

# Vermont Long-Range Plan Needs Assessment Study Scope

Rodolfo Vega  
Engineer, Transmission Planning

# Discussion Topics

- Background
- Objectives
- Study Assumptions
- Next Steps / Tentative Schedule

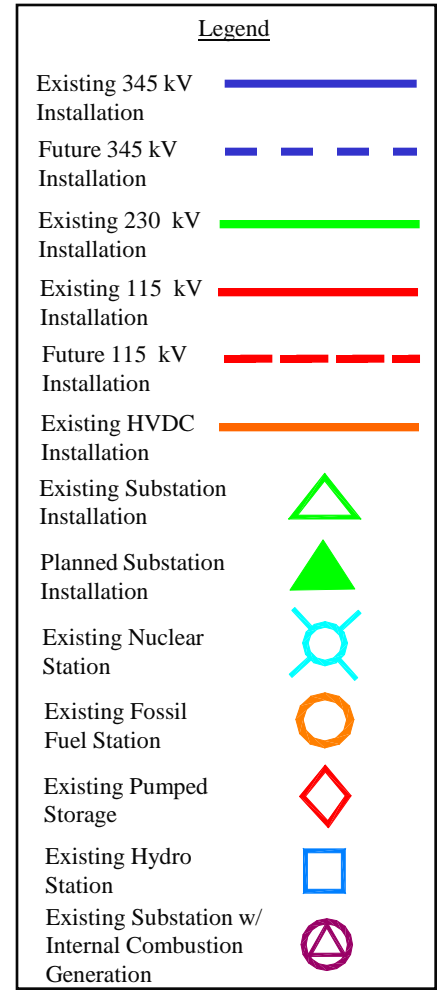
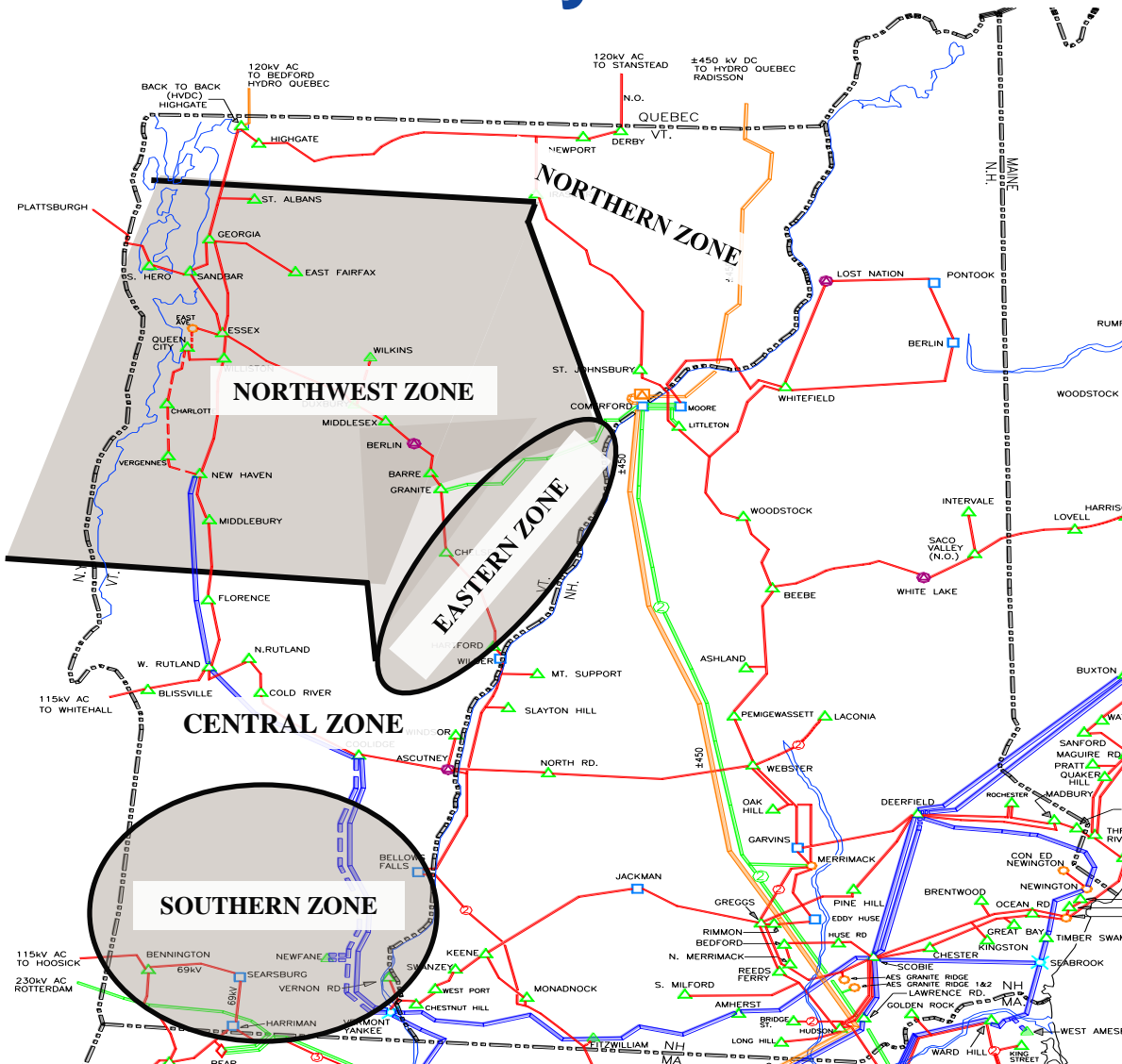
# Background

