

# Vermont System Planning Committee

*Ensuring full, fair and timely consideration of non-transmission alternatives to address Vermont electric system reliability challenges.*



**QUARTERLY MEETING  
JUNE 8, 2011  
9:30 A.M. – 4:00 P.M.  
CAPITAL PLAZA HOTEL  
MONTPELIER, VERMONT**

# Agenda



- Introductions; Approval of the minutes of the March 2011 meeting
- Subcommittee reports
  - Energy Efficiency & Forecasting
    - ✦ Action item: Recommendations on geographical targeting of energy efficiency
- Old business:
  - Docket 7081 process reform
    - ✦ Action item: Recommendations of the ad hoc process reform group for modifications to the Docket 7081 Memorandum of Understanding
  - Preparation for the June 15 VSPC meeting with Stephen Rourke, ISO-New England
  - Plan for the 2012 Long-Range Plan update
- Regional update
  - Status of the VT/NH Needs Assessment and associated NTA Analysis
  - ISO adoption of common project cost estimation methodology
  - ISO strategic planning
- Project updates

# Energy Efficiency & Forecasting Subcommittee Report



## “Geotargeting” Area Selection Process – EE&F recommendation overview



- VSPC is the appropriate venue for vetting of potential areas to receive geographically targeted efficiency services
- VSPC should make recommendations to Public Service Board regarding GT areas, considering items such as
  - Actual constraint area – location, need, timing
  - Funding needed, deferral benefit
  - Benefit & Cost allocation

# EE&F recommendation - process



- Determine list of potential upgrades
- Initial screening (as required for LRTP) narrows process
- VSPC EE&F develop further screening that, at a high level, determines how much EE might be available
  - Using DU and EEU data, e.g. load reduction needed, EE potential in area, estimated value of deferral
  - Example on next slide (DRAFT not final)

<b>Information regarding the constraint</b>	
T&D Constraint Name	
Description of Constraint	
VSPC Load Zone	
Season of Issue	
Year Project Needed	
Estimated Project Cost \$	
Annual Deferment Value	
Load Reduction Needed from EE	

<b>Information regarding the affected customers</b>	
Total Premises affected	
Total MW of premises	
Total MWh of premises	
Total # of commercial premises	
Total MW from commercial premises	
Total MWh from commercial premises	

<b>Information regarding Energy Efficiency Potential</b>	
Achievable Cost-Effective Energy Efficiency Potential in Area	
Cost to deliver EE to targeted area \$/kW	
Cost to deliver statewide EE to that targeted area \$/kW	
Total cost above status quo to deliver GT program	
<b>Estimated probability of success</b>	

<b>Other</b>	
Number of Years EE is able to defer project	
Value of deferment	
Value of any additional T&D benefits provided by EE	

# VSPC Action Items



- EE&F requests that VSPC agree to take on role to select areas for geographic targeting of efficiency services
- EE&F requests authorization from full VSPC to develop and use template, recommend areas for GT at Sept VSPC meeting
- EE&F requests that VSPC place on September agenda action item to consider recommendations from EE&F for GT areas

# Recommendations of Ad Hoc Process Reform Group



## **AD HOC GROUP**

Bruce Bentley, *CVPS* | Jenny Cole, Public Member  
Deena Frankel, *Facilitator* | Dave Lamont, *DPS*  
Steve Litkovitz, *GMP* | David Mullett, *VPPSA*  
Ken Nolan, *BED* | Hantz Pr sum , *VELCO*  
Richard Suitor, *VPPSA*

# Recap of objectives for reform



- Maintain and strengthen the purposes of the process.
- **Coordinate more effectively with the regional regulatory process at ISO-NE.**
  - **The increased centrality of the regional planning process and ISO-NE's role is the key reason reform is needed.**
- Provide a more nimble means of updating stakeholders about reliability issues and potential transmission system upgrades.

## ¶4: Acknowledges role of ISO in VT system planning



4. VELCO will take the lead in performing an analysis of Transmission related needs and create a draft Plan ~~document~~ and shall incorporate relevant analyses by ISO-NE into the draft Plan.

