



**State Clean Energy-Environment Technical Forum
Using Energy Efficiency as a Resource –
Lessons from Forward Capacity Market in ISO New England
February 27, 2007
Call Summary**



Participants: 53 participants from 21 states and a number of national organizations (see the participants list at <http://www.keystone.org/html/documents.html>)

Key Issues Discussed

- Development of forward capacity market in ISO-New England and inclusion of demand resources in auction
- Development of the measurement and verification manual for demand resources in the FCM
- Challenges and opportunities of participating in the transition period of the FCM
- Application of the M&V and FCM concept to other state policies that solicit demand resources.

Summary of Presentations

Note: All of the presentations from this call are available for download at <http://www.keystone.org/html/documents.html>. Please refer to these documents for additional detail on the presentations.

A. Welcome: Sue Gander, U.S. Environmental Protection Agency (EPA)

- **Energy efficiency has been getting a lot of press lately.** We have recently seen the “greening” of the Oscar Awards and the TXU buyout. While saving money and reducing emissions are still important, energy efficiency is being viewed increasingly as a “resource” similar to conventional supply that can help us meet our increasing energy demand.
- Today’s discussion addresses how **the electricity market in New England recognizes energy efficiency as a resource.** You will also hear about **measurement and verification (M&V) guidelines**, which will be key to the market’s ability to accommodate energy efficiency as a resource.
- EPA is working on several different products to assist the M&V effort, including
 - **the National Action Plan on Energy Efficiency**, which is a model guide for utilities on how to evaluate net energy savings on natural gas and electricity efficiency measures. Individuals from the California Public Utility Commission and the Iowa Public Utilities Commission are co-chairing the development of the model guide. EPA is also assisting in the creation of a technical advisory group to inform that process.

B. Overview: ISO-NE Forward Capacity Market (FCM) for Demand Resources – Henry Yoshimura, ISO-NE

- ISO-New England (ISO-NE)
 - ISO-NE is an independent operator that provides energy for New England by dispatching load to meet demand in real time.

- ISO-NE also implements and runs the regional wholesale power market
- Background
 - **The FCM is a way to procure capacity to meet energy demand and reserve requirements 3 years ahead of time.**
 - The current version of the FCM was developed through a stakeholder process which resulted in a settlement agreement on March 6, 2006. **The Federal Energy Commission approved the concept on June 16, 2006**, and gave the go-ahead to develop detailed market rules. These market rules were filed on February 15, 2007.
 - The most important part of the settlement agreement is that **demand resources are allowed to participate in addition to traditional generation resources.** However, the settlement agreement did not give a lot of guidance about how to incorporate demand resources, so **ISO-NE and other stakeholders spent several months developing rules about how to do it.**
- **The FCM solves two basic problems** that any electricity system must ask itself:
 - What resources should I rely on to meet my requirements?
 - How much should I pay?
- ISO-NE will rely on a competitive **forward capacity auction (FCA)** to answer these questions.
- Steps in the FCA:
 - **Establish an Installed Capacity Requirement (ICR)**, which is the amount of capacity the must be purchased to meet forecasted demand.
 - **Pre-qualify participating capacity-building entities.** To protect the integrity of the auction, it is necessary to pre-qualify projects and let only those that are viable participate.
 - **Entities submit a megawatt amount and a price**, and as prices drop some resources drop out.
 - The clearing price is established. Entities at or below the clearing price commit to deliver the project. **Entities have three years to implement the project.**
 - Require **M&V to assess their performance relative to their commitment.** Give an appropriate incentive or penalty for performance.
 - To encourage investment, **give projects up to a 5-year commitment.**
- Demand resources
 - **A stakeholder process was also used to develop recommendations on the rules for participation of demand resources.** These rules were codified and then vetted and approved by the governance structures of ISO-NE.
 - In the proposed rules, **demand resources are defined** broadly and include installed measures (projects, services, practices, etc.) on the customer side of the meter that produce verifiable reduction in end-use demand (energy efficiency, load management, distributed generation, etc.). **The FCM is “technologically agnostic,”** meaning that the manner in which reductions are achieved is not of particular importance.
- Demand response performance
 - **Hours and performance requirements for demand response need to be defined in a way that ensure the resource defers or offsets the need for generation capacity.**

- **The diversity of demand response projects posed a problem in terms of M&V.** Some demand response projects are generating energy and some are reducing load. M&V for each is different but must verify that both reduce the need for capacity.

