NYSEG and RG&E CCRP Update

Integrated System Planning – 2/18/2025

NYSEG and RG&E CCRP Update

Themes from PSC Order included need for additional clarity:

- Details surrounding on 5/10/20-year plan, including rate impacts.
- Discussion on how resilience measures can reduce storm restoration cost, outage frequency, and outage duration.
- Details on our approach to undergrounding + local topology changes.
- Enhanced discussion of Operational Processes and climate change.
- Effects of high-demand / high-heat events on existing equipment.
- Performance-based benchmarks.

5, 10, and 20-year Plan

Order pg. 40: *"The Plans submitted by NYSEG and RG&E generally do not provide implementation schedules for their proposed projects, as required by PSL §66(29)(iv)…For example, the companies' Plans propose to implement ongoing flood mitigation projects and provide associated conceptual cost estimates for forecasted projects but lack any indication regarding whether a forecasted project would be performed in the 10-year, 15-year or 20-year timeframe. As for their proposed programs to update transmission lines, the companies' Plans fail to specify forecasted investments."*

RG&E

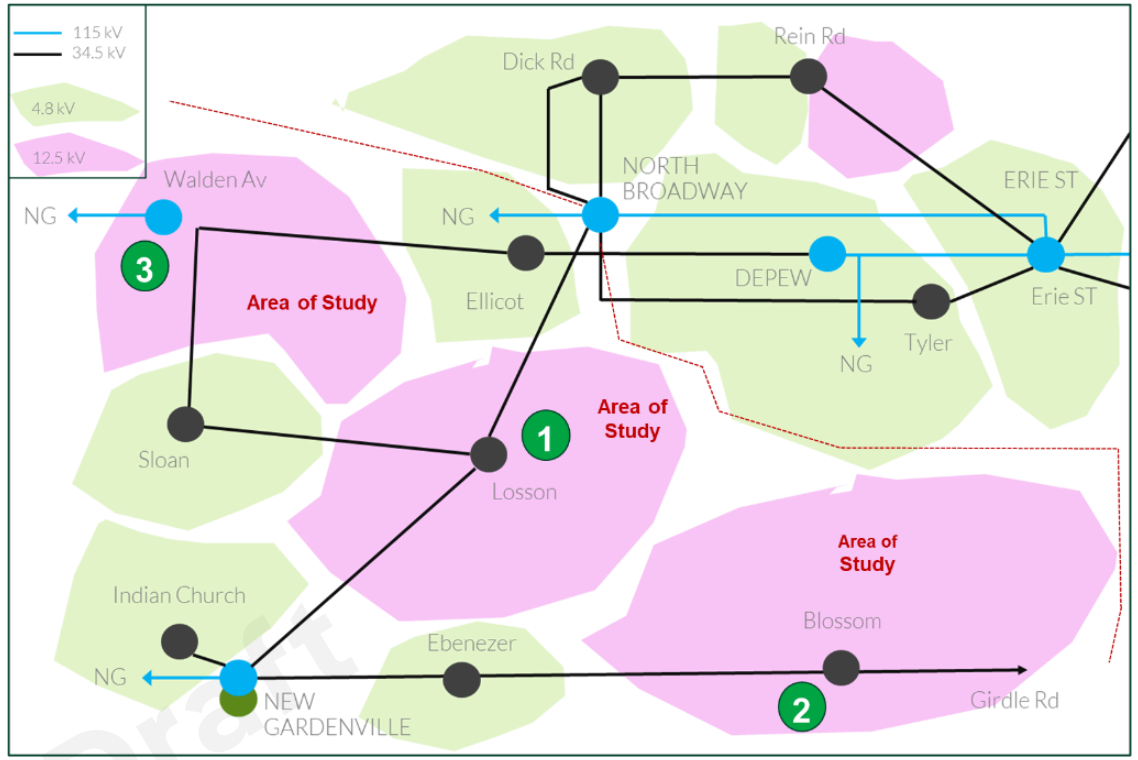
Project/Program	Hazards Addressed	Asset Family	2026-2030 (First 5 Years)	2031-2035 (Years 6-10)	2036-2045 (Years 11 – 20)
Resiliency	Wind / Wind-and-Ice	Distribution	✓	✓	✓
SCADA/Automation	Wind / Wind-and-Ice	Distribution	✓	✓	-
Distribution Automation	Wind / Wind-and-Ice	Distribution	✓	✓	-
Trip Saver	Wind / Wind-and-Ice	Distribution	✓	✓	✓
Station 85 Rebuild	Flooding	Substation	-	-	✓
Targeted Underground	Wind / Wind-and-Ice	Distribution	✓	✓	✓

