New York ISO
Independent System Operator

# ELR Modeling Approach in the 2023-2024 IRM

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# Background

- **In the past two IRM studies, 2021-2022 and 2022-2023, the elected ELRs were modeled using the simplified approached, with pre-determined output profiles.**
- **GE has subsequently developed the MARS functionalities for the modeling configurations for the ELRs and recommended the TC4C configuration containing the input parameters consistent with the existing pre-determined output profiles.**
  - In the 2022-2023 IRM study, sensitivity cases using the GE ELR functionalities with the TC4C configurations were conducted, which reduces the IRM by ~1% ~~0.5% 0.8%~~ and lowers the EOP activations by ~15 calls/year.
- **The plan for the 2023-2024 IRM is to adopt the enhanced GE ELR functionalities to model the ELR units in the base case.**

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# Previous Testing with GE ELR Model

- Previous testing shows ~1% reduction on the IRM when replacing the fixed output profiles with the GE ELR model using the recommended TC4C configuration
- The GE ELR model with TC4C configuration also reduce the EOP activations by ~<15 calls/year

| Impact of using GE ELR Model with TC4C Configuration(compared to fixed output profiles) | 2021 ELR Whitepaper | 2022 PBC Sensitivity | 2022 FBC ELR Sensitivity |
|---|---|---|---|
| IRM | -0.5% | -0.8% | -0.8% |
| EOP | 174 - 152 (-22) | 45 - 34(-11) | 38 - 24(-14) |

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# Enhancement to TC4C Configuration

- **GE enhanced the ELR functionality with capturing the outage rates for the ELR units**
  - This enhanced functionality allows for removal of the derate on the maximum output currently implemented on the ELR units under the TC4C configuration
  - Outage rate data for the ELR units can be incorporated consistent with other units
- **The NYISO also worked with the NYSRC Consultants to incorporate additional flexibility on the energy limits of the ELR units, such as seasonal variations of the daily energy limits**
  - The additional energy flexibility is based on the review of the unit capability

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# Results

| | Original TC4C Configuration | | | Enhanced TC4C Configuration |
|---|---|---|---|---|
| Impact of using GE ELR Model | 2021 ELR Whitepaper | 2022 PBC Sensitivity | 2022 FBC ELR Sensitivity | 2022 FBC ELR Sensitivity |
| IRM | -0.5% | -0.8% | -0.8% | 19.6% - 18.5% (-1.1%) |
| EOP | 174 - 152(-22) | 45 - 34(-11) | 38 - 24(-14) | 38 – 18 (-20) |

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# Next Steps and Recommendations

- Work with GE to complete the modeling enhancement of incorporating the outage rates for ELR units In the 2023-2024 IRM study, model the ELR units with EL3 and ES unit types, using the enhanced TC4C configuration
- Conduct a special sensitivity case with the ELR units modeled using the pre-determined output profiles (historical modeling)

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# Questions?

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# 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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