DRAFT Operating Committee MINUTES

October 18, 2018, 11 a.m. – 3:00 p.m.
GMP Montpelier, VT

Next Meeting
November 15, 2018
11 a.m. – 3 p.m.
GMP, Montpelier

1-866-720-4556
Code: 6027065

PARTICIPATING MEMBERS

Mike Burke (Green Mountain Power), Ken Couture (Green Mountain Power), Frank Ettori (VELCO), Stephen Fitzhugh (VT Public Power Supply Authority/Northfield Electric), James Gibbons (Burlington Electric Department, Jason Pew (VELCO), Peter Rossi (Vermont Electric Cooperative), Ken Tripp (Vermont Electric Cooperative)

OTHER PARTICIPANTS

Jacob Bakowski (VELCO) by phone, Brian Connaughton (VELCO), Jeff Disorda (VELCO) by phone, Mike Eugair (VELCO), Peter W. Lind (VELCO), and Allen Stamp (VELCO)

OPENING REMARKS

Mr. Ettori verified a quorum and called the meeting to order at 11:07 a.m.

SAFETY TOPIC

Mr. Ettori discussed the cooler weather and the associated risks that accompany the change, most notably the potential for black ice and the presence of wet slippery leaves. Others discussed the need for supplies in vehicles such as ice scrapers, warm clothes, hats and gloves.

Additionally, with winter months the likelihood of people running generators increases following power outages. As such, proper generator set-up and use was discussed. Generators should be kept further than 15 feet, preferably 20 feet or greater, from a dwelling; never keep a running generator in a garage or other enclosed space.

Mr. Rossi provided a quick review of VEC's review of car-pole accidents, similar to GMP's review as was reported on at a previous meeting. He reported 25% of all outage minutes within the VEC system were from car pole accidents, 25% from trees. They calculated that a car-pole accident occurs every 78 hours. Early morning hours seemed to be most prevalent. Mr. Rossi will provide a presentation at the next meeting.

MINUTES APPROVAL

Mr. Ettori presented the meeting minutes from August 30, 2018.

Mr. Rossi moved for approval, Mr. Fitzhugh seconded, and the minutes were approved as presented without objection.

EASEMENT RIGHTS ACQUISITION PROJECT

Mr. Lind presented the easement rights acquisition project (ERAP), as provided in the meeting materials. The objective of the project is to update and modernize the ROW easements between Highgate and Derby, VT. These transmission assets were acquired in December of 2003 from Citizens Utility. The purchased facilities did not provide easements

that contained sufficient and clear rights. The following shortcomings in the old Citizen easements are being addressed as applicable:

- Less than 150 feet of easement right-of-ways
- No danger tree rights
- Structural encroachments are not prohibited
- Unclear boundaries
- Unclear access points
- General unclear/vague language

Landowner participation varied from no interest to negotiate a new easement to successful execution of a modern easement. No specific project that necessitates the acquisitions; any participation is strictly voluntary by the landowner.

Mr. Disorda reported that currently these lines are not included in any NERC vegetation Standards. In his opinion, it is likely with Standard revisions they will be included and VELCO could incur penalties following a vegetation related outage.

In total, four hundred twenty seven parcels make up the targeted corridor across the northern portion of VT. Of those, over 200 easements have been updated, 78 are in negotiations, and nearly 100 have chosen to not participate or have not been approached at this time.

VELCO used LiDAR data to identify sixty-six parcels as high-risk due to the tree density and/or width of the easement. Of those, 43 easements have been updated, 13 are in negotiation, and 10 have chosen to not participate or have not been approached.

VELCO has employed local ROW Agents that know the area and are familiar with some of the landowners. This local knowledge has proven to be beneficial.

The project began in 2015. It has resulted in the addition of approximately 462 acres of new easement ROWs. The project continues to pursue updated easements where landowners desire to continue discussions. Those landowners not wishing to participate have not been pursued further.

The project may move to other transmission line corridors with similar easement shortcomings. Specific parcels have not been identified; however, they will likely include parcels that lack danger tree rights.

EMERALD ASH BORER

Mr. Bakowski presented on the impact of the Emerald Ash Borer (EAB) within the VELCO transmission corridors, as provided in the meeting materials.

It is suspected that the EAB was transferred to the US on packing materials such as pallets. The EAB feeds on the nutrients just below the bark of the ash tree, where the new growth occurs and sufficient nutrients are available. As the EAB feeds, it disturbs the capillary action that moves the nutrients up the tree from the roots. This disruption causes the tree to dry out which effects the health of it and results in a more brittle dead limb. The brittleness of the remaining standing tree results in unsafe areas under and around those trees.

Mr. Burke reported GMP performed a sample of some ROW and within that sampled area, 11% of the trees were ash.

