



Testimony of ISO New England

Energy & Technology Committee

March 15, 2011

Good afternoon Chairman Fonfara, Chairwoman Nardello and members of the Energy and Technology Committee. My name is Anne George. I am Vice President of External Affairs and Corporate Communications for ISO New England.

I appreciate the opportunity to appear before the Committee. My testimony is focused on just two provisions of Senate Bill 1, *An Act Concerning Connecticut's Energy Future*.

***"Independent" System Operator***

By way of introduction, the ISO is the "independent" system operator for New England's electric grid and we perform three key services for the region. First, we are responsible for the day-to-day reliable operation of the power system. We take reliability very seriously and it is our first priority. Second, we administer open, non-discriminatory, competitive wholesale electricity markets for energy, capacity and ancillary services, and we provide internal and external market monitoring of the wholesale markets. And, third, we conduct long-term system planning for the six-state region. We are regulated by the Federal Energy Regulatory Commission (FERC) and governed by an independent board of directors.

The ISO is like the air traffic controller of the power system; we operate the electric grid, but we do not own generation or transmission or other power system resources. We develop and administer *wholesale* markets for buyers and sellers of electricity, but we take no financial positions in the market.

Our employees are governed by a code of conduct that prohibits us from having a financial interest in the companies participating in the wholesale electricity market.

***Openness and transparency***

There is a great deal of openness and transparency surrounding the role we perform for the region.

We oversee a robust and open stakeholder process for developing the region's market rules and planning the transmission system. The process includes active participation by a diverse set of market participants and state regulators, including the Connecticut Department of Public Utility Control, the

Office of Consumer Counsel, the Department of Environmental Protection, and the Energy Advisory Board. And the opportunity for stakeholder input continues in proceedings at the FERC whenever we file market rule or other changes to our tariff.

The ISO's governing documents, market rules, operating and planning procedures, information policy, code of conduct, and other aspects of our federally-approved tariff are posted in the public domain on the ISO website: [www.iso-ne.com](http://www.iso-ne.com).

### ***Outreach to states***

In addition to the stakeholder process, we have an active program to engage state policymakers and regulators through meetings with ISO subject matter experts, senior management and our board of directors. We meet with the states individually and through their regional organizations—including the New England Conference of Public Utilities Commissioners (NECPUC), the New England States Committee on Electricity (NESCOE), the New England Consumer Liaison Group (CLG), and the New England Governors' Conference Power Planning Committee (NEG-PPC).

I would like to comment on two study provisions in the bill.

### ***Repowering study***

Section 76 directs a new Department of Energy and Environmental Protection (DEEP) to study the repowering of some or all of the state's coal- and oil-fired generation facilities built before 1990. This is an area where the ISO has performed analysis that may be useful. The ISO does not make projections about when a generator will (or should) retire, but our planning process does provide tools to help policymakers and stakeholders in the region evaluate different retirement scenarios.

Approximately 40% of the oil-fired capacity in New England is in Connecticut, and, of that amount, 90% (about 2,500 MW) was put into service prior to 1990. Connecticut also has more than 500 MW of coal-fired capacity built prior to 1990.

Oil units make up more than 20% of the installed generating capacity in New England. Yet, in 2010, those units produced only one half of one percent (0.5%) of the electricity in the region. These units are facing significant economic and environmental pressure to retire. Competition from newer natural-gas-fired generators has largely displaced oil-fired generation in the energy market; capacity prices in the region have been declining; and upgrades to the transmission system, particularly in Southwest Connecticut, have reduced the need to commit these units for reliability. The retirement of older fossil units, while it would help achieve environmental policy goals, raises fuel diversity concerns, especially if the region were to become more dependent on natural gas for power generation. This issue is emerging as a major focus of our long-term strategic planning discussions with stakeholders in the region.

In 2010, we published results of a scenario analysis that looked at retiring or repowering older coal-and oil-fired generators in New England in the 2030 timeframe. The study was performed at the request of NESCOE on behalf of the New England Governors. The study results show significant reductions in NO<sub>x</sub>, SO<sub>2</sub> and CO<sub>2</sub> in scenarios that replace older coal- and oil-fired generators with efficient, natural gas-fired

generation. The study results also show the changes in production costs and wholesale electricity prices for the repowering and retirement scenarios. The complete results of the 2009 study are available in the report, *New England 2030 Power System Study: Report to the New England Governors*, February 2010, which is available on the ISO website. We are finalizing a second scenario analysis that looks at replacing all older carbon-heavy coal- and oil-fired generators in the region with either natural gas or renewable resources.

We would be pleased to make the results of these scenario analyses available to the Committee and to the DEEP. The State of Connecticut has an opportunity to provide meaningful and timely input to the strategic planning we're doing with regional stakeholders, and we would welcome your input in this process.

### ***ISO study***

Section 73 would require DEEP to initiate a study of the impact of the ISO on Connecticut ratepayers.

We firmly believe that participation in a regional power system brings significant overall benefits to Connecticut, including benefits from the wholesale market design. Nevertheless, we recognize that some people take a different view on the benefits of markets. At this point, it appears that the legislature may need to pursue a study to resolve this issue. As such, the ISO does not oppose this provision of the bill.

We believe, however, that such a study should consider the broad scope of services provided to Connecticut and all of the states, which extend beyond Market Rule 1, including, but not limited to, operating the power system, managing system reliability in compliance with mandatory federal reliability standards, protecting against system contingencies by maintaining operating reserves, managing transmission interfaces with neighboring regions, providing settlement services for market transactions, managing generator interconnections, and conducting transmission planning and providing for regional cost allocation for projects needed for reliability.

