Vermont's Local System Plan

TOPAC meeting

November 20, 2024

vermont electric power company

VELCO

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

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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**

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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
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

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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	Planned (2027)	115/46 kV Asset condition
St Johnsbury substation	VELCO/GMP	N/A	Planned (2025)	115/34.5 kV Asset condition
Tafts Corner Transformer	VELCO/GMP/VEC	Now	Planned (2025)	2nd 115/12.5 kV transformer
East Fairfax substation	VELCO/GMP/VEC	N/A	Concept (2028)	115/34.5 kV Asset condition
South Hero substation	VELCO/VEC	N/A	Concept (2028)	115/13.2 kV Asset condition
Cold River substation	VELCO/GMP	N/A	Concept (2029)	115/46 kV Asset condition

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INDIVIDUAL PROJECT INFO

REPEATED FROM LAST YEAR

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

Tafts 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

- Questions on this presentation:

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- VSPC contact information
  - Web site link:
    - http://www.vermontspc.com/default.aspx

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