
New York's Commercial and Technical Issues



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New York Independent System Operator Bulk Transmission Voltage Control

- ⌚ **General rule is that voltages are maintained within $\pm 5\%$ of design voltage level.**
- ⌚ **Studies of critical buses are performed to determine pre-contingency voltage levels needed to ensure system disturbance doesn't result in post-contingency voltage limits associated with voltage collapse.**


New York Independent System Operator Bulk Transmission Voltage Control

-  **Voltage control of the NY Independent System Operator secured transmission system is coordinated to provide adequate voltage at all times to maintain power transfer capability.**
-  **When there is a major emergency due to voltage problems, the NY Independent System Operator notifies all transmission operators of the condition and directs the necessary corrective action.**

New York Independent System Operator Bulk Transmission Voltage Control

- ⌚ If it is anticipated that adequate time will not exist to prevent a voltage collapse following a contingency, then the NY Independent System Operator directs the necessary corrective action, including load shedding, to maintain a minimum voltage equal to the pre-contingency low limit.**

New York Independent System Operator Bulk Transmission Voltage Control

-  If the actual voltage at any critical bus declines below the post-contingency low limit and is indicative of a system voltage collapse, then the NY Independent System Operator will immediately order load shedding in the amount and at the locations deemed necessary to maintain a minimum voltage equal to the pre-contingency low limit.

Commercial / Technical

- ⌚ **Public Service Commission (PSC) requires utilities to meet American National Standards Institute (ANSI) C84.1-1995 which sets voltage deviation limits**
 - Explicit voltage ranges for low and medium voltage
 - Percent ranges for high voltage
 - Commission has authority to mandate corrective actions for non-compliance
 - ❖ *Occurrences not that common*
 - ❖ *Utility have agreed to corrective action where necessary*

Commercial / Technical

- ⌚ **Utilities expected to meet Institute of Electrical & Electronics Engineers, Inc. (IEEE) 519 (harmonics) but no specific PSC mandate**
- ⌚ **Power quality complaints investigated upon request**
 - Typically find issues with utility and customer
 - We don't control customer actions

Case Study #1

⌚ **Complaint from a customer with a 1.5 MW load**

⌚ **Review of complaint found**

- Momentary interruptions and voltage sags above normal
- Sustained interruptions were average
- Internal customer grounding and uninterruptable power supply issues

⌚ **Recommendations for utility**

- Add recloser on utility circuit
- Circuit reconfiguration
- **These actions substantially reduced momentary interruptions and voltage sags**

Case Study #2

Large Industrial Customer

- Service at 115 kV

Customer owned substation

- 115/13.8 kV
- 4 banks plus spare

Complained of voltage sag from utility

- Sag determined to be limited to one bank
- Assisted customer in determining they had a faulty tap changer

Case Study #3

Small manufacturer

- Complained that utility voltage disrupting customer equipment

Determined to be unbalanced utility three phase load

Utility at Staff's urging

- shifted load
- Extended another feeder
- Rebuilt portion of circuit

Case Study #4

Concrete Manufacturer

- Complained that utility service disrupting electronic controls, causing driers to trip off-line and disrupting production

Determined to be unbalanced utility load

- Extended feeder with spare capacity