February 14, 2014

Mrs. Susan Hudson, Clerk
Vermont Public Service Board
112 State Street
Montpelier, VT 05620

Dear Mrs. Hudson:

The Vermont System Planning Committee (VSPC) is pleased to submit its 2014 Annual Report to the Public Service Board and Public Service Department as required by Paragraph 89 of the Docket 7081 Memorandum of Understanding.

This report details activities of the VSPC during 2013 and the status of work on all reliability deficiencies identified in the 2012 Vermont Long-Range Transmission Plan. In addition to addressing the requirements of the Docket 7081 MOU, this year's Annual Report encompasses for the first time the requirements of *Dockets 7873 & 7874—Attachment II Screening Framework and Guidelines for Implementation of 30 V.S.A. § 8005a(d)(2)* as modified to incorporate distribution constraints.

Paragraph 1 of the Screening Framework requires:

> *The Vermont System Planning Committee ("VSPC") processes, reporting mechanisms, public engagement, and subcommittees shall be utilized for the purpose of making recommendations to the Public Service Board ("Board") regarding constraints within the electric grid, and the potential for non-transmission alternatives ("NTAs"), including new Sustainably Priced Energy Enterprise Development ("SPEED") standard-offer plants, to mitigate those constraints, pursuant to 30 V.S.A. § 8005a(d)(2)….The VSPC shall make its recommendations to the Board no later than January 1 of each year, or more frequently if constraints are identified or analysis is completed mid-year.*

On October 31, 2013, the VSPC made a filing in the context of its geographic targeting recommendations that provided an update of all areas that met the reporting criteria under paragraph 1. In that filing we did not make explicit that it satisfied the January 1 filling requirement. If any ambiguity remains regarding the required information, it is answered in detail in the annual report, which provides an update for every reliability deficiency identified to date, including both those that have screened in for NTA potential and those that have screened out. In future years, the VSPC will ensure that the January 1 filing requirement is addressed explicitly.

Attached please find an original and four copies of the Annual Report. This report has also been filed with the Department of Public Service today.

Sincerely,

Deena L. Frankel, Secretary
Vermont System Planning Committee

Attachment

February 14, 2014

Commissioner Christopher Recchia
Vermont Department of Public Service
112 State Street
Montpelier, VT 05620

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Vermont System Planning Committee

Attachment

VERMONT SYSTEM PLANNING COMMITTEE

ANNUAL REPORT TO THE PUBLIC SERVICE BOARD & PUBLIC SERVICE DEPARTMENT

FEBRUARY 14, 2014

INTRODUCTION

In accordance with the Memorandum of Understanding (MOU) approved by the Public Service Board in Docket 7081 as amended[1], this document comprises the 2014 annual report of the Vermont System Planning Committee (VSPC).

Among its provisions, the Docket 7081 MOU requires that the VSPC provide a report to the Public Service Board (PSB or Board) and Public Service Department (PSD) by February 15 of each year and post that report on the VSPC website. The report must consist of at least the following:

89. A report on each Reliability Deficiency identified to date in the [Long-Range Transmission] Plan or through the process described in Steps 1 through 6, above, including:

    i. The status of NTA [Non-Transmission Alternative] Analysis for the Reliability Deficiency.

    ii. The status of decision-making on the selection of alternative(s) to address the Reliability Deficiency.

    iii. The status of decision-making on the allocation of costs of the alternative to address the Reliability Deficiency.

    iv. The strategy chosen for implementing the alternative selected to address the Reliability Deficiency.

    v. The status of implementation of the alternative(s) to address the Reliability Deficiency.

[1] Investigation into Least-Cost Integrated Resource Planning for Vermont Electric Power Company, Inc.'s Transmission System. Amended 1/30/2012, 8/1/2012 & 11/6/2013.

vi. All documentation pursuant to paragraph 86, above, relating to advisory votes within the preceding calendar year.[2]

90. A statement of the dates and locations of all VSPC meetings held during the preceding year.[3]

This document represents the 2014 VSPC annual report. It reports on the status of transmission and non-transmission analysis, solution selection, cost allocation, and implementation planning of all identified reliability deficiencies as required by the MOU, as well as the meetings and organizational work of the VSPC during 2013.

