

**DRAFT**

Working Paper to Facilitate RRS Discussion  
of  
Large Load Impacts to Bulk Power System  
Reliability

RRS Meeting

June 5, 2025

# Introduction

- The RRS has been charged by the NYSRC EC to review and consider reliability concerns associated with the connection of potential, new large loads in NY.
  - **Automatic UFLS Program Concerns** - Action Item: In October 2024, the EC charged the RRS to review existing USFL criteria, TO USLF Programs, and consider the need for more frequent Automatic USLF Studies “in light” of rapid integration of BTM renewable resources and the likelihood of additional of large load additions.
  - **System Impact Concerns** – Action Item: In February 2025, the EC charged the RRS to review existing system interconnection criteria for large loads to identify concerns in planning criteria.

# Agenda

- Timeline of past (2024 & 2025) NYSRC large load reliability comments to NERC & FERC and a description of the July 10, 224 “NERC Incident Report - Simultaneous Voltage-Sensitive Load Reductions”
- Status of RRS work on Large Load Automatic UFLS Program Concerns
- Status of RRS work on Large Load System Impact Concerns

# February 2024 NYSRC Comments on PRC-006 Standard Authorization Request (SAR)

- In early 2024 the SPIDER WG PRC-6-5 SAR primary objective was to address the imbalance equation in regards to consideration of behind the meter distributed generation (primarily BTM solar) in Transmission Owner Automatic UFLS Programs
- On February 23, 2024 the NYSRC EC provided comments stating the PRC-006 SAR should consider including a review by the drafting team of R4 which requires a five years study interval for Automatic UFLS Studies by Planning Coordinators. NYSRC offered that the current interval of five years is too long in light of rapid changes to the power system and should be performed more frequently than five years; NYSRC suggesting considering 1-2 years
- The NYSRC did support the objective to address the imbalance equation related changes.
- In 2024 due to other priorities this SAR has not moved forward in NERC

## July 10, 2024: NERC Incident Report Summary of Incident

- A 230 kV transmission line experienced a lightning arrester permanent fault. Protection properly cleared the fault
- Three auto-reclose attempts from both ends of the line for a total of six reclose efforts.
- 1,500 MW of total **customer-initiated** simultaneous load loss of load occurred. These were primarily data center customers loads with voltage sensitive protection system designed to “ride through” voltage disturbances by disconnecting from the utility and utilizing various UPS system design parameters and back up generation to keep their operations in-service

# **NERC Incident Report - Actions that TOP's and TPS' Should Start Taking to Avoid Significant Load Loss Issues in the Future**

- Require dynamic response models from large loads in their facility interconnection requirements
- Perform studies to determine the potential magnitude of load loss for system disturbances (faults)
  - Study the impact that these large load losses would have on the system
- Take into consideration the potential for large voltage-sensitive load loss when configuring automatic reclosing schemes
- Actively monitor to detect load losses coincident with system faults
- TOPs: Ensure that operating agreements with large loads include ramp rates when connecting/reconnecting large loads to the system

# **NERC Incident Report** Critical Questions That Must Be Resolved

- Should large loads be a NERC registered entity?
- Should NERC Reliability Standard modifications be developed for large load interconnection requirements?
- What studies should TOPs and TOs perform to “consider” the impacts of large load operation?
- What is the definition of a large load?

## **December 9, 2024:** NYSRC comments to FERC in response in the November FERC Technical Conference to Discuss Issues Related to Co-Location of Large Loads at Generating Facilities

- NYSRC offered that Automatic UFLS programs should be evaluated as part of the interconnection studies under FAC-001 and FAC-002.
- NYSRC offered that it may not be possible for a utility to find enough additional load shedding to cover new large loads and that that this issue be identified and mitigated in the interconnection process
- NYSRC offered the current Requirement for a 5-Year USFL Study should be modified to require annual Automatic UFLS program reviews as one potential solution.



# January 29, 2025 NYSRC Comments to NERC MRC's Request for Input on Large Load Reliability Risks

- **NERC MRC Question #1:** Question what Risks to Reliability do you see with increasing integration of large loads?

## NYSRC Response:

- Repeated its December 9 (Technical Conference) reliability concerns to FERC
- Emphasized that the current PRC-006-5 requirement for five-year UFLS Study requirement is not adequate to preserve reliability given the present pace of accelerating connection of large loads
- Emphasized need for new interconnection process for large loads to ensure that when studied under TPL Standards (including a PRC-006 review) and deficiencies are identified, they are not permitted to interconnect until deficiencies are addressed

# January 29, 2025 NYSRC Comments to NERC MRC's Request for Input on Large Load Reliability Risks

- **NERC MRC Question #2:** What Should NERC Do To Address These Emerging Risks?

## NYSRC Response:

- Shorten the time interval between Automatic UFLS Program Reviews from the five- year requirement
- Require that Automatic UFLS program reviews be undertaken as part of the large load interconnection study process
- Require that large loads offer a portion of proposed connected load to the utility Automatic UFLS program
- Harmonize the federal and state jurisdiction issues

## **May 2025: NYSRC Draft SAR for NERC Consideration – Still out for NYSRC EC Internal Comments**

- On May 14 a draft SAR was distributed for EC review
  - In previous discussions with NERC leadership regarding the NYSRC EC comments, NYSRC was invited to submit a SAR for discussion.
  - In response, NYSRC EC is drafting a SAR to Modify PRC-006 design assessment to look ahead to future large load related system changes to increase the likelihood of Automatic UFLS programs working as designed
  - Modify PRC-006 to require Automatic UFLS planning studies more frequently than once every five years due to rapid of future large load connections

# RRS: Status of UFLS Program Review

- The UFLS WG is considering whether RRS should proceed with a **new, NYSRC Rule** to require the NYISO to perform the 5-Year Automatic UFLS Study more frequently. Work is underway to draft a white paper with the following elements:
  - Fact Finding: Review “what TO’s are doing during the year and annually to meet existing criteria”
  - Review NYISO Operations Engineering annual review of TO submitted automatic UFLS program data.
  - Review of the NYISO’s process in its 5-Year Automatic UFLS Program Study process
  - Identify reliability risks to current Automatic UFLS programs due to large load additions
  - Develop Recommendations for RRS and ultimately EC consideration – **no decisions yet**
- Related and in parallel, the NYSRC EC is working on a **draft NERC SAR** for NERC to consider the need to modify NERC criteria for a more frequent review of the 5-year interval for review of Automatic UFLS programs.

# RRS: Status of System Impacts Studies Review

- There may be three different system impact interconnection issues
  1. There may be a need for consideration of Load under Automatic UFLS control at the time a new large load requests for interconnection are reviewed
    - A. This issue will be captured by the UFLS WG work
  2. Consideration of simultaneous loss of voltage-sensitive load reductions in the planning horizon.
  3. In the form of a question, “Should RRS be considering reliability concerns for potential large, single loss load connections or is the current set of tariff and criteria sufficient...”