

MEMORANDUM

TO: Paul A. DeCotis, Chairman, New York State Energy Planning Board

FROM: Kathleen Carrigan, Acting Vice President, External Affairs, NYISO

DATE: November 26, 2008

SUBJECT: NYISO Comments for New York State Energy Plan

I. Introduction

The NYISO welcomes this opportunity to provide comments to the State Energy Planning Board as you address the issues critical to our energy future – reliability, environmental compatibility, and affordability. New York State is at the point where increased environmental regulation and its significant costs coincide with an historic economic downturn. The public and private sectors are striving to meet the need for greater fuel diversity and security of supply, and to revitalize an aging infrastructure despite constrained resources. By issuing Executive Order No. 2, Governor Paterson expected all the parties to come together to address the issues we face and take advantage of the opportunity to build a strong energy future.

The NYISO is strongly committed to working with the Board and the Energy Coordination Working Group, and will continue to provide technical support as the process continues. Shortly after the Governor issued the Executive Order establishing the State Energy Planning Board, the NYISO offered its assistance to the Board in the development of the State Energy Plan (SEP). Since the beginning, NYISO Executives and Staff have been providing assistance in the form of information, analysis and energy industry expertise, to the Board, its Working Group and various Task Forces on many issues, including the following: *Integration of Wind Into System Dispatch (Attachment A)*, *Fuel Diversity in the New York Electricity Market (Attachment B)*, *Transmission Expansion in New York State (Attachment C)*, Inter-regional Transactions, and Inter-regional Planning.

The NYISO's System Resource Planning staff has been actively assisting New York State Energy Research and Development Authority (NYSERDA) and Department of Public Service Staff (DPS) with their modeling efforts for the electric assessments. NYISO has provided system and forecast data based upon the most recent base case model used for its 2009 Reliability Needs Assessment (RNA). In addition, the NYISO will be performing the reliability analyses for the electric assessments using the same model employed in the RNA.¹

¹ In recent discussions with Staff, we have learned that there may have been a change of direction with respect to the use of the NYISO RNA base case model as the reference case for the SEP assessments. The NYISO expressed its concerns to the Chairman of the SEP and is working with staff in an effort to resolve this issue—while continuing to support the analytical process (Attachment D).

New York's challenge in crafting a new energy policy will be to balance reliability, environmental considerations, and the cost of electric supply needed to meet the needs of consumers and to support the growth of the state's economy. Energy efficiency and clean renewable resources can help mitigate rising fossil fuel prices and lower emissions. Improved transmission infrastructure utilizing existing rights-of-way can facilitate the full integration of renewable resources throughout the state and bring benefits to consumers while minimizing siting impacts. Advanced metering and smart grid technologies can facilitate integration of renewables and Plug-In Hybrid Vehicles (PHEV), and provide the consumers with the ability to better manage their use of electric energy. The comments below discuss these challenges in more detail.

II. The State Energy Plan Should Reflect Continued Reliance Upon the Benefits of New York's Well Functioning Wholesale Electricity Markets.

The NYISO and other organized markets have benefited consumers despite the challenges of volatile fuel markets, expanding environmental regulation, and popular opposition to necessary infrastructure projects. Since the establishment of the NYISO in 1999, wholesale electricity prices -- adjusted for fuel costs -- have declined. If the cost of fuel used to generate electricity were the same today as it was in 2000, wholesale electricity costs would be 11% lower.

The wholesale markets administered by the NYISO have fostered investments in traditional generation and renewable resources. Over 6,500 MW of new generation, mostly natural gas fired, has been built since 2000; more than 80% sited where demand is greatest in New York City, Long Island and the Hudson Valley. Over the same time period, market efficiencies have driven improvements in power plant efficiency and availability that equate to adding 2,400 MW of new generation to the New York bulk power system. By increasing availability from 87.5 percent between 1992 and 1999 to 94.4 percent between 2000 and 2007 -- resource adequacy was enhanced by the equivalent of four medium sized power plants.

