Reliability Analysis Report

2025 RTEP Window 1

Jan. 2, 2025 – R2

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The information contained herein is based on information provided in project proposals submitted to PJM by third parties through its 2025 RTEP Window 1. PJM analyzed such information for the purpose of identifying potential solutions for the 2025 RTEP Window 1. Any decision made using this information should be based upon independent review and analysis and shall not form the basis of any claim against PJM.

The maps contained in this report are only intended to illustrate the general electrical connectivity of the projects and should not be relied upon for exact geographical substation locations or line routes.

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2025 RTEP Window 1 Reliability Analysis

Executive Summary

PJM presented the 2025 Regional Transmission Expansion Plan (RTEP) assumptions at the January, March, April and May 2025 Transmission Expansion Advisory Committee (TEAC) meetings together with modeling and analysis criteria and anticipated 2025 RTEP Cycle timeline. To that end, PJM developed multiple scenarios using 5-year (2030) and 7-year (2032) base case suite[1] in order to analyze the effects of high-impact transmission, load and generation drivers on system performance and to ensure long-term reliability criteria violations are identified and addressed. In summary, 2025 RTEP cycle analysis identified the following encompassing both 2030 and 2032 baseline results:

- 113 transmission lines thermally overloaded at voltage levels 69 kV through 765 kV, with facility loadings reaching as high as 185%
- 24 transformers thermally overloaded, with loadings reaching as high as 143%
- 783 facilities at voltage levels 69 kV through 765 kV, with voltage violations spanning six transmission owner zones

The 2025 RTEP Window 1 opened on June 18, 2025, and closed on Aug. 18, 2025 during which PJM received 134 proposals from 19 different entities:

- 77 upgrade proposals
- 57 greenfield proposals
- 15 joint proposals

The proposals range from simple facility upgrades to new extra-high-voltage transmission lines (500 kV and 765 kV) and grid enhancing technologies such as underground HVDC or advanced conductors.

PJM reviewed the performance and merits of all 134 competitive proposals by the proposing entities, including nonincumbent developers and incumbent TOs, along with non-competitive project submissions, and is recommending an RTEP solution set with a total cost estimate of approximately $11.6 billion to address the identified reliability needs covering the 2030 reliability violations, key, long-lead 2032 needs and ensure the regional transfer needs triggered in the 2030 and 2032 are right sized for the longer term.

2030 and 2032 Case Development and Comparison

The 2030 and 2032 base case suite included the following notable high-impact parameters:

- Substantial data center load additions in the AEP, PPL, and Dominion zones, consistent with the 2025 Load Forecast released in January 2025
- Approximately 3 GW of generation deactivations
- Addition of suspended ISA generation, Fast Lane, TC1 and TC2 (including RRI) generation was incorporated as needed to meet the required load levels in the cases

[1] As noted in the Problem Statement, through 2025 RTEP Window 1, PJM sought proposals to resolve identified reliability criteria violations as demonstrated in the 2030 RTEP model suite, while the 2032 RTEP models suite was primarily utilized to right-size needs already showing up in 2030 and for consideration of longer-term needs (requiring 7 or more years to develop, i.e., 500kV and above developments).

- Consideration of NJ and DE offshore wind (OSW) delay impacts
- Approximately 3.5 GW of additional load in PPL expected to be added to the 2026 Load Forecast was provided for consideration to window participants

The 5-year case balanced the load with existing generation, GIA/ISA generation, suspended ISA generation, Fast Lane generation, Coastal Virginia Offshore Wind (CVOW) and Chesterfield plants. Approximately 1248 MW OSW projects were also assumed to be in-service in the 2030 base case. PJM also prepared a 7-year out base case suite, to capture impacts of forecasted load growth, delays to OSW generation development and how these factors may impact transmission needs. The 7-year out base case suite required additional generation (beyond what was modeled in the 5-year model) to account for the additional forecasted load and generation deficiencies due to OSW delay conditions. To account for this, PJM included, on top of the generation already in the 2030 case, TC1 and TC2 generation (including RRI). OSW projects were assumed to be in-service in Scenario 1 and out of service in Scenario 2, both of which are 2030 scenarios.

2025 RTEP Window No. 1 Objective

All the previously planned and Board approved backbone transmission enhancements continue to perform well, and PJM did not see major regional transfer issues in the 2030 analysis. In the 2032 analysis (which also reflects conditions that may materialize earlier, i.e. by 2030 or earlier), there are several clusters showing EHV backbone overloads primarily along the extremities of the backbone transmission network that was reinforced as part of the PJM 2022 RTEP W3 and 2024 RTEP W1 competitive transmission windows. The following provides a brief rationale on whether a specific cluster is considered or not as part of the 2025 RTEP W1 window:

- Dominion / PJM South:
  - PJM will be addressing the 2032 needs to reinforce the southern 500 kV backbone. This 500 kV corridor includes multiple North to South 500 kV elements.
  - Violations associated with and/or impacted by CVOW will be deferred until the network upgrades associated with the project are finalized.
  - The 230 kV lines Chesterfield-Basin and Chesterfield-Hopewell will be addressed as part of the 2030 set of violations.

- MAAC 500 kV system:
  - In 2032, multiple 500 kV facilities are overloaded due to terminal equipment constraints. However, the violations can be mitigated without long lead-time solutions.
  - The needs for West to East facility reinforcements are observed for a delay in the OSW or additional data center load in PPL.
  - Due to NJ offshore wind, the Rock Springs-Bramah 500 kV line exceeds its conductor rating. The scenario 4 study confirmed that without NJ OSW, this line is not overloaded, therefore PJM did not seek proposals for the violations on the line.

- PPL Zone:
  - Several 230 kV facilities are overloaded in PPL zone in 2030, and these issues are worsened in the 2032 analysis.
  - Additional overloads are identified in 2032 as the load continues to grow.
  - PJM expects that solutions proposed for the PPL area will address both the 2032 violations and account for potential future load growth (and resource mix evolution) in the region.

- ComEd/AEP 765 kV transfer path: Wilton Center – Dumont – Sorenson – Marysville
  - Not considered in the window
  - The majority of this path is terminal equipment limited. For the Sorenson - Marysville line overload, the contingency, which causes the thermal violations is a line with stuck breaker contingency, which can be potentially addressed by local substation upgrade measures in the longer term (7-year horizon).

- AG1-125 – Marysville 765 kV line
  - Not considered in the window
  - The line is terminal-equipment limited

- AEP Columbus area
  - There are two major backbone (765/345 kV) EHV sources that currently serve the load pocket. Multiple thermal overloads are showing in the area. In the N-1-1 test, various contingency pairs cause the widespread local system voltage issues which are expected to worsen with forecasted load increase through 2032 and beyond. All the related thermal and voltage issues in 2030 were posted and open to competition. Solutions were sought to consider the longer term needs to ensure efficient and cost-effective mitigation.

- ATSI 138 and 115 kV Area (2030 RTEP): East Springfield-Melissa-London Path
  - PJM is experiencing load growth in Central Ohio, part of ATSI territory causing multiple thermal and voltage violations under various contingencies. These violations spread through several reliability analyses affecting neighboring TO zones such as AEP and Dayton. PJM anticipates a holistic proposal to address the need, preferably an EHV solution.
  - PJM sought proposal(s) addressing these violations holistically and for the longer-term.

- ATSI 345 kV Overloads (2032 RTEP): North to South and West to East
  - PJM has been experiencing increased loadings on the 345 kV backbone in the northern Ohio ATSI territory. As part of the 2024 RTEP Window 1, PJM selected a 138 kV rebuild solution for several facilities. PJM performed sensitivity analysis by upgrading the 138 kV lines to 345 kV and conducted additional studies incorporating both the 345 kV upgrade and the 2024 RTEP Window 1 138 kV recommended solution and determined that the overloads remain, even if the line is upgraded to 345 kV.
  - The 2032 Summer case shows additional flow from north to south [Lallendorf, Lemoyne and into Foster (AEP)] and west to east (Bayshore, Davis Besse and Beaver). These flows are more regional transfer-based and do not conflict with the rebuild of the existing 138 kV scope assigned by PJM in 2024 RTEP Window 1.
  - PJM has decided not to seek proposals to resolve the EHV violations but will continue to monitor the area closely moving forward.

PJM sought proposals to resolve identified reliability criteria violations identified in the RTEP 2030 model year analysis as well as those identified in the 2032 model year that may require long-lead time transmission solutions. The objective is to develop holistic and robust solutions to address the identified criteria violations and avoid redundancy by introducing right-sized transmission developments that take into account the future, long-term load

and resource conditions. The large number of violations seen in the 2025 RTEP were driven by numerous factors. The west to east transmission backbone is heavily loaded driven by large load increases in the western region, the Dominion zone and eastern PJM footprint as well as reduction in generation capacity in eastern PJM due to planned generation delays or potential future retirements. There is approximately a 10 GW and 28 GW load increase for 2030 and 2032 between the load forecasts used for the 2024 and 2025 RTEPs, respectively. The significant load growth is primarily attributed to data centers, some electrification, and electric vehicle developments. While the proposed reinforcements recommended through previous large windows such as 2022 RTEP Window 3 and 2024 RTEP Window 1 are performing well, there are additional pockets in the AEP, ATSI, Dominion, PECO, BGE, and PPL transmission zones that need to be addressed primarily due to a shift in generation flow as a result of overall system load increase and over 2 GW of announced generator deactivations. An overview of the number of transmission line thermal overloads by kV level and highest loading levels are shown in **Table 1** and **Table 2**. Similarly, an overview of the number of transformer thermal overloads by kV Level and highest loading levels and are shown in **Table 3** and **Table 4.** The violations on the EHV backbone transmission network are also demonstrated in **Map 1**, **Map 2, and Map 3** for the MAAC, Dominion/Southern, and Western PJM regions, respectively.

Table 1. 2025 RTEP Window 1 Number of Overloaded Lines (2030 & 2032 Base Cases)

kV Level	Number of Lines
69	2
115	5
138	46
230	31
345	8
500	15
765	6
Total	**113**

Note: Thermal overloads do not include FERC 715 violations

Table 2. 2025 RTEP Window 1 Maximum Line AC Percent Loading by kV Level (2030 & 2032 Base Cases)

	Highest AC Loading (%)
69	105.41
115	115.05
138	167.15
230	185.06
345	110.42
500	158.44
765	115.75

Note: Thermal overloads do not include FERC 715 violations. Loadings > 120% are marked in **orange**.

Table 3. 2025 RTEP Window 1 Number of Overloaded Transformers (2030 & 2032 Base Cases)

kV Level	Number of Transformers
345/138	4
500/230	12
500/138	2
765/138	1
765/500	1
765/345	4
Total	**24**

Note: Thermal overloads do not include FERC 715 violations

Table 4. 2025 RTEP Window 1 Maximum Transformer AC Percent Loading by kV Level (2030 & 2032 Base Cases)

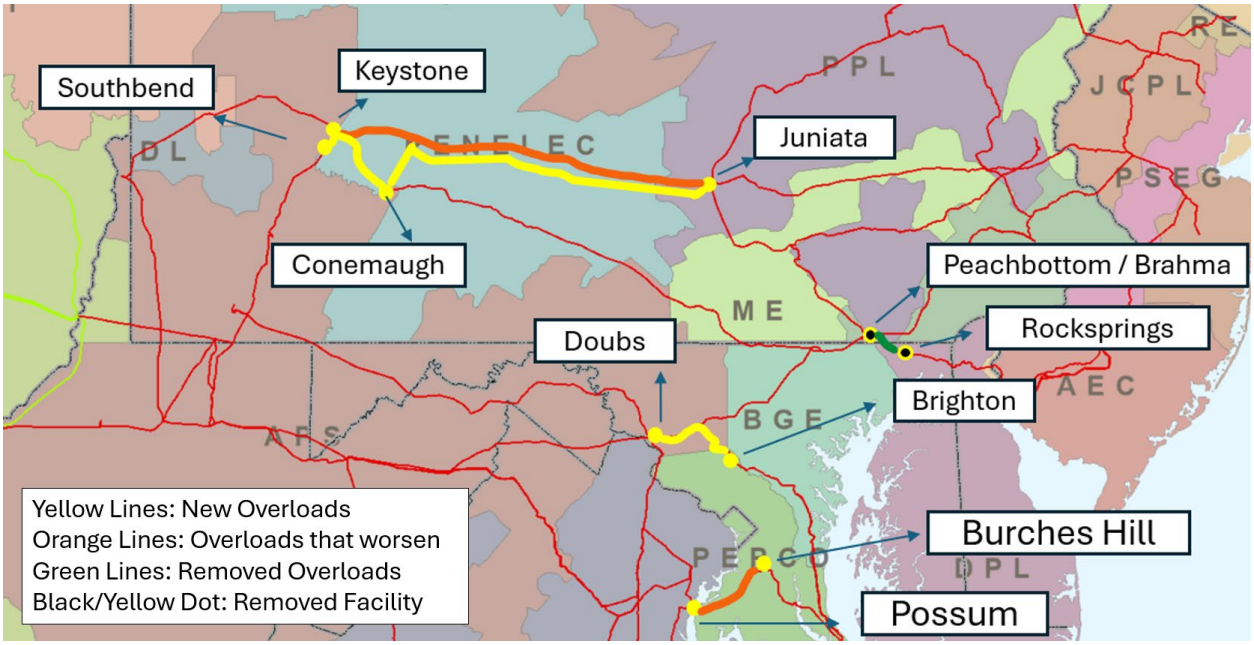
	Highest AC Loading (%)
345/138	107.26
500/230	143.23
500/138	121.51
765/138	124.38
765/500	107.94
765/345	116.71

Note: Thermal overloads do not include FERC 715 violations. Loadings > 120% are marked in **orange**.

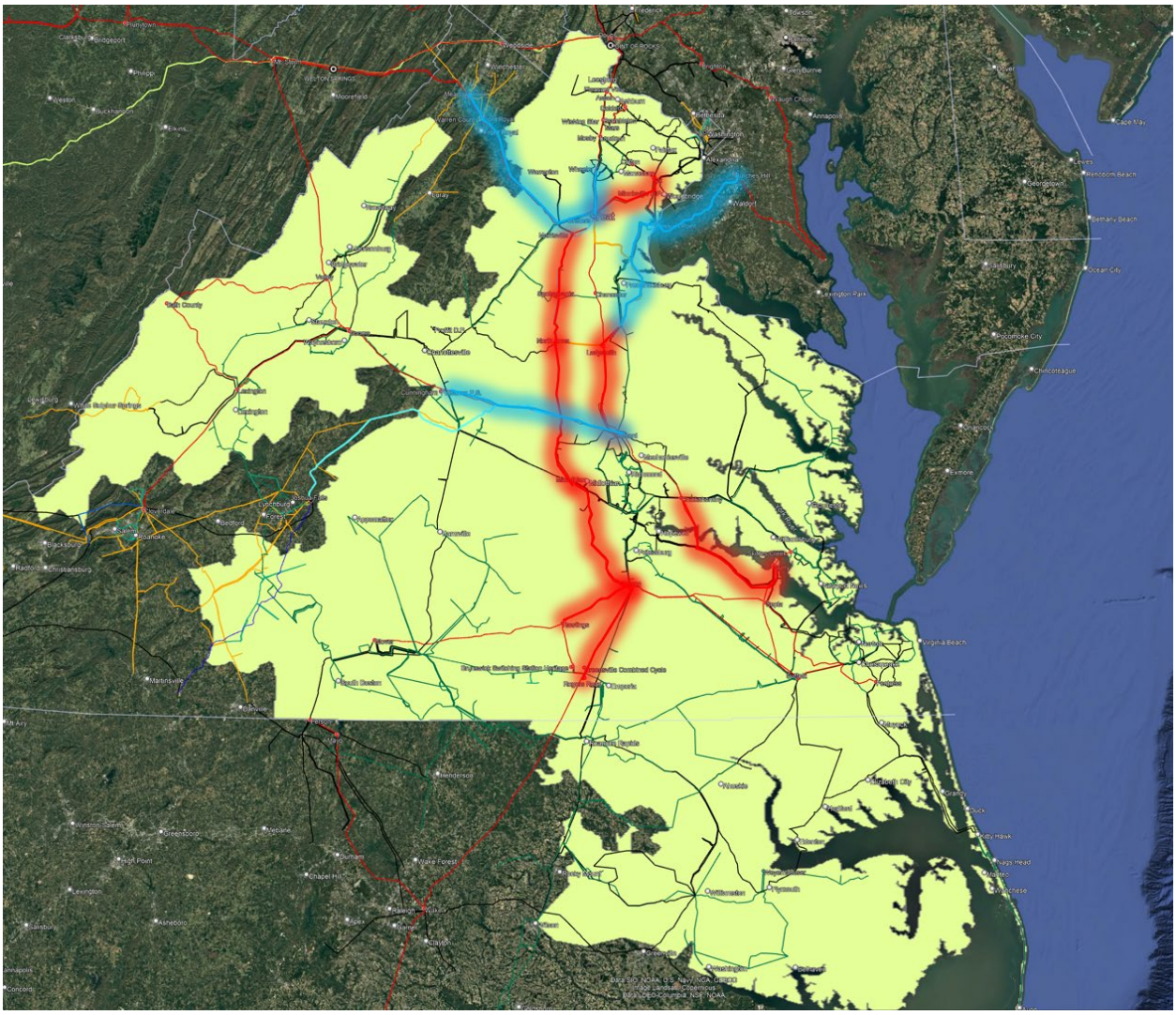
Table 5. 2025 RTEP Window 1 Voltage Violations by kV Level (2030 & 2032 Base Cases)

Area Name	kV Level	Number of Facilities with Voltage Violations
ATSI	138	49
	345	2
AEP	138	432
	345	58
	765	9
DAYTON	138	50
	345	17
METED	115	4
JCP&L	230	3
PPL	69	104
	138	41
	230	14
	Total	**783**

Map 1. 2025 RTEP Window 1: 2032 Scenario 4 MAAC Region 500 kV Violations (sample results showing impacts of MAAC load additions, generation delays, deactivations or any combination of the three factors).

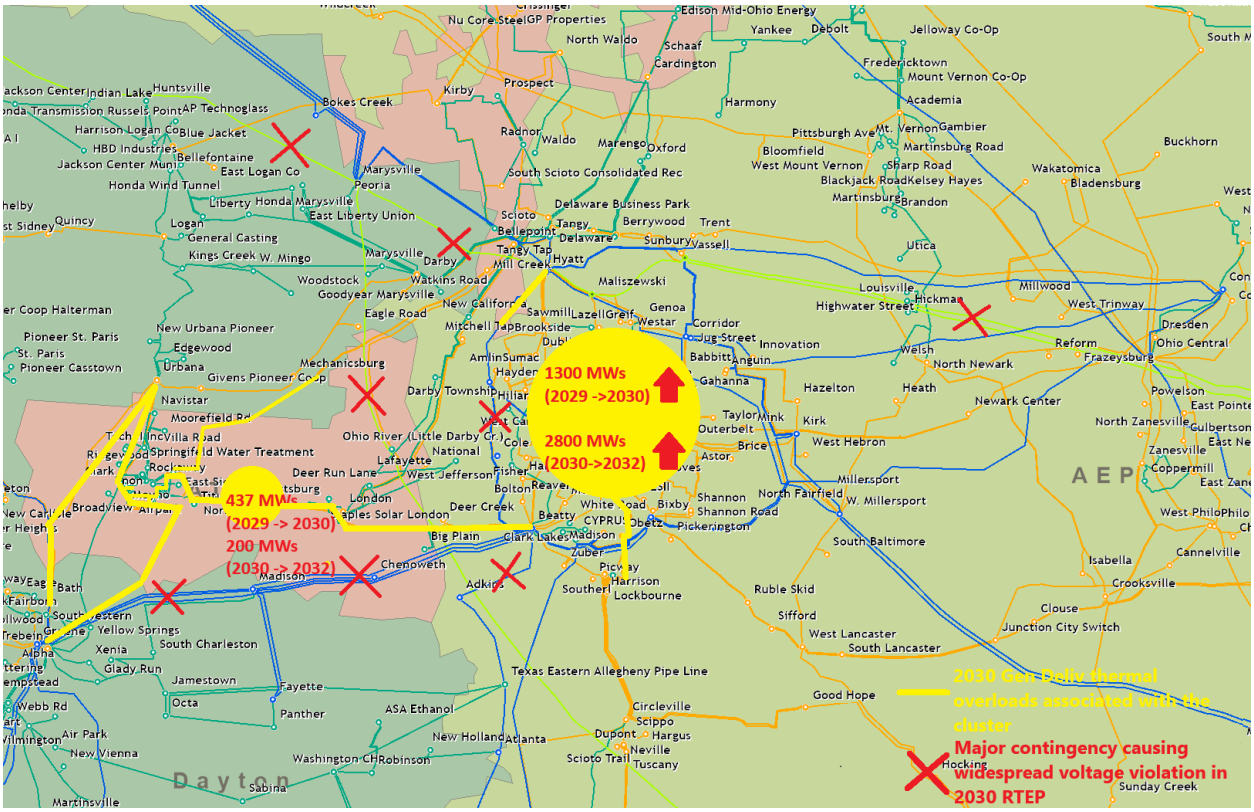


Map 2. 2025 RTEP Window 1: 2032 Dominion Region 500 kV Violations - Summer



Note: Red lines are overloads in the base case, and blue lines are additional overloads in scenario 4

Map 3. 2025 RTEP Window 1: Western Region 2030 Violations and Load Increases



Reliability Solutions and Clusters

PJM received 134 proposals from 19 different entities as part of this window. PJM received 77 upgrade proposals, 57 greenfield proposals and 15 joint proposals (parent projects representing combinations of select proposals submitted to the window). High-level statistical information regarding the submitted proposals is represented in **Figure 1** and **Figure 2**. Proposals range from simple facility upgrades to new extra-high-voltage transmission lines and facilities to grid enhancing technologies such as underground HVDC or advanced conductors. Cost containment commitments were included for 90 proposals, some of which are hard-capped. The submitted proposal count per voltage class indicates the need for 345 kV, 500 kV, and 765 kV facilities to address the identified transmission system violations in the studied timeframe/conditions.

