Transmission Expansion Advisory Committee
Market Efficiency Update

December 3, 2015

Market Efficiency 2014/15 Long Term Proposal Window Update

Proposals by Area

Area of Proposal	Number of Proposals	Greenfield Proposals	TO Upgrade Proposals
AEP	3	1	2
APS	5	3	2
APSOUTH and/or AEP-DOM Area	41	37	4
ATSI	4	-	4
BGE/PPL	4	-	4
ComEd	15	4	11
DEOK	8	8	-
DPL	1	-	1
DUQ	4	3	1
PECO	5	-	5
PSEG	3	2	1
Grand Total	93	58	35

Market Efficiency Proposal Window

Proposals were sorted based on the congestion they were addressing.

- Group 1 facilities are regional facilities associated with PJM IROL (Interconnected Reliability Operating Limit) Reactive interfaces. Evaluation of these projects will be completed in 2016.
  - ➢ Anticipated recommendation to PJM board in February 2016

- Group 2 facilities include COMED facilities that along with the energy benefits may be providing RPM benefits.
  - ➢ Anticipated recommendation to PJM board in February 2016

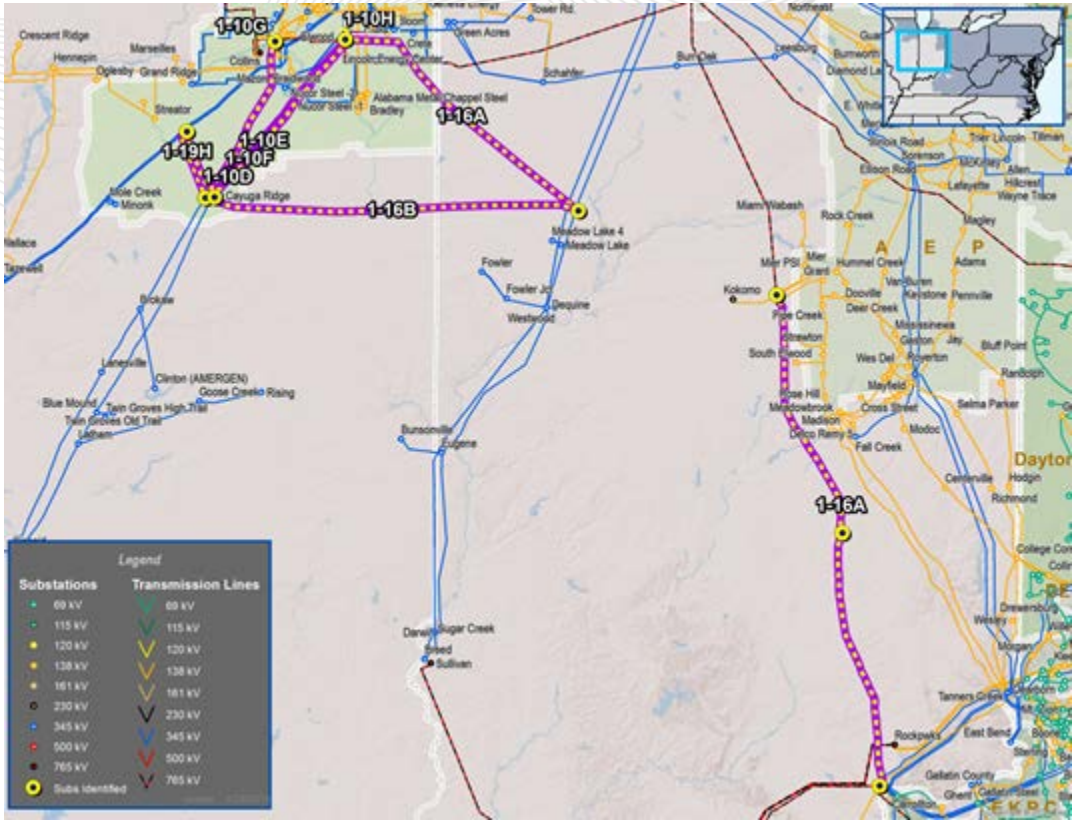
- Group 2-19 facilities include facilities PJM zones other than COMED in which congestion may be alleviated with lower cost more locational type projects. Projects associated with these facilities can be more easily constructed or sometimes only require upgrades to existing equipment.
  - ➢ Projects were approved by PJM board in October 2015

Project Evaluations
Group 2
(Target zone: COMED)

Group 2: COMED - Loretto to Wilton Center

- 9 Projects*:
  - 1-10C,1-10D,1-10E,1-10F,1-10G,1-10H, 1-16A,1-16B,1-19H
- Cost:
  - From $11.5M to $290M
- Constraints:
  - Loretto to Wilton CTR 345 kV

- 2018/2019 RPM BRA Results
  - COMED LDA binding with Loretto to Wilton CTR 345 kV as limiting CETL constraint



*Project details in Appendix A

RPM Benefit Analysis

- The Reliability Pricing Model Benefit component of the Benefit/Cost Ratio evaluates the benefits of a proposed economic-based enhancement or expansion that will be realized in the capacity market and is expressed as:
  - Reliability Pricing Benefit for Regional Projects = [.50] * [Change in Total System Capacity Cost] + [.50] * [Change in Load Capacity Payment]
  - Reliability Pricing Benefit for Lower Voltage Projects = [1.0]*[Change in Load Capacity Payment]

- RPM Benefits Study Process:
  1. Determine if upgrades impact CETL values.
  2. Run RPM auction for multiple study years using updated CETL values.
  3. Measure Benefits for 15 year period.

- PJM completed the analysis to determine the COMED LDA CETL impact of each proposed upgrades from group 2.
  - Three different levels of CETL increases (279 MW, 769 MW, 1086 MW)
  - Upgrades with same level of CETL increase will provide the same RPM benefits

- Total Benefits = Energy Benefits + RPM Benefits

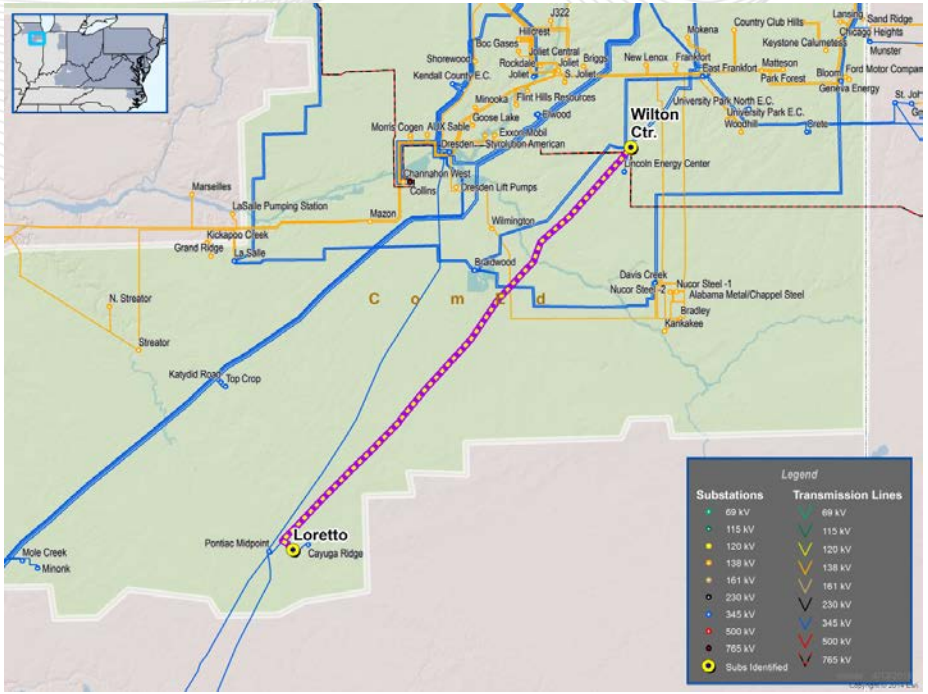
*Only PJM transmission zones that show a decrease will be considered in determining the Change in Load Capacity Payment

Group 2 Analysis Results

Project ID	Upgrade/ Greenfield	Cost ($M)	Target Zone	kV Level	ME Constraints Identified	Evaluation	Energy B/C Ratio	RPM B/C Ratio	Total B/C Ratio (Energy + RPM)	CETL Increase (MW)	Comment
201415_1-10D	Upgrade	11.5	ComEd	345	Lorreto to Wilton CTR 345 kV	Lower Voltage	1.14	63.32	64.46	279	Recommended
201415_1-10F	Upgrade	14	ComEd	345	Lorreto to Wilton CTR 345 kV	Lower Voltage	0.79	52.02	52.81	279	Not recommended at this time
201415_1-16A	Greenfield	240	AEP/CE/NIPS	345	None Specified	Lower Voltage	.07	5.15	5.22	1086	Under further Study
201415_1-16B	Greenfield	290	AEP/CE/NIPS	345	Lorreto to Wilton CTR 345 kV	Regional	.08	2.12	2.20	769	Under further Study
201415_1-10C	Greenfield	37.8	ComEd	345	Lorreto to Wilton CTR 345 kV	Lower Voltage	0.73	-	0.73	< 0	Not recommended at this time
201415_1-19H	Greenfield	42.9	Comed	345	Lorreto to Wilton CTR 345 kV	Lower Voltage	0.9	-	0.9	< 0	Not recommended at this time
201415_1-10E	Upgrade	17.4	ComEd	345	Lorreto to Wilton CTR 345 kV	Lower Voltage	0.93	41.85	42.78	279	Not recommended at this time
201415_1-10G	Upgrade	19.9	ComEd	345	Lorreto to Wilton CTR 345 kV	Lower Voltage	0.81	36.59	37.4	279	Not recommended at this time
201415_1-10H	Upgrade	25.9	ComEd	345	Lorreto to Wilton CTR 345 kV	Lower Voltage	0.62	26.12	26.74	279	Not recommended at this time

RPM Recommended Market Efficiency Project

Project ID: 201415_1-10D
Proposed by: ComEd
Proposed Solution: Mitigate sag limitations on Loretto-Wilton Center Line, and replace station conductor at Wilton Center.
kV Level: 345
Cost ($M): 11.5
IS Date: 2019
Target Zone: ComEd



- Project 10D will be recommended for Board approval in February 2015
- Additional Incremental studies to be conducted for projects 16A and 16B

Project Evaluations
Group 1
(ApSouth/AEP-DOM Projects)

AP-South/AEP-DOM Selected Projects

Project Name	Company	Cost	ISD	Selected Project
201415_1-6B	Dominion	$25	2019	1-6C
201415_1-6C	Dominion	$39	2019	
201415_1-6D	Dominion	$43	2019	
201415_1-9A	DOM High Voltage/Transource	$301	2020	1-9A
201415_1-14A	DATC	$52	2019	1-14A
201415_1-17A	Nextera	$17	2019	1-17A
201415_1-17C	Nextera	$16	2019	
201415_1-19B	LSPower	$39	2020	1-19G
201415_1-19C	LSPower	$42	2020	
201415_1-19G	LSPower	$49	2020	

AP-South/AEP-DOM Combination Projects

The following combinations have been evaluated:

Combination Projects	Costs ($ millions)	6C	9A	14A	17A	19G
6C(Caps Only)	$ 14.1	■				
9A(Caps Only)	$ 19.2		■			
6C(Caps Only) + 9A(Caps Only)	$ 29.2	■	■			
6C(Caps Only) + 14A	$ 65.6	■		■		
9A(Caps Only) + 14A	$ 70.7		■	■		
6C(Caps Only)+9A(Caps Only)+14A	$ 84.7	■	■	■		
6C(Caps Only) + 17A	$ 30.6	■			■	
9A(Caps Only) + 17A	$ 35.7		■		■	
6C(Caps Only)+9A(Caps Only)+17A	$ 49.7	■	■		■	
6C(Caps Only) + 19G	$ 62.7	■				■
9A(Caps Only) + 19G	$ 67.8		■			■
6C(Caps Only)+9A(Caps Only)+19G	$ 81.8	■	■			■
6C(Caps Only)+9A(Caps Only)+17A+19G	$ 98.3	■	■		■	■

