

DRAFT VELCO OPERATING COMMITTEE MINUTES

October 19, 2017, 11 a.m. – 3:00 p.m.

GMP Montpelier, VT

PARTICIPATING

Operating Committee Members

Ellen Burt (Stowe) by phone, Ken Couture (Green Mountain Power), Frank Etori (VELCO), Stephen Fitzhugh (VT Public Power Supply Authority/Northfield Electric Department), Craig Myotte (VT Public Power Supply Authority/Morrisville Water and Light Department), Jason Pew (VELCO), Peter Rossi (Vermont Electric Cooperative), and Ken Tripp (Vermont Electric Cooperative).

Other participants

Tom Dunn (VELCO), Deena Frankel (VELCO), Dan Nelson (VELCO) by phone, Colin Owyang (VELCO), and Hantz Pr sum  (VELCO)

**Next Meeting
November 16, 2017**

Teleconference

3:00pm – 4:30pm

1-866-720-4556

Code: 6027065

OPENING REMARKS

Mr. Root called the meeting to order 11:08.

SAFETY TOPIC

Mr. Root discussed his recent attendance at an Associated General Contractors (AGC) meeting. Local Emphasis Programs (LEP) in the VT Region has increased focus on specific issues that included the following:

- Work zones (flaggers, cones, signage, hazardous communications, etc.)
- Trenching (5' or deeper)
- Silica exposure (concrete cutting and core drilling)

The first response to an inquiry by an inspector is significant, as the wrong answer could result in a potential violation or ticket. Typically, the first person an inspector speaks to is the work zone flagger. Flagger should always have worksite plans that they understand and know where to find written documentation. It is acceptable to have a generic plan that can be used for most situations.

The worst response to an Inspectors question is "this is how we always do it." If that statement is made, it then becomes willful and exposes the worksite to fines.

A recent example of a ticket was one where the workers were eating lunch within the work zone, sitting on the guard rail, and took off reflective vests.

Other notes of interest:

- Last year there were approximately 300 tickets; this year's number expected to increase to near 400 as some funding has been cut from the federal level. Increased revenue in the form of tickets will likely make up the difference.
- Last year 60% of inspector visits resulted in tickets, 2.5 tickets per visit.
- The average ticket is \$1,000 in VT and \$1,800 nationwide. This gap could also contribute to increased fines as VT seeks better alignment with the national average.
- If OSHA inspectors see a potential work zone issues, by law, they must stop and investigate.
- Utility work will be treated as any other jobsite; a change from recent history.
- Vermont is still evaluating the extent to which the LEP will investigate silica exposure. In

question is the interpretation as it relates to core drilling; originally it was not thought to be included.

Mr. Tripp discussed the possibility of sign pollution; too many signs in a single area or consecutive work areas in close proximity that may cause confusion for drivers if the placement is not well thought out.

Mr. Rossi reported that VEC has introduced a cyber-security topic at its meetings and the Operating Committee (OC) could benefit from including a similar topic in addition to the safety topic. He discussed the encryption of wireless networks. Recent finding indicated vulnerabilities in many wireless routers. Updates may be available to correct the issues(s), but some equipment may not yet have a solution.

Mr. Root reported his mobile device was compromised a few years ago and he no longer utilizes wi-fi in hotel rooms. Additionally, VELCO has recently removed wireless routers that mimic the VELCO network from employee's homes for security reasons.

Mr. Tripp reported that VEC Operators have the ability to remotely enable wireless routers to provide security for the times when they are not in use.

OPERATING COMMITTEE MINUTES APPROVAL

Mr. Root presented the minutes for approval. Ms. Burt requested additional detail with regards to the approval of the October minutes during the September meeting as they contained some corrections. Mr. Owyang and Mr. Root provided additional detail on the need for the correction.

Data aggregation—the topic that was amended in the minutes—is not being pursued further by VELCO. A working group with VEIC and the state has been formed to assist with the VEIC data transfers.

