

# Wind Rules and Forecasting Proposal

**MC**

**02/06/2008**

*Draft – For Discussion Purposes Only*

# Background

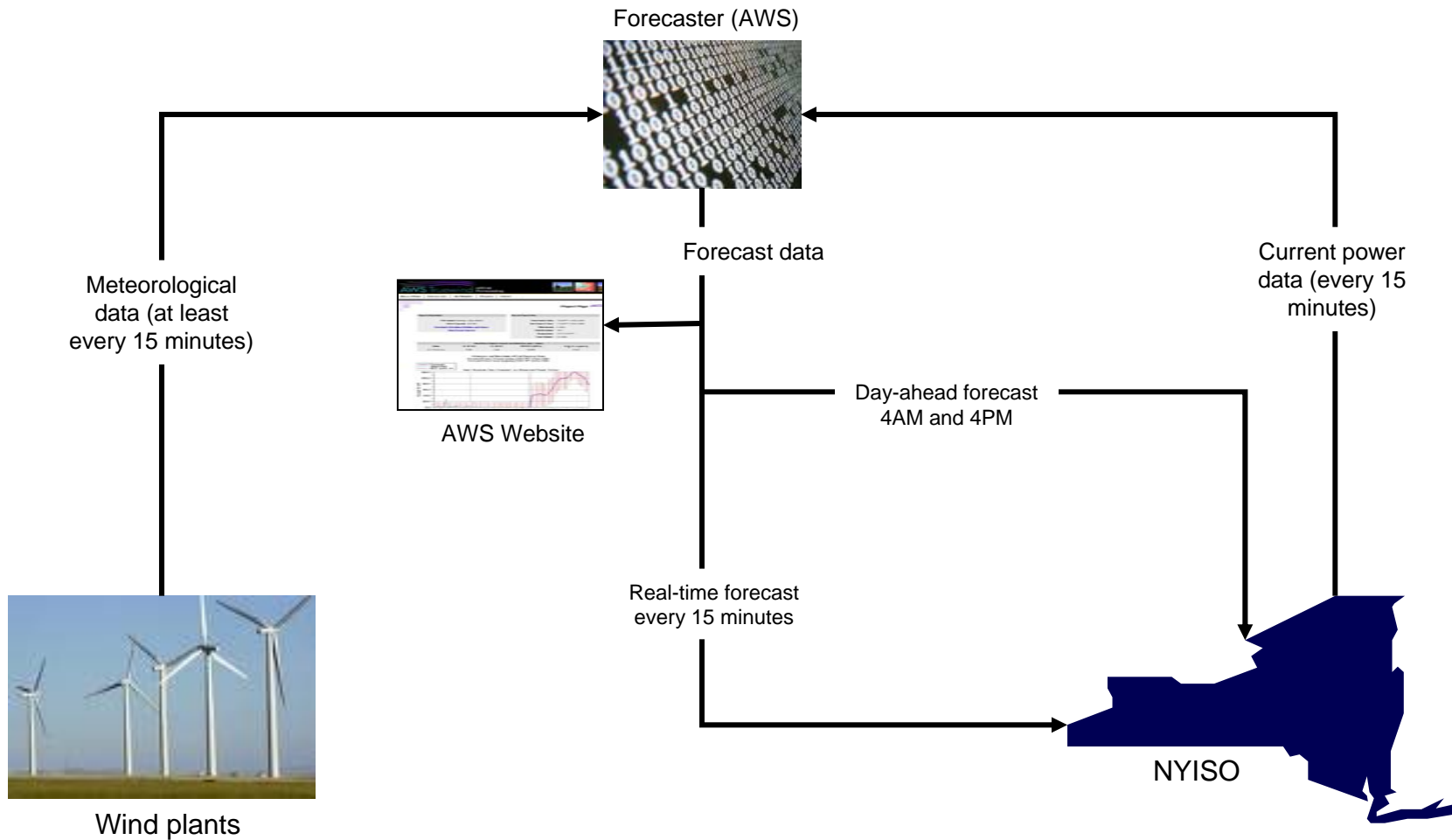
- **Over several MIWG meetings, NYISO has discussed a proposal for forecasting wind generation in the NYCA as well as a set of market rules for scheduling and settlement of wind plants.**
  - **Proposal includes:**
    - Implementation of a centralized statewide forecast
    - Increase of cap/exemption in market services tariff
    - Recovery of forecast fees
    - Description of data communication requirements for wind plants
    - Follow-up studies on impacts of higher levels of wind power penetration

# Final Proposal

## Wind Forecasting Overview

- **NYISO will be the administrator of a centralized forecast.**
- **Forecasts will be provided to NYISO for all wind plants in the NYCA by a 3rd party wind forecasting company (AWS Truewind).**
- **Forecasts will be provided for both real-time and day-ahead time horizons and will be incorporated into the corresponding market evaluations.**
- **Wind plants will have access to their individual forecast.**
- **Ongoing costs of the forecasting service will be recovered from wind plants.**

## Wind Forecasting Data Flow



## Meteorological Data Requirements

- Wind plants shall maintain in good working order equipment necessary to:
  - collect meteorological data at its site and
  - transmit to NYISO, or its agent, this data in time intervals identified by the ISO.
  
- Each wind plant shall be responsible for the cost of installing and maintaining such equipment at its site.
  
- Meteorological data elements to be collected:
  - Wind speed at hub height
  - Wind direction at hub height
  - Optional - Ambient temperature at 2 meters and hub height
  - Optional - Barometric pressure at 2 meters
  - Optional - Dew point or relative humidity at 2 meters
  
- Data must be collected from at least one point at the wind plant.
  