ISO/RTOs' organized markets provide transparent pricing signals and non-discriminatory treatment that facilitate the participation of renewable resources. There are now 750 MW of wind generation installed in New York and over 7,000 MW in the NYISO's interconnection queue. A report issued by the ISO/RTO Council in October 2007 showed that 79 percent of the installed wind generation in North America was in ISO/RTO regions even though only 44 percent of the potential wind energy is within their footprint. (**Attachment E**). In addition to our planning and operating studies we are also in the process of designing and implementing improved wind resource management procedures and systems. See Attachment A for more details.

Moreover, the NYISO is developing market mechanisms that will provide additional incentives for the infrastructure needed to support the continued reliability of New York's bulk power system. We are working with our stakeholders on the development of a Forward Capacity Market to provide longer-term price signals for future supply and demand-side resources. In addition, we are in the process of implementing mechanisms for maintaining long term certainty for the price of delivering electricity by using financial instruments called Transmission

Congestion Contracts (TCCs).² These instruments will allow entities that expand the transmission system to receive a steady stream of revenue for their investments, making it easier to secure financing. Such mechanisms will provide incentives to build transmission because revenues from those facilities and long-term transmission price certainty can be provided to new and expanded facility owners.

Wholesale markets in New York also provide effective incentives for expanding demand response programs that can reduce electric consumption when called upon. Under the NYISO's market rules there has been a ten-fold increase in demand response available since 2000. More than 2,100 MW of demand response resources are enrolled in NYISO's demand response programs. The NYISO is continuing to improve and expand the ability of demand side resources to participate in the NYISO markets---including the energy, capacity and ancillary services markets. Demand side resources allow the power system to meet resource needs by allowing large energy consumers and aggregators to reduce consumption when cutting electricity use is more economic than adding new resources, thus avoiding the need to secure new capital investments in power plants and associated environmental emissions. During 2009, we will explore with our stakeholders whether there are additional measures that would lead to increased demand side participation. The NYISO is also participating in several initiatives of the ISO/RTO Council's Markets Committee and North America Energy Standards Board to establish standardized practices for measurement and verification, communications, and aggregation of small demand resources to enhance their participation in the wholesale markets (**Attachment F**).

The NYISO is also renewing its efforts with neighboring ISOs and RTOs to further advance inter-regional markets. We plan to implement an enhanced scheduling procedure with ISO New England in early 2009. It will include an improved reserve sharing agreement to address counter-intuitive flows during periods of reserve shortages. The NYISO is also working with PJM to improve inter-regional scheduling procedures and to develop a compatible methodology for congestion management between regions.

III. The State Energy Plan Should Build Upon the NYISO's Planning Processes.

The NYISO has had a well-established Comprehensive Reliability Planning Process (CRPP) in place for four years. The CRPP is conducted in a transparent stakeholder process that is open to all, including state agencies such as the DPS, NYSERDA and the Consumer Protection Board that have played an active role in the process. This process includes a comprehensive analysis of the reliability needs of the State's bulk power system over a ten-year planning horizon and solicits proposed solutions from the marketplace as well as regulated backstop solutions from the Responsible Transmission Owner(s). All resources: generation, transmission and demand response are evaluated on an equal basis. To date, the CRPP process has been successful in attracting market-based solutions, thus avoiding the need for the NYISO to trigger a regulated solution and lowering the risk to the State's electric ratepayers. The 2008 Comprehensive

² A Transmission Congestion Contract, or TCC, provides a means for participants in the NYISO's wholesale markets to hedge the cost of congestion to deliver their energy supplies from generation to load.

Reliability Plan (CRP) was approved by the NYISO Board of Directors in July (**Attachment G**). The next CRP is expected to be released in June 2009.

The 2009 Draft Reliability Needs Assessment (RNA), which includes the NYISO's empirical estimate of the impact of the PSC's Energy Efficiency Portfolio (EEPS) on electric demand, found that the bulk power system will meet all reliability requirements for the ten-year planning horizon through the year 2018 (**Attachment H**). There are three principal reasons for this finding: (i) the addition of more than 1,700 MW of generation resources, including approximately 800 MW of new wind capacity; (ii) a nearly 2,000 MW reduction in New York's electricity load forecasts by 2018 based upon conservative modeling of the impact of the PSC's Energy Efficiency Portfolio Standard; and (iii) a 760 MW increase in participation in the NYISO's demand response programs.

