

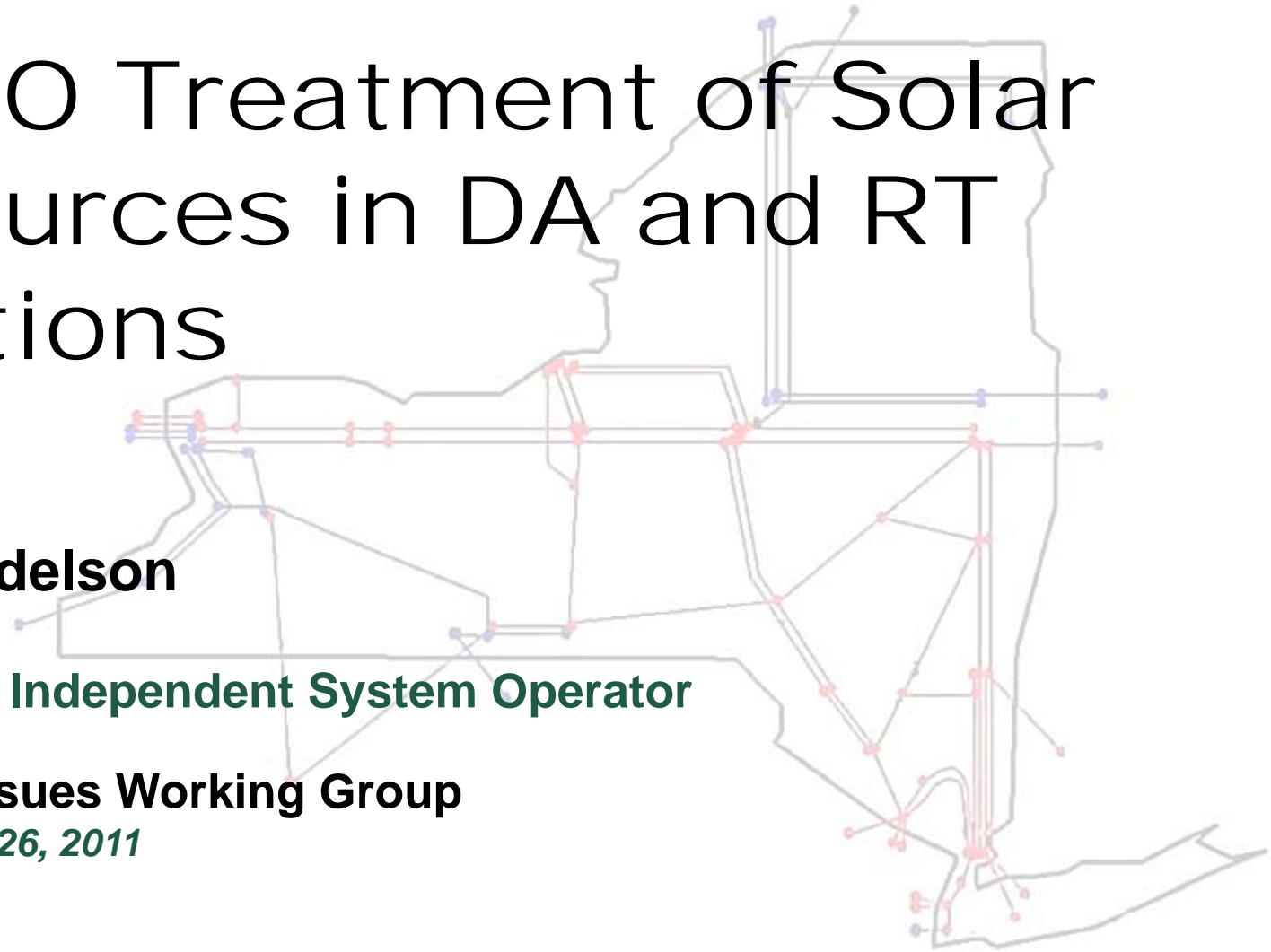
NYISO Treatment of Solar Resources in DA and RT Solutions

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Background

NYISO has one solar resource in the NYISO Interconnection Queue (32mw) expected to come online this fall. There are no other Solar resources in the queue at this time.

Several tariff rules exist which apply to solar resources. Specifically, solar resources are eligible for Compensable Overgeneration (MST Definitions), and are exempt from Persistent Undergeneration Charges (MST 16.3.A.3.4).

