Recommendation to Continue Geotargeting in the Green Mountain Power St. Albans Area

October 2013

Introduction

The Vermont System Planning Committee (VSPC) Geotargeting Subcommittee (GTS) recommends continuing energy efficiency geographic targeting (GT) for the St. Albans area. Green Mountain Power (GMP) is currently developing a Reliability Plan for the St. Albans area. While updated GMP load forecasts reveal that there still exists a gap (resource need), preliminary estimates show that the gap could be addressed with targeted energy efficiency and other resources, assuming continuation of the currently approved targeting.

Background

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 areas 34.5/12.47 kV 14 MVA substations in the event of a planned or unplanned transformer outage. The traditional upgrade would be to construct a new 34.5/12.47 kV substation at a cost of $1.5 million dollars to maintain existing backup capability. In 2011, a GT 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.

Rationale for Continuing GT in the St. Albans Area

Recently completed load forecasts indicate that the gap for the St. Albans area may be less than the 2012 projection.

- The 2012 forecast was 32.15 based on a 90/10 forecast of 26.35 MW and expected 5.8 MW of ability to serve (new load) requests.

- The area's 2013 actual peak load occurred on July 17th at 6PM at 23.96 MW. Due to extreme weather over multiple days this is assumed a 90/10 load level. The majority of the outstanding ability to serves were not yet on line during this peak. In addition, GMP has received additional ability to serve requests for this area. Therefore the new forecast is estimated to be 29.4 MW in 2013 with flat load growth thereafter assuming a 90% coincidence factor for the 6 MW of new load.

- Efficiency Vermont, as of the end of the second quarter, still expected to acquire 1 MW of additional efficiency in the targeted area in order to meet its stretch target. This 1MW is a critical assumed resource to meet the near term gap.

- Both the reliability plan for St. Albans and the Demand Resources Plan proceeding will affect the future load forecast and the need for resources to meet the reliability gap (if needed) beyond 2014.

GMP has been developing a Reliability Plan and on October 1, 2013 submitted a Status Report to the Public Service Board (Attachment STALBANSGT-1). At this point, targeting additional geotargeted energy efficiency appears to be a preferred resource given that the peak is occurring later in the day. GMP expects to submit a final Reliability plan November 25, 2013.

Re: St Albans Reliability Plan - Status Report

October 1, 2013

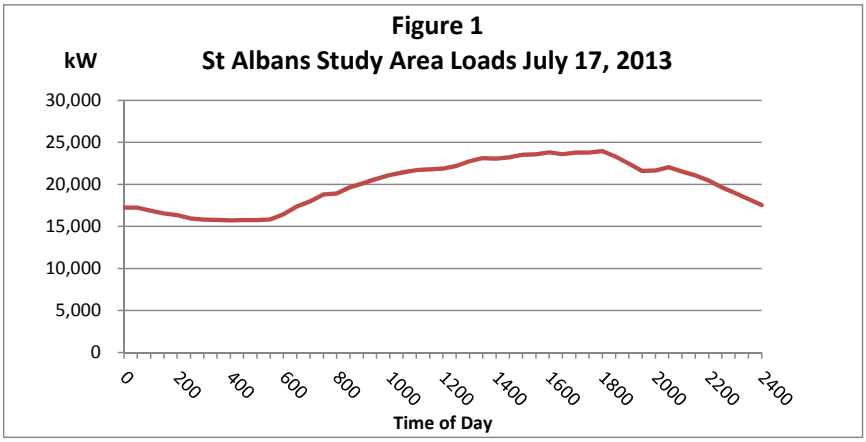
On December 27, 2012, the Vermont System Planning Committee VSPC) filed a report with the Vermont Public Service Board (VPSB) indicating that up to 3.2 MW of additional St. Albans area load reductions would be required now to keep loads under the critical load level. The magnitude of load reductions required gradually decreases over time to 2.5 MW in 2020. Since that report was filed Green Mountain Power (GMP) has been conducting various investigations and analyses to address the reliability deficiency. This letter summarizes the preliminary findings of these studies and outlines GMP's proposed approach to complete the Reliability Plan.

Findings

Load – The December 27 report assumed a 90/10 forecast of 26.35 MW flat, plus 5.80 MW of new load, based on "Ability to Serve" letters, for a total load of 32.15 MW. GMP has confirmed with customers that the majority of 5.80 MW of additional new load will come on line by the end of 2013.

As a check on the forecast, GMP evaluated peak loads during the 2013 summer season and determined that the peak load for the study area occurred on July 12, 2013. Referring to Figure 1, a peak of 23,960 kW occurred between 6:00 and 6:30 PM. Although this is just one year of data, it may represent the new 90/10 peak forecast. To be conservative, we evaluated both the peak from the December 2012 forecast of 32.15 MW and the peak observed on July 2013 of 29.76 MW (23.96 MW + 5.80 MW).

Figure 1
St Albans Study Area Loads July 17, 2013



Resources – GMP assessed demand response (DR), ice storage, net metering, SPEED and additional energy efficiency (EE) resources. Our findings are summarized below.

- Small DR – residential customers constitute only ~25% of the load in the study area. We assumed any further savings would be negligible.