Mr. Myotte moved approval of the minutes, Mr. Couture seconded, no one opposed and the minutes were approved as presented.

VTOUTAGES.COM DISCUSSION

Mr. Nelson provided a review of the discussion from the Emergency Preparedness Annual Meeting with regard to the VTOUTAGES.com site hosted by GMP.

- It was decided that GMP will continue to host the site.
- WEC is having difficulties achieving automation of data between its outage management system and the VTOUTAGES site. VEC has offered assistance in achieving automation as they have the same outage management system.
- Mr. Couture suggested that the state may require automation going forward and that they would likely be an understanding if the smaller utilities, mainly municipalities, were not automated.
- Possible site enhancements
 - Tracking outage events rather than or in addition to customer outages, which is what the site currently captures.
 - Providing outage information on a town level could be helpful.
 - User-specific functions could be provided by login or other credentialing. One example discussed was the ability to track crews that are assisting from other utilities.
 - Using the site to distribute additional emergency information through automated data exchanges could be beneficial as a one-stop source for emergency information. Examples included the Vermont Emergency Operations Center Disaster LAN (DLAN) or the location of open shelters.

FIBER UPDATE

Mr. Nelson discussed the various opportunities for VELCO's fiber system to provide revenue.

- A lease has been signed with Killington Ski Resort to provide dark fiber for the company. The potential exists for a path between the two discrete mountains (PICO and Killington).
- Discussions are taking place to provide point-to-point service with UVM Medical Center and other facilities around the state. The service would utilize excess capacity on existing infrastructure and would not require an increase in maintenance beyond what is already occurring; as such no additional staff would be necessary.
- VELCO's rights-of-way and fiber optic diversity provide excellent reliability that would be necessary to move the large amount of data between various facilities within the state. VELCO has less than 4 millisecond latencies that would further support reliability.
- Discussions with UVM for campus connectivity at 10G and larger are also taking place. This is also possible to achieve through existing infrastructure. This high-capacity network could assist with research and other educational initiatives of the University.
- All of the Vermont distribution utilities have been approached by the fiber team to discuss similar scenarios where the fiber system can be used to enhance value.
- Morrisville Water and Light (MWL) has a project currently under development. Mr. Myotte provided his vision of the project, which entails two phases.
 - Phase 1: getting all of the MWL substations connected via a looped fiber path back to the main office. VELCO has developed a remote monitoring display, which provides near real-time situational awareness for their system. This system does not provide remote control of equipment.
 - Phase 2: pilot a project to provide fiber-based products directly into customer homes within the village service territory. This phase is still under consideration by MWL Trustees, who are expected to meet further on the topic in early November.
- Stowe Electric has been provided with a similar remote monitoring display for its assets. Like MWL, the system does not provide remote control of equipment.
- Equipment to support remote monitoring is not expensive and does not require the rigor of protection necessary that is required when providing remote control ability.

SHEI STUDY UPDATE

Mr. Pr sum  presented the same material that was provided to the Vermont System Planning Commission (VSPC) on Wednesday October 18. The presentation, available on the VSPC website, spawned many discussions.

- Mr. Tripp inquired about voltage classes where the LTE thermal limits applied. Mr. Pr sum  explained that the sub-transmission system does not utilize LTE ratings and as such only the transmission system was allowed to operate up to those limits; the sub-transmission system was held to the normal limits provided by the DUs.
- The Jay Synchronous Condenser is being tested tomorrow to determine whether the unit is able to provide greater voltage support, which would provide additional benefit to the area under contingency conditions. The added support is identified as a possible incremental benefit for the interface.
- Mr. Etori inquired as to when a benefit would be realized upon a successful test. Mr. Pr sum  responded that ISO-NE provides the limit and his study work should be used to calculate incremental benefits. Ultimately, ISO-NE is responsible for determining limits. They may model different system assumptions, which could impact the benchmark case and the resulting benefit of each subsequent case.

