To: Operating Committee

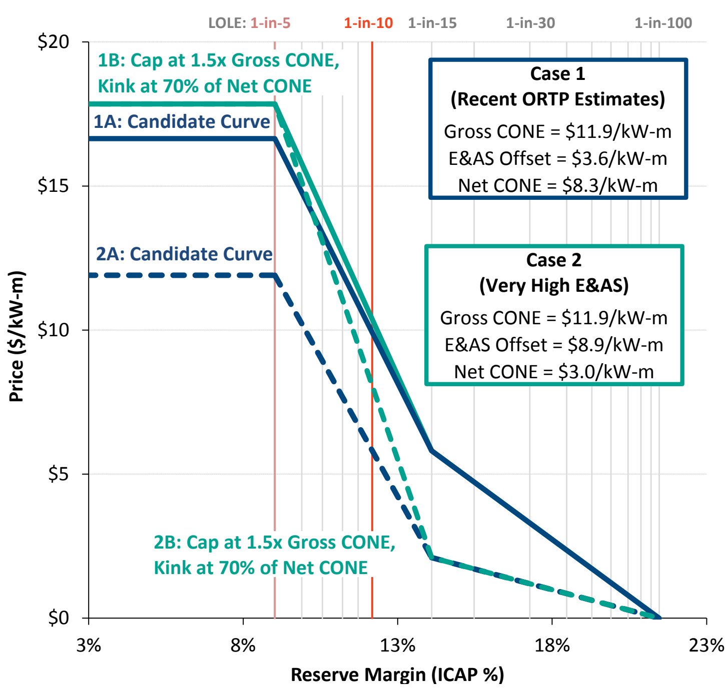
From: Frank Ettori, Director of NEPOOL/ISO-NE Relations and Power Accounting

Date: February 12, 2014

Re: Update on ISO-New England issues

Forward Capacity Market changes

In January, FERC issued an order to ISO-NE requiring New England to change the Forward capacity market to incorporate a sloping demand curve. The order requires New England to submit a compliance filing by April 1, 2014. There is significant discussions and analysis on the development of the best curve and the cost of new entry (CONE) for New England. Below are a couple examples of demand curves that are being considered for New England:



Changes to Day-Ahead Market

In an attempt to strengthen the incentive for participants to submit more load in the day-ahead-market (DAM), the ISO-NE is proposing making changes to the Net Commitment Period Compensation (NCPC) allocation mechanism. The intention of the change is to charge higher NCPC costs to customers who don't participate in the DAM, and lower costs for load that do.

Natural gas constraints cause electricity price spikes during recent cold snap

During the recent cold snap, constraints on the natural gas pipeline infrastructure caused electrical energy prices to spike and oil-fired resources to be in merit. Last year ISO-NE developed an out-of-market program to procure oil for this winter to avoid potential negative impacts of gas shortages on availability of natural gas-fired generators. During the recent cold snap, ISO-NE dispatched a significant amount of oil-fired generation because the oil-fired generators were priced competitively. Consequently, electric energy prices rose significantly and stored fuel oil was partially depleted. The ISO-NE program requires oil reserves to be replenished so the capacity will be available in the event of continuing cold weather later this winter.

To encourage better performance of generators during capacity shortages, ISO-NE recently made market changes to modify the trigger for a "shortage event." A shortage event is a condition in which ISO-NE is short on energy and reserves and financially penalizes generators if they don't perform. Historically, the trigger associated with a shortage event was the last step in Operating Procedure 4 (capacity deficiency). The last step is the step before involuntary shedding of firm load. A shortage event has never occurred based on this definition. During 2013, the trigger was changed to a much earlier action in Operating Procedure 4. On December 14, 2013 New England had its first shortage event under the new rules and financially penalized non-performing generators. The event illustrates why VELCO has protested ISO-NE's much larger pay-for-performance plan, since we believe the earlier shortage event trigger should be given an opportunity to produce results before imposing significantly larger financial penalties.