Figure 1. 2025 RTEP Window 1: Number of Proposals by kV Level

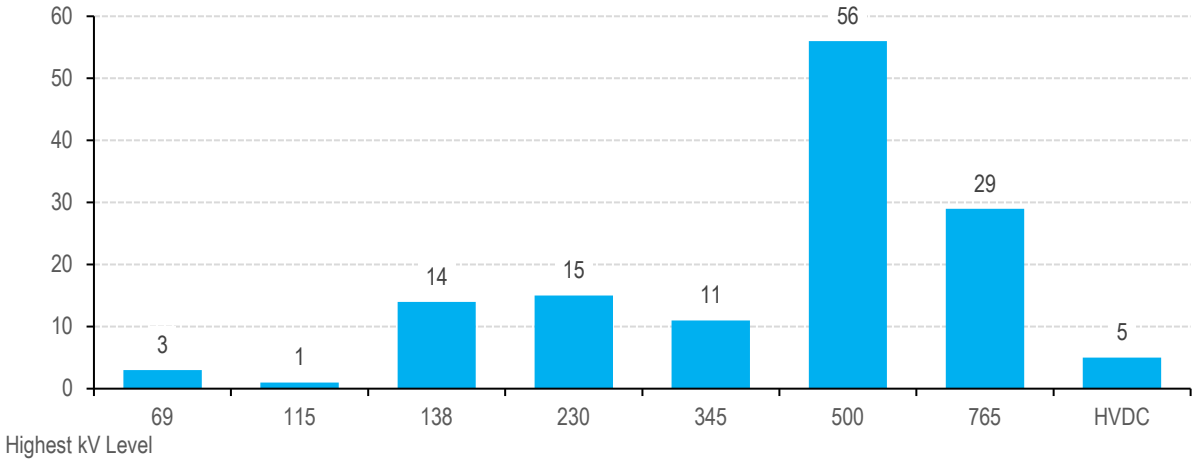
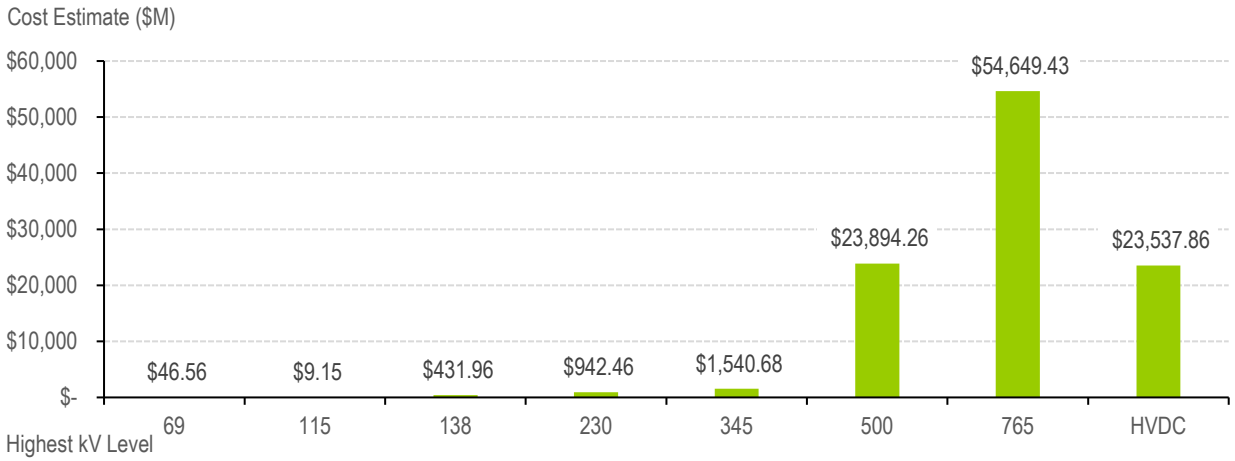


Figure 2. 2025 RTEP Window 1: Total Proposal Costs by kV Level



Proposal Clusters/Groupings

The magnitude of proposals concentrated in a number of focus areas, including those that focus on the regional needs along with more targeted proposals to address the more in-zone violations, are shown in **Table 6**. The focus areas were named and numbered where appropriate based on the TO zone in which the targeted flowgates reside. Where the focus area indicates "No Competition," this indicates that the proposal was the only one submitted to address the targeted flowgates. In other words, no competing proposals were submitted. Where the focus area indicates "N/A," this means that the submitted proposal did not address a PJM assigned FG (it could have been proposed for PJM's consideration to address for example, a solution to address needs, including regional transfers).

For this window there are three main regional focus areas, one in the western region (ATSI/AEP/DAYTON), one in the Mid-Atlantic region (MAAC Regional), and one in the southern region (DOM Regional). The larger regional clusters were assigned to proposals that are more of a holistic solution or portfolio, typically including 500 kV and 765 kV solutions that improve regional transfer or address a larger set of violations caused by the large load pockets. These regional proposals and clusters are shown in **Map 4**. Furthermore, the regional focus areas could potentially influence the outcome of the zonal clusters, as their far-reaching impact could mitigate the need for zone-specific solutions.

Table 6. 2025 RTEP Window 1 Submitted Proposals

#	ID	Proposing Entity	Focus Area	Project Title	Submitted Cost ($M)
1	63	AEPSCT	AEPC5	Smith Mountain - Rockcastle - Moneta 138 kV Rebuild	$39.40
2	195		No Competition	Mound Street-St Clair 138 kV Underground Line Rebuild	$41.59
3	298		No Competition	Hyatt-Celtic 345 kV Re-Rate	$7.81
4	341		AEPC4	Allen-Sorenson 345 kV Sag Study	$37.38
5	348		AEPC2	Trabue-Hilliard-Davidson 69 kV Rebuild & Relay Upgrades	$16.23
6	354		AEPC8	Green Chapel-Curleys 345 kV Circuit	$15.79
7	377		AEPC6	Beatty-Bolton-Phillipi 138 kV Line	$29.63
8	385		AEPC1	Platter Creek 69 kV Station Reconfiguration	$1.65
9	431		No Competition	McComb 138 kV Station Reconfiguration	$3.23
10	439		No Competition	Maliszewski-Polaris 138 kV Circuit Rebuild	$15.17
11	459		AEPC8	Green Chapel-Bermuda 345 kV Circuit	$27.28
12	515		AEPC3	Harrison-Obetz-Marion Road 138 kV Line Rebuild	$35.74
13	517		AEPSTATCOM	Central OH STATCOM Installations & Station Upgrades	$736.61
14	626		AEPC6, AEPC7	Beatty-Cole 345 kV Circuit #2	$31.04
15	662		AEPC3	Harrison-Obetz-Marion Rd 138 kV Line Sag Study & Terminal Equipment Upgrades	$14.82
16	689		AEPC5	Smith Mountain - Rockcastle - Moneta 138 kV Sag Study	$9.88
17	724		AEPC1	Platter Creek-Sherwood-Auglaize 69 kV Line Rebuild	$28.68
18	729		No Competition	Beatty-McComb 138 kV Line	$10.42
19	749		AEPSTATCOM	Central OH STATCOM Installations	$589.74
20	757		AEPC7	Clinton-St Clair 138 kV UG Line	$63.20
21	873		AEPC8	Green Chapel-Vassell 345 kV Circuit #2	$58.57
22	940		AEPC2	Trabue-Hilliard-Davidson 138 kV Conversion	$79.26
23	980		AEPC6	Beatty-Bolton 138 kV Line	$7.27
24	981		AEPSTATCOM	Patina 765/345 kV Station & UG Line Rebuilds	$976.34
25	996		AEPC4	Allen-Sorenson 345 kV Line Rebuild	$70.64
26	239	ATSI	ATSI/AEP/DAYTON	345 kV Solution Phase 1 and Phase 2	$1,492.41
27	334		ATSI/AEP/DAYTON	West Glade Run 765/345 kV Solution	$1,690.26
28	156	CINSI	No Competition	College Corner - Collinsville 138 kV Rebuild	$58.47

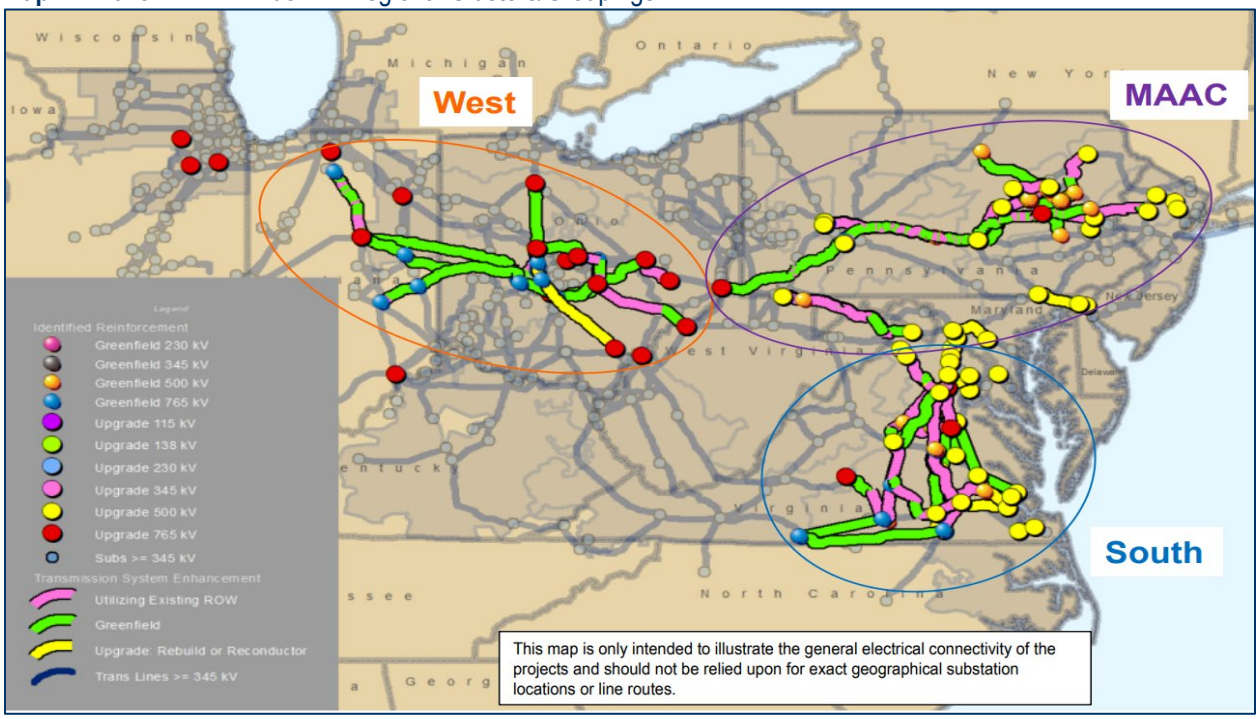
#	ID	Proposing Entity	Focus Area	Project Title	Submitted Cost ($M)
29	20	CNTLTM	PPL	Tri-Segment 500 kV Transmission Project	$494.29
30	260		DOM Regional	Virginia Transmission Project	$2,207.36
31	543		ATSI/AEP/DAYTON	Greene - South Bird Transmission Project	$121.41
32	672		AEPC4	Allen to Sorenson Transmission Project	$105.92
33	402	COMED	N/A	Install new 765/345 kV TR at Plano	$87.90
34	457		N/A	Install new 765/345 kV TR at Collins	$66.30
35	906		No Competition	Install new 765/345 kV TR 91 at Wilton Center	$45.81
36	465	DPL	No Competition	New 500 kV Circuit Keeney (DPL) - Bramah	$491.16
37	823		No Competition	Red Lion - Keeney Facility Upgrades	$90.70
38	140	JCPL	No Competition	Montville 500/230 kV Transformer Installation and Associated Upgrades	$66.83
41	493	MATLIT	MAAC Regional	PPL Load Addition Proposal - Keystone - Susquehanna Dual 500 kV Double Circuit with Jack's Mt.	$1,515.23
42	578		MAAC Regional	PPL Load Addition Proposal - Keystone - Susquehanna Dual 500 kV Single Circuits with Jack's Mt.	$2,418.26
46	826		MAAC Regional	PPL Load Addition Proposal: Keystone - Susquehanna 500 kV Double Circuit	$1,348.91
48	838		MAAC Regional	PPL Load Addition Proposal: Keystone - Susquehanna Dual 500 kV Single Circuits	$2,251.95
39	237	NXTMID	MAAC Regional	Kammer to Juniata	$1,738.59
43	109		ATSI/AEP/DAYTON	Muckshaw - Johnstown 765 kV	$3,322.00
44	152		ATSI/AEP/DAYTON	Gwynneville - Johnstown 765 kV	$2,921.12
45	687		MAAC Regional	Kammer to Juniata to Spicewood 765 kV	$3,238.74
47	771		PPL	Montour to Slykerville Reinforcement	$539.25
50	987		Scenario	Combined solution	$6,731.58
54	871		MAAC Regional	Blockhouse Creek to Susquehanna and Montour to Stoney Creek	$1,136.38
55	896		MAAC Regional	Fort Martin - Woodside Double Circuit 500 kV	$571.70
51	125	PE	No Competition	Trainer (PECO) - Delco Tap (PECO) - Mickleton (ACE)	$67.58
52	579		No Competition	220-84 Linwood-Claymont 230 kV Tie-Line Facility Upgrade	$10.60
53	758		No Competition	220-85 Linwood-Edgemoor 230 kV Tie-Line Facility Upgrade	$76.85
40	371	PEPCO	MAAC-PEPCO	Dickerson 500 kV Substation & New Dickerson - Brighton 500 kV Line	$857.22
49	851			Brighton - Doubs 500 kV Rebuild	$101.86
56	919			Dickerson 500 kV Substation	$257.61
57	631	POTOED	No Competition	McCanns Rd 138 kV Switching Station	$23.87
58	692		No Competition	Garrett Tap - Garrett 115 kV Line Rebuild	$9.15
59	16	PPLTO	PPL	Juniata - Sunbury 500 kV line EOL SCT rebuild	$162.89

#	ID	Proposing Entity	Focus Area	Project Title	Submitted Cost ($M)
60	158		PPL	Portfolio Proposal 1: Year 2030 Area 229 Essential Reliability Solution	$415.07
61	190		PPL	Glen Brook - Susquehanna T10 - Susquehanna 230 kV 1 & 2 DCT line rebuild	$40.64
62	199		PPL	Siegfried 500/230 kV Substation expansion project	$124.27
63	290		PPL	Siegfried - Drakestown 500 kV line (PA segment)	$88.16
64	317		PPL	Sunbury - Susquehanna 500 kV line bifurcation and reroute through Kelayres 500 kV Station	$227.42
65	333		PPL	Kelayres - Tresckow 230 kV # 3 line	$20.13
66	422		PPL	Susquehanna - Tomhicken 230 kV 1 & 2 separated lines with reconductors	$60.82
67	434		PPL	Sandy Run - Kelayres 500 kV line project	$184.73
68	491		PPL	Glen Brook - Nescopeck 230 kV line	$32.58
69	556		PPL	Lackawanna - Sandy Run - Siegfried 500 kV line project	$464.86
70	558		PPL	Portfolio Proposal 2: Year 2032 Area 229 Essential Reliability Solution	$536.39
71	588		PPL	Glen Brook - Susquehanna T10 1 & 2 DCT line reconductor and Susquehanna T10 - Susquehanna # 3 line	$27.31
72	647		PPL	Jenkins 230/69 kV Substation transformers re-termination	$10.17
73	688		PPL	Monroe 230/138 kV Substation upgrade	$39.21
74	756		PPL	Juniata - Sunbury 500 kV line EOL DCT rebuild	$217.93
75	769		PPL	Mohrsville - Kelayres 500 kV line	$418.11
76	794		PPL	Frackville - Siegfried 500 kV line	$253.50
77	824		PPL	Susquehanna - Tomhicken 230 kV 1 & 2 DCT line reconductor	$29.73
78	853		PPL	Portfolio Proposal 3: Year 2032 + 4 GW Area 229 Essential Reliability Solution	$797.94
79	855		PPL	Nescopeck - Kelayres 500 kV line project	$145.75
80	918		PPL	Sunbury - Kelayres 500 kV line	$347.99
81	945		PPL	Juniata - Lewistown 230 kV # 2 line	$159.08
82	946		PPL	Susquehanna - Wescosville 500 kV line bifurcation and reroute through Kelayres 500 kV Station	$181.32
83	958		PPL	Montour - Glen Brook 230 kV 1 & 2 DCT line reconductor or rebuild	$39.65
84	656	**PSEG**	No Competition	Roseland - Livingston & Roseland - Laurel 230 kV Reconductoring	$9.93
85	60	**PSEGRT**	ATSI/AEP/DAYTON	765 kV Standalone Solution	$1,333.61
86	241		ATSI/AEP/DAYTON	STATCOM Solution	$143.36
87	423		ATSI/AEP/DAYTON	345 kV Standalone Solution	$475.11
88	619		ATSI/AEP/DAYTON	345 kV Solution + 765 kV Solution (Alternative)	$1,942.65

#	ID	Proposing Entity	Focus Area	Project Title	Submitted Cost ($M)
89	907		ATSI/AEP/DAYTON	345 kV/765 kV Combined Project	$1,841.18
90	938	TRAIL	DOM Regional	Dominion Regional Solution	$3,426.93
91	552	TRNSLK	PPL	Siegfried - Drakestown 500 kV line (brownfield NJ segment route)	$194.25
92	51	TRNSRC	ATSI/AEP/DAYTON	Ohio Five Year Solution	$1,051.22
93	331		DOM Regional	Virginia Area Seven Year Solution 1	$2,895.32
94	570		ATSI/AEP/DAYTON	Ohio Seven Year Solution	$2,775.19
95	781		DOM Regional	Virginia Area Seven Year Solution 2	$1,986.45
96	9	VEPCO	DOM2032_2 (Components)	Line 576 Partial Rebuild - Vontay to Midlothian	$104.86
97	24		DOM2032_2 (Components)	Line 568 Partial Rebuild - Ladysmith to Kraken	$48.59
98	48		DOM2032_2 (Components)	New 500 kV Line - North Anna to Vontay	$121.09
99	55		DOM2032_2 (Components)	New 765 kV Line - Heritage to Yeat	$1,665.29
100	98		DOM2032_2 (Components)	New 500 kV Line - Chickahominy to Kraken	$414.94
101	117		DOM2032_2 (Components)	Line 539 Rebuild - Yeat to Ox	$125.25
102	126		DOM2032_2 (Components)	Line 567 Terminal Upgrade Chickahominy & Surry	$2.49
103	238		DOM2032_2 (Components)	Line 563 Rebuild - Carson to Midlothian	$237.06
104	243		DOM2032_2 (Components)	Carson Substation Equipment Upgrade	$14.21
105	245		DOM2032_2 (Components)	Line 5008 Cut-in into Mosby Substation	$16.25
106	247		DOM2032_2 (Components)	New 765/500 kV Switching Station - Vontay	$239.49
107	253		DOM2032_2 (Components)	Line 5008 Cut-in into Mosby Substation	$16.25
108	264		DOM2032_2 (Components)	Line 539 Rebuild - Bristers to Ox	$132.37
109	275		DOM Regional	HVDC backbone - Portfolio 1A	$4,819.51
110	302		DOM2032_2 (Components)	New 500 kV Line - Vontay to Kraken	$265.29
111	306		DOM2032_2 (Components)	New 500 kV Line - Elmont to Kraken	$180.30
112	311		DOM2032_2 (Components)	Line 578 (Septa-Surry) Terminal Equipment Upgrade	$3.90
113	321		DOM2032_4	New 765 kV line from Joshua Falls to Durandal	$545.00
114	326		DOM Regional	HVDC backbone - Portfolio 1B	$5,009.03
115	339		DOM2032_2 (Components)	Line 576 Partial Rebuild - North Anna to Vontay	$104.86
116	352		DOM Regional	HVDC backbone - Portfolio 1D	$5,013.97
117	409		DOM2032_2 (Components)	New 500 kV Line Morrisville - Cunningham	$539.55
118	458		DOM2032_2 (Components)	New 500 kV Line - Heritage to Morrisville	$794.27
119	474		DOM Regional	765 kV backbone - Portfolio 2C	$2,273.85
120	476		DOM2032_3 (Safety)	Safety Solutions	$1,441.10
121	547		DOM Regional	HVDC backbone - Portfolio 1C	$4,904.50
122	557		DOM2032_2 (Components)	New 500 kV Line - Skiffes Creek to Chickahominy	$292.89
123	616		DOM Regional	500 kV backbone - Portfolio 3	$2,349.26
124	627		DOM2032_2 (Components)	Line 597 Rebuild - Spotsylvania to Morrisville	$102.05
125	705		DOM Regional	765 kV backbone - Portfolio 2A	$2,864.73
126	755		DOM2032_2 (Components)	Line 576 Rebuild - North Anna to Midlothian	$210.99

#	ID	Proposing Entity	Focus Area	Project Title	Submitted Cost ($M)
127	815		DOM2032_2 (Components)	New HVDC Transmission Link from Heritage to Mosby	$3,790.85
128	825		DOM2032_2 (Components)	New 500 kV Line - Finneywood to Cunningham	$483.74
129	848		DOM Regional	765 kV backbone - Portfolio 2B	$2,969.05
130	868		DOM2032_2 (Components)	Topology Changes at Ladysmith, Kraken, and Carson substations	$10.03
131	911		DOM2030_1	2030 Solution	$314.91
132	916		DOM2032_2 (Components)	Line 560 Rebuild - Possum Point to Burches Hill	$3.89
133	948		DOM2032_2 (Components)	Line 573 Rebuild - North Anna to Spotsylvania	$103.03
134	975		DOM2030_2	2030 Western Solution	$318.17

Map 4. 2025 RTEP Window 1: Regional Clusters/Groupings



Window 1 Evaluations Process – Regional

Consultation Meetings with Proposing Entities

PJM held at least two meetings with each of the proposing entities. The discussions focused on gaining clarity on proposed developments, assumptions, and rationale of proposed alternatives and variations. The first round of meetings were held shortly after the window closed, in late August 2025, and the second round commenced in early September 2025. The latter half of the discussions focused on outage scheduling, routing, risk and cost assumptions and other considerations.

Scenario Development

PJM developed study "Scenarios" for the purpose of evaluating the efficacy of each submitted proposal individually and in combination with other proposals in addressing the identified needs together with any ancillary benefits. The scenarios were evaluated based on the following principles:

- **Meeting the system needs of 2030 and 2032**
- **Being scalable/flexible to address forecasted needs going forward (for rightsizing and limiting disruption)**
- **Expectation of additional ~3.5 GW in PPL as submitted by PPL to PJM in June 2025, which will further increase west-east flow requirements.**
- **Utilization of existing ROWs and brownfield development/expansion (where possible and efficient)**
  - Greenfield developments will be required, particularly along all proposed 765 kV solutions and some 500kV solutions.
  - Expansion to existing 500 kV ROWs instead of wreck and rebuild due to outage and scheduling considerations.
- **Cost evaluation using third-party cost benchmarking metrics – weak cost containment provisions**
- **Proposing entity experience in developing and operating 765 kV facilities**

The scenarios were developed and tested to first address the larger regional area and transfer needs and then were refined through new scenarios to address regional in-zone needs. This ensures that the impacts of regional solutions in addressing more in-zone needs are captured avoiding redundant assets. Scenarios were further refined using the more effective proposal components as demonstrated through their performance in the analysis. Further information regarding aspects related to the bulleted items, cost evaluation and utilization of ROWs, are detailed in the 2025 RTEP Window 1 Constructability & Financial Analysis Report.

