

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

**Proceeding on Motion of the)
Commission Regarding a Retail)
Renewable Portfolio Standard)**

Case 03-E-0188

**COMMENTS OF THE
NEW YORK INDEPENDENT SYSTEM OPERATOR, INC.
ON
PHASE I
THE EFFECTS OF INTEGRATING WINDPOWER ON TRANSMISSION
SYSTEM PLANNING, RELIABILITY AND OPERATIONS**

I. INTRODUCTION

The NYISO¹ is pleased to have the opportunity to comment on Phase I of the Report: *The Effects of Integrating Windpower on Transmission System Planning, Reliability and Operations* (“the Phase I Report”). The Phase I Report offers a preliminary assessment of the impact of large-scale wind generation on the reliability of New York State’s bulk transmission system. It presents a review of world experience with wind generation, a fatal flaw power flow analysis, a reliability analysis, and a review of current planning and operating practices to identify reliability rules, policies or criteria that may need to be modified to be compatible with a significant penetration of large scale wind generation in New York.

The NYISO finds nothing in the Phase I Report that would require the Commission to halt its preliminary efforts towards a Renewable Portfolio Standard (“RPS”). We recommend that the Commission continue to move forward on basic infrastructure issues such as portfolio design, funding mechanisms, eligible technologies and the policy issues that would allow the parties to proceed with the development of a Generation Attributes Trading System. Preliminary decisions on these issues will assist the parties in fully evaluating the RPS with all its attendant details following the issuance of Phase II of Report “The Effects of Integration Windpower on Transmission System Planning, Reliability and Operations”.

¹ The NYISO is the not-for-profit corporation established in 1999 to facilitate the restructuring of New York State’s electric industry. The NYISO is charged with administering New York State’s wholesale energy markets and operating the State’s high voltage electric transmission system. Last year, the NYISO handled nearly \$7 billion in commerce in its wholesale energy and ancillary services markets, installed capacity markets, and transmission congestion contracts markets (referred to, collectively, as “Wholesale Electric Energy Markets” or “Markets”).

On a parallel track with Phase II, the NYISO will examine in greater detail the operational and reliability implications of adding significant amounts of wind power and other intermittent resources to the State's generation fleet. The NYISO, along with its market advisor, will also assess the impacts on market efficiency and competition of introducing these resources. It is essential in this next phase that the NYISO determine how to integrate such facilities in a manner compatible with the wholesale electricity markets that the NYISO administers under both State and federal initiatives. The NYISO's further analyses are intended to help the Commission avoid unintended, adverse economic consequences.

Because the parties and the NYISO will not be able to resolve all operational and market-related issues until the Phase II Report is issued, the NYISO recommends that the Commission not conclude this proceeding until after it receives comments from the parties on the issues addressed in the Phase II Report.

Finally, if the Commission determines that it is appropriate to offer financial incentives to RPS participants before the Phase II Report has been analyzed and its recommendations incorporated, it should move forward cautiously. The NYISO recommends, therefore, that the Commission apply interim limits on both the total megawatts eligible for these incentives and their locations until the Phase II Report is analyzed and its conclusions incorporated into this proceeding.

II. COMMENTS

A. PHASE I CONCLUSIONS AND NYISO RECOMMENDATIONS

The NYISO agrees with the preliminary conclusion of the Phase I Report that there are no high level reliability or operational issues that preclude the addition of 3,300 MWs of wind generation to the system, provided that the several accompanying recommendations are incorporated.² This is a high level evaluation, however, and the Phase II Report results are necessary before final conclusions can be drawn as to the exact magnitude of wind penetration that can be added without adverse consequences. The Phase I analysis focused solely on the thermal impact of the prospective 3,300 MW of wind generation on the transmission network.³ As a consequence, voltage or stability constraints, from a network security point of view, may decrease this figure, as may operational considerations. Phase II evaluations should supply this additional information. The NYISO cautions, therefore, that firm conclusions in the crucial reliability area cannot be made until the conclusions of Phase II are reviewed and analyzed.

The NYISO also agrees with the Phase I Report's conclusion that further work is necessary to better understand how best to integrate these resources into the New York

² The Effects Of Integrating Windpower On Transmission System Planning, Reliability And Operations ("Phase I Report"), p. 2.9.

³ *Id.* p. 4.1

wholesale market, particularly with respect to valuing their capacity contribution.⁴ As the Phase I Report notes, the addition of wind generation, particularly west of the Central East Interface, will provide only a fraction of the reliability value of capacity added downstate. Although this, in and of itself, will not degrade the reliability of the system, as measured by Loss of Load Expectation, it could adversely impact existing, marginally operating, thermal generation. If such generation retires, or if expected new generation is deferred or cancelled as a result of wind additions, then system reliability may be impacted, although the NPCC minimum reliability threshold would be maintained. The Phase I Report did not examine the effects of new wind generation on existing generation.