Mr. Rossi reported that VEC is also conducting similar samples and the 11% was a reasonable estimate for the VEC area with the exception of Grand Isle that was estimated at an 80% ash density.

Mr. Burke reported that they are working on a mitigation plan to submit to the state. Mr. Rossi expressed interest in collaborating on the plan.

Mr. Burke further reported that as of now, GMP is planning to remove ash only in the infected areas as a specific project, separate from standard vegetation work. To prevent the spread of the EAB, they will be following the state's guidelines and either chipping in place or leaving log lengths that are significantly sized so that they cannot be moved from the infected site and outside of the quarantine areas.

Mr. Bakowski continued by discussing next steps for addressing the issue.

- Gathering information to develop management strategies
- Develop an in-house tool to establish an inventory of danger/infected ash trees
- Perform foot and aerial patrols of infected and high risk areas

Items to be addressed include the following.

- Safety, affected trees can fall without significant loading (ice, snow, wind, etc.), they shatter on impact when they do fall, meaning significant safety concerns for employees as well as other nearby activities/recreation. VELCO is developing special training, establishing new guidelines for assessing trees, proactively removing trees before becoming infected, as well as maintaining partnerships to collaborate on solutions. Once a tree is infected, the only way to remove them is with a bucket truck or other non-climbing solution.
- Cost, VT has LIDAR data to estimate 30,000-40,000 trees total (not just ash) that have a danger tree potential; they are tall enough to contact conductors. With the estimate of 10-15% of VT trees being ash, that calculates to approximately 3500-5250 ash trees. With the average cost of $150/tree for removal, this becomes a significant cost quickly. The removal of infected trees is more costly, approximately double, as the use of bucket trucks or other non-climbing methods must be employed. Therefore, removing live trees before they are infected will help reduce future costs.

A representative from the VT ANR provided a presentation that included EAB at the VT Joint Utilities Annual Meeting that took place on September 25. That presentation was discussed as it included similar topics that encompassed thee current quarantine areas, mitigating risks, among other information.

Mr. Rossi reported that tree crews are in high demand already and additional resources needed for removing ash from ROW will likely be difficult. To make matters worse, to perform work on dead or dying ash requires bucket trucks and crews with specialized training and necessary tools to perform the job safely within a ROW.

Mr. Disorda reported that EAB would affect all utilities in VT and any coordination that could occur would be helpful. Mr. Connaughton suggested a working group of VT utilities

could help collect and disseminate relevant information. Mr. Rossi suggested a regular update (bi-annually or quarterly) at the OC would be beneficial to keep everyone informed.

VERMONT WEATHER ANALYTICS CENTER (VWAC)

Mr. Stamp provided a presentation, included in the meeting materials, on the status of the VWAC project. He noted that he was not prepared to discuss the output data from the various weather models, as was intended within the agenda, due to a miscommunication.

Mr. Ettori provided a live view of a program configured to track and compare weather forecast variable accuracy between several weather models: Deep Thunder (DT), National Weather Service (NWS), North American Mesoscale Forecast System (NAM), Global Forecast System (GFS), Utopus Insights Nostradamus (NOS), VELCO Weather Research and Forecasting (VELCO WRF), and VELCO Now Cast (NOW). Mr. Stamp expressed the need to understand how the program interprets and compares the various model data. He reported that this deeper dive in to the program could be provided at a future meeting.

Mr. Stamp continued with his presentation by providing a review of the VWAC project and defined the project as falling into one of three areas.

- Joint Development Agreement (JDA) Assets, the first stage in the project that included Demand Forecasting, Peak Probability Forecasting/Peak Load Management, Weather Insights, and Deep Thunder
- Utopus Insights (UI) commercial products developed as part of the JDA that include Maestros, Nostradamus, HyperCast, and Xplore
- Strategic Partnership Agreement (SPA) targeted products that include Demand Forecasting, Peak Probability Forecasting, and Peak Load Management

Mr. Stamp reviewed the history of the weather products that included the three high-resolution models (Deep Thunder, VELCO WRF, and UI Nostradamus). Downstream products currently use Deep Thunder data; however, as part of the SPA those downstream models will be transitioned to use Nostradamus data. As was reported previously, the DT portal will eventually be phased out, as it is no longer supported by IBM Research who originally built and maintained it.

Mr. Fitzhugh reported that he uses weather plots available from the DT model and views them in the DT Portal. Mr. Stamp stated that as part of a UI work-down list they will be developing the same plots and make them available through the UI tool set.

Mr. Rossi questioned the priorities of the VWAC project as there is some frustration that items are not being addressed as had been requested.

Based on the last meeting, Mr. Burke discussed that his understanding was that the weather tools would no longer be supported and the focus of UI was the further development of demand forecasting and peak load management. Mr. Stamp explained that the VELCO WRF and Nostradamus weather models would be supported and a decision would be made on whether DT would continue to be run after 3/1/2019.

