



St Albans Asset Condition Mitigation Project

VSPC Geographic
Targeting Subcommittee
March 28, 2017

vermont electric power company



St Albans Substation Project objective

- St. Albans substation constructed in 1958
 - Served by a radial transmission line tap
 - Contains two 115/34.5 kV transformers
- Project will mitigate asset condition concerns
 - Severe cracking on concrete foundations
 - Obsolete and degraded protection equipment
 - Control house rusted and damaged
 - 115 kV circuit switchers below short circuit level
 - 34.5 kV oil circuit breakers significantly beyond useful life
- Also will make some improvements
 - Bring design to current standards
 - Replace two transformers with one transformer
- Preliminary/conceptual cost estimate is \$5.1M

St. Albans Project scope of work

Substation

- New control building
- New protection and controls
- Replace 115kV circuit switcher with 115kV breaker and disconnect
- Replace two 115/34.5kV transformers with one existing 115/34.5kV transformer
- Install oil containment system
- Replace 34.5kV oil circuit breaker with new vacuum breaker
- Install new 115kV and 34.5kV instrument voltage transformers
- New 34.5kV box structure and switches

Tap station

- Install new steel structure and motor operated switch inside station
- Install SCADA remote terminal unit (RTU)

Tap line

- Remove existing line switch
- 16 structures have been evaluated and 12 structures require replacement due to condition
- 5 structures are also impacted by work at substation and tap station

NTA Screening

Identify the proposed upgrade:	<u>St Albans Asset Condition Mitigation Project</u>
Date of analysis:	<u>March 14th, 2017</u>
<p>1. Does the project meet one of the following criteria that define the term “impracticable” (<i>check all that apply</i>)?</p> <ul style="list-style-type: none">a. Needed for a redundant supply to a radial load; or <input type="checkbox"/>b. Maintenance-related, addressing asset condition, operations, or safety; or <input checked="" type="checkbox"/>c. Addressing transmission performance, e.g., addition of high-speed protection or a switch to sectionalize a line; or <input type="checkbox"/>d. Needed to address stability or short circuit problems;¹ or <input type="checkbox"/>e. Other technical reason why NTAs are impracticable. <i>Attach detailed justification that must be reviewed by the VSPC.</i> <input type="checkbox"/> <p><i>If any box above is checked, project screens out of full NTA analysis.</i></p>	
<p>2. What is the proposed transmission project’s need date? <u>December 2018</u></p> <p><i>If the need for the project is based on existing or imminent reliability criteria violations (i.e., arising within one year based on the controlling load forecast), project screens out of full NTA analysis.</i></p>	

NTA Screening (continued)

3. Could elimination or deferral of all or part of the upgrade be accomplished by a 25% or smaller load reduction or off-setting generation of the same magnitude? Yes No
(See note.)

If "no," project screens out of full NTA analysis.

4. Is the likely reduction in costs from the potential elimination or deferral of all or part of the upgrade greater than \$2.5 million. (See note.) Yes No

If "no," project screens out of full NTA analysis.

Sign and date this form.

This analysis performed by: Hantz A Pr sum  – System Planning Manager

Print name & title

VELCO

Company

March 14th, 2017

Date



Signature

NTA Screening (notes for lines 3 and 4)

NTA Screening Form

Notes, examples and descriptions

Line 3 Non-transmission alternatives should be considered if the project can be altered or deferred with load reductions or off-setting generation, according to the schedule below, of existing peak load of the affected area at the time of the need for the preferred transmission alternatives. This schedule recognizes that deployment of a load reduction program in a specific area takes time to organize and implement. Therefore, the following assumptions including time and accrued load reduction should be considered when examining the load reduction:

Period	Magnitude of load reduction and/or off-setting generation
1-3 years	15% of peak load
5 years	20% of peak load
10 years	25% of peak load

Line 4 The \$2.5 million is in year 2012 dollars and is adjusted for escalation in future years using the Handy Whitman transmission cost index. This threshold does not account for the expected costs of the NTAs, but rather only includes the expected savings to the cost of the transmission project.