

Vermont System Planning Committee:

Functional Overview & Potential Role in Identifying Locations for Exemption from the Standard Offer Cap

Docket 7873/7874 Workshop

August 23, 2012

Deena Frankel
Facilitator
VELCO

Topics

- High-level overview of VT System Planning Committee (VSPC) purpose and process.
- Preliminary concepts for VSPC role in identifying areas where new renewable generation could provide benefits to the grid.

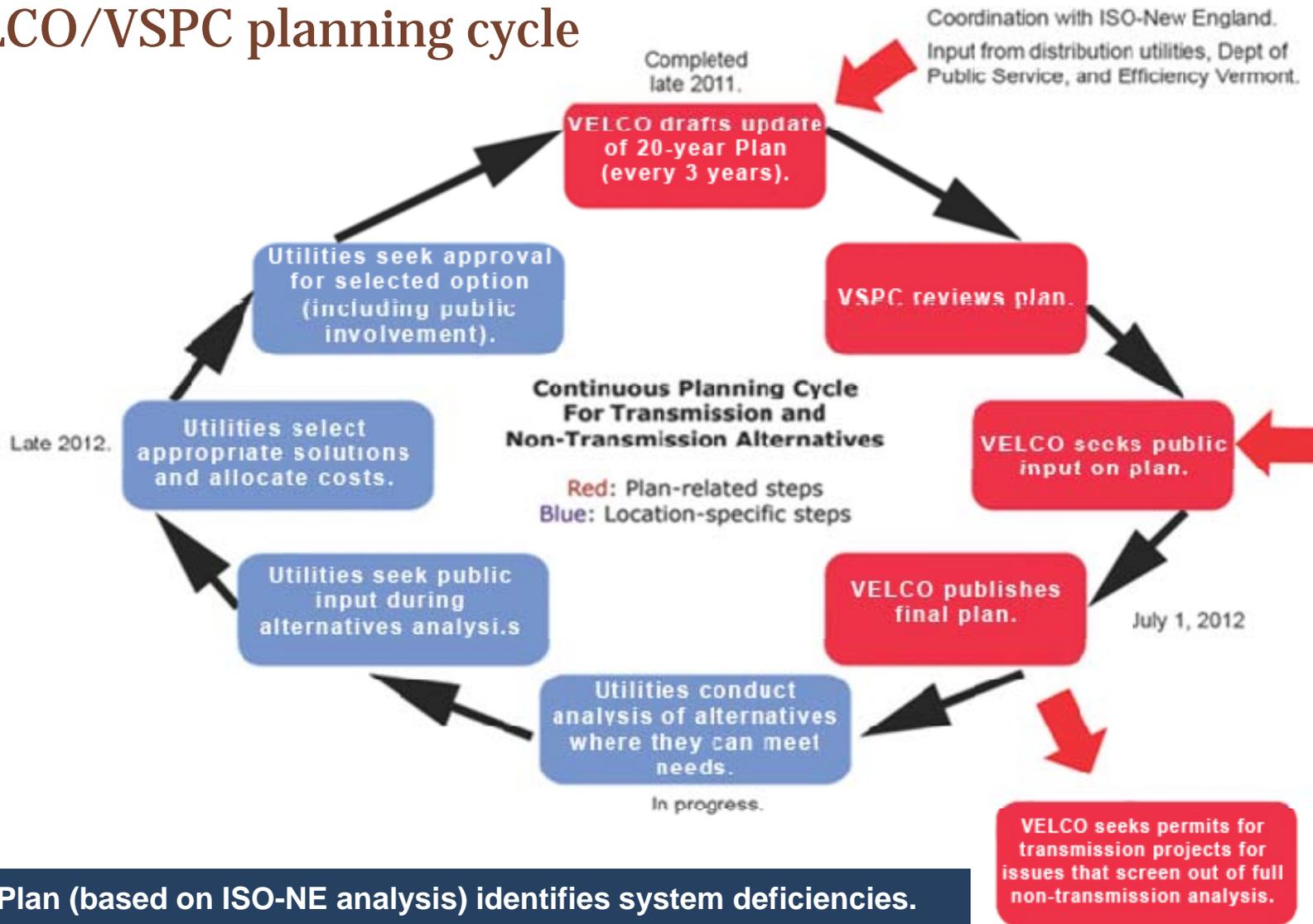
Mandate and purpose of the VSPC

- Act 61 of 2005 Legislature (30 V.S.A. § 218c):
 - prepare a 10-year transmission plan at least every three years beginning July 1, 2006.
 - *“Identify potential need for transmission system improvements **as early as possible, in order to allow sufficient time to plan and implement more cost-effective nontransmission alternatives** to meet reliability needs, wherever feasible.”*
- Process was developed through a negotiated settlement in Docket 7081.
 - Signatories: VELCO, most utilities, DPS, AIV.
 - PSB made the process binding on all Vermont utilities.
 - Requires 20-year long-range transmission plan.

