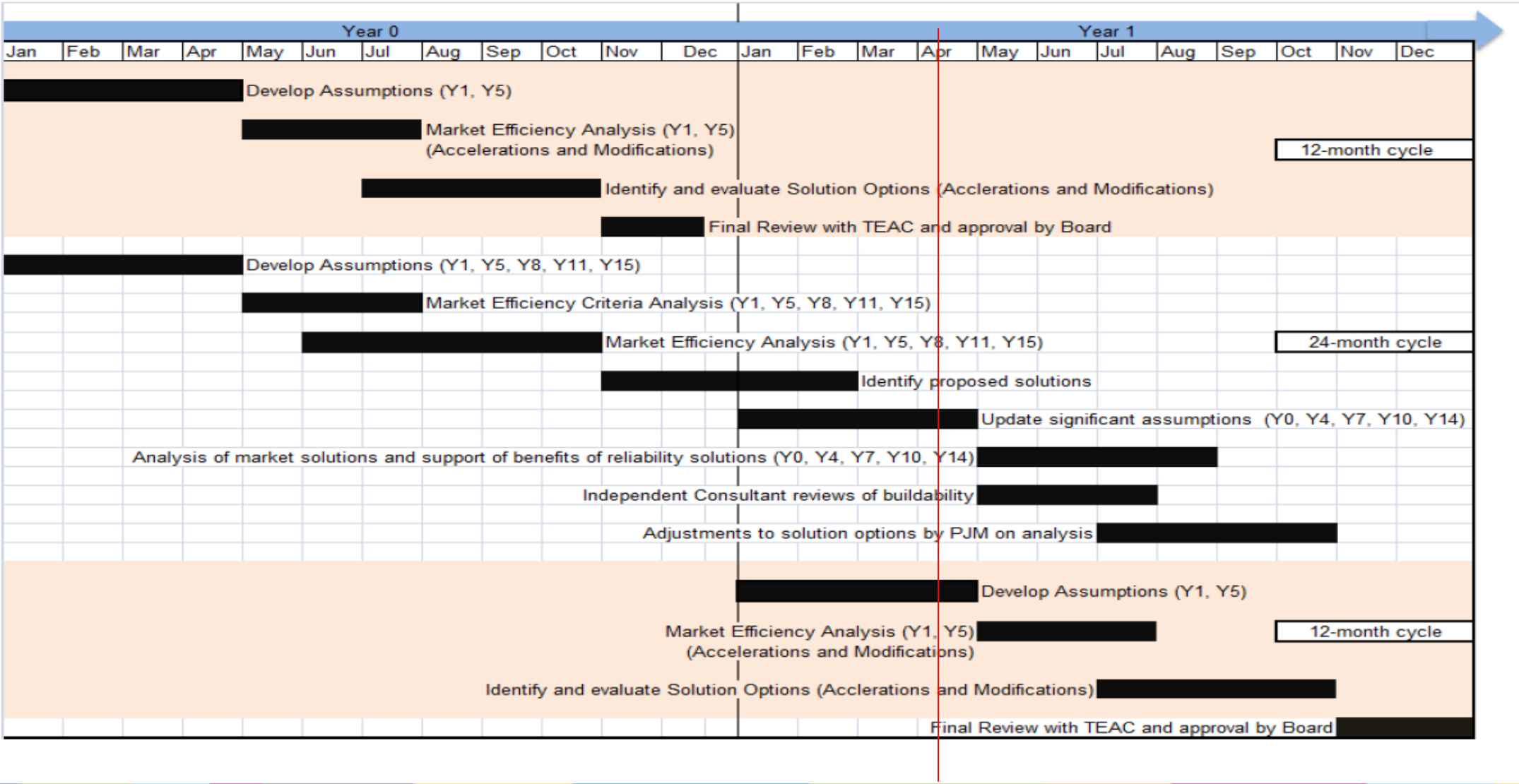
Market Efficiency Update

Transmission Expansion Advisory Committee

April 13, 2017

Market Efficiency Timeline



2016-2017 24-Month Market Efficiency Cycle

- Long term proposal window: Nov 2016 - Feb 2017
- Mid-cycle update of major assumptions: Jan 2017 – Apr 2017
  - Load forecast, Demand forecast, Fuel prices, Generation expansion, Network topology
  - Only updating the most significant changes, not full update.
- Analysis of proposed solutions: May 2017 - Oct 2017
  - Independent consultant review of cost and ability to build
  - Review of analysis with TEAC: Jun 2017 - Nov 2017
- Determination of final projects: Dec 2017
  - Final review with TEAC and Board approval
  - Projects may be approved earlier if analysis and review complete

Mid-Cycle Update: Key Input Parameters

- Updated Load Forecast
- Generation expansion Update:
  - Includes new major ISA units
  - Includes deactivations that impact forecasted congestion
- Updated Transmission Topology
  - significant RTEP upgrades that may impact congestion drivers
- Updated Fuel Prices:
  - Gas Forecast, Coal Forecast

Mid-Cycle Update: Load Peak & Energy Input Data

PJM zonal peak and energy forecast from 2017 Load Forecast Report

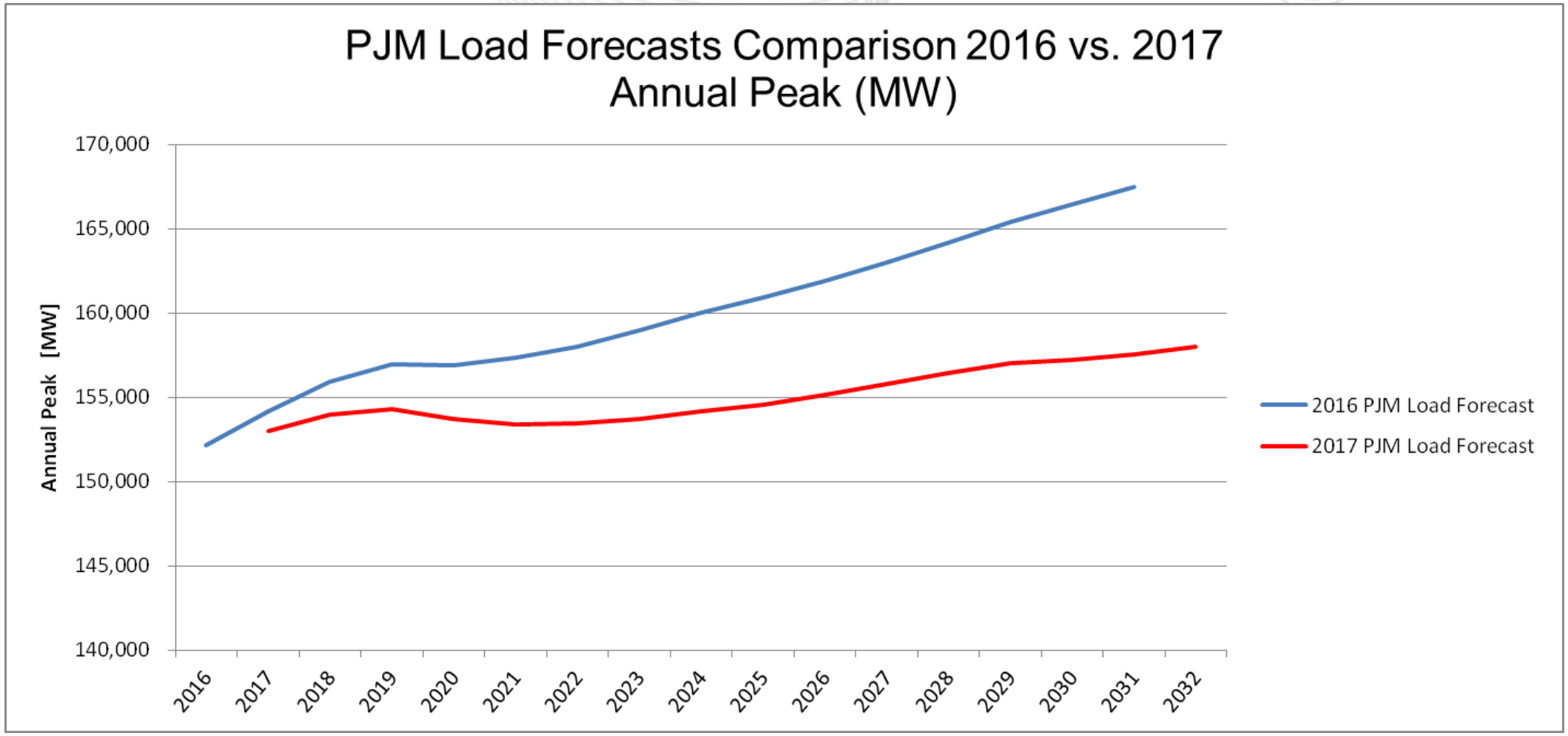
2017 PJM Peak Load and Energy Forecast

Load	2017	2021	2024	2027	2031
Peak (MW)	152,999	153,384	154,142	155,773	157,513
Energy (GWh)	814,838	820,415	827,522	835,137	845,602

Notes: 1.) Peak and energy values from PJM Load Forecast Report Table B-1 and Table E-1, respectively.

2.) Model inputs are at the zonal level, to the extent zonal load shapes create different diversity - modeled PJM peak load may vary.

Comparison 2016 and 2017 Load Forecasts



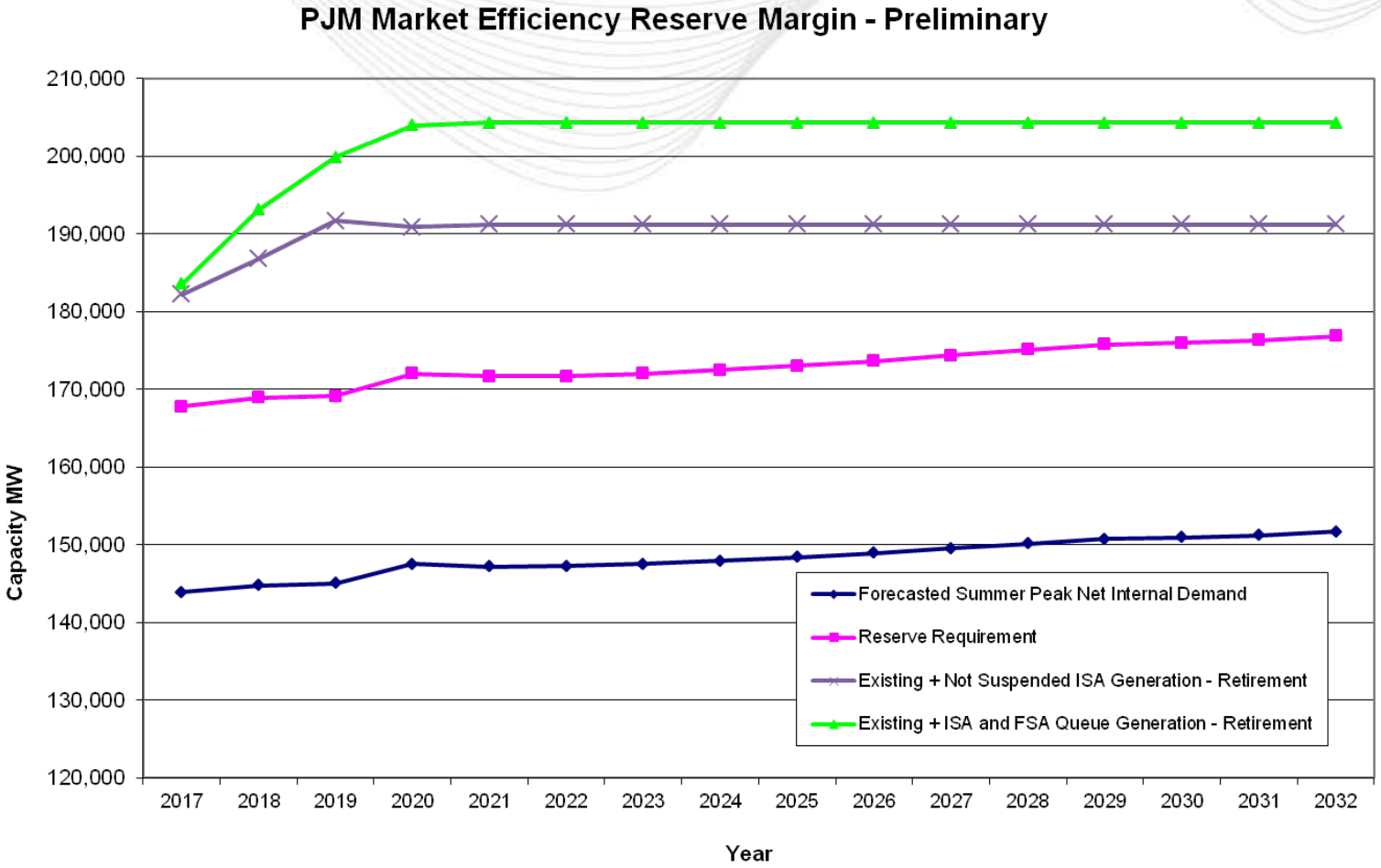
Mid-Cycle Update: Demand Resource Input Data

Model zonal demand resources consistent with Table B-7 of the 2017 Load Forecast Report

2017 PJM Demand Resource Forecast

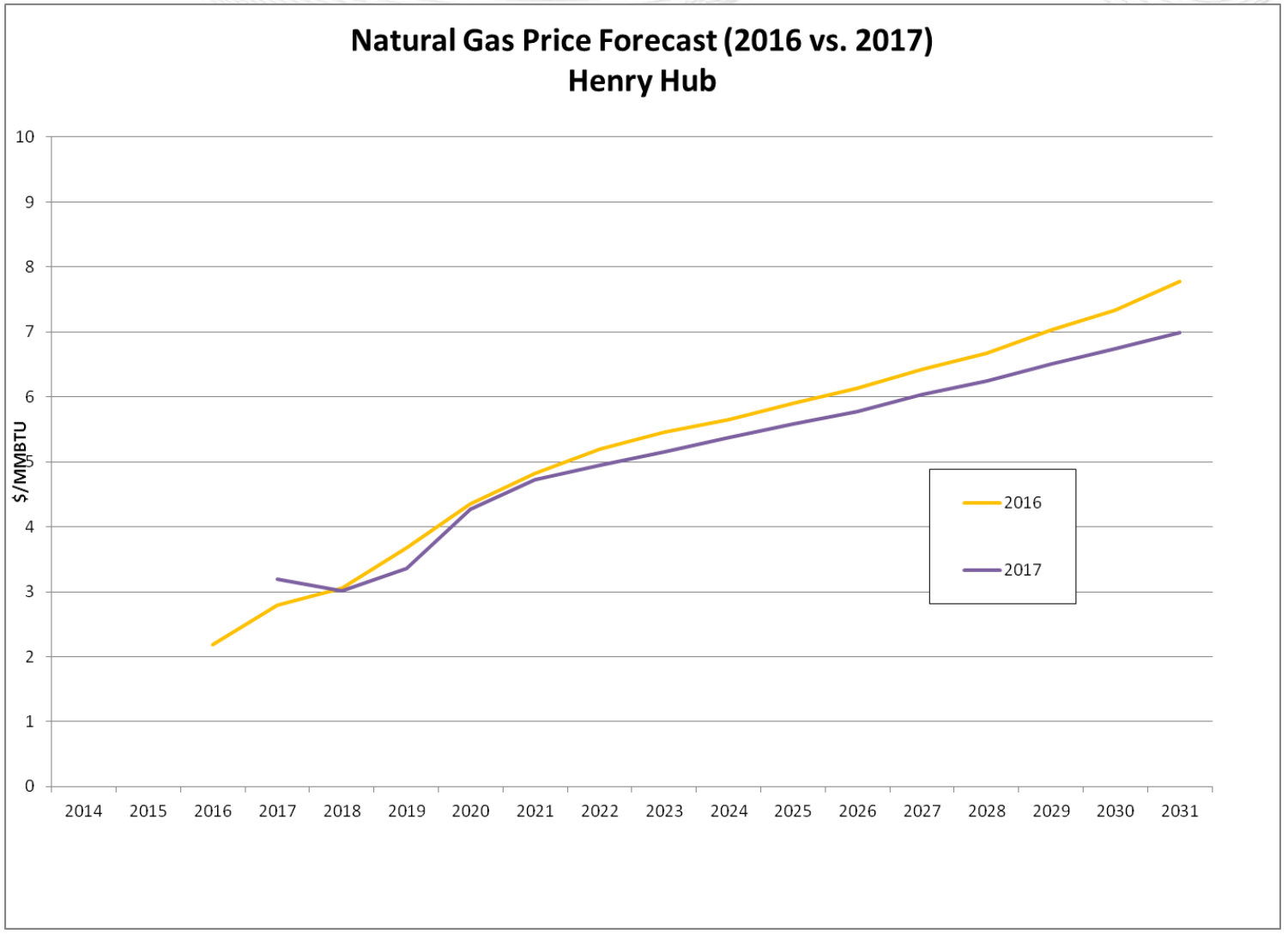
	2017	2021	2024	2027	2031
Demand Resource (MW)	9,120	6,169	6,187	6,237	6,290

Mid-Cycle Update: Future Generation

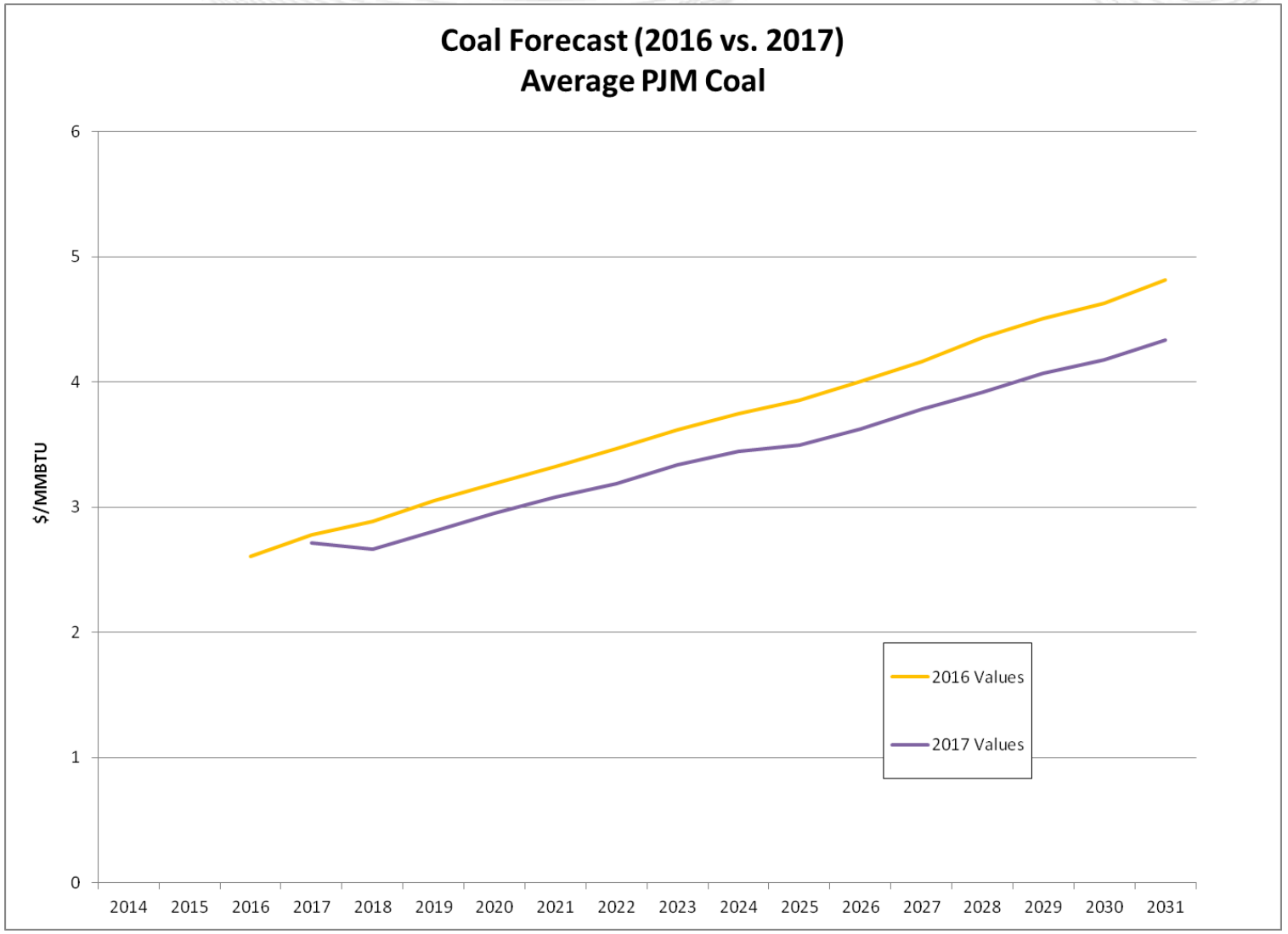


Note: Generation Includes existing and projected PJM internal capacity resources.
Model informed by 2022 Machines List.
http://www.pjm.com/~/media/committees-groups/committees/teac/20170112/20170112-2022-list-of-machines.ashx

Mid-Cycle Update: Gas Forecast



Mid-Cycle Update: Coal Forecast

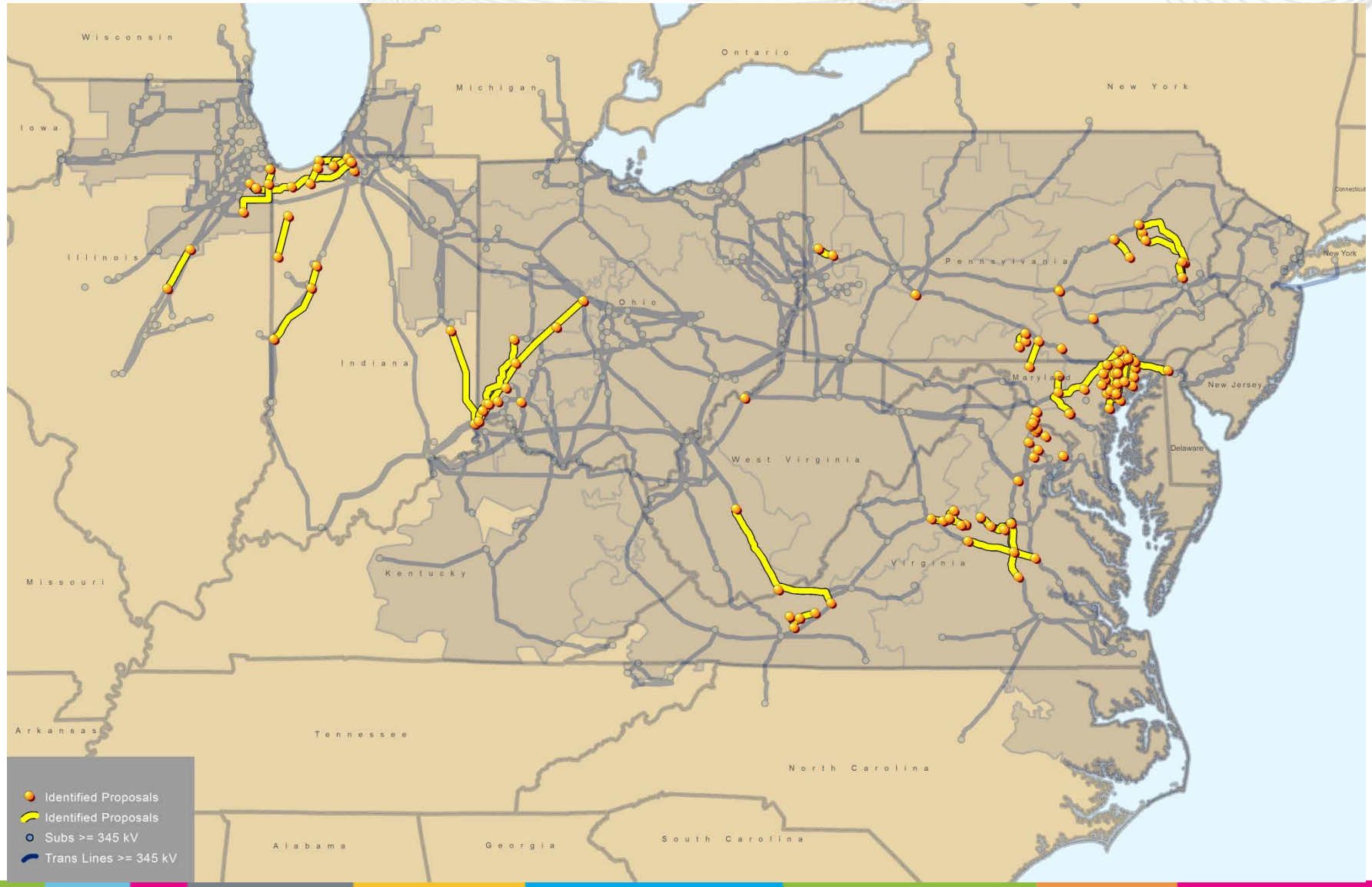


Market Efficiency Long Term Proposal Window
Proposed Projects

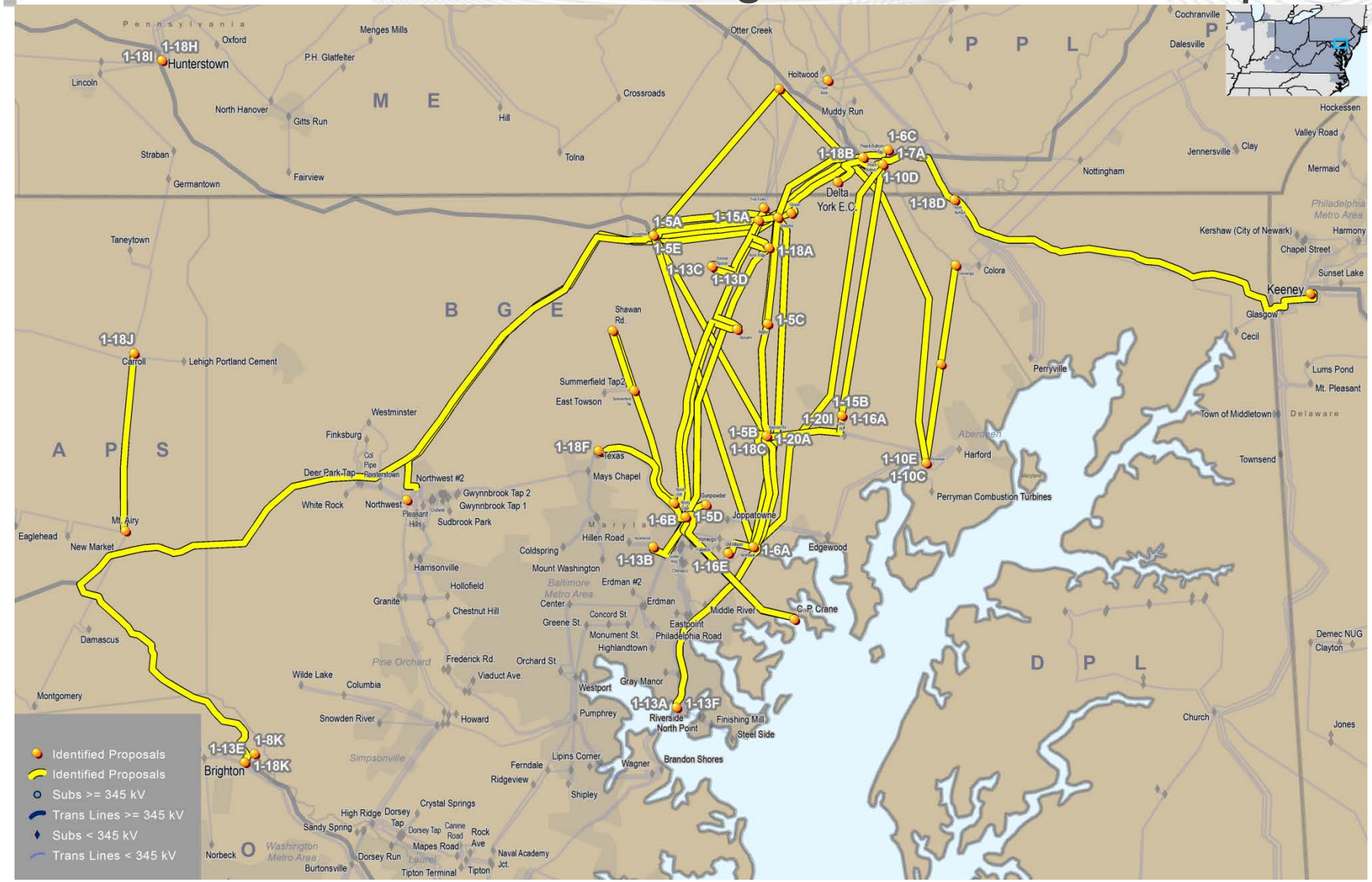
2016-2017 Long Term Window – Projects Received

- 96 market Efficiency Proposals
  - 52 Greenfield
    - $15.8M - $371.3M
  - 44 Upgrades
    - $0 - $192.07M
- 20 proposing entities (including 6 combinations of joint proposals)
- 8 Interregional proposals
  - 5 Greenfield
  - 3 Upgrades

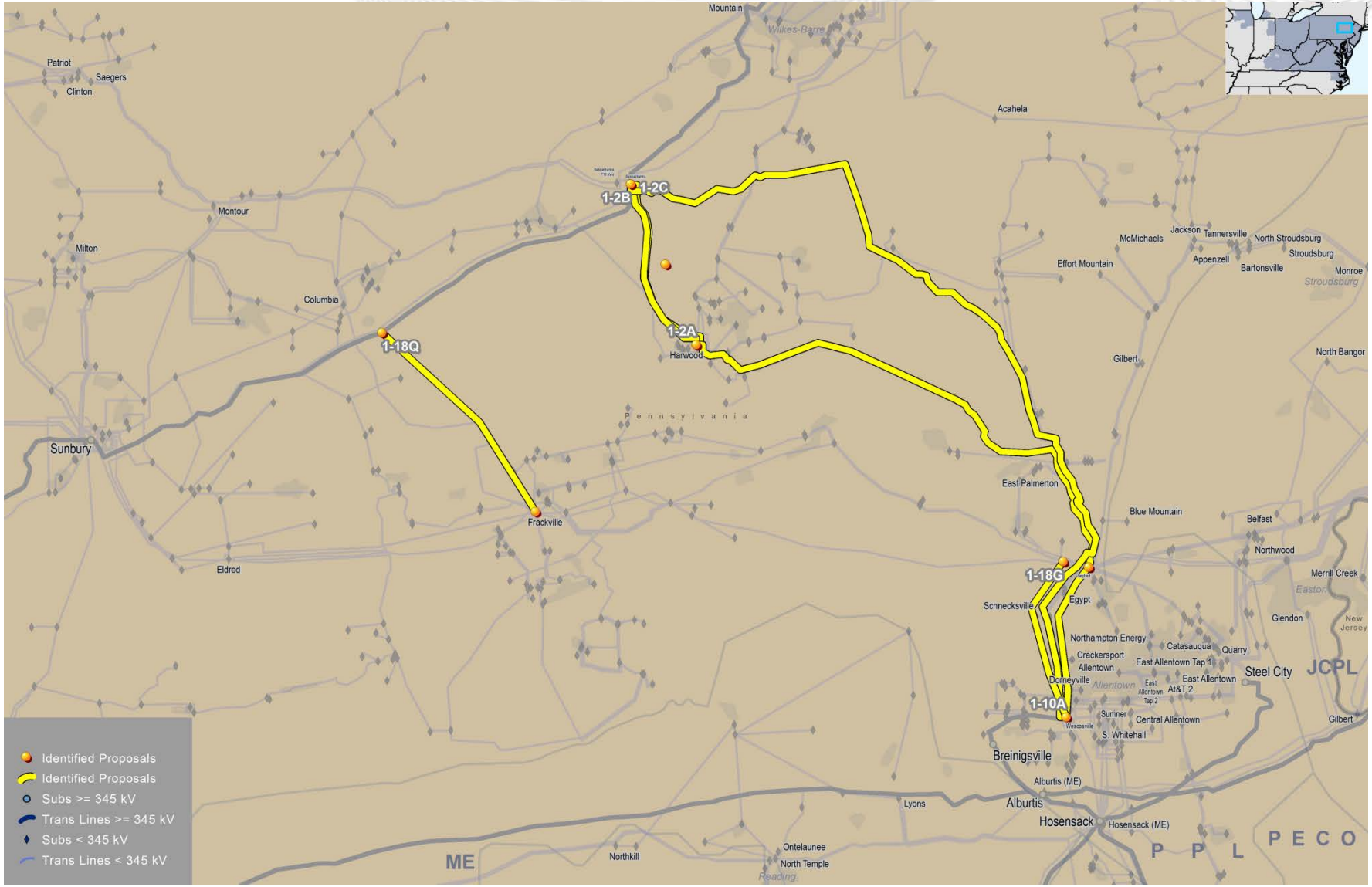
2016-2017 Long Term Window Proposals



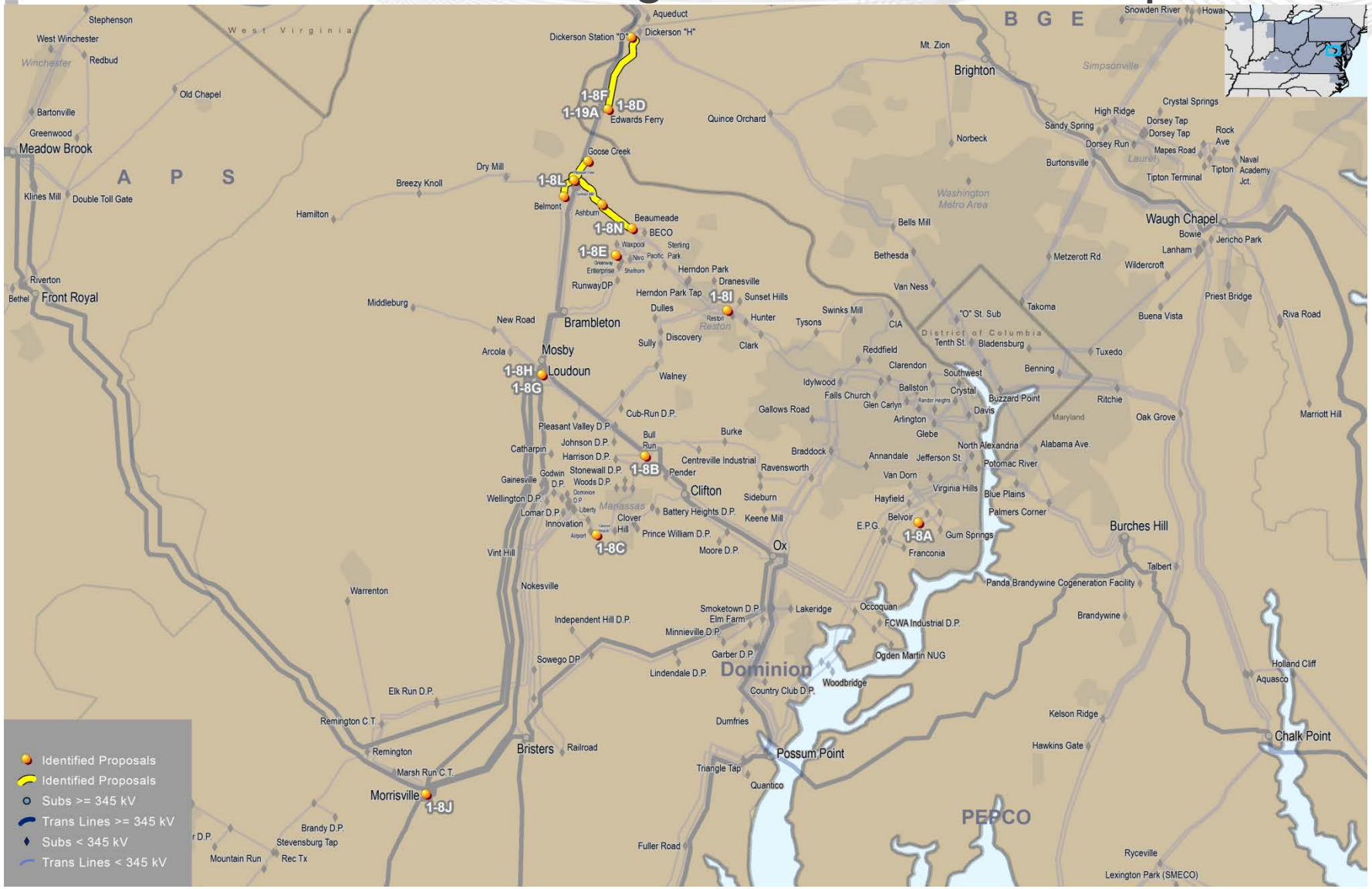
2016-2017 Long Term Window Proposals - BGE



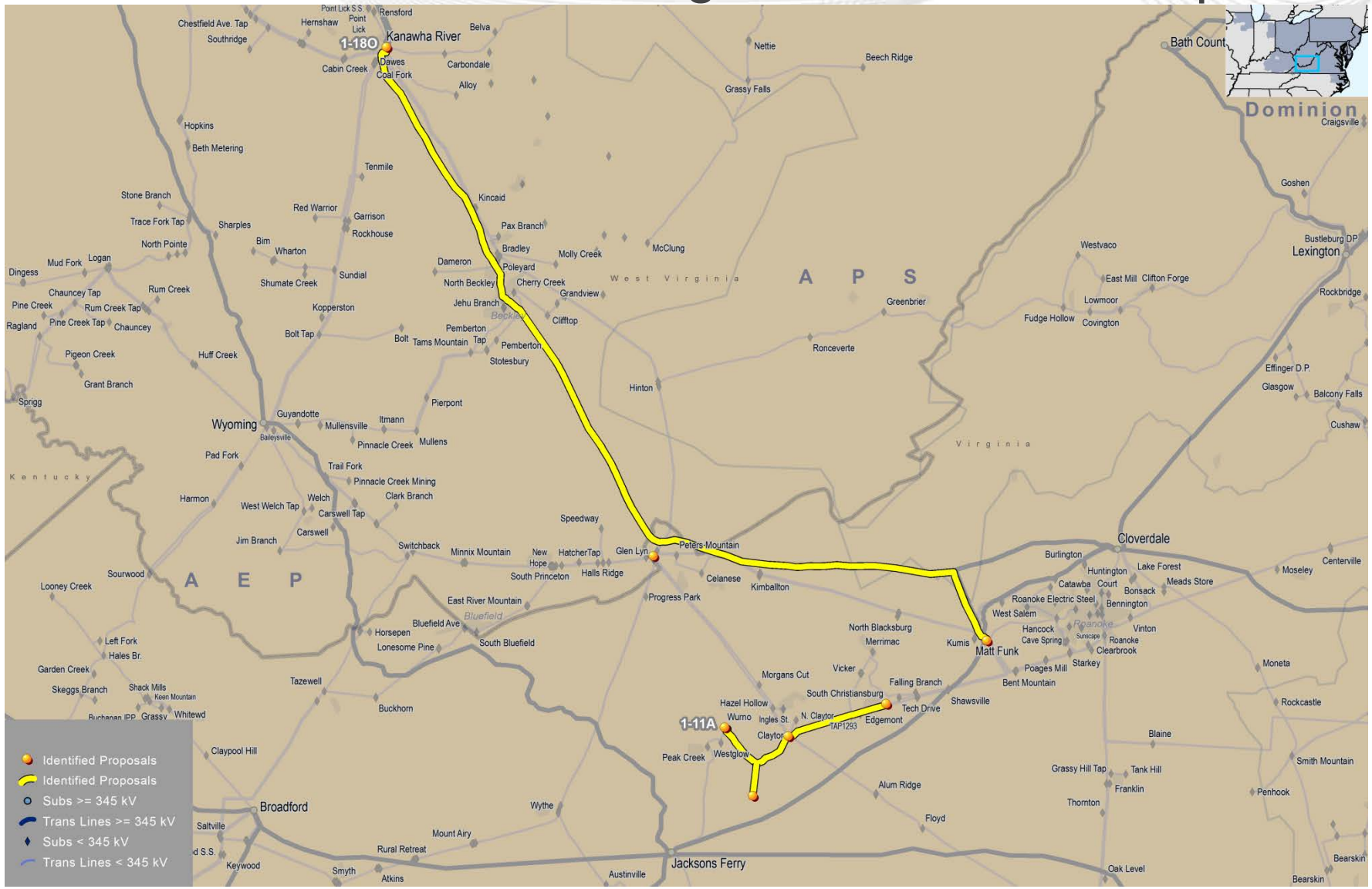
2016-2017 Long Term Window Proposals – PPL



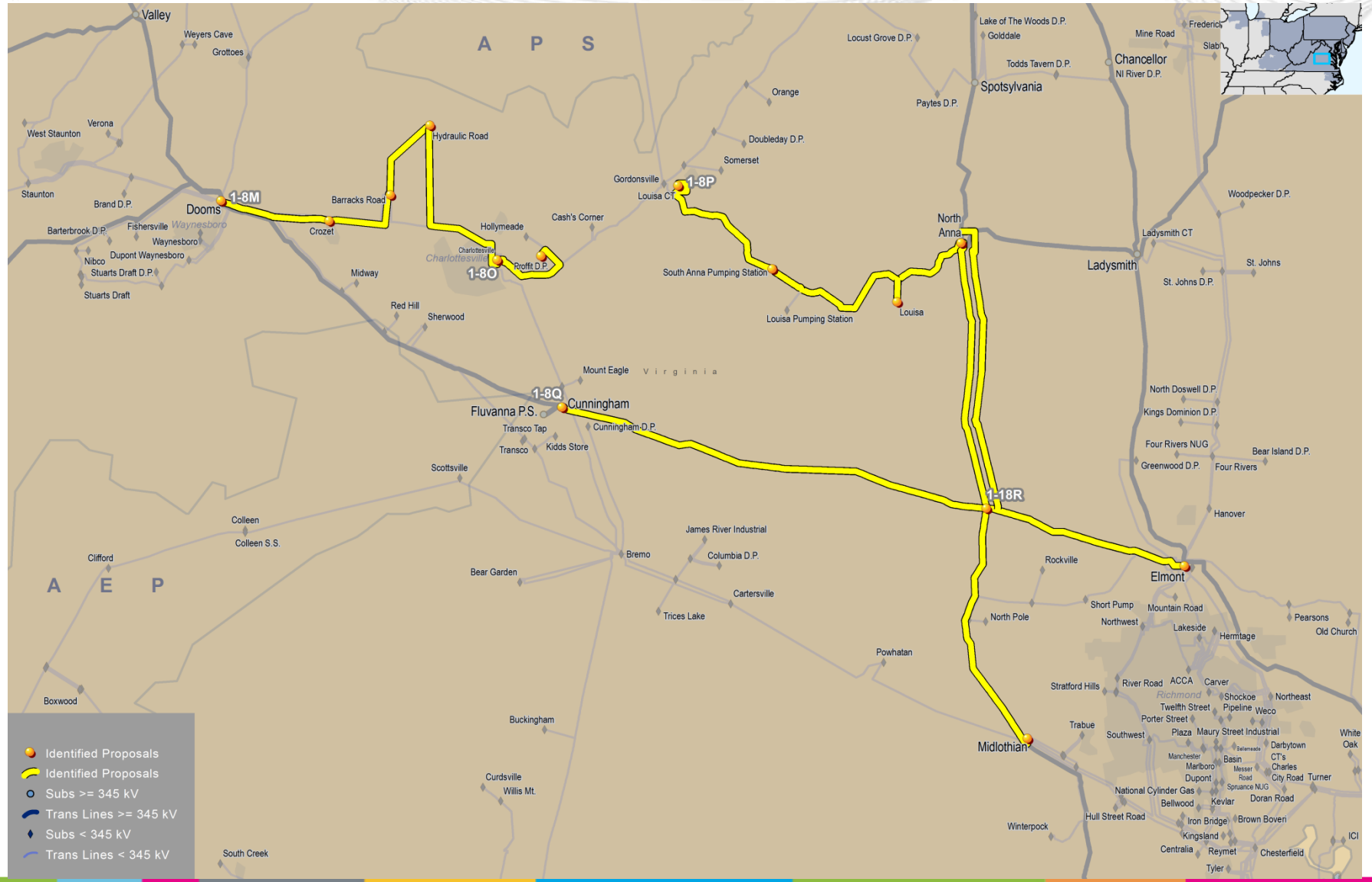
2016-2017 Long Term Window Proposals – APS/DOM



2016-2017 Long Term Window Proposals – AEP

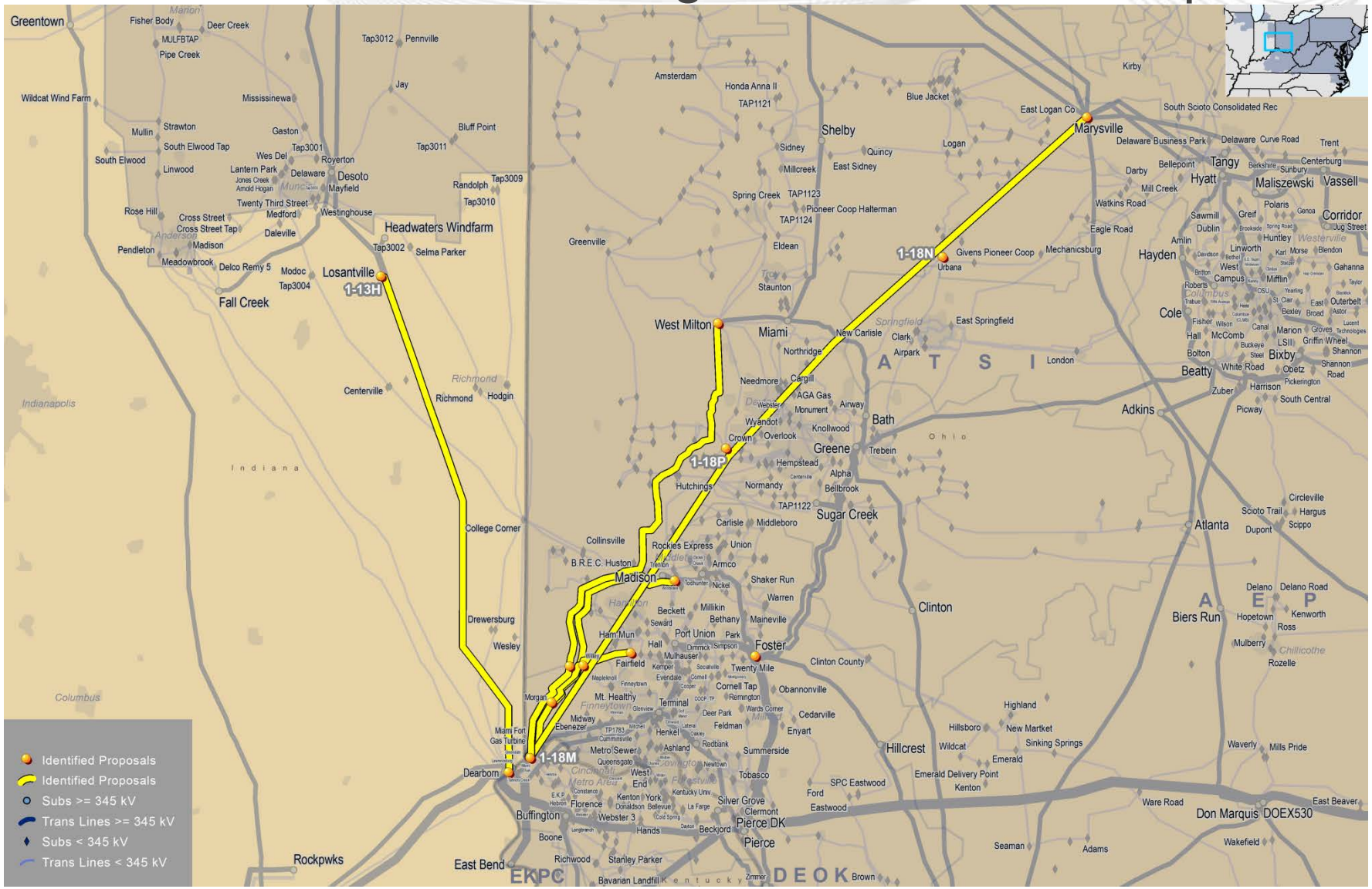


2016-2017 Long Term Window Proposals – AEP/APS

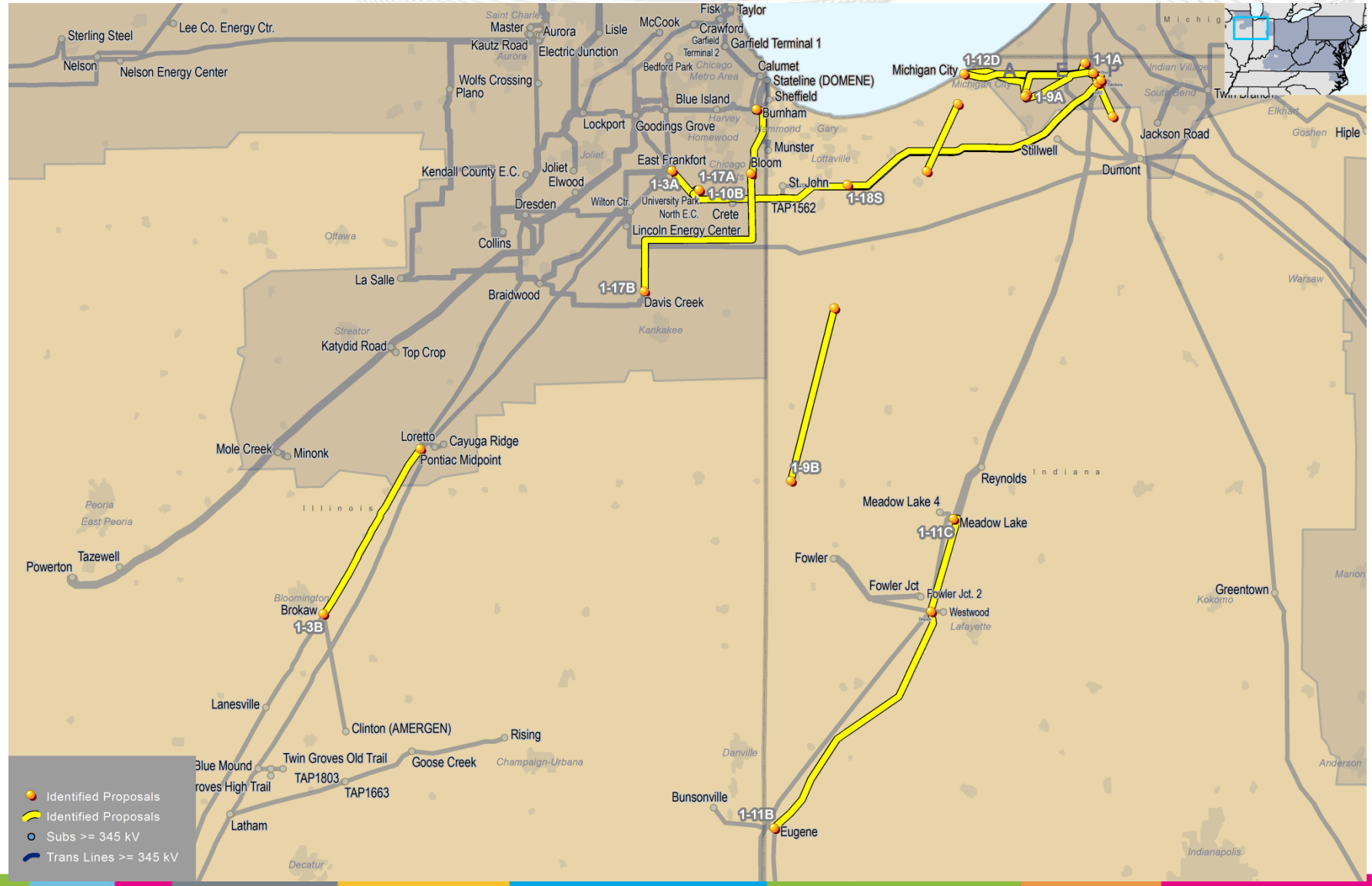


2016-2017 Long Term Window Proposals - ATSI

1-2A



2016-2017 Long Term Window Proposals – COMED



2016/17 Long Term Proposal Window – Study Approach

- Step 1: Review projects (step in-progress)
  - PJM will contact proposer if need clarification of modeling.
  - Approved base line reliability and supplemental projects may eliminate congestion drivers.
- 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

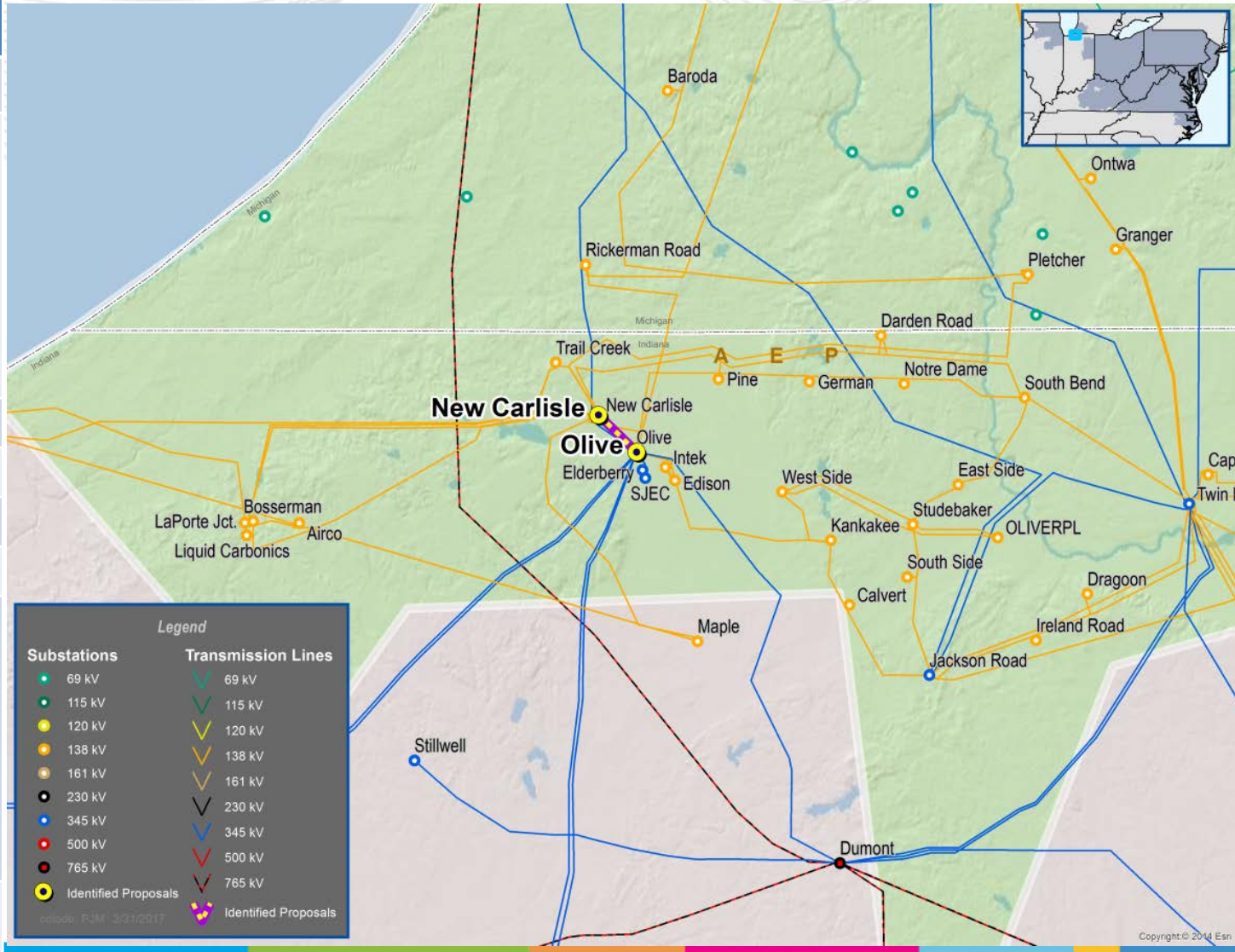
Next Steps

Milestone	Schedule 2016 - 2017
Reevaluation approved Market Efficiency projects	February – May 2017
Base Case Mid-Cycle Update Significant Assumptions	January – April 2017
Analyze Submitted Proposals	May – October 2017
Acceleration Analysis	May – October 2017
Final TEAC Review and Board Approval	December 2017

Appendix A
2016/17 Long Term Window Proposals

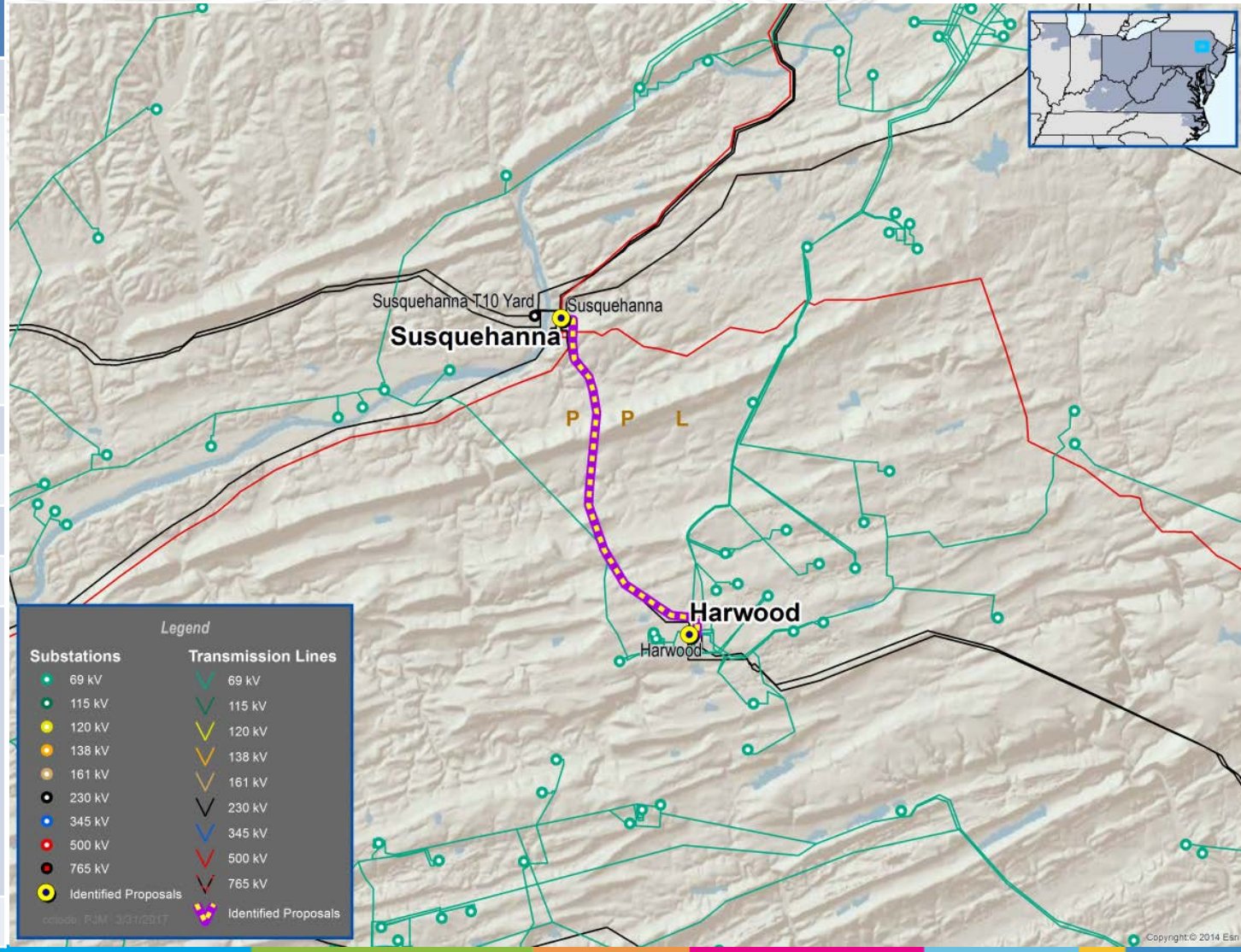
WPPI 1-1A

Project ID: 201617_1-1A
Proposed by: WPPI
Proposed Solution: Provide a second New Carlisle-Olive 138 kV circuit.
kV Level: 138 kV
In-Service Cost ($M): $1
In-Service Date: 2019
Target Zone: AEP
ME Constraints: OLIVE - BOSSERMAN 138 kV
Notes: See supplemental project Olive – Bosserman discussion in the Reliability Update presentation at April TEAC.



