

FINAL VELCO Operating Committee MINUTES

Date: January 16, 2020 11:00 a.m. – 3:00 p.m.

Location: Green Mountain Power Montpelier, VT

PARTICIPATING MEMBERS

- **Burlington Electric Department (BED):**
- **Green Mountain Power (GMP):** Mike Burke, Brian Otley
- **Stowe Electric Department (SED):**
- **Vermont Electric Cooperative (VEC):** Peter Rossi
- **Vermont Electric Power Company (VELCO):** Chris Root by phone, Frank Etori, Jason Pew
- **Vermont Public Power Supply Authority (VPPSA):** Stephen Fitzhugh
- **Washington Electric Cooperative (WEC):** Bill Powell

OTHER PARTICIPANTS

Jeff Disorda (VELCO), Tom Dunn (VELCO), Randy Etori (VELCO), Laurie McMahon (VELCO), Colin Owyang (VELCO), Hantz Pr sum  (VELCO), and Kris Smith (VEC)

OPENING REMARKS

Mr. Etori verified a quorum and called the meeting to order at 11:08 a.m.

Due to the winter storm, some members could not attend and one presenter was unable to join. As such, the agenda was modified as follows:

- LIDAR discussion was removed
- Emerald Ash Borer (EAB) update was added to be presented by Jeff Disorda

SAFETY TOPIC

Mr. Rossi shared an event that resulted in an injury to his hand. He had been using a snow blower that had become clogged and stalled. He used his hand within the front of the machine and after freeing the clog, the stored energy in the engine caused the auger to spin. This trapped his hand, broke a finger, and caused other injuries to the soft tissue.

He reported that he was wearing proper PPE (glasses, steel toe boots, hearing protection, and gloves). He believes if he was not wearing work gloves that the outcome may have been much different. He left the injured hand within the glove and sought medical attention where he was treated for a broken finger and other injuries. He did not incur any nerve or tendon damage.

He further reported that he had an appropriate tool in his garage to clear the clog however since he wanted to complete the job quickly, he took a shortcut and neglected to retrieve it.

Mr. Pew reported that this week at VELCO was a Safety Week. This concentrated week of safety training for the entire company included the attendance of a representative from the Dartmouth-Hitchcock Advanced Response Team (DHART). The presentation to the group included the use of the DHART helicopter, creating landing zones, and other useful information that may be of benefit to other utilities.

Mr. Burke asked if the presenter could come to the OC to present to this group. Mr. Pew responded that it might be best to have the presentation given to the respective field personnel who would most benefit from the information. Mr. Pew took an action item to

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provide the contact information to the group.

DRAFT MINUTES APPROVAL

Mr. Etori presented the meeting minutes from January 16, 2020 for approval.

Mr. Powell moved for approval, Mr. Otley seconded, and the minutes were approved without objection.

VERMONT LONG RANGE TRANSMISSION PLAN

Mr. Pr sum  provided a presentation on the development of the VELCO Long Range Transmission Plan (LRP). The planned publish date is June 1, 2021.

The steps and corresponding timeline for completing the LRP was reviewed which began in November of 2019. The presentation covered a review of historical VT loads including the peaks and more recent trends; a reduction since the 2006 summer peak at just over 1100MW. The trending decline remains true even after load is reconstituted with behind-the-meter generation (BTM) and energy efficiency.

The presentation included a review of the VT resources that included roughly 540MW of market and 385MW of BTM generation. Additionally highlighted were the VT and NE peak day events for 2019 and the corresponding VT load, reconstituted for BTM generation (solar, hydro, wind, battery, and biomass/methane). This revealed that the peak load hour within VT have been moved and offset by BTM resources.

Mr. Otley questioned that if we have the ability to move the peak hour, as it appears we do, when does VT want to schedule it. This brought about further discussion of who would decide and how would it be shared among the VT utilities.

Mr. Pr sum  questioned the group with regard to BTM resources: When should the LRP consider the various resources to be dispatched? This will ultimately provide a load forecast from which the studies can be based upon.

CONTINUATION ON STORAGE

Mr. Pr sum  requested a forecast for battery storage. This can also assist with the LRP and the available BTM resources. Mr. Rossi reported that he would take the request back to VEC to provide an answer.

OPERATIONS TRAINING SIMULATOR

Mr. Randal Etori provided a review of the recently purchased Operations Training Simulator (OTS). A review of the project timeline that began in November of 2018 and culminated with its use in November of 2019 while participating in GridEx V.

The differences between real-time and simulator environments were outlined. The basis of the OTS is the Energy Management System (EMS) network model, normally used in the real-time environment for Real-time Contingency Analysis and Operational Planning Analysis roles of the VELCO System Operators. To create events that are not an output of the EMS model, several scripts have been developed that re-create additional status reported in real-time from field equipment. This is necessary to provide a more realistic environment

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for the System Operators that include station battery voltages for loss of station service, capacitor bank timers for discharging, load tap changer (LTC) and phase-shifting transformer (PST) controls, etc.

The use of the OTS for VELCO accredited NERC Continuing Education Hours and its role in GridEx V were each reviewed at a high level. The safeguards for preventing the inadvertent operation of the real-time system were reviewed; preventing an Operator from believing they were in the OTS environment and actually operating devices in the field.

Anticipated future uses were highlighted that included initial System Operator qualification training, Black Start and system restoration training, and EMS personnel training qualification. The tool has the ability to provide operational experience beyond what you may or may not see during time spent as an Operator Trainee.