NYSEG

Project/Program	Hazards Addressed	Asset Family	2026-2030 (First 5 Years)	2031-2035 (Years 6-10)	2036-2045 (Years 11 – 20)
21st Century Grid (Lancaster Area)	All	All	✓	-	-
Distribution Resiliency	Wind / Wind-and-Ice	Distribution	✓	✓	✓
SCADA/Automation	Wind / Wind-and-Ice	Distribution	✓	-	-
Distribution Automation	Wind / Wind-and-Ice	Distribution	✓	-	-
Trip Saver	Wind / Wind-and-Ice	Distribution	✓	✓	✓
Java Microgrid	Wind / Wind-and-Ice	Distribution / Substation	✓	-	-
Deposit Substation Rebuild	Flooding	Substation	-	✓	-
Fourth St. Substation Rebuild	Flooding	Substation	-	-	✓
Hammondsport Substation Rebuild	Flooding	Substation	-	-	✓
Vestal Substation Rebuild	Flooding	Substation	-	✓	-
Transformer Specification Update	Heat	Substation	✓	✓	✓
Targeted Underground	Wind / Wind-and-Ice	Distribution	✓	✓	✓

21st Century Grid Project

- Comprehensive review of Cheektowaga[1] area of NYSEG's system.
- Development of holistic solution set that enhances reliability, resiliency, capacity, and addresses asset condition needs.



Substation	Area Upgrades	Upgrade Capacity, Reliability, and Resilience Benefits
Losson Road	• Full substation rebuild. • **Replace existing transformers with two new 50 MVA transformers** • **Convert ~20 miles of 4.8 kV to 12.5 kV**	• Retire one transformer with Fair health rating. • **Upgrade of overloaded grid assets to accommodate 30% area load growth. (+Resilience to Extreme Heat)** • **Converted distribution circuits rebuilt to latest resilient designs. (+Resilience to Extreme Heat, Wind, Wind-and-Ice)**
Blossom Rd.	• Full substation rebuild. • **Replace existing transformers with two new 37.3 MVA transformers** • **Convert ~24 miles of 4.8 kV to 12.5 kV**	• Retire two transformers with Fair health rating. • **Upgrade of overloaded grid assets to accommodate 30% area load growth. (+Resilience to Extreme Heat)** • **Converted distribution circuits rebuilt to latest resilient designs. (+Resilience to Extreme Heat, Wind, Wind-and-Ice)** • Limited remote SCADA control and telemetry from equipment.
Walden Avenue	• Upgraded 115 kV facilities. • Fully rebuilt 34.5 kV facilities. • **Replace existing transformers with two new 50 MVA transformers** • **Convert ~41 miles of 4.8 kV to 12.5 kV**	• **Upgrade of overloaded grid assets to accommodate 30% area load growth. (+Resilience to Extreme Heat)** • **Converted distribution circuits rebuilt to latest resilient designs. (+Resilience to Extreme Heat, Wind, Wind-and-Ice)** • Retire 10 circuit breakers with Very Poor, Poor, or Fair health ratings. • Structures in Moderate to Poor condition. • Limited remote SCADA control and telemetry from equipment.
North Broadway	• **Add one new 50 MVA transformer** • Multiple 115kV and 34.5 kV circuit breakers.	• **Upgrade of overloaded grid assets to accommodate 30% area load growth. (+Resilience to Extreme Heat).** • Enables 115 kV and 34.5 kV re-routing to retire other area substations with poor asset health.
Losson Switching Station (New)	• **Five positions to provide backup for Walden Ave. circuits** • **Two express underground feeds to Walden Ave. and Losson Rd.**	• **Improved N-1 capabilities (additional tie provided) (+Resilience to Extreme Heat, Wind, Wind-and-Ice)** • **Converted distribution circuits rebuilt to latest resilient designs. (+Resilience to Extreme Heat, Wind, Wind-and-Ice)**
Sloan Switching Station (New)	• **Three positions to backup Walden Ave. circuits.** • **2 x express underground feeds to Blossom Rd. and Losson Rd.**	• **Improved N-1 capabilities (additional tie provided) (+Resilience to Extreme Heat, Wind, Wind-and-Ice)** • **Converted distribution circuits rebuilt to latest resilient designs. (+Resilience to Extreme Heat, Wind, Wind-and-Ice)**