NE States ask ISO-NE for help to secure additional electric and natural gas deliveries

In a letter to ISO-NE President Gordon van Welie dated January 21, 2014, NESCOE representatives requested ISO-NE's planning and regulatory assistance to accomplish two public policy-driven initiatives: an electric transmission line that delivers "at least 1,200 MW and as much as 3,600 MW" from Canada, and an increase in natural gas pipeline infrastructure capacity to minimize constraints on the gas pipeline. These state representatives suggest that either a regional cost sharing model or a merchant transmission approach could be used for electric transmission. With regard to natural gas, NESCOE states that the "New England states preliminarily agree…that recovery of the net cost of any such procurement of firm pipeline capacity be collected through the Regional Network Services rate shared appropriately among the New England states." There is an overall economic argument that reducing the gas price disparity between NY and New England could save ratepayers during many hours of the year, not just during cold snaps. Heretofore, RNS rates have never included natural gas costs. Gas studies have indicated that constraints on the gas pipeline could occur about 30 times a year, and that a potential solution is to invest in a liquefied natural gas (LNG) converter station. Despite these findings, states appear to be more focused on building pipeline infrastructure than on the LNG option. Here is a link to the NESCOE letter:
http://www.nescoe.com/uploads/ISO_assistance_Trans___Gas_1_21_14_final.pdf

Northern Pass Proposed Plan Application approved by ISO-NE over Reliability Committee objection

At the December 19 Reliability Committee meeting, Northeast Utilities presented its Proposed Plan Application (PPA) for the Northern Pass Project. The New England PPA process applies a "no adverse impact" test, meant to ensure that a proposed project will not be a detriment to the reliability of the New England electrical grid. The Northern pass project is a 153-mile 345 kV DC line from the Des Canton substation in Quebec to the Webster substation in Franklin, NH. The 1,200 MW DC converter station will be located in Franklin. The proposal includes eight miles of underground line in northern NH and a new 345 AC line from the Franklin DC converter station to the Deerfield substation. In order to meet the "no adverse impact" test Northeast Utilities must install significant reactive resources, including 400 Mvar of harmonic filters, 350 Mvar of thyristor switched capacitors, and 120 Mvar of mechanically switched reactors (MSR).

As proposed, the Canadian portion of the Northern Pass line will share approximately 30 miles of right-of-way with the Phase II DC line and will cross the Phase II DC line. VELCO raised a reliability concern associated with this design and its potential for the simultaneous loss of both lines at a combined capacity of more than 2,700 MW, which would be the largest single contingency in New England.

On December 19, the Reliability Committee voted against the Northern Pass Project, possibly the first time the RC has voted down a project after approval by the Transmission Owners technical committees. In late December, ISO-NE issued an approved PPA to NU for this project despite the RC's negative vote. The proposed in-service date of the project is December 2017

ISO-New England moves forward with modified capacity zone modeling approach

ISO-New England (ISO-NE) has modified its earlier plan for FERC-ordered capacity zone modeling from an approach in which load zones equal capacity zones to an approach in which system topology dictates where the zones will be modeled. VT is currently identified as a load zone and, therefore, was going to be a capacity zone under the original proposal. The ISO-NE revised plan is to perform a two-step process for zonal modeling. Step 1 is to identify the potential zonal boundaries. Step 2 is to use objective criteria to determine if the zone should be modeled for the future capacity commitment period. This process will not require any additional regional capacity; it will only determine whether a specific area will be modeled and, potentially, will require localized capacity. Based on information presented so far, it appears that Vermont will be able to rely on our tielines to meet our capacity requirements, and not be modeled as a capacity zone. ISO-NE's proposed study process has caused consternation in the region. ISO-NE proposes to treat an entire generating station, rather than an individual unit, as out of service for study purposes. In locations such as downtown Boston with three generators at one station, all three would be assumed out of service, which likely would create deficiencies requiring new generation to be built. This new generation would be paid for by the local area. This feature of ISO-NE's methodology would not affect Vermont where McNeil, our largest generator, has only one unit.