The Draft 2009 RNA also identified a number of potential risks to its finding that no new resources are needed in New York to meet forecast electricity needs at this time. These risks include a reduction in commercially available market-based projects, pace of implementation of state-sponsored energy efficiency programs, failure to complete transmission owner projects and other planning projects, design and implementation of new programs to address NOx emissions, implementation of the Regional Greenhouse Gas Initiative program, the impacts of national carbon legislation, and the unexpected retirement of existing generation units in certain critical locations. For example, the scenario which analyzed the effect of the retirement of the Indian Point Nuclear Units 2 and 3 (total nameplate capacity of 2045 MW) upon the expiration of their current operating licenses found an immediate need for replacement resources would be created, growing to severe resource adequacy violations from 2016 through 2018. Finally, the current crisis in the world financial markets, and the resultant impact on the ability to raise capital to finance new investment, is a real potential risk that has not been explicitly incorporated in the 2009 RNA. The NYISO will continue to monitor these and other relevant developments that could adversely impact the adequacy of the bulk power system in the future. We will continue to share that information with state regulators and policy makers.

In October 2008, FERC approved the NYISO's compliance filing in response to Order 890, expanding the NYISO's planning process by incorporating a forward-looking economic planning component (Congestion Assessment and Resource Integration Study—or CARIS). The NYISO plans to begin this new economic planning process in mid-2009 following the approval of the 2009 CRP, and complete the first cycle by the end of the next year. We believe that this new process will provide valuable information that will encourage market-participants to propose infrastructure improvements that can provide substantial economic benefits to consumers in New York. A detailed description of the NYISO's Comprehensive System Planning Process is appended to this document (**Attachment I**).

NYISO Planners are also providing support for a number of other statewide and regional initiatives, including:

- Conducting an updated wind integration study for New York State, that will include an analysis of energy deliverability for additional wind and Canadian hydro renewable resources;
- Providing support for the transmission planning study being conducted by the New York City Economic Development Corporation;
- Providing support for the PSC's Energy Efficiency Portfolio Standard proceeding, including analyses of potential measures to reduce losses on the transmission system;
- Participating in the "Joint Coordinated System Planning" effort to analyze potential transmission options for integration of increasing levels of wind penetration in the Eastern Interconnection;
- Participating in inter-regional planning with PJM and Independent System Operator – New England under the Northeastern ISO/RTO Coordination Of Planning Protocol; and
- Supporting the U.S. Department of Energy's 2009 Congestion Study.

IV. New York's Energy Policy Challenges and a Portfolio of Solutions.

New York faces numerous energy policy challenges in the coming years that should be addressed in the State Energy Plan. The NYISO analyzed many of these issues in the NYISO's 2008 Comprehensive Reliability Plan and in our most recent Power Trends Report (**Attachment J**).

While the current economic crisis may cause a temporary downturn in the demand for electric energy, energy usage and need for capacity will eventually resume its upward trend in New York and throughout the nation. A vast new array of consumer products will place additional pressure on power system resources. It is estimated that the average U.S. household owns no fewer than 26 electronic products. Continuing to meet increased demand in the most efficient and reliable manner constitutes a significant challenge for the state and the electric industry and argues for ongoing needs analysis and planning.

There is a high degree of fuel diversity in the facilities used for the generation of electric energy on a statewide basis. However, the downstate region, where over half of the demand is located, is heavily dependent on high cost oil and natural gas because of the stringent environmental restrictions in that region. The extreme price volatility for these fuels and their effect on wholesale and retail electricity prices has been highlighted by the events of the past year on the worldwide markets.

When the cost of natural gas and oil skyrocketed, so did the wholesale price for electricity. However, as the price for these fuels declined so too have wholesale prices. Between June and October of this year, wholesale electricity prices have decreased by 50 percent while the cost of natural gas declined by 47%. While the price for wholesale electricity has decreased and is expected to remain lower for the short term, it is also expected to increase significantly as the price of gas and oil increases with a rise in demand worldwide. The price and security implications challenge us to reduce our dependence upon these sources of fuel for electric generation in the coming years. Now is the appropriate time for NYISO and the state to start to

plan for building the infrastructure needed to bring in diverse resources to address rising costs, reduce dependence on petroleum-based fuels, and meet the state's environmental goals.