***Note (1)**: Area was selected based on overall ranking of poorest reliability performance within the NYSEG Territory.*

Targeted Undergrounding

Order pg. 36: *"...although the Plan makes general mention of undergrounding wires, a complete benefit cost analysis was not provided by NYSEG for areas where such investment might be considered."*

→ **Developed new program designed to identify targeted areas where building resilience through undergrounding would be the most feasible and beneficial.**

→ **Identification of targeted locations to include multiple considerations including:**

- **Outage History**: Analysis of appropriate customer outage metrics potentially including the list of worst performing circuits.
- **Community Resilience**: Analysis of what connected facilities that would benefit from the undergrounding (e.g., hospitals, town centers, community shelters).
- **Disadvantaged Communities:** Determining if the undergrounding section contributes to serving or providing back-up for a circuit feeding a disadvantaged community.
- **Local topology Considerations**: Considerations like difficult to access areas (e.g., steep or offroad terrain), potential for out-of-ROW tree related outages, major road or water crossings, multiple circuit rights-of-way, etc.

Storm Restoration Cost, Outage Frequency, Outage Duration

Order pg. 36: *"...Plans did not include a sufficient discussion or analysis detailing how each proposed program or project would reduce storm restorations costs, outage frequency, or outage duration."*
Order pg. 38: *"The Commission thus directs NYSEG and RG&E to consider and address this finding in their revised Plans, and include more explicit and detailed analyses quantifying forecasted reductions in outage frequency and duration"*

→ Quantitative and/or qualitative discussion or details added in the following sections:

Resilience Measure	Storm Restoration Cost Reduction	Outage Frequency	Outage Duration
Distribution Resiliency	Section 5.3.2.1	Section 5.3.2.1	Section 5.3.2.1
Substation Flood Mitigation	Section 5.2.1 (pg. 38)	Section 5.2.1 (pg. 38)	Section 5.2.1 (pg. 38)
Transformer Temperature Upgrade	-	Section 5.1.1	Section 5.1.1
21st Century Grid Project	Section 5.3.2.4	Section 5.3.2.4	Section 5.3.2.4
Java Microgrid	-	Section 5.3.2.3	Section 5.3.2.3
Trip Saver	Section 5.3.2.2	Section 5.3.2.2	Section 5.3.2.2
Targeted Undergrounding	Section 5.3.2.5	Section 5.3.2.5	Section 5.3.2.5

Distribution Resilience Plan Example

WHAT IS HARDENING? (Withstand)

Improvement of system infrastructure by using more robust construction practices and materials

Hardening focuses on:

- Use of stronger, contact-resistant conductor
- Use of tree wire in all areas where tree encroachment is possible
- Replacement of failure-prone poles within the scope of a resiliency project
- Selective undergrounding of wires and other assets
- Enhanced design standards for increased resiliency and reliability

WHAT IS AUTOMATION? (Absorb)

Installation of SCADA devices to segment long circuits and increase speed of power restoration

Automation focuses on:

- Deployment of distribution reclosers and SCADA devices
- Segmentation of circuits into pockets of 500 customers
  - 500 customers is a general rule of thumb; however, this is to be analyzed on a case-by-case basis
- Creation of new circuit ties utilizing automation technology
- Sequential Reclosing Schemes

WHAT IS TOPOLOGY? (Advance/Recover)

Circuit-specific combination of actions including upgrading lines, increasing feeder ties and switching capabilities (with Automation), and enabling further segmentation of circuits to limit the number of customers that are impacted by an outage

Topology focuses on:

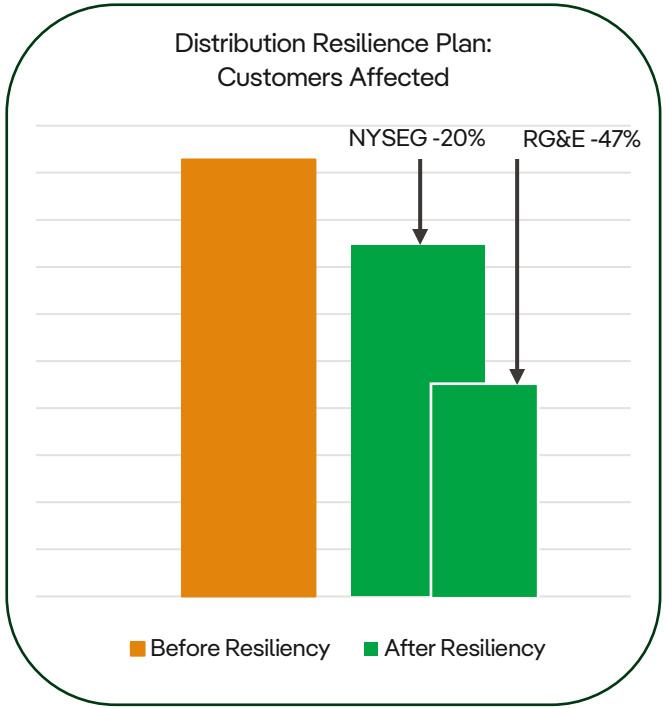
- Line upgrades, voltage conversions, load transfers, and construction of new circuit segments
- Installation of devices including step-transformers, voltage regulators, SCADA devices, and disconnect switches

WHAT IS EVM? (Adv./Recover)

A program working to maintain clearance between vegetation and distribution system infrastructure that is more aggressive than standard trimming

EVM focuses on:

- Historically trees have been a leading cause of outages, particularly during major storms
- Enhanced vegetation management's "ground-to-sky" approach can effectively reduce the probability of tree-caused outages.



2026 Resiliency Circuits

Division	Circuit	Circuit Ranking	Total Customers
Binghamton	Kattleville 422	10	2,898
Geneva	Greenidge 596	14	2,220
Mechanicville	Klinekill 630	27	1,464
Mechanicville	Klinekill 631	25	1,866
Oneonta	Shandaken 501	26	1,878
Lancaster	Cemetery Rd. 490	16	3,339
Lancaster	North Broadway 535	22	2,220

Division	Circuit	Circuit Ranking	Total Customers
Central	0056RO5180	4	2,939
Central	0230R05163	6	2,325
Lakeshore	0205LS5202	8	2,017

Circuit Reconfiguration & Local Solutions

Order pg. 37: *"We concur with CaSE that strategies for circuit configurations and other local solutions must be explicitly discussed, where appropriate, in NYSEG's revised Plan."*

→ Includes further discussion of automation & topology (see below example)

→ Revised to include 21st Century Grid (21st Century Grid Project)

WHAT IS AUTOMATION?

