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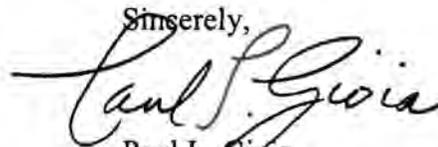
New York State Energy Planning Board  
c/o Sandy Meier  
NYSERDA  
17 Columbia Circle  
Albany, NY 12203-6399

Re: NYSRC Comments on New York State Climate Action Council Interim Report

Dear Ms. Meier:

Enclosed please find comments on the New York State Climate Action Council Interim Report, submitted on behalf of the New York State Reliability Council. Please contact me with respect to any questions concerning these comments.

Sincerely,



Paul L. Gioia  
Counsel to the  
New York State Reliability Council

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February 7, 2011

**COMMENTS ON  
THE NEW YORK STATE CLIMATE ACTION COUNCIL  
INTERIM REPORT DATED NOVEMBER 9, 2010**

**SUBMITTED ON BEHALF OF  
THE NEW YORK STATE RELIABILITY COUNCIL**

**GENERAL COMMENTS**

The New York State Reliability Council (“NYSRC”) appreciates the opportunity to comment on the State Climate Action Council’s Interim Report and commends the Council for developing the Plan in the short time allotted.

The NYSRC’s responsibilities are related to the maintenance of the reliability of New York State’s bulk power system.<sup>1</sup> While the NYSRC generally does not take positions with respect to state energy or environmental policy initiatives, such policy initiatives often do have a potential direct or indirect impact on bulk power system reliability. The NYSRC has served as a source of objective information for state policymakers with respect to the potential impact of state policy on bulk power system reliability, and has consistently urged policymakers to carefully balance the need for a strong and reliable electric system with other important public policy objectives. The NYSRC also has consistently urged policymakers to monitor state energy and environmental programs to determine if system reliability is being adversely affected and to provide sufficient flexibility to permit the modification of such programs if it is determined to be necessary to protect electric system reliability. The NYSRC adopts a similar approach in its

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<sup>1</sup> The NYSRC was formed and approved by the Federal Energy Regulatory Commission in 1999. It is the successor to some of the functions of the New York Power Pool. The NYSRC’s primary responsibilities include the development of reliability rules that must be complied with by the New York Independent System Operator (“NYISO”) in its operation of New York State’s bulk power system, and by the NYISO’s market participants. The NYSRC also is responsible for determining the annual installed reserve requirement (“IRM”) necessary to meet resource adequacy criteria for the New York Control Area.

comments on the Climate Action Council Interim Report dated November 9, 2010 (“Interim Report”).

The Interim Report identifies a variety of policy options and strategies to reduce Greenhouse Gas Emissions in New York State in various sectors and industries. The report identifies ten policy options in the power supply and delivery sector to support the transition of power supply and delivery “to nearly 100 percent” carbon free sources by 2050 (Chapter 8, Power Supply and Delivery Mitigation). While the specifics of many of these policy proposals remain vague and are yet to be worked out, there are implications in the Interim Report that are important for the long term reliability of the electricity sector that need to be considered. The Interim Report recognizes that this transition will require substantial investments to maintain system reliability. The NYSRC appreciates this recognition of the challenges posed by the transition to a largely carbon free economy and will identify in these comments several specific reliability challenges for further consideration by the Climate Action Council.

The NYSRC, in coordination with the New York Independent System Operator (“NYISO”), has been considering the potential impacts of the proposed carbon reduction policies, and how they may be addressed. On July 20, 2010, the NYSRC made a presentation to the Climate Action Council Power Supply and Delivery Working Group to outline reliability concerns associated with the Climate Action Council’s draft report entitled “Envisioning a Low Carbon 2050 for NY State.” The reliability concerns discussed included the impacts of integrating large-scale intermittent and nuclear power, the increased burden on the transmission and distribution system associated with electrification of heating and transportation systems, and the reliability impacts associated with elimination of over 70% of existing installed electric

generation capacity in the State. The comments presented herein address several of these concerns.

