

SECOND DISCUSSION DRAFT Vermont System Planning Committee Charter

Purpose

The Vermont System Planning Committee (VSPC) is a collaborative body comprised of representatives of stakeholder group with an interest in electric system reliability. Its purpose is to ensure full, fair, and timely consideration of all societally cost-effective solutions to resolve electric grid reliability issues, including non-wires alternatives (NWAs).

In fulfilling its purpose, the VSPC shall undertake the following objectives:

1. Collaborate with and provide formal input to VELCO in the development and review of the Vermont Long-Range Transmission Plan (LRTP) as established in the Docket 7081 Memorandum of Understanding (MOU) and such other processes as may be adopted.
2. Review all identified reliability issues (transmission, subtransmission and distribution) at least annually to provide shared insight and collaboration across the electric grid.
3. For those identified reliability issues that have the potential to be resolved with NWAs — distributed energy resources (DER), energy efficiency, demand response, or a combination of those measures, or a hybrid of alternatives and upgrades — utilize the screening and analysis process established in the MOU and the Docket 7874 Screening Framework.
4. Enhance transparency and public engagement in electric system planning.
5. Provide a forum to account for the impact of trends and emerging technologies, such as storage, electric vehicles, electrification of space heating, and others, on Vermont load.
6. Seek consensus on the Vermont load forecast to support LRTP development.
7. Monitor the development of DER to provide broadly shared insight about DER integration and advance [support?] the development of tools and processes needed to maintain reliability in an increasingly distributed electric grid .
- 8.
9. Maintain regular communication with ISO New England to increase Vermont stakeholder and ISO New England understanding of mutually relevant issues, such as forecasting and grid management.

In carrying out this charter, the VSPC will recognize the utility-specific obligations in individual utility Integrated Resource Plans (IRPs).

NOTE: This draft is the version preceding the comments/mark-up also attached.

Deliverables

[**Ed. Note:** the following section is a rework based on the 4/5/16 meeting. Since it has been substantially reworked and was not reviewed, it is not redlined.]

#	Related purpose	Current task?	Tasks/deliverables (current and potential)
1	1, 4, 6	Yes	Provide formal input to the LRTP as required by the MOU.
2	1, 4, 6	Yes	Provide input to the Vermont load forecast.
3	2, 3, 4, 7	Yes	Annually review utility NWA screenings and make geographic targeting recommendations for energy efficiency and standard offer above the cap to the Public Service Board.
4	4	Yes	Recommend candidates for PSB appointments to public seats.
5	4	No	Identify and address gaps (if any) in current membership structure and stakeholder representation
6	4	Yes	Maintain transparency of the VSPC through a VSPC website and adherence to VSPC procedures for meeting notice and open meetings.
7	3, 4, 7	Partial	Maintain a regularly updated, easily understood, publicly available tracking tool for the status of all screened reliability issues. [Note: the information currently exists on the VSPC website, but is not organized in an easily referenced fashion.]
8	4, 5, 9	Yes	Provide information about policy, programmatic and technological developments, such as Order 1000, rule and legislative changes, research projects, etc.
9	4, 5, 7	Yes	Provide a forum for sharing of utility IRPs. [This has been done inconsistently.]
10	4, 5, 7	No	Identify and address gaps in current planning process and tools created by the current and projected effects of transformation to an increasingly distributed grid. [This item may need further definition to be meaningful.]
11	4, 5, 7	Partial	Modify project screening tools as needed/when necessary to ensure continued consistency with purpose and objectives. [A revision process exists and has been used for minor adaptation but no

NOTE: This draft is the version preceding the comments/mark-up also attached.

Discussion questions

1. Is regulatory change (Board order, MOU amendment or statutory change) needed to carry out any of the purposes and tasks identified?
2. Is it practical to believe a process that does not include a regulatory mandate will be effective in achieving tasks related to grid transformation (particularly item 10)?
3. Are the right people at the table for the tasks at hand?
4. Does the current subcommittee structure of the VSPC support the tasks at hand?

Glossary of terms and abbreviations

DER: Distributed Energy Resources—Distributed energy resources (DER) are smaller power sources that can be aggregated to provide power necessary to meet regular demand. Source: EPRI.