VSPC ACCOMPLISHMENTS, MEETINGS AND PROCESS

The past year was the sixth full year of VSPC operation. During this year, the major activities and accomplishments of the Committee included:

- Reorganized the subcommittee structure consistent with the Docket 7081 process improvements approved in 2012 and 2013. Changes included:
    - Discontinued the Transmission Subcommittee. A new Transmission Subcommittee was created within the VELCO Operating Committee to provide a forum for engineers to discuss the details of transmission issues.
    - Discontinued the Generation Subcommittee, which had not been active. Integrated generation representatives into the new Geographic Targeting Subcommittee discussed below.
    - Reorganized the VSPC's most active subcommittee, Energy Efficiency & Forecasting, into two subcommittees, Geographic Targeting and Forecasting.
    - Created the Geographic Targeting Subcommittee to reflect the new responsibilities of the VSPC to make recommendations to the PSB regarding geographic targeting of standard offer generation, in addition to the VSPC's continuing role in recommending geographic targeting of energy efficiency. With the discontinuation of the Generation Subcommittee, the intent is for the Geographic Targeting Subcommittee to consider both demand and supply side solutions to reliability constraints holistically.
    - Created a separate Forecasting Subcommittee to recognize the increased importance of developing understanding and consensus where possible among stakeholders on load forecasts as efficiency, new rate structures, EV charging and small-scale renewables increasingly influence the shape of Vermont's electricity demand.
    - Discontinued the Procedures Subcommittee as its work of developing bylaws and the non-disclosure agreement is complete.

[2] ¶ 86 requires the VSPC to take advisory votes to resolve disputes regarding determinations of affected utilities and cost allocation.
[3] Docket 7081 MOU at 35-36.

  - Renamed the Technical Coordinating Subcommittee to Coordinating Subcommittee to more accurately reflect its purpose, to ensure the smooth functioning of the VSPC by establishing quarterly meeting agendas, providing guidance and direction on the handling of organizational issues between meetings, convening meetings on cross-cutting issues that overlap the roles of multiple subcommittees, and directing matters to the appropriate subcommittee when necessary.

  - Reviewed and revised the charters of all new, reorganized and remaining subcommittees.

- Completed the work of the Central Vermont NTA Study Group, reaching the conclusion that resources coming on line through net metering, standard offer, and other programs, combined with downward changes in the load forecast, would close any remaining reliability gap. The Study Group communicated its findings to ISO-NE, which agreed to re-study the Central Vermont area. Following their restudy, ISO-NE, based on its own load forecast, took the Central Vermont deficiency out of its 2013 Regional System Plan.

- Received regular briefings each quarter from lead utilities on all reliability deficiencies identified in the 2012 Vermont Long-Range Transmission Plan.

- Conducted a detailed process analysis of the interrelationship among the three regulatory streams that govern the work of the VSPC including reliability planning in Docket 7081, energy efficiency geographic targeting, and standard offer geographic targeting in Docket 7873. Produced and implemented recommendations for process improvements to better coordinate these three sets of requirements. Filed the analysis with the Board, and participated in the Board workshop to review the work and seek Board approval in the limited instances where Board action was required. Developed and tentatively adopted a new meeting calendar for 2014 and beyond that better aligns with the process improvements.

- Participated through the Central Vermont NTA Study Group in the workshop process in Docket 7873, Programmatic Changes to the Standard Offer Program. Participated in developing the initial transmission and subtransmission Screening Framework for identifying standard offer projects that may provide "sufficient benefit" to grid reliability to be exempt from the annual program cap. Subsequently developed amendments to the screening framework to include distribution constraints. Worked collaboratively through the Study Group to produce the reliability plan filed with the Board on April 1, 2013, in the context of Docket 7873.

- Developed and filed on October 31, 2013, with the Board the annual energy efficiency geographic targeting recommendations.

- Began redesign of the VSPC website. Launch of the new site will take place during the first quarter of 2014.

- Briefed participants regularly on significant policy developments at ISO-New England (ISO-NE), the Federal Energy Regulatory Commission (FERC) and the North American Electric Reliability Corporation (NERC).

The VSPC held the following full committee meetings during 2013:

3/13/2013 Quarterly meeting, Randolph

6/12/2013	Quarterly meeting, Montpelier
9/11/2013	Quarterly meeting, Rutland
10/11/2013	Workshop meeting to learn more about non-transmission alternatives development in Maine and across New England, Montpelier
10/17/2013	Special meeting to act on recommendations of the Geographic Targeting Subcommittee for submission to the Public Service Board
12/11/2013	Quarterly meeting, Burlington

The subcommittees of the VSPC met throughout the year as follows:

- Public Participation Subcommittee: The Public Participation Subcommittee met twice: May 17 and October 4.

- Coordinating Subcommittee: The Coordinating Subcommittee met February 22, May 24, August 22, and November 18 to plan the agendas for regular VSPC meetings.