### NYSRC COMMENTS

#### “Cap and Invest”

Policy PSD-6b recommends that “New York should support the establishment of a strong federal cap-and-trade program that places a national price on carbon emissions. In the absence of a federal policy, New York should build on the successful RGGI effort... The program would be designed to reduce emissions from the covered sectors by approximately 2.2 percent per year so that the 2050 cap is 80 percent below today’s levels” (p. 8-17). The NYISO has informed the Department of Environmental Conservation (“DEC”) that in implementing this goal, with too restrictive a cap making allowances unavailable or too costly to New York generators, could pose a serious threat to electric system reliability. The Climate Action Council’s Final Report should recognize this concern.

The NYSRC has formed an ad hoc working group, including the NYISO and representatives of the relevant state agencies including representatives of DEC, to provide a forum for sharing information related to state environmental initiatives, including a discussion of potential reliability impacts. The Climate Action Council’s Final Report should recognize the need for a continuing dialogue and exchange of information and analysis among interested and knowledgeable entities concerning the potential negative impacts of environmental initiatives on reliability, including the cumulative impact of State environmental initiatives being implemented by different agencies or different units within an agency.

## Electric Resource Mix

A number of specific policies in the Interim Report are aimed at transitioning to a zero carbon generation mix in New York and phasing out conventional fossil fired generation. On page OV-29, the Interim Report states that “Reducing GHG emissions 80% by 2050 economy-wide means that by mid century close to 100% of New York’s electricity must come from low-carbon resources - sources with near zero-carbon emissions.” The Interim Report defines low carbon and near zero carbon emission energy resources as nuclear, hydroelectric and renewable resources whose carbon intensity is significantly lower than that of traditional fossil fuels (p. OV-6). PSD-6 would require 75% of near zero carbon power by 2030 via utilities and other load-serving entities (p. 8-17 to 8-20). PSD-2 targets increasing renewable energy attributable to the renewable portfolio standard by 130-140% (p. 8-15 to 8-17), and PSD-10 supports the development of new nuclear energy or other zero Greenhouse Gas emitting base-load generation (pp. 8-22 to 8-23).

The NYSRC notes that the current New York State generation base is composed primarily of conventional fossil and nuclear generation or non-intermittent renewable resources whose output is relatively predictable (e.g., very large hydro). Fossil fuel generation currently represents 70% of the generation capacity in New York State, with less than 3% from intermittent renewable generation.<sup>2</sup>

Achievement of the 2030 and 2050 targets for zero carbon emission sources will require unprecedented changes to the New York electric power supply mix. A number of the PSD policy options, including PSD-2, PDS-6 and PSD-10, involve potentially large increases in renewable generation coupled with the addition of nuclear plants to replace the present fossil-

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<sup>2</sup> Source: 2010 NYISO Load and Capacity "Gold Book" 2010 Summer Capability (MW), Figure III-1: 2010 NYCA Capability by Fuel Type (pp. 56)

fired fleet. These resources by their very nature have much different electrical and operating characteristics than the current resource mix. These differences will impact reliability. Intermittent renewable resources (such as solar and wind) may not be dependable at the time of electrical system peak when increased electricity production is necessary. Conventional generation will still be necessary to back up renewable resources in order to maintain system reliability; and this need for conventional fossil-fueled resources might be particularly acute in transmission constrained load areas in the State. The Climate Action Council's Final Report should recognize the continued role for conventional generation to back up intermittent renewable resources in order to maintain reliability, while research and development efforts seek to improve the dependability of renewable resources. The Final report should also identify State policy barriers that could be removed or amended to provide greater flexibility for siting new renewable energy resources into the generation mix. The NYSRC welcomes the opportunity to work with the DEC to identify and address these barriers.

