

## MEMORANDUM

October 19, 2009

**TO: Thomas Congdon, Chairman, New York State Energy Planning Board**

**FROM: Stephen G. Whitley, President and Chief Executive Officer**

**RE: Comments on the August 2009 Draft State Energy Plan**

### **I. Introduction**

The New York Independent System Operator (NYISO) is pleased to submit these written comments on the Final Draft of the 2009 State Energy Plan (Plan or Draft Plan) issued by the New York State Energy Planning Board (Board) on August 10, 2009.

The NYISO performs three primary functions for New York's bulk electric transmission system under tariffs approved by the Federal Energy Regulatory Commission. First, we operate the bulk electric transmission system to maintain reliable electric service across New York 24-hours-a-day, 7-days-a-week, 365-days-a-year. Second, we operate New York's competitive wholesale electricity markets and provide transmission service to all entities that wish to move power on the system on an open and non-discriminatory basis. Third, we plan for the future of the New York bulk electric transmission system to reliably interconnect new resources and assess the adequacy of resources to meet future electricity needs in compliance with applicable reliability criteria. Beginning this year, our planning responsibilities include a new process to address transmission congestion on the high-voltage transmission system and to assess the economics of potential projects to relieve that congestion.

Given this range of electric system responsibilities, the NYISO stands well situated to provide objective data and informed analysis on key energy issues facing New York State. The collaborative development of the State's current RPS provides a good model for coordinating the implementation of

a long-term statewide policy objective with the NYISO's competitive wholesale electric markets. In conjunction with the RPS process, the NYISO developed a centralized wind forecasting system and integrated the wind generating resources into our security-constrained economic dispatch. These systems improve the reliability of the grid and the economics of the existing wind resources when the transmission system is constrained. The NYISO has also conducted a detailed two-year long study to assess the reliability impacts of additional wind generation in the State. Similarly, the NYISO collaborated with the PSC and NYSERDA in the development of the State's Energy Efficiency Portfolio Standard (EEPS) to reduce energy consumption by 15 percent of forecasted levels in 2015. The NYISO also participated with the PSC, the Department of Environmental Conservation and various other stakeholders throughout the northeast to develop the Regional Greenhouse Gas Initiative (RGGI), a first-of-its-kind, regional cap-and-trade program that relies on competitive auctions and competitive secondary markets to reduce carbon emissions from the power sector.

The NYISO has contributed to the formulation of this draft State Energy Plan in several ways. The NYISO has met with the Energy Coordination Working Group and many of its members, submitted written comments on November 26, 2008 and May 15, 2009, and provided technical modeling data and analysis to NYSERDA and the Public Service Commission to support the Plan's Electricity Assessment. Finally, the NYISO made a public statement to the Board regarding the Draft Plan on September 15, 2009 in Albany.

## **II. Summary**

As described below, the NYISO supports the overall objectives and the five core strategies enumerated by the Board within the Draft Plan (Points A-E). In particular, the NYISO affirms the Plan's commitment to competitive wholesale energy markets as the most effective way to balance the State's environmental, economic and energy goals. The competitive marketplace for electricity provides a sound foundation to achieve the State's public policy goals of reduced greenhouse gas emissions and improved environmental quality, while creating new jobs, encouraging investment, and

maintaining the reliability of the bulk electric system at a reasonable cost to consumers. The Board should bear in mind that competitive electricity markets are regional in nature. The Plan should acknowledge that the NYISO's broader regional markets initiative will allow New York improved access to lower cost energy from surrounding regions, and will allow greater amounts of renewable resources to be integrated into New York, while reciprocally allowing neighboring areas to benefit as well.

Consistent with the goal of balancing environmental, economic and energy needs, the Board should reconsider and clarify the Draft Plan's assessment and discussion of the Indian Point nuclear power plant re-licensing proceeding. The NYISO is concerned that the Draft Plan understates the importance of the Indian Point facilities as a grid resource from reliability, environmental and economic perspectives. The Draft Plan's suggestion that the Indian Point nuclear power plants can be retired and replaced with a limited amount of combined-cycle gas turbine capacity combined with energy efficiency does not appropriately address the operational and reliability requirements of the transmission system, as well as the environmental impacts and the regulatory and financial obstacles associated with siting, constructing and operating new generation resources in the Lower Hudson Valley (Point F).

The Plan should clarify that the actual achievement of EEPS programs will be adequately measured and verified (Point G). Finally, the Plan should correct its description of the NYISO's interconnection study process, as discussed herein (Point H).