- Forecasting Subcommittee: The Forecasting Subcommittee met on June 20, October 8, November 19, and jointly with Geotargeting on April 4 and May 7.

- Geotargeting Subcommittee: The Geotargeting Subcommittee met on May 30, July 23, August 15, August 28, October 1, November 12, December 4, December 20, and jointly with Forecasting on April 4 and May 7.

The calendar of all VSPC meetings is posted on the VSPC website at:
http://www.vermontspc.com/Lists/VSPC%20Calendar/List.aspx

Agendas and meeting minutes for the full VSPC meetings are posted on the VSPC website at:
http://www.vermontspc.com/VSPC%20Meetings/Forms/By%20Meeting.aspx

No advisory votes were taken in 2013.

REPORT ON IDENTIFIED RELIABILITY DEFICIENCIES

Paragraph 51 of MOU states:

> 51. Following the filing of the Plan, for each identified reliability deficiency or group of deficiencies categorized under Paragraph 6.a.ii:
>
> a. The VSPC shall develop a project-specific action plan that describes a non-generic critical path from identification to resolution, including, but not limited to, dates for key milestones and coordination with anticipated regulatory and stakeholder processes;
>
> b. The VSPC shall, subject to the rights and obligations of the DUs and all other parties to this MOU, select areas for focused NTA consideration and draft

specific plans for moving that development forward; and

c. The affected VSPC subgroups, VELCO and the DUs, as applicable, will report progress in relation to the project action plan to the full VSPC quarterly and to the Board and Department not less than annually. Where milestones have been modified, progress reports shall state in reasonable detail the reason for such modification.

The following sections address four groups of identified reliability issues:

1. Issues that were identified in the 2012 Vermont Long-Range Transmission Plan, but that further analysis has shown not to arise within the ten-year study horizon. These include: Northwest Vermont, Central Vermont, Southeastern Vermont and Hartford/Ascutney. Brief updates are provided on the status of these four issues.

2. Issues that screened in for full NTA analysis in the 2012 Plan and are currently the subject of Project-Specific Action Plans/Reliability Plans. One issue— the Rutland area—falls into this category.

3. Transmission and subtransmission issues that screened out of full NTA analysis in the 2012 Plan and are the subject of brief updates. These include: Connecticut River, Colchester, St. Albans/East Fairfax, Northern Area, IBM Area, and Vernon Road.

4. Distribution issues that are the focus of reliability plans as required by the Docket 7873 Screening Framework and Guidelines for Implementation of 30 V.S.A. § 8005a(d)(2). This includes the St. Albans area and the Susie Wilson Road area.

1. UPDATES ON ISSUES THAT ARE NO LONGER WITHIN THE TEN-YEAR STUDY HORIZON

The 2012 Vermont Long-Range Transmission Plan filed by VELCO on June 29, 2012, is the current Plan. It identifies four deficiencies that originally screened in for full NTA analysis: Northwest Vermont, Central Vermont, Hartford/Ascutney and the Rutland area. The plan also identified two other deficiencies that screened out of a full NTA analysis: Southeast Vermont and the Connecticut River area. Updated analysis now shows that the first two of the screened in projects, as well as the Southeast Vermont issue, no longer arise within the ten-year planning study horizon and are no longer reflected in ISO-NE's Regional System Plan. Re-screening of the Hartford/Ascutney issue has now screened the issue out as discussed below.

SOUTHEAST VERMONT, CENTRAL VERMONT, NORTHWEST VERMONT

ISO-NE started a new ten-year planning study in 2013 to reevaluate the needs of the bulk transmission system in Vermont and New Hampshire. Several study assumptions have changed since the last ISO-NE study, which served as the basis for the 2012 Plan. The two most significant changes are:

- The Vermont Yankee generator was modeled out of service as a base case assumption to reflect Entergy's announcement that the Vermont Yankee generating plant will retire in 2014. The retirement of VY affected the system results positively and negatively, however, the VY retirement did not necessitate any new system upgrades on the Vermont system.

- The Vermont load level was modeled lower as compared to the previous ISO-NE study to reflect the load forecast produced by ISO-NE, which projects the Vermont summer peak load to decline over the next ten years. A review of the assumptions affecting the forecast shows that the load reduction is mostly due to future energy efficiency procured through the ISO-NE forward capacity market and future energy efficiency savings expected to occur beyond the forward capacity periods. As a result, the 2023 peak load was modeled lower than the 2013 peak load.