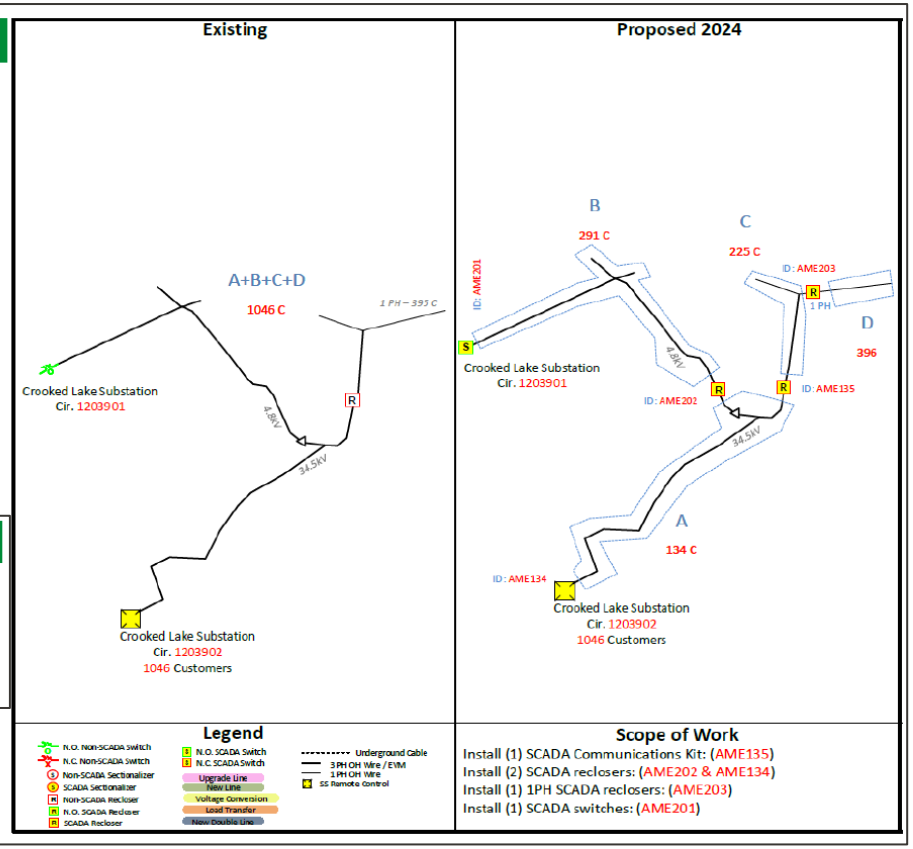
Installation of SCADA devices to segment long circuits and increase speed of power restoration

Automation focuses on:

- Deployment of distribution reclosers and SCADA devices
- Segmentation of circuits into pockets of 500 customers
  - 500 customers is a general rule of thumb, however this is to be analyzed on a case by case basis
- Creation of new circuit ties utilizing automation technology
- Current Automation guidelines calls for Sequential Reclosing Schemes as standard

WHAT IS TOPOLOGY?

Circuit-specific combination of actions including upgrading lines, increasing feeder ties and switching capabilities (with Automation), and enabling further segmentation of circuits to limit the number of customers that are impacted by an outage



For Fault on 4.8 kV section:

Before:
- 1,046 customers lost

After:
- 291 customers lost

\+ Automatic/remote tie capability
\+ Decreased customer count/device

Equipment and High-Heat Exposure

Order pg. 40: *"The Commission agrees with CaSE that NYSEG's Plan failed to appropriately analyze the effects on its existing equipment during periods of high electric load and increased ambient temperatures. Accordingly, NYSEG is directed to address these issues and comments when it files its revised plan and to continue to work with its climate resilience working group on these issues in the future."*

→ Expanded Section 5.1.1 for discussion of impacts of extreme heat events on substation transformers.

