ANNUAL REPORT
TO THE PUBLIC SERVICE BOARD &
PUBLIC SERVICE DEPARTMENT

February 14, 2015

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.

[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.

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

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 2015 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 2014.

VSPC ACCOMPLISHMENTS, MEETINGS AND PROCESS

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

- Received regular briefings each quarter from lead utilities on all reliability deficiencies identified in the 2012 Vermont Long-Range Transmission Plan.
- Redesigned the VSPC website, updated all content and launched the new site. (See www.vermontspc.com .)
- Completed the first year of work under the revised organization structure resulting from process improvements developed and approved in 2013.
- Developed, and filed on October 30, 2014, the annual geographic targeting recommendations to the Board. The development of the recommendations followed a full review by the Geographic Targeting Subcommittee of transmission and subtransmission issues, as established in Docket 7081, and distribution issues, as established in Docket 7874.
- Provided extensive input, though the Forecasting Subcommittee, on the development of the Vermont-specific load forecast to be used by VELCO in developing the 2015 Vermont Long-Range Transmission Plan.
- Provided input on the work plan for the 2015 Vermont Long-Range Transmission Plan, including both VSPC and public input processes.

[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.

- Seated the Board's appointee to the new seat on the VSPC Supply and Demand Resources Sector to represent the interests of electric supply resources.
- Received briefings on a variety of current reports, initiatives and issues, such as the PSD's net metering report and the GMP/NRG partnership.
- 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 2014:

2/11/2014	Special meeting by conference call to approve the VSPC Annual Report
4/30/2014	Quarterly meeting, Montpelier
7/23/2014	Quarterly meeting, South Burlington
10/8/2014	Quarterly meeting, Rutland

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

- Public Participation Subcommittee: The Public Participation Subcommittee met twice: March 19 and July 2.
- Coordinating Subcommittee: The Coordinating Subcommittee met April 15 and July 1 to plan the agendas for regular VSPC meetings. The October quarterly meeting agenda was coordinated via email.
- Forecasting Subcommittee: The Forecasting Subcommittee met on January 30, March 19, May 22, June 20 August 5 and September 4. The subcommittee provided extensive input on the Vermont load forecast to be used for the 2015 Vermont Long-Range Transmission Plan, in addition to other ongoing committee work and current topics.
- Geotargeting Subcommittee: The Geotargeting Subcommittee met on March 11, May 13 and September 19.

The calendar of all VSPC meetings is posted on the VSPC website at:
http://www.vermontspc.com/calendar

Agendas and meeting minutes for the full VSPC meetings are posted on the VSPC website at:
http://www.vermontspc.com/vspc-at-work/meetings

Subcommittee agendas and meeting minutes are posted on the VSPC website at:
http://www.vermontspc.com/vspc-at-work/subcommittees

No advisory votes were taken in 2014.

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, and Southeastern Vermont. 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, Hartford/Ascutney 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.

GROUP 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, identifies four deficiencies that originally screened in for full NTA analysis: Northwest Vermont, Central Vermont, Hartford/Ascutney and the Rutland area. As reported in 2013, updated analysis now shows that the first two of the screened in projects (Northwest Vermont and Central Vermont), 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. Also reported in 2013, re-screening of the Hartford/Ascutney issue screened the issue out as discussed below.

SOUTHEAST VERMONT, CENTRAL VERMONT, NORTHWEST VERMONT

As reported in 2013, revised study assumptions used by ISO-NE in its most recent assessment of Vermont needs 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 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

As reported in 2014, Hartford/Ascutney is now being treated under Docket 7081 as "screened out" and is addressed in Group 3 as a project that screened out of full NTA analysis on the basis of the affected utility identifying a transmission solution at a cost below the $2.5 million screening threshold.