In 2009, the State of Maine completed a two-year investigation of the benefits and costs of participation in the regional system. The investigation was conducted by state regulators in response to a directive from the legislature. The controversy in Maine centered on policymakers' concern for their ratepayers being obligated to help fund transmission projects and capacity resources needed throughout New England. The Maine Public Utilities Commission issued a final order in June 2009 concluding that it was in the best interest of the state's ratepayers to have the state's electric utilities continue their participation in the ISO system and to continue to work within the regional process to advocate for the state's interests (*ME PUC Investigation of Maine Utilities Continued Participation in ISO-NE*, Order, June 30, 2009, Docket 2008-156). The State of Connecticut will obviously reach its own conclusions, but it may be useful for the DEEP to review the analysis of a similar effort.

We have always strived to be an information resource to the legislature and state agencies and we extend the same offer to the Energy and Technology Committee and any state agencies responsible for

energy policy, including the new DEEP. With regard to the study, we're happy to discuss the types of information we could reasonably provide in the timeframe outlined in the bill.

#### *Market benefits to Connecticut*

Improvements to the transmission system and reductions in fuel costs have reduced wholesale electricity costs in Connecticut. For example:

- Fuel-adjusted wholesale electricity prices in the region have been stable or declining since 2000.
- Wholesale electricity prices in Connecticut have aligned with wholesale prices in other states in the region, largely as a result of transmission improvements and a corresponding drop in congestion costs. Wholesale electricity prices in Connecticut were about 9% higher than the regional hub price in 2005 (prior to the transmission upgrades in Southwest Connecticut), and were less than 2% higher in 2009 (the first full year after the transmission upgrades), based on a comparison of peak prices in the Real Time Energy Market. To determine what's driving differences in retail electricity prices among the New England states would require a careful examination of the retail components of the bill. The states in the U.S. with the highest average retail electricity prices tend to have the most aggressive environmental regulations, i.e., the Northeast and California.
- The cost of operating uneconomic, or "out of merit," generators for local reliability in transmission-constrained areas has fallen dramatically in the past three years (from \$180 million in 2008 to less than \$4 million in 2010) largely due to transmission upgrades in Southwest Connecticut and Southeast Massachusetts. These costs are paid for solely by customers in the affected state, so the reduction in uneconomic commitments in Connecticut means savings for Connecticut ratepayers.
- Reliability agreements with generators and emergency resources totaling \$300 million in 2007 ended by June 2010 with the beginning of the Forward Capacity Market commitment period. The costs of those agreements were paid for solely by Connecticut ratepayers.

#### *Uniform Clearing Price*

Because the focus of the study in Section 73 is on Market Rule 1, I'd like to briefly explain why it is that use this approach.

The ISO dispatches the lowest priced generation in each hour to serve the region's demand for electricity. The offer prices of all generators are stacked low to high and the lowest priced resources are dispatched first. The market clearing price is determined when supply matches demand. All generators that offer below the clearing price are considered "economic" and are paid the clearing price. Generators that offer above the clearing price are considered "uneconomic," do not get dispatched and do not get paid in the energy market. This approach, known as the uniform clearing price (UCP), is the same model used in every wholesale electricity market in the United States.

The objective of the UCP approach is to have each resource offer to sell electricity at its marginal cost of production, which minimizes the total cost of producing electricity. The UCP approach ensures that the lowest priced, most efficient resources are always dispatched first. For example, the newest, most

efficient natural-gas combined cycle unit is always dispatched ahead of an older, less efficient oil-fired generator. A resource with low operating costs, such as a wind plant, is dispatched ahead of a resource with high operating costs, such as a fossil-fired generator.

Some people suggest that we should adopt a “pay-as-bid” approach, but generators would change their bidding behavior under that model and we believe it could actually raise overall production costs.

The wholesale market design allows you to immediately capture the benefits of lower prices when a more efficient resource is available to produce electricity, or when there is a drop in fuel prices. (A cost-of-service system, by comparison, is tied to a fixed set of resources that may become uneconomic in the market.) It also provides an important signal about the need for investment in new resources; a new resource that could offer below the existing marginal price would be economic in the market and would drive down the wholesale price of electricity by displacing an existing, less efficient resource in the bid stack.

The wholesale markets do not guarantee that all resources fully recover their fixed and variable costs, but do provide opportunities for resources to compete to provide the services the region needs for a reliable power system. A resource with low variable costs (i.e., fuel costs), such as wind, nuclear and coal plants, tend to have very high fixed costs (i.e., capital costs) and the energy market provides an opportunity to recover some, but not all, of those fixed costs. Resources with high variable costs, such as natural gas and oil-fired generators, recover less of their fixed costs through the energy market.

It’s important to understand that the interaction of the different wholesale electricity markets is designed to protect consumers. For example, when energy prices are high, the market includes a mechanism to offset (reduce) capacity payments to resources so that consumers are not required to pay the full capacity price on top of paying high energy prices.

### ***Conclusion***

In conclusion, we would be pleased to share the results of our analysis as it relates to the Committee’s objective to evaluate the repowering of older fossil generators. And, we believe the proposed study of the state’s participation in the regional system could help resolve the Committee’s questions about the region’s wholesale electricity market rules.

In addition to my written testimony, I have provided copies of a background presentation with highlights of the electric system in Connecticut and the region.

Finally, I would like to extend an invitation to each of you to drive up to Holyoke for a tour of the main control center. I think you would find it a truly valuable experience to see first-hand the operation of the region’s electric system.

Thank you.

I would be happy to take questions.