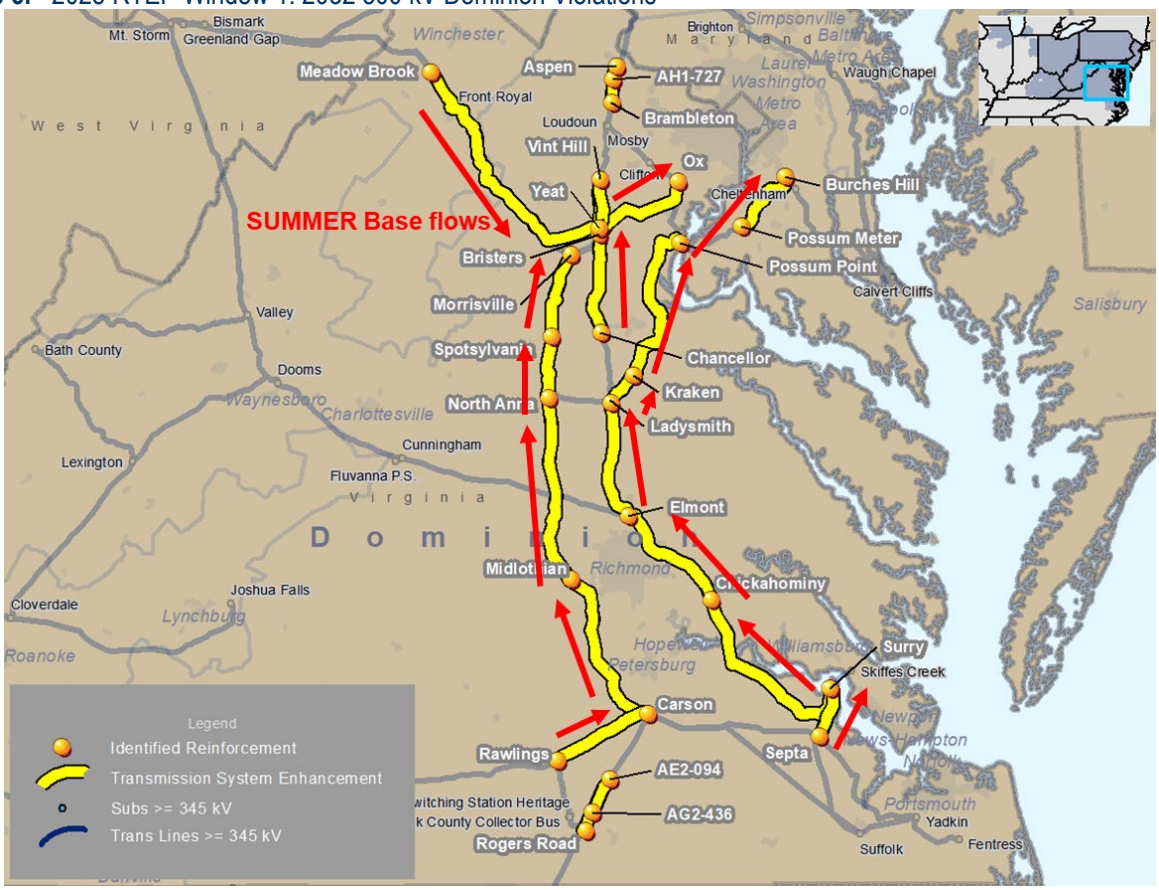
2030 & 2032 Reliability Evaluation Summary

Southern Regional

The 500 kV violations in the southern regional cluster are focused along the South to North corridor as shown in **Map 5**. This corridor is geographically south of the already reinforced transmission network in Central and Northen Virginia part of previous PJM transmission solicitation windows. Violations are predominantly driven by:

- Need to deliver, local Virgina generation in Southern Dominion to Northern Virginia load (e.g. NOVA) and throughout the system.
- Increases in load with heavier concentration in the NOVA area.
- Further increases in PJM load overall – currently, an increase in data center load external to Dominion (for example, in the PPL zone which is north of the Dominion zone).

Map 5. 2025 RTEP Window 1: 2032 500 kV Dominion Violations



These needs rely on the generation timeline developing in the southern PJM region and start showing in 2032 primarily due to the generation planning assumptions PJM elected to model in the 2032 scenarios. Accordingly, the planning year 2032 models show these heavy transfer needs to reinforce the southern 500 kV transmission system[2]. Planning year 2032 shows the need to reinforce the southern 500 kV transmission system. This backbone will support the transfer of resource capacity from the southern edge of the PJM system into NOVA and help balance flows between West – East and South – North transmission corridors. Reliability analysis including generator deliverability, N-1 and N-1-1, as well as transfer studies were conducted to evaluate proposal merits.

The table below shows the submitted proposals that targeted the posted FGs in the southern regional cluster for 2032.

- Four Dominion proposals recommend a ±525 kV HVDC link from Heritage to Mosby and have similar configuration and cost.
- All 765 kV solutions follow similar routes (reinforcing South – North corridor) and require heavy greenfield development.
- 500 kV option(s) considered in light of offered capacity vs. ROW greenfield impact introduced by 765 kV developments.

[2] PJM was primarily seeking solutions for violations in the 2030 planning year, but also noted that 2032 RTEP models suite will be primarily utilized to right-size needs already showing up in 2030 and for consideration of longer-term needs (requiring 7 or more years to develop, i.e., 500kV and above developments).

Table 7. 2025 RTEP Window 1: Southern Regional Proposals

Proposing Entity	Proposal ID	High Level Description	Total Cost ($M)
VEPCO	275 1A HVDC	New HVDC Transmission Link from Heritage to Mosby (~185 miles), new 500 kV line Elmont-Kraken, various 500 kV rebuilds, new 765/500 kV switching station and various substation equipment upgrades.	4,819.51
VEPCO	326 1B HVDC	New HVDC Transmission Link from Heritage to Mosby (~185 miles), new 500 kV line Chickahominy-Kraken, new 500 kV line Skiffes Creek-Chickahominy, various 500 kV rebuilds, new 765/500 kV switching station and various substation equipment upgrades.	5,009.03
VEPCO	547 1C HVDC	New HVDC Transmission Link from Heritage to Mosby (~185 miles), new 500 kV line Vontay-Kraken, various 500 kV rebuilds, new 765/500 kV switching station and various substation equipment upgrades.	4,904.5
VEPCO	352 1D HVDC	New HVDC Transmission Link from Heritage to Mosby (~185 miles), new 500 kV line North Anna-Vontay, various 500 kV rebuilds, new 765/500 kV switching station and various substation equipment upgrades.	5,013.97
VEPCO	705 2A 765 kV	New 765 kV line from Heritage to Yeat (~152 miles), new 500 kV line Chickahominy-Kraken, new 500 kV line Skiffes Creek-Chickahominy, various 500 kV rebuilds, new 765/500 kV switching station and various substation equipment upgrades.	2,864.73
VEPCO	848 2B 765 kV	New 765 kV line from Heritage to Yeat (~152 miles), new 500 kV line Vontay-Kraken, various 500 kV rebuilds, new 765/500 kV switching station and various substation equipment upgrades.	2,969.05
VEPCO	352 2C 765 kV	New 765 kV line from Heritage to Yeat (~152 miles), various 500 kV rebuilds & various substation equipment upgrades.	2,273.85
VEPCO	616 3A 500 kV	New 500 kV line from Heritage-Morrisville, new 500 kV line Finneywood-Cunningham, new 500 kV line Morrisville-Cunningham, various 500 kV rebuilds, new 765/500 kV switching station and various substation equipment upgrades.	2,349.26
TRNSRC	331 2-765 kV	Construct Bagpipe 765 kV, Vontay 765 kV, Durandal 765/500 kV, Starfruit 765/230 kV, Lodi 765/500 kV, and Kaladin 500/230 kV substations. Construct Bagpipe–Vontay, Joshua Falls–Durandal 765 kV, Durandal–Starfruit 765 kV, Starfruit–Lodi 765 kV, Lodi–Cunningham 500 kV, Lodi–Kaladin 500 kV, Kaladin–North Anna 500 kV, and Kaladin–Morrisville 500 kV lines.	2,895.32
TRNSRC	781 1-765 kV	Construct Durandal 765/500 kV, Starfruit 765/230 kV, Lodi 765/500 kV and Kaladin 500/230 kV substations. Construct Joshua Falls–Durandal 765 kV, Durandal–Starfruit 765 kV, Starfruit–Lodi 765 kV, Lodi–Cunningham 500 kV, Lodi–Kaladin 500 kV, Kaladin–North Anna 500 kV, and Kaladin–Morrisville 500 kV lines.	1,986.45
TRAIL	938 765 kV	New Lea Anna 765 kV, Ladysmith 765 kV, Rogers Rd 765 kV, Centerville Rd 765 kV, Perkins Rd 765 kV, Creekward 500 kV Switchyards, substation expansions at the following locations: Bristers 500 kV, Morrisville 500 kV, Rogers Rd 500 kV, Carson 500 kV, new substations at the following locations: Bristers 765/500 kV, Morrisville 765/500 kV, Lea Anna 765/500 kV, Ladysmith 765/500 kV, Rogers Rd 765/500 kV, Perkins Rd 765/500 kV, new transmission lines: Lea Anna - Ladysmith 765 kV, Ladysmith - Bristers 765 kV, Lea Anna - Morrisville 765 kV, Centerville Rd - Rogers Rd 765 kV, Rogers Rd - Perkins Rd 765 kV, Perkins Rd - Lea Anna 765 kV, Carson - Creekward 500 kV Line & relay setting revisions at Ladysmith	3,426.93
CNTLTM	260 500 kV	New 765/500 kV Middle Fork, 500 kV South Fork and 500 kV Turkey Creek Substations, Substation expansions at the following locations: Warrenton, Wheeler, Brickyard, Vint Hill, Cunningham, Morrisville,	2,207.36

Proposing Entity	Proposal ID	High Level Description	Total Cost ($M)
		Rawlings, Carson Expansion, new 500 kV lines: Front Royal - Vint Hill, Cunningham - Middle Fork #1 & #2, Middle Fork - Morrisville #1 & 2 and Rawlings - South Fork.	

Table 8 summarizes the generation deliverability testing for the southern region using the main regional proposals as indicated. The results summarize both the base scenario analysis and the sensitivity (Scenario 4) results. These results indicate that the impact of additional load or delays in generation integration in MAAC, will have impacts up to the 500 kV system in Southern PJM. Although the Scenario 4 results are indicated to materialize in 2032, they may show up as earlier system performance issues if these assumptions (load increase or generation delays) develop in earlier time frames.

PJM also conducted transfer analysis, to evaluate the merits and performance of the submitted proposals. This was conducted in addition to reliability analysis including generator deliverability, N-1 and N-1-1. PJM reliability assessments verifying the proposals address the starting point conditions represented in the scenario "static" system conditions. The analysis as summarized in **Figure 3** demonstrates that the proposed HVDC proposal 275 offers the highest throughput from a regional transfer perspective compared to all other submitted proposals. The Transource proposal 331 (complemented by a number of Dominion submitted 500 kV proposals) as well as Dominion's 765 kV proposal 848 perform similarly next (about 1000 MW to 500 MW less depending on source/sink combination). The 500 kV proposal offers approximately 50% less total transfer capability throughput compared to the HVDC proposal 275. **Table 9** and **Table 10** summarize the source and sink definitions used in PJM's incremental transfer studies.

Figure 3. Southern Regional Incremental Transfer Capability Analysis – 2032 Summer Base Case

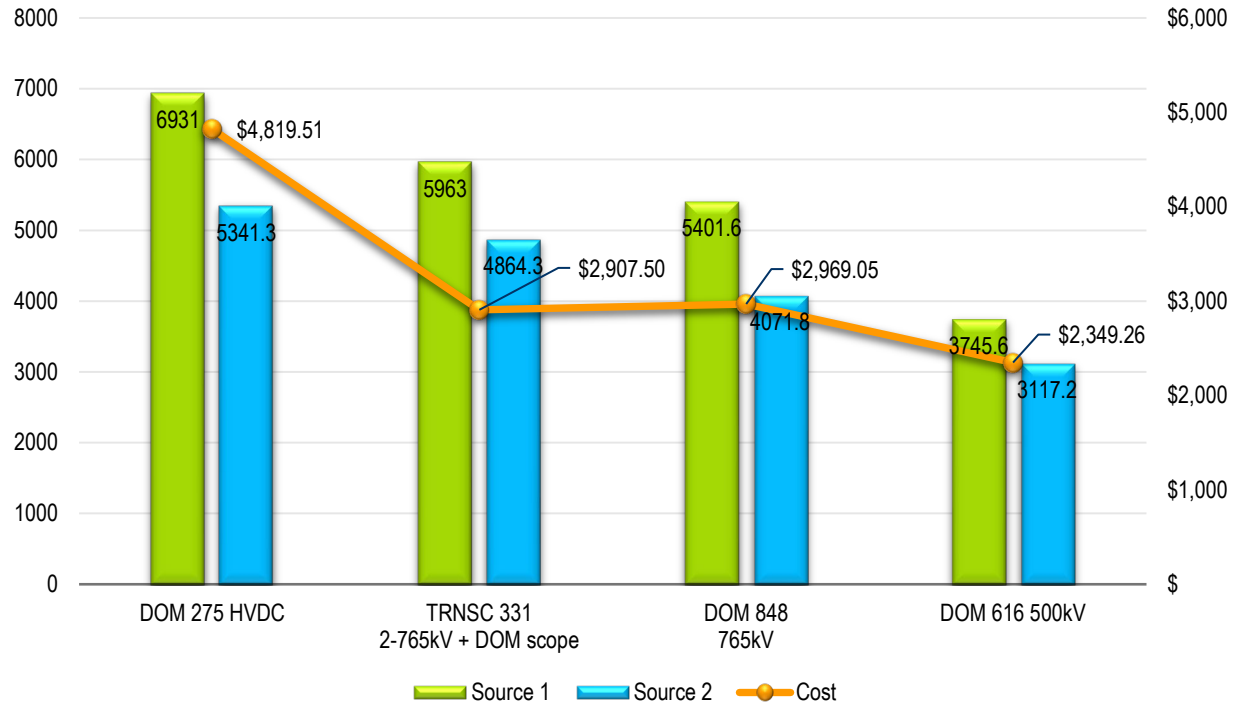


Table 8. 2025 RTEP Window 1: Southern Regional Generator Deliverability Results Summary

Proposal ID	Proposing Entity	2032 Base Performance	2032 S4 + PPL Load	Submitted Cost ($M)	Notes
275 (1A-HVDC)	Dominion	0 - 500 kV violations > 100% 2 - 500 kV loadings > 90%	0 - 500 kV violations > 100% 3 - 500 kV loading > 90%	4,820.00	
326 (1B-HVDC)	Dominion	0 - 500 kV violations > 100% 0 - 500 kV loading > 90%	N/A	5,009.00	
547 (1C-HVDC)	Dominion	0 - 500 kV violations > 100% 1 - 500 kV loading > 90%	N/A	4,905.00	
352 (1D-HVDC)	Dominion	0 - 500 kV violations > 100% 2 - 500 kV loadings > 90%	N/A	5,014.00	
705 (2A-765 kV)	Dominion	0 - 500 kV violations > 100% 2 - 500 kV loadings > 90%	1 - 500 kV violation > 100% 2 - 500 kV loading > 90%	2,865.00	
848 (2B-765 kV)	Dominion	0 - 500 kV violations > 100% 2 - 500 kV loadings > 90%	0 - 500 kV violations > 100% 2 - 500 kV loading > 90%	2,969.00	
474 (2C-765 kV)	Dominion	1 - 500 kV violation > 100% 1 - 500 kV loading > 90%	N/A	2,274.00	
616 (3-500 kV)	Dominion	0 - 500 kV violations > 100% 1 - 500 kV loading > 90%	0 - 500 kV violations > 100% 3 - 500 kV loading > 90%	2,349.00	
260	LS Power	6 - 500 kV violations > 100% 2 - 500 kV loadings > 90%	N/A	2,207.00	
331 (2-765 kV)	Transource	0 - 500 kV violations > 100% 2 - 500 kV loadings > 90%	3 - 500 kV violation > 100% 2 - 500 kV loading > 90%	2,895.00	500 kV LN #574 Elmont - Ladysmith currently being reconductored to 4330 MVA (b3020). Loaded to ~97% under single contingency in 2032 Base. Overloaded in S4+PPL Load scenario: ~102%.
781 (1-765 kV)	Transource	6 - 500 kV violations > 100% 4 - 500 kV loadings > 90%	N/A	1,986.00	
938	Trail	7 - 500 kV violations > 100%	N/A	3,427.00	

Table 9. 2025 RTEP Window 1: Southern Regional Generator Source distribution for transfer analysis.

Source	Bus Name	Percentage
South 2	BUS 314902 / CARSON	25%
	BUS 314940 / ROGERS RD	25%
	BUS 242514 / JACKSONS FERRY	50%
South 3	BUS 314902 / CARSON	20%
	BUS 314940 / ROGERS RD	20%
	BUS 314923 / SEPTA	20%
	BUS 314906 / CLOVER	20%
	BUS 314936 / RAWLINGS	20%

Table 10. 2025 RTEP Window 1: Southern Regional Generator Sink distribution for transfer analysis

Sink	Bus Name	Percentage
South 1 (NOVA)	BUS 314919 / OX	20%
	BUS 313403 / ASPEN	40%
	BUS 313440 / VINT HILL	40%

Mid-Atlantic Region

In the 2025 RTEP, compared to the 2024 RTEP, the PJM Mid-Atlantic region summer load increased approximately 5 GW for 2030. Most of these load increases are datacenter loads primarily in the PPL zone. Additionally, PPL advised PJM of further load additions of approximately 3.5 GW to 2032 load which were not included in 2025 load forecast. The total load increase for the 2032 Mid-Atlantic area is about 9 GW when considering the longer-term PPL 3.5 GWs of additional load. While the transmission system can accommodate the 5 GW load increase for 2030 (with NJ OSW modeled), the additional 3.5 GW increase to the 2032 load (or delays to MAAC planned generation, including NJ OSW) requires imports into the Mid-Atlantic region is beyond the system capability.

The 2032 Scenario 4 cases considered the impact of any potential delay in the New Jersey Offshore Wind (NJOSW) generators. NJOSW assumes multiple OSW projects with total nameplate capacity of 7.5 GW. Currently, all NJOSW projects are either suspended or withdrawn. The imports into the Mid-Atlantic region also exceed system capability when NJOSW are not in service. Either NJOSW delay or additional 2032 load (not in current forecast as discussed above) will require regional reinforcement to transfer additional power needed in the Mid-Atlantic region.

2030 Analysis

This analysis showed that there were higher regional transfers into the Mid-Atlantic region that are still within the capability of the planned transmission by 2030 (with NJ OSW modeled). With significant load growth in PPL's Susquehanna area, multiple 230 kV transmission lines are overloaded in the area. Additionally, the Juniata – Sunbury 500 kV transmission line is an end-of-life candidate per PPL FERC Form 715 criteria.

2032 Analysis

Within the 2032 analysis, there were multiple scenarios that were analyzed and included part of the proposal evaluation process. These needs are shown in the maps in **Map 6** and **Map 7** below.

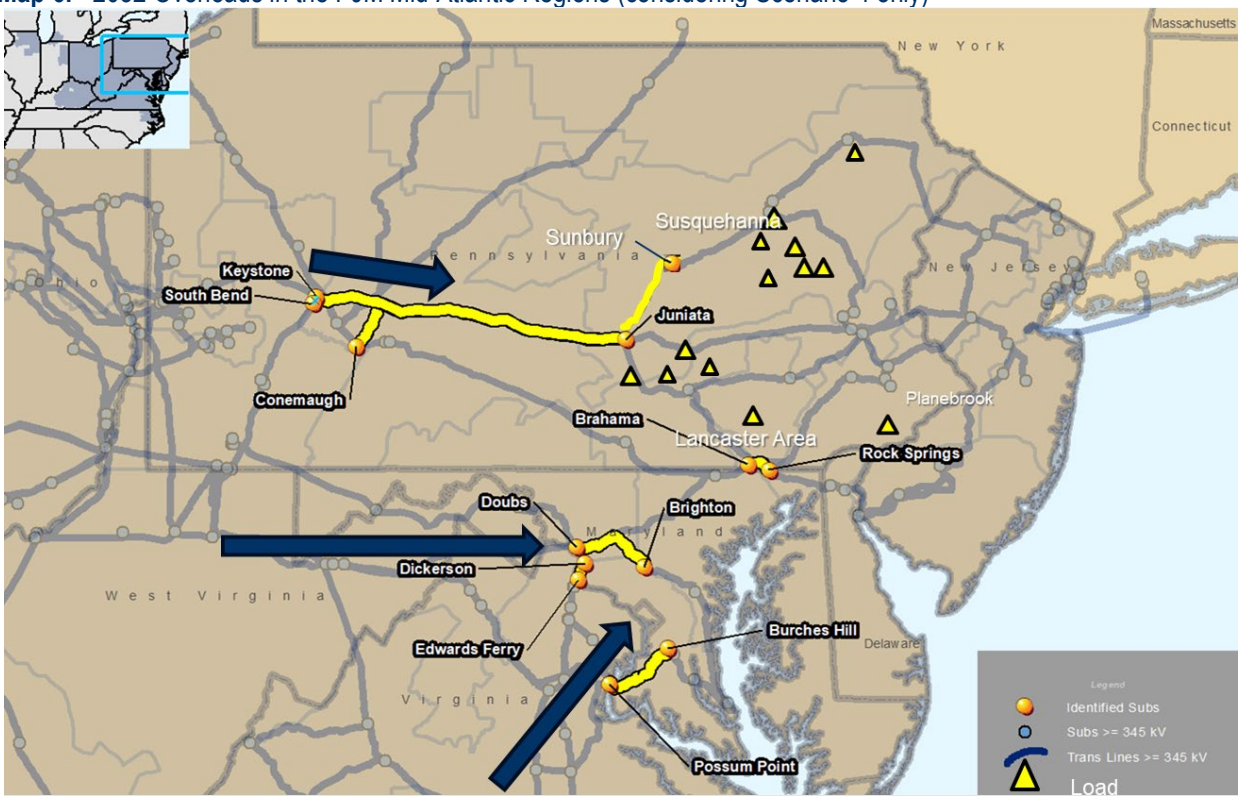
1. 2032 Base case with NJOSW In-Service (Base Scenario)
    a. The need for regional transfer into Mid-Atlantic from West and South increased further due to the increase in load. PJM West and South regions are projected to have significant generation additions while generation additions in the Mid-Atlantic is expected to be relatively small.
    b. This analysis identified two 500 kV violations
        i. Rock Springs – Bramah 500 kV
        ii. Keystone – Juniata 500 kV
    c. Additional 230 KV overloads in PPL Susquehanna area.

2. 2032 Base Case with NJOSW removed (Scenario 4)
    a. This scenario basically models the system with an additional import level into MAAC reflective of the removal of the 7.5 GWs of NJOSW nameplate capacity.
    b. Six 500 kV transmission lines are overloaded. These lines primarily support the flow of power from the West or South into the Mid-Atlantic region
        i. Keystone – Juniata 500 kV
        ii. Keystone – Conemaugh 500 kV
        iii. South Bend – Keystone 500 kV
        iv. Conemaugh – Juniata 500 kV
        v. Doubs – Brighton 500 kV
        vi. Possum Point – Burches Hill 500 kV
    c. Several 230 kV facilities were identified with thermal violations. The majority of these were in the PPL Zone.
    d. Wide-spread voltage collapse in Mid-Atlantic and South regions for several regional transmission facilities including the loss of the recently approved 765 kV line from Amos – Rocky Point.

