

Gorge Area Reinforcement Project (GAR)

Key Stakeholder Meeting

March 13, 2008



Agenda

- Welcome
- Outline Key Stakeholder Process
- Discuss Project Alternatives
 - Transmission Alternatives
 - Non-Transmission Alternatives
- Q&A, Wrap Up, Next Steps



Key Stakeholder Process

- **Key Stakeholder Meetings / Open Houses**
 1. Today
 2. Thursday, April 10 (5:00 – 8:00 pm)
 3. May (date / time to be determined)
- **Open Houses (Open to Public as well)**
 - Specific Area of Interest Stations
- **Desired outcome** of the public process:
 - Develop best alternative for permitting
 - Understand community questions and concerns
 - Foster trust within the community for the process
 - Develop community support for the best alternative emerging from the public process



Northern Chittenden County Reliability Issues

- Planning Overview
- Project Need
- Solutions
 - Transmission Infrastructure Upgrades
 - Gorge Area Reinforcement
 - Essex Area Reinforcement
 - Malletts Bay Area Reinforcement
 - Non-Transmission Alternatives

Presented by David Grimason



Planning Overview

Maintaining Reliability

- **Criteria** – any one element removed without low voltage or overload with no generation at peak load
- **Forecast** – loads are projected for future years
- **Computer Simulations** help determine
 - Reliability criteria violations
 - Improvements for compliance
 - Life of improvements



Project Need

Two Planning Criteria Violations occur in 2011

- The loss of the Essex to Gorge line will cause unacceptable low voltage in Colchester
- The loss of one of the two major transformers at Essex VELCO will cause the other to overload



Solutions

(two flavors)

- **Transmission Infrastructure Improvements** – reinforce the electric system to accommodate increasing demand
 - Add sources
 - Add lines
 - Reconductor existing lines

the topic of this presentation

- **Non-Transmission Alternatives** – control demands on the electric system to maintain 2010 levels
 - Energy Efficiency
 - Demand Response
 - Generation

to be presented by David Grimason



Transmission Infrastructure Improvement Options

- **Gorge Area Reinforcement** – The second phase of a three phase plan to maintain reliability in northern Chittenden County as the area load increases
- **Essex Area Reinforcement** – Originally conceived as the third phase tested as a second phase option
- **Malletts Bay Area Reinforcement** – Logical improvement in the 2020's tested as a second phase option



Gorge Area Reinforcement Option

- New Gorge VELCO substation
- Upgrade existing Gorge GMP substation.
- Upgrade line in existing corridor between Gorge VELCO and Gorge GMP (700 ft)
- Upgrade line in existing corridor between Gorge GMP and McNeil (3307) (2 miles)
- Remove the GMP 34.5 kV Waterfront Line between McNeil and Queen City (3323-3328)



Gorge VELCO and Gorge GMP Substations



Existing Gorge GMP Substation



Gorge VELCO Substation Site and Corridor to Gorge GMP Substation



3307 – Gorge GMP Substation to Winooski Development Area



3307 Line from Gorge GMP Substation looking west toward I89



3307 – Winooski Development Area (Underground)



3307 Line from Winooski looking east toward I89



3307 – Tower south of Winooski Bridge



3307 – Winooski Bridge to Island west of Salmon Hole



3307 – Winooski 1 Hydro looking west



3307 – Salmon Hole looking north



3307 – Island west of Salmon Hole to Railroad Bridge



3307 – Railroad bridge looking east toward Winooski Sewer Plant



3307 – Railroad Bridge to McNeil



McNeil Plant



Essex Area Reinforcement Option

- Replace existing Essex VELCO transformers with larger (75 MVA) units
- Reconductor lines between Essex VELCO and Essex GMP (1000 ft)
- Major upgrade of Essex GMP
- Separate and reconductor Essex to Gorge lines (3307-3308) (3 miles)
- Add breakers at Gorge GMP
- Remove GMP Waterfront Lines between McNeil and Queen City (3323-3328)



The lines from Essex VELCO Substation to Essex GMP



Essex to Gorge 34.5 kV lines separated and reconductored in corridor with East Avenue Loop 115 kV lines at Country Club Estates

