VERMONT SYSTEM PLANNING COMMITTEE

ANNUAL REPORT TO THE PUBLIC SERVICE BOARD AND PUBLIC SERVICE DEPARTMENT

JANUARY 26, 2009

INTRODUCTION

In accordance with the Memorandum of Understanding (MOU) approved by the Public Service Board in Docket 7081[1], this document comprises the 2009 annual report of the Vermont System Planning Committee (VSPC).

Among its provisions, the Docket 7081 MOU requires, annually by January 15, commencing in 2008, that the VSPC provide a report to the Public Service Board (PSB or Board) and Department of Public Service (DPS), and post the report on the VSPC website, consisting of at least the following:

89. A report on each Reliability Deficiency identified to date in the 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.

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 2009 VSPC annual report. It documents the completion of organizational steps to set up the VSPC and 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.

VSPC MEETINGS AND PROCESS

The VSPC process has completed all organizational steps in its establishment and is now engaged in the first full cycle that begins with review of the VELCO Long-Range Transmission Plan (the Plan) three-year update. The plan update that is due to the Board July 1, 2009, (and every three years thereafter) sets in motion the complex series of steps that constitute the full VSPC/Docket 7081 NTA and transmission planning cycle. In this sense, the Plan and the VSPC and public review processes that began in December, 2008, and will continue until the Plan is filed July 1, 2009, represent the real beginning of the VSPC process, for which the steps up until now have been organization and prelude.

The initial formative stages of the VSPC were carried out in 2007 and reported in the January 15, 2008, Annual Report filed with the Board. During 2008, the VSPC completed the following additional organizational steps[4]:

1/15/2008 Filed its annual report with PSB.

6/20/2008 Filed with PSB:

- Project priority list required by Paragraph 51 of the MOU
- Amended rules of procedure
- NTA Screening Tool
- Information Management Protocol[5]

In addition, VSPC created the following products:

2/1/2008 Forecast Zone Map. This map represents the zones the utilities agreed upon, through a VSPC process, for use by the Energy Efficiency Utility in doing Demand-Side Management forecasting by geographical area.

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[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.
[4] All VSPC filings and products referenced in this report are posted at http://www.vermontspc.com/VSPC%20Reports%20%20Correspondence/Forms/AllItems.aspx unless otherwise noted.
[5] Original deadline of 3/20/08 was extended with permission of the Board to 6/20/08.

2/1/2008	Input to the Board on Energy Efficiency Utility activities under Paragraph 61 of the MOU.
9/11/2008	VSPC comments to the Board on expanded geotargeting efforts by Efficiency Vermont.

The VSPC held its day-long quarterly meetings in rotating locations around the state. Meetings were held March 11 in Randolph, June 10 in Montpelier, September 10 in Rutland and December 10 in Burlington. The 2009 meeting schedule, which follows the same rotation, has been established and is posted on the VSPC website.

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

- Energy Efficiency & Forecasting Subcommittee: Met January 9, January 14 (jointly with Transmission), March 27, April 17, July 10 (jointly with Transmission), and November 19. Highlights of the subcommittee's work include: developing the VSPC input to the board on geotargeting energy efficiency, coordinating the assumptions being used in load forecasting and demand-side management forecasting, understanding the methodology being used for the Efficiency Vermont demand-side management forecast (Forecast 20), and reviewing the process by which the Department of Public Service is evaluating the EEU's geotargeted services.

- Generation Subcommittee: August 6. The Generation Subcommittee focused on understanding the assumptions being used in VELCO's long-range planning process with regard to generation.

- NTA Screening Subcommittee: January 23 and February 28. This subcommittee was chartered specifically to develop the NTA screening tool to be used in the VSPC process. Once the NTA screening tool was filed with the Board, this Subcommittee was disbanded.

- Procedures Subcommittee: March 25, April 17 and October 27. The subcommittee focused on amendments to the VSPC rules of procedure, which were submitted to the Board following their adoption.

- Public Participation Subcommittee: February 20, April 9 and July 17. The subcommittee focused mainly on development of public information materials for the VSPC, advising VELCO on public outreach for the Plan.