  The results of the ISO-NE study show that load reductions have effectively postponed the need for two upgrades beyond the ten-year study horizon:

  1) The Central Vermont upgrade, which consisted of a new 345 kV line between the Coolidge substation and the West Rutland substation.

  2) The Southeast Vermont upgrade, which consisted of rebuilding the Vermont portion of the Vernon to Northfield 345 kV line

The 2012 VSPC annual report previously reported the removal of the Northwest Vermont reliability issue from the ten-year study horizon in the 2012 ISO-NE Vermont/New Hampshire Needs Assessment. In all cases discussed above, the ISO-NE forecast is controlling for purposes of regional planning.

VELCO, ISO-NE, and the Vermont distribution utilities will continue to monitor several factors that affect system needs. For instance, if summer peak loads do not reduce as significantly as projected, or a significant amount of generation retires, or public policy initiatives require additional transmission capacity, and so forth, the above upgrades and perhaps other transmission reinforcements may be required.

HARTFORD/ASCUTNEY

With respect to Hartford/Ascutney, VELCO, on behalf of the affected utilities, filed the following update in its reliability plan filing in Docket 7873 on April 1, 2013:

> Since this deficiency was identified in the 2012 Vermont Long-Range Transmission Plan (LRTP), GMP (the affected utility) has identified two viable sub-transmission solutions that would cost less than $2.5 million. Under the provisions of Attachment II.3.c[4], a deficiency that can be resolved by a wires solution below the $2.5 million screening threshold of the NTA screening tool established in Docket 7081 does not require the filing of a reliability plan.

Based on the results of GMP's analysis, Hartford/Ascutney is now being treated under Docket 7081 as "screened out" and is addressed below through a brief update. Its status update appears on page 13 within the section on projects that are screened out of full NTA analysis.

[4] Docket 7873 Screening Framework and Guidelines for Implementation of 30 V.S.A. § 8005a(d)(2)

2. PROJECT-SPECIFIC ACTION PLAN—RUTLAND

Lead utility **Affected utilities**	GMP GMP	Date of this plan: September 12, 2013
Description of deficiency	Among the most difficult contingencies for this area is the loss of any one of the VELCO 115/46 kV transformers that supply it, meaning those at North Rutland, Cold River, or Blissville. Following such a loss, at least one of the remaining two transformers may overload at higher load levels, accompanied by local 46 kV line overloads and/or system under-voltage. Further load growth without remediation will exacerbate these existing problems. This is a predominantly bulk deficiency that affects the subtransmission system. Additionally, the recently acquired Vermont Marble Power Division (VMPD) system is sourced solely from VELCO's Florence 115/46 kV transformer. Redundant sourcing would be preferred for a load of this magnitude.	
Critical load level / timing of need	Critical load level: Approximately 81% of peak load (i.e., approximately 810 MW statewide or approximately 78 MW within the local load pocket). Need date: Past	
Geographical Area	The GMP system in the greater Rutland area includes the 46 kV transmission system, 12.5 kV distribution system, and the concentration of customer loads in the Rutland and Cold River areas that are fed primarily by VELCO's North Rutland and Cold River 115/46 kV transformers, extending eastward to Cavendish. It also includes the 46 kV transmission and distribution systems feeding the somewhat sparser loads to the south and west of Rutland that are fed by VELCO's Blissville 115/46 kV transformer and that extend down to Dorset. It also includes the VMPD system. It is summer peaking at about 96 MW (not counting VMPD). The load in this "pocket" had been growing at an average rate of 1.22% per year until about 2007. Since then, load has been static, neither growing nor declining.	
Transmission solution(s) & study status	Studies, including cost estimates, were completed by in 2012. Reduced load projections, along with emerging resources associated with Standard Offer and the Solar Capital initiative require study updates. Three transmission solution options were evaluated in this study. All three feature a single new interconnection (i.e., transformation) from VELCO's 115 kV network to the area's 46 kV network. They would be located at North Rutland (expansion of the existing VELCO North Rutland 115/46 kV substation with a second transformer), South Rutland (new substation), or West Rutland (expansion of the existing VELCO West Rutland 345/115 kV substation). All three would also include 46 kV line reconductoring. Their evaluations have been completed, but the area's emerging load management and DG initiatives may significantly change these solution options' need, and timing. The availability of an existing 115 kV bay position at VELCO's West Rutland	

