Sub Regional RTEP Committee PJM South

November 20, 2015

Baseline Reliability Upgrades

Dominion Transmission Area

Problem: DOM End-Of-Life Criteria Violation

- End of Life Criteria -
- Lines #179 and #180 between Davis Substation and Rosslyn Substation were installed in the early 1970's (approx.1971-1973) and have exceeded their 30-35 year service life..
- System Impact Assessment – The removal of these lines does not cause additional problems.
- This is an immediate need project based on "End of Life" criteria.
- When this criteria violation was identified, the need date was already in the immediate need timeframe

Alternatives Considered

- Given the immediate need timing of the violation, alternatives that would require new lines to be built were not considered.

Immediate Need

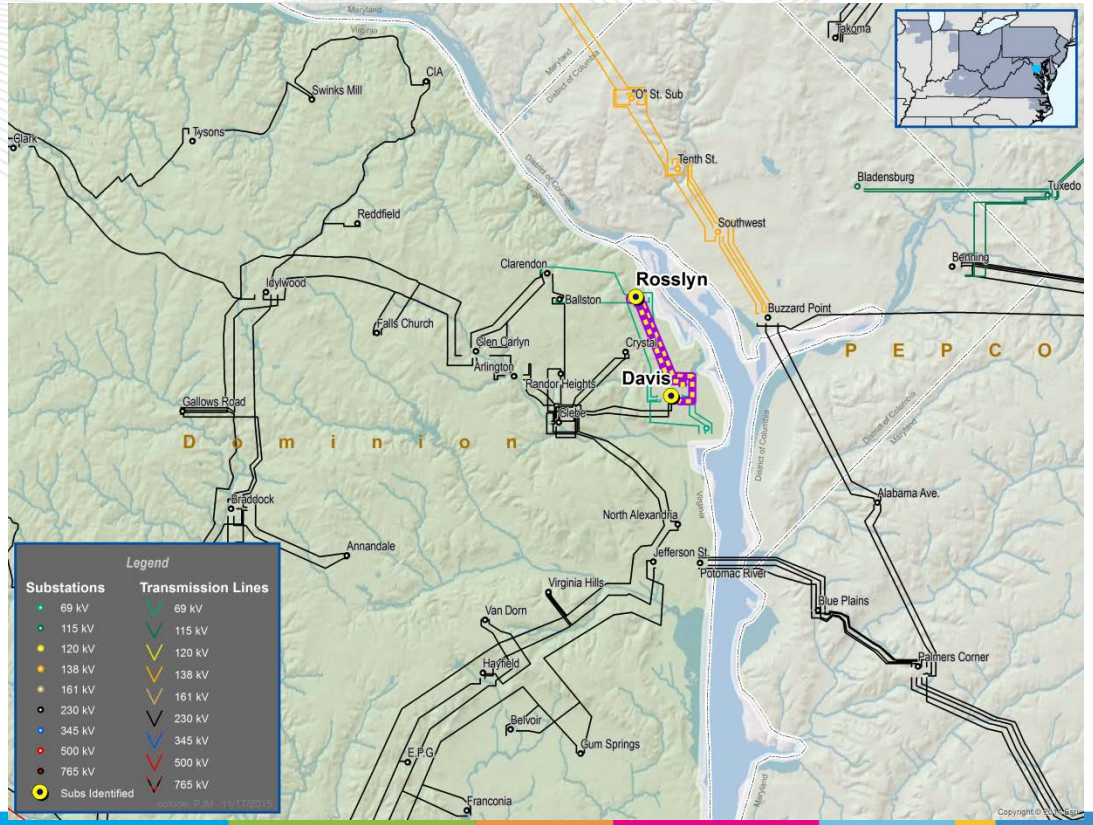
- Due to the immediate need, the timing required for an RTEP proposal window is infeasible. As a result, the local Transmission Owner will be the Designated Entity.

Proposed Solution

- De-energize Davis – Rosslyn #179 and #180 Lines (b2717.1, remove splicing and stop joints in manholes (b2717.2), evacuate and dispose of insulating fluid from various reservoirs and cables, remove all cable along the approx. 2.5 mile route (b2717.3), swab and cap-off conduits for future use, leave existing communication fiber in place (b2717.4).

