Campville 115 kV Substation Relay Upgrades

Planning Advisory Committee Meeting

June 20, 2024

Agenda

- Project Background
- Project Location
- Project Drivers
- Project Scope
- Project Summary
- Feedback & Next Steps

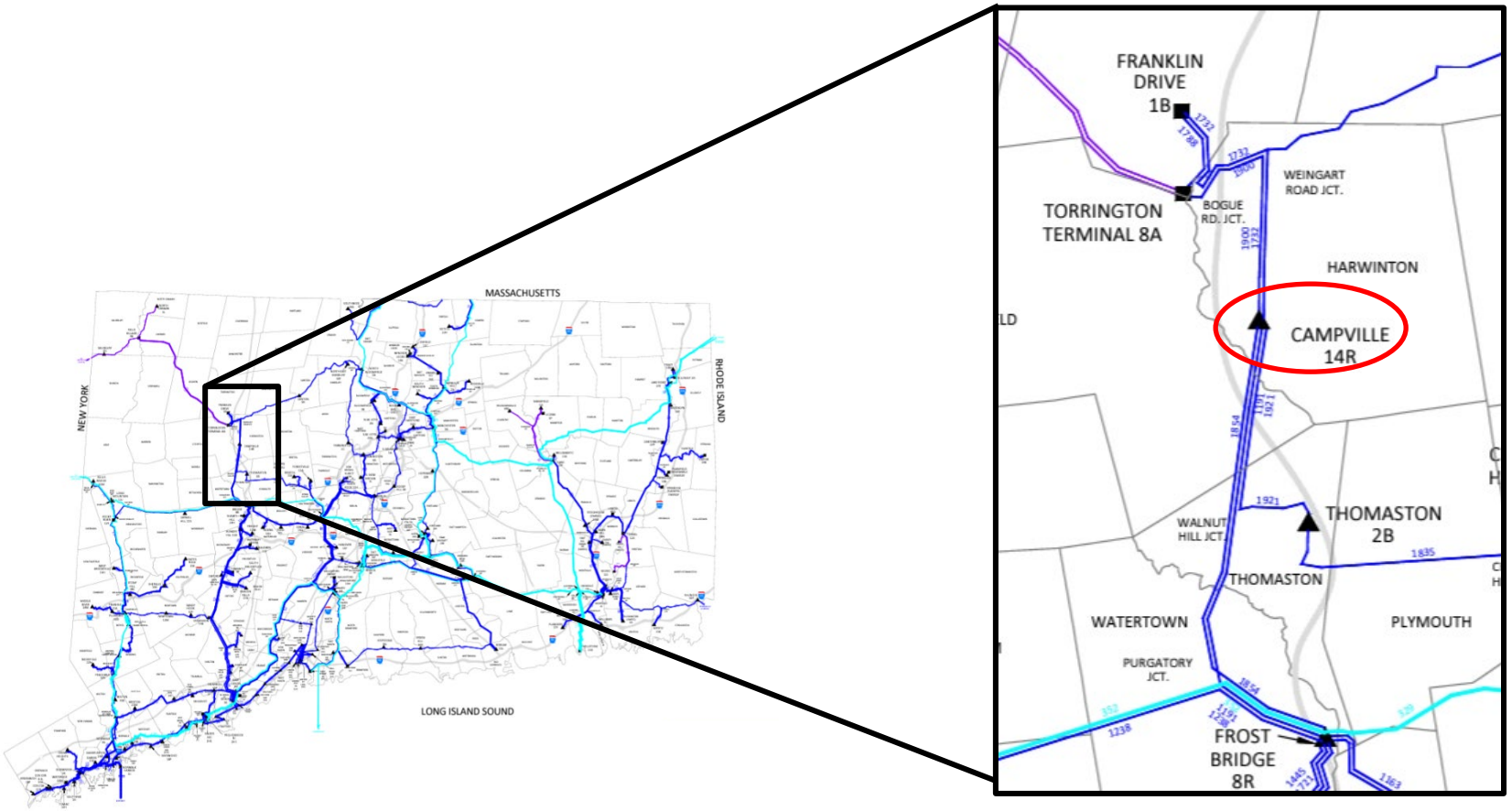
Project Background

- Campville 115 kV substation located in Harwinton, CT has 5 lines terminating at the station
  - 115 kV lines 1191, 1732, 1854, 1900, and 1921
- Campville contains relays and communication equipment manufactured by both General Electric (GE) and Schweitzer Engineering Labs (SEL)

Campville - SEL 115 kV Line 1900 Relay

Campville - GE 115 kV Line 1191 Relay

Project Location



Project Drivers

- Current relay/communication equipment no longer supported by manufacturers
  - Suppliers are no longer manufacturing replacements for failed units
- History of failures and mis-operations from certain GE relay types
- Proactively replacing obsolete equipment increases system reliability
- Coordinated replacement of multiple classes of relay/communications devices will minimize costs by improving efficiencies

Project Drivers – Asset Condition – GE Relays

- GE issued an advisory letter in 2013 stating that specific GE Central Processing Units, Power Supply Modules, and Firmware will no longer be manufactured
  - Product support was discontinued in July 2020
  - Lack of support heightens concern with reliable operations going forward
- GE has also issued a product advisory alluding to a large population of their relays being at risk for mis-operating due to “soft errors”
  - Soft errors are malfunctions that do not cause physical harm to equipment
  - Upgrading to new platform GE relays is the recommended way to resolve the risk. Firmware upgrades alone are insufficient due to the age of the relays
  - Eversource has experienced these type of hardware and firmware related mis-operations from GE relays in the past at other major substations

Project Drivers – Schweitzer (SEL) Relays

- Current SEL relays at Campville lack the advanced sequential events recorder (SER) data, event reporting and monitoring capabilities that are heavily relied upon today when analyzing protection system performance
- Newer series SEL relays offer:
  - Faster operating protection, which can reduce equipment damage and improve system stability
  - More advanced communication protocols such as IEC 61850 and IEEE-1588 Precision Time Protocol (PTP), which are utilized by Eversource for protection, control, automation and time synchronization
- Replacement facilitates Power Line Carrier (PLC) elimination and conversion to differential protection over fiber
  - Improves reliability, redundancy, speed, and simplicity of protection
- Addressing GE relay asset condition issues presents the opportunity to utilize scheduling and mobilization efficiencies to perform SEL relay improvements that would otherwise require additional efforts in the future

Project Scope and Summary

- Replace 8 relays (4 GE and 4 SEL) with new SEL relays
- To accommodate PLC elimination, PLC equipment in yard, including wave traps and line tuning units, will be removed

- Estimated PTF Cost = **$5.067 M** (-25% / +50%)
- Projected In-service date: **Q3 2025**

Feedback and Next Steps

- Please submit any written comments on these projects to:
  - pac.responses@eversource.com
  - pacmatters@iso-ne.com

Presentation	Date	Description
Initial Presentation	June 20, 2024	Presentation on Campville substation relay upgrades
Questions/Feedback	July 5, 2024	Comment deadline

Questions