Mr. Stamp discussed the pace of the products and that there have been signs of improvement. He discussed what he believed the agenda item was intended to address;

which was data clean-up. As the project developed, various weather, load, and topology data was obtained through a variety of sources. There is a need now to re-evaluate those data streams. This evaluation will address what data is being used, the format of the data and its need to be standardized, as well as determining a line of demarcation between utility and analytics provider.

Mr. Fitzhugh inquired about the use of machine learning and if it was being utilized to tune the demand model. Mr. Stamp reported that at this time tuning and adding various solar models is a process that requires human intervention, in the future the machine learning would be an automatic process.

Mr. Stamp continued his presentation and discussed the closeout items associated with the JDA. These items included the work to be completed prior to shutting down the DT Portal.

Mr. Couture inquired about building off the VELCO WRF to include items that will be lost when the DT portal gets shutdown. Mr. Stamp responded that funds are available from UI to develop those tools within the UI infrastructure.

Mr. Stamp informed the group that a VELCO billing number for work associated with the SPA will be provided shortly. Any use of the billing number will need to confirm to a Memorandum of Understanding (MOU)/Services Agreement still under development that will provide the guidelines for its use. Additionally, for those that attended the July 17 VWAC workshop in Burlington, there will be a separate billing number for that time to be charged.

Mr. Stamp suggested a governance model that would include an executive committee to track milestones and budgets. This Committee would include Senior Management of UI, VELCO, and Vermont Distribution Utilities. The governance model also includes a restructuring of the current Steering Committee that would include representatives from VELCO, UI, and VDUs.

Unrelated to the topic, Mr. Burke reported that the National Weather Service contacted him with regard to lowering the wind threshold for issuing various wind notifications. Currently, gusts over 58 MPH will trigger a High Wind Warning; the NWS is proposing 40 mph. When questioned, he was not in favor of the change. Lowering the threshold would likely cause more public and media attention and associated stress and distractions. Mr. Rossi agreed; lowering the thresholds would not be desired. Mr. Burke reported that he would respond to the NWS that the current thresholds are sufficient.

PRODUCTS AND SERVICES STRATEGIC INITIATIVE

Mr. Eugair presented on the products and services initiative that is being undertaken at VELCO. Through this effort the rising cost of transmission, due to loss of capital investment and associated return, can essentially be offset by added revenue.

The effort has to date resulted in the development of a service catalogue, competitive market rates for those services, and general education through various engagements and experiences. The desire is to grow the core business to include commercial services is a key VELCO initiative.

Any consideration for new opportunities will ensure that it is achievable, within acceptable

risks, provide value, and is sustainable. These items will be addressed by a panel that will filter the proposed opportunities and focus efforts on only the high value items.

Mr. Eugair noted that if the VDUs were looking at contract services, to consider the VELCO service catalogue.

Mr. Burke noted that in a time when transmission costs are increasing, it appears that VELCO is trying to get larger. Mr. Connaughton noted that any increase in VELCO core business would not increase transmission costs, but rather reduce costs by offsetting expenses with additional revenue.

ISO WORK PLAN

Mr. Ettori presented the 2019 ISO Annual Work Plan, included in the meeting materials.

The largest concern identified was winter fuel security and was the focus of the OC discussion. ISO-NE has suggested creating a 7-day market to address the fuel security issue. A seven-day market would allow the posturing of resources during a potential fuel shortage. i.e., a fuel oil unit could be scheduled out beyond the next day in anticipation of other (likely Natural Gas) fuel shortages.

NEW ENGLAND CAPACITY DEFICIENCY

Mr. Pew presented an overview, included in the meeting materials, on the capacity deficiency that occurred on September 3, 2018. The presentation provided the following:

- Overview of generation and demand within the New England operating area
- Overview of ISO-NE reserve requirements
- Overview of ISO-NE Operating Procedure Number 4 and the VELCO System Operator role in its implementation
- Overview of ISO-NE load forecast vs actual for the day and the reasons for the discrepancy
- Overview of the impact to the LMP and financial penalties associated for resources that underperformed during the event

OTHER BUSINESS

Next meeting

Peter Rossi to review an analysis of car-pole accidents within the VEC system.

Mr. Stamp expressed the need to understand how the MineWeather program interprets and compares the various model data inputs and resulting outputs. To fully understand the output. Mr. Stamp will provide an explanation of the program at a future OC meeting.

MOTION TO ADJOURN

Mr. Rossi moved to adjourn, Mr. Burke seconded, and the meeting was adjourned at 3:04pm.

Respectfully submitted,
Jason Pew
VELCO OC Secretary