- Technical Coordinating Subcommittee: January 11, January 30, May 1, August 14, and November 17. The purpose of the Technical Coordinating Subcommittee is to prepare the agendas for each quarterly meeting and to direct issues to the appropriate subcommittee for work prior to consideration by the full VSPC. The subcommittee met at least once prior to each quarterly VSPC meeting to prepare the agenda, requested consideration by other subcommittees of various issues, and convened meetings on topics that cut across multiple subcommittees' interests, such as the review of the NTA screening for the Lyndonville Electric project.

- Transmission Subcommittee: January 14 (jointly with Energy Efficiency), and July 10 (jointly with Energy Efficiency). The subcommittee met together with Energy Efficiency to discuss coordinating assumptions between the VELCO's load forecast and the EEU's demand-side management forecast, and to develop load zones for the EEU's forecast.

The following groups focused on specific reliability deficiencies and met under the auspices of the VSPC:

- Coolidge Connector Interim Demand Response Ad Hoc Subcommittee: March 3, March 21 and March 28.

- Presentation of the Lyndonville Electric Department NTA screening: December 2.

In early 2008, the VSPC launched a new website for public information and communication within the committee. The site is located at http://www.vermontspc.com and includes an archive of all agendas, meeting materials, and minutes from VSPC meetings, as well as all other documents associated with the VSPC. To date, confidential treatment has not been requested for any material associated with the VSPC process, so all information posted on the site is available without password. The VSPC information protocol will guide participants when and if the need arises to treat information confidentially.

Throughout the year, the VSPC participated as an exhibitor or presenter in various meetings and conferences to raise awareness of the committee and to prepare the way for intensive public outreach in early 2009 associated with the Plan.

Two major activities will be undertaken in 2009: VSPC and public outreach on the VELCO 2009 update of the Long-Range Transmission Plan; and evaluation of the process required by the Docket 7081 MOU. In addition, as established in the MOU, the filing of the Plan initiates the first full cycle of transmission planning under the Docket 7081 process. Immediately after the July1, 2009, filing, the VSPC will confirm or modify the designation of lead utility, and develop a project priority list for the projects identified in the Plan. Work groups on each deficiency that requires a full NTA screening will be formed and will conduct their work in accordance with the time frames established in the priority list or otherwise provided in the MOU.

REPORT ON IDENTIFIED RELIABILITY DEFICIENCIES

Paragraph 51 of MOU requires the VSPC to develop and submit to the Board a Project Priority List that includes dates for transmission analysis, NTA analysis, solution selection, cost allocation and implementation strategy. Initially the VSPC was operating under dates for these steps that had been established in Attachment F of the MOU. In June, 2008, however, the VSPC submitted its first Project Priority List, which had the effect, with Board approval[6], of modifying the relevant dates and consolidating the timelines for all projects under one set of deadlines. The following section provides a status report, as outlined in Paragraph 89 of the MOU, for each project in the Priority List. It is organized in the same manner as current Priority List.

[6] Docket 7081, Public Service Board order of 7/10/2008.

PRIORITY 1: SOUTHERN LOOP

Priority 1 includes the four deficiencies that will be addressed by the Coolidge Connector project, for which VELCO and Central Vermont Public Service (CVPS) applied for a Certificate of Public Good (CPG) from the Public Service Board in November 2007. The review process is underway in Docket 7373. The deficiencies to be addressed include:

- Loss of 115/46 kV transformers into Bennington or Brattleboro area would cause loss of significant load in Southern Vermont.
- Loss of the Vermont Yankee 345/115 kV autotransformer would place Brattleboro area load at high risk until a replacement transformer can be installed.
- Loss of the Vermont Yankee to Coolidge 345 kV line would cause significant voltage/thermal concerns.
- Loss of one Bennington 115/46 kV transformer would overload the other.

REASON FOR PRIORITY:

The priority level of these projects is based on the fact that a transmission solution to address the deficiencies is presently under consideration by the Public Service Board (PSB) for a CPG. In addition, these deficiencies affect a very large area of the state.

Transmission analysis	The transmission analysis was completed prior to the filing of the application for a Certificate of Public Good.
NTA screening/analysis	The NTA analysis is completed.
Solution selection, implementation strategy, and cost allocation	Decisions for solution selection, implementation strategy, and cost allocation were made.