Questions

How often does the auction take place?

The auction takes place once a year for every year starting in 2010, although it will occur a little more often at the beginning.

Is the auction only for megawatt capacity or also for megawatt hour reduction?

The auction is for procuring capacity. There is not an auction for energy, but because you are consuming less energy in real time, you are avoiding the cost. The value is being captured by customers in the avoided energy consumed.

Is the auction limited to resources that are located in the New England area or can any resource that would serve the New England load participate?

Demand resources have to be located in New England. If I install load reductions in New York, there is no way to measure importation into New England. It needs to be geographically specific to the control area for which you are procuring resources to ensure long-term resource adequacy.

Those resources could be competing against energy resources that are coming in, could they not?

Yes, they could. If those requirements are reduced because of energy efficiency and you do not have to import that energy, in that sense they are directly competing. But it is not verifiable.

C. State Working Group M&V Recommendations – Julie Michals, Northeast Energy Efficiency Partnerships (NEEP)

- **Background**
 - NEEP’s report (funded by EPA), “**The Need for and Approaches to Developing Common Protocols to Measure, Verify, and Report Energy Efficiency Savings in the Northeast,**” reviewed different state M&V protocols and uncovered a lack of consistency between states in methods and data.
- **Emergence of the ISO FCM**
 - The FCM made clear the need for standardized M&V protocols.
 - During the transition period (now through 2009), **ISO-NE is relying on state approval** of M&V plans. When the FCM begins, M&V plans must meet ISO-approved written manual standards.
- **State Program Working Group (SPWG)**
 - States pooled their funds and selected a contractor to develop common protocols. States provided input on the standards to ISO-NE.
 - **Standards address:**
 - Acceptable M&V methods
 - Precision requirements
 - Baseline conditions
 - Date requirements

- Bidding net vs. gross peak demand reductions
- **Acceptable M&V Methods**
 - Methods in the ISO manual were based on the International Performance Measurement and Verification Protocols Framework (IPMVP).
 - States added assurance that there are other acceptable M&V techniques. The inclusion of load-shape analysis was a particularly helpful contribution.
- **Precision requirements**
 - The reliability of demand reduction value (DRV) is required by ISO-NE -- +/- 10% with an 80% confidence?? level around DRV.
 - States wanted to allow for aggregation of the portfolio of overall DRV values
- **Baseline conditions**
 - Although the manual outlines specific baseline conditions, baseline requirements differ under different circumstances and must account for the relationship between standard practice, code requirements, and enforcement.
 - In the end, the burden of proof is on the provider to prove how baseline conditions were determined.
- **Net vs. gross demand savings**
 - Early on, states preferred the use of net savings to bid into the FCM. Net savings account for things like free-ridership. In the end, ISO-NE decided that for the purpose of measuring capacity value, they are indifferent to attribution.
 - NECPUC resolved to bid gross savings only. The implications of these decisions are not yet clear.
- **Next steps**
 - The M&V manual is being finalized. It will be voted on by the Markets Committee on March 6th and will go on to the states in April.
 - The first auction is in February of 2008, but qualification packages with M&V are due to ISO on June 15, 2007.
 - States are completing the coincidence factor analysis and letters of interest to participate are due on February 28, 2007.

D. Vermont's Transitional Energy Efficiency Program – Chris Neme, Vermont Energy Investment Corporation (VEIC)

- **VEIC background in the capacity market**
 - VEIC was a stakeholder in the ISO demand resources stakeholder group and is part of the SPWG.
 - VEIC is a voting member of the New England Power Pool (NEPOOL).
 - December was the first month that states could submit capacity claims during the transition period. VEIC has submitted claims in December, January, and February, and has received payments on two of them.
 - During the transition period, there is a fixed price for kilowatt demand savings. In the FCM, there will no longer be a fixed price.
- **Transition period challenges**
 - In a rather short timeframe, VEIC had to wrestle with pulling together an M&V plan and getting regulators to approve it in November so they could participate in December. As part of that, they had to adjust for fact that ISO's definition of peak savings was different from those VEIC has historically used to estimate peak demand reduction.