- Large DR – the VELCO Long-Range Plan (LRP) includes 2.5 MW for the study area. Since the LRP was filed, the ISO market rules have changed and the DR provider has withdrawn from ISO-NE. These 2.5 MW came from only two customers. GMP will explore contracting with these two customers to secure the 2.5 MW of DR. Although this corresponds to 10% penetration of the total 25 MW C&I load, it represents only two customers. Therefore, we assumed up to an additional 2 MW of Large DR could be obtained for the Reliability Plan.
- Ice storage – based on a pilot program in the Rutland area, we assumed 0.25 MW would be available in the St Albans study area.
- Net metering – GMP surveyed the study area and determined 0.269 MW of net metering capacity is currently installed. Using the existing 4% legislative cap as a guide, we assumed an additional 1.275 MW would be available for the 32.15 MW forecasted peak (4% of (32.15-0.269) MW) and 1.180 MW for the 29.76 MW peak forecast. We assumed a 35% coincidence factor to account for the peak occurring later in the day and the existence of rooftop PV solar in the net metering program. The resources were uniformly distributed over the next ten years.
- SPEED – GMP has been able to confirm that a new 2.2 MW PV solar project is expected to come on line in November 2013. A review of the 2013 solicitation indicates no resources are being proposed in the study area. Further, GMP conferred with the SPEED facilitator who indicated no knowledge of future projects being planned for the study area.
- Energy Efficiency (EE) – working in collaboration with Green Energy Economics Group, GMP developed an EE Calculator to estimate the costs of acquiring additional EE resources to include in the Reliability Plan. A description of the EE Calculator along with user instructions is presented in Attachment A.

  Two tasks need to be performed to complete the EE analysis. First, the regressions analyses have to be rerun to incorporate lighting project data. These data were inadvertently omitted from the data previously provided to GMP. Second, data on existing EEU retrofit plans have to be obtained and entered into the model to establish a business-as-usual, base case. As explained in the calculator instructions, it is necessary to subtract the base-case EEU retrofit costs from the estimated costs of the geographically targeted business retrofit program.

  Pending receipt of these data, GMP performed a preliminary analysis using the EE Calculator to obtain placeholder values for the Reliability Plan. This preliminary analysis indicates that a GT effort could acquire 2.0 more MW of peak demand savings between 2015 and 2019. Doing so would involve tripling the pace of existing business retrofit savings expected to result in the area from its share of statewide program implementation. Based on preliminary characterization of the geo-targeted program, Incremental program expenditures are projected at $3,137/kW. (These values do not include associated energy savings or their benefits, which would need to be subtracted from this value to calculate the net cost per peak kW of savings).

Preliminary Results - Incorporating the above resources into the two forecasts yields the following results.

Preliminary Analysis, 32.15 MW Peak Forecast								
Year	Resources Needed MW	Small DR	Large DR	Ice Storage	Net Meter	Incr EE	Existing SPEED	Gap MW
2014	3.81	0	2.00	0.25	0.04	0.00	0.77	0.75
2015	4.07	0	2.00	0.25	0.04	0.41		0.54
2016	4.32	0	2.00	0.25	0.04	0.41		0.34
2017	4.58	0	2.00	0.25	0.04	0.41		0.13
2018	4.40	0	2.00	0.25	0.04	0.41		(0.50)
2019	4.23	0	1.50	0.25	0.04	0.41		(0.63)
2020	4.05	0	1.00	0.25	0.04	0.00		(0.35)
2021	3.88	0	1.00	0.25	0.04	0.00		(0.57)
2022	3.70	0	1.00	0.25	0.04	0.00		(0.79)
2023	3.53	0	0.50	0.25	0.04	0.00		(0.51)

Preliminary Analysis, 29.76 MW Peak Forecast								
Year	Resources Needed MW	Small DR	Large DR	Ice Storage	Net Meter	Incr EE	Existing SPEED	Gap MW
2014	1.42	0	1.00	0.25	0.04	0.00	0.77	(0.64)
2015	1.68	0	0.75	0.25	0.04	0.38		(0.55)
2016	1.93	0	0.50	0.25	0.04	0.38		(0.47)
2017	2.19	0	0.50	0.25	0.04	0.38		(0.63)
2018	2.01	0	0.00	0.25	0.04	0.38		(0.72)
2019	1.84	0	0.00	0.25	0.04	0.38		(1.31)
2020	1.66	0	0.00	0.25	0.04	0.00		(1.53)
2021	1.49	0	0.00	0.25	0.04	0.00		(1.75)
2022	1.31	0	0.00	0.25	0.04	0.00		(1.96)
2023	1.14	0	0.00	0.25	0.04	0.00		(2.18)

The preliminary results suggest that for 2012 forecast peak of 32.15 MW, the above resources would reduce the reliability deficiency to less than 1 MW by 2014 and resolve the deficiency by 2018. After 2018 Large DR resources could be dialed back to correspond with the declining reliability gap.

For the 2013 forecast peak of 29.76 MW, the reliability gap is eliminated in 2014. Beginning in 2015 Large DR resources could also be dialed back to correspond with the declining reliability gap.

If procuring additional Large DR proves unfeasible or more resources are required, targeting additional EE appears to be the preferred resource for several reasons. First, its load shape can be tailored to meet the timing of the peak, which is tending to occur later in the day. EE also has a cost advantage over other resources such as distributed generation.

Schedule

Remaining work primarily consists of updating the EE Calculator with EEU data and then using the tool to estimate the costs and savings of the additional EE resources. Once this is done it will be a matter of finalizing the analysis and drafting the Reliability Plan. GMP is proposing the following milestone schedule to complete the remaining work:

- October 7, 2013 Receive all EE data from VEIC
- October 21, 2013 Rerun regression analyses
- November 4, 2013 Complete EE analysis
- November 18, 2013 Complete reliability analysis
- November 25, 2013 Submit draft Reliability Plan