# ¶5: makes 20-yr horizon discretionary



5. The plan shall include a specific determination by VELCO as to whether the planning horizon should exceed the 10-year horizon established in 30 V.S.A. §218(c)(d). In preparing the Plan, VELCO will use a 20-year planning horizon. The Parties recognize that certainty of forecasts, details, and pertinent facts and circumstances decreases as a planning entity looks further out over a 20-year horizon, and that this decrease in certainty is particularly acute on the Subsystem where changes in load can have a more significant impact on the identification and resolution of Reliability Deficiencies. As a result, greater attention should be placed on Transmission projects within the first 10 years of the planning horizon and on large Transmission projects that are expected to be needed regardless of when they are needed within the planning horizon.

# ¶6: Further alignment with ISO role



6. In preparing the Plan, VELCO will be responsible, to the extent not incorporated into ISO-NE's analyses, for assessing forecasted demand, supply conditions, system configuration, and usage levels of the Bulk Transmission system and Subsystem in determining whether Reliability Deficiencies exist or will arise, accounting for local or regional changes in load with implications for the assessment. In preparing its own forecast to use in making the assessment, VELCO will use the best data reasonably available, and may utilize demand and supply forecasts, and related information, prepared by other entities, such as DPS, DUs, and ISO-NE, as well as demand-side savings projected by the EEU.

# ¶6 contd.: categorizes projects to identify projects with greatest NTA potential



A. The Plan shall establish three general categories for deficiencies and criteria for categorization:

- a. Long-range, large-scale needs (and groups of needs) with prospectively high potential for being met through non-transmission alternatives through early collaborative planning:
- b. ~~Projects of significant impact representing~~ Short- to medium-term needs for which transmission solutions may have significant economic and/or environmental impacts, and which have at least moderate potential to be addressed through, ~~where non-transmission alternatives may be viable;~~ and
- c. Small projects and those with need dates and/or characteristics that render non-transmission alternatives clearly impracticable or uneconomic.

## ¶28: Simplifies the content requirements for long-range plan



28. VELCO will release the Draft Transmission Plan for public review; such Draft Transmission Plan shall include ~~at least the following~~ all of the components required under by 30 V.S.A. §218c(d), plus those set forth in paragraphs 4 through 6A of this MOU.

Amendment strikes subparagraphs 28(a)-(k), which describe requirements for information to be included in long-range plan updates. The effect of the amendment is to simplify plan requirements to the six paragraphs of requirements contained in the statute [30 V.S.A. §218c(d)(1)(A)-(F) ] and the categorization of projects addressed in the previous slide.

# ¶51: Strikes the “project priority list” concept; substitutes VSPC development of project specific plans for certain deficiencies



Paragraph 51 struck, the following language substituted:

- ~~initiate such review on its own motion.~~ Following the filing of the Plan, the VSPC shall, for each identified reliability deficiency or group of deficiencies as categorized under Paragraph 6A.a and b:
- a. Develop a project-specific action plan that describes an appropriate, non-generic critical path from identification to resolution, including dates for key milestones and coordination with anticipated regulatory and stakeholder processes;
  - b. Subject to the rights and obligations of the DUs and all other parties to this MOU, select areas for focused NTA development and draft specific plans for moving that development forward; and
  - c. Report progress in relation to the project plan to the VSPC quarterly and to the Board and Department annually. Where milestones have been modified, progress reports shall state the reason for such modification.

# ¶73: Creates a new voting sector including the EEUs and SPEED Facilitator.



73. Each entity appointed by the Board under 30 V.S.A. § 209(d) to deliver System-wide Programs shall also appoint a voting participant representative to the VSPC. Where an entity is both a DU and an entity appointed by the Board pursuant to 30 V.S.A. sec. 209(d), the voting participant appointed under this paragraph shall be someone primarily engaged in activities falling within the purview of that section. to be a non-voting participant. However, where such an entity is a DU, the DU shall be represented by its designated representative or alternate pursuant to paragraph 71, above. Additionally, aAny entity appointed by the Board pursuant to 30 V.S.A. § 8005(b) shall also appoint a voting participant representative to the VSPC. to be a non-voting participant.

Circumstances where VSPC votes remain limited to a few questions:

- Categorization of deficiencies bulk vs subsystem if utilities can't agree.
- Lead distribution utility if utilities can't agree.
- Solution selection and cost allocation (advisory vote) if affected utilities don't act.
- Procedure (e.g., rules, waiver of rules and going into executive session).