Organizational structure and process

- **Six voting sectors** with equally weighted votes.
 - ❑ **3 public members**— environmental, residential, commercial.
 - ❑ **VELCO.**
 - ❑ **Large DUs with transmission** (GMP, VEC).
 - ❑ **Large DUs without transmission** (BED, WEC).
 - ❑ **DUs without transmission** (remaining munis).
 - ❑ **Energy efficiency utilities.**
- DPS & SPEED Facilitator hold non-voting seats.
- **Advisory votes:** Affected utilities. Solution selection. Cost allocation. Implementation strategy.
- **Binding votes:** where utilities disagree on system level (bulk vs sub) and lead utility assignment.
- Full committee meets quarterly
- Subcommittees meet between quarterly VSPC meetings as needed.
 - Process reforms currently under consideration to increase efficiency and effectiveness include subcommittee reorganization.

VELCO/VSPC planning cycle



VELCO Plan (based on ISO-NE analysis) identifies system deficiencies.

Detailed NTA studies provide greater detail and precision about constraints, analysis of locational effectiveness and relative costs of NTA resources.

2012 Plan identified one **bulk system** issue with actionable potential for deferral by NTA

SUMMARY OF BULK SYSTEM REGIONAL GROUPING & TRANSMISSION SOLUTIONS	PROPOSED LEAD & AFFECTED DISTRIBUTION UTILITIES	ESTIMATED TRANSMISSION PROJECT COST & (VT SHARE) ⁹	SCREENED IN OR OUT OF FULL NTA ANALYSIS
Southeast Vermont <ul style="list-style-type: none"> Rebuilding the Vermont portion of the Vernon to Northfield 345 kV line, as part of a larger VT/NH/MA set of upgrades. 	<i>Lead:</i> GMP ¹⁰ <i>Affected:</i> All VT	\$6M (\$0.24K)	Out
Connecticut River Valley <ul style="list-style-type: none"> Construction of a second 115 kV line between Coolidge and Ascutney. 	<i>Lead:</i> GMP <i>Affected:</i> All VT	\$93M (\$3.7M)	Out
Central Vermont <ul style="list-style-type: none"> Construction of a second 345 kV line between Coolidge and West Rutland. 	<i>Lead:</i> GMP <i>Affected:</i> All VT	\$157M (\$6.3M)	In
Northwest Vermont <ul style="list-style-type: none"> Rebuilding the West Rutland to Middlebury 115 kV line Rebuilding the New Haven to Williston 115 kV line Rebuilding the Williston to Tafts Corner 115 kV line 	<i>Lead:</i> GMP <i>Affected:</i> All VT	\$221M (\$8.8M)	In

Current focus of full NTA analysis in VSPC process

Need date is beyond 10-year horizon

2012 Plan identified two **predominantly bulk system** issues with actionable potential for deferral by NTA

SUMMARY OF PREDOMINANTLY BULK SYSTEM & TRANSMISSION/SUB-TRANSMISSION SOLUTIONS	ESTIMATED COST (2012 NEED)	PROPOSED LEAD & AFFECTED DISTRIBUTION UTILITIES	SCREENED IN OR OUT OF FULL NTA ANALYSIS
Colchester area (preliminary solution) 34.5 kV line upgrades	\$1M	<i>Lead:</i> GMP <i>Affected:</i> GMP & BED	Out
St Albans/East Fairfax area Install a 115/34.5 kV transformer at Georgia	\$5M	<i>Lead:</i> GMP <i>Affected:</i> GMP & VEC	Out
Rutland area (preliminary solution) Install a 115/46 kV transformer at West Rutland, 46 kV capacitor banks, and rebuild 46 kV lines	\$35M	<i>Lead:</i> GMP <i>Affected:</i> GMP	In
Hartford area (preliminary solution) Install a 115/46 kV transformer at Hartford	\$20M	<i>Lead:</i> GMP <i>Affected:</i> GMP	In
Northern area Upgrade Newport station, Moshers Tap, and Irasburg transformer, install 46 kV cap banks	\$19M	<i>Lead:</i> VEC <i>Affected:</i> VEC, Enosburg, Barton, Orleans, Swanton	Out
IBM (preliminary solution) Reconfigure IBM taps to substations	\$20M	<i>Lead:</i> GMP <i>Affected:</i> GMP	Out
Vernon Road substation Install a 115 kV breaker at Vernon Road	\$2M	<i>Lead:</i> GMP <i>Affected:</i> GMP	Out