The infrastructure supporting the supply and delivery of electric energy to the residents and businesses of New York is aging and the cost of replacement is high. Over two-thirds of the generation plants in New York were built before the 1980s and the majority of the bulk system transmission facilities are over 40 years old. The last major transmission line, the Marcy-South line, was built by the New York Power Authority in the mid-1980s. The New York Transmission Owners have recognized the need to carefully evaluate the status of the state's transmission system and determine the most efficient means to continue to provide an adequate and reliable delivery system to support the economy in the future. The NYISO is providing support for the State Transmission Assessment and Reliability Study (STARS) recently begun by the Transmission Owners for this purpose.

Finally, more stringent pending and proposed environmental regulations will place increased stress on the facilities necessary to supply the electric energy needs for the State. There are many operating challenges that exist today in parts of the state during extreme weather or system outage conditions that are caused by existing environmental regulations. These will grow more critical with increased regulation. The growing concerns over climate change and other air quality issues are being debated at local, regional and national levels. The NYISO has analyzed the potential impact of such proposals on the reliability of the bulk power system in its draft 2009 RNA.

Implementation of new programs to control nitrogen oxides (NO_x) emissions from fossil fueled generators on high electric demand days could render some units unavailable and others limited to reduced output at times of peak energy needs. If such limitations curtailed the availability of up to 1,231 MW of high emitting combustion turbines and up to 1,739 MW of load following boilers, it would result in violations of the resource adequacy criterion within the planning horizon. Moreover, if it is assumed that the implementation of new emission controls, such as Reasonably Available Control Technologies (RACT) would occur, it is reasonable to expect that up to 25% of affected units would not retrofit to meet the requirements, resulting in up to 3,125 MW of capacity no longer being available to meet peak load conditions. If such circumstances arise, the resource adequacy criterion would be violated for all years from 2009 through 2018.

With respect to the Regional Greenhouse Gas Initiative (RGGI), the NYISO has conducted analyses which demonstrate that if the new RGGI allowance market operates as expected by the State, (i.e., allowance prices remain low and a substantial spread persists between natural gas and coal pricing), power grid reliability will not be negatively impacted in the near term. Assuming today's coal and gas fuel price spread and any other environmental program compliance costs, higher carbon allowance prices, and certainly prices of \$35 to \$50/ton, would cause the availability of high carbon emitting coal fired capacity to be reduced, placing significant strain on these resources. The level of RGGI allowance cost, fuel price spread, and other environmental program compliance costs have an interrelated and cumulative effect on high carbon emitting units, and thus, reliability.

The challenge will be to achieve these environmental public policy goals while maintaining a reliable and efficiently operating bulk electric system at reasonable cost to consumers. On the federal level, a national renewable portfolio standard and climate change legislation are probable, and a renewed focus on building the transmission corridors to connect renewable generation to demand centers is possible and even likely under the incoming Administration and new Congress.

The emerging issues discussed above produce challenges for which there are no easy answers and no single solution. In order to meet these challenges, we must employ a portfolio of solutions to ensure our energy security for the future. In our view, such a portfolio should include the components discussed below.

First, we must continue to encourage the expanded use of clean and renewable resources and energy efficiency measures. This will help to diversify the fuel mix used to produce electricity for New Yorkers, help to control the increase in the cost of electricity, and improve environmental quality. The northeast regions of the United States and its Canadian neighbors have substantial wind and hydro-electric resources that can be harnessed to help meet these goals.

The SEP should encourage implementation of system improvements where the technology is readily available and the cost will be offset by consumer benefits. The installation of capacitor banks, a proven and relatively economical technology, is the most obvious example of a near term improvement that should be undertaken promptly, to reduce system losses, improve power flows and provide consumer savings that can be a multiple of the initial capital investment in these facilities. Based upon a preliminary analysis, the NYISO has estimated that installing capacitor banks in key locations at a one time cost of \$80 million could result in a savings in wholesale energy costs of approximately \$60 million per year.