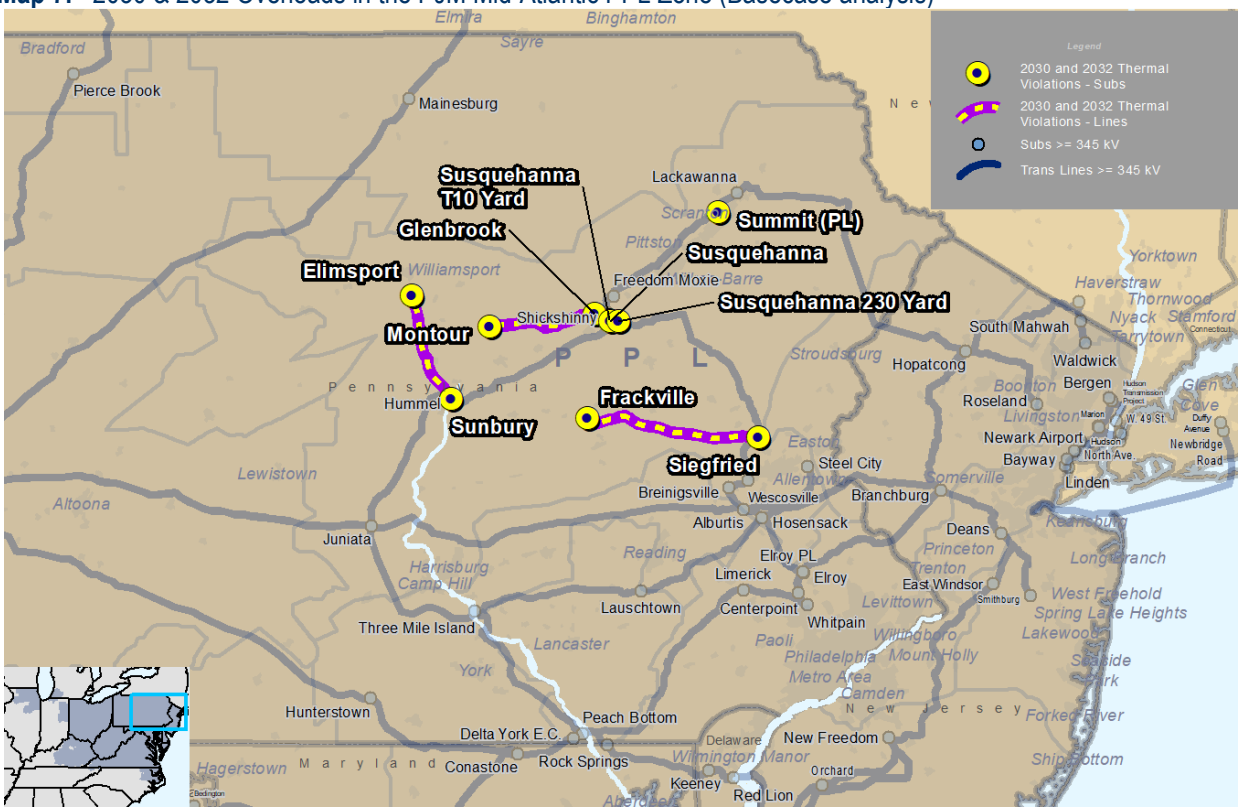
3. 2032 Scenario 4 with Additional PPL Load (~3.5GW not included in the 2025 load forecast + NJOSW delayed)
    a. The need for a regional transfer to the Mid-Atlantic regional from West and South increases further due to the combined effect of the delay in NJOSW and additional 3.5 GW PPL load.
    Due to heavy power transfers in this scenario, widespread non-convergences and voltage collapse are observed for the loss of any major transmission facilities and a detailed load-flow contingency analysis was not performed. This scenario was tested after the solutions from other scenarios were finalized, to test their effectiveness.

The analysis summarized above indicates that the need for regional transfers to support additional imports into MAAC are triggered by either additional load in MAAC (PPL), delays or cancellation of OSW, or a combination of both.

Map 6. 2032 Overloads in the PJM Mid-Atlantic Regions (considering Scenario 4 only)



Map 7. 2030 & 2032 Overloads in the PJM Mid-Atlantic PPL Zone (Basecase analysis)



Proposals Received

Total of 47 proposals were received to address the needs and violations in the Mid-Atlantic region. Breakdown of these proposals is as follows:

1. "MAAC-PPL" Cluster – 29 proposals
    a. PPL submitted 25 proposals to address the base 2030 and 2032 violations within PPL zone. The proposals included 500 kV and 230 kV brownfield and greenfield line and substation builds.
    b. One Translink proposal complementing a PPL proposal for a 500 kV line from New Jersey to PPL.
    c. One LS Power proposal extending 500 kV to the new load centers in PPL.
    d. Two proposals from NextEra and Exelon with 500 kV and 230 kV line builds – one extending new lines to the new load centers and another tapping 345 kV and 230 kV line in nearby Penlec and extending a new 500 kV line to Susquehanna.

2. "MAAC Regional" Cluster – 8 proposals
    a. Four FirstEnergy proposals – all includes two new 500 kV lines from Keystone is western PA to Susquehanna. Two proposals included the two new 500 kV lines as double-circuit common tower construction, while the other two proposals included the two lines as single-circuit construction on two separate towers. The new line will parallel existing 500 kV rights-of-way with additional right-of-way needed.
    b. Four NextEra and Exelon proposals were submitted to address Mid-Atlantic regional needs. Three of the proposals extend 765 kV backbone from Kammer in PJM West near OH/WV line into PPL. One proposal included 500 kV reinforcement in APS to support West-East transfer.

3. "MAAC-PEPCO" Cluster – 3 proposals
    a. Three PEPCO proposals at 500 kV and 230 kV to address 2032 zonal and regional transfer needs from South into Mid-Atlantic.

4. Specific Need Proposals – 7 proposals
    a. Two DPL proposals to address 2032 violations because of NJOSW generation. These needs will be deferred due to the uncertainty with NJOSW.
    b. One JCPL proposal to address load-drop and voltage violations at Montville.
    c. One PSEG proposal to address 230 kV overloads.
    d. Three PECO proposals to address 230 kV overloads.

MAAC Clusters Evaluation

Following clusters were developed for the Mid-Atlantic needs:

1. MAAC-PPL Cluster – Proposals addressing the PPL base zonal needs for 2030 and 2032.

2. MAAC Regional Cluster – Proposals addressing the regional power transfer need into Mid-Atlantic region.

3. MAAC-PEPCO Cluster – Proposals addressing the PEPCO and PEPCO/Dominion tie needs.

MAAC-PPL Cluster

For the MAAC-PPL area cluster, PPL submitted large number of proposals – 25 in total – to address 2030 and 2032 violations within PPL zone. While most of the PPL proposal addressed specific violations, three of the proposals were "portfolio" proposals – combination of smaller proposals to comprehensively address area-wide violations. PPL

Portfolio Proposal 158 was designed to address 2030 violations, and Portfolio Proposal 558 and 853 included additional components to scale the solution to 2032 violations and needs.

Translink offered one proposal in collaboration with PPL. Additional MAAC-PPL cluster proposals included one from LS Power and two from NextEra/Exelon as discussed above. All cluster proposals included 500 kV and 230 kV brownfield and greenfield line and substation builds. Most of the multi-component cluster proposals offered to tap the existing 500 kV backbone transmission in the Susquehanna area of PPL and extend it to the new load-centers near existing Montour and Harwood Substation as shown in **Map 8** below. In total PJM considered seven scenarios for MAAC-PPL cluster evaluation as provided in **Table 11** below.

Map 8. MAAC-PPL Cluster - Proposed Projects

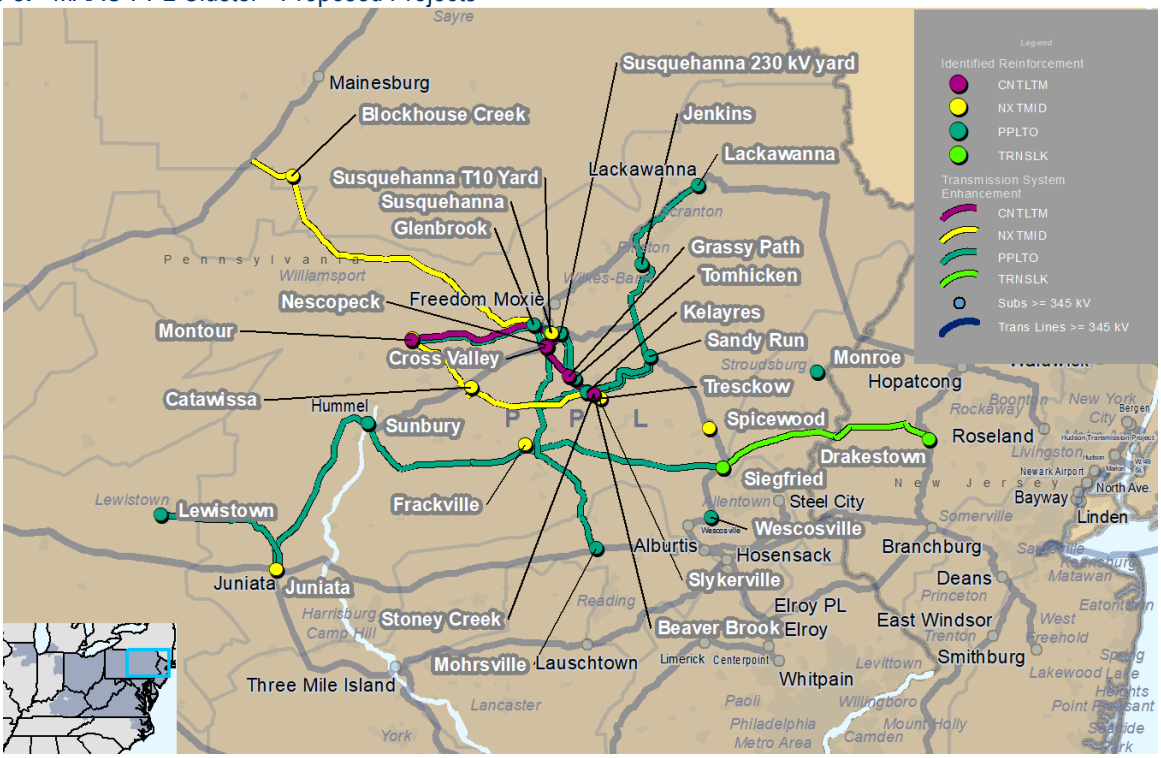


Table 11. MAAC-PPL Cluster - Scenarios

Scenario	Proposal ID	Description	Cost ($ M)
MAAC-PPL-1	158	PPL Portfolio 1 Proposal	$ 415
MAAC-PPL-2	558	PPL Portfolio 2 Proposal	$ 536
MAAC-PPL-3	853	PPL Portfolio 3 Proposal	$ 769
MAAC-PPL-4	20	LS Power	$ 494
MAAC-PPL-5	771	NextEra	$ 539
MAAC-PPL-6	871	NextEra	$ 1,136
MAAC-PPL-7	558 + Component of 853	PPL with addition based on PJM analysis	$ 565

PJM performed a full suite of load-flow contingency analysis on the seven scenario cases developed for the MAAC-PPL cluster. A summary of the analysis results is provided in **Table 12** below. MAAC-PPL Scenario 2 and 3 which corresponded to PPL Portfolio proposals 558 and 853 respectively performed well and were shortlisted. Scenario 4 (LS Power Proposal 20) and Scenario 5 (NextEra Proposal 771) also performed well but would require additional

scope for End-of-Life (EOL) rebuilding of Juniata-Sunbury 500 kV line. PPL Portfolio proposals include this EOL facility in their proposed cost.

PJM considered addition of components to Scenario 2 (PPL Portfolio Proposal 558) to address the remaining violations. The identified additional component was a third 500/230 kV transformer at Kelayres, already proposed by PPL part of the proposal 853. This addition was considered in Scenario 7. Scenario 7 was more cost effective than Scenario 3 which is the largest portfolio proposal by PPL. PPL in-zone proposals require the least right-of-way acquisition and offer strong cost caps as discussed further in the constructability considerations later in the report. PJM has decided to move forward with MAAC/PPL Scenario 7 for reliability, performance and cost effectiveness. PPL proposed this project entirely cost capped.

Table 12. MAAC-PPL Cluster – Analysis Results Summary

Scenario	Entity/ Proposal ID	2030 Performance	2032 Base case Performance	2032 Scen 4 Performance	2032 PPL Add Load Performance	Cost ($M)
MAAC-PPL-1	PPL 158	No violation	4 - 230 kV loading >94%	3 - 230 kV loading >120% 4 - 230 kV loading >104%	3 - 230 kV loading >120% 4 - 230 kV loading >104%	$ 415
MAAC-PPL-2	PPL 558	No violation	No violation	2 -500/230 kV loading >101% 1 - 230 kV loading >94%	2 -500/230 kV loading >101% 1 - 230 kV loading >94%	$ 536
MAAC-PPL-3	PPL 853	No violation	No violation	1 - 230 kV loading >100%	1 - 230 kV loading >100%	$ 769
MAAC-PPL-4	LS Power 20	500 kV EOL violation Local voltage violations	No violation	2 - 230 kV loading >100% 2 - 230 kV loading >95%	2 - 230 kV loading >100% 2 - 230 kV loading >95%	$ 494
MAAC-PPL-5	NextEra 771	500 kV EOL violation Local voltage violations	No violation	3 - 230 kV loading >98% 2 - 230 kV loading >94%	3 - 230 kV loading >98% 2 - 230 kV loading >94%	$ 539
MAAC-PPL-6	NextEra 871	500 kV EOL violation Local voltage violations	No violation	2 - 230 kV loading >94% 3 - 230 kV loading >92%	2 - 230 kV loading >94% 3 - 230 kV loading >92%	$ 1,136
MAAC-PPL-7	PPL 558 + Kelayres 3rd Xfmr	No violation	No violation	No violation	No violation	$ 565

MAAC Regional Cluster

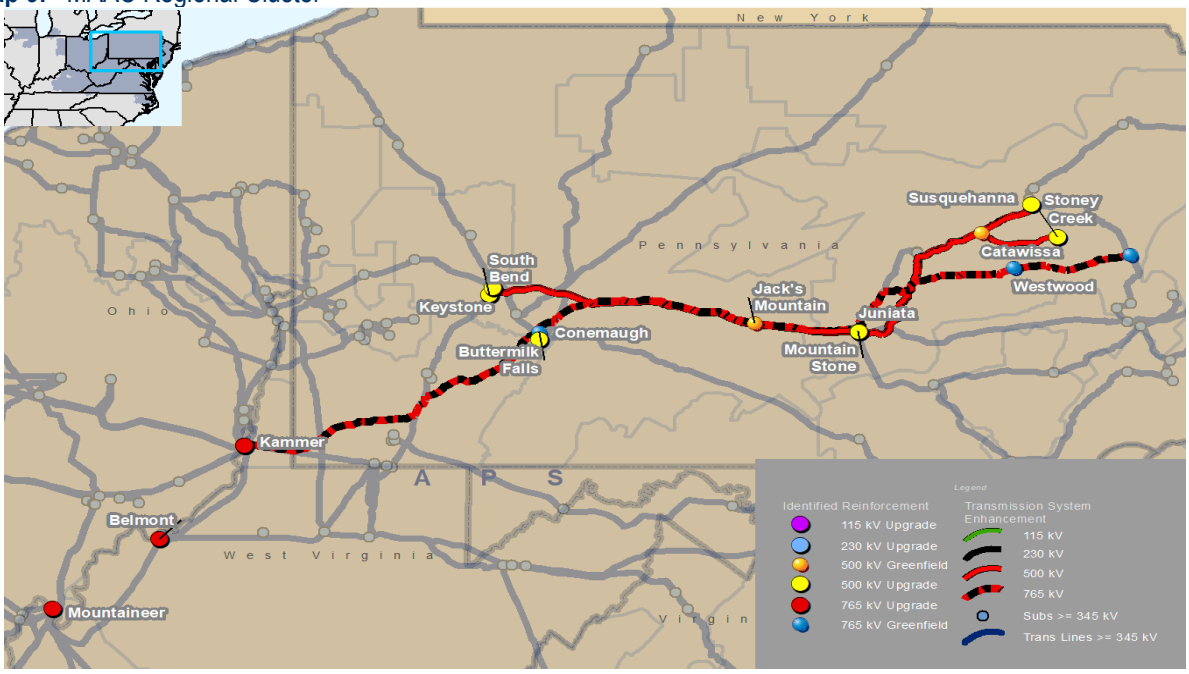
FirstEnergy and NextEra/Exelon submitted proposals to support regional transfers into the Mid-Atlantic region and to support the new datacenter load in the PPL zone. All four of FirstEnergy proposals include two 500 KV lines originating within the Mid-Atlantic region in Western Pennsylvania at Keystone Generation 500 kV Station, running across central PA and terminating at Susquehanna near new datacenter loads. FirstEnergy proposed double-circuit,

common-tower as well as single-circuit, separate tower construction options for the two new lines. NextEra and Exelon joint venture (JV) also had two proposals targeting regional transfers into the Mid-Atlantic region. These proposals aim to provide West to East transfers by extending the 765 kV backbone from Kammer near Ohio/West Virginia line and terminating in the PPL zone – one proposal terminated the new 765 kV line at Juniata, and the second extended it further across PPL zone to Spicewood which connect into the existing Susquehanna - Wescosville 500 kV line. The summary of MAAC Regional cluster details are provided in **Table 13** and maps below.

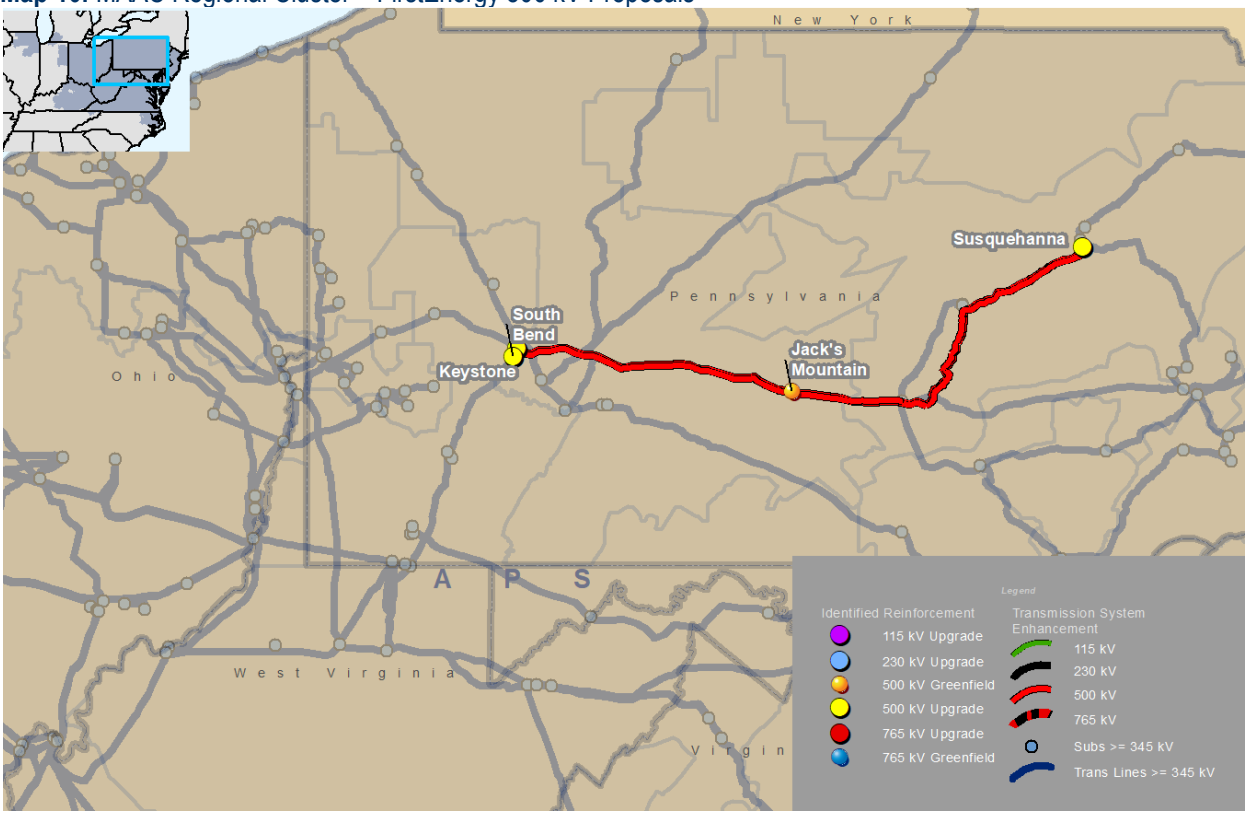
Table 13. MAAC Regional Cluster –Proposed Projects

ID	Proposer	Description	Cost ($ M)
826	FirstEnergy	Keystone – Susquehanna 500 kV (200 miles) Two lines – Double Circuit	$ 1,155
493	FirstEnergy	Keystone – Susquehanna 500 kV (200 miles) Two lines – Double Circuit - With mid-line STATCOM compensation	$ 1,515
838	FirstEnergy	Keystone – Susquehanna 500 kV (200 miles) Two lines – Single Circuits	$ 2,252
578	FirstEnergy	Keystone – Susquehanna 500 kV (200 miles) Two lines – Single Circuits - With mid-line STATCOM compensation	$ 2,418
237	NextEra / Exelon	Kammer – Juniata 765 kV Line (222 miles) Single Circuit with connection at Buttermilk Falls near Homer City	$ 1,739
687	NextEra / Exelon	Kammer – Juniata – Spicewood (connect to Susquehanna-Wescosville) 765 kV Line (321 miles)	$ 3,239

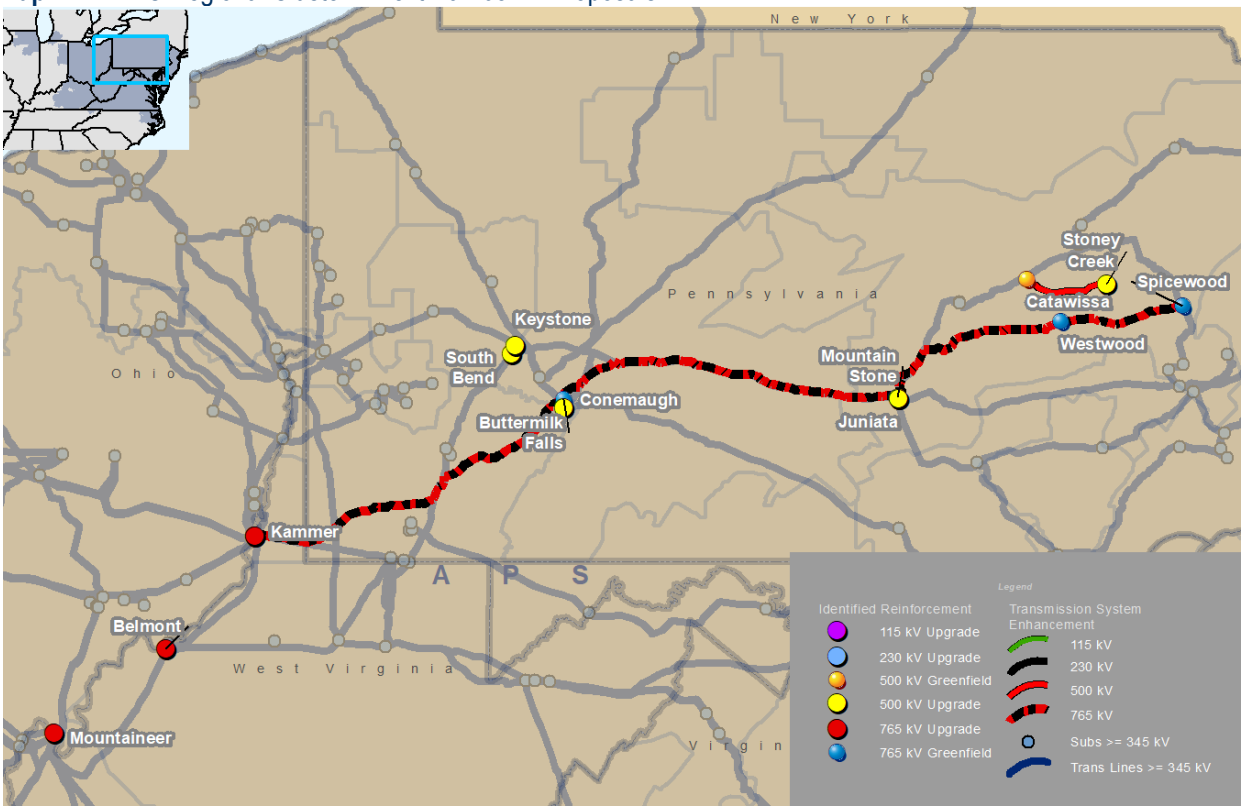
Map 9. MAAC Regional Cluster



Map 10. MAAC Regional Cluster – FirstEnergy 500 kV Proposals



Map 11. MAAC Regional Cluster – NextEra 765 kV Proposals



In addition to evaluating the individual proposals submitted forming the MAAC Regional cluster, PJM developed other potential solution scenarios that were combined variations of the components of these individual proposals.