Subtransmission & distribution system issues

- Subtransmission (voltage <115kV)
 - Identified in Long-Range Plan.
 - Owned by distribution utilities who are responsible to plan and execute solutions.
 - DUs address in their IRPs.
 - NTA screening not performed by VELCO.
- **Distribution**
 - **Not a subject of the Docket 7081/VSPC process.**

VSPC NTA analysis process

- **Step 1: Screening.**
 - All projects screened during Long-Range Plan development using adopted NTA screening tool (currently undergoing revision) to determine when to analyze NTAs in depth.
- **Step 2: Full NTA analysis if “screened in.”**
 - All “affected utilities” led by “lead utility” (as defined by 7081 MOU) required to participate.

NTA analysis now underway for Central VT reliability deficiency

- Under VSPC aegis, DUs and VELCO formed study group, led by GMP (lead DU), to fully evaluate potential for NTA solution.
- Methodology of current study:
 - **Quantified the reliability gap and the relative benefit of generation/load reduction by location.**
 - Identified potential resources and calculated rough costs per/kW.
 - Developed Alternative Resource Configurations (ARCs).
 - Will conduct economic analysis of ARCs, including application of societal test and other economic tests.
 - Rebuttable presumption that analysis will include a market test.
- Study plan called for completion in 2012, but **changing load forecast may eliminate or greatly extend the horizon** for some or all of the issues for which NTAs were under study.
 - Completion of study with revised scope in 2012.

Limitations of location benefit info in Plan

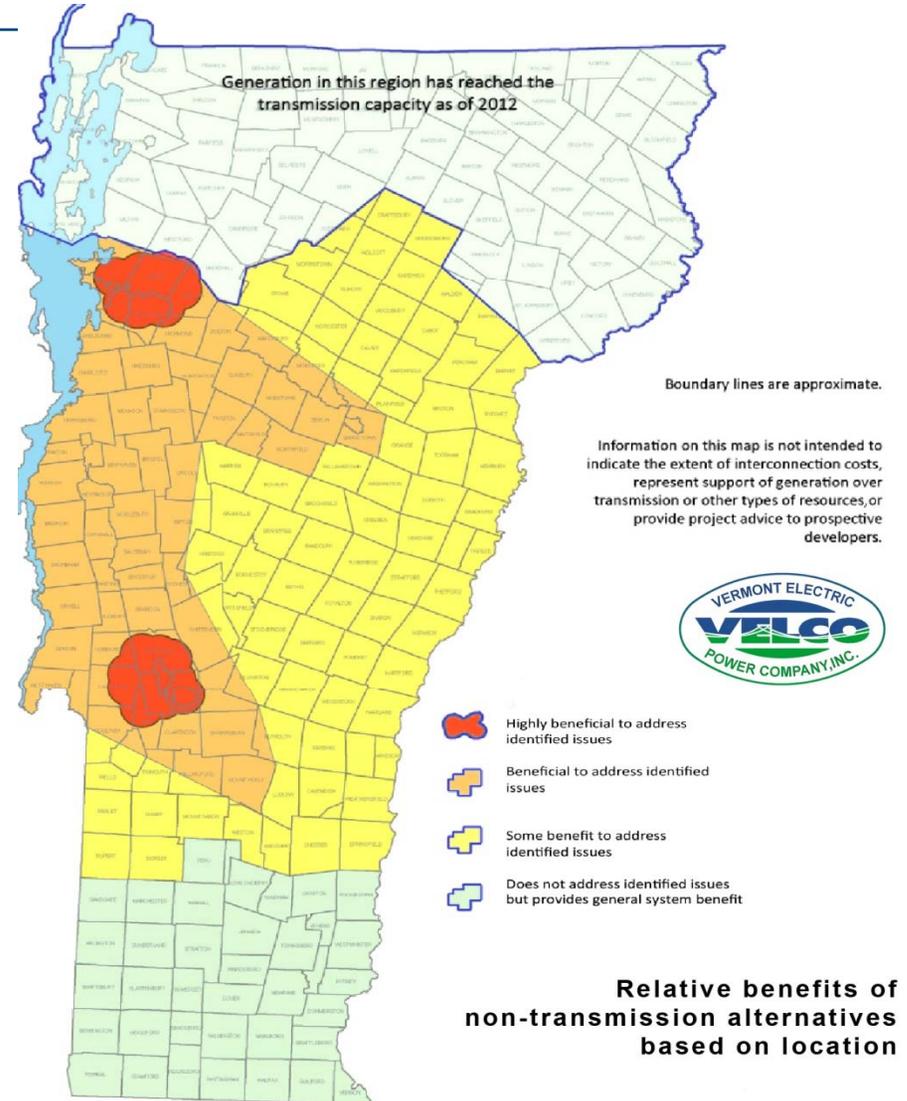
2012 Plan includes a map *roughly* depicting the relative benefit to the transmission grid of new generation or load reductions by location.