# ¶75: acknowledges CEII as a type of information potentially exempted from open meetings



75. The meetings of the VSPC and any subcommittee thereof shall be open meetings conducted in accordance with 1 V.S.A. §§ 310-313; however:
- e. The VPSC or any subcommittee thereof may conduct an executive session to consider the entirety of any document that meets one or more of the exemptions listed in 1 V.S.A. § 317(c) and/or is classified as Critical Energy Infrastructure Information under federal law;

## ¶88: Adjusts voting to addition of the new sector (from ¶73 above)



88. Votes on matters arising under paragraphs 70.g and 70.h shall be recorded by sector in accordance with the VSPC Vote Tally Sheet appended to this MOU as Attachment E. The minutes of a meeting at which a vote is cast shall summarize the event and attach the tally sheet for the vote. With respect to all matters arising under paragraph 70.h, above, except the adoption or modification of rules of procedure for the VSPC, a majority vote in ~~four~~three of the ~~six~~five sectors identified in the VSPC Vote Tally Sheet shall be required, and shall be sufficient, to decide the matter. With respect to matters arising under paragraph 70.h, above, concerning the adoption or modification of VSPC rules of procedure, a majority vote in ~~five~~our of the ~~six~~five sectors identified in the VSPC Vote Tally Sheet shall be required, and shall be sufficient, to decide the matter. Votes on all matters listed under

# ¶89: changes the due date for VSPC annual reports from Jan 15 to Feb 15.



89. Annually by ~~January~~February 15, commencing in 2008, the VSPC shall provide a report to the Board and Department consisting of at least the following:

# ISO-NE VT/NH 10-yr Study



# Study Update



- **Completing Solutions study**
  - Evaluating Deerfield-Webster and Deerfield-Webster-Coolidge 345kV options
  - Considering longevity of options
  - Conducting other studies, e.g. short circuit, light load
- **Additional NTA results will be presented at the May 26th PAC meeting**
- **Final T&D solutions will be presented at the PAC meeting in July**

# Leading Candidates for Preferred Transmission Solutions



- **Southeast VT/Southwest NH**
  - 115 kV line upgrades in southwest NH with 75 MVar capacitor bank at Amherst 345 kV
    - ✦ Evaluating the Deerfield-Webster-Coolidge 345 kV line as an option
- **Connecticut River & Central Vermont**
  - Second autotransformer at Coolidge
  - Second K-31 (Coolidge-Ascutney) line
    - ✦ Alternative to K-31 line rebuild with capacitors at Ascutney, Breakers at Chelsea
  - Second 345 kV line between Coolidge and West Rutland
    - ✦ Alternative to line rebuild or parallel 115 kV lines

# Leading Candidates for Preferred Transmission Solutions



- **Northern VT**
  - 115 kV capacitor banks at Jay
- **Northwest VT**
  - 115 kV lines rebuilt from West Rutland to Tafts Corner
  - Being able to bring in 100 MW across the PV-20 line will be evaluated as an alternative to avoid these upgrades
  - ISO-NE has provided preliminary NTA results
    - ✦ 65 MW near Burlington, and
    - ✦ 140 MW near Rutland, and
    - ✦ 35 MW near Weathersfield

# PV-20 Flow as a Market Response



- **Need to take steps to obtain guarantee of PV-20 flow**
  - ISO-NE will not be a party to a market transaction
  - Physical and market constraints need to be resolved
- **Physical constraints**
  - Separate 230 kV lines (still exposed to N-1-1 loss of the 230 kV lines)
  - Restore SPS to protect VT against N-1-1 loss of 230 kV lines
- **Market constraints**
  - Contract between New York and New England
  - A Price Node at Plattsburgh
  - Schedule PV-20 flows separate from other NY-NE ties

# NTA Funding Parity



# Continued advocacy for NTA funding parity



- VELCO has continued to advocate regional level changes to provide partial support to cost-effective non-transmission alternatives.
- In the context of ISO-NE strategic planning, VELCO outlined various approaches to funding to ISO board.
  - View is not supported by the TO sector, which expresses concern about generation market power in congested zones.
- Portions of VELCO presentation to ISO follow.
- Economics of the included example illustrate why resolution at the regional level is critical to viability of NTA solutions to bulk transmission issues.

