DRAFT Operating Committee MINUTES

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

PARTICIPATING MEMBERS

Mike Burke (Green Mountain Power), Ellen Burt (Stowe Electric Department), Ken Couture (Green Mountain Power), Frank Ettori (VELCO), Stephen Fitzhugh (VT Public Power Supply Authority/Northfield Electric), James Gibbons (Burlington Electric Department) by phone, David Kresock (Stowe Electric Department), Craig Myotte (VT Public Power Supply Authority/Morrisville Water and Light Department), Jason Pew (VELCO), Bill Powell (Washington Electric Cooperative), Chris Root (VELCO), Peter Rossi (Vermont Electric Cooperative), Ken Tripp (Vermont Electric Cooperative)

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

1-866-720-4556
Code: 6027065

OTHER PARTICIPANTS

Mark Sciarrotta (VELCO), Deena Frankel (VELCO) by phone, Dan Nelson (VELCO) by phone, Hantz Présumé (VELCO), and Colin Owyang (VELCO)

OPENING REMARKS

Mr. Root called the Operating Committee (OC) to order at 11:03 a.m. and reviewed the agenda.

At the request of Mr. Gibbons, the agenda item discussing Vermont Energy Investment Corporation (VEIC) attendance at the OC was moved up to accommodate a scheduling conflict.

SAFETY TOPIC

Mr. Burke discussed safety outside the work environment while engaging in recreational activities such as snowmobiling. He reported that more than one employee has suffered injuries related to activities external to work, snowmobiles in particular. He reminded all that safety does not stop once you get home.

Mr. Root discussed the ice accumulation since the last storm and that any snow, even small amounts, would hide the ice. He reminded the group to consider the conditions below the snow.

CYBER SECURITY TOPIC

Mr. Root discussed a recent phishing email he received that appeared to be from Microsoft; in actuality it was not and contained a link to a third party. As these types of phishing attempts are becoming more prevalent we all must use added discretion and not click on any unknown links or provide personal information to unknown recipients.

Mr. Rossi added that updating any Apple software, as many in the group use Apple products, to the latest version may reduce exposure to known security risks.

MINUTES APPROVAL

Mr. Pew presented the meeting minutes from December 21, 2017.

Mr. Burke moved approval, Mr. Rossi seconded, and the minutes were approved without objection.

VEIC ATTENDANCE AT THE OC

Mr. Root was approached by a representative of VEIC requesting the opportunity to attend the next OC Meeting.

Mr. Gibbons reported that for a one-time attendance he had no issues, but he would want to reevaluate any request for regular attendance. Additionally, he had spoken with a VEIC representative and they had specifically mentioned the Sheffield-Highgate Export Interface (SHEI) as being of interest.

Following discussion, and the group agreed that VEIC's attendance was acceptable for a single visit and that the representative would be placed at the beginning of the agenda to allow for a continuation of the regular agenda following departure of the VEIC representative.

OPPORTUNITIES RELATED TO FIRSTNET EMERGENCY NETWORK

Mr. Nelson described the First Responder Network Authority (FirstNet), a newly formed partnership between the federal government and AT&T. FirstNet is being developed to enhance the nationwide communication network specific to first responders and improve existing communications infrastructure that has been inadequate under certain emergencies.

Mr. Nelson reported that with significant amount of VELCO and distribution utility (VDU) telecommunication infrastructure throughout the state (fiber optic and microwave networks, substations, radio towers, etc.), we have the opportunity to partner with FirstNet and locate needed infrastructure at select facilities.

The specific question posed to the group was whether or not VELCO should approach FirstNet and present the combined VELCO-VDU network for consideration in FirstNet's anticipated build-out.

Mr. Tripp expressed his concern for worker safety with respect to non-utility employee access; if non-utility assets were located outside of facility fencing this would not be an issue. Additionally, he inquired if telecommunication equipment co-located near energized substation equipment could cause interference or other issues.

Mr. Burke reported that he would support continued investigation into a possible partnership.

Mr. Root asked if anyone was opposed to opening the discussion with FirstNet. No objections were expressed and it was decided to move forward with including VDU assets in the future VELCO-FirstNet discussions.

SOLAR CAPACITY

Mr. Root had requested each DU to report on installed capacity and projects proposed to be in service by the end of 2018.

All members reported their respective **estimated** MW values as follows:
(Note: these numbers were adjusted via email correspondence after the meeting for accuracy.)

ALL VALUES ARE ESTIMATED (MW)						
VDU	**Installed Net Meter**	**Installed Standard Offer**	**Installed PPA / DU owned**	**Currently Installed**	**Queued for year end 2018**	**Anticipated by year end 2018**
WEC	**0.2**	**2.2**		**2.4**	**1.5**	**6.3**
VEC in SHEI	5	4.3	1	10.3	4.1	
VEC out SHEI	14.1					
VEC TOTAL	**19.1**	**4.3**	**1**	**24.4**	**4.1**	**28.5**
GMP	**143**	**42**	**34**	**219**	**104**	**310**
MWL	**1.2**			**1.2**	**1.2**	**2.4**
VELCO					**20**	**20**
SE	**1.3**			**1.3**	**0.6**	**1.9**
NED				**1.4**	**0.6**	**2**
BED				**5**	**< 1**	**< 6**
TOTALS:				**265**		**371.1**

Mr. Tripp reported that VEC requires SCADA data and a recloser or switch for facilities at and above 150 kW.

Mr. Burke reported that GMP sends trip signals along with distribution line protection action that isolate facilities at and above 500 kW rather than relying on the inverter to trip itself under fault conditions.