Estimated Project Cost: $2.5 M

Projected Target Date: 5/31/2016



Dominion Transmission Area

Problem: DOM Limitation on Direct-Connect Load Violation

- Line #31, Altavista – Halifax 115kV, is 36 mile long network . It serves roughly 12,000 customers located in Halifax and Pittsylvania counties. It serves 4 MEC and 2 Dominion delivery points for a total of 6 direct-connect tapped facilities.
- Dominion's Facilities Connection Requirements C.2.7 states that the number of direct-connect loads (tapped facilities) should be limited to 4 tapped facilities.
- The Hickory Grove DP tap is 8 miles long. Dominion's Facilities Connection Requirements G.1 states that when tapping lines for loads less than 100 MW and length more than 1 mile, the tap connection may be connected with a 3 or 4 breaker ring.
- This is an immediate need project based on "Limitation on Direct-Connect Load" criteria.
- When this criteria violation was identified, the need date was already in the immediate need timeframe

Alternatives Considered

- Given the immediate need timing of the violation, alternatives that would require new lines to be built were not considered.

Immediate Need

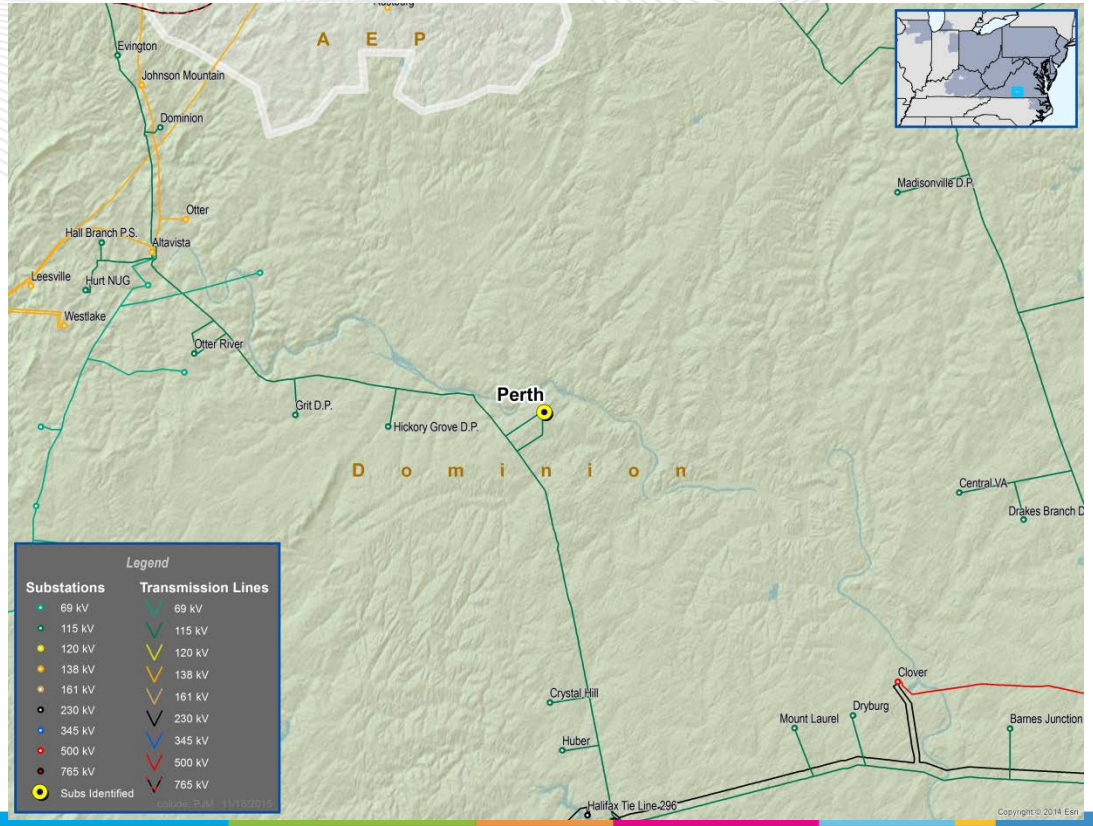
- Due to the immediate need, the timing required for an RTEP proposal window is infeasible. As a result, the local Transmission Owner will be the Designated Entity.