# NTA Example

**Issue:** VT/NH Study concluded investment needed in NW VT to address low voltage conditions

## Transmission Solution

- Rebuild 115 kV from W. Rutland to Essex @ a cost of over \$200M.
- VT is 4.5% of load

### Cost

- VT pays **\$9M**
- Rest of NE pays **\$191**

## Potential NTA Solutions

- Contract with NY over PV20 for delivery of 100 MW, or
- Add 50 MW of generation in Burlington area (\$45M)

### Cost

- VT pays **\$45M**
- FCM revenues provide only a fraction of cost

**Under current regime, \$200M spent  
when \$45M could have been sufficient**

## NTA example ...continued



- Skewed incentives currently exist. Despite the lower cost, NTA solution wouldn't be chosen because Vermont's portion of total costs would far exceed its allocation under the transmission solution.
- If NTA defers \$200M transmission solution, transmission customers defer \$35 to \$40M per year, assuming no cost escalation. Why not have New England transmission customers pay Vermont generator the lesser of first 1.5 years of deferred cost savings or the difference between cost of generation and FCM value?

# Potential approaches to funding



- Identify and publish locations where reliability challenges exist with sufficient detail to inform the market.
- Modify capacity market to include a location-based component and create appropriate market signals.
- Modify the Locational Marginal Pricing to include reliability component.
- Share a portion of transmission deferral savings with NTA solution if it more cost effectively solves reliability deficiency.
- Combine market revenues with a regional cost allocation (for a portion of the NTA costs) to achieve both reliability and cost-effectiveness. Refund excess market revenues back to load.

**CONCLUSION:** Socializing some portion of deferral savings may enhance the cost-effectiveness of achieving reliability objectives in some situations.

# Regional Transmission Cost Estimating Approach



# Background



- New project cost estimation approach following the Northwest Reliability Project
  - VELCO advocated adoption at ISO-NE in 2008
- Objectives of regional adoption of the approach
  - Calibrate cost accuracy expectations to the project development stage
  - Increase consistency in cost estimation among TOs across the region
  - Address stakeholder concerns about transmission costs
- How are these objectives achieved?
  - Include cost estimation approach in an ISO-NE Planning Procedure
  - Ensure solutions are selected based on reasonably sound cost estimates
  - Better align final project costs to initial cost estimates
  - Facilitate better ISO-NE oversight over project costs

# Apply Appropriate Accuracy Level



- Accuracy level depends on stage of project

Project Stage	Level of Project Definition	Estimate Class	Estimate Type	Regional Review	RSP Listing Target Accuracy
<b>Project Initiation</b>	0% to 15%	-	Order of Magnitude	Need Approval (RSP Listing)	-50% to +200%
<b>Proposed Project</b>	15% to 40%	A	Conceptual Estimate	Cost Review / Retain Proposed Solution	-25% to +50%
<b>Planned Project</b>	40% to 70%	B	Planning Estimate	PPA Approval	-25% to +25%
<b>Final Project Design</b>	70% to 90%	C	Engineering Estimate	Cost Review / TCA Approval	-10% to +10%
<b>Under Construction</b>	80% to 100%	D	Construction Estimate		-10% to +10%

# Include All Cost Items



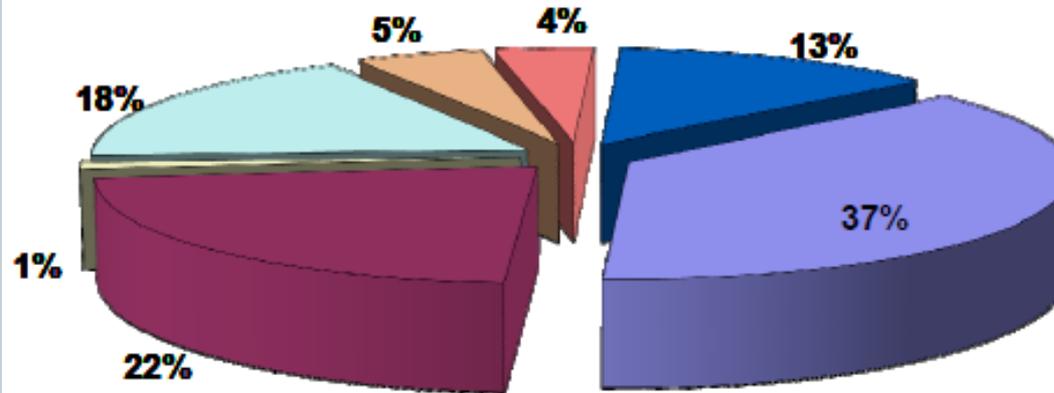
- Materials
- Labor
- Equipment
- Right-of-way
- Indirects (Permitting, Engineering)
- Escalation (Handy-Whitman)
- Financing (AFUDC and Capital Interest)
- Contingency (represents project uncertainties)

