

# Next Generation of Transmission & Resource Planning Models at NYISO

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# New Planning Models

- ◆ **Integration of data and simulation software, into a single modeling framework**
  - *Easier to handle database, information collection, quality control, post-processing, etc.*
  - *Faster to run*
  - *Capable of handling real world constraints, transmission and generation outages, resource intermittency, etc.*
  - *Provide performance measures in terms of LOLE, congestion costs, etc.*
- ◆ **More flexible to emulate competitive market rules and operations**

# Evolution of Planning Models

- ◆ **High Performance Computing Capability (HPC)**
- ◆ **Centralized Database Management Systems**
- ◆ **Northeast Coordinated System Planning Protocol**
  - *Assists in the coordination of modeling databases with neighboring areas*

# High Performance Computing Capability

- ◆ **Minimizes processing bottlenecks during performance of data-intensive reliability & economic studies**
  - *High Performance Computing (HPC) capability has reduced model run time from 16 hours to 30 minutes*
- ◆ **HPC Phase 1 – MARS (completed in 2011) established an HPC environment in NYISO Data Center for GE MARS applications**
  - *Potential other applications include GE MAPS and ABB GridView*
- ◆ **Hardware -- Hitachi Super Technical Servers**
  - *Hitachi Compute Blade 2000 -- with 7 active blades*
    - Each blade has 32GB of RAM and 12 cores -- each core runs at 3.3GHz using Intel Xeon 5600 series processors
    - Current total is 84 cores running at 3.3GHz – Eight blade being brought online, which would add another 12 cores – bringing total to 96 cores
- ◆ **Operating System -- Windows HPC Server 2008 R2**

# Centralized Database Management – Process

- ◆ **NYISO Data Process - Data submittal, data checking and centralized load flow database**
  - *First, data are provided to NYISO by Market Participants (MPs). NYISO Manuals specify how and when the data are to be submitted. Load and Capacity Data Report (“Gold Book”) preparation team reaches out to MPs for data verification.*
  - *Second, NYISO data verification process is designed to ensure data are input correctly, settings are accurate, etc. This is accomplished by redundant checking and screening data. After a thorough quality assurance review, the load flow cases are centrally maintained in a database used for NYISO studies.*
  - *Third, annual Gold Book publication and FERC 715 filing.*

# Centralized Database Management – E-Planning

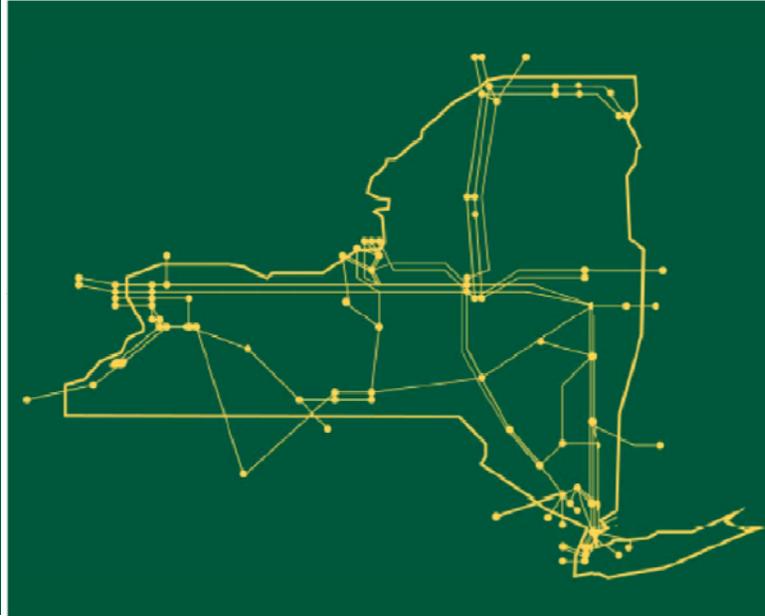
## ◆ E-Planning

- *E-Planning is a comprehensive, collaboration system that allows external stakeholders to share information with the NYISO. The 2010 Phase One project focused on providing E-Planning capability for Interconnection Studies. The 2011 Phase Two project enhanced the E-Planning application by providing customized features to suit the specific planning needs.*
- *Secure and encrypted web-based capability for sharing CEII and market confidential data between NYISO and MPs.*

# Regional Coordination

- ◆ **Northeast Coordinate System Planning Activities**
  - *Exchange data and information to coordinate planning models*
  - *Develop common power system analysis models to perform analyses required to develop the Northeastern Coordinated System Plan (NCSP)*
  - *Includes reliability and economic analyses*
- ◆ **Northeastern ISO/RTO Planning Coordination Protocol**
- ◆ **Inter-area Planning Stakeholder Advisory Committee (IPSAC )**

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



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