PRIORITY 2: LOSS OF ESSEX TRANSFORMER

Priority 2 includes one reliability deficiency that was considered in the Burlington Waterfront Area-Specific Collaborative (ASC), the Digital Injection ASC and the Tafts Corners ASC. The relevant reliability deficiency is:

- Loss of one Essex 115/34.5 kV transformer may overload the other (at a time when the McNeil generation plant is unavailable), with consequent load shedding.

The transmission solutions developed by the ASCs would each reduce load on the Essex transformers by either adding another source to the 34.5 kV network or by removing load from the 34.5 kV network to the Tafts Corner 115/12.5 kV radial transformers. The Burlington Waterfront ASC involves three phases:

- Phase 1: The East Avenue Loop. This project has received a Certificate of Public Good.

- Phase 2: The Gorge Area Reinforcement. A petition seeking a Certificate of Public Good was submitted to the Public Service Board on July 25, 2008 by Green Mountain Power and VELCO.

- Phase 3: Upgrade of the Essex transformers.

The Digital Injection ASC and the Tafts Corners ASC involve the following three phases:

- Phase 1: Tafts Corner 115 kV substation construction.

- Phase 2: Addition of the first Tafts Corner 115/12.5 kV transformer. This project has received a Certificate of Public Good.

- Phase 3: Addition of the second Tafts Corner 115/12.5 kV transformer.

These projects were split into multiple phases because there is a significant amount of time — five years or more — between the expected need dates of the first and last set of upgrades. This approach allows time for non-transmission alternatives potentially to postpone the latter phases.

	Waterfront	**Digital/Tafts**
Transmission analysis		
Phase 1	Completed	Completed
Phase 2	Completed	Completed
Phase 3	Completed, but revisit by 6/30/12 in light of possible additional generation and geo-targeting	June 30, 2012
NTA screening/analysis		
Phase 1	Completed	Completed
Phase 2	Completed	Completed
Phase 3	December 31, 2012	December 31, 2012
Solution selection, cost allocation & implementation strategy		
Phase 1	Completed	Completed
Phase 2	Completed	Completed
Phase 3	March 31, 2013	March 31, 2013

PRIORITY 3: LOSS OF ST. JOHNSBURY TRANSFORMER; VOLTAGE COLLAPSE/LOW VOLTAGE IN NORTHERN VT DUE TO LOSS OF TRANSMISSION AT EITHER END

The following deficiencies will be addressed by the Lyndonville/St Johnsbury project.

- Loss of St. Johnsbury 115/34.5 kV transformer results in loss of all load at St. Johnsbury

- Low voltage or voltage collapse in northern Vermont for loss of transmission at either end

Transmission analysis	Completed
NTA screening/analysis	Completed
Solution selection, cost allocation & implementation strategy	
-- Solution selection	Completed
-- Implementation strategy & cost allocation	Completed

PRIORITY 4: NEW HAVEN TRANSFORMER; MIDDLEBURY TRANSFORMER

The following deficiencies will be addressed by CVPS's Middlebury project:

- Loss of the New Haven 115/46 kV transformer would result in unacceptable low voltages (loss of all load following completion of NRP).
- Loss of Middlebury 115/46 kV transformer would result in unacceptable low voltages locally.

Transmission analysis	Completed
NTA screening/analysis*	Completed
Solution selection, cost allocation & implementation strategy	Completed

*NTA screening was completed and presented to the VSPC at the September, 2008, quarterly meeting. CVPS determined by applying the VSPC NTA screening tool that NTAs are not viable alternatives to the transmission upgrade and, therefore, a full analysis will not be conducted. CVPS has begun public outreach related to the project.

PRIORITY 5: ST. ALBANS TRANSFORMER; EAST FAIRFAX TRANSFORMER; GEORGIA BREAKER FAILURE.

The following deficiencies will be addressed by the St Albans/Georgia project:

- Loss of one St. Albans 115/34.5 kV transformer overloads the other.
- Loss of the St. Albans transformers with loss of the 115 kV line or the East Fairfax transformer causes local voltage collapse.
- Breaker failure at Georgia substation results in unacceptable voltage / thermal performance locally.

On December 19, 2008, CVPS filed a letter with the Board requesting an enlargement of time to address this deficiency as compared to the dates in the June 2008 Project Priority List. The enlargement was requested in light of information gleaned from the first draft of the 2009 update of the VELCO Long-Range Transmission Plan, which indicates the need for further coordination of

planning between VELCO and CVPS. The table below shows the dates contained in the Project Priority List and the revised dates contained in CVPS's letter to the Board.

