participating as generation in the first three FCA’s shown in table.

Two small turbines participated as demand response in FCA3.

Many existing community wind facilities not yet participating in FCM.

Revenue from FCA as shown is not adjusted for bilateral and reconfirmation auction transactions, proration elections, self-supply designations, or Peak Energy Rent.