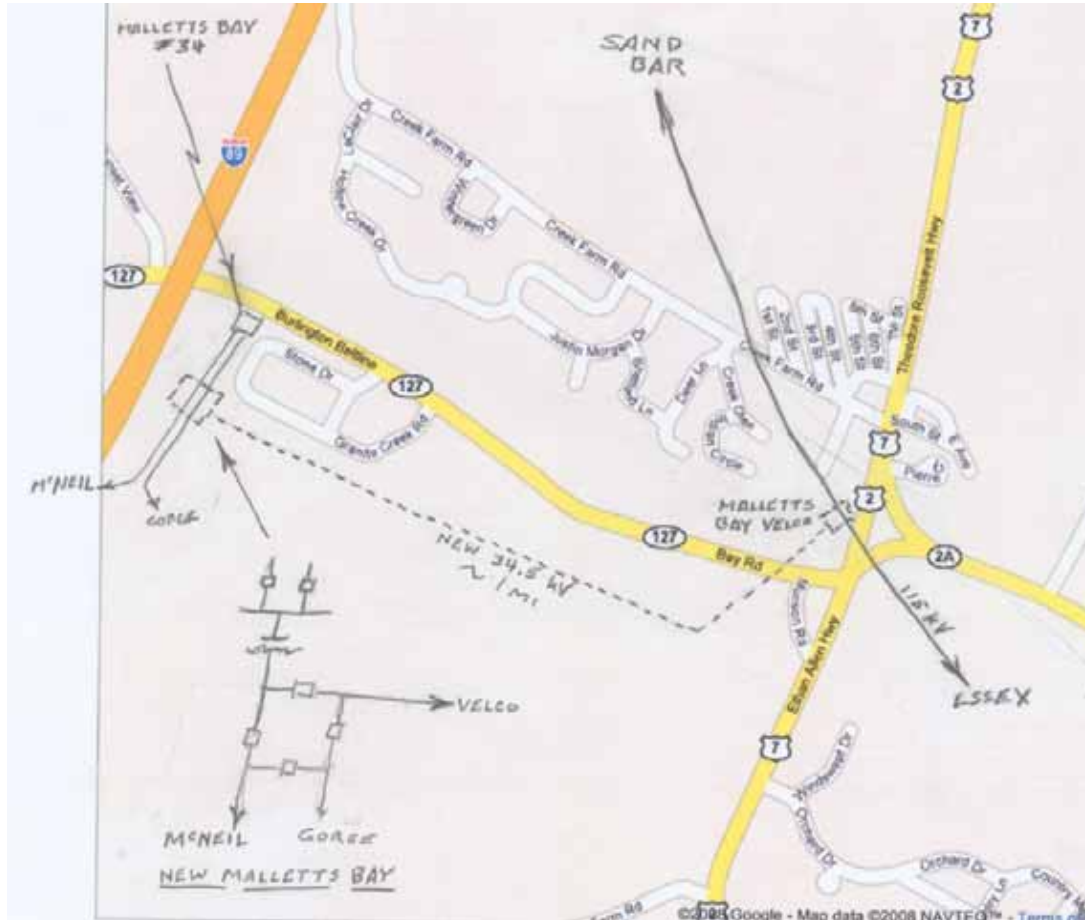


Malletts Bay Area Reinforcement Option

- Malletts Bay VELCO Substation
- New line between Malletts Bay VELCO and Malletts Bay GMP (1 mile)
- Major upgrade of Malletts Bay GMP
- Remove GMP Waterfront Lines between McNeil and Queen City (3323-3328)



Malletts Bay VELCO



GREEN MOUNTAIN POWER

On. Every Day.

Transmission Infrastructure Upgrade Comparison

Gorge	Essex	Malletts Bay
2017	2018	2018
Line upgrades in existing corridors – one to one replacement (2 miles)	Line upgrade in existing corridor – places four lines in a corridor where three exist (3 miles)	New line in new corridor (1 mile)
Gorge GMP upgrade needed for other projects (<i>advantage</i>)	Gorge GMP upgrade needed for other projects (<i>disadvantage</i>)	Gorge GMP upgrade needed for other projects (<i>disadvantage</i>)



Non-Transmission Alternatives ("NTAs")

Regulatory rules required any utility proposing a transmission or distribution ("T&D") system upgrade to consider alternatives that could possibly cost less and defer or eliminate the need for the T&D project



Typical “NTAs” Considered

- Energy Efficiency
 - Could providing incentives for customers to install energy efficient equipment which reduces energy use at system peak defer the project?
- Local Generation
 - Could installing new or more generation locally defer the project?
 - Utility scale generation
 - Customer generation
 - Co-generation
- Demand Response
 - Could asking customers to curtail energy use on the system during system peaks defer the project?
 - Turning off non-critical equipment
 - Self generation
 - Utility initiated curtailment through load control technologies



NTAs are analyzed individually and in combination with each other



NTAs under consideration for the GAR Project

- Energy Efficiency
- Generation
- Demand Response
- Other



Energy Efficiency

- GMP has asked EVT to include the area served by the Gorge Area project in its “Geo-Targeting” Initiative
 - Geo-Targeting is a very focused effort to reduce load through energy efficiency in a limited geographical area over a short period of time.
- The Geo-Targeting effort was initiated by EVT with approval from the state regulators independent of the Gorge Project. It is still uncertain whether geo-targeting will have any impact on the need for the Gorge Area upgrade



Geo-Targeted Area for GAR

Colchester

Essex

Essex Junction

South Burlington

Winooski



Generation

- Considering a 25 MW Combustion Turbine Generator at GMP's Gorge Substation to replace the existing 10 MW Generator



Demand Response

- Assessing the potential of demand response in the Gorge Area
- Generally demand response is considered a short-term option



Other NTAs

- We seek your input and ideas



Expected Project Phases & Possible Timing

2008

- Examination of section 248 criteria, preliminary engineering and alternatives
 - wetlands, plants, wildlife, historic, archaeological, noise, safety, aesthetics
 - Begin public involvement, address any right of way concerns and finalize the design
 - Vermont Public Service Board filing & post certification, other environmental permits & continued public involvement
-
- Project to begin after PSB approval
 - Expected completion prior to summer 2011



Next Steps

- Handout – Things to think about for project criteria
- Let others in your area of interest know about the project.
- Next meeting / open house – April 10 – South Burlington High School – 5:00 to 8:00 pm
- Contact project team with questions in the meantime