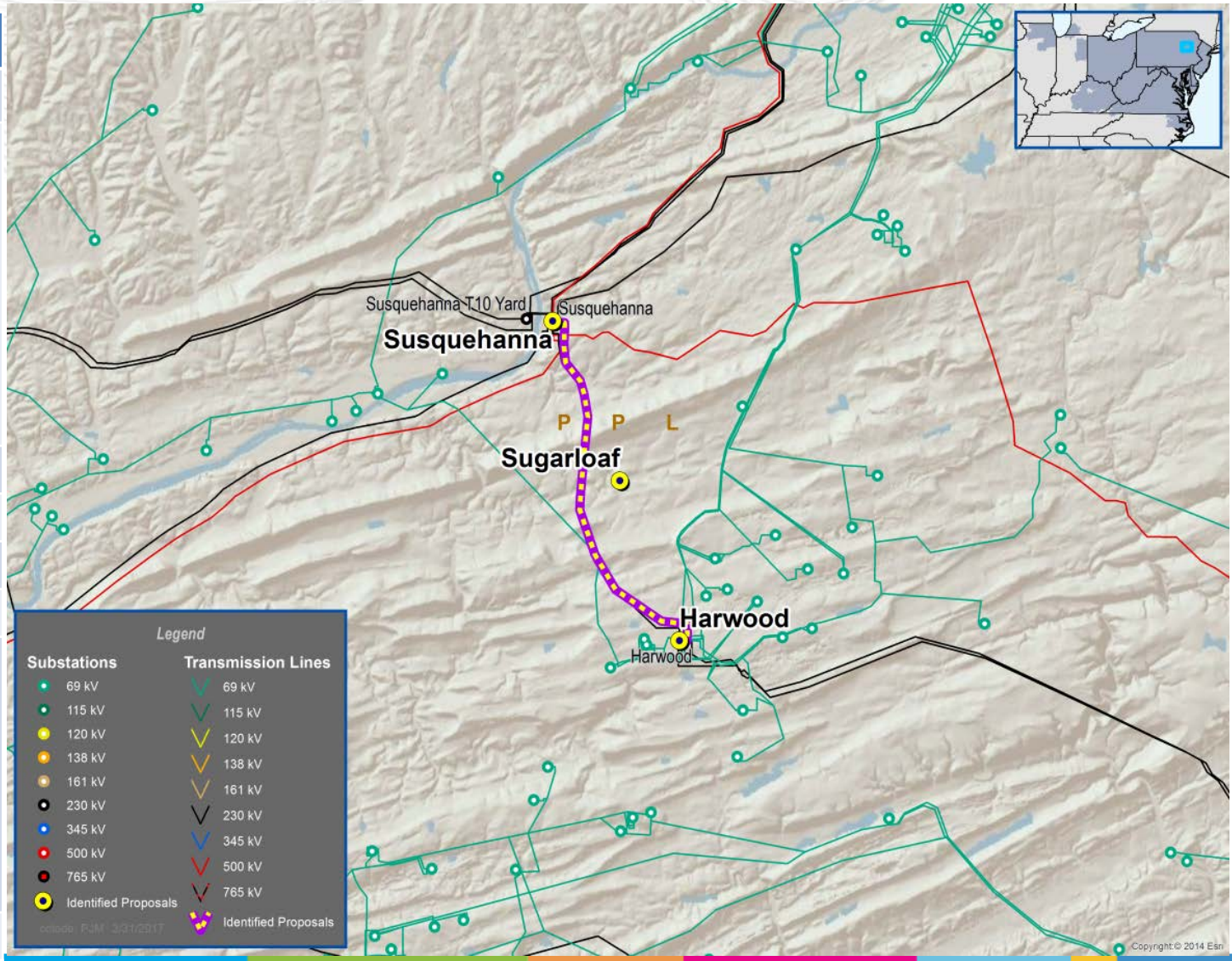
PPL 1-2A

Project ID: 201617_1-2A
Proposed by: PPL
Proposed Solution: Reconductor the Susquehanna - Harwood 230 kV DCT line and replace a limited number of structures as necessary to accommodate the heavier conductor.
kV Level: 230 kV
In-Service Cost ($M): $13.13
In-Service Date: 2021
Target Zone: PPL
ME Constraints: SUSQUEHANNA - HARWOOD 230 kV
Notes:



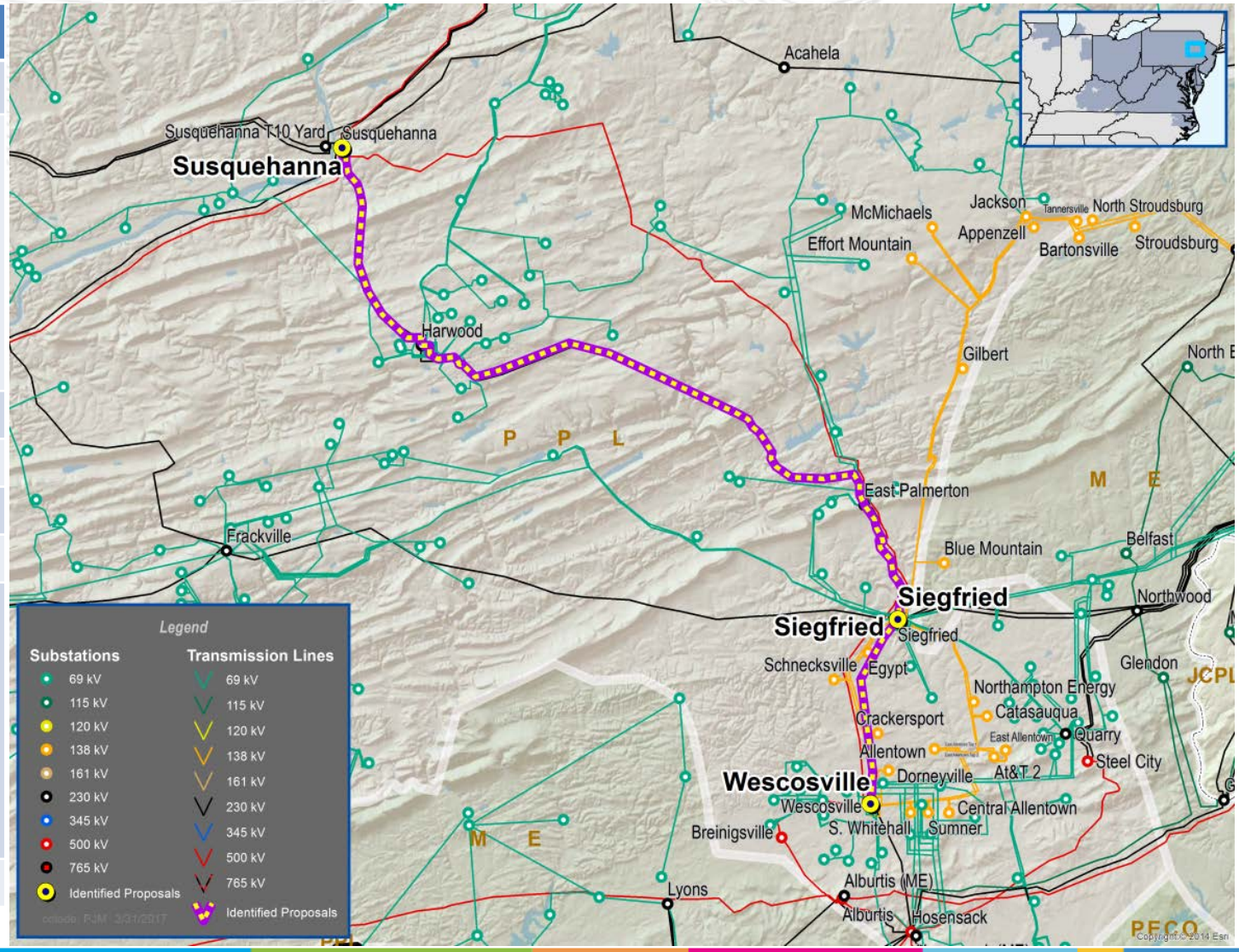
PPL 1-2B

Project ID: 201617_1-2B
Proposed by: PPL
Proposed Solution: Reconductor the Susquehanna - Harwood 230 kV DCT line and replace a limited number of structures as necessary to accommodate the heavier conductor. Update protection settings at Susquehanna, Harwood, and Sugarloaf 230 kV substations to accommodate the new line ratings.
kV Level: 230 kV
In-Service Cost ($M): $13.01
In-Service Date: 2021
Target Zone: PPL
ME Constraints: SUSQUEHANNA - HARWOOD 230 kV
Notes:



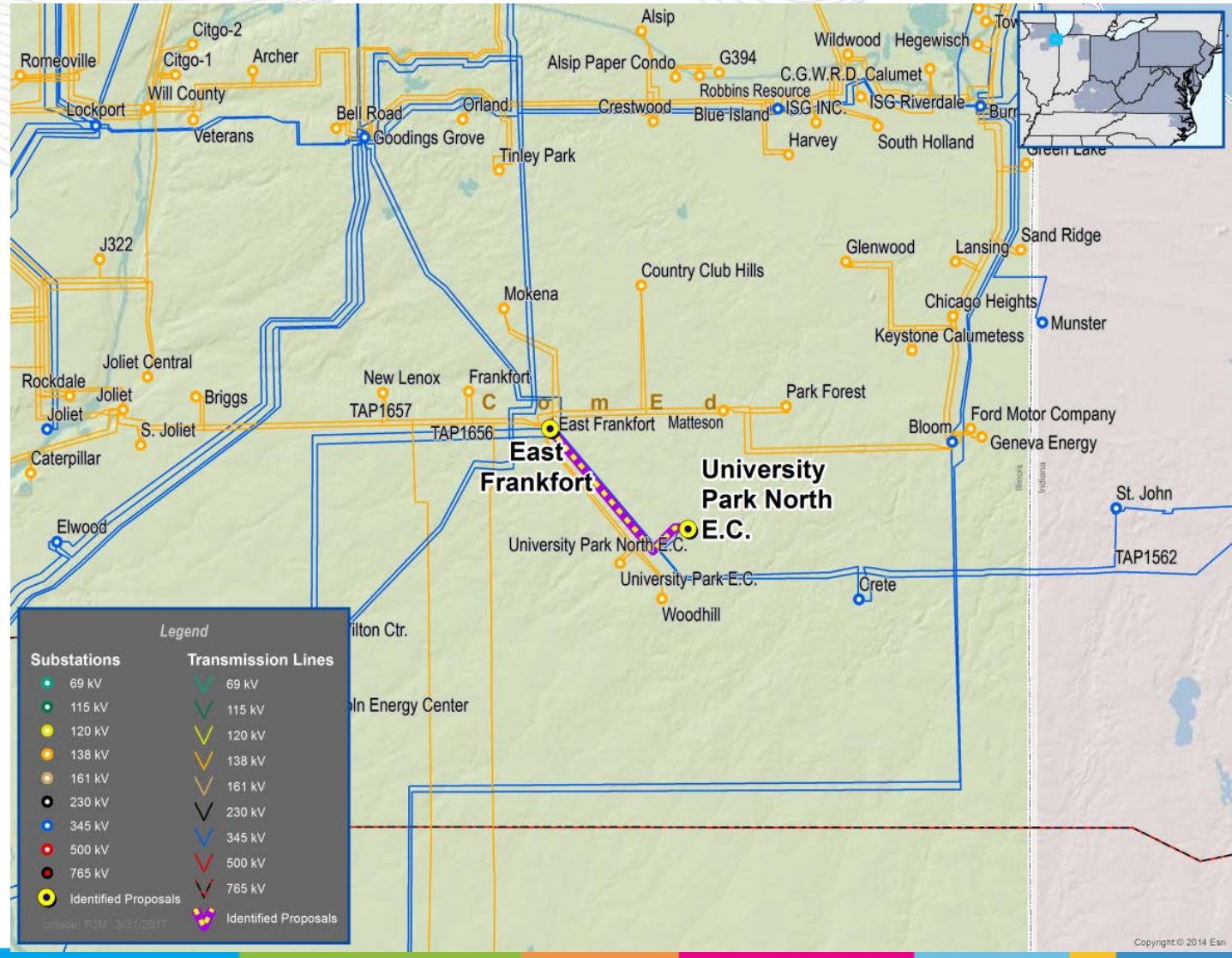
PPL 1-2C

Project ID: 201617_1-2C
Proposed by: PPL
Proposed Solution: Route existing Susquehanna - Wescosville 500 kV line in and out of new Siegfried 500 kV bus station. Install a new 500/230 kV Siegfried transformer. Connect low side of new transformer to Siegfried 230 kV West Bus.
kV Level: 230/500 kV
In-Service Cost ($M): $18.32
In-Service Date: 2021
Target Zone: PPL
ME Constraints: SUSQUEHANNA - HARWOOD 230 kV
Notes:



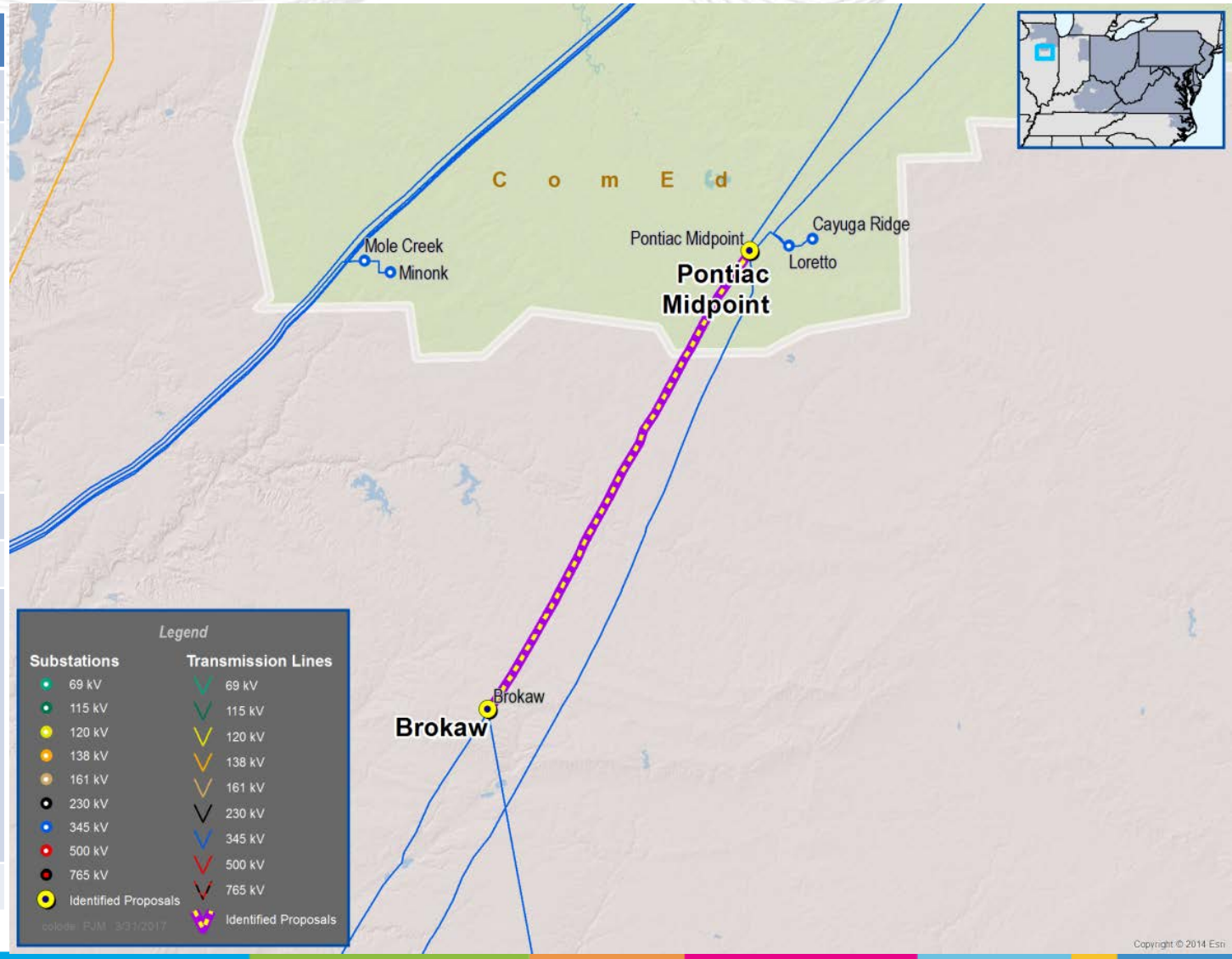
COMED 1-3A

Project ID: 201617_1-3A
Proposed by: ComEd
Proposed Solution: Upgrade capacity on 345 kV E. Frankfort - University Park line.
kV Level: 345 kV
In-Service Cost ($M): $0.84
In-Service Date: 2021
Target Zone: ComEd
ME Constraints: E. FRANKFORT - UNIVERSITY PARK 345 kV + RPM Benefits
Notes:



COMED 1-3B

Project ID: 201617_1-3B
Proposed by: ComEd
Proposed Solution: Upgrade equipment at Pontiac Midpoint station to increase capacity on 345kV Pontiac-Brokaw line.
kV Level: 345 kV
In-Service Cost ($M): $5.62
In-Service Date: 2021
Target Zone: ComEd
ME Constraints: PONTIAC - BROKAW 345 kV + RPM Benefits
Notes:



FIRST ENERGY 1-4A

Project ID: 201617_1-4A

Proposed by: First Energy

Proposed Solution:
Connect existing on-site spare 500-138kV transformer at Belmont Substation as TR4, in parallel with TR3. Relocate the termination of two 138 kV lines to provide 138 kV termination for TR4.

kV Level: 138/500 kV

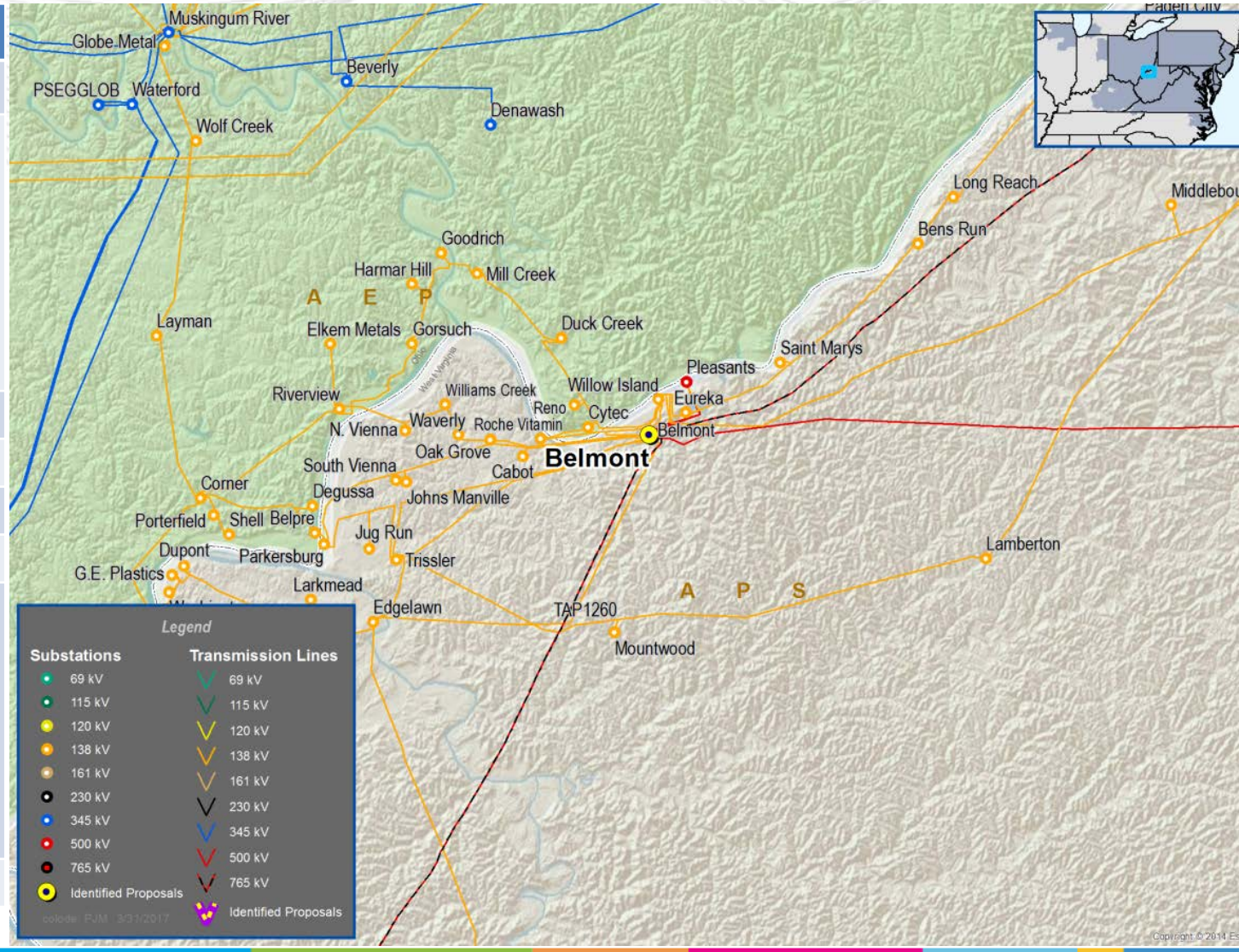
In-Service Cost ($M): $2.79

In-Service Date: 2019

Target Zone: APS

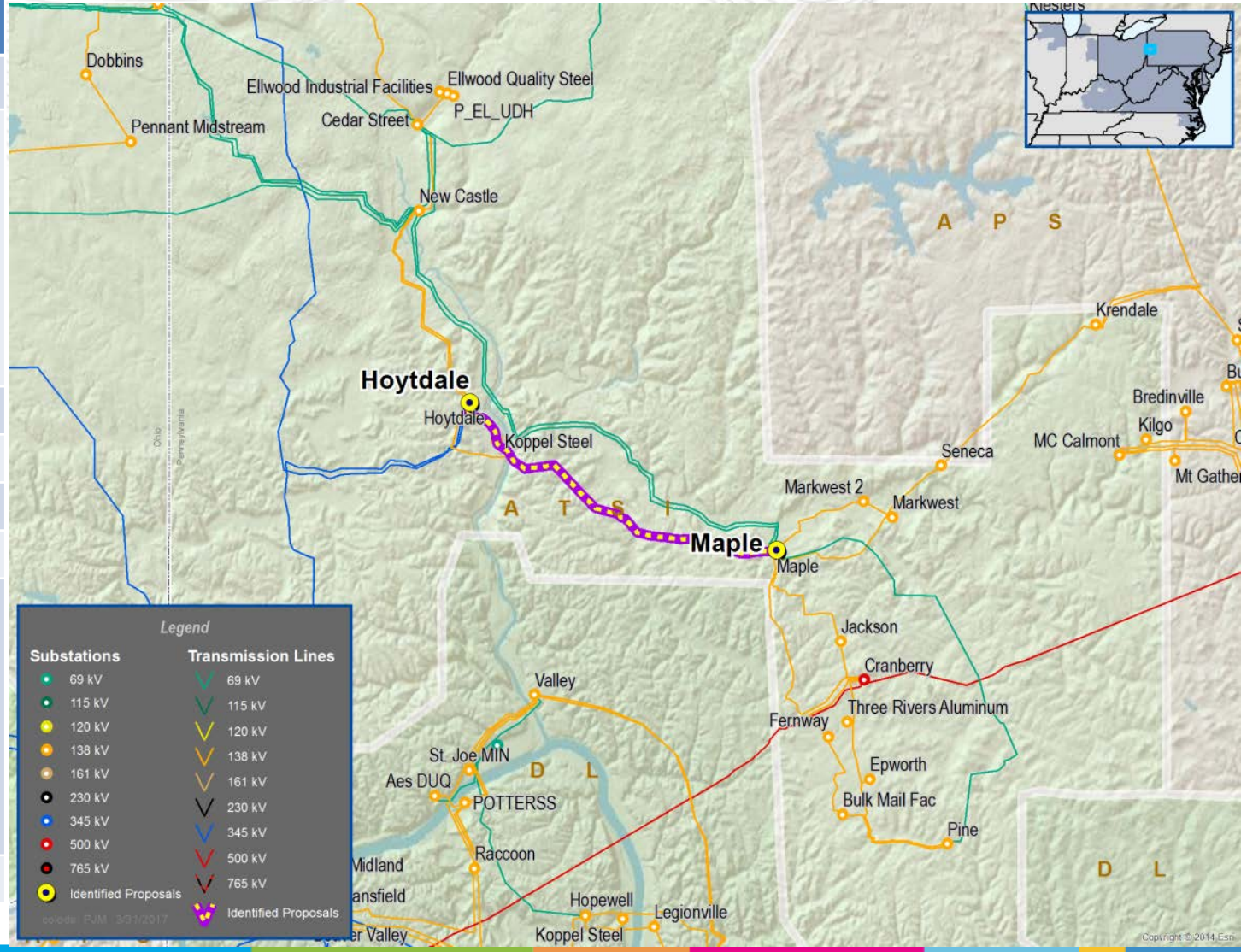
ME Constraints:
BELMONT TR 500/138 KV

Notes:



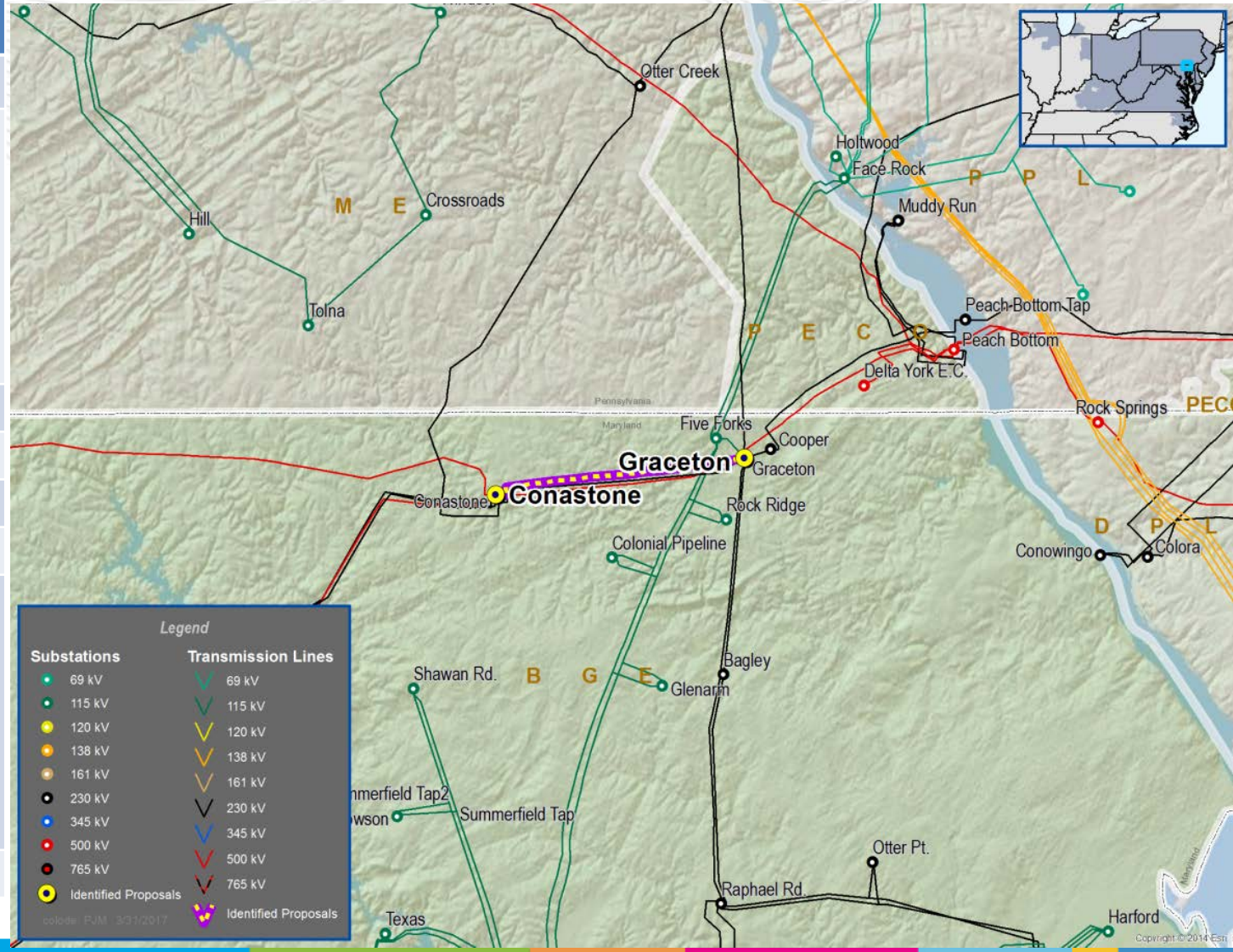
FIRST ENERGY 1-4B

Project ID: 201617_1-4B
Proposed by: First Energy
Proposed Solution: Replace relaying and replace wave traps at both terminal ends to raise the circuit rating to the line conductor limit.
kV Level: 138 kV
In-Service Cost ($M): $0.48
In-Service Date: 2018
Target Zone: ATSI
ME Constraints: HOYTDALE - MAPLE 138 kV
Notes:



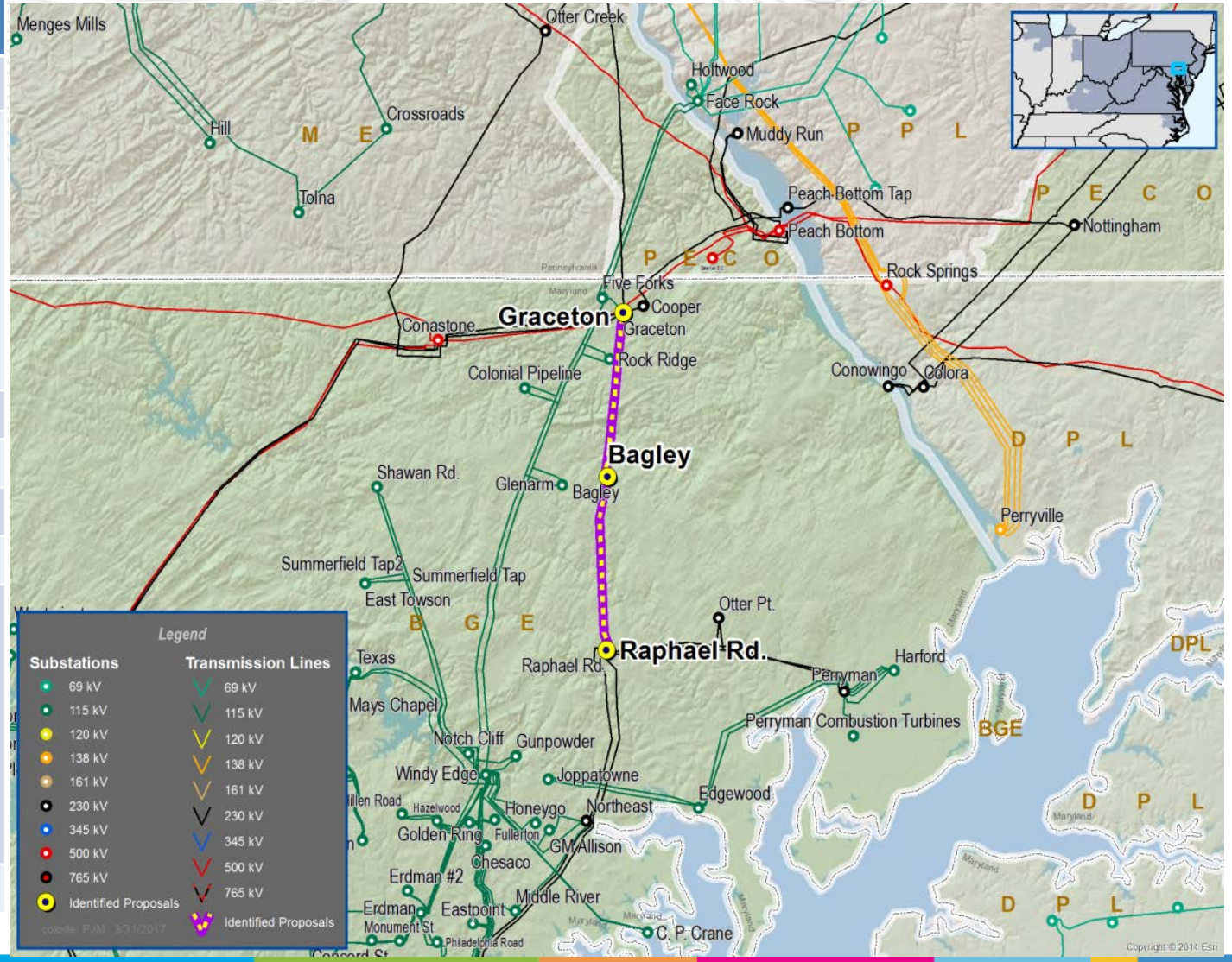
BGE 1-5A

Project ID: 201617_1-5A
Proposed by: BGE
Proposed Solution: Increase capacity on existing towers by reconductoring the Conastone to Graceton 2323 & 2324 230kV circuits.
kV Level: 230 kV
In-Service Cost ($M): $5.97
In-Service Date: 2020
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON 230 kV
Notes:



BGE 1-5B

Project ID: 201617_1-5B
Proposed by: BGE
Proposed Solution: Increase capacity on existing towers by adding additional conductors to the Graceton-Bagley-Raphael Road 230kV circuits.
kV Level: 230 kV
In-Service Cost ($M): $14.20
In-Service Date: 2021
Target Zone: BGE
ME Constraints: GRACETON - BAGLEY 230 kV
Notes:



BGE 1-5C

Project ID: 201617_1-5C

Proposed by: BGE

Proposed Solution:
Increase capacity on existing towers by reconductoring the Conastone to Graceton 230kV, adding additional/bundled conductors to the Graceton-Bagley-Raphael Road 230kV.

kV Level: 230 kV

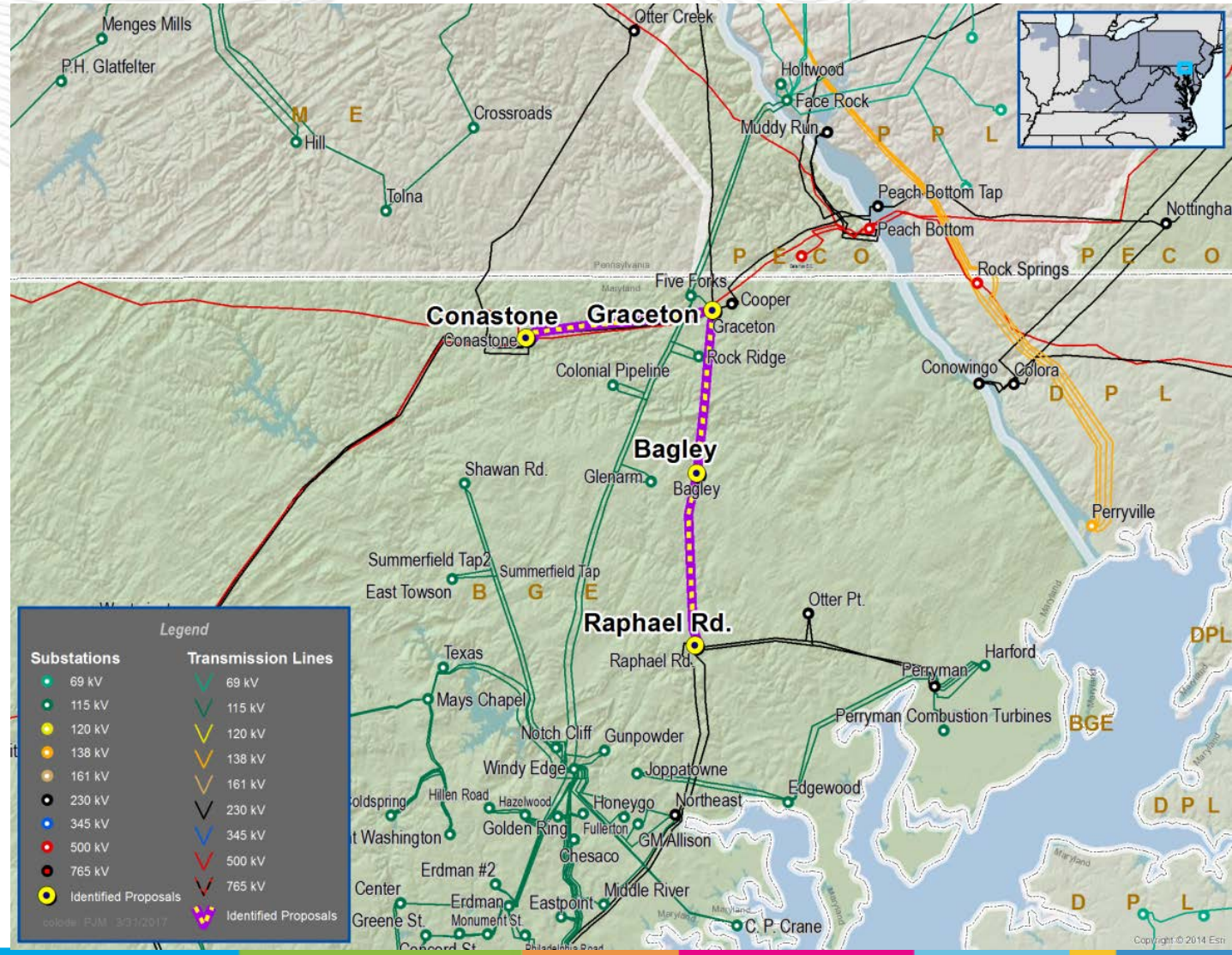
In-Service Cost ($M): $20.30

In-Service Date: 2021

Target Zone: BGE

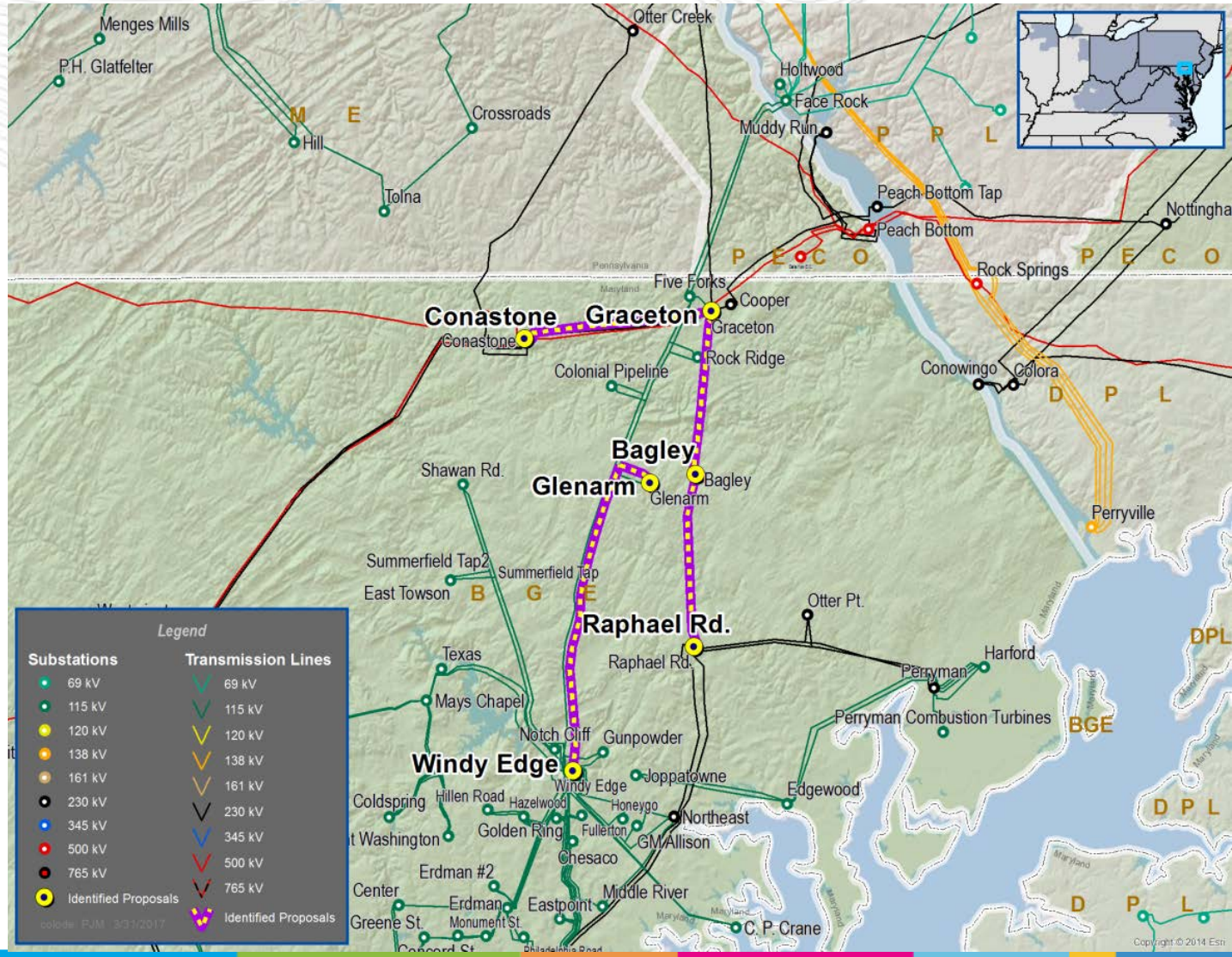
ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV

Notes:



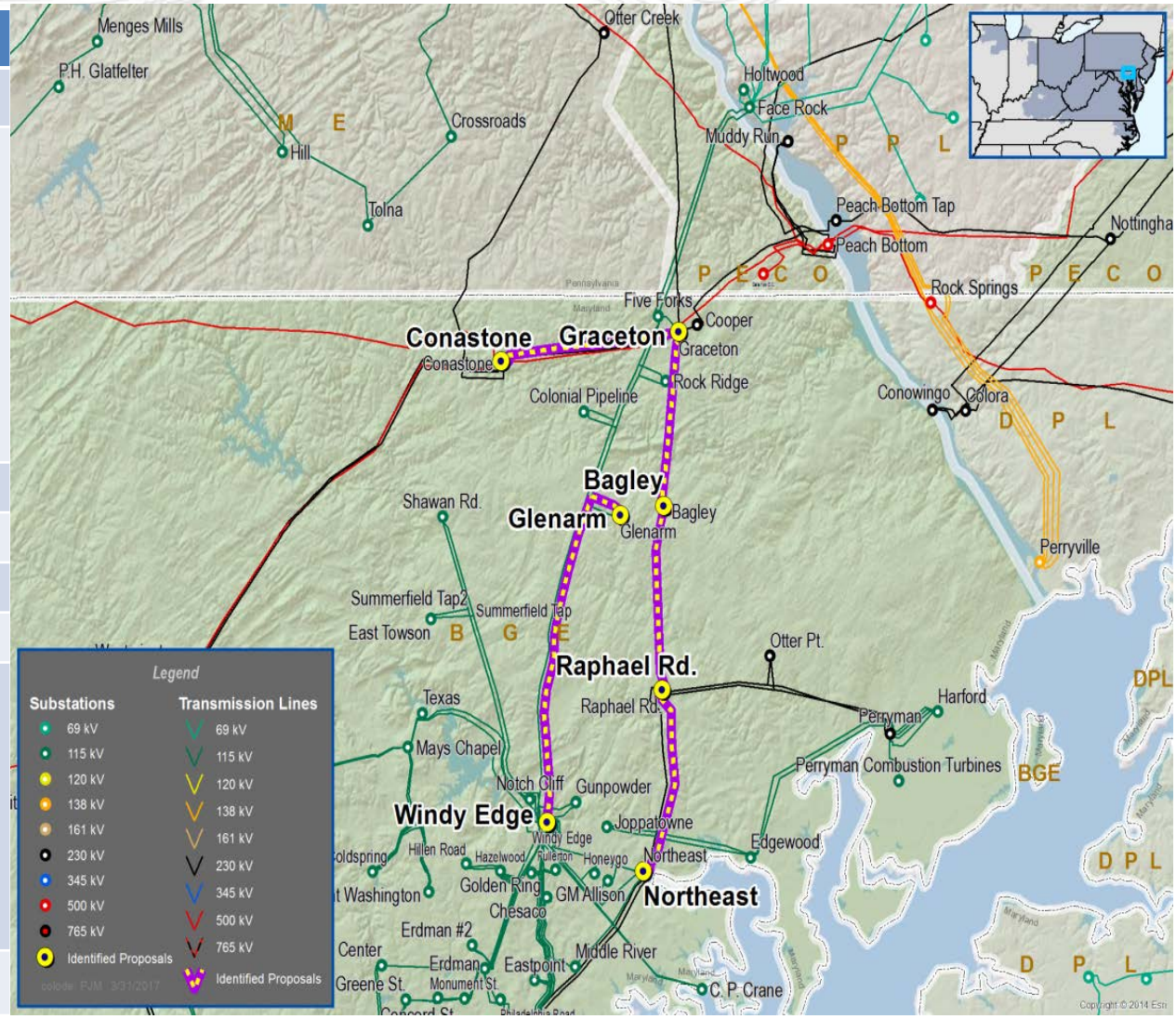
BGE1-5D

Project ID: 201617_1-5D
Proposed by: BGE
Proposed Solution: Increase capacity on existing towers by reconductoring the Conastone to Graceton 230 kV circuits, adding additional conductors to the Graceton-Bagley-Raphael Road 230 kV circuits and removing substation ratings limitation on Windy Edge to Glenarm.
kV Level: 115/230 kV
In-Service Cost ($M): $20.40
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



BGE 1-5E

Project ID: 201617_1-5E
Proposed by: BGE
Proposed Solution: Increase capacity on existing towers by reconductoring the Conastone to Graceton 230kV circuits, adding additional conductors to the Graceton-Bagley-Raphael Road 230 kV circuits, reconductoring the Raphael Road to Northeast, and removing substation ratings limitation on Windy Edge to Glenarm.
kV Level: 115/230 kV
In-Service Cost ($M): $25.40
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



PECO BGE1-6F

Project ID: 201617_1-6F

Proposed by: BGE PECO

Proposed Solution:
Expand existing Graceton substation to 500/230 kV by tapping the existing Conastone 500 kV, constructing a 500 kV station to accommodate new line configuration and new 500/230 kV transformer, increase capacity on existing towers by adding/bundle additional conductors to the Graceton-Bagley-Raphael Road 230 kV circuits, reconductoring the Raphael Road to Northeast, removing substation ratings limitation on Windy Edge to Glenarm.

kV Level: 115/230/500 kV

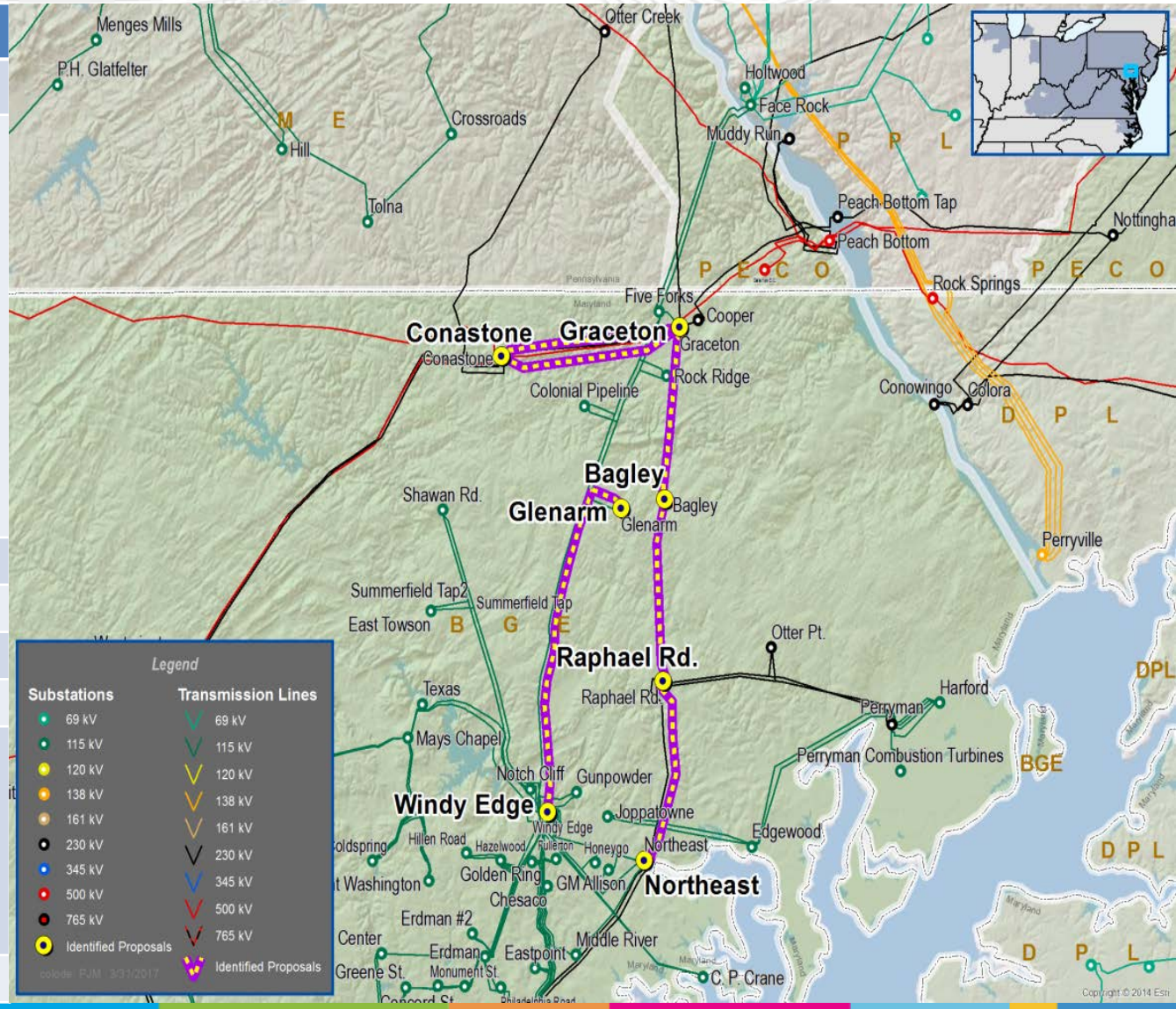
In-Service Cost ($M): $49.20

In-Service Date: 2021

Target Zone: BGE

ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV

Notes:



PECO BGE 1-6G

Project ID: 201617_1-6G

Proposed by: BGE PECO

Proposed Solution:
Expand existing Graceton substation to 500/230 kV by tapping the existing Conastone 500 kV located at Graceton substation, constructing a 500 kV station to accommodate new line configuration and new 500/230kV transformer, increase capacity on existing towers by adding/bundle additional conductors to the Graceton-Bagley-Raphael Road 230kV circuits, reconductoring the Raphael Road to Northeast, removing substation ratings limitation on Windy Edge to Glenarm.

kV Level: 115/230/500 kV

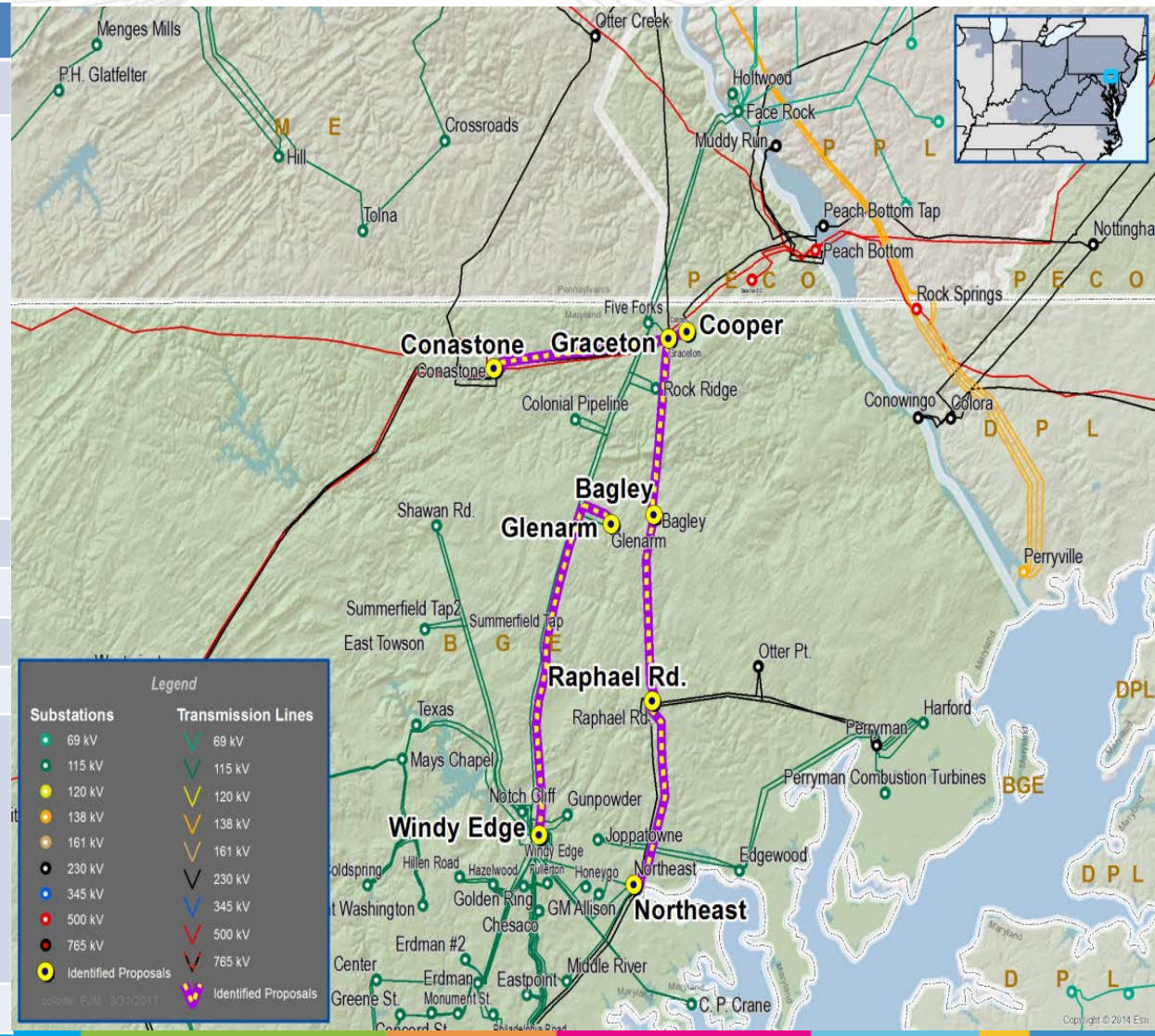
In-Service Cost ($M): $56.00

In-Service Date: 2021

Target Zone: BGE

ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV

Notes:



PECO BGE 1-6L

Project ID: 201617_1-6L

Proposed by: BGE PECO

Proposed Solution:
Increase capacity on existing towers by reconductoring the Conastone to Graceton 230 kV circuits, adding/bundle additional conductors to the Graceton-Bagley-Raphael Road 230 kV circuits, reconductoring the Raphael Road to Northeast circuits, removing substation ratings limitation on Windy Edge to Glenarm adding new circuit between Peach Bottom 230 kV and existing Cooper 230 kV with series reactor, reconductoring existing Graceton-Cooper circuit, adding circuit breakers and replacing terminal equipment at Peach Bottom and Cooper.

kV Level: 115/230 kV

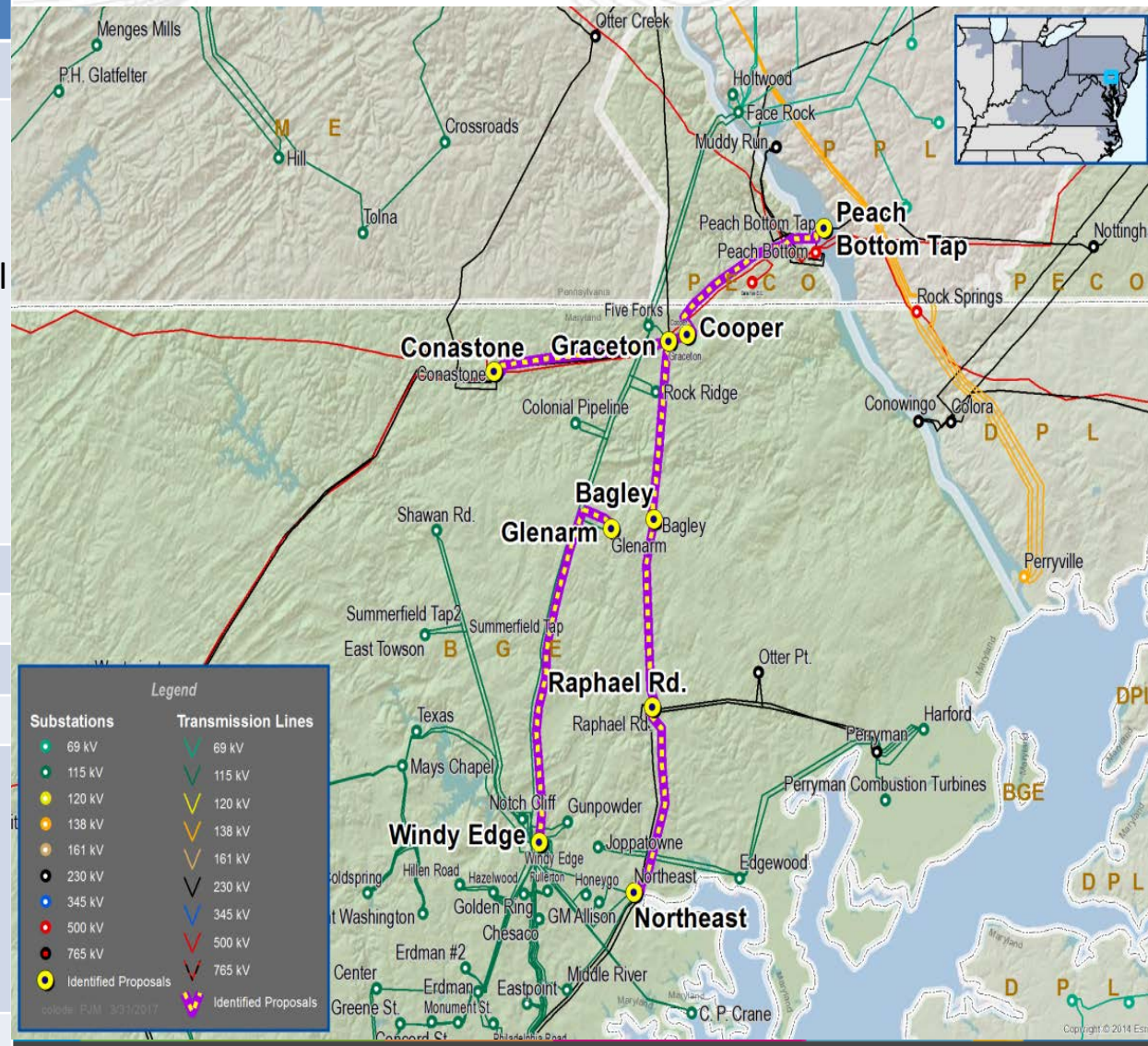
In-Service Cost ($M): $41.70

In-Service Date: 2021

Target Zone: BGE PECO

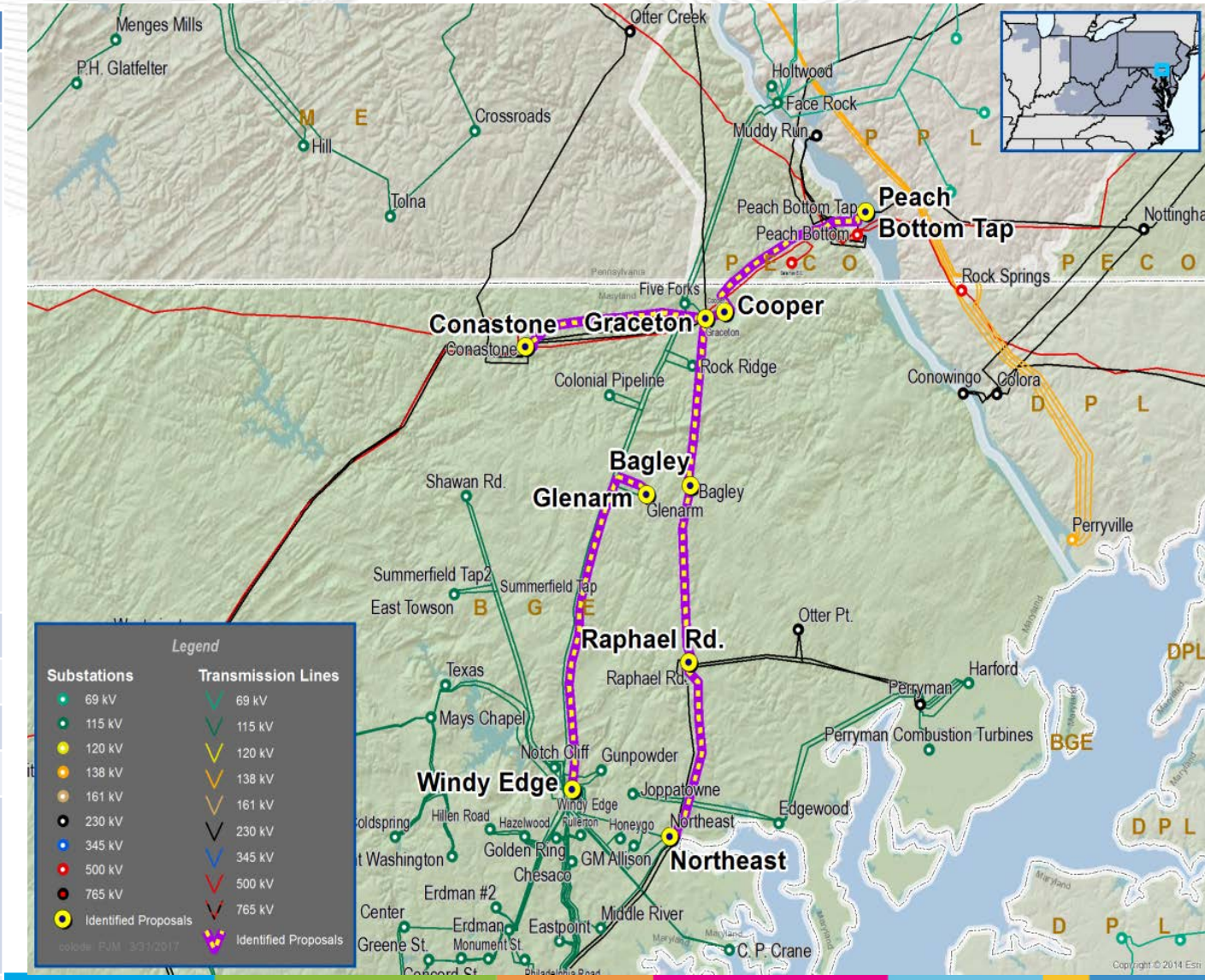
ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV

Notes:



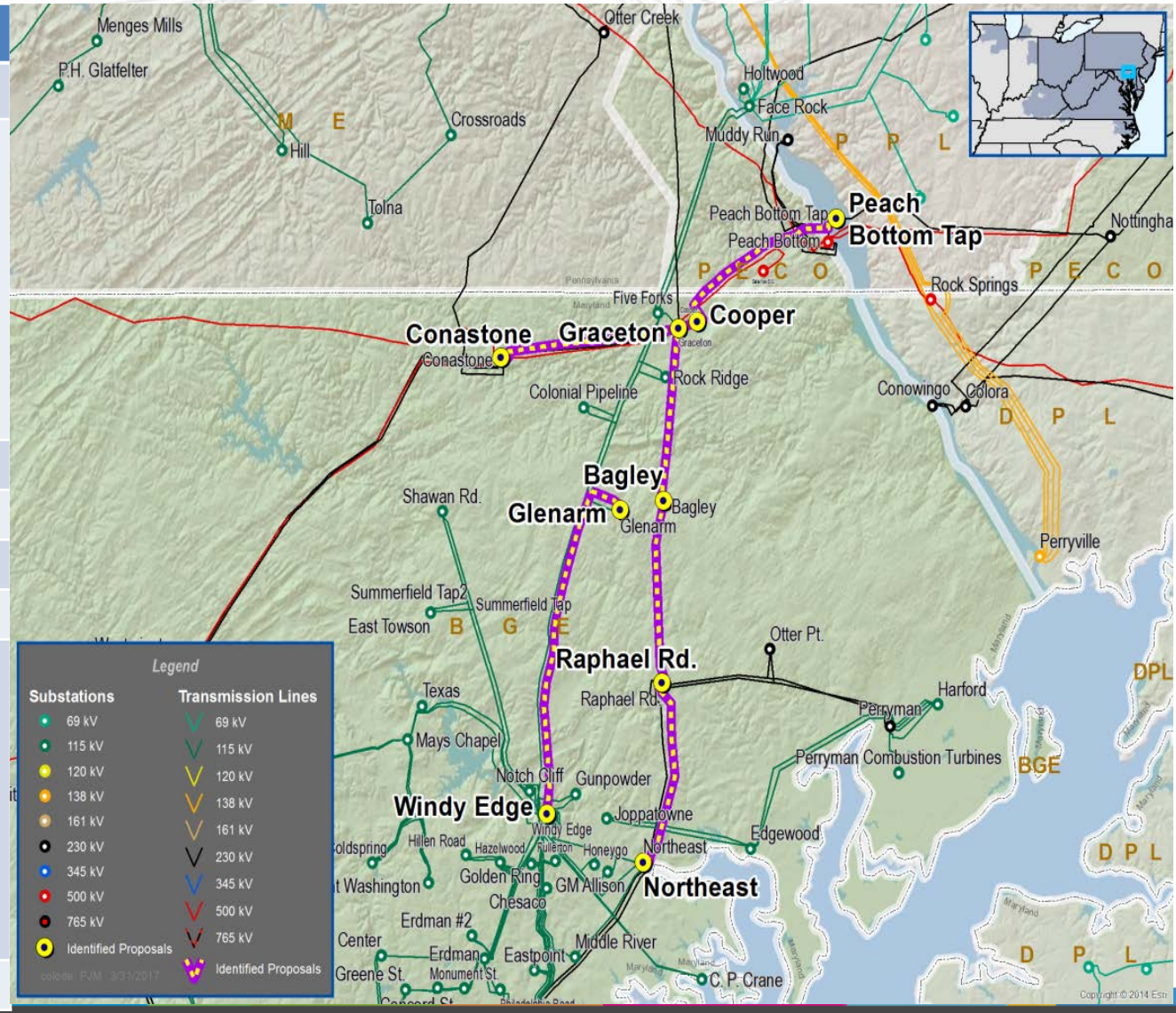
PECO BGE1-6M

Project ID: 201617_1-6M
Proposed by: BGE PECO
Proposed Solution: Expand existing Graceton substation to 500/230kV, constructing a 500 kV station to accommodate new line configuration and new 500/230kV transformer, increase capacity on existing towers by adding/bundle additional conductors to the Graceton-Bagley-Raphael Road 230kV circuits, reconductoring the Raphael Road to Northeast circuits, removing substation ratings limitation on Windy Edge to Glenarm circuit adding new circuit between Peach Bottom 230kV and existing Cooper 230kV, reconductoring existing Graceton-Cooper circuit, replacing terminal equipment at Peach Bottom and Cooper.
kV Level: 115/230/500 kV
In-Service Cost ($M): $65.49
In-Service Date: 2021
Target Zone: BGE PECO
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



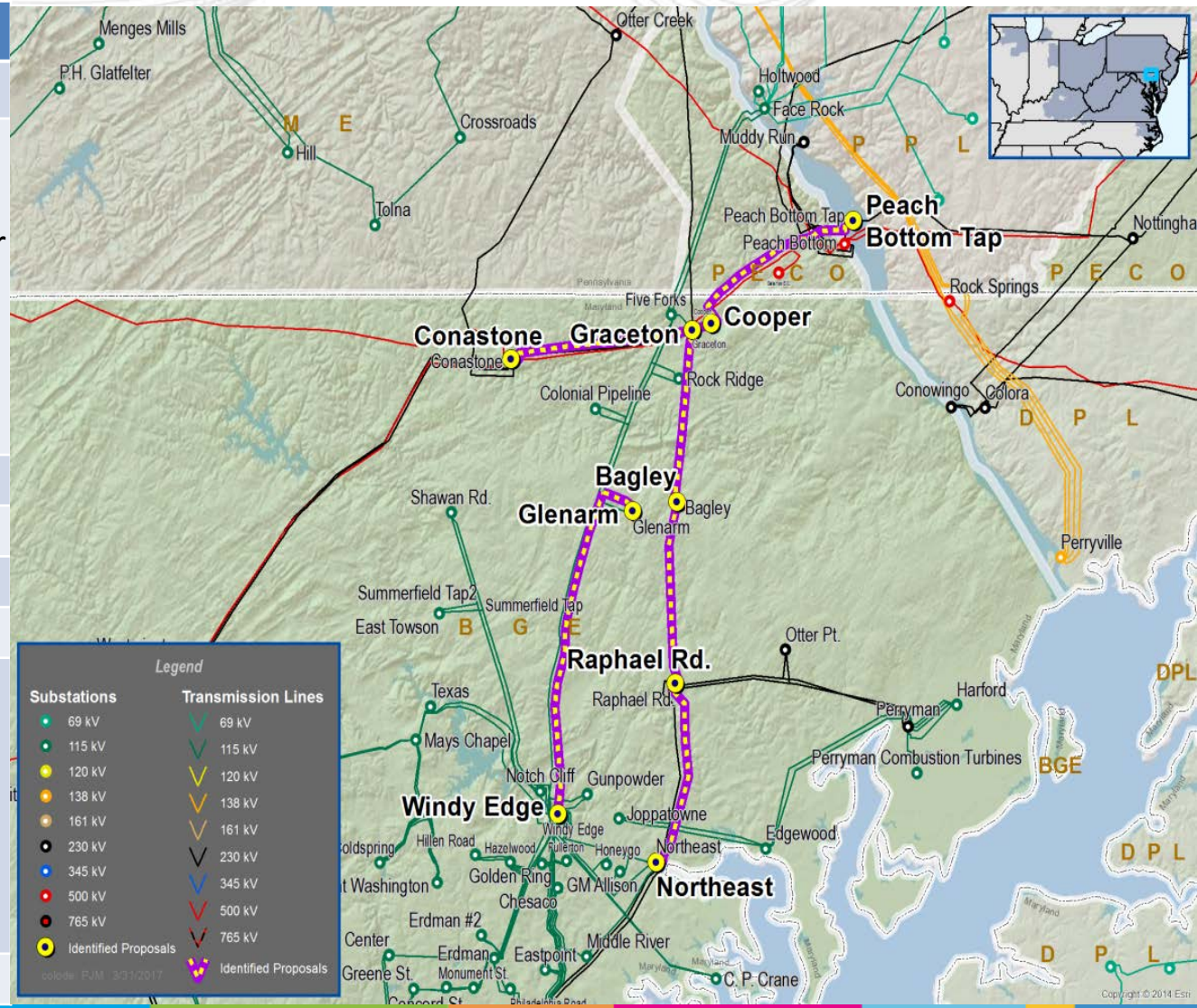
PECO 1-7H

Project ID: 201617_1-7H
Proposed by: PECO
Proposed Solution: Install a new 230 kV transmission line connecting Peach Bottom substation to Cooper substation. Reconductor the Graceton-Cooper 230 kV line. Bundle the existing conductors on the Graceton-Bagley-Raphael Rd. 230 kV lines. Reconductor the Raphael Road to Northeast, remove substation ratings limitation on Windy Edge to Glenarm circuit.
kV Level: 115/230 kV
In-Service Cost ($M): $35.60
In-Service Date: 2021
Target Zone: BGE PECO
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV CONASTONE - PEACH BOTTOM 500 kV
Notes:



PECO1-7I

Project ID: 201617_1-7I
Proposed by: PECO
Proposed Solution: Install a new 230 kV transmission line connecting Peach Bottom substation to Cooper substation. Rebuild the 220-93 Graceton-Cooper 230 kV line. Bundle the existing conductors on the Graceton-Bagley-Raphael Road 230 kV lines. Reconductor the Raphael Road to Northeast, remove substation ratings limitation on Windy Edge to Glenarm.
kV Level: 115/230 kV
In-Service Cost ($M): $59.80
In-Service Date: 2021
Target Zone: BGE PECO
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV CONASTONE - PEACH BOTTOM 500 kV
Notes:



PECO 1-7J

Project ID: 201617_1-7J

Proposed by: PECO

Install a new 230 kV transmission line connecting Peach Bottom substation to Graceton substation. Bundle the existing conductors on the Graceton-Bagley-Raphael Road 230 kV lines. Reconductor the Raphael Road to Northeast, remove substation ratings limitation on Windy Edge to Glenarm.

kV Level: 115/230 kV

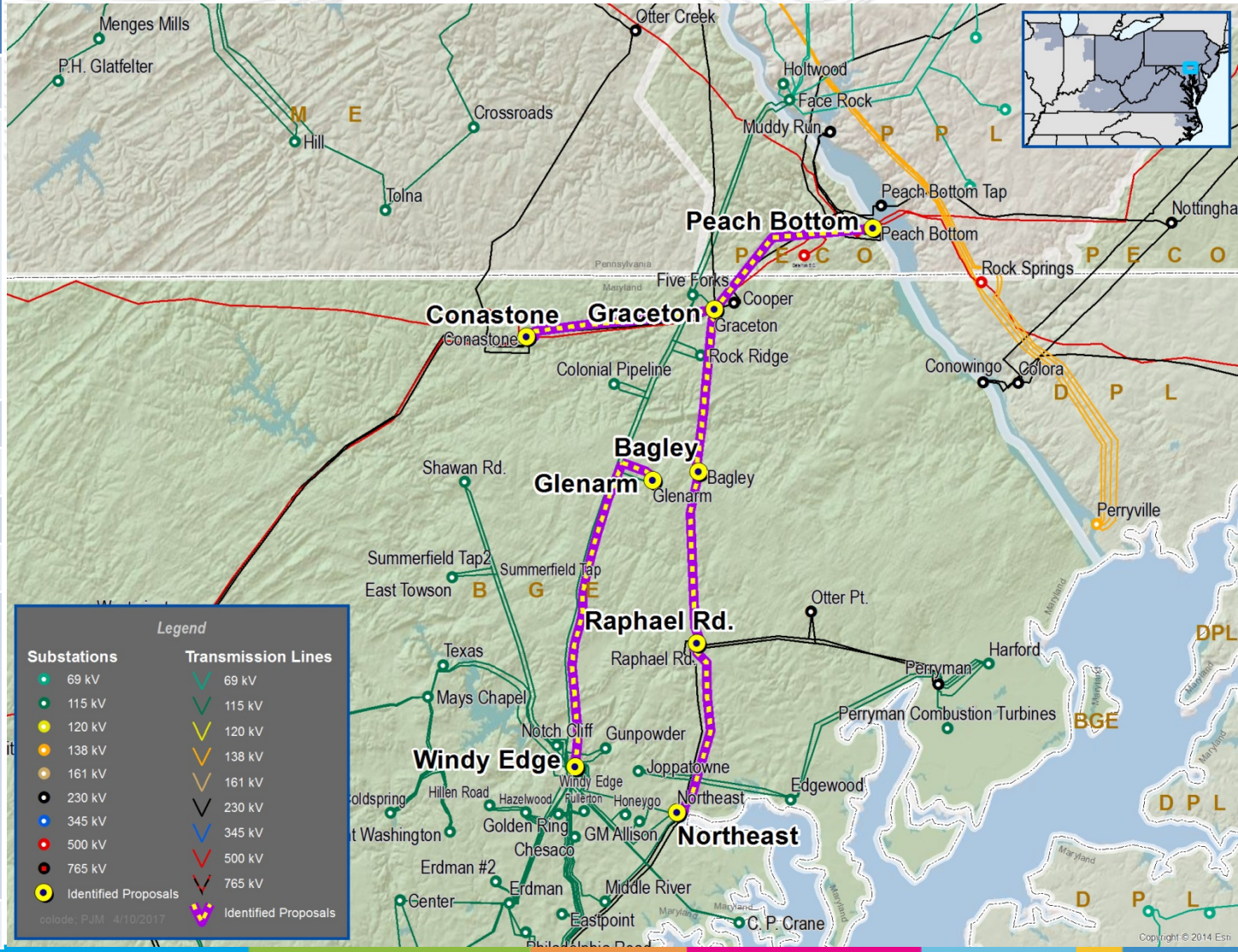
In-Service Cost ($M): $68.10

In-Service Date: 2022

Target Zone: BGE PECO

ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV
CONASTONE - PEACH BOTTOM 500 kV

Notes:



PECO 1-7K

Project ID: 201617_1-7K

Proposed by: PECO

Proposed Solution:
Install two new 500-230 kV transformers at Peach Bottom substation. Install a new double circuit 230 kV transmission line connecting Peach Bottom substation to Graceton substation. Bundle the existing conductors on the Graceton-Bagley-Raphael Road 230 kV lines. Reconductor Raphael Road to Northeast, remove substation ratings limitation on Windy Edge to Glenarm.

kV Level: 115/230/500 kV

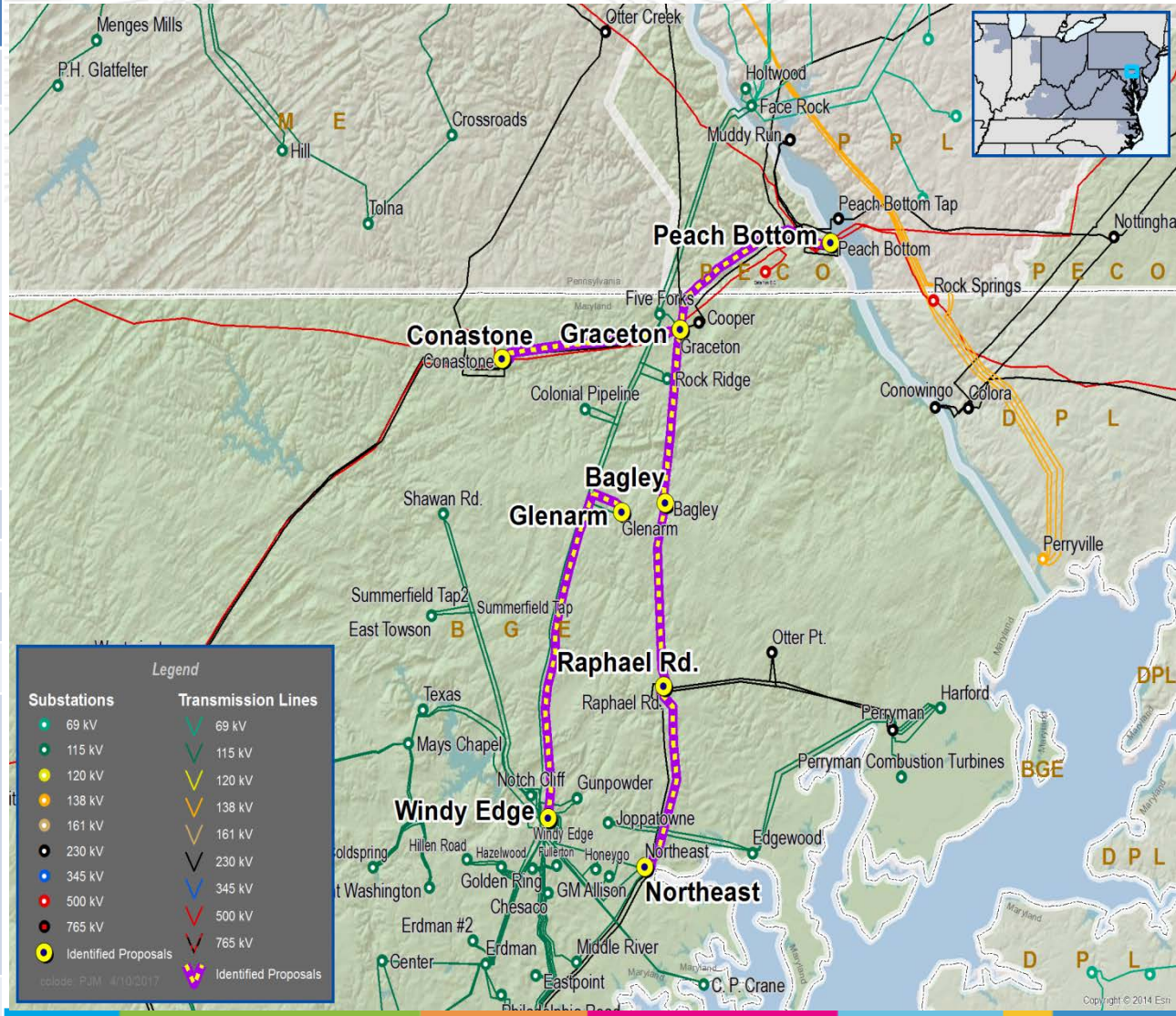
In-Service Cost ($M): $191.40

In-Service Date: 2022

Target Zone: BGE PECO

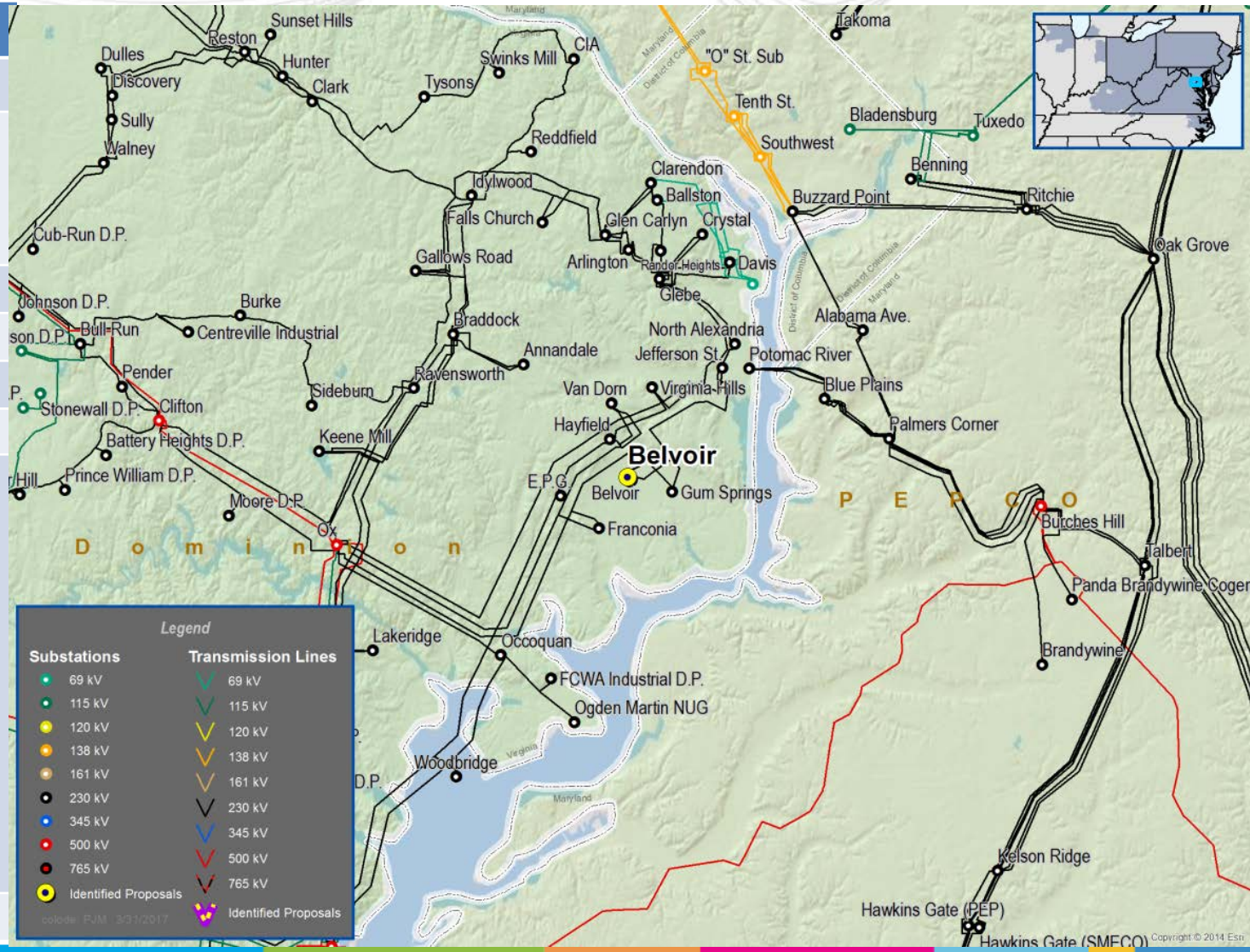
ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV
CONASTONE - PEACH BOTTOM 500 kV

Notes:



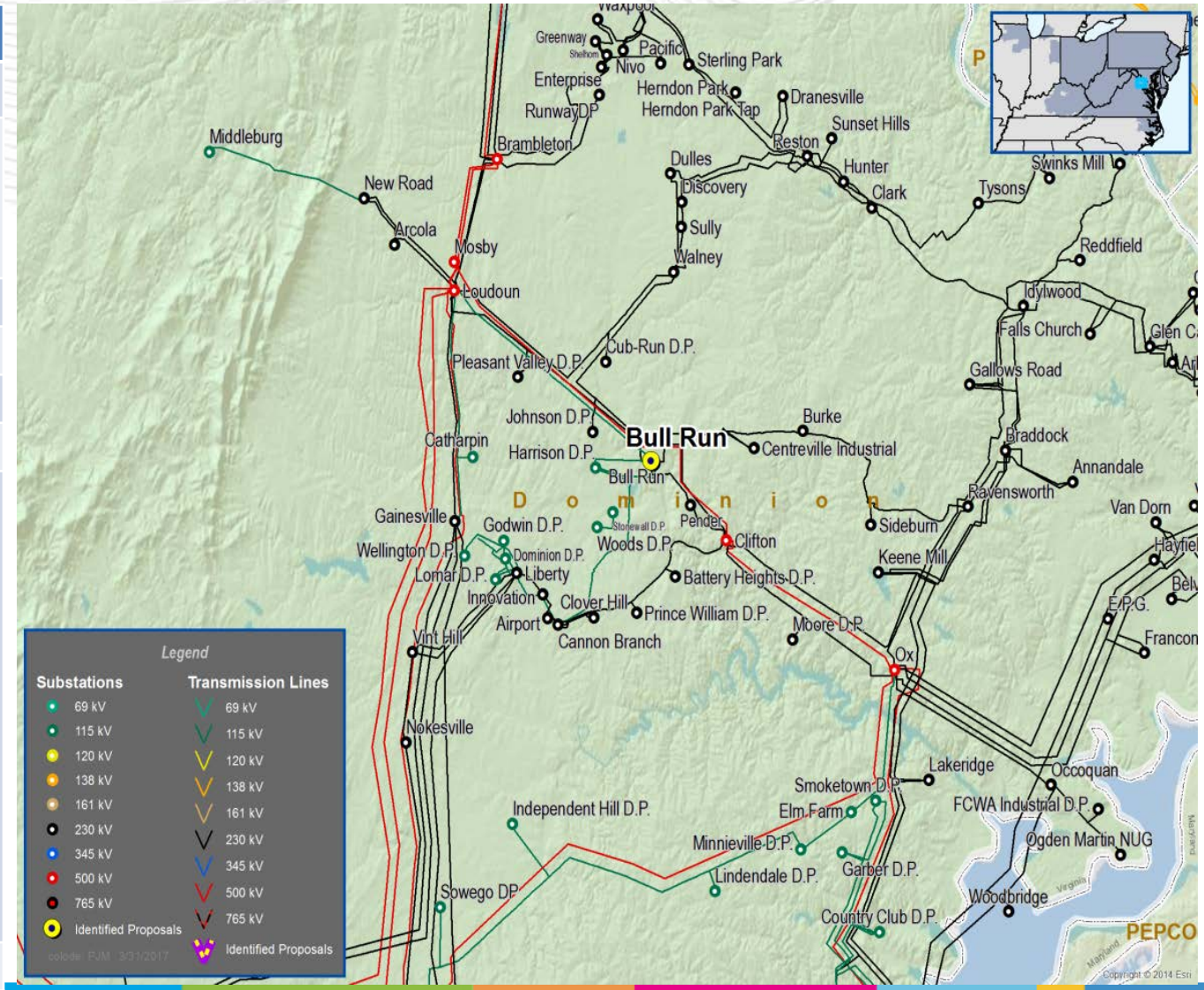
DOMINION 1-8A

Project ID: 201617_1-8A
Proposed by: Dominion
Proposed Solution: Build one (1) 230 kV shunt capacitor bank at DVP's Belvoir substation.
kV Level: 230 kV
In-Service Cost ($M): $3.73
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



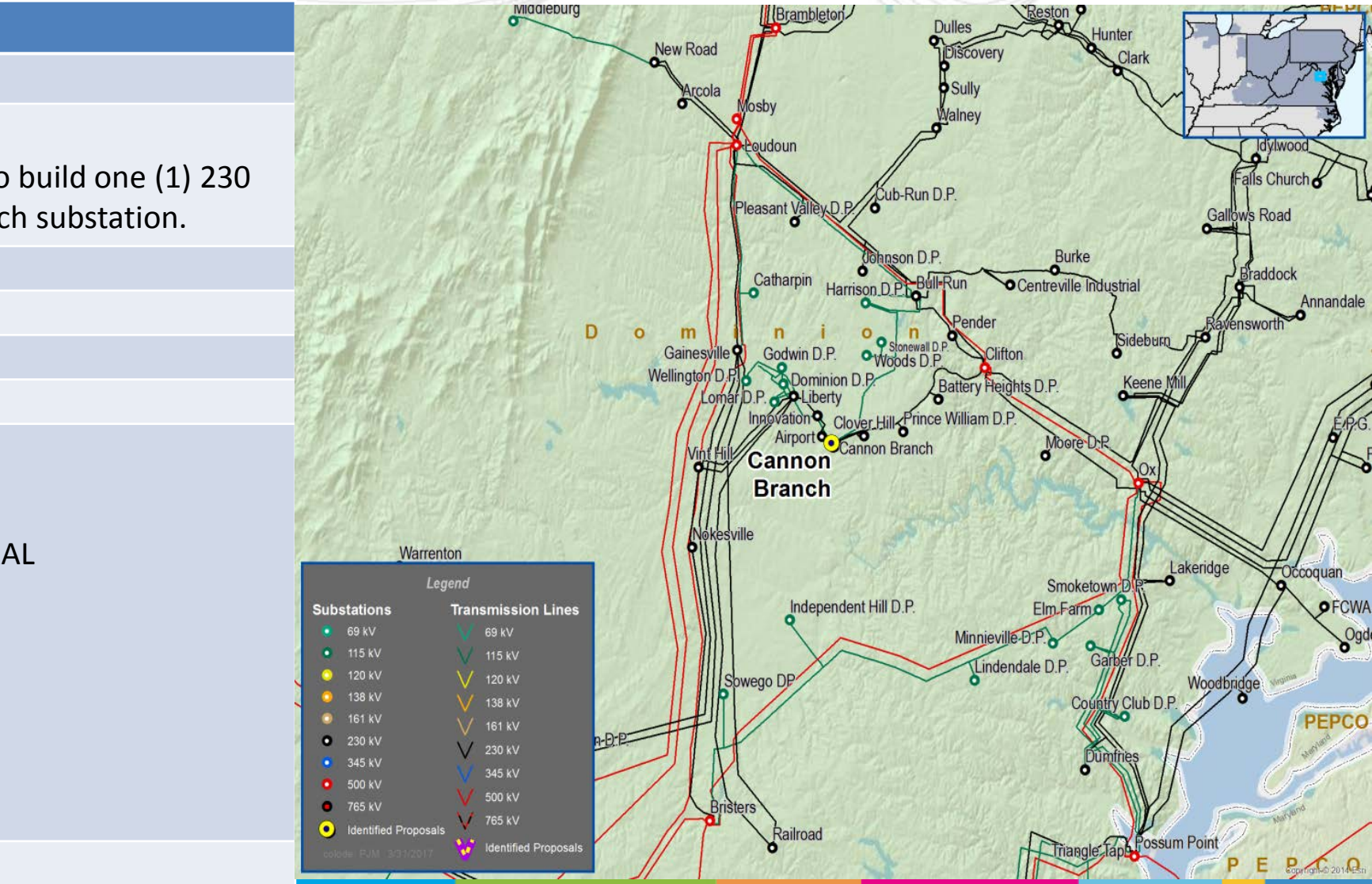
DOMINION 1-8B

Project ID: 201617_1-8B
Proposed by: Dominion
Proposed Solution: This is proposed by Dominion Virginia Power to build one (1) 230 kV shunt capacitor bank at DVP's Bull Run substation.
kV Level: 230 kV
In-Service Cost ($M): $4.14
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



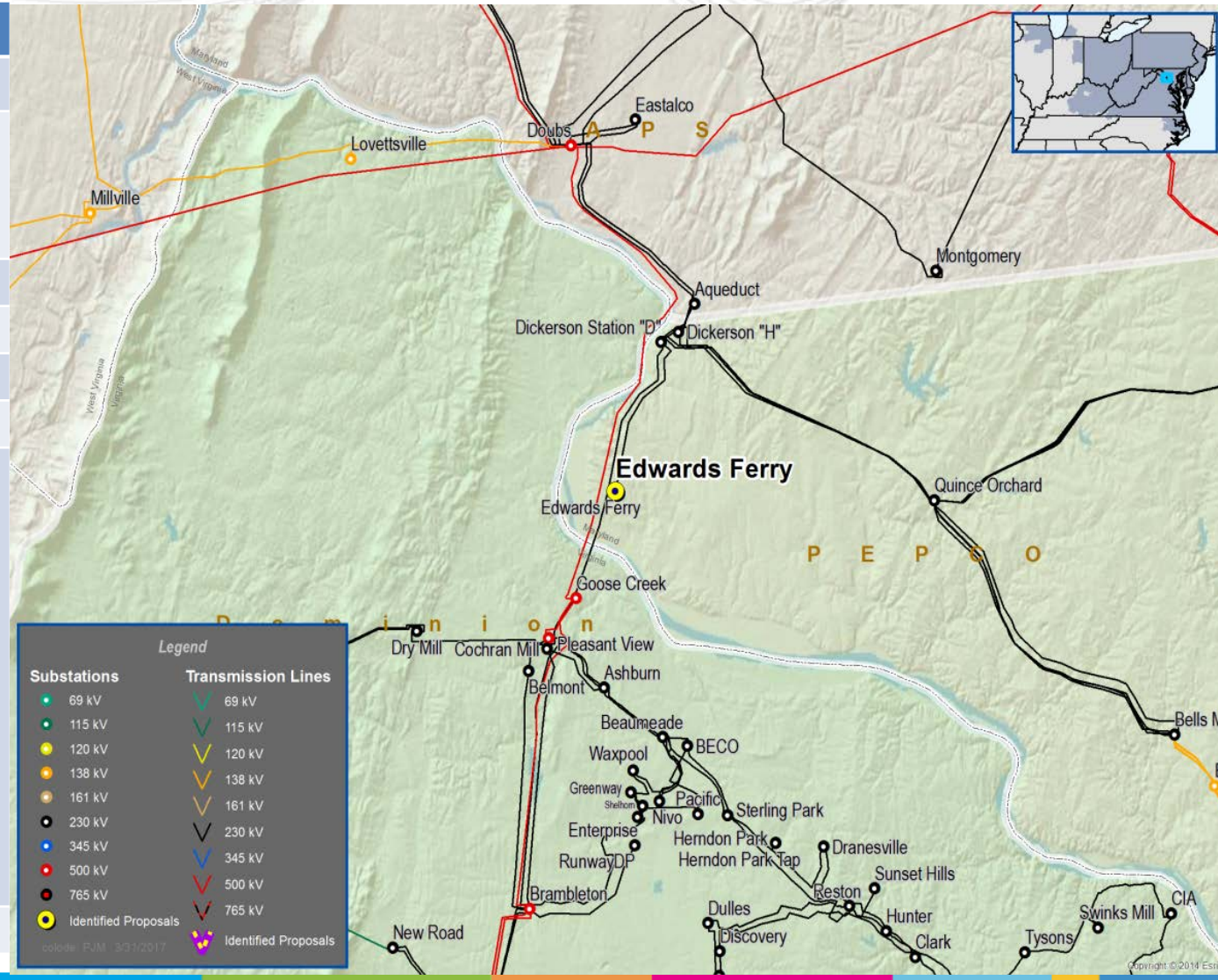
DOMINION 1-8C

Project ID: 201617_1-8C
Proposed by: Dominion
Proposed Solution: This is proposed by Dominion Virginia Power to build one (1) 230 kV shunt capacitor bank at DVP's Cannon Branch substation.
kV Level: 230 kV
In-Service Cost ($M): $1.82
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



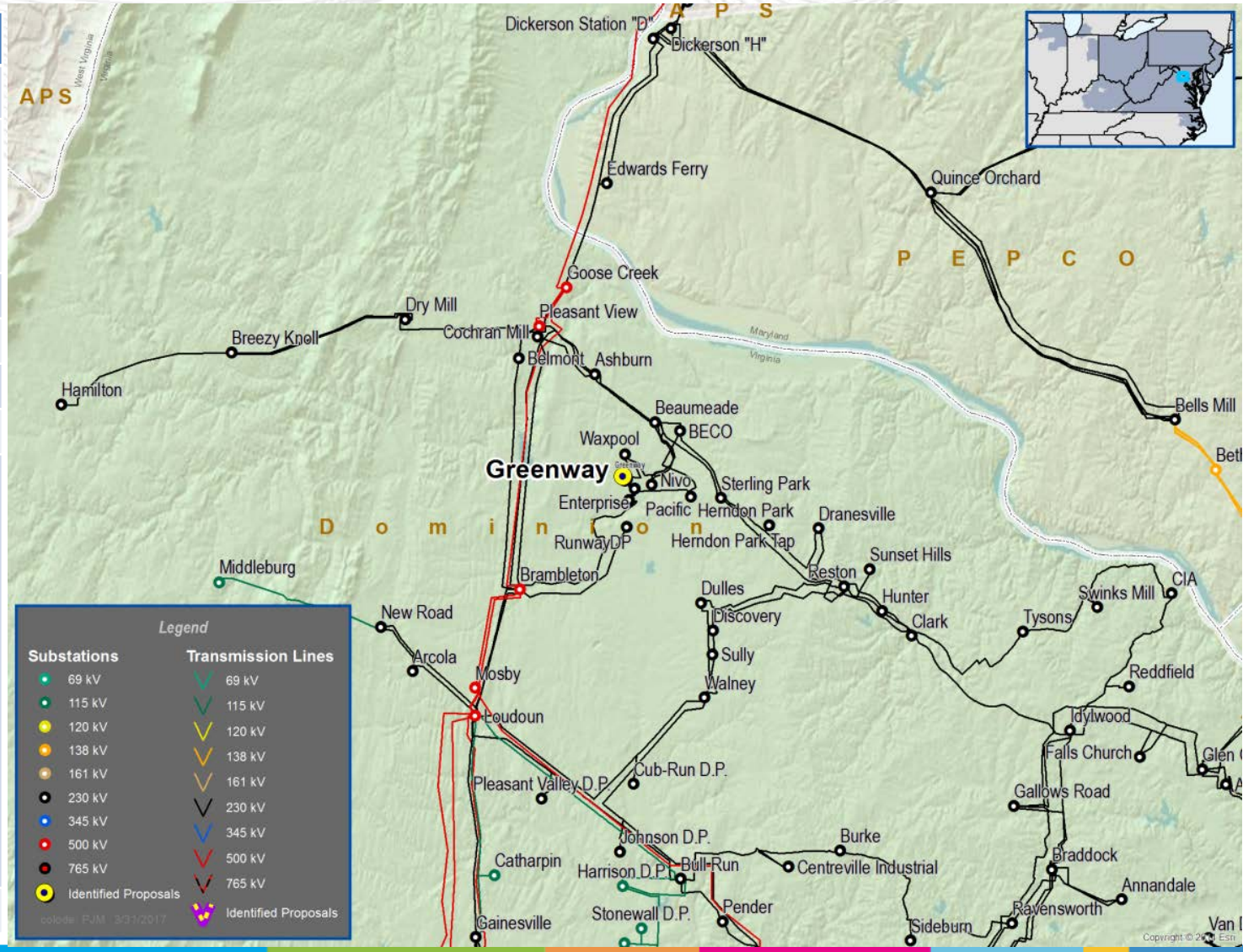
DOMINION1-8D

Project ID: 201617_1-8D
Proposed by: Dominion
Proposed Solution: Build one (1) 230 kV shunt capacitor bank at DVP's Edwards Ferry substation.
kV Level: 230 kV
In-Service Cost ($M): $6.11
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



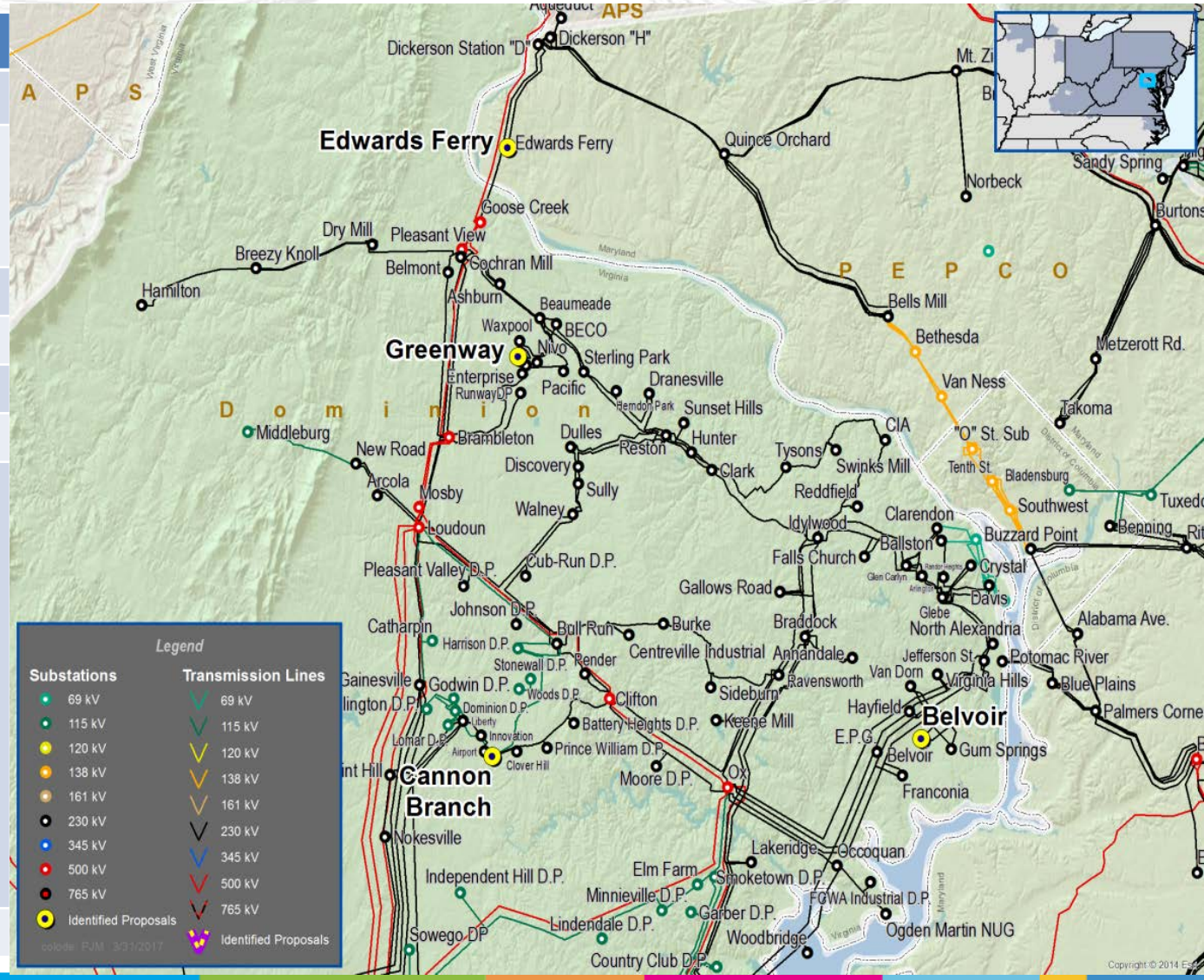
DOMINION1-8E

Project ID: 201617_1-8E
Proposed by: Dominion
Proposed Solution: Build one (1) 230 kV shunt capacitor bank at DVP's Greenway substation.
kV Level: 230 kV
In-Service Cost ($M): $3.79
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



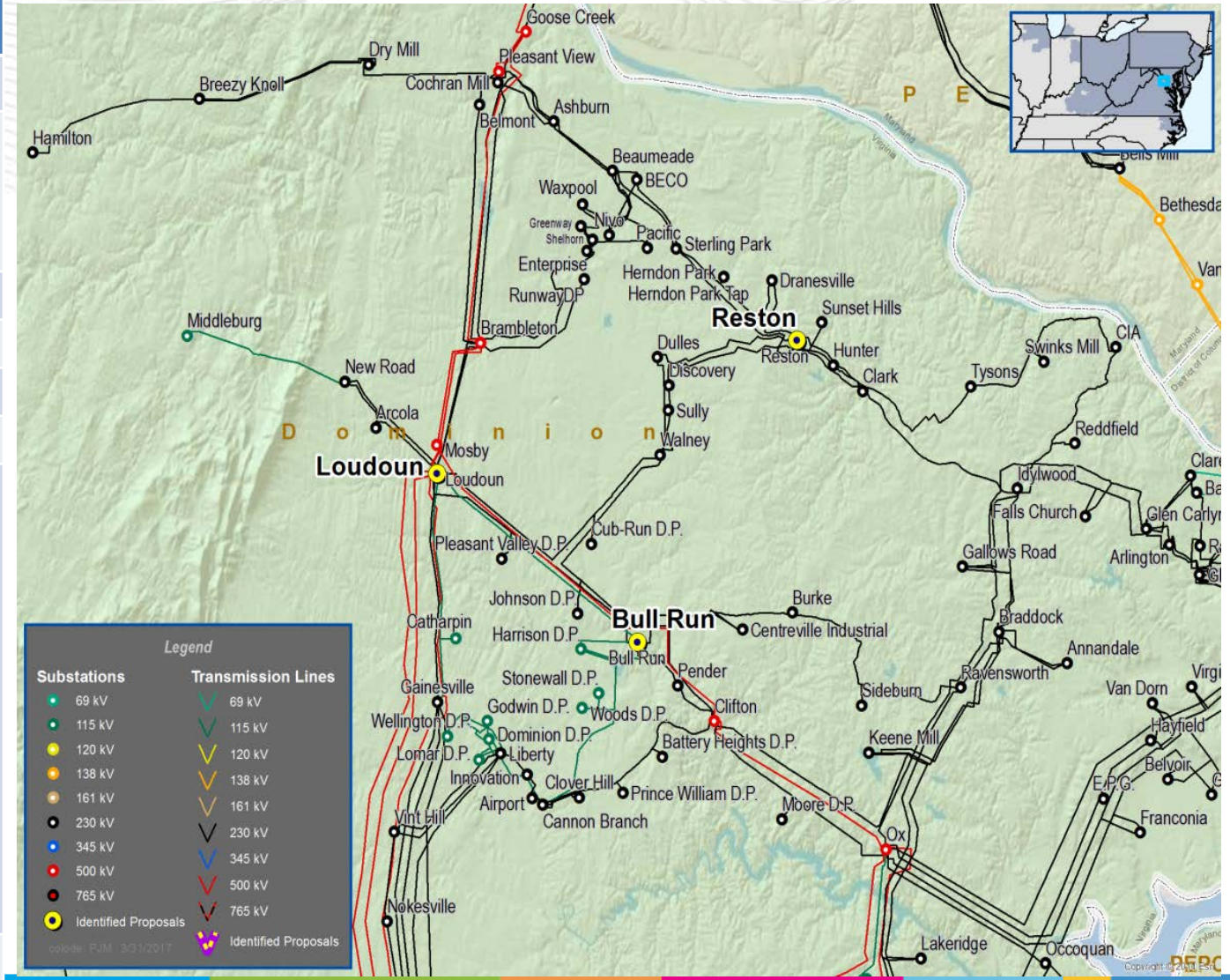
DOMINION1-8F

Project ID: 201617_1-8F
Proposed by: Dominion Virginia Power
Proposed Solution: Build four (4) 230 kV shunt capacitor banks at four (4) DVP's substations.
kV Level: 230 kV
In-Service Cost ($M): $15.45
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



