

## Meeting Minutes

### **New York State Reliability Council – Extreme Weather Working Group (EWWG) Meeting # 3 – February 27, 2023 Zoom**

#### **1. Draft Meeting Minutes for Meeting # 2- 1/27/2023**

- Meeting minutes were approved with minimal changes

#### **2. Resource Planning Models Overview/Key Assumptions**

- NYISO staff presented insights on current resource planning MARS models and key assumptions
- Reliability planning studies:
  - Short Term Assessments of Reliability (STARs), quarterly study, 5 year horizon with focus on first 3 years
  - Reliability Needs Assessment (RNA), biennial study, identifies needs in years 4-10
  - Comprehensive Reliability Plan (CRP), biennial report, includes evaluation and selection of transmission solutions to reliability needs in years 4-10
- GE MARS: Multi-Area Reliability Simulation program
  - MARS simulations used for various NYISO processes such as RPP, STRP, IRM and LCR studies
  - Sequential Monte Carlo simulation method to determine the reliability indices of a system (LOLE, LOLH, LOEE)
- MARS Load:
  - Historical 8760 hourly MW shapes are used for each of the 7 MARS load bins
  - Planning MARS models use gross load forecasts (with the BTM solar reductions added back) in order to discretely model the BTM solar as 5 years of 8760h MW shapes
- NYISO Forecasts and Extreme Weather
  - Stakeholder comment-Committee can help (has opportunity to help) with developing extreme weather stress test if necessary
- MARS Generation
  - Wind, landfill gas, run-of-river hydro, utility solar, and behind the meter (BTM) solar are modeled using 5 years of historical hourly MW shapes
    - Stakeholder comment-Key question is do we need more years of data or adjustments of data to model representative number of wind lulls
    - Further discussion expanded on this point then referred back to the development of stress test comment-How do you design a reliable system without designing a 1 in a million system
  - Power output of the thermal units depend on available capacity states, transition rates, and forced outages rates or scheduled maintenance
  - Energy Limited Resources (ELR) and Energy Storage (ES)
  - Co-generation-Modeled with associated hourly load profile
- MARS Transmission
  - Transmission system modeled through emergency transfer limits on the interfaces between pairs of interconnected areas-“bubbles and pipes”

- The 4 adjacent neighboring ISOs (Ontario, Quebec, New England, and PJM) are also represented, each in one “bubble”
- MARS contracts: MARS can model both firm and curtailable contracts between areas

### **3. Persistence of High Net-Load in High Renewable Grids**

- EPRI developed methodology to generate weather-driven net load time series
- Renewable generation’s pentad-mean (5-day mean) variability is such that very high net-load events are typically due to very high load, but week-to-week net load variability is strongly related to renewable generation variability
- Data will allow us to look at correlations beyond what we typically expect or look for
  - I.E. When there is a wind lull in July what is the distribution of solar during those wind lulls
- Stakeholder-comment-Long-term storage or else sufficient excess renewable capacity to address seasonal load variability is an important problem we need to solve

### **4. NYISO Offshore Wind Data 2000-2021 from ICAP WG meeting**

- Curt presented 8/8-8/13/2017 wind lull found in NYISO provided data
  - 3.5-4 day period of ~10% wind capacity factors
- Stakeholders concurred and stated importance of knowing correlations between wind lulls and high/low load (if they exist)

### **5. Expanded Extreme Weather Table 1**

- Heat waves, wind lulls, etc... are all events that we can do a probabilistic analysis on
  - Return period-How often we see this event 1-X
- Resiliency planning-events that affect reliability beyond load planning
  - Action item (all)-start thinking about expanding table 1-even if only a roadmap for how to get the data

### **6. Quick Summary of 2/17/23 Climate-Energy-Resilience project kickoff at Brookhaven National Laboratory**

- BNL initiating 3 year project to build a framework to evaluate and inform energy infrastructure resiliency under climate change scenarios and associated extreme weather events
  - Couples an energy focused climate/weather model with grid modeling and data-driven outage forecasting.

### **7. Other comments at end**

- a. Dan action item review NYISO data
- b. Roger analysis of NYISO wind data-Maybe scope out a more formal analysis
  - i. Roger willing to present analysis in future
  - ii. Request to investigate similar (preferably time correlated) database with solar