Mr. Root reported that IEEE 1547, which addresses "smart inverters," will likely become effective in late spring. He further reported that he is working with Babak Enayati of National Grid, who is vice chair of IEEE committee on 1547, to provide an eight-hour course (for credit) on the calculations necessary to use the newly approved functionality of the smart inverters.

Mr. Powell discussed an article on cyber security with regard to PV inverters. These devices are susceptible to similar cyber threats faced by computers and other similarly connected devices.

SHEFFIELD HIGHGATE EXPORT INTERFACE AND RESILIENCE PUC WORKSHOPS

Mr. Root asked if anyone had any comments with regard to either of the topics covered in the VT Public Utility Commission (PUC) workshops held last week in Montpelier on resilience and SHEI respectively.

Mr. Sciarrotta stated he expects additional activity at the PUC as the Commission works to gain knowledge of both topics.

REVIEW OF DECEMBER & JANUARY COLD WEATHER

Mr. Pew provided an overview of the recent cold weather period between December 25 and January 9 and its impact on New England generation fuel sources. Typically, natural gas (NG) makes up over 50% of the fuel supply to produce power in New England with little to no coal and oil resources. During winter and summer peaks, non-NG resources are necessary due to NG pipeline capacity availability.

During cold periods, NG supplies are maintained for home heating making power plants with no firm contracts vulnerable to capacity shortfalls. As NG becomes limited, alternative fuels such as coal and oil are relied upon to serve New England electric demand and its required reserves.

During the cold period, NG use for home heating increased and normally excess supplies used for power production were not available, resulting in New England having the most costly NG market in the world. This resulted in the use of costly oil and other non-NG resources being called upon and driving the average Locational Marginal Price (LMP) near, and at times exceeding, $500/MW.

A simultaneous weather event created severe low pressure and strong winds along the coast, which impeded fuel deliveries. Liquefied Natural Gas (LNG) can be injected into the New England NG pipeline system to supplement the normal pipeline supply; however, the coastal storm prevented at least one LNG tanker from offloading, further reducing the amount of NG available for generation resources. Additionally, deliveries of fuel oil were also impacted as some deliveries take place via waterways and barges. Near the end of the cold period, onsite oil supplies in NE were estimated near 20% of capacity, which, if the cold had continued, could have resulted in emergency actions by ISO-NE.

The fuel mix for January 5 was examined and reported as 38% oil, 26% nuclear, 14% renewables, 11% NG, 6% coal, and 6% hydro. The LMP for at least one 5-minute period exceeded $462/MW, in comparison to a typical day in May, when the fuel mix was 48% NG, 28% nuclear, 14% hydro, 9% renewable, 1% coal, and no oil resources, the LMP was just under $23/MW.

VELCO's winter and summer peaks were discussed. The all-time summer and winter peaks were 1118 MW in August 2006 and 1086 in December 2004 respectfully. Since those peaks, VELCO loads have decline (2017's summer peak was 905 MW and winter 1006). Since 2014, VELCO has been winter peaking.

LYNDON STATE COLLEGE OUTAGE PREDICTION

Mr. Ettori discussed a proposal from Dr. Jay Schaffer of Lyndon State College to provide an outage prediction model (Storm Outage Management Systems). The model is optimized for a one to five-day look-ahead. Using 66 weather forecast models, it predicts the location and amount of potential storm damage. Mr. Ettori reported that the tool is more suited for the DU level and requested each VDU to consider Dr. Shaffer's proposal.

Mr. Gibbons reported that he didn't anticipate BED would need such a tool as it is not impacted by storms to the same degree as other VDUs.

Mr. Couture reported that an upcoming North Atlantic Mutual Assistance Group (NAMAG)

conference will be held in Burlington. During that conference he expects that Schneider Electric, and possibly others will present a similar product.

Mr. Root suggested that Dr. Shaffer present his product at the next OC meeting.

Mr. Gibbons agreed that the OC is a good forum for that type of content.

No objections were noted and the group agreed to extend an invitation to Dr. Shaffer to attend February's Operating Committee meeting.

2018 LONG RANGE PLAN

Mr. Présumé provided an overview of the draft 2018 Vermont Long-Range Transmission Plan. New to this study is an analysis of system conditions in the spring, added to address the SHEI area and other parts of Vermont when wind and hydro have the potential to impact system performance.

A NERC standard, TPL-001-4, requires a 10-year look-ahead be performed by VELCO as a transmission planner. In addition to this mandatory look-ahead, the study continued to examine years 11 through 20, as required by Vermont law and regulation, to anticipate long-range risks and trends. A benefit of this analysis is to consider the impact of adding renewable generation consistent with the state's 90 percent renewable to 2050 policy goal.

The results of the study were reviewed with the group. It was also noted that the study draft is publicly available through the Vermont System Planning Committee (VSPC) website.

Mr. Powell suggested that the inclusion of the VT legislature in the distribution of the long-range plan could be beneficial.

OTHER BUSINESS

2018 Calendar

Open Discussion

- Mr. Root discussed an upcoming meeting at VELCO to benchmark the estimation process used for each of the potential SHEI improvement projects. This collaboration will result in consistency among estimates that then could be used to compare each potential project. VELCO hopes to work with the DUs to produce cost estimates by March 1.
- Mr. Powell inquired as to the forum where the proposed projects would be reviewed. Mr. Root reported that such a selection process has not been defined.

Next meeting

- Add Dr. Schaffer to demonstrate new software.
- VEIC will be in attendance as requested for the beginning of the meeting.

Motion to adjourn

Mr. Powell moved to adjourn, Mr. Couture seconded, and the meeting was adjourned at 2:38pm.