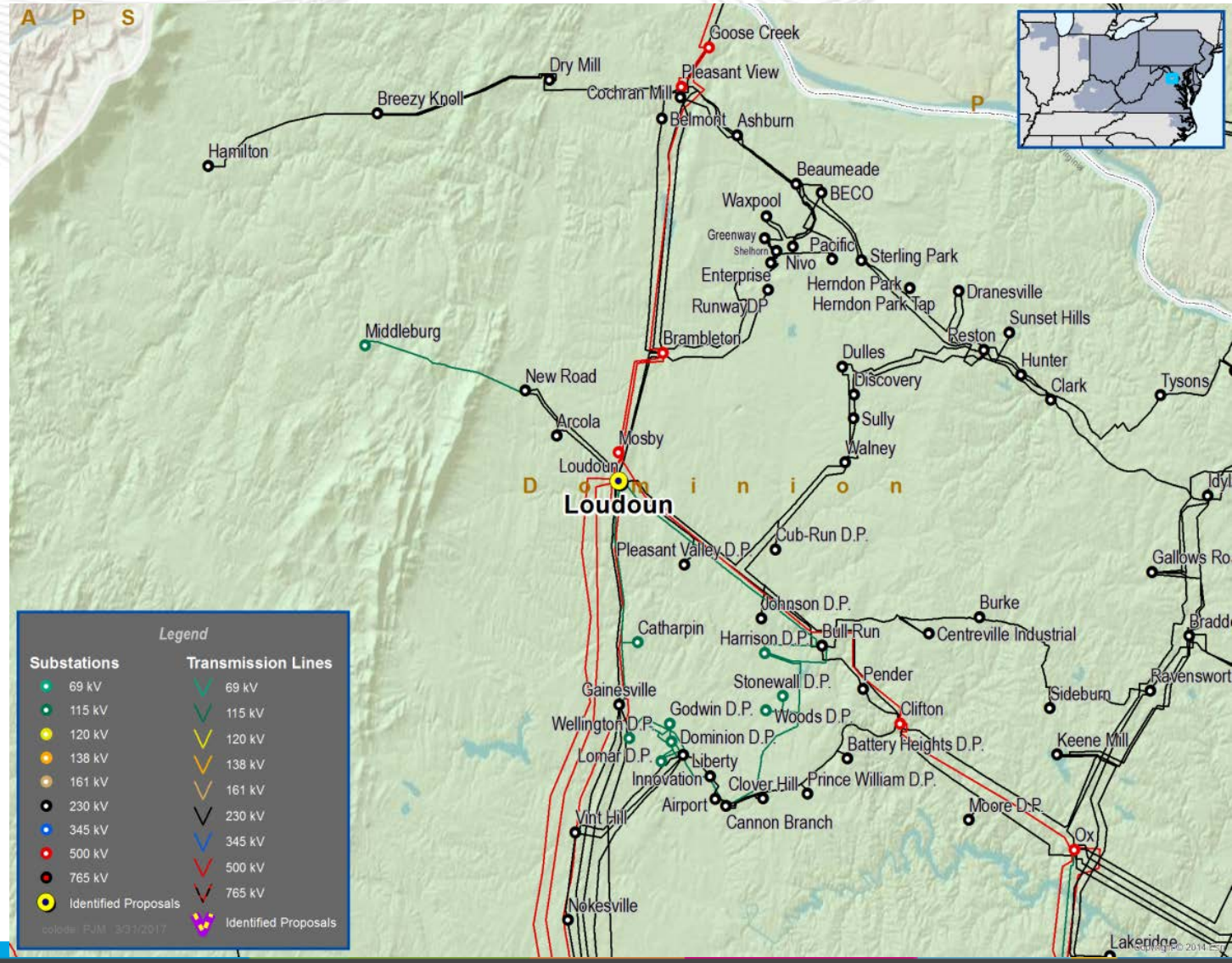
DOMINION1-8G

Project ID: 201617_1-8G
Proposed by: Dominion
Proposed Solution: Build three (3) 230 kV shunt capacitor banks at three (3) DVP's substations.
kV Level: 230 kV
In-Service Cost ($M): $10.68
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



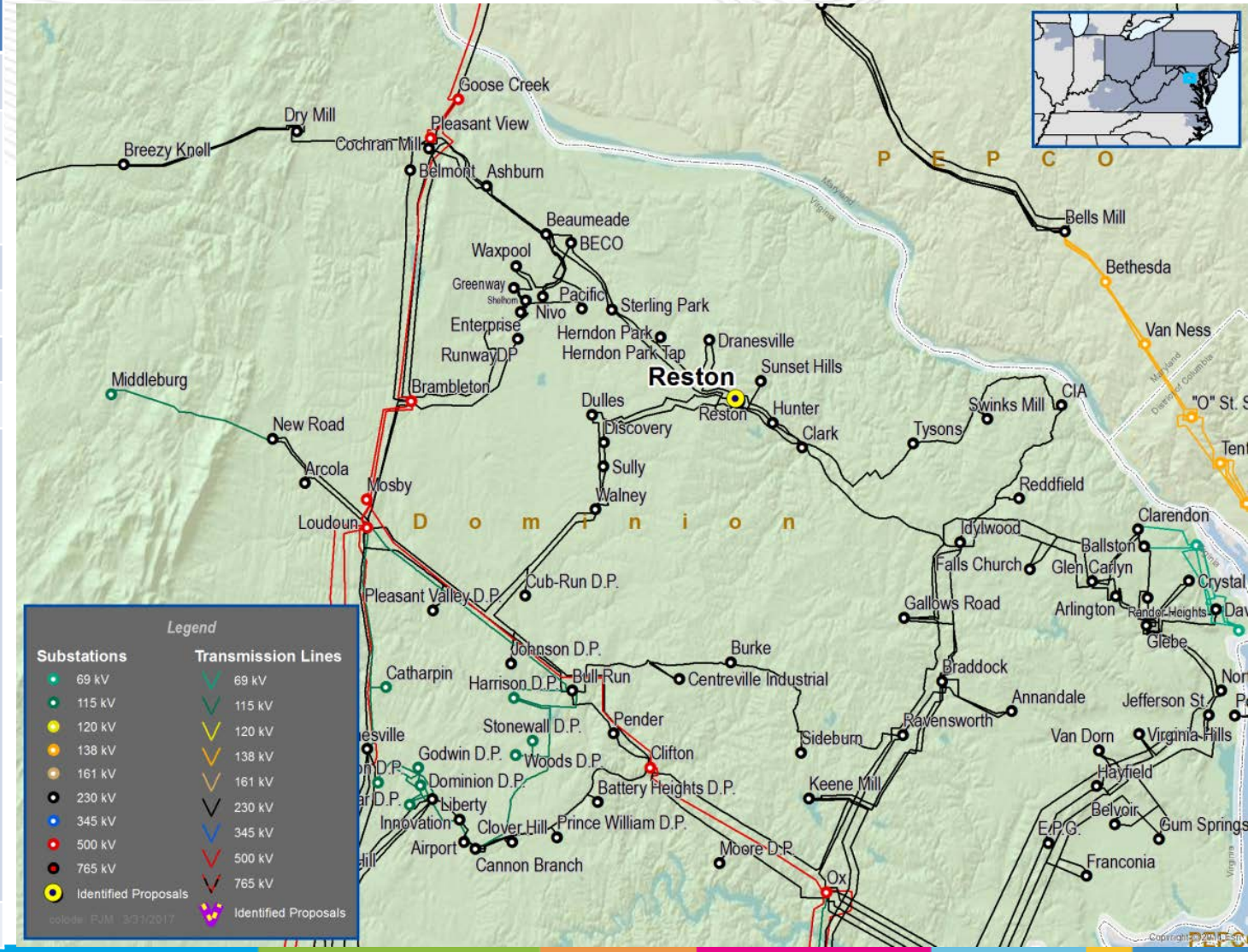
DOMINION1-8H

Project ID: 201617_1-8H
Proposed by: Dominion
Proposed Solution: Build one (1) 230 kV shunt capacitor bank at DVP's Loudoun substation.
kV Level: 230 kV
In-Service Cost ($M): $4.81
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



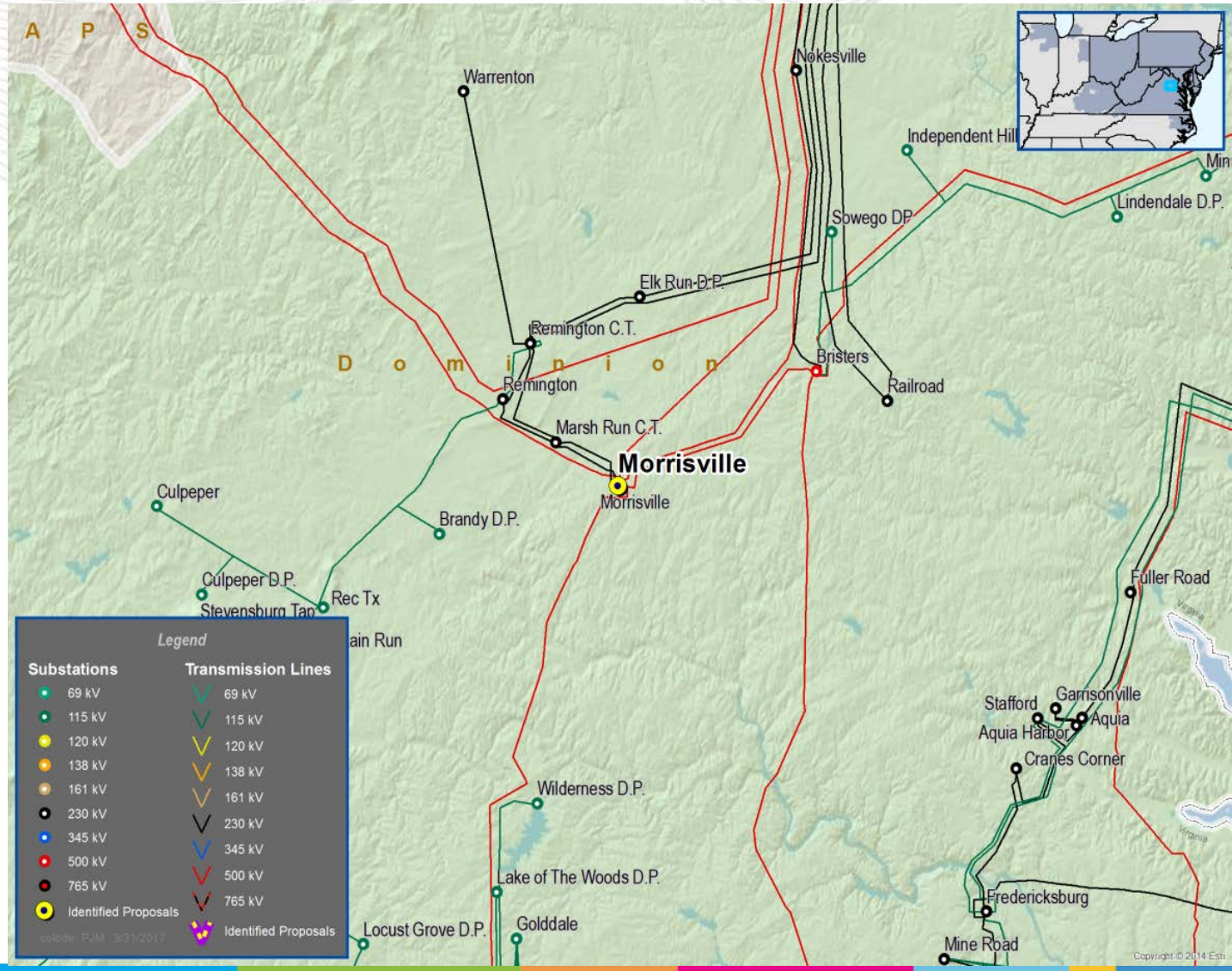
DOMINION1-8I

Project ID: 201617_1-8I
Proposed by: Dominion
Proposed Solution: Build one (1) 230 kV shunt capacitor bank at DVP's Reston substation.
kV Level: 230 kV
In-Service Cost ($M): $5.00
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



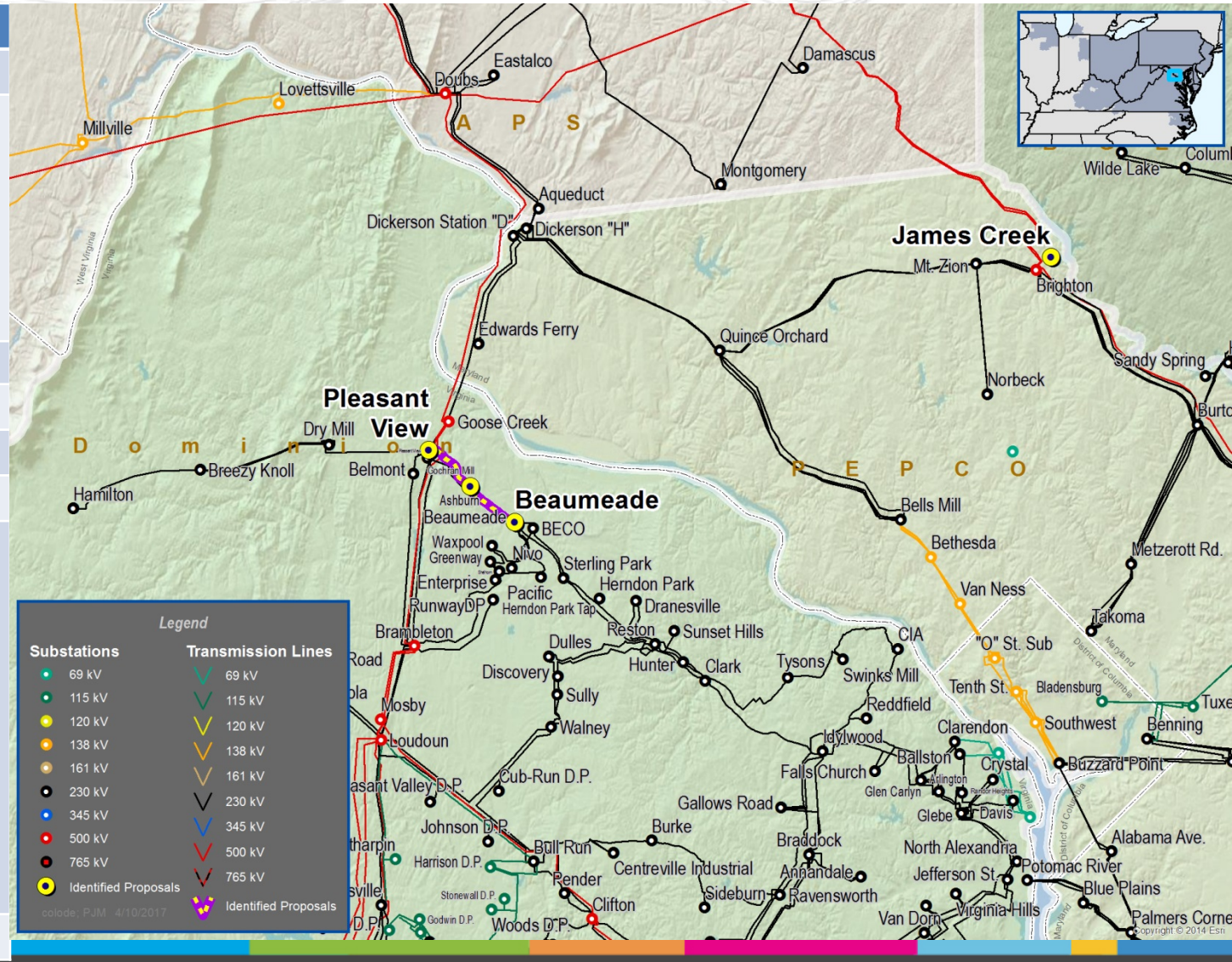
DOMINION1-8J

Project ID: 201617_1-8J
Proposed by: Dominion
Proposed Solution: Build one (1) 500 kV Thyristor Controlled Series Capacitor (TCSC) at DVP's Morrisville substation on the Front Royal - Morrisville (Line 541) transmission line.
kV Level: 500 kV
In-Service Cost ($M): $44.11
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



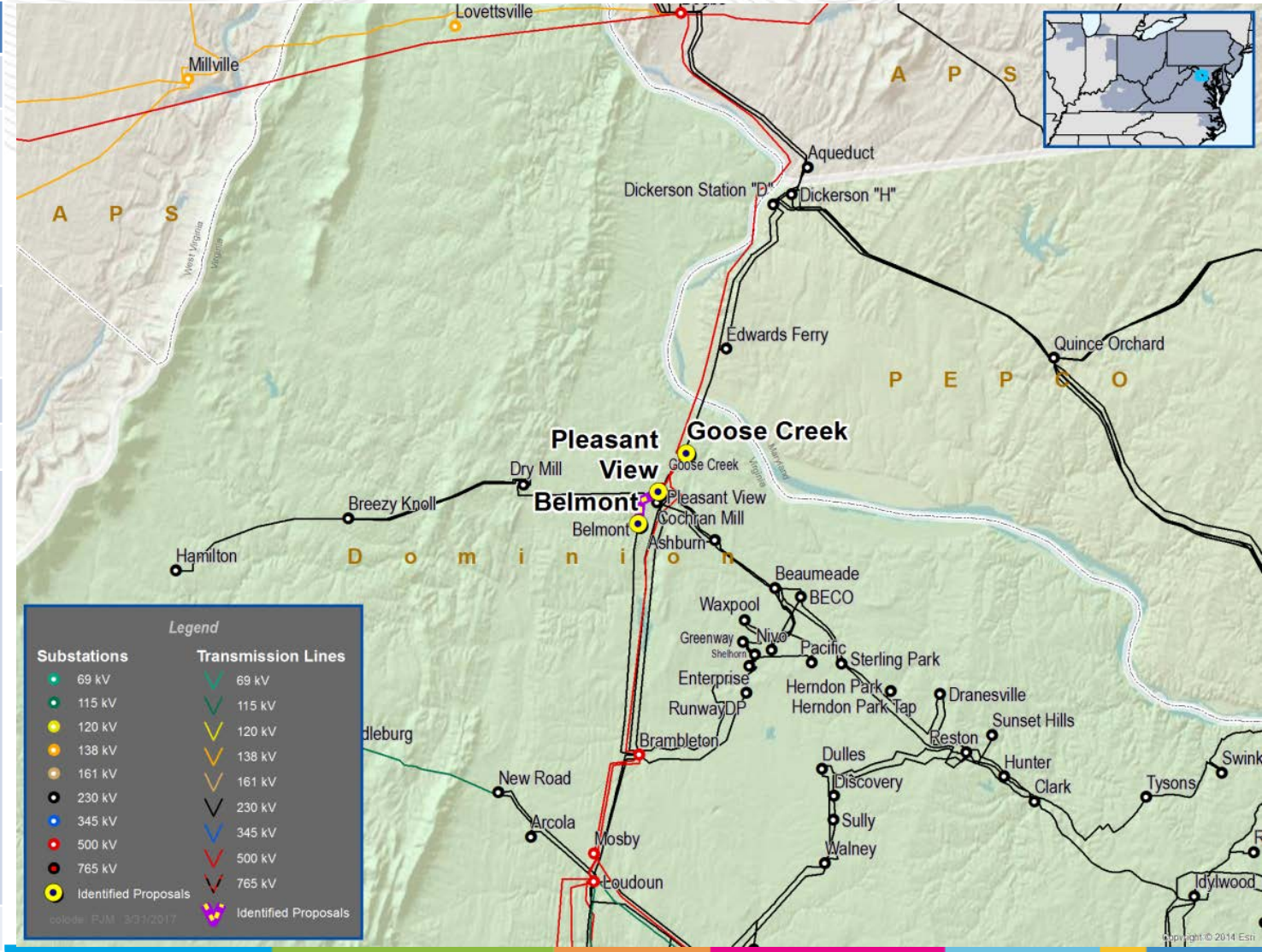
DOMINION1-8K

Project ID: 201617_1-8K
Proposed by: Dominion
Proposed Solution: Reconductor the Pleasant View - Ashburn - Beaumeade 230 kV transmission line, replace limiting equipment along Line 274, and build one (1) 230 kV Thyristor Controlled Series Capacitor at DVP's Pleasant View substation on the Pleasant View - Beaumeade transmission line.
kV Level: 230 kV
In-Service Cost ($M): $49.25
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230kV PEACH BOTTOM - CONASTONE 500 kV



DOMINION1-8L

Project ID: 201617_1-8L
Proposed by: Dominion
Proposed Solution: Install a new 500/230 kV transformer at the Goose Creek 500kV bus and connect the low side to the 230 kV by looping into the 2180 line.
kV Level: 500/230 kV
In-Service Cost ($M): $31.74
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



DOMINION 1-8M

Project ID: 201617_1-8M

Proposed by: Dominion

Proposed Solution:
Reconductor Dooms - Crozet - Barracks Rd - Hydraulic Rd - Charlottesville 230kV line (Line 233) and replace limiting equipment along the line.

kV Level: 230 kV

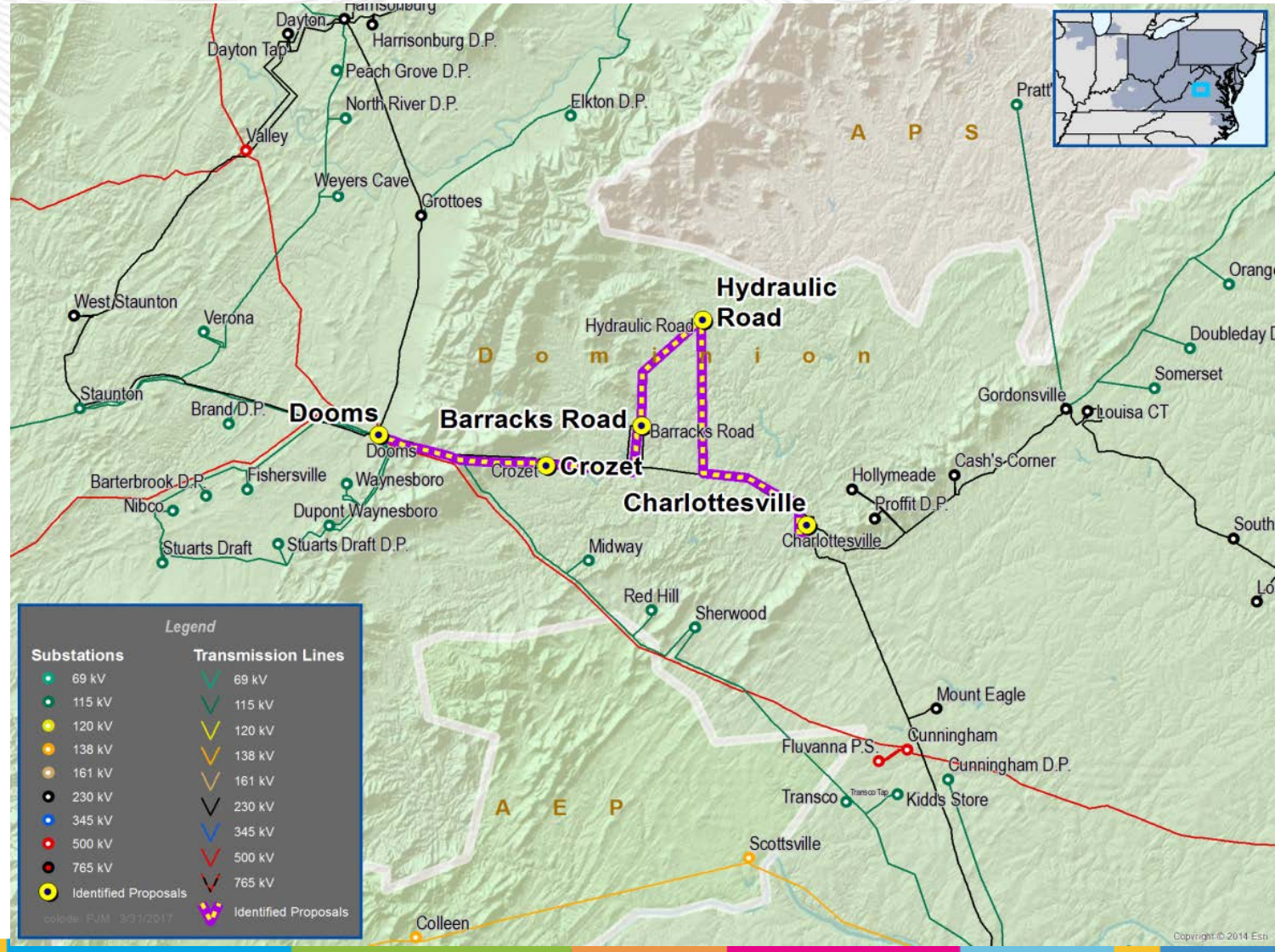
In-Service Cost ($M): $32.39

In-Service Date: 2021

Target Zone: Dominion

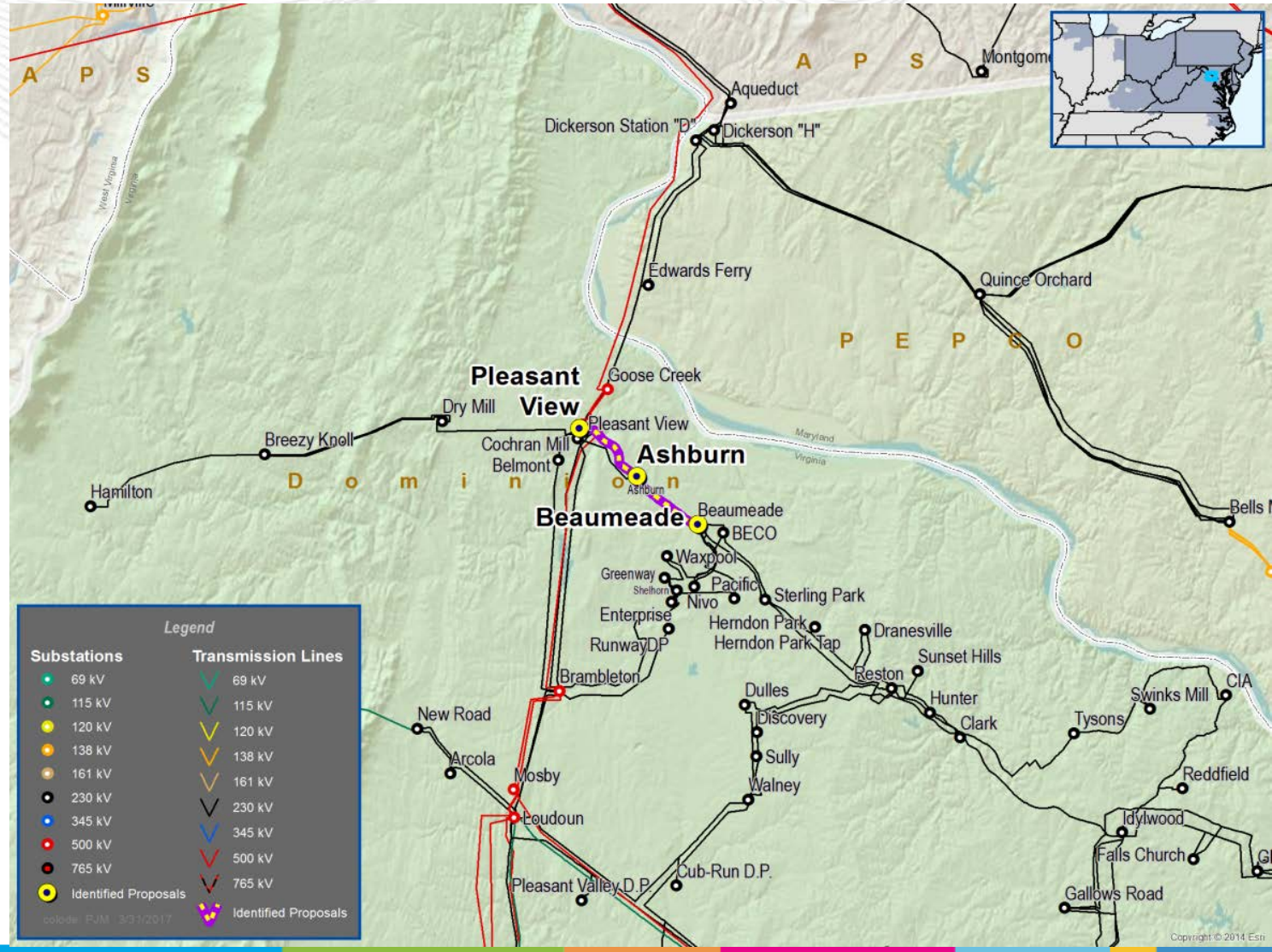
ME Constraints:
I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL
CONASTONE - GRACETON - BAGLEY 230 kV
BOSSERMAN - Olive 138 kV
SUSQUEHANNA - HARWOOD 230 kV
OAKBAY - NORTH RVR 230kV
PEACH BOTTOM - CONASTONE 500 kV

Notes:



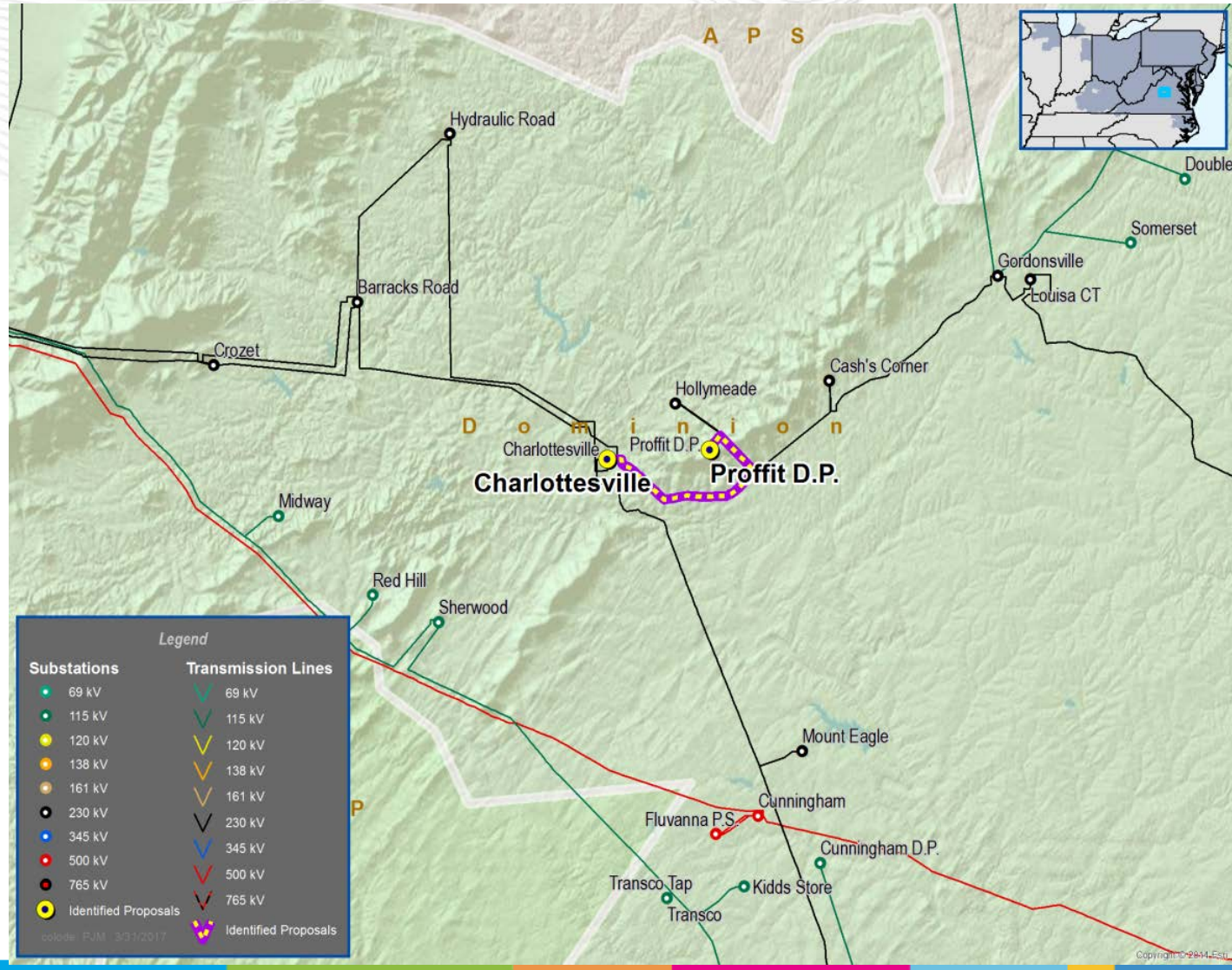
DOMINION 1-8N

Project ID: 201617_1-8N
Proposed by: Dominion
Proposed Solution: Reconductor Pleasant View - Ashburn - Beaumeade 230 kV line (Line 274) and replace limiting equipment along the line.
kV Level: 230 kV
In-Service Cost ($M): $5.18
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



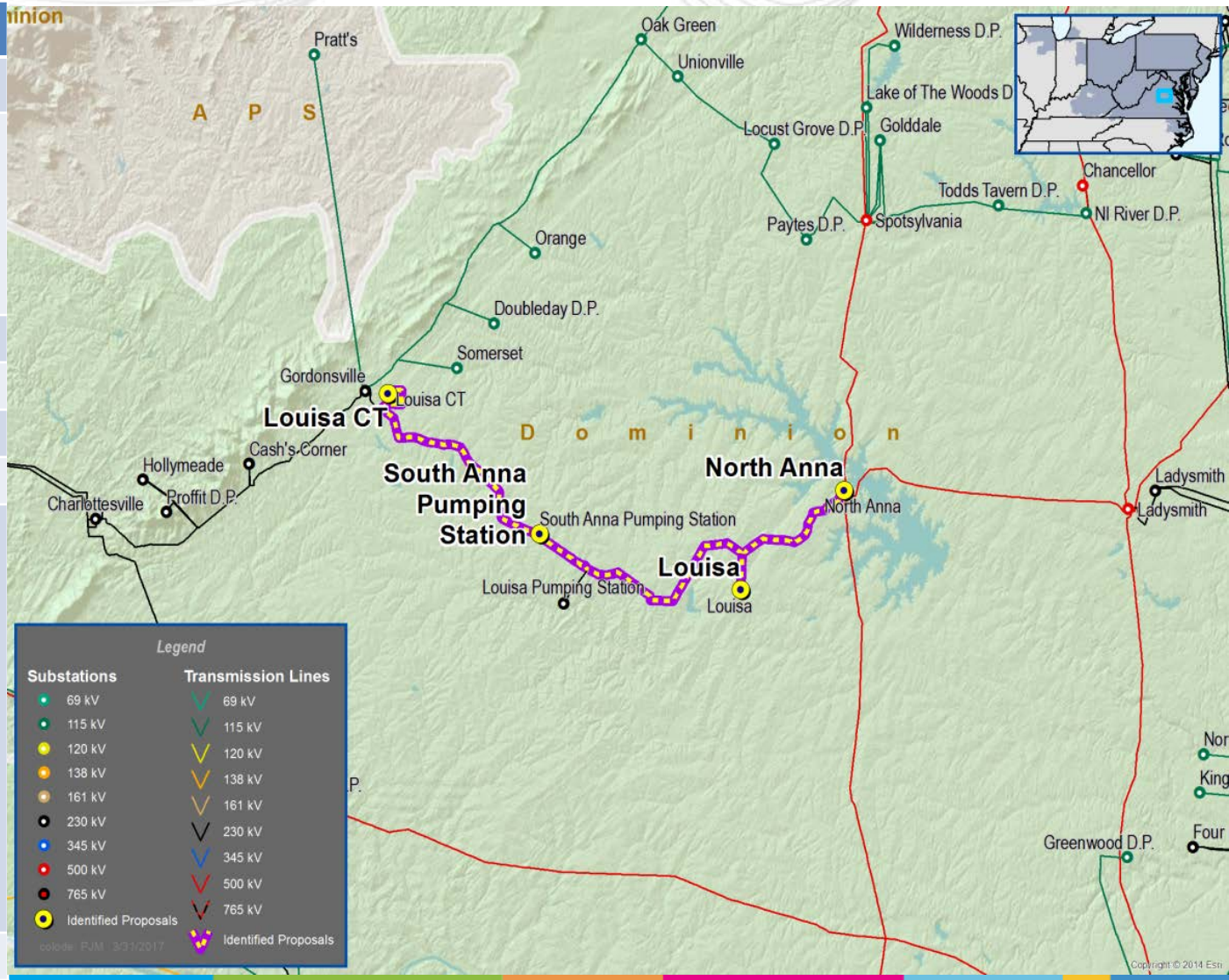
DOMINION 1-8O

Project ID: 201617_1-8O
Proposed by: Dominion
Proposed Solution: Reconductor a segment of Charlottesville - Proffit DP 230 kV line (Line 2054) and replace limiting equipment along the line.
kV Level: 230 kV
In-Service Cost ($M): $9.12
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



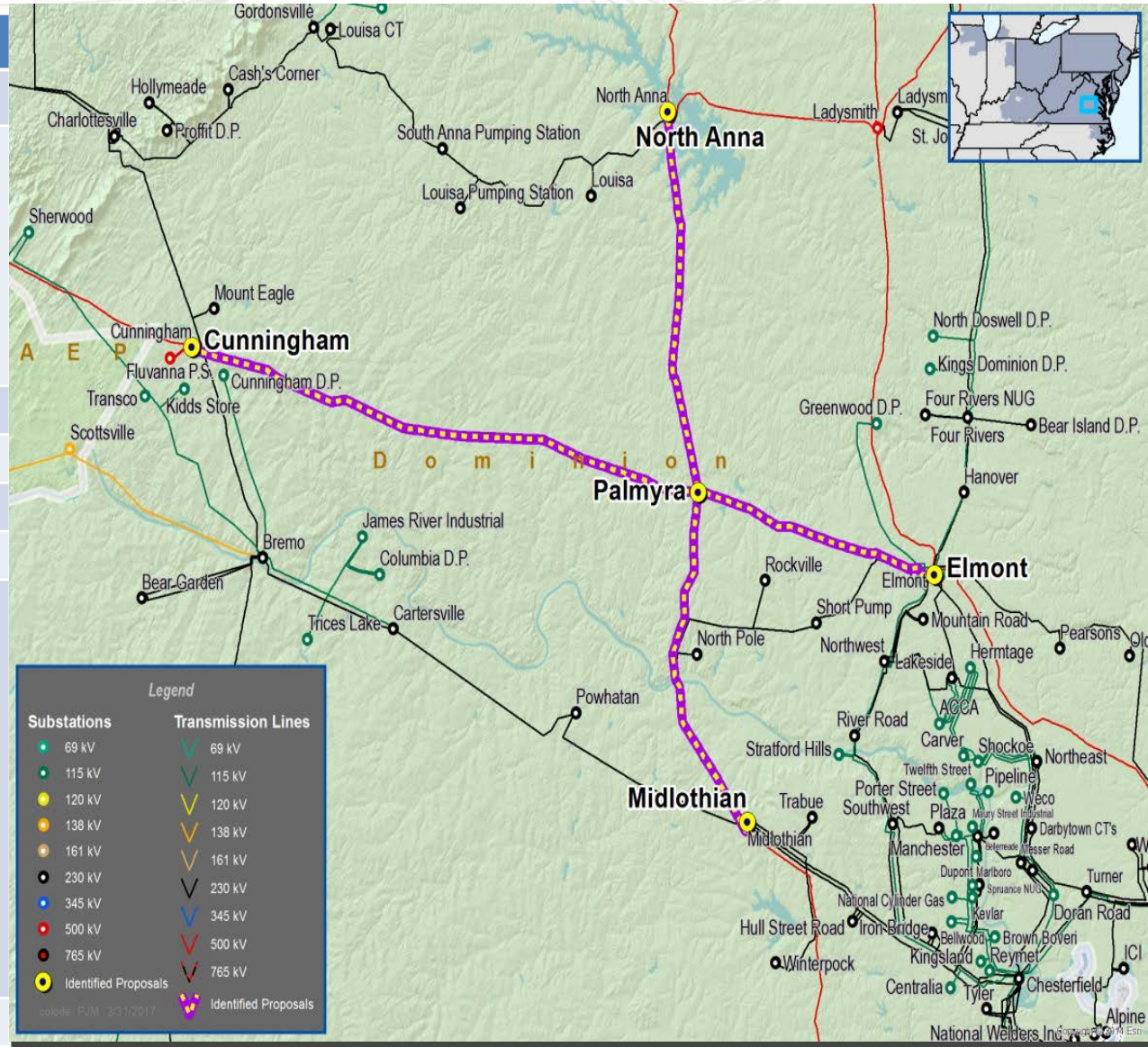
DOMINION 1-8P

Project ID: 201617_1-8P
Proposed by: Dominion
Proposed Solution: Reconductor North Anna - Louisa - South Anna 230 kV line (Line 255), reconductor South Anna - Louisa CT 230 kV line (Line 2074), and replace limiting equipment along the lines.
kV Level: 230 kV
In-Service Cost ($M): $23.71
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



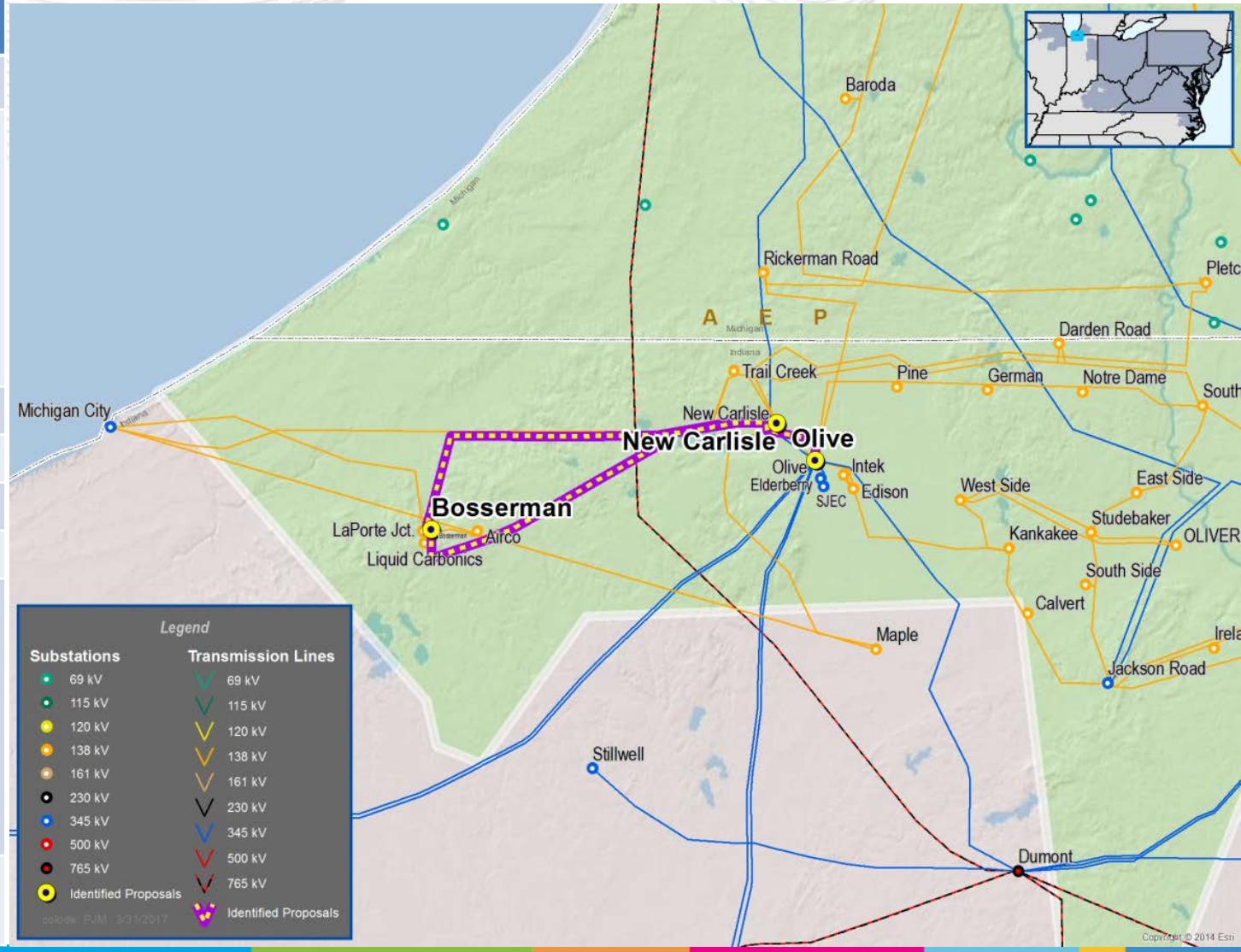
DOMINION1-8Q

Project ID: 201617_1-8Q
Proposed by: Dominion
Proposed Solution: Greenfield Build a new 500kV station (Palmyra) by connecting and building a ring bus at the intersection of two (2) 500 kV lines including North Anna - Midlothian 500kV line (Line 576) and Cunningham - Elmont 500 kV line (Line 553) and add a 300MVAR capacitor bank.
kV Level: 500 kV
In-Service Cost ($M): $31.9
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, I:AEP-DOM, I:5004/5005, I:CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



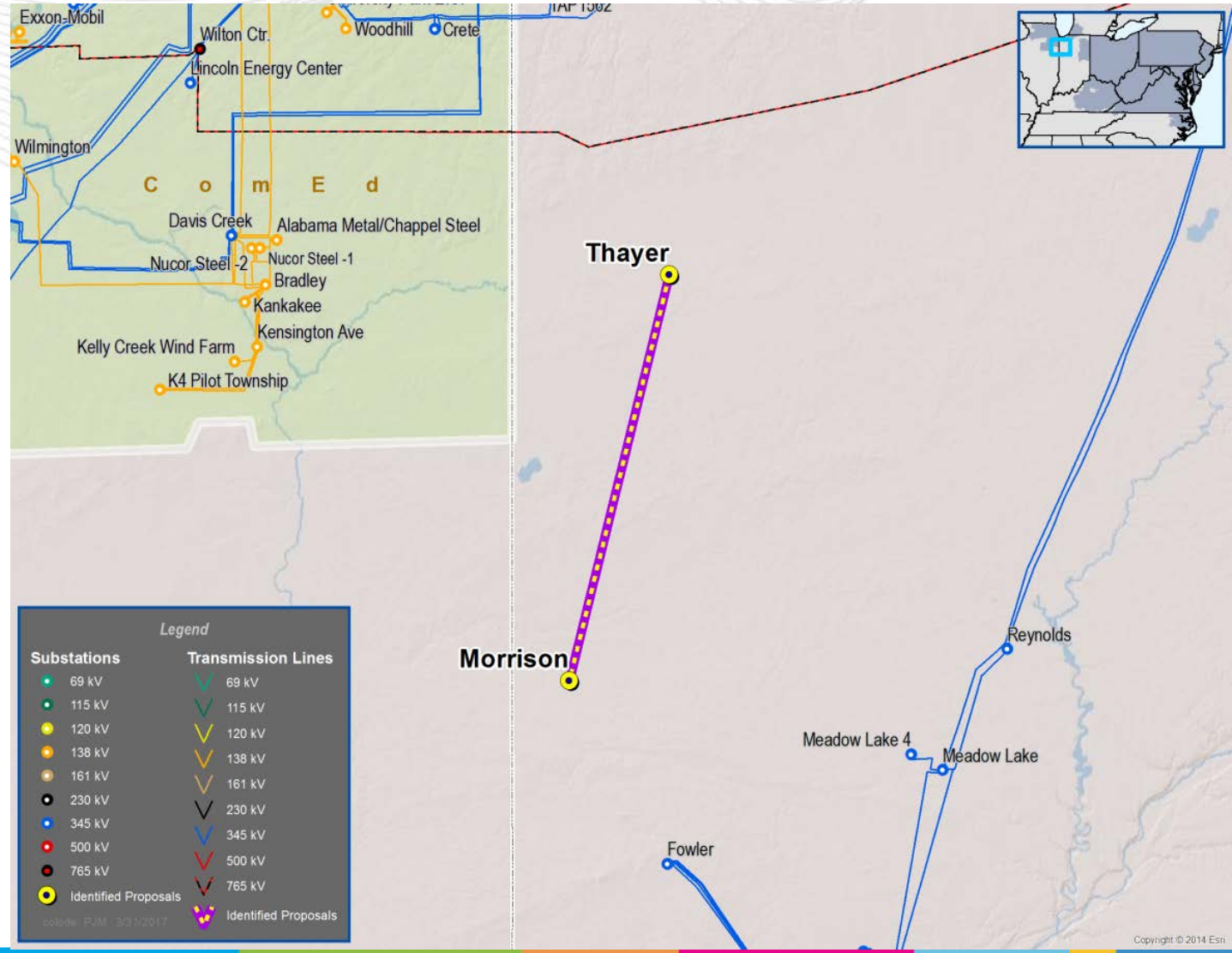
NIPSCO 1-9A

Project ID: NIPSCO 1-9A
Proposed by: NIPSCO
Proposed Solution: Reconductor existing NIPSCO line section between AEP Bosserman and Olive substation.
kV Level: 138 kV
In-Service Cost ($M): $8.00
In-Service Date: 2019
Target Zone: AEP NIPSCO
ME Constraints: OLIVE - BOSSERMAN 138 kV
Notes: See supplemental project Olive – Bosserman discussion in the Reliability Update presentation at April TEAC.