- Data must be transmitted electronically to forecaster at least once every 15 minutes, 24x7 in accordance with NYISO procedures.
  
- Exception – Any wind plant in commercial operation as of January 1, 2002, with a name plate capacity of 12 MWs or fewer, is exempt from the meteorological data requirements.

# Meteorological Data Requirements (continued)

- **If a wind plant consistently fails to comply with the meteorological data requirements, NYISO shall take the following actions:**
  - NYISO shall notify the wind plant by written notice of its determination of consistent failure to comply with the meteorological data requirements and that it may impose financial sanctions if the consistent failure is not corrected.
  - NYISO shall offer a reasonable opportunity to correct the failure.
  - If, following such reasonable opportunity to cure, such failure is not cured, NYISO may impose daily sanctions of the greater of \$500 or \$20/MW of nameplate capacity until such failure is cured. In egregious cases, NYISO may refer the violating party to the Commission.
  - NYISO shall offer the wind plant an opportunity to be heard by senior officers of NYISO prior to imposing sanctions.
- **Exception – Any wind plant in commercial operation as of January 1, 2002, with a name plate capacity of 12 MWs or fewer, is exempt from the meteorological data requirements.**

## Day-Ahead Rules and Forecasting Approach

- ICAP providing wind plants will not be required to provide DAM bids (no change from current rules).
- No change contemplated for calculation of a wind plant's UCAP. UCAP will continue to be based on historic capacity factors during peak months and hours (no change from current rules).
- Wind plants offering DAM bids will be subject to standard balancing obligations (no change from current rules).
- Day-ahead forecasts of hourly output will be produced daily for the next two days.
  - Wind plants will be able to view their individual forecasts by 04:00 and 16:00 Eastern Time
- The day-ahead forecast will be incorporated into the day-ahead market evaluation.



## Real-Time Rules and Forecasting Approach

- Real-time forecasts of 15-minute output will be produced every 15 minutes for the next 8 hour period.
- The real-time forecasts will be incorporated into the RTS market software and used in conjunction with existing persistence-based forecasts of real-time output.

## Real-Time Rules and Forecasting Approach (cont.)

- **Tariff currently contains a 1,000MW limit on wind generation eligible for:**
  - the exemption from under-generation penalties and;
  - full compensation for over-generation
  
- **NYISO will increase this limit from 1,000MW to 3,300MW.**
  
- **Background**
  - **In 2005, a comprehensive study by GE/NYSERDA concluded that NYISO could reliably integrate up to 3,300MW of wind generation. Impacts beyond 3,300 MW were not evaluated.**
  
  - **In 2008, NYISO will embark on an updated study to determine the steps needed to securely integrate wind generation beyond 3,300MW across all zones in NYS.**
    - The assessment will seek to identify the existence of statewide or locational limitation on the full integration of wind resources. If identified, these limitations may require the establishment of new wind operating protocols, load following capabilities, ancillary service market changes, and/or limitations on installations.
  
  - **Until the 2008 study provides clear direction, NYISO will increase the tariff limit from 1,000MW to 3,300MW, as an interim rules change.**
  
  - **Current interconnection queue indicates that 3,300MW of wind generation will not be approached until sometime in 2010, by which time NYISO expects to have already re-addressed the tariff limit.**

## Reliability Studies

- In 2008, NYISO's planning group will initiate a study of the data collected from wind forecasts and actual wind generation to assess the current and projected impact of wind generation on system operations and reliability. Results of the study will be reported through NYISO's working groups.
  
- There is approximately 500MW (nameplate) of wind generation on the system.
  
- There is approximately 1,000MW (nameplate) of new wind generation planned for the class year 2008.
  
- Estimated nameplate capacity of wind generation based on interconnection queue and project status:
  - End of 2008: ~ 1,500 MW
  - End of 2009: ~ 2,500 MW

## Forecast fees

- **NYISO will recover forecast fees from active wind plants using the following rates:**
  - \$500 fixed monthly forecast fee per wind plant +
  - \$7.50/MW (nameplate) per wind plant per month.
  - For example, a 100MW wind plant would pay \$1,250/month in forecast fees (\$500 + [100MW\*\$7.50]).
  - Since our forecaster's fees get lower as more wind plants come online, these rates will be revisited annually in order to avoid significant under or over collection.
    - Note: Based on expected # and size of wind farms online by end of 2008, the total statewide under/over-collection amount is anticipated to be in the range of +\$3,000 to -\$3,000
    - Note: CAISO absorbs greater than 50% of the wind power forecast fees. ERCOT absorbs 100%.
- **This fee will be filed as a separate rate schedule in the tariff.**
- **Exception – Any wind plant in commercial operation as of January 1, 2002, with a name plate capacity of 12 MWs or fewer, is exempt from the forecast fees.**

# Summary of tariff changes

- Introduces the new NYISO responsibility for developing a statewide wind energy forecast.
- Increases limit applied to wind resource settlement provisions from 1,000MW to 3,300MW.
- Introduces a new rate schedule for forecast fee recovery.
- Describes the requirement for wind plants to send meteorological data to the NYISO forecaster.
- Describes how forecasts will integrate into market runs.

## **Next Steps**

- Present proposal to MC - February 2008**
- Present to BOD - March 2008**
- Tariff Filing – March 2008**
- FERC approval – May 2008**
- Integrate live forecast into market runs - June 2008**