→ Included new sensitivity event analysis for transformer impacts during an extra-criteria heat event with a maximum temperature of 103° F.

→ Expanded Section 5.1.2 for discussion of impacts of extreme heat events on substation circuit breakers.

Performance-Based Benchmarks

Order pg. 50: *""CaSE asserts that NYSEG's Plan lacks major performance benchmarks that would measure effectiveness of the resiliency efforts. We agree with CaSE, as NYSEG and RG&E's Plans only include implementation-based benchmarks."*

→ **Updated benchmarks to include Implementation-based benchmarks for all resilience measures.**

→ **Updated benchmarks to include Performance-based benchmarks for majority of resilience measures.**

Implementation-based Metrics:

- **Transformer Specification:** Total number of transformers owned by NYSEG that meet the latest temperature specification.
- **Substation Flood Damage:** Detailed report on schedule and budget for implementation of substation flood projects in the CCRP. Description of flood damage experienced at locations that have had flood mitigation performed under the CCRP.
- **TripSaver Program:** Detailed report on schedule and budget for implementation of Trip Savers, total number of TripSavers installed.
- **Java Microgrid:** Report on schedule and budget for implementation of Java Microgrid.
- **21st Century Grid:** Detailed reports on schedule and budget for implementation of the 21st Century Grid Plan.
- **Targeted Undergrounding:** Detailed report on schedule and budget for implementation of Targeted Undergrounding, total miles of Targeted Undergrounding completed.

Performance-based Metrics:

- **Substation Flood Damage:** Description of flood damage experienced at locations that have had flood mitigation performed under the CCRP.
- **Distribution Circuit Resiliency:** Report on circuit customer outages experienced, including storm and non-storm activity, for the first three full years following the completion of a Distribution Circuit Resiliency project compared to three full years prior, excluding outages related to transmission and substation.
- **21st Century Grid (Lancaster Area):** Report on circuit customer outages experienced, including storm and non-storm activity, for the first three full years following the completion of the 21st Century Grid project compared to three full years prior.
- **TripSaver:** Report on circuit customer outages experienced, including storm and non-storm activity the first three full years for the locations or circuits following the installation of TripSavers, compared to three full years prior, excluding outages related to transmission and substation.
- **Java Microgrid:** Report on number of times that microgrid successfully operated, and total number of customer outage and durations prevented.
- **21st Century Grid:** Report on circuit customer outages experienced, including storm and non-storm activity, for the first three full years following the completion of the 21st Century Grid project compared to three full years prior.
- **Targeted Undergrounding:** Report on circuit customer outages experienced, including storm and non-storm activity, for the first three full years following the completion of a Targeted Underground project compared to three full years prior, excluding outages related to transmission and substation.

Operational Processes

Order pg. 38: "*...the Plans filed by NYSEG and RG&E include overly broad or limited proposed changes to processes and operations to address these risks...Specifically, detailed changes to emergency response processes or procedures are not discussed in the Plans.***"**

Operational Processes	CCRP Update
Emergency Response	Added Section
Substations and Flooding	Modified Section
Reliability Analysis	Modified Section
Load Forecasting	Added Section
Worker Safety	Added Section
Asset Management	Added Section
Vegetation Management	Added Section

Rate Impact

Order pg. 41-42: *"...NYSEG and RG&E are directed to provide in their revised Plans appropriate estimates of the rate impacts for the first five-years and in a format similar to that provided by the other utilities in their Plans..."*

	2026	2027	2028	2029	2030
Incremental Revenue Requirement ($000)	$X	$X	$X	$X	$X
Total % Bill Increase	X%	X%	X%	X%	X%
Deliver % Bill Increase	X%	X%	X%	X%	X%

CRWG Update

Climate Resilience Working Group

- Telecommunication have received additional background information via e-mail and were included in our invite list for this and future CRWG meetings.