Noble
ENVIRONMENTAL POWER

Proposal for NYISO Basepoint Communication via Web Service

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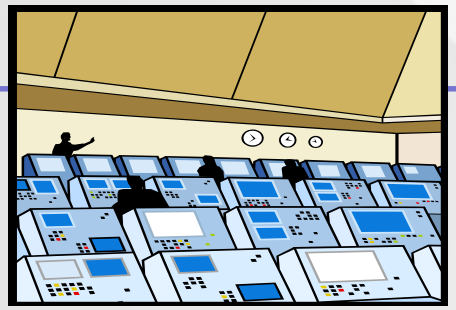
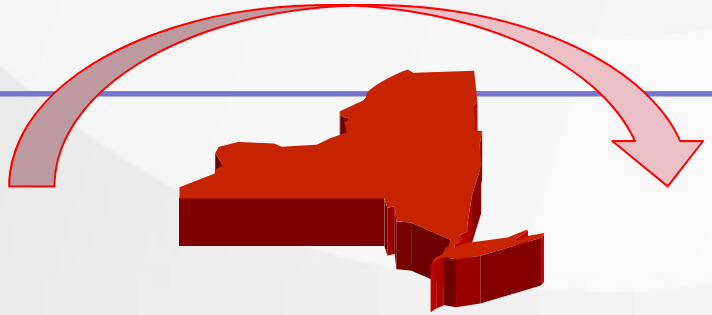
Wind Power…the natural choice

Purpose:

Noble would like to propose to the members of NYISO that a project be considered to communicate basepoint data to the registered entities on a redundant basis directly from NYISO to the generator operator control center via a webservice.

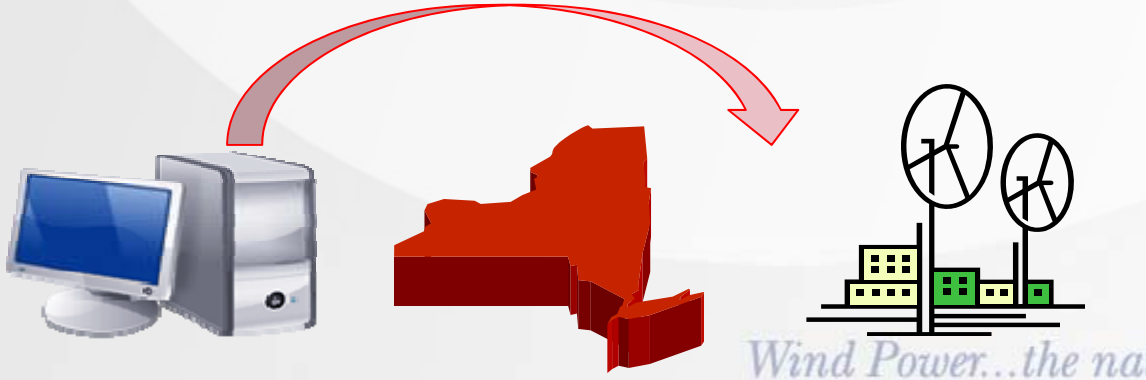
Operators would benefit from improved communications, and the NYISO would improve system reliability and ease of operations as there would be fewer basepoint deviations.





Current Condition:

- 5 minute basepoint information is communicated from the NYISO to the Transmission Owner via an ICCP interface.
- Transmission operator receives the information, sends it to the interconnecting substation via RTU
- Signal is handed off to the generator operator who receives the signal at the substation.
- The equipment automatically processes the curtailment signal or the signal is sent via a T-1 data connection to a remote operating center.
  - In the latter scenario commands are sent back to the windfarm via T-1 data network to take action based on the received basepoint.



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NYISO

Transmission Owner

Transmission Owner POI Substation

Transmission Owner RTU

Generator Operator Remote Operating Center

Generator Operator Substation

Generator Operator SCADA System

Generator/ Generator Network

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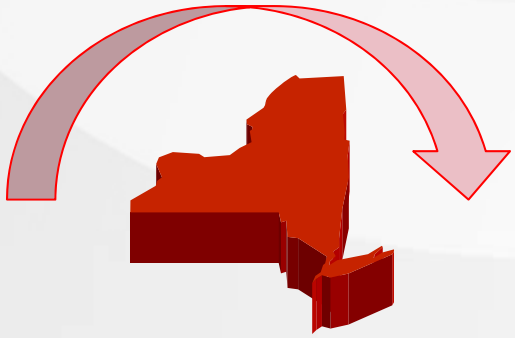
Proposed Condition:

- 5 minute basepoint information is redundantly communicated to participants from the NYISO directly to the generator operator's remote operations center using a web service.
- Generator operator sends outgoing SOAP/xml message to the web service.
  - The outgoing SOAP/xml message identifies the participant and PTID of the unit
- Most recent base point and curtailment flag along with the corresponding time stamp would be returned via the web service.
- The information transfer would be secured using a security certificate arrangement.



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NYISO

Transmission Owner

Transmission Owner POI Substation

Transmission Owner RTU

Make basepoints available via webservice

Generator Operator Remote Operating Center

Generator Operator Substation

Generator Operator SCADA System

If data communications are lost, this can be replaced with phone communications via personnel stationed in the substation.

Generator/ Generator Network

Need for Proposed Basepoints Solution:

- Poor communications infrastructure due to rural nature of substations.
- No current course for monitoring basepoints directly if substation to control center communication is lost
- This exposes operators to overgeneration penalties and potentially degrading system reliability and control despite following all procedures and regulations

Example of Need for Proposed Basepoints Solution:

A Noble windpark experience this problem in the Hurricane Sandy aftermath:

- T1 communications were lost between the substation and the transmission owner.
- Noble requested the transmission owner relay the base points by phone should a curtailment be activated.
- A curtailment became active for several hours, but the transmission owner was unable to fulfill such a request to notify the windfarm.
- Although NYISO agreed Noble had done everything within its control to respond, a significant penalty was assessed.

The meteorological data between Noble's Operations Center and NYISO was able to be transferred showing the web service communication path would have been viable.

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Advantages of Proposed Solution:

- Providing basepoint information via a web service would provide higher communications reliability as many of the basepoint data path segments become redundant.
- Improved reliability of the network and elimination of overgeneration during storms or other periods when data circuits in rural areas may be unstable.
- A web service is low cost to set up and has proven very robust.
- Allows remote operations center to use phone communications to follow basepoints when data communications to the substation are interrupted.
- Wind participants already familiar with web service as meteorological data is communicated to NYISO/AWS using this protocol
  - NYISO Tariffs - Market Administration and Control Area Services Tariff (MST) – 5 MST Control Area Services: Rights and Obligations - 5.8.1 MST Collection and Communication of Meteorological Data by Intermittent Power Resources that Depend on Wind as Their Fuel

Web Service in Other ISO Territories:

The Southwest Power Pool makes much of its data available via SOAP/XML web service communications.

- Noble has developed an application to track 5 minute location imbalance pricing data.
- This application has proven very stable, reliable and was economical to develop.
- A simple and robust application to retrieve the data from a web service can even be programmed with a Microsoft Excel.
- Data can be integrated into many downstream systems, making this a potential useful application for a communications interface.

Desired Outcome:

- Operators, particularly those located in remote areas with poor communications infrastructure, would benefit from improved communications.

- The NYISO would improve system reliability and ease of operations
  - Participants would have greater communications reliability with the basepoint signal
  - Participants would cause fewer deviations due to loss of communications

Noble requests that NYISO estimate the cost of developing such a service and allow the Budgets and Priorities Working Group Subcommittee of the Management Committee to prioritize this project for 2014.