



**Draft Meeting Minutes
October 19, 2016
Holiday Inn
Rutland, VT**

The Vermont System Planning Committee (VSPC) held a regular meeting on October 19, 2016, at Holiday Inn, Rutland, Vermont. Deena Frankel called the meeting to order at 9:35 a.m.

Bill Powell moved approval of the July 27, 2016, minutes, Hantz Pr sum  seconded. The minutes were approved without objection.

Introductions

Participants introduced themselves. A list of attendees by sector appears on page 8 of these minutes.

Subcommittee Reports

GEOGRAPHICAL TARGETING SUBCOMMITTEE

John Woodward, Geographic Targeting (GT) Subcommittee Chair, reported that the subcommittee met on September 21 to learn about Green Mountain Power's (GMP's) Hinesburg area reliability plan and to review the draft VSPC geographic targeting recommendation letter to the Public Service Board.

Mr. Woodward reviewed the draft geographical targeting recommendation letter included in the VSPC packet and asked for questions and comments before moving approval of the draft. The recommendations will be filed with the Public Service Board by November 1, 2016. [Note: the letter was filed on October 24, 2016.]

Bill Powell moved and Hantz Pr sum  seconded approval of the GT Recommendations, which were approved without objection.

The next GT meeting is scheduled for January 10, 2017, to discuss ways to more effectively bring information to the subcommittee about system constraints. The subcommittee would like to improve the templates used for collecting and sharing information.

GMP HINESBURG RELIABILITY PLAN

Kim Jones reported that GMP analyzed numerous options to address the Hinesburg area reliability deficiency including a new GMP substation, distributed generation, geographic targeting, battery storage and a jointly-owned substation with Vermont Electric Cooperative. The final reliability plan determined a GMP/VEC jointly owned substation would provide the lowest cost option for both utilities

and would effectively address all of the Hinesburg reliability and system protection deficiencies thereby removing any requirement for distance relaying.

GMP collaborated with RES Americas in 2015 to evaluate the potential for reactive compensation systems and battery storage systems to address reliability concerns including voltage standards, PV fluctuations and motor starting performances. The results suggested the battery storage system was the best solution. GMP will pursue a battery energy storage system in Hinesburg in combination with a jointly-owned substation to provide an understanding of what batteries can do to address reliability problems. Additionally, battery storage systems allows for peak shaving, the ability to support additional load growth, participation in ancillary markets, and the potential to provide backup power to the area distribution system during outages.

GMP needs to meet with VEC and the town of Hinesburg to discuss cost allocation and a battery storage site location. GMP will seek to put the solution in service in 2018.

FORECASTING SUBCOMMITTEE

Hantz Pr sum  reported the subcommittee met to discuss load forecast for the 2018 Long-Range Transmission Plan. The subcommittee proposed the following schedule:

- January 2017: Kick off meeting to develop key inputs into forecast and identify data sources and key metrics.
- February 2017: Review methodology with Itron to reflect the effects of future committed energy efficiency, net metering, distributed generation and other small scale resources.
- March 2017: State economic outlook and results of the most recent saturation survey.
- June 2017: Review draft forecast.
- July 2017: Review final forecast.
- September 2017: Update final forecast to account for the latest summer peak data, as necessary.

GMP will make a presentation on cold climate heat pumps at the next Forecasting subcommittee meeting on January 10, 2017.

COORDINATING SUBCOMMITTEE

Ms. Frankel provided a membership update on the VSPC seat vacancies. The Public Service Board (PSB) requested letters of interest to fill the VSPC primary residential, residential alternate, and supply resource alternate seats. The PSB received three applications all of which were circulated to the full VSPC committee. Deadline for comment is November 10, 2016. The committee encouraged VSPC members to submit comments individually.