Because some participants wanted ISO to study individual units out of service rather than the whole station, ISO-NE's main motion for this proposal only received 34.53% support at the

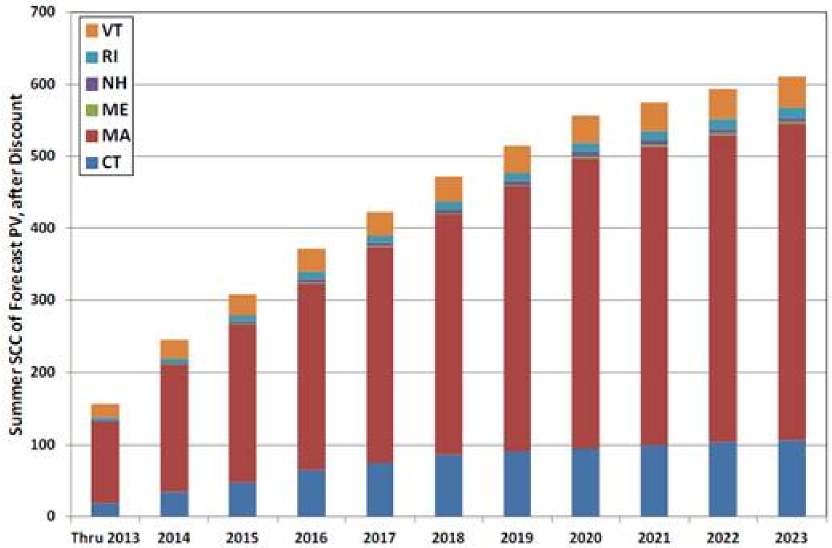
Participants Committee meeting, well below the votes necessary to pass. Since FERC has directed ISO-NE to make a change, we expect they will file their proposal despite the vote, and that, in the future, generators seeking to leave the market will be subject to a non-price retirement analysis on the entire station.

ISO-NE Distributed Generation Forecast Working Group continues work

The ISO-NE Distributed Generation Forecast Working Group (DGFWG) has convened twice since it was formed in late 2013. Prior to its September meeting, ISO-NE gathered data from the six New England states regarding the current status of DG and anticipated growth in DG. At that meeting, each state made a presentation describing the state's programs, including net metering and DG. ISO-NE led a discussion on the challenges with DG integration and the potential measures that could address these challenges. Several stakeholders urged ISO-NE to deemphasize the challenges considering the multiple benefits of DG. Based on a review of photovoltaic (PV) plant historical performance data during peak load periods, ISO-NE expressed the need to discount PV for planning purposes.

ISO-NE presented a draft DG forecast at the second DGFWG meeting, December 16. Prior to the meeting, ISO-NE gathered historical, metered, DG production data from the six New England states, as well as the states' interconnection queue data, particularly for PV projects. ISO-NE indicated that the queue data would need to be updated in the future on a quarterly basis. ISO-NE also requested information on DG tolerance with respect to frequency and voltage deviations, as well as the states' requirements relative to compliance with IEEE standard 1547, which addresses DG performance. Finally, ISO-NE asked whether the states planned to improve the interconnection standards to include a requirement for DG to ride through system disturbances.

The draft DG forecast discounts states' annual goals by 10% initially and annually increases the discount factor to a maximum of 25% for the next ten years. MWs projected to come online after current goals are reached or expire reflect discounts of 75%. The discounts are intended to reflect the perceived uncertainty in reaching state policy targets. Based on this approach, a 100 MW goal would be reduced to 90 MW in 2014. The discounted MW amount would be further reduced to 35% during summer peak periods and to 0% during the winter to reflect expected performance. Based on this approach, the 90 MW capacity would be counted in the forecast as 32 MW. Below is the proposed summer DG forecast for New England.



Summer SCC of Forecast PV, after Discount
700
600
500
400
300
200
100
0
VT
RI
NH
ME
MA
CT
Thru 2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023