- The color coding is very rough, drawn by hand.

Zones of benefit are based on ISO-NE VT/NH NTA analysis.

Benefits have been much more precisely analyzed in the context of the current NTA study group.

For this docket, map may be most useful to identify areas that are NOT beneficial.



VELCO, nor its affiliates, nor any person acting on their behalf, makes no warranty, expressed or implied with respect to the use of information in this document, nor assumes any liability with respect to the use of information in this document. Anyone who uses this document releases VELCO, its affiliates, and any person acting on their behalf from liability for direct or indirect loss or damage, irrespective of fault, negligence, and strict liability.

Potential model: VSPC role in EE geotargeting

- PSB Order in EEU Demand Resource Plan docket charges VSPC with recommending whether to geotarget EE \$ and if so where.
- VSPC recommended to PSB areas for geographically targeted energy efficiency in 2008 and 2012.
- Analysis and recommendations developed by Energy Efficiency & Forecasting Subcommittee.
 - Extensive development of analytic tools and methodology for 2012 recommendations.
- VSPC approach to geotargeting is a viable model for developing data needed by PSB to evaluate system benefit of standard offer projects. Options include:
 - Establishing dedicated subcommittee for this purpose.
 - Analytical work as final task of current NTA study group.
 - As with EE GT, sub group could make recommendations to full VSPC for adoption and reporting to PSB.

Data needed to assess bulk system benefit

Data	Source	Availability
Bulk system constraints	Transmission analyses: ISO-NE VT/NH Needs Assessment VELCO long-range plan Subsequent VELCO analysis	Available & ongoing
Year of need	Same as above	Needs updating based on updated forecast
Size of reliability gap: how much NTA resource is needed to avoid or defer T	VELCO long-range plan ISO-NE NTA analysis VELCO analysis for NTA study	Available
Effectiveness factor based on location	VELCO analysis for NTA study	Available
Equivalency criteria: what characteristics would an NTA resource need to have to avoid or defer T	Deficiency-specific assessment	To be determined
Avoided cost	VELCO long-range plan planning-grade estimate of T solution cost	Available

Some concepts for Year 1 location benefit determination

- Assumptions:
 - No project in north or south tier (blue areas of slide 11).
 - South: little or no ability to address any identified constraint.
 - North: inadequate transmission capacity to accommodate additional generation.
 - Cap exemptions at the amount of resource needed to avoid/defer T.
 - Focus on deficiencies that screened in to full NTA analysis and are needed within 10-year horizon (given volatility of load forecast).
- Use VSPC to develop a specific recommendation for size & location of standard offer that would address relevant T and subT issues.
 - Existing transmission analyses and NTA study.
 - Update as needed in light of changing load forecast.
 - Document equivalency criteria and cost analysis.
 - Recommendation to PSB in early 2013 for March statutory deadline.
- This approach could help meet tight deadlines, while not precluding more nuanced approaches in future years.

Given uncertainties of current environment, a sound result will depend on a dynamic process that involves some judgment. Not a formula.

Conclusions

- VSPC process can help.
 - EE geotargeting offers a model.
 - NTA study group work is far along in relevant analysis.
- Much work has been done; more is needed.
- Significant load forecast uncertainty.
- Distribution is not addressed.
- Statutory deadline is a workable timeframe, but November is probably unrealistic.