- FirstEnergy 500 kV Proposals: All four of FirstEnergy proposal offered similar concept of two 500 kV lines from Keystone to Susquehanna. After initial analysis, PJM focused on Proposal 826 as the most cost-effective proposal, and Proposal 578 which included separate tower build for the two line and mid-line STATCOM and is the highest cost option.
- NextEra / Exelon JV 765 kV Proposals: The NextEra/Exelon JV base proposal, Proposal 237, is 765 kV line from Kammer to Juniata. Proposal 687 extends the 765 kV line further into PPL zone. After initial analysis and determination of PPL zone solution, base Proposal 237 was chosen for further evaluation.
- Additional scenario variations considered by PJM
    - Combined 765 kV & 500 kV Scenario – This scenario considered the Kammer-Juniata 765 kV line proposed by NextEra/Exelon combined with a single 500 kV single from Keystone to Susquehanna. The single 500 kV Keystone-Susquehanna line is a component sourced from FE Proposal 838.
    - Single 500 kV Line – In lieu of two 500 kV lines proposed by FirstEnergy, PJM also tested single 500 kV line from Keystone to Susquehanna.

These Scenarios for MAAC Regional cluster are summarized in **Table 14** below.

Table 14. MAAC Regional Cluster - Scenarios

Scenario	Entity	Proposal ID	Description	Cost ($M)
MAAC-1	FirstEnergy	826	Keystone – Susquehanna 500 kV (200 miles) Two lines – Double Circuit	$ 1,155
MAAC-2	NextEra	237	Kammer – Juniata 765 kV Line (222 miles) Single Circuit with connection at Buttermilk Falls near Homer City	$1,739
MAAC-3	NextEra FirstEnergy	237 + Component of 838	Kammer – Juniata 765 kV Line – Single Circuit (222 miles) Keystone – Susquehanna 500 kV – **Single Circuit Only** (200 miles)	$2,816 (est.)
MAAC-4	FirstEnergy	578	Keystone – Susquehanna 500 kV (200 miles) Two lines – Single Circuits - With mid-line STATCOM compensation	$2,418
MAAC-5	FirstEnergy	Component of 838	Keystone – Susquehanna 500 kV (200 miles) **(Single Circuit Only)**	$1,077 (est.)

The need for the regional West – East transfer reinforcement is observed in the 2032 “Scenario 4” case where NJOSW is not in-service. The reinforcement need is also observed when considering the additional 3.5 GW data center load in the PPL zone. It should be noted that while the need is further increased when combining delay of NJOSW with additional 3.5 GW load, the reinforcement need is observed in each case individually.

MAAC-PEPCO Cluster

As noted above, the need for regional transfer to MAAC from West and South increased in both 2030 and 2032 year base cases. The increase in transfer to MAAC attributes to the increase in the load mainly in PPL (approximately 5 GW), and this import is forecasted to be supplied from surplus generation in West and South PJM as informed by the future, queued projects and developer interest. As a result of a heavy flow from South to Mid-Atlantic, the facilities in PEPCO and tie lines between PEPCO and Dominion listed in **Table 15** are significantly impacted. The flow on the lines were exasperated by the anticipated delay of NJOSW generation as well as the additional ~3.5 GW of load from PPL that was not included in the 2025 load forecast.

Map 12. MAAC-PEPCO Cluster – 2032 Violations

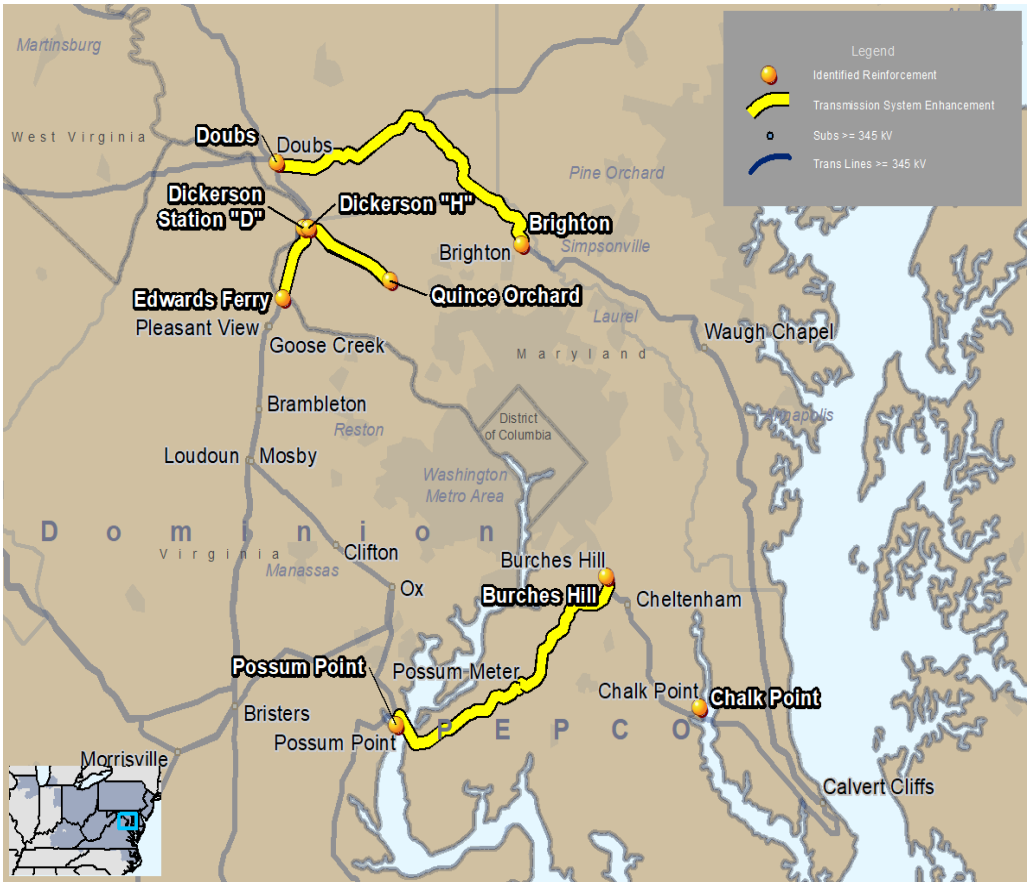


Table 15. MAAC-PEPCO Cluster – 2032 Overloads

Monitored Facility	kV	Areas
Possum Point - Burches Hill	500	DOMINION - PEPCO
Dickerson "H" - Dickerson "D"	230	PEPCO
Chalk Point Transformer #2	500/230	PEPCO
Doubs - Brighton	500	APS-PEPCO
Edwards Ferry - Dickerson "H"	230	DOMINION - PEPCO
Dickerson H - Quince Orchard #1	230	PEPCO
Dickerson H - Quince Orchard #2	230	PEPCO

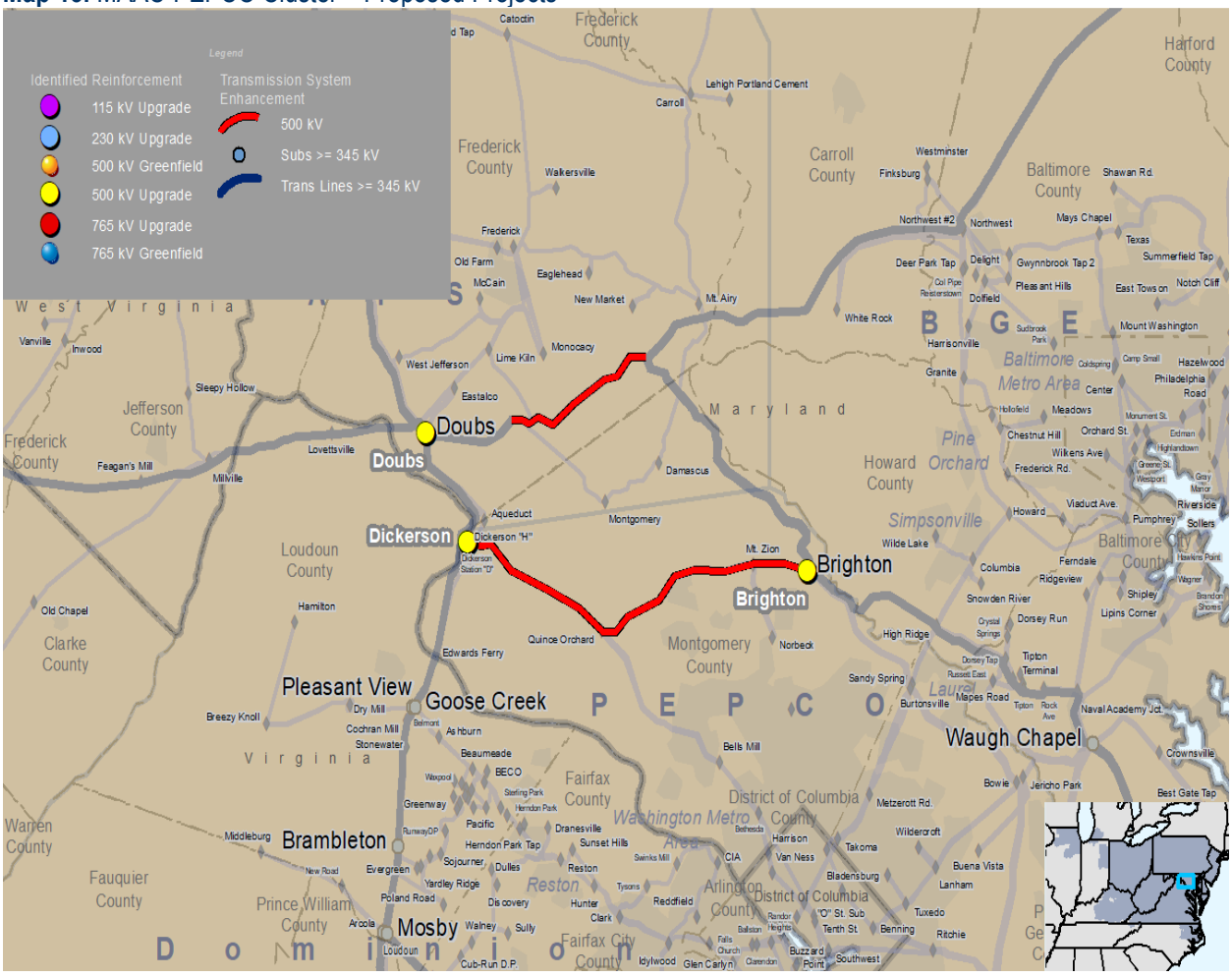
The only proposed solutions came from PEPCO (Exelon) where three proposals were submitted to address the violations identified in the South PEPCO vicinity including ties between Dominion and PEPCO. It's important to note,

this area is impacted by reinforcement in the MAAC and Dominion regions, so final evaluation for this cluster is performed with the MAAC Regional and Dominion solutions modeled.

Table 16. MAAC-PEPCO Cluster – Proposed Projects

ID	Proposer	Description	Cost ($ M)
851	Exelon (PEPCO)	Rebuild BGE portion of Doubs-Brighton 500 kV line (~11 miles) Upgrading the Brighton substation terminal	$ 101.86
919	Exelon (PEPCO)	Dickerson 500 kV Station/Two Transformers (loop-in Aspen – Rocky Point)	$ 257.61
371	Exelon (PEPCO)	Dickerson 500 kV Station/Transformer (loop-in Aspen – Rocky Point) New Dickerson – Brighton 500 kV line (25 miles)	$ 857.22

Map 13. MAAC-PEPCO Cluster – Proposed Projects



With the Dominion and Mid-Atlantic regional solutions, some of the overloaded facilities are either mitigated or the overloads are reduced.

The evaluation process included study of all the submitted proposals, including components from proposal 919 (series reactor on the Edwards Ferry – Dickerson 230 kV line and relocation of the Dickerson – Quince Orchard circuit 23035 from Dickerson D to Dickerson H).

- Components from proposal 919 (series reactor on the Edwards Ferry – Dickerson 230 kV line and relocation of the Dickerson – Quince Orchard circuit 23035 from Dickerson D to Dickerson H) addresses the Needs, however, the flow on the Edwards Ferry – Dickerson 230 kV diverted to the Doubs – Brighton 500 kV parallel line plus the Doubs station resulting in an overload of the Doubs 500/230 kV transformers.
- Proposal 851 (reconductor the BGE portion of Doubs – Brighton 500 kV, $102 M) doesn't address all the violations in the area, only mitigates one overload (Doubs – Brighton 500 kV)
- Proposal 371 (build 500/230 kV station and 25 miles new 500 kV line from Dickerson-Brighton, $857 M). While proposal 371 offers stronger transfer capability to the SWMAAC area, the project is the most expensive and requires a greenfield. With the regional MAAC solution in place, the need for the 500 kV line is eliminated.
- Proposal ID 919 – to build a new Dickerson 500/230 kV station by tapping the Aspen – Rocky Point 500 kV, $282 M) + additional upgrades address the Needs and provides a source to the PEPCO zone. The project supports the Doubs 230 kV area by reducing the flow from Doubs - Dickerson. The project is scalable for future 500 kV line proposed in 371 and is the more efficient or cost-effective solution. Based on this, PJM has decided to move forward with proposal 2025-W1-919.

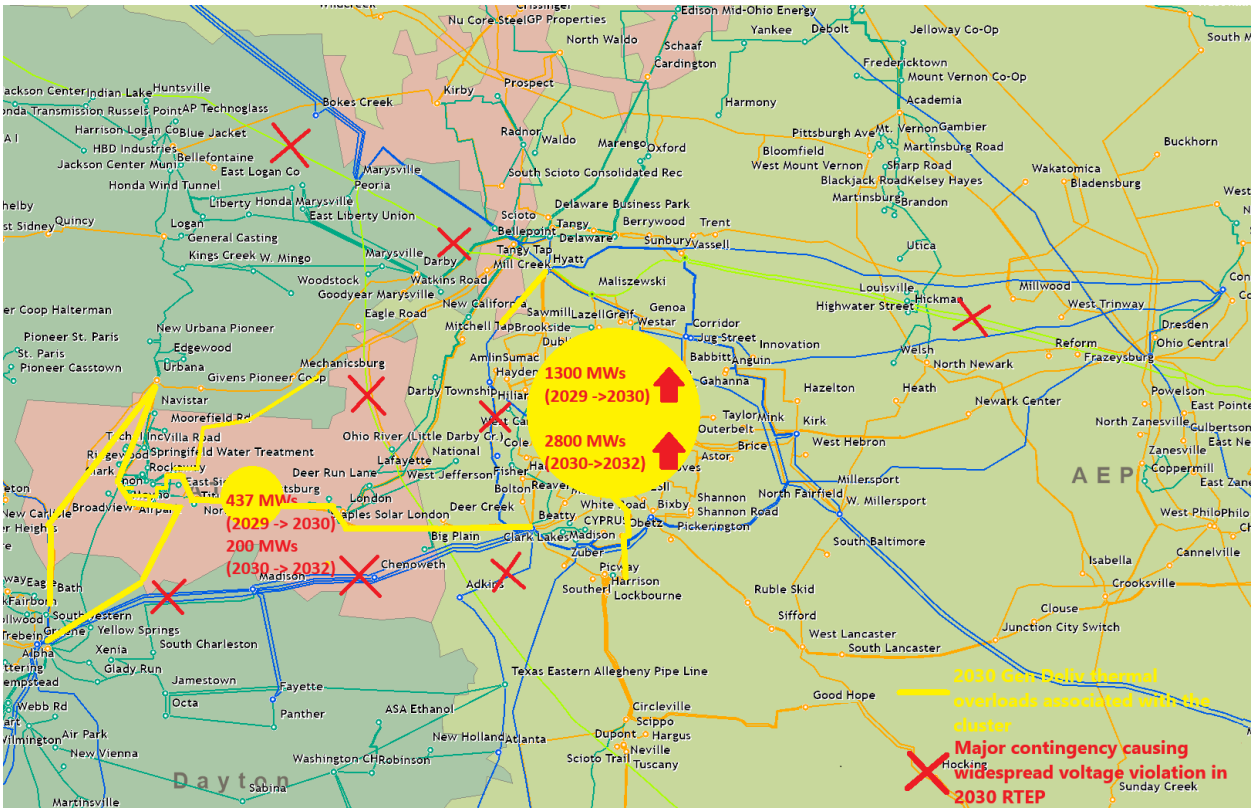
Western Regional

The violations in the western regional cluster are focused in the ATSI, AEP and Dayton zones. PJM observed thermal and voltage violations across all seasons in the 2030 and 2032 base case years due to load increase around the Columbus, Ohio area. The load increased by 1,300 MWs in 2030 and by another 2,800 MWs in 2032 in AEP territory. Load also increased by 437 MWs in 2030 and by another 200 MWs in 2032 in ATSI territory. This additional load growth in ATSI territory is in the Melissa area. These large load pockets are a major driver for the violations seen in this region. It is worth mentioning that the transmission backbone in the western region supports the rest of the PJM interconnection through surplus generation capacity (through regional transfers), in addition to providing reliability for the western system itself. **Map 15** and **Map 16** below show the power flow into the Columbus, OH area due to these load pockets.

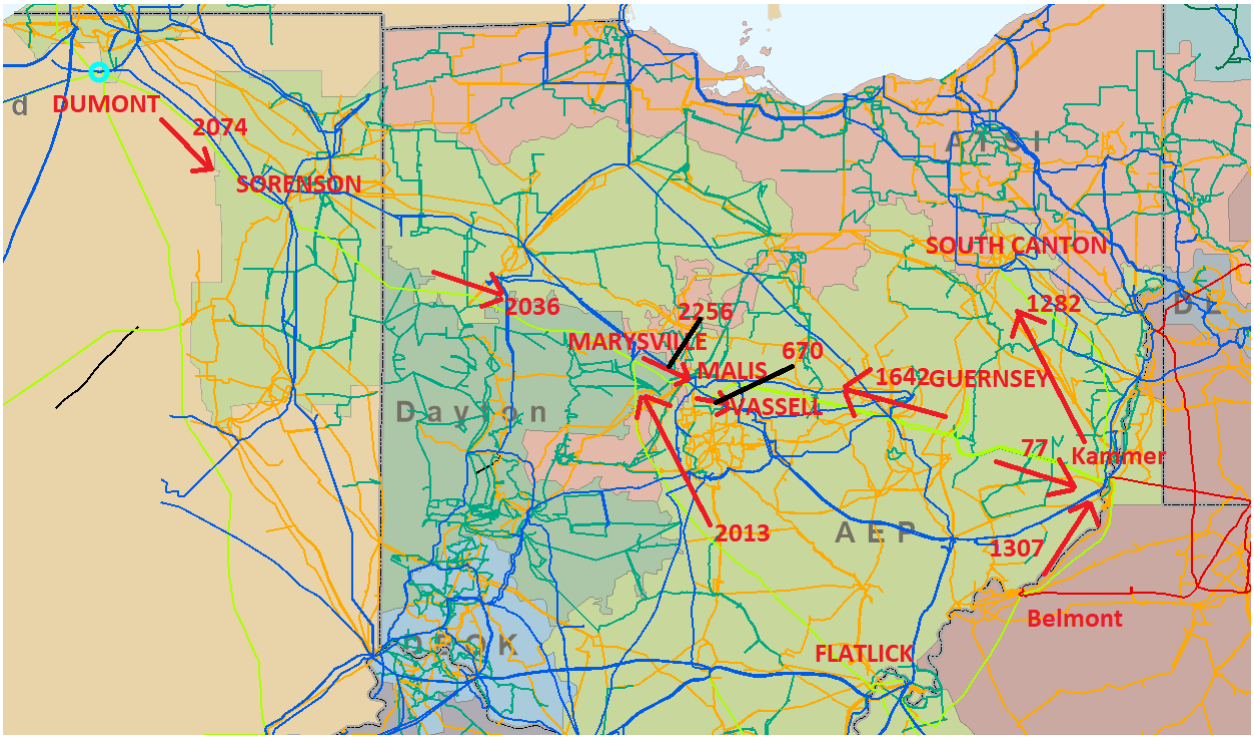
Submitted proposals that target the posted FGs in the western regional cluster are shown in **Table 17**. A number of proposals had a more focused target area, while other larger portfolios addressed both load centers and regional transfers. All regional proposals include new 765 kV and/or 345 kV greenfield transmission lines to serve the load pocket(s). The proposals in the western regional cluster were grouped based on the proposed in-service dates of the projects. Most projects had an ultimate projected in-service date beyond 2030, in most instances closer to 2032. For these, PJM first evaluated proposal components or portfolios expected to be in service by 2030 (PJM sought input from the proposing entity as to which components would be expected to be in-service by 2030), and the performance was assessed accordingly with the rest of the 2030 proposal evaluations. The 2032 analysis encompasses the proposals' full configurations as proposed. Reliability analysis including generator deliverability, N-1 and N-1-1, as well as transfer studies were conducted to evaluate proposal merits.