The next VSPC quarterly meeting is scheduled for January 25, 2017, at the DoubleTree in South Burlington. The Capitol Plaza in Montpelier is not available for the July 2017 quarterly meeting and the meeting location has been changed to the South Burlington DoubleTree. The 2017 VSPC meeting schedule is as follows:

January 25, 2017—DoubleTree, South Burlington

April 26, 2017—Middlebury Inn, Middlebury

July 19, 2017—DoubleTree, South Burlington
October 18, 2017—Holiday Inn, Rutland

Presentation: Overview/update of RES implementation

Mr. Powell provided an overview of Vermont's Act 56 Renewable Energy Standard (RES) approved by the Vermont Legislature in June 2015. The RES has three tiers and Tier 3, referred to as the energy transformation requirement, is the most critical for Vermont's electric utilities. It requires two percent of retail sales be served by projects that improve energy efficiency, including all fuels. The requirement will increase by two-thirds percent of retail sales annually and increasing to 12 percent by 2032. Tier 3 is meant to supplement energy efficiency with targeted programs that address the reduction of greenhouse gas. Tier 3 has to be incremental above what energy efficiency utilities (EEUs) are already implementing in the state. Examples of what may qualify are additional distributed generation over and above the Tier 2 requirement, non-EEU measures, air source heat pumps, weatherization, solar hot water and electric vehicle charging stations.

Alternative Compliance Payments (ACP) will be implemented if utilities do not reach the required thresholds.

Electric utilities are obligated to file a Tier 3 plan. The Public Service Department will review the plans and offer guidance and utilities will begin implementing the first-year program. Energy transformation projects will require PSB approval.

An annual plan will be filed each year in November. In 2020 the PSD will evaluate the costs and benefits of the program to understand the rate impacts of Tier 3 requirements and determine next steps.

Mr. Powell presented two scenarios to demonstrate the worst case with a full ACP payment and no increase in sales from Tier 3 implementation. This is a work in progress.

Presentation: GMP storage

Josh Castonguay provided an overview of the Stafford Hill battery storage program and the Tesla Powerwall Program. Stafford Hill is a 2.5MW DC solar farm on a landfill cap in Rutland City with 1MWH lithium ion battery, 2MWH lead acid battery, and four 500KW multiport inverters. The energy storage site was tested during the ISO New England peak day on August 12 between 3pm and 4pm. The performance results indicate that the battery output helped shave off peak during PV fluctuations between 2pm and 5pm. Stafford Hill participates in the Forward Capacity Market (FCM) as a load reducer, and it is the first and only alternative technology resource entered into the ISO-NE frequency regulation market. ISO sends a signal every four seconds that requests a charging signal (charge/discharge) from the batteries. The site needs 100 hours of testing before it can actively participate in the market. The first test runs resulted in a performance score of 99%.

GMP began offering Tesla Powerwalls to offer customers greater energy independence. Currently 20 Powerwalls have been deployed. GMP is working with solar and stand-alone customers. Customers can pay a monthly fee to use the battery storage when needed or can share with the utility at a reduced price.

Regional/ISO New England Updates

Mark Sciarrotta, Assistant General Counsel at VELCO, provided a regional update. He reported on FERC Order 1000, the Return on Equity (ROE) complaint pending before FERC, and changes proposed by the New England States Committee on Electricity (NESCOE) to the ISO-NE Transmission Cost Allocation (TCA) process.

Mr. Sciarrotta reported on a regional debate over who should pay for local transmission components that qualify as Pooled Transmission Facilities (PTF) and made a correction to the report that the debate involves the New England Power Pool (NEPOOL), rather than ISO-NE, which participates solely as a facilitator.

Mr. Sciarrotta then reported that a fourth ROE complaint has been filed with FERC and that more will likely follow. FERC came to a decision on one case and reduced the ROE that transmission owners earn from 11.1% to 10.57%. FERC believes the rates are too high and continues to try and drive rates down to 8%.

Mr. Sciarrotta reported that FERC seeks greater transparency in the way transmission owners report and calculate annual revenue requirements. In response, transmission owners and consumer interested parties collaborated to develop protocols that call for more informal information sharing and provide alternative dispute resolution mechanisms. FERC is also requiring transmission owners to complete a more objective, number-based report to provide more consistency among transmission companies. NESCOE offered a counter-proposal that would make changes to ISO-NE's planning process, including the transmission cost allocation process. NESCOE would like to see changes to the timeframes of when a transmission owner could recover costs, preferably after approval. VELCO supports the proposal and continues to advocate the change among the transmission owners.

