

Project-Specific Action Plan for the Hartford/Ascutney Area¹

Lead utility	GMP	Date of this plan:
Affected utilities	GMP	September 21, 2012
Description of deficiency	Low voltages and subtransmission line overloads in the Hartford subarea occur when a single element is out of service (VELCO's Hartford 115/46 kV autotransformer). This is a predominantly bulk deficiency that affects the subtransmission system.	
Critical load level / timing of need	Approximately 80% of peak load (i.e. approximately 800 Mw statewide or approximately 120 Mw within the local load pocket) / Past	
Geographica area	The area of concern includes Salisbury and eastward, Chelsea and southward, Springfield and northward, and Bellows Falls and westward. The load in this "pocket" is assumed to grow at the very modest rate of 0.5% per year, or approximately 10% in 20 years.	
Transmission solution(s) & study status	<p>The following alternative solutions have been studied or are currently under study with all studies scheduled to be completed by [TBD]:</p> <ul style="list-style-type: none"> • Wilder tie closure: Close the normally open Wilder 46/13.8/115 kV tie to the NGRID system. Status: Supplemental analysis requested by NGRID, which was not part of the original study scope, is required to assess potential adverse impact on NGRID. This alternative's cost estimate is still being formulated and may depend on the results of the pending supplemental analysis. • Eastern Loop creation: Close the normally open Bradford 736 switch and replace the thermally-limiting 18.75 MVA Ryegate 46/34.5 kV transformer with a unit of at least 25 MVA summer normal nameplate rating. Reconductor the thermally-limiting Newbury tap-Woodville 46 kV line. Status: This alternative's cost estimate is still being formulated. • Add capacitor and reconductor: Add a 5.4 Mvar SCADA-switched shunt capacitor at GMP's planned White River substation and reconductor the thermally-limiting Taftsville-Quechee-Norwich 46 kV line. Status: Study complete. • Add dynamic compensator and reconductor: Add a +5.0/-2.5 Mvar solid-state var compensator at GMP's planned White River substation and reconductor the thermally-limiting Taftsville- 	

¹ Referred to as "Hartford Area (Hartford, Chelsea) in 2012 Vermont Long-Range Transmission Plan, page 33.

	<p>Quechee-Norwich 46 kV line].</p> <p>Status: Study complete.</p> <ul style="list-style-type: none"> • New transformer: Add a second 115/46 kV autotransformer at Hartford for parallel operation with the existing bank. <p>Status: Study complete.</p> <p>Preferred transmission alternative will be presented to VSPC by <u>TBD</u>.</p>
NTA screening	This deficiency was screened in for full NTA analysis in the 2012 VT Long-Range Transmission Plan.
NTA solution(s) & study status	<p>NTA analysis was completed in 2011. The study concluded that energy efficiency and/or generation could not feasibly and economically resolve the deficiency for the following reasons: The potential transmission solutions for this area are unusually low in cost relative to the size of the problem. The first four of the five possible alternative solutions in the list above are estimated to have capital costs of less than \$5M, and two of them are less than \$2.5M. In contrast, it is estimated that NTA resources of 5 MW (as soon as possible) and an additional 6 MW (within ten years) would be required to resolve the deficiency. Given the impracticality of procuring these resources in the form of DR or EE within an area of this limited size and loading (particularly for the near-term need) it is assumed that most if not all of these resources would have to be peaking generation. A conservative estimate for the capital cost of such generation would be \$1.2 M/MW or \$6.0 M as soon as possible and an additional \$7.2 M within ten years. Accordingly, for this particular system deficiency, any one of several transmission solutions would clearly be less costly than the least costly NTA.</p> <p>The NTA analysis will be presented to the VSPC by [TBD].</p>
NTA/TA hybrid solution(s) & study status	Some modest NTA elements might be combined with the transmission alternatives listed above. No analysis yet.
Solution selection	Pending completion of supplemental analysis (described above) and completion of cost estimates.
Cost allocation	Pending solution selection.
Public outreach	The public outreach plan will be developed by <u>TBD</u> following solution selection.
Implementation	The anticipated date by which a Section 248 application will be filed is <u>TBD</u> .
Factors that may affect project timing	<p>The following considerations may affect project timing:</p> <ul style="list-style-type: none"> • VELCO priorities and schedule • NGRID commitment/cooperation re Wilder alternative • Results and timing of Wilder alternative supplemental analysis