Second, in order to take full advantage of increased supplies of renewable resources, there is a need to stimulate investment in the transmission infrastructure. The state's wind resources are located in the sparsely populated regions in the North and West and substantial hydro resources also exist further north in Canada. On the other hand, the regions of greatest concentration of demand, highest prices, and least fuel diversity are found in the southeast part of the state. Providing enhancements to the existing transmission infrastructure by utilizing existing rights-of-way to the maximum extent practicable will mitigate the environmental and siting impacts of expanding the system. The NYISO's new economic planning process, described above, in conjunction with the STARS recently begun by the State's utilities, may provide the vehicle for accomplishing these objectives. It is critical for New York to begin taking action on this immediately to lower the probability of federal measures which could impede upon the state's jurisdiction.

Finally, the expanded use of advanced metering and "smart grid" technologies can help to facilitate the integration of renewable resources and advanced technologies such as plug-in hybrid electric vehicles (PHEVs). Advanced technologies can also improve the efficiency and reliability of operating the bulk transmission system as well as give customers the opportunity to

better manage their own usage of electric energy. Appropriate modifications to retail electric rate design will be required so that consumers can realize the benefits of changes in the pattern of electric usage.

The smart grid is in its most basic form the increased use of digital information and controls to improve performance of the electric system and allow for increased interaction with and by small demand side resources and individual consumers. At the bulk power level, the grid is smart and the intelligence level of substations is improving steadily with remote data reads and controls. The challenge is to bring that level of control to residential and small commercial customers. A combination of advanced metering at the consumer level and enhanced data transfer will: (i) improve the efficiency of the grid; (ii) allow for shortening settlement cycles that will result in reduced collateral requirements; (iii) especially appropriate in today's economic climate, reduce the risk of default, and (iv) dramatically increase consumers understanding of and control over their energy consumption.

New York State through the PSC is an active participant in the FERC and National Association of Regulatory Utility Commissioners Collaborative (NARUC) and the NYISO strongly supports that effort. The NYISO is also participating in the PSC's Advanced Metering Initiative that is a fundamental support for the smart grid.

V. Conclusion

The challenge and the goal of New York State energy policy will be to balance reliability, environmental sustainability and the cost of electricity supply to meet the needs of consumers and to support the growth of the state's economy. The state should continue to rely upon economically efficient competitive wholesale electricity markets as the foundation to achieving that balance. Energy efficiency and clean renewable resources can help mitigate rising fuel prices, lower emissions, and achieve independence from foreign sources of fossil fuel. Improved transmission infrastructure utilizing existing rights-of-way can facilitate the full integration of renewable resources throughout the state and bring the benefit of lower cost resources to load centers while minimizing siting impacts. Advanced metering and smart grid technologies can facilitate integration of renewables and PHEVs and enable consumers to manage their electricity use to save money and lower harmful emissions.

The NYISO stands ready to lend its support, resources, and expertise to assist in achieving these critical objectives. To that end, the NYISO will continue its active involvement in state energy proceedings, and support the national FERC and NARUC Collaboratives, including the Smart Grid and Demand Response Collaboratives. The NYISO has worked, and will continue to work, in support of New York State policies that ensure safe, reliable, and cost effective electricity for its residents and businesses, promote energy efficiency and renewable resources, reduce environmental impacts, and enhance national security through energy independence.

