

**STATE CLEAN ENERGY - ENVIRONMENT TECHNICAL FORUM**  
**Call #20: Using EE as a Resource –**  
**Lessons from the Forward Capacity Market in New England**  
**February 27, 2007, 2:00 - 3:30 p.m. EST**  
**BACKGROUND**

**I. Overview**

The wholesale electricity market in New England will soon include an auction-based capacity market that will, for the first time, permit energy efficiency and other “demand resources” to bid for payments on a comparable basis with traditional supply resources. This creates the possibility of a new revenue stream for energy efficiency; it also calls for new guidance on how to measure and verify the performance of demand resources. The responses to these path-breaking developments create many “lessons learned” opportunities for using energy efficiency as a resource.

The New England Forward Capacity Market (FCM) is a wholesale capacity market administered by ISO New England (ISO-NE) that is designed to: (a) procure enough capacity to meet New England’s forecasted demand and reserve requirements three years in advance; (b) use a competitive Forward Capacity Auction (FCA) process to select a portfolio of supply and demand resources to meet New England’s capacity needs; (c) pay the selected supply and demand resources the market-clearing price of capacity; and (d) provide a long-term (up to five-year) commitment to supply and demand resources to encourage new investment. The design was developed as part of a settlement agreement by a group of regional stakeholders and approved by the Federal Energy Regulatory Commission (FERC) in June 2006, as an alternative to the widely contested Locational Installed Capacity (LICAP) proposal.

A pioneering element of the FCM settlement is that demand resources, including energy efficiency, load management, and distributed generation as well as real-time demand response can qualify as a capacity resource along with conventional supply-side resources and be eligible to receive capacity payments. A Transition Period has been established that covers the period, December 2006 to May 31, 2010; the first FCA is expected in February 2008, with the first Commitment Period beginning June 1, 2010.

**II. Nuts and Bolts**

The objective of the FCM is to purchase sufficient capacity for reliable system operation. The quantity of capacity purchased through auction is called the Installed Capacity Requirement (ICR), which consists of the ISO’s forecast of peak loads plus adjustments for reserves and other factors. A Forward Capacity Auction (FCA) process is used to procure capacity to meet the ICR three years in advance of delivery. This three-year window provides project developers with sufficient time to complete the projects that cleared in the auction. All projects that cleared in the auction receive payments in the delivery year based upon a single clearing price set in the auction. In return, project developers must commit to providing capacity for at least one year by generating energy or reducing load during peak demand and/or Shortage Hours. Project developers that do not meet these terms are assessed penalties.

The first Commitment Year begins June 1, 2010. Capacity prices and quantities are based on the results of the FCA expected to be held in February 2008. Prior to the 2010 Commitment Year, a Transition Period has been established to cover installed capacity requirements from December 2006 through May 31, 2010. During the Transition Period, there is no demand bidding. Instead, qualified capacity – including both supply and demand resources – registers with ISO-NE and gets paid previously negotiated prices by demonstrating capacity reductions in the previous month. For State programs, the "demonstration" is showing that M&V plans were approved by the PUC. The capacity prices for the Transition Period start at \$3.05/kW-month and increase to \$4.10/kW-month.

Once the FCM begins, much greater review and scrutiny will be required by ISO-NE (per M&V Manual requirements described below).

### **III. Leveling the Playing Field for Demand Resources**

To ensure that energy efficiency and other demand resources are effectively integrated into the capacity market, rules must be established to provide fair competition with supply-side resources. Because the ICR can be met by decreasing demand as well as by increasing supply, the FCA enables developers to offer projects that reduce electrical loads, and to pay such projects the market clearing price of capacity should such projects clear in the auction. This means that energy efficiency and other demand resources receive the same price as supply-side projects such as those using fossil fuels, nuclear, hydropower, or renewable resources. The effect is to establish the market value of demand-side initiatives and serve as an incentive for project developers.

Because energy efficiency and other demand resources have not historically competed in wholesale markets, ISO-NE convened a Demand Resources Group (DRG) to provide recommendations on critical issues. The DRG addressed: (a) the Transition Period rules for Demand Resources, (b) the treatment and integration of Demand Resources in the FCM, (c) the integration of the current ISO-NE Demand Response Programs into the FCM, and (d) input to the ICR process, which sets the capacity resource needs for annual Forward Capacity Auctions, the first of which will be held in February 2008.

A wide range of organizations provided input to the DRG process, including: state regulatory agencies, Conservation Services Group (with the technical assistance from Synapse Energy Economics), Vermont Energy Investment Corporation, Environment Northeast, Regulatory Assistance Project, Conservation Law Foundation, the National Association of Energy Service Companies (NAESCO) and the Northeast Energy Efficiency Partnerships (NEEP). Traditional market participants including transmission and distribution utility companies, competitive energy suppliers, demand response providers, consumer groups, and generation companies also participated in the DRG.

#### **IV. Measurement and Verification**

During the Transition Period, each demand-side project must have an M&V Plan that addresses:

- The amount of demand reduction and its timing in relation to system peak loads
- Verification that the resource is in place
- Comparison of baseline conditions to conditions when the resource is actively reducing demand
- Measurement of demand reduction during peak load periods, and,
- Performance monitoring to ensure continued demand reduction from the resource.