EMERALD ASH BORER (EAB) UPDATE

Mr. Disorda reported that the EAB group, formed from out of the VELCO Operating Committee, had just held a meeting. Of the topics discussed was the potential to present at this year's Safety Summit. This would include the risks of working around failed or failing ash trees, identification of them, and potential solutions.

Mr. Disorda further reported that VELCO has removed one-quarter of the projected to ash trees from the targeted areas. Of those identified ash trees, a small percentage have not been permitted by the landowner. Most landowners are aware of the potential EAB effects and are accepting of the removal. In some cases, the landowner has requested they be left and they would provide treatment to prevent the infestation of EAB. This brought about a conversation regarding the tracking of those trees and confirmation that treatment was performed.

In attendance at the last EAB group was the VT Forest Parks and Recreation group. They have reported that grants are available to towns to assist with ash removal and could be jointly beneficial in areas where lines and trees on town property have been identified.

Mr. Disorda further discussed that WCAX had reported on the identification of a rare plant (climbing fern) on a VELCO ROW that was thought to be extinct. During this interview, the EAB and the EAB group was discussed. The reporter reached out to see if there was interest in doing a story on the EAB group to highlight the work done thus far as well as what is coming. The story will likely be out in the spring, which is good timing for identification of EAB damage as trees begin to leaf out.

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ASSET MAINTENANCE (CONDITION BASED)

Mr. Frank Ettori discussed the likely future of asset maintenance for VELCO facilities and equipment. The inventory of in-service equipment has grown substantially and the current practices of time-based maintenance will be unachievable at today's staffing levels. By evolving to a condition based maintenance program, reliability and equipment health can continue to be maintained with current staffing. This approach to maintenance includes regular/required maintenance, replacement and critical equipment maintenance plans, and take into consideration crew availability for projects and other scheduled work.

As part of the evolution, VELCO began with identification of a capital replacement methodology based upon relevance (support from manufacturer, working spare components, environmental consideration, age, etc.) and performance (failure rate for type, known deficiencies, maintenance data, number of operations, contact wear, etc.).

Transformers were the first asset type to develop a risk factor associated with its value to the transmission system. The criteria is based on its criticality to the system, its overall health, and its resultant risk factor.

Future work includes the continuation of the strategic plan for all equipment types, continue to work on the transformer risk assessment, continue installation of DGA monitors, new monitoring possibilities for breakers, batteries, telecomm and IT assets.

ISO-NEW ENGLAND UPDATE

Mr. Frank Ettori provided information regarding the ISO-NE Market Monitor's request for information with regard to regional network load (RNL) that was addressed to each Market Monitor's contact for mitigation of events.

The RNL calculation might be different among participants depending on the inclusion or exclusion of behind-the-meter generation (load-reducers). The ISO's Market Monitor has posted questions with regard to this topic and seem to be investigating consistency with the approach for each participant.

If this were to change, and behind-the-meter generation were to be considered in load calculations, it would have a negative impact on the efforts within the state to cut costs by limiting peak hour load. This could negate the efforts by the VDUs to shave peak hour load using BTM generation.

POOL TRANSMISSION FACILITIES (PTF) LOSS DISCUSSION

Mrs. McMahon, VELCO's Manager of Power Accounting, presented an analysis of the transmission losses within VT. PTF losses are included in the locational marginal price (LMP) and should not be considered in customer load.

ISO-NE's current process to calculate PTF losses is via their network model state estimator solution. This method is used for all entities within New England.

Mrs. McMahon reported that by using Revenue Quality Metering (RQM) available in VT will allow VELCO to submit losses directly to ISO-NE via real-data and not estimated. Mrs. McMahon reported that an ongoing project to update the precision of the existing meters

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would allow VELCO to be the first in New England to directly provide PTF losses and not be reliant on the calculated losses in ISO-NE's EMS. This approach has been vetted with ISO-NE staff and has been deemed acceptable by that group.

By accurately accounting for the PTF losses, the Total Network Losses (TNL) is going to change. The overall idea is that as PTF losses increase, low voltage losses decrease. This will reduce each VT Distribution Utility's hour load submitted to ISO-NE. Mrs. McMahon reported that although the precision to all the meters has not yet been completed, she estimates that an additional 1MW/hour of PTF losses can be anticipated, resulting in an overall savings for VT. She further estimates the savings, based upon an average LMP of \$34.00, to be near \$297,000/year and an estimated RNS savings of \$9,000/ year.

This proposed change is still an active project that requires the precision (number of digits) of 18 meters to be updated, 30 of which have already been updated. Additionally, there is a new GMP RQM meter required to make this change. Following the identified work, ISO-NE will be active in validating the data and the project is planned for completion in Q3 of 2020.

OTHER BUSINESS

Open discussion

- Mr. Pew requested confirmation that the group's desire is to disengage with Utopus Insights (UI) with regard to all UI products. All parties were in favor of ending the UI engagement and not pursuing the replacement product, ScipherFX.
- Mr. Frank Ettori solicited feedback on the weather spreadsheet that was provided at the last OC.

Next meeting

Date: February 20, 2020, 11:00 a.m. – 3:00 p.m.

Location: Green Mountain Power Montpelier, VT

Possible topics for discussion

- Mr. Flynn (VELCO) report on LIDAR work and possibilities
- Mr. Shafer and Northview Weather update
- PI Community Agreement, what it means and how we can use it
- Bill Jordan visit

MOTION TO ADJOURN

Mr. Powell moved to adjourn, Mr. Burke seconded, and the meeting was adjourned at 1:58 pm.

Respectfully submitted,

Jason Pew
VELCO OC Secretary