Molly Connors, ISO-NE's external affairs liaison to Vermont, reported on recent publications available to the public and on regional trends in the electric grid. (See presentation for further detail.) Ms. Connors spoke about regional work taking place at the Integrating Markets and Public Policy (IMAPP) meetings where stakeholders are discussing two overarching policies—competitive wholesale markets and reductions in carbon emissions—and how to make them more compatible.

New England is experiencing major generator retirements, regional GHG reduction goals and a significant increase in distributed generation. The goal to achieve a mostly renewable power system raises complex policy and market design questions. Backup systems are finding it difficult to be competitive in a market where renewable resources have low to zero marginal costs and can offer into the wholesale market at negative prices because of policy incentives. How does New England pay for the backup system that will be needed when renewable resources cannot produce electricity and how does the region pay for the environmental attributes wanted by policymakers?

NEPOOL launched the IMAPP stakeholder process with the goal of identifying potential adjustments to the wholesale electricity markets to accommodate and achieve New England's public policy objectives. NEPOOL hosted the first IMAPP meeting on August 11 and introduced three general market-based types of IMAPP: pricing carbon in the energy market, Forward Clean Energy Market, and restructured FCM pricing rules. NEPOOL's seeks to develop a "framework document" by December 2 to provide guidance to the ISO regarding potential changes to the wholesale power markets. In 2017, ISO-NE will work the states, NEPOOL and FERC to determine the most effective path forward.

Ms. Connors provided an overview of the Forward Capacity Market, an auction that takes place annually, three years in advance of the operating period. Resources compete in the auctions to obtain a commitment to supply capacity in exchange for a market-priced capacity payment. ISO-NE expects to make an informational filing to FERC in November 2016 regarding the 11th Forward Capacity Market to provide import/export information and which capacity zones will be modeled in February 2017. Vermont is in the export constrained zone and has technical challenges with moving electricity out of state. ISO-NE will submit another FERC filing after the auction to convey the results of auction with price, resource commitments, and the expectations of resources through 2020.

Policy and Project Updates

NET METERING RULE UPDATE

Melissa Bailey reported that the PSB issued an order on reconsideration on August 19, which modified the redrafted rule, titled Attachment A. The PSB decided not to include an annual statewide or utility specific cap in the net metering program, allowed pre-existing net metering systems to offset non-bypassable charges for 10 years after commissioning, and provides utility discretion in offering allocation schemes to groups (i.e., strict percentage or waterfall allocation).

Ms. Bailey reported on several substantial changes from the original rule including the net metering rate, which will be is now the lesser of the utility's blended rate or the statewide average blended rate; establishment of four categories of net metering projects based on size and siting and elimination of category 5; setting of a renewable energy credit (REC) adjustor of +/-0 \$.03/kWh to be revisited every two years; and different administrative processes.

The PSB will withdraw the proposed rule currently on file with the Secretary of State, revise the draft, file the new draft rule with the Interagency committee on administrative rules (ICAR) and file with Secretary of State. Additional hearings and comment periods will be scheduled and then sent to LCAR for review. It is unclear whether a new rule can be formally adopted by January 1, 2017. There is potential for another Board Order and Interim Rule.

VWAC SECOND JOINT DEVELOPMENT AGREEMENT

Kerrick Johnson reported that a second joint development agreement was approved to bring stronger operational focus to the project by linking VWAC data to VELCO's Energy Management System, deliver a customized data stream to meet individual distribution utility needs, and to reduce costs. In addition, statewide performance metrics will be set to track the project's operation objectives by quantifying the technical measurement, performance results and the economic and societal benefits.

The VWAC team is concentrating on building the model into VELCO's core work including short-term load forecasts and system operating architecture. The team has been meeting with DU owners to understand how the model can provide tailored data streams to each DU for them to better serve their customers.

Mr. Johnson reported that before VELCO begins running all the Vermont forecasts the High Performance Computing Cluster (HPCC) needs to be in place for a seamless transfer. Scott Capps has been contracted to build the data center as he has done for other utilities. The VWAC team is also working on

visualization improvements to the portal, and icing predictions for transmission, distribution and wind turbines.

Mr. Pr sum  commented on the model's coordination with load forecasting for the next Long-Range Transmission Plan. IBM is invited to the next load forecasting planning committee meeting to provide expertise in solar PV forecasting.

