New York ISO
Independent System Operator

Evolving Resource Adequacy Models: Correlated Outages

Analysis Methodology

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April 2, 2024

Agenda

- Background
- Schedule
- Analysis: Data
- Analysis: Methodology
- Next steps

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Today's Objective

- Today’s objective is to discuss the methodology and data sources that will be used for Correlated Outages analysis for the Evolving Resource Adequacy project

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Background

Background

- Continuing the work started with the Improving Capacity Accreditation and Modeling Improvements for Capacity Accreditation projects, the Evolving Resource Adequacy project will research the need for other potential changes to the assumptions, inputs, and modeling used in the NYISO's current resource adequacy analysis software
- Individual unit outages are currently modeled as uncorrelated in the NYISO's resource adequacy model. However, there may be times when multiple outages occur simultaneously, due to weather and/or common mode failures, which may not be captured by the current modeling of individual unit outages

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Background

- **This track of the project will investigate the potential for correlated outages due to causes that were not addressed by the 2023 Modeling Improvements for Capacity Accreditation project**
- **Project Deliverable: Q4 Study Complete**
  - The completed study will be presented to the ICAPWG and NYSRC's Installed Capacity Subcommittee (ICS) for consideration of any recommendations

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Schedule

Schedule

- **Q1-Q2**
  - Evaluate identified areas of potential enhancement and discuss with stakeholders
  - Begin conducting modeling tests and data analysis
- **Q2-Q3**
  - Discuss results of modeling tests and data analysis with stakeholders
  - Develop preliminary recommendations
- **Q3-Q4**
  - Assess stakeholder feedback and finalize any recommendations

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Analysis: Data

Data Sources

- **NYISO GADS (Generating Availability Data System) event data (2017-2023):**
  - Outages, Derates, Reserve Shutdowns, etc.
  - NYISO uses GADS data as inputs to calculate Installed Reserve Margin (IRM) and Equivalent Forced Outage Rate demand (EFORd) for the Unforced Capacity (UCAP) at the ICAP Market.
- **NYISO Zonal hourly average temperature data (2017-2023)**
- **Installed Capacity data: NYISO Gold Book**

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Analysis: Methodology

Methodology

- Convert each event recorded in GADS to MWh of generation lost on an hourly basis
- Analyze forced outages and derates separately for different resource types: thermal, hydro, other renewables, etc.
- Separate summer and winter events

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Methodology

- Find correlation between number of outage/derate events and MWh lost during these events with statewide average daily temperature and cause codes
- If initial analysis with statewide average daily temperature shows correlation, look for correlation with zonal average daily temperatures

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Potential Results/Output Graphs

- **The study is looking at summer and winter capability periods of the years 2017-2023:**
  - Number of events v/s Daily Average Temperature & their correlation
  - Outages/Derates MWh lost v/s Daily Avg. Temperature & their correlation
  - Correlation between outages/derates and cause codes
- **Are there other analyses/correlations that stakeholders recommend us to look at?**

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Next Steps

Next Steps

- Conduct data analysis using the described methodology and data sources and return to an early May ICAPWG to discuss results with stakeholders

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Questions?

Our Mission & Vision

Mission

Ensure power system reliability and competitive markets for New York in a clean energy future

Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

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