Proposed Solution

- Expand Perth substation and add a 115kV four breaker ring. (b2719.1)
- Extend the Hickory Grove DP tap 0.28 miles to Perth and terminate it at Perth. (b2719.2)
- Split Line #31 at Perth and terminate it into the new ring bus with 2 breakers separating each of the line terminals to prevent a breaker failure from taking out both 115kV lines. (b2719.3)

Estimated Project Cost: $ 7.0 M

Projected IS Date: 06/01/2017



Supplemental Projects

Dominion Transmission Area

Problem: Improve Reliability

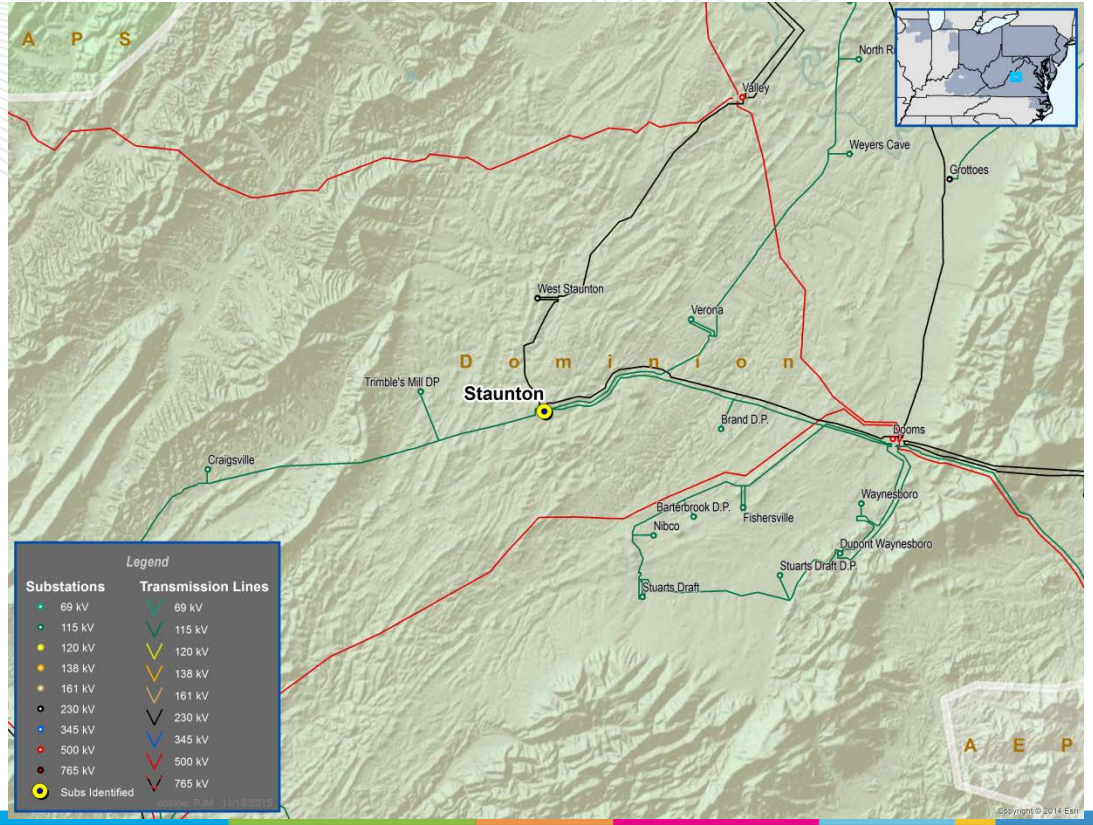
- Dominion's Transformer Health Assessment program has identified Staunton Substation 115/24kV Transformer # 1 as being in poor condition with a highly disruptive failure impact.
- The 60+ year old lattice structures that support the 115kV station bus are in poor condition along with their crumbling foundations.

Proposed Solution:

- Rebuild Staunton 115kV straight bus in a ring configuration adjacent to the existing station. (s1084)

Estimated Project Cost: $7.0 M

Projected IS Date: 06/01/2017



Dominion Transmission Area

Problem:

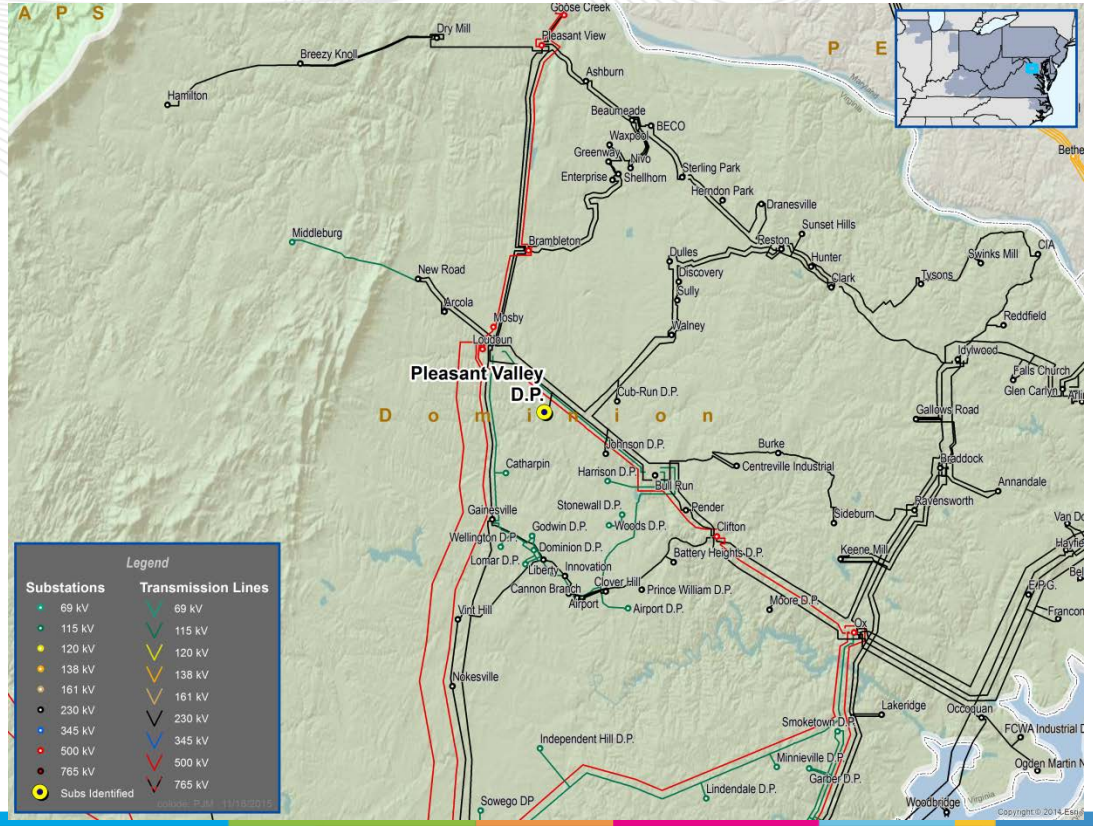
- NOVEC is expanding its Pleasant Valley DP to accommodate an expansion of a gas compressor facility. Approximately 70 MW of new motor load will increase the DP load to above 100 MW (116 MW) by 2017.

Proposed Solution

- Install a new four breaker 230kV ring bus at Pleasant Valley DP and convert the existing T-tap feed from the Loudoun - Bull Run 230kV Line #295 to a loop feed in and out of the new four breaker ring. (s1085)

Estimated Project Cost: $5.0 M

Projected IS Date: 5/31/2016



Dominion Transmission Area

Problem:

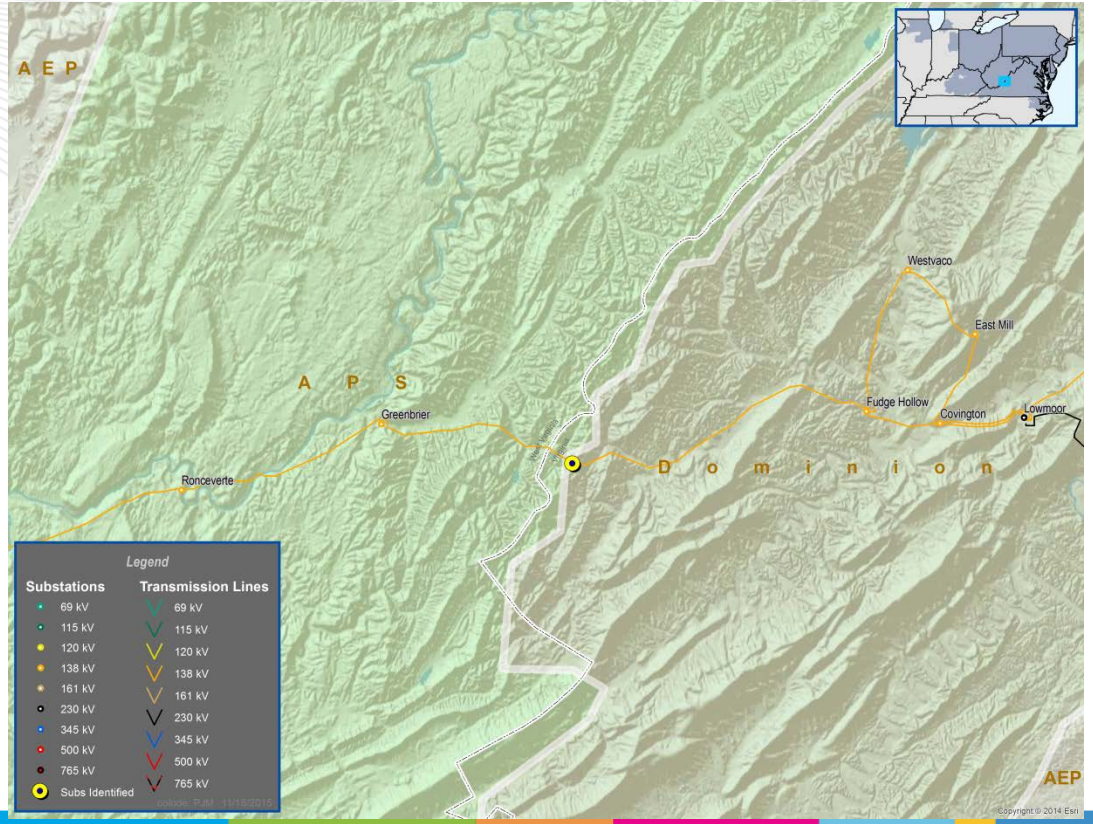
- The existing Covington – Sweet Chaybeate 46kV Line #359 travels approx 26 miles.. The length and exposure of this circuit has produced less than acceptable reliability. The route has significant terrain issues that contribute to patrol difficulties and lengthy restoration scenarios..

