

A background image showing several high-voltage transmission towers (pylons) with power lines stretching across a bright blue sky filled with white, fluffy clouds. The towers are silhouetted against the sky, and the power lines create a grid-like pattern.

Transmission Expansion Advisory Committee Market Efficiency Update

May 7, 2015



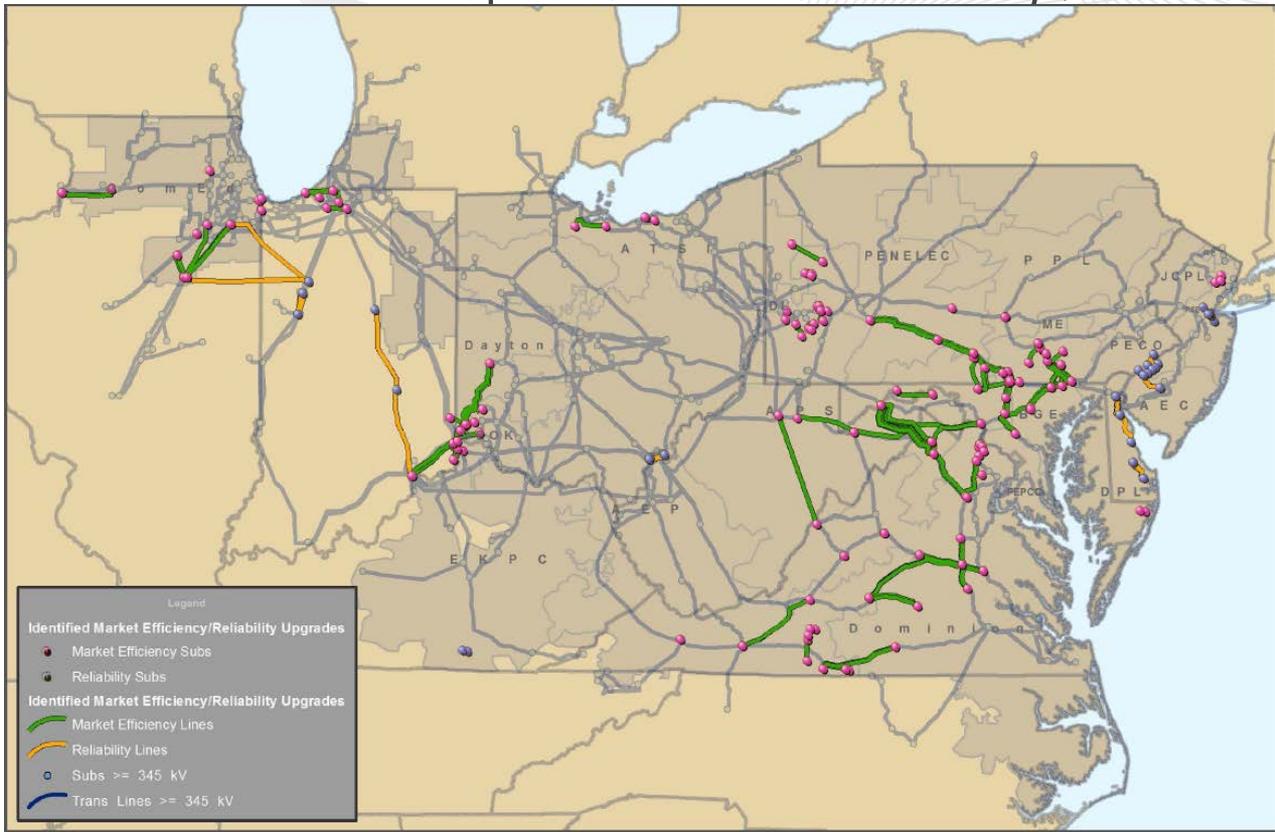
Market Efficiency Long Term Proposal Window Update

- 93 Market Efficiency Proposals
 - 35 Transmission Owner Upgrades
 - Cost range of \$0.1M to \$68M
 - 58 Greenfield Projects
 - Cost range of \$9.2M to \$432.5M

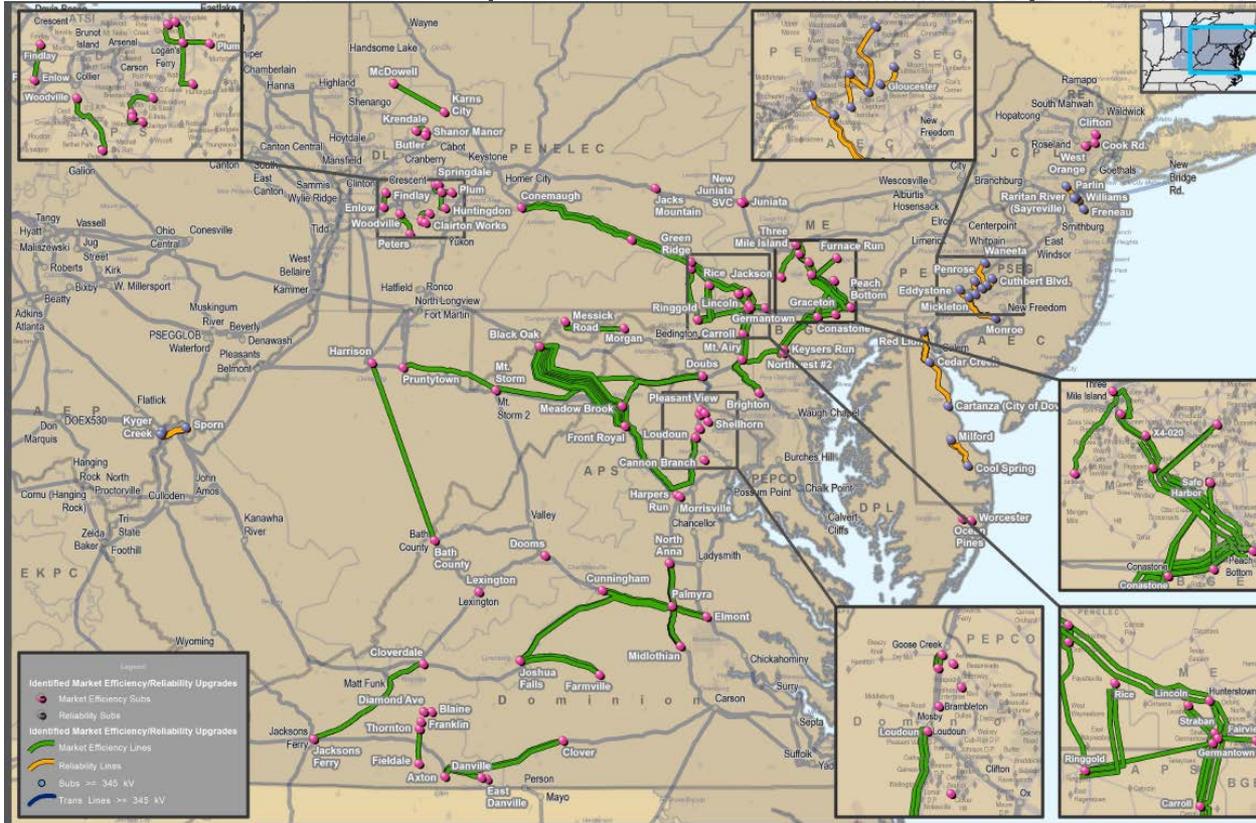


2014/15 RTEP Long Term Proposal Window: Market Efficiency

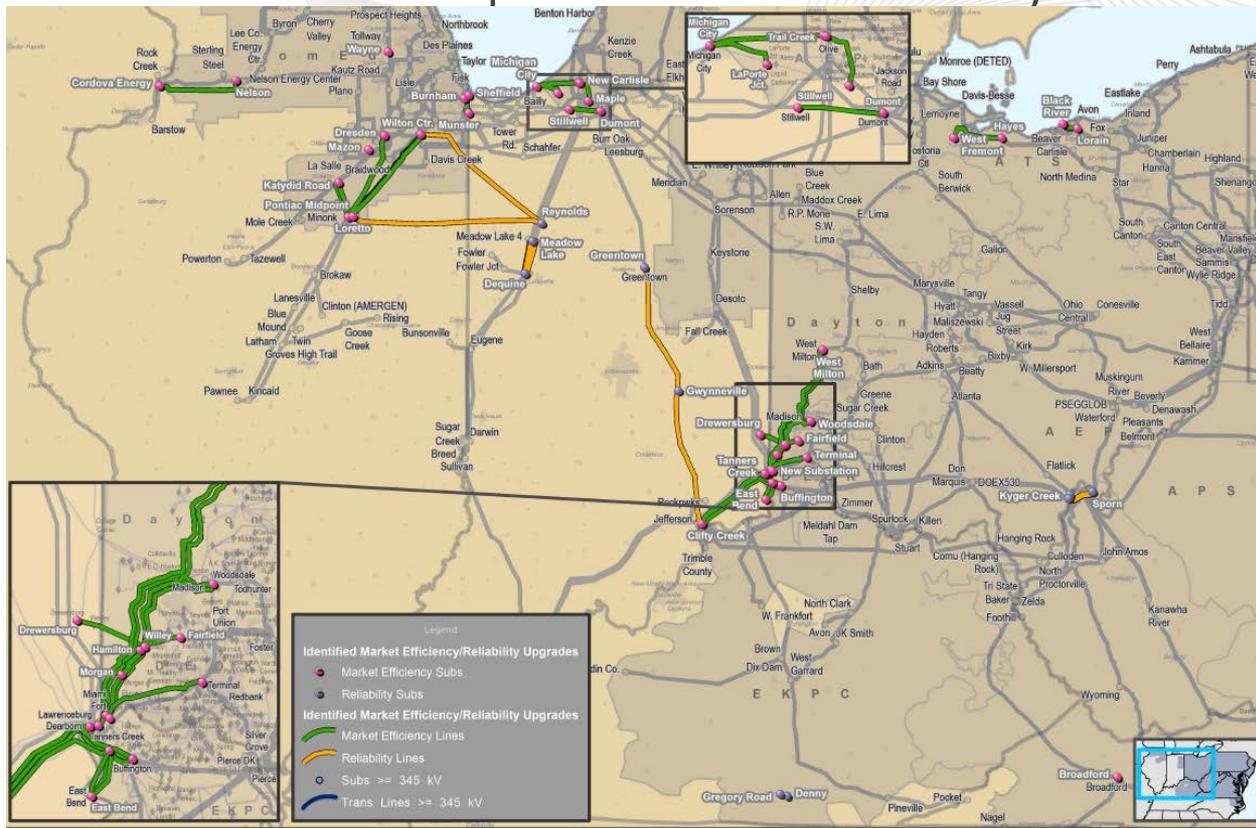
AREA of Proposal	Number of proposals
AEP	2
APS	6
APSOUTH and/or AEP-DOM Area	41
ATSI	4
BGE/PPL	4
ComEd	15
DEOK	8
DPL	1
DUQ	4
PECO	5
PSEG	3
Grand Total	93



Proposed Market Efficiency / Reliability Upgrades



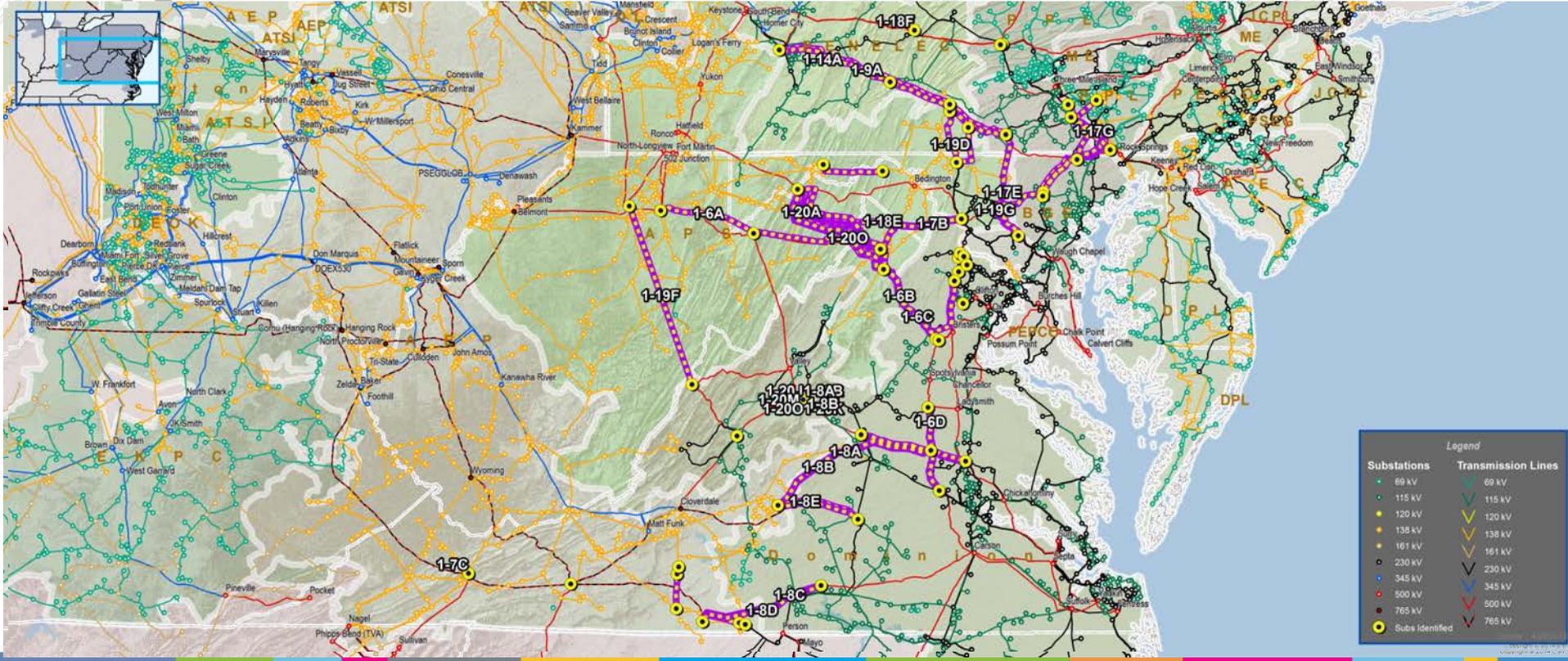
Proposed Market Efficiency / Reliability Upgrades





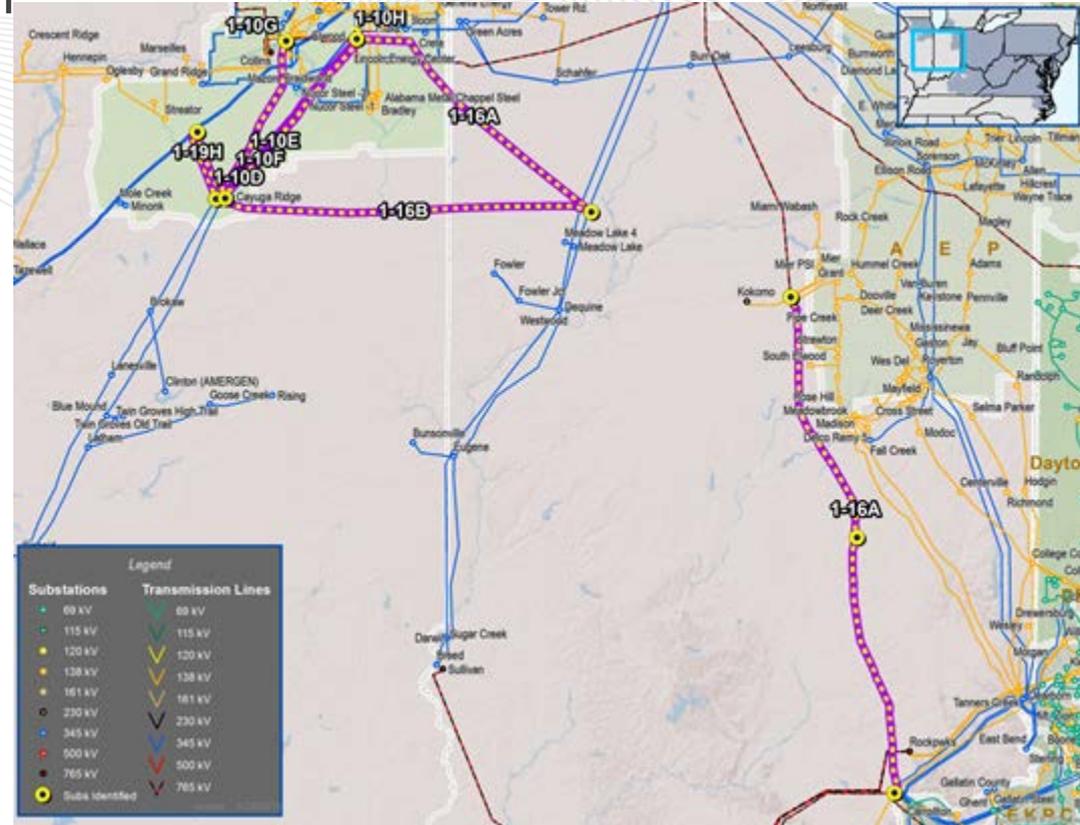
Market Efficiency Project Study approach:

- Step 1: Review projects
 - PJM will contact proposer if need clarification of modeling.
 - PV Analysis being conducted by PJM to verify participant supplied data for reactive ratings.
 - Approved base line reliability projects may eliminate need for several projects.
- Step 2: First pass of project evaluations assuming proposer supplied data.
- Step 3: Determine if there are any obvious optimal projects in focused areas.
 - Areas with quick fixes or lower cost reinforcements
- Step 4: Detailed Analysis in areas with many project submissions (i.e. ApSouth)
 - Sensitivity using 2015 Assumptions, reactive limits, in-service date, etc.
 - Study multiple combinations of project

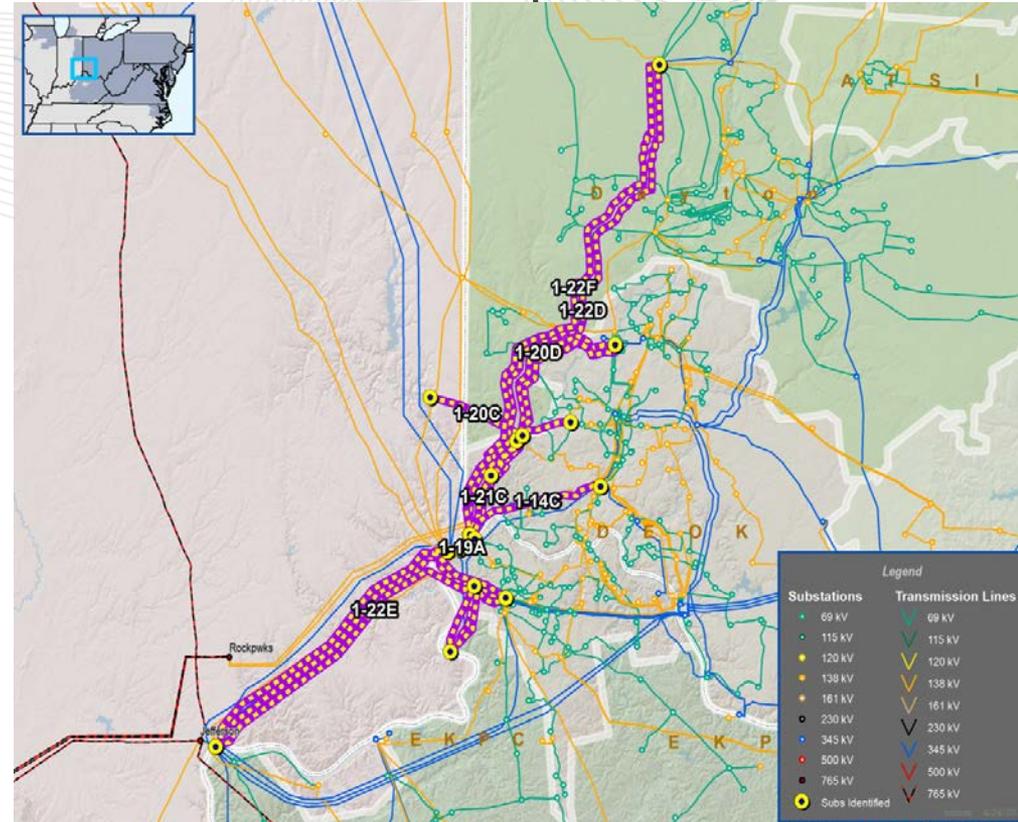


Group 2: COMED - Loretto to Wilton Center

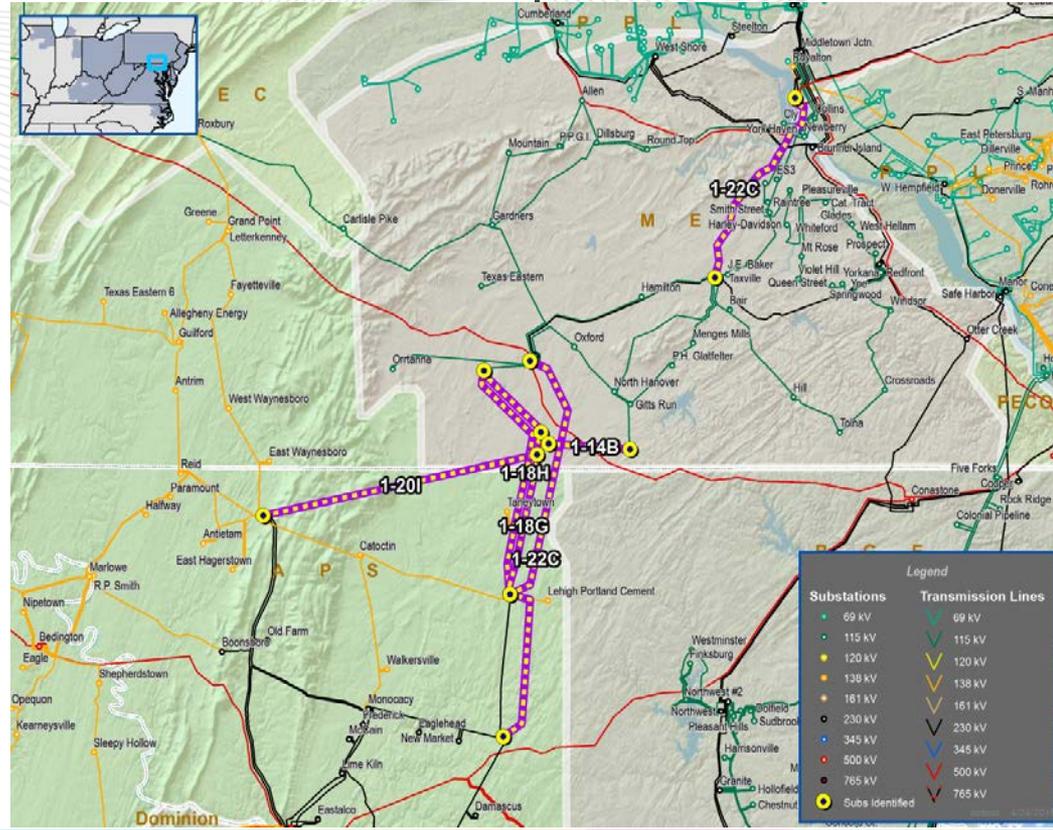
- 9 Projects:
 - 1-10C, 1-10D, 1-10E, 1-10F, 1-10G, 1-10H, 1-16A, 1-16B, 1-19H
- Cost:
 - From \$11.5M to \$290M
- Constraints:
 - Loretto to Wilton CTR
345 kV



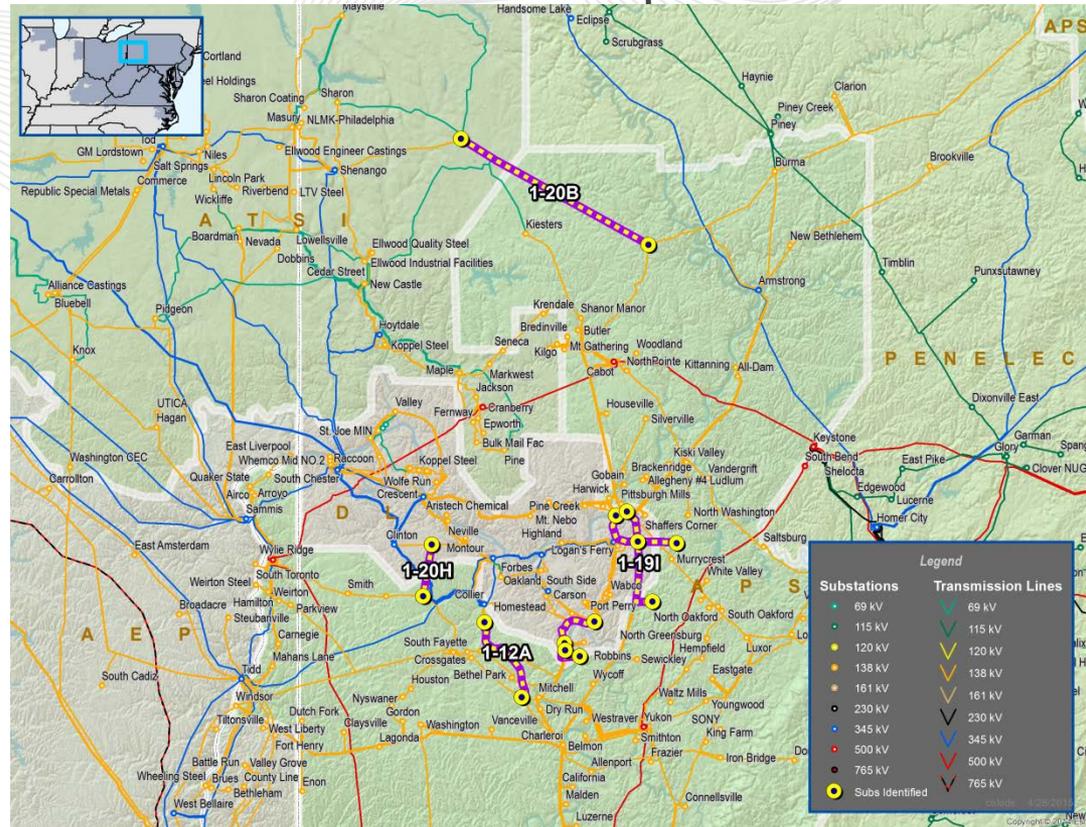
- 8 Projects:
 - 1-14C, 1-19A, 1-20C, 1-20D, 1-21C, 1-22D, 1-22E, 1-22F
- Cost:
 - From \$11.4M to \$91M
- Constraints:
 - Miami Fort to Willey 138 kV
 - Miami Fort to 08HEBTAP 138 kV
- Notes:
 - Congestion removed due to base line upgrades required by retirement of Miami Fort 6.
 - **Proposals submitted will not be evaluated**



- 5 Projects:
 - 1-14B, 1-18G, 1-18H
 - 1-20I, 1-22C
- Cost:
 - From \$5.2M to \$107M
- Constraints:
 - Brunner Island to Yorkana 230 kV
 - Safe Harbor to Graceton 230 kV
 - Taneytown to Carroll 138 kV
- Impacted by Group 8



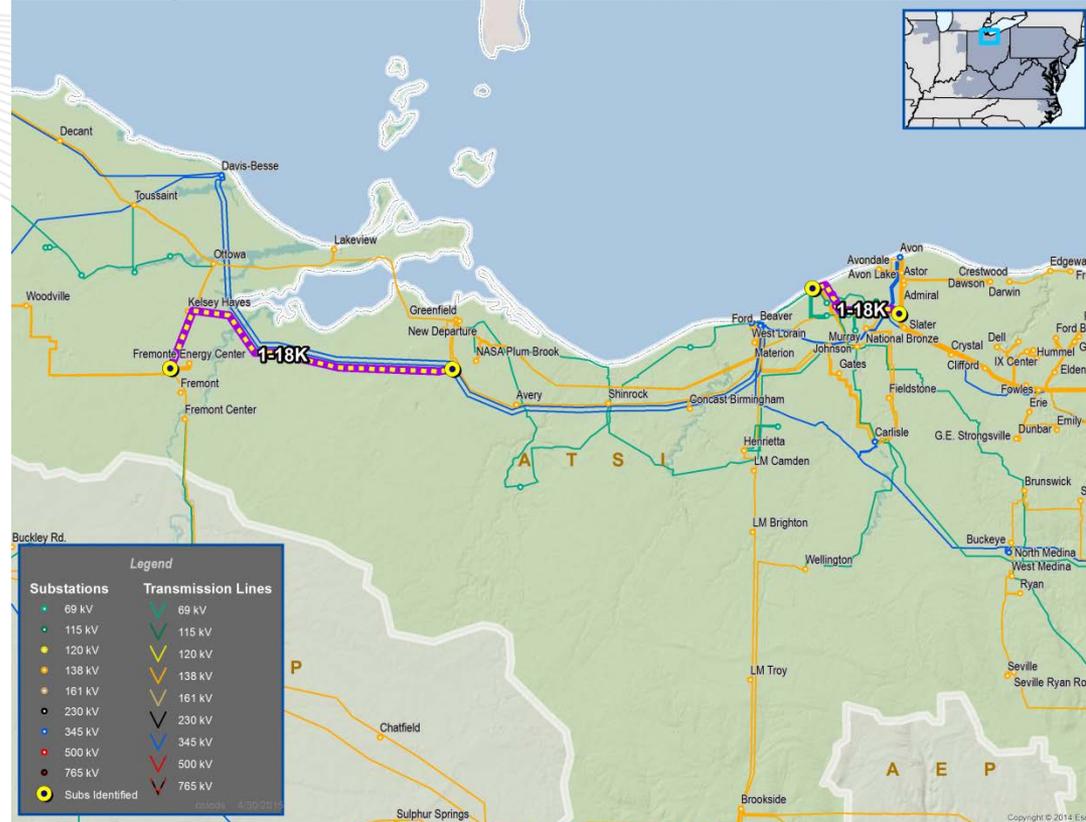
- 4 Projects:
 - 1-12A, 1-19I, 1-20B
 - 1-20H
- Cost:
 - From \$1M to \$64M
- Constraints:
 - Dravosburg to West Mifflin
138 kV
 - Krendale to Shanor Manor
138 kV
 - Woodville to 15USAP 138 kV





Group 6: ATSI – Black River to Lorain

- 1 Project:
 - 1-18K
- Cost:
 - \$9.6M
- Constraints:
 - 02Blkrvr to Lorain 138 kV
- Duplicate of Baseline Reliability Upgrade (B2559)
- **Proposal will not be evaluated.**





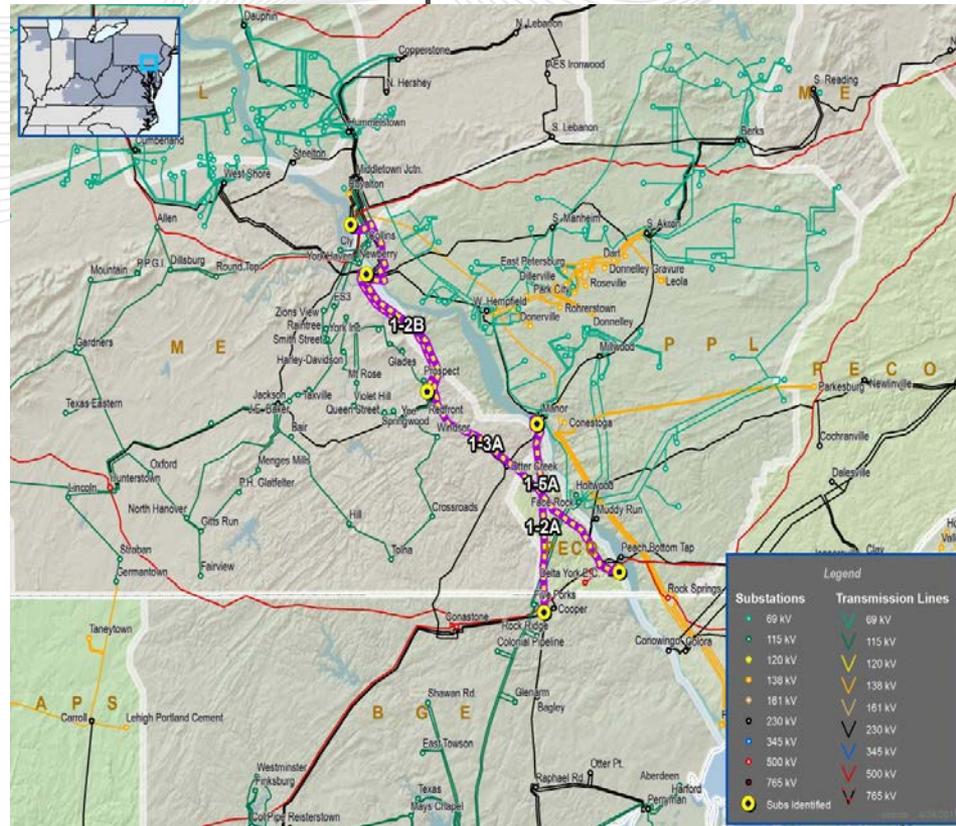
Group 7: ATSI - Crestwood to Astor

- 1 Project:
 - 1-18L – no upgrade required
- Cost:
 - No cost information
- Constraints:
 - Crestwood to Astor 138 kV
- Notes:
 - Transmission owner rating update removes congestion.
 - **Proposal will not be evaluated.**



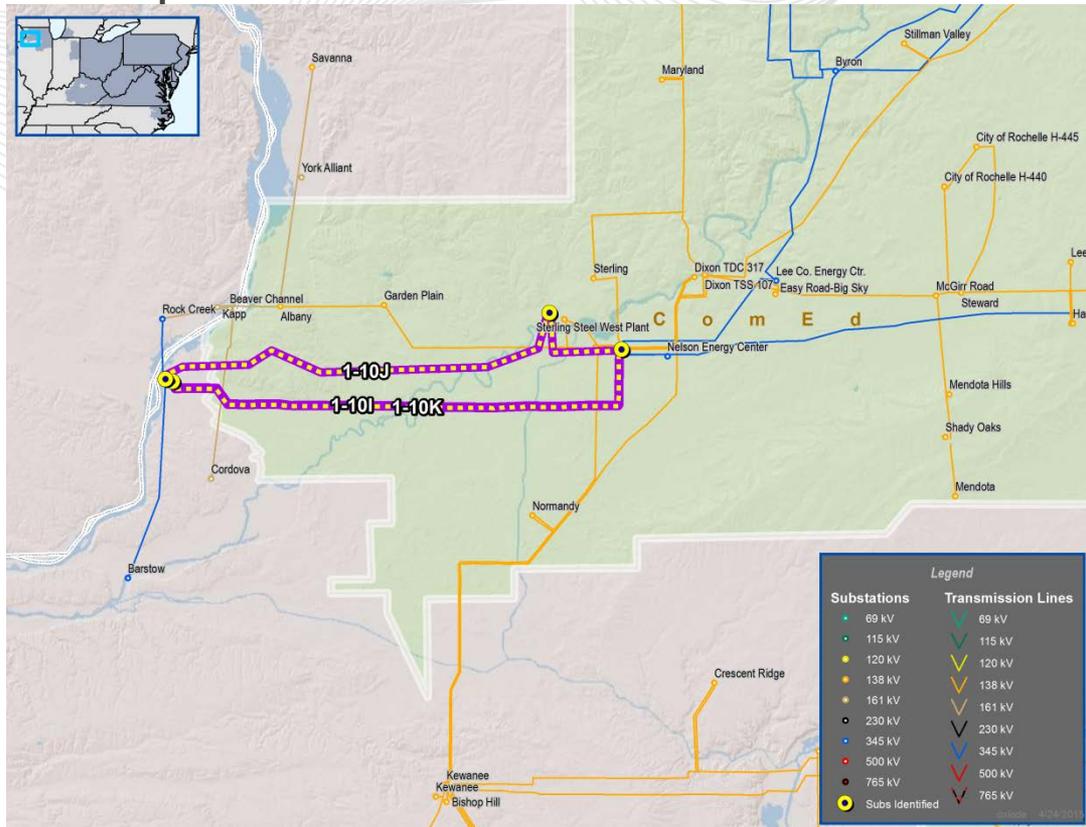
- 4 Projects:
 - 1-2A, 1-2B, 1-3A, 1-5A
- Cost:
 - \$1.1M to \$40M
- Constraints:
 - Brunner Island to Yorkana 230 kV
 - Safe Harbor to Graceton 230 kV
- Impacted by Group 4

Group 8: PPL / METED

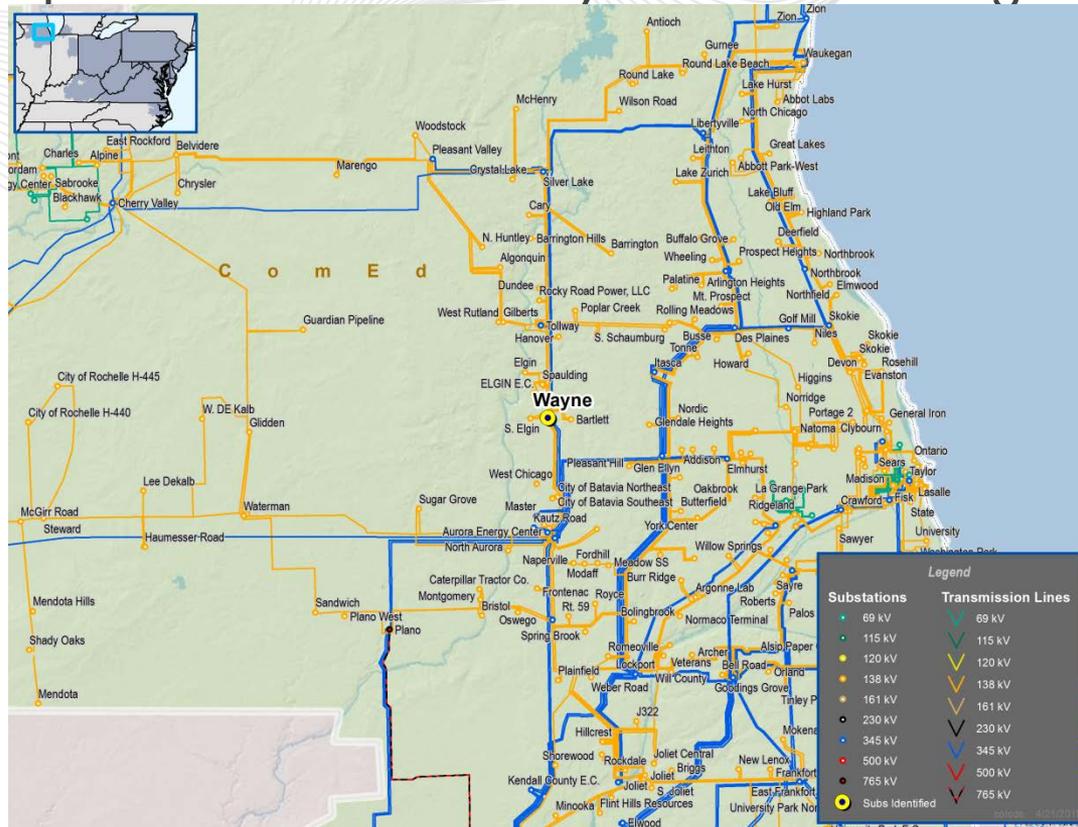


Group 9: COMED - Cordova to Nelson

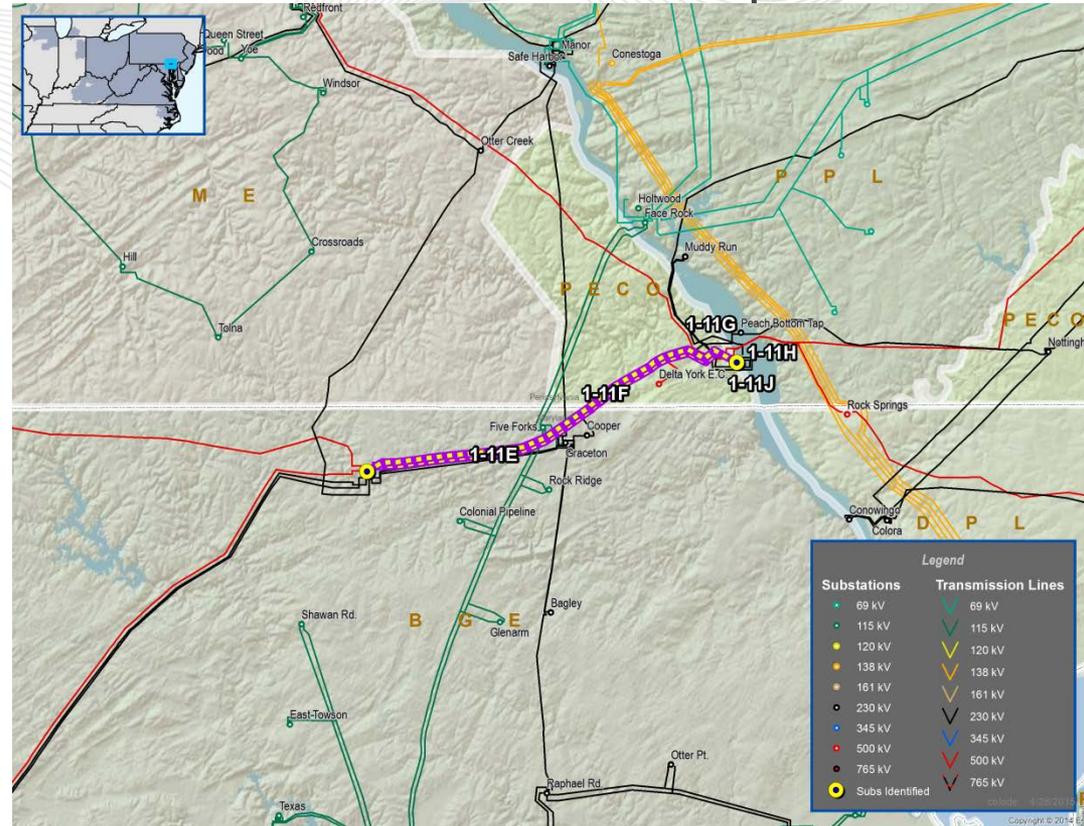
- 3 Projects:
 - 1-10I, 1-10J, 1-10K
- Cost:
 - \$2M to \$25M
- Constraints:
 - Cordova to Nelson
345 kV



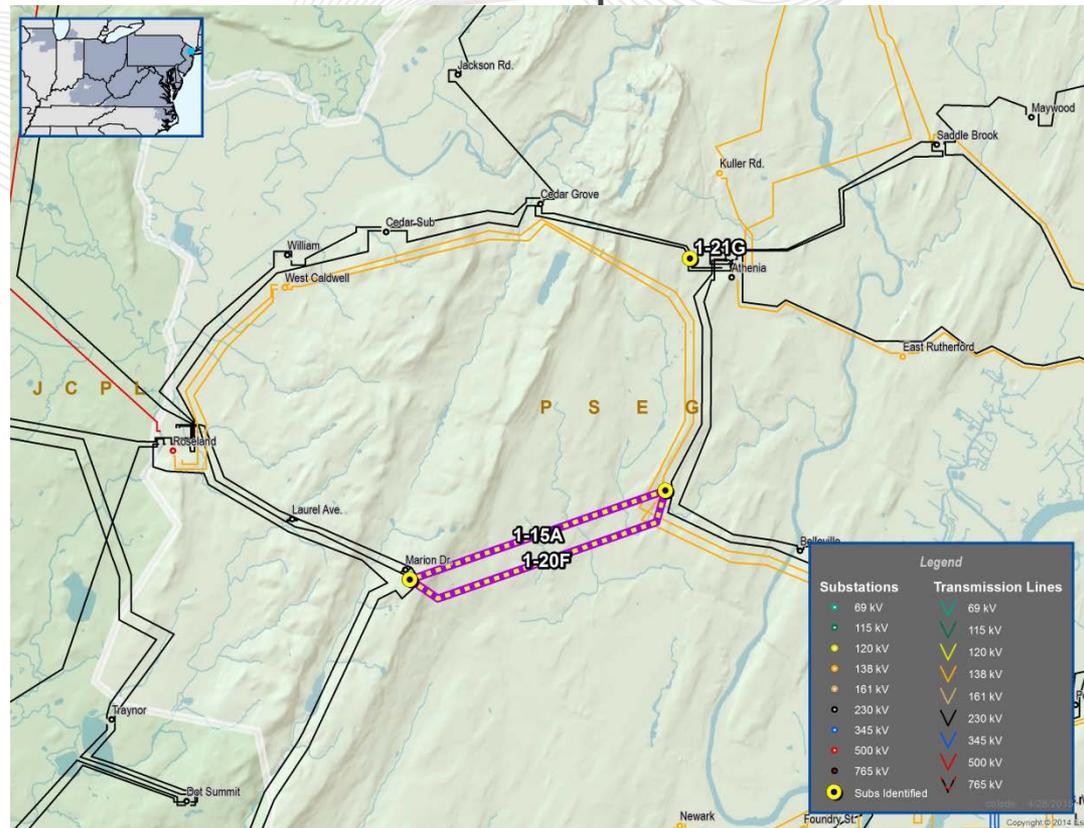
- 1 Project:
 - 1-10B
- Cost:
 - \$0.1M
- Constraints:
 - Wayne to South Elgin
138 kV



- 5 Projects:
 - 1-11E, 1-11F, 1-11G, 1-11H, 1-11I
- Cost:
 - From \$0.2M to \$21M
- Constraints:
 - Peach Bottom 500 kV
 - Peach Bottom to Conastone 500 kV



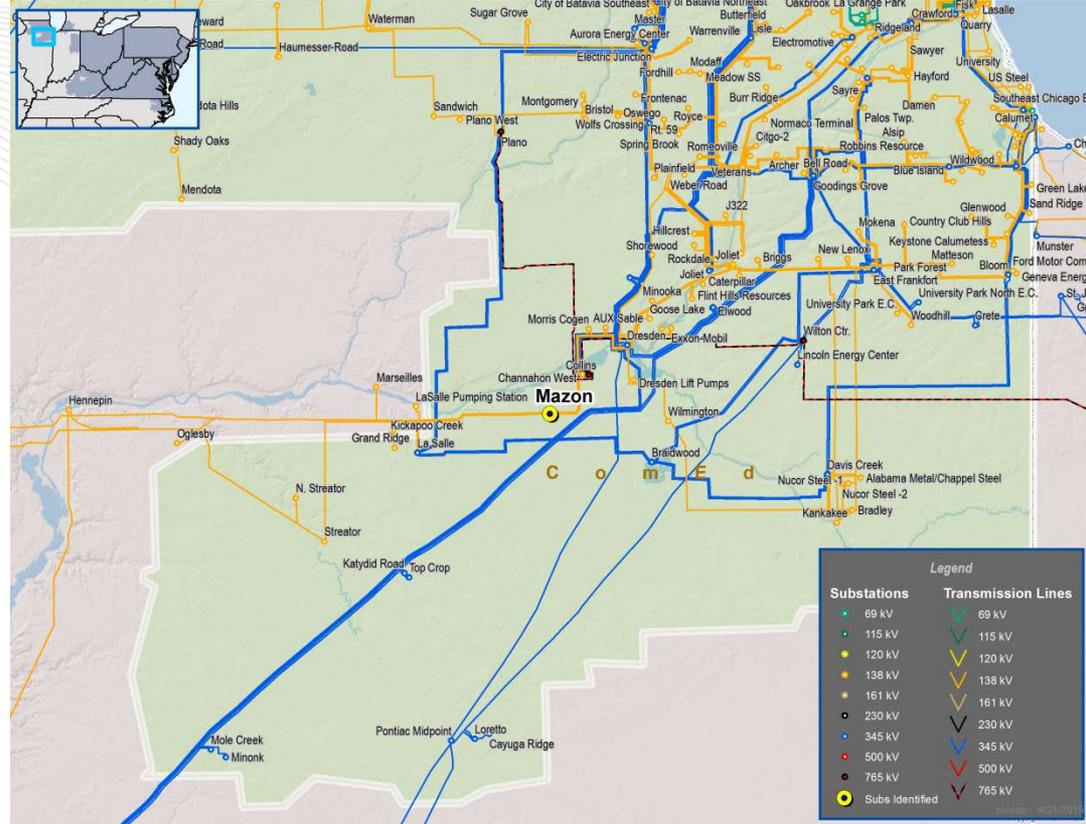
- 3 Projects:
 - 1-15A, 1-20F, 1-21G
- Cost:
 - From \$2.8M to \$125M
- Constraints:
 - Roseland-Cedar Grove-Clifton 230 kV corridor
- Note:
 - RPM project pending BRA results.