Step	*Dates in Project Priority List*	*Revised dates in 12/19/08 filing*
Transmission analysis	December 31, 2008	May 31, 2009
NTA screening/analysis	March 31, 2009	August 31, 2009
Solution selection, cost allocation and implementation strategy.	June 30, 2009	November 30, 2009

PRIORITY 6: NORTH RUTLAND/COLD RIVER

Loss of either the North Rutland or Cold River 115/46 kV transformer would overload the other unit with unacceptable low voltages locally.

Transmission analysis	April 30, 2009
NTA screening/analysis	April 30, 2010
Solution selection etc.	December 31, 2010

PRIORITY 7: WEST RUTLAND, BLISSVILLE

Loss of West Rutland - Blissville 115 kV line causes unacceptable low voltages locally. The 2008 Project Priority List calls for this reliability deficiency to be studied in the 2009 Long Range Transmission Plan and for dates to be established on the basis of that analysis.

PRIORITY 8: HARTFORD TRANSFORMER

Loss of the Hartford 115/46 kV transformer would cause unacceptable low voltages locally. The 2008 Project Priority List calls for this reliability deficiency to be studied in the 2009 Long Range Transmission Plan and for dates to be established on the basis of that analysis.

PRIORITY 9: LOSS OF PV20 UNDERGROUND CAUSEWAY CABLE FROM APPLE TREE TO POLE 172

The 2006 Long Range Transmission Plan described that the long term loss of PV20 underground causeway cable with many other outages can cause severe & widespread voltage / thermal concerns. The 2008 Project Priority List calls for this reliability deficiency to be studied in the 2009 Long Range Transmission Plan and for dates to be established on the basis of that analysis.

PRIORITY 10: ASCUTNEY BREAKER FAILURE

Breaker failure at Ascutney substation results in unacceptable voltage / thermal performance locally. The 2008 Project Priority List calls for this reliability deficiency to be studied in the 2009 Long Range Transmission Plan and for dates to be established on the basis of that analysis.

PRIORITY 11: COOLIDGE TRANSFORMER

Long term loss of Coolidge 345/115 kV transformer causes voltage and thermal concerns in Central Vermont. The 2008 Project Priority List calls for this reliability deficiency to be studied in the 2009 Long Range Transmission Plan and for dates to be established on the basis of that analysis.

PRIORITY 12: BARRE TO BERLIN; FLORENCE TO WEST RUTLAND; COLD RIVER TO NORTH RUTLAND

The following deficiencies occur at the same load level, and are similar.

- Overload of the Barre to Berlin 115 kV line
- Overload of the Florence to West Rutland 115 kV line
- Overload of the Cold River to North Rutland 115 kV line

The 2008 Project Priority List calls for these reliability deficiencies to be studied in the 2009 Long Range Transmission Plan and for dates to be established on the basis of that analysis.

PRIORITY 13: NEW HAVEN TO WILLISTON

The New Haven to Williston 115 kV line could overload when the parallel 115 kV line trips. The 2008 Project Priority List calls for this reliability deficiency to be studied in the 2009 Long Range Transmission Plan and for dates to be established on the basis of that analysis.

PRIORITY 14: WILLISTON TO TAFTS CORNERS; BARRE TO BERLIN; BERLIN TO MIDDLESEX

The following deficiencies occur at the same load level, and are similar.

- Loss of the Williston to Tafts Corners 115 kV line, with heavy flows from south to north, overloads the Queen City 115/34.5 kV transformer
- Loss of the Barre to Berlin 115 kV line section, when heavily loaded from east to west, overloads the Barre transformer
- Loss of the Berlin to Middlesex 115 kV line section, when heavily loaded from east to west, overloads the Berlin transformer

GMP has proposed to address these deficiencies by opening the 34.5 kV subtransmission network at appropriate locations. The deficiencies will need to be re-evaluated periodically to determine whether the proposed operating actions will continue to be acceptable. This is primarily a

subsystem concern. However, sectionalizing of sub-transmission lines may result in a transmission overload, unacceptable transmission voltage or an exhaustion of transmission reactive resources sometime in the future. No transmission analysis, NTA screening/analysis, solution selection, cost allocation or implementation strategy is necessary for this deficiency at this time.