	sub is in question, due to its possible claim by a local generation project which may or may not prove to be commercially viable. This uncertainty must be resolved in order to confidently estimate and compare all option costs, including NTAs.
NTA screening	This deficiency screened in for full NTA analysis in the 2012 VT Long-Range Transmission Plan.
NTA solution(s) & study status	The previously preferred NTA ("NTA Option 2") had two main features. First, there was a planned cluster of new generation units assumed at Lalor Avenue (in Rutland City), totaling 15 MW at 90% power factor capability at present day and 30 Mw at 90% power factor capability in ten years. Second, the normally-open 46 kV B7 connection between West Rutland and VMPD is (still) assumed to be normally closed, GMP West Rutland to Proctor 46 kV is (still) assumed to be reconductored/rebuilt as 477 MCM "T", and the 7 MW OMYA gas turbine is (still) assumed to be dispatched post-contingency, if needed to provide further area support. Last, the normally-open 46 kV West Rutland tap to Lalor 46 kV line is assumed to be normally closed to further leverage the benefit of the added generation. New analysis of load trends in the Rutland area for the years 2007-2013 indicate a static load (i.e., no significant growth or decline in that time period). GMP's current Rutland-area goal of 10 MW of photovoltaic generation by 2015, combined with an assumed capacity factor of 50%, yields a reduction in net load peak summer daytime load of 5 MW below the peak load assumed for the prior studies of this area. Further solar facilities are anticipated after 2015, meaning that the summer day-time peaks will be expected to decline further. Therefore, within a relatively short time (several years) net loads in the Rutland area will no longer peak during daylight hours, even in summer. Instead, the net peaks will be later in the day, probably around sundown. These post-sundown peak loads are expected to continue with little change up or down for the foreseeable future, and will be the definitive conditions for planning purposes. The lack of any growth or decline precludes the need for a 10-year load forecast. Given that they are about 6 MW lower than the current daytime peaks, the prior conclusion that 15 MW of generation is needed immediately (assuming a non-wires solution) may now be amended to about 9 MW. This remaining "gap" cannot be closed by means of solar generation because it occurs post-sundown; therefore, it appears that "above the cap" Standard Offer resources (which tend to be mostly solar) cannot effectively address whatever Rutland-area reliability deficiency remains after the initial 10 MW of Solar Capital capacity is installed.
NTA/TA hybrid solution(s) & study status	Technically, the "preferred NTA" described above is really a NTA-transmission hybrid because it includes significant 46 kV line upgrades and 46 kV network reconfiguration.

Solution selection	Pending: 1. Starting with the assumptions of static area load going forward, adjust base cases to reflect *post-sundown* peak load and whatever non-solar resource additions (e.g. energy efficiency, Standard Offer wind and biomass) are anticipated within ten years. 2. Rerun critical contingencies using these updated base cases. 3. Include sensitivities to test other possible resources. 4. Test all feasible-looking combinations of resources. Adjust resource levels to just meet GMP's Equal Slope criteria. 5. Run economic analysis to determine winners from combinations that just meet criteria. 6. Evaluate potential market-based revenue from generation alternative and include in economic analysis (maybe as a "cost reducer" using PW of all future revenues). 7. Finish up analytical details and report sections - review with VSPC. A reliability plan is scheduled to be filed by April 1, 2014.
Cost allocation	Pending solution selection.
Public outreach	The public outreach plan will be developed in 2015/2016 following solution selection.
Implementation	The anticipated date by which a Section 248 application for any infrastructure additions if required would be filed is 2016.
Factors that may affect project timing	The following considerations may affect project timing: • VELCO priorities and schedule. • Resolution of open 115 kV bay at West Rutland substation.

3. STATUS UPDATES ON PROJECTS THAT SCREENED OUT OF FULL NTA ANALYSIS

Status update: Connecticut River Valley	
Lead utility	Green Mountain Power
Description	Bulk system deficiency (see page 22 of the Plan). Location: Ascutney 115 kV line exceeded its current carrying capacity, and, with the Coolidge-Ascutney line out of service, voltages were below acceptable limits in a subarea including the Chelsea, Bellows Falls and North Road 115 kV substations.
NTA Screening	Originally screened out using D 7081 NTA screening tool (see p. 23 of the plan). Currently being re-evaluated by ISO-NE. If the need is reconfirmed in the current study, a new NTA screening may be required.