The project will continue to develop partnerships with environmental and agricultural agencies for safety, water quality impacts and disaster recovery cost records, as well as partnerships with weather dependent businesses (ski areas, agriculture, tourism) to deliver weather intelligence.

PSB RULE 5.500

Carolyn Anderson reported on the changes to accommodate the volume of renewables. The PSD filed a petition asking the board to schedule a rulemaking in 30 days. PSB began the rulemaking on April 25, requested initial comments in May. In August, the Board held an initial workshop on the rule, followed by establishment of a small group that produced an additional redline in September, with comments on the redline filed on September 16. The Board has not issued an update since then.

The redline committee made changes to process flows from fast track through supplemental review. Changes include four paths forward if a project fails a fast track screen; an established structure where the utility identifies known solutions to failed fast track criteria, and analyzes whether those solutions are sufficient to interconnect; an increase to the application fee; modification to application process; consistency with codes and standards and Good Utility Practice, while allowing generators and utilities to agree to enable enhanced functionality in advance of formal requirements; and adopted language for site control. Other changes to Rule 5.5 state that utilities must raise interconnection issues during net metering comment periods, projects cannot interconnect until they have a Certificate of Public Good (CPG) in hand, common language on study assumptions, public availability of a utility's interconnection queue upon request, shorter and more defined timelines for study and interconnection agreement process; and a requirement that the developer provide as-built drawings of generation resources.

Kerrick Johnson added that NERC has created a study group to review reliability compliance that will be required of transmission owners given the increased penetration of renewables.

Project Updates

STATUS UPDATE OF REMAINING DEFICIENCIES

Connecticut River Valley: Mr. Pr sum  reported the project is under construction at the Ascutney, Hartford, and Chelsea substations, as well as reconductoring of the K31 line. Construction is expected to be complete by 2018.

Northern area: Mr. Pr sum  reported the project is still on hold until load increases.

Hinesburg: Kim Jones reported GMP and VEC held a site visit. Cost components will be analyzed for each option. GMP expects analysis to be complete by August.

OTHER VELCO PROJECTS

PV-20 Replacement Cable: Mr. Pr sum  reported that directional drilling has started on the New York side of the cable. Work will continue through next spring. The submarine cable construction will begin in fall 2017.

Structure Replacement Project: Mr. Pr sum  reported that the SCI program is aimed at replacing aging structures and is currently replacing 300 structures per year.

Regional Projects

Mr. Pr sum  reported on the development of three ISO-NE interconnection studies. The study for a 20MW solar project connecting to the Coolidge Substation is near completion and expected to be done by the end of 2016. The Vermont Green Line project study is complete and under review by the developer. The New England Clean Power Link Project study has been completed. Its proposed plan application has been submitted to ISO. The Reliability Committee recommended approval. The project has all the approvals needed to move forward. Several upgrades would be needed to Vermont's electric system to accommodate the project.

Adjournment and next meeting

The meeting was adjourned at approximately 3:00 p.m. The next quarterly meeting is scheduled to be held from 9:30 a.m. to 4:00 p.m. on January 25, 2017, at the DoubleTree Hotel, Burlington.

ATTENDANCE

*Indicates voting member

**Indicates alternate

Public Sector

Johanna Miller, VNRC (by phone)
Michael Kirick

Transmission Utility (VELCO)

Hantz Presume, VELCO
Mark Sciarrotta

Distribution Utilities Providing Transmission (GMP, VEC)

**Kim Jones, GMP
*Steve Litkovitz
*Mike Beaulieu, VEC

Large Transmission-Dependent Distribution Utilities (BED, WEC)

*Bill Powell, WEC
*Munir Kast, BED (by phone)

Transmission Dependent Distribution Utilities (Municipals)

*Melissa Bailey, VPPSA

Supply & Demand Resources

Nathan Vandal
Gillian Eaton, VEIC
Dave Westman, VEIC

Non-Voting Members

John Woodward, PSD

Staff

Deena Frankel, VELCO
Shana Louiselle, VELCO

Guests

Carolyn Anderson, GMP
Josh Castonguay, GMP
Rob Hornton, GMP
William Gerome
Molly O'Connors, ISO-NE
Kerrick Johnson, VELCO
Bernadette Fernandes, VELCO
Lou Cecere, VELCO