### **III. Comments**

#### **A. The NYISO Supports the Five Core Strategies Articulated in the Draft Plan**

The NYISO supports the overall direction of the Plan and the five core strategies it sets forth. As stated in more detail below, we agree that New York's competitive marketplace for electricity has driven efficiency gains in electricity production by, among other things, increasing plant availability and lowering the gross heat rate, which reflects improved efficiency of the generator fleet (Point B).

Competition in broader regional wholesale electricity markets is also driving efficiencies that will result in net production cost savings to the New York power system. Second, the competitive market structure is stimulating further investment to develop in-state energy supplies. Third, the NYISO agrees that further investment will be needed to meet electric system challenges in the coming years and create New York's Smart Grid (Point C). Fourth, the NYISO supports the Plan's call for stimulating innovation in New York's Clean Energy Economy and bringing the Smart Grid to fruition (Point D). Fifth, we support the Plan's call for regional engagement in achieving the Plan's objectives and, to that end, the NYISO engages in regional, interregional, and interconnection-wide planning. (Point E).

## **B. New York is Benefiting from the NYISO's Competitive Markets**

The Draft Plan expresses overall support for the NYISO's competitive energy markets and characterizes the benefits New York State receives from the NYISO's wholesale electricity markets. We agree. Competitive wholesale electricity markets have been working well in New York, and are assisting the State to achieve the five core strategies and principal policy objectives enumerated in the Draft Plan.

The NYISO markets are driving the efficient production, delivery, and use of electricity. The Draft Plan points to significant improvements in the gross heat rate of the generation fleet, reduction in emissions of greenhouse gases and other pollutants, increases in generator availability, and increased participation in demand response programs since the NYISO was established in 1999. The Plan is also consistent with the NYISO's call to reduce transmission and distribution system losses to increase efficiency, mitigate market volatility, and reduce environmental impacts. The NYISO markets also support the development of other in-state resources, such as energy storage and demand response, as encouraged by the Plan. For example, approximately 2,100 megawatts (MW) of demand response resources participate in the NYISO markets, a 200 percent increase from 2001.

Competitive electricity markets are regional in nature, and the NYISO is committed to enhancing the efficiency of electricity interchanges with neighboring electricity markets through its broader regional markets initiative. Enhanced electricity interchanges with surrounding competitive markets in New England (ISO-NE), mid-Atlantic (PJM), mid-west (MISO) and Canada (Ontario and Quebec) will allow New York to effectively integrate larger amounts of renewable energy by accessing necessary reserves and storage capability from a regional resource base. Broader regional interchanges will improve regional price convergence and interface utilization, thereby allowing New Yorkers to benefit from lower cost electricity from surrounding areas. Likewise, neighboring markets also have the opportunity to benefit from New York's participation in broader regional markets.

The Draft Plan correctly finds that the uniform clearing price (UCP) auction design of New York's wholesale electricity markets is an efficient and effective means to settle the markets and assists the State in achieving its environmental objectives. The UCP market design allows the NYISO to co-optimize the energy and ancillary services markets, resulting in the most efficient dispatch of generation resources while providing the necessary economic incentives for power plants to run as efficiently as possible. This market design ultimately drives down the wholesale costs of power. Depending on New York Public Service Commission rate treatment, wholesale power cost savings are reflected in prices consumers pay in retail electricity rates. The Draft Plan recognizes that the high electric prices in New York, which are often cited by critics of the UCP markets, reflect New York's reliance on oil and gas in our generation mix. The Plan correctly points out that New York's electricity prices were high (relative to other states and regions) prior to the development of the NYISO's competitive electricity markets, remained high afterwards, and have only recently fallen significantly due to shrinking oil and natural gas prices, as well as unusually mild weather and reduced demand. The Plan should also recognize that meeting increasingly stringent environmental requirements, while indisputably important to addressing public health and environmental needs, will also contribute to increased wholesale electricity costs in the coming years.

### **C. Competitive Markets Have Stimulated Needed Investment in In-State Electric Infrastructure**

The competitive marketplace for electricity and open access to transmission have attracted a sizeable amount of private investment and facilitated significant development of in-state energy supplies. Over 7,600 MW of new generation has been built since 2000; more than 80% of this capacity has been sited where demand is greatest -- in New York City, Long Island and the Hudson Valley. This capacity is comprised of cleaner and more efficient generating technology, which often displaces older, higher-emitting power plants. Approximately 1,275 MW of wind generation are now on line in New York (up from 408 MW in early 2008), with another approximately 7,120 MW of proposed wind projects currently in the NYISO's interconnection study process. The NYISO is completing an up-dated Wind Study to determine whether up to a total of 8,000 MW of wind generation can be reliably and economically integrated into New York's power grid.<sup>1</sup> In addition to conducting its own planning processes, the NYISO is working with New York's transmission owners on a 20-year infrastructure assessment in the State Transmission Assessment and Reliability Study (STARS).