Preferred alternative	Construction of a second 115 kV line between the Coolidge and Ascutney substations.
Status of decision-making on cost allocation	This alternative will be funded per ISO-NE planning procedure 4 regarding pool transmission facilities, where New England utilities fund projects per their load ratio share of the New England load.
Status and timing of implementation	ISO-NE is presently reassessing system needs as part of the 2013 ten-year study, including those of Connecticut River Valley. Preliminary study results show a much lower overload of the Coolidge to Ascutney 115 kV line, and confirm the voltage concerns with the Coolidge-Ascutney 115 kV line out of service. In addition, ISO-NE has been reevaluating regional transfer requirements, and power flows will likely be affected if transfer levels are modified. A decision on transmission system upgrades will be made once the ISO-NE study has been completed later in 2014. Following completion of that study, VELCO will complete the I.3.9 analysis one year after the completion of the study. VELCO will file a 248 permit one year and a half -after the completion of the study. VELCO will complete the construction four years after the completion of the study.

Status update: Colchester	
Lead utility	Green Mountain Power
Description	Predominantly bulk deficiency (see page 30 of Plan) involving low voltage and overloads on the sub-transmission system in N-1 conditions.
NTA Screening	Screened out using NTA Screening Tool
Preferred alternative	The preferred alternative is to reconductor the 34.5 kV GMP 3309 line using 795 ACSR (utilizing the cable equivalent to 795 ACSR for underground sections) to support post-contingency current flows along this line. Feasible alternatives do not exist.
Status of decision-making on cost allocation	GMP will support the costs of this project.
Status and timing of implementation	Reconductoring of the 3309 Line is proposed to occur in three phases: 1. The section of line between the 46Y1 tap and Structure #10 will be reconductored as part of the proposed Winooski Relocation Project. This project received a certificate of public good from the Public Service Board in Docket No. 7846 on August 14, 2013. 2. The section of line between the GMP Gorge Substation and the east end of Winooski Falls Way will be reconductored in conjunction with the development of the 16Y3, 34.5 kV distribution feeder into the downtown Winooski area. GMP intends to petition the Board under Section 248 for this project in 2014. 3. The remainder of the reconductoring of the 3309 line is planned to occur in the 2016 to 2017 time frame.

Status update: St Albans/East Fairfax	
Lead utility	Green Mountain Power
Description	Predominantly bulk deficiency (see page 31 of Plan) involving 34.5 kV system under-voltage and overloads for loss of Nason Street source and other contingencies.
NTA Screening	NTAs screened in but are more costly than the preferred transmission alternative.
Preferred alternative	The preferred alternative is a new 115/34.5 kV transformer at VELCO's Georgia substation and a new two-mile 34.5 kV line extending to a new 34.5 kV switching station near Ballard Road (also near Wyeth tap). Additionally, the project includes 4.5 miles of 34.5 kV line reconductoring between the new Ballard Road sub and Milton, as well as a new 5.4 Mvar capacitor on the 34.5 kV bus at East Fairfax sub.
Status of decision-making on cost allocation	It is anticipated that all costs will be shared by VELCO and GMP according to ownership of new facilities.
Status and timing of implementation	This project, with complete documentation, was filed with the Vermont Public Service Board in January of 2014. Functional commissioning is expected in May of 2015.

Status update: Northern Area (Highgate, Jay, Newport, Irasburg, Burton Hill)	
Lead utility	Vermont Electric Cooperative
Description	Predominantly bulk deficiency (see page 34 of Plan) involving low voltages in the northern subarea that occur in N-1 conditions.
NTA Screening	A full NTA analysis was completed by VEC and VELCO. That analysis showed that an NTA would not be cost effective. The executive summary of the analysis is posted on the VELCO website at http://www.velco.com/Projects/jay/Pages/Filing.aspx .
Preferred alternative	Complete the following upgrades sequentially at various times: • Installation of capacitor banks at Burton Hill 46 kV. • Upgrade the Newport 115 kV station. • Upgrade the Irasburg substation. • Upgrade Moshers Tap.
Status of decision-making on cost allocation	Upgrades affecting the networked transmission system will be funded by New England utilities per their load ratio share of the New England load. Cost allocation for the near term upgrades affecting the sub-transmission system will be addressed by December 2015.

