

# **SGIG Application Needs**

#### **Presenter**

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#### The Roles of the NYISO



#### Reliable operation of the bulk electricity grid

Managing the flow of power nearly 11,000 circuit-miles of transmission lines from more than 300 generating units



# Administration of open and competitive wholesale electricity markets

 Bringing together buyers and sellers of energy and related products and services



#### Planning for New York's energy future

 Assessing needs over a 10-year horizon and evaluating the feasibility of projects proposed to meet those needs



# Advancing the technological infrastructure of the electric system

 Developing and deploying information technology and tools to make the grid smarter



#### Disclaimer and Acknowledgment

- **Acknowledgment:** This material is based upon work supported by the Department of Energy under Award Number(s) DE-OE0000368
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## **Project Goals**

- Enhance situational awareness
- Implement voltage stability monitoring
- Post event analysis
- Calibration of existing operating models



## Challenges

- New data source for Grid Operations
- Applications are somewhat immature
- An evolving standards and regulatory compliance landscape



### **Current Approach**

- Worked with Grid Operations staff to develop use case documents for the applications
- Developed application's functional requirement specifications with key stakeholders



- Use Case Documents
  - Some strong feelings on both functions and UI elements
  - Dashboard feature
  - User configurable
  - Ability to zoom into and out of specific areas to provide perspective of events



- Dashboard components
  - Alarm panel
    - Angle of separation
    - Voltage magnitude
    - Frequency instability
    - Oscillation/Damping
    - Interface MW flows
    - PMU MW/MVAR flows
  - 2-D geographic map panel showing NYCA and surrounding ISO control areas
    - PMU locations
    - Ability to zoom into and out of specific areas



#### User Interface requirements

- Ability to click on alarm for additional info
  - Selecting alarm will change perspective of other panels in the display
    - Zoom into and out of area with graphic detail and appropriate trend, phasor diagram, scatter plot, spectral diagram, etc.
    - Provide user with location information on PMU/substation
- Other PMU applications (angle of separation, voltage magnitude, frequency instability, etc.)
  - User configurability / flexibility
    - Reference bus configurable by user
    - Color coding for status
    - Ability to trend multiple pairs of angles
    - Ability to change separation limits (user configurable)
    - Ability to activate and de-activate alarms and violation messages



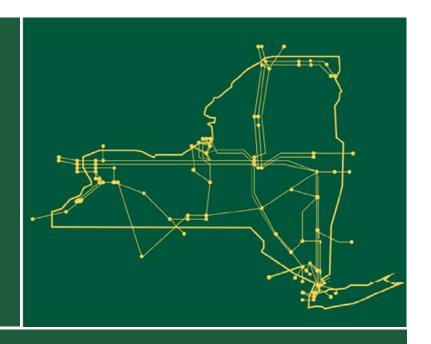
- Reports
  - Daily report
  - PMU performance monitor and report
  - Alarms report



- Data Archival System
  - Provide for a database of raw PMU measurements, application results, events and alarms
  - Facility to enable additional (event specific and user specified) archiving and retrieval



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.



#### www.nyiso.com