- There was also the issue of **ownership of capacity credits**. One could imagine that once capacity savings have value on the market, there may be more than one entity that wants to claim them. ISO does not want all interested parties filing claims for the same savings. There will likely be conditions on all rebates that that state provides to customers saying that capacity credit ownership is relinquished to the state.
- **FCM M&V Requirements**
 - M&V requirements in the ISO manual are more extensive and different than VEIC has been subject to in state regulations. If VEIC were to apply those standards to all their programs, their costs would go up.
 - Because of this, there is likely going to be greater recognition and desire for regionalizing energy efficiency evaluation programs. **Regionalizing offers cost sharing and cost savings.**
 - The more we get together with other states to discuss and share ideas about how to estimate energy efficiency measures, the more we can root out problems about past approaches and reduce the transactions costs for participation in the FCM.
- **Strategy and deadlines**
 - In the first auction, **it may not be cost-effective to bid the state's whole portfolio** of savings into market because of the need to apply the new M&V standards. Vermont may focus on 6 or 10 measures that represent $\frac{3}{4}$ of the state's savings and avoid the cost of documenting the remaining 100 measures that represent the last $\frac{1}{4}$ of our savings.
- **Bidding**
 - VEIC does not currently have a contract or a budget with the state to deliver services in 2010. Without a contract, it is difficult to bid in the FCM. This means that they will need to work out several issues with regulators about how to address this.
 - VEIC might need to submit a composite bid. The way the rules were set up for the FCM, entities have to supply the same amount of capacity savings in the summer as in the winter. VEIC might want to go out and find a partner who could balance out the savings in the summer with winter savings. VEIC may want to be careful not to let its desire to participate at the maximum level dictate everything it does and influence all of its programs.
 - The **cost of new entry (CONE) is challenging as well**. If an entity bids below 75% of its cost of providing a resource, a market monitor will investigate to see if that entity is exercising undue force on market.
- **Other issues**
 - Distribution of net revenues: First, revenues cover the cost of participation. VEIC could reinvest remaining revenues in further energy efficiency and/or it could reduce the system benefit charge for customers. This has not been determined yet.
 - There may be private companies coming in and competing with VEIC for its private customers. This potential also complicates the decision-making landscape for VEIC.
- **Benefits of FCM**
 - There are potentially **significant additional revenues** for energy efficiency associated with participating in the FCM.
 - There is great **potential for partnership** with new entities. Some entities have already expressed interest in partnering with VEIC.
 - The **additional level of rigor and requirements for M&V will increase confidence** in the savings that VEIC and other entities are generating.

Questions for All Speakers

Does the M&V manual cover only capacity savings or are there M&V protocols for energy savings, too?

The manual focuses on capacity but many of the elements are applicable to energy savings as well. The manual was formulated to borrow from work that has already been conducted for the International Protocols. The requirements are more rigorous than what utilities and states currently file in their M&V plans for states. The savings have to be demonstrated for specific time periods.

VEIC's portfolio savings in Vermont focuses on different levels of accuracy for different resources. You can extract from the manual the standards and methods that are applicable to your situation, but it may not be the best model to start with for everything.

Regarding the net vs. gross demand issue, do net savings sometimes exceed gross savings?

This depends on the measure and on the program. Our analysis suggests that spillover is greater than free-ridership for some measures and programs, but not others. It really depends on the overall portfolio.

Is VEIC working with state facilities to bundle their projects and put them in the FCM?

We treat state facilities as part of our work with industrial partners, so from that perspective we would submit them as part of our portfolio submitted to ISO.

<p>NEXT TECHNICAL FORUM CALL: March 15th, from 2:00 p.m. to 3:30 p.m. ET TOPIC: Plug-In Hybrid Electric Vehicles (PHEV)</p>
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