GROUP 2—UPDATES ON ISSUES THAT SCREENED IN FOR FULL NTA ANALYSIS

RUTLAND—PROJECT SPECIFIC ACTION PLAN

Lead utility **Affected utilities**	GMP GMP	Date of this plan: November 2014
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	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 greater Rutland includes the 46 kV transmission system, 12.5 kV distribution system, and the concentration of customer loads in three areas. The first of these is the Rutland and Cold River areas extending eastward to Cavendish. This area is supplied primarily by the VELCO North Rutland and Cold River 115/46 kV transformers. The second area includes the somewhat sparser loads to the south and west of Rutland extending to Dorset. This area is supplied primarily by the VELCO Blissville 115/46 kV transformer. The third area is the former VMPD system. The total area (not counting the former VMPD system) is summer peaking at about 96 MW. The load in this "pocket" had been growing at an average rate of 1.22% per year until about 2007. Load growth since 2007 has been static.	
Transmission solution(s) & study status	Studies, including cost estimates of potential solution alternatives, were completed in 2012, but should be updated. An update is necessitated by declining area load projections, the integration of the recently acquired VMPD system, the resolution of the West Rutland Wind Farm project, emerging resources associated with Standard Offer, the Solar Capital initiative, and a recent Rutland area gasification plant proposal. 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. A new interconnection would be located either 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. These evaluations have been completed. The availability of an existing 115 kV bay position at VELCO's West Rutland	

	substation, previously in question, has recently been resolved. Specifically, a local generation project relinquished its claim to this bay position in 2014. The availability of this bay effectively lowers the cost of a new interconnection at the VELCO West Rutland substation.
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 the Lalor Avenue substation (in Rutland City), totaling 15 MW at 90% power factor capability at present day and 30 MW at 90% power factor capability in 10 years. Second, the normally open 46 kV B7 connection between West Rutland and VMPD is assumed to be normally closed, GMP West Rutland to Proctor 46 kV is assumed to be reconductored/rebuilt with 477 MCM conductor, and the 7 MW OMYA gas turbine is assumed to be dispatched post-contingency, if needed to provide further area support. Finally, 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. As discussed above, new analysis of load trends in the Rutland area for the years 2007-2013 indicate 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 peak summer daytime load of at least 5 MW below the peak load assumed for the prior studies of this area. Further, installation of solar facilities is anticipated after 2015, meaning that the summer daytime 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. GMP's latest analysis indicates that the remaining area resource gap (as now defined by the post-sundown peak loads) may be as small as 4.2-8.4 MW, depending on the breadth of the NTA dispersion. This remaining "gap" cannot be closed by means of solar generation because it occurs after 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	More analysis is needed to determine the best solution from the alternatives described above. The pending Rutland Area Solutions Study will make that determination, with emphasis on post-sundown summer peak loads, using the same study assumptions outlined within the Rutland Area Deficiency Study and Reliability Plan Update. • Starting with the assumptions of static area load going forward, adjust base cases to reflect present-day post-sundown peak load. (Completed) • Work with VEIC to determine efficiency measures that could impact post-sundown peak load reliability problems with due regard for costs and alacrity. (In progress) • Evaluate proposal for bio-gasification plant. • Re-estimate the cost of a new interconnection at West Rutland given the availability of a 115 kV bay at West Rutland. • Evaluate all other relevant resource possibilities that meet the needs outlined in this study. • Redo critical contingencies and analysis using these updated assumptions. • Run economic analysis to determine winners from combinations that just meet criteria, including an evaluation of potential market-based revenue from generation alternatives. • Draft a "Rutland Area Solutions Study Report" and review with the VSPC. • Include closure of the B7 tie between GMP West Rutland and legacy VMPD together with reconductoring from West Rutland to Proctor as part of all solution alternatives. It is possible that this networked mode of operation may alter the area's 2-3 Mw resource requirement described earlier in the report. The final Reliability Plan is expected to be filed with the Public Service Board by April 1, 2015.
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 consideration may affect project timing: VELCO priorities and schedule.

