

THE EFFECTS OF INTEGRATING WIND POWER  
ON TRANSMISSION SYSTEM PLANNING, RELIABILITY  
AND OPERATIONS

REPORT ON PHASE 2:

SYSTEM PERFORMANCE EVALUATION  
DRAFT DATED FEBRUARY 3, 2005

COMMENTS SUBMITTED ON BEHALF OF  
THE NEW YORK STATE RELIABILITY COUNCIL

February 18, 2005

**The New York State Reliability Council (NYSRC) submits the following comments on the report entitled, “The Effects of Integrating Wind Power on Transmission System Planning, Reliability, and Operations -- Phase 2: System Performance Evaluation.” Draft dated February 3, 2005**

**UCAP/ICAP Translation Issue**

The report discusses how “LOLP calculation methods should be modified to reflect the intermittent nature of the wind”. Page 8.5 of the study explicitly states “If a system ICAP needs to be determined, then the ICAP of the wind generation should be set equal to its UCAP in order to avoid any radical changes in the system ICAP values” and suggests otherwise will result “in a misleading measure of the system’s installed capacity reserve.”

The NYSRC is the entity that performs system ICAP or Installed Reserve Margin (IRM) studies for the New York Control Area (NYCA). After considering the studies and other factors the NYSRC adopts the annual state-wide ICAP Requirement for the NYCA. The NYISO then establishes the ICAP requirements for Load Serving Entities and locational ICAP requirements, consistent with the state-wide ICAP requirement adopted by the NYSRC. In performing its functions, the NYISO also translates the NYSRC ICAP requirement into UCAP. Assuming the use of UCAP for one particular resource such as wind and ICAP for other types of units in the IRM calculation performed by the NYSRC would result in an Installed Capacity Requirement MW value that would include a mix of ICAP & UCAP capacities. This mixture of capacities, at a minimum, would change the way the NYSRC performs its studies, significantly complicate resource accounting and the interpretation of NYSRC studies.. It is therefore suggested this issue be recharacterized as one requiring consideration by the NYSRC for applicability in NYCA IRM studies.

A further issue is the effect of the inclusion of the wind generators for the ICAP to UCAP Demand Curve adjustment, which would result in higher Demand Curve prices because of the "self-adjusting" mechanisms of its design. Not including wind generator availability with the demand curve adjustments may need to be considered since their forced outage rate is not purely mechanical but is a function of wind availability.

**NYISO Market Design**

The report on page 8.7 states the market for wind generation should be structured to “encourage wind generators to curtail production during periods of light load” as an issue “particularly critical to overall system reliability” and notes if “excessive wind generation causes the NYISO. . . to shut down critical base-load generators with long shutdown/restart cycles times, the system could be placed in a position of reduced reliability”.

The NYSRC is particularly concerned about the possibility that wind generation could force the NYISO to shut down critical base-load generators. The NYISO must have procedures in place to ensure critical base-load generators are not shut down and the system is not placed in a position of reduced reliability, independent of market measures incenting curtailment of wind production.

A more general concern of the NYSRC relates to the assumption made in this report that existing units continue to remain viable. It is possible the introduction of 3,300 MW of wind resources could cause the shutting down and retirement of critical base-load generators. In the longer term this could result in loss of

regulation capacity, loss of effective capacity (due to the difference of ICAP and UCAP), local problems, and other impacts that were not identified by this report.

### **Equipment Outage Rates**

The assumed effective capacity for wind appears to be based on load shapes only, i.e., the study assumes that wind facilities have a forced outage rate of 0%. The study should either justify a 0% forced outage rate for wind farms, using examples from other wind facilities around the world, or state what the assumed forced outage rate should be, based on experience. In addition, the study should inform us whether in-land and off-shore wind facilities have different forced outage rates. It also is important the study consider the forced outage rates of series equipment which interconnects the wind farm with the electrical grid such as step-up transformers, transmission lines, breakers, collector buses, etc. when determining the effective capacity from wind facilities.

### **Common Mode Outage**

In Section 8.1.1 and 8.1.2 it is stated that loss of all wind resources is not a credible outage. Couldn't the loss of two (2) or more wind farms that are relatively close (and that don't share a common interconnection) be considered a credible common mode outage? This is particularly important given the likelihood that several projects may be concentrated at adjacent sites.

### **Editorial Comments**

Section 7.1: The first paragraph contains over simplifications. For example, the statement that “a 100 MW unit can provide 100 MW whenever called upon”, is technically incorrect.

Sections 7 & 8: LOLE & LOLP are used interchangeably. We suggest using only LOLE.

Section 8 Introduction: Rather than referring to “required changes” the report should refer to “the identification of changes to the existing planning and operation practices that should be considered due to the addition of wind generation in NY State” or similar language.

Section 8.1, near the bottom of page 8.1: It appears that the report refers to 10 Reliability Rules, three related to resource adequacy and seven related to transmission capability – planning. These are Reliability Rules, not “rule groups.” Also, it should be made clear that they relate to resource adequacy and transmission planning.

Section 8.1, at bottom of page 8.1: Replace “guidelines” with “criteria” or “rules”.

Top of page 8.2: There are not any recommended modifications of reliability rules, only rule application suggestions.