Proposed Solution:

- Support the installation of a distribution 138kV delivery point for Kanawha Trail Substation off existing Hinton – Fudge Hollow 138kV Line #14 with associated transmission equipment which will include two backbones and line switches. (s1086)

Estimated Project Cost: $750 K

Projected IS Date: 06/30/2016



Dominion Transmission Area

Problem:

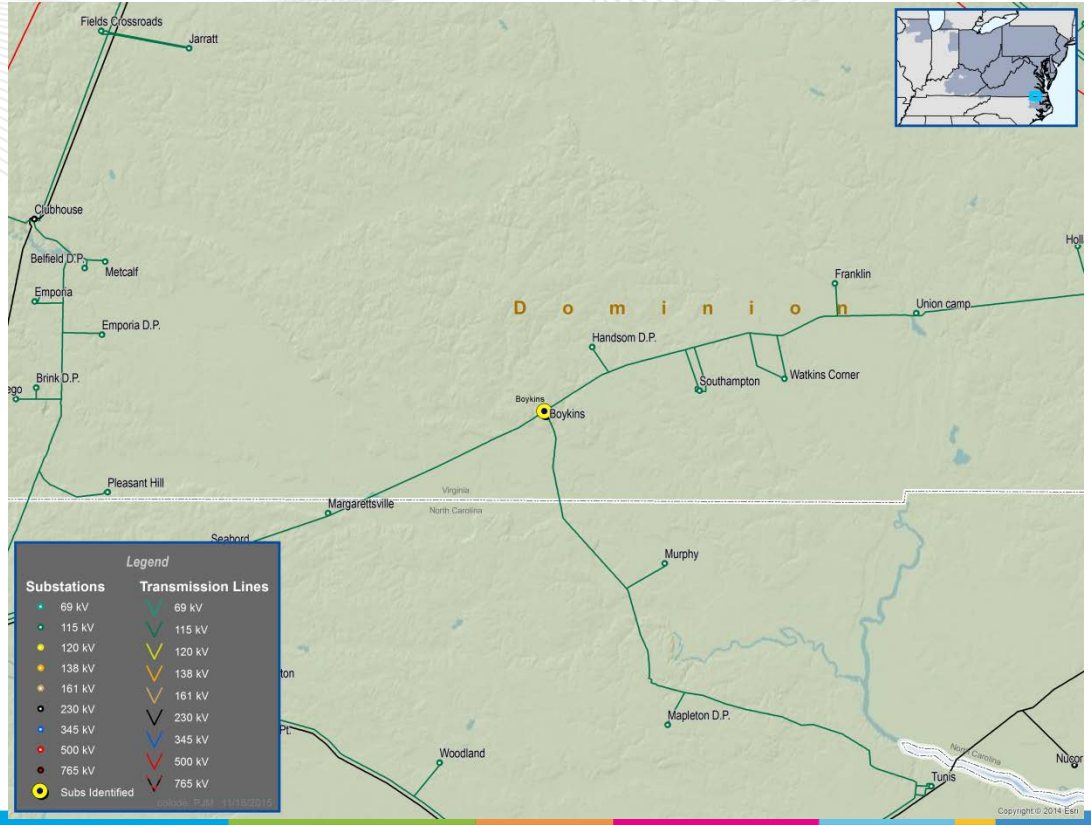
- Dominion Distribution need to upgrade the Boykins 115-34.5kV transformer #1 for load relief.