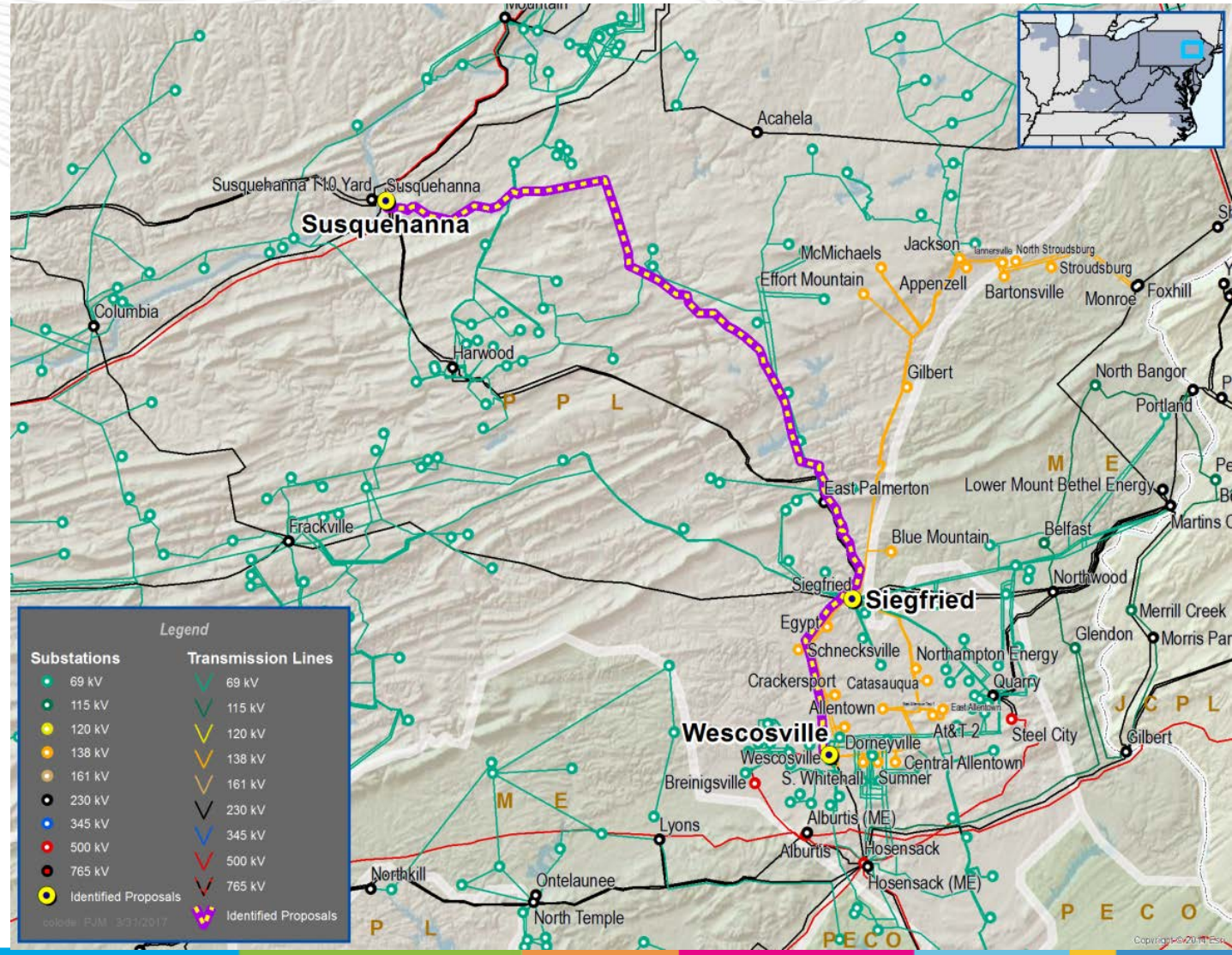
NIPSCO 1-9B

Project ID: 201617_1-9B
Proposed by: NIPSCO
Proposed Solution: Greenfield New NIPSCO line section between Thayer and Morrison substations.
kV Level: 138 kV
In-Service Cost ($M): $42.50
In-Service Date: 2022
Target Zone: AML ComEd NIPSCO
ME Constraints: PAXTON - GIFFORD 138 kV
Notes:



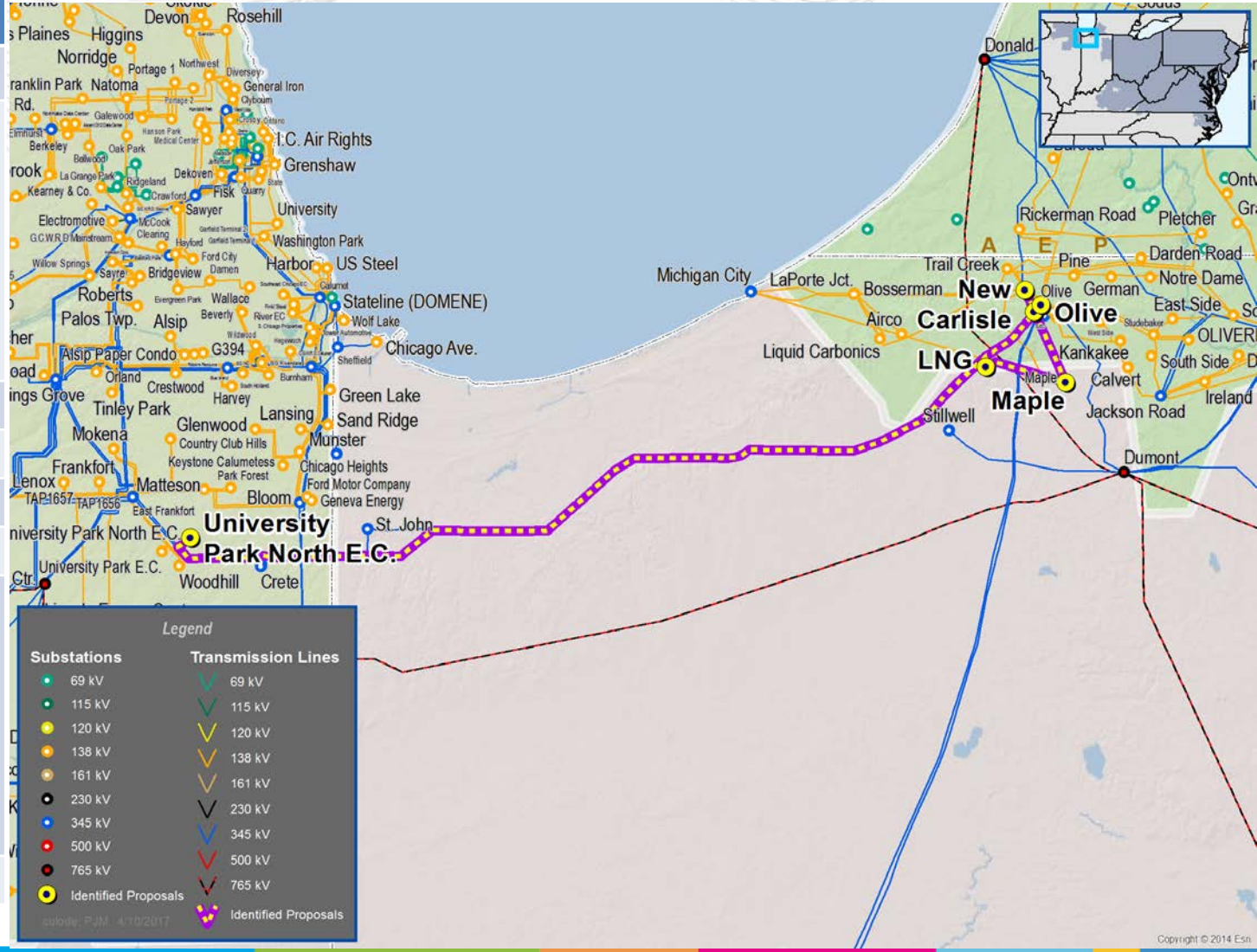
NEXTERA 1-10A

Project ID: 201617_1-10A
Proposed by: Nextera
Proposed Solution: Greenfield Build a new substation (Spring Hill) connecting an existing 230 kV substation and an existing 500 kV line in the area.
kV Level: 230 kV
In-Service Cost ($M): $33.8
In-Service Date: 2021
Target Zone: PPL
ME Constraints: SUSQUEHANNA - HARWOOD 230 kV
Notes:



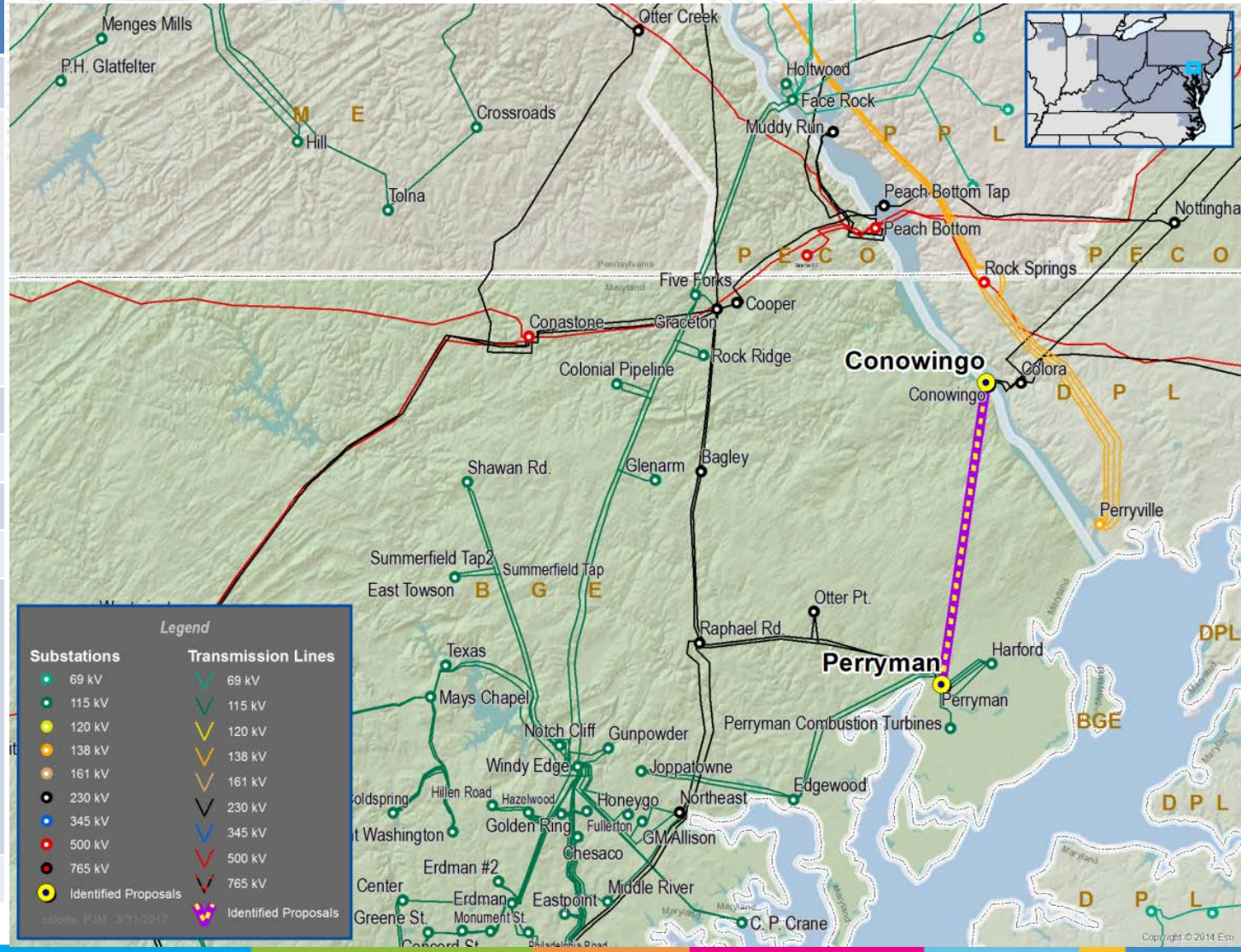
NEXTERA 1-10B

Project ID: 201617_1-10B
Proposed by: Nextera
Proposed Solution: Greenfield Build a new 345/138 kV substation (Rolling Prairie) connecting the following an existing 345 kV line to two existing 138 kV lines.
kV Level: 138 kV
In-Service Cost ($M): $19.2
In-Service Date: 2021
Target Zone: AEP
ME Constraints: BOSSERMAN - OLIVE 138 kV
Notes:



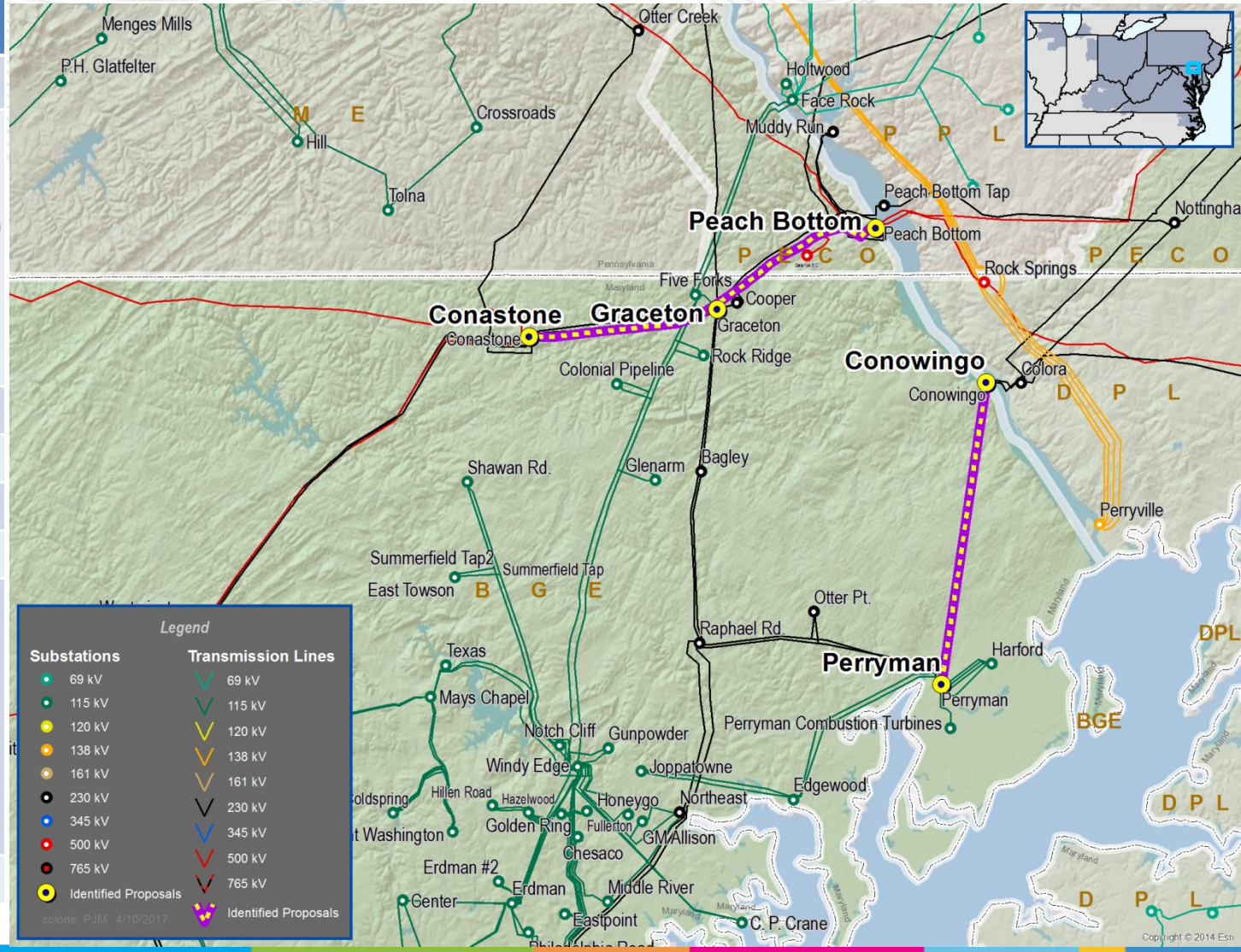
NEXTERA 1-10C

Project ID: 201617_1-10C
Proposed by: Nextera
Proposed Solution: Greenfield Build a new 230 kV line between existing Perryman and Conowingo substations.
kV Level: 230 kV
In-Service Cost ($M): $44.4
In-Service Date: 2021
Target Zone: BGE
ME Constraints: GRACETON - BAGLEY 230 kV
Notes:



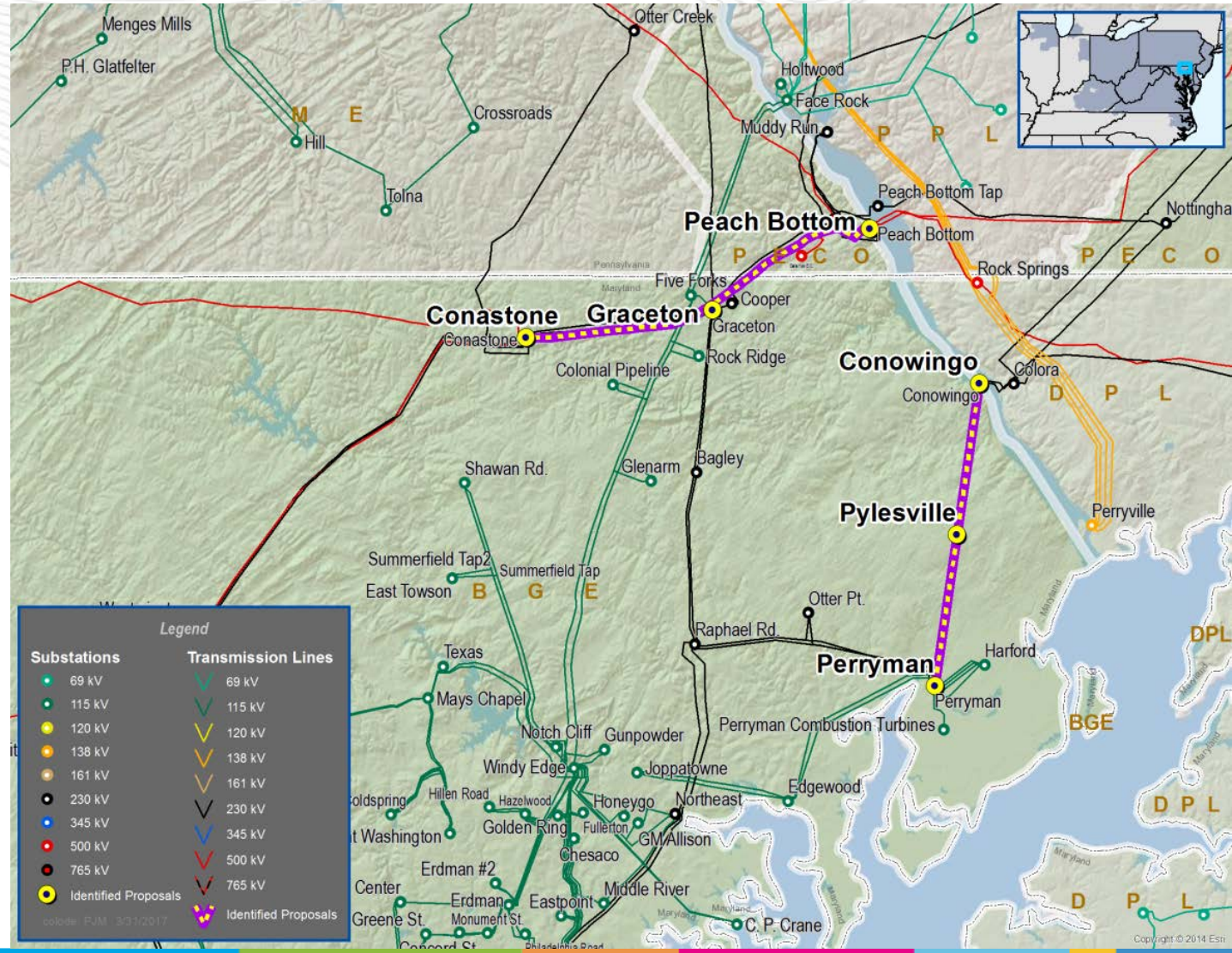
NEXTERA 1-10D

Project ID: 201617_1-10D
Proposed by: Nextera
Proposed Solution: Greenfield Build a new 230 kV transmission line between two existing 230 kV stations and build a new substation connecting an existing 230 kV substation to an existing 500 kV line.
kV Level: 230 kV
In-Service Cost ($M): $93.5
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



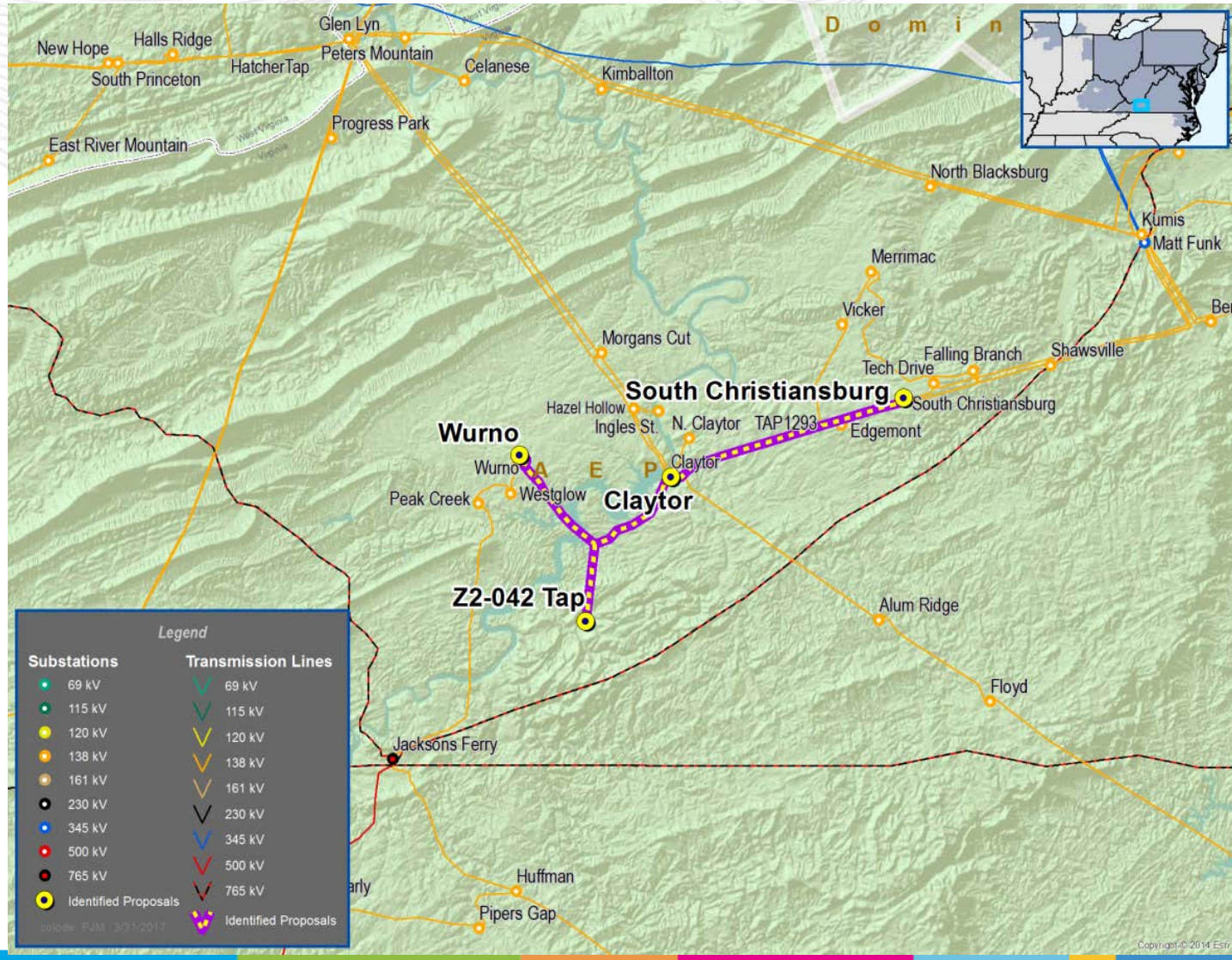
NEXTERA 1-10E

Project ID: 201617_1-10E
Proposed by: Nextera
Proposed Solution: Greenfield Build two new 230 kV transmission lines connecting separately three existing 230 kV stations and build a new 500/230 kV substation connecting an existing 230 kV substation to an existing 500 kV line.
kV Level: 230/500 kV
In-Service Cost ($M): $105.7
In-Service Date: 2021
Target Zone: PPL
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



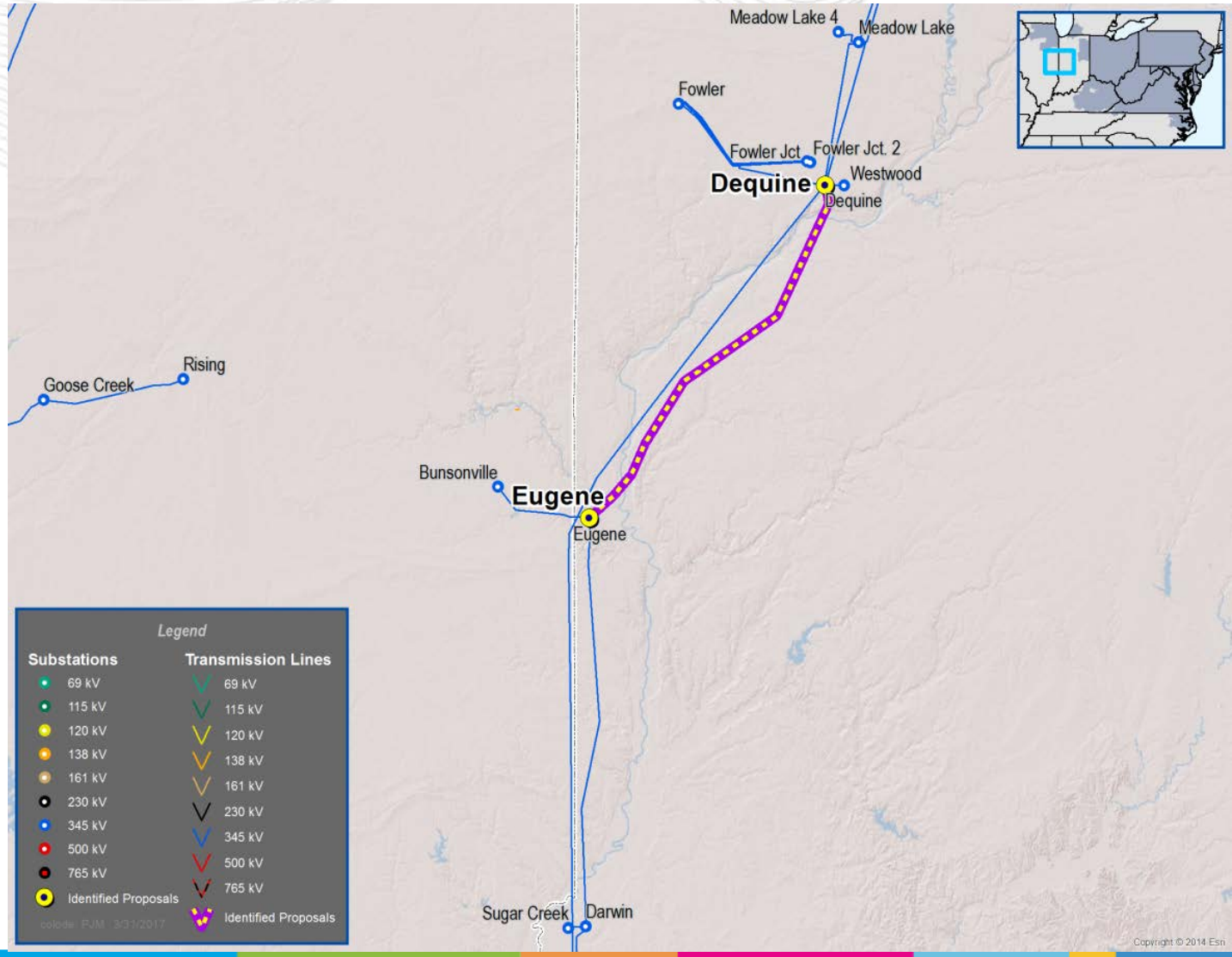
AEP 1-11A

Project ID: 201617_1-11A
Proposed by: AEP
Proposed Solution: Claytor 138 kV Corridor Upgrades.
kV Level: 138 kV
In-Service Cost ($M): $3.35
In-Service Date: 2019
Target Zone: AEP
ME Constraints: CHRIS - CLAYTOR 138 kV
Notes:



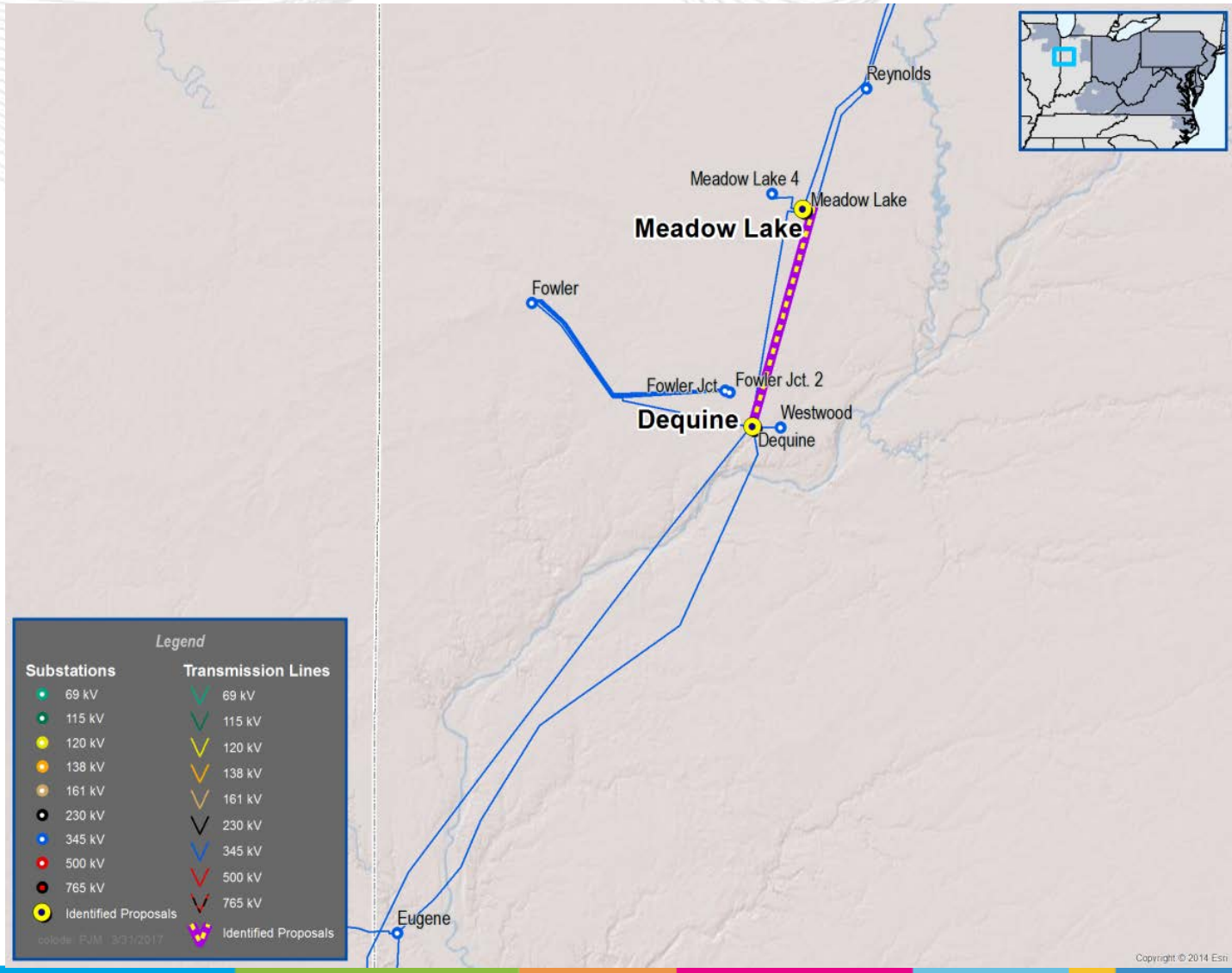
AEP 1-11B

Project ID: 201617_1-11B
Proposed by: AEP
Proposed Solution: Accelerate the previously approved baseline project to reconductor the entire Dequine-Eugene 345 kV.
kV Level: 345 kV
In-Service Cost ($M): 0
In-Service Date: 2019
Target Zone: AEP
ME Constraints: EUGENE - DEQUIN 345 kV + RPM Benefits
Notes:



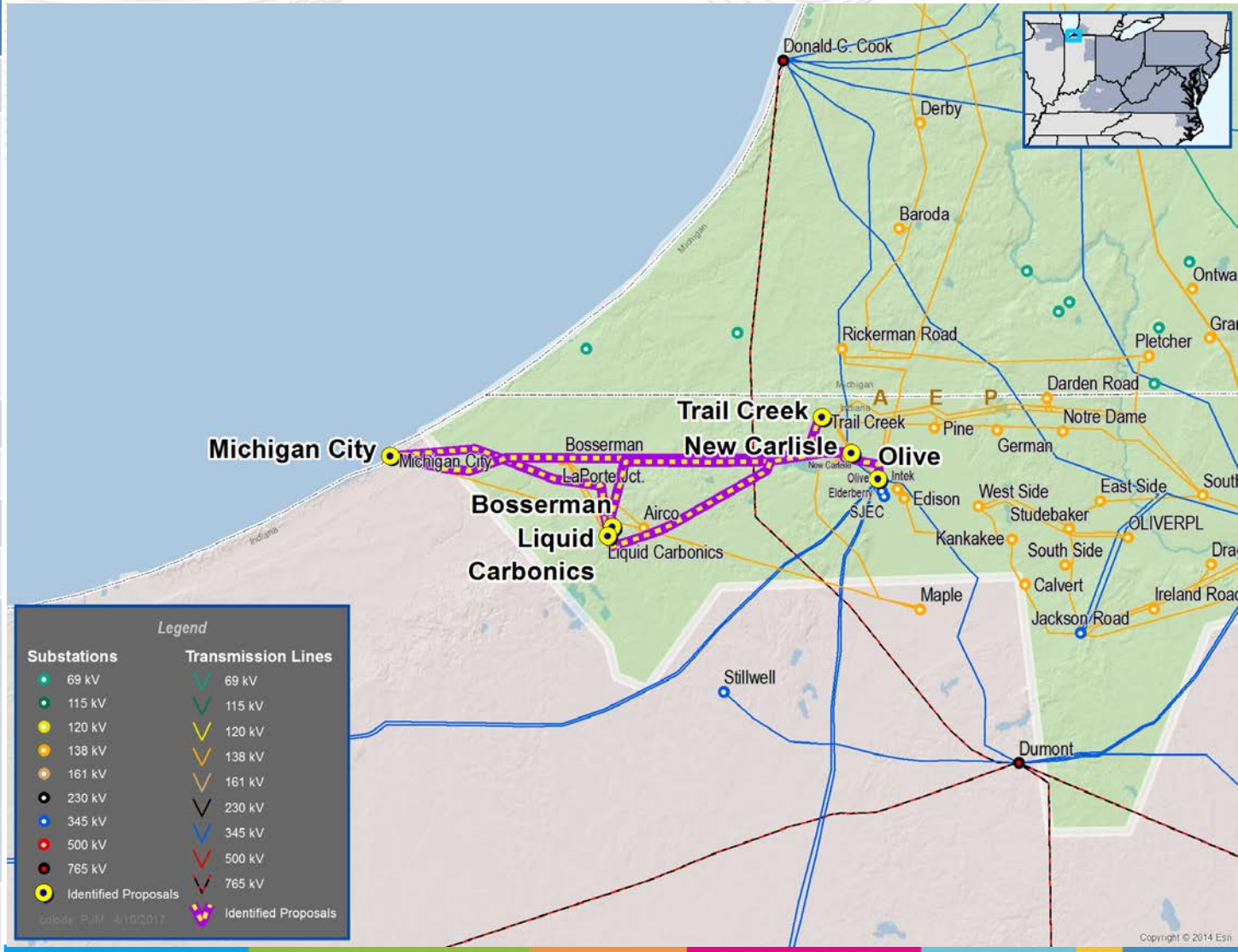
AEP1-11C

Project ID: 201617_1-11C
Proposed by: AEP
Proposed Solution: Accelerate the previously approved baseline project to reconductor the entire Dequine - Meadow Lake 345 kV.
kV Level: 345 kV
In-Service Cost ($M): 0
In-Service Date: 2019
Target Zone: AEP
ME Constraints: DEQUIN - MEADOW 345 kV + RPM Benefits
Notes:



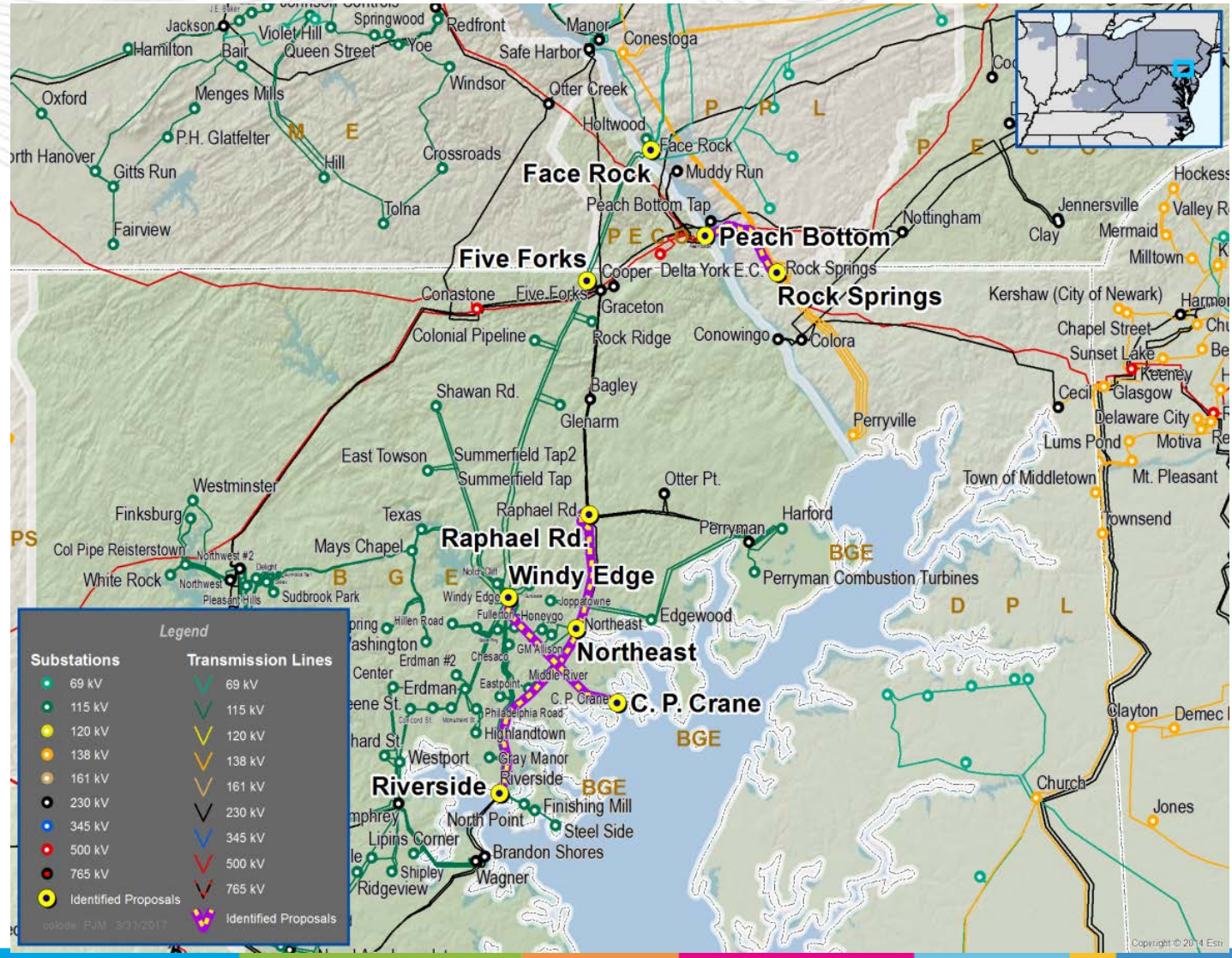
AEP NIPSCO 1-12D

Project ID: 201617_1-12D
Proposed by: AEP NIPSCO
Proposed Solution: Rebuild sections of the 34.5 kV line between New Carlisle and Silver Lake as double circuit 138 kV, operating one circuit as 34.5 kV while the other as 138 kV. Extend the 138 kV circuit to Liquid Carbonics by constructing a green field single circuit line. Rebuild the Michigan City-Trail Creek-Bosserman 138 kV.
kV Level: 138 kV
In-Service Cost ($M): $41.86
In-Service Date: 2021
Target Zone: AEP
ME Constraints: OLIVE - BOSSERMAN 138 kV
Notes: See supplemental project Olive – Bosserman discussion in the Reliability Update presentation at April TEAC.



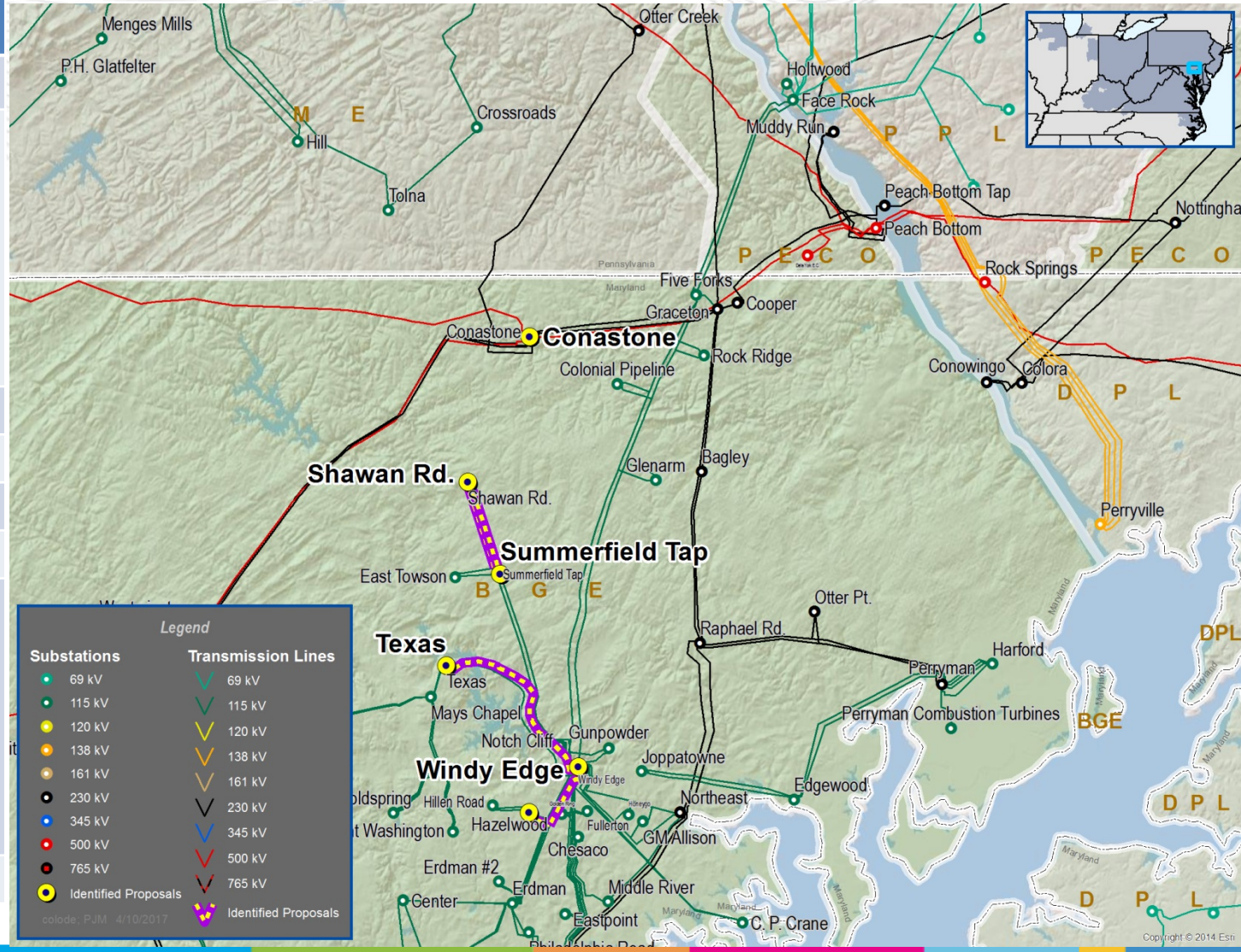
TRANSOURCE 1-13A

Project ID: 201617_1-13A
Proposed by: Transource
Proposed Solution: Greenfield Construct a new Baldwin Road 500/230 kV station along the Peach Bottom - Rock Springs 500 kV line, just south of the existing Peach Bottom station. Add two 500/230 kV 1200/1500 MVA transformers at Baldwin Road, operated together.
kV Level: 230/500 kV
In-Service Cost ($M): $345.92
In-Service Date: 2024
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



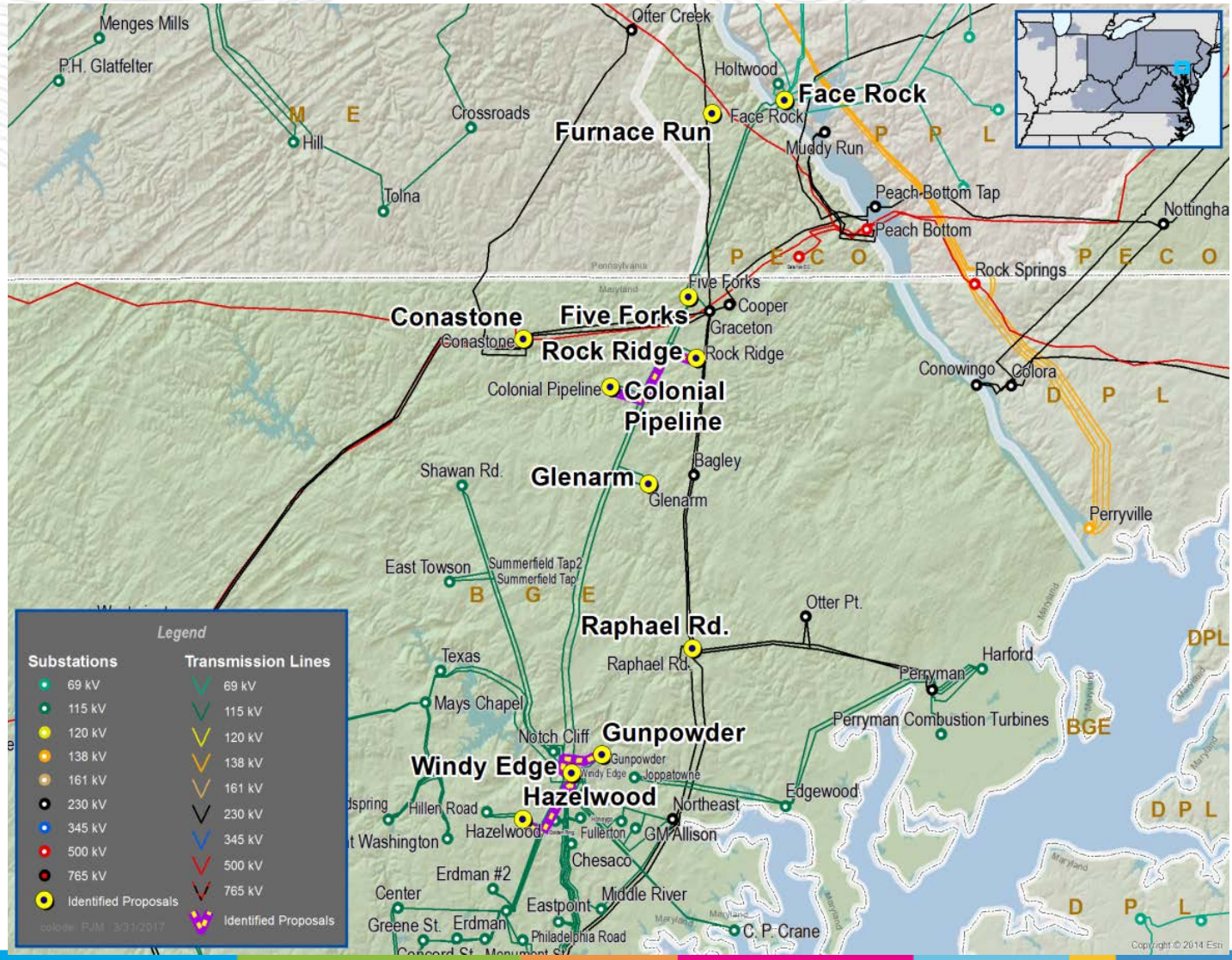
TRANSOURCE 1-13B

Project ID: 201617_1-13B
Proposed by: Transource
Proposed Solution: Greenfield Construct a 230 kV line between Conastone 230 Station and a new Dulaney Valley 230/115 Station.
kV Level: 230 kV
In-Service Cost ($M): $51.54
In-Service Date: 2022
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



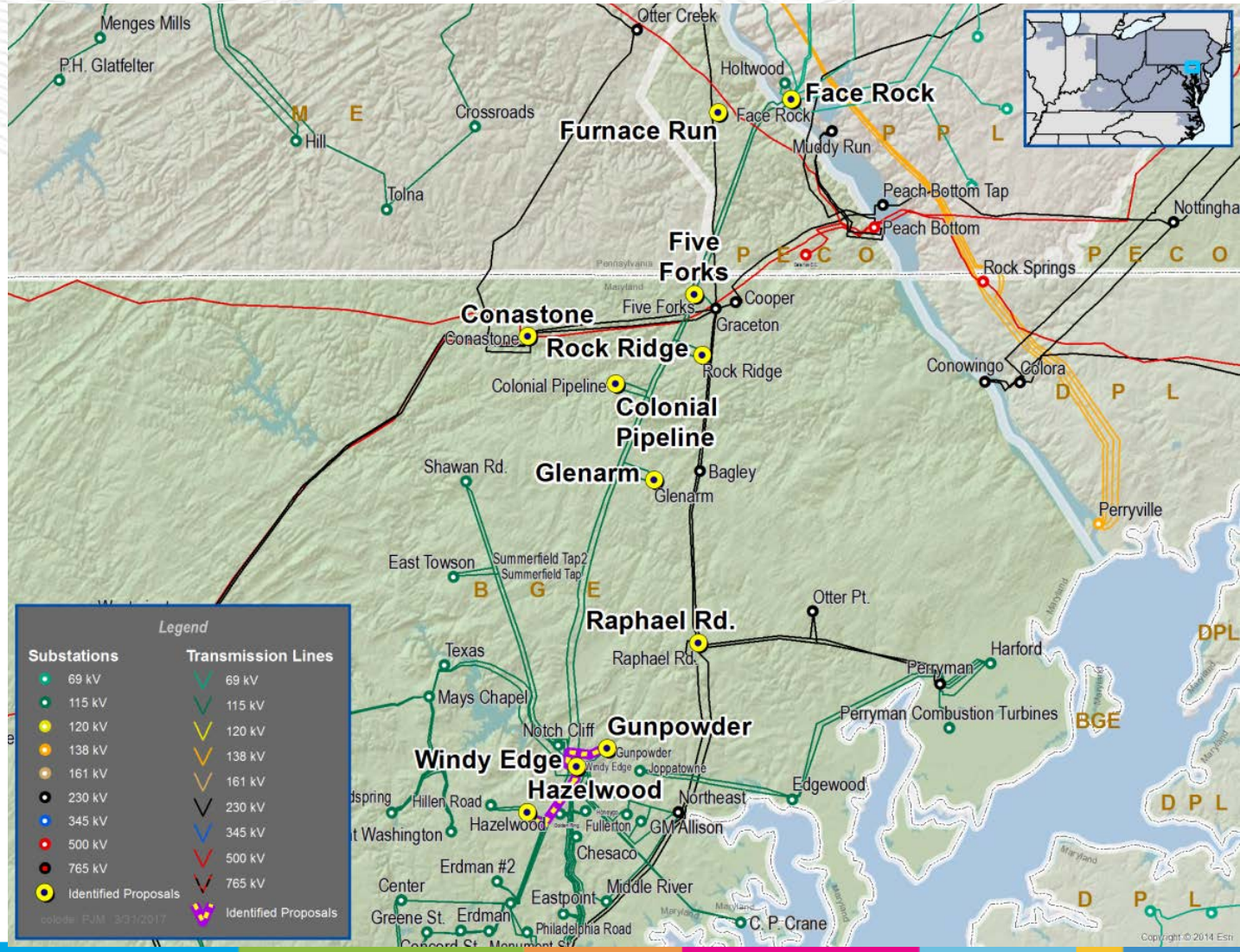
TRANSOURCE 1-13C

Project ID: 201617_1-13C
Proposed by: Transource
Proposed Solution: Greenfield Construct a 230 kV line between Conastone to a new Long Green 230/115 Station.
kV Level: 230 kV
In-Service Cost ($M): $169.27
In-Service Date: 2022
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:

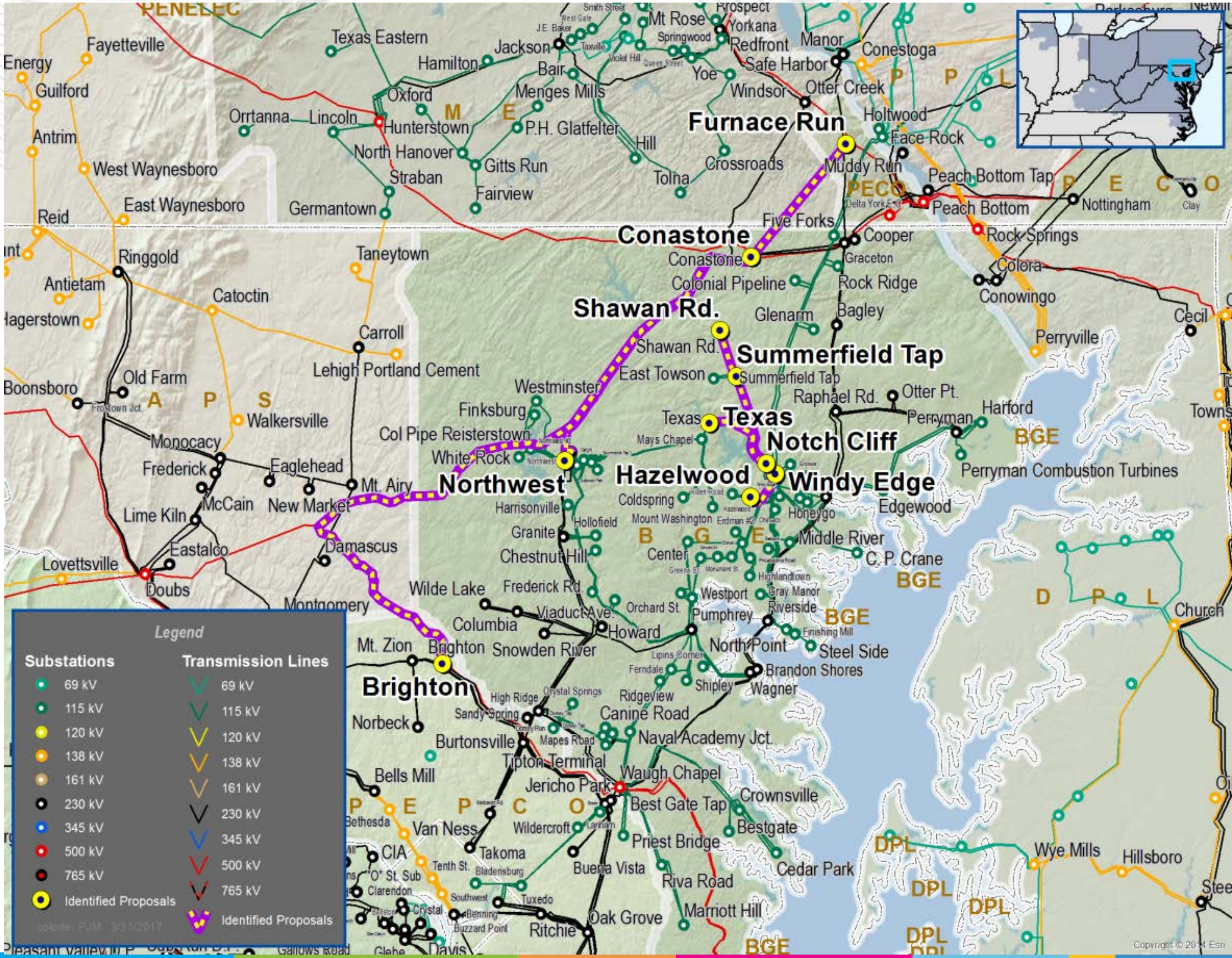


TRANSOURCE 1-13D

Project ID: 201617_1-13D
Proposed by: Transource
Proposed Solution: Greenfield Construct a 230 kV line between Conastone to a new Long Green 230/115 Station and another 230 kV line from the new Long Green Station to Raphael Road 230 Station.
kV Level: 230 kV
In-Service Cost ($M): $183.00
In-Service Date: 2022
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:

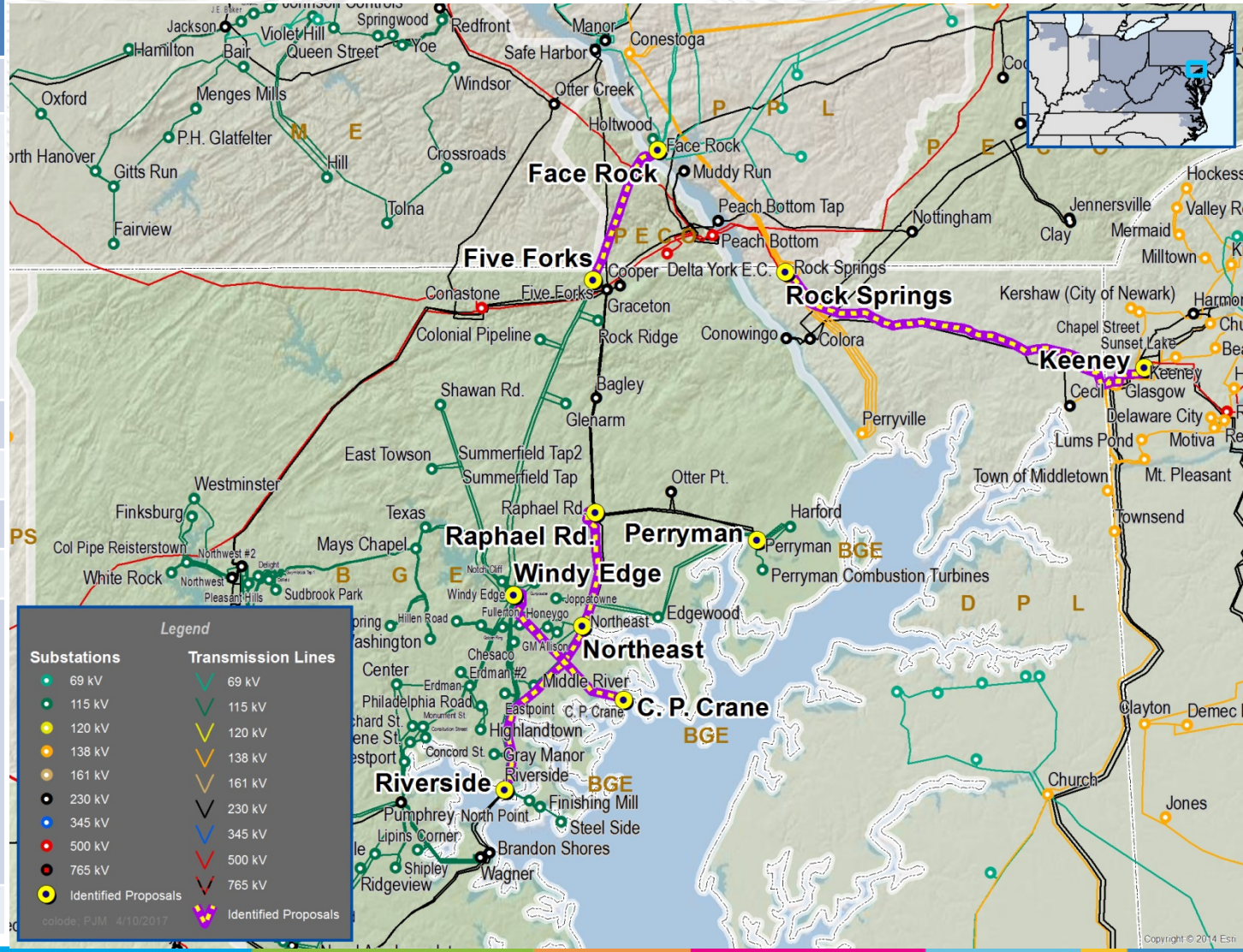


Project ID: 201617_1-13E
Proposed by: Transource
Proposed Solution: Greenfield Construct a 230 kV line between a new Hereford 500/230 Station and a new Dulaney Valley 230/115 Station.
kV Level: 115/230/500 kV
In-Service Cost ($M): $149.23
In-Service Date: 2022
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



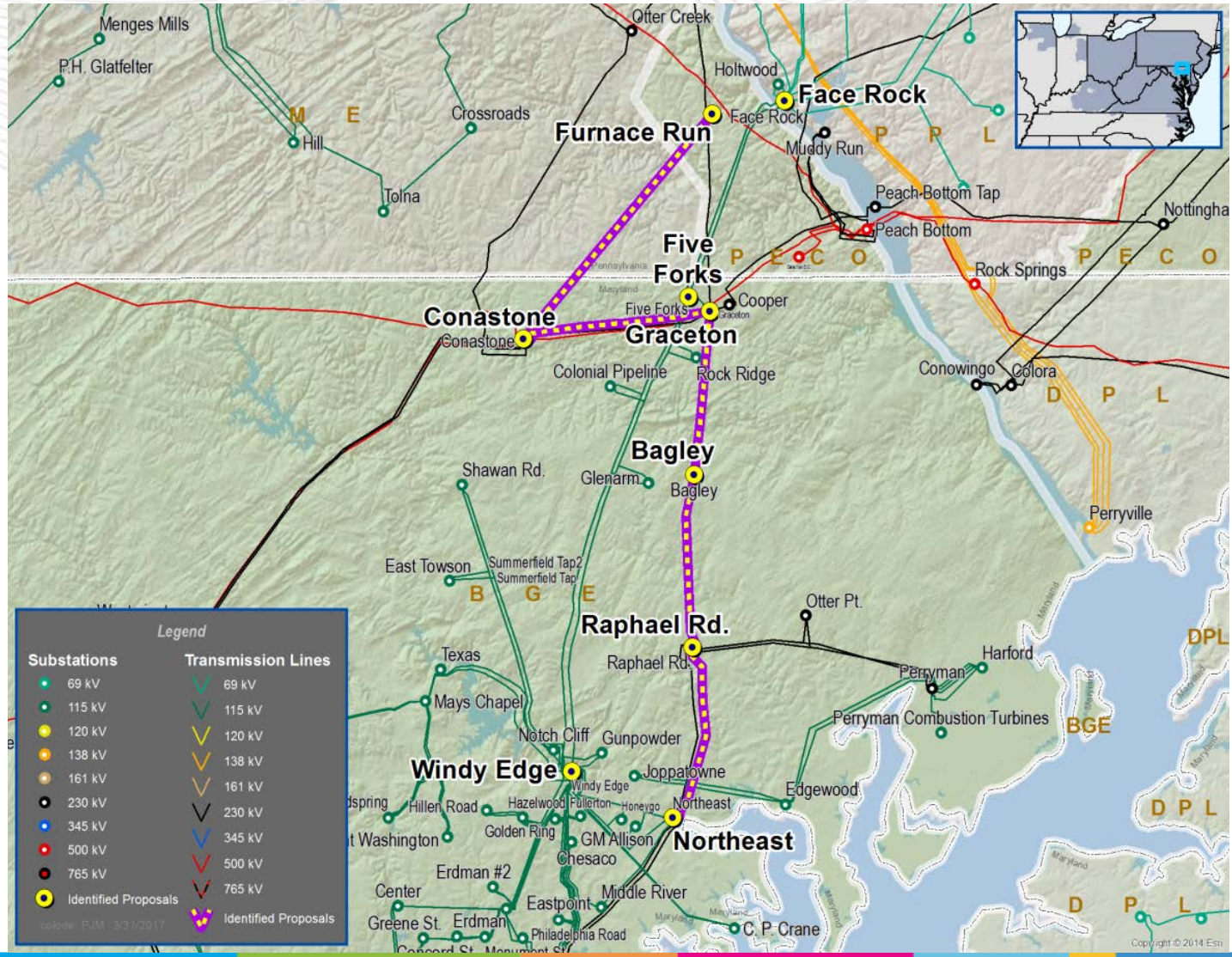
TRANSOURCE 1-13F

Project ID: 201617_1-13F
Proposed by: Transource
Proposed Solution: Greenfield Construct a 230 kV line between a new Love Run 500/230 Station and Perryman 230 Station.
kV Level: 230/500 kV
In-Service Cost ($M): $371.30
In-Service Date: 2024
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



