

Vermont System Operators Committee Quarterly Update

**Presented to:
VELCO Operating Committee 6-20-12**

In Attendance

- BED - Mike Giroux, Dave Kresock)
- CVPS - Grant Adams, John Hogan, Doug Boynton
- GMP - Jeff Brosseau
- Swanton - Wanda Sloan
- VEC - Mike Allard, Scott Rockwood, Craig Jewett
- VELCO - Dave Haas, Ron Welch, Dan Nelson, Butch Goulette, Mark Atkins, Chris Almond, Hantz Presume

Utility Project Activity and Updates

VELCO Capital Construction Projects Activities (Dave Haas)

- Ascutney Substation Upgrade
 - Started construction in April 2012
 - Commission Q1/Q2 2013
- Ascutney to Coolidge 345kV Parallel Transmission Line
 - File for CPG in 2012
 - Start construction Q3 2013
 - Commission 2016 (latest)
- Bennington Substation Upgrade
 - Receive CPG TBD, waiting on PSB ruling
 - Start construction June 2012
 - Commission July 2013
- Georgia Substation Upgrade
 - Started construction early Nov 2011
 - Commission in Oct 2012

Utility Project Activity and Updates

VELCO Capital Construction Projects Activities

- Highgate Converter Controls Upgrade
 - March 2011 awarded bid to ABB
 - Factory Acceptance Testing in May 2012
 - Commission in Oct of 2012
 - Commercial operation no later than Dec 2nd, 2012
- Jay Substation
 - Started construction Sept 1, 2011
 - Commission Sept of 2012

Utility Project Activity and Updates

VELCO Capital Construction Projects Activities

Coolidge, New Haven and Vernon 345kV Reactor Installations

- Coolidge 345kV Variable Tap and Fixed Tap Reactors Installation
 - Started construction in Oct 2011
 - Commission first unit end of June, second unit in July 2012
- New Haven 345kV Variable Tap Reactor Installation, Move Fixed Tap Reactor
 - Move existing fixed tap reactor to Vernon in Q3 2012
 - Start construction after reactor removal
 - Commission new variable tap reactor Q4 2012
- Vernon 345kV Fixed Tap Reactor Installation
 - Started construction Feb 2012
 - Commission Q4 of 2012

Utility Project Activity and Updates

VELCO Capital Construction Projects Activities

- Vermont Radio Project (Dan Nelson)
 - First site commission in Q3 of 2011
 - Fully commission Q4 of 2012
 - VELCO will be working with all VDU's involved to get the appropriate console or mobile devices into the control centers by the end of 2012. CVPS will have a full radio console in their control room, and all other VDU control rooms will be equipped with a mobile radio. Specific communication talk groups and who each company will want to communicate with will need to be established.
- Vermont Fiber Optic Project (Dan Nelson)
 - Installation of 912 miles of fiber optics on both transmission and distribution systems
 - Complete installation of fiber Q4 of 2012
 - Fully commission electronics Q2 of 2013

Utility Project Activity and Updates

Major Studies and Assessments (Dave Haas)

- VELCO System Assessment Project
 - Complete Q3 of 2013
- Champlain-Hudson Power Express, no recent progress
 - Need to review designs and construction proposals in 2012
 - Planned start of construction in Q3 of 2012 following necessary permits
- Several System Impact Assessment (SIS) Reviews and Support for Renewable Energy Projects
 - Kingdom Community Wind (60MW), testing of units starting in July with commissioning in September 2012
 - Beaverwood Energy (37MW), SIS complete, in preliminary engineering, commissioning TBD
 - Georgia Mountain Wind (10MW), connected to CVPS, in construction, commissioning TBD
 - Charlotte Solar (2MW), in pre-engineering, commissioning TBD

System Planning Updates

- System Planning updates (Hantz Pr sum )
 - Vernon Road breaker upgrades
 - New ring bus configuration and additional breakers on the high side of the transformers
 - Provides more reliability for the area
 - Need to transfer load in the event of the loss of one of the two sources into the area (Vernon or Newfane), and need to appropriately dispatch area caps
 - Need to timely coordinate system topology changes
 - Emphasis was on keeping load flow models up to date
 - Benefits of the VELCO Friday morning outage coordination meetings
 - VELCO may be able to use new TOA outage software to track changes

Compliance Update

- Review of recent VELCO MLCC and NERC audit findings and recommendations
- NERC and NPCC standards and directory changes
 - EOP-005-2, R11 readiness – each applicable Distribution Provider shall provide a minimum of two hours of system restoration training every two years
 - VELCO is assessing the extent of training required. Likely, at a minimum will require switchmen training for crews in the Brattleboro, Ascutney and Swanton/Milton areas.
- Operator three-part communication was addressed with an effort made to ensure that the VDU's understand the importance of participating in the directed protocol

