

Queen City and East Avenue Facility Classification

vermont electric power company



July 2015

The Issue

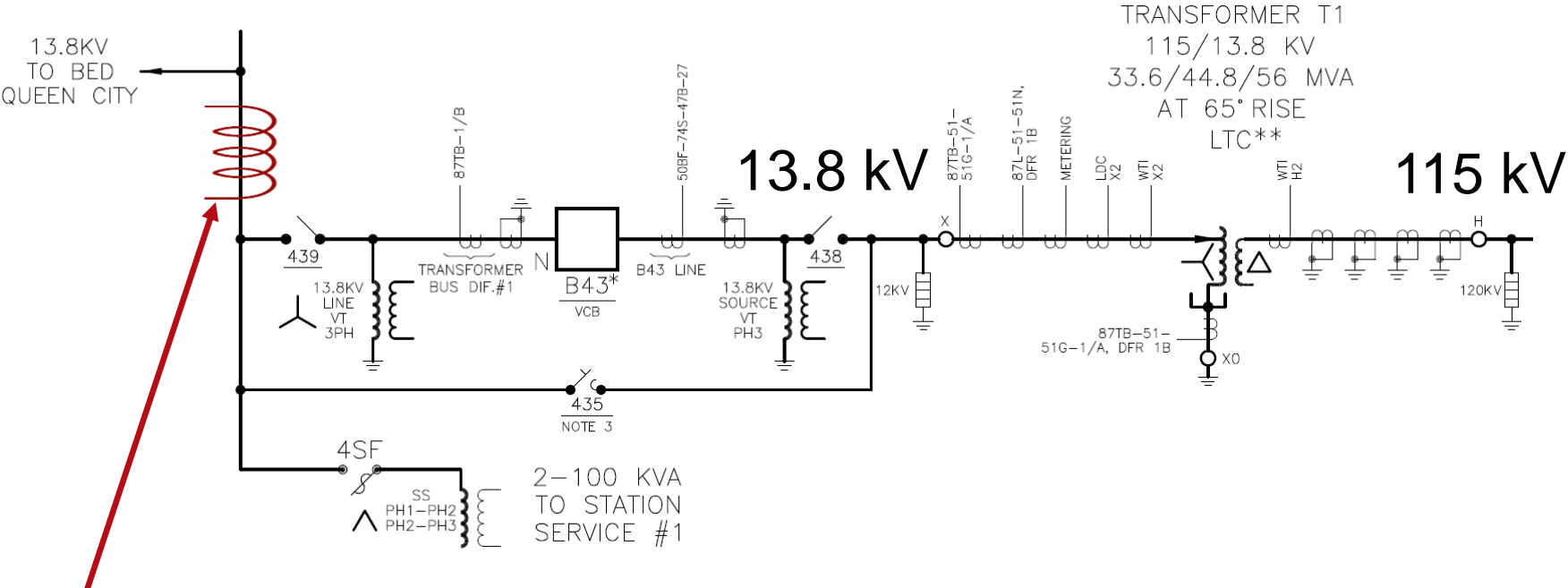
- Due to the transmission build out, and other system changes over the last 10 years, short-circuit (SC) levels have risen in Chittenden County.
- SC levels in the 13.8kV Burlington network are exceeding the fault current ratings of some equipment installed on BED's system.
- Solutions need to be selected to eliminate this issue.

Potential Solutions

- Install 3 new 115/13.8KV transformers at Queen City and East Avenue with higher impedance units. (~\$5M)
- Install numerous smaller sized 13.8kV current limiting reactors. (\$?)
- Install three substation current limiting reactors at East Avenue and Queen City. (~\$2.2M)

Queen City Substation

All existing facilities are Common



New Current limiting Reactor (CLR)

VT Transco Facility Classification

The VELCO transmission system consists of interconnecting lines and stations that are classified as either Common Facilities, or Specific Facilities (1991 VELCO Transmission Agreement).

Certain substations are considered joint use facilities, whereby VELCO and other participants coexist within the same yard. The other participants equipment is referred to as Exclusive Facilities – and is owned entirely by them (1981 Substation Participation Agreement revised as of May 1, 2010).

Within each joint use facility are assets that are shared by VELCO and the participants (ex. Control building, grounding system, fencing, batteries, etc.). These assets are referred to as Shared-Use (1981 Substation Participation Agreement and revised as of May 1, 2010)

- *Reference: VELCO Facilities Diagram 100-OL-0027E.*

Common Facilities

Common Facilities are VELCO facilities that comprise the statewide, high voltage transmission grid, interconnecting and serving the load centers of the State, and are used in common by all Purchasers of transmission services, on a statewide basis. **This includes Specific Facilities constructed prior to 7-1-90, or any Specific Facilities constructed after 7-1-90 that have been reclassified as Common Facilities as a result of being in service for a period of ten years.