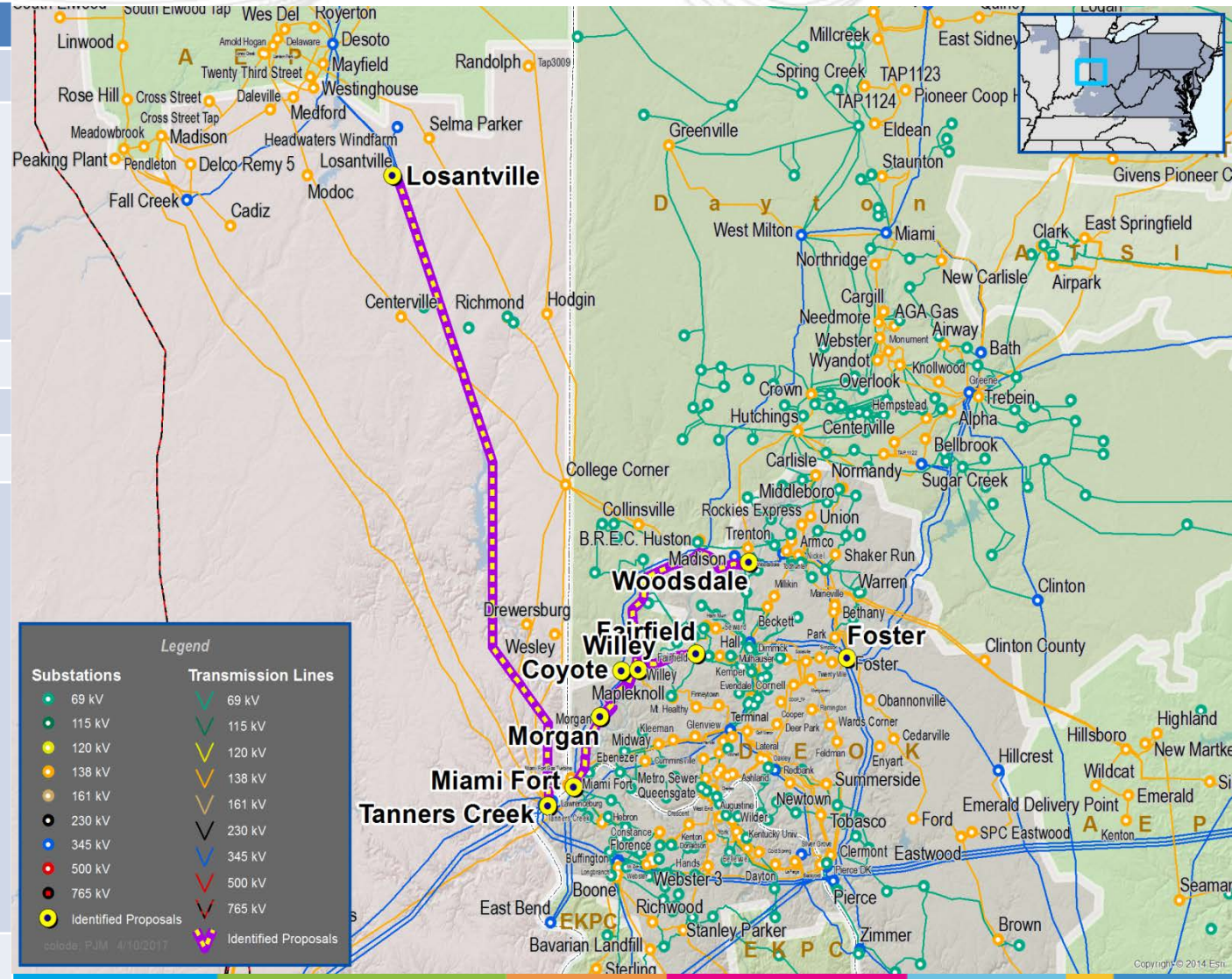
TRANSOURCE 1-13G

Project ID: 201617_1-13G
Proposed by: Transource
Proposed Solution: Upgrade Conastone-Graceton-Bagley-Raphael Road-Northeast 230 kV Circuits. Upgrade Five Forks - Windy Edge 115 kV Circuits.
kV Level: 115/230 kV
In-Service Cost ($M): $192.07
In-Service Date: 2022
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



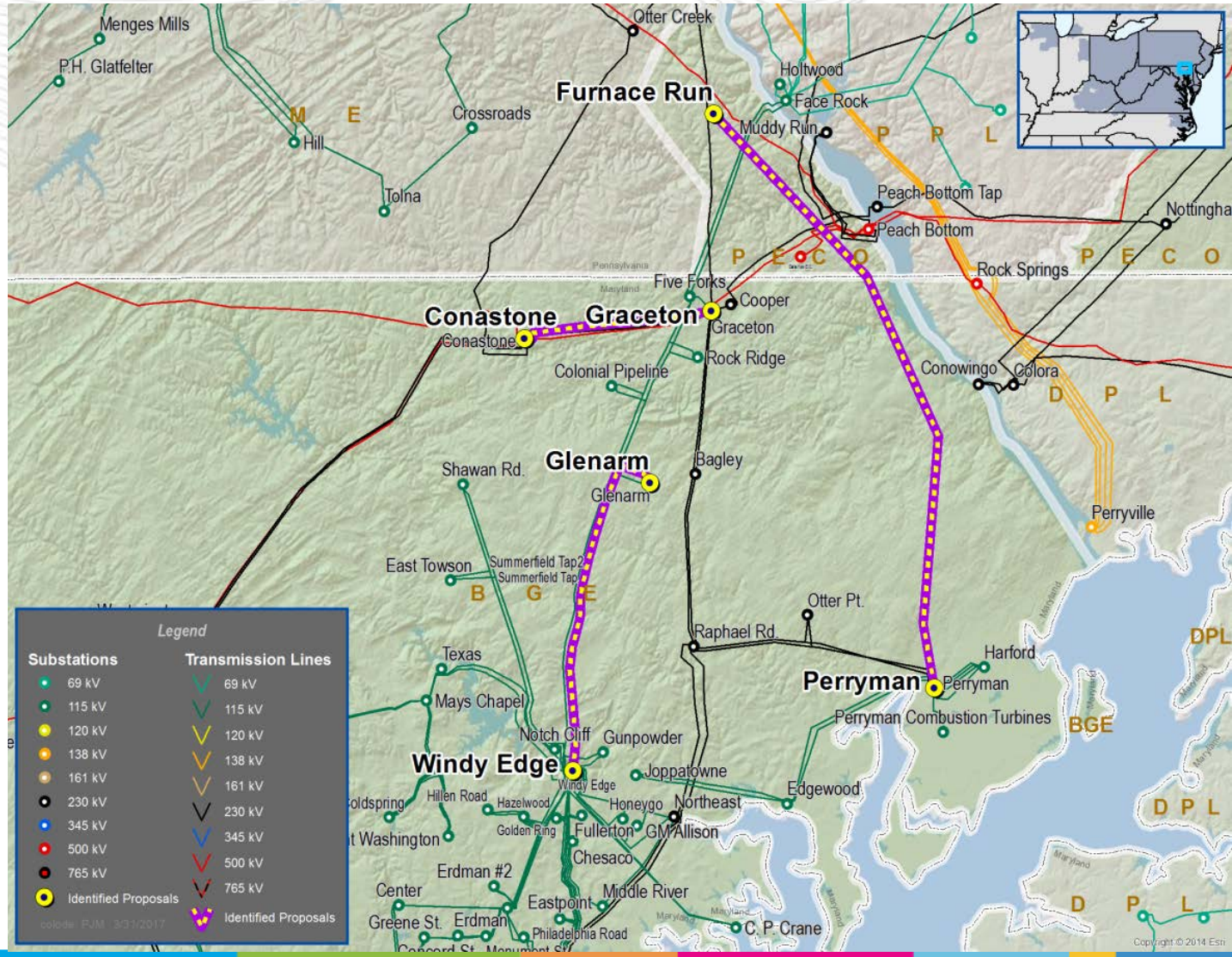
TRANSOURCE 1-13H

Project ID: 201617_1-13H
Proposed by: Transource
Proposed Solution: Greenfield Tap the Tanners Creek - Losantville 345 kV line and build a single circuit line to a new 345/138 kV station (Coyote) next to Wiley.
kV Level: 138/345 kV
In-Service Cost ($M): $71.89
In-Service Date: 2021
Target Zone: DEOK
ME Constraints: TANNERS CREEK - MIAMI FORT 345 kV
Notes:



ATC 1-14A

Project ID: 201617_1-14A
Proposed by: ATC
Proposed Solution: Greenfield Build a new 230 kV line from Furnace Run - Perryman. The second portion of the proposed project adds a series reactor to each of the Conastone-Graceton 230 kV lines (two total). The third portion of the proposed project will rebuild the 115 kV line from Glen Arm to Windy Edge.
kV Level: 115/230 kV
In-Service Cost ($M): $114.80
In-Service Date: 2023
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV CONASTONE - PEACH BOTTOM 500 kV
Notes:



PPL ATXI EAST 1-15A

Project ID: 201617_1-15A

Proposed by: ATXI East PPL

Proposed Solution: Greenfield
A new double circuit 230 kV line from Conastone to a new 230/115 substation (Baldwin). Baldwin will have two 230/115 XFMR. The Sub will break up the Five Forks - Windy Edge 115 kV lines. From Baldwin to Windy Edge the 115 kV lines will need to be rebuilt. Also a new double circuit 230 kV line from Baldwin to Raphael Road will be constructed.

kV Level: 115/230 kV

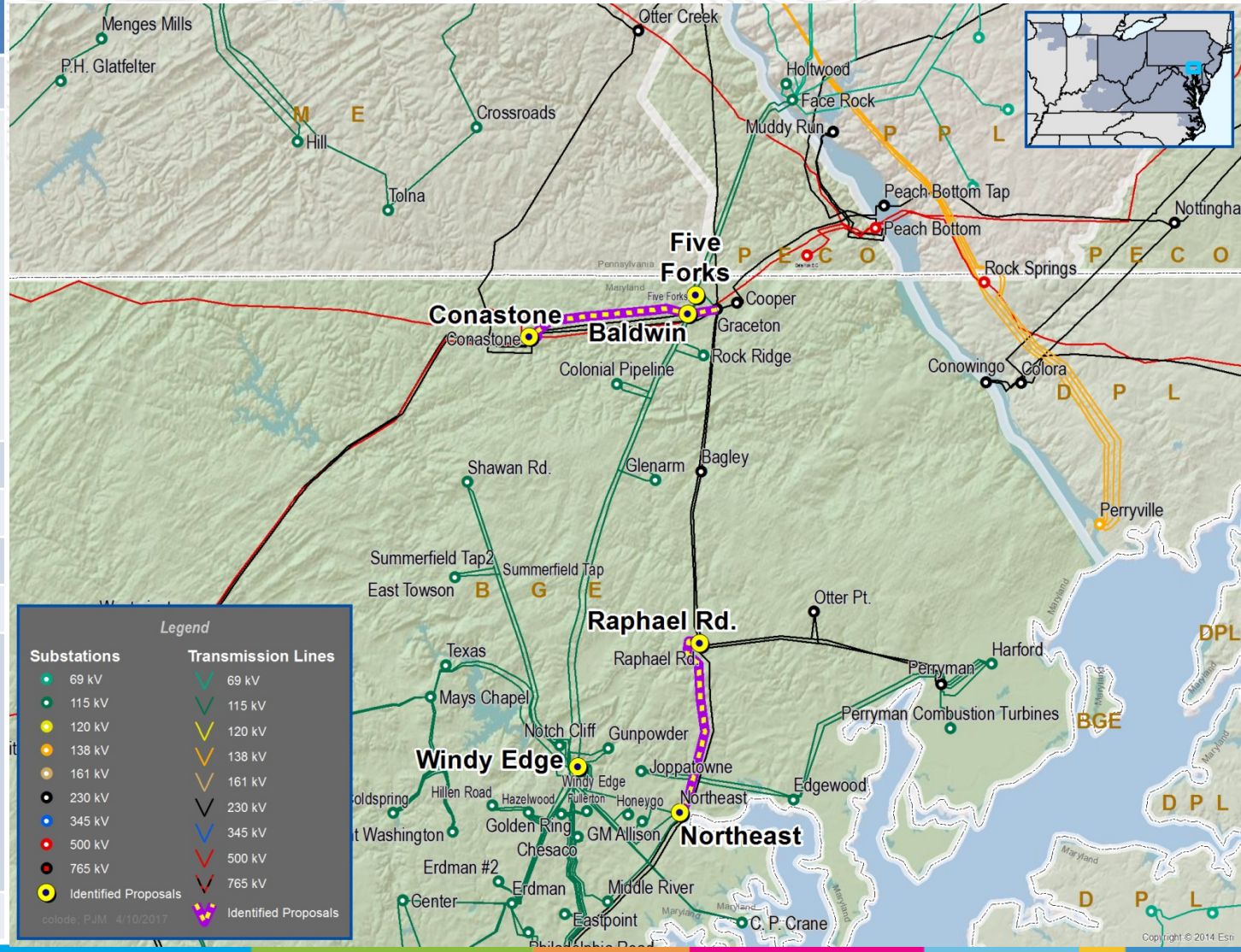
In-Service Cost ($M): $138.53

In-Service Date: 2022

Target Zone: BGE

ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV

Notes:



PPL ATXI EAST 1-15B

Project ID: 201617_1-15B

Proposed by: ATXI East PPL

Proposed Solution: Greenfield
A new double circuit 230 kV line from Peachbottom to Otter Point, a new double circuit line from Raphael Road to a new substation (Baldwin). Baldwin will have two 230/115 XFMR that step down into a breaker and a half 115 kV sub. The sub will break up the Five Forks - Windy Edge 115 kV line. From Baldwin to Windy Edge the 115 kV lines will need to be rebuilt. The double circuit line from Otter Point to Raphael Road and Raphael Road to Northeast will need to have the conductor replaced.

kV Level: 230 kV

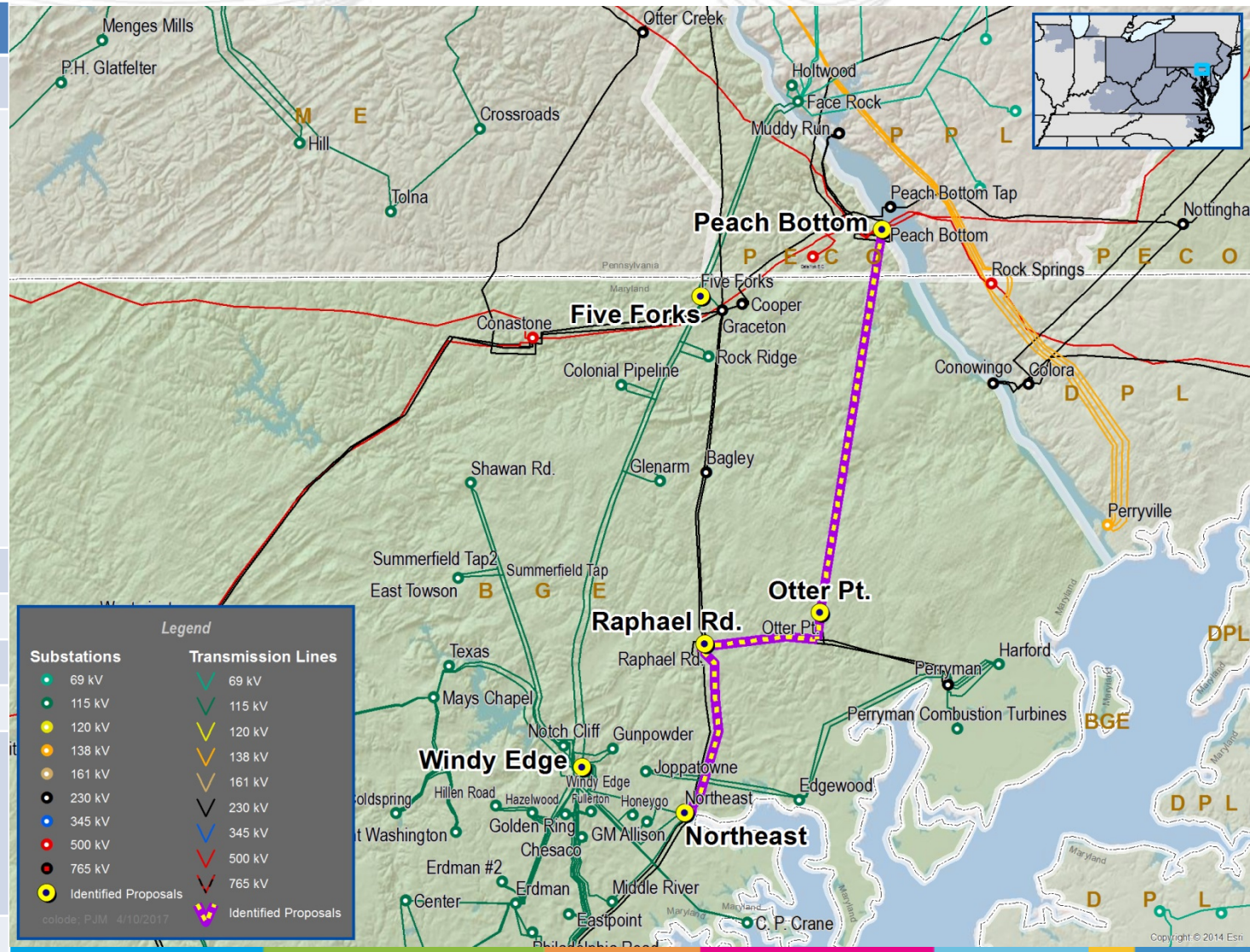
In-Service Cost ($M): $178.30

In-Service Date: 2022

Target Zone: BGE

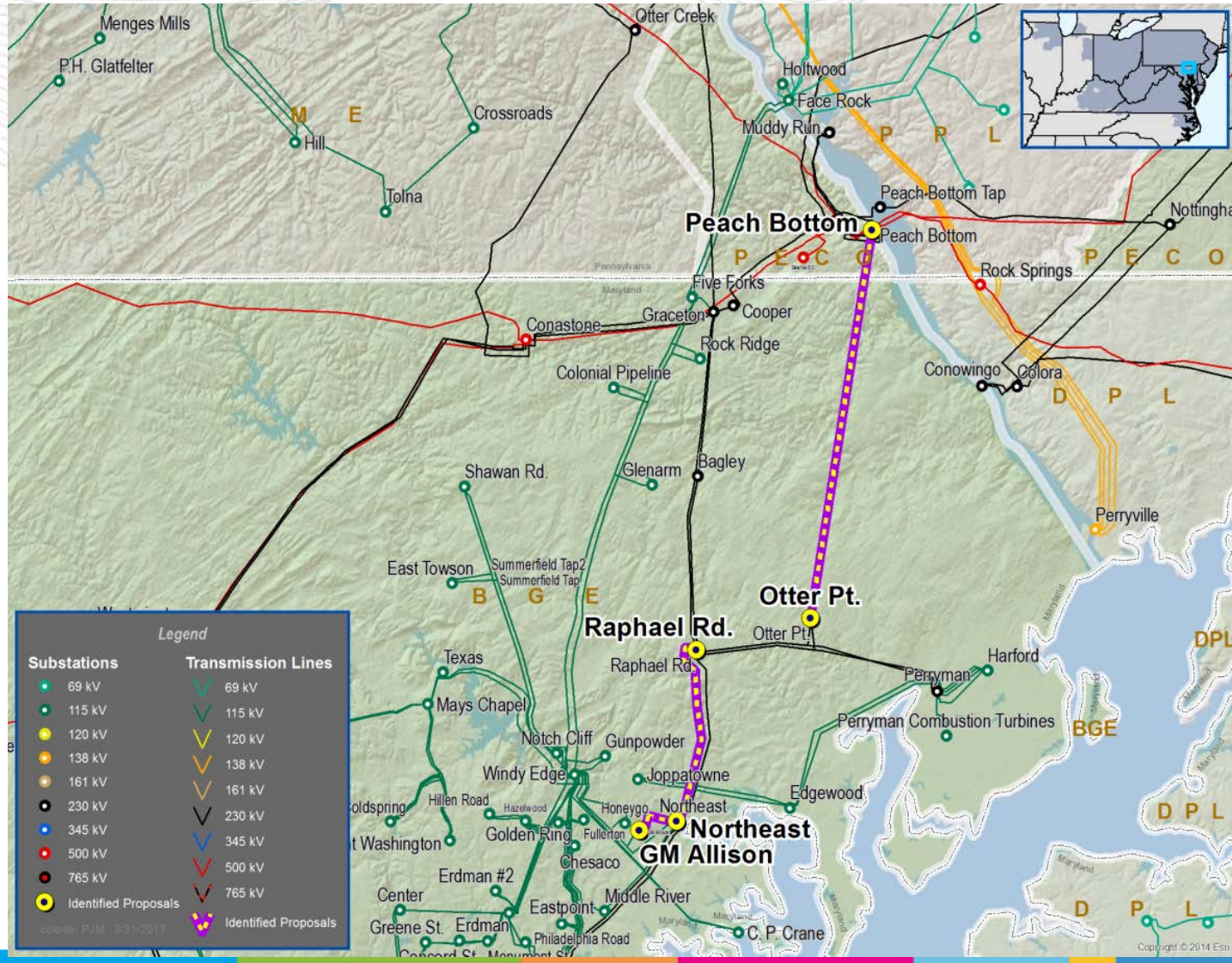
ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV

Notes:



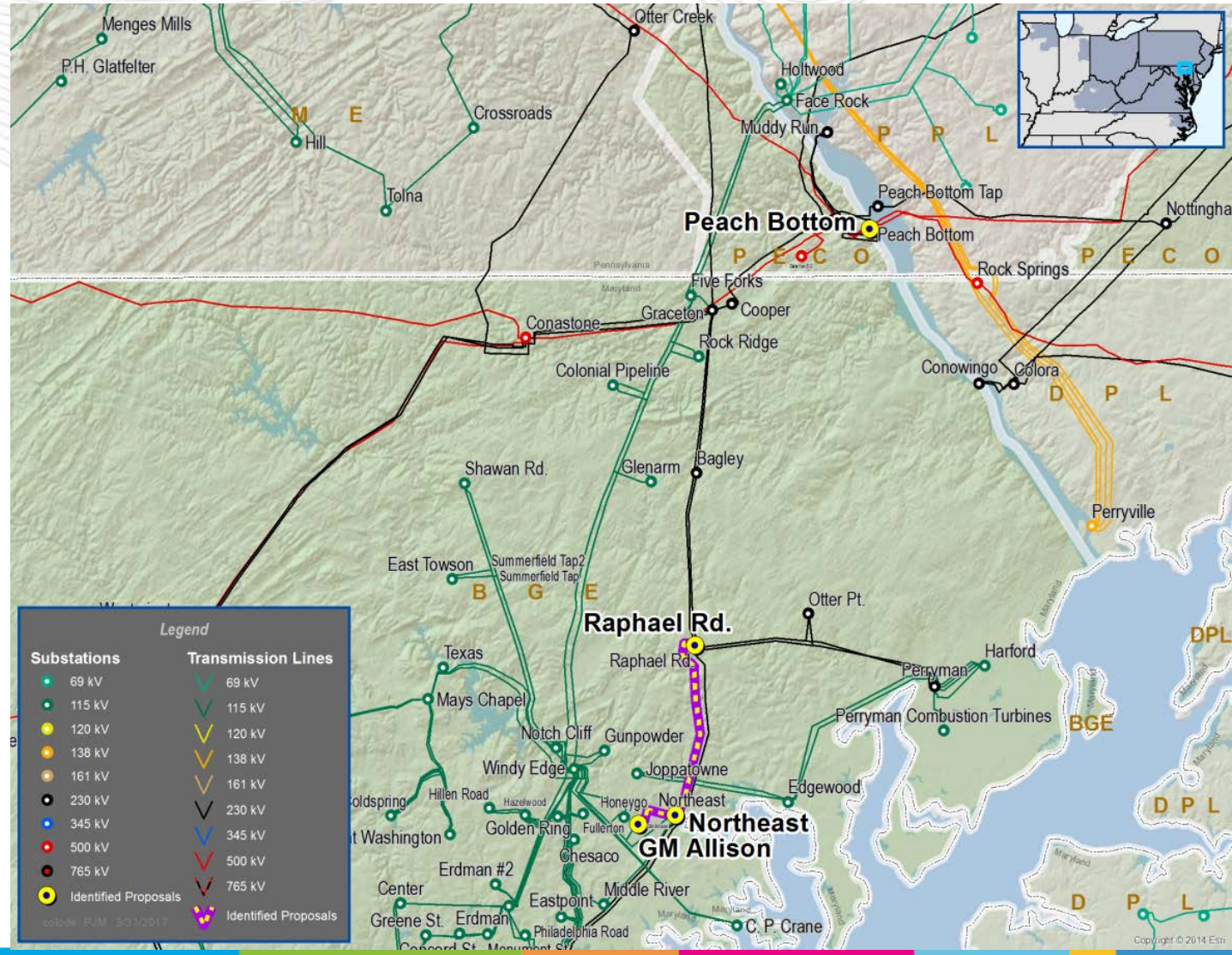
PSEG 1-16A

Project ID: 201617_1-16A
Proposed by: PSEG
Proposed Solution: Greenfield New 230kV Circuit from Peach Bottom to Otter Point.
kV Level: 230 kV
In-Service Cost ($M): $70.5
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



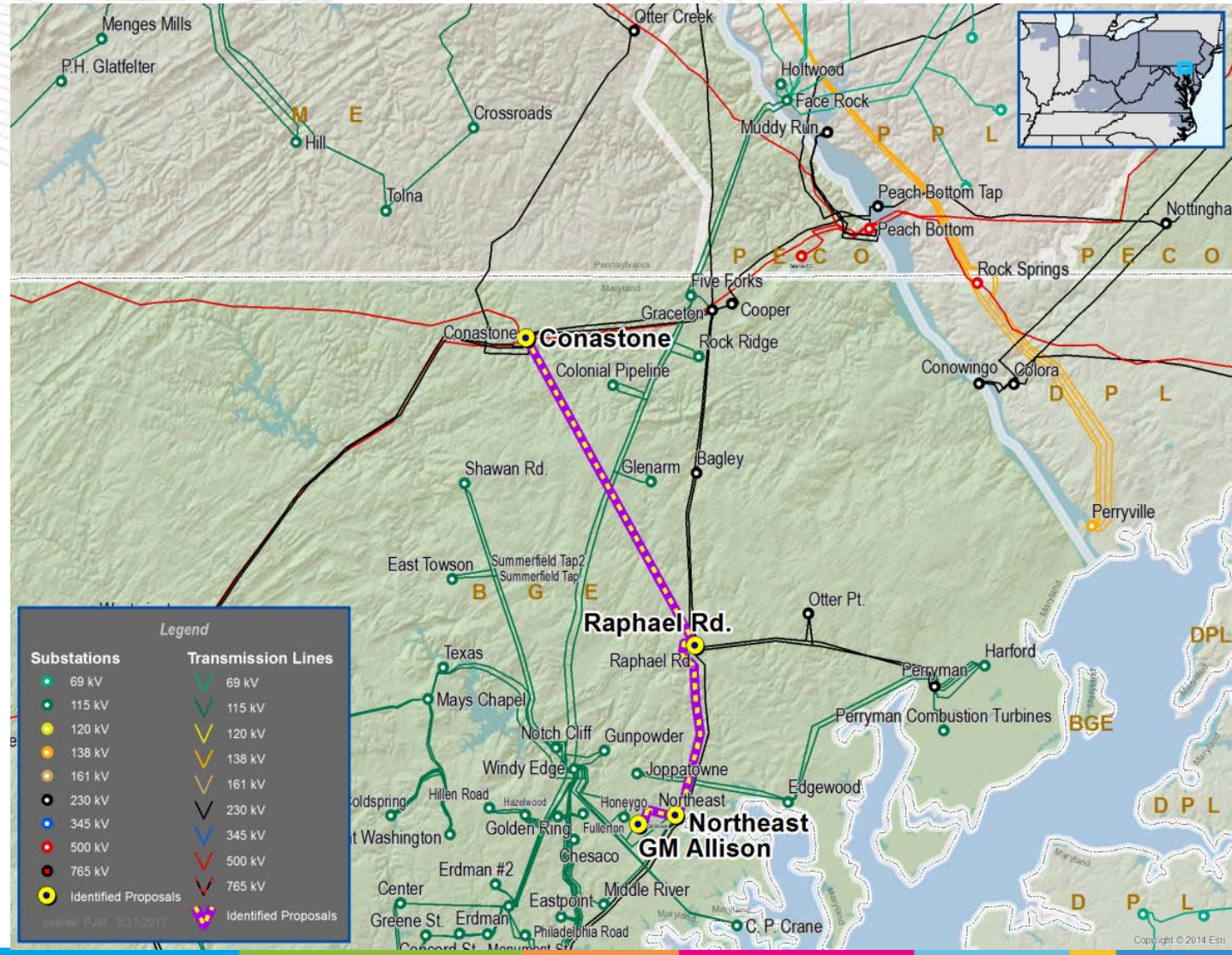
PSEG 1-16B

Project ID: 201617_1-16B
Proposed by: PSEG
Proposed Solution: Greenfield New 230kV circuit from Peach Bottom to Raphael Road.
kV Level: 230 kV
In-Service Cost ($M): $92.2
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



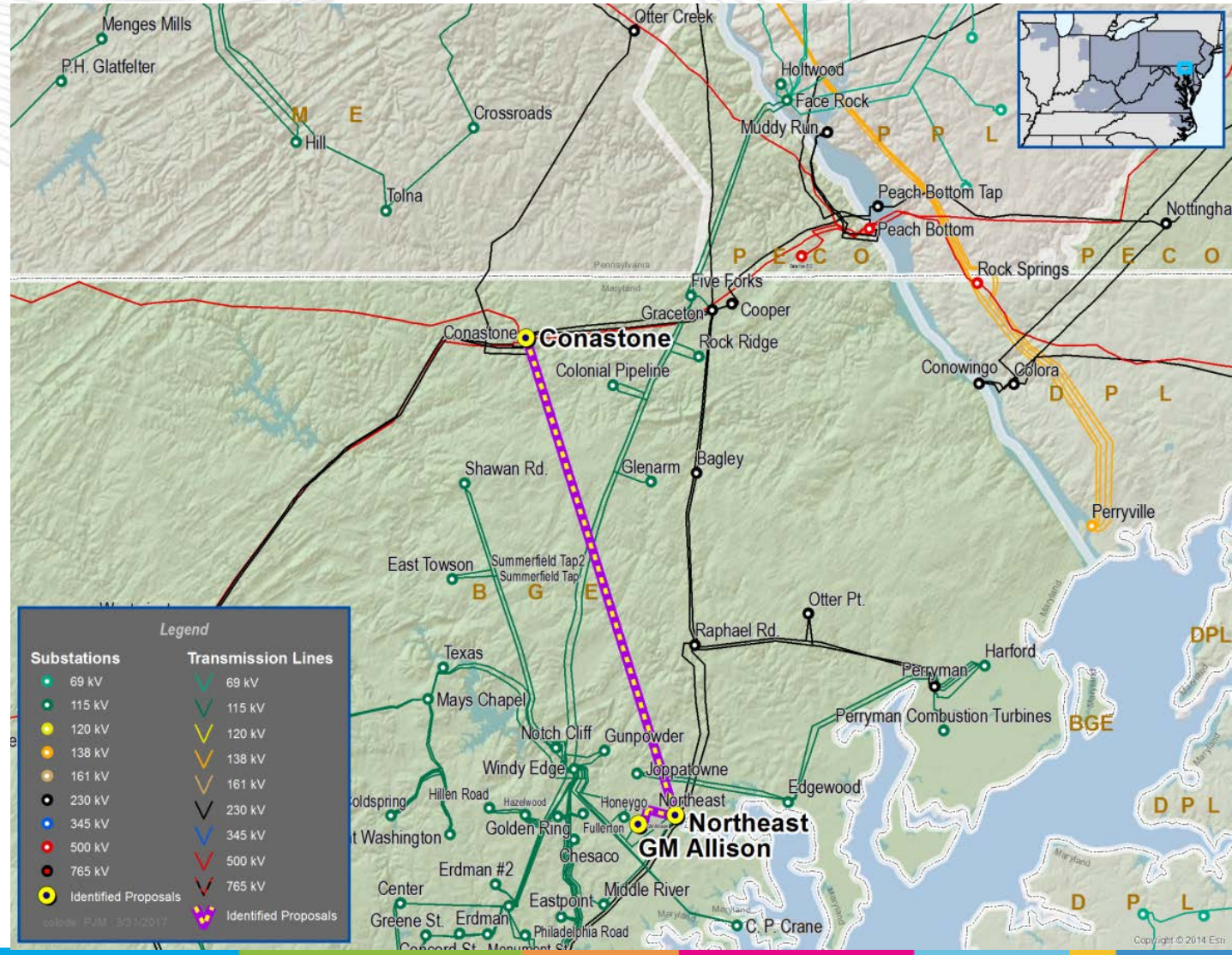
PSEG1-16C

Project ID: 201617_1-16C
Proposed by: PSEG
Proposed Solution: Greenfield New 230kV circuit from Conastone to Raphael Road.
kV Level: 230 kV
In-Service Cost ($M): $87.2
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



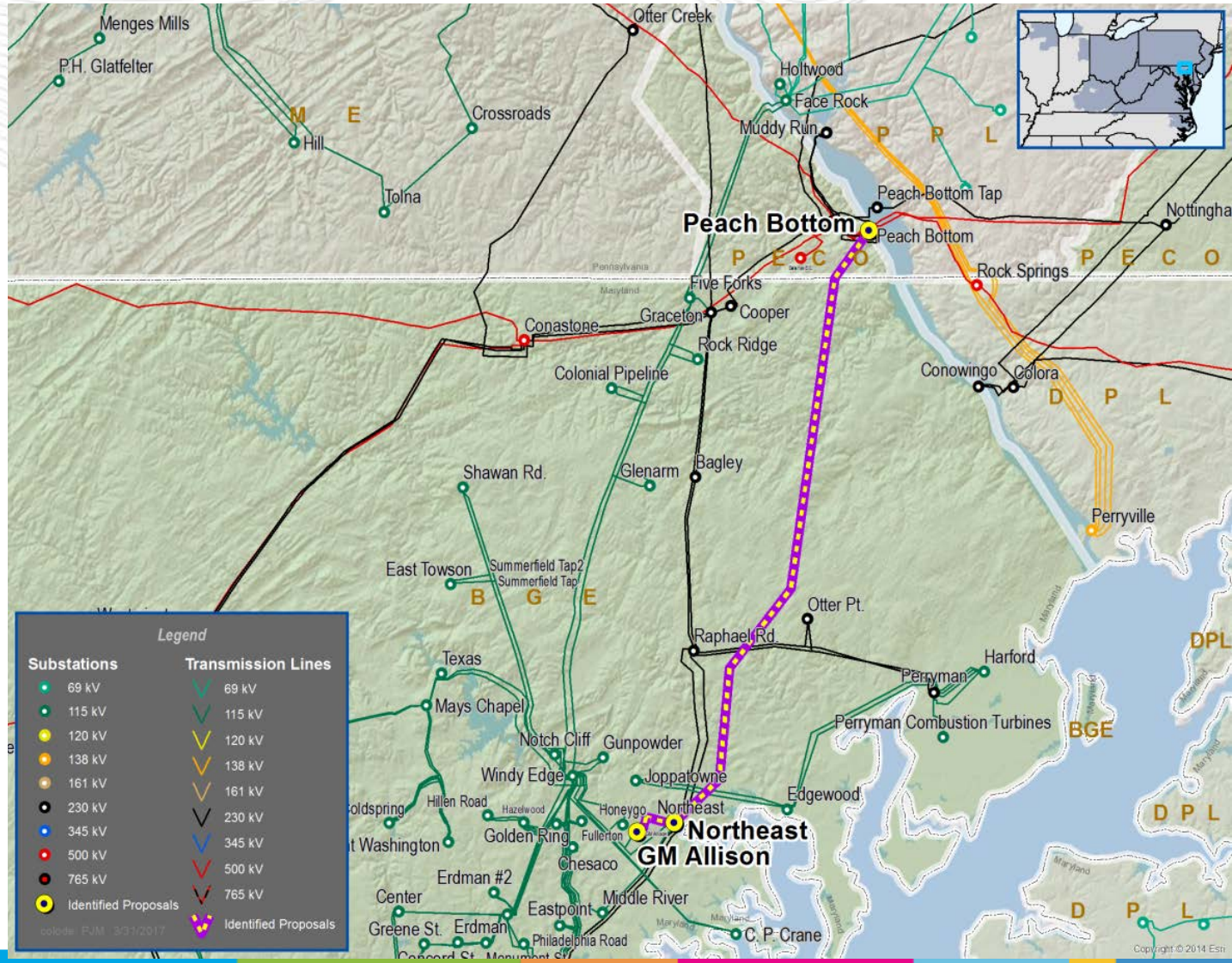
PSEG 1-16D

Project ID: 201617_1-16D
Proposed by: PSEG
Proposed Solution: Greenfield New 230kV circuit from Conastone to Northeast.
kV Level: 230 kV
In-Service Cost ($M): $105.1
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



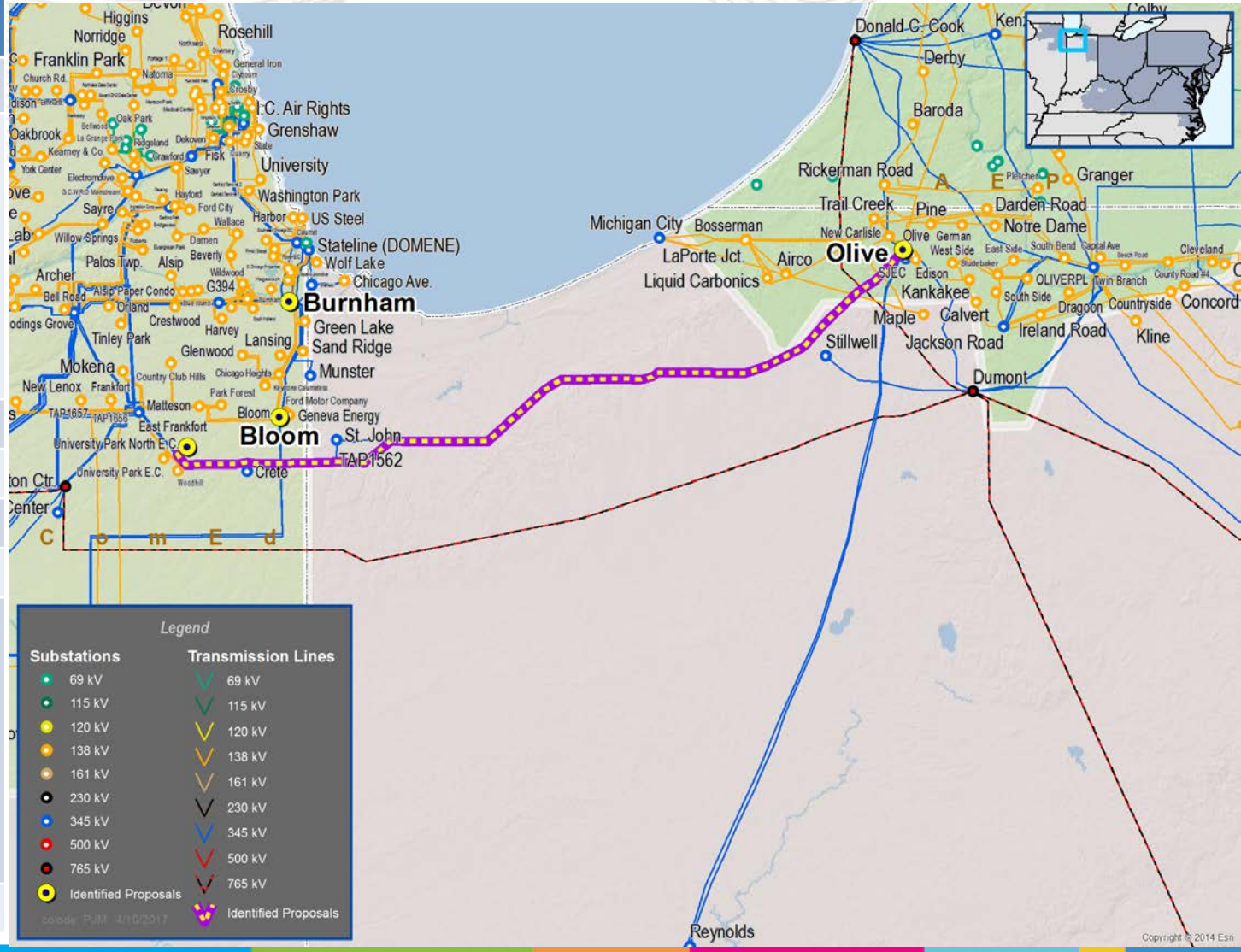
PSEG 1-16E

Project ID: 201617_1-16E
Proposed by: PSEG
Proposed Solution: Greenfield New 230kV circuit from Peach Bottom to Northeast.
kV Level: 230 kV
In-Service Cost ($M): $109.3
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



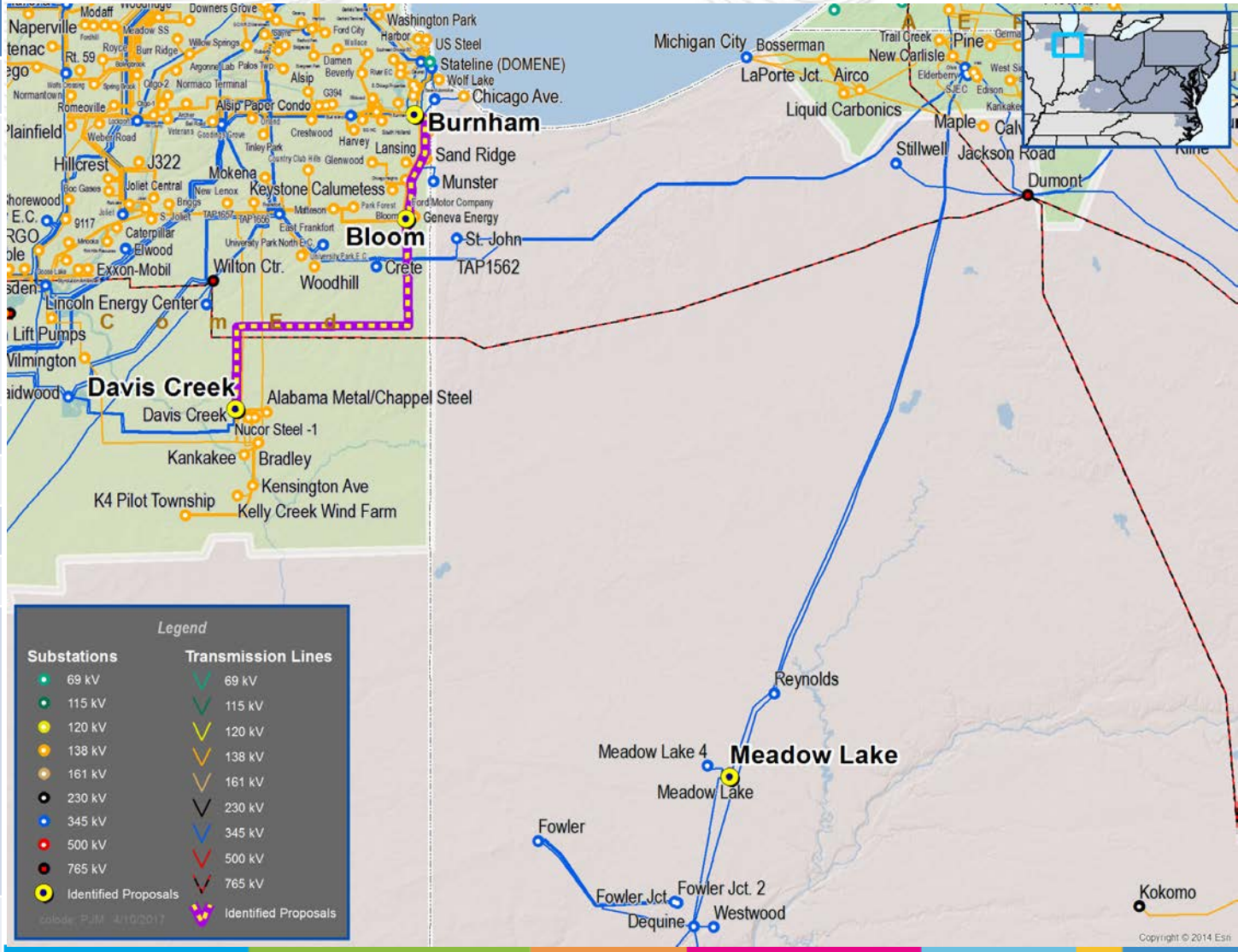
AEP EXELON 1-17A

Project ID: 201617_1-17A
Proposed by: AEP Exelon
Proposed Solution: Greenfield Install a new substion at TSS 142 Cottage Grove and additional upgrades at TSS 179 Bloom and TSS 177 Burnham.
kV Level: 345 kV
In-Service Cost ($M): $66.90
In-Service Date: 2021
Target Zone: ComEd
ME Constraints: E. FRANKFORT - UNIVERSITY PARK 345 kV + RPM Benefits
Notes:



AEP EXELON 1-17B

Project ID: 201617_1-17B
Proposed by: AEP Exelon
Proposed Solution: Greenfield Meadow Lake – Pike Creek 345 kV Double Circuit Greenfield Line and Pike Creek 345 kV Station.
kV Level: 345 kV
In-Service Cost ($M): $197.97
In-Service Date: 2021
Target Zone: ComEd
ME Constraints: OLIVE - BOSSERMAN 138 kV + RPM Benefits
Notes: See supplemental project Olive – Bosserman discussion in the Reliability Update presentation at April TEAC.



NTD 1-18A

Project ID: 201617_1-18A

Proposed by: Northeast Transmission Development

Proposed Solution: Greenfield
Build a double circuit 230 kV line from the existing Graceton substation to a new substation ("Robinson Run") interconnecting the existing Peach Bottom - Delta Power Plant (York) 500 kV line.
Upgrade the Graceton - Northeast double circuit 230 kV circuits and the Rock Ridge - Windy Edge 115 kV circuits. Build a 230/115 kV substation ("Pumpkin Run") interconnecting the Raphael Road - Northeast 230 kV circuits and Crane - Windy Edge 115 kV circuits.

kV Level: 115/230/500 kV

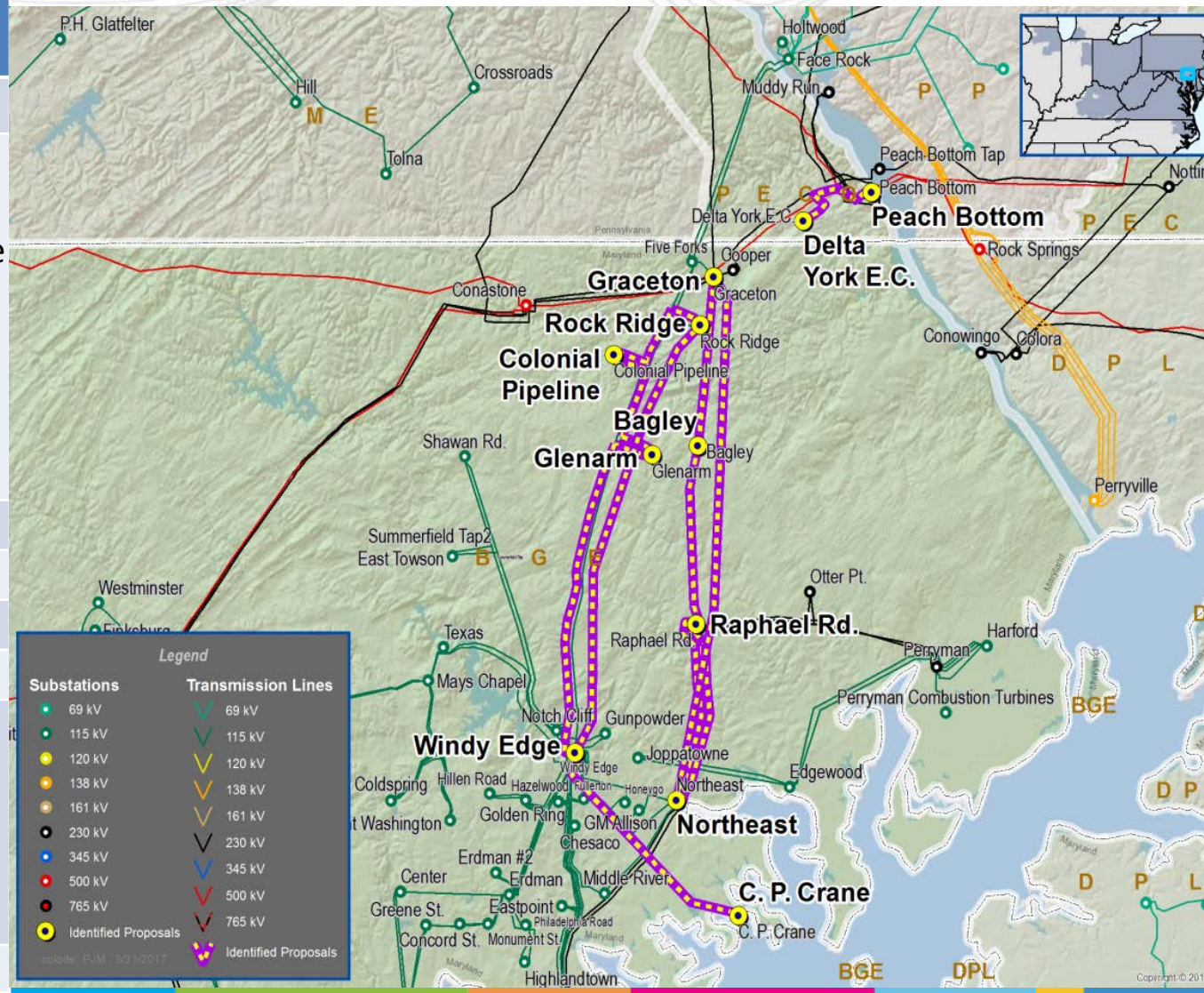
In-Service Cost ($M): $119.8

In-Service Date: 2021

Target Zone: BGE

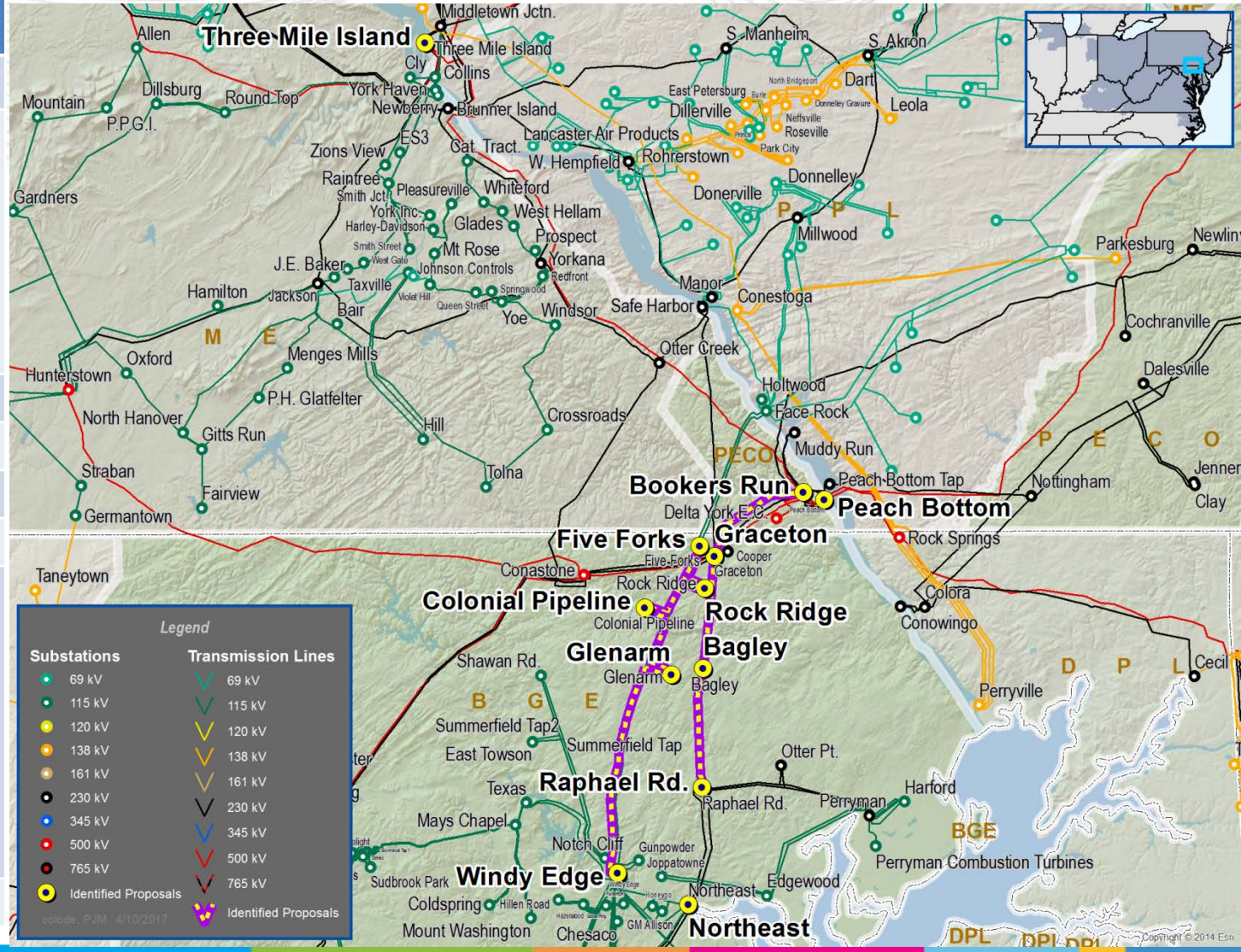
ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV
CONASTONE - PEACH BOTTOM 500 kV

Notes:



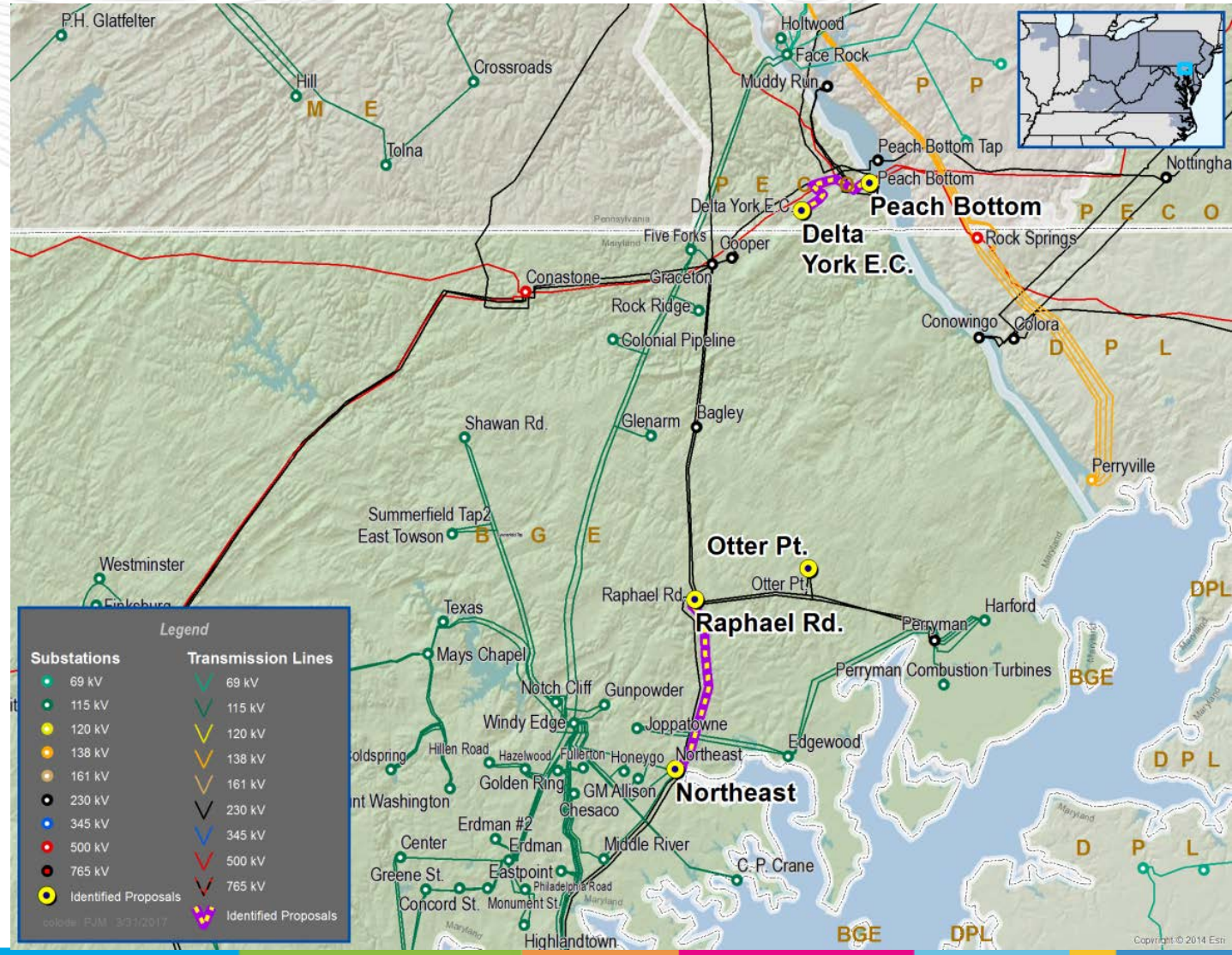
NTD 1-18B

Project ID: 201617_1-18B
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a double circuit 230 kV line from the existing Graceton substation to a new substation ("Bookers Run") interconnecting the existing Peach Bottom - Three Mile Island 500 kV line. Upgrade the Graceton - Northeast double circuit 230 kV circuits and the Five Forks - WIndy Edge 115 kV circuits.
kV Level: 115/230/500 kV
In-Service Cost ($M): $126.1
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV CONASTONE - PEACH BOTTOM 500 kV
Notes:



NTD 1-18C

Project ID: 201617_1-18C
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a double circuit 230 kV line from the existing Otter Point substation to a new substation ("Robinson Run") interconnecting the existing Peach Bottom - Delta Power Plant (York) 500 kV line. Upgrade the Raphael Road - Northeast double circuit 230 kV circuits.
kV Level: 230/500 kV
In-Service Cost ($M): $142.4
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV CONASTONE - PEACH BOTTOM 500 kV
Notes:



NTD 1-18D

Project ID: 201617_1-18D

Proposed by: Northeast Transmission Development

Proposed Solution: Greenfield
Build a double circuit 230 kV line from the existing Otter Point substation to a new substation ("Slate") interconnecting the existing Peach Bottom - Rock Springs 500 kV line. Upgrade the Raphael Road - Northeast double circuit 230 kV circuits. Build a 230/115 kV substation ("Pumpkin Run") interconnecting the Raphael Road - Northeast 230 kV circuits and Crane - Windy Edge 115 kV circuits.

kV Level: 115/230/500 kV

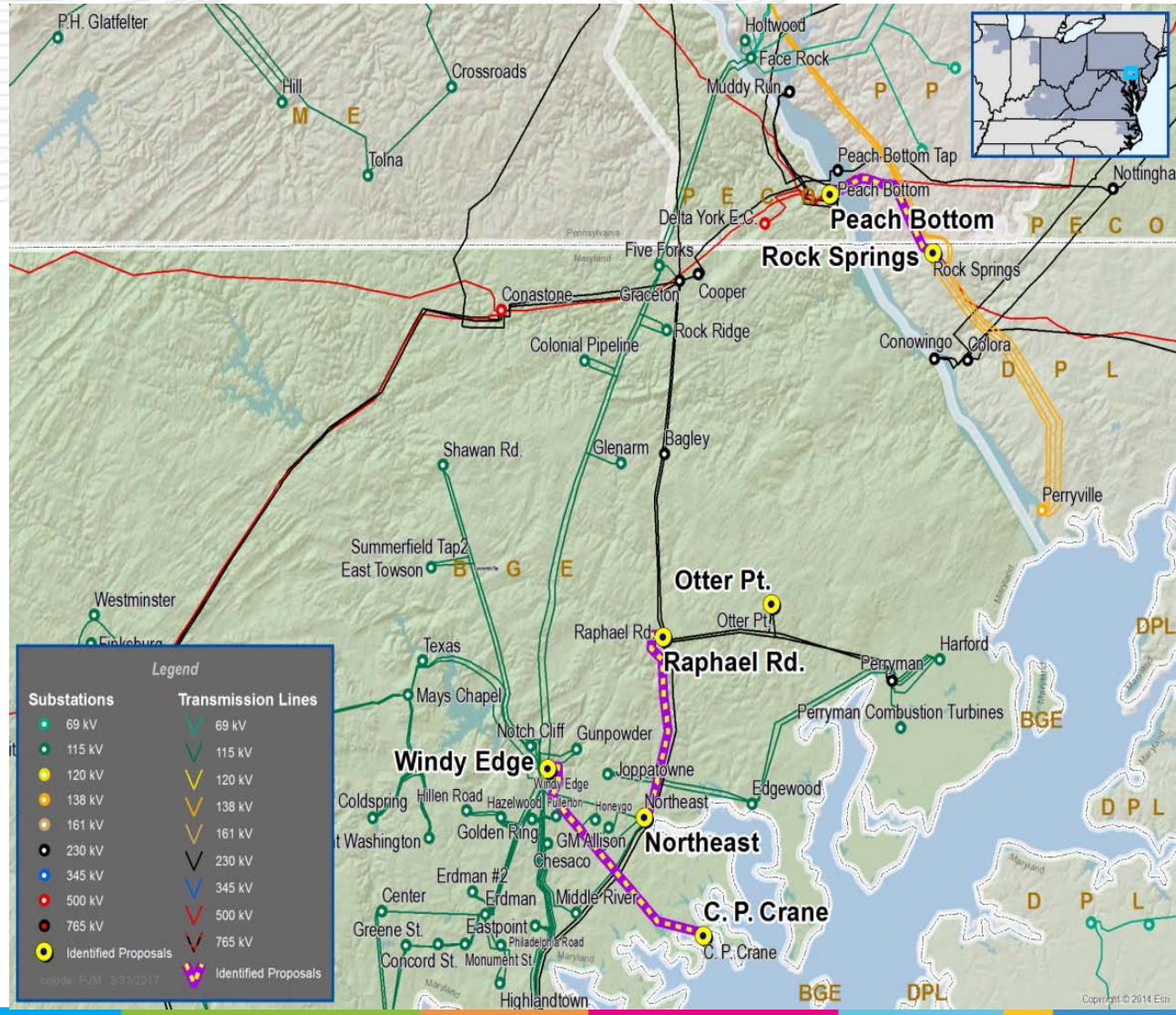
In-Service Cost ($M): $157.9

In-Service Date: 2021

Target Zone: BGE

ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV
CONASTONE - PEACH BOTTOM 500 kV

Notes:



NTD 1-18E

Project ID: 201617_1-18E

Proposed by: Northeast Transmission Development

Proposed Solution: Greenfield
Build a double circuit 230 kV line from the existing Otter Point substation to a new substation ("Slate") interconnecting the existing Peach Bottom - Rock Springs 500 kV line. Upgrade the Raphael Road - Northeast double circuit 230 kV circuits and both Rock Ridge - WIndy Edge 115 kV circuits.

kV Level: 115/230/500 kV

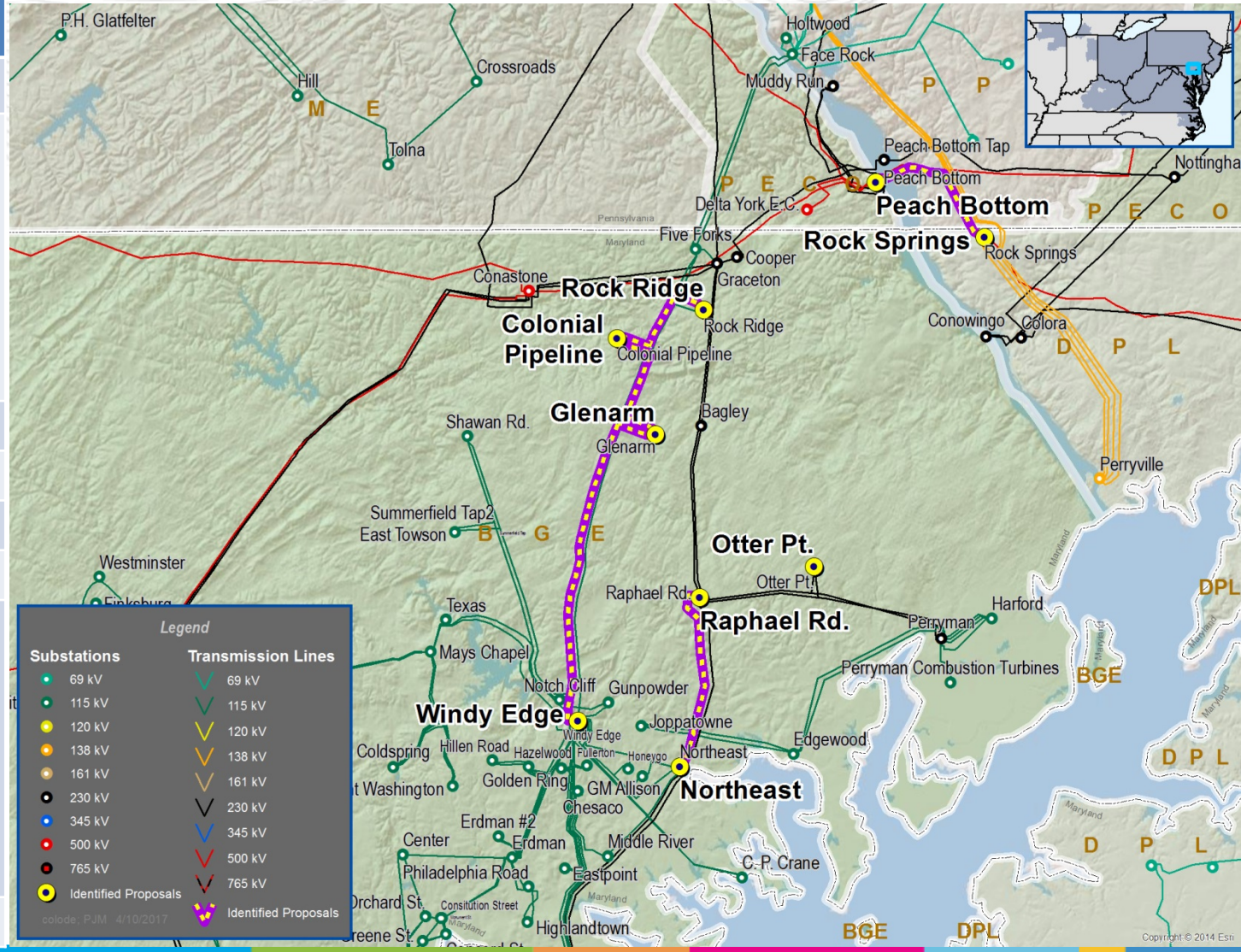
In-Service Cost ($M): $145.4

In-Service Date: 2021

Target Zone: BGE

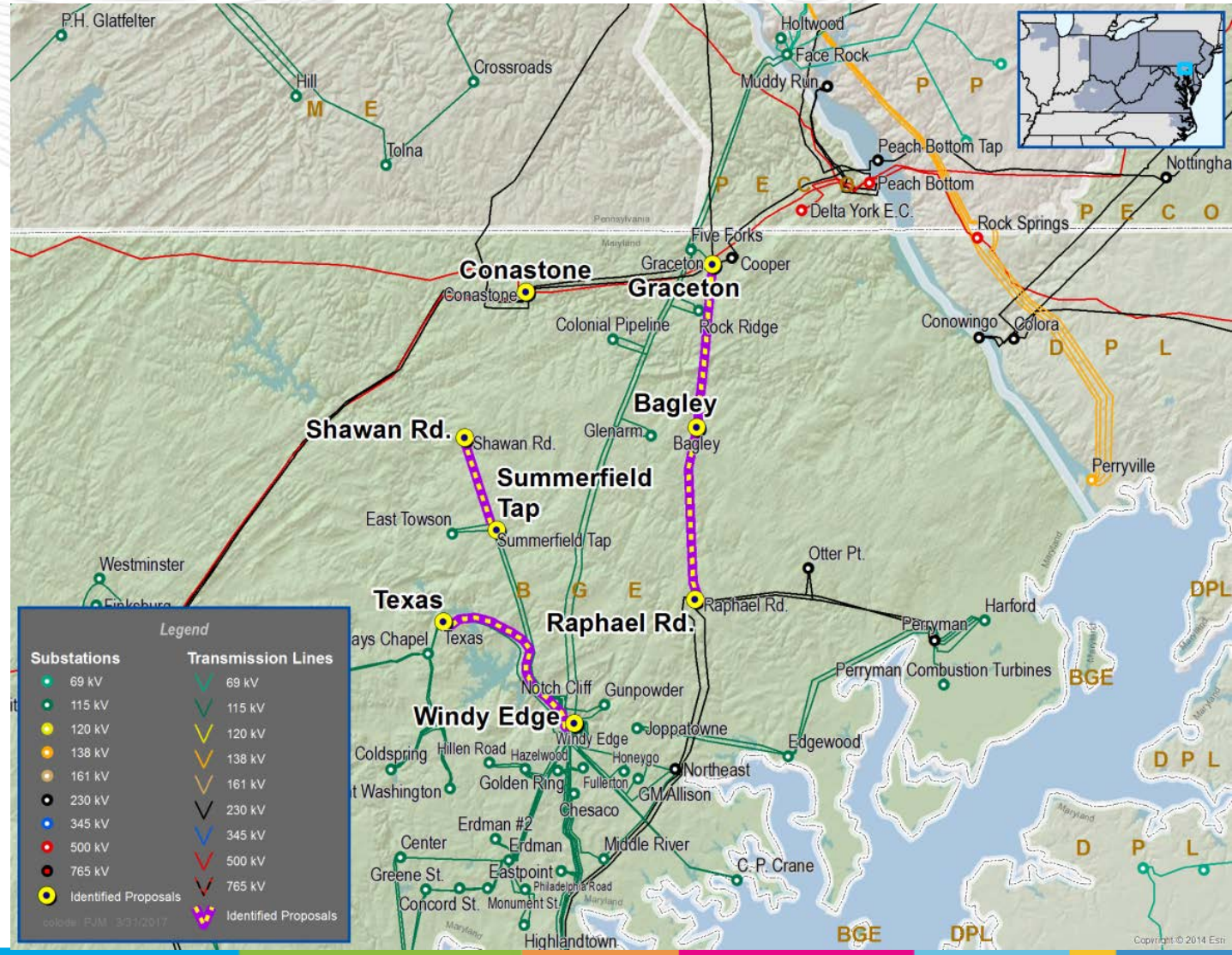
ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV
CONASTONE - PEACH BOTTOM 500 kV

Notes:



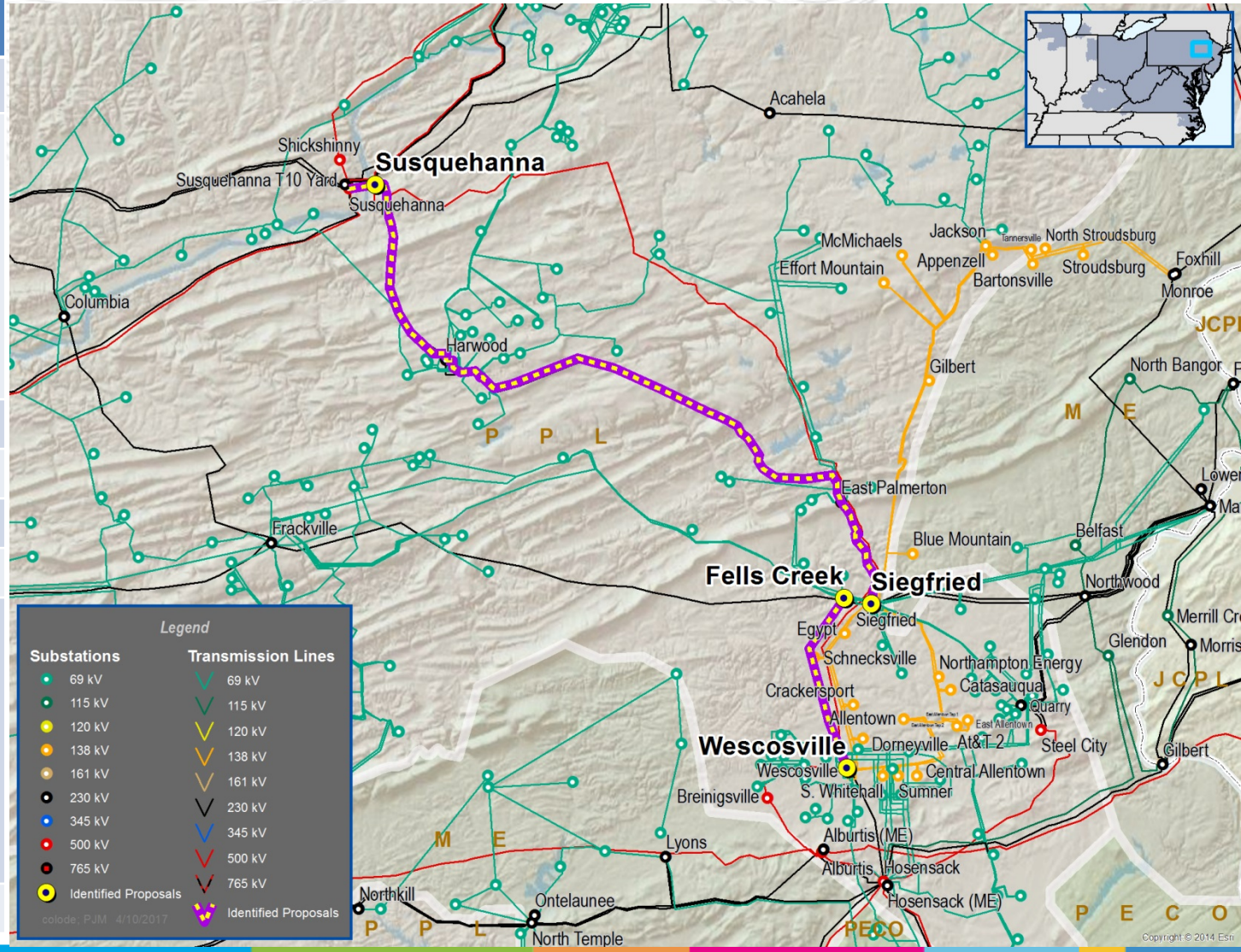
NTD 1-18F

Project ID: 201617_1-18F
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a double circuit 230 kV line from the existing Conastone substation to a new substation ("Fitzhugh Run") interconnecting the existing Shawan Road - Summerfield 115 kV transmission lines and Windy Edge - Texas 115 kV transmission lines.
kV Level: 115/230 kV
In-Service Cost ($M): $90.50
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV CONASTONE - PEACH BOTTOM 500 kV
Notes:



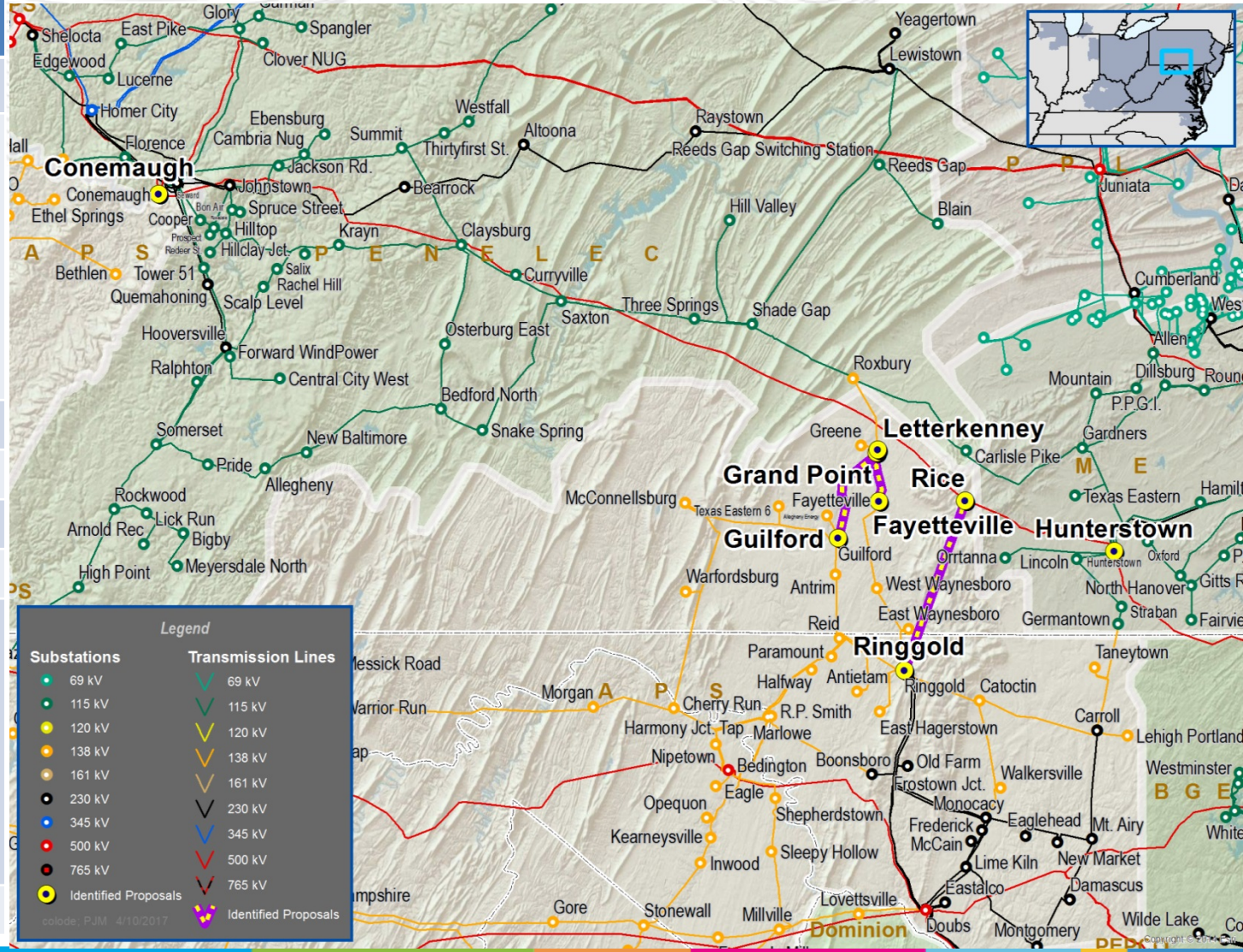
NTD 1-18G

Project ID: 201617_1-18G
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a 500/230 kV substation ("Fells Creek") interconnecting the existing Susquehanna - Wescosville 500 kV line and the existing Siegfried 230 kV substation.
kV Level: 230/500 kV
In-Service Cost ($M): $31.20
In-Service Date: 2021
Target Zone: PJM PPL
ME Constraints: SUSQUEHANNA - HARWOOD 230 kV
Notes:



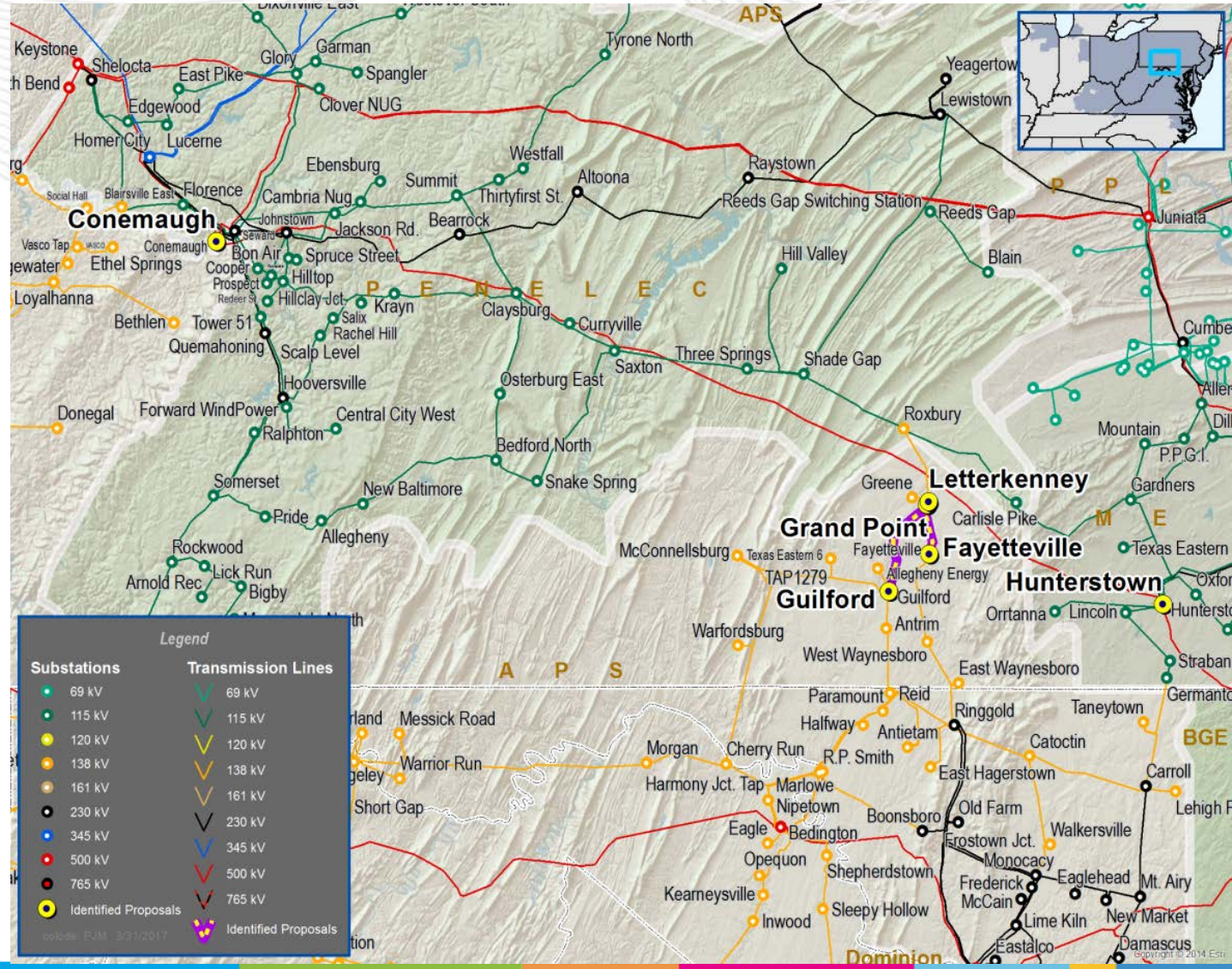
NTD 1-18H

Project ID: 201617_1-18H
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a single circuit 138 kV line from the existing Grand Point 138 kV substation to a new substation ("Green Ridge") interconnecting the planned Rice - Ringgold 230 kV transmission line.
kV Level: 138/230 kV
In-Service Cost ($M): $16.30
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I: AP SOUTH
Notes:



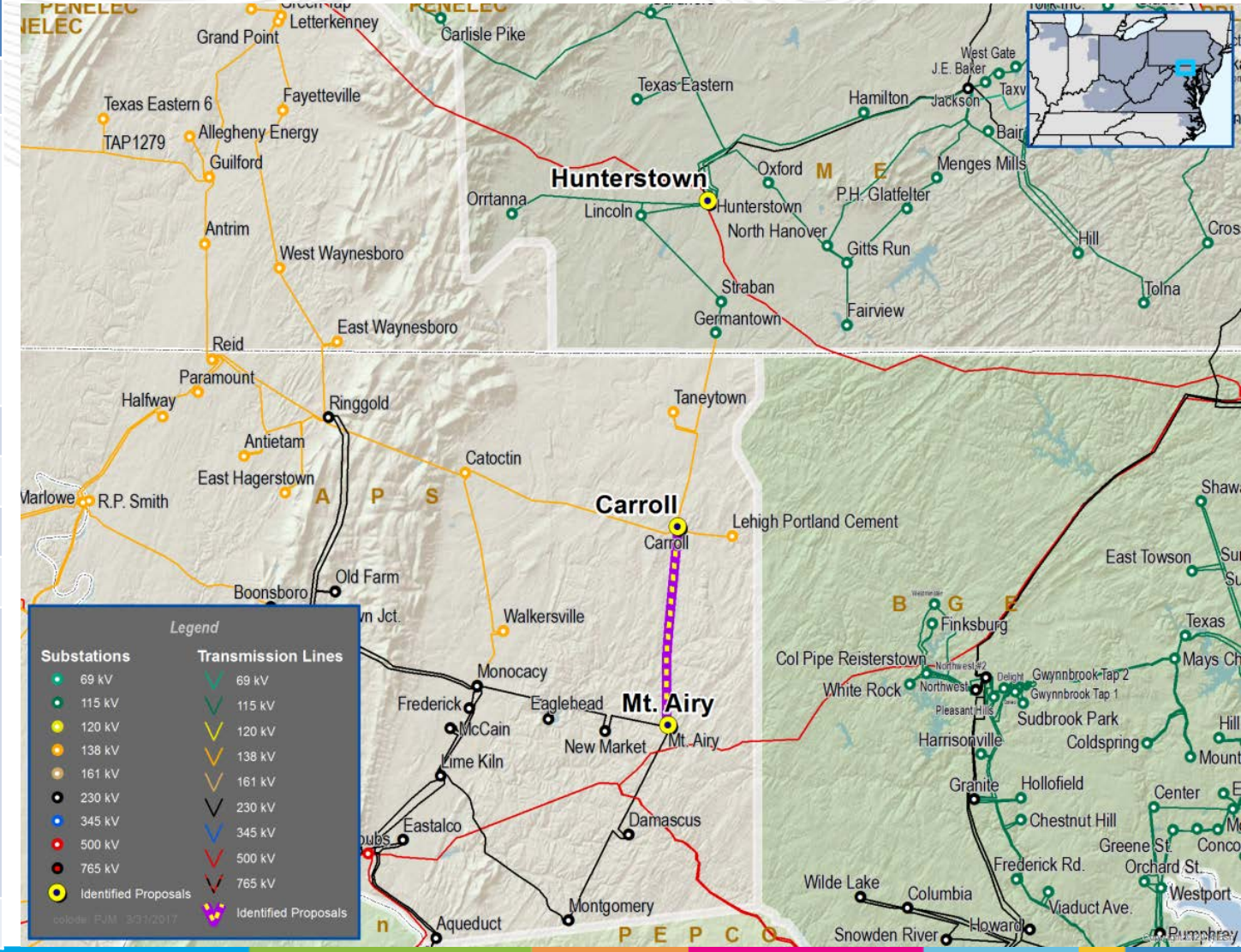
NTD 1-18I

Project ID: 201617_1-18I
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a single circuit 138 kV line from the existing Grand Point 138 kV substation to a new substation ("Green Ridge") interconnecting the existing Conemaugh - Hunterstown 500 kV transmission line.
kV Level: 138/500 kV
In-Service Cost ($M): $31.40
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I: AP SOUTH
Notes:



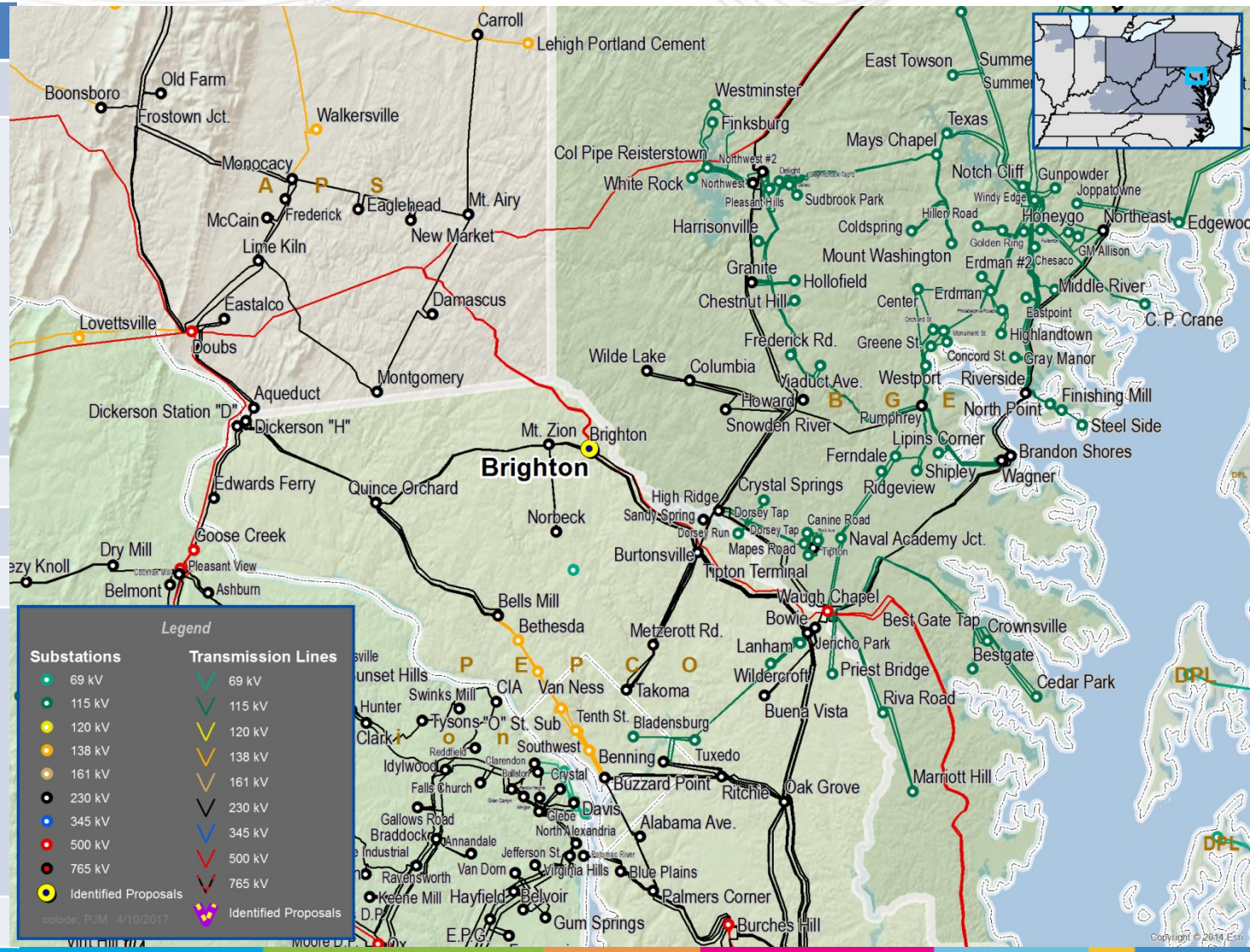
NTD 1-18J

Project ID: 201617_1-18J
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a single circuit 230 kV line from the existing Hunterstown substation to a new 230 kV switchyard ("Green Valley") interconnecting the Carroll - Mt. Airy 230 kV transmission line.
kV Level: 230 kV
In-Service Cost ($M): $40.20
In-Service Date: 2021
Target Zone:
ME Constraints: I: AP SOUTH, CENTRAL RINGGOLD - OLD FARM GERMANTOWN - STRABAN
Notes:



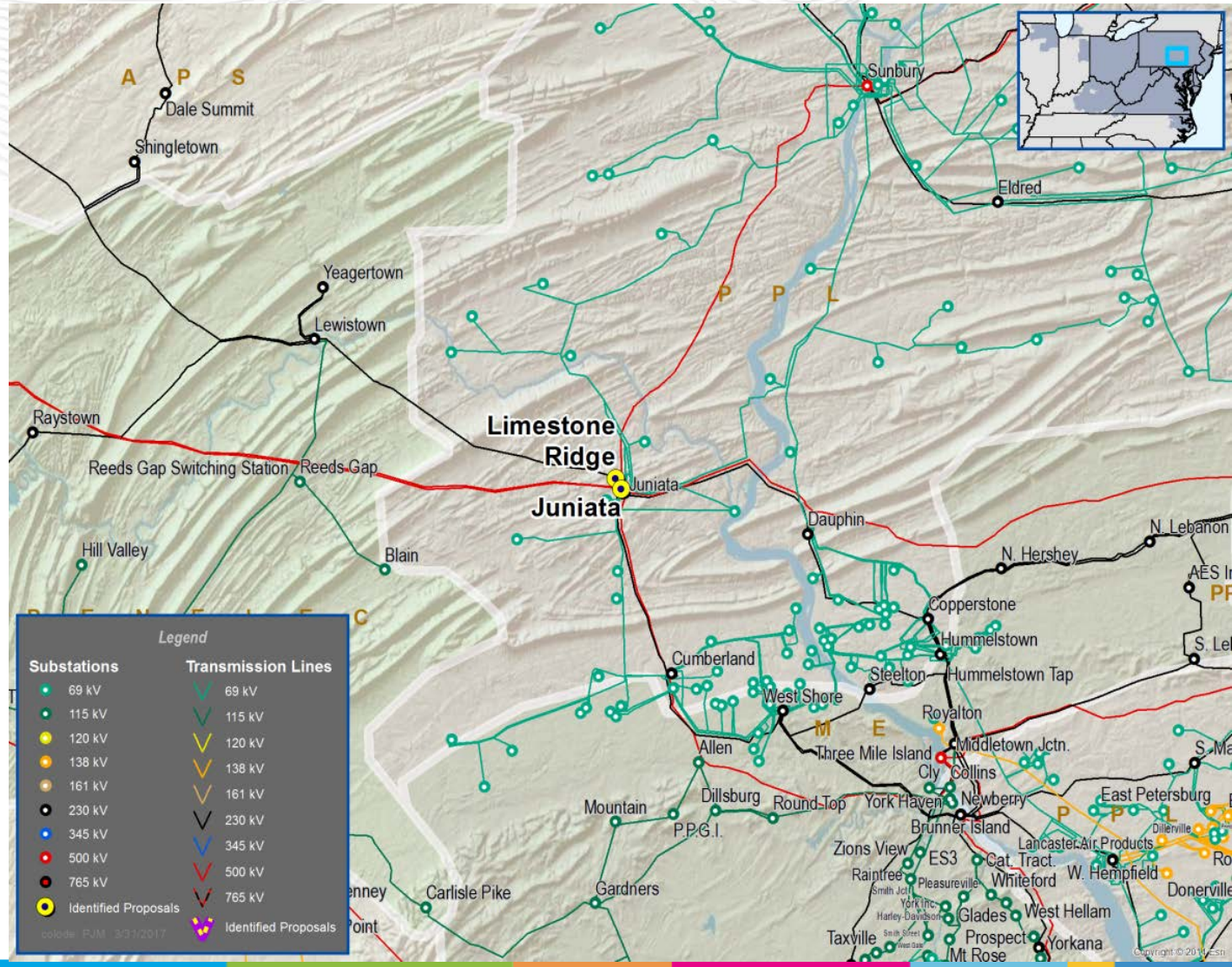
NTD1-18K

Project ID: 201617_1-18K
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build 600 MVAR Static VAR Compensation ("James Creek") interconnected to Brighton 500 kV Substation.
kV Level: 500 kV
In-Service Cost ($M): $39.70
In-Service Date: 2021
Target Zone:
ME Constraints: I:BC_PEP
Notes:



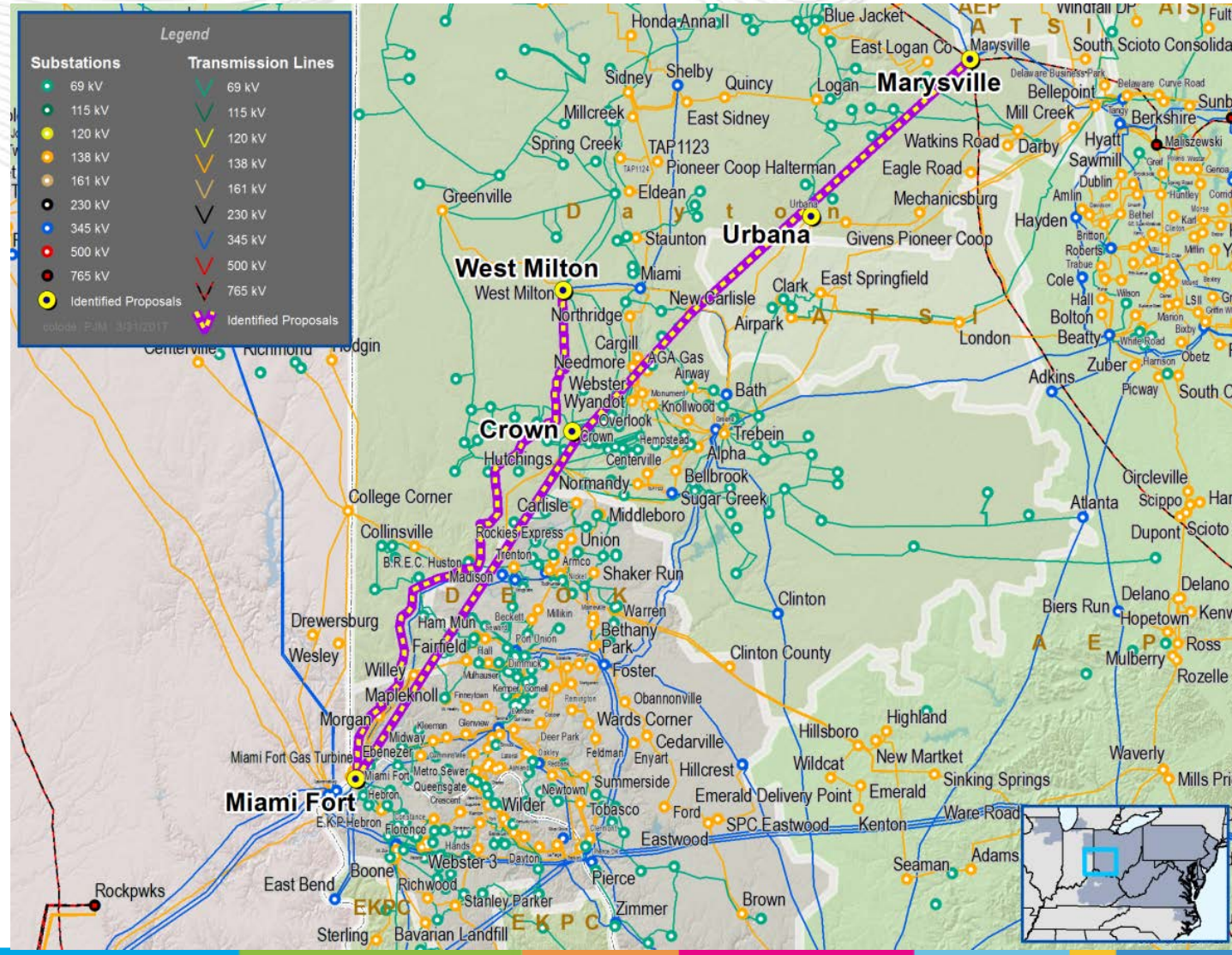
NTD1-18L

Project ID: 201617_1-18L
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build 600 MVAR Static VAR Compensation ("Limestone Ridge") interconnected to Juniata 500 kV Substation.
kV Level: 500 kV
In-Service Cost ($M): $38.60
In-Service Date: 2021
Target Zone:
ME Constraints: I:5004/5005, CENTRAL
Notes:



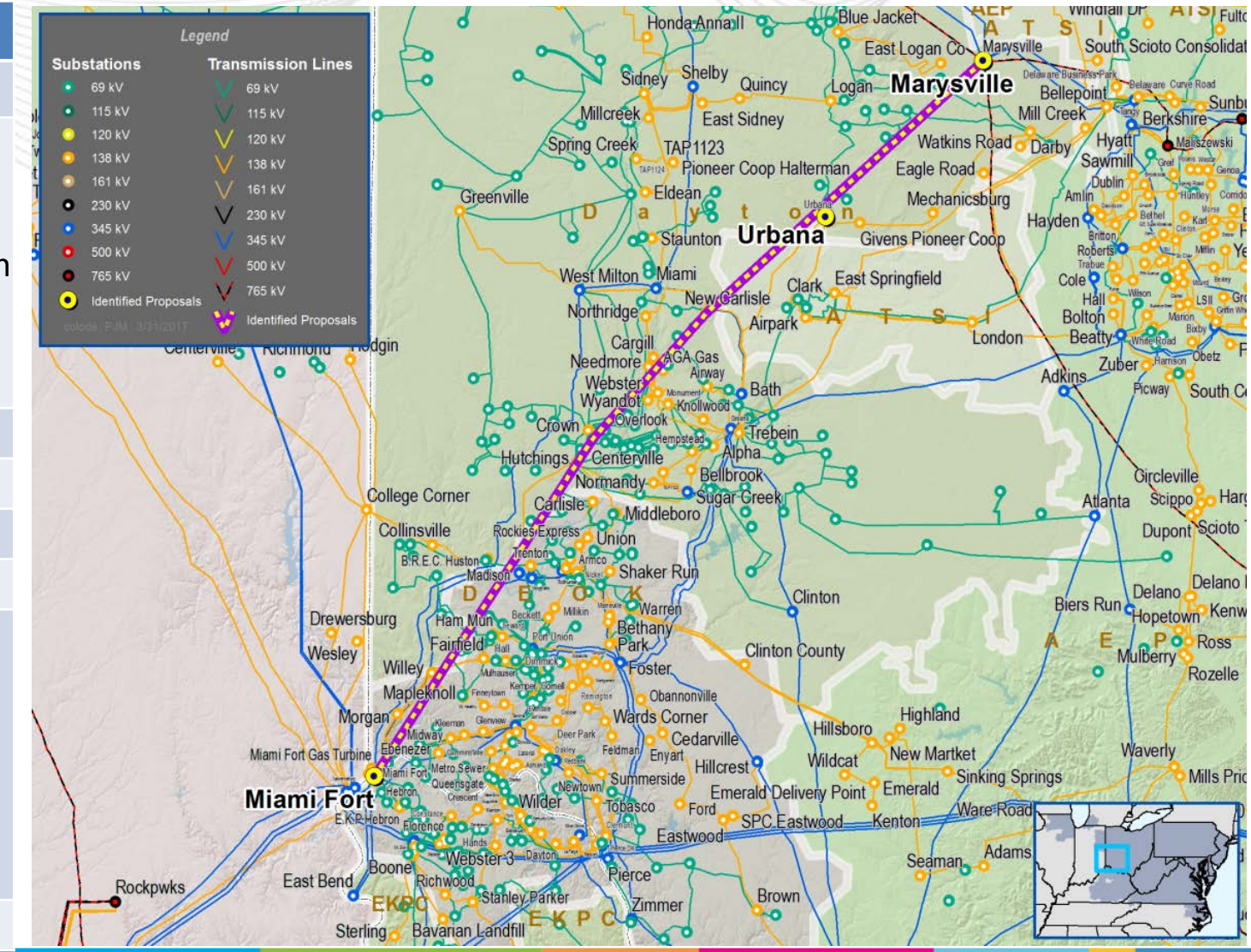
NTD 1-18M

Project ID: 201617_1-18M
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a single circuit 345 kV line from the existing Marysville 345 kV substation to the existing Miami 345 kV substation with a new intermediate substation ("Bull Branch") interconnecting to the existing Urbana 138 kV substation. Build a new 138 kV transmission line interconnecting the existing Crown 138 kV substation to a new 345/138 kV substation ("Spring Run") interconnecting the existing West Milton - Miami Fort 345 kV transmission line.
kV Level: 138/345 kV
In-Service Cost ($M): $117.30
In-Service Date: 2021
Target Zone: AEP
ME Constraints: Dayton LDA RPM Benefits
Notes:



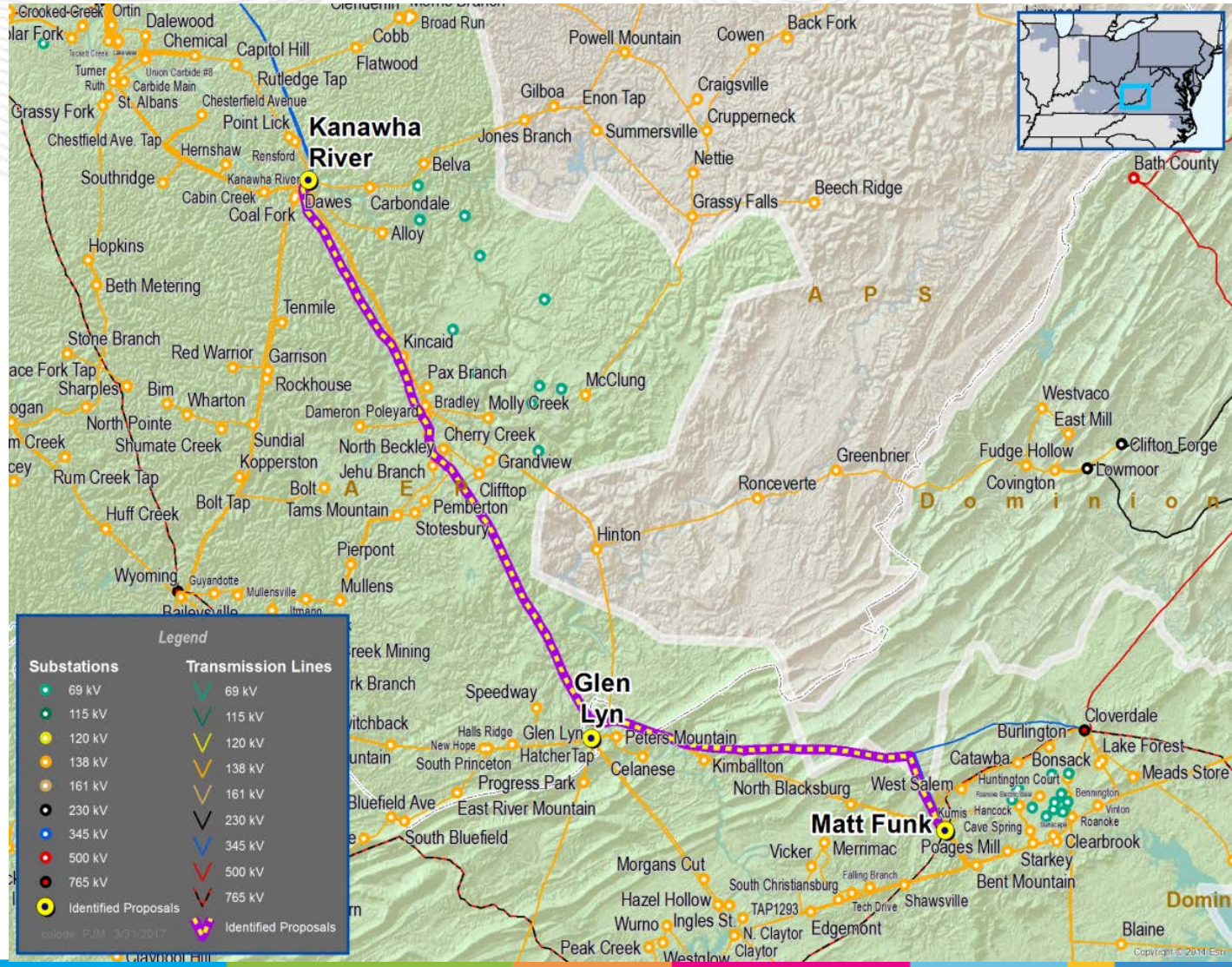
NTD1-18N

Project ID: 201617_1-18N
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a single circuit 345 kV line from the existing Marysville 345 kV substation to the existing Miami 345 kV substation with a new intermediate substation ("Bull Branch") interconnecting to the existing Urbana 138 kV substation.
kV Level: 138/345 kV
In-Service Cost ($M): $97.70
In-Service Date: 2021
Target Zone: AEP
ME Constraints: Dayton LDA RPM Benefits
Notes:



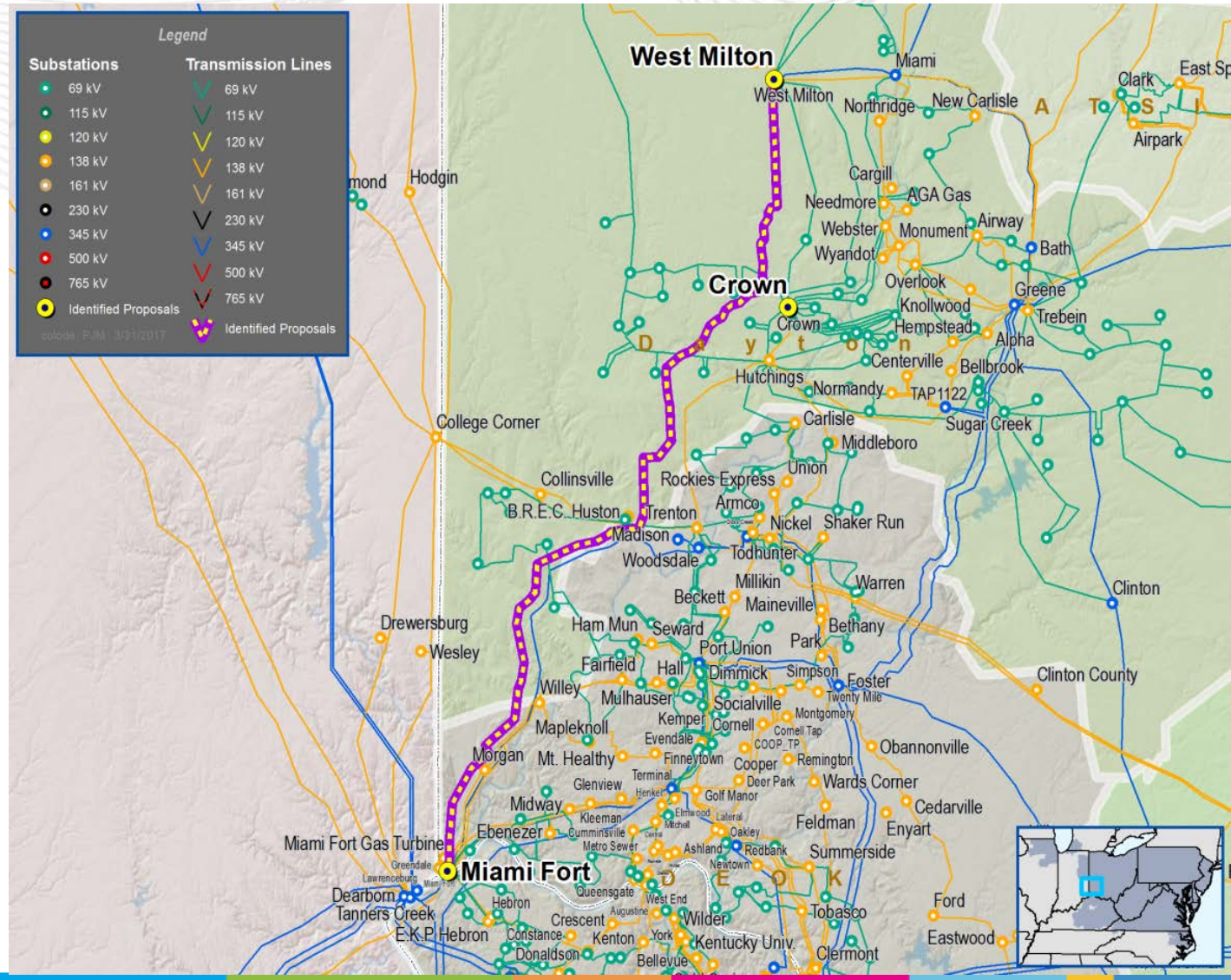
NTD 1-18O

Project ID: 201617_1-18O
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a double circuit 138 kV line from the existing Glen Lyn 138 kV substation to a new substation ("Smith Branch") interconnecting the existing Kanawha River - Matt Funk 345 kV transmission line.
kV Level: 138/345 kV
In-Service Cost ($M): $23.90
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I: AEP-DOM
Notes:



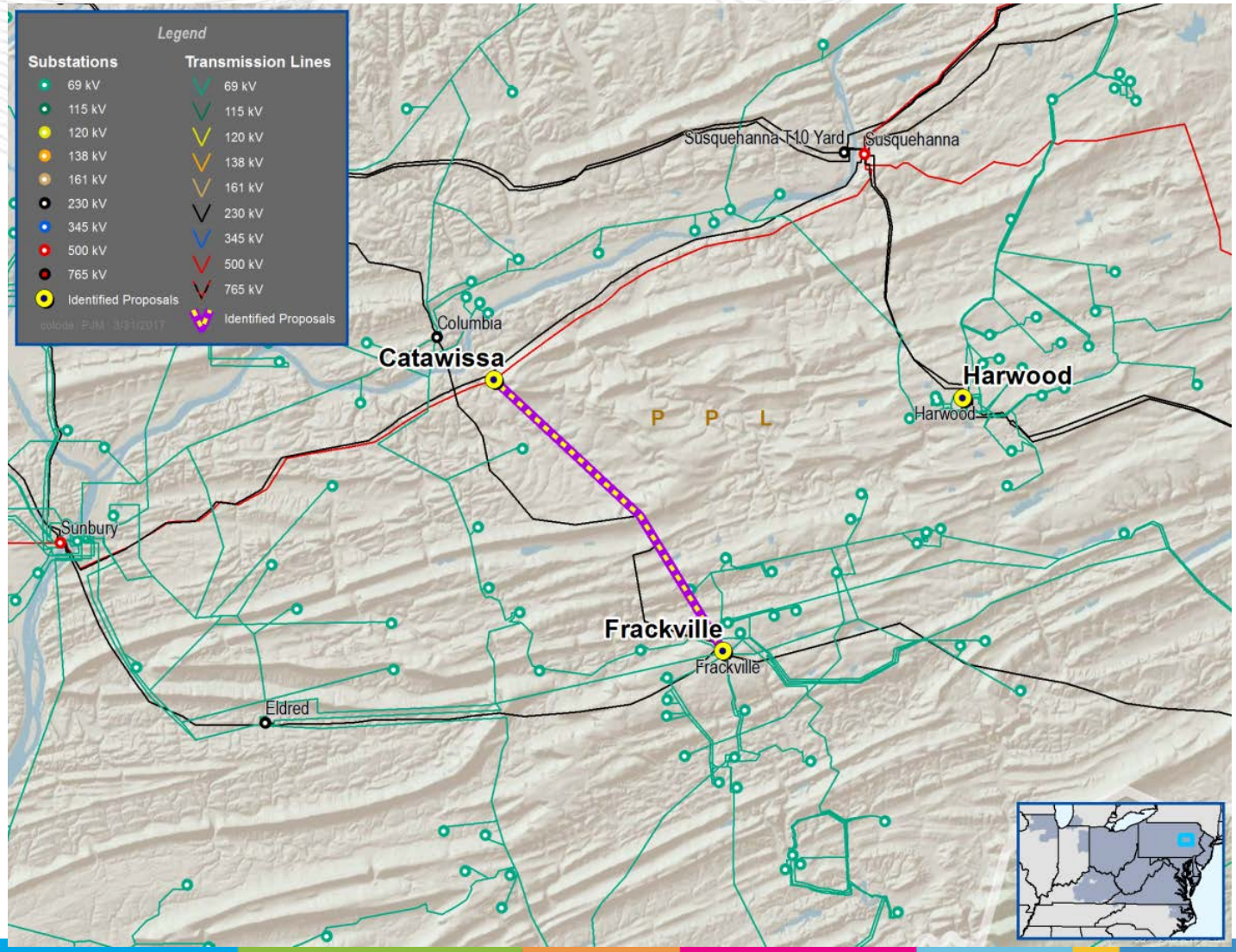
NTD1-18P

Project ID: 201617_1-18P
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a new 138 kV transmission line interconnecting the existing Crown 138 kV substation to a new 345/138 kV substation ("Spring Run") interconnecting the existing West Milton - Miami Fort 345 kV transmission line.
kV Level: 138/345 kV
In-Service Cost ($M): $19.70
In-Service Date: 2021
Target Zone: Dayton
ME Constraints: Dayton LDA RPM Benefits
Notes:



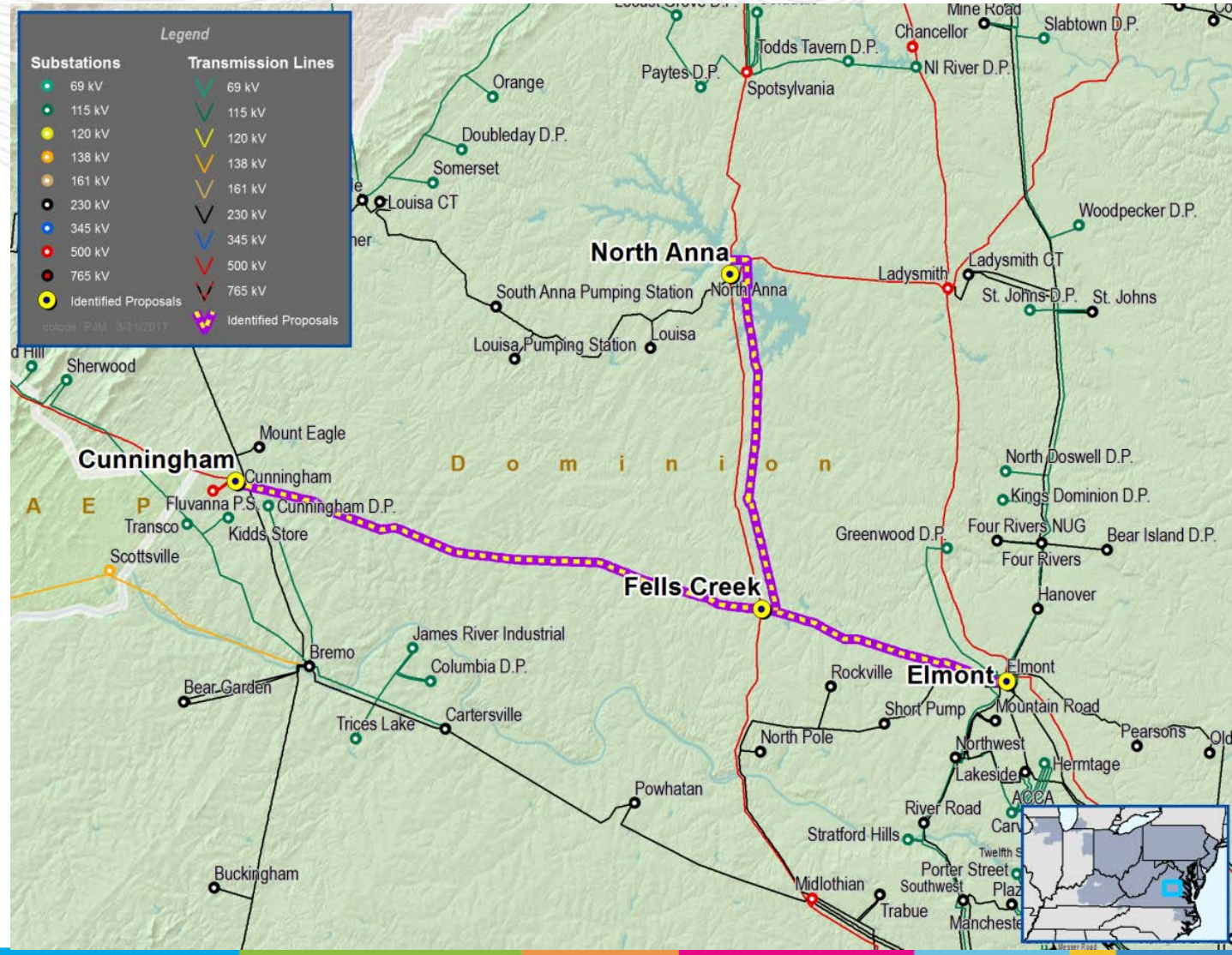
NTD 1-18Q

Project ID: 201617_1-18Q
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Construct a single circuit 230 kV line from the existing Harwood substation to a new switching station ("Trexler Run") interconnecting the Catawissa - Frackville 230 kV transmission line.
kV Level: 230 kV
In-Service Cost ($M): $32.00
In-Service Date: 2021
Target Zone: PPL
ME Constraints: SUSQUEHANNA - HARWOOD 230 kV
Notes:



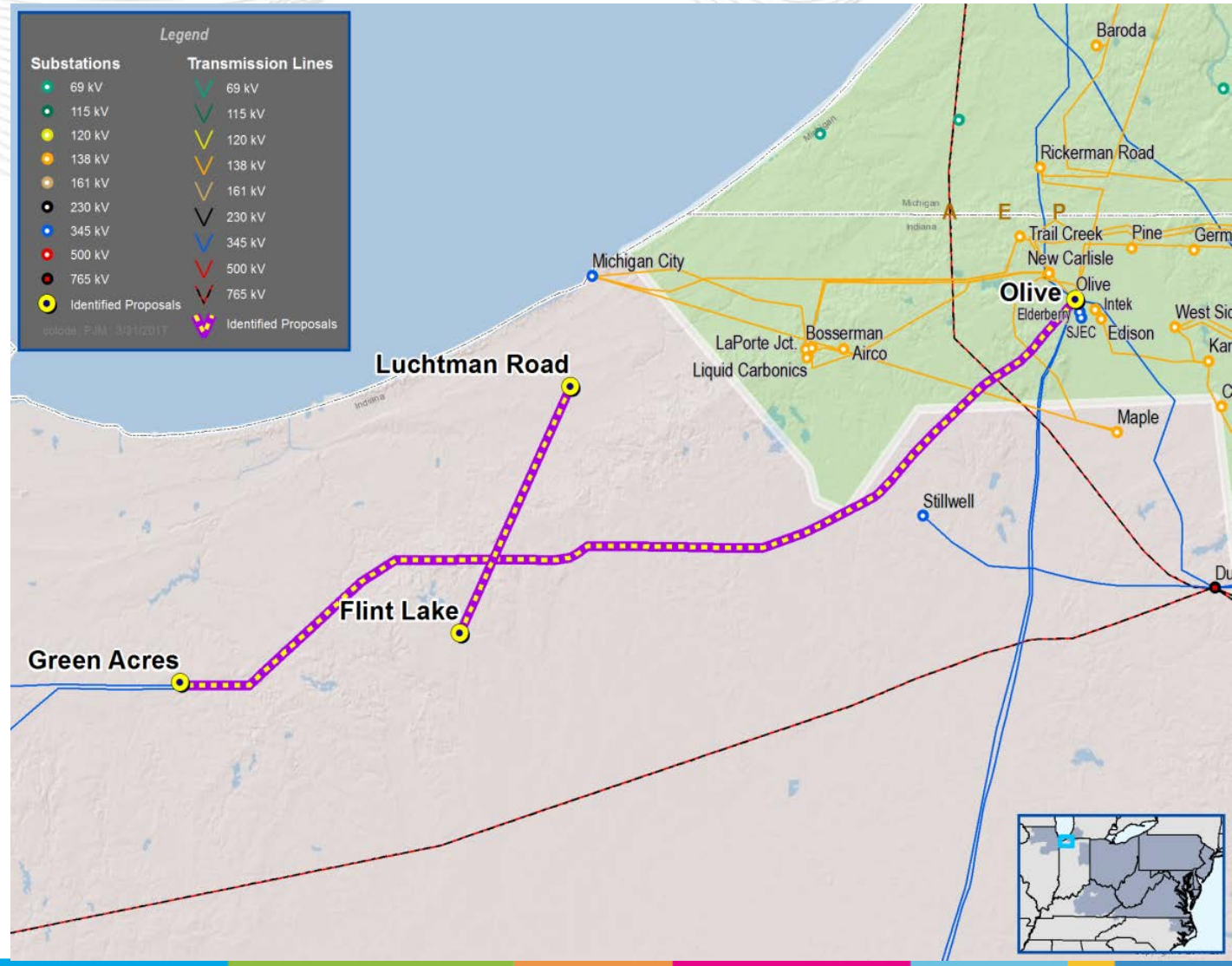
NTD 1-18R

Project ID: 201617_1-18R
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a 500 kV switching station ("Turkey Creek") interconnecting the Cunningham to Elmont 500 kV transmission line and the North Anna to Midlothian 500 kV transmission line.
kV Level: 500 kV
In-Service Cost ($M): $19.30
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I: AEP-DOM
Notes:



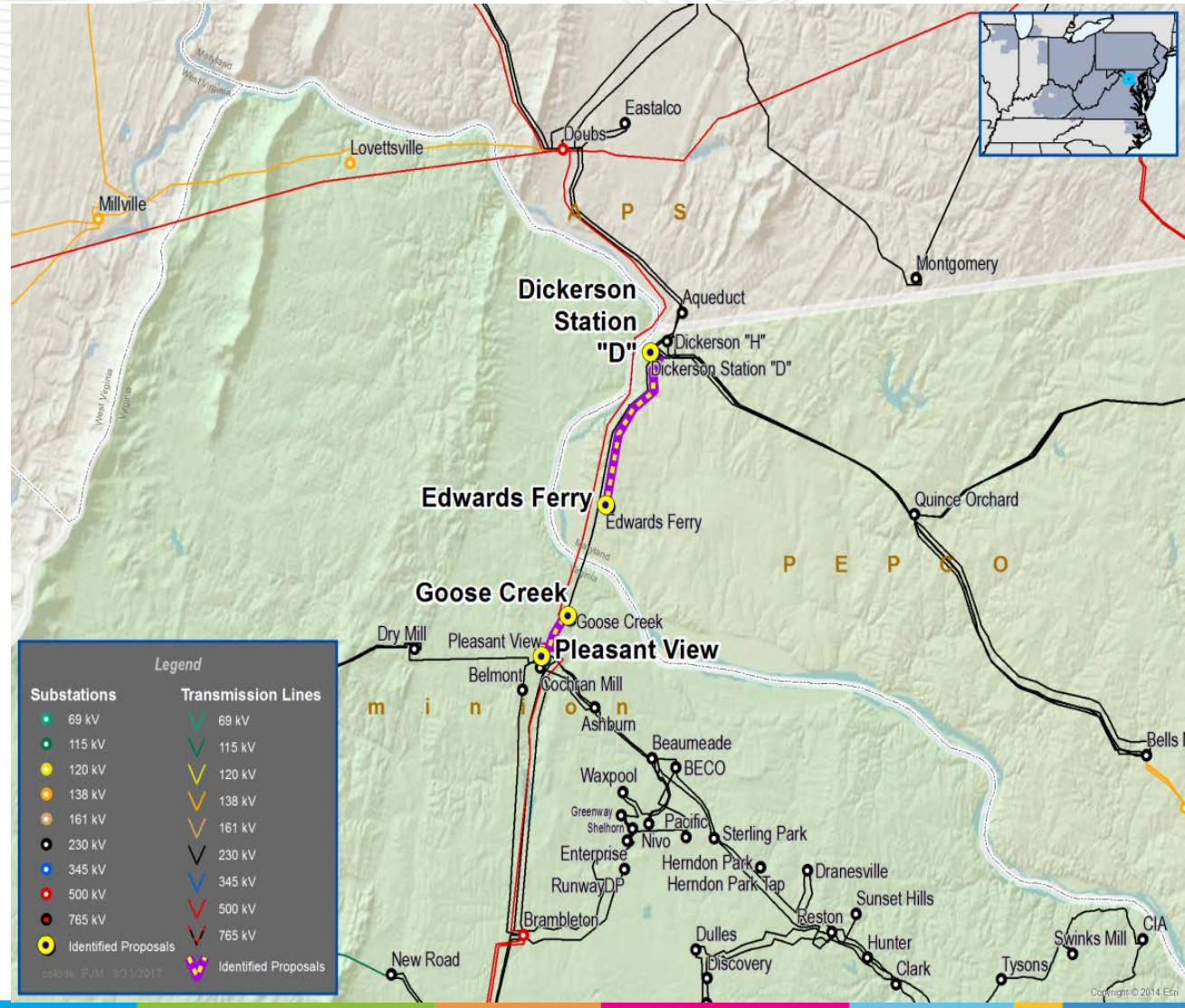
NTD 1-18S

Project ID: 201617_1-18S
Proposed by: Northeast Transmission Development
Proposed Solution: Greenfield Build a 345/138 kV substation ("Coffee Creek") interconnecting the Green Acres to Olive 345 kV line and the Flint Lake to Luchtman Road 138 kV line.
kV Level: 138/345 kV
In-Service Cost ($M): $17.4
In-Service Date: 2021
Target Zone: AEP
ME Constraints: OLIVE - BOSSERMAN 138 kV
Notes: See supplemental project Olive – Bosserman discussion in the Reliability Update presentation at April TEAC.



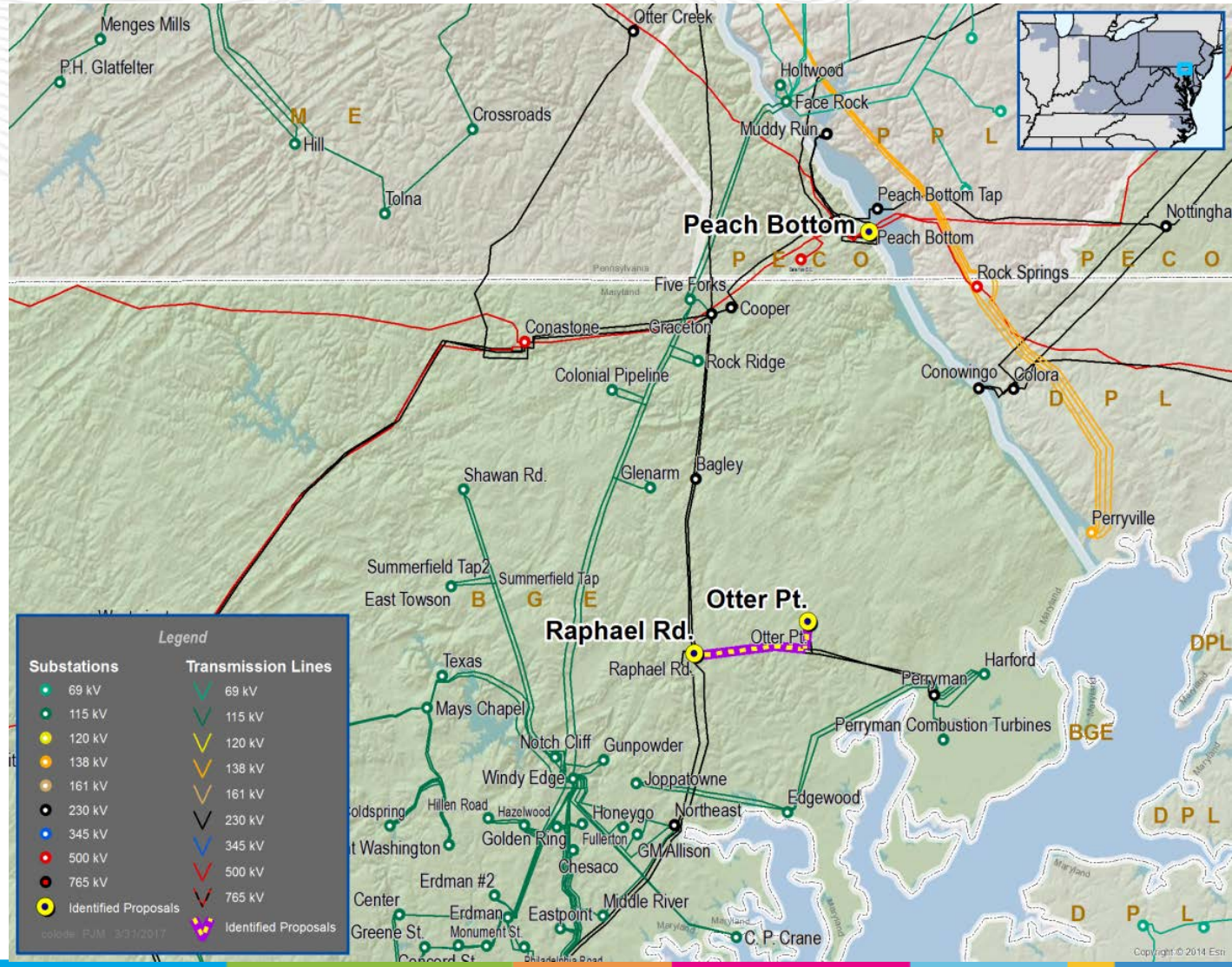
DOMINION PEPCO 1-19A

Project ID: 201617_1-19A
Proposed by: Dominion Pepco
Proposed Solution: This is a joint proposal by Dominion Virginia Power and Pepco to upgrade their existing tie-line. Reconductor and double circuit the existing Pleasant View - Dickerson 230kV Line (Line 203).
kV Level: 230 kV
In-Service Cost ($M): $39.63
In-Service Date: 2021
Target Zone: Dominion
ME Constraints: I:AP SOUTH, AEP-DOM, 5004/5005, CENTRAL CONASTONE - GRACETON - BAGLEY 230 kV BOSSERMAN - Olive 138 kV SUSQUEHANNA - HARWOOD 230 kV OAKBAY - NORTH RVR 230kV PEACH BOTTOM - CONASTONE 500 kV
Notes:



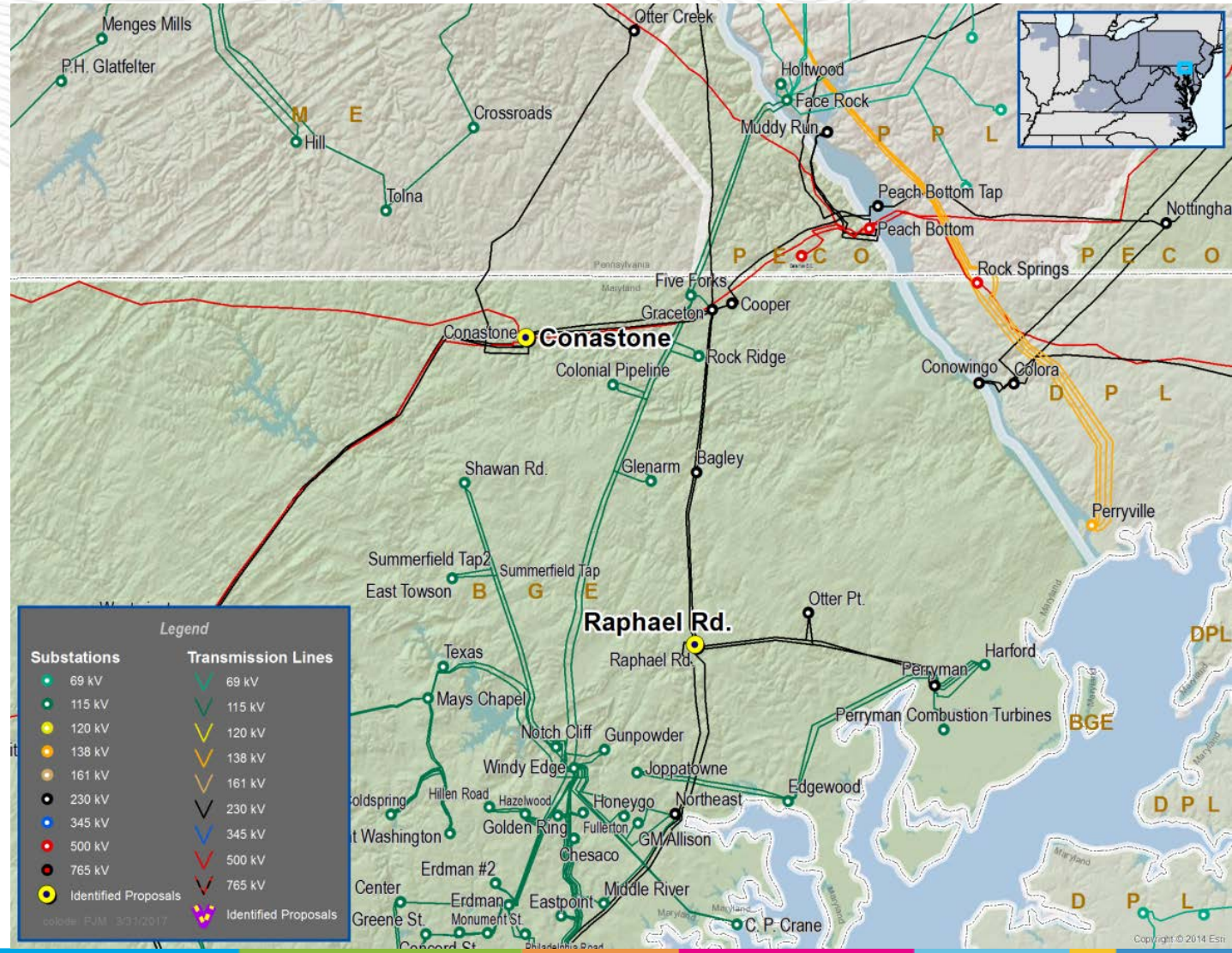
ITC 1-20A

Project ID: 201617_1-20A
Proposed by: ITC
Proposed Solution: Greenfield Construct a new 230 kV switchyard (Old Post) cutting-in the Raphael Road - Otter Point 230 kV line. Extend 230 kV from the new 230 kV switchyard to the existing Peach Bottom 230 kV substation. Upgrade the existing Peach Bottom 230 kV substation to accomodate the new 230 kV line.
kV Level: 230 kV
In-Service Cost ($M): $73.60
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



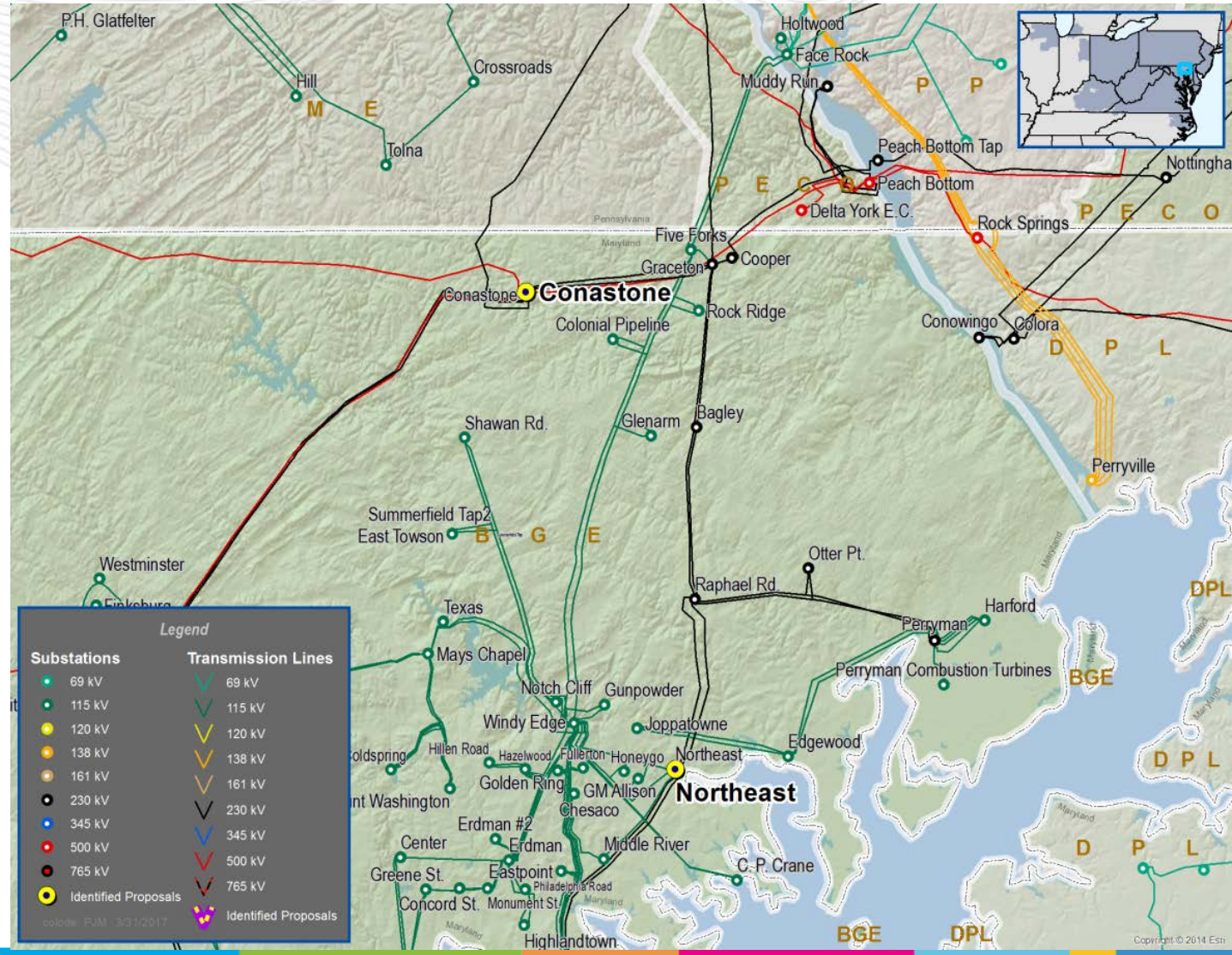
ITC1-20B

Project ID: 201617_1-20B
Proposed by: ITC
Proposed Solution: Greenfield Construct a new 230 kV single circuit line between the existing Conastone and existing Raphael Road 230 kV substations. Upgrade the existing Conastone and Raphael Road 230 kV substations to accommodate the new 230 kV line.
kV Level: 230 kV
In-Service Cost ($M): $63.00
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



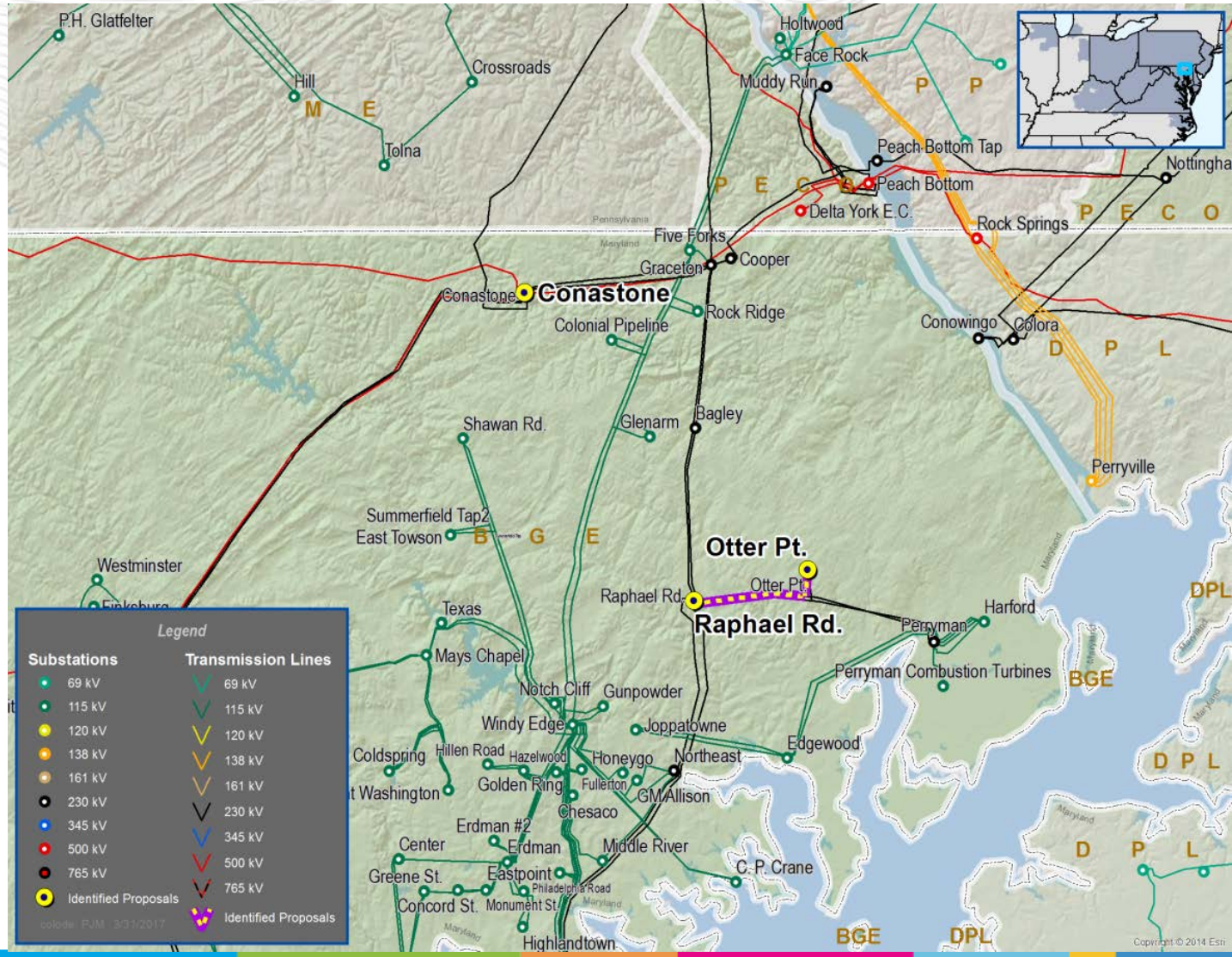
ITC 1-20C

Project ID: 201617_1-20C
Proposed by: ITC
Proposed Solution: Greenfield Construct a new 230 kV single circuit line between the existing Conastone and existing Northeast 230 kV substations. Upgrade the existing Conastone and Northeast 230 kV substations to accommodate the new 230 kV line.
kV Level: 230 kV
In-Service Cost ($M): $135.78
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



ITC 1-20D

Project ID: 201617_1-20D
Proposed by: ITC
Proposed Solution: Greenfield Construct a new 230 kV switchyard (Old Post) cutting-in the Raphael Road - Otter Point 230 kV line. Extend 230 kV from the new 230 kV switchyard to the existing Conastone 230 kV substation. Upgrade the existing Conastone 230 kV substation to accomodate the new 230 kV line.
kV Level: 230 kV
In-Service Cost ($M): $75.89
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



ITC 1-20E

Project ID: 201617_1-20E

Proposed by: ITC

Proposed Solution: Greenfield
Construct a new 230 kV switchyard (Fallston) cutting-in the Graceton - Bagley 230 kV line. Construct a new 230 kV switchyard (Old Post) cutting-in the Raphael Road - Otter Point 230 kV line. Construct a new 230 kV switchyard (Pyle Rd). Construct 230 kV lines between the existing Peach Bottom 230 kV substation and the new Pyle Rd 230 kV switchyard, the new Fallston 230 kV switchyard and new Pyle Rd 230 kV switchyard, and the new Old Post 230 kV switchyard and the new Pyle Rd 230 kV switchyard. Upgrade the existing Peach Bottom 230 kV substation to accommodate the new 230 kV line.

kV Level: 230 kV

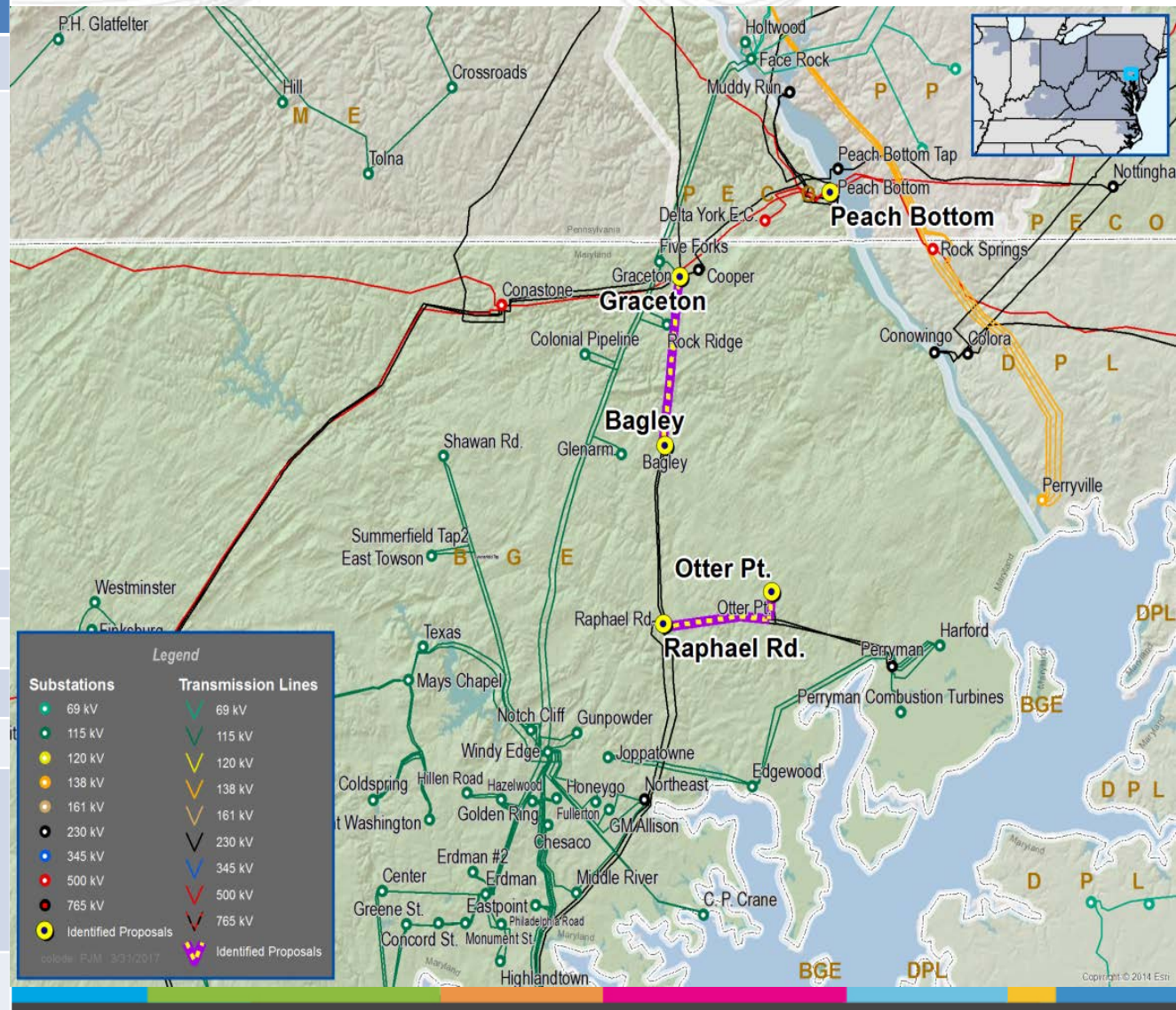
In-Service Cost ($M): $132.24

In-Service Date: 2021

Target Zone: BGE

ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV

Notes:



ITC 1-20F

Project ID: 201617_1-20F

Proposed by: ITC

Proposed Solution: Greenfield
Construct a new 230 kV switchyard (Fallston) cutting-in the Graceton - Bagley 230 kV line. Construct a new 230 kV switchyard (Old Post) cutting-in the Raphael Road - Otter Point 230 kV line. Construct a new 230 kV switchyard (Pyle Rd). Construct 230 kV lines between the existing Conastone 230 kV substation and the new Pyle Rd 230 kV switchyard, the new Fallston 230 kV switchyard and new Pyle Rd 230 kV switchyard, and the new Old Post 230 kV switchyard and the new Pyle Rd 230 kV switchyard. Upgrade the existing Conastone 230 kV substation to accommodate the new 230 kV line.

kV Level: 230 kV

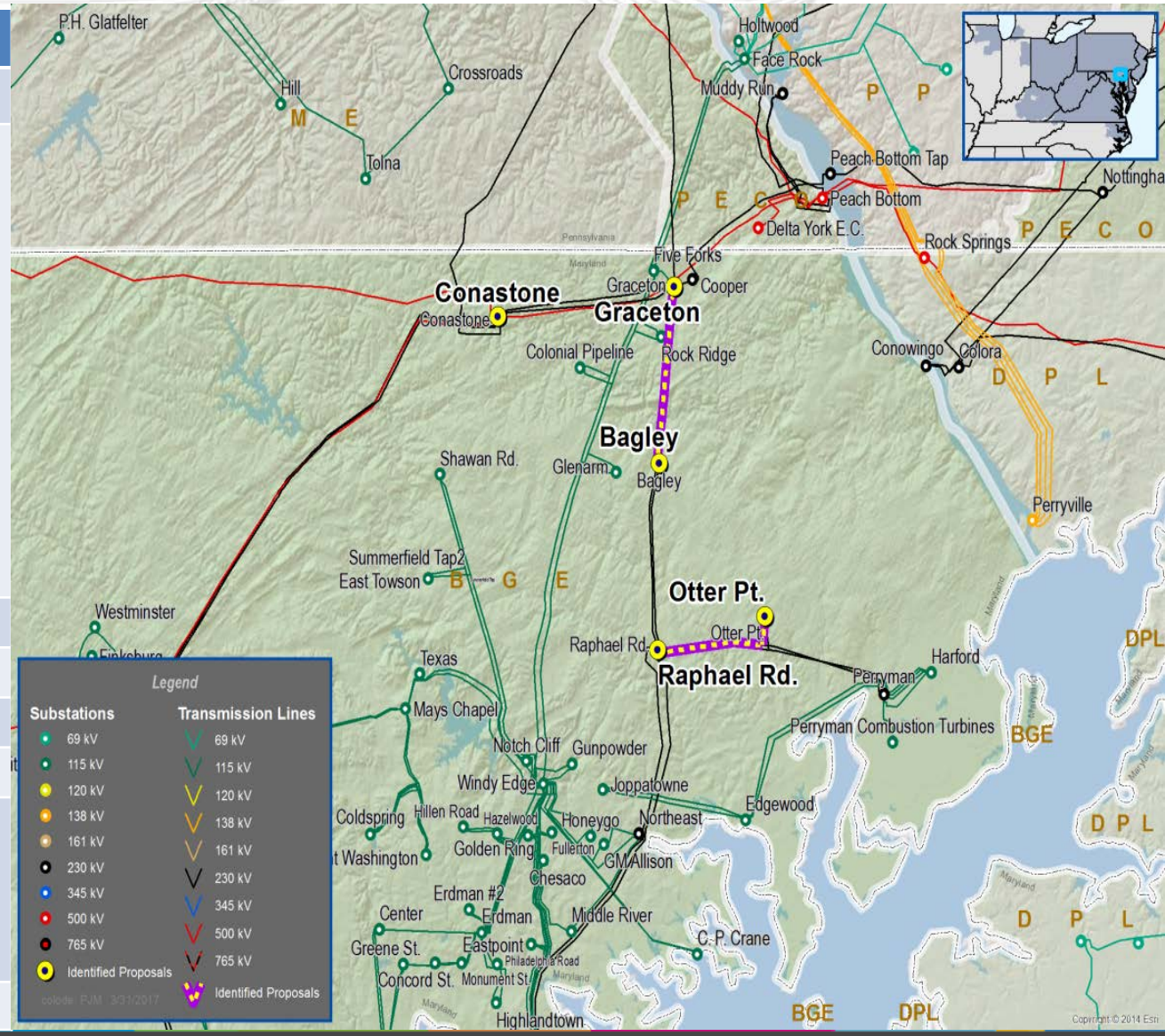
In-Service Cost ($M): $125.99

In-Service Date: 2021

Target Zone: BGE

ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV

Notes:



ITC 1-20G

Project ID: 201617_1-20G

Proposed by: ITC

Proposed Solution: Greenfield
Construct a new 230 kV single circuit line between the existing Peach Bottom and existing Northeast 230 kV substations.
Upgrade the existing Peach Bottom and Northeast 230 kV substations to accommodate the new 230 kV line.

kV Level: 230 kV

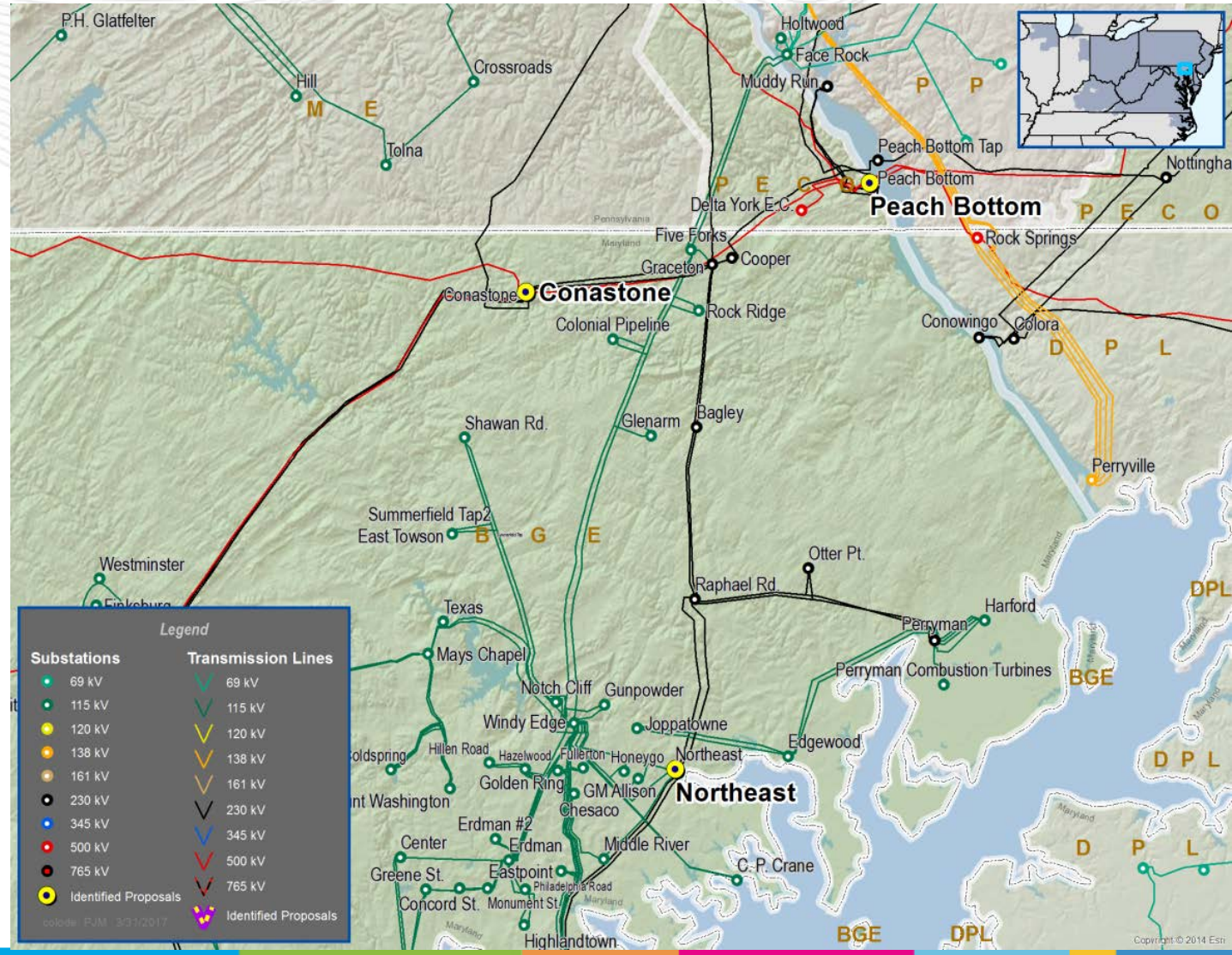
In-Service Cost ($M): $151.51

In-Service Date: 2021

Target Zone: BGE

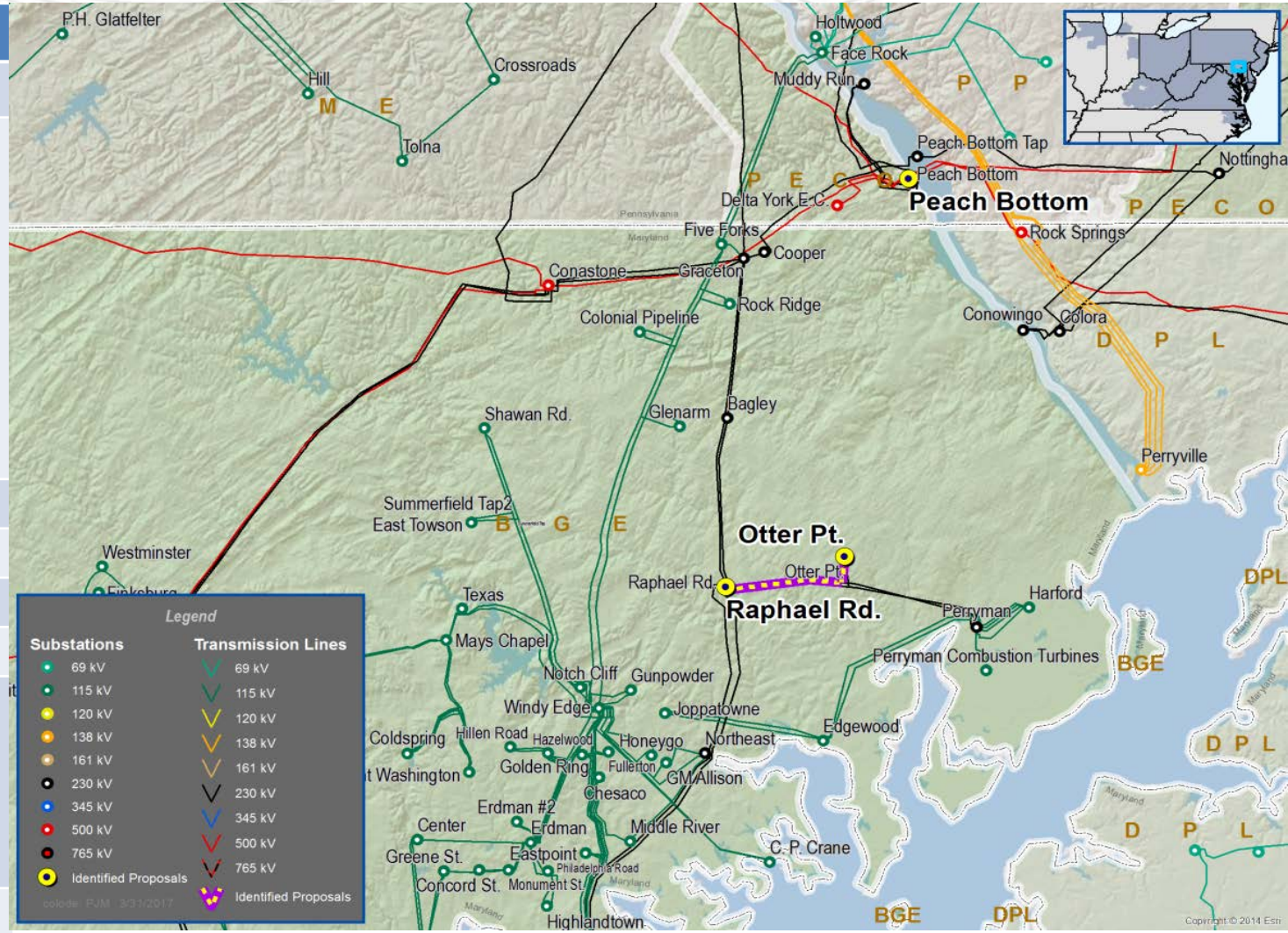
ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV

Notes:



ITC1-20H

Project ID: 201617_1-20H
Proposed by: ITC
Proposed Solution: Greenfield Construct a new 230 kV switchyard (Old Post) cutting-in the Raphael Road - Otter Point 230 kV line. Extend 230 kV from the new 230 kV switchyard to the existing Peach Bottom 230 kV substation. Upgrade the existing Peach Bottom 230 kV substation to accomodate the new 230 kV line. Install a transmission battery energy storage system at the Old Post switchyard.
kV Level: 230 kV
In-Service Cost ($M): $107.46
In-Service Date: 2021
Target Zone: BGE
ME Constraints: CONASTONE - GRACETON - BAGLEY 230 kV
Notes:



ITC 1-20I

Project ID: 201617_1-20I

Proposed by: ITC

Proposed Solution: Greenfield
Construct a new 230 kV switchyard (Fallston) cutting-in the Graceton - Bagley 230 kV line. Construct a new 230 kV switchyard (Old Post) cutting-in the Raphael Road - Otter Point 230 kV line. Construct a new 230 kV switchyard (Pyle Rd). Construct 230 kV lines between the existing Peach Bottom 230 kV substation and the new Pyle Rd 230 kV switchyard, the new Fallston 230 kV switchyard and new Pyle Rd 230 kV switchyard, and the new Old Post 230 kV switchyard and the new Pyle Rd 230 kV switchyard. Upgrade the existing Peach Bottom 230 kV substation to accommodate the new 230 kV line. Install a transmission battery energy storage system at the Fallston switchyard.

kV Level: 230 kV

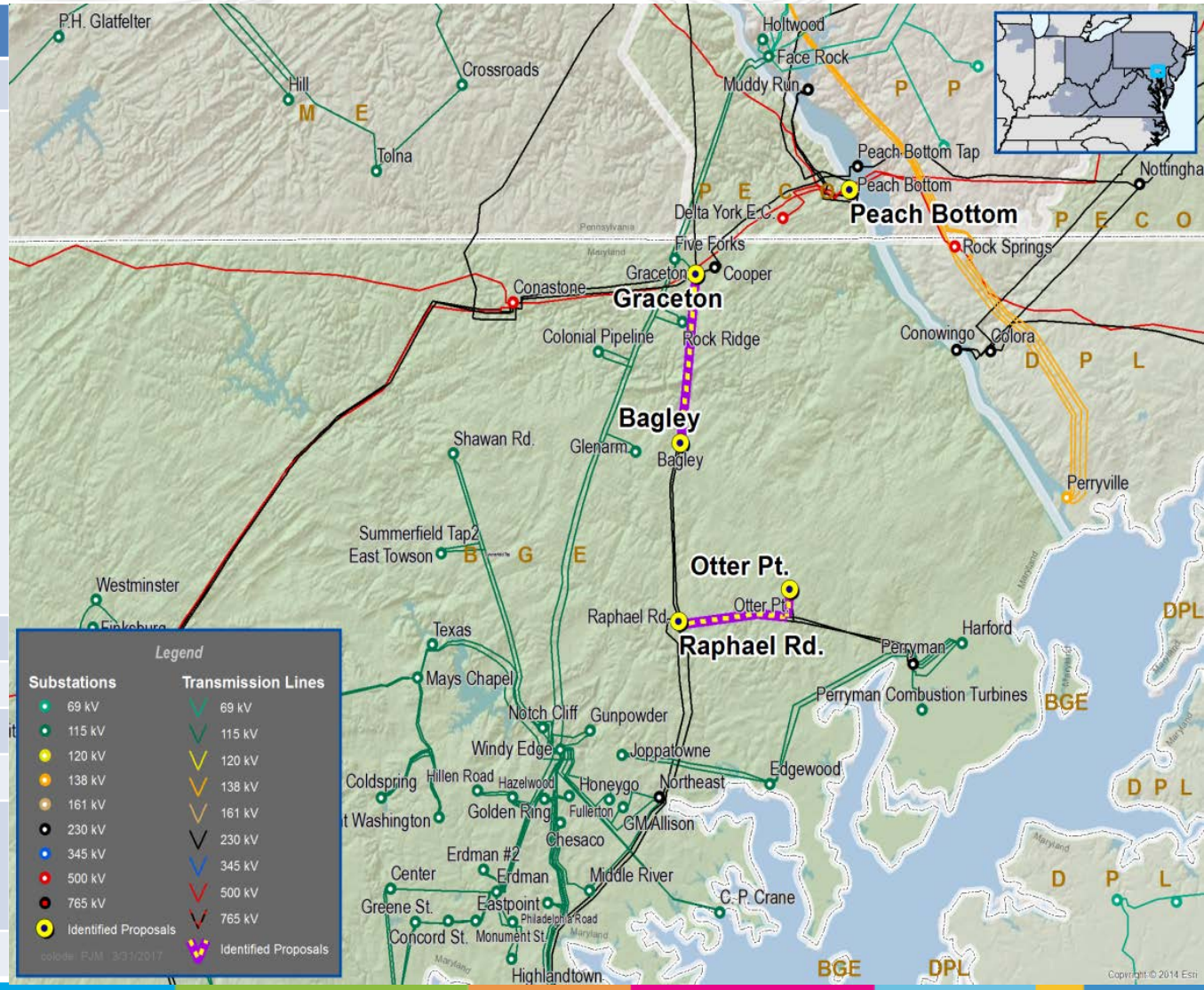
In-Service Cost ($M): $165.74

In-Service Date: 2021

Target Zone: BGE

ME Constraints:
CONASTONE - GRACETON - BAGLEY 230 kV

Notes:



- Revision History
  - V1 – 4/11/2017 – Original Version Posted to PJM.com
  - V2 – 4/12/2017
    - Slide #84, correction on the Cost ($70.5 instead of $64.32)
    - Slide #85, correction on the Cost ($92.2 instead of $84.2)
    - Slide #86, correction on the Cost ($87.2 instead of $79.76)
    - Slide #87, correction on the Cost ($105.1 instead of $96.11)
    - Slide #88, correction on the Cost ($109.3 instead of $99.9)
    - Slide #99, added kV Level: 138/500 kV
    - Slide #109, correction on the Cost ($17.4 instead of $15.8)