- 1 Project:
 - 1-10A
- Cost:
 - From \$0.7M to \$1M
- Constraints:
 - Oglesby to Mazon 138 kV
- Duplicate of B2613 baseline upgrade.
- **Proposal will not be evaluated.**

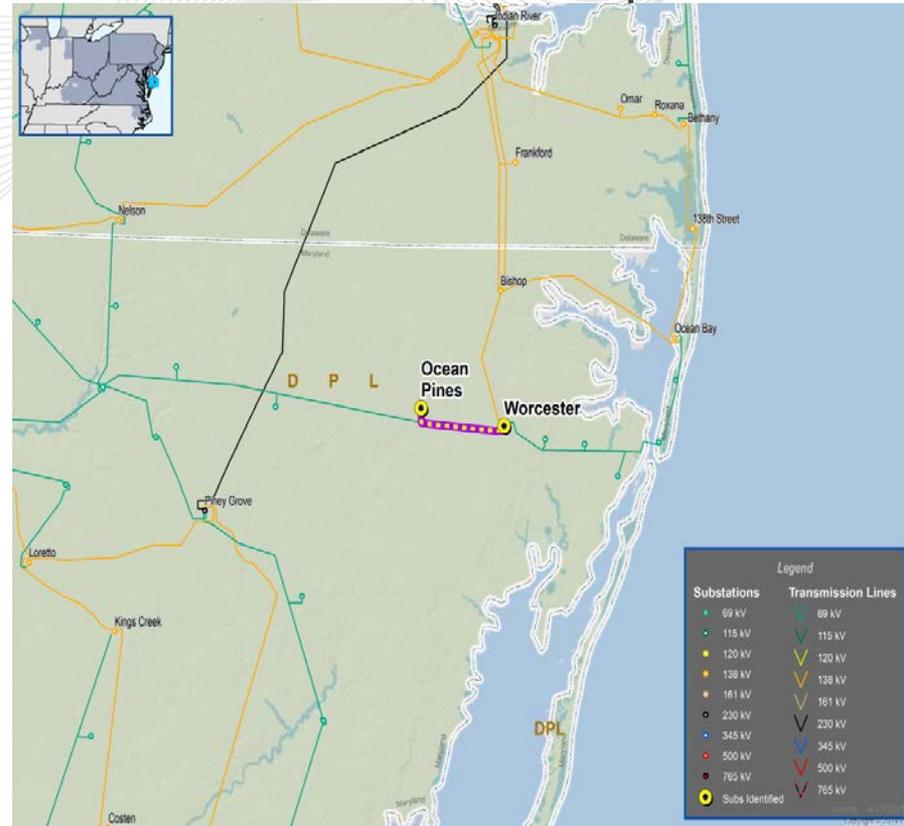
Group 13: COMED - Oglesby to Mazon





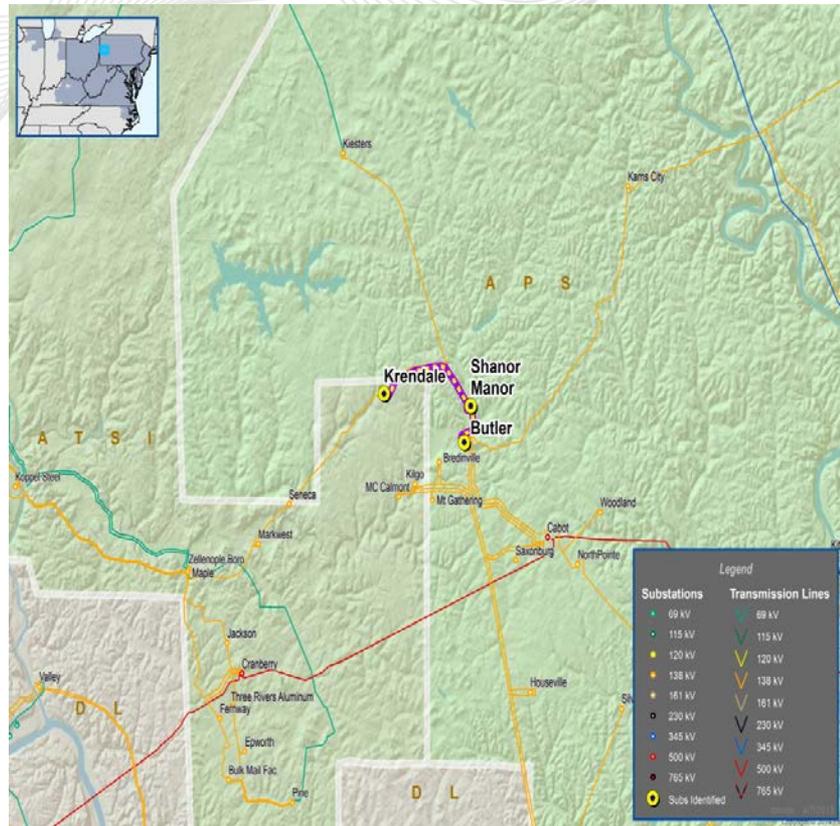
- 1 Project:
 - 1-13E
- Cost:
 - \$2.4M
- Constraints:
 - Worcester to Ocean Pines 69 kV

Group 14: DPL

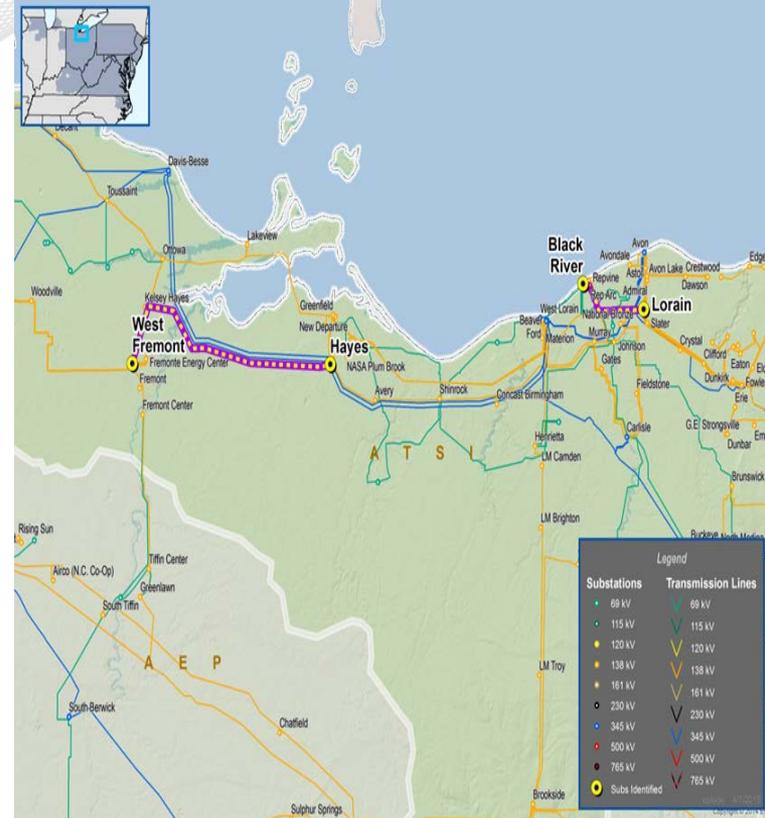


Group 15: ATS/ATSI - Krendale to Shanor Manor

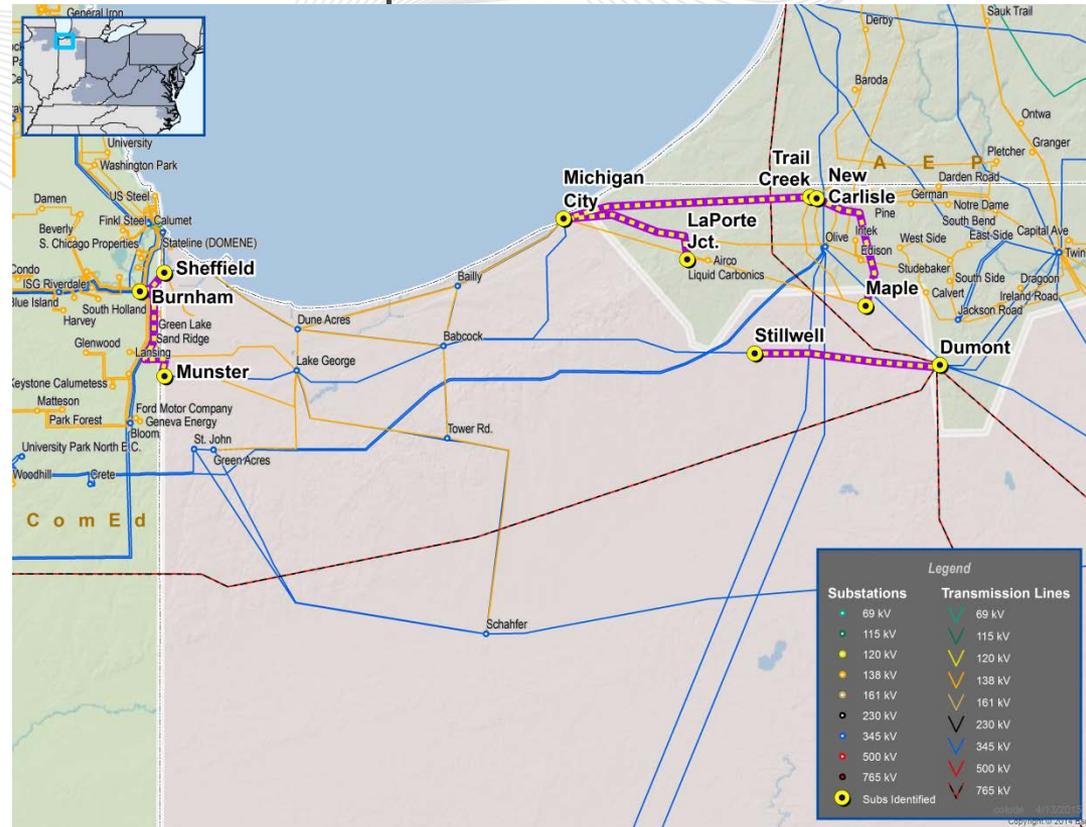
- 1 Project:
 - 1-18I
- Cost:
 - \$0.6M
- Constraints:
 - Krendale to Shanor Manor 138 kV



- 1 Project:
 - 1-18J
- Cost:
 - \$22.4M
- Constraints:
 - CLEVELAND Interface
- **Baseline projects b2557, b2559, and b2560 may remove driver**
 - B2557: At Avon substation, replace the existing 345/138kV #92 transformer
 - B2559: Re-conductor the Black River-Lorain 138kV line
 - B2560: Second 138kV line between West Fremont and Hayes substation

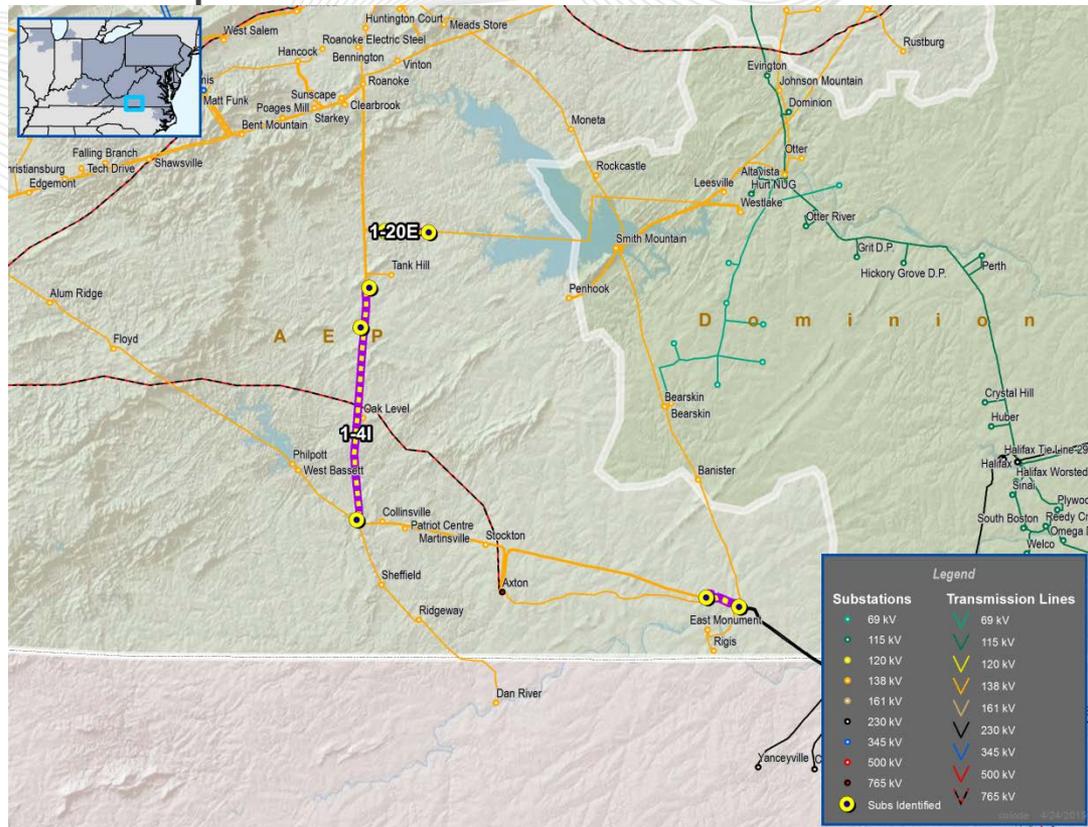


- 1 Project:
 - 1-16C
- Cost:
 - \$81.2M
- Constraints:
 - Various M2M Facilities



Group 18: AEP - Fieldale to Thornton

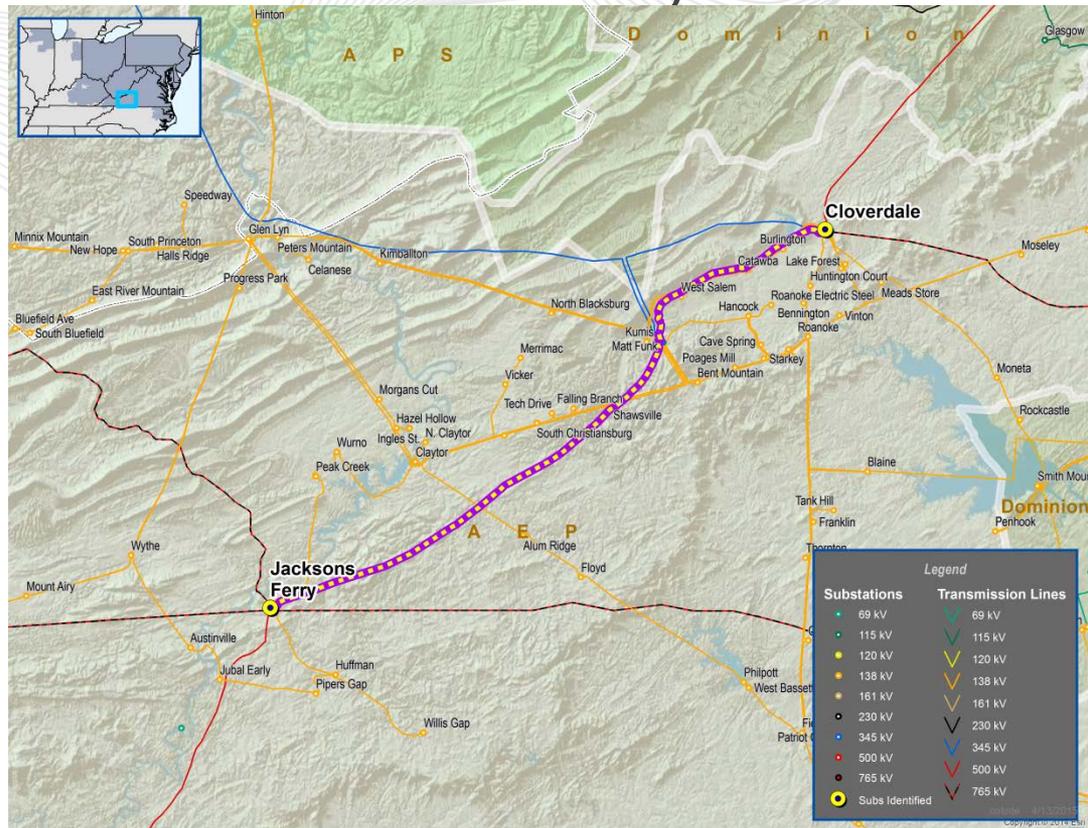
- 2 Projects:
 - 1-4I, 1-20E
- Cost:
 - From \$0.8M to \$19M
- Constraints:
 - Danville to East Danville
138 kV
 - Fieldale to Thornton 138 kV





Group 19: AEP – Jackson’s Ferry to Cloverdale

- 1 Project:
 - 1-4J
- Cost:
 - \$0.5M
- Constraints:
 - Jackson’s Ferry to Cloverdale 765 KV

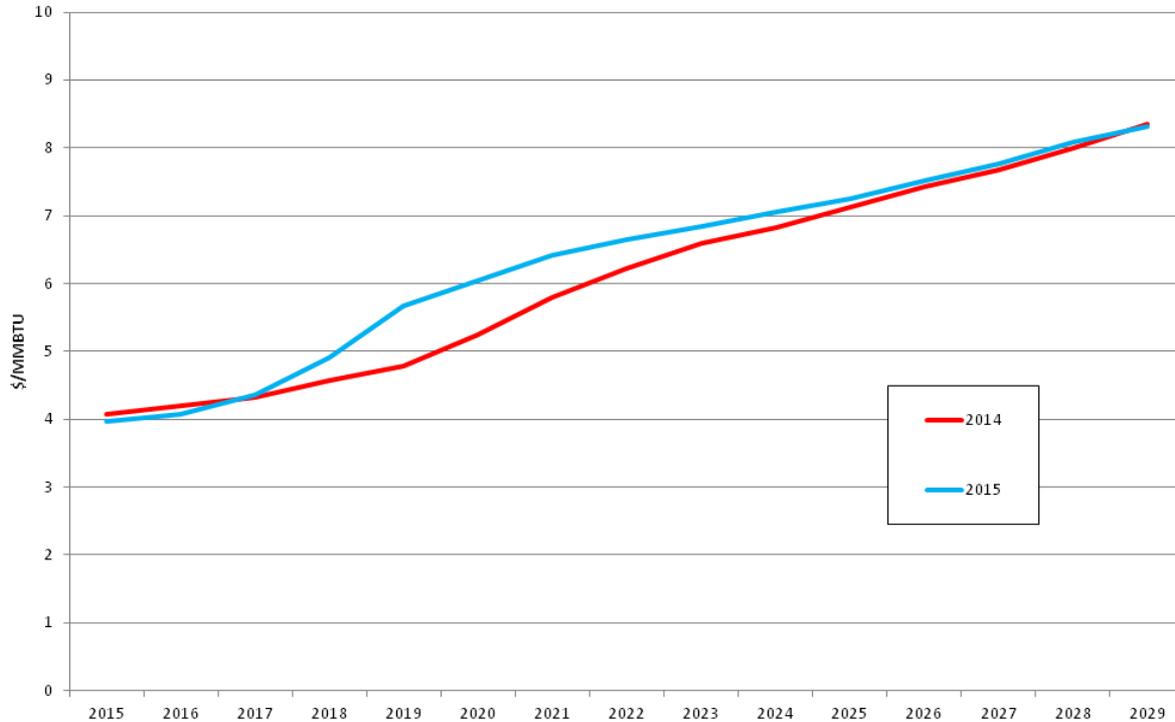




2015 Sensitivity Assumptions

- Generation expansion Update:
 - Includes new major ISA units
 - Includes deactivations that impact forecasted congestion
- Updated load forecast.
- Updated gas forecast.
- Significant RTEP upgrades that may impact congestion drivers.

Natural Gas Price Forecast (2015 Sensitivity Vs 2014 Base)



2014 PJM Peak Load and Energy Forecast

Load	2015	2019	2022	2025	2029
Peak (MW)	159,574	165,982	170,299	174,164	179,099
Energy (GWh)	833,268	859,676	880,692	892,599	910,932

2015 PJM Peak Load and Energy Forecast

Load	2015	2019	2022	2025	2029
Peak (MW)	154,781	161,385	165,669	170,347	175,314
Energy (GWh)	804,122	836,924	850,394	873,165	906,532

- Notes: 1.) Peak values use unrestricted peak load reduced by energy efficiency.
 2.) Model inputs are at the zonal level, to the extent zonal load shapes create different diversity - modeled PJM peak load may vary.
 3.) Energy values from Load Forecast Report Table E-1a.

- Long Term proposal window: November 2014 - February 2015

- Analysis of proposed solutions: March 2015 - November 2015
 - ✓ Determination of major assumptions (i.e. Load forecast, Fuel prices, Generators) that are significantly different in 2015 and can be used in sensitivity analysis for proposed projects: March 2015
 - Independent consultant review of cost and ability to build
 - Review of analysis with TEAC: June 2015-November 2015

- Determination of Final projects: December 2015
 - Final review with TEAC and Board approval
 - Projects may be approved earlier if analysis and review complete

2015 12-Month Market Efficiency Cycle

- 12 month cycle used to complete near-term (year 1 through year 5) analysis to identify approved RTEP projects that can be accelerated or modified based on Market Efficiency criteria.

- Develop Market Efficiency 2016 and 2020 cases: January 2015-April 2015
 - Update of 2015 and 2019 Long Term Proposal Market Efficiency cases

- Analysis of approve RTEP projects for accelerations and modifications: May 2015-August 2015

- Determination of final candidates: August 2015-November 2015

- Recommendation to PJM Board: December 2015



Appendix A

Individual Projects

Project ID: 201415_1-2A

Proposed by: PPL

Proposed Solution: Reconductor two spans of the Graceton-Safe Harbor 230kV transmission line.

Includes termination point upgrades

kV Level: 230

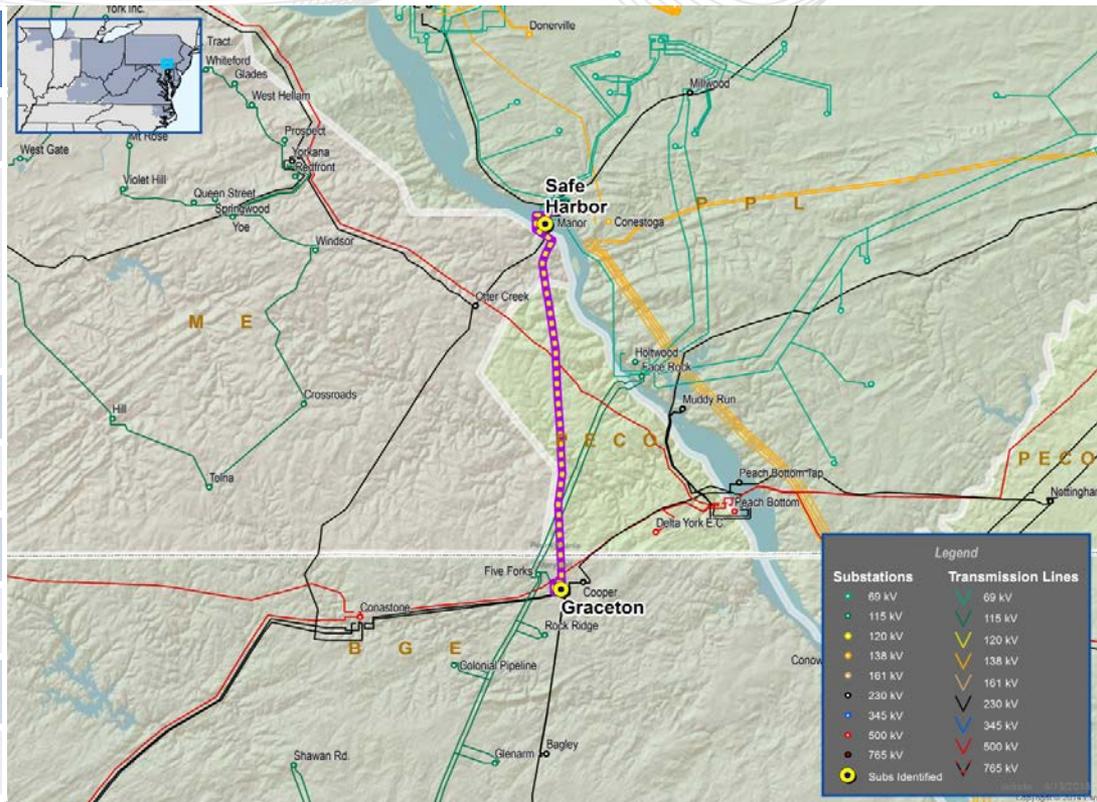
Cost (\$M): 1.1

IS Date: 2019

Target Zone: PPL/BGE

ME Constraints: Safe Harbor to Graceton 230 kV

Notes:



Project ID: 201415_1-2B

Proposed by: PPL

Proposed Solution: Reconductor three spans limiting the Brunner Island - Yorkana 230kV line, add 2 breakers to Brunner Island Switchyard, upgrade associated terminal equipment

kV Level: 230

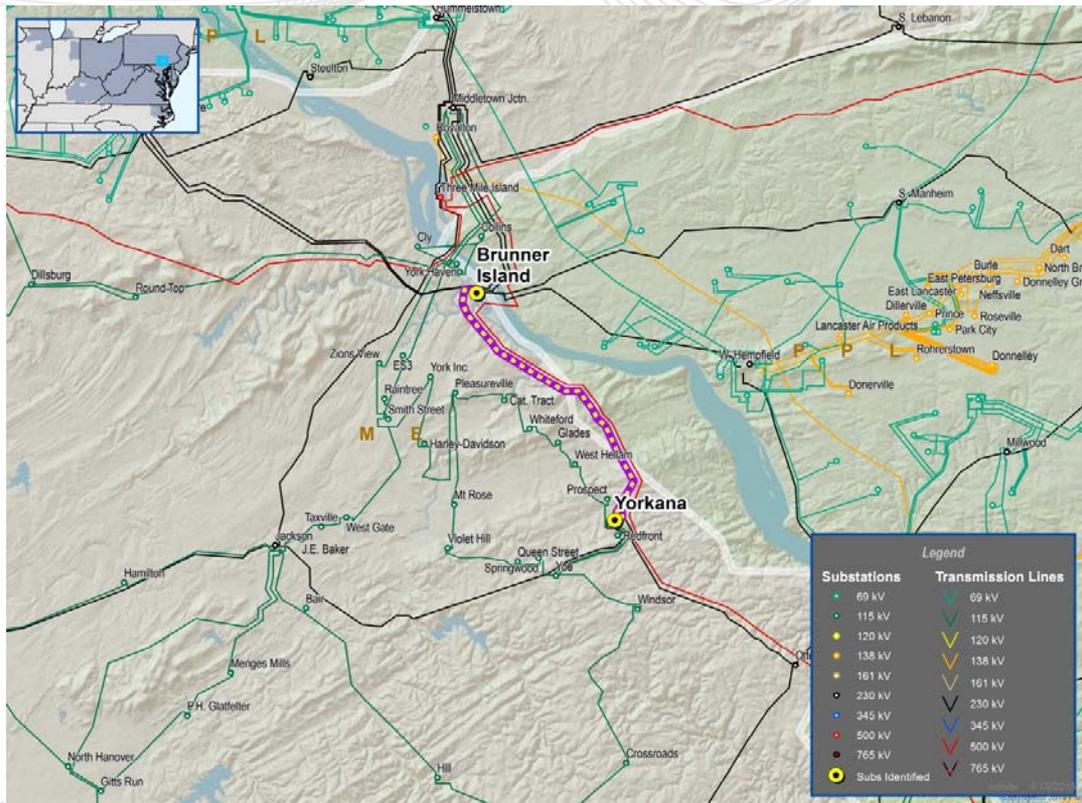
Cost (\$M): 3.1

IS Date: 2019

Target Zone: PPL/Meted

ME Constraints: Brunner Island to Yorkana 230 kV

Notes:



Project ID: 201415_1-2C

Proposed by: PPL

Proposed Solution: Install 500kV -100/+500 MVAR SVC addition and associated terminal hardware at New Juniata SVC Substation Yard with Approx. 300ft of 500kV transmission linking the existing Juniata Substation to the new SVC yard

kV Level: 500

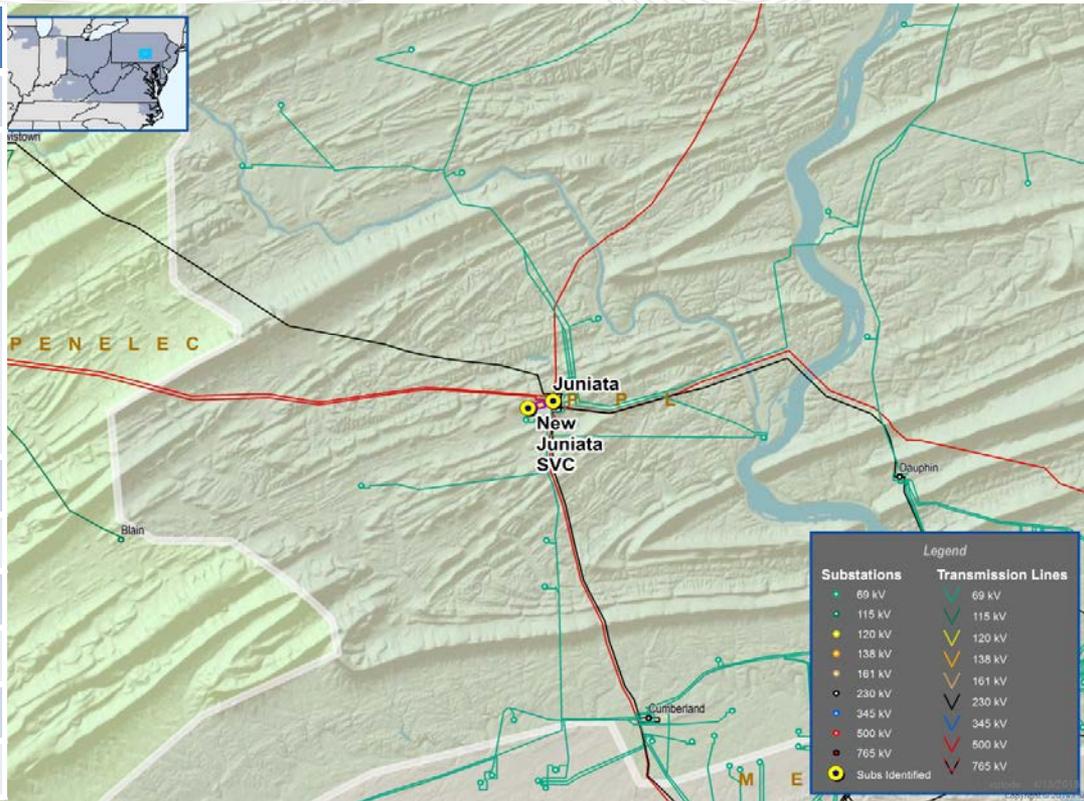
Cost (\$M): 33.95

IS Date: 2018

Target Zone: PPL

ME Constraints: AP SOUTH L/O BED-BLA

Notes:



Project ID: 201415_1-3A

Proposed by: PPL/FE

Proposed Solution: Expand existing Yorkana substation in Met-Ed. Install 500/230 kV transformer, construct a 500 kV ring bus, install two 230 kV breakers and loop TMI-Peach Bottom 500 kV line into new 500 kV ring bus.

kV Level: 500

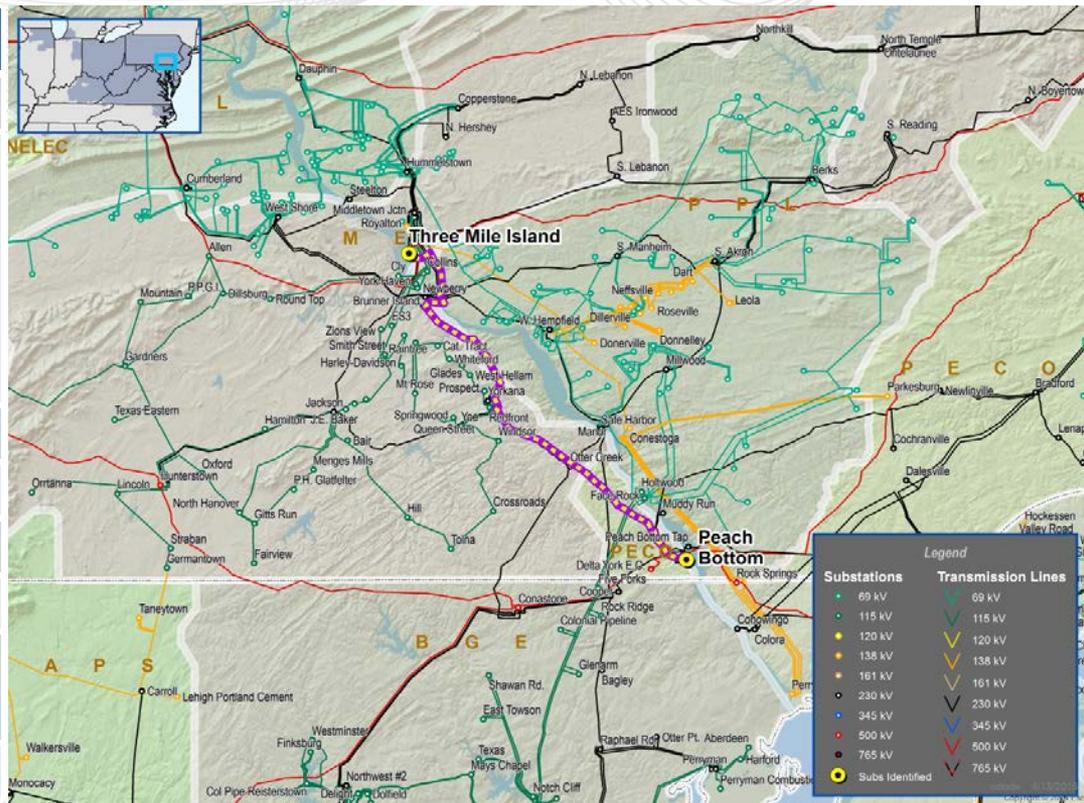
Cost (\$M): 40.2

IS Date: 2019

Target Zone: PPL/Meted

ME Constraints: Brunner Island to Yorkana 230 kV

Notes:



Project ID: 201415_1-41

Proposed by: AEP

Proposed Solution: Operate the Fieldale - Thornton - Franklin overhead at maximum operating temperature. Replace terminal equipment at Danville and East Danville substations.

kV Level: 138

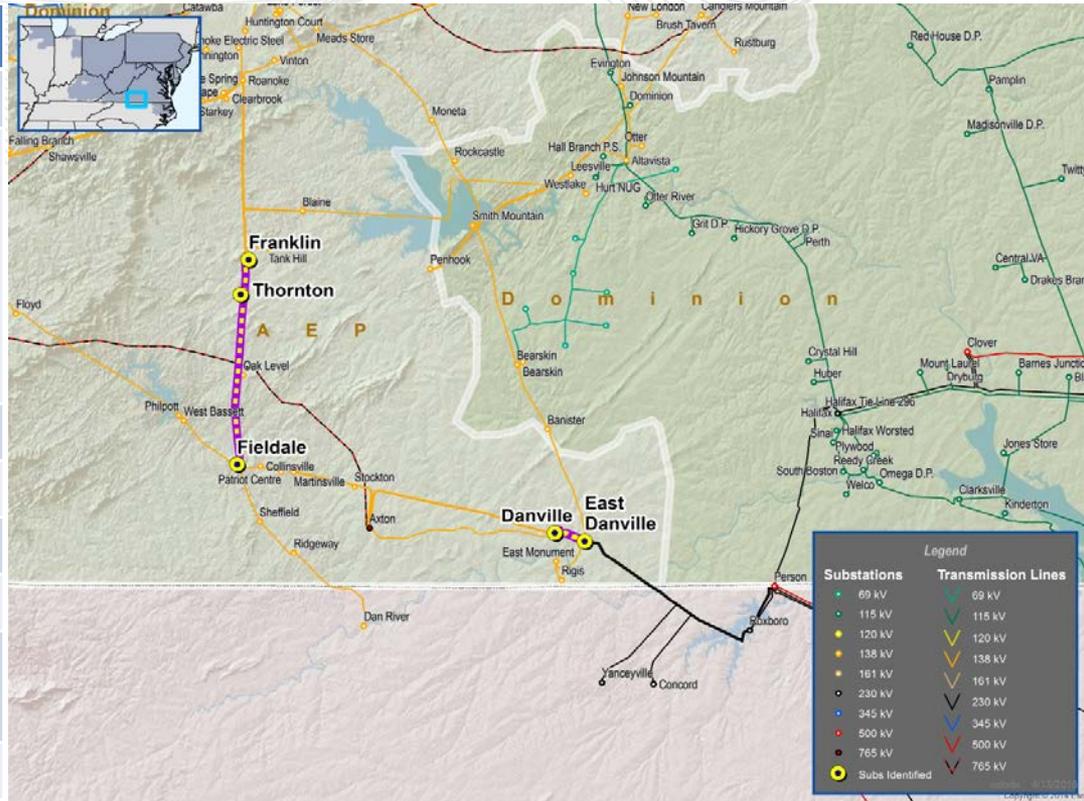
Cost (\$M): 0.75

IS Date: 2019

Target Zone: AEP

**ME Constraints: Fieldale to Thornton 138 kV
Danville to East Danville 138 kV**

Notes:



Project ID: 201415_1-4J

Proposed by: AEP

Proposed Solution: Replace relays at AEP's Cloverdale and Jackson's Ferry substation to improve the thermal capacity of Cloverdale - Jackson's Ferry 765 kV line

kV Level: 765

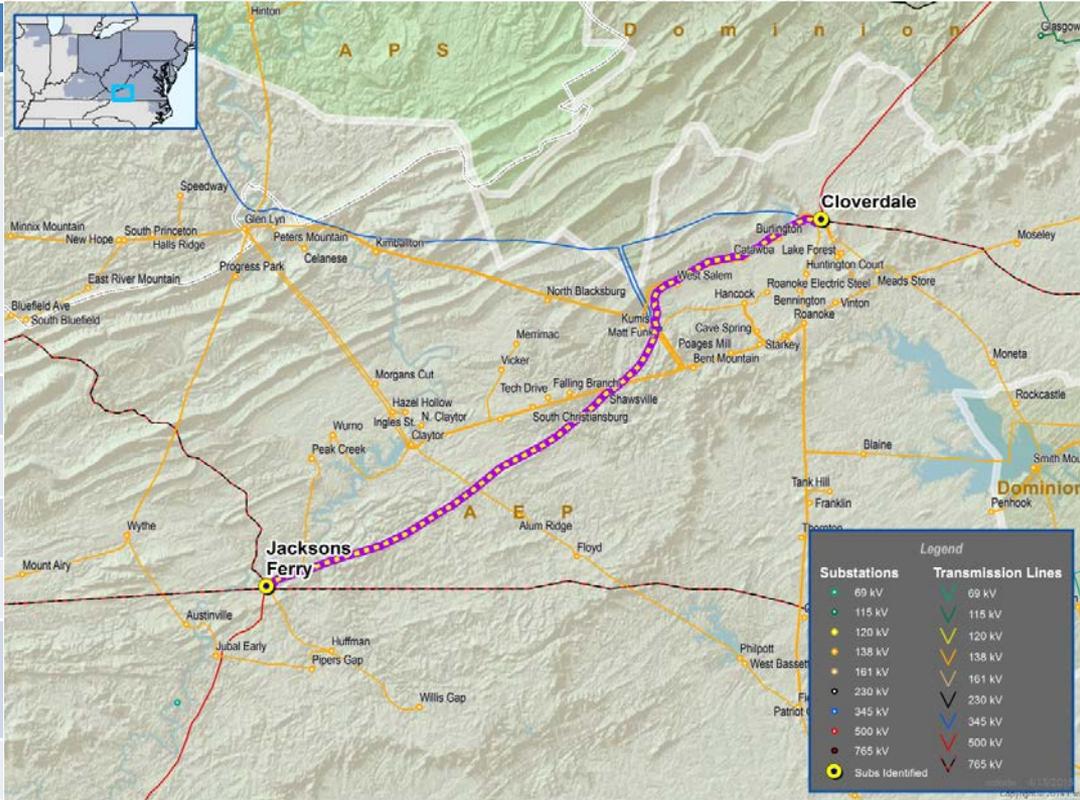
Cost (\$M): 0.5

IS Date: 2019

Target Zone: AEP

ME Constraints: Jackson's Ferry to Cloverdale 765 KV

Notes:



Project ID: 201415_1-5A

Proposed by: BGE

Proposed Solution: Rebuild 1.4 miles of the Graceton-Safe Harbor 230kV line. BGE and PPL projects together will achieve a combined tie line facility ratings of 648/802 MVA SN/SE and 746/903 MVA WN/WE

kV Level: 230

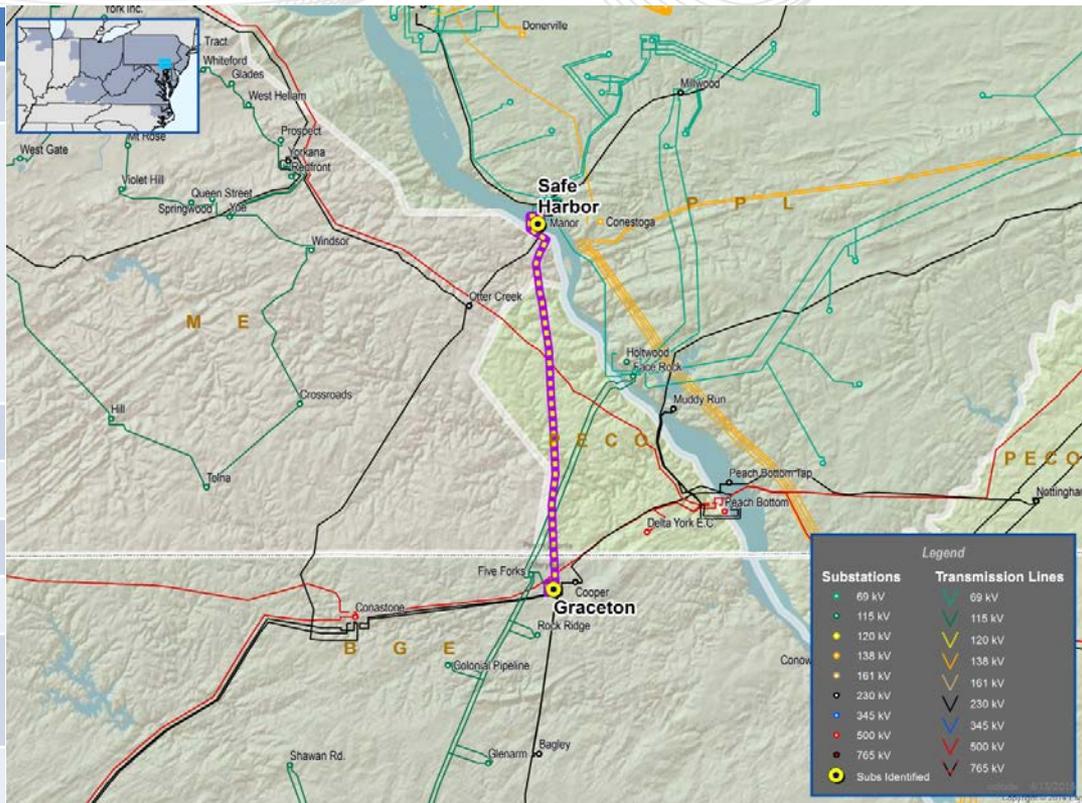
Cost (\$M): 5.6

IS Date: 2019

Target Zone: BGE/PPL

ME Constraints: Safe Harbor to Graceton 230 kV

Notes:



Project ID: 201415_1-6A

Proposed by: Dominion

Proposed Solution: Build one 500kV Thyristor Controlled Series Capacitors (TCSC) at Mt Storm substation on the Mt Storm - Pruntytown (554) transmission line to reduce congestion on AP South and other PJM interfaces

kV Level: 500

Cost (\$M): 25

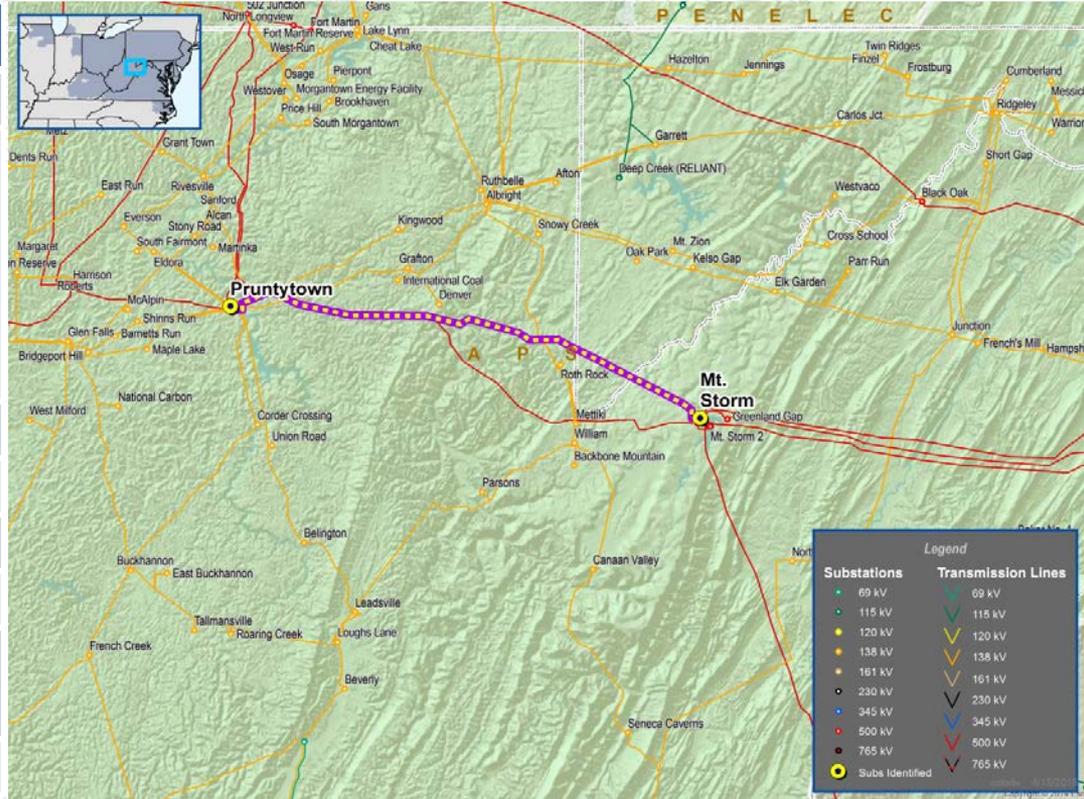
IS Date: 2019

Target Zone: Dominion

ME Constraints: AP SOUTH L/O BED-BLA

Other Interfaces

Notes:



Project ID: 201415_1-6B

Proposed by: Dominion

Proposed Solution: Build one 500kV Thyristor Controlled Series Capacitors (TCSC) at Loudoun substation on the Loudoun - Meadowbrook line to reduce congestion on AP South and other PJM interfaces

kV Level: 500

Cost (\$M): 25

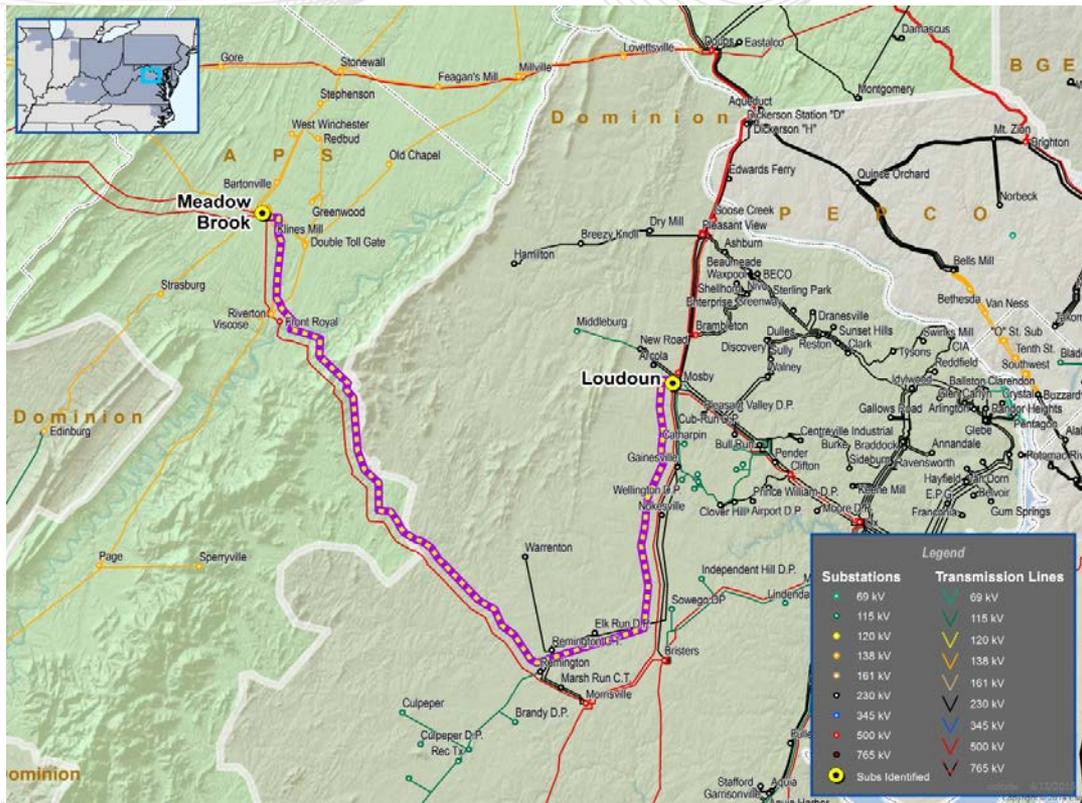
IS Date: 2019

Target Zone: Dominion

ME Constraints: AP SOUTH L/O BED-BLA

Other Interfaces

Notes:



Project ID: 201415_1-6C

Proposed by: Dominion
 Proposed Solution: Build one 500kV Thyristor Controlled Series Capacitor (TCSC) at Loudoun substation on the 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

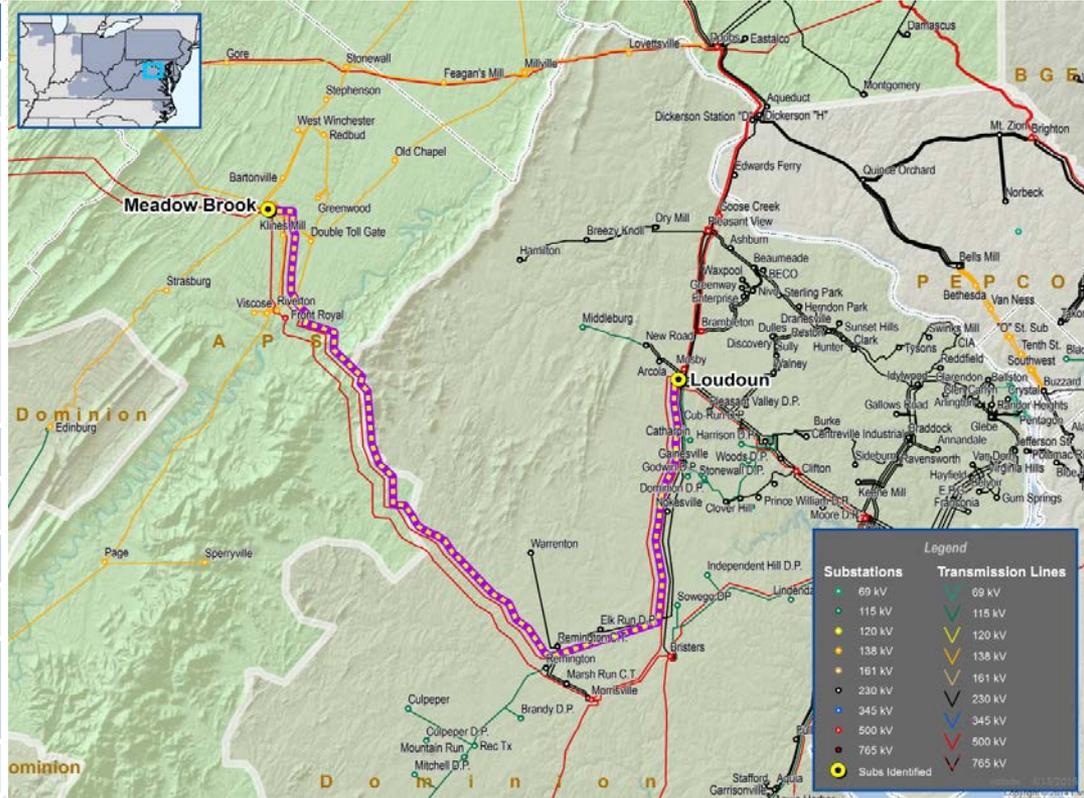
IS Date: 2019

Target Zone: Dominion

ME Constraints: AP SOUTH L/O BED-BLA

Other Interfaces

Notes:



Project ID: 201415_1-6D

Proposed by: Dominion

Proposed Solution: Build a new 500kV station (Palmyra) by connecting at the intersection of two (2) 500kV lines of North Anna - Midlothian 500kV line and Cunningham - Elmont 500kV line and build five (5) capacitor banks in DVP zone to alleviate AP South and AEP-DOM congestions

kV Level: 500

Cost (\$M): 42.7

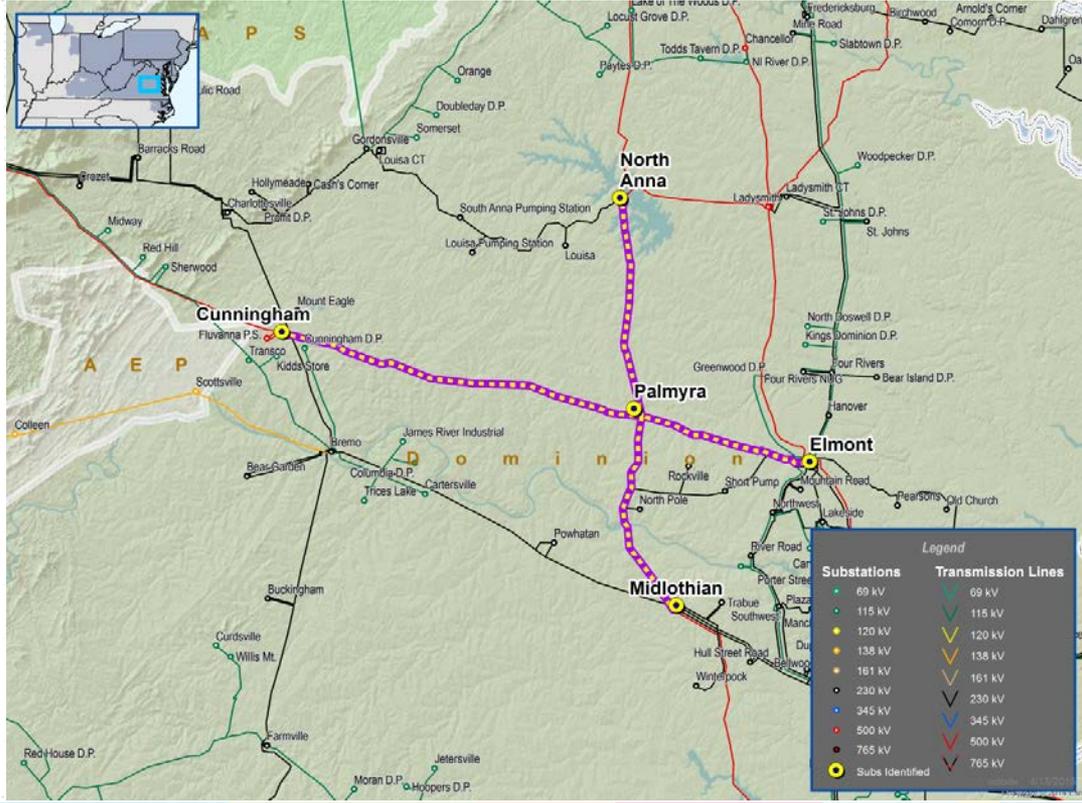
IS Date: 2019

Target Zone: Dominion

ME Constraints: AP SOUTH L/O BED-BLA

Other Interfaces

Notes:



Project ID: 201415_1-7A

Proposed by: Transource

Proposed Solution: Construct a double circuit 230 kV line between AEP's Axton Station to AEP's East Danville Station. Install breakers and a transformer at Axton and East Danville Station. A total of 1,550 MVARs of new capacitance will also be installed at Brambleton, Ashburn, Lexington, Dooms, Jackson's Ferry and Bradford substations.

kV Level: 765

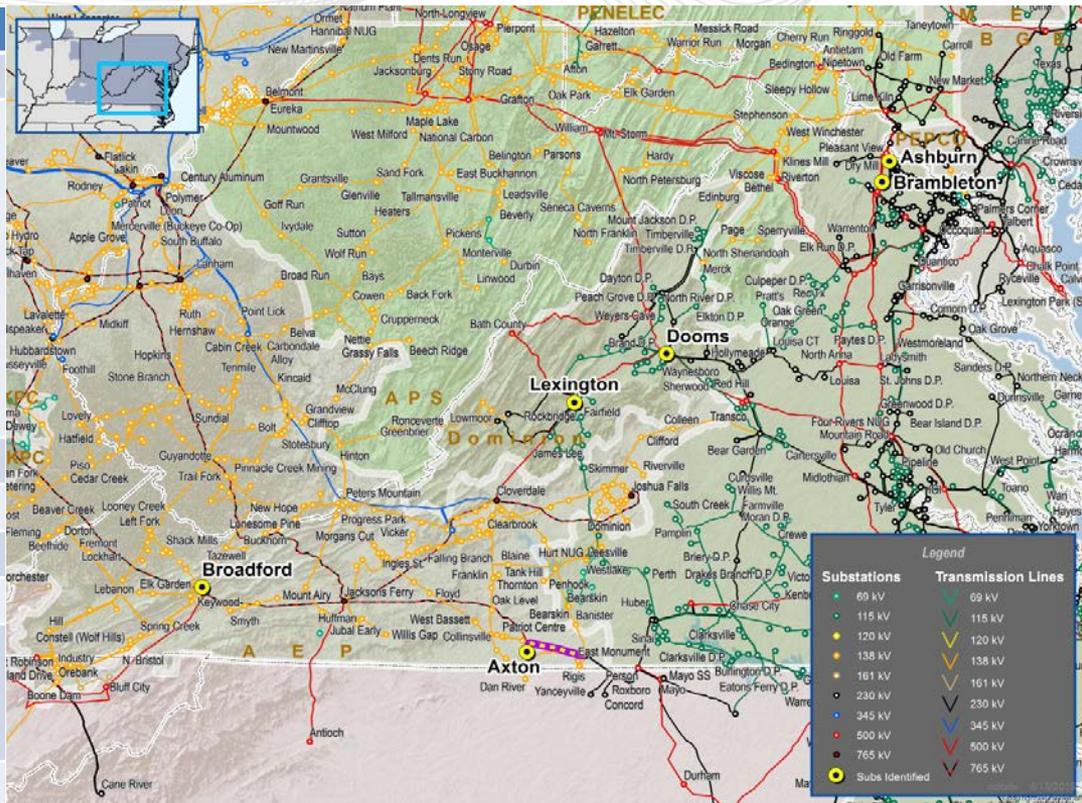
Cost (\$M): 139

IS Date: 2020

Target Zone: AEP

ME Constraints: AP SOUTH L/O BED-BLA, Other Interfaces, Danville to East Danville 138 kV, Fieldale to Thornton 138 kV

Notes:



Project ID: 201415_1-7B

Proposed by: Transource

Proposed Solution: Construct a double circuit 230 kV line between Meadow Brook Station and Doubs Station. Additional upgrades in AEP will also be included in this proposal. A total of 1,550 MVARs of new capacitance will also be installed at Brambleton, Ashburn, Lexington, Dooms, Jackson's Ferry and Broadford substations.

kV Level: 230

Cost (\$M): 237

IS Date: 2021

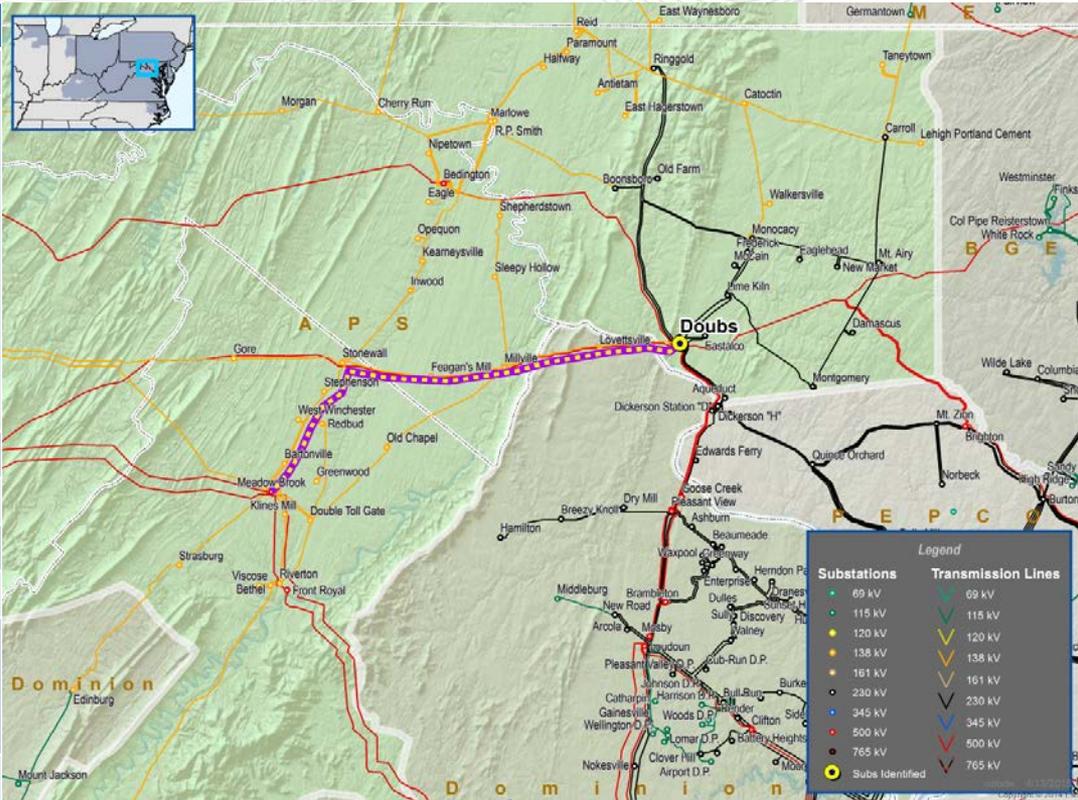
Target Zone: AEP

ME Constraints: AP SOUTH L/O BED-BLA

Other Interfaces

Taneytown to Carroll 138 kV

Notes:



Project ID: 201415_1-7C

Proposed by: Transource

Proposed Solution: Construct a new 500 kV line from Meadow Brook to Doubs. Install a single 500 kV breaker in the existing ring arrangement at Meadow Brook Station. Additional upgrades in AEP will also be included in this proposal. 1,750 MVARs of new capacitance will also be installed with 350 MVAR of capacitor banks each at Brambleton, Loudoun, Lexington, Jackson's Ferry and Broadford substations.

kV Level: 500

Cost (\$M): 210

IS Date: 2021

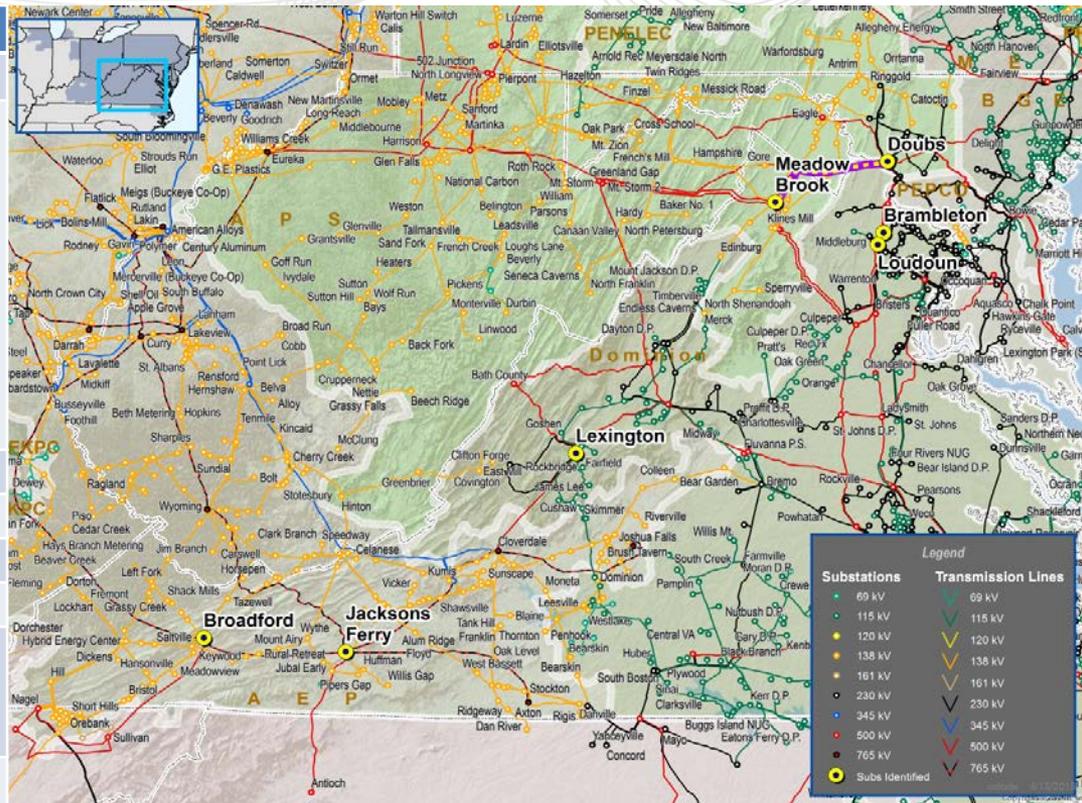
Target Zone: AEP

ME Constraints: AP SOUTH L/O BED-BLA

Other Interfaces

Taneytown to Carroll 138 kV

Notes:



Project ID: 201415_1-8A

Proposed by: Dominion/Transource

Proposed Solution: Construct a 500 kV station between North Anna - Midlothian and Cunningham - Elmont line. Construct a 75 mile circuit 765 kV line between Palmyra -Joshua Falls 765 kV station. Install 350 MVAR cap bank at Jackson's Ferry -Broadford 765 kV stations.

kV Level: 765

Cost (\$M): 384

IS Date: 2020

Target Zone: AEP/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

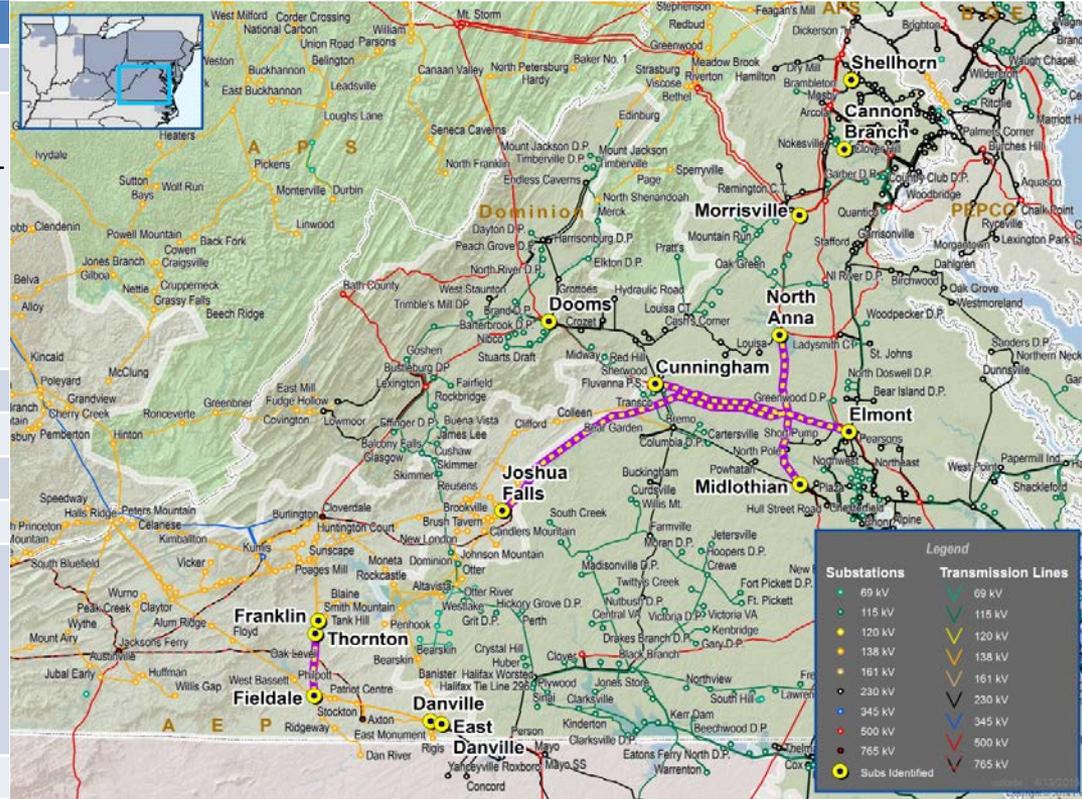
AEP-DOM L/O BED-BLA

Other Interfaces

Danville to East Danville 138 kV

Fieldale to Thornton 138 kV

Notes:



Project ID: 201415_1-8B

Proposed by: Dominion/Transource

Proposed Solution: Construct a 500 kV station between North Anna - Midlothian and Cunningham - Elmont lines. Construct a 75 mile 500 kV line between Palmyra and Joshua Falls 765 kV station. Install cap banks at Liberty, Cannon Branch, Shellhorn, Dooms, and Morrisville stations.

kV Level: 500

Cost (\$M): 293

IS Date: 2020

Target Zone: AEP/Dominion

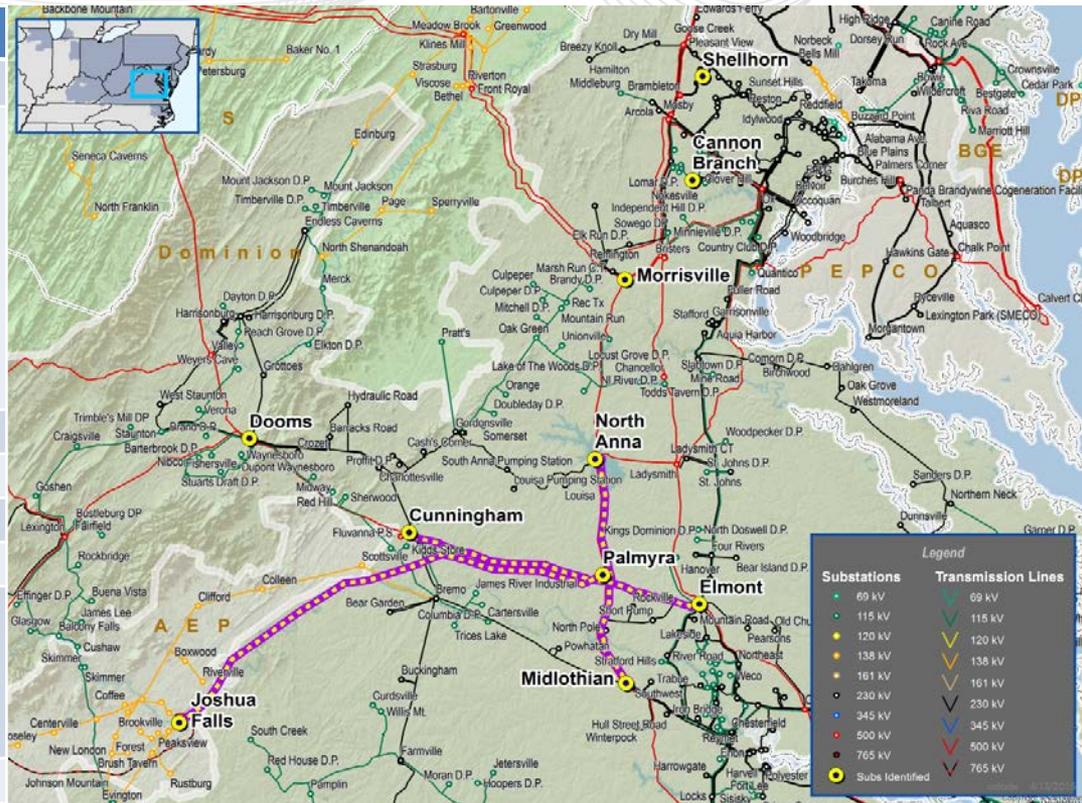
ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

Other Interfaces

Fieldale to Thornton 138 kV

Notes:



Project ID: 201415_1-8C

Proposed by: Dominion/Transource

Proposed Solution: Construct a 765kV line between Axton and Dominion's Clover Station. Install 765kV breakers and shunt reactor at Axton Station. Install 765/500 kV transformer at Clover Station. Complete sag remediation on the Fieldale - Thornton - Franklin 138 kV line. Install cap banks at Liberty, Cannon Branch, Shellhorn, Doms, and Morrisville stations.

kV Level: 765

Cost (\$M): 317

IS Date: 2020

Target Zone: AEP/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

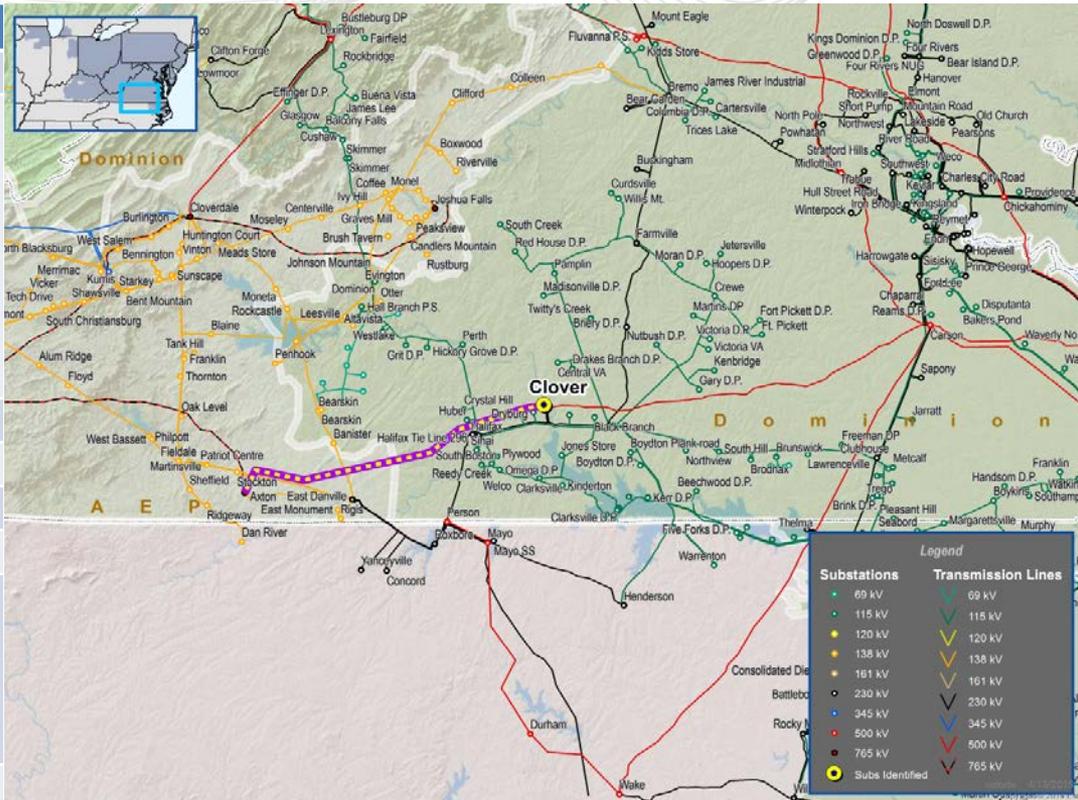
AEP-DOM L/O BED-BLA

Other Interfaces

Danville to East Danville 138 kV

Fieldale to Thornton 138 kV

Notes:



Project ID: 201415_1-8D

Proposed by: Dominion/Transource

Proposed Solution: Build a single circuit 500kV AC overhead line from Axton - Clover substations, build a 765/500kV TX at Axton, and build five (5) capacitor banks in DVP zone to alleviate AP South and AEP-DOM congestions

kV Level: 500

Cost (\$M): 222

IS Date: 2019

Target Zone: AEP/Dominion

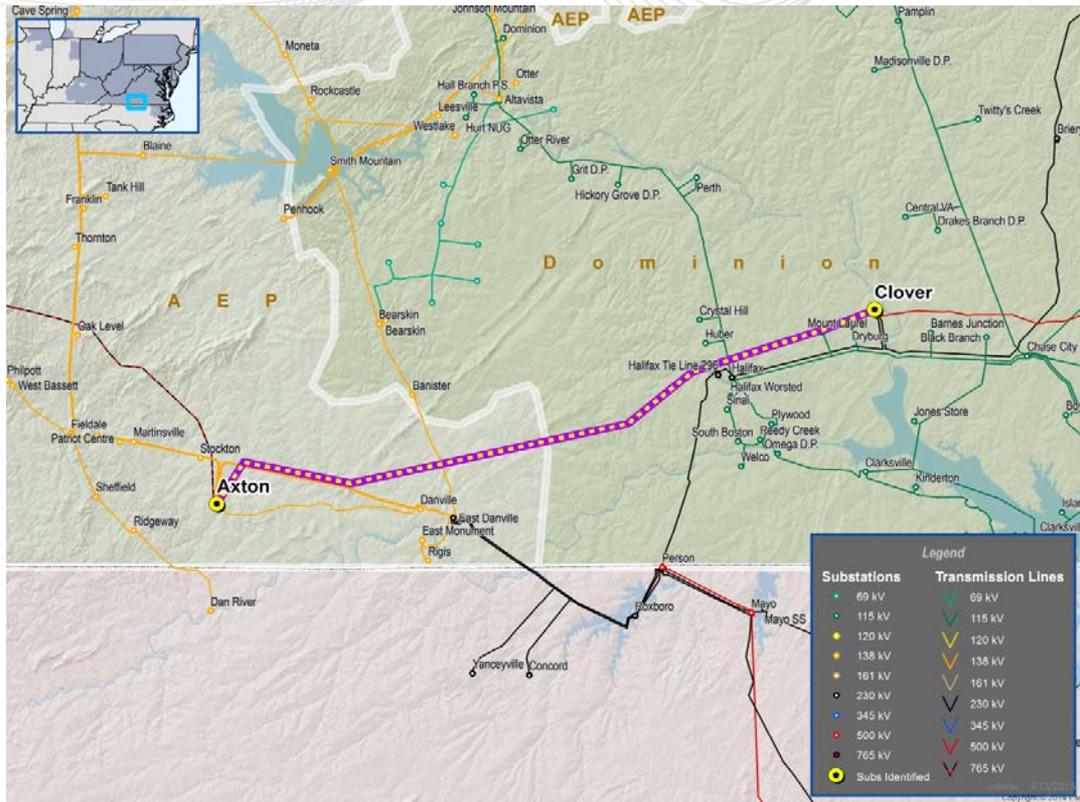
ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

Other Interfaces

Fieldale to Thornton 138 kV

Notes:



Project ID: 201415_1-8E

Proposed by: Dominion/Transource

Proposed Solution: Build a double circuit 230kV AC overhead line from Joshua Falls - Farmville substations, build a 765/230kV TX at Joshua Falls, and build five (5) capacitor banks in DVP zone to alleviate AP South and AEP-DOM congestions

kV Level: 230

Cost (\$M): 181

IS Date: 2019

Target Zone: Dominion

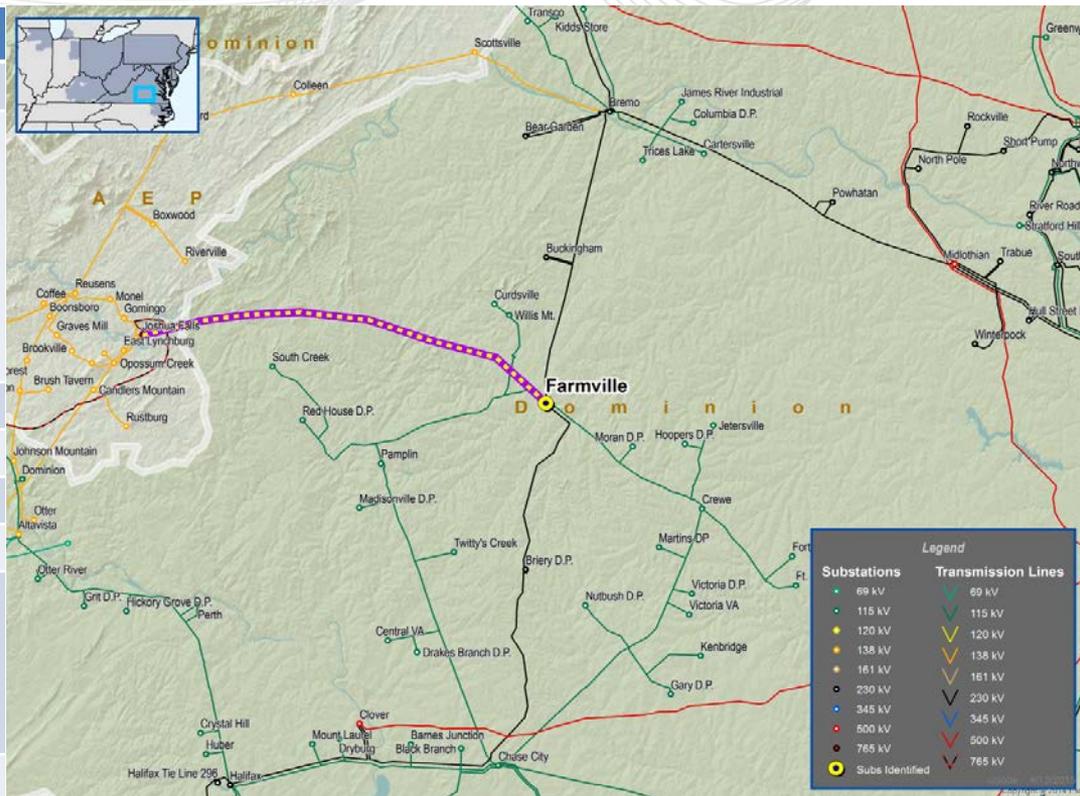
ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

Other Interfaces

Fieldale to Thornton 138 kV

Notes:



Project ID: 201415_1-8F

Proposed by: Dominion/Transource

Proposed Solution: Build a single circuit 230kV AC overhead line from Joshua Falls - Farmville substations, build a 765/230kV TX at Joshua Falls, upgrade portions of the 84 line, and build five (5) capacitor banks in DVP zone to alleviate AP South and AEP-DOM congestions

kV Level: 230

Cost (\$M): 193

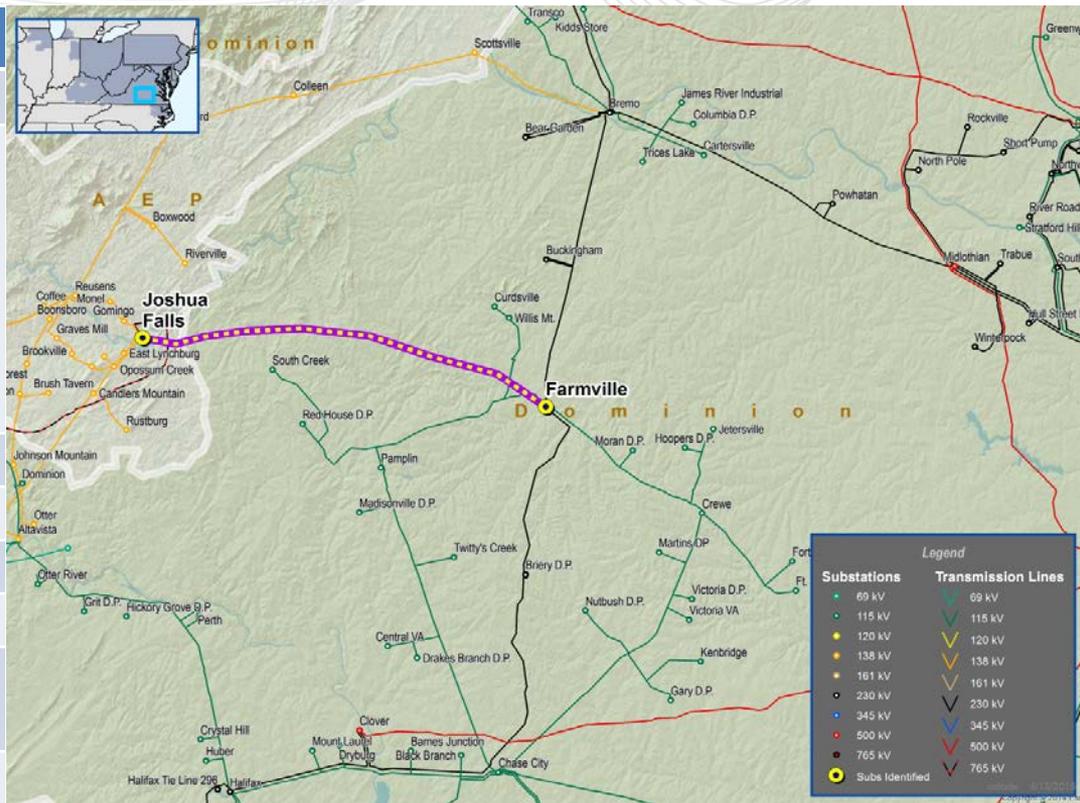
IS Date: 2019

Target Zone: Dominion

ME Constraints: AP SOUTH L/O BED-BLA

Other Interfaces

Notes:



Project ID: 1-9A

Proposed by: Dominion / 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 Furnace Run and Conastone. Add cap banks to Jackson's Ferry, Bradford, Lexington, Doms, Ashburn and Brambleton stations. Rebuild the Conastone - Northwest 230 kV line.

kV Level: 230

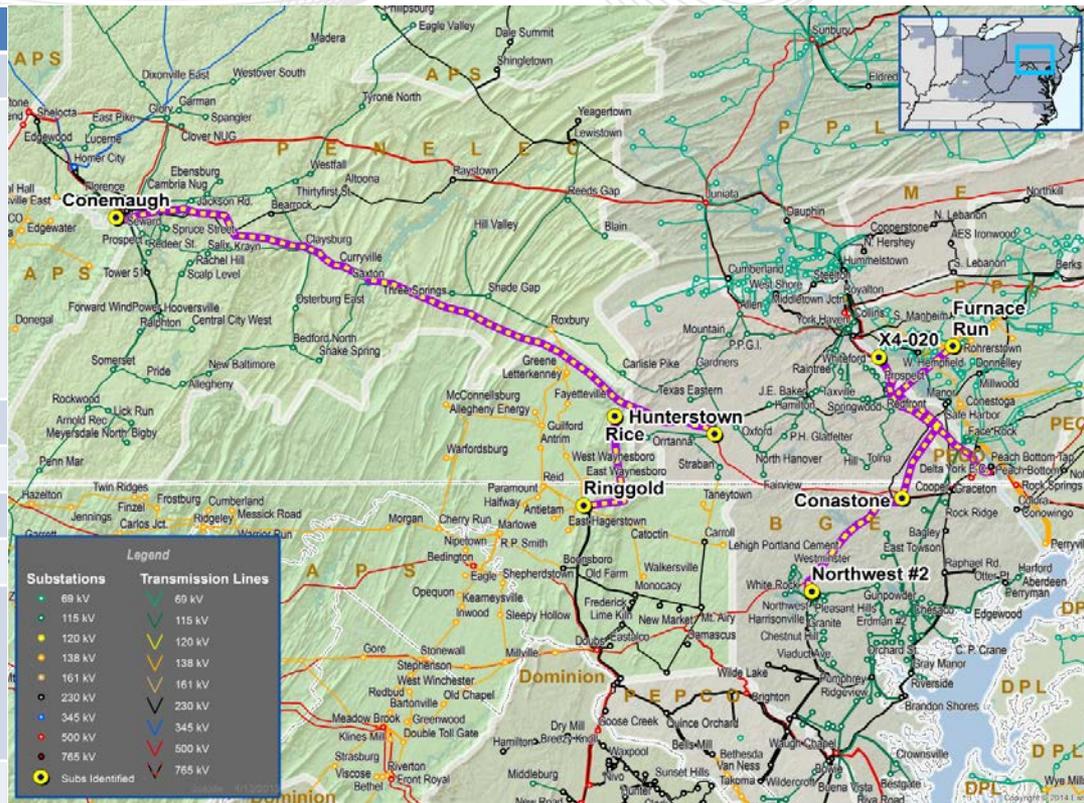
Cost (\$M): 269

IS Date: 2020

Target Zone: PECO/Dominion/AEP

ME Constraints: AP SOUTH L/O BED-BLA, Brunner Island to Yorkana 230 kV, Taneytown to Carroll 138 kV, Safe Harbor to Graceton 230 kV, Conastone to Northwest 230 kV

Notes:



Project ID: 201415_1-10A

Proposed by: ComEd

Proposed Solution: Replace relays at Mazon substation

kV Level: 138

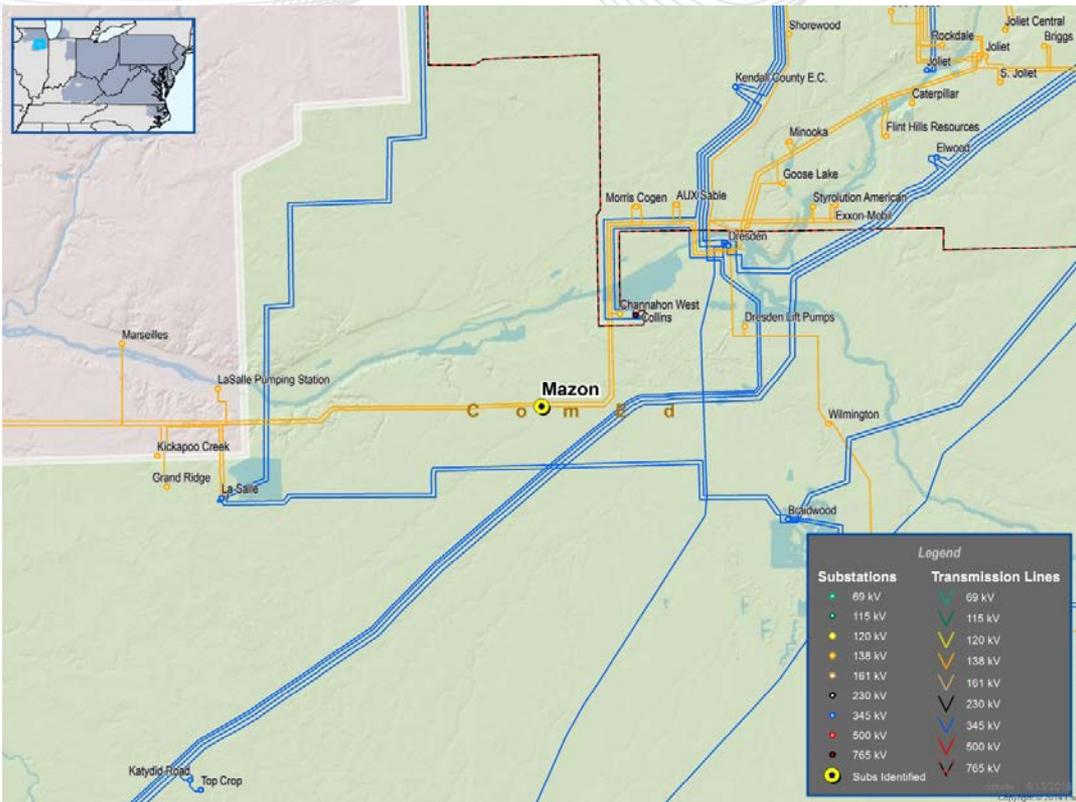
Cost (\$M): 0.7

IS Date: 2019

Target Zone: ComEd

ME Constraints: Oglesby to Mazon 138 kV

Notes: B2613 removes driver



Proposal will not be evaluated.

Project ID: 201415_1-10B

Proposed by: ComEd

Proposed Solution: Replace L7815 B phase line trap at Wayne substation

kV Level: 138

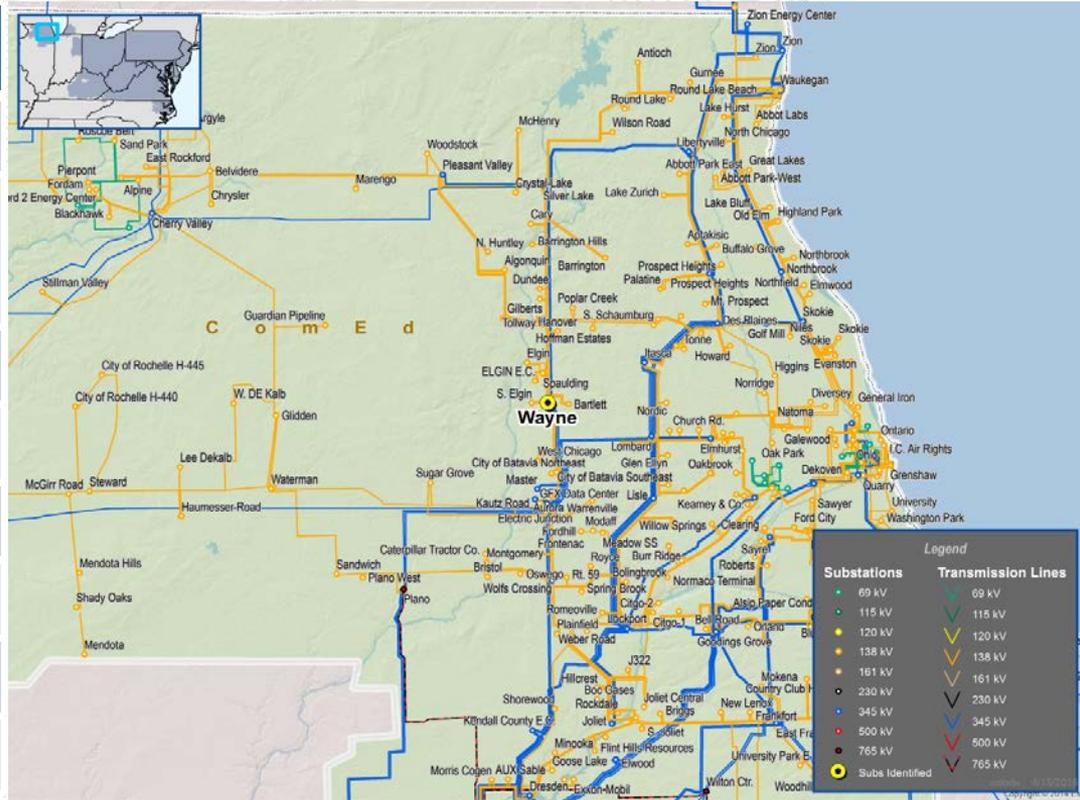
Cost (\$M): 0.1

IS Date: 2019

Target Zone: ComEd

ME Constraints: Wayne to South Elgin 138 kV

Notes:



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

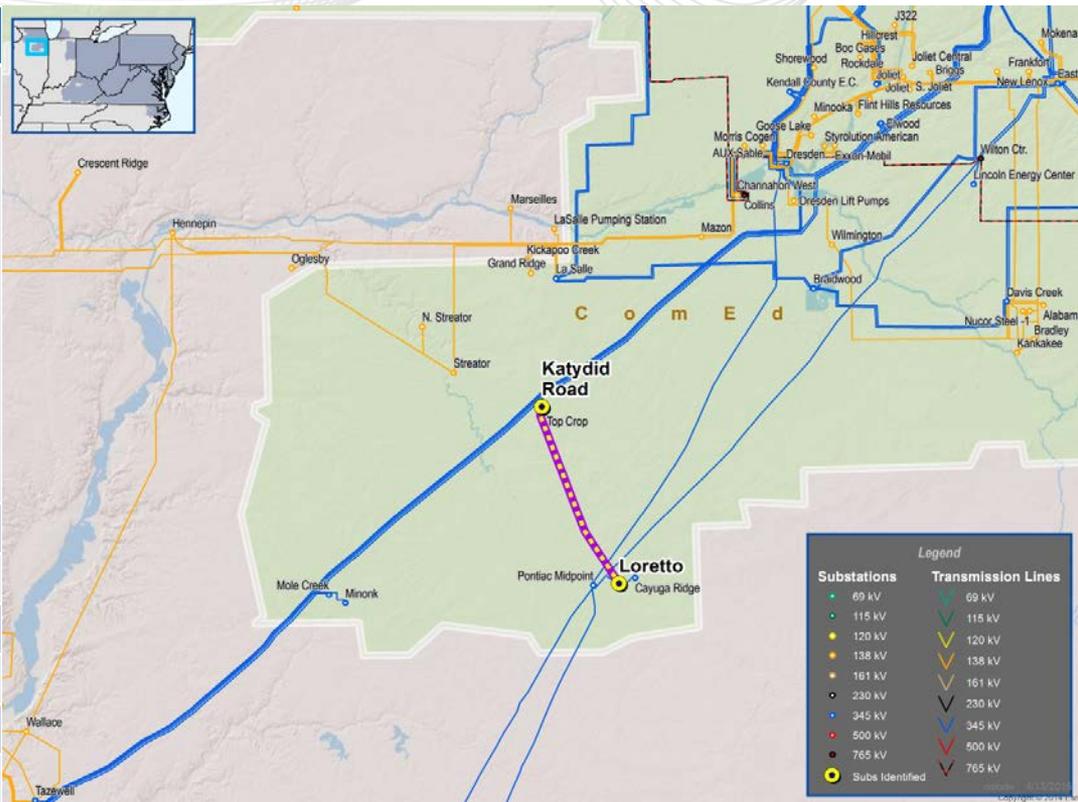
Cost (\$M): 37.8

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

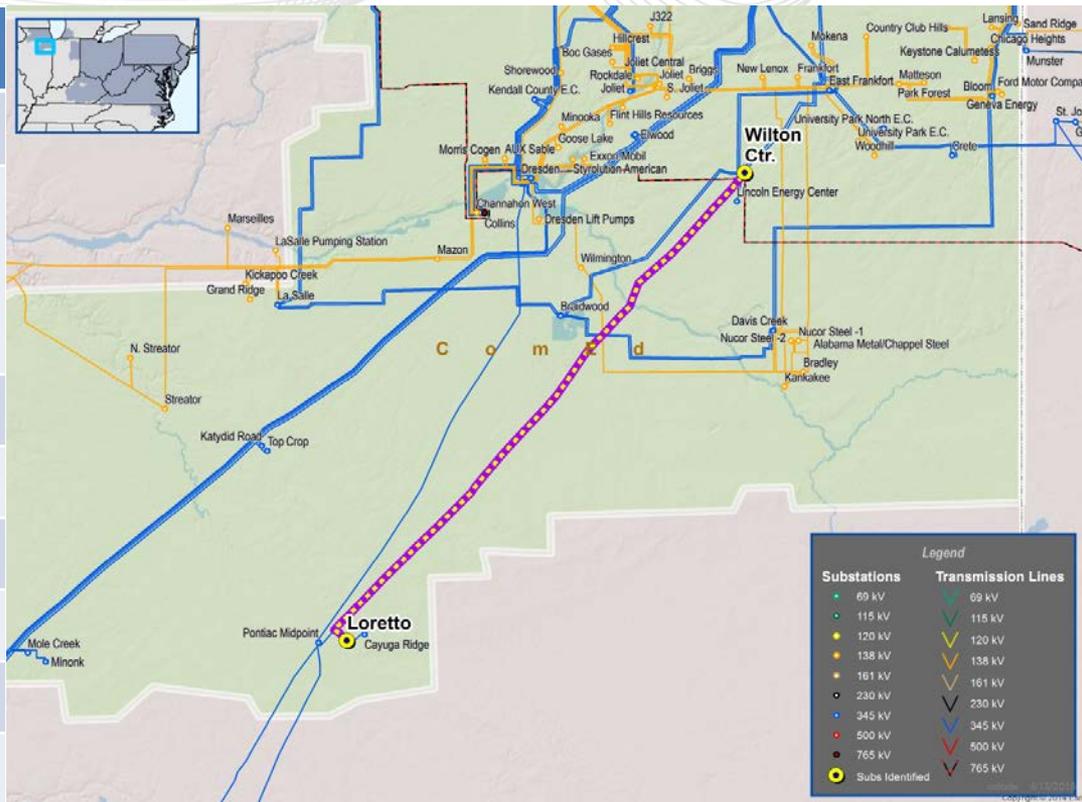
Cost (\$M): 11.5

IS Date: 2019

Target Zone: ComEd

ME Constraints: Loretto to Wilton CTR 345 kV

Notes:



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

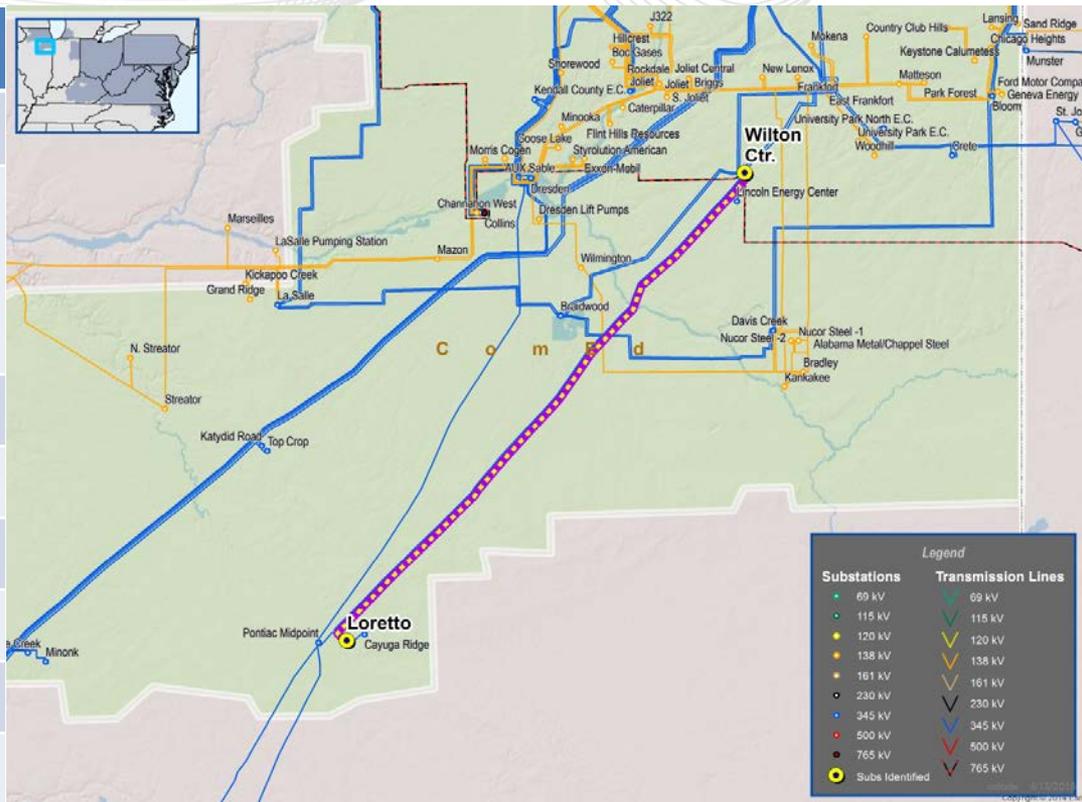
Cost (\$M): 17.4

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

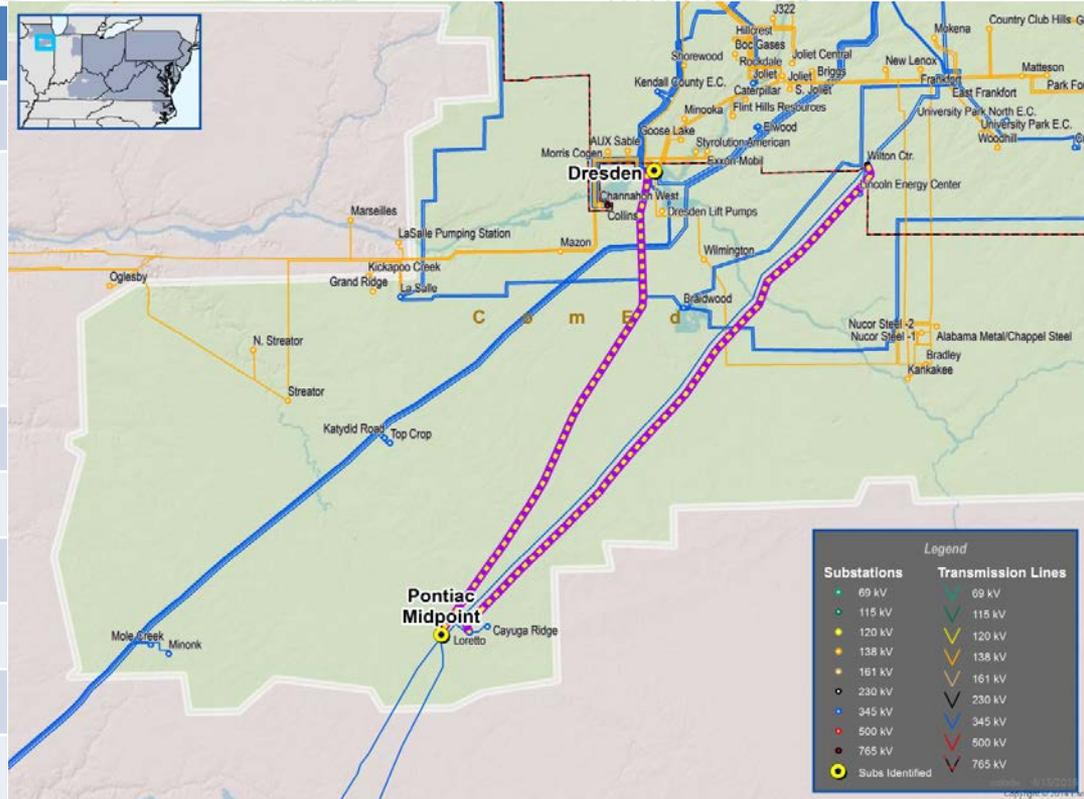
Cost (\$M): 14

IS Date: 2019

Target Zone: ComEd

ME Constraints: Loretto to Wilton CTR 345 kV

Notes:



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

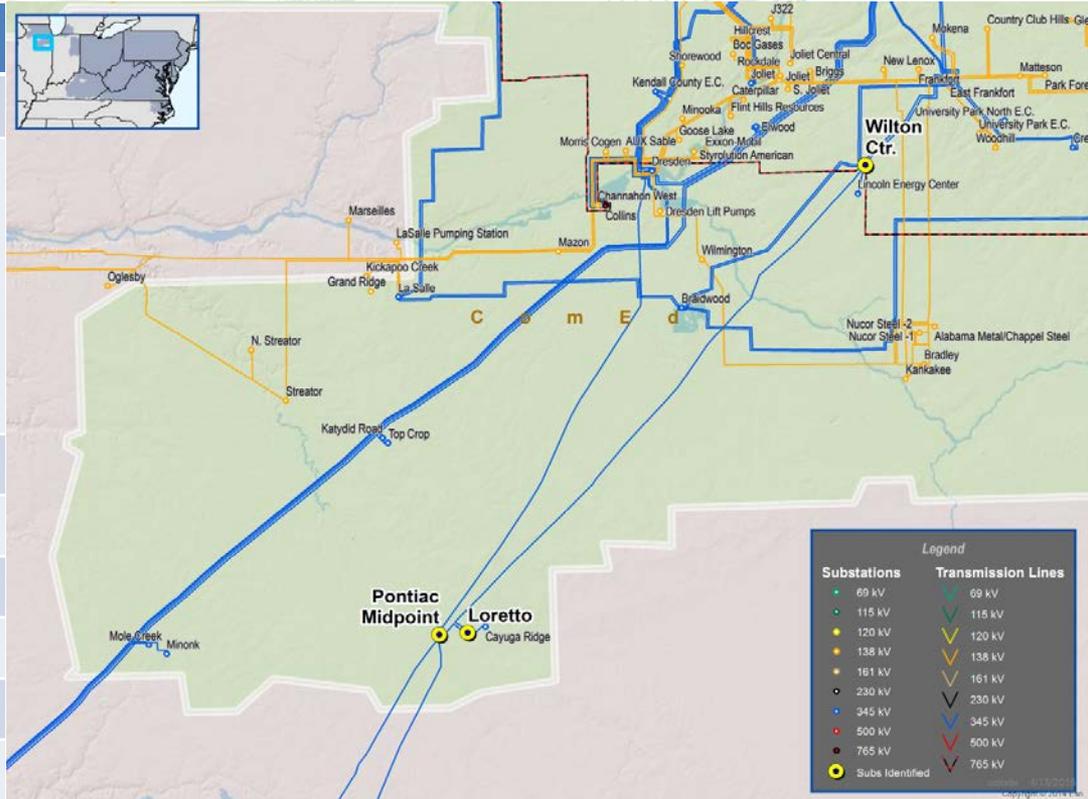
Cost (\$M): 19.9

IS Date: 2019

Target Zone: ComEd

ME Constraints: Loretto to Wilton CTR 345 kV

Notes:



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

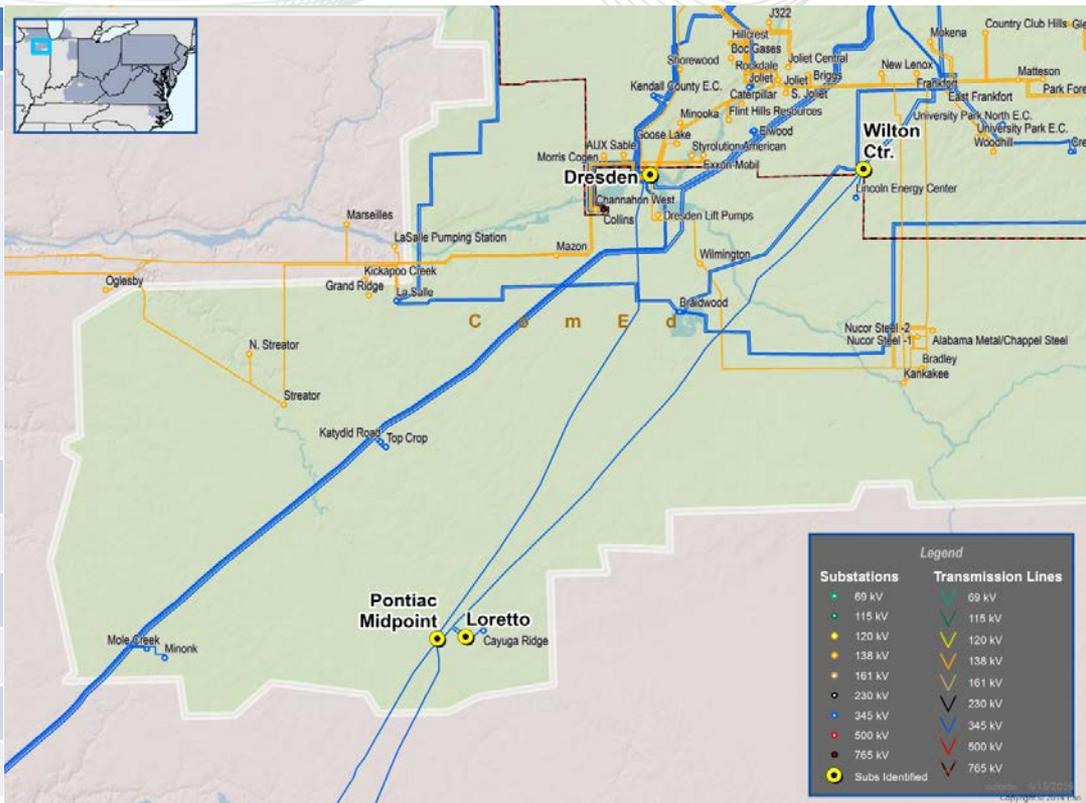
Cost (\$M): 25.9

IS Date: 2019

Target Zone: ComEd

ME Constraints: Loretto to Wilton CTR 345 kV

Notes:



Project ID: 201415_1-101

Proposed by: ComEd

Proposed Solution: Reconductor Cordova to Nelson 345kV line and replace station conductor. NOTE: This project (s0704) is scheduled to complete on March 13, 2015

kV Level: 345

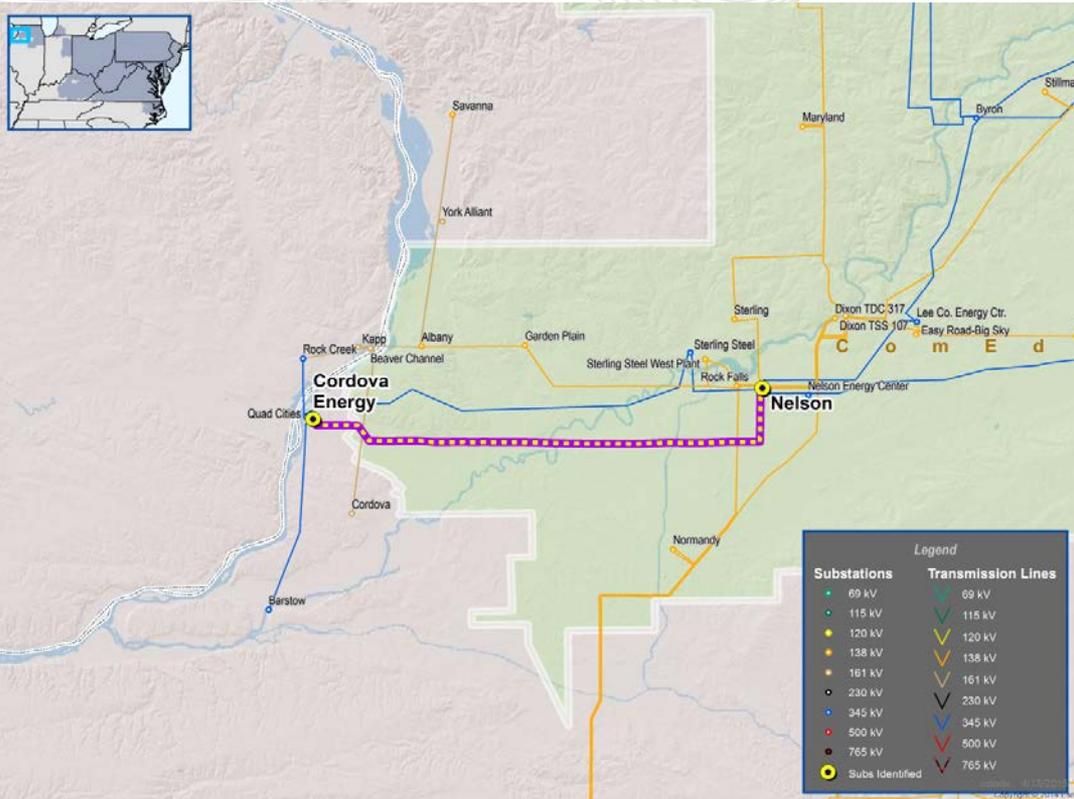
Cost (\$M): 2

IS Date: 2019

Target Zone: ComEd

ME Constraints: Cordova to Nelson 345 kV

Notes:



Project ID: 201415_1-10J

Proposed by: ComEd

Proposed Solution: Replace station equipment at three stations and upgrade conductor rating of three lines by re-conductoring and mitigating sag limitations. **NOTE:** Component 1 of this project (s0704) is scheduled to complete on March 13, 2015

kV Level: 345

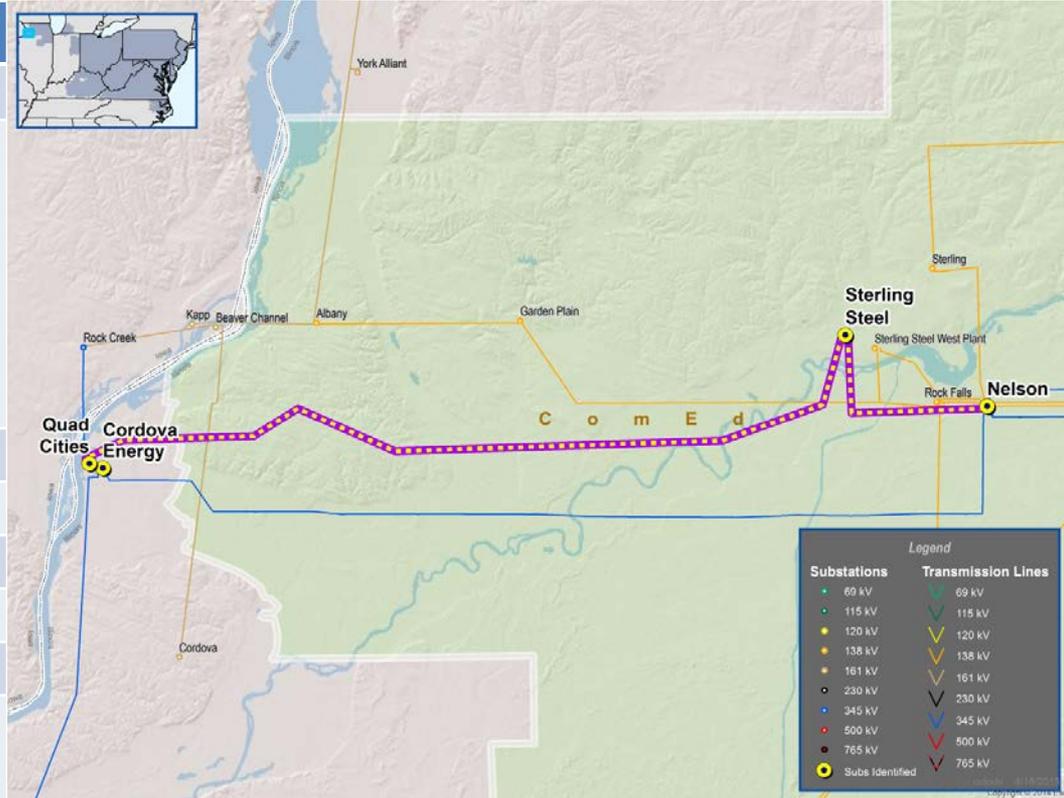
Cost (\$M): 24.6

IS Date: 2019

Target Zone: ComEd

ME Constraints: Cordova to Nelson 345 kV

Notes:



Project ID: 201415_1-10K

Proposed by: COMED

Proposed Solution: Replace station equipment at three stations and reconductor Cordova to Nelson 345kV line.

kV Level: 345

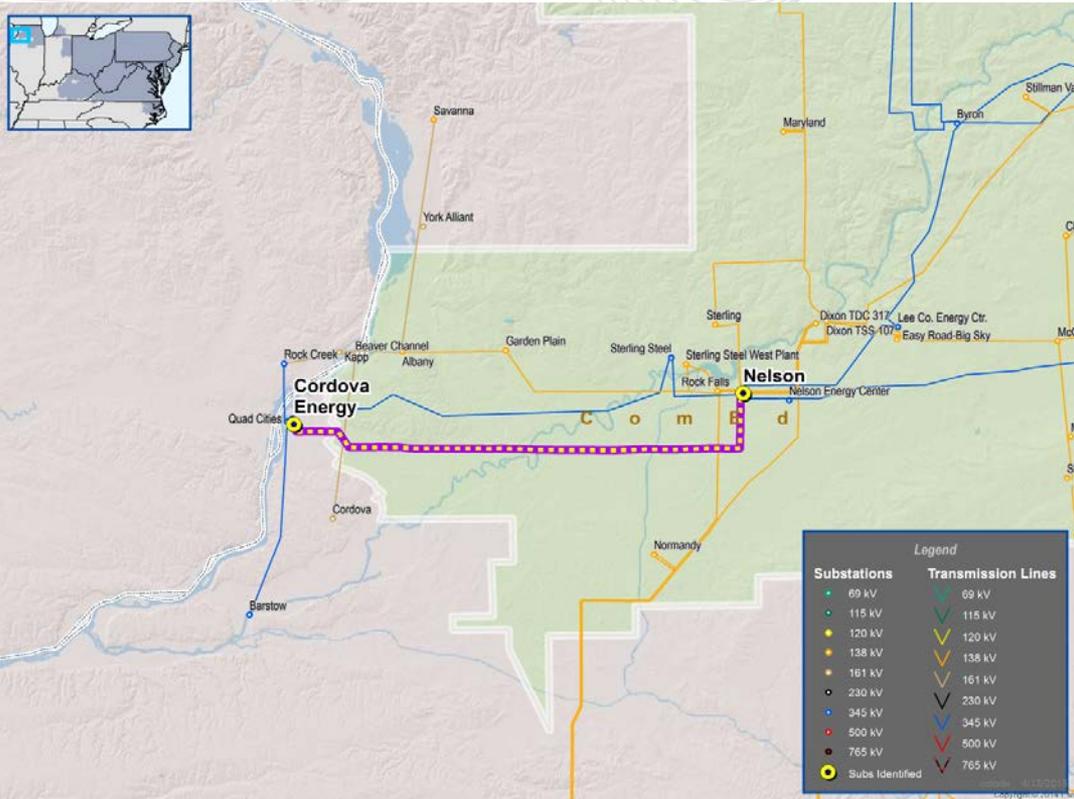
Cost (\$M): 15.5

IS Date: 2019

Target Zone: COMED

ME Constraints: Cordova to Nelson 345 kV

Notes:



Project ID: 201415_1-11E

Proposed by: PECO

Proposed Solution: Increase ratings of 5012 Peach Bottom-Conastone 500 kV line to 2490 MVA normal / 2815 MVA emergency

kV Level: 500

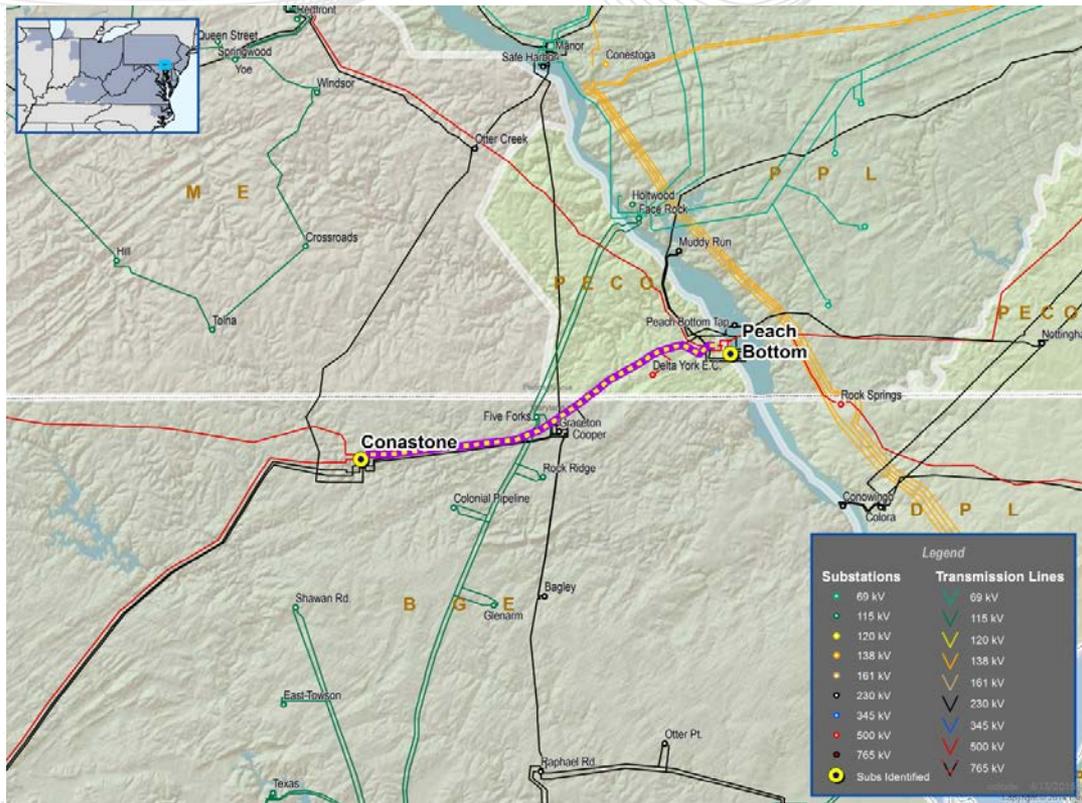
Cost (\$M): 1.8

IS Date: 2019

Target Zone: PECO

ME Constraints: Peach Bottom to Conastone 500 kV

Notes:



Project ID: 201415_1-11F

Proposed by: PECO

Proposed Solution: Increase ratings of 5012 Peach Bottom-Conastone 500 kV line to 2826 MVA normal / 3525 MVA emergency

kV Level: 500

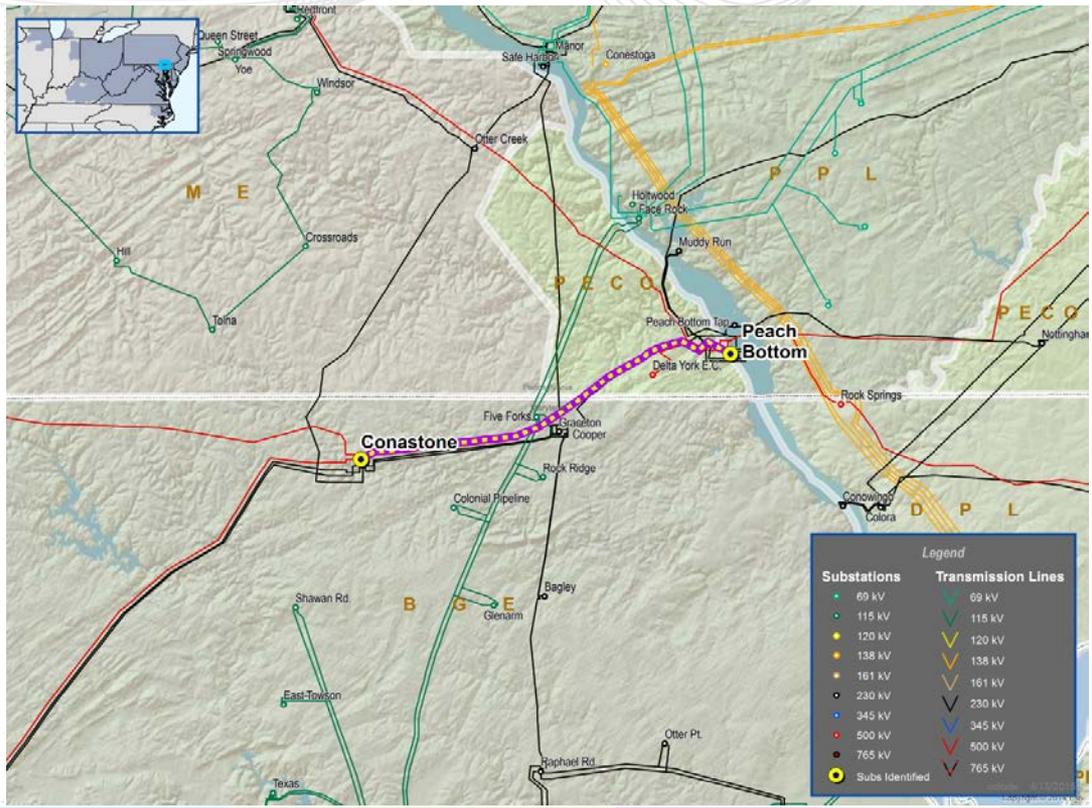
Cost (\$M): 8.7

IS Date: 2019

Target Zone: PECO

ME Constraints: Peach Bottom to Conastone 500 kV

Notes:



Project ID: 201415_1-11G

Proposed by: PECO

Proposed Solution: Increase ratings of Peach Bottom 500-230 kV transformer to 1245 MVA normal / 1387 MVA emergency

kV Level: 230

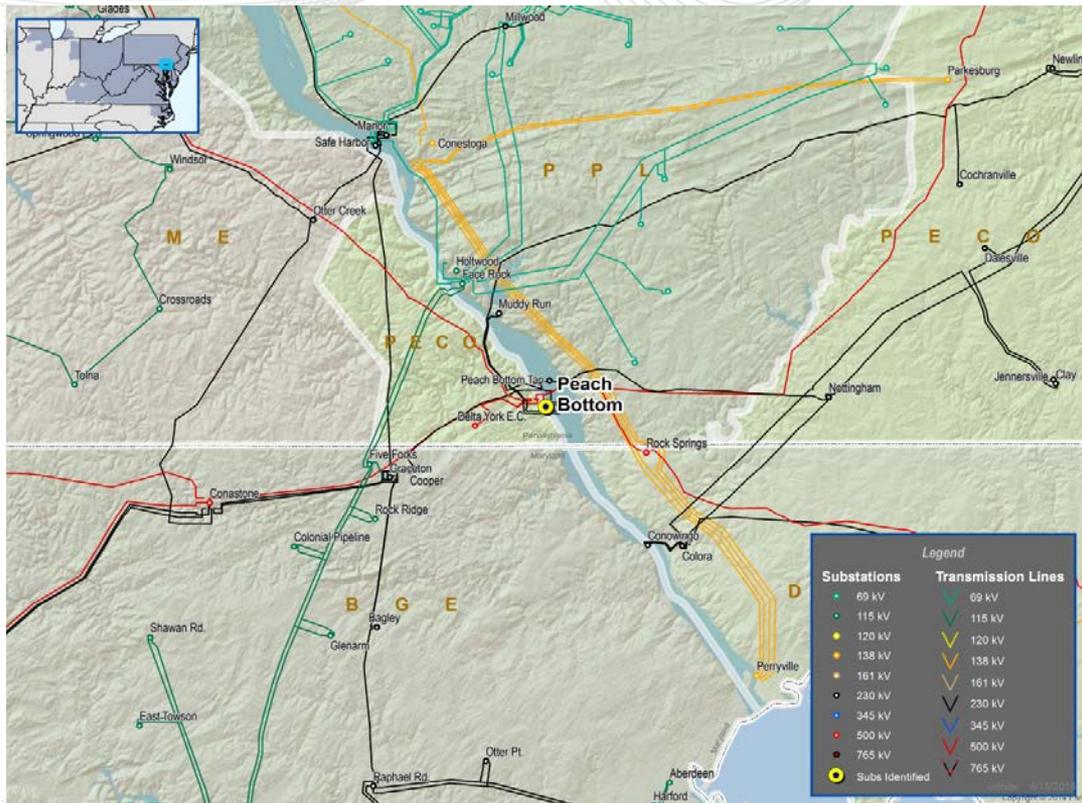
Cost (\$M): 0.2

IS Date: 2019

Target Zone: PECO

ME Constraints: Peach Bottom 500 kV

Notes:



Project ID: 201415_1-11H

Proposed by: PECO

Proposed Solution: Increase ratings of Peach Bottom 500-230 kV transformer to 1479 MVA normal / 1839 MVA emergency

kV Level: 230

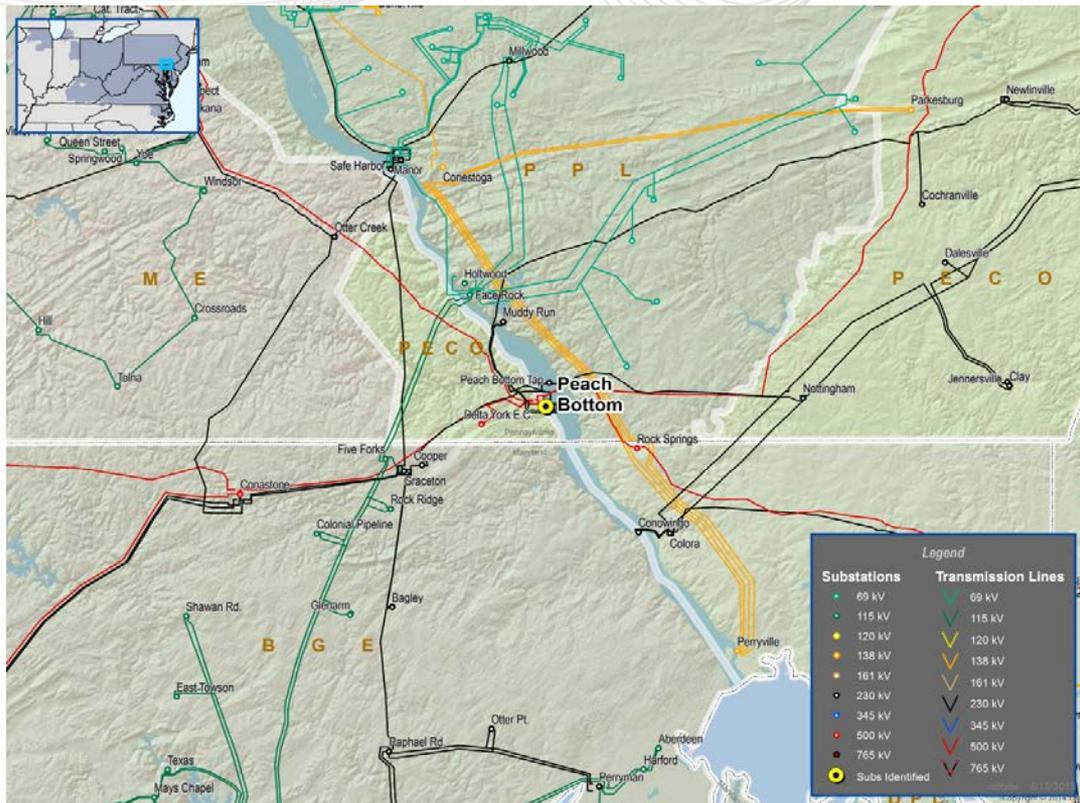
Cost (\$M): 9.7

IS Date: 2019

Target Zone: PECO

ME Constraints: Peach Bottom 500 kV

Notes:



Project ID: 201415_1-111

Proposed by: PECO

Proposed Solution: Install a 2nd 500-230 kV transformer at Peach Bottom substation

kV Level: 230

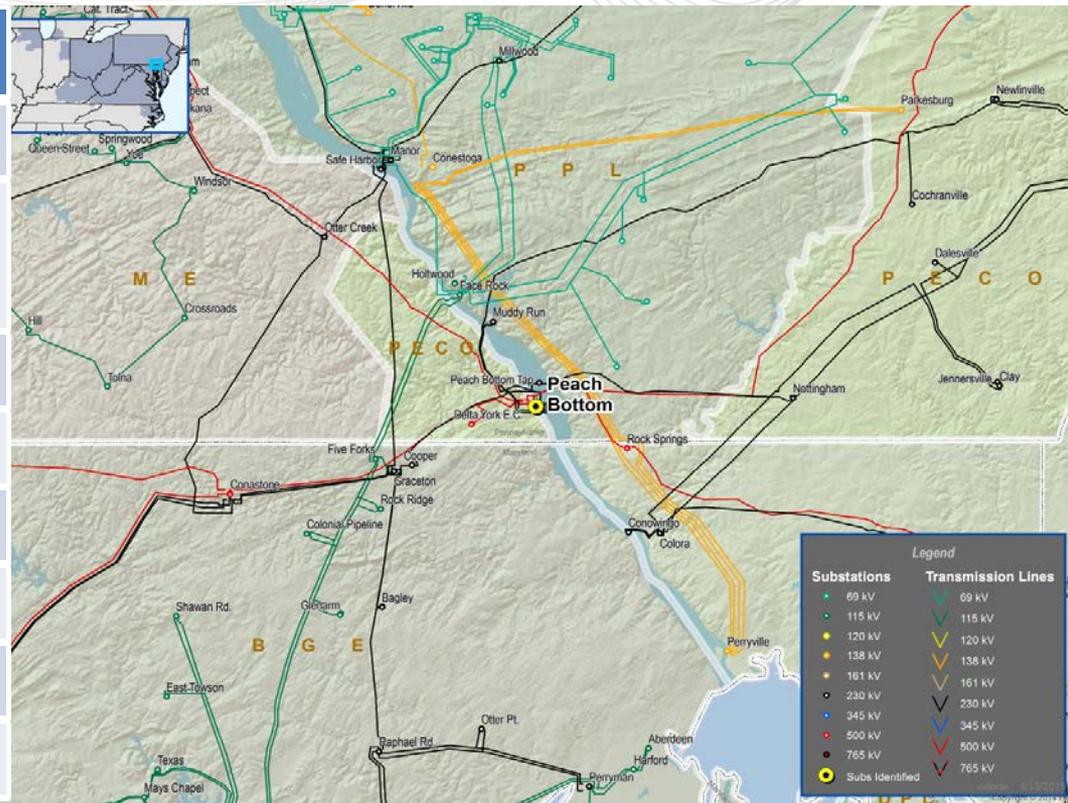
Cost (\$M): 21.1

IS Date: 2020

Target Zone: PECO

ME Constraints: Peach Bottom 500 kV

Notes:



Project ID: 201415_1-12A

Proposed by: Duquesne Light

Proposed Solution: Reconductor approximately 7 miles of the Woodville-Peters (Z-117) 138kV circuit, reconfigure the West Mifflin-USS Clairton (Z-15) 138kV circuit to establish the Dravosburg-USS Clairton (Z-14) 138kV circuit and the West Mifflin-Wilson (Z-15) 138kV circuit

kV Level: 138

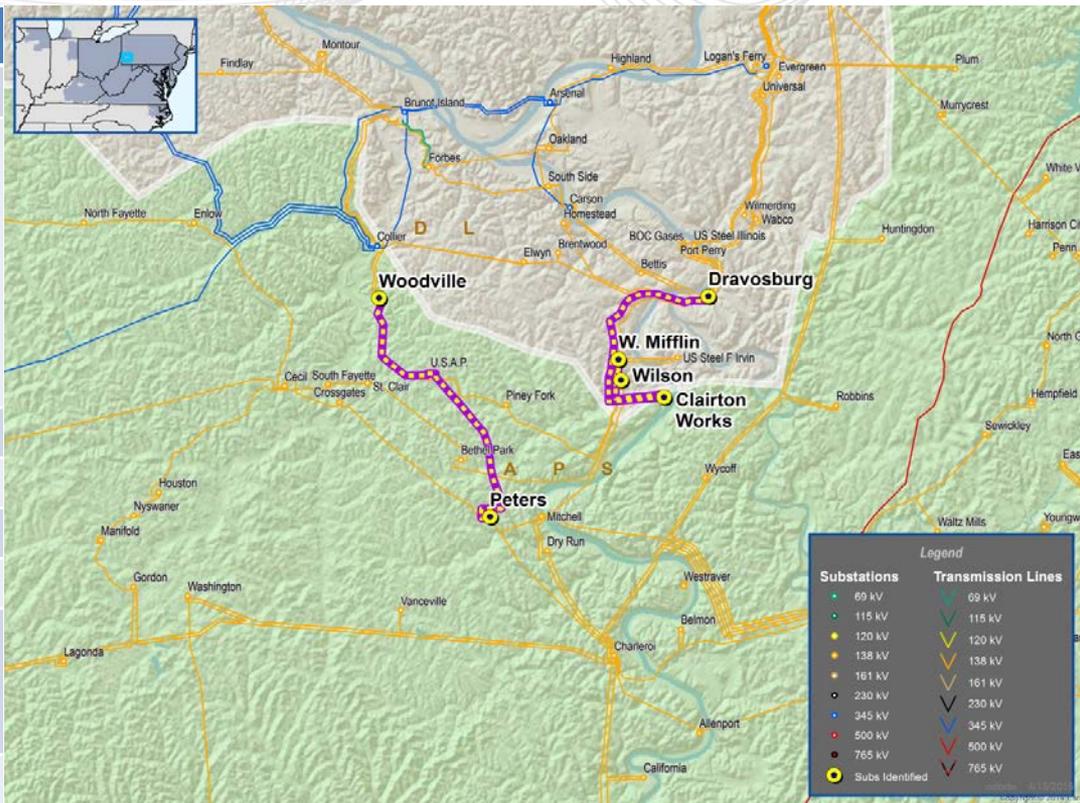
Cost (\$M): 11.184

IS Date: 2018

Target Zone: DUQ

ME Constraints: Dravosburg to West Mifflin 138 kV
Woodville to 15USAP 138 kV

Notes:



Project ID: 201415_1-13E

Proposed by: PHI

Proposed Solution: Rebuild Worcester - Ocean Pine 60 kV ckt 1 to 1400A capability summer emergency

kV Level: 69

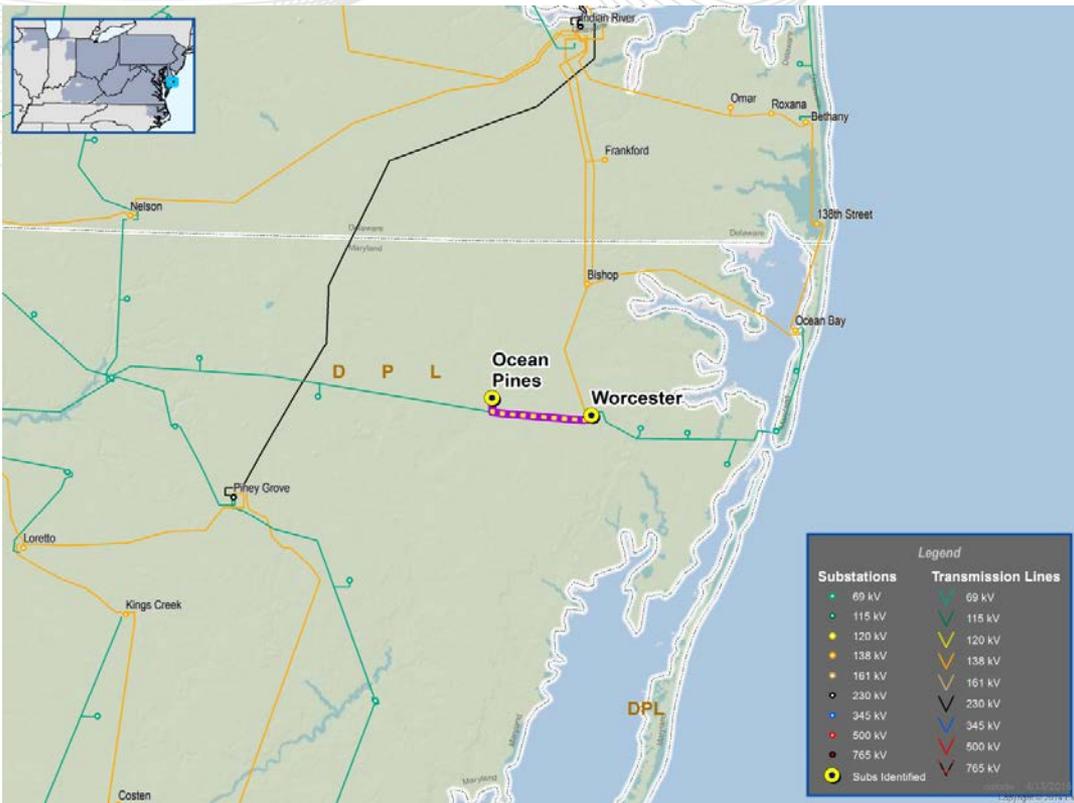
Cost (\$M): 2.4

IS Date: 2016

Target Zone: DPL

ME Constraints: Worcester to Ocean Pines (I) 69 kV

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

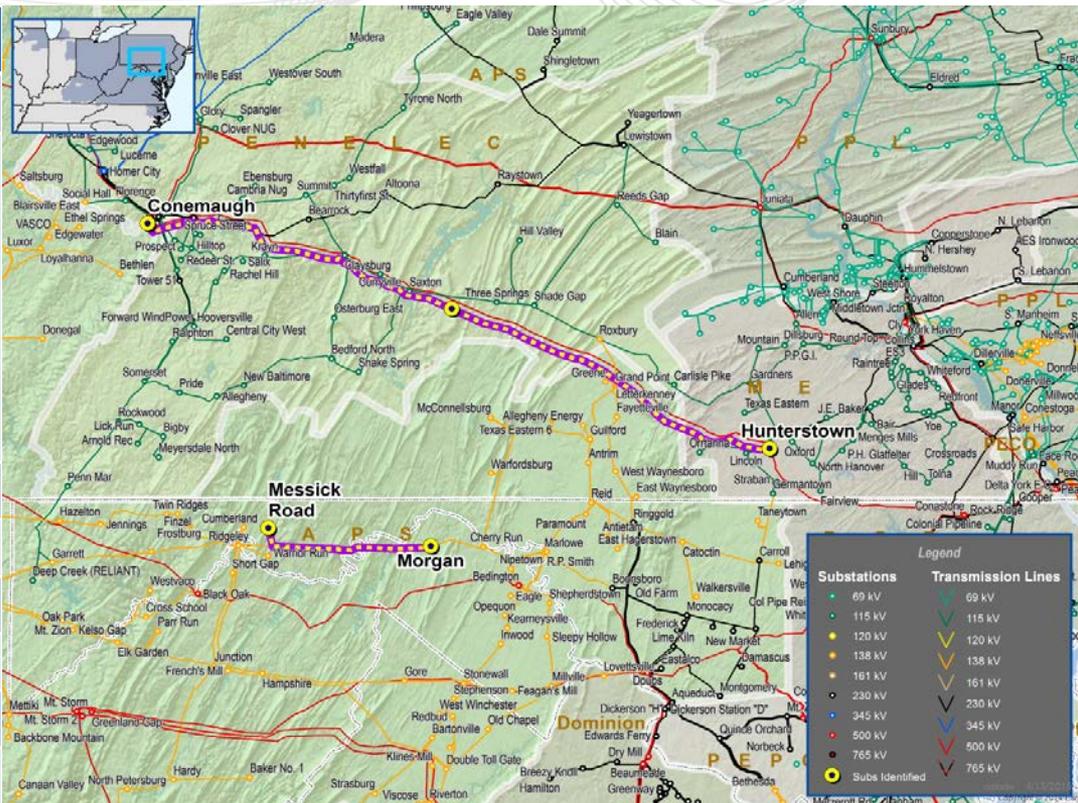
Cost (\$M): 47.14

IS Date: 2019

Target Zone: PECO/Meted/APS

ME Constraints: AP SOUTH L/O BED-BLA

Notes:



Project ID: 201415_1-14B

Proposed by: DATC

Proposed Solution: The project cuts into the Germantown - Straban 115 kV line near Germantown. It loops 11 miles of double circuit 115 kV from the cut-in section to Fairview substation and back, tying in to the 115 kV line up to Straban (using the existing circuit).

kV Level: 115

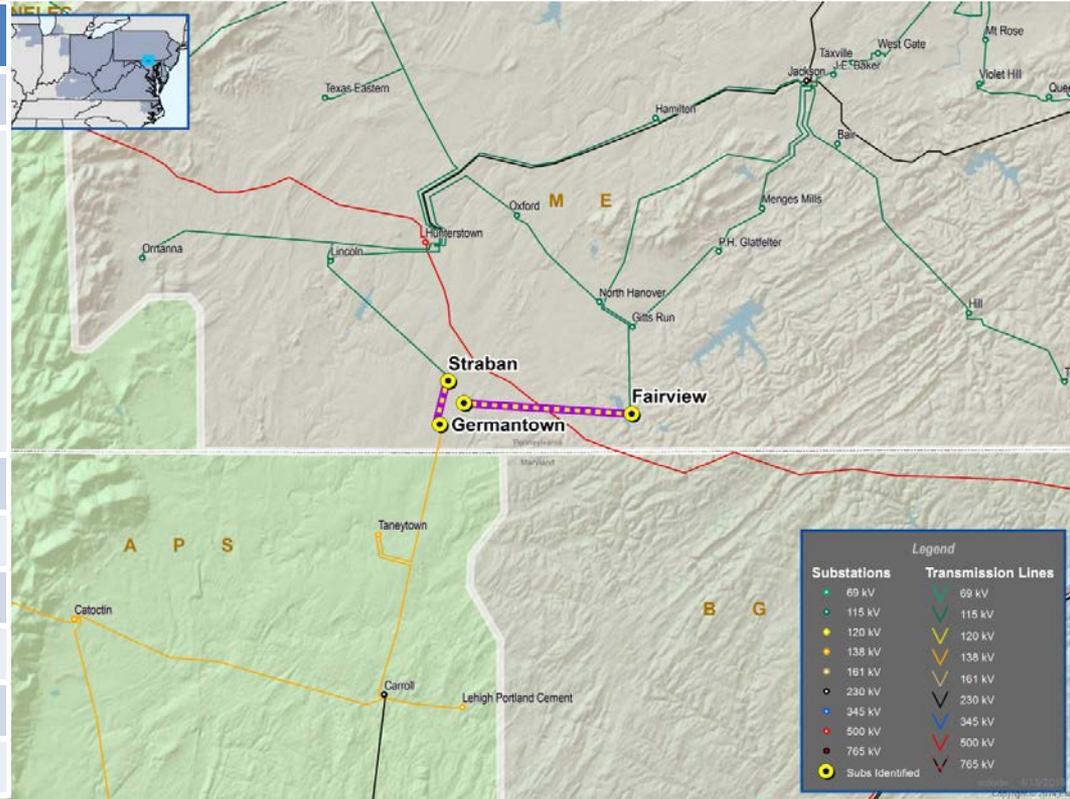
Cost (\$M): 21.11

IS Date: 2020

Target Zone: Meted

ME Constraints: Taneytown to Carroll 138 kV

Notes:



Project ID: 201415_1-14C

Proposed by: DATC

Proposed Solution: Build a new 345 kV substation in Northern Kentucky to tie together the Miami Fort – Tanners Creek 345 kV line and the Miami Fort – Terminal 345 kV line

kV Level: 138

Cost (\$M): 11.35

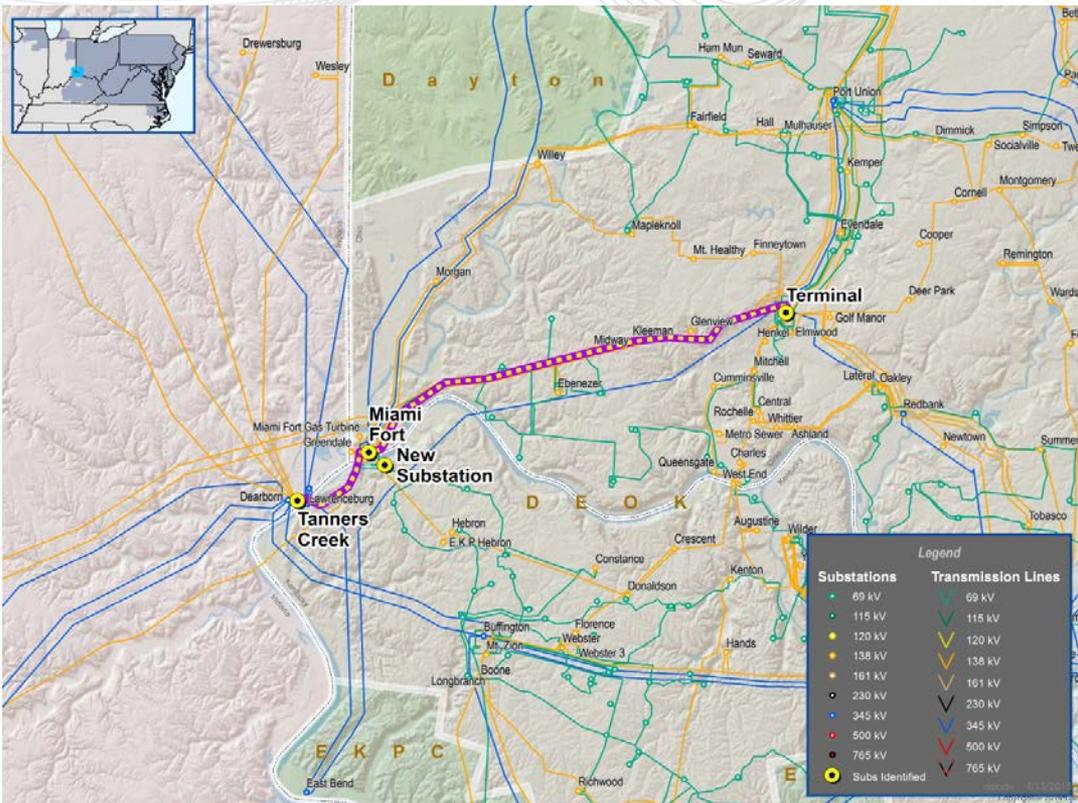
IS Date: 2019

Target Zone: DEOK

ME Constraints: Miami Fort to Willey 138 kV

Notes: Deactivation project removes driver

Proposal will not be evaluated.



Project ID: 201415_1-15A

Proposed by: Grid America

Proposed Solution: Create a six-mile underground 230 kV 5000 kcmil transmission line between the West Orange 230 kV Substation to Cook Road 230 kV Substation. The underground 230 kV line will be connected to the Cook Road 230 kV bus “C”.

kV Level: 230

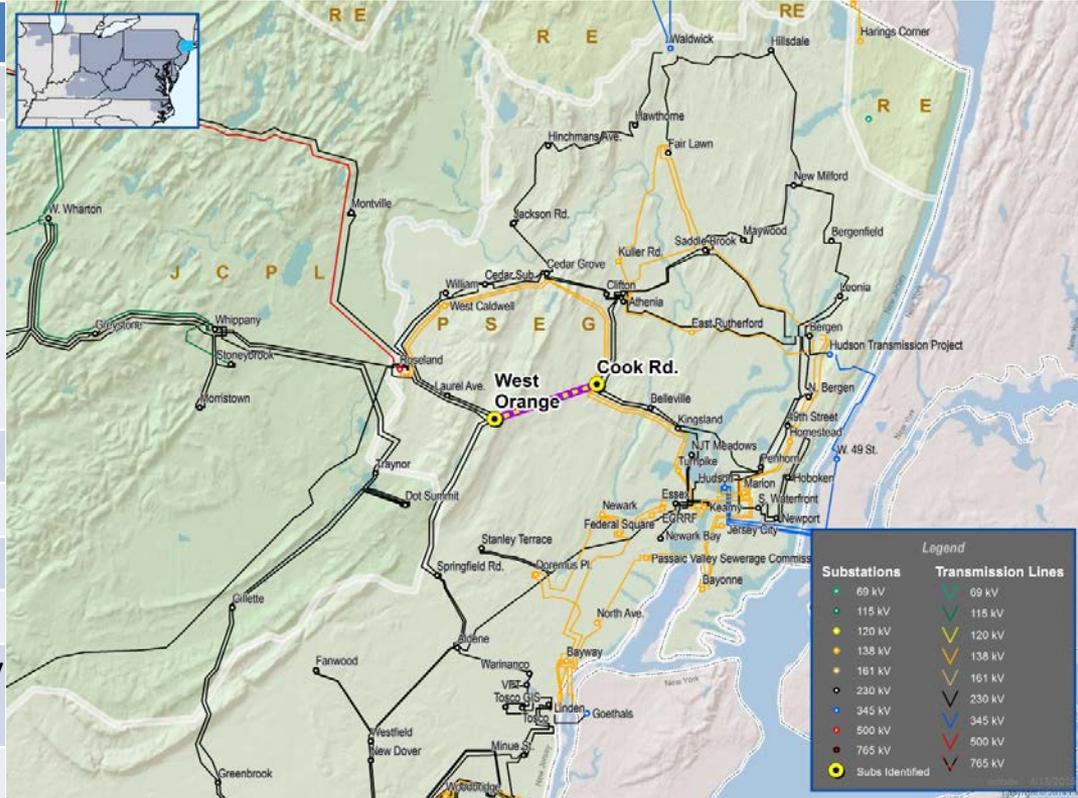
Cost (\$M): 125

IS Date: 2019

Target Zone: PSEG

ME Constraints: Roseland-Cedar Grove-Clifton 230 kV corridor

Notes:



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

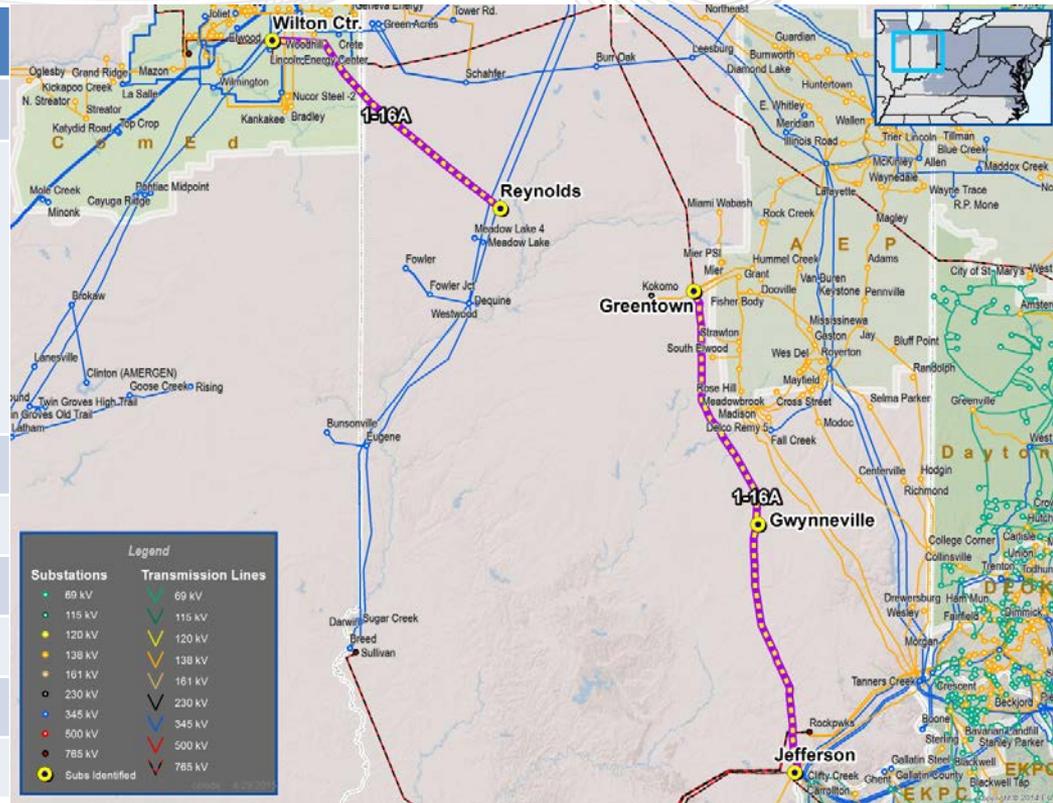
Cost (\$M): 240

IS Date: 2022

Target Zone: AEP/CE/NIPS

ME Constraints: None Specified

Notes:



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

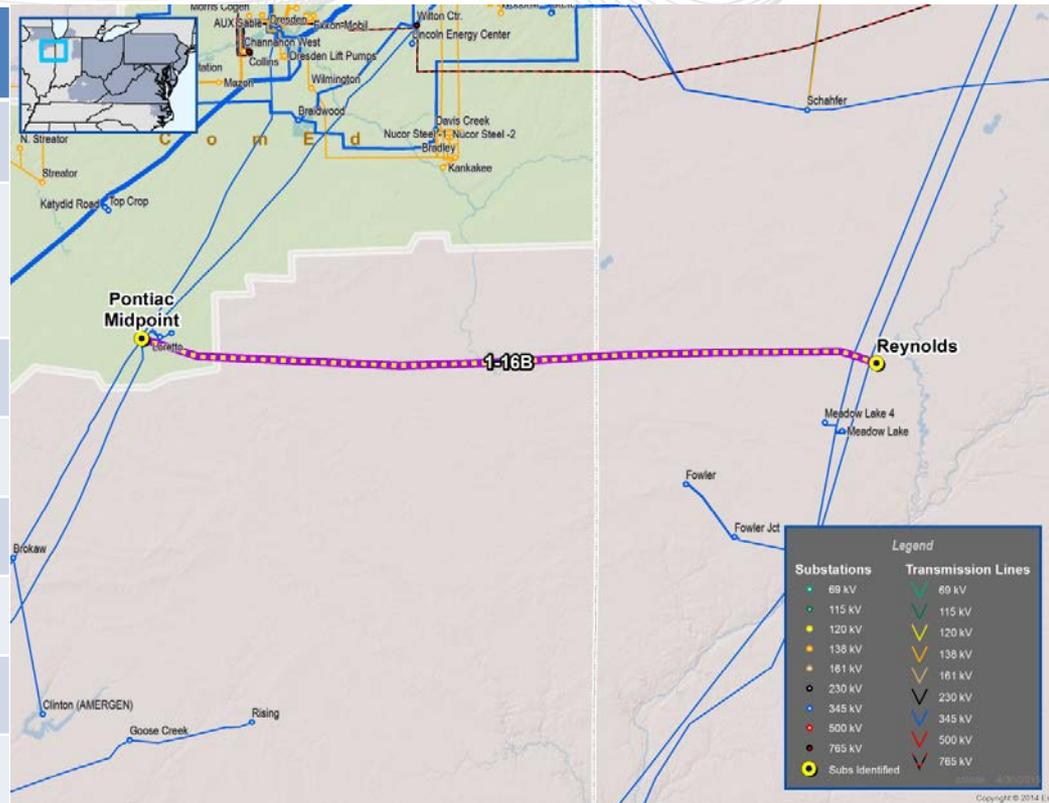
Cost (\$M): 290

IS Date: 2022

Target Zone: AEP/CE/NIPS

ME Constraints: Loretto to Wilton CTR 345 kV

Notes:



Project ID: 201415_1-16C

Proposed by: Nipsco

Proposed Solution: Several upgrades and rebuilds to the NIPSCO system: Burnham-Munster 345 kV, Burnham-Sheffield 345kV, Dumont-Stillwell 345kV, Michigan City-LA Porte 138 kV; Rebuild Michigan City – Trail Creek 138 kV. Rebuild Trail Creek – New Carlisle 138 kV. Rebuild Maple-New Carlisle 138 kV.

kV Level: 345

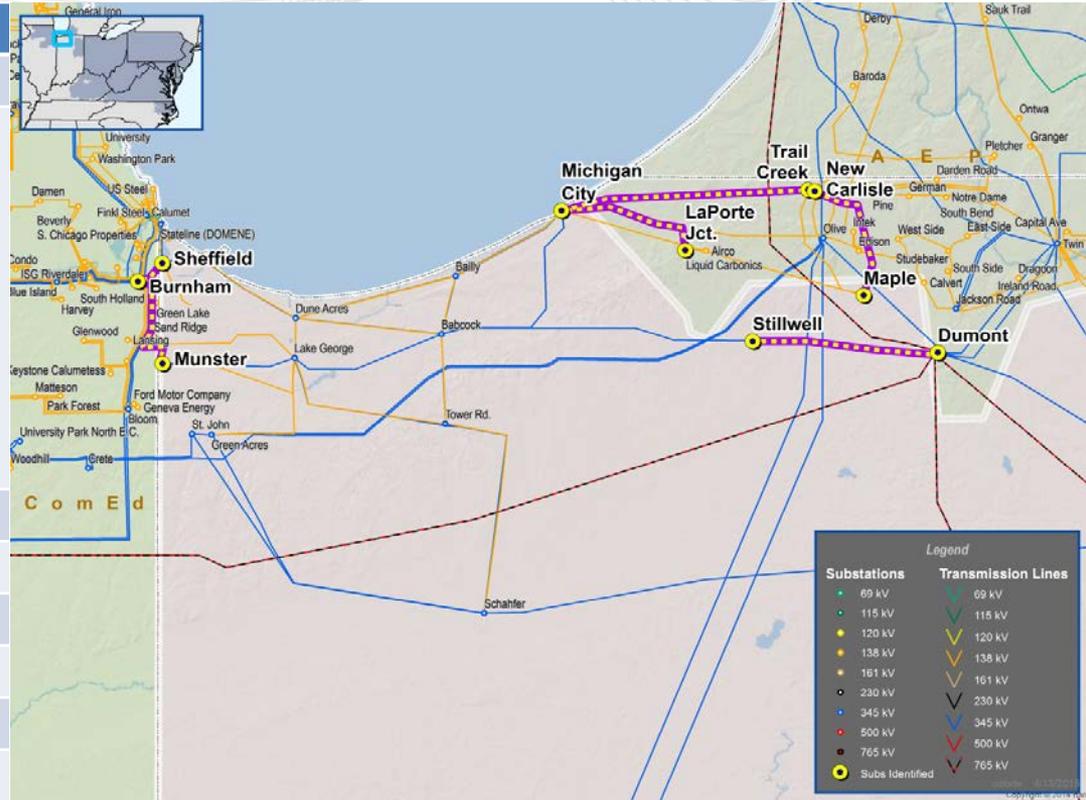
Cost (\$M): 81.164

IS Date: 2019

Target Zone: AEP/CE/NIPS

ME Constraints: Various M2M facilities

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

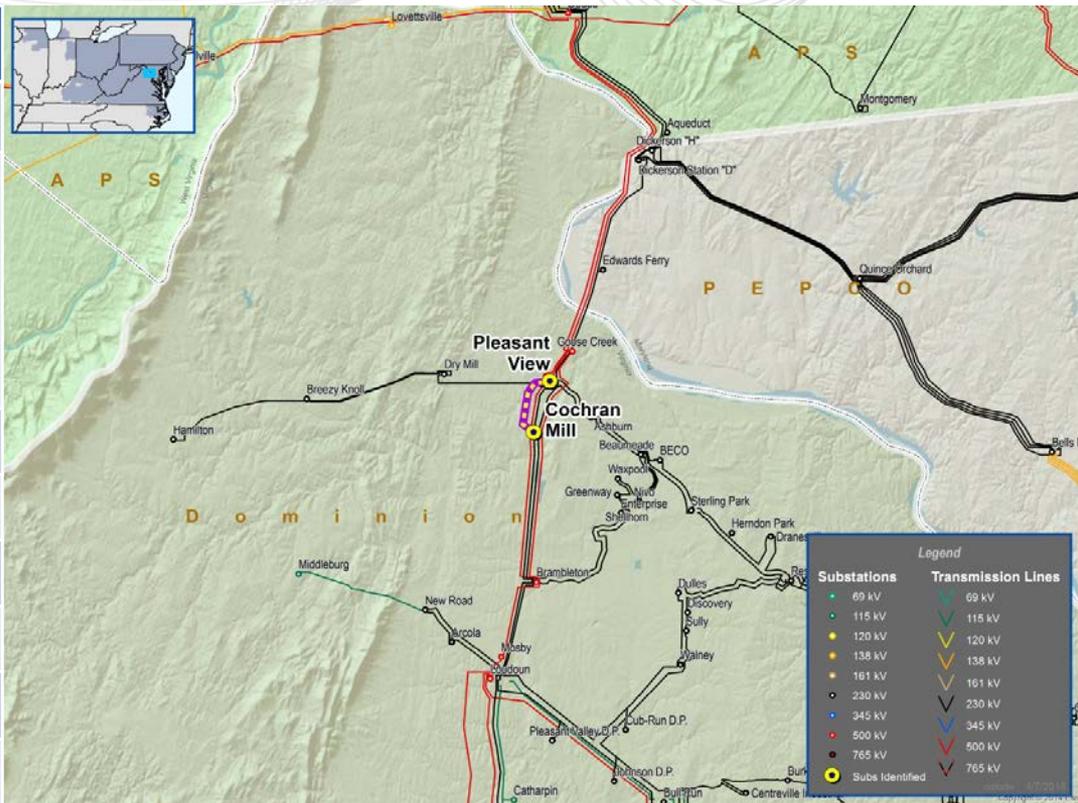
Cost (\$M): 16.5

IS Date: 2019

Target Zone: Dominion

ME Constraints: AP SOUTH L/O BED-BLA

Notes:



Project ID: 201415_1-17B

Proposed by: Nextera

Proposed Solution: Build new Cochran Mill 230 kV switchyard with 300MVAR SVC, 300 MVAR Capacitors, and a new 230 kV line from Cochran Mill - Pleasant View 230 kV

kV Level: 230

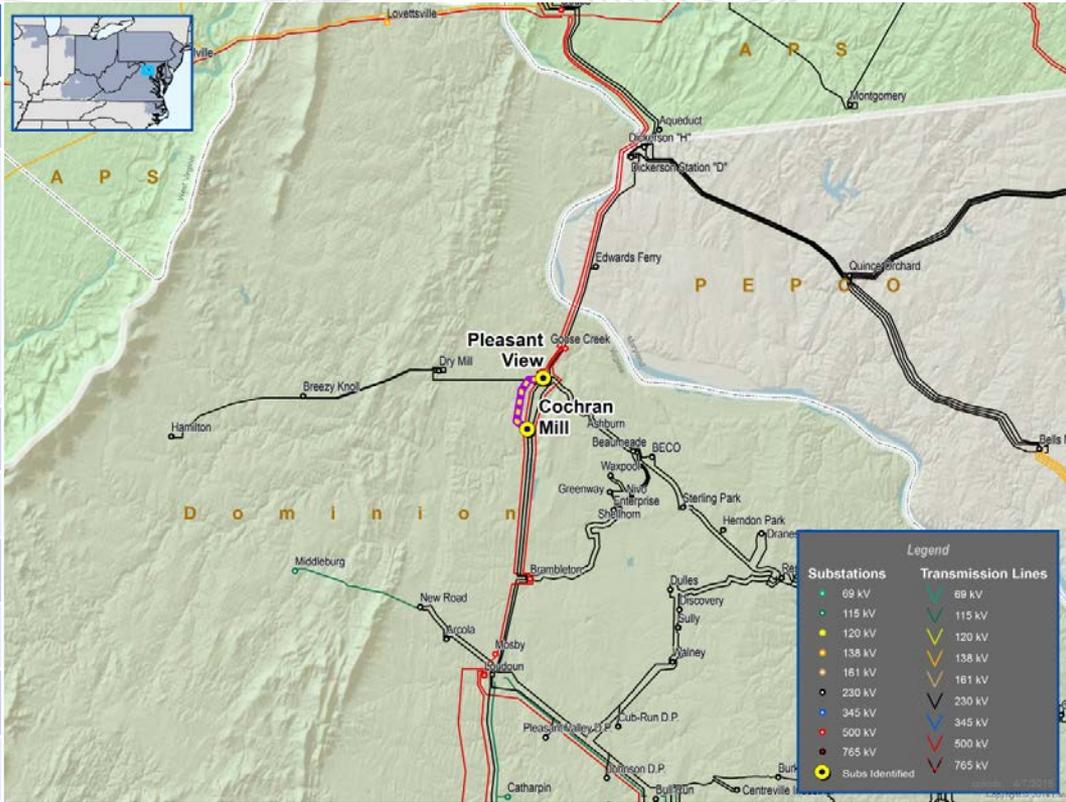
Cost (\$M): 41

IS Date: 2019

Target Zone: Dominion

ME Constraints: AP SOUTH L/O BED-BLA

Notes:



Project ID: 201415_1-17C

Proposed by: Nextera

Proposed Solution: Build new Cochran Mill 230 kV switchyard with 400 MVAR Capacitors, and a new 230 kV line from Cochran Mill - Pleasant View 230 kV

kV Level: 230

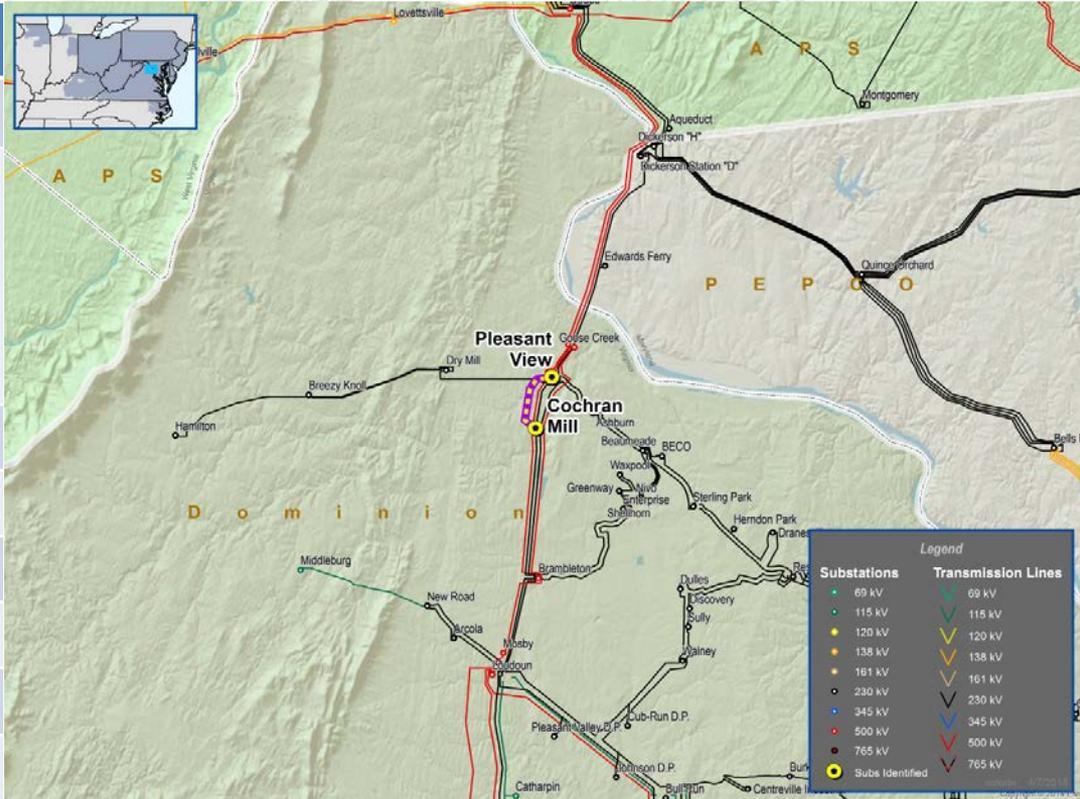
Cost (\$M): 15.7

IS Date: 2019

Target Zone: Dominion

ME Constraints: AP SOUTH L/O BED-BLA

Notes:



Project ID: 201415_1-17D

Proposed by: Nextera

Proposed Solution: Build new Cochran Mill 230 kV switchyard with 200MVAR SVC, 200 MVAR Capacitors, and a new 230 kV line from Cochran Mill - Pleasant View 230 kV

kV Level: 230

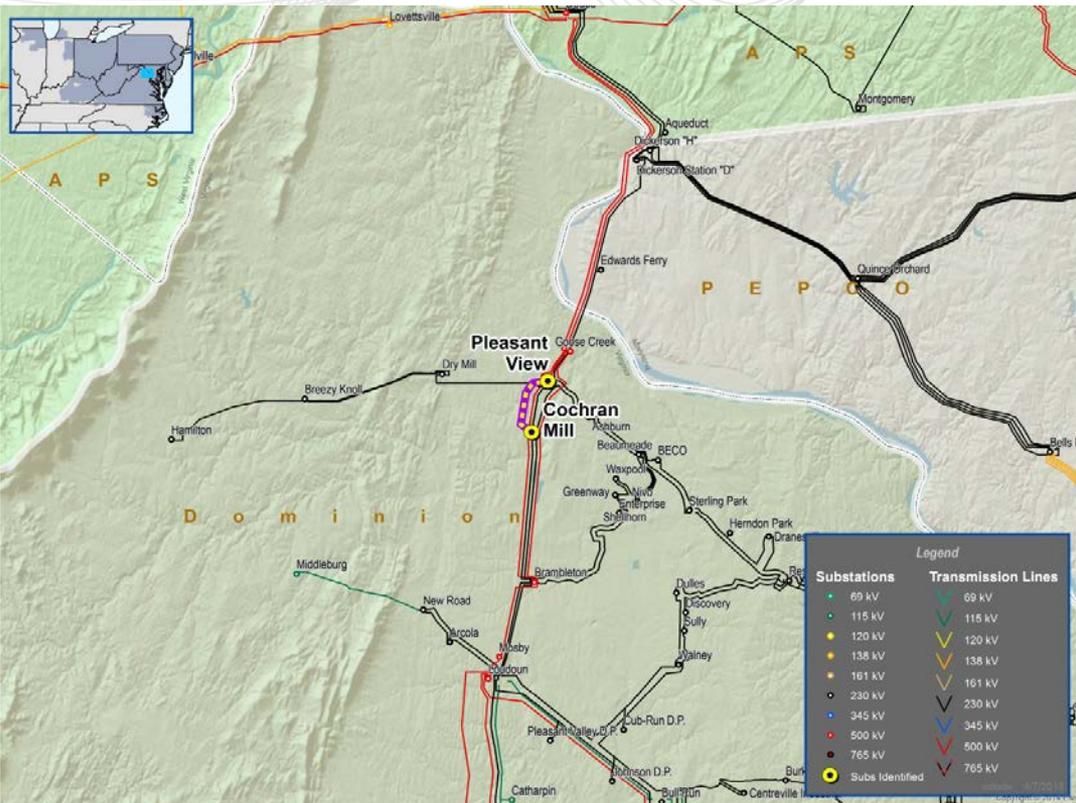
Cost (\$M): 36.4

IS Date: 2019

Target Zone: Dominion

ME Constraints: AP SOUTH L/O BED-BLA

Notes:



Project ID: 201415_1-17E

Proposed by: Nextera

Proposed Solution: Build new Hunterstown - Brighton
500 kV line, Build new Conastone - Peach Bottom
500 kV line

kV Level: 500

Cost (\$M): 297

IS Date: 2019

Target Zone: PECO

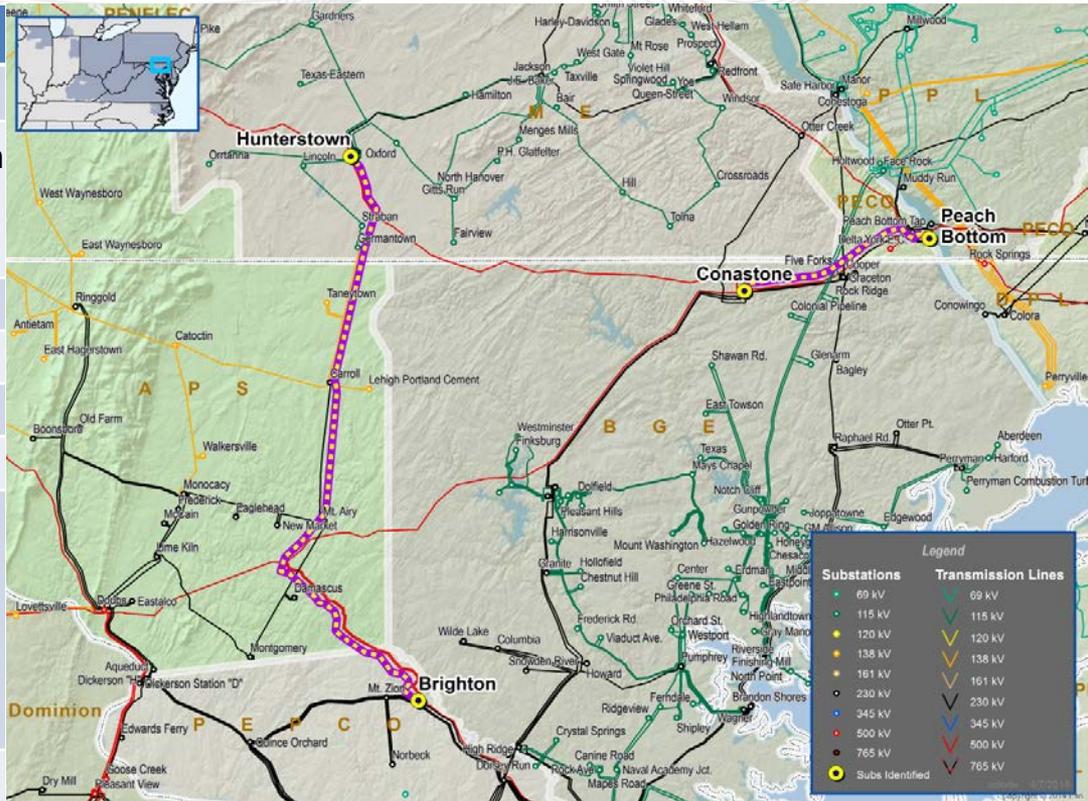
ME Constraints: AP SOUTH L/O BED-BLA

Brunner Island to Yorkana 230 kV

Taneytown to Carroll 138 kV

Safe Harbor to Graceton 230 kV

Notes:



Project ID: 201415_1-17F

Proposed by: Nextera

Proposed Solution: Build new Conastone - Peach Bottom 500 kV line

kV Level: 500

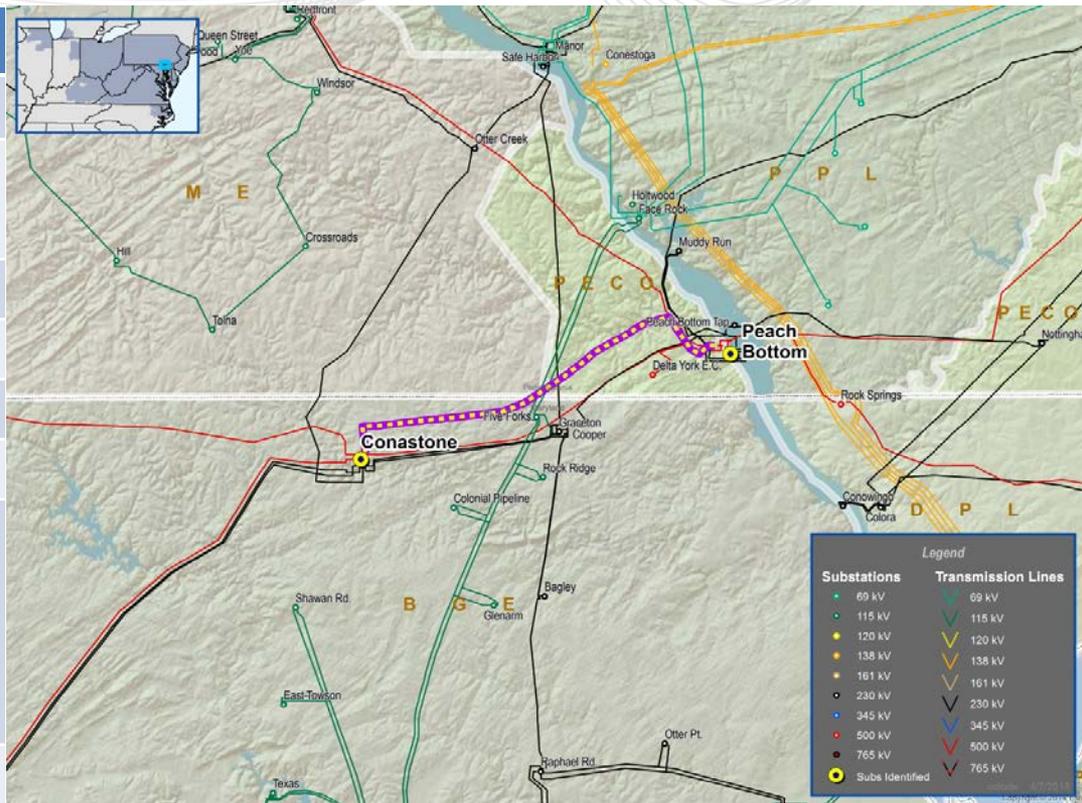
Cost (\$M): 76.2

IS Date: 2019

Target Zone: PECO

ME Constraints: AP SOUTH L/O BED-BLA
 Brunner Island to Yorkana 230 kV
 Safe Harbor to Graceton 230 kV

Notes:



Project ID: 201415_1-17G

Proposed by: Nextera

Proposed Solution: Build new Atom 500 kV substation, Build new Conastone - Peach Bottom 500 kV line, Loop York - Peach Bottom 500 kV line into Atom

kV Level: 500

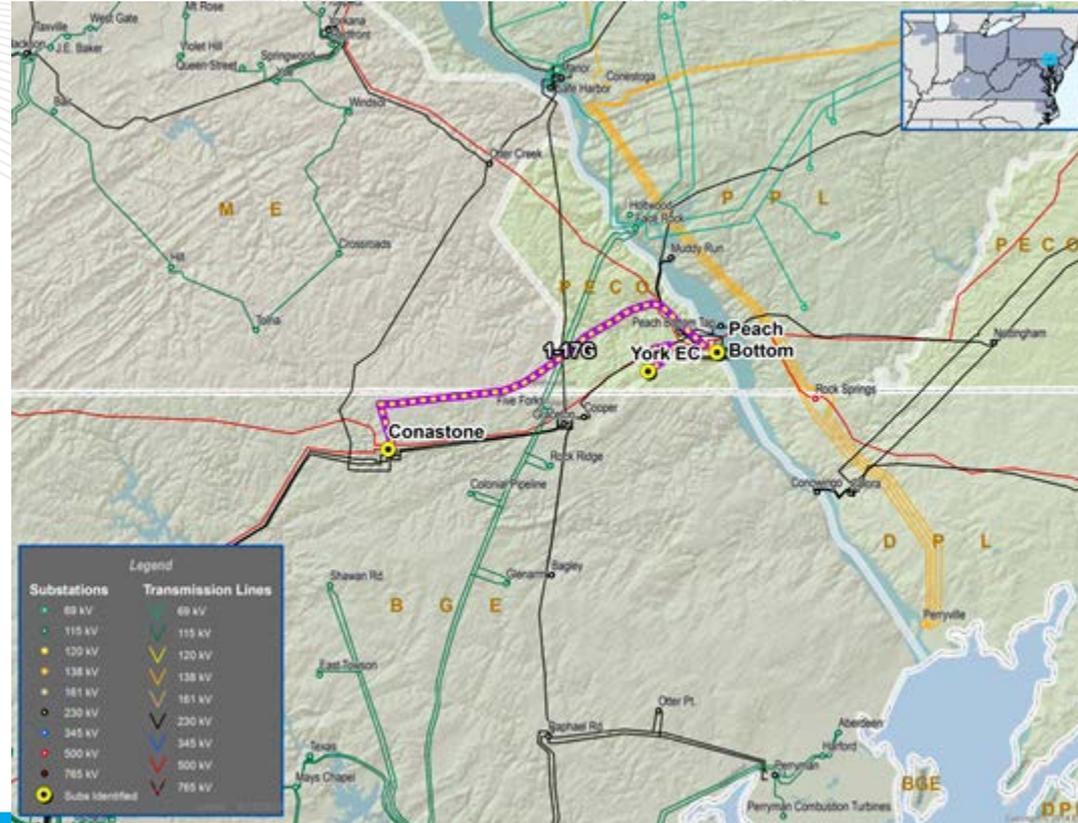
Cost (\$M): 86.3

IS Date: 2019

Target Zone: PECO

ME Constraints: AP SOUTH L/O BED-BLA
 Brunner Island to Yorkana 230 kV
 Safe Harbor to Graceton 230 kV

Notes:



Project ID: 201415_1-18E

Proposed by: FirstEnergy

Proposed Solution: Install series capacitors on the Doubs-Mt. Storm 500 kV line

kV Level: 500

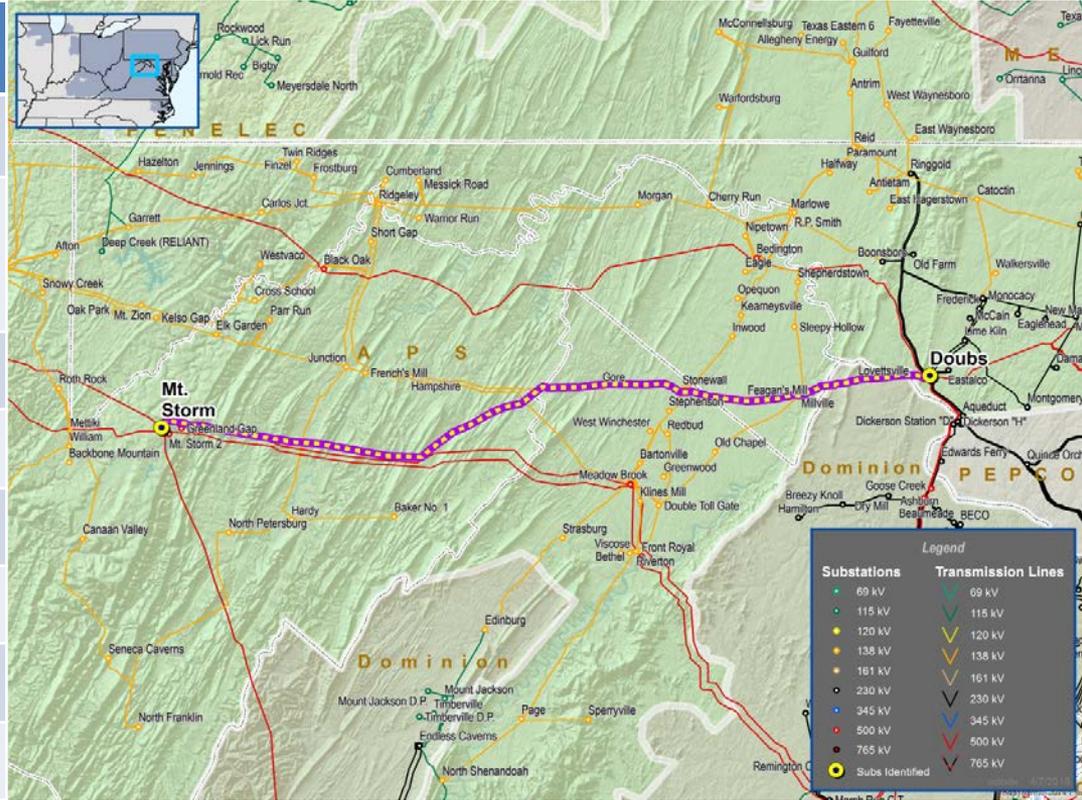
Cost (\$M): 66

IS Date: 2019

Target Zone: Dominion/APS

ME Constraints: AP SOUTH L/O BED-BLA

Notes:



Project ID: 201415_1-18F

Proposed by: FirstEnergy

Proposed Solution: Complete the existing Jacks Mountain baseline RTEP project (b0284.1, b0284.3, b0285.1, and b0285.2), Install 500 kV Series Capacitors at Jacks Mountain.

kV Level: 500

Cost (\$M): 68

IS Date: 2019

Target Zone: Penelec

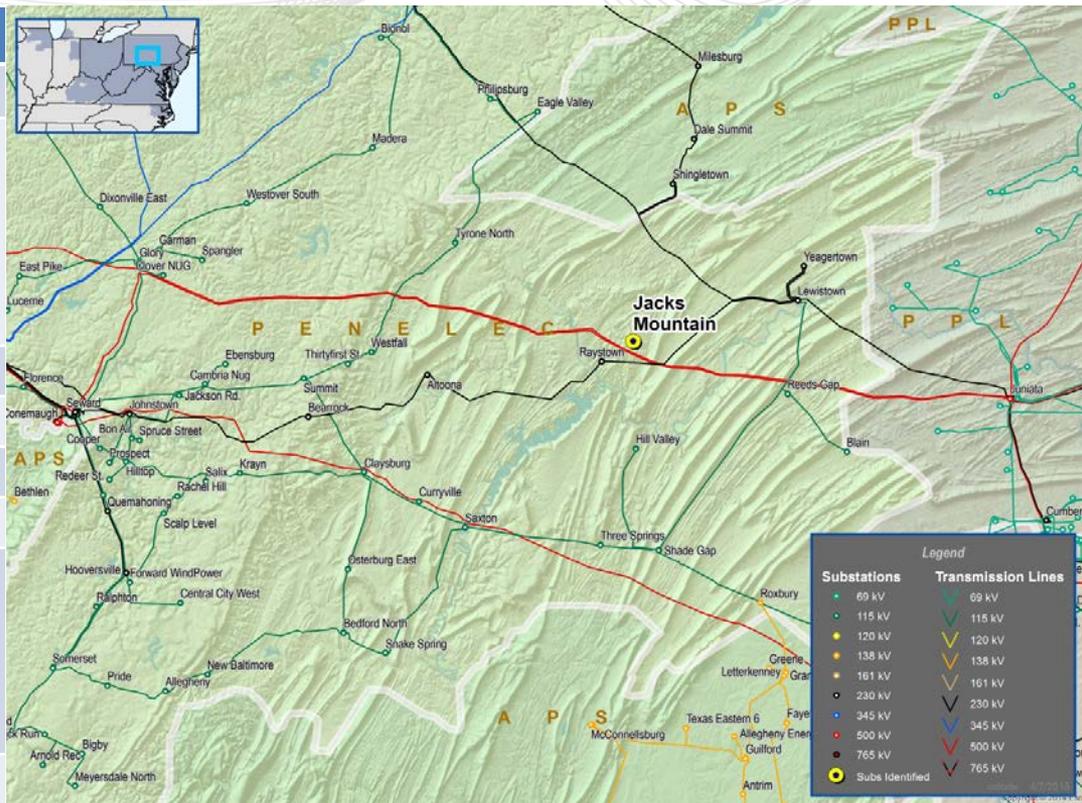
ME Constraints: AP SOUTH L/O BED-BLA

Other Interfaces

Taneytown to Carroll 138 kV

Pruntytown to 8MTSTORM 500 kV

Notes:



Project ID: 201415_1-18G

Proposed by: FirstEnergy

Proposed Solution: Upgrade terminal equipment on the Lincoln - Carroll 115/138kV path.

kV Level: 138

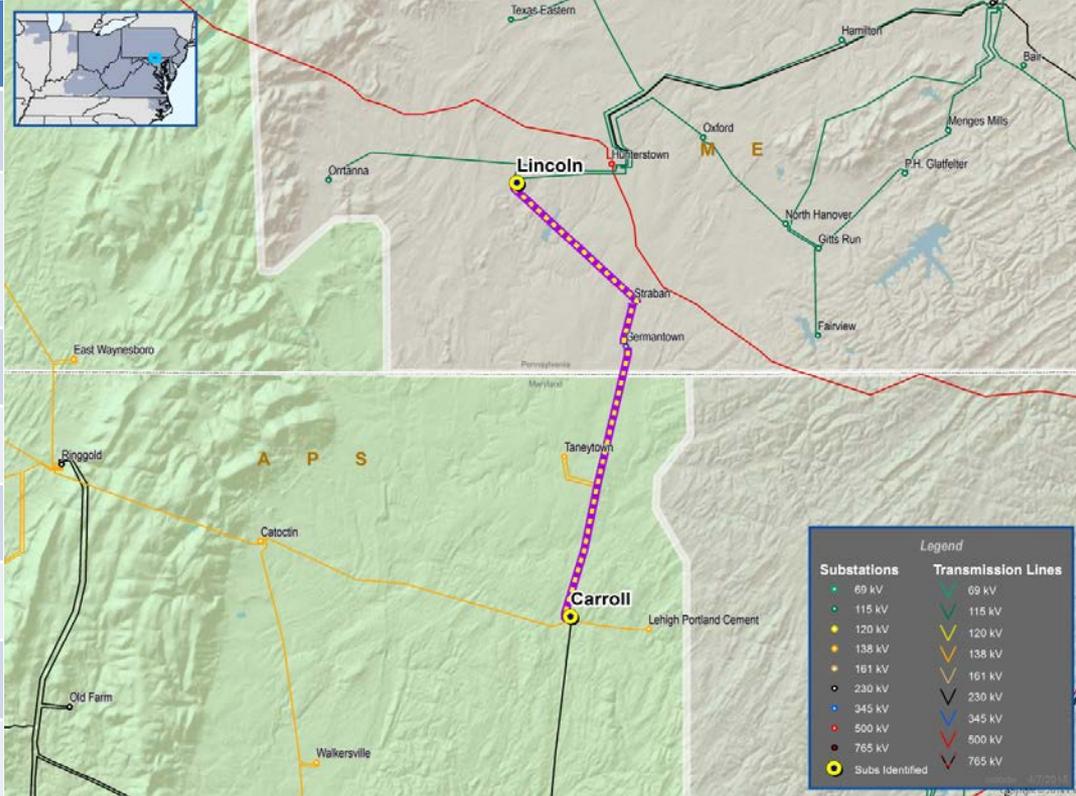
Cost (\$M): 5.2

IS Date: 2019

Target Zone: APS/Meted

ME Constraints: Taneytown to Carroll 138 kV

Notes:



Project ID: 201415_1-18H

Proposed by: FirstEnergy

Proposed Solution: Rebuild and Reconductor the Lincoln - Carroll 115/138kV path. Line will be constructed for future 230kV operation.

kV Level: 138

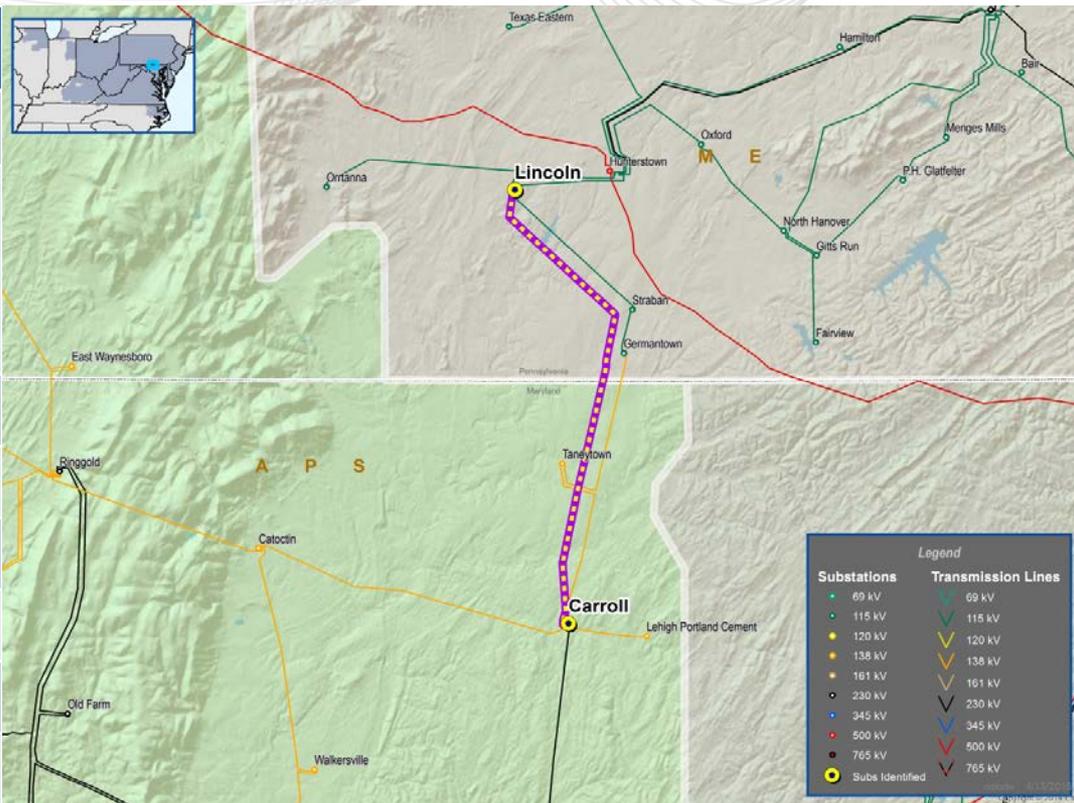
Cost (\$M): 58

IS Date: 2019

Target Zone: APS/Meted

ME Constraints: Taneytown to Carroll 138 kV

Notes:



Project ID: 201415_1-181

Proposed by: FirstEnergy

Proposed Solution: Upgrade 138 kV substation equipment at Butler, Shanor Manor, and Krendale substations. New rating of the line will be 353 MVA summer normal and 422 MVA summer emergency

kV Level: 138

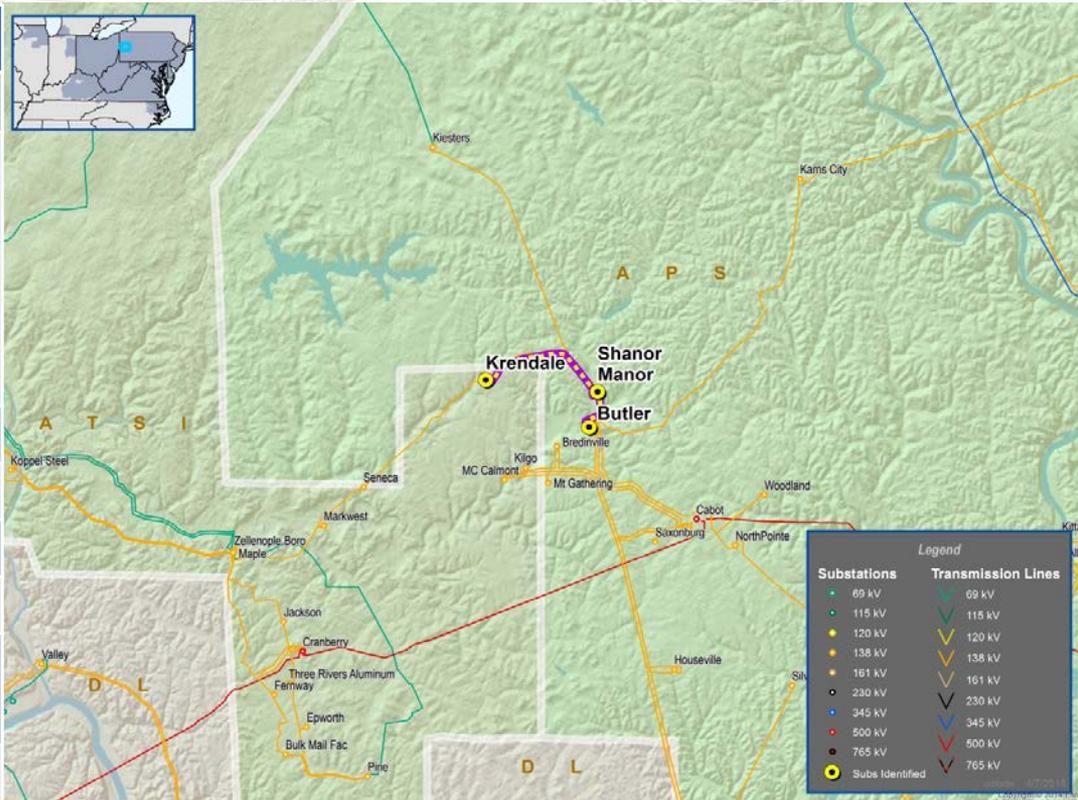
Cost (\$M): 0.6

IS Date: 2019

Target Zone: APS/Meted

ME Constraints: Krendale to Shanor Manor 138 kV

Notes:



Project ID: 201415_1-18J

Proposed by: FirstEnergy

Proposed Solution: Replace the existing 345/138kV 448MVA transformer at Avon substation.
 Reconductor the Black River-Lorain 138kV line.
 Upgrade terminal end equipment. Construct second 138kV line between West Fremont and Hayes substations.

kV Level: 345

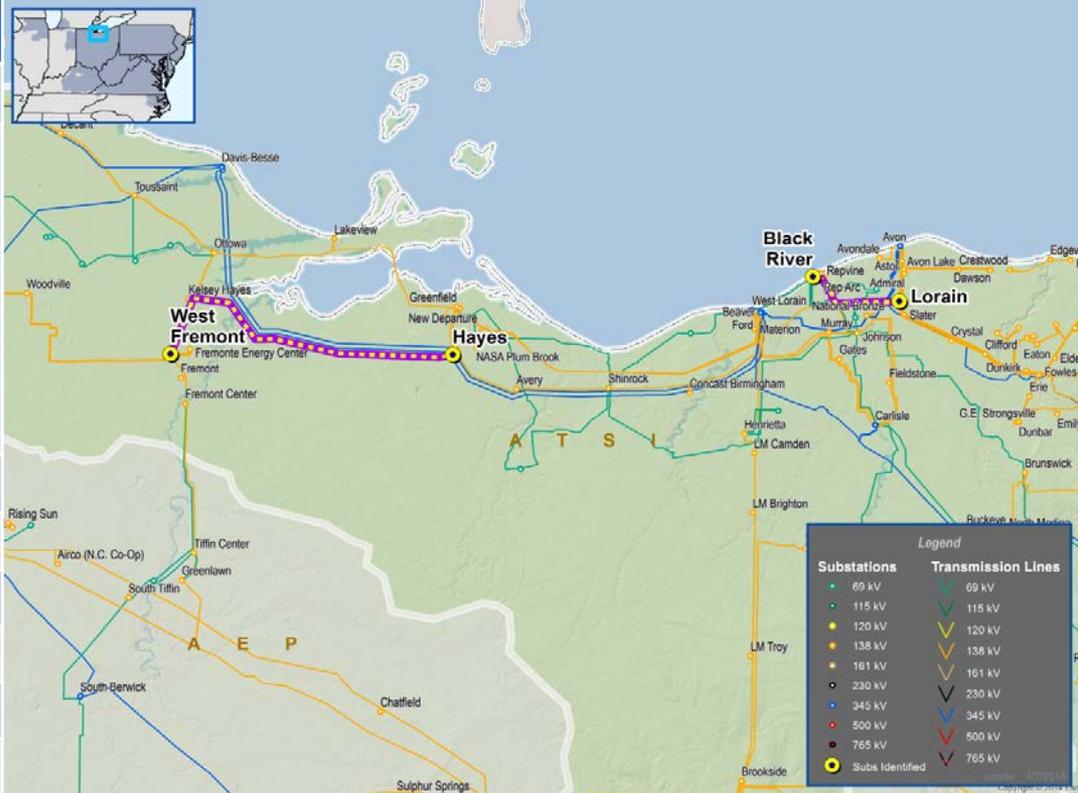
Cost (\$M): 22.4

IS Date: 2019

Target Zone: ATSI

ME Constraints: CLEVELAND INTERFACE

Notes:



Project ID: 201415_1-18K



Proposed by: FirstEnergy

Proposed Solution: b2559 Reconductor the Black River-Lorain 138kV line and upgrade Black River and Lorain substation terminal end equipment. (once the Baseline RTEP projects are completed. No additional Upgrades are required.)

kV Level: 138

Cost (\$M): 9.6

IS Date: 2019

Target Zone: ATSI

ME Constraints: 02BLKRVR to Lorain 138 kV

Notes: B2559 removes driver



Proposal will not be evaluated.

Project ID: 201415_1-18L

Proposed by: FirstEnergy

Proposed Solution: No upgrade required. The rating utilized in the model was incorrect. (once the Baseline RTEP projects are completed. No additional Upgrades are required.)

kV Level: 138

Cost (\$M): N/A

IS Date: 2019

Target Zone: ATSI

ME Constraints: Crestwood to Astor 138 kV

Notes: Increased base ratings removes driver

Proposal will not be evaluated.

Project ID: 201415_1-19A

Proposed by: Northeast Transmission Development

Proposed Solution: Build 345 kV Switching Station (Garrison Creek) Interconnecting Miami Fort-Tanners Creek 345 kV Line and Miami Fort-Terminal 345 kV Line.

kV Level: 345

Cost (\$M): 18.6

IS Date: 2019

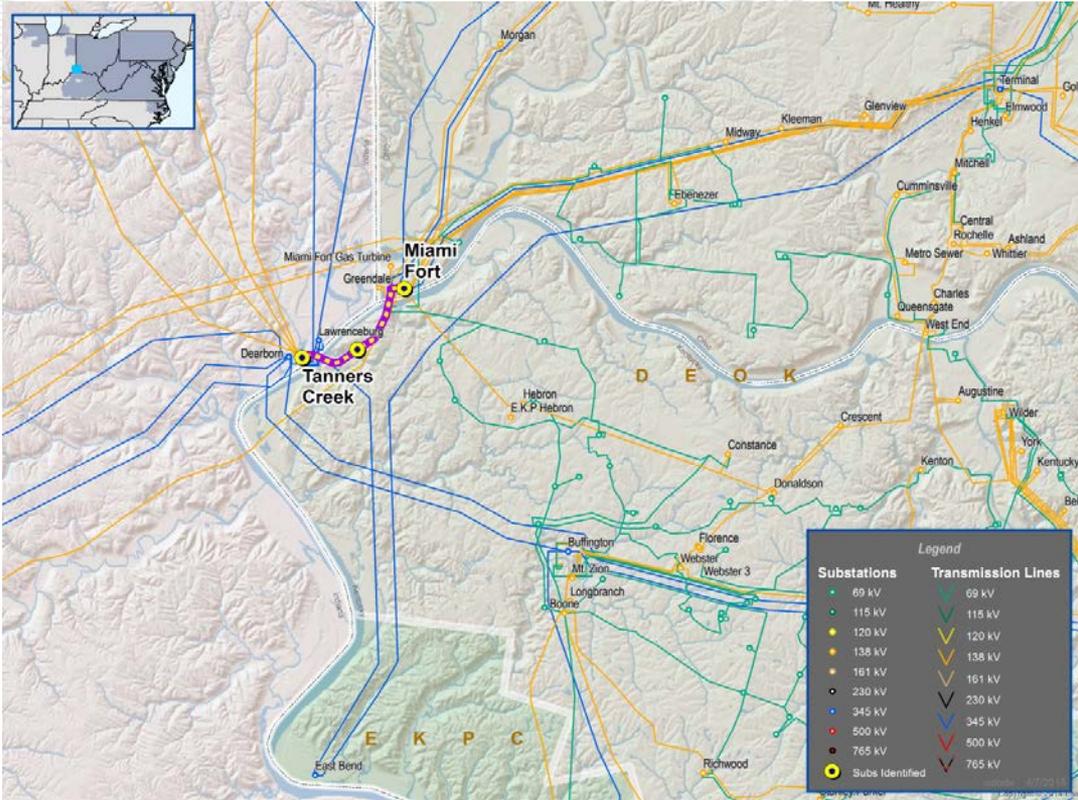
Target Zone: DEOK

ME Constraints: Miami Fort to Willey 138 kV

Miami Fort to 08HEBTAP 138 kV

Notes: Deactivation project removes driver

Proposal will not be evaluated.



Project ID: 201415_1-19B

Proposed by: Northeast Transmission Development

Proposed Solution: Approximately 6-mile 138 kV Line from Grand Point to a new 500/138 kV substation on the Conemaugh-Hunterstown 500 kV Line ("Green Ridge")

kV Level: 138

Cost (\$M): 38.9

IS Date: 2020

Target Zone: Meted/Penelec

ME Constraints: AP SOUTH L/O BED-BLA

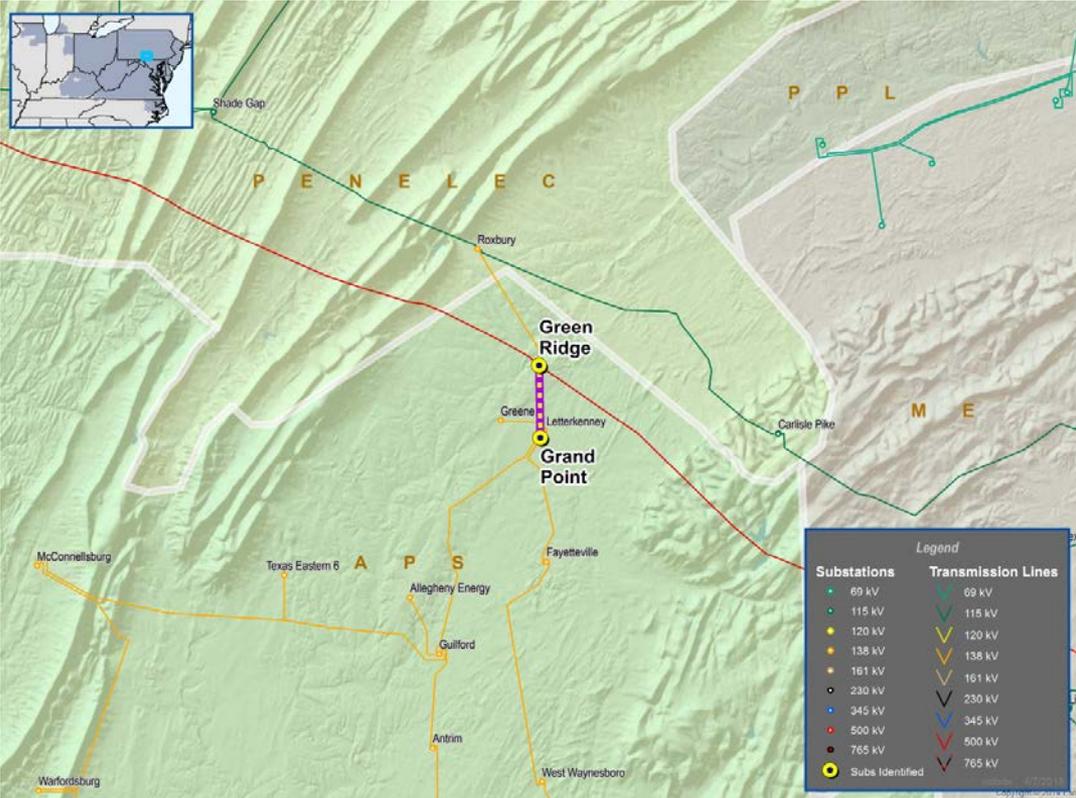
BED-BLA L/O MTS-DOU

Taneytown to Carroll 138 kV

Conastone to Northwest 230 kV

Peach Bottom 500 kV

Notes:



Project ID: 201415_1-19C

Proposed by: Northeast Transmission Development

Proposed Solution: Approximately 6-mile 138 kV Line from Grand Point to a new 500/138 kV substation on the Conemaugh-Hunterstown 500 kV Line ("Green Ridge") with a series reactor at Green Ridge.

kV Level: 138

Cost (\$M): 41.9

IS Date: 2020

Target Zone: Meted/Penelec

ME Constraints: AP SOUTH L/O BED-BLA
L/O MTS-DOU

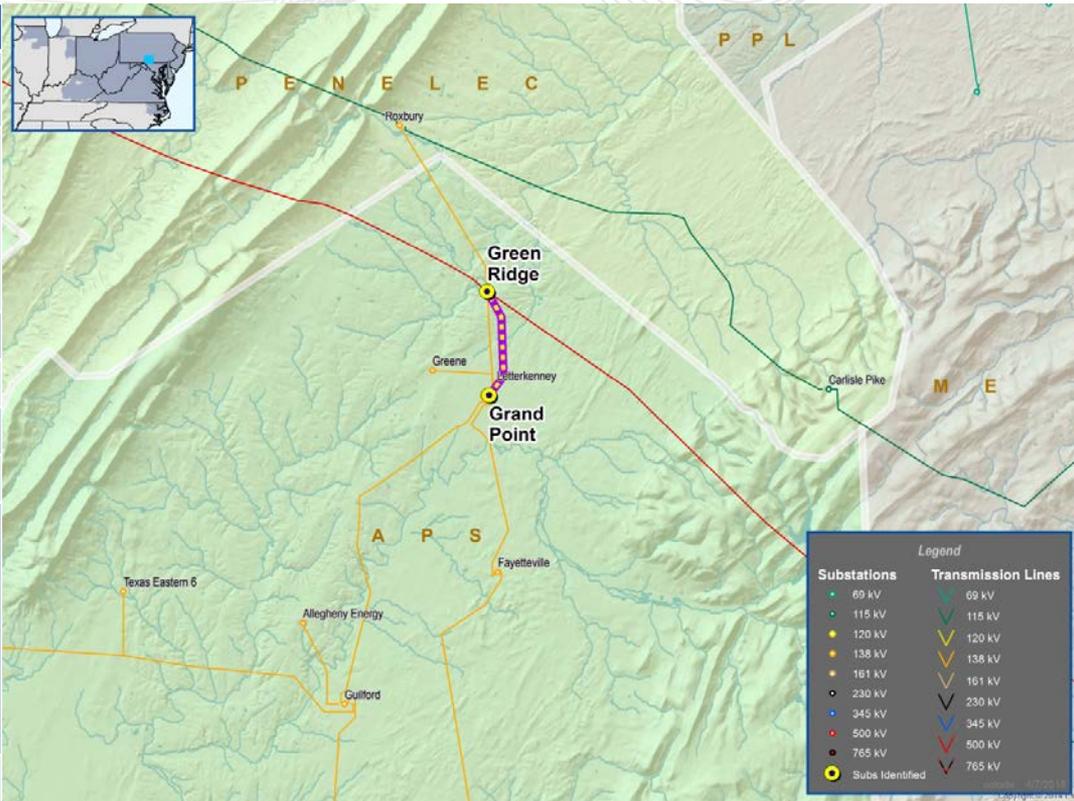
Taneytown to Carroll 138 kV

Conastone to Northwest 230 kV

Peach Bottom 500 kV

Jacksons Ferry to Cloverdale 765 KV 765 kV

Notes:



Project ID: 201415_1-19D

Proposed by: Northeast Transmission Development

Proposed Solution: Approximately 26-mile 230 kV Line from Ringgold to a new 500/230 kV substation on the Conemaugh-Hunterstown 500 kV Line ("Green Ridge").