Two proposing entities also proposed STATCOM proposals at various 765 kV and 345 kV substations in the area as shown in **Table 18** below. Proposal 241 is intended to be combined with other PSEGRT/AES Ohio/PPL joint proposals, and the AEP proposals were standalone proposals submitted to address voltage violations in the Columbus area.

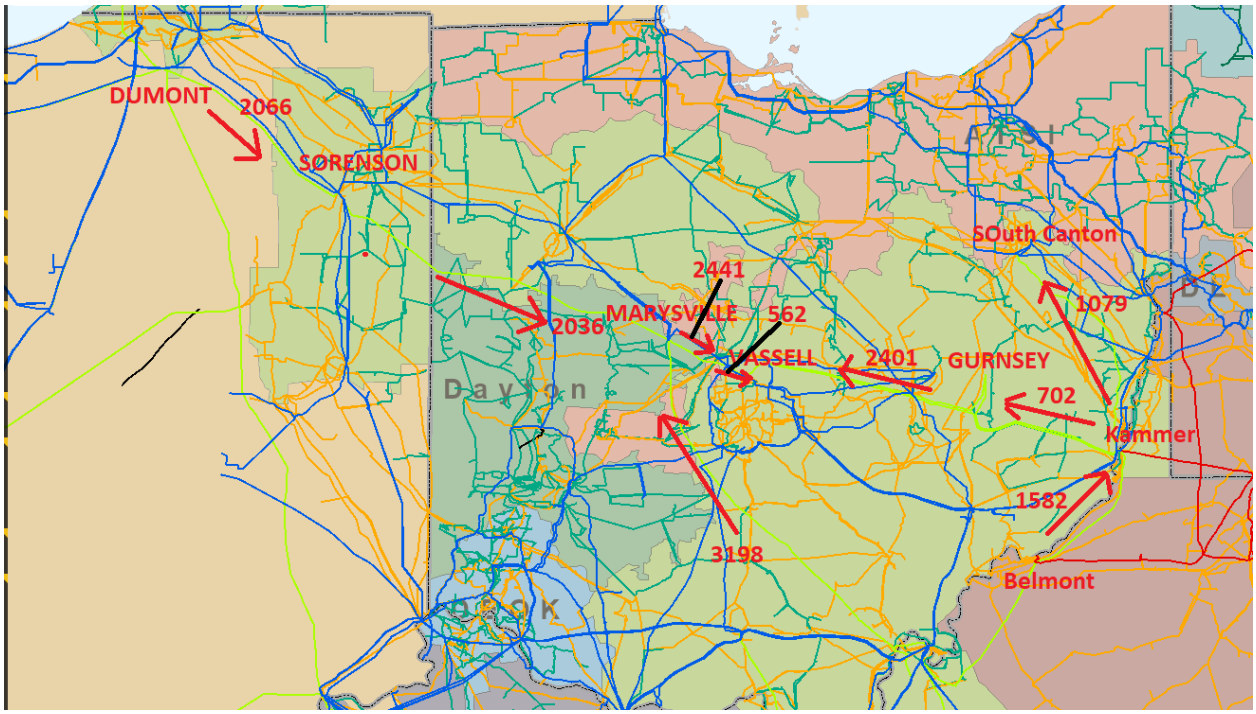
Map 14. Western Regional Cluster – Violations and Load Increase



Map 15. 2030 Summer Base Case Flows on 765 kV Transmission Lines



Map 16. 2032 Summer Base Case Flows on 765 kV Transmission Lines



In order for PJM to evaluate LS Power's proposal 543 with the rest of the proposals in the Western regional cluster, PJM combined it with a number of AEP in-zone proposals and a STATCOM proposal. As LS Power's proposal was focused on the Melissa area, it required (needed to rely on) additional reinforcement and reactive support in the Columbus area in order to address the identified reliability needs, and this allowed PJM to evaluate whether or not the proposal addressed the intended violations adequately.

A high-level summary of the 2030 generator deliverability analysis is provided in **Table 19**. The NextEra/Exelon proposals 152 and 109, and FirstEnergy/Transource proposal 239 are high performers in terms of resolving overloads. The NextEra/Exelon proposals would require additional cost associated with unsolved violations as described in the footnote of the table. While Transource/FirsEnergy's proposal 51 (the 2030 component of the larger 2032 portfolio proposal 570) has four remaining overloads, and these violations can be resolved with upgrades submitted through the window. The modified cost to address these overloads is provided in the "Projected Cost" column, and so taking this into account, it is the least cost option known to resolves all of the generator deliverability 2030 overloads in the cluster.

A high-level summary of the 2030 N-1-1 voltage analysis is provided in **Table 20**. The voltage analysis further helps in demonstrating that for 2030, proposal 51 appears to be the more efficient or cost-effective solution. The FirstEnergy proposals 239 and 334 perform well also under the N-1-1 voltage test. However, proposal 334 causes additional overloads in the generator deliverability test and has higher cost than proposal 239.

Table 17. 2025 RTEP Window 1: Western Regional Proposals

Proposal ID	Proposing Entity	Submitted Cost ($M)	Target Area	Projected In-Service Date
543	CNTLTM	121.41	Melissa area	6/1/2030
239	TRNSRC/FE	1,492.41	Melissa area/Columbus area	6/1/2030

Proposal ID	Proposing Entity	Submitted Cost ($M)	Target Area	Projected In-Service Date
334	TRNSRC/FE	1,690.26	Melissa area/Columbus area	6/1/2030
423	PSEGRT/AES Ohio/PPL	475.11	Melissa area	6/1/2031
60	PSEGRT/AES Ohio/PPL	1,333.61	Columbus area	3/1/2032
907	PSEGRT/AES Ohio/PPL	1,841.18	Melissa area/Columbus area	3/1/2032
619	PSEGRT/AES Ohio/PPL	1,942.65	Melissa area/Columbus area	3/1/2032
51	TRNSRC/FE	1,051.22	Melissa area/Columbus area	10/1/2030
570	TRNSRC/FE	2,775.19	Melissa area/Columbus area	10/2031*
152	NXTMID/Exelon	2,921.12	Melissa area/Columbus area	12/1/2031
109	NXTMID/Exelon	3,322.00	Melissa area/Columbus area	6/1/2031

*Updated date from proposing entity

Table 18. 2025 RTEP Window 1: West STATCOM Proposals

Proposal ID	Proposing Entity	Submitted Cost ($M)	Projected In-Service Date
241	PSEGRT/AES Ohio/PPL	143.36	3/1/2032
749	AEP	589.74	5/1/2030
517	AEP	736.61	5/1/2030
981	AEP	976.34	5/1/2030

The 2032 generator deliverability performance summary is captured in **Table 21** and show that NextEra's proposal 109 and 152, and Transources's proposal 570 (the 2032 full configuration of proposal 51 which performed well in 2030) resolve the most overloads. The 2032 N-1 voltage performance summary is captured in **Table 22**, and the results support the top performing proposal performance seen in the generator deliverability analysis.

Tables 21 and 22 summarize the 2032 Western Regional generation deliverability and N-1 voltage performance respectively.

Table 19. 2025 RTEP Window 1: Western Regional 2030 Generator Deliverability Results Summary

Proposal ID	Proposing Entity	Submitted Cost ($M)	No. of Remaining overloads (14 total)	Approx. Cost to Resolve Remaining Violations ($M)	No. of New overloads	Projected Cost ($M)	Projected In-Service Year
543+749+AEP Zonal Proposals*	CNTLTM+AEP	906.46	1	134.6	5 (3 138 kV and 2 345 kV)	1,041.06+	2030
543+981+AEP Zonal Proposals*	CNTLTM+AEP	1,293.06	1	134.6	5 (3 138 kV and 2 345 kV)	1,427.66+	2030
51	TRNSRC/FE	1,097.75	4	290.46	0	1,341.68	2030

Proposal ID	Proposing Entity	Submitted Cost ($M)	No. of Remaining overloads (14 total)	Approx. Cost to Resolve Remaining Violations ($M)	No. of New overloads	Projected Cost ($M)	Projected In-Service Year
239	TRNSRC/FE	1,492.41	2	106.38	0	1,598.79	2030
334	TRNSRC/FE	1,690.26	1	70.64	4 (138 kV)	1,760.90+	2030
907 (2030 Comp only)	PSEGRT/AES Ohio/PPL	1,367.97	3	114.18	0	1,482.15	2030
619 (2030 Comp only)	PSEGRT/AES Ohio/PPL	1,468.79	3	114.18	0	1,582.97	2030
152 (2030 Comp only)	NXTMID/Exelon	1,465.75	1	70.64	1 (765 kV terminal)	1,536.39+	2030
109 (2030 Comp only)	NXTMID/Exelon	1,663.88	1	70.64	1 (765 kV terminal)	1,734.52+	2030

*AEP Zonal Proposals include: 515, 298, 996, 626, 873 and 439

+ There are additional unsolved overload(s) associated with the proposal and related solution costs are not available.

Table 20. 2025 RTEP Window 1: Western Regional 2030 N-1-1 Voltage Performance Summary

Proposal ID	Proposing Entity	Solves Existing Voltage Violation?	Creating New Voltage Violation?	Note
239	TRNSRC/FE	Yes	No	
51	TRNSRC/FE	Yes	No	
334	TRNSRC/FE	Yes	No	
543	CNTLTM	No	Yes	Does not solve existing voltage issues in Columbus area and Melissa wide area, new voltage drop at 345 kV South Bird sub
543+749+AEP Local Proposals*	CNTLTM+AEPSCT	No	No	Does not solve existing voltage issue at 138 kV Melissa wide areas
543+981+AEP Local Proposals*	CNTLTM+AEPSCT	No	No	Does not solve existing voltage issue at 138 kV Melissa wide areas
152 (2030)	NXTMID/Exelon	No	Yes	Does not solve existing voltage drop issues at Marysville, Vassell, etc. New voltage drop issue at proposed 765 kV substations Matville, Buckeye Lake, etc.
109 (2030)	NXTMID/Exelon	No	Yes	Does not solve existing voltage drop issued at Marysville, Vassell, etc. New voltage drop issue at proposed 765 kV substations Matville, Buckeye Lake, etc.
907 (2030) +241	PSEGRT/AES Ohio/PPL	No	Yes	Does not solve existing voltage issues in Columbus (Marysville, Vassell, Maliszewski, etc.) area and Melissa 138 kV wide areas, and created lots of new 345 kV and 138 kV voltage drop issues in Columbus and Melissia areas
619 (2030) +241	PSEGRT/AES Ohio/PPL	No	Yes	Does not solve existing voltage issues in Columbus (Marysville, Vassell, Maliszewski, etc.) and Melissa 138 kV wide

Proposal ID	Proposing Entity	Solves Existing Voltage Violation?	Creating New Voltage Violation?	Note
				areas, and created lots of new 345 kV and 138 kV voltage drop issues in Columbus and Melissia areas

Table 21. 2025 RTEP Window 1: Western Regional 2032 Generator Deliverability Results Summary

Proposal ID	Proposing Entity	Unsolved Violations		Create New Violations		Performance
		765 kV	345 kV	765 kV	345 kV	
109	NXTMID/Exelon	0	13	0	1	high
152	NXTMID/Exelon	0	17	0	0	high
570	TRNSRC/FE	0	17	0	0	high
334	TRNSRC/FE	0	28	0	2	Mid-high
239	TRNSRC/FE	0	33	0	1	Mid-high
619+241**	PSEGRT/AES Ohio/PPL	1	32	0	3	Mid-low
907+241**	PSEGRT/AES Ohio/PPL	1	35	0	3	Mid-low
543+749+AEP Local Proposals*	CNTLTM+AEP	1	40	0	0	Mid-low
543+981+AEP Local Proposals*	CNTLTM+AEP	0	32	1	3	Mid-low

*AEP Zonal Proposals include: 515, 298, 996, 626, 873 and 439

**Proposals 619 and 907 were paired with the accompanying STATCOM proposal 241 by the same joint venture

Table 22. 2025 RTEP Window 1: Western Regional 2032 N-1 Voltage Results Summary

Proposal ID	Proposing Entity	Solve Existing Voltage Violation?	Creating New Voltage Violation?	Note
109	NXTMID/Exelon	Yes	No	
152	NXTMID/Exelon	Yes	No	
570	TRNSRC/FE	Yes	No	
334	TRNSRC/FE	Yes	No	
239	TRNSRC/FE	Yes	No	
619+241**	PSEGRT/AES Ohio/PPL	No	Yes	Does not solve existing voltage (Mag. & Drop) issues at Vassell, Maliszewski, Marysville, and Melissa area. New voltage (Mag. & drop) issues at 138 kV Melissa wide area and 345 kV Madison Ext substation

Proposal ID	Proposing Entity	Solve Existing Voltage Violation?	Creating New Voltage Violation?	Note
907+241**	PSEGRT/AES Ohio/PPL	No	Yes	Does not solve existing voltage (Mag. & Drop) issues at Vassell, Maliszewski, Marysville, and Melissa area. New voltage (Mag. & drop) issues at 138 kV Melissa wide area and 345 kV Madison Ext substation
543+749+AEP Local Proposals*	CNTLTM+AEP	No	Yes	Does not solve existing voltage drop issues at 138 kV Melissa wide area, new voltage (Mag. & Drop) issues at proposed 345 kV South Bird sub
543+981+AEP Local Proposals*	CNTLTM+AEP	No	Yes	Does not solve existing voltage drop issues at 138 kV Melissa wide area, new voltage (Mag. & Drop) issues at proposed 345 kV South Bird sub

*AEP Zonal Proposals include: 515, 298, 996, 626, 873 and 439

**Proposals 619 and 907 were paired with the accompanying STATCOM proposal 241 by the same joint venture

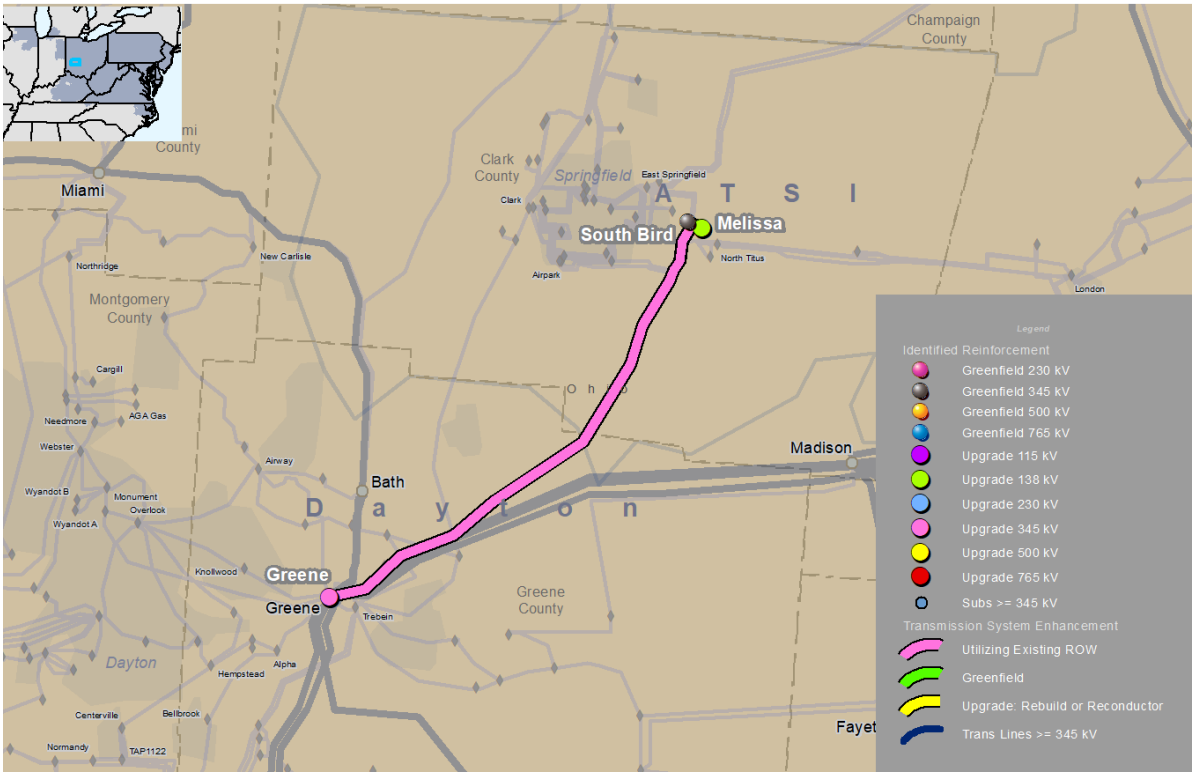
In summary, PJM's 2032 reliability study evaluation demonstrated that Transource's proposal 570, and NextEra/Exelon proposals 152 and 109 show better performance overall, followed by FirstEnergy's proposals 239 and 334. However, even though proposal 109 performs well from an analysis perspective, it has the highest submitted cost and longest mileage of greenfield transmission lines proposed (as supported by information provided in the 2025 RTEP Window 1 Constructability & Financial Analysis Report), without the performance edge compared to proposals 570 and 152.

Considering both the 2030 and 2032 performance, PJM has shortlisted the following proposals. Additional detail on these proposals will be provided in the "Selection of Short-Listed Scenarios and Proposal Components" section:

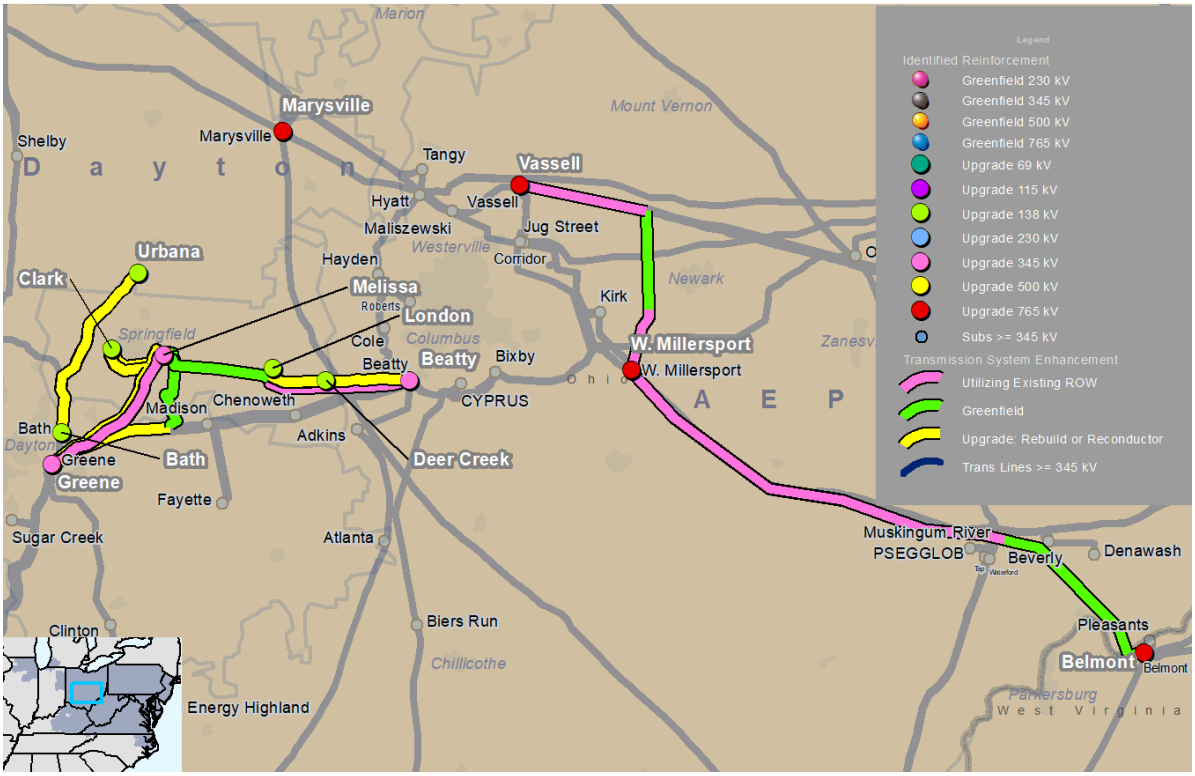
1. Transource/FirstEnergy Proposal 570
2. NextEra/Exelon Proposal 152
3. Transource/FirstEnergy Proposal 239

The following maps are provided to illustrate the general electrical connectivity of the proposals in the western regional cluster detailed in **Table 17** and **Table 18**.