Status and timing of implementation	VEC is reviewing whether the voltage support associated with the proposed Burton Hill capacitor banks can be provided by power factor improvements. A date for completion of this review has not yet been determined. VELCO reviewed the condition of the Newport 115 kV substation and determined that the substation needs to be refurbished, including addressing protection and control deficiencies. This substation has only one protection system, which does not meet the minimum transmission design standard requiring a primary protection system and a backup. The timing of this asset condition project, which is needed separate from the VEC reliability issues, is scheduled for 2015. Since the completion of the previous northern area reliability study, several changes have occurred to the 46 kV system including load removals and additional resources. Further, a review of the current load forecast shows that an upgrade to transformation capacity at the Irasburg substation is no longer needed within the next ten years. As is the case in all system assessments, this upgrade may be required in the future depending on system changes that cannot be anticipated at this time. The Moshers Tap upgrade involves adding remote control capability to the existing switches at the tap. This capability facilitates quicker load restoral after an outage event. At this time, it is unclear whether such capability is feasible due to the proximity of the Moshers Tap to the Canadian transmission system. An initial review suggests that this upgrade is not needed assuming manual load restoral is acceptable to VEC or the connectivity issues with the Canadian system cannot be resolved.

Status update: IBM Area	
Lead utility	Green Mountain Power
Description	Predominantly bulk deficiency (see page 35 of Plan) involving the potential for loss of load on the 115 kV line supplying IBM due to the presence of multiple taps.
NTA Screening	Screened out using NTA screening tool.
Preferred alternative	VELCO is evaluating the transmission alternatives. This analysis is scheduled to be completed in December 2014.
Status of decision-making on cost allocation	Cost allocation will be addressed after the preferred transmission alternative has been selected. This decision is scheduled to be completed by December, 2015.
Status and timing of implementation	The scope of the analysis has expanded to include a review of: • the protection and controls for the lines that connect to the Essex 115 kV substation, • the condition of the Essex 115 kV substation, and • the condition of the Essex STATCOM. The analysis, including the selection of the preferred solution, is expected to be completed by December 2014. Implementation strategy will be addressed after the preferred transmission alternative has been selected. This decision is scheduled to be completed by June, 2015.

Status update: Vernon Road 115 kV Station	
Lead utility	Green Mountain Power
Description	Predominantly bulk deficiency (see page 36 of Plan) involving the potential for loss of load in the Brattleboro subarea in N-1 conditions.
NTA Screening	Screened out using NTA screening tool.
Preferred alternative	The preferred alternative is a new 115 kV breaker at the Vernon Road substation on the 115 kV N-186 line to New Hampshire, permitting a post-contingency back-feed from the Southern Loop's 46 kV system (recently reinforced by the Newfane 115/46 kV interconnection) to Brattleboro's 69 kV system.
Status of decision-making on cost allocation	It is anticipated that all costs will be shared by VELCO and GMP according to ownership of new facilities.
Status and timing of implementation	A CPG has been received. Construction has been completed and the project has been commissioned.

Status update: Hartford/Ascutney	
Lead utility	Green Mountain Power
Description	Predominantly bulk deficiency (see Page 33 of Plan) involving low voltages and subtransmission line overloads in the Hartford subarea occur with the loss of the VELCO Hartford 115/46 kV autotransformer.
NTA Screening	Screened out using NTA screening tool on the basis that two viable sub-transmission solutions have been identified with estimated costs below $2.5 million.
Preferred alternative	The project consists of reconductoring 9.04 miles of the Taftsville to Wilder 46kV transmission line with 477ACSR and addition of a 5.4 MVAR Scada-switched shunt capacitor bank.
Status of decision-making on cost allocation	It is anticipated that all costs will be GMP's.
Status and timing of implementation	Project CPG has been received. Projects expected completion date is September 2014.

4. DISTRIBUTION ISSUES THAT ARE THE FOCUS OF RELIABILITY PLANS

ST. ALBANS

The St. Albans area is comprised of customer loads supplied by GMP's Nason Street, East St. Albans and North Elm Street substations. This area faces the potential of a summer reliability constraint for the loss of one of the area's 34.5 kV/12.47 kV 14 MVA substations in the event of a planned or unplanned transformer outage. The traditional upgrade would be to construct a new 34.5 kV/12.47kV substation at a cost of $1.5 million to maintain existing backup capability.

In 2011, an energy efficiency geotargeting program was developed for the period 2012 through 2014 with the goal of achieving sufficient demand savings to defer this substation construction for several years. The program was continued through 2013 with the plan for GMP to investigate other resources and to complete a Reliability Plan for the area. On October 31, 2013, the VSPC recommended continuation of geographically targeted energy efficiency in the area. On January 8, 2014, the Board accepted the VSPC's recommendation.

GMP has completed a draft Reliability Plan for the St. Albans area. The gap template from the analysis filed in previous years was reworked to include better information about the load forecast and known resources. The load forecast itself was reviewed to better understand the magnitude and the timing of the reliability deficiency. This was especially paramount given the useful information provided by the peak load week in July driven by consecutive weekdays of hot weather. The St. Albans area coincident peak of 23.96 MW occurred on July 17, 2013, between 6:00 and 6:30 PM during a four-day heat wave. This new peak is considered representative of a 90/10 peak load for the St. Albans study area. This replaced the previous forecast of 26.35 MW.