The NYISO recognizes that the Commission may wish to move ahead with financial incentives in the near term. However, in recognition of the preliminary nature of the reliability assessment and the need for further analysis on how best to integrate these resources into the wholesale market, the Commission should impose a statewide interim limit on the amount of wind capacity that is eligible for RPS incentives prior to the conclusion of this proceeding.⁵ Further, the Commission also should consider imposing interim locational limits on RPS incentive eligibility, for new projects proposing to locate in those Load Zones where the total megawatts of the proposed project, and those already sited and/or approved, approaches the physical limitations of the transmission system, as provided in the Phase I Report.⁶

In determining appropriate interim statewide incentive limits the Commission may take guidance from the current limits established in NYISO tariffs that identify the set of intermittent resources exempt from the operation of certain market rules. NYISO's tariffs presently exempt existing, and up to 500 MWs of new, intermittent resources from the operation of certain market rules that would otherwise penalize units that cannot control their fuel resources.⁷ This limit recognizes the NYISO's ability to manage existing and 500 MW of new intermittents on the system without experiencing adverse reliability or market operations consequences.

In considering interim RPS incentive limits, the Commission should be aware of the amount of wind capacity already in-service as well as proposed capacity in various phases of the NYISO's interconnection queue. The table below shows, by zone, the total megawatts of capacity in-service, and proposed capacity for which developers have an already approved SRIS or Scope for an SRIS.⁸

⁴ *Id.* p. 5.16

⁵ If adopted, limitations on new development should remain in place until the Phase II Report is analyzed and its recommendations are incorporated into both the Commission's, and the NYISO's, analysis.

⁶ Table 4.5 of the Phase I Report provides the maximum megawatts, by Load Zone, that could be safely sited, given the thermal limits of the transmission system. These are interim numbers, however, because the NYISO does not yet know whether more restrictive zonal limitations on wind development may be required to mitigate or avoid operational problems. It may not be prudent to encourage new development in areas where operational issues, to be studied more thoroughly in Phase II, may ultimately preclude it.

⁷ These exemptions were made available to intermittent resources existing at the inception of the NYISO.

⁸ This does not include the .3 MWs of wind resources scattered across 27 separate sites.

Zone	In-service Capacity	Proposed Capacity with approved SRIS	Proposed Capacity with approved SRIS Scope	Proposed Capacity SRIS Scope not necessary	Zonal Totals
A			50 MW		50 MWs
B	6.6 MWs				6.6 MWs
C	30 MWs	75 MWs	79.5 MWs		184.5 MWs
E	9.8 MWs	300 MWs	40.5 MWs	40. MWs	390.5 MWs
TOTAL	46.4 MWs	375 MWs	170 MWs	40 MWs	641.9 MWs

Because increased transmission capacity could enhance the ability of new wind resources to locate in certain zones, the Commission should examine ways to encourage new transmission capacity increases or consider making subsidization of additional RPS resources in constrained areas contingent upon transmission reinforcements.

B. PHASE II ISSUES—AND OTHER ISSUES REQUIRING FURTHER NYISO ANALYSIS

Phase II will add important information and recommendations to the record and it should be considered before the final Renewable Portfolio Standard is issued. The NYISO will rely in part upon the detailed System Performance Evaluation of Phase II of the Wind Study, to complete its recommendations to the Commission on how to most reliably integrate wind generation into the New York system without imposing unreasonable cost shifting among generation or loads and without impairing New York’s competitive, wholesale electricity markets.

The Phase II Report will provide an assessment of the following issues:

- Methods for quantifying the effective capacity of installed wind generation.
- Methods for modeling wind generation in system studies.
- Variations in actual delivery from forecast production.
- Anticipated improvements in wind production forecast accuracy.
- Changes needed in NYISO planning practices and criteria.
- Changes needed in the NERC, NPCC and NYSRC reliability standards, criteria, and rules for planning and operating the New York State Power System (*e.g.*, any special requirements or conditions that should be placed on wind generation development to meet the overall needs of New York for a reliable electrical grid).

- Changes needed in operating practices related to operating reserves, regulation requirements and response rates, including synchronized and non-synchronized reserve capacity, and regulating units.
- Changes needed in NYISO market to facilitate behavior that maintains the reliability and economy of the New York system.
- Changes needed in the NYISO Transmission Reliability Assessment and Installed Capacity Requirements studies with particular attention to recommending means to evaluate the impact of short-term (minutes) or longer-term (daily, seasonal) variability.
- Changes needed in NYISO System Reliability Impact Study process.
- Estimates of the cost impacts of the above factors.