kV Level: 230

Cost (\$M): 104.5

IS Date: 2020

Target Zone: Meted/Penelec

**ME Constraints: AP SOUTH L/O BED-BLA
L/O MTS-DOU**

50045005 L/O RCKSPG-KEENY

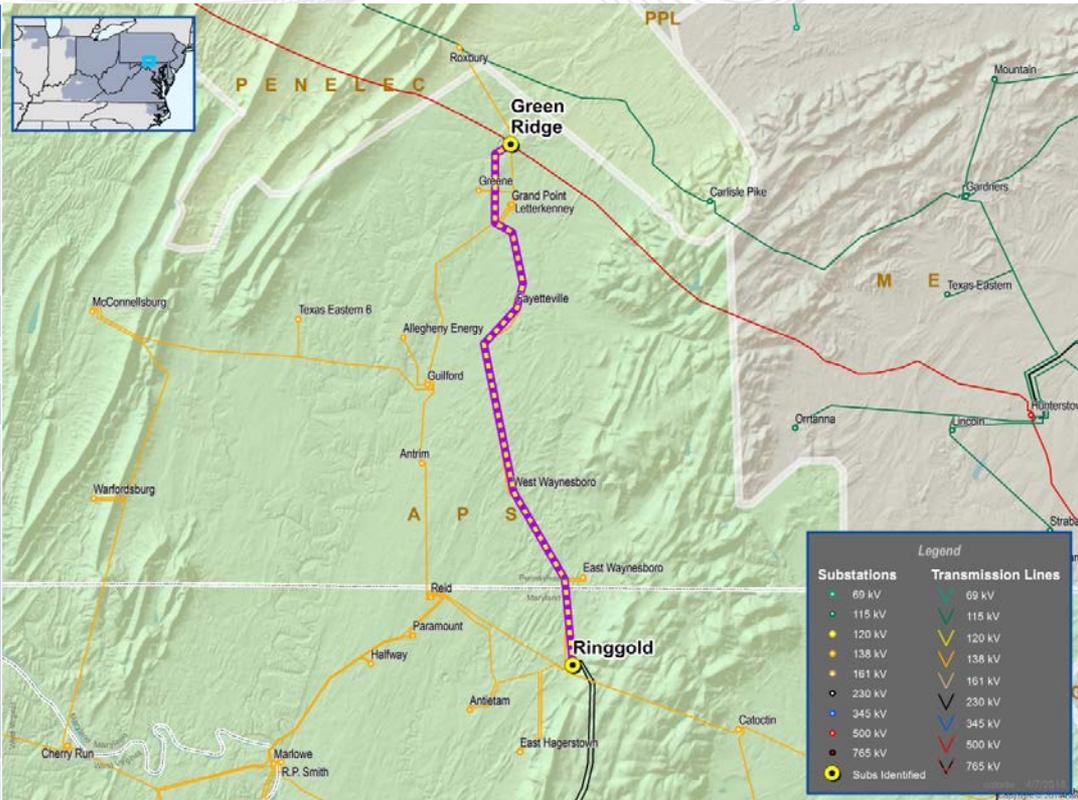
Taneytown to Carroll 138 kV

Conastone to Northwest 230 kV

Peach Bottom 500 kV

Jacksons Ferry to Cloverdale 765 KV 765 kV

Notes:



Project ID: 201415_1-19E

Proposed by: Northeast Transmission Development

Proposed Solution: Build 750 MVAR Static VAR Compensation (Harpers Run) Interconnected to Morrisville 500 kV Substation.

kV Level: 500

Cost (\$M): 53.7

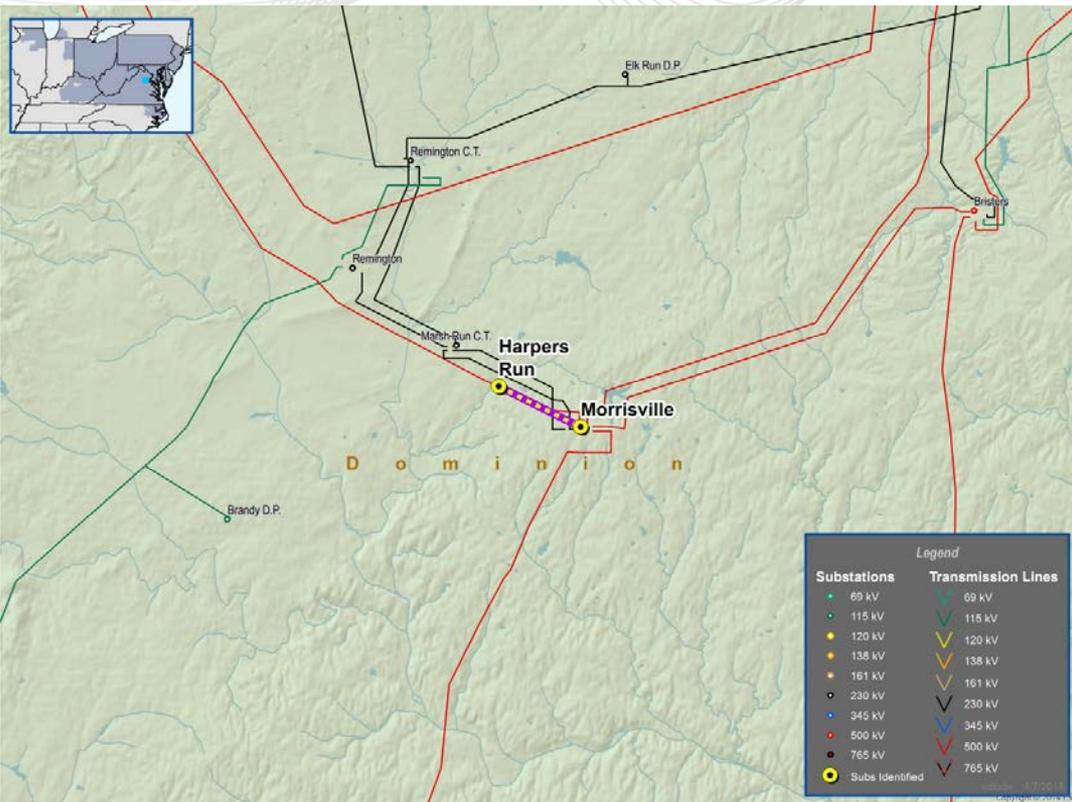
IS Date: 2020

Target Zone: Dominion

ME Constraints: AP SOUTH L/O BED-BLA
L/O MTS-DOU

Conastone to Northwest 230 kv

Notes:



Project ID: 201415_1-19F

Proposed by: Northeast Transmission Development

Proposed Solution: Approximately 99-mile 500 kV Line from Harrison to Bath County.

kV Level: 500

Cost (\$M): 432.5

IS Date: 2019

Target Zone: APS/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

L/O MTS-DOU

50045005 L/O RCKSPG-KEENY

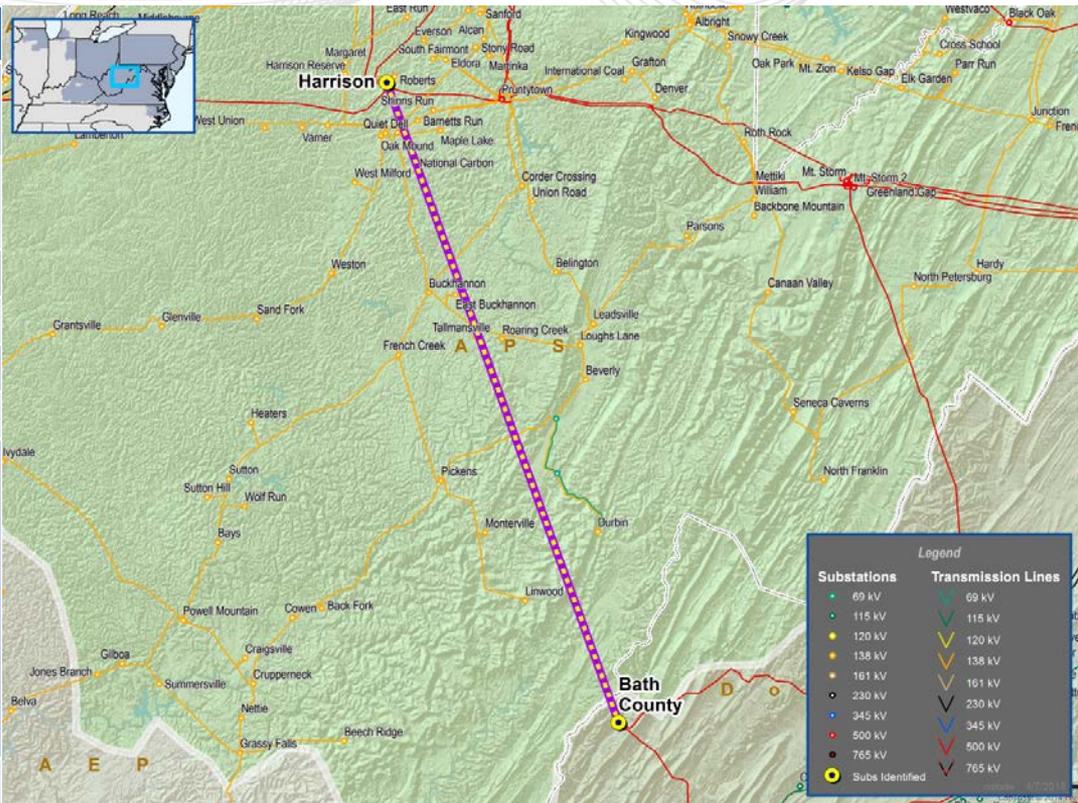
Taneytown to Carroll 138 kV

Conastone to Northwest 230 kV

Peach Bottom 500 kV

Jacksons Ferry to Cloverdale 765 KV 765 kV

Notes:



Project ID: 201415_1-19G

Proposed by: Northeast Transmission Development

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

kV Level: 230

Cost (\$M): 48.6

IS Date: 2020

Target Zone: Pepco/BGE

**ME Constraints: AP SOUTH L/O BED-BLA
L/O MTS-DOU**

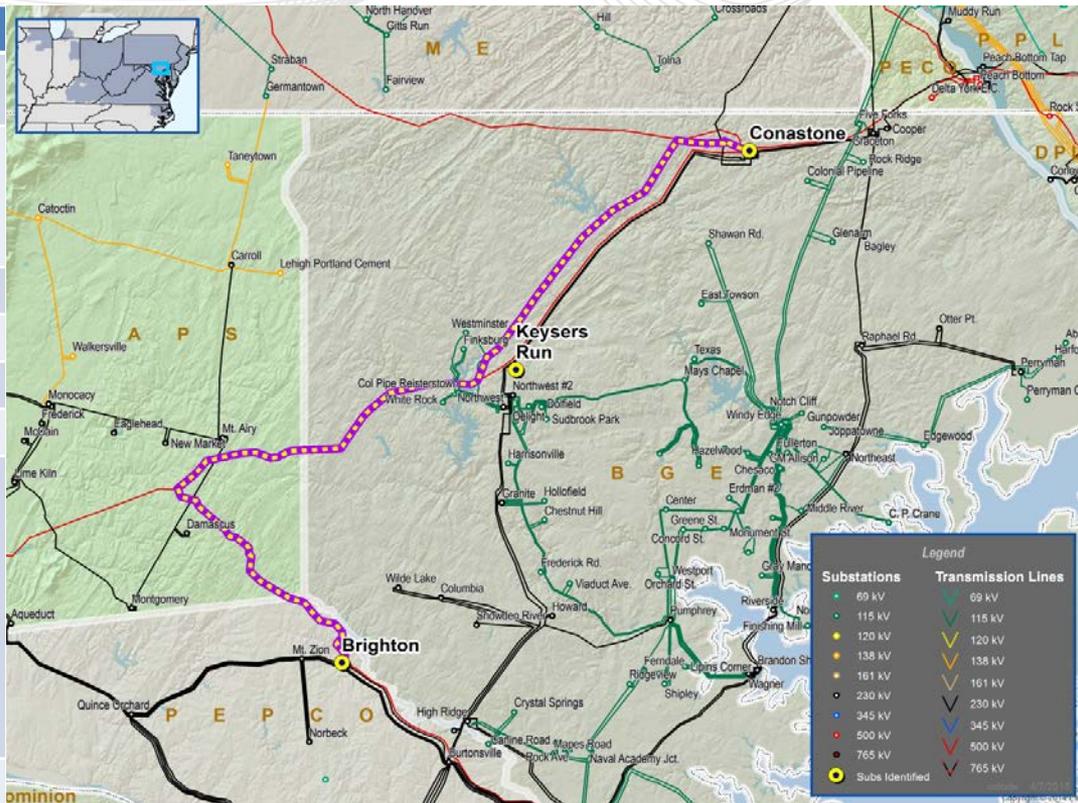
50045005 L/O RCKSPG-KEENY

Safe Harbor to Graceton 230 kV

Conastone to Northwest 230 kV

Peach Bottom 500 kV

Notes:



Project ID: 201415_1-19H

Proposed by: Northeast Transmission Development

Proposed Solution: Approximately 22-mile 345 kV Line from Pontiac Midpoint to Katydid Road.

kV Level: 345

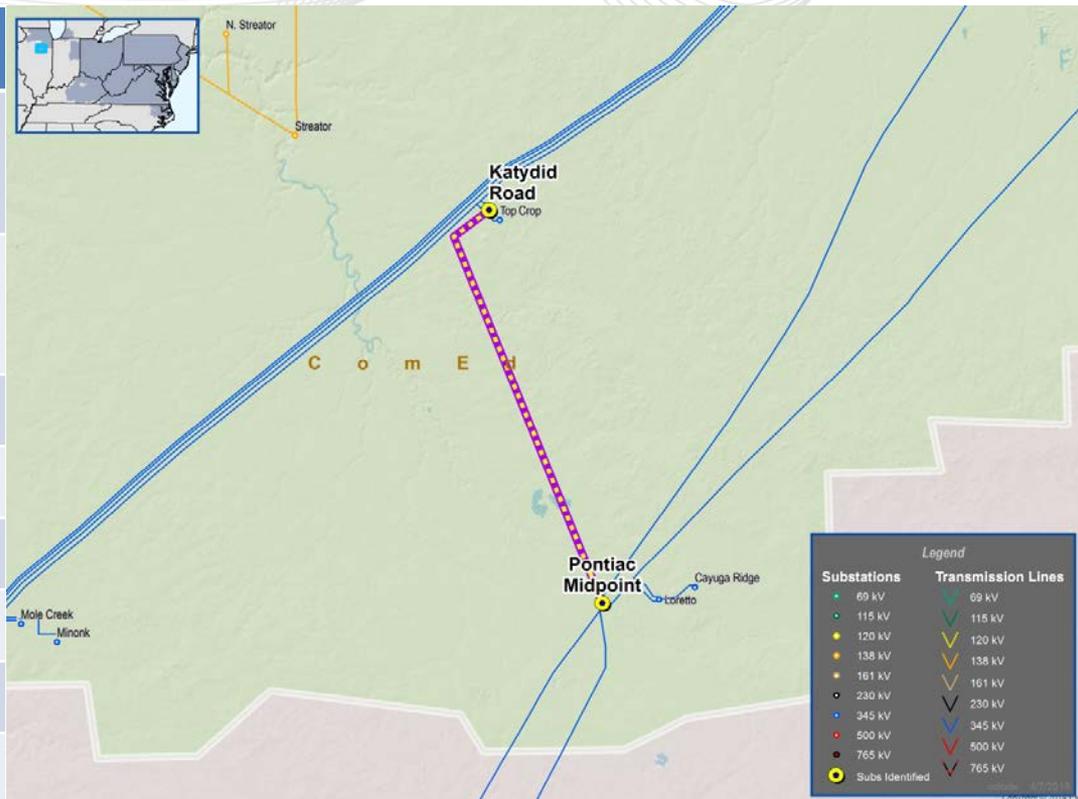
Cost (\$M): 42.9

IS Date: 2019

Target Zone: COMED

ME Constraints: Loretto to Wilton CTR 345 kV

Notes:



Project ID: 201415_1-191

Proposed by: Northeast Transmission Development

Proposed Solution: Build 138 kV Switching Station (Renton)
Interconnecting Plum-Cheswick 138 kV Line and Springdale-Huntingdon 138 kV Line.

kV Level: 138

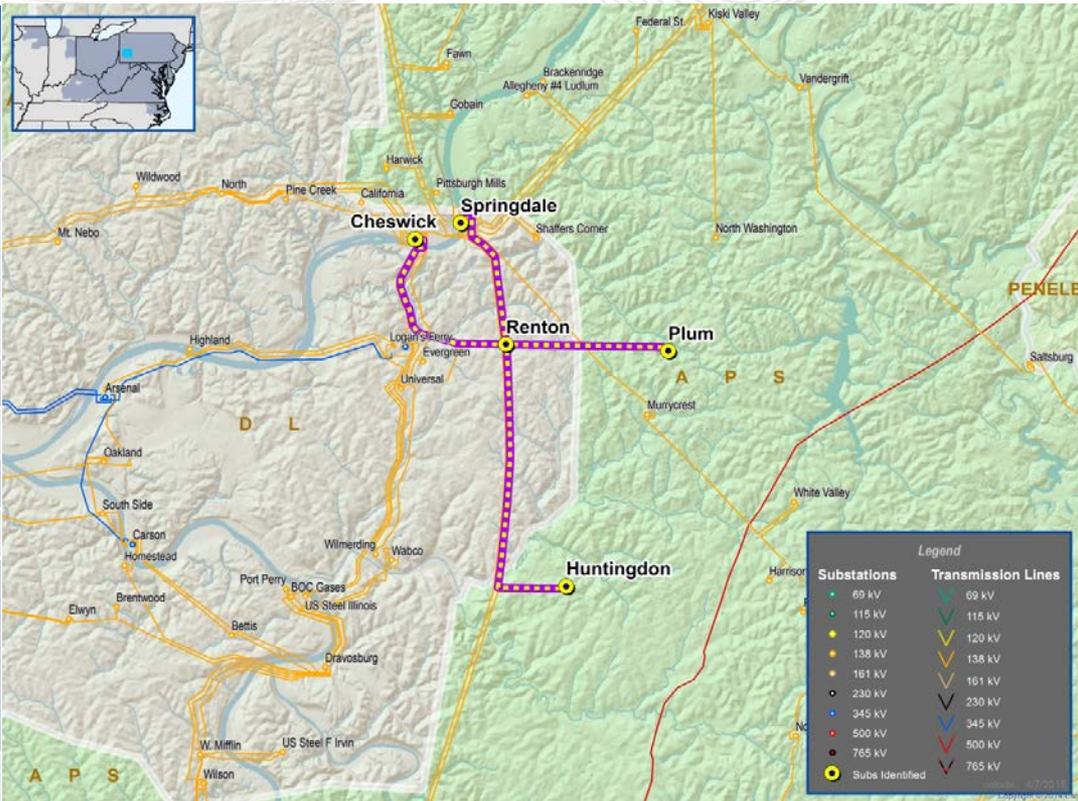
Cost (\$M): 9.2

IS Date: 2020

Target Zone: APS/DUQ

ME Constraints: Dravosburg to West Mifflin 138 kV
Woodville to 15USAP 138 kV
Krendale to Shanor Manor 138 kV

Notes:



Project ID: 201415_1-20A

Proposed by: ITC

Proposed Solution: New 58-mile 500 kV line from the existing Black Oak substation to existing Front Royal substation.

kV Level: 500

Cost (\$M): 187.5

IS Date: 2020

Target Zone: APS/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

BED-BLA L/O MTS-DOU

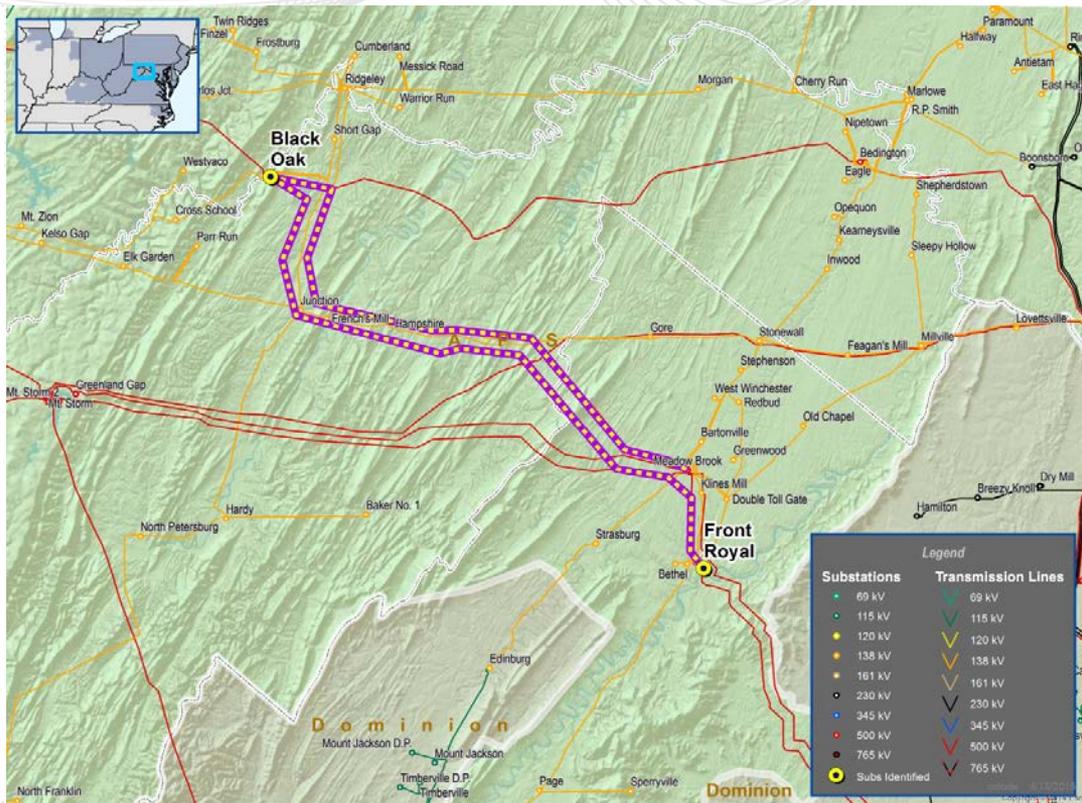
Fieldale to Thornton 138 kV

Brunner Island to Yorkana 230 kV

Lorreto to Wilton CTR 345 kV

Safe Harbor to Graceton 230 kV

Notes:



Project ID: 201415_1-20B

Proposed by: ITC

Proposed Solution: Construct approximately 29 miles of new 138kV single-circuit overhead line from the existing Karns City substation in Pennsylvania to the existing McDowell substation in Pennsylvania.

kV Level: 138

Cost (\$M): 64.3

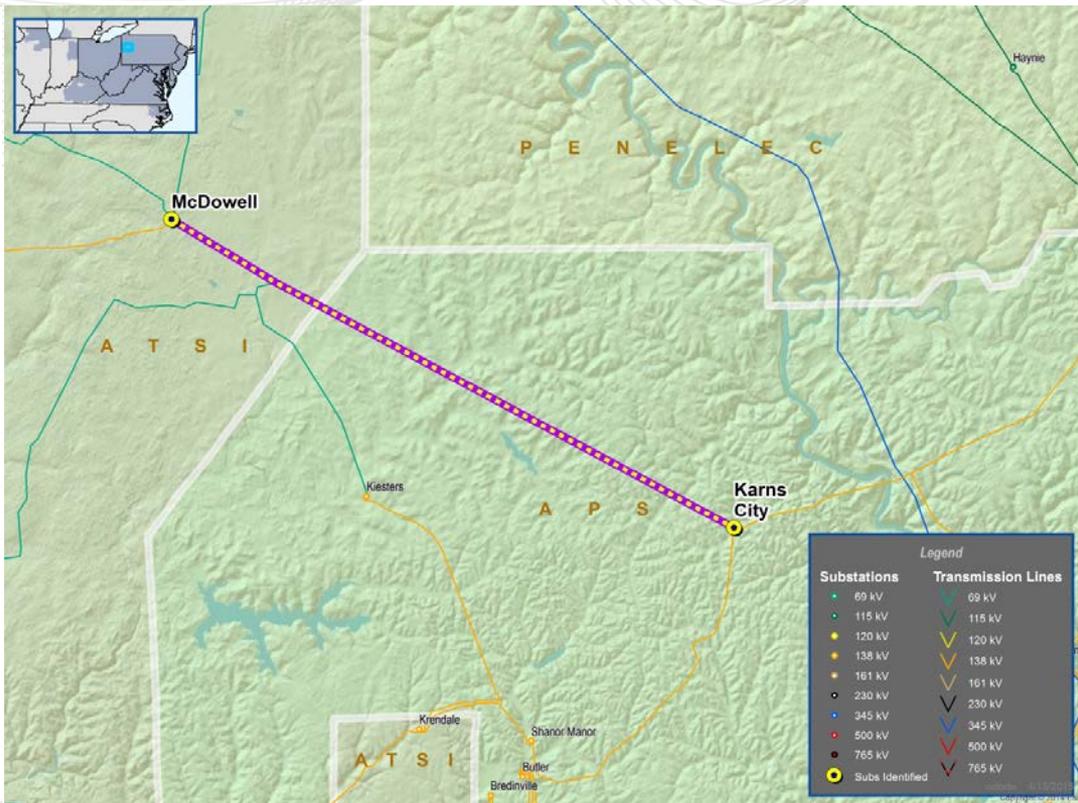
IS Date: 2020

Target Zone: APS/DUQ

ME Constraints: Dravosburg to West Mifflin 138 kV

Woodville to 15USAP 138 kV

Notes:



Project ID: 201415_1-20C

Proposed by: ITC

Proposed Solution: Build approximately 11 miles of new 138kV single-circuit overhead line from a new substation near the existing Drewersburg substation in Indiana (AEP) to the existing Willey substation in Ohio (DEO&K).

kV Level: 138

Cost (\$M): 25

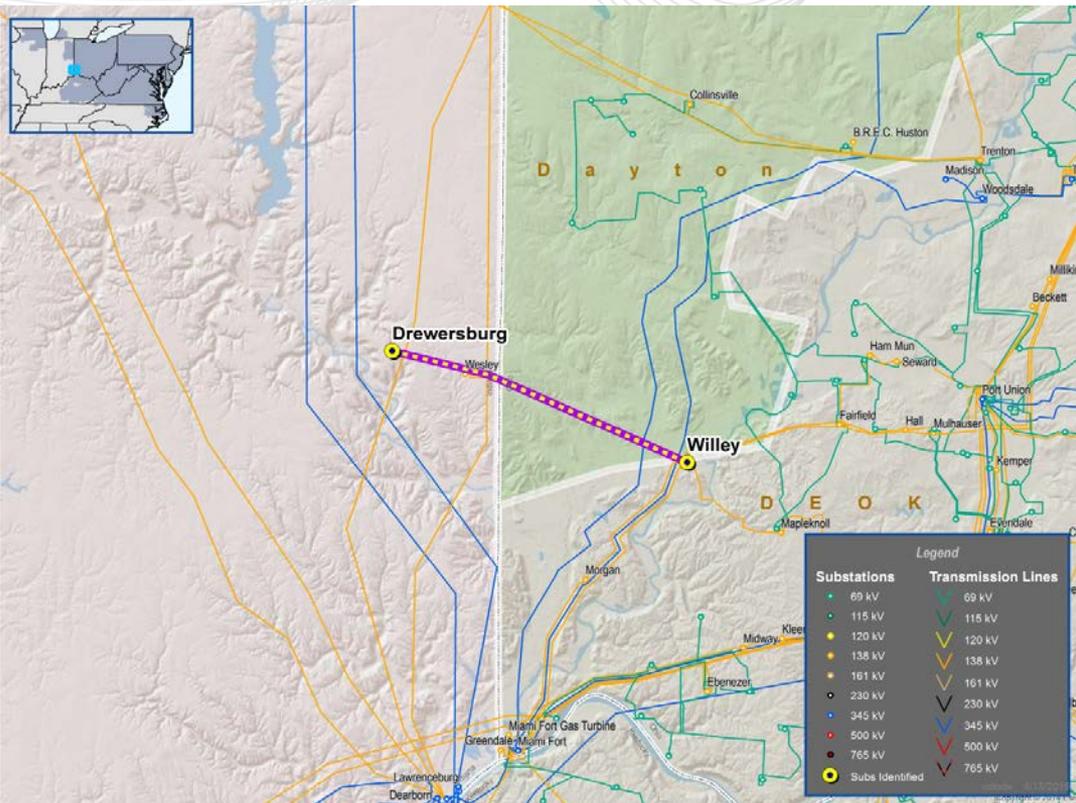
IS Date: 2020

Target Zone: AEP/DEOK

ME Constraints: Miami Fort to Willey 138 kV

Notes: Deactivation project removes driver

Proposal will not be evaluated.



Project ID: 201415_1-20D

Proposed by: ITC

Proposed Solution: Construct the new 345kV/138kV “Hamilton” substation near the existing Willey substation (Duke) in Hamilton County, Ohio. Cut the adjacent Woodsdale – Miami Fort 345kV line (Duke) into the new Hamilton substation. Connect the new Hamilton substation 138kV bus to the existing Willey 138kV switchyard.

kV Level: 345

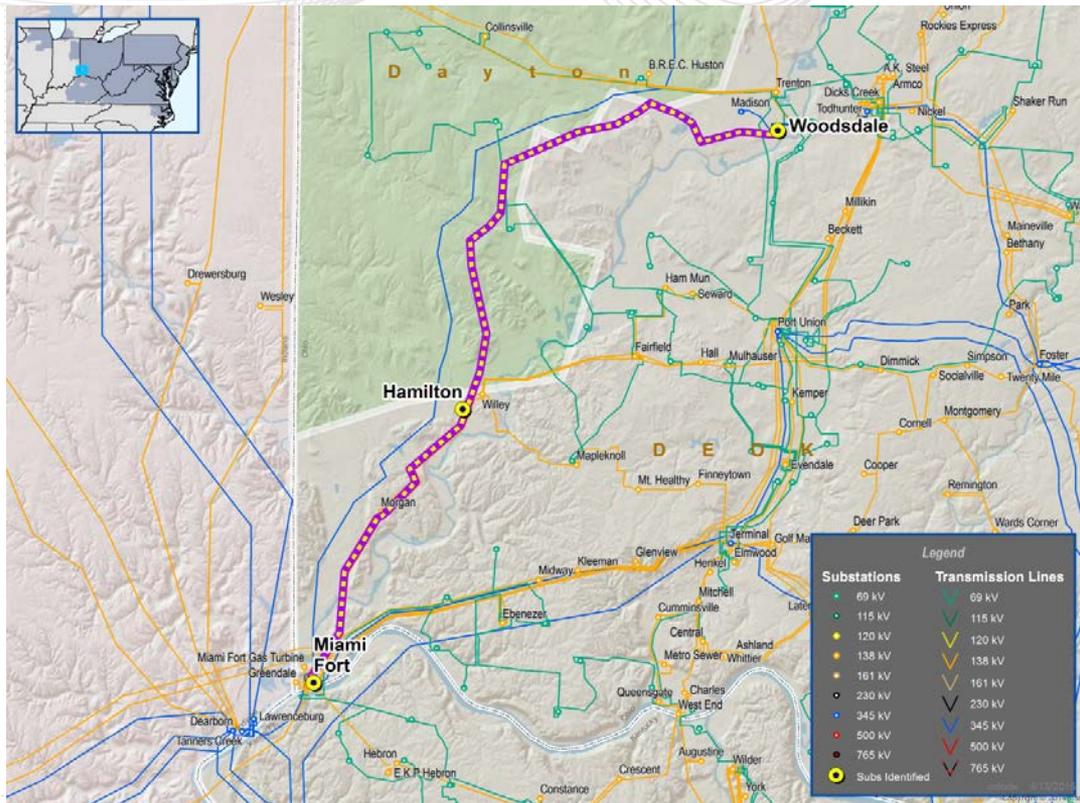
Cost (\$M): 16.9

IS Date: 2020

Target Zone: DEOK

ME Constraints: Miami Fort to Willey 138 kV

Notes: Deactivation project removes driver



Proposal will not be evaluated.

Project ID: 201415_1-20E

Proposed by: ITC

Proposed Solution: Construct approximately 5 miles of new 138kV single-circuit overhead line from the proposed Diamond Ave. substation in Virginia (ITC) to the existing Blaine substation in Virginia (AEP).

kV Level: 138

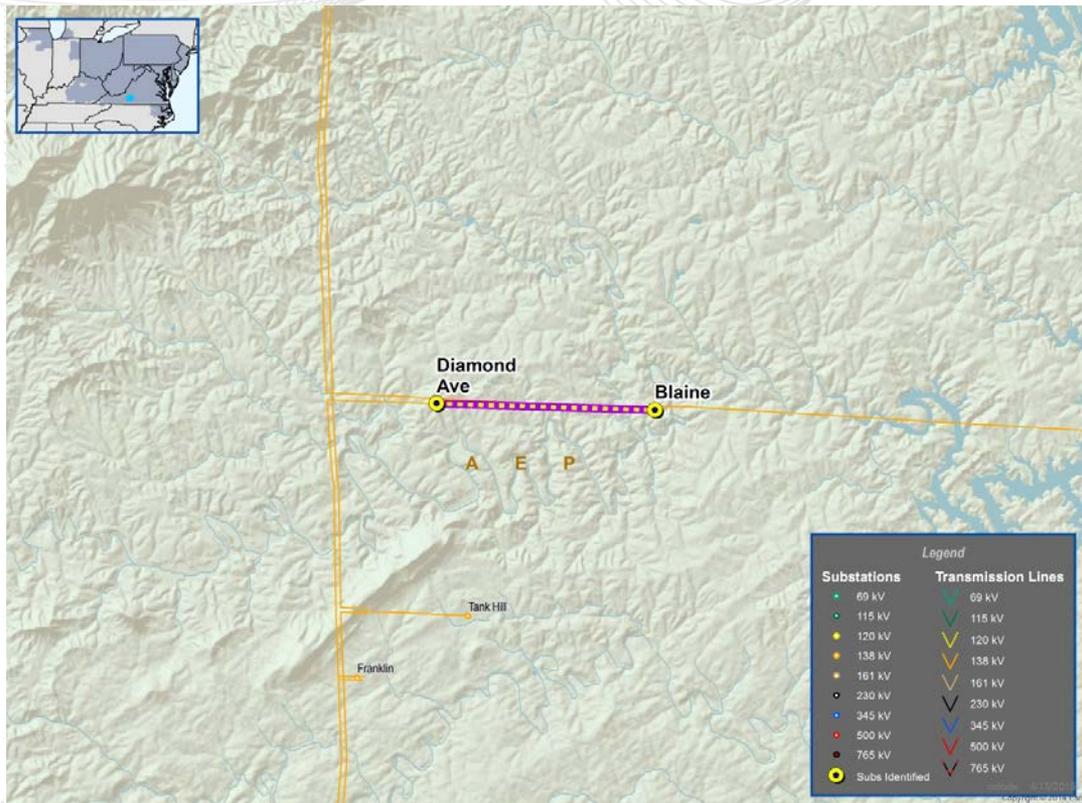
Cost (\$M): 19

IS Date: 2020

Target Zone: AEP

ME Constraints: Fieldale to Thornton 138 kV

Notes:



Project ID: 201415_1-20F

Proposed by: ITC

Proposed Solution: Construct approximately 6 miles of underground transmission line from the existing West Orange substation in New Jersey to the existing Cook Road substation in New Jersey.

kV Level: 230

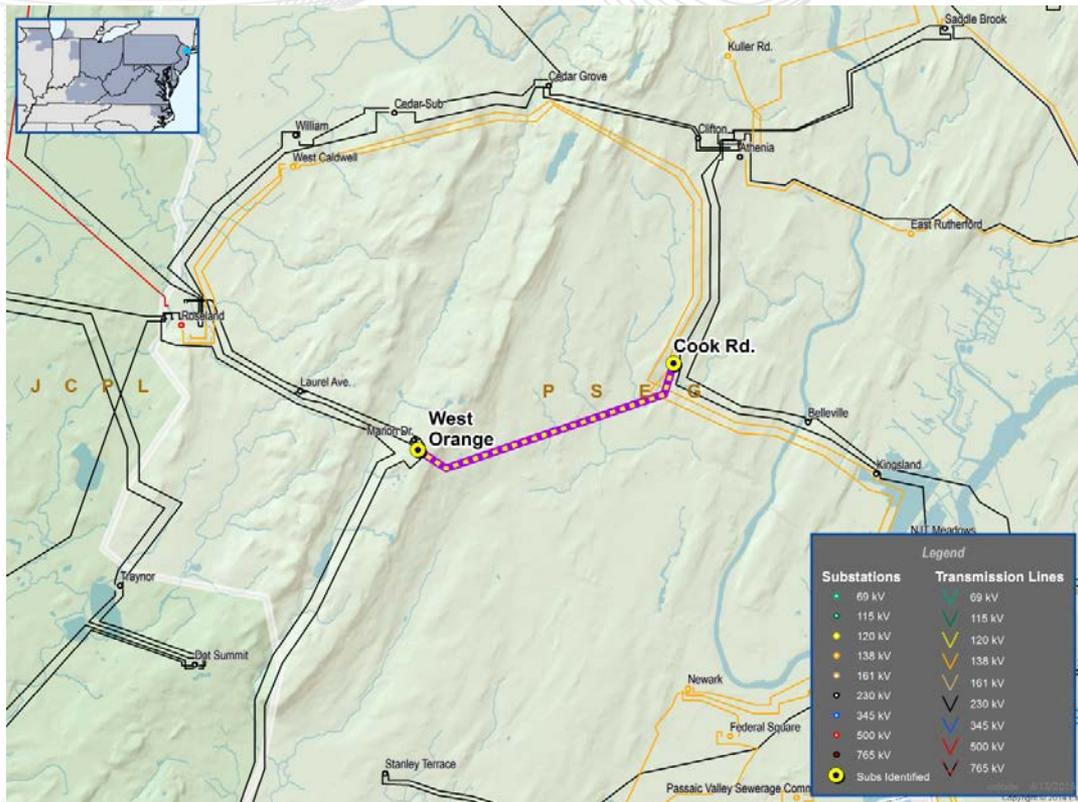
Cost (\$M): 102.7

IS Date: 2020

Target Zone: PSEG

ME Constraints: Roseland-Cedar Grove-Clifton
230 kV corridor

Notes:



Project ID: 201415_1-20G

Proposed by: ITC

Proposed Solution: Construct approximately 50 miles of new 500kV single-circuit overhead line from the existing Black Oak substation (First Energy) to the existing Meadow Brook substation (First Energy).

kV Level: 500

Cost (\$M): 156

IS Date: 2020

Target Zone: APS/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

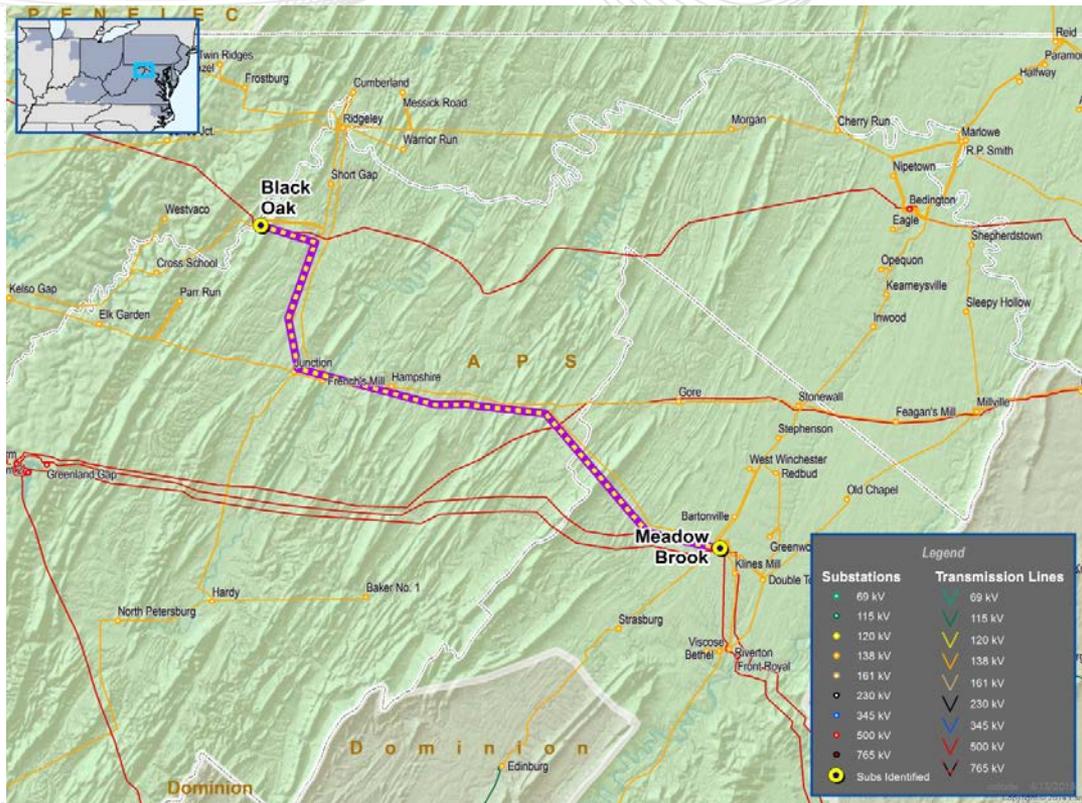
BED-BLA L/O MTS-DOU

Fieldale to Thornton 138 kV

Conastone to Northwest 230 kV

Pleasant View to Ashburn 230 kV

Notes:



Project ID: 201415_1-20H

Proposed by: ITC

Proposed Solution: Construct approximately 3.6 miles of new 138kV single-circuit overhead line from the existing Enlow substation in Pennsylvania (First Energy) to the existing Findlay substation in Pennsylvania (DQE).

kV Level: 138

Cost (\$M): 14.4

IS Date: 2020

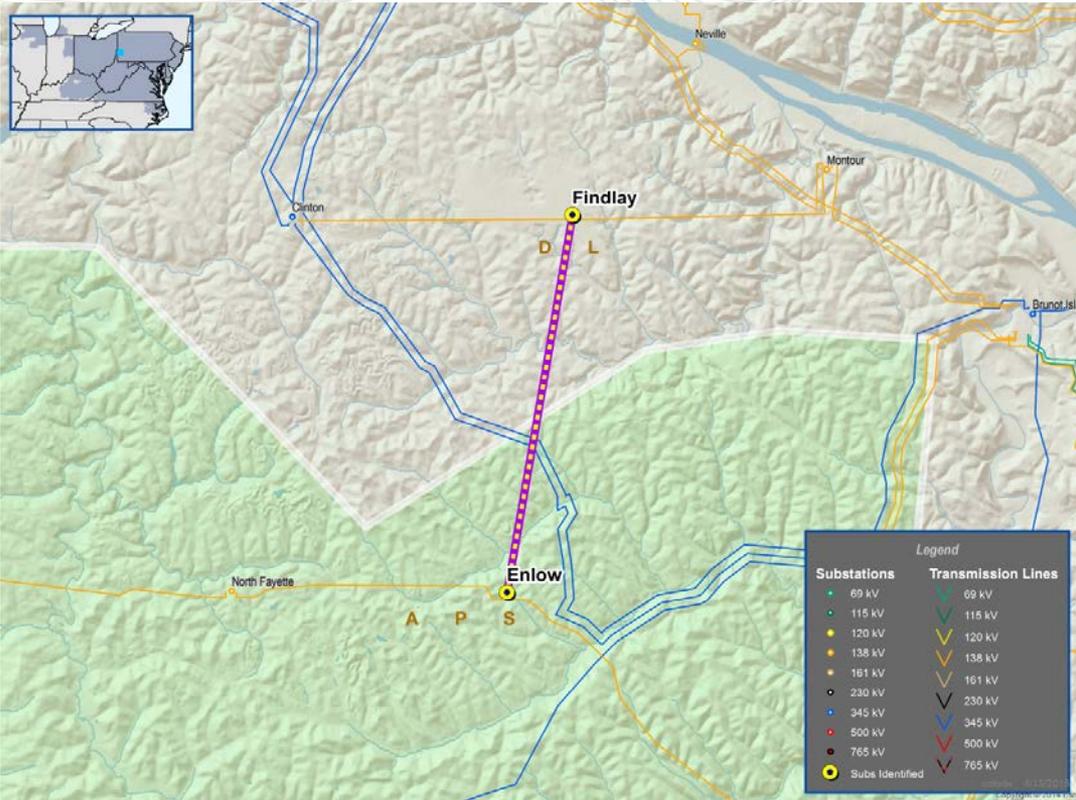
Target Zone: APS/DUQ

ME Constraints: Dravosburg to West Mifflin 138 kV

Woodville to 15USAP 138 kV

Taneytown to Carroll 138 kV

Notes:



Project ID: 201415_1-201

Proposed by: ITC

Proposed Solution: Construct approximately 26.5 miles of new 138kV single-circuit overhead line from the existing Germantown substation to the existing Ringgold substation.