The NYISO markets are also providing incentives for the entry of new grid resources. For example, the NYISO has recently established a market product for limited energy storage devices with very rapid response characteristics, such as flywheels and advanced batteries. This market development enables these types of new and emerging storage technologies to enter the NYISO markets to provide regulation services. While these new resources will increase competition in the regulation market, they will also assist the NYISO in meeting potential increases in system regulation requirements that may result from higher levels of intermittent resources, such as wind.

While further investment in energy resources and infrastructure will be needed, the experience of the past decade has demonstrated that transparent market price signals, combined with the NYISO's rigorous planning processes, will attract significant investment in new grid resources that benefit New

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<sup>1</sup> The NYISO will submit the detailed study and conclusions to the State Energy Planning Board for its consideration when it is completed.

York. Additionally, the NYISO's wholesale market incentives have helped to shift the risks of new investment from consumers to developers, which was one of the principal purposes of establishing competitive wholesale electricity markets. Because the regulatory siting process is a critical part of attracting investment in energy infrastructure, the NYISO supports the Draft Plan's call for reenactment of a comprehensive siting statute for new generating resources.

#### **D. The NYISO Supports the Draft Plan's Call for Innovation to Build a Smart Grid**

As the Board is well aware, markets and innovation go hand-in-hand. In the words of Thomas Edison, one of our nation's most prolific inventors, "No competition means no invention." The Draft Plan calls for incenting innovation that will build a Smart Grid and bring about New York's Clean Energy Economy. The NYISO is taking significant steps in this direction. On August 6 of this year, the NYISO, together with the New York transmission owners, filed with the U.S. Department of Energy an application for Smart Grid stimulus grants to add switchable capacitors in key locations to boost power grid voltages and reduce losses, and to add a network of phasor measurement units that will sample the New York bulk power system 30-60 times each second looking for faults, thereby helping us to avoid future blackouts.

#### **E. The NYISO supports the Plan's Call for Collaborative Regional Engagement**

Since it was established in late 1999, the NYISO has participated in broad-based stakeholder collaborative policy and planning efforts. The NYISO established inter-regional coordination agreements with its neighboring control areas in which each region expressed its commitment to work cooperatively to address and improve operations, markets and planning coordination. In 2004, the NYISO, ISO-NE and PJM entered into a regional planning framework -- the Northeastern ISO/RTO Coordination of Planning Protocol. This protocol is the basis for conducting open and transparent inter-regional planning for the Northeast power system. The most recent Northeastern Coordinated System Plan was completed in March of 2009.

Most recently, the NYISO, together with other ISOs, regional transmission organizations and planning authorities, applied for a grant from the U.S. Department of Energy to fund broad inter-regional transmission analysis that will cover the entire eastern United States and parts of Canada. The new process, known as the Eastern Interconnection Planning Collaborative (EIPC), will roll up regional and state transmission and resource plans on an interconnection-wide basis for the bulk electric transmission system. Alternative transmission options will be developed in response to resource expansion scenarios developed with input from a multi-constituency stakeholder committee comprised one-third of state representatives.

NYISO's Broader Regional Markets initiative promotes collaborative regional engagement in electricity market development that will allow New York improved access to lower costs energy from surrounding regions, and enable greater amounts of renewable resources to be integrated into New York.

#### **F. The Plan Understates the Impacts from the Retirement of Indian Point**

The Draft Plan correctly points out that nuclear power generation currently plays a significant role in maintaining reliable electric service for New York consumers. Nuclear generation provides approximately one-third of the total electric energy generated in New York annually. The Draft Plan recognizes that nuclear energy, with a low carbon footprint that is comparable to geothermal, hydropower, and wind energy resources, will play an essential role in meeting the State's greenhouse gas reduction targets while balancing the need to provide reliable and affordable energy to New York consumers. The NYISO, however, has concerns regarding the Draft Plan's assessment of the retirement of Indian Point facility. More work needs to be done before the State Energy Plan can suggest that the 2,065 MW of base load generating capacity supplied by Indian Point can be adequately and reliably replaced with 700 MW of new combined-cycle natural gas turbines in concert with full achievement of the State's 15 × 15 energy efficiency standards. The Draft Plan makes a secondary statement that 1,800 MW of replacement combined-cycle generating capacity with 30

percent of the EEPS achieved will adequately replace the Indian Point units. The NYISO is concerned that the Draft Plan does not adequately assess the electric system reliability, economic and environmental impacts of retirement of the Indian Point nuclear power facility.