The NYISO has no formal forecasting program for Solar resources at this time.

The purpose of this presentation is to inform market participants of the methods planned by NYISO to treat solar resources.

Treatment Day-Ahead

- ◆ The NYISO will only consider solar generation which is bid into the Day-ahead market. The NYISO is not proposing to implement a day-ahead solar forecast for the Day-Ahead Market at this point.
- ◆ Bidding into the Day-Ahead Market is optional for solar resources (proposed ICAP rule change is in process). If a Solar resource chooses to bid into the Day-Ahead Market, it is exposed to the same balancing obligations in Real-time as all other resources.

Treatment Real-time

- ◆ Solar resources using the Fixed Bid mode are eligible for Compensable Overgeneration and are exempt from Persistent Undergeneration Charges. Since they are not dispatchable, the NYISO expects solar resources will use the Fixed Bid mode.
- ◆ NYISO will utilize its real-time persistence forecasting capabilities to manage the variable nature of the solar resources' output. This is the same logic that is used for the oldest/smallest Wind resources which are exempt from NYISO's Wind Forecasting program fees and NYISO's Wind Output Limit.

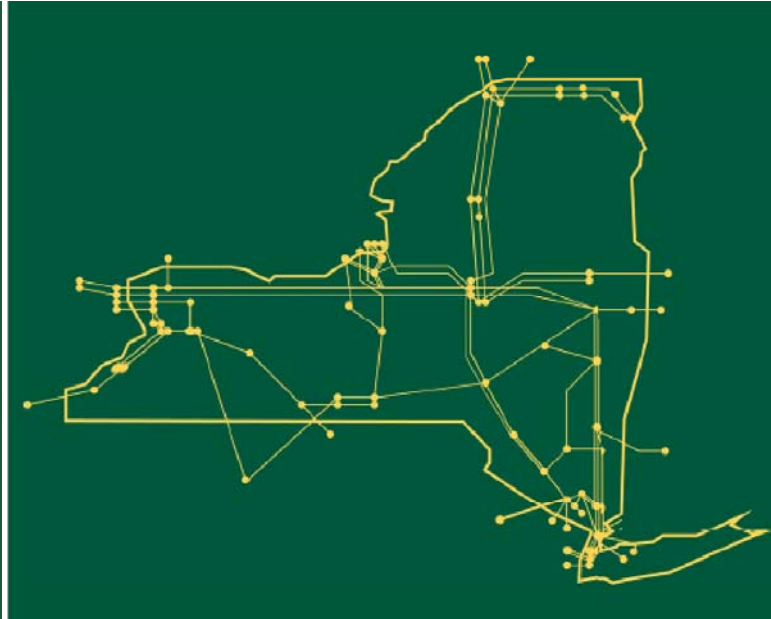
Treatment Real-time – Persistence Forecast

- ◆ Persistence forecasting is a simple, yet fairly accurate forecasting tool. Both RTC and RTD assume the solar resource will operate at its most recent telemetered output level throughout the duration of the optimization period in all passes. In other words, RTC/RTD “persists” the instantaneous telemetered output into its advisory intervals and uses it as the forecasted output of the resource.
- ◆ Utilizing telemetered output, rather than the self-scheduled output levels provided in the Bid of the solar resource allows the real-time commitment and dispatch to more closely reflect the actual output of the solar resource in the RTC/RTD advisory intervals. The persistence forecast improves the accuracy of the dispatch while having no impact on the settlements of the solar resources.

Closing thoughts

- ◆ *NYISO has reviewed its tariff and has determined that no changes are needed to utilize persistence forecasting for solar resources.*
- ◆ *NYISO requires one small software change to include solar resources into its real-time persistence forecasting tool. This change will be implemented in late October 2011.*
- ◆ *At the current and expected level of solar penetration in NY, NYISO is not currently pursuing implementation of a sophisticated solar forecasting program.*
 - However, our current Wind Forecasting program represents a platform that could be extended for solar resources in the future as solar penetration levels increase.

The New York Independent System Operator (NYISO) is a not-for-profit corporation that began operations in 1999. The NYISO operates New York's bulk electricity grid, administers the state's wholesale electricity markets, and conducts reliability and resource planning for the state's bulk electricity system.



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