Phase II will also identify locational considerations, if any, for balancing energy sources and the requirements for ancillary services such as reactive support and capacity assuming significant wind penetration. It will specifically identify current market rules provide an assessment of whether these rules can or should be altered. Phase II also will review how other wholesale market administrators in the United States and abroad currently accommodate and manage intermittent power production from wind generation and determine whether, and if so how, changes to current NYISO market administration practices should be made.

The NYISO will utilize the Phase II Report to develop recommendations on the above listed issues. The NYISO also will independently:

- Evaluate the impacts of these resources on the efficiency and effectiveness of the wholesale market;
- Assess the need for changes in the NYISO market to maintain both market efficiency and the system reliability in order to integrate intermittent resources;
- Evaluate the impacts of new wind resources on regional power transactions (seams) and determine changes, if any, required to maintain the economics of regional market transactions; and
- Assess the short-term reliability and resource adequacy implications of adding these resources.

C. ISSUES RIPE FOR AN INITIAL COMMISSION DETERMINATION

The Phase I Report provides a broad outline for moving forward. The Commission can now address such basic issues as portfolio design (*e.g.*, whether or not to use central procurement), eligible technologies and funding mechanisms. The Commission can also address those policy issues that would allow the parties to begin the development of a Generation Attributes Trading System (GATS) through a reinvigorated Working Group 4. NYISO reiterates its previous informal offer to reconvene and facilitate the development of a New York GATS. The Commission may now also address several other issues.

1. Implement Interconnection Best Practices

The NYISO recommends that the Commission require all wind farm development incorporate the Interconnection Best Practices listed in the Phase I Report:⁹

- Voltage regulation at the Point-of-Interconnection, with a guaranteed power factor range.
- Low voltage ride-through.
- A specified level of monitoring, metering, and event recording.
- Power curtailment capability.

With its stakeholders, the NYISO will develop the process by which these Best Practices can be incorporated into the NYISO interconnection process. Since some of these technologies may also lie within the province of the local utility (particularly the local metering authority) the Commission should also direct the utilities to examine the extent to which they should incorporate these technologies into their standards and practices.

2. Develop a Wind Forecast Center

The Commission also should consider directing the development of, and funding for, a centralized wind forecasting center. The Phase I Report recommends the establishment of such a center to provide data for the NYISO and participating wind farms in order to establish more accurate scheduling and advance information on operational issues that may arise with sudden changes in weather.¹⁰ Better data will promote efficient scheduling and operation of these resources. Better data will also assist the NYISO and its market participants to appropriately evaluate wind resources in their New York marketplace decisions. In addition, this data will allow the NYISO to reliably operate the system with a minimum level of disruption on the allowed output of wind-driven resources

3. Develop a subsidy that does not interfere with New York's wholesale market incentives.

Finally, as the NYISO has said previously, it is vitally important that the subsidy established to encourage new entrants not insulate them from the financial implications of being a member of the wholesale energy market. This is important to maintain the health of New York's competitive wholesale electric market. Any RPS incentive has to be

⁹ Phase I Report, p. 2.3. The NYISO also intends to monitor the development of the following features as they emerge in response to system needs:

- Ability to set power ramp rates
- Governor functions
- Reserve functions
- Zero-power voltage regulation

¹⁰ Phase I Report, p. 2.3

specifically designed to avoid creating unintended and harmful financial consequences for non-subsidized market participants and customers.

The NYISO with its independent Market Advisor will assist the Commission in this endeavor.

CONCLUSION

The Phase I Report does not reveal any reliability issues that require the Commission to halt preliminary efforts to effectuate an RPS. The Commission may now move forward on such basic infrastructure issues as portfolio design, funding mechanisms and the policy issues that would allow the parties to proceed with the development of a Generation Attributes Trading System.

However, because the parties and the NYISO will not be able to resolve many operational and market-related issues until the Phase II Report is issued, the NYISO advises that the Commission conclude this proceeding only after the Phase II Report is issued. Should the Commission be prepared to offer financial incentives to RPS participants before Phase II is complete, the Commission should move forward cautiously, perhaps by instituting an interim cap on eligible wind generation, until remaining issues are resolved after the Phase II Report is issued and analyzed.

Finally, the NYISO will work with the Commission and its market participants to ensure that the subsidies established for new wind resources not insulate these resources from the financial implications of participating in the State's wholesale energy markets.

Respectfully submitted,

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