### **1. Bulk Power System Reliability Issues**

Indian Point's capacity of over 2,000 MW represents approximately five percent of the New York State's total generating capacity and approximately 30 percent of the energy generated within one of the most densely populated areas in the nation (*i.e.*, Long Island, New York City and Westchester County). As the largest generating station close to the major load centers in New York metropolitan area, Indian Point provides many benefits to the electric system. It is south of largest congestion points in the New York Control Area (NYCA) transmission system, making it a critical resource to serve load centers during periods of peak demand.

The NYISO's *2009 Comprehensive Reliability Plan (CRP)* reported that the unexpected retirement or closure of Indian Point 2 and 3 nuclear power plant units would have "the greatest and most immediate impact on reliability of the NYCA system" of all the risk scenarios addressed in the study. The scenario analysis indicated that immediate resource adequacy violations would occur, and that replacement capacity of approximately 2,000 MW would be needed in southeastern New York to mitigate the adverse reliability impact. The exact amount and location of the replacement capacity required to reliably operate the grid would depend upon the transmission limitations within the vicinity of the replacement generation resources. The NYISO's *2009 CRP* conducted a risk scenario that assessed the reliability impacts from the retirement or closure of Indian Point Units 2 and 3. The retirement of just one of the two Indian Point nuclear power plant units at the end of 2013 would cause an immediate violation of the resource adequacy reliability standard in 2014. Retirement of both Indian Point units would cause a severe shortage of reactive power and gravely jeopardize system reliability, resulting in an involuntary loss-of-load-expectation (LOLE) in 2018 that is 4 days per year, or over 40 times higher than the mandatory resource adequacy requirement.

In addition to serving significant portions of the capacity and energy needs of the area, the nuclear units provide voltage support at a critical location on the grid. The voltage support provided by Indian Point Units 2 and 3 enables significant amounts of energy to flow on the transmission system from the northern and western regions of the State into the downstate load centers.

The Millwood, Dunwoodie, New York City and Long Island areas have a peak load of over 19,500 MW and a generating capacity of 17,300 MW. This combined area is dependent on importing additional energy generated elsewhere to serve this load reliably. Retiring over 2,000 MW of generation currently located within this area of the transmission system would greatly increase the need for new imported power. Further, the plant currently provides approximately 900 – 1,000 MVar of dynamic, reactive power capability which supports voltage levels in the Lower Hudson Valley region. While building increased transmission capacity into these areas could reduce the locational requirements, siting of such facilities would be contentious and time-consuming. In addition, the reactive power needs of the system would still have to be met. Further, combined-cycle generating plants totaling an equivalent capacity much less than the Indian Point nuclear units would provide less reactive power/voltage support to the transmission system. Accordingly, the Plan's statement that 1,800 MW of replacement capacity with 30 percent EEPS achieved will adequately replace the Indian Point units is not appropriate for inclusion in the Plan at this time. Any plan proposed as a reliable replacement to the Indian Point nuclear units would have to be studied in much greater detail to quantify its impact on: 1) the ability to transfer power to the downstate load centers; 2) the transfer capability of the transmission system into the area; 3) reactive power resources in the lower Hudson Valley; and 4) overall system reliability.

## **2. Wholesale Electricity Market Impacts**

Retiring Indian Point would impact wholesale electricity prices and total system production costs. Replacing a low marginal-cost resource such as Indian Point with a gas-fired facility, which has some of the highest marginal operating costs on the electric system, would almost certainly increase

wholesale electricity market clearing prices. The net increase in the total production cost of wholesale electricity would likely be passed through to retail electricity customers.

### **3. Environmental Effects**

As the NYISO noted in its *2009 CRP*, the retirement of Indian Point would significantly affect the state's ability to achieve the carbon reductions called for in the Regional Greenhouse Gas Initiative (RGGI). Beginning January 1, 2009, RGGI caps CO<sub>2</sub> emission levels initially, and then, beginning in 2015, requires a 2.5% reduction per year through 2018. Moreover, the Governor's recent Executive Order No. 24 calls for an 80% reduction in greenhouse gas emissions from 1990 levels by 2050, which the Plan acknowledges will require significant improvements to the electric generation and transmission sectors. In its 2009 CRP, the NYISO determined that the loss of just one of the Indian Point units would likely result in the need to offset increased carbon emissions of approximately 11.4 million tons annually.