GROUP 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). This area was re-evaluated by ISO-NE, and the need was reconfirmed in the most recent ISO-NE VT/NH study. A new NTA screening analysis also showed that an NTA would not be a viable solution.
Preferred alternative	Rebuild 115 kV line and 46 kV lines, rebuild the Chelsea substation, split the Hartford capacitor bank into two smaller capacitor banks, install a +50/-25 MVAr SVC at Ascutney.
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. Upgrades to GMP facilities will be funded by GMP.
Status and timing of implementation	ISO-NE Needs Assessment and Solution Assessment have been completed. VELCO NTA screening analysis has been completed. VELCO is currently performing studies in support of the ISO-NE proposed plan applications per section I.3.9 of the ISO-NE Tariff. VELCO is currently preparing documents for the section 248 filing.

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	Two alternatives are available for addressing this deficiency. The first 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. The second alternative is to employ operational procedures that re-direct load post-contingency. Feasible demand-side alternatives do not exist.
Status of decision-making on cost allocation	GMP will support the costs of this project.
Status and timing of implementation	The section of line between the 46Y1 tap and Structure #10 on the 3309 line was reconductored as part of the Winooski Relocation Project in August 2014. This project received a certificate of public good from the Public Service Board in Docket No. 7846 on August 14, 2013. The section of the 3309 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 in 2015. This project received a certificate of public good from the Public Service Board in Docket No. 8264 on October 17, 2014. GMP is presently evaluating the costs and risks of completing the reconductoring of the 3309 line versus continued reliance on operational procedures.

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	VELCO and GMP will share the costs 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. This project received a certificate of public good from the Public Service Board in Docket No. 8205 on August 7, 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	Q 1: Does the project meet one of criteria that define the term "impracticable"? A 1: No. Q 2: What is the proposed transmission project's need date? A 2: TBD. Depends on the status of the relevant customer's load. Q 3: Could elimination or deferral of all or part of the upgrade be accomplished by a 25 percent or smaller load reduction or off-setting generation of the same magnitude? A 3: TBD. Depends on the status of the relevant customer's load. Q 4: Is the likely reduction in costs from the potential elimination or deferral of all or part of the upgrade greater than $2,500,000? A 4: TBD.
Preferred alternative	Addition of 46 kV capacitor banks. Upgrade of the Moshers Tap. These upgrades will be completed in stages as the load continues to grow.
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 when the system load has grown sufficiently to require the upgrades.

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. Some loads on the VEC system can increase suddenly as a result of customer facilities being fully utilized. If this occurs, the Monshers Tap upgrade will likely involve a fully breakered substation.

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 has evaluated the protection system for the lines in the Essex area, and has been reviewing the results of the assessment. While the report finds that the protection system is performing adequately, VELCO is weighing the cost and benefits to determine whether it makes sense to reinforce the system.
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 lightning and grounding protection • the condition of the Essex 115 kV substation, and • the condition of the Essex STATCOM. The analysis has been completed, and we have completed some incremental improvements to the grounding system. However, VELCO has not yet selected an overall system solution which is scheduled to be completed by June 2015. Implementation strategy will be addressed after the preferred transmission alternative has been selected. This decision is scheduled to be completed by August, 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	VELCO and GMP will share the costs according to ownership of new facilities.
Status and timing of implementation	This project received a certificate of public good from the Public Service Board in Docket No. 7887 on September 13, 2012. The project was commissioned in October 2013.

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	GMP will support the costs of this project.
Status and timing of implementation	The reconductoring portion of the project received a certificate of public good from the Public Service Board in Docket No. 8099 on October 11, 2013. The line was put in service in September 2014. The 5.4 MVAR capacitor bank project, with complete documentation, was filed with the Vermont Public Service Board in Docket 8322. Projects expected completion date is September 2015.

GROUP 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 state it would collect load data during the 2014 and 2015 summer peak seasons to confirm the input assumptions and refine the analysis as necessary. The 2014 coincident peak of 22.1 MW occurred on July 21, 2014, at 6 p.m.

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. Updated analysis performed in fall 2014, following the annual peak load period, confirmed that a significant gap remains between current loads and the level that would trigger the need for an upgrade.

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