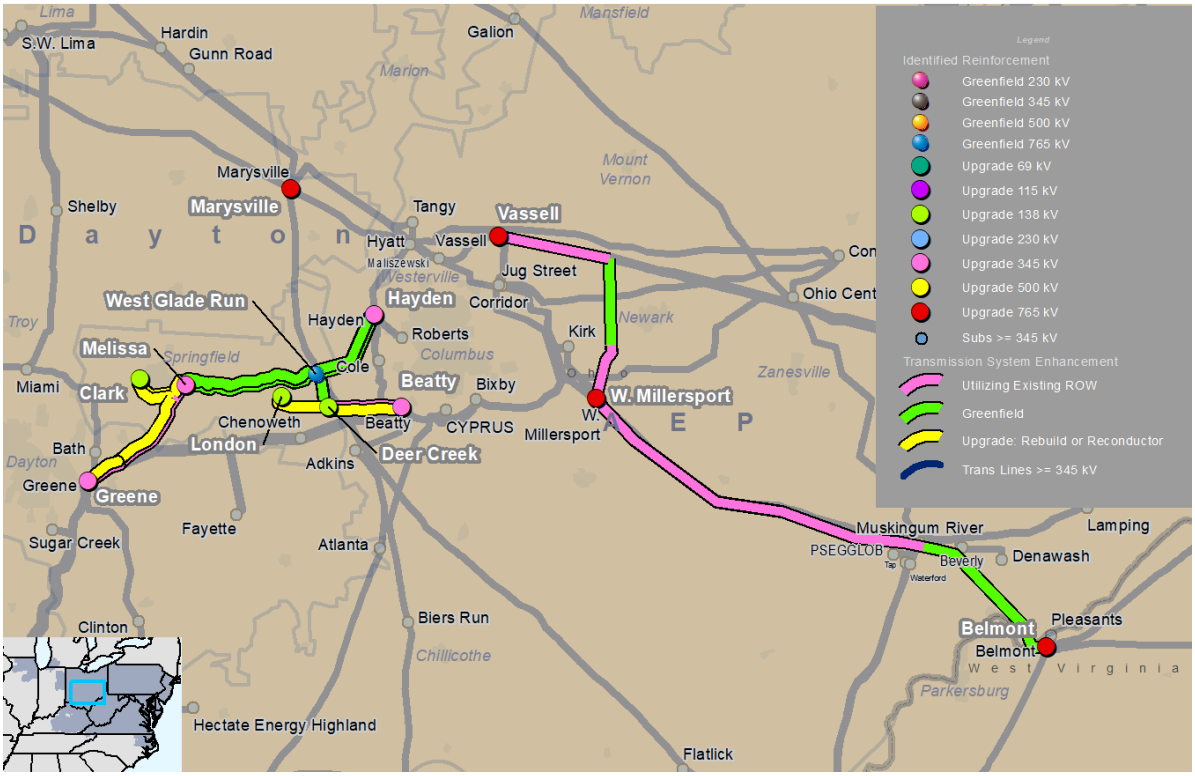
Map 17. LS Power Proposal 543



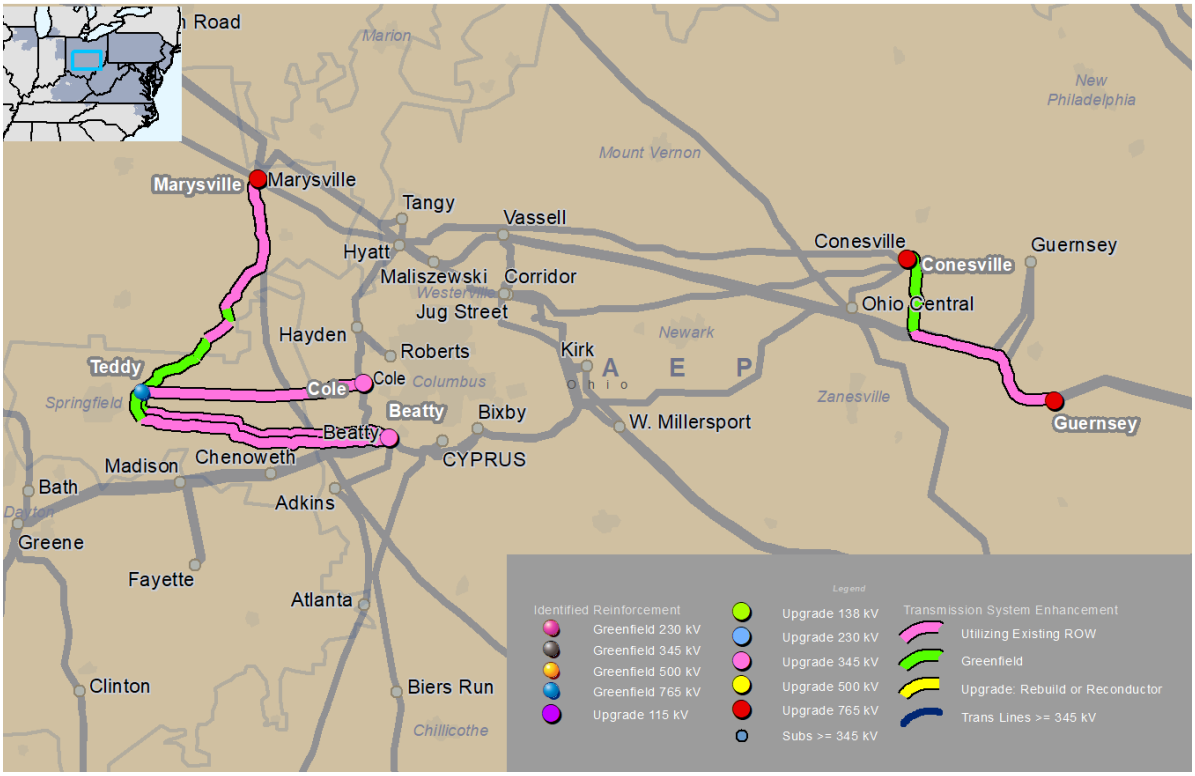
Map 18. Transource/FirstEnergy Joint Proposal 239



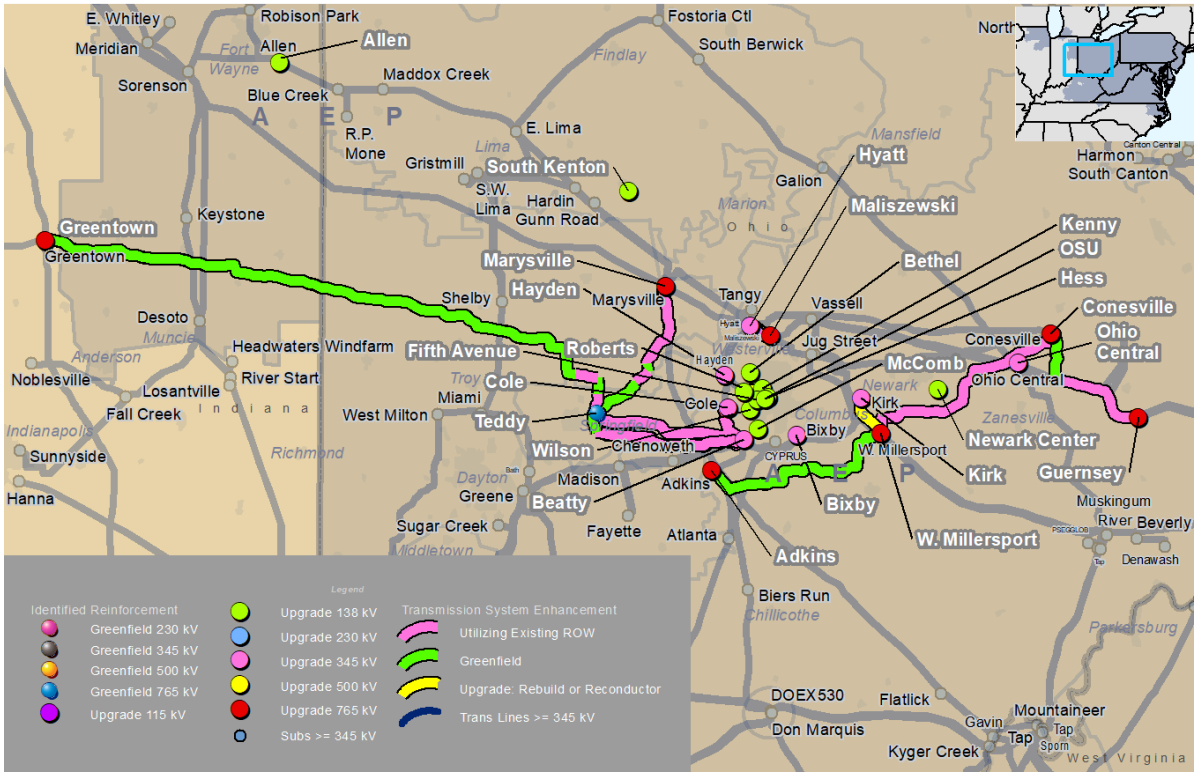
Map 19. Transource/FirstEnergy Joint Proposal 334



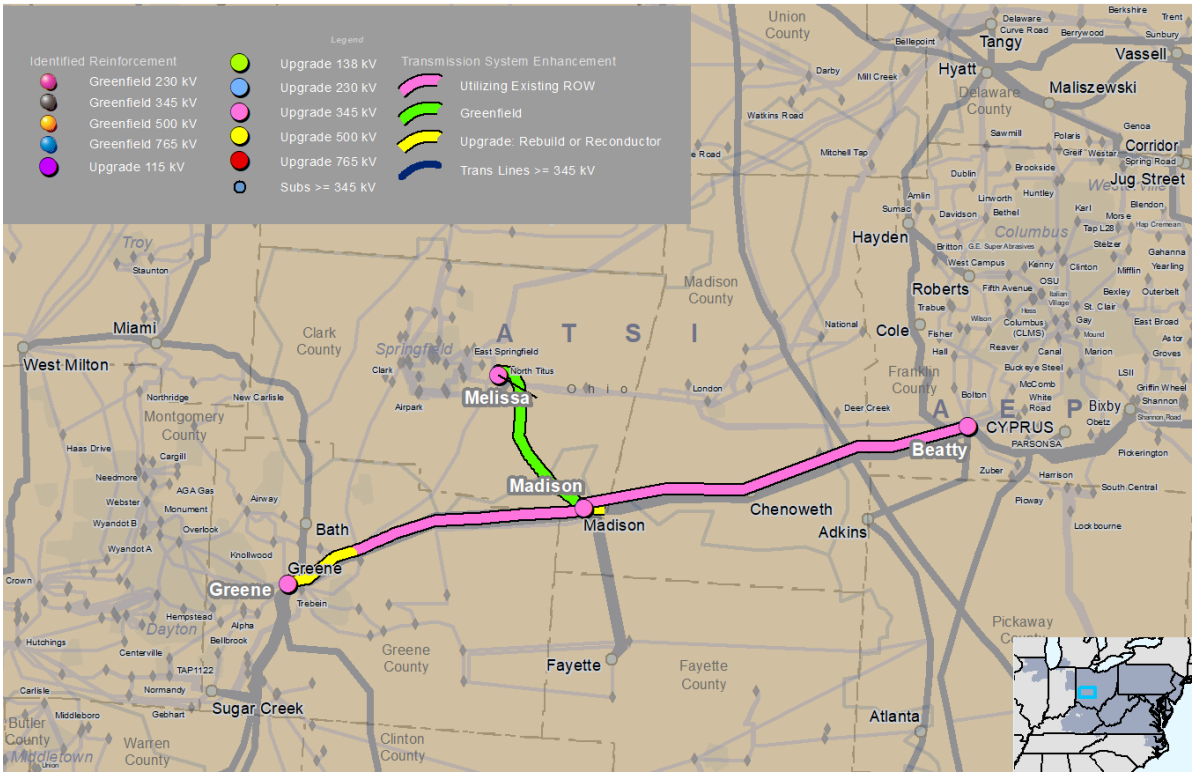
Map 20. Transource/FirstEnergy Joint Proposal 51



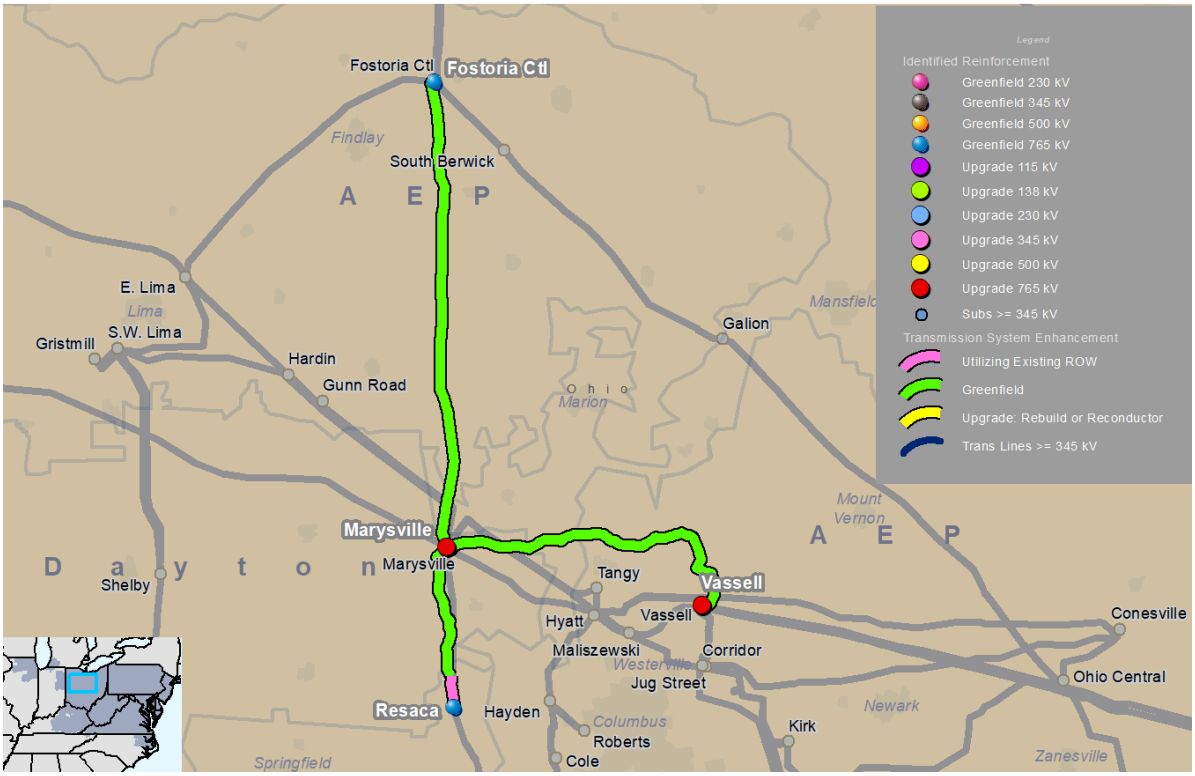
Map 21. Transource/FirstEnergy Joint Proposal 570



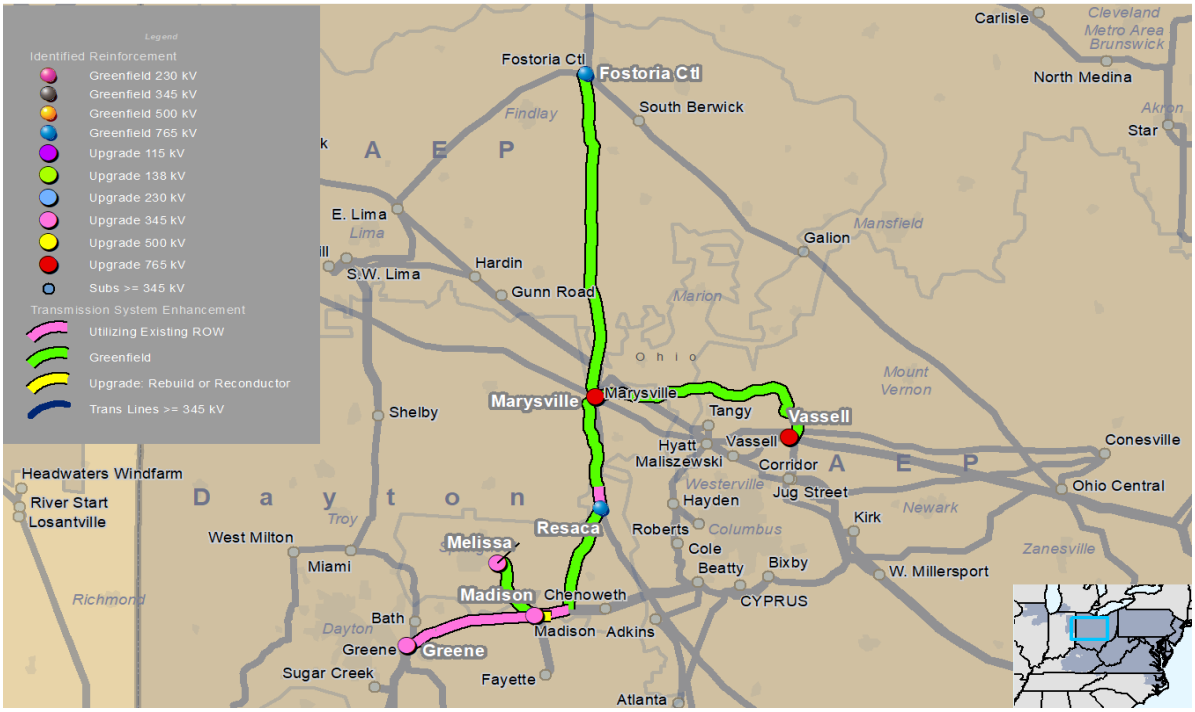
Map 22. PSEGRT/AES Ohio/PPL Joint Proposal 423



Map 23. PSEGRT/AES Ohio/PPL Joint Proposal 60

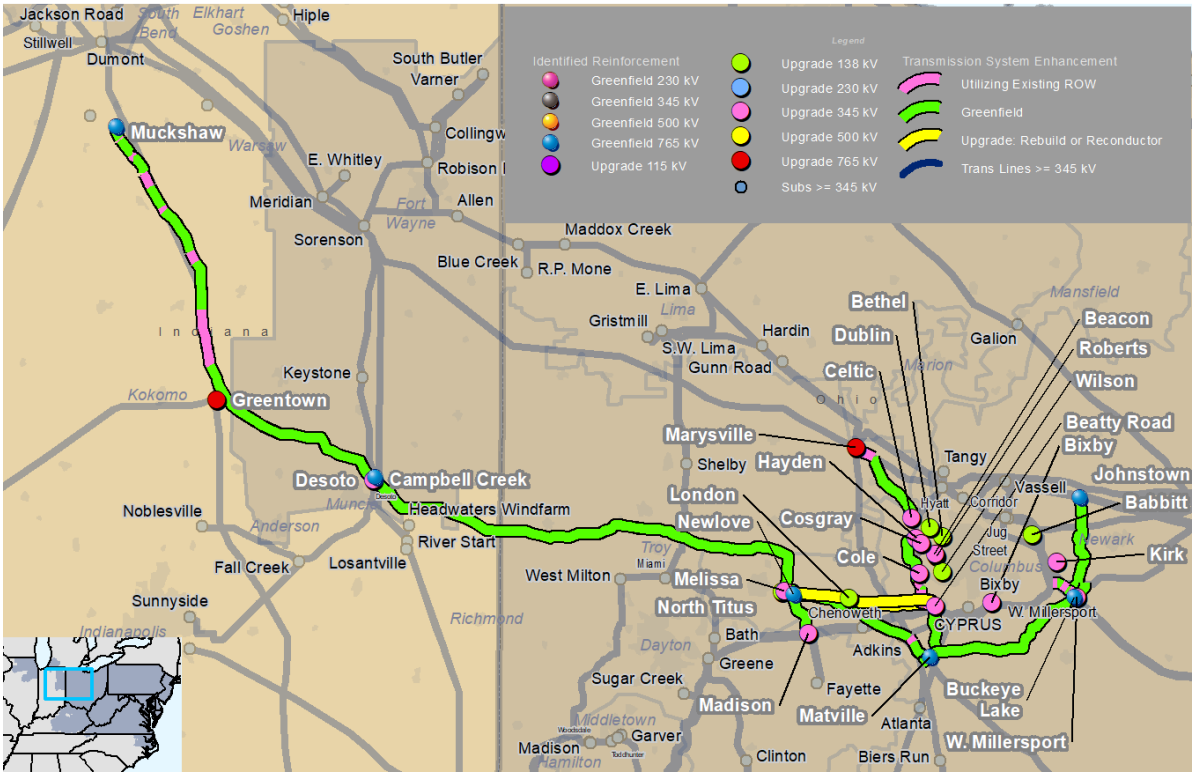


Map 24. PSEGRT/AES Ohio/PPL Joint Proposal 907

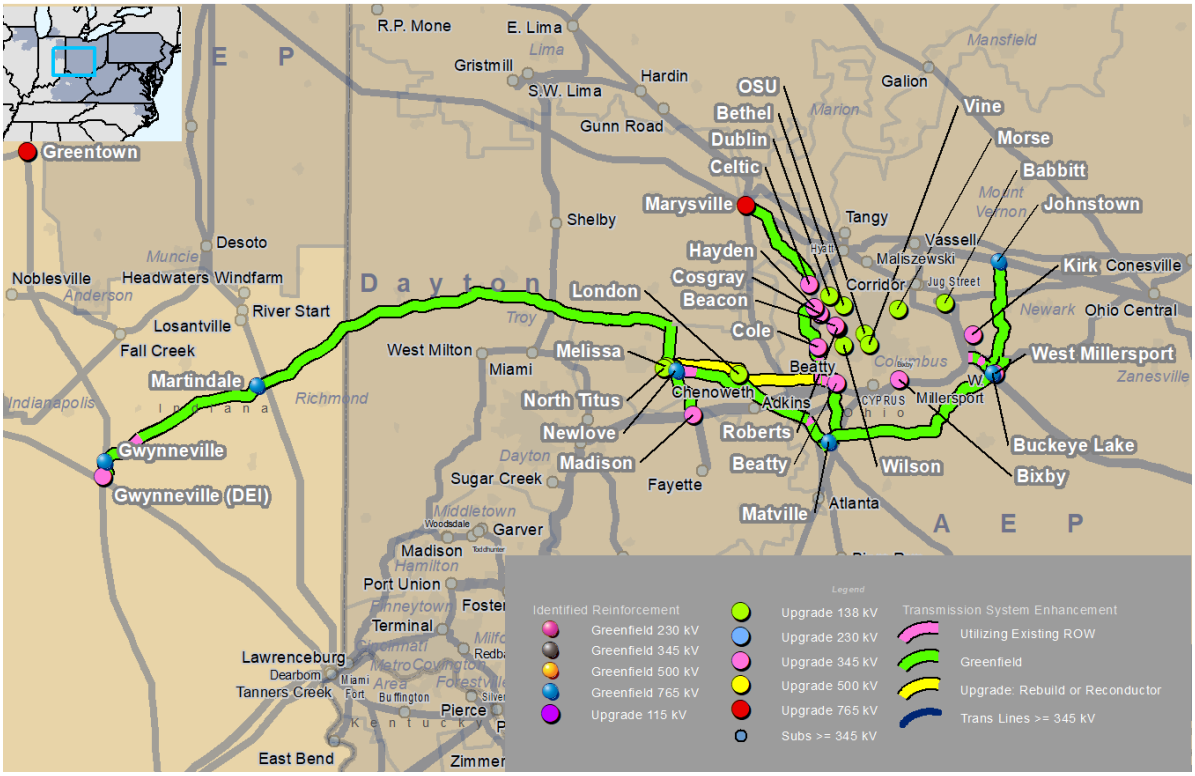


Map 25. PSEGRT/AES Ohio/PPL Joint Proposal 619

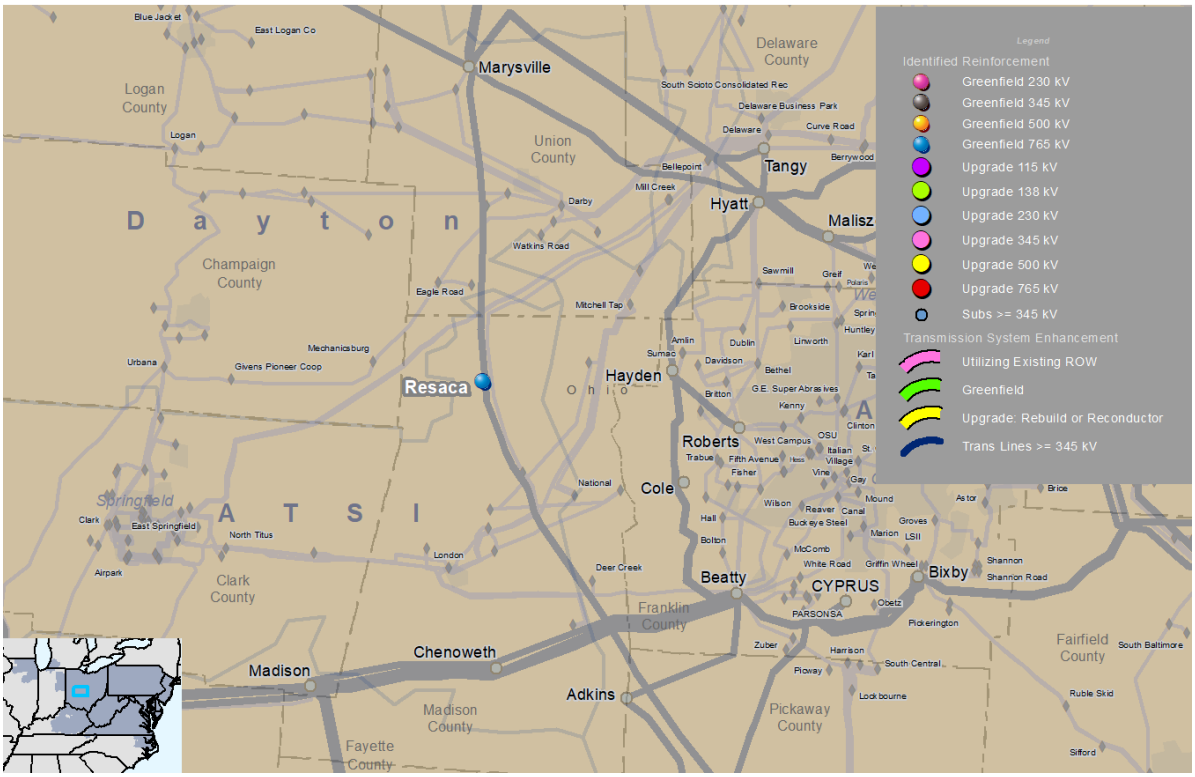
Map 26. NextEra/Exelon Joint Proposal 109