The NYSRC notes the resulting resource mix will pose other design and operational challenges. Significant penetration of zero carbon electricity generation may be feasible only with large and costly infrastructure additions. Known impacts include an increased Installed Capacity Requirement ("IRM") and other transmission and operation design considerations. For example, the most recent IRM study shows that 1,333 MW of wind, about 4% of total state generation resources, increased Statewide IRM by nearly four percentage points from approximately 11.6% to 15.5%, due to the fact that wind resources have very limited availability during peak load hours (only about 10% of rated capability).<sup>3</sup> The IRM, which is established by the NYSRC, determines the amount of installed capacity that must be purchased on behalf of

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<sup>3</sup> See page 11 of the 2011 IRM Report.  
[http://www.nysrc.org/pdf/Reports/2011%20IRM%20Final%20Report%2012-10-10\[1\].pdf](http://www.nysrc.org/pdf/Reports/2011%20IRM%20Final%20Report%2012-10-10[1].pdf) ]

electricity consumers in New York State, and is the major determinant establishing prices in the NYISO's installed capacity market, which currently is approximately \$2 billion. A significant increase in solar and wind renewable resources will increase the IRM correspondingly and require additional backup generation. Further integration of large remotely sited nuclear plants in place of smaller fossil units will also impact the IRM due to reduced unit diversity and the greater impact on the electric system of a forced outage of a large generating unit. In addition to adding costs to the electricity system to maintain diversity, paid for by ratepayers, adding significant intermittent resources to the system would require electric system upgrades for reliability that would need to be supported by policymakers and regulators, to allow load serving entities to recover all prudently incurred costs for complying with State climate policies.

The Climate Action Council's Final Report also should recognize the need for sufficient generation and transmission to be located in New York City and Long Island in order to maintain reliability in those areas.

The NYSRC supports continued research, development and demonstration efforts and investments in the next generation of technologies that will produce lower cost solutions to achieve climate energy goals (see PSD-9, p. 8-30, and Chapter 10).

### Electrification

Another major focus of the Climate Action Council policies involves the elimination of fossil combustion for other sectors of the economy<sup>4</sup>, including transportation and heating, with the replacement energy provided by electricity produced by zero carbon resources, resulting in substantially increased electricity demand. Specifically, the viability of achieving the 80 by 50 goal is based on a major economic shift toward the electrification of the economy, in particular

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<sup>4</sup> The complete electrification of the transportation sector will probably happen on a much longer timeframe given the need for technological breakthroughs in battery design and the revamping of the fueling infrastructure.

its transportation and building sectors approaching zero carbon emissions. In Chapter 7, *Envisioning a Low-Carbon Future - 2050*, the Interim Report states: “Transportation and buildings (residential and commercial) will have to move from reliance on fossil fueled combustion to use of alternate sources”; and “Electrification as a substitute for fossil fuel combustion is an essential strategy that will lead to a significant increase in demand and change in the patterns of electricity generation, transmission and distribution” (pg 4-7).

The NYSRC notes that the increased demands associated with electrifying entire sectors of the economy will place a great burden on the transmission and distribution system. This very substantial increase in load has not been considered by electric system planners in designing the existing New York electric system. Given the potential magnitude of the increase in demand, it has been estimated that completely electrifying transportation and building load as recommended will increase current system load projections by well over 100% (see pg 13 of the NYSRC presentation to the Climate Action Council on July 20, 2010). In order to maintain system reliability, it is essential that robust forecasting methods of demand and load shape characteristics associated with electrification of entire new sectors of the economy are developed to provide planners with a sound basis for making the necessary decisions with respect to electric system design changes, the timing of those changes, and the sizing of long-life equipment. The Climate Action Council’s Final Report and related research and development policy recommendations must recognize these needs including the importance of new forecasting tools and methods to maintain reliability.