- Upgrading the K42 due to asset condition was discussed. A large percentage of poles require replacement within a few years and nearly all of them need replacement between 3 and 15 years. Building on the basis of this need would mean that only the K42 conductor would require local/VT funding.
- Now that the incremental benefits of each of the cases are available, VELCO can provide initial cost estimates, but it will be up to the VDUs to determine the actual projects and how to fund them.
- The study also provided a regression formula that could be used to model estimated benefits in a reasonably accurate method for those options not tested discretely.
- Mr. Dunn commented that the solution, or solutions, chosen should provide additional flexibility in the future and not just address immediate needs.
- The VDUs will need to conduct further analysis and develop a process for solutions. VELCO can provide assistance with regard to regulatory support.
- Mr. Tripp inquired as to if the VSPC will host the ongoing work. Ms. Frankel reported that the VSPC is not likely the appropriate location for the continuing work as it does not fit within its current mandate, though it is available to the extent the DUs want to use that mechanism. Mr. Dunn provided that wherever the work will continue, he wishes to keep people informed throughout the process as best as possible.
- Mr. Root reported that some discussion about expanding the VSPC charter to include this specific topic has taken place, but as of now it remains outside of the VSPC scope.
- Ms. Burt commented that the study work done prior to the Lamoille County Project estimated that power flow would come from the transmission system north into the sub-transmission system. Since the construction of wind generation in the north, flows have shifted and now flow from the north to south into the transmission system. Additionally, why as generation was installed, were these issues not identified? Mr. Pr sum  responded that ISO-NE performs minimum interconnection studies that do not consider market issues; as additional generation is studied, an equivalent amount of generation is taken offline. These studies are to determine reliability issues and not to determine market or dispatch issues that may arise.
- Mr. Dunn provided that the SHEI limitation is evolving into a policy issue within the state. Changes are likely necessary to integrate renewables in the region.
- Mr. Owyang further provided that state policies are somewhat disconnected. VELCO has provided a study and technical review of the area and its limitations. The stakeholders in the area will need to take the next steps in coordination with the state to connect the policies to support any projects needed to mitigate the specific area's concerns.

VELCO BOARD OF DIRECTORS UPDATE

Mr. Dunn provided an overview of the October VELCO Board of Directors meeting.

- Budget approval.
- Increasing the capacity of the Highgate converter as it is a transmission asset.
- VELCO's risk assessment was reviewed.
- Merchant projects (in response to the Massachusetts RFP) were discussed. A decision in early 2018 is expected.
- Review of the VELCO fiber project (as discussed earlier).
- PV20 cable replacement project reviewed; the cutover is expected prior to next calendar year as all four cables are installed and are on schedule.
- VSPC/SHEI report was discussed.

VERMONT WEATHER ANALYTICS CENTER UPDATE

Mr. Ettori provided a presentation on the current status of VWAC with regard to VELCO's Key Performance Indicators (KPIs) and specific strategic initiatives as identified in the Utopus Insights (UI) Partnership Agreement.

The KPIs are on-track and striving for distinguished. The integration of VWAC data into VELCO's Energy Management System (EMS) is close to completion. The High Performance Computer Cluster (HPCC) is currently installed and running the VELCO Weather Research and Forecasting (WRF) and the Deep Thunder weather models. The expectation is that the new UI website will be up and running shortly.

Short- and long-range planning (final report delivered), probabilistic power flow software is being developed with UVM, Distributed Energy Resource email notifications... (Mr. Dunn, is there a metrics for these? Is there a target? Frank in beta format, due early next year and no not specifically)

Mr. Ettori updated the group on the last VWAC workshop that took place in Burlington on 9/27/17. In that workshop, it was desired to identify a group of "super users" to assist the development of applications.

Mr. Tripp noted that VEC had worked with UI to address some specific company needs.

Mr. Dunn discussed the Partnership Agreement, describing the items that VELCO is responsible for delivering. He added that fulfilling the agreement is a priority that helps VELCO and ultimately Vermont ratepayers.