# Example



## 1. Project Cost Estimate Summary

Project Cost Summary	
Material	\$ 5,757,500
Labor	\$ 3,449,752
Equipment	\$ 154,832
Indirects	\$ 2,717,079
Escalation	\$ 788,882
AFUDC	\$ 614,885
Contingency	\$ 2,030,758
<b>Total Project Cost</b>	<b>\$ 15,513,046</b>



# 2012 Long-Range Transmission Plan three-year update



# Input during plan development



- **VELCO must obtain the following types of input:**
  - Obtain forecast updates from the DPS and distribution utilities, if available, during development of the plan.
  - Coordinate major planning assumptions with DPS, the distribution utilities and the EEU during development of the plan.
  - Provide working drafts of the plan to ISO-NE.
  - Confer with the distribution utilities to obtain information and comment.

# Input from the VSPC



1. VELCO must provide the draft Plan, including, all assumptions, forecasts, and analysis to the VSPC. (Docket 7081 MOU, ¶ 12)
2. After consultation with the VSPC, VELCO and the Distribution Utilities will determine whether each Reliability Deficiency identified in the draft Plan is Bulk Transmission System, Predominantly Bulk System, Predominantly Subsystem, or Subsystem.
  1. In the event that VELCO and the Distribution Utilities cannot agree on the determination described in the immediately preceding sentence, the VSPC shall make the determination by vote, which shall be binding on the voting participants of the VSPC unless a request for dispute resolution by the Public Service Board under paragraph 111 of the MOU is filed within 30 days of the VSPC's determination. (Docket 7081 MOU, ¶ 13.)
3. The VSPC will make a preliminary determination of the likely Affected Utilities for each Reliability Deficiency identified in the draft Plan. (Docket 7081 MOU, ¶ 14.)
4. By 60 days after VELCO's submission of a complete draft Plan to the VSPC, the VSPC will collect the comments of its members in memorandum form, and convey such comments to VELCO. VELCO shall incorporate these comments into its draft Plan or respond to the VSPC in writing as to why they were not incorporated. (Docket 7081 MOU, ¶ 15.)

# Input from the public



- **MOU requires:**
  - VELCO, in consultation with the VSPC, design and conduct a public outreach process that engages the public in a deliberative format involving dialogue and a response to public comments.
- **30 VSA §218c requires:**
  - “Prior to the adoption of any transmission system plan, a utility preparing a plan shall **host at least two public meetings** at which it shall present a draft of the plan and facilitate a public discussion to identify and evaluate nontransmission alternatives. The meetings shall be at separate locations within the state, in proximity to the transmission facilities involved or as otherwise required by the board, and each shall be noticed by at least two advertisements, each occurring between one and three weeks prior to the meetings, in newspapers having general circulation within the state and within the municipalities in which the meetings are to be held.”
  - A **verbatim transcript** of the meetings shall be prepared by the utility preparing the plan, shall be filed with the public service board and the department of public service, and shall be provided at cost to any person requesting it. **The plan shall contain a discussion of the principal contentions made at the meetings** by members of the public, by any state agency, and by any utility.

# Assumptions about the Plan



- ISO's VT/NH Needs Assessment will be used as the bulk system analysis for years 1-10.
- VELCO will analyze years 11-20 and the subtransmission system.
- VELCO will formally request that the DUs submit any relevant subsystem analyses early in the process.
- The Plan itself will be a non-CEII public document that is based on the underlying technical analysis.
- Load forecast updated by Oct 2011 as needed including EVT Forecast 20 update due in September.