### **G. Electric Energy and Demand Savings from State Programs Must be Measured and Verified.**

As stated above, the NYISO's supports the EEPS to reduce forecasted energy consumption in 2015 by 15 percent. Nevertheless, the Plan reports that while the EEPS goals are technically feasible, they will require a five-fold increase in annual energy savings in order to be achieved by 2015. Key to the Program's credibility and ability to maintain electric system reliability, however, are robust and well-executed measurement and verification programs. We agree with the Draft Plan that there is a need to evaluate, monitor and verify (EM&V) energy efficiency programs and the efficacy of expenditures. As the Draft Plan states, the "NYISO, PSC, energy firms and others all must satisfy themselves that the State can in fact rely on efficiency to carry the load the State has assigned to it." (*See* 2009 Draft Plan, p. 14.) The PSC has begun instituting EM&V protocols. As a member of the EEPS Evaluation Advisory Group, the NYISO will continue to work with the PSC and other stakeholders to formulate effective EM&V protocols.

## **H. The Plan Should Correct its Discussion of the NYISO’s Interconnection Study Process**

The NYISO manages an interconnection queue that currently lists 125 active projects representing over 27,000 MW of new transmission, generation and energy storage projects. To date, the NYISO interconnection study process has facilitated the interconnection of several thousand MW of generation and transmission resources that meet the NYISO’s minimum interconnection standards.

The Draft Plan refers to the projects that were delayed entry into the NYISO’s Class Year studies due to the failure to meet certain regulatory milestones. In order for a proposed project to enter a given Class Year,<sup>2</sup> the project must satisfy two milestones.<sup>3</sup> First, the project must have a System Reliability Impact Study that has been approved by the NYISO’s Operating Committee. Second, the project must satisfy a “regulatory” milestone which indicates progress towards obtaining necessary environmental permits or approvals.<sup>4</sup> As a result, projects that face delays in the permitting process or that otherwise undergo significant changes in equipment, size and location will take longer to qualify for entry into a Class Year.

The Draft Plan’s discussion of this process characterizes the regulatory milestones for entry into a Class Year as an impediment to the development of new resources. The milestones were created through the NYISO stakeholder process, with extensive input from developers. They serve the important purposes of allowing for the accurate and efficient allocation of the costs of facilities needed to reliably interconnect new resources, and of avoiding the dedication of resources to study projects that are not ready to move forward. The milestones also accommodate the fact that projects move through the development process at different speeds due to factors external to the NYISO process. The Plan should clarify that the regulatory milestones provide these benefits.

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<sup>2</sup> Large proposed projects undergo up to three interconnection studies under the NYISO process: the Feasibility Study, the System Reliability Impact Study, and the Facilities Study. The Facilities Study is performed on a Class Year basis for a group of eligible projects.

<sup>3</sup> NYISO Open Access Transmission Tariff, Attachment S, Fourth Revised Sheet No. 674.

<sup>4</sup> While the applicable regulatory milestone depends on the nature of the project, satisfying the milestone demonstrates that a significant step in project development has been completed.

The Draft Plan notes that projects can take 27-52 months to complete the NYISO's interconnection process. The Plan should recognize that this time frame can be greatly influenced by the choices developers make. For example, at the end of the Class Year process, developers have the option of not accepting the resulting cost allocation. A developer making this election has the ability to enter a later Class Year. Such a decision by the developer can extend the interconnection process by a year or more. One project in Class Year 2007—the project referenced in the Draft Plan as taking over 52 months to complete the study process—was a member of an earlier Class Year, but elected to not accept the cost allocation for that Class Year.

The NYISO has worked with its stakeholders to identify and implement improvements to the NYISO interconnection queue process. The Plan should recognize that stakeholders recently approved changes, subject to NYISO Board of Directors and FERC approval, that should significantly reduce the time required to perform certain interconnection studies. The NYISO continues to work with its stakeholders to develop further improvements to streamline the interconnection process.

#### **IV. Conclusion**

The NYISO supports the overall direction of the draft Plan and its five core strategies, but has concerns regarding the proposed retirement of Indian Point, and recommends changes in specific parts of the report. We remain strongly committed to working with the State Energy Planning Board as it charts a new direction for energy policy in New York State that strikes the appropriate balance between the environment, cost and energy use while maintaining grid reliability. Please contact Carl Patka at 518-356-6220 or at [cpatka@nyiso.com](mailto:cpatka@nyiso.com) with any questions you may have.