Another important consideration associated with electrification of the heating and transportation sectors of the economy is the elimination of the current diversification of end user energy sources and the much greater reliance on electricity, thus exposing the economy and

society to greater vulnerability to natural (e.g., solar magnetic disturbances) or man-made (e.g., human error, terrorism) interruptions of the power grid. For example, a typical family now depends on a variety of energy sources, including natural gas, oil and gasoline. Under Interim Report policy recommendations, the functions provided by these sources would be electrified, and the electricity would be produced with zero emission resources. The Final Climate Change Council Report must address the importance of a diversified mix of end user energy sources, the potential impacts of an interruption of a single energy supply to the end users will have on society, and recognize the potential need to enhance or change electric reliability standards given this substantially greater reliance on electricity. The State Energy Emergency Management office should be an active participant in ensuring that climate policies do not negatively compromise the security of the State's electricity system.

#### Implementation Trajectory

The Interim Report identifies a mid-term benchmark target of reducing Greenhouse Gas emissions by 40 percent by the year 2030 (p. OV-2). Given the transformative and compounding effect of cumulative policy goals on the electric system design and operation, it is imperative that the implementation trajectory provides adequate time to identify and implement changes necessary to support system reliability requirements (e.g., it can take up to 10 years to site a new transmission line and from 5 to 10 years to design, permit and construct new power generation). While it might be desirable to meet the goals identified in the Interim Report, it is highly unlikely that such targets can be met given current regulatory requirements. Construction of tens of thousands of new low carbon or near zero carbon emission electricity generation resources would be required to replace existing fossil-fired power plants and to keep up with load growth (this becomes especially acute if the transportation sector becomes increasingly electrified).

Thousands of MW of new gas-fired power plants have been added in New York during the past 10 years and a few thousand MW are currently in progress. Siting and permitting of new low and zero-carbon emitting generation, and the necessary investments in transmission and distribution infrastructures alone to deliver electricity from these plant to loads, could take several decades. Moreover, it is important to reconcile the need to incent the development of new near term resources and transmission facilities to support today's electric reliability needs, with the potential for stranded assets in the future due to the implementation of the Climate Action Council's policies. The transition and phase out of 70% of existing resource capacity, while at the same time rapidly developing intermittent of renewable resources and substantially increasing load as a result of electrifying various sectors of economy, must be done with extreme caution to maintain both near-term and long-term reliability. It is recommended that as the Climate Action Council moves forward to implement the Final Plan it consult regularly with the NYISO and NYSRC in order to monitor the impacts the implementation of the Plan is having on electric system reliability and the competitive wholesale electricity market. Moreover, the NYSRC suggests the Climate Action Council establish implementation trajectories for individual policy goals that are flexible and can accommodate changes in response to impacts on reliability, and that include the ability to make revisions to the Plan if necessary to protect electric system reliability. The NYSRC further suggests that all policies and recommendations contained in the Final Climate Action Plan be cost justified so that all stakeholders can identify and be aware of the potential costs and risks, and reliability impacts associated with such policies.

#### Transmission Network Upgrades

The NYSRC strongly supports Policy PSD-5 which encourages and supports cost-effective transmission system improvements that reduce Greenhouse Gas emissions while

improving efficiency, satisfying electricity demand and maintaining reliability and secure system operations to facilitate development of generation influenced by other policies (p. 8-27). The NYSRC notes the New York State Transmission Owners are collaborating in a Strategic Transmission and Reliability Study (“STARS”) which is considering the transmission system upgrades to provide for the long term modernization, reliability and economic efficiency of the State’s transmission system, and to allow renewable generation to be delivered to areas of high demand. The STARS initiative closely parallels the Policy PSD-5 objectives. The conduct of the STARS study has been closely coordinated with the NYISO. The New York Department of Public Service and NYISO market participants also have had input into the scope of the study and are provided with regular updates on the study’s status. The STARS study is nearing its conclusionary phase. It is also noted that STARS representatives are working collaboratively with representatives of the Climate Action Council on developing a study scenario for consideration in the STARS study. The NYSRC recommends that the STARS study undertaken by the New York Transmission Owners be identified in the Final Report as an important initiative which is related to the policies adopted by the Climate Action Council and which should be considered as those policies are further refined and implemented.

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