Mr. Couture inquired if any gap analysis has been completed to determine what has been done thus far and what still needs to be completed. He added that it would be worth the time for UI staff to come up for the day so they could walk away with input from the end users.

Mr. Couture questioned when a convergence of the various weather models (VELCO WRF, IBM Deep Thunder, and UI Nostradamus) will be realized. Mr. Ettori provided that an ensemble forecast would be used going forward.

Mr. Couture discussed the potential for duplication of work being done to support the UI Nostradamus weather model that may have already been done to support the IBM DT weather model.

Mr. Pew provided that there is an ongoing project with MacroSoft to validate the various forecasts that will be used to determine which of the models provides the best benefit for various forecasted events. As an example, it is likely that one model will be better at wind prediction while another may be better at near freezing temperature prediction.

Mr. Dunn emphasized that feedback to UI is necessary to optimize the quality and value of products. He further stated that this project should be completed because it will save ratepayers' money, reduce carbon, etc. He noted that problems or issues must be identified and honest feedback be provided to UI to support the big picture.

Mr. Tripp inquired as to what will happen at the end of the Partnership Agreement in May/June. Mr. Root responded that we need to have a delivered product. Mr. Ettori cited the Peak Load Management program that will continue to evolve beyond the end of the agreement.

ISO UPDATE

Mr. Ettori provided a review of ongoing ISO-NE topics.

- Beyond next year, the amount of projects decline significantly.
- Reliability Committee recently discussed the PV20 project that includes an upgrade of the cable section to 230 kV. Since the existing cables are 115 kV, the increase in cost to upgrade to 230 kV

may be the responsibility of VELCO and NY, each incurring half of the increased cost. The increase is, based on the overall project, relatively insignificant.

- A recent FERC Notice of Proposed Rulemaking (NOPR) provided a basis for protecting fuel-secure resources. Included in the NOPR is the need for certain units to maintain a 90-day fuel supply on site to cover supply disruptions. It was noted by Mr. McNamara, Director of Planning and Energy Resources Division at the VT Department of Public Service, that this requirement may disrupt markets and not lead to a desirable future.

GREEN JACKET

Mr. Root discussed the ongoing project. For aesthetic reasons, VELCO will be purchasing and installing grey rather than the standard green. This results in an increased cost due to having to shut down the production line and re-start with the different color. The final cost is being negotiated with the manufacturer. Also noted was that the manufacturer is constructing a second production line specifically to produce the grey product.

OTHER BUSINESS

Upcoming Operating Committee meeting schedule changes

- Next month's normal meeting time conflicts with GRIDEX IV, a North American-wide exercise coordinated by NERC. Mr. Root, Mr. Etori, and Mr. Pew will each be participating and as such the meeting needs to be rescheduled or cancelled. At the suggestion of Mr. Couture, it was agreed the meeting will be held by conference call. Additional information will follow via e-mail to coordinate the conference call on Thursday November 16 from 3:00pm through 4:30pm.

Next Meeting

- PV20 project overview by Scott Mallory (Project Manager) and the accompanying project video produced by Ms. Frankel; moved to January per Deena's request.
- SHEI project—maintain ongoing topic going forward.
- Data aggregation—add to agenda if any new information becomes available; if not it can be omitted during the VEIC and state's ongoing discussions
- Mr. Root requested each of the utilities provide an estimate of the total amount of solar (MW) that will be on each utilities respective system by the end of 2017. Specifically, what is the total installed capacity of utility scale and behind the meter that could be used to calculate a reasonable estimate of total installed capacity in VT.
- Mr. Root reported that the Joint Operating Committee/CFO Forum meeting should be moved to an earlier month and take place at the normal GMP Montpelier location. The group agreed to the proposed modification to the joint meeting.

MOTION TO ADJOURN

Mr. Couture moved to adjourn, Mr. Myotte seconded, and the meeting was adjourned at 2:22 pm.