- Vermont Act 61 signed into law in 2005
- Act 61 requires Vermont Electric Power Company (VELCO) to develop a Long-Range Plan (LRP) every three years
- Most recent Vermont LRP issued July 2006
- Efforts are underway to update the Vermont LRP
- Vermont Study Group
  - ISO New England
  - Vermont Electric Power Company
  - Northeast Utilities
  - National Grid
  - Collaboration with New York ISO

# Objectives

- Focus of study is to reliably serve Vermont loads while considering overall system performance
- Vermont LRP will provide information to the New England regional transmission planning process
- Determine system needs based on steady state testing of N-1 and N-1-1 design contingencies
- Identify critical load levels for required solutions to address system needs
- Determine solution alternatives to address system needs

# Vermont Study Area



# Study Assumptions

- Load level
  - 2018 summer peak extreme forecast
  - 2018 winter peak extreme forecast (where appropriate)
- Intra-area transfer conditions
  - High New England – New York (1,000 MW) / East – West (3,000 MW)
  - Low New England – New York (0 MW) / East – West (1,200)
  - High New York – New England (1,000 MW) / West – East (1,000 MW)
- Vermont Resource Dispatch
  - Vermont Yankee on – 667 MW
  - Highgate Converter on – 200 MW
  - McNeil on – 51 MW
  - Ryegate on – 20 MW
  - Coventry on – 5 MW
  - Limited in-state Vermont Hydro ~ 15 MW

# Study Assumptions, cont.

- Projects in-service – all I.3.9 approved projects including
  - Monadnock Area Reliability Project
  - Northwest Vermont Reliability Project
  - Southern Loop Project (pending)
  - Y-138 Closing Project
  - Western Massachusetts Reinforcements
- Sensitivities to major transmission projects as appropriate
- N-1 Testing
  - NERC Category A: all facilities in-service
  - NERC Category B: loss of single element
  - NERC Category C: loss of two or more elements

# Study Assumptions, cont.

- N-1-1 Testing: initial facility out of service assumptions
  - Highgate Converter <sup>1,3</sup>
  - Vermont Yankee <sup>2,3</sup>
  - PV-20 (Causeway cable out)
  - Reduced PV-20 capacity (some underwater cables out)
  - Key 345/115 kV and 230/115 kV autotransformers (Vernon/Vermont Yankee, New Haven, Coolidge, Granite)
  - Key transmission lines such as,
    - Vermont Yankee – Newfane 345 kV Line
    - Coolidge – West Rutland 345 kV (350) Line
    - Comerford – Granite 230 kV (F206) Line

<sup>1</sup> Testing of N-1 and N-1-1 contingences will also be performed with Highgate out as a base condition.

<sup>2</sup> Testing of N-1 and N-1-1 contingences will also be performed with Vermont Yankee out as a base condition.

<sup>3</sup> Testing of N-1 and N-1-1 contingences will also be performed with both Highgate and Vermont Yankee out as base conditions.

# Next Steps / Tentative Schedule

- Conduct Needs Assessment (target completion date – November 2008)
- Inform PAC of Vermont system problems and timing of needs (target date – December 2008)
- Identify potential solutions to address system deficiencies (target date – March 2009)