IRP: Integrated Resource Plan

NWA: Non-Wires Alternatives

~~FIRST SECOND~~ DISCUSSION DRAFT

Vermont System Planning Committee Charter

Purpose

The Vermont System Planning Committee (VSPC) is a collaborative body comprised of representatives of stakeholder group with an interest in electric system reliability. Its purpose is to ensure full, fair, and timely consideration of all societally ~~cost-effective~~~~least-cost~~ solutions to resolve electric grid reliability issues, including non-wires alternatives (NWAs) that make use of distributed energy resources (DERs) as full or partial substitutes for traditional capital investment or deferral.

In fulfilling its purpose, the VSPC shall undertake the following objectives:

1. Collaborate with and provide formal input to VELCO in the development and review of the Vermont Long-Range Transmission Plan (LRTP) as established in the Docket 7081 Memorandum of Understanding (MOU) and such other processes as may be adopted.
2. Identify and jointly Review all known identified reliability issues (transmission, subtransmission and distribution) at least once annually to provide shared insight and collaboration across the electric grid.
3. Determine which For those identified of the known reliability issues that have the potential to be resolved with NWAs measures other than infrastructure upgrades — distributed energy resources (DER), energy efficiency, demand response, or distributed generation, a combination of those measures, or a hybrid of alternatives and upgrades — utilize the screening and analysis process established in the MOU and the Docket 7874 Screening Framework.
4. Enhance transparency and public engagement in electric system planning.
5. Provide a forum to Seek consensus on the Vermont load forecast annually to support LRTP development and to account for the impact of trends and emerging technologies, such as storage, electric vehicles, electrification of space heating, and others, on Vermont load.
- 5-6. Seek consensus on the Vermont load forecast to support LRTP development.
- 6-7. Monitor the development of distributed generation and storage DER to provide broadly shared insight about DER integration of renewables and other grid impacts and advance [support?] the development of tools and processes needed to maintain reliability in an increasingly distributed electric grid, and to plan collaboratively to support state public policy goals for renewable energy.
- 7-8. [Should there be some connection to utility IRPs?]
- 8-9. Maintain regular communication with ISO New England to increase Vermont stakeholder and ISO New England understanding of mutually relevant issues, such as forecasting and grid management.

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Comment [WJ1]: We should add "reliability" to the list of defined terms. Should include load growth (i.e. capacity) issues, voltage problems, frequency/regulation problems...other?

Comment [BC2]: In general only batteries and hydro/methane are a substitute for capital investment or encourage capital deferral. Solar and wind (have low capacity factors (16 and 32% respectively), can't be relied upon to meet the needs of the distribution systems loads. These sources generally require capital investment (reconductoring, voltage regulators, etc.) to serve the distribution loads when these resources are available. DER's include many types of renewables and battery storage (again, there are different types of storage as well) so I think we should be careful to generalize this term.

Comment [TP3]: I suggest that the word "all" is not necessary and idealistic. Calling out NWAs is not necessary, it is covered by the remainder of the sentence, and by emphasizing one indirectly de-emphasizes others (such as hybrid wires and non-wires solutions).

Comment [MB4]: Do we need to say "those that have the potential to be resolved..." or does utilizing the screening tool weed out those that don't have the potential to be resolved with

Comment [TP5]: Suggest putting defined terms in bold. Non-Wires Alternatives will be defined in glossary - examples could be provided there rather than within the purpose.

Comment [WJ6]: Right now our only formal tool for identifying gaps is concerned with anticipated load growth even though we are in practice looking at other types of reliability violations. I'd be interested in seeing some language that spells out a VSPC responsibility to refine methods of identifying DER solutions to all types of reliability gaps. I've attempted some language at the end of this doc.

Comment [TP7]: Combine with #1 - perhaps a sub-bullet?

Comment [TP8]: replace "development" with "installation and impacts"

Comment [MB9]: "Support" is more consistent with VSPC role. I prefer support. The committee could support ongoing policy discussions with technical expertise or as a venue for debate.

Comment [TP10]: Suggest deleting this phrase. Support deletion of the public policy goals phrase.