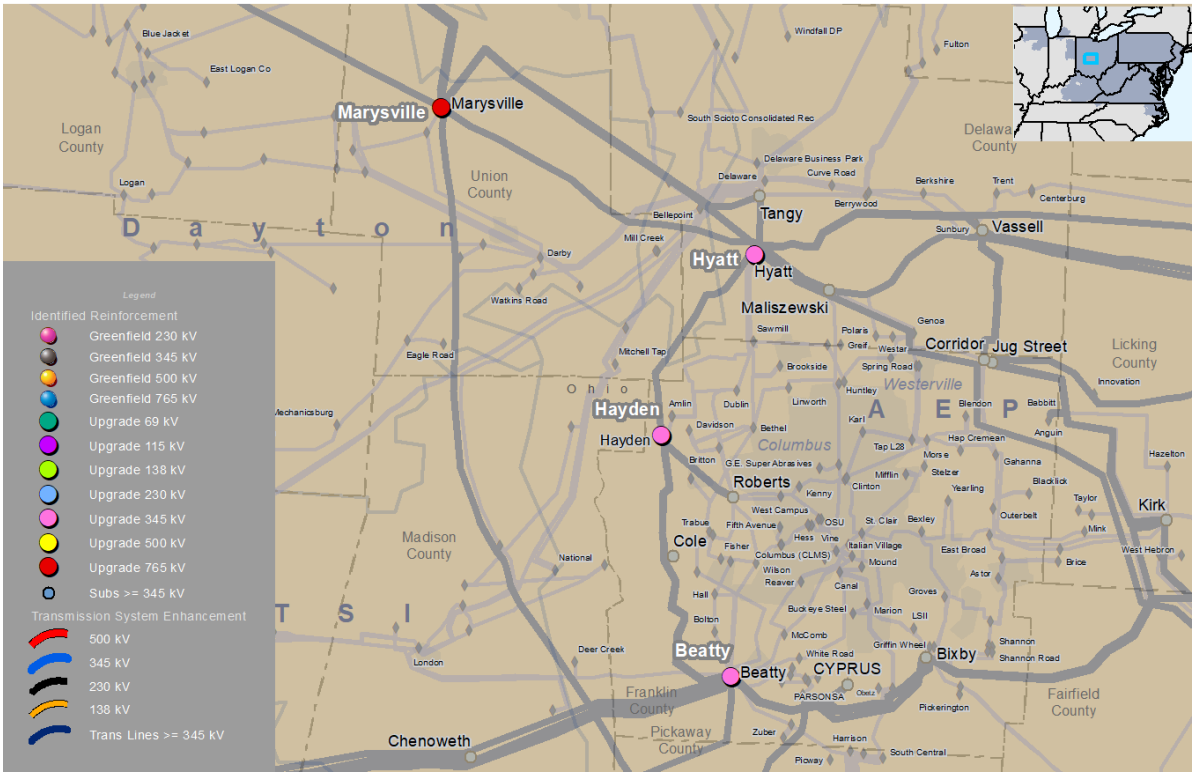
Map 27. NextEra/Exelon Joint Proposal 152



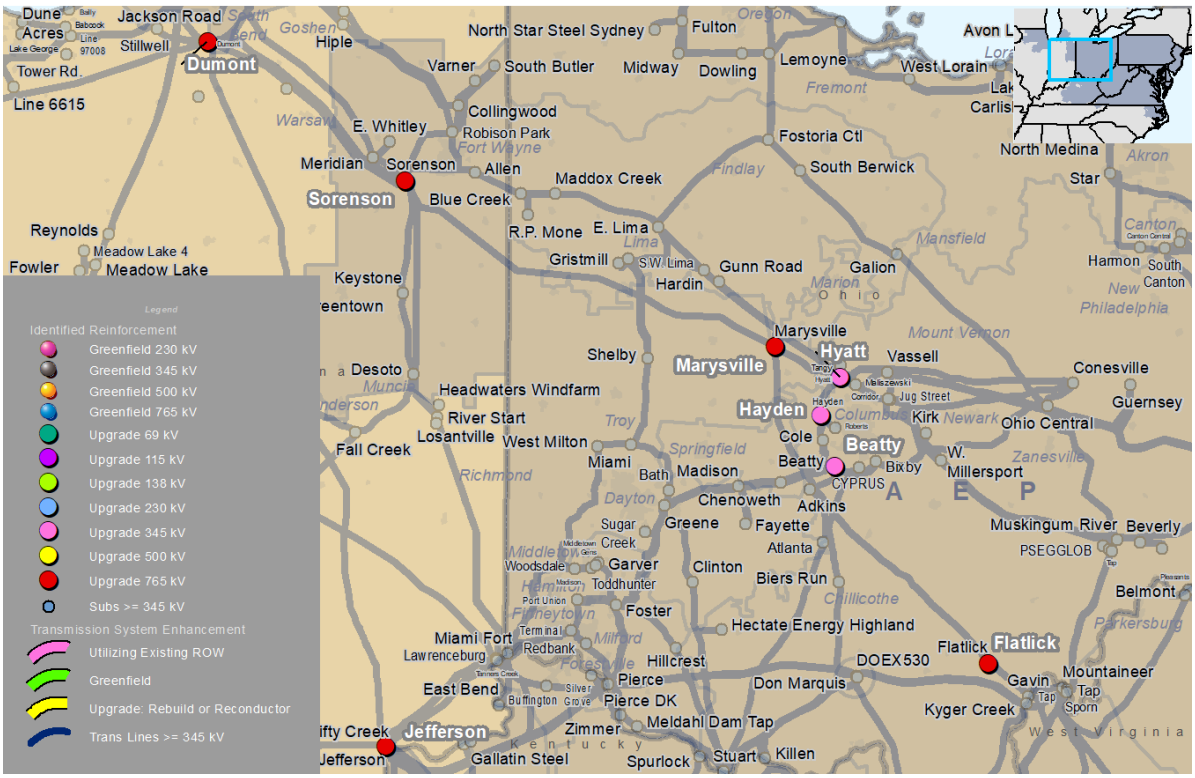
Map 28. PSEGRT/AES Ohio/PPL Joint Proposal 241 (STATCOM Proposal)



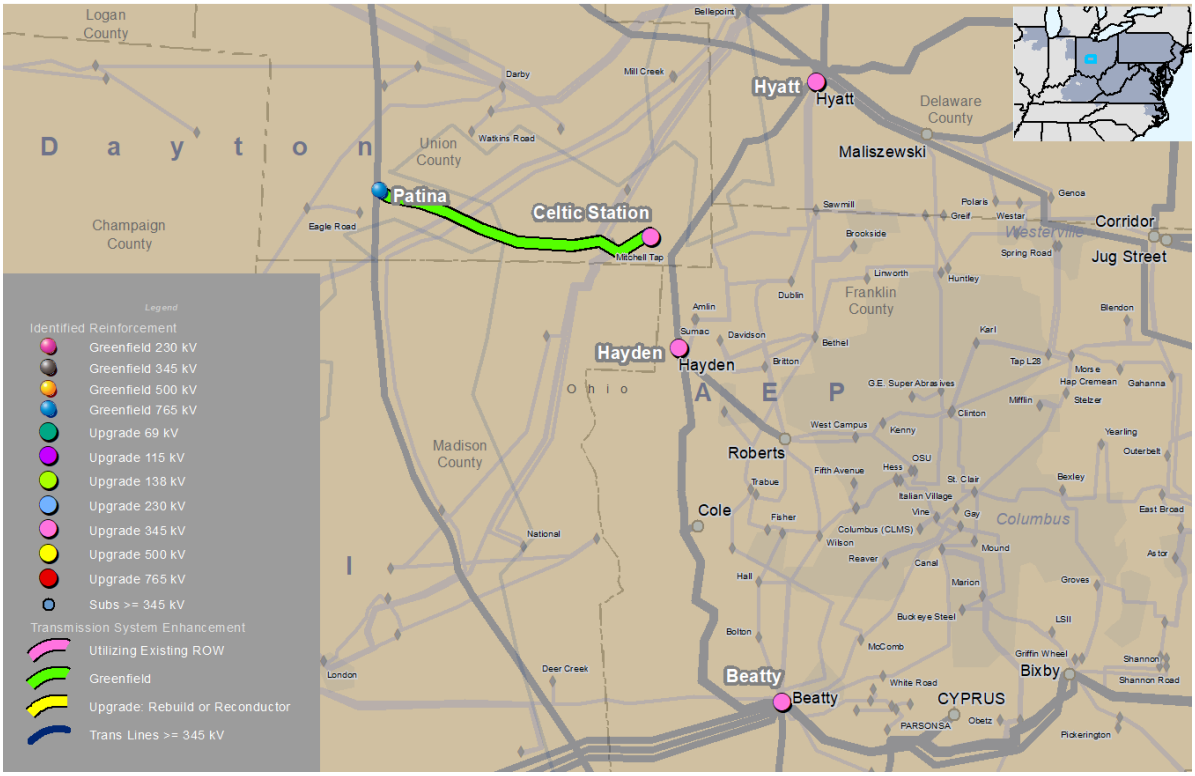
Map 29. AEP Proposal 749 (STATCOM Proposal)



Map 30. AEP Proposal 749 (STATCOM Proposal)



Map 31. AEP Proposal 981 (STATCOM Proposal)



Selection of Short-Listed Proposal Components

The following proposals represent the initial short list for the regional clusters presented at the Nov. 4, 2025, TEAC. While all preliminary short-listed proposals meet the posted need at varying degrees, some offer more complete and even additional benefits/robustness merits. The majority of short-listed proposals offer comparable merits and benefits to the reliability of the PJM transmission system. The merits and shortcomings of each are further detailed along with a very high-level, point-to-point illustration of the project components on the associated maps.

Southern Regional

Dominion proposal 275 and Transource proposal 331 represent the initial short list of scenarios presented at the Nov. 4, 2025 TEAC to address the regional needs in the Dominion area for 2032. Both proposals provide for additional backbone paths from southern Dominion “towards” the Morrisville 500 kV substation.

Proposal 275

Proposal 275 is a combination of an HVDC component along with a number of 500 kV HVAC developments. The proposal comprises twelve major building blocks, which are listed in **Table 23.** Of the twelve major building blocks, one component offers a 185 mile +/- 525 kV HVDC link from Heritage in the south to Mosby in the north. The HVDC link offers the following benefits:

1. Provides for a direct injection of power closer to the data center alley area in Northern Virginia (NOVA)
2. Creates operational flexibility (controllability) between south and north transfers
3. Offers robust transfer capability particularly when generation is sourced completely within Dominion (south)
4. Minimizes additional short circuit impacts which is already an issue that needs addressing in Dominion

From a performance standpoint, proposal 275 offers the best incremental transmission capability between the two short-listed proposals particularly when generation is sourced completely within Dominion (south). The proposal resolves all posted 2032 FGs in Dominion and under the S4+PPL Load scenario. Compared to proposal 331, it minimizes the amount of greenfield development thereby reducing public concerns and stakeholder impact. However, the cost is significantly higher than proposal 331 by almost $2 billion.

Refer to **Map 32** for a map of proposal 275.

Table 23. Proposal 275 Components

Parent Proposal ID	Subcomponent Proposal ID	Project Description
275	9	Line 576 Partial Rebuild - Vontay to Midlothian
	117	Line 539 Rebuild - Yeat to Ox
	126	Line 567 Terminal Upgrade Chickahominy & Surry
	238	Line 563 Rebuild - Carson to Midlothian
	243	Carson Substation Equipment Upgrade
	247	New 765/500 kV Switching Station - Vontay
	253	Line 5008 Cut-in into Mosby Substation
	306	New 500 kV Line - Elmont to Kraken
	339	Line 576 Partial Rebuild - North Anna to Vontay
	815	New HVDC Transmission Link from Heritage to Mosby
	916	Line 560 Rebuild - Possum Point to Burches Hill
	N/A	Scope Change: Yeat – Vint Hill Uprate (2022W3 – b3800.313)

Proposal 331

Proposal 331 is a combination of 765 kV and 500 kV HVAC developments that includes another 765 kV source from AEP (Joshua Falls) into Dominion (Durandal). The proposal comprises the following components:

- 765 kV Line Joshua Falls – Durandal – Starfruit – Lodi
- 765 kV Line Bagpipe – Vontay
- 500 kV Line Lodi – Cunningham – Kaladin – Morrisville
- 500 kV Line Kaladin – North Anna
- Substations Bagpipe 765 kV, Vontay 765 kV, Durandal 765/500 kV, Starfruit 765/230 kV, Lodi 765/500 kV, and Kaladin 500/230 kV.

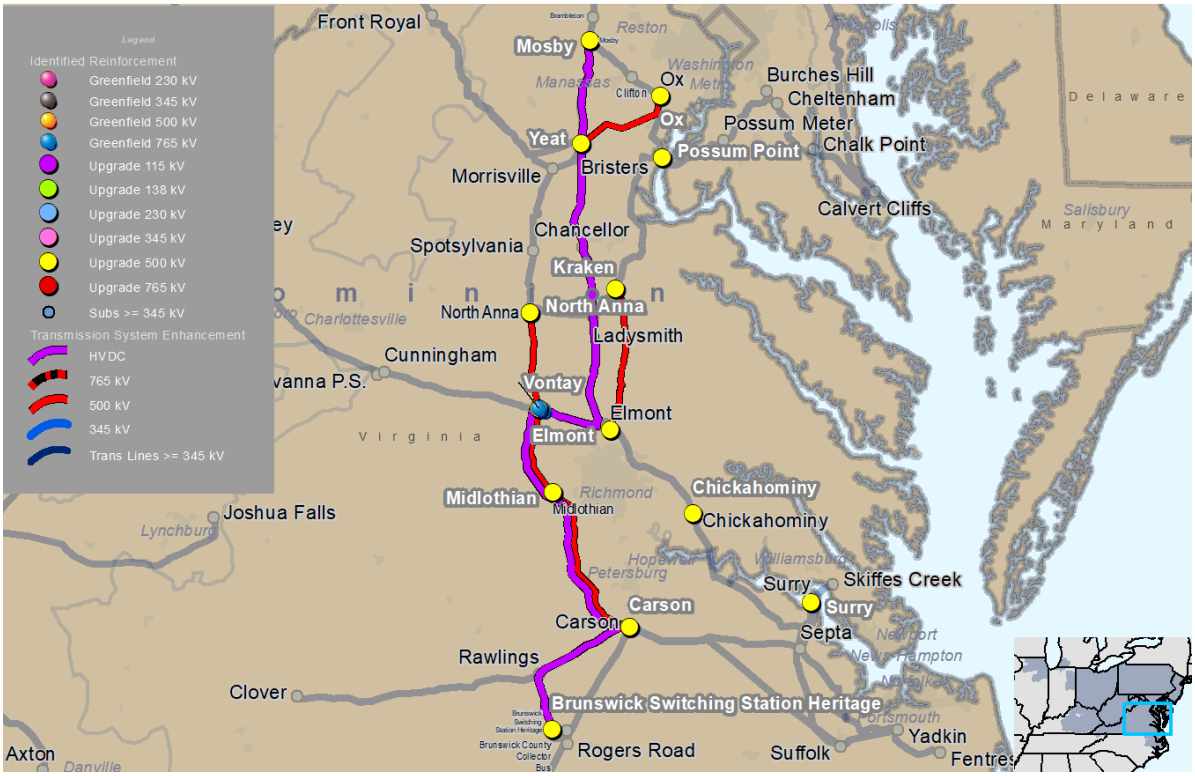
- 500 kV line rebuilds of Yeat – Ox, Kraken – Ladysmith, and Vontay – North Anna.

Two additional Dominion upgrades were added to the scope to enhance the proposal's transfer capability:

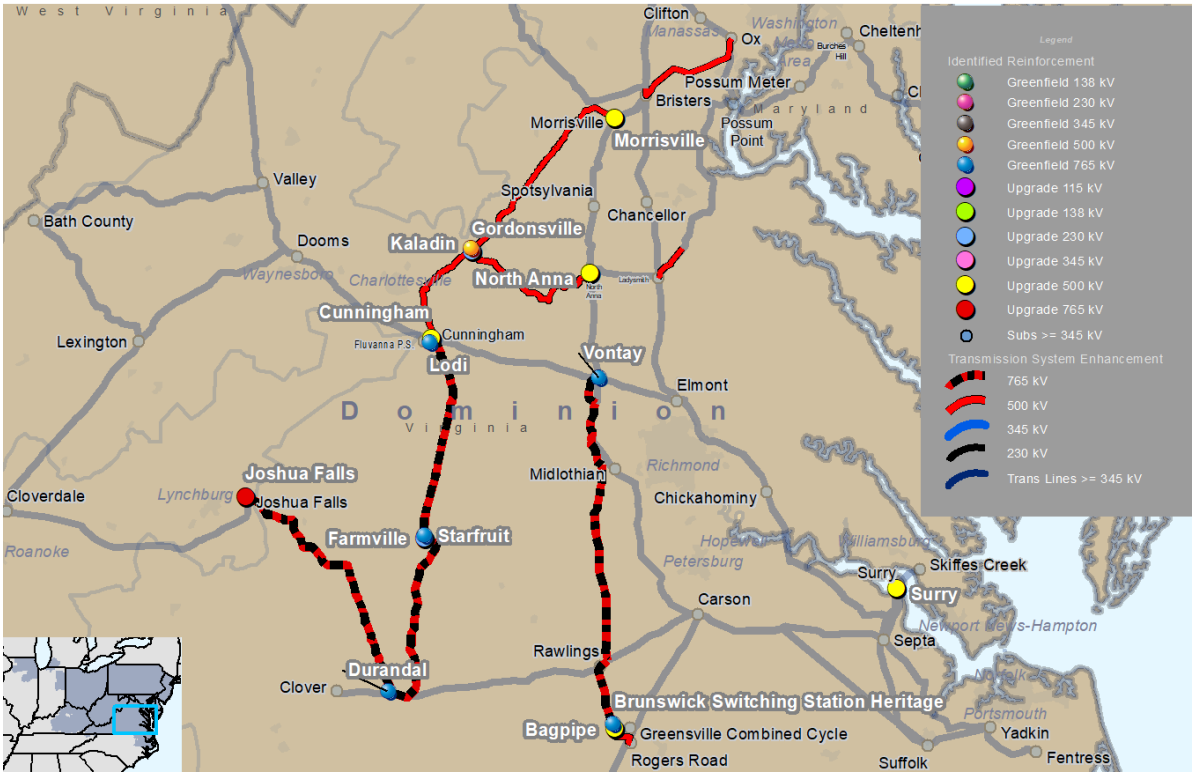
- Rebuild of 500 kV line Bristers – Yeat
- Uprate on 500 kV line Yeat – Vint Hill

From a performance standpoint, proposal 331, **Map 33,** offers the next best incremental transmission capability when additional Dominion scope is added (about 1000 MWs to 500 MWs less compared to proposal 275). The proposal does resolve all posted 2032 FGs in Dominion but loads 500 kV line Elmont-Ladysmith to ~97% of its new 5000A rating which will be rebuilt in 2026. Under the S4+PPL scenario, 3-500 kV violations remain including 500 kV line Elmont-Ladysmith. From a short circuit perspective, the proposal increases the short circuit levels in the Dominion zone leading to approximately 61 breakers being overdutied. These higher short circuit levels may also lead to complete rebuilds of existing substations or pushing the short circuit levels to values limiting supplier selection and technology options for breaker replacements.

Map 32. Dominion Proposal 275



Map 33. Transource Proposal 331



MAAC Regional

The following MAAC Regional Clusters, as detailed earlier in **Table 14**, were included on the short list.

MAAC-1

The FirstEnergy proposals for dual 500 kV circuits from Keystone to Susquehanna is 200 miles mostly paralleling the existing 500 kV rights-of-way. As double-circuit is significantly more cost-effective, FirstEnergy proposal 826 was shortlisted for the MAAC Regional cluster solution. With new dual 500 kV lines and existing 500 kV lines crossing the region, "mid-line" STATCOM compensation is not anticipated.

MAAC-2

The NextEra/Exelon Proposal 237 interconnects PJM West and Mid-Atlantics region by offering a 765 kV line from Kammer to Juniata – the path is 222 miles starting at OH/WV line and new greenfield construction thru southwestern Pennsylvania until it parallels existing 500 kV right-of-way for 90 miles into Juniata. NextEra/Exelon Proposal 687 extends the 765 kV line 100 miles further east from Juniata to tie into existing Susquehanna-Wescosville 500 kV circuit at "Spicewood" with a 765/500 kV transformer. Proposal 687 also includes another 765/500 kV substation at "Westwood" near the new datacenter loads. With the MAAC-PPL solution selection, the 765 kV extension from Juniata to Spicewood is not warranted at this time. NextEra/Exelon Proposal 237 was shortlisted for MAAC Regional cluster along with FirstEnergy Proposal 826.

MAAC-3

Combined 765 kV & 500 kV Scenario – This scenario considered the Kammer-Juniata 765 kV line proposed by NextEra/Exelon combined with a single 500 kV single from Keystone to Susquehanna. The single 500 kV Keystone-Susquehanna line is a component sourced from FE Proposal 838.

While MAAC 3 addresses all the needs and provides strong transfer to the MAAC region, it is the most expensive solution and requires additional greenfield. The single 500 kV line from Keystone to Susquehanna is incremental in nature to such scenario and could be added at a later time as needs arise. For those reasons, MAAC 3 was removed from consideration.

The preliminary screening showed that the MAAC Regional Cluster Scenario 1 and 2, FirstEnergy Proposal 826 and NextEra/Exelon proposal 237, had comparable performance. However, the conditions represented in the 2032 base case flow on the tie lines from the PJM West and the Southern region into the Mid-Atlantic region are reduced significantly (providing extra capacity on the existing 500 kV system) with the NextEra proposal 237 compared to the MAIT proposal 826 – see **Table 24** below.

The initial analysis showed good performance of both (765 kV and 500 kV) scenario proposals. To assist with further evaluation, and identify the more efficient or cost-effective solution(s), PJM conducted several transfer analyses. The transfer analysis was conducted to determine the West to East (PJM West – Mid-Atlantic) transfer capability offered by each scenario. The transfer study was conducted using both