GMP also reviewed its 6 MW of outstanding ability-to-serve load requests presented in the 2012 analysis. The majority of this load was on line by end of 2013, however, its impact on summer coincident peak will not be fully known until load data is collected. Given this uncertain impact, GMP evaluated both a 75% and 90% coincident factor in its reliability plan analysis. The load forecast was also reconstituted to include (1) a sensitivity analysis to represent background load growth, (2) the remainder of the 1.8 MW of energy efficiency earmarked for St. Albans for the period 2012-2014 that has not already been acquired; and (3) the energy efficiency that is projected to come into the St. Albans constrained area for the period 2015-2023 under the statewide Demand Resources Plan.

The new load forecast, using a 75% coincidence factor, showed no reliability deficiency through 2017, a .09 MW gap in 2018, increasing to .79 MW in 2023. A 90% coincidence factor showed a 0.61 MW gap in 2014, increasing to 1.87 in 2023.

GMP then accounted for the impacts associated with a new 2.2 MW solar project that came on line in St. Albans in November 2013, and expected net metering resources in the area (assumed to be capped at 4% of the constrained area peak). A 35% coincidence factor was assumed for solar given that the summer peak occurs late in the afternoon. This coincidence factor is consistent with the metric used by ISO-NE to account for "summer seasonal claimed capability" of solar PV. Using this information, a gap analysis was performed for the St. Albans area using varying background load growth factors and both a 75% and 90% coincidence factor for recent ability-to-serve requests. Using a 2% load growth factor, the gap analysis shows no deficiency during the 10-year study period for the 75% coincidence factor case. The 90% coincidence factor case showed no deficiency for the first three years of study period. Under this case, however, a 1 kW gap appears in 2017 increasing to 293 kW in 2020 and to 693

kW in 2023. GMP believes that, at this time, the correct response to these potential gaps is to carefully monitor the load coincidence and growth in the St. Albans area for the upcoming summer peak seasons. GMP does not believe that it would be appropriate to acquire additional NTA resources at this time. These conclusions are informed by the following: First, the 90% coincidence case forms an outer bound of the analysis. Monitoring load coincidence and growth over the next several summer peaks will help inform GMP on the actual coincidence of new loads with the summer peak. Second, 300 kW of any potential gap could be addressed by low cost, short-term operational measures. Finally, to the extent that a remaining gap of 393 kW were to be realized in the outer years of the analysis, this gap is small enough that it could be addressed by cost effective NTAs in a relatively short period of time.

GMP completed resource analysis to consider five resources that might fill any reliability gap, including small demand response, large demand response, ice storage, net metering and solar resources. The Company has also worked with Green Energy Economics Group (GEEG) to develop an EE Calculator to estimate the costs of acquiring additional geotargeted energy efficiency resources.

On the basis of this information GMP is not proposing any additional measures at this time. The analysis assumed the continuation of the currently approved geotargeting for 2014. GMP will collect load data during the 2014 and 2015 summer peak seasons to confirm the input assumptions and refine the analysis as necessary.

SUSIE WILSON ROAD, ESSEX JUNCTION

The Susie Wilson GT area is comprised of customer loads supplied by GMP's Ethan Allen, Essex and Gorge substations. This area is potentially constrained by both feeder capability and substation transformer capacity. When this area was selected for continued energy efficiency geographic targeting in 2011 it was experiencing 3 percent annual load growth together with the construction of facilities associated with a large industrial customer. Forecasts at the time indicated that a new 115 kV/12.47 kV substation would be needed within 10 years at a cost of $8 million.

In 2011, a GT program was developed for the period 2012 through 2014 with the goal of achieving sufficient demand savings to defer substation construction by one year. The program was continued through 2013 even though updated load forecasts in 2012 indicated that the substation date of need had slipped to just beyond the 10-year horizon.

As reported to the Board in the VSPC's October 31, 2013, geotargeting recommendations, updated GMP load forecasts reveal that the date of need for the Susie Wilson substation project, under any reasonable scenario, is now well beyond the ten-year horizon. For this reason, the VSPC recommended discontinuation of geographically targeted energy efficiency for the area. On January 8, 2014, the Board accepted the VSPC's recommendation.

GMP will continue to monitor loads in this area and will revisit NTAs as needed.