- *Note: Common Facilities typically include the transmission grid, radial lines and station equipment that are not classified as Specific Facilities up to and including the transformer bank breaker (exceptions: Barre, Berlin and Highgate).*
- *Improvements for asset condition that do not meet the 5 factor test will continue to remain as a common facility.*
- *Reference: 1991 Vermont Transmission Agreement Sheet No. 4 and Facilities Diagram 100-OL-0027E.*

Specific Facilities

High voltage lines, substations and other appurtenances constituting a direct physical connection to the VELCO (Common) transmission system that are not part of the looped transmission grid, and are requested, used and installed to benefit a requesting Purchaser of transmission service. In the case of a substation (stepping down to a lower voltage), this includes the transformer, high side circuit switcher, bank breaker, ancillary devices, controls and control circuitry.

There are five criteria that must be met in order for an improvement to an existing Common Facility to qualify as a Specific Facility, as follows:

1. Construction of the improvement requires a Certificate of Public Good under 30 V.S.A., section 248, and
2. The Common Facilities to which the improvement is made would be deemed Specific Facilities if constructed under the 1991 Transmission Agreement, and
3. The improvement otherwise meets the definition of Specific Facilities, and
4. The cost of the improvement project is greater than \$50,000 in 1992, indexed upward for succeeding years pursuant to the Handy-Whitman Index, and
5. The improvements will increase the normal operating capacity of the improved facility by at least 20%

- *Reference: VELCO 1991 Transmission Agreement Sheet No. 3 and Facilities Diagram 100-OL-0027E.*

Exclusive Facilities

1.80 Exclusive Facility (EF):

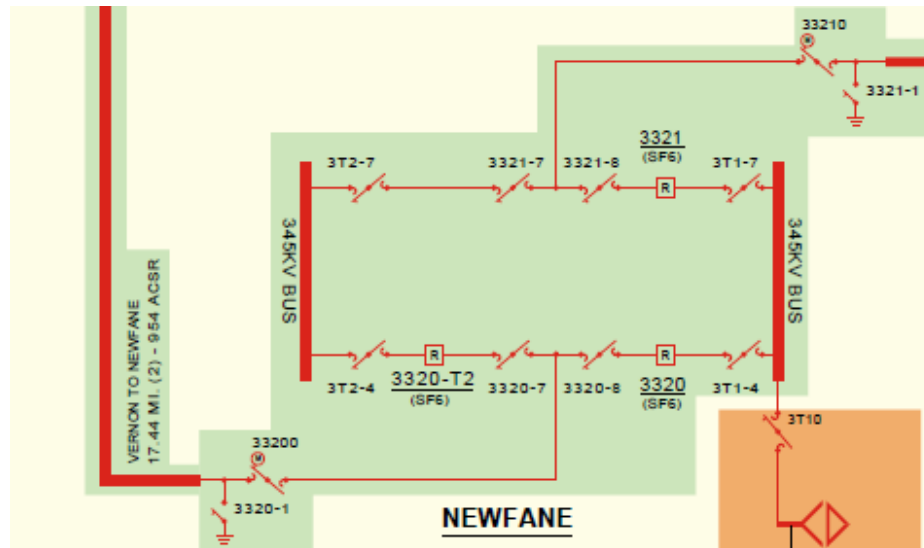
Exclusive Facilities are defined in Article IV of the SPA and shall mean “any substation facilities which are allocable to a DU as necessary for the operation and control of that DU’s own system and not required by VT Transco.”

Exclusive Facilities defined in section 1.80 above. Each DU is responsible for the costs of its own Exclusive Facilities installed at any substation.

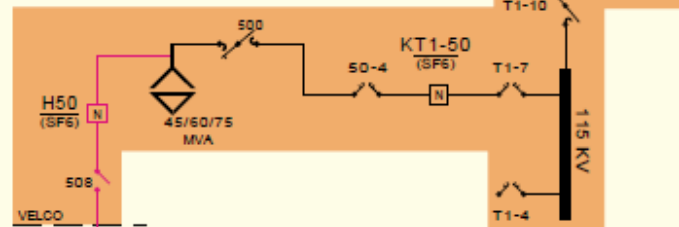
Exclusive Facilities in a substation differ from Specific Facilities in a substation in that a substation’s Specific Facilities are defined in Appendix 1 of the VTA as the transformer, secondary voltage transformer circuit breaker, appurtenances and ancillary equipment, controls and control circuitry that are designed and specified by VT Transco, or constructed in accordance with VT Transco’s designs and specifications or standard practice. VT Transco operates and maintains the Specific Facilities within a substation.

Common, Specific, and Exclusive Facilities

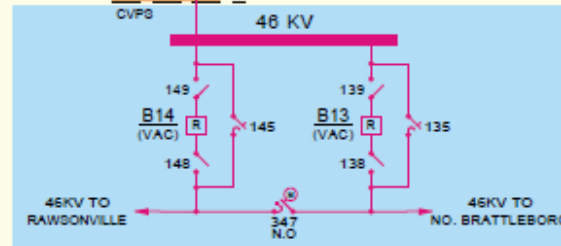
Common



Specific



Exclusive



What we need from you

- VELCO would like discussion and advice from the OC on how the CLR should be classified under the VTA.