

Climate Change Phase II Study

Kevin DePugh

Senior Manager, Reliability Planning

TPAS/ESPWG

November 1, 2019, KCC



Climate Change Phase II Analysis

- Phase II of the Climate Change Study will examine various scenarios that could potentially occur on the electric system due to climate change
- Phase II will use the results of Phase I of the study, incorporating forecasted load changes

General Assumptions for Climate Change Phase II Analysis

- **The study will use an hourly, deterministic evaluation tool for the purpose of considering various potential impacts on the electric grid due to Climate Change**
 - Study will not be an extensive reliability study and will not include Resource Adequacy or Transmission Security
 - Study will examine whether Bulk Power System is able to serve load and meet reserve requirements under a variety of conditions
- **The study will use a pipe and bubble type model**
- **The year of study will be 2040**
 - Generation mix will be based on the NYS Climate Leadership and Community Protection Act which is 100 percent zero emission by 2040 (“100 x 40”)
 - All generation will be modeled as zero emissions

Load and Generation Assumptions

LOAD

- Use Climate Change Phase I Load forecast which includes:
 - End-Use Demand
 - Electric Vehicle Use
 - Energy Storage Charging
 - Heat Pumps

GENERATION

- Land-Based Wind
- Off-Shore Wind
- Utility Connected Solar
- BTM Solar
- Hydro
- Nuclear
- Energy Storage
- Imports
- Generic emission free

Scenario Selection

- **Season**
 - Summer, Winter, Spring
- **Generation**
 - Specify the MW for each of the Generation Resources
- **Length of the Scenario**
 - Selectable in the number of days



Sample of Event Toggles

- **Drought**
 - Impacts to hydro generation
 - Select the length in days
- **Extreme Heat**
 - Specify what is impacted: generation, transmission, load
 - Select the length in days
- **Storm Surge**
 - Impacts to load and generation along coastal areas
 - Length of impacts based on event



Study Metrics

- Results will be reported as number of hours in which load is not served, reserve requirements are not met and SCRs are called
- Periodic presentations will be made for stakeholder input
- A final report will be presented and posted by the Planning Department

Our mission, in collaboration with our stakeholders, is to serve the public interest and provide benefit to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policymakers, stakeholders and investors in the power system



Questions?