ATTACHMENTS

- A** *Integration of Wind Into System Dispatch*, NYISO White Paper, October 2008
- B** *Fuel Diversity in the New York Electricity Market*, NYISO White Paper, October 2008
- C** *Transmission Expansion in New York State*, NYISO White Paper, November 2008
- D** Letter from Steve Whitley to Paul DeCotis, October 27, 2008
- E** *Increasing Renewable Resources*, ISO/RTO Council, October 16, 2007
- F** *Increasing Demand Response and Renewable Resources*, ISO/RTO Council, October 2007
- G** NYISO 2008 Comprehensive Reliability Plan, July 15, 2008
- H** NYISO 2009 Draft Reliability Needs Assessment, Draft 7, December 3, 2008
- I** *NYISO's Comprehensive System Planning Process*, presentation by John P. Buechler, dated July 16, 2008
- J** NYISO 2008 Power Trends Report

Stephen G. Whitley
President & CEO

October 27, 2008

Honorable Paul A. DeCotis
Chairman, State Energy Planning Board
Executive Chamber, Room 245, 2nd Floor
State Capitol
Albany, New York 12224

Subject: Electricity Demand Forecasting for the State Energy Plan

Dear Mr. DeCotis:

As you know, the New York Independent System Operator (NYISO) has been assisting the State in the preparation of the electricity portions of the State Energy Plan, and we have been proud to do so. We have worked primarily with the staffs of the New York State Energy Research and Development Authority (NYSERDA) and the New York Department of Public Service (DPS), and we have been impressed with the hard work and intelligence that these staffs have displayed in addressing the difficult problems in developing the underpinnings of a plan.

One of the more difficult aspects of planning with respect to electricity is the need to forecast future demand for the product. This need is especially important in the electric industry because it takes many years to develop the facilities needed to meet demand, and because the consequences of not having such facilities available when needed are extreme and adverse for the economy of the State and the welfare of its citizens. Forecasting has become even more perilous in times of financial upheaval. Because forecasting is inevitably imperfect, it is essential that demand not be significantly underestimated in electricity planning and reliability studies.

An issue has recently arisen with respect to the modeling assumptions that should be used to represent the New York bulk power system in conducting the Assessment, specifically with respect to the treatment of anticipated energy savings under the State's policy initiative to reduce energy consumption statewide by 15 percent by 2015 (known as "15 x 15"). The NYISO agrees with the goals of this initiative and has sought to design its markets to further it. Moreover, the NYISO has recommended measures, such as real-time metering of electricity, that would make the achievement of the initiative more likely.

As you also know, the NYISO conducts a participatory and transparent reliability planning process in which a demand forecast is produced after careful review by all

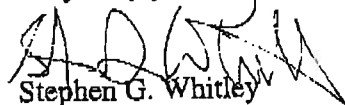
segments of the market, appropriate government agencies and citizen groups. This forecast has become the basis not only for NYISO planning but also for planning by New York City planners and other segments of the industry within the State. It is also available to the investment community for purposes of their own planning for energy related investments. The State's use of an assumed forecast in its planning study reference case that is substantially different from generally accepted techniques could create confusion, give rise to incorrect decisions and discourage needed investment.

If the State Energy Plan is to make its intended contribution to the well being of the State, its credibility is of utmost importance. "15 X 15" is a worthwhile policy initiative, and we are all working towards its achievement. It is certainly reasonable for the State to assess the effects of its intended achievement in the State Energy Plan, but we believe that candor requires that reflection of its achievement be shown in the context of plans developed as part of a rigorous and painstaking process based on empirical evidence and accepted after thorough review by all affected parties.

The NYISO has agreed to conduct computer modeling of the New York bulk power system for the Assessment to determine the presence of reliability needs under a reference case and under various policy scenarios. Simultaneously, the NYISO is conducting its 2009 Reliability Needs Assessment under its Comprehensive Reliability Planning Process, as required by its federal mandate. The NYISO will use for the "base case" for its own RNA the load forecast that has already been approved in its governance process and which incorporates an estimate of the impacts of the "15 X 15" program based upon current information. We are also including the full "15 x 15" forecast as a scenario in our analysis.

We are aware that the State is considering using the "15 X 15" policy goal as the basis for its reference case and for modeling policy scenarios in the SEPB assessment. While we will of course honor our agreement to conduct reliability modeling for the Assessment based on the assumptions we are given, we believe that the SEP reference case should be based upon the more generally accepted, empirical base case load forecast used in the RNA. Otherwise, the resulting inconsistency would cast doubt on both documents and confuse both policy makers and investors.

Very truly yours,


Stephen G. Whitley
President and CEO

cc: G. Brown