ISO new england

memo

To: Consumer Liaison Group Coordinating Committee

From: Carolyn O'Connor

Date: May 5, 2010

Subject: Answers to Questions on Vermont Yankee and Kleen Energy

In response to your memo dated April 2, 2010, I am including answers to the questions raised by Mr. Craig Foley of inCharge LLC and the subsequent follow-up questions from the Consumer Liaison Group Coordinating Committee. If you have additional or follow-up questions, please don't hesitate to contact me.

Vermont Yankee

1. ***My company, inCharge LLC, has had a few questions from some of our clients about the possible effects of closing Vermont Yankee on the price of electricity. I am assuming that any effect will be proportional to how or if industrial and manufacturing demand for electricity bounces back, but I feel confident that closing 650 MW of comparatively cheap generation base load will have some effect on prices in March 2012 or earlier.***

   A variety of factors influence the wholesale price of electricity, including the availability of resources, the level of demand on the system, and the cost of the fuels used to produce electricity. See the response to question #2 describing how low-cost resources such as nuclear power can impact wholesale prices.

   While wholesale prices influence the retail power portion of consumer bills, the overall rate charged to retail electricity consumers includes other costs beyond the cost of electric energy, such as transmission and distribution charges and state incentives for renewable power and energy efficiency. Retail rates are approved by state public utility commissions.

2. ***Is the cost of Vermont Yankee generation in fact "comparatively cheap***"?

   In the New England wholesale markets, nuclear power is a low-operating cost resource and it (as well as hydro power) tends to lower the wholesale energy clearing price. Nuclear fuel is much less susceptible to price swings than other fuels, such as natural gas and oil, which combined make up 60% of the capacity in New England.

   In 2009, nuclear fuel produced 29% of the electricity generated in New England.

3. How would the closing impact Vermont's (and the region's) need for and cost of generation?

The generation mix in the state of Vermont lacks diversity in size and type. With the exception of Vermont Yankee nuclear station, generators in Vermont are relatively small. Vermont Yankee constitutes approximately 52% of Vermont's current capacity.

If Vermont Yankee is not relicensed, there will likely be an impact on the need for and cost of power. The exact extent of this need is currently under study, but ISO-NE has identified some significant challenges operating the system at times of peak load when electricity consumption is highest in the summer months. These challenges include:

- The potential to rely on more expensive generators;
- The potential for some generators to run out of merit; [1] and
- The potential for the need to shed load. Shedding load refers to the practice of disconnecting customer electric service in a limited area for a limited amount of time in order to maintain stability of the power system.[2]

At this point, ISO-NE does not have cost estimates for the above, but is evaluating system conditions without Vermont Yankee in order to develop operational strategies and long range planning solutions in the event it is required to shut down.

4. What is the overall effect on Vermont's (and the region's) transmission needs in the event that Vermont Yankee shuts down?

As part of its regional planning responsibilities, the ISO conducted a Needs Assessment for Vermont's transmission system. The Needs Assessment demonstrates that even with Vermont Yankee in operation, absent upgrades to the transmission system, under certain conditions in the future, there will be operational problems with the grid in Vermont. These problems include line overload, low voltage, and loss of load. They are exacerbated and extend to other areas of the region without Vermont Yankee.

A Solutions Study is currently underway and is expected to be complete by the end of 2010. This study will identify cost effective transmission solutions to the problems identified in the Needs Assessment. New generation, transmission and demand-side

[1] "Out of merit" refers to generating resources that are dispatched for reliability purposes although the costs of providing energy or reserves from these resources exceed the market clearing price.

[2] The ISO has the responsibility and authority in the event of unusually low frequency, equipment overload, capacity or energy deficiency, unacceptable voltage levels, or any other emergency that ISO New England deems appropriate in an isolated or widespread area of New England, to shut down power supplies. The objectives in establishing these emergency actions are to: 1) minimize the effect on customer service; 2) restore the balance between customers' load and available generation in the shortest practicable time; 3) minimize the risk of damage to equipment. *ISO New England Operating Procedure No. 7, Action in an Emergency*, http://www.iso-ne.com/rules_proceds/operating/isone/op7/op7_rto_final.pdf

resources that have made commitments to the region through the Forward Capacity Market will be analyzed as components of the potential solutions.

5. ***Would the transmission needs be reduced by additional generation and energy efficiency, if so to what extent?***

   The Solution Study that accompanies the Vermont Needs Assessment will have further insight on this. It is expected to be released by the end of the year.

6. ***What effect, if any, does the recent power contract between Hydro Quebec and Vermont have on the projected impact of losing the generation provided by Vermont Yankee?***

   As noted above, Vermont Yankee is currently a large portion of the generating capacity in Vermont. Contracts for power with Hydro Quebec are also significant resources for the state and the region. If Vermont Yankee is not relicensed, the Hydro Quebec resources will likely become an even more critical element of the state's resource mix.

   It is important to note that there are two aspects of any power agreement with Hydro Quebec. First is the financial arrangement which may have an impact on the cost of power in Vermont. The second is the physical flow, or point of delivery of power into the ISO-NE region. In addition to providing energy to customers, this can provide grid stability and help maintain reliability. ISO-NE is currently studying the impacts of Hydro Quebec contracts on the future of the power grid, both with and without Vermont Yankee in the mix.

Kleen Energy

7. ***What will the impact be on prices in New England?***

   The explosion at the Kleen Energy plant has no current impact upon wholesale prices in New England as it was under construction and not in-service. However, the plant does have a capacity supply obligation beginning June 1, 2011. If the plant does not come on-line in time for its capacity obligation, for the short term, it can procure a substitute source for their obligation through the reconfiguration auctions or through a bilateral agreement.

   The ISO does not speculate on future wholesale market prices.

   According to Kleen's Quarterly Progress Report filed with the CT Siting Council on April 15, 2010, the facility is "estimating a substantial completion/turnover of the facility on April 2, 2011. This schedule targets commercial operation in April of 2011 and is currently based on milestones which incorporate known damage at this time."

8. What will the impact be on supply in New England?

With over 32,000 MW of capacity, New England has sufficient capacity resources to meet its electricity needs. Kleen Energy is new efficient natural gas-fired technology and is expected to be a provider of relatively low-priced energy in the region.

9. Will this reduce investment in generation?

Though not all of the proposals in the ISO's development queue will necessarily be built, there are over 9,000 MW of potential new resources seeking to connect to the New England transmission system. Most of these projects are in the form of natural gas and wind generation.

10. Will the region focus more on transmission and energy efficiency?

Pursuant to its tariff, the ISO has an obligation for providing a backstop transmission plan in the event that private developers do not pursue new generation, increased energy efficiency or sources of imported power. Through the first three Forward Capacity Auctions, we have seen a tremendous amount of demand-side resources selected to meet future electricity needs. In addition, the states have been working to promote and increase energy efficiency through various state programs. Through the Regional Energy Efficiency Initiative, the ISO is working with the states to identify and better understand the magnitude of these programs.