Proposed Solution:

- Install a 115kV circuit switcher and high side switch for the new transformer at Boykins. (s1088)

Estimated Project Cost: $250 K

Projected IS Date: 05/15/2016



Dominion Transmission Area

Problem: Improve Reliability

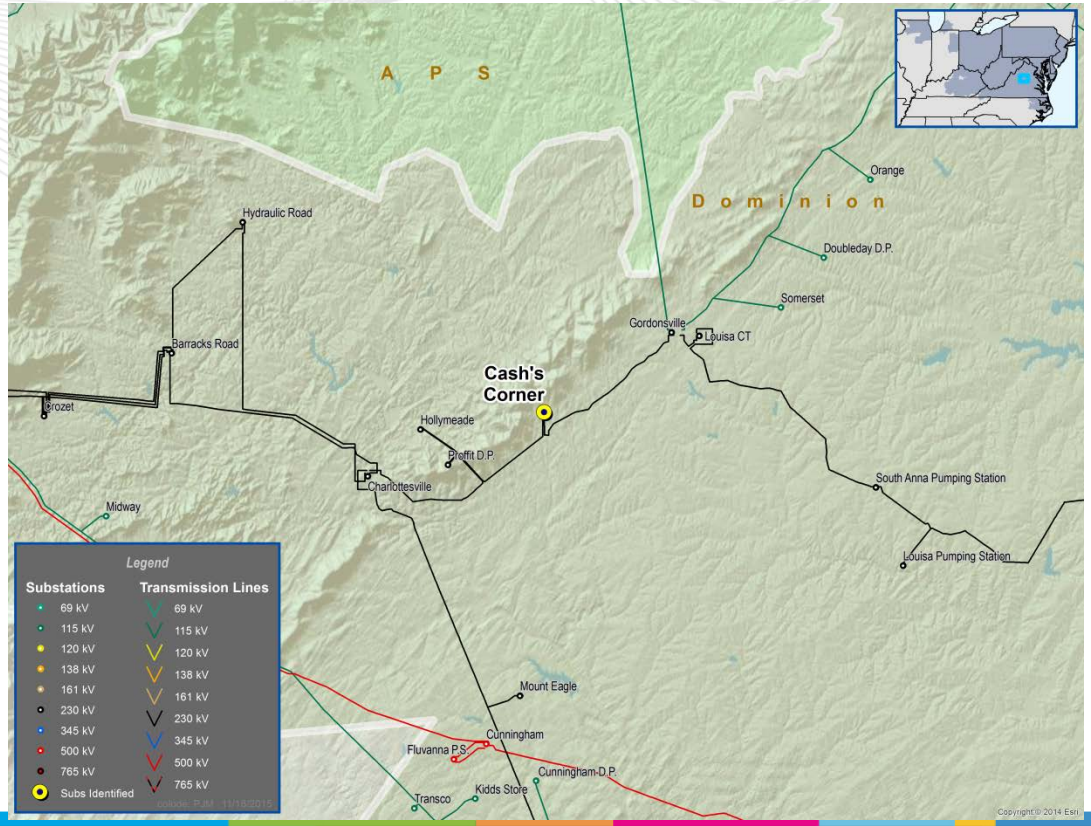
- CVEC is in the process of creating a tie within its network between the Cash's Corner and Columbia delivery points.
- Related to this work, a breaker is needed for the high side of the Dominion 230/115kV transformer at Cash's Corner to prevent inadvertent tripping of line # 2135 when the station is being fed exclusively from CVEC's line to Columbia. This will also improve the reliability of the Hollymead – Gordonsvile 230kV Line #2135 by upgrading existing control schemes.
- The current protection scheme for the Hollymead – Gordonsvile 230kV line #2135 calls for the opening of the line in the event a fault is detected at the Cash's Corner delivery point while it is being fed from Columbia DP.

Proposed Solution

- Install a breaker on the high side of the existing Dominion 230/115kV transformer at Cash's Corner. This work will include the installation of a control house. (s1091)

Estimated Project Cost: $1.63 M

Projected IS Date: 09/30/2016



Questions?

Email: RTEP@pjm.com

Revision History

- Revision History
  - Updated 12/03/15 to reflect project id changes