For publicly funded demand-side projects, the Transition Period M&V rules require state regulatory approval and ISO-NE review of M&V documents.

To prepare for the initial FCM Commitment Period, ISO-NE staff is developing a “Manual for Measurement and Verification of Demand Reduction Value from Demand Resources.” This document is intended to establish measurement and verification (M&V) requirements for demand-side bidders on issues including:

1. Project Description
2. M&V Methodologies
3. Statistical Methods
4. Measurement of Demand Resource Project Savings
5. Data Collection, Validation and Management
6. Reporting, Independence, Supplemental Information, Project Organization
7. Special Requirements for Real-Time Demand Response and Real-Time Emergency Generation

To inform the process, NEEP has convened a “State Program Working Group” (SPWG) that is developing consensus positions on these issues. The SPWG consists of state regulatory staff, program administrators, and technical experts working in support of a recent New England Conference of Public Utility Commissioners (NECPUC) resolution to establish common, best-practice M&V standards across the region.

A final version of the ISO-NE Manual will be available in March, 2007.

## **V. Other States and Regions**

Interest in capacity markets is growing as states set record-high peak demand levels and face unprecedented resource adequacy constraints. In contrast to previous capacity market designs, the ISO-NE FCM contributes to reliability by linking performance to hours in which peak loads and/or a shortage of operating reserves occur. States and regions around the country will be watching throughout the process to determine whether the FCM effectively mobilizes new capacity resources, including demand resources.

The question of whether energy efficiency, load management, and distributed generation can establish themselves as first-priority resources for meeting capacity needs will be front and center for many observers. For this reason, the development of common approaches to M&V is of particular interest to states working to advance demand-side resources. In addition to its usefulness in regional capacity markets, common M&V methods can help states:

- Advance policies such as energy efficiency portfolio (or “resource”) standards and portfolio management approaches
- Reduce the costs of developing their own M&V protocols
- Improve the ability to model and forecast efficiency and other demand resources in regional energy systems.

Going forward, it is expected that lessons learned from the FCM experience in New England will guide the use of demand-side resources to meet critical capacity goals in other regions of the country.

## **VI. Resources**

### **ISO New England FCM Filing**

Revisions to ISO New England market rules implementing the Forward Capacity Market Settlement Agreement filed with the Federal Energy Regulatory Commission on February 15, 2007.

<http://www.iso-ne.com/regulatory/ferc/filings/2007/feb/index.html>

### **NEEP Notes, 3rd Quarter 2006**

The third quarter 2006 newsletter of the Northeast Energy Efficiency Partnerships (NEEP) covers the Federal Energy Regulatory Commission (FERC) approval of the FCM, the creation of the Demand Resource Group to develop recommendations related to inclusion of demand resources in the FCM, and requirements for measurement and verification.

<http://www.neep.org/newsletter/3Q2006/FCM.html>

### **NEEP Notes, 4th Quarter 2006**

The fourth quarter 2006 NEEP newsletter (scroll down to where it says "regional") covers continued development of measurement and verification standards for demand resources in the FCM.

<http://www.neep.org/newsletter/4Q2006/policy.html>

### **ISO New England Overview Presentation**

David LaPlante's overview of the FCM includes development of the FCM as well as nuts and bolts issues such as which types of entities and resources are eligible to participate, how the auction process works, how existing capacity will be handled, and performance requirements for participating resources.

<http://ipu.msu.edu/programs/annual/pdfs/Annual06-LaPlante.pdf>

### **Synapse Report: "Options for State Funded Energy Efficiency Programs in the Forward Capacity Market"**

The Synapse report offers an introduction to the FCM and compares load serving entities' options: to use DSM programs to self-supply capacity and reduce their capacity obligation via auction, to offer capacity in the auction, or to keep their DSM programs out of the market.

<http://www.synapse-energy.com/Downloads/SynapsePaper.2006-11.Options-for-DSM-in-Forward-Capacity-Markets.pdf>

### **NEEP State Program Working Group (SPWG) Homepage**

The SPWG page devoted to developing and proposing measurement and verification standards for inclusion in the ISO-New England Forward Capacity Market.

[http://www.neep.org/about/SPWG\\_M&VStandards.html#](http://www.neep.org/about/SPWG_M&VStandards.html#)

### **Draft M&V Manual**

Link to ISO-NE's January 23, 2007 draft manual of M&V procedures for use with the FCM.

[http://www.neep.org/about/M&V\\_draft\\_3.5\\_1.23.07.pdf](http://www.neep.org/about/M&V_draft_3.5_1.23.07.pdf)

### **ISO NE FCM Web Content**

ISO NE's website offers information about the FCM.

[http://www.iso-ne.com/markets/othrmkts\\_data/fcm/index.html](http://www.iso-ne.com/markets/othrmkts_data/fcm/index.html)

### **ISO NE FCM FAQs**

ISO NE frequently asked questions regarding the FCM.

[http://www.iso-ne.com/support/faq/fwd\\_cap\\_mkt/gen/index.html](http://www.iso-ne.com/support/faq/fwd_cap_mkt/gen/index.html)

### **National Action Plan for Energy Efficiency Evaluation Guideline**

Guideline for documenting the energy and emission savings associated with energy efficiency programs. Due out July 2007. Contact: [dietsch.nikolaas@epa.gov](mailto:dietsch.nikolaas@epa.gov)