Special items and hot topics

- **New ISO-NE Restoration Program and Plan (Mark Atkins)**
 - Reviewed the new ISO-NE restoration plan changes for VT
 - VELCO hopes that the plan for VT does not significantly change with VDU's to continue to maintain their units with being compensated under ISO-NE Schedule 16
- **Solar magnetic disturbance monitoring and plans (Dave Haas)**
 - Reviewed the public's concern for utilities readiness
 - Reviewed main elements of the VELCO OP-41 procedure
 - Common expectations of the VDU's are to monitor system condition/alarms
 - All VT operators have copies in their control centers
 - VELCO will be installing geomagnetically induced current (GIC) monitoring in the future on select transformers
- **Summer operation preparations (Dave Haas)**
 - Reviewed VELCO summer prep submitted to ISO-NE
 - Reminded all to make sure reactive (caps) resources are available

Operating Incidents/Events & Lessons Learned

- VELCO Incidents/Events

- 2/6 = Stowe X35/Morrisville #3 several operations and lock-out. Water ingress in a line VT caused catastrophic failure which blew the tank cover off and welded itself to fused switch above.
- 5/17 = Coolidge 345kV breaker trip and lock-out. Caused by contracted crew pulling in cables. The incident uncovered a 345kV breaker wiring problem.
- 5/29 = New Haven to Vergennes K64 line automatic trip and reclose with lightning in the area. The fault was cleared in 4 cycles and IBM reported 15 lost tool hours.
- 5/29 = Lyndonville X84/St. Johnsbury X14 line trip and lockout with permanent fault. Two separate faults were found on the line. VELCO was sectionalizing with CVPS and Lyndonville at the same time, and this issue will be reviewed at next VELCO Operations department meeting.
- 5/29 = Granite to Hartford K50/51 line automatic trip and reclose with lightning in the area.
- 5/29 = Highgate H220/H230 line trip and lockout with lightning in the area. With the intense lightning in area the VELCO operator made the decision to reclose, which was successful. A discussion ensued on how the line reclosing relays operate with a 60 second timer,

Operating Incidents/Events & Lessons Learned

- VELCO Incidents/Events
 - 5/29 = Highgate H220/H230 line trip and lockout with lightning in the area. With the intense lightning in area the VELCO operator made the decision to reclose, which was successful. A discussion ensued on how the line reclosing relays operate with a 60 second timer, and the breaker(s) can go to lockout if a second lightning strike trips the line within this time-frame.
 - 5/29 = Lyndonville X85 Breaker Failure operation. A wiring error during construction was found to be the cause of the misoperation. Breaker failure scheme functionality was discussed.
 - 5/29 = Florence B12 line trips with lightning in area.
 - 6/5 = West Rutland T1 transformer terminal operation due to fault pressure relay operation during refilling of oil during maintenance. Still under investigation.
- Outage coordination, impact analysis/studies, and notifications – any issues

Outage Coordination, Impact Analysis/Studies

- ISO-NE & VELCO outage timelines (Chris Almond)
 - Additional time required by VELCO to perform studies
 - As much notice in advance to optimize the effectiveness of the required planning process and minimize the amount of outages that must be taken on a forced or emergency basis
 - Over 1,000 applications a year are submitted to ISO-NE
 - Scheduling jobs change constantly due to priorities, weather and more
- FoxPro outage database software upgrade to new TOA
 - The new product will allow for an easier transfer of information
 - VDU's requested a direct (electronic) interface with the new TOA program, VELCO action item
 - Pete Galligan assigned for completion by year's end

Training Requirements & Plans

- Joint VELCO & VDU training and plans (Butch Goulette)
 - Group agreed that joint VELCO-VDU training should be twice a year
 - VDU's agreed and provided positive feedback regarding the effectiveness of past sessions
 - Voltage and reactive control, both in principle and practicality, was suggested by CVPS and BED as a possible future training topic
 - VELCO will draft the joint training agenda and seek feedback
 - VELCO will be extending an invitation to attend fall restoration training at VELCO
 - Another restoration training event in Cycle 1 of 2013 will be scheduled to review the new ISO-NE regional restoration plan

Future Meeting Plans

- Meet Quarterly
- Each meeting will be hosted at a different location
- Same agenda covers items of mutual interest
- Next meeting
 - Date – September 20, 2012
 - Host Company – BED

Questions?