# Plan development reverse calendar



Date	Milestone
7/1/12	Submit final to PSB
6/1/12-6/30/12	Incorporate public input
4/15/12-4/30/12	Hold public meetings
4/1/12-6/1/12	Public input period
4/1/12	Issue public review draft
3/1/12-3/31/12	Incorporate VSPC input
12/15/11-2/28/12	VSPC input period
12/15/11	Issue VSPC draft
9/2011	Preliminary results to DUs for feedback
6/8/11	Review timeline and scope of subtransmission analysis with VSPC
4/2011-5/2011	Review regulatory requirements, develop workplan, develop outline, consult with DUs

# Project Updates



**TIMING OF PROJECT STEPS FOR ALL IDENTIFIED RELIABILITY PROJECTS -- Updated 6/2010**

Key on following page

	Year Needed *	Load MW Needed	Completed	CALENDAR QUARTERS								
				2010				2011				
				1	2	3	4	1	2	3	4	
Priority 1 : St. Johnsbury	pre 2009	400	T, N, SCI									Permitted
Priority 2 : Middlebury	pre 2009	700	T, N, SCI									Filed for 248.
Priority 3A : St. Albans	pre 2009	850	T, N, SCI									Expected to start Public Process in 2011
Priority 3B : Georgia substation	pre 2009	800			T	SCI						T complete. ISO approval process commenced.
Priority 3C : Georgia - St. Albans	pre 2018	1275	TBD									
Priority 4 : Rutland area	pre 2009	1000			T	N	SCI					
Priority 5 : Blissville - transformer	pre 2009	800	TBD**									
Priority 6 : Hartford - transformer	pre 2009	800							T	N	SCI	
Priority 7 : Ascutney substation	pre 2009	750				T	SCI					T complete. ISO approval process commenced.
Priority 8 : Newport capacitor	pre 2009	1000				T	SCI					T pending for coordination with VEC system reliability assessment.
Priority 8 : Queen City capacitor	pre 2009	<1120				T	SCI					Priority 8 under study. Operational procedure at Essex switch postpones need date for most of the capacitor banks. T analysis date pushed out to 2010 year end for completion of ISO study.
Priority 8 : West Rutland capacitor	pre 2009	<1120				T	SCI					
Priority 8 : Blissville capacitor	pre 2009	<1170				T	SCI					
Priority 9 : Ascutney capacitor	pre 2009	<1170				T	SCI					
Priority 10 : Bennington substation	pre 2009	500				T	SCI					
Priority 11 : reactors @ transmission voltage	pre 2009	400				T	SCI					T complete. ISO approval process to begin in July.

Priority 12 : Coolidge - Ascutney K-31 line	pre 2009	n/a		T	SCI		
						T	SCI: 12/31/12. Need to be determined by ISO regional study
Priority 13 : VT - Vernon Road Tap K-186 line	pre 2009	n/a		T	SCI		
						T	SCI: 12/31/12. Need to be determined by ISO regional study
Priority 14 : Vernon	2010	1185	TBD				
						T	SCI: 12/31/12. Need to be determined by ISO regional study
Priority 15 : Ascutney - Ascutney Tap K-149 line	2013	1210		T	N	SCI	
						T	SCI: 12/31/12. Need to be determined by ISO regional study
Priority 16 : Coolidge - Cold River K-32 line	2013	1210		T	N	SCI	
						T	SCI: 12/31/12. Need to be determined by ISO regional study
Priority 17 : Ascutney - transformer	2013	1210				T	N
							SCI
Priority 18 : Coolidge - transformer	2016	1245	TBD				
						T	SCI: 12/31/12. Need to be determined by ISO regional study
Priority 19 : Barre	2018	1275	TBD				
Priority 20 : Chelsea	2018	1275	TBD				
Priority 21 : Plattsburgh - Essex	Note ***	n/a	TBD				

Note \* : Based upon 2008 load forecast

Note\*\* : See VSPC annual report for discussion of operational measures to address this deficiency prior to 2012 Plan update.

Note\*\*\* : Timing may be 2016 or earlier depending upon other possible scenarios

Key:

Tan color: milestones in Project Priority List filed 2/2010

Yellow color: projects with changed milestones, 6/2010

N = Non-transmission alternative analysis (priorities with no "N" entry screened out of further NTA analysis in Long-Range Plan

S = Solution selection

C = Cost allocation

I = Implementation strategy

TBD = To Be Determined after the completion of the 2012 Long Range Transmission Plan

n/a = Not applicable

# Proposed 2012 schedule



## **Proposed 2012 meetings**

March 14, 2012 - Randolph

June 13, 2012 - Montpelier

September 12, 2012 - Rutland

December 12, 2012 – Burlington

## **Remaining 2011 meetings**

September 14 – Rutland

December 14 – Burlington