Benefits Summary

Combination Type	Description	ISD	Cost	BC Ratio	Load Payments Benefits ($million)	Production Cost Benefits ($million)	Congestion Benefits ($million)			
							AEP-DOM L/O BED-BLA	AP SOUTH L/O BED-BLA	Interfaces	PJM Total
singles	6B	2019	25.0	1.94	$ (16.67)	$ 15.65	$ (2.88)	$ 10.95	$ 24.03	$ 23.80
singles	6C	2019	39.1	4.64	$ 86.56	$ 25.94	$ (2.27)	$ 91.67	$ 79.33	$ 82.35
singles	6D	2019	42.7	2.42	$ (4.16)	$ 33.74	$ (2.50)	$ 52.58	$ 64.81	$ 63.31
singles	9A	2020	300.7	2.64	$ 48.28	$ 67.12	$ 10.92	$ 134.02	$ 163.57	$ 174.41
singles	14A	2019	51.5	1.76	$ (153.50)	$ 18.44	$ 0.16	$ 37.40	$ 44.49	$ 33.48
singles	17A	2019	16.5	3.64	$ 11.36	$ 17.38	$ (28.21)	$ 45.18	$ 32.82	$ 30.97
singles	17C	2019	15.7	2.45	$ 3.82	$ 17.86	$ (20.76)	$ 42.49	$ 37.47	$ 35.62
singles	19B	2020	38.9	4.07	$ 35.10	$ 6.91	$ (28.73)	$ 19.04	$ 9.89	$ 11.44
singles	19C	2020	41.9	5.66	$ 7.22	$ (14.47)	$ 5.95	$ (56.37)	$ (29.65)	$ (25.91)
singles	19G	2020	48.6	2.76	$ (14.53)	$ 11.73	$ (8.24)	$ 8.64	$ 17.78	$ 2.18
singles	6C Caps	2019	14.1	7.50	$ 28.73	$ 21.59	$ (3.52)	$ 57.55	$ 52.93	$ 51.34
singles	9A Caps	2019	19.2	8.95	$ 52.32	$ 24.61	$ 1.93	$ 63.71	$ 63.64	$ 62.19
2-pair	6C Caps+9A Caps	2019	29.2	9.80	$ 52.48	$ 35.84	$ 9.58	$ 98.71	$ 105.22	$ 100.43
2-pair	6C Caps+14A	2019	65.6	4.60	$ (133.97)	$ 63.95	$ 12.57	$ 148.88	$ 167.65	$ 149.62
2-pair	6C Caps+17A	2019	30.6	11.40	$ 60.44	$ 47.46	$ 8.60	$ 126.87	$ 130.86	$ 126.41
2-pair	6C Caps+19G	2020	62.7	3.40	$ 26.18	$ 26.21	$ (5.34)	$ 73.06	$ 66.10	$ 50.63
2-pair	9A Caps+14A	2019	70.7	4.40	$ (119.19)	$ 65.09	$ 12.21	$ 150.49	$ 168.87	$ 151.26
2-pair	9A Caps+17A	2019	35.7	9.80	$ 73.66	$ 43.92	$ 8.11	$ 119.88	$ 123.74	$ 119.55
2-pair	9A Caps+19G	2020	67.8	3.55	$ 14.36	$ 31.27	$ 9.43	$ 76.70	$ 84.16	$ 66.86
3-pair	6C Caps+9A Caps+14A	2019	80.7	3.43	$ (126.99)	$ 54.55	$ 14.12	$ 132.05	$ 151.48	$ 135.37
3-pair	6C Caps+9A Caps+17A	2019	45.7	7.20	$ 47.29	$ 47.17	$ 7.82	$ 127.52	$ 130.72	$ 125.39
3-pair	6C Caps+9A Caps+19G	2020	77.9	4.70	$ 49.97	$ 41.06	$ 11.74	$ 111.80	$ 119.88	$ 102.06
4-pair	6C Caps+9A Caps+17A+19G	2020	94.3	4.26	$ 43.24	$ 49.87	$ 10.21	$ 130.45	$ 135.93	$ 117.05

*Congestion, production cost, and load payment savings represent 2019 + 2022 study years. Positive values represents a benefit.

Challenges of Capacitors

- Capacitors appear to be providing the highest Market Efficiency benefits from a theoretical view because of the low costs and reactive limits impacts from the Planning PV analysis

- Not practical to implement too many capacitors
  - Many existing capacitors can't be turned on in PJM Operations because of high voltage problems
  - Many proposed capacitor locations already in areas where existing capacitors are located
  - Due to timing, some capacitor locations overlap recently approved RTEP reliability projects

- Additional analysis necessary to further evaluate impact of the capacitors vs. transmission lines and/or SVCs

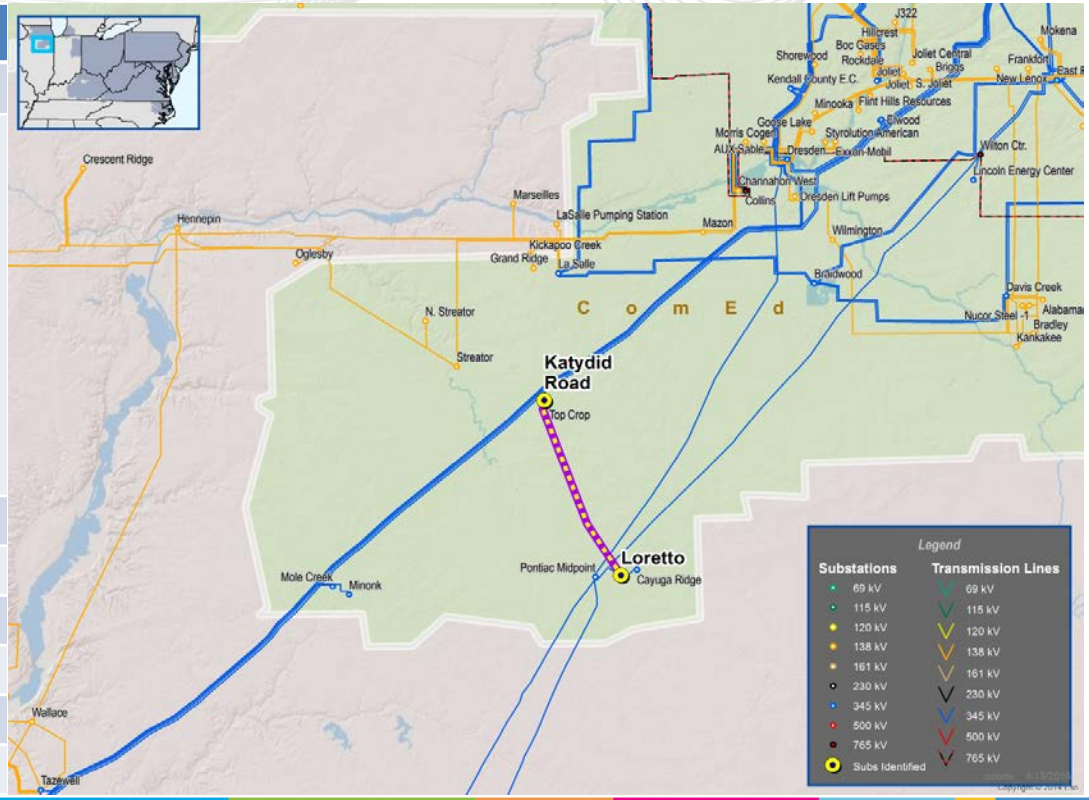
Next Steps

- Evaluate impact of proposed capacitors from markets, reliability, and operations perspectives.
  - Determine optimal locations and sizes/quantities
- Evaluate impact of the capacitors vs. lines and/or SVCs
- Finalize reviews for costs and in-service dates
- Reliability/Constructability Review
- Recommend Project(s)

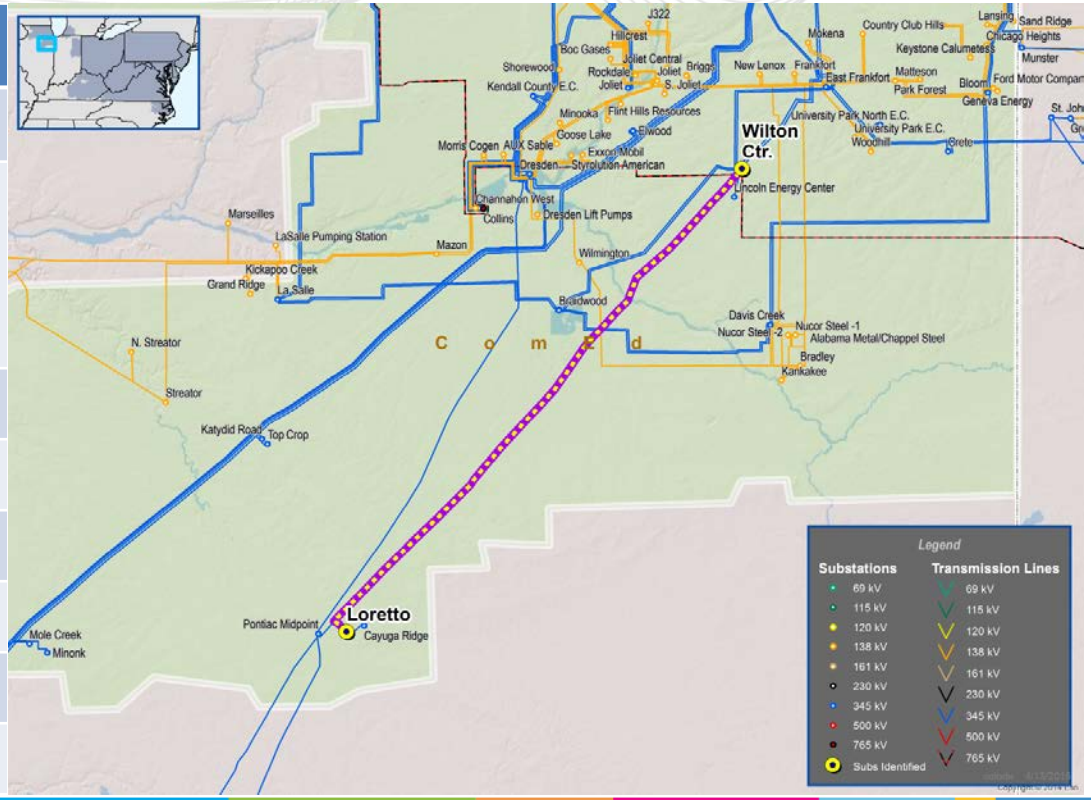
Appendix A
Group 2
RPM Projects Details

1-10C

Project ID: 201415_1-10C
Proposed by: ComEd
Proposed Solution: The solution consists of the installation of a new ~14.5 mile 345 kV single circuit overhead transmission line from ComEd's existing Loretto 345kV substation to ComEd's existing Katydid 345kV substation. Additionally, 345 kV L0303 from ComEd's Powerton to Goodings Grove 345 kV substations would be brought into and split at Katydid.
kV Level: 345
Cost ($M): 37.8
IS Date: 2019
Target Zone: ComEd
ME Constraints: Loretto to Wilton CTR 345 kV
Notes:

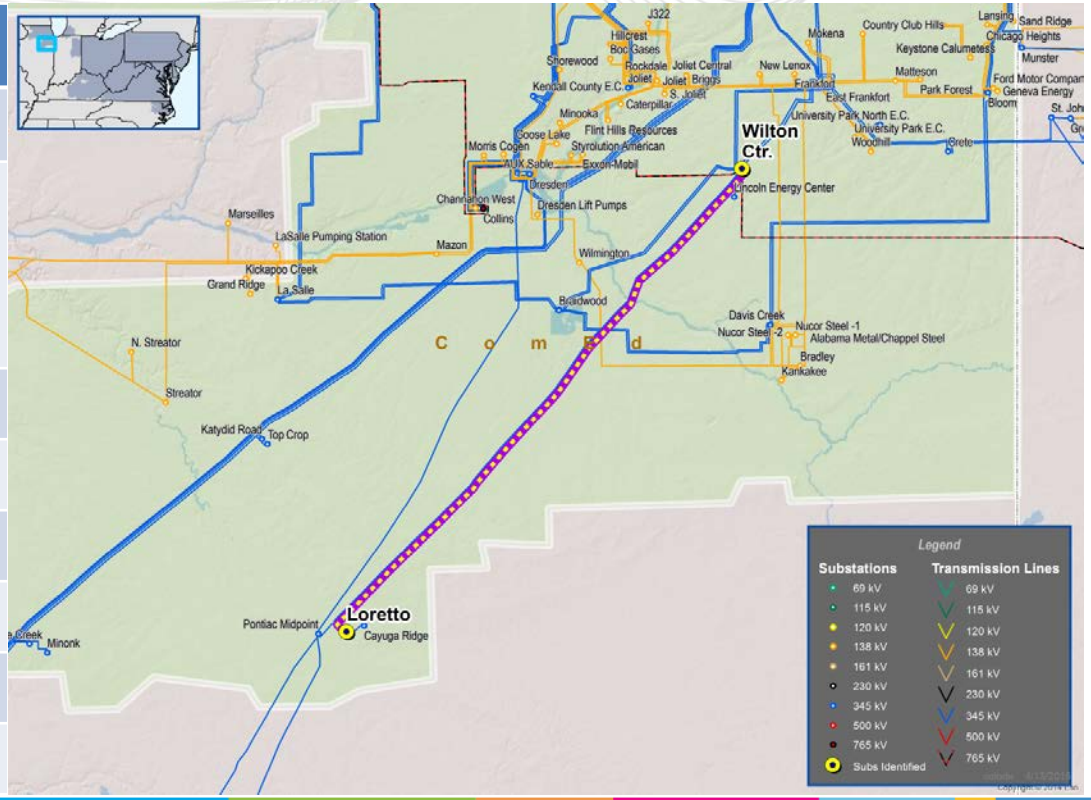


Project ID: 201415_1-10D
Proposed by: ComEd
Proposed Solution: Mitigate sag limitations on Loretto-Wilton Center Line, and replace station conductor at Wilton Center.
kV Level: 345
Cost ($M): 11.5
IS Date: 2019
Target Zone: ComEd
ME Constraints: Loretto to Wilton CTR 345 kV
Notes:

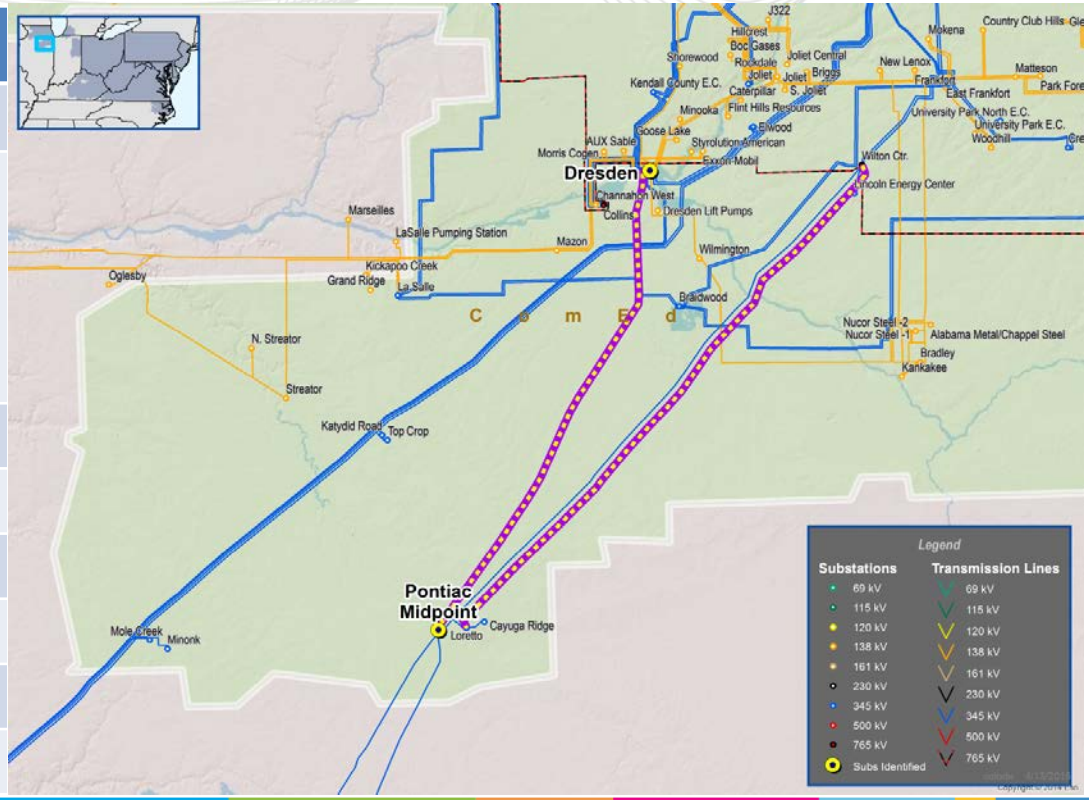


1-10E

Project ID: 201415_1-10E
Proposed by: ComEd
Proposed Solution: Mitigate sag limitations on Loretto-Wilton Center Line and replace station conductor and circuit breakers at Wilton Center.
kV Level: 345
Cost ($M): 17.4
IS Date: 2019
Target Zone: ComEd
ME Constraints: Loretto to Wilton CTR 345 kV
Notes:

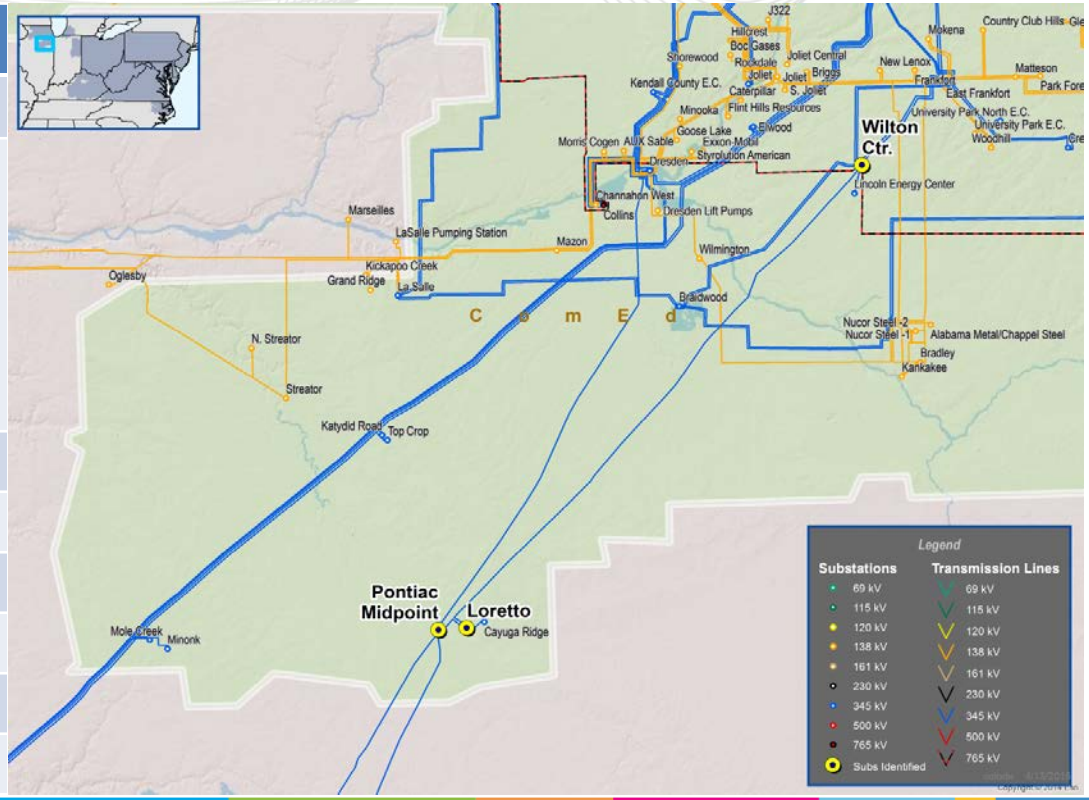


Project ID: 201415_1-10F
Proposed by: ComEd
Proposed Solution: Loretto to Wilton Center Sag Mitigation and Station Conductor Replacement; Pontiac Midpoint to Dresden Station Conductor Replacement
kV Level: 345
Cost ($M): 14
IS Date: 2019
Target Zone: ComEd
ME Constraints: Loretto to Wilton CTR 345 kV
Notes:



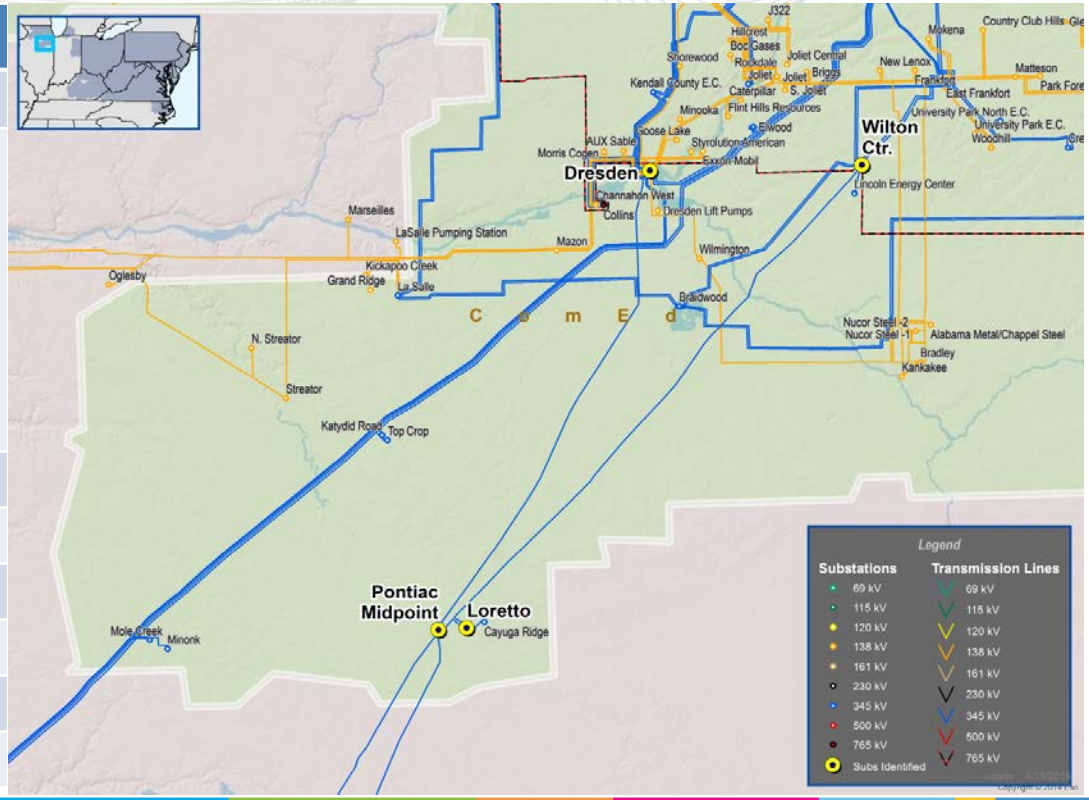
1-10G

Project ID: 201415_1-10G
Proposed by: ComEd
Proposed Solution: Loretto to Wilton Center Sag Mitigation, Station Conductor Replacement, Circuit breaker replacements at Wilton Center and Replace station conductor at Pontiac Midpoint and Dresden
kV Level: 345
Cost ($M): 19.9
IS Date: 2019
Target Zone: ComEd
ME Constraints: Loretto to Wilton CTR 345 kV
Notes:



1-10H

Project ID: 201415_1-10H
Proposed by: ComEd
Proposed Solution: Loretto to Wilton Center Sag Mitigation, Station Conductor Replacement at Wilton Center, Circuit breaker replacements at Wilton Center and Pontiac Midpoint, and Replace station conductor at Pontiac Midpoint and Dresden.
kV Level: 345
Cost ($M): 25.9
IS Date: 2019
Target Zone: ComEd
ME Constraints: Loretto to Wilton CTR 345 kV
Notes:



1-16A

Project ID: 201415_1-16A

Proposed by: Nipsco

Proposed Solution: Wilton Center to Reynolds Single Circuit 345 kV and a 765/345 kV Xfmr at Gwynneville by Splitting Greentown to Jefferson 765 kV line at Gwynneville to form a new 765 kV Substation with 765/345 kV Xfmr

