

Vermont's Local System Plan

TOPAC meeting
November 15, 2023



Vermont's Local System Plan

- Required by Attachment K
 - The LSP, or Local System Plan, addresses non-PTF transmission (115 kV or greater) and subtransmission facilities (69, 46 or 34.5 kV)
 - Attachment K requires stakeholder input on LSP
 - Several companies own and operate non-PTF facilities in VT
 - The two largest utilities are
 - Green Mountain Power (GMP)
 - Vermont Electric Coop (VEC)
 - LSP is discussed at the Vermont System Planning Committee (VSPC) (website link below):
 - <http://www.vermontspc.com/default.aspx>
 - Vermont has both networked transmission and underlying subtransmission networks
 - Some LSP projects have RSP elements and vice versa
 - LSP considerations for those types of projects are noted here

Project Status Definitions

This presentation describes projects that are at different maturity levels

Concept	Project is under consideration as a possible solution to a need, but little or no analysis is available
Proposed	The local distribution utility or VELCO has determined that the project is an appropriate solution to a need, but a budget has not yet been approved, or the project has not yet obtained Proposed Plan Approval (PPA or I.3.9 Approval) from ISO-NE
Planned	I.3.9 Approval has been obtained or a budget has been approved
Permitting	Project is in the permitting stage
Under Construction	Project is under construction
In-Service	Project is complete

List of Vermont LSP Projects

Items in **red** are new or have been updated

Project name	Project proponents / low voltage system	Critical load level	Current status (Projected in-service date)	LSP elements
Florence substation	VELCO/GMP	N/A	In Service (2023)	115/46 kV Asset condition
North Rutland substation	VELCO/GMP	N/A	In Service (2022)	115/46 kV Asset condition
Highgate substation	VELCO/VEC	N/A	Under Construction (2024)	115/46 kV Asset condition
Middlebury substation	VELCO/GMP	N/A	Under Construction (2024)	115/46 kV Asset condition

List of Vermont LSP Projects

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Project name	Project proponents / low voltage system	Critical load level	Current status (Projected in-service date)	LSP elements
Windsor substation	VELCO/GMP	N/A	Proposed (2024)	115/46 kV Asset condition
St Johnsbury substation	VELCO/GMP	N/A	Proposed (2024)	115/34.5 kV Asset condition
Tafts Corner Transformer	VELCO/GMP/VEC	Now	Proposed (2024)	2 nd 115/12.5 kV transformer
East Fairfax substation	VELCO/GMP/VEC	N/A	Concept (2026)	115/34.5 kV Asset condition
South Hero substation	VELCO/VEC	N/A	Concept (2026)	115/13.2 kV Asset condition
Cold River substation	VELCO/GMP	N/A	Concept (2027)	115/46 kV Asset condition

INDIVIDUAL PROJECT INFO

Highgate substation refurbishment

- Address asset condition concerns
 - Improve the protection and control system
 - Replace 46 kV circuit breakers
 - Replace station batteries
 - Install circuit breaker and power transformer monitoring systems
 - Improve physical access
 - Address control building space limitations
- Cost estimate
 - \$18.2M with 20% contingency

Middlebury substation refurbishment

- Address asset condition concerns
 - Replace 115 kV oil circuit breaker (PTF)
 - Remove 115 kV breaker bypass switches (PTF)
 - Improve the protection and control system
 - Install transformer passive secondary oil containment system
 - Install power transformer and circuit breaker monitoring systems
 - Address control building space limitations
- Cost estimate
 - \$17.4M with 20% contingency
- PAC presentation
 - https://smd.iso-ne.com/operations-services/ceii/pac/2022/11/a03_middlebury_condition_assessment_and_solution.pdf

Windsor substation refurbishment

- Address asset condition concerns
 - New control building
 - New protection and control system
 - Replace 46 kV oil circuit breakers
 - Replace 115 kV circuit switcher
 - Replace the substation fence
 - Replace station service
 - Install transformer secondary oil-containment system
 - Bring telecommunication, security, and monitoring systems up to VELCO Standard
- Cost estimate
 - \$13M with 50% contingency

St Johnsbury substation refurbishment

- Address asset condition concerns
 - New control building
 - New protection and control system
 - Replace 34.5 kV oil circuit breaker
 - Replace 115 kV circuit switcher with 115 kV gas breaker and disconnect switch
 - Replace and expand the substation fence
 - Replace station service
 - Bring telecommunication, security, and monitoring systems up to VELCO Standard
- Cost estimate
 - \$23M with 30% contingency

Taft's Corner Transformer addition

- Maintain supply to 12.47 kV load during single T2 115/12.47kV transformer outage
 - Install spare transformer
 - Install 115kV breaker
 - Install a 115kV voltage transformer
 - Install protection relays and controls
 - Including all required hardware, cable and wiring
- Cost estimate
 - \$0.8M with 20% contingency
- I.3.9 application
 - https://smd.iso-ne.com/operations-services/ceii/rc/2023/04/a03_14_velco_23_t01.zip

Contact Information

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