9. ~~Collaborate on/support the development of tools and processes for increasing visibility of grid resources. [address current data/analytics gaps]~~In carrying out this charter, the VSPC will recognize the utility-specific obligations in individual utility Integrated Resource Plans (IRPs).

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Comment [TP11]: Add statewide goals here?

Deliverables

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4	4	Yes	Recommend candidates for PSB appointments to public seats.
5	4	No	Identify and address gaps (if any) in current membership structure and stakeholder representation
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7	3, 4, 7	Partial	Maintain a regularly updated, easily understood, publicly available tracking tool for the status of all screened reliability issues. [Note: the information currently exists on the VSPC website, but is not organized in an easily referenced fashion.]
8	4, 5, 9	Yes	Provide information about policy, programmatic and technological developments, such as Order 1000, rule and legislative changes, <u>grid transformation</u> , research projects, etc.
9	4, 5, 7	Yes	Provide a forum for sharing of utility IRPs. [This has been done inconsistently.]
10	4, 5, 7	No	Identify and address gaps in current planning process and tools created by the current and projected effects of transformation to an increasingly distributed grid. [This item may need further definition to be meaningful.]
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Comment [WJ12]: why not broaden this to recommendations for DER generally, not just EE and SO?

Comment [TP13]: spell out

Comment [SL14]: GMP does not have the resources to support an explicit expansion of the VSPC in this manner. However, in an attempt to reach consensus, GMP proposes that grid transformation be recognized in Deliverable #8. GMP believes that it can support discussions on grid transformation to the extent that specific issues are identified, associated tasks sharply defined, and a process and resource allocation agreed to among VSPC members.

Comment [BC15]: VEC would like to echo GMP's thoughts on not having the resources to support this but is interesting in participating in discussions regarding grid transformation and geo-targeting DER resources

Comment [MB16]: Do we need to change the names and make edits to accommodate NWAs in place of NTAs?

Comment [SL17]: Is there a phrase missing here?

Discussion questions

1. Is regulatory change (Board order, MOU amendment or statutory change) needed to carry out any of the purposes and tasks identified?
2. Is it practical to believe a process that does not include a regulatory mandate will be effective in achieving tasks related to grid transformation (particularly item 10)?
3. Are the right people at the table for the tasks at hand?
4. Does the current subcommittee structure of the VSPC support the tasks at hand?

4-5.

Glossary of terms and abbreviations

DER: Distributed Energy Resources—Distributed energy resources (DER) are smaller power sources [and demand control systems](#) that can be aggregated [and coordinated](#) to provide power necessary to meet regular demand. Source: EPRI.

IRP: Integrated Resource Plan

NWA: Non-Wires Alternatives

Comment [MB18]: •7081 MOU
•reliability issues
•Long Range Transmission Plan
•screening and analysis process of the MOU
•D 7874 Screening Framework
•geographic targeting
•Vermont Load forecast (making clear this is a L RTP related item)

Should defined terms be in bold above?

The Department supports the conception of the VSPC as a venue for (amongst other things) transmission and distribution grid planners (and other stakeholders, including regulators) to exchange information and ideas that further the development of processes and methodologies for identifying locations on the distribution grid where the installation of DER provides the most societal benefit. At this relatively early stage of DER proliferation, it seems evident that DERs will provide the most benefit in locations where it is possible to deploy them as substitutes for traditional capital investments in T&D capacity. Thus, as is, the current VSPC process of subjecting all significant planned capital projects to an NTA/NWA cost-effectiveness analysis appears to offer a sufficient means of identifying the largest DER value propositions, at least for this moment in the history of DER growth. That said, the Department feels there are at least two things that should be modified about the current VSPC process, if only to reflect de facto as opposed to de jure practice.

Comment [BC19]: As mentioned above, VEC believes the DERs cannot be used as a generalization. Methane, hydro, or storage, in addition to Net-Metering makes this statement true. Group Net-Metered solar on its own, does not.