kV Level: 345

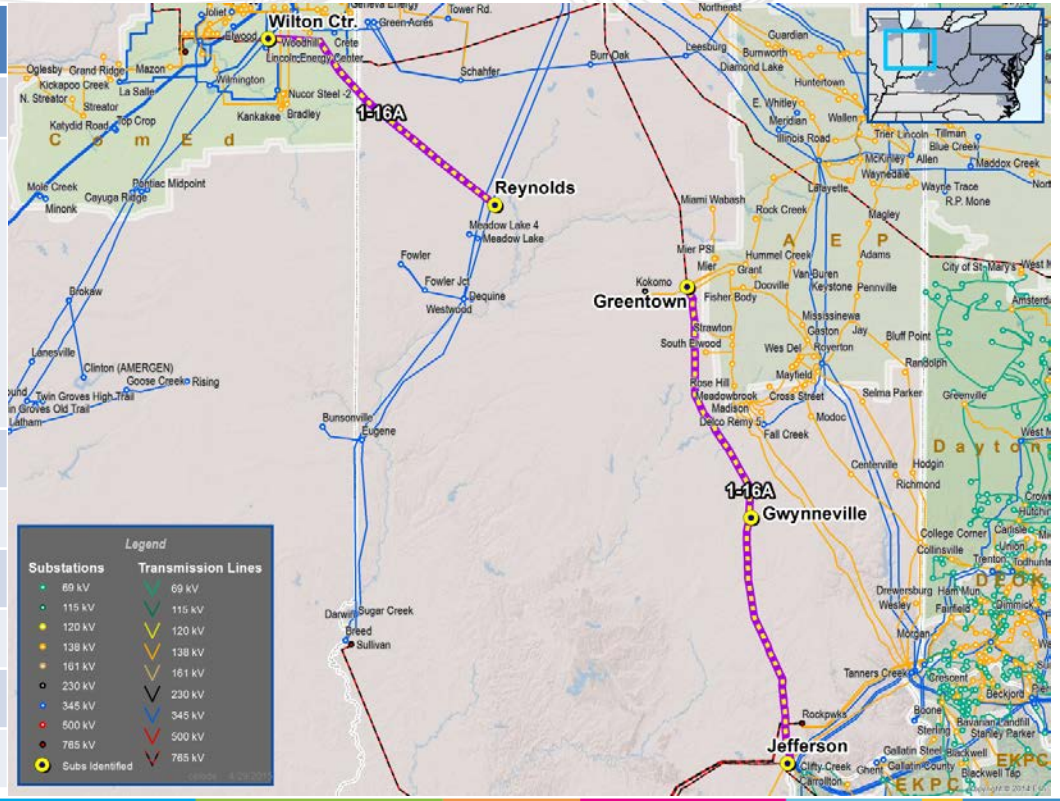
Cost ($M): 240

IS Date: 2022

Target Zone: AEP/CE/NIPS

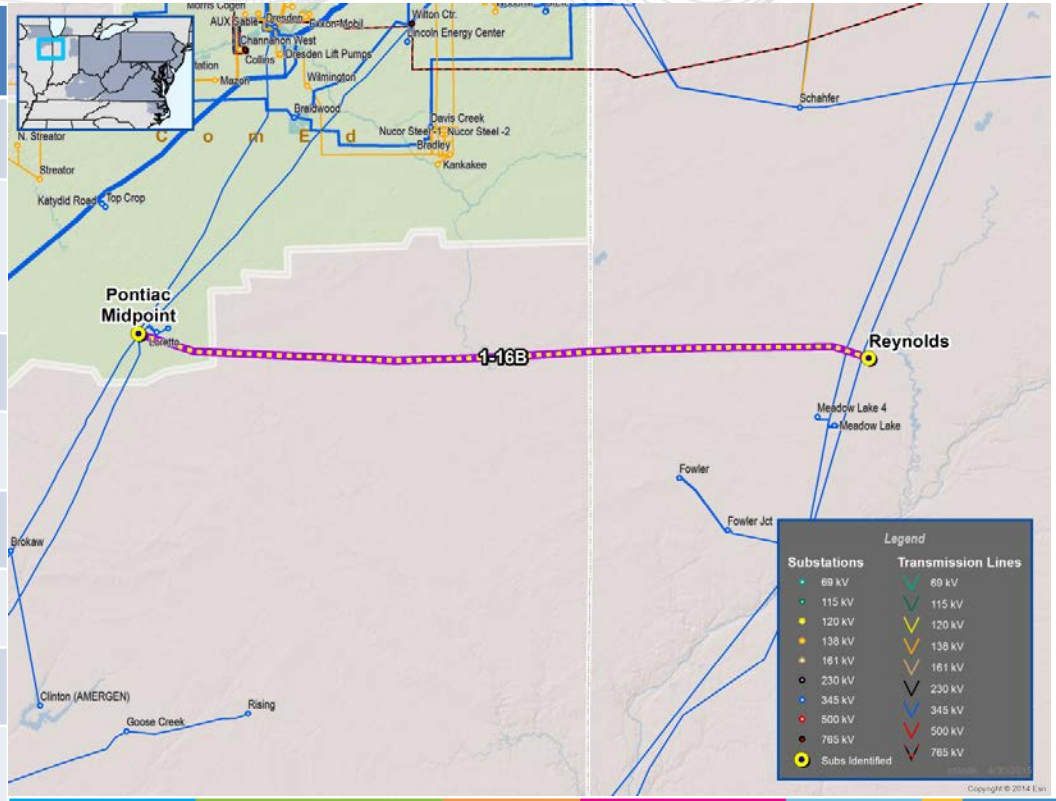
ME Constraints: None Specified

Notes:



1-16B

Project ID: 201415_1-16B
Proposed by: Nipsco
Proposed Solution: Double Circuit 345 kV line section from Pontiac to Reynolds (~100 miles)
kV Level: 345
Cost ($M): 290
IS Date: 2022
Target Zone: AEP/CE/NIPS
ME Constraints: Loretto to Wilton CTR 345 kV
Notes:



Appendix B
Combination Projects Details
(AP-South/AEP-DOM Projects)

Project ID: 201415_1-6C

Proposed by: Dominion

Proposed solution: Build one 500kv Thyristor Controlled Series Capacitor (TCSC) at Loudoun substation on Loudoun – Meadowbrook (535) line and build five (5) 230 kV capacitor banks at five (5) DVP substations to alleviate congestion on AP south and other PJM interfaces.

kV Level: 500

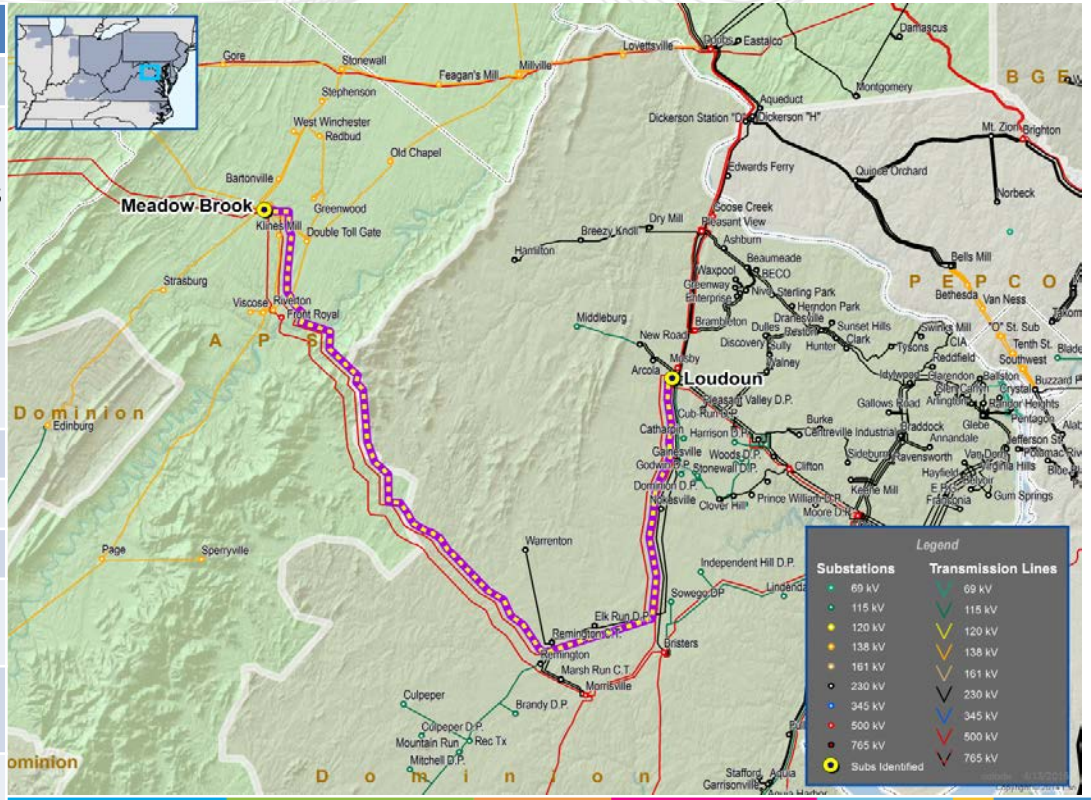
Cost($M): 39.06

IS Date: 2019

Congestion Reduction ($M): 82.35

BC Ratio: 4.64

Notes:



Project ID: 1-9A

Proposed by: DOM High Voltage / Transource

Proposed Solution: Tap the Conemaugh - Hunterstown 500 kV line and build new 230 kV double circuit line between Rice and Ringgold. Build new 230 kV double circuit line between Furnzace Run and Conastone. Add cap banks to Jackson's Ferry, Broadford, Lexington, Dooms, Ashburn and Brambleton stations. Rebuild the Conastone - Northwest 230 kV line.

kV Level: 230

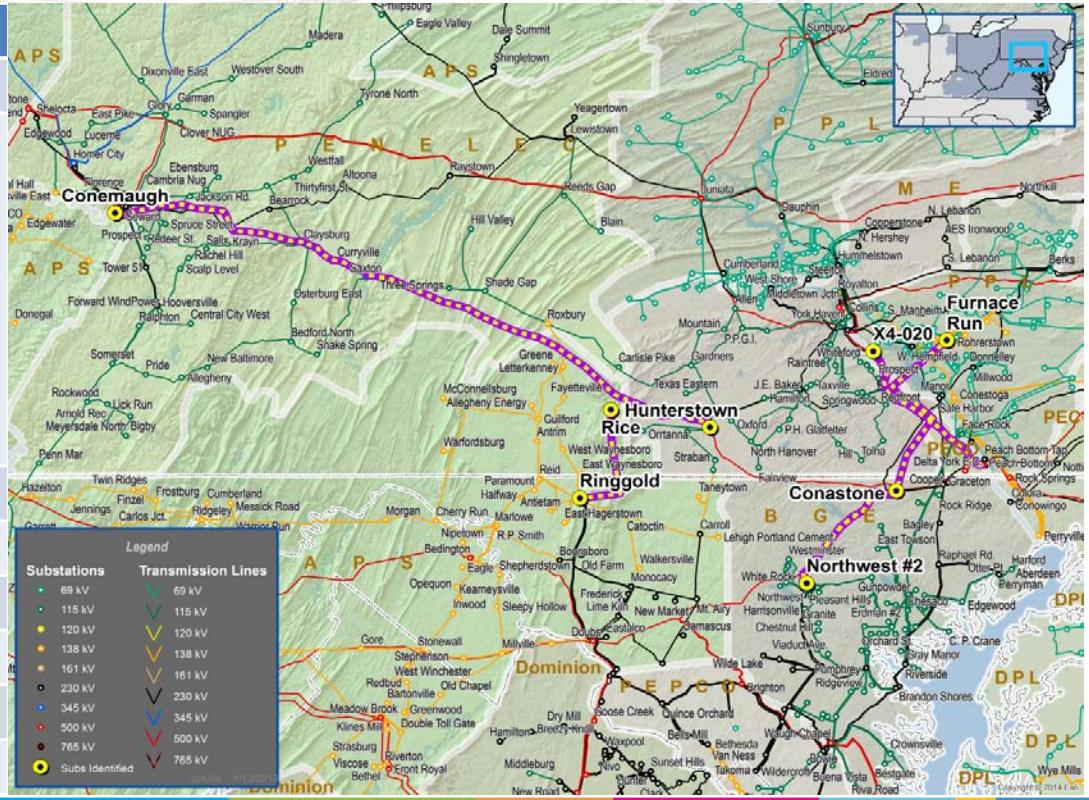
Cost ($M): 301

IS Date: 2020

Congestion Reduction ($M): 174.41

BC Ratio: 2.64

Notes:



Project ID: 201415_1-14A

Proposed by: DATC

Proposed Solution: A hybrid series capacitor and thyristor controlled series capacitor near the midpoint of Conemaugh to Hunterstown 500 kV line in southern Pennsylvania. Add a phase angle regulator on the Messick to Morgan 138 kV line and close the circuit in Maryland.

kV Level: 500

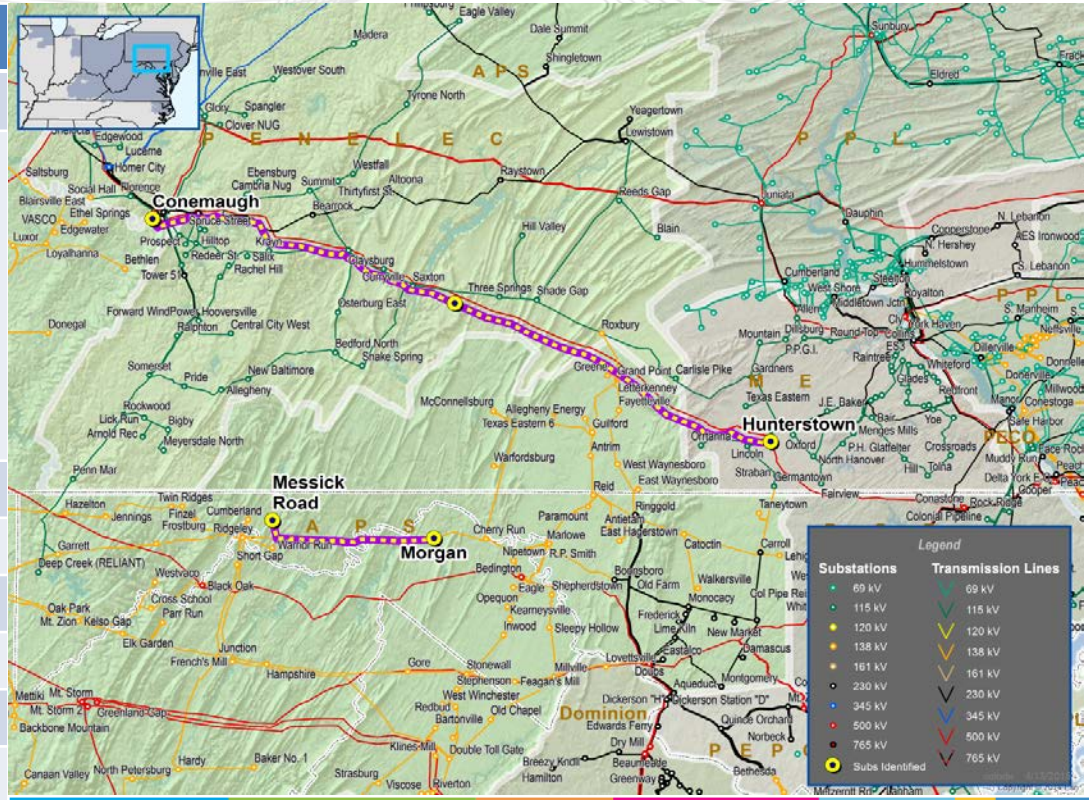
Cost ($M): 51.53

IS Date: 2019

Congestion Reduction ($M): 33.48

BC Ratio: 1.76

Notes:



Project ID: 201415_1-17A

Proposed by: Nextera

Proposed Solution: Build new Cochran Mill 230 kV switchyard with 600 MVAR Capacitors, and a new 230 kV line from Cochran Mill - Pleasant View 230 kV

kV Level: 230

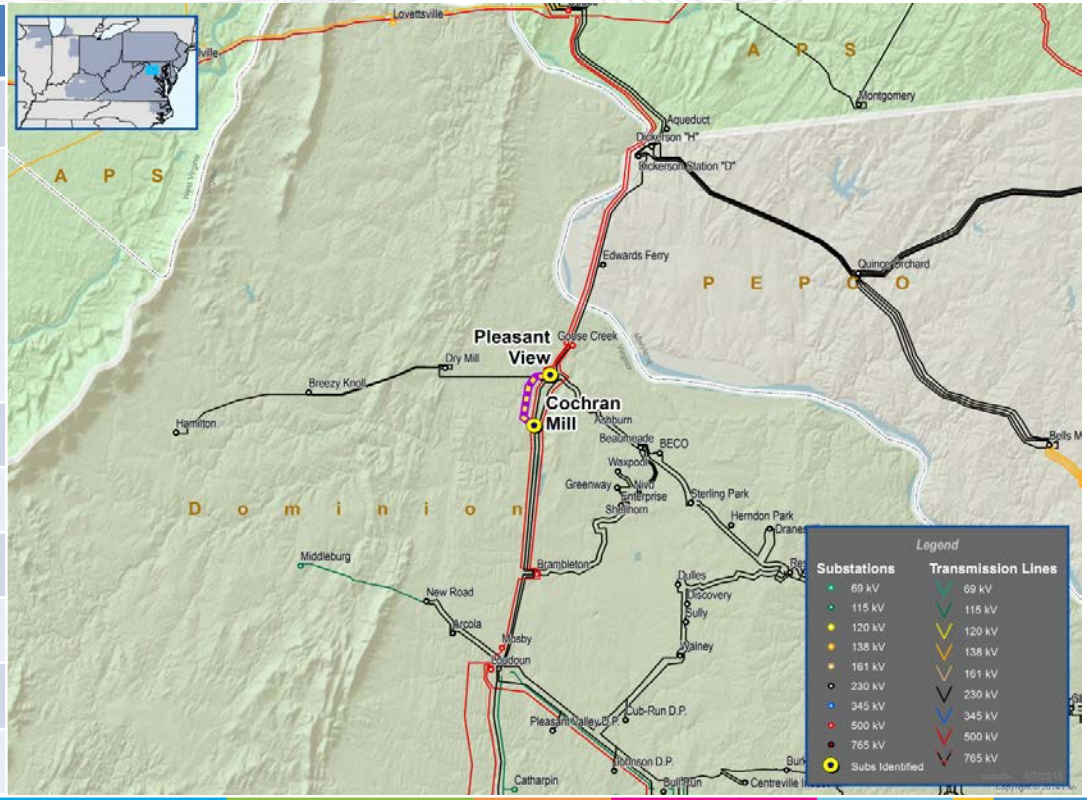
Cost ($M): 16.5

IS Date: 2019

Congestion Reduction ($M): 30.97

BC Ratio: 3.64

Notes:



Project ID: 201415_1-19G

Proposed by: Northeast Transmission Development

Proposed Solution: Build 500/230 kV Substation (Keysers Run) Interconnecting Conastone-Brighton 500 kV Line to Northwest 230 kV Substation.

kV Level: 230

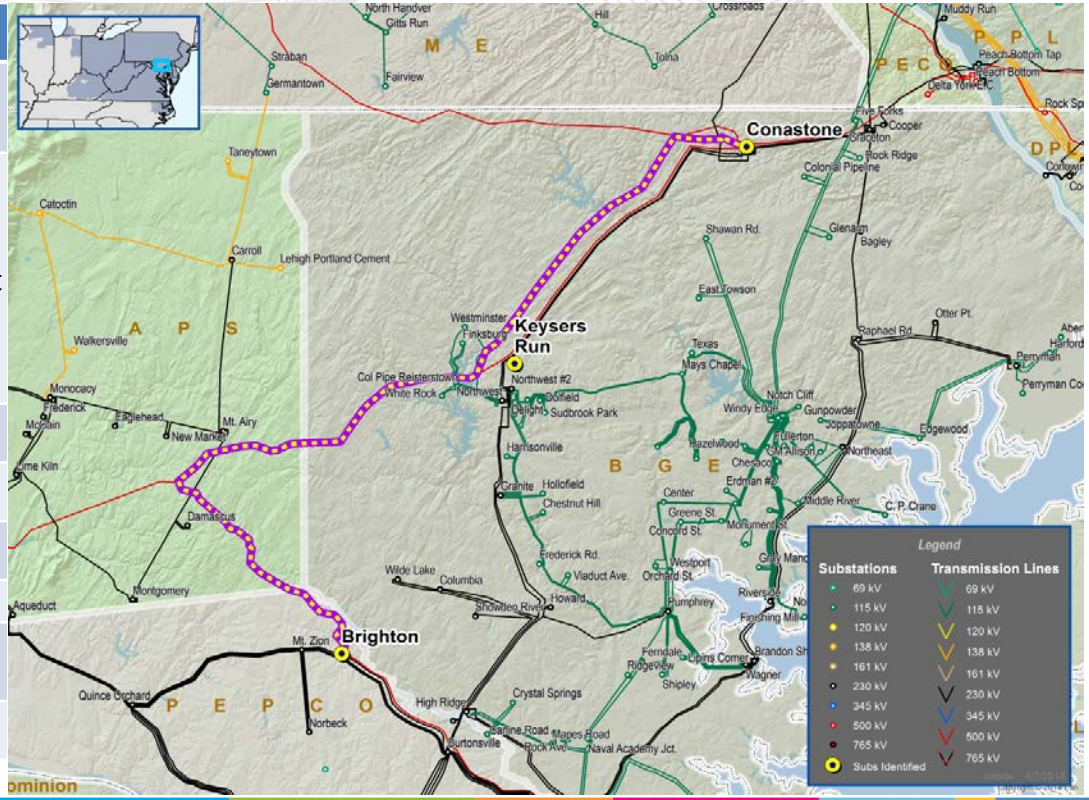
Cost ($M): 48.6

IS Date: 2020

Congestion Reduction ($M): 2.18

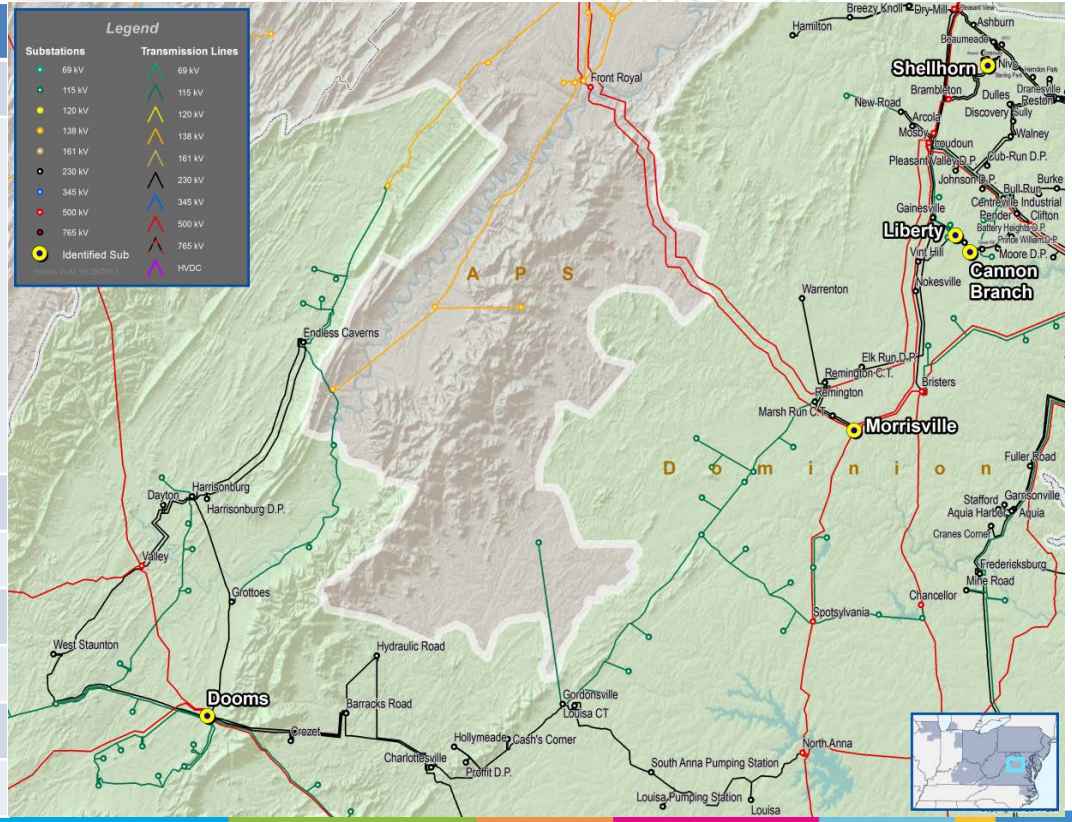
BC Ratio: 2.99

Notes:



6C (Caps Only)

Project ID: 6C (Caps Only)
Proposed by: Dominion
Proposed Solution: Build five 230 kV capacitor banks at the following five DVP substations: Dooms, Shelhorn, Morrisville, Liberty, Cannon Branch.
kV Level: 230
Cost ($M): 14.06
IS Date: 2019
Congestion Reduction ($M): 51.34
BC Ratio: 7.50
Notes: Analysis in progress



9A (caps only)

Project ID: 9A (caps only)

Proposed by: DOM High Voltage/Transource

Proposed Solution: Add cap banks to Jackson's Ferry, Broadford, Lexington, Dooms, Ashburn and Brambleton stations.

kV Level: 230

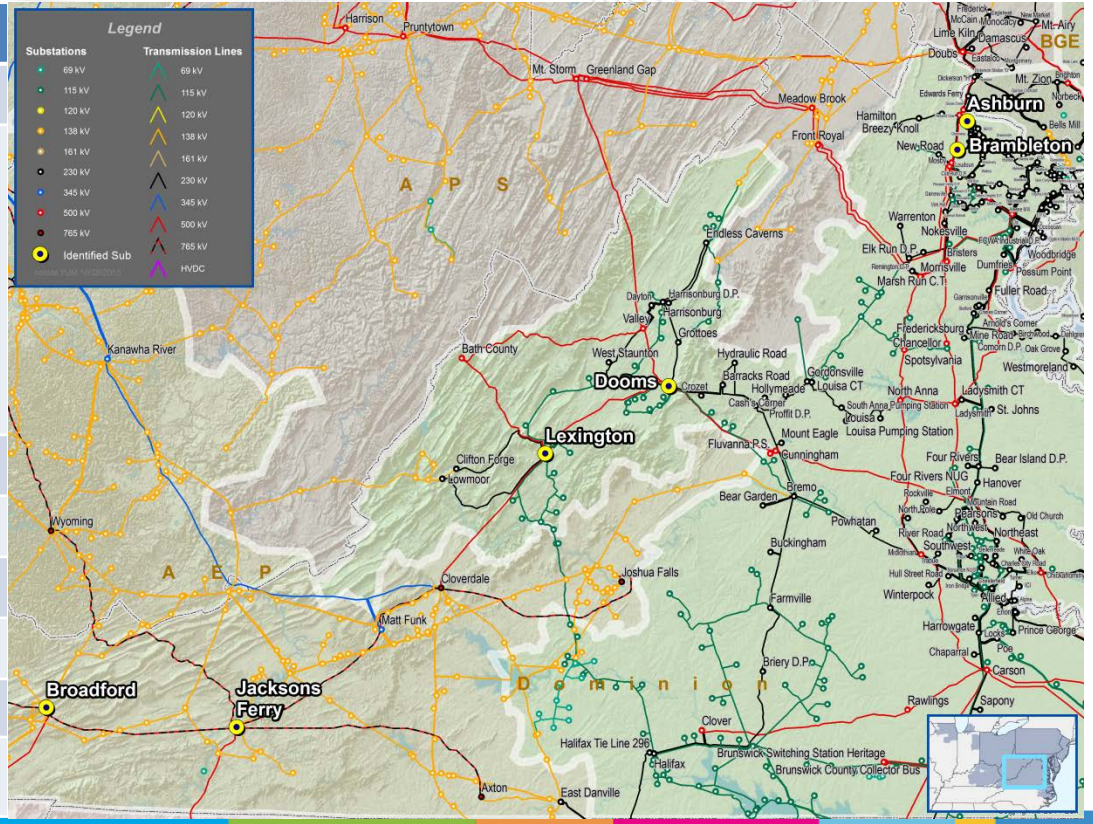
Cost ($M): 19.15

IS Date: 2019

Congestion Reduction ($M): 62.19

BC Ratio: 8.95

Notes: Analysis in progress



6C (caps only) + 9A (caps only)

Project ID: 6C (caps only) + 9A (caps only)

Proposed by: Dominion, DOM High Voltage / Transource

Proposed Solution: Build five 230 kV capacitor banks at the following five DVP substations: Dooms, Shelhorn, Morrisville, Liberty, Cannon Branch.

Add cap banks to Jackson's Ferry, Broadford, Lexington, Ashburn and Brambleton stations.

kV Level: 230

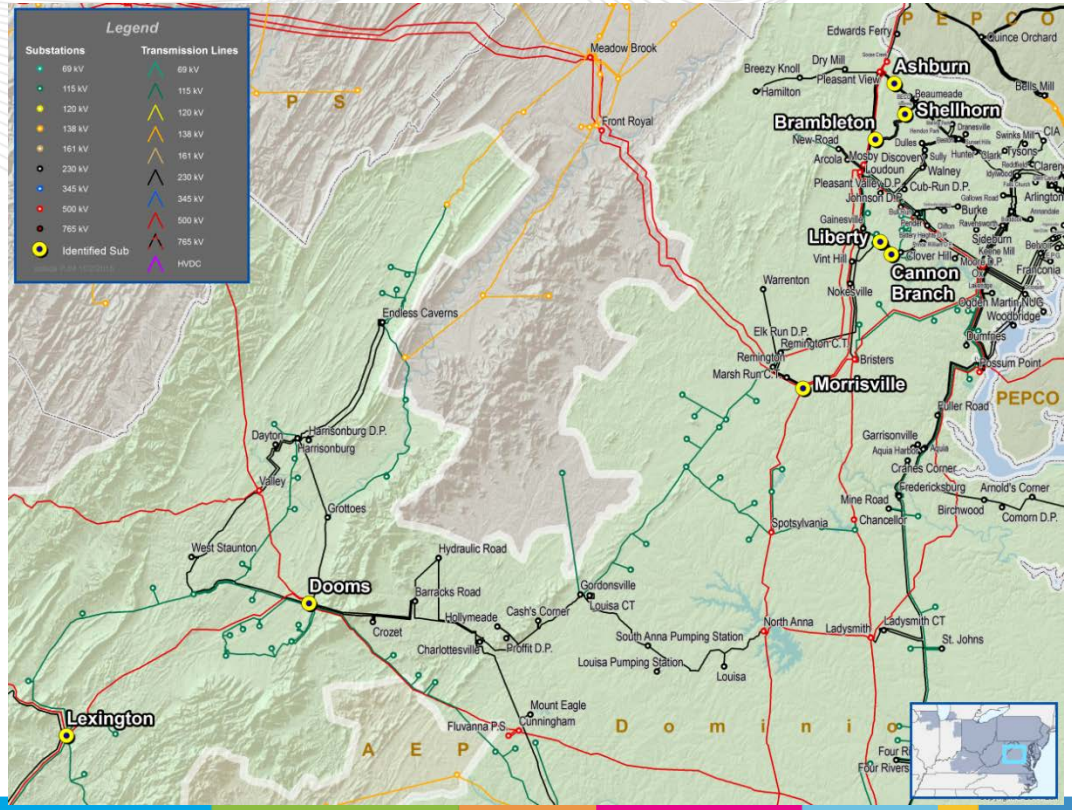
Cost ($M): 29.2

IS Date: 2019

Congestion Reduction ($M): 100.43

BC Ratio: 9.8

Notes: Analysis in progress



6C (caps only) + 14A

Project ID: 6C (caps only) + 14A

Proposed by: Dominion, DATC

Proposed Solution: Build five 230 kV capacitor banks at the following five DVP substations: Dooms, Shelhorn, Morrisville, Liberty, Cannon Branch.

A hybrid series capacitor and thyristor controlled series capacitor near the midpoint of Conemaugh to Hunterstown 500 kV line in southern Pennsylvania. Add a phase angle regulator on the Messick to Morgan 138 kV line and close the circuit in Maryland.

kV Level: 500

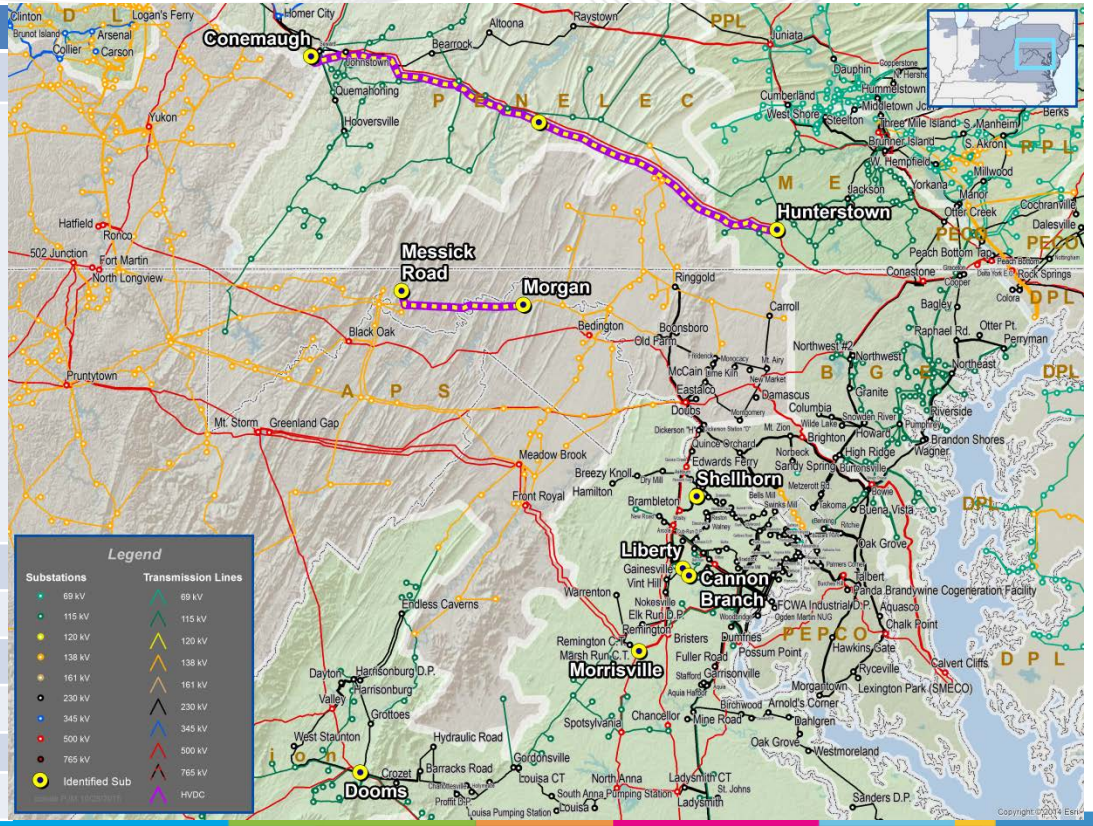
Cost ($M): 65.6

IS Date: 2019

Congestion Reduction($M): 149.62

BC Ratio: 4.6

Notes: Analysis in progress



6C (caps only) + 17A

Project ID: 6C (caps only) + 17A

Proposed by: Dominion, Nextera

Proposed Solution: Build five 230 kV capacitor banks at the following five DVP substations: Dooms, Shelhorn, Morrisville, Liberty, Cannon Branch.

Build new Cochran Mill 230 kV switchyard with 600 MVAR Capacitors, and a new 230 kV line from Cochran Mill - Pleasan View 230.

kV Level: 230

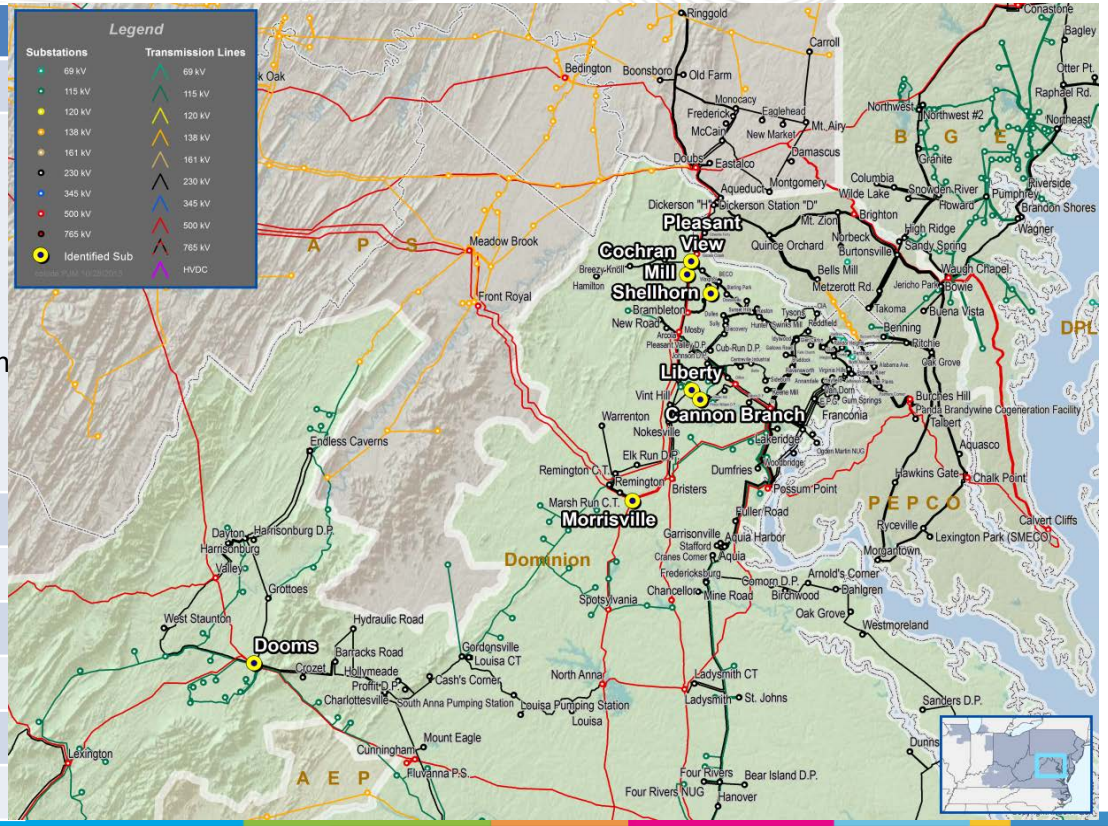
Cost ($M): 30.6

IS Date: 2019

Congestion Reduction ($M): 126.41

BC Ratio: 11.40

Notes: Analysis in progress



6C (caps only) + 19G

Project ID: 6C (caps only) + 19G

Proposed by: Dominion, Northeast Transmission Development

Proposed Solution: Build five 230 kV capacitor banks at the following five DVP substations: Dooms, Shelhorn, Morrisville, Liberty, Cannon Branch.

Build 500/230 kV Substation (Keysers Run) Interconnecting Conastone-Brighton 500 kV Line to Northwest 230 kV Substation.

kV Level: 230

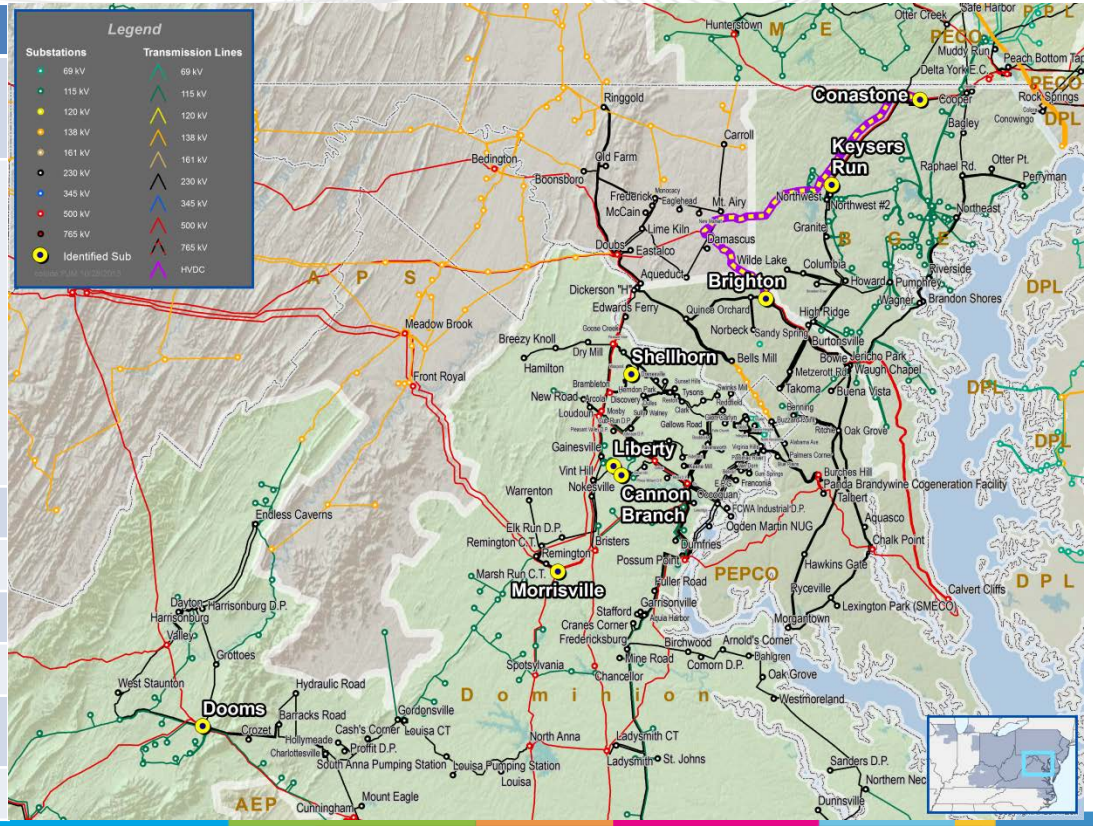
Cost ($M): 62.7

IS Date: 2020

Congestion Reduction ($M): 50.63

BC Ratio: 3.4

Notes: Analysis in progress



9A (caps only) + 14A

Project ID: 9A (caps only) + 14A

Proposed by: DOM High Voltage/Transource, DATC

Proposed Solution: Add cap banks to Jackson's Ferry, Broadford, Lexington, Dooms, Ashburn and Brambleton stations.
A hybrid series capacitor and thyristor controlled series capacitor near the midpoint of Conemaugh to Hunterstown 500 kV line in southern Pennsylvania. Add a phase angle regulator on the Messick to Morgan 138 kV line and close the circuit in Maryland.

kV Level: 500

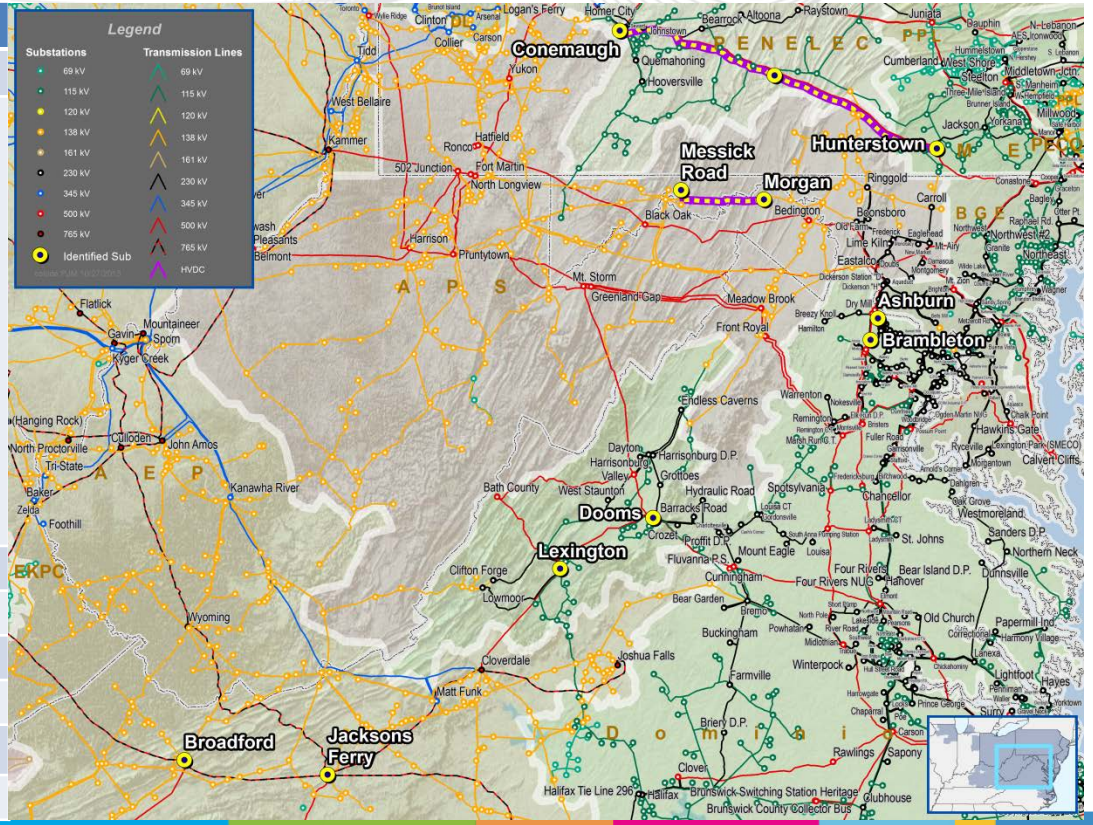
Cost ($M): 70.7

IS Date: 2020

Congestion Reduction ($M): 151.26

BC Ratio: 4.40

Notes: Analysis in progress



9A (caps only) + 17A

Project ID: 9A (caps only) + 17A

Proposed by: DOM High Voltage / Transource, Nextera

Proposed Solution: Add cap banks to Jackson's Ferry, Broadford, Lexington, Dooms, Ashburn and Brambleton stations.
Build new Cochran Mill 230 kV switchyard with 600 MVAR Capacitors, and a new 230 kV line from Cochran Mill - Pleasant View 230.

kV Level: 230

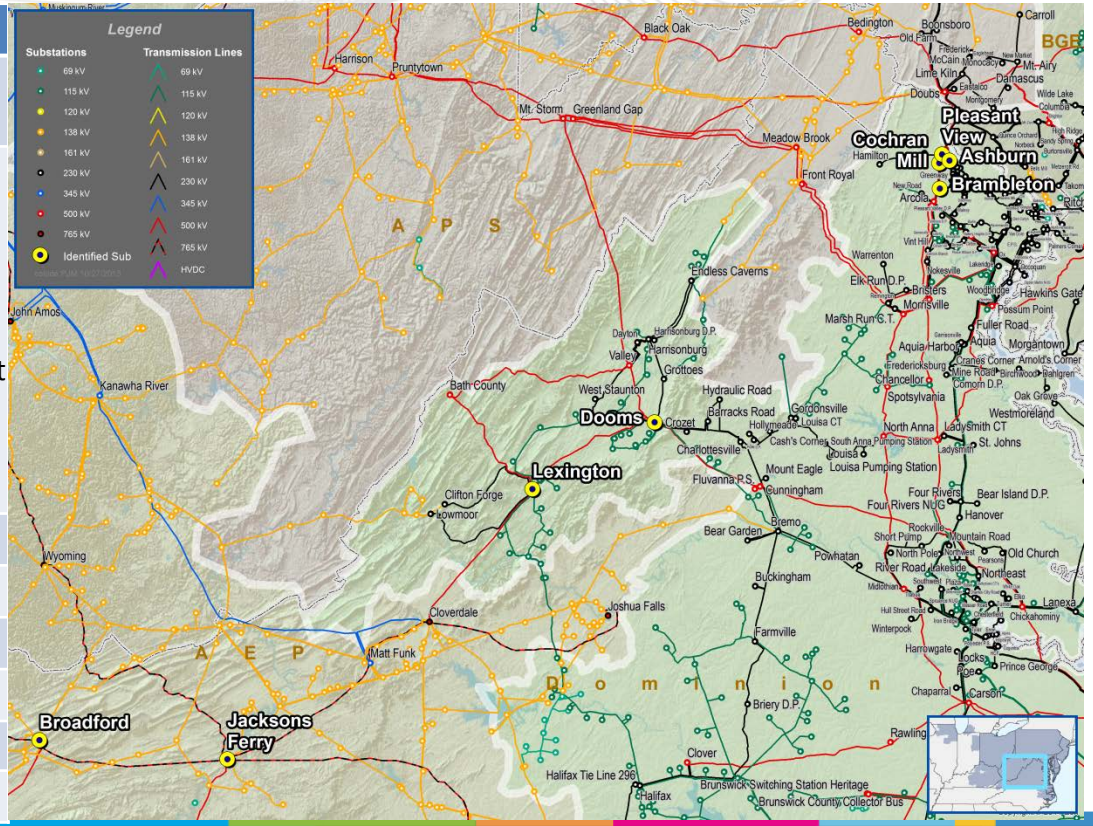
Cost ($M): 35.7

IS Date: 2020

Congestion Reduction ($M): 119.55

BC Ratio: 9.80

Notes: Analysis in progress



9A(caps only) + 19G

Project ID: 9A(caps only) + 19G

Proposed by: DOM High Voltage / Transource, Northeast Transmission Development

Proposed Solution: Add cap banks to Jackson's Ferry, Broadford, Lexington, Dooms, Ashburn and Brambleton stations.

Build 500/230 kV Substation (Keysers Run) Interconnecting Conastone-Brighton 500 kV Line to Northwest 230 kV Substation.

kV Level: 230

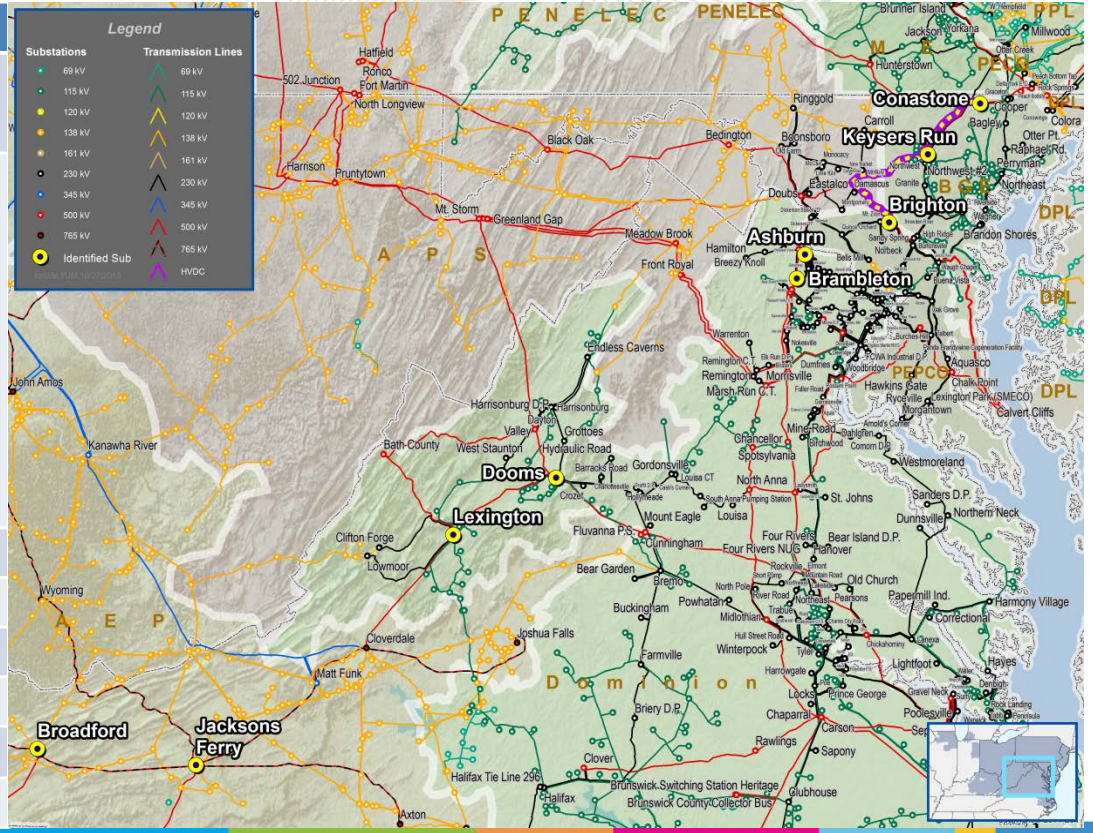
Cost ($M): 67.8

IS Date: 2020

Congestion Reduction ($M): 66.86

BC Ratio: 3.55

Notes: Analysis in progress



6C (caps only) + 9A (caps only) + 14A

Project ID: 6C (caps only) + 9A (caps only)) + 14A

Proposed by: Dominion, DOM High Voltage / Transource, DATC

Proposed Solution: Build five 230 kV capacitor banks at the following five DVP substations: Dooms, Shelhorn, Morrisville, Liberty, Cannon Branch.
Add cap banks to Jackson's Ferry, Broadford, Lexington, Ashburn and Brambleton stations.
A hybrid series capacitor and thyristor controlled series capacitor near the midpoint of Conemaugh to Hunterstown 500 kV line in southern Pennsylvania. Add a phase angle regulator on the Messick to Morgan 138 kV line and close the circuit in Maryland.

kV Level: 500

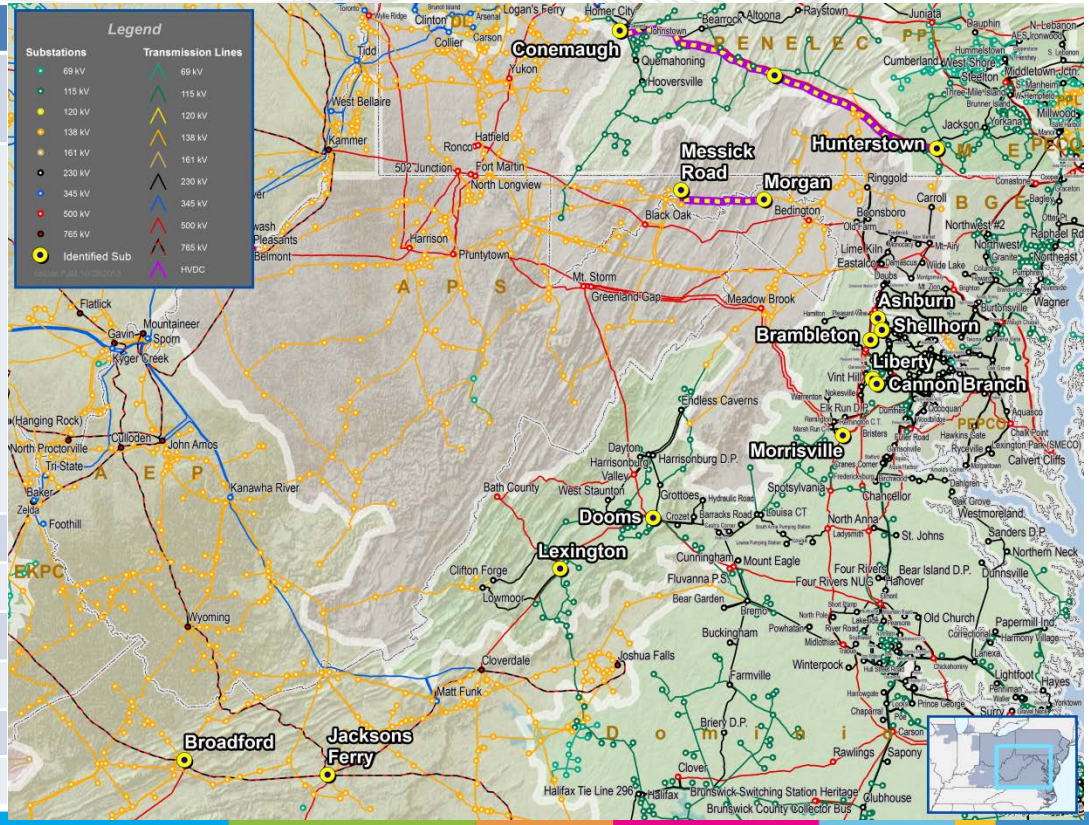
Cost ($M): 80.7

IS Date: 2019

Congestion Reduction ($M): 135.37

BC Ratio: 3.43

Notes: Analysis in progress



6C (caps only) + 9A (caps only) + 17A

Project ID:
6C (caps only) + 9A (caps only) + 17A

Proposed by: Dominion, DOM High Voltage / Transource, Nextera

Proposed Solution: Build five 230 kV capacitor banks at the following five DVP substations: Dooms, Shelhorn, Morrisville, Liberty, Cannon Branch.
Add cap banks to Jackson's Ferry, Broadford, Lexington, Ashburn and Brambleton stations.
Build new Cochran Mill 230 kV switchyard with 600 MVAR Capacitors, and a new 230 kV line from Cochran Mill - Pleasant View 230.

kV Level: 230

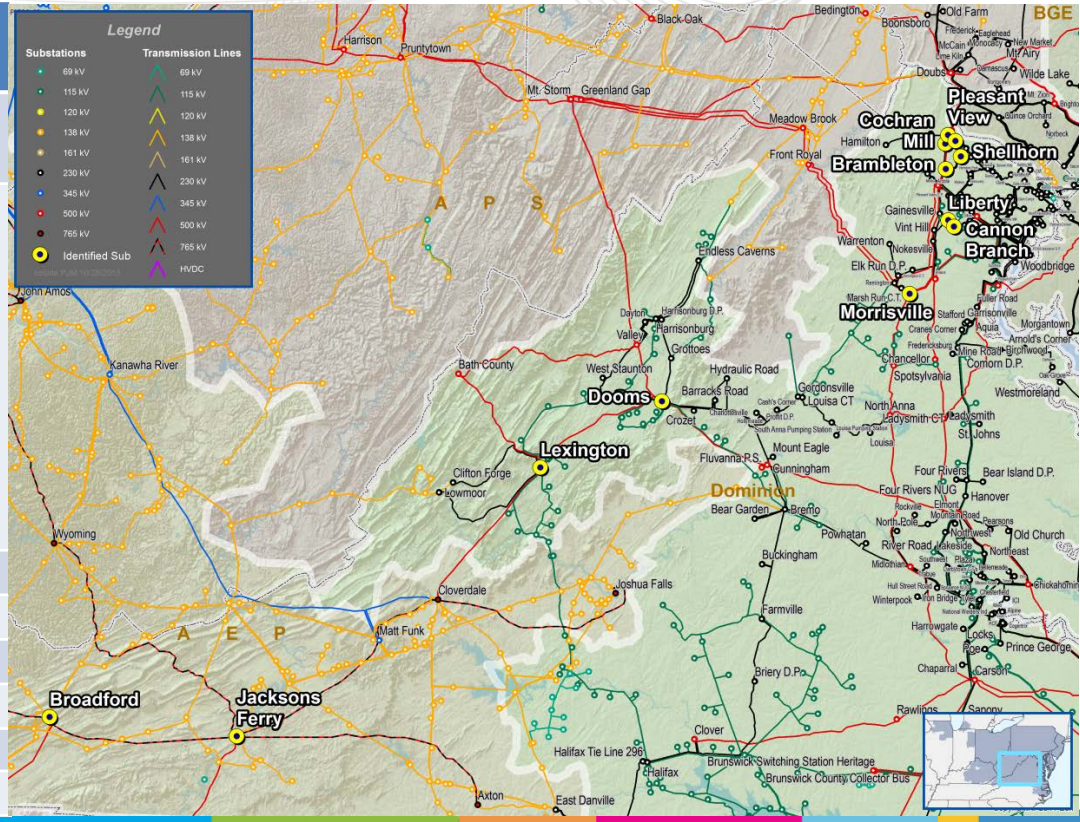
Cost ($M): 45.7

IS Date: 2019

Congestion Reduction: 125.39

BC Ratio: 7.2

Notes: Analysis in progress



6C (caps only) + 9A (caps only) + 19G

Project ID: 6C (caps only) + 9A (caps only) + 19G

Proposed by: Dominion, DOM High Voltage/ Transource, Northeast Transmission Development

Proposed Solution: Build five 230 kV capacitor banks at the following five DVP substations: Dooms, Shelhorn, Morrisville, Liberty, Cannon Branch.
Add cap banks to Jackson's Ferry, Broadford, Lexington, Ashburn and Brambleton stations.
Build 500/230 kV Substation (Keysers Run) Interconnecting Conastone-Brighton 500 kV Line to Northwest 230 kV Substation.

kV Level: 230

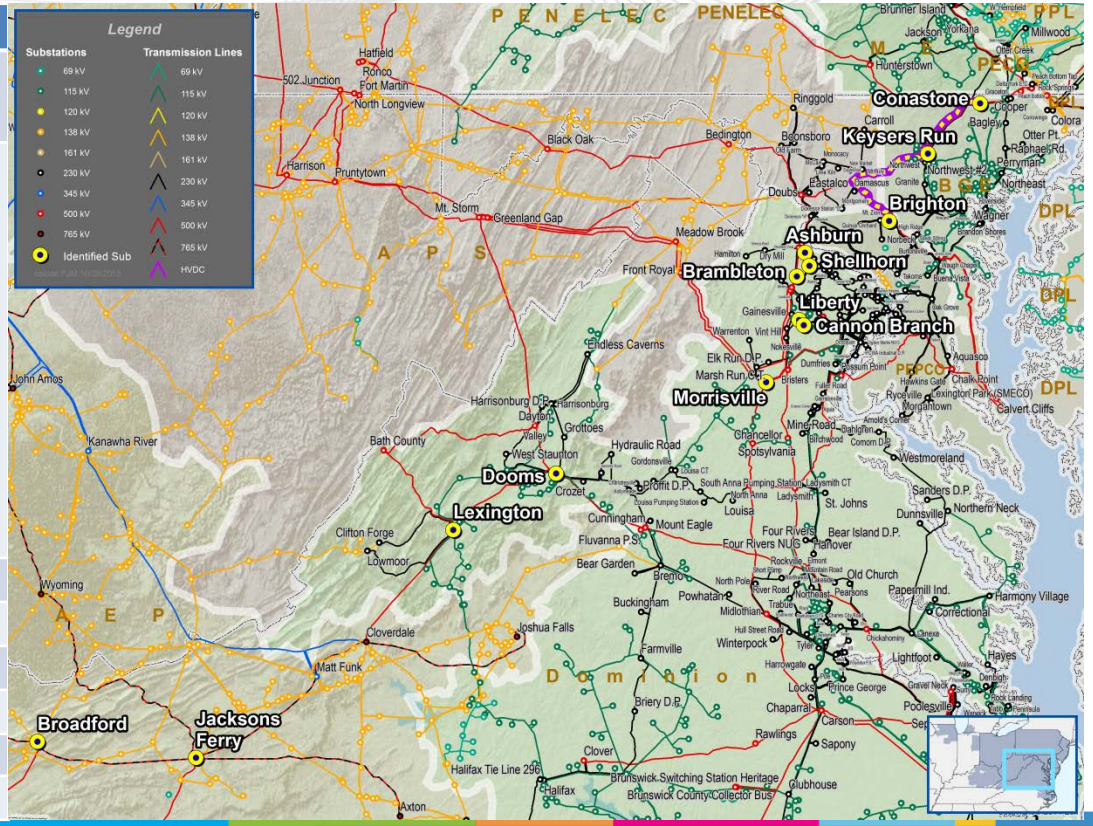
Cost ($M): 78

IS Date: 2020

Congestion Reduction ($M): 102.06

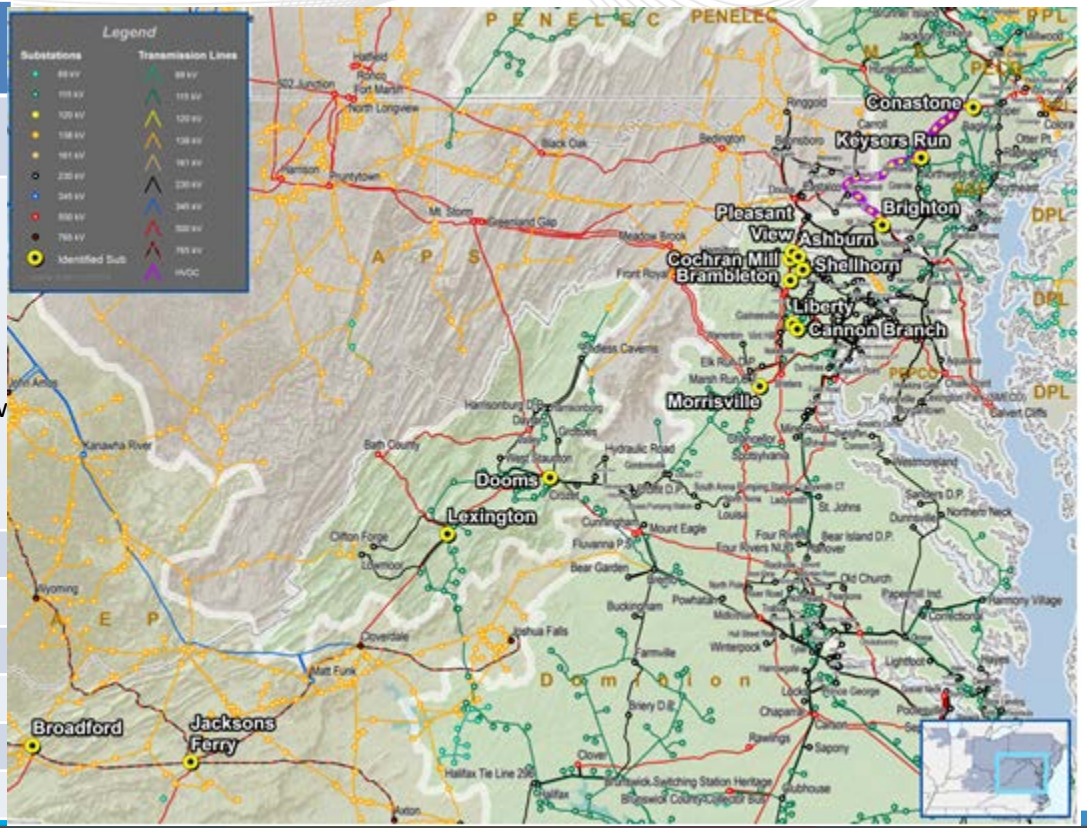
BC Ratio: 4.70

Notes: Analysis in progress



6C(caps only) + 9A(caps only) + 17A + 19G

Project ID: 6C(caps only) + 9A(caps only) + 17A + 19G
Proposed by: Dominion, DATC, Nextera, Northeast Transmission Development
Proposed Solution: Build five 230 kV capacitor banks at the following five DVP substations: Dooms, Shelhorn, Morrisville, Liberty, Cannon Branch. Add cap banks to Jackson's Ferry, Broadford, Lexington, Ashburn and Brambleton stations. Build new Cochran Mill 230 kV switchyard with 600 MVAR Capacitors, and a new 230 kV line from Cochran Mill - Pleasant View 230 . Build 500/230 kV Substation (Keysers Run) Interconnecting Conastone-Brighton 500 kV Line to Northwest 230 kV Substation.
kV Level: 230
Cost ($M): 94.3
IS Date: 2020
Congestion Reduction ($M): 117.05
BC Ratio: 4.26
Notes: Analysis in progress



Questions?

Email: RTEP@pjm.com