kV Level: 138

Cost (\$M): 70.8

IS Date: 2020

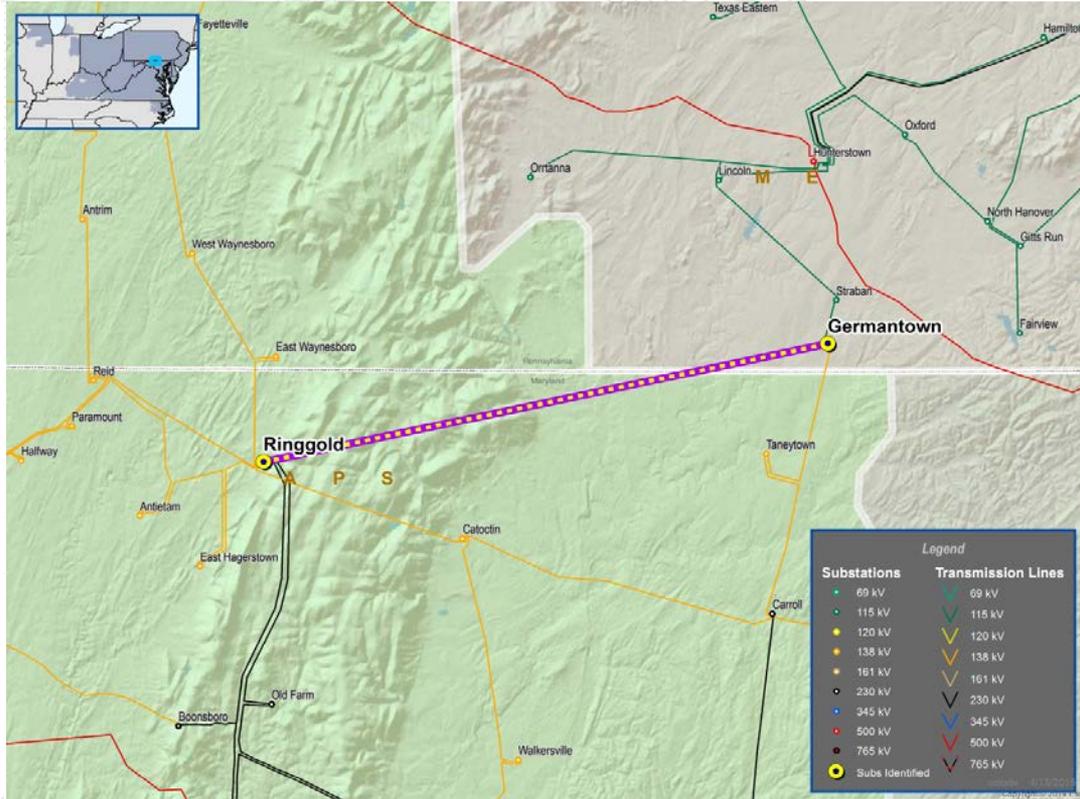
Target Zone: APS/Dominion

ME Constraints: Taneytown to Carroll 138 kV

Brunner Island to Yorkana 230 kV

Safe Harbor to Graceton 230 kV

Notes:



Project ID: 201415_1-20J

Proposed by: ITC

Proposed Solution: New 58-mile 500 kV line from the existing Black Oak substation to existing Front Royal substation. Add Dooms Cap.

kV Level: 500

Cost (\$M): 190.2

IS Date: 2020

Target Zone: APS/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

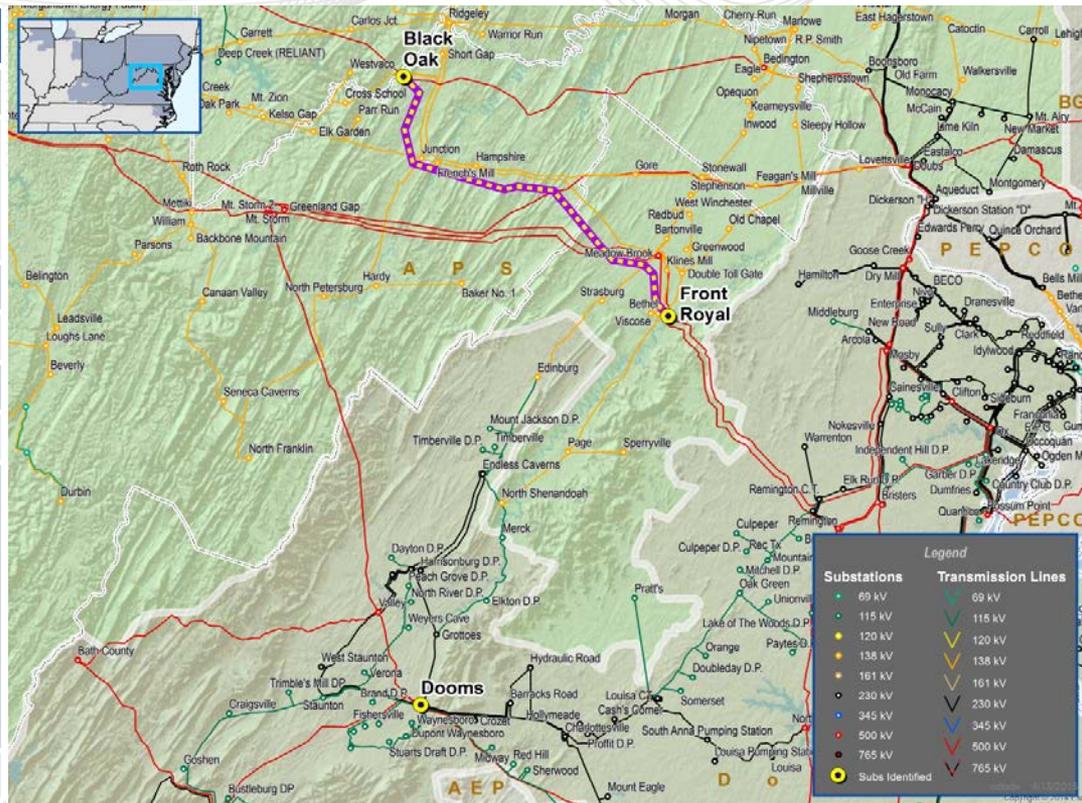
BED-BLA L/O MTS-DOU

Fieldale to Thornton 138 kV

Conastone to Northwest 230 kV

Pleasant View to Ashburn 230 kV

Notes:



Project ID: 201415_1-20K

Proposed by: ITC

Proposed Solution: Construct approximately 50 miles of new 500kV single-circuit overhead line from the existing Black Oak substation (First Energy) to the existing Meadow Brook substation (First Energy). Add

Dooms Cap

kV Level: 500

Cost (\$M): 158.7

IS Date: 2020

Target Zone: APS/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

L/O MTS-DOU

Fieldale to Thornton 138 kV

Miami Fort to Willey 138 kV

Brunner Island to Yorkana 230 kV

Notes:



Project ID: 201415_1-20L

Proposed by: ITC

Proposed Solution: New 58-mile 500 kV line from the existing Black Oak substation to existing Front Royal substation. Add New Station

kV Level: 500

Cost (\$M): 202.5

IS Date: 2020

Target Zone: APS/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

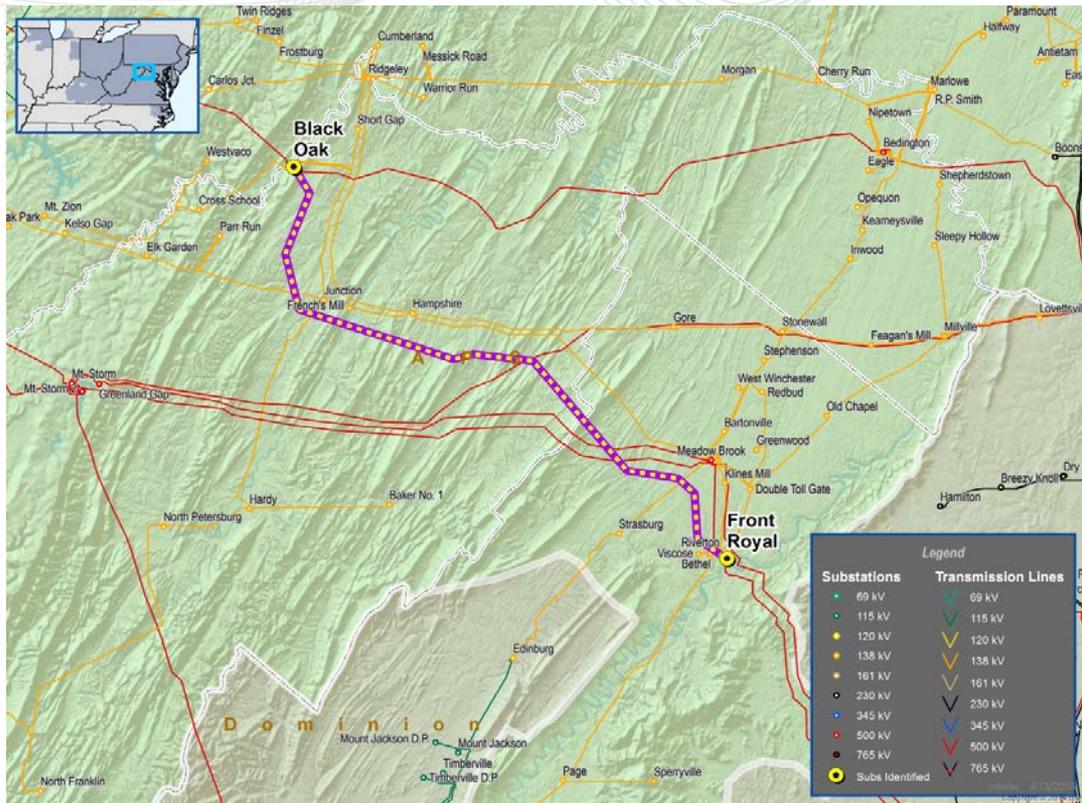
BED-BLA L/O MTS-DOU

Fieldale to Thornton 138 kV

Conastone to Northwest 230 kV

Pleasant View to Ashburn 230 kV

Notes:



Project ID: 201415_1-20M

Proposed by: ITC

Proposed Solution: New 58-mile 500 kV line from the existing Black Oak substation to existing Front Royal substation. Install a new 240 MVAR capacitor bank at Dooms 500kV Substation. Add Dooms Cap and New Station

kV Level: 500

Cost (\$M): 205.2

IS Date: 2020

Target Zone: APS/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

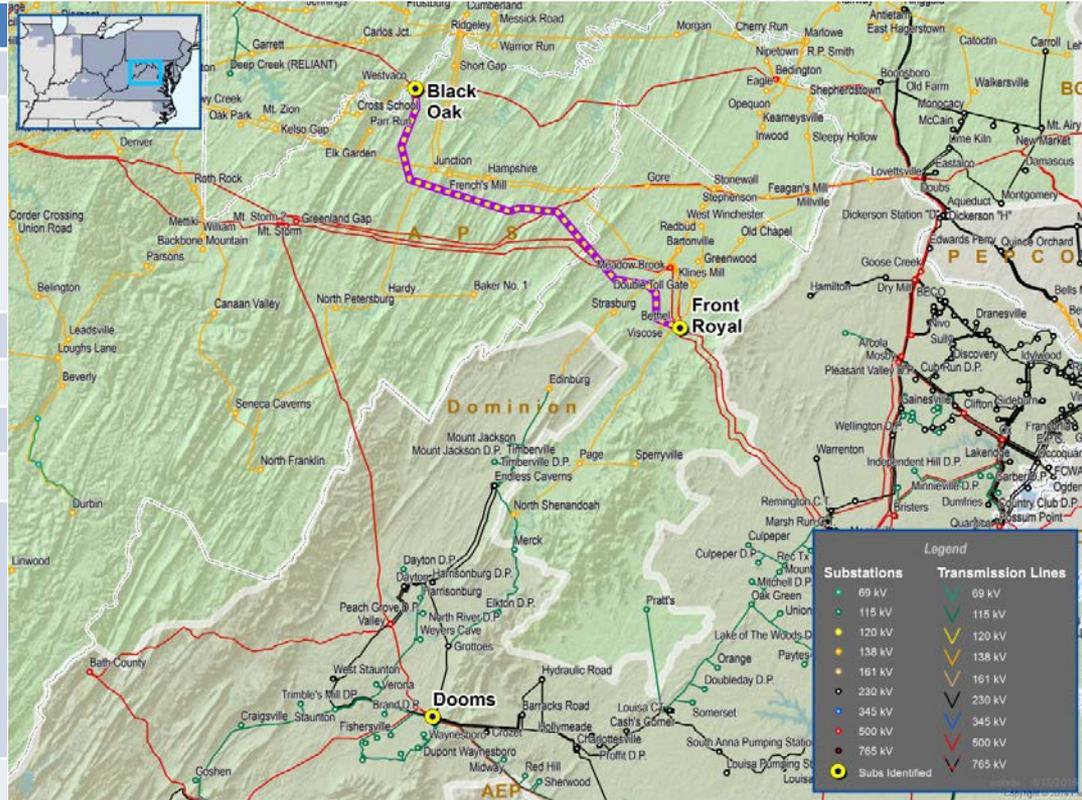
BED-BLA L/O MTS-DOU

Fieldale to Thornton 138 kV

Conastone to Northwest 230 kV

Pleasant View to Ashburn 230 kV

Notes:



Project ID: 201415_1-20N

Proposed by: ITC

Proposed Solution: Construct approximately 50 miles of new 500kV single-circuit overhead line from the existing Black Oak substation (First Energy) to the existing Meadow Brook substation (First Energy). Add New Station

kV Level: 500

Cost (\$M): 171

IS Date: 2020

Target Zone: APS/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

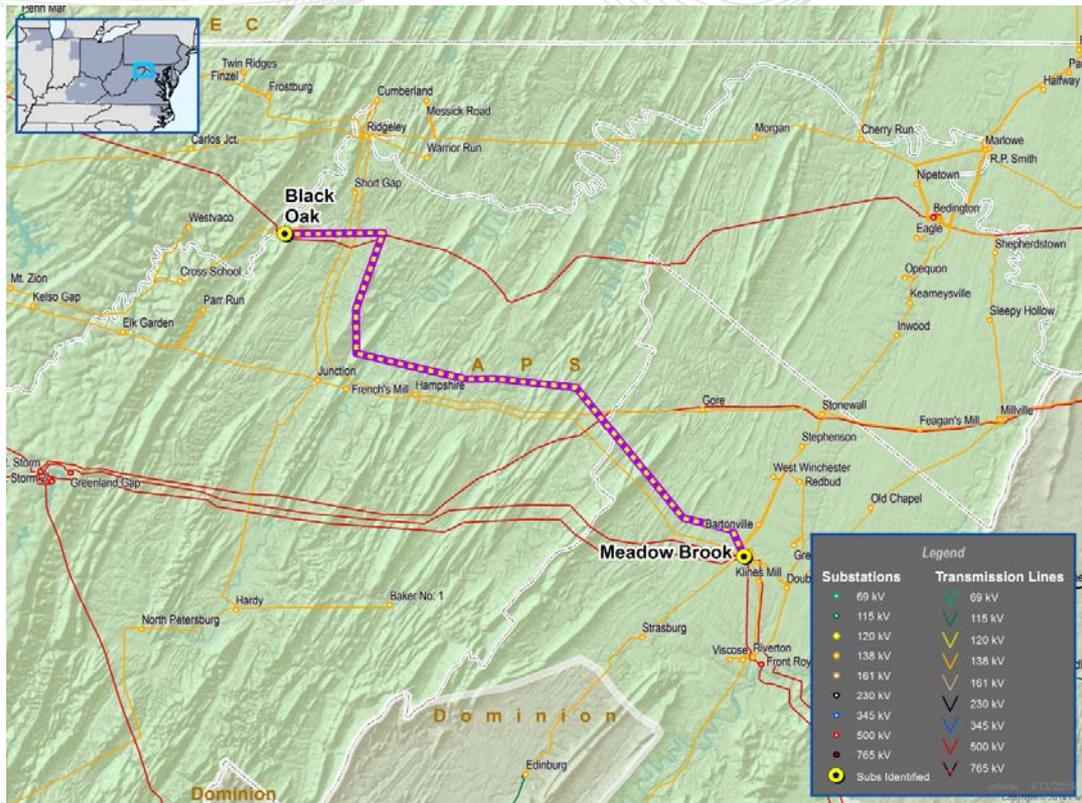
BED-BLA L/O MTS-DOU

Fieldale to Thornton 138 kV

Miami Fort to Willey 138 kV

Brunner Island to Yorkana 230 kV

Notes:



Project ID: 201415_1-200

Proposed by: ITC

Proposed Solution: Construct approximately 50 miles of new 500kV single-circuit overhead line from the existing Black Oak substation (First Energy) to the existing Meadow Brook substation (First Energy). Add Dooks Cap and New Station.

kV Level: 500

Cost (\$M): 173.7

IS Date: 2020

Target Zone: APS/Dominion

ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

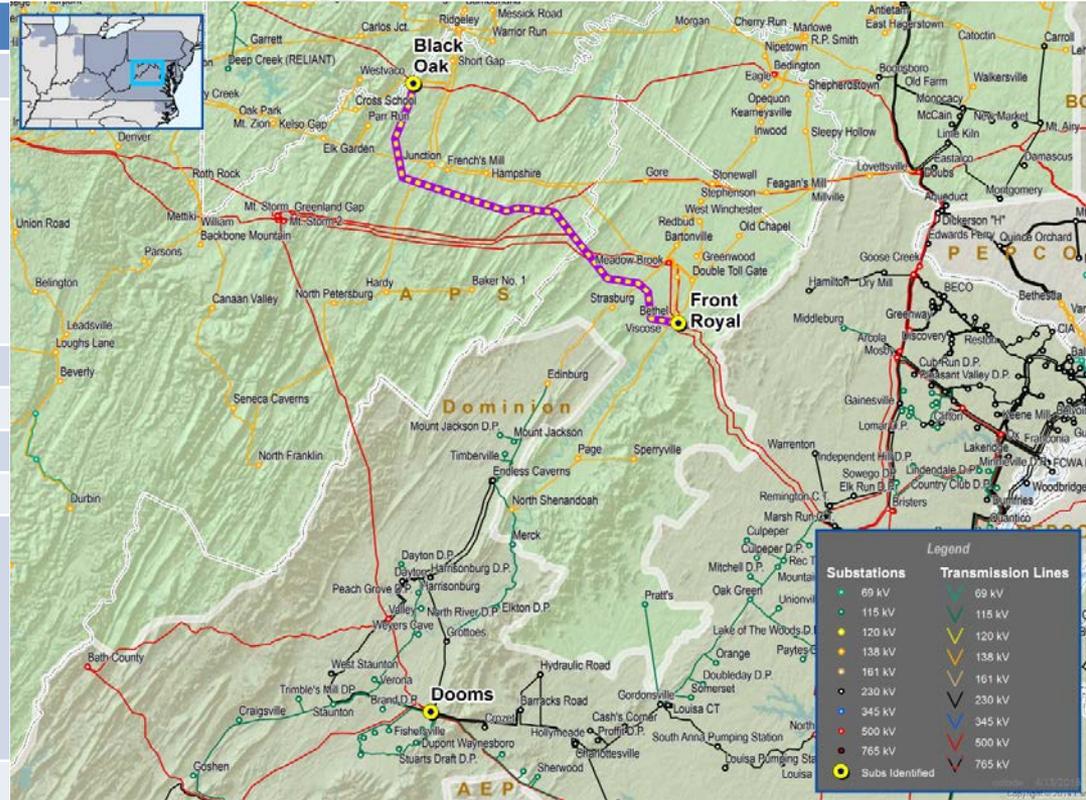
BED-BLA L/O MTS-DOU

Fieldale to Thornton 138 kV

Miami Fort to Willey 138 kV

Brunner Island to Yorkana 230 kV

Notes:



Project ID: 201415_1-21C

Proposed by: PSEG

Proposed Solution: Build new 138kV line from Miami Fort to Willey

kV Level: 138

Cost (\$M): 47.8

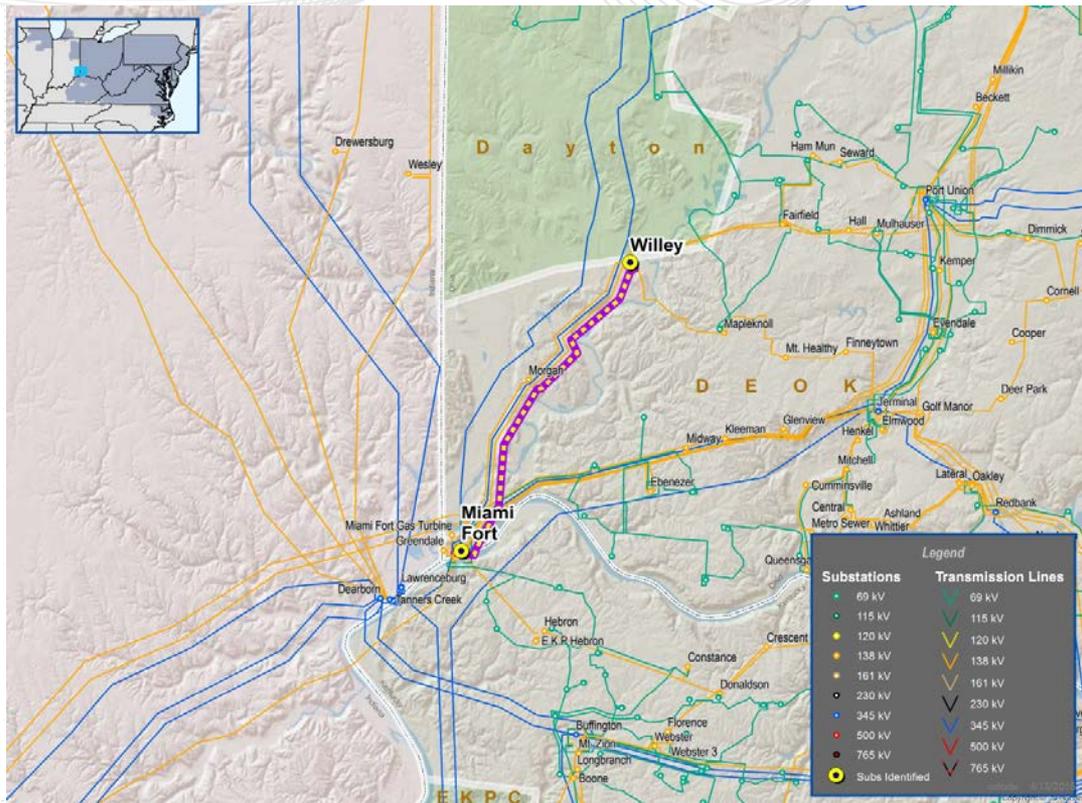
IS Date: 2018

Target Zone: DEOK

ME Constraints: Miami Fort to Willey 138 kV

Notes: Deactivation project removes driver

Proposal will not be evaluated.



Project ID: 201415_1-21G

Proposed by: PSEG

Proposed Solution: Reconfigure Clifton Source

kV Level: 230

Cost (\$M): 2.8

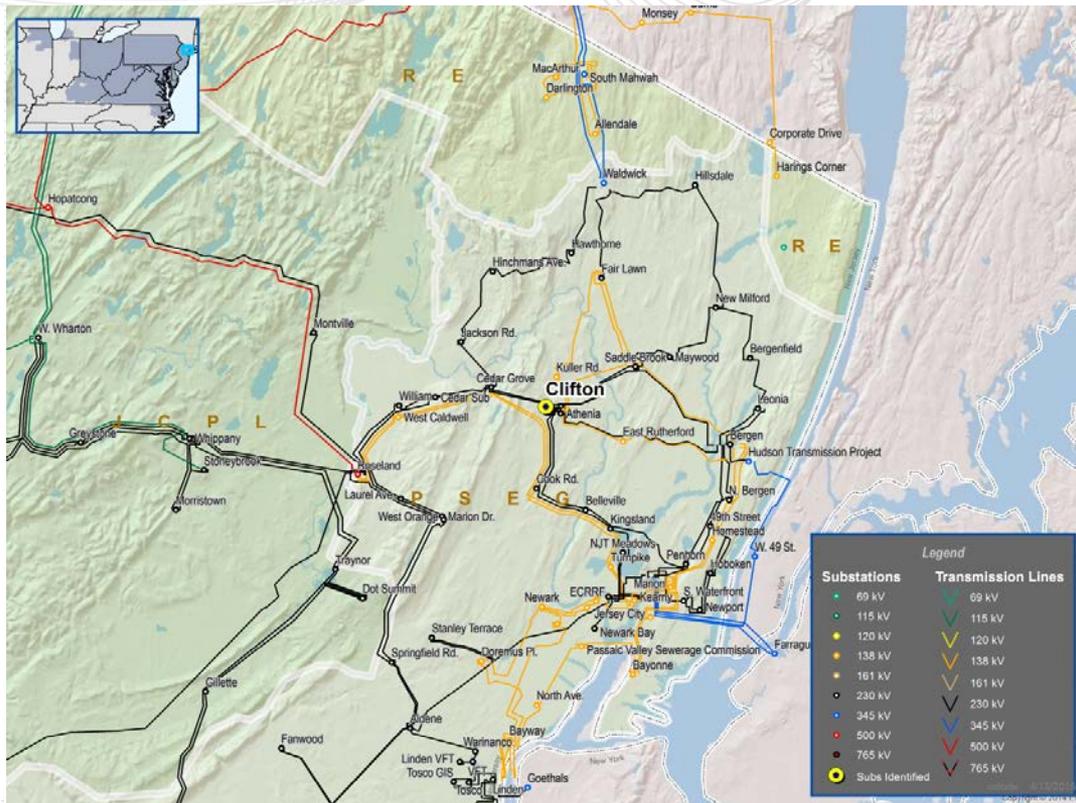
IS Date: 2016

Target Zone: PSEG

ME Constraints: Roseland-Cedar Grove-Clifton

230 kV corridor

Notes:



Project ID: 201415_1-22A

Proposed by: Ameren

Proposed Solution: Construct a +400MVAR/-250 MVAR Static VAR Compensator (SVC) adjacent to the 500 kV Dooms Substation.

kV Level: 500

Cost (\$M): 46.56

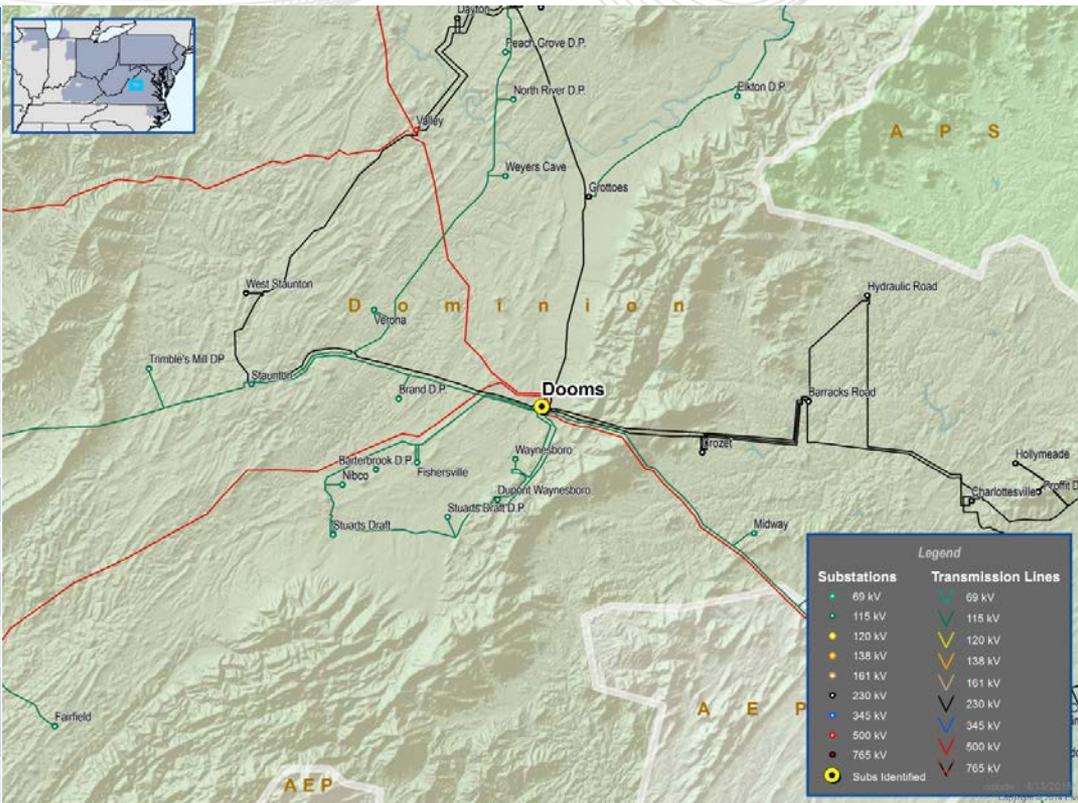
IS Date: 2019

Target Zone: APS/AEP/DOM

ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

Notes:



Project ID: 201415_1-22B

Proposed by: Ameren

Proposed Solution: Construct a +400MVAR/-250 MVAR Static VAR Compensator (SVC) adjacent to the 500 kV Dooms Substation.

kV Level: 500

Cost (\$M): 46.56

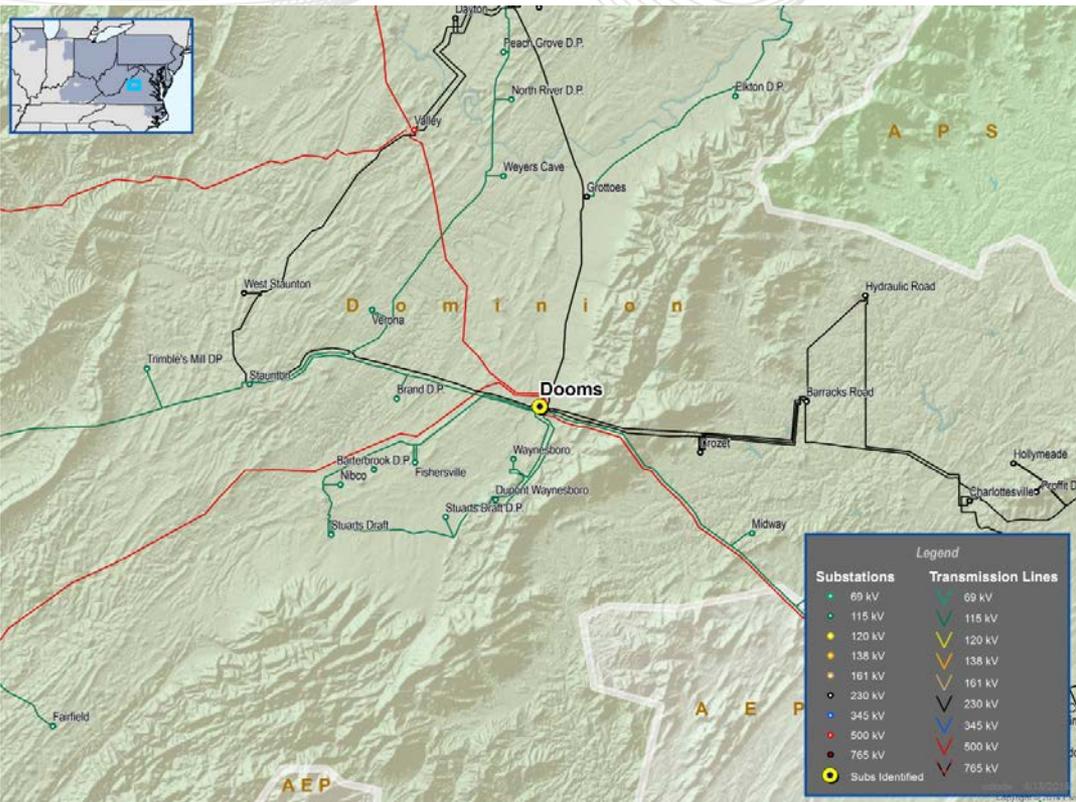
IS Date: 2020

Target Zone: APS/AEP/DOM

ME Constraints: AP SOUTH L/O BED-BLA

AEP-DOM L/O BED-BLA

Notes:



Project ID: 201415_1-22C

Proposed by: Ameren

Proposed Solution: Construct approximately 25 miles of new 230 kV line between Hunterstown and Carroll substations. Upgrade 12 miles of 230 kV line between Carroll and Mt. Airy substations. Upgrade 18 miles of 230 kV line between Jackson and Three Mile Island substations.

kV Level: 230

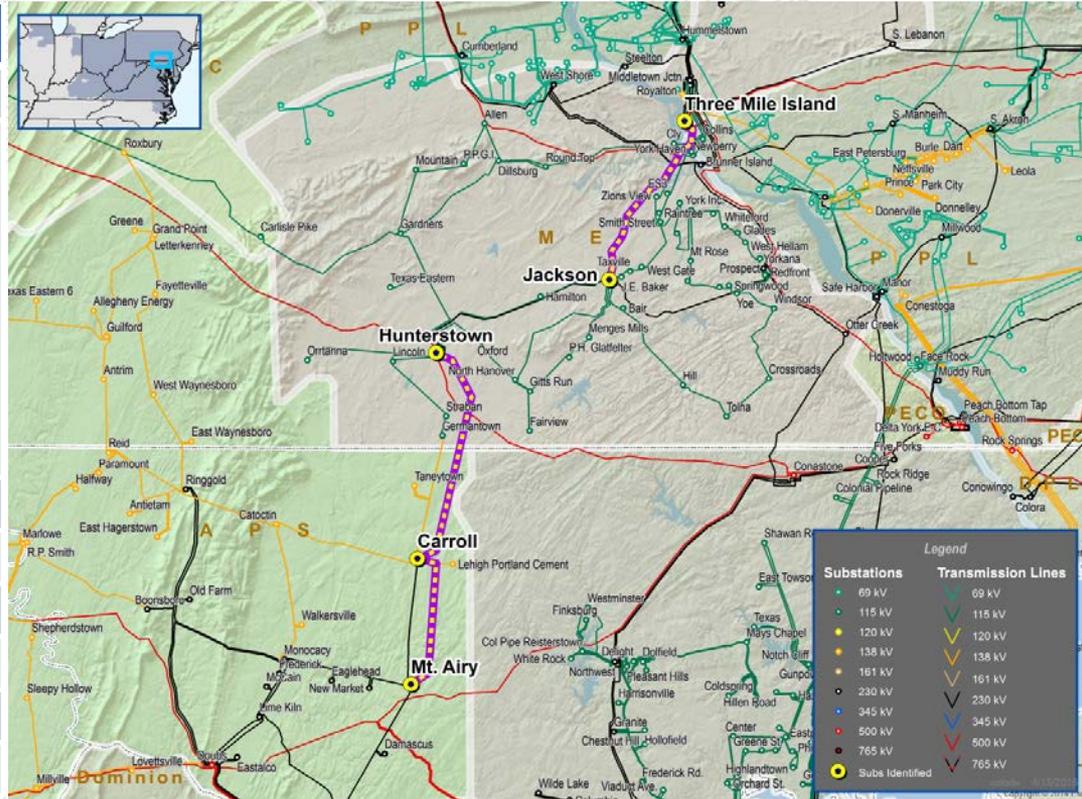
Cost (\$M): 107.2

IS Date: 2020

Target Zone: APS/Meted

ME Constraints: Taneytown to Carroll 138 kV

Notes:



Project ID: 201415_1-22D

Proposed by: Ameren

Proposed Solution: Construct a 345 kV substation adjacent to the Willey 138 kV substation. Loop the Miami Fort – Woodsdale and Miami Fort West Milton 345 kV lines into the new substation and install a 345/138 kV transformer. Build a 345 kV switching station and a new 345 kV line from East Bend to the West Buffington station.

kV Level: 345

Cost (\$M): 91.26

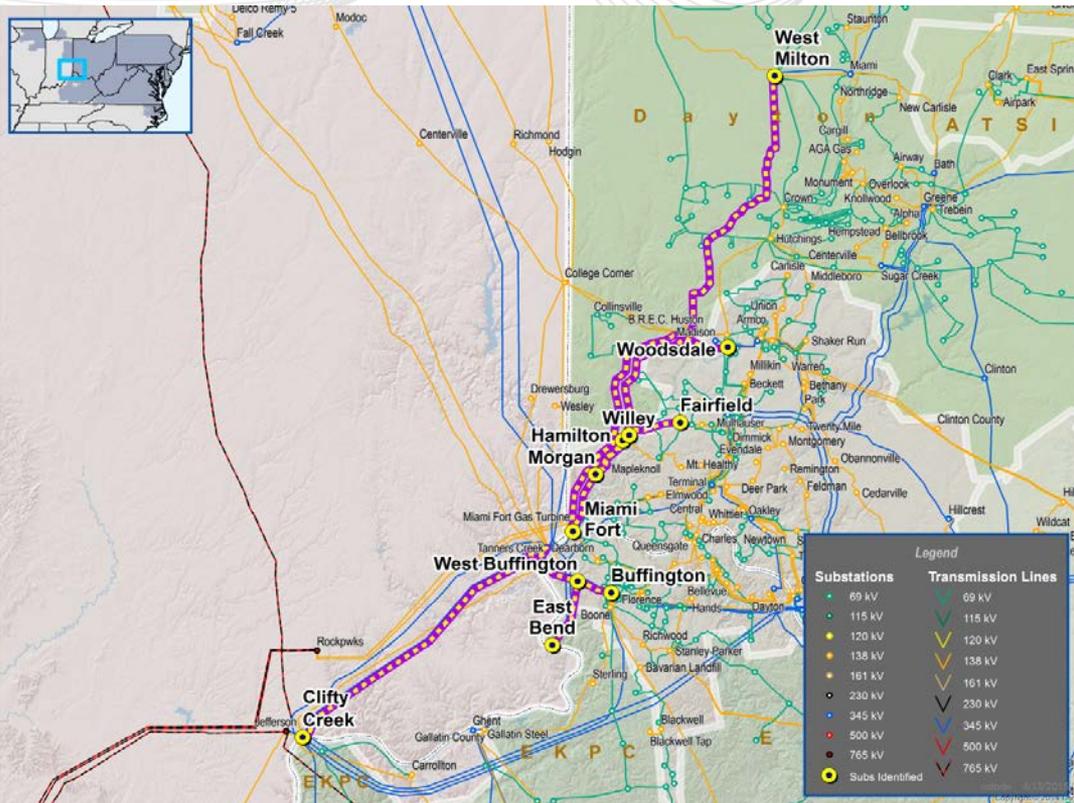
IS Date: 2020

Target Zone: DEOK

ME Constraints: Miami Fort to Willey 138 kV

Notes: Deactivation project removes driver

Proposal will not be evaluated.



Project ID: 201415_1-22E

Proposed by: Ameren

Proposed Solution: Build a 345 kV switching station. Loop in the existing Clifty Creek – Buffington 345 kV line. Build a new 345 kV line from East Bend to the new West Buffington switching station. Upgrade existing circuit fro West Buffington to Buffington.

kV Level: 345

Cost (\$M): 56.04

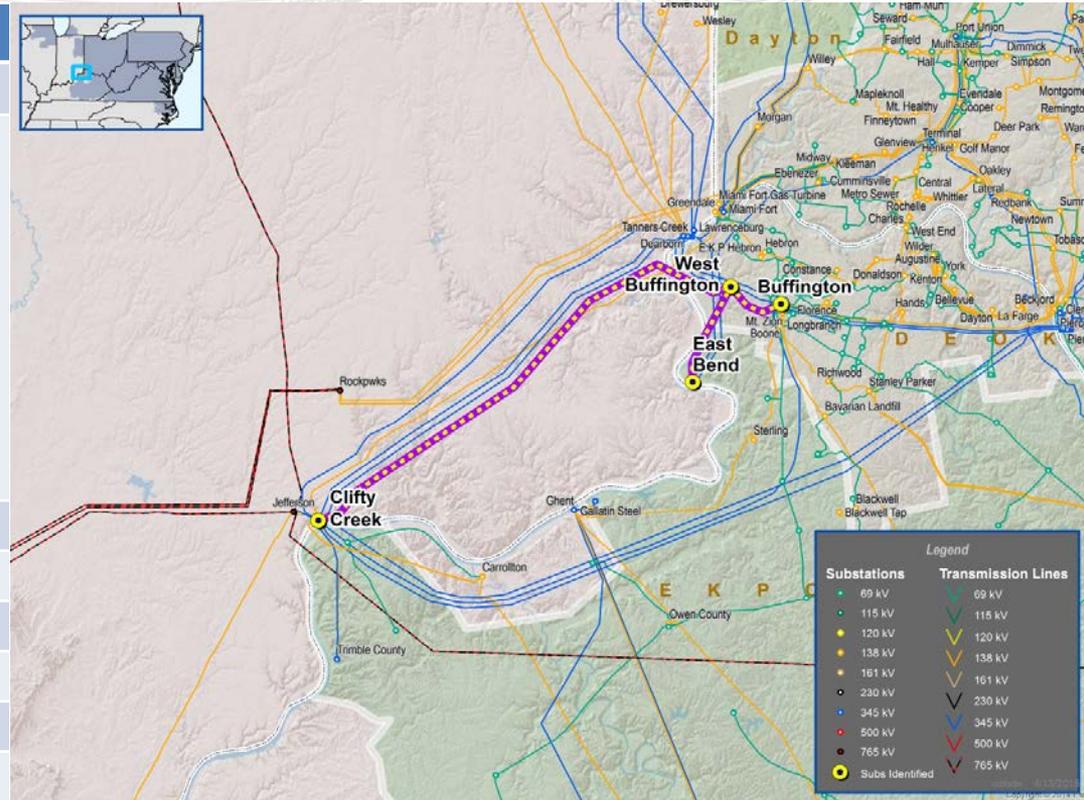
IS Date: 2020

Target Zone: DEOK

ME Constraints: Miami Fort to Willey 138 kV

Notes: Deactivation project removes driver

Proposal will not be evaluated.



Project ID: 201415_1-22F

Proposed by: Ameren

Proposed Solution: Expand Willey 138 kV substation. Create a 5 position 345 kV ring bus. Build a new 345 kV switching station (West Buffington) and loop in the existing Clifty Creek – Buffington 345 kV line. Upgrade existing double circuit line from Willey to Fairfield. Build a 345 kV line from East Bend to the West Buffington switching station.

kV Level: 345

Cost (\$M): 91.26

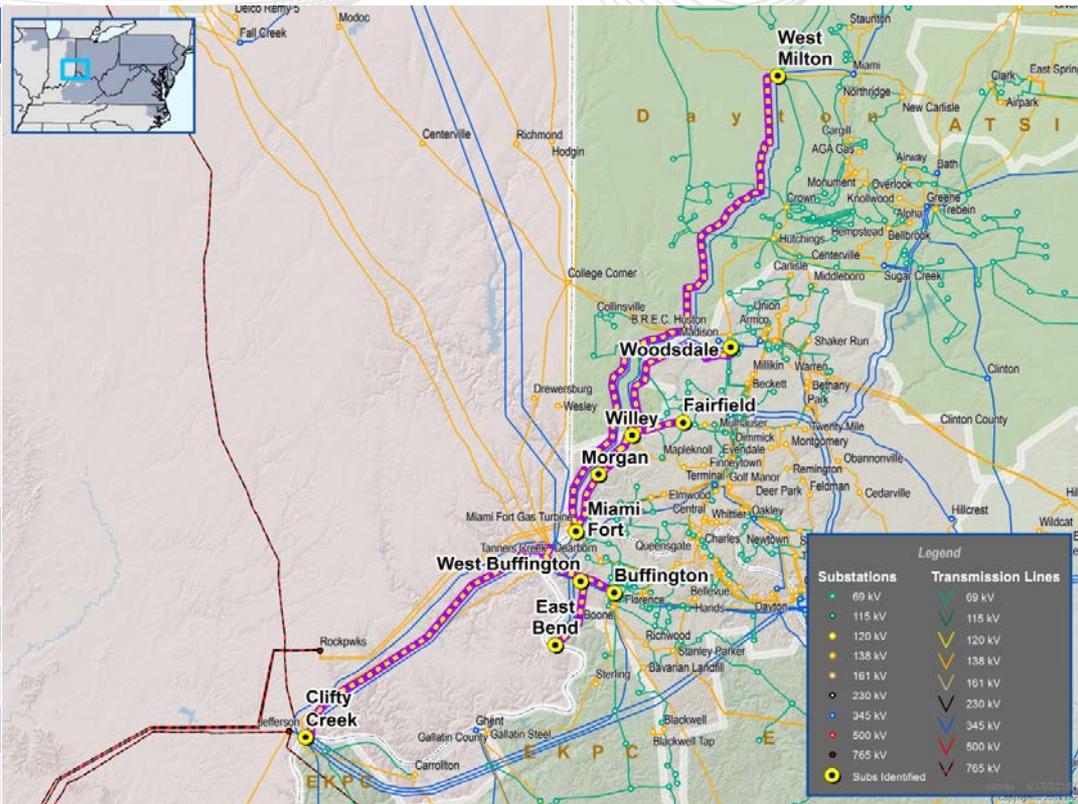
IS Date: 2020

Target Zone: DEOK

ME Constraints: Miami Fort to Willey 138 kV

Notes: Deactivation project removes driver

Proposal will not be evaluated.



Questions?

Email: RTEP@pjm.com