1. Expand what qualifies as a reliability concern—and by extension, the capital projects that qualify for NTA/NWA analysis—beyond the capacity insufficiencies that accompany load growth.
 - While DERs have the potential to defer or avoid capital investment in the expansion of capacity on T&D systems, not all T&D capital investment is driven by load growth (as we know capital investment in VT may very well be driven more so by insufficient load). The following is a list of additional non capacity related reliability concerns that can potentially be more cost-effectively resolved with DERs than with traditional investments. VSPC processes should ensure that the ability of DERs to cost-effectively resolve these reliability concerns are given full fair and timely consideration. This may (or may not) require the

Comment [WJ20]: Please add/refine this list. It is not exhaustive.

development of additional or separate screening criteria. If new screening criteria is required, the VSPC should act to develop the appropriate evaluative process(es)

- i. Excess BTM Generation (Backflow)
- ii. Voltage Violations
- iii. Frequency/Regulation
- iv. Etc.?

Comment [BC21]: Net-metering is not a reliability concern of ours; it is a loss of load at a high cost.

Comment [BC22]: Group Net-Meters (particularly solar and wind) tend to cause these for us.

2. Expand what qualifies as an NTA/NWA—and by extension what will be analyzed for cost-effectiveness—to include all DER, not just EE and Standard Offer generation. The definition of DERs should include at least the list below. An NTA/NWA may comprise any combination of any of these DERs.

- i. Passive Energy Efficiency
- ii. Active Demand Response
- iii. Storage
- iv. Behind the meter generation
- v. Combined Heat and Power

Neither 1 or 2 above represents a significant change from current de facto VSPC processes. It is conceivable that simply by taking these responsibilities seriously, a body of technical knowledge, rules of thumb, and best practices will emerge as grid planners learn through experience (and information exchange) how to identify those opportunities where DERs are most likely to offer a cost-effective substitute for traditional capital investments (without having to undertake labor-intensive initiatives like system-wide studies of DER hosting capacity, for example). It is conceivable that successive cycles of the VSPC process (roughly as it exists today) could begin to reveal patterns that show how a given combination of DER is particularly cost-effective for this or that situation on a given circuit configuration. Over time, the lessons learned by DUs in this passive manner (analyzing DER solutions to reliability gaps as they become evident via screening) could translate into more proactive and coordinated planning of DER deployment (through competitive solicitations perhaps) and the integration of DER performance into hourly (or sub-hourly) power supply operations.

Comment [BC23]: The existing distribution system is passive, making it active will add to the cost and complexity of the system offsetting any savings.

However, it is equally conceivable that none of this happens at all and that in the end other regulatory processes will have to be instituted to ensure that DUs are sufficiently preparing (i.e. planning) for a new operations paradigm that depends on DERs “showing up” when needed and delivering the location and time-dependent value that they promise on paper.

The Department feels that the VSPC offers a natural venue in which to begin building consensus around the question of how to meet the engineering side of the challenge of coordinating the performance of a multitude of diverse DERs. The current VSPC offers no explicit structure for investigating issues of DER optimization or interoperability and it is not clear whether VSPC members believe such questions should be the concern of the VSPC. The Department acknowledges that the imperative to establish system operation protocols for DER is not imminent. But the Department does think that it is imperative to use the present moment to imagine possibilities for what a future Distribution System Operator should do and should look like. The VSPC has the social and intellectual capital in place to make this a valuable VSPC Charter—Discussion Draft 2

exercise for its members. But absent some incentive structure or board ordered requirement, the Department is dubious that such a difficult and abstract conversation will advance on its own.

We look forward to continuing the discussion.

VEC Comments

The primary focus of the VSPC is and has been how we address reliability concerns on the Vermont transmission system. Given the proposed increased penetration of DERs (specifically solar), it is clear that a more holistic view of the distribution system is necessary. Net Meter generation is not a problem to system reliability but group net meters and larger facilities (500 kW and above) are. Net-Meters reduce load and therefore reduce the need to add larger conductor. Group Net-Meters feed the load from a different location than the system was built to serve the load and therefore wires need to be added or increased in size in order to serve the load from these new locations on the distribution circuit. What is worse, the load is still being fed primarily from the same old substation source, so these facilities cannot be retired and still need to be maintained. There are certainly some opportunities with battery storage, methane, and hydro power especially when it comes to capital deferral. But there are many examples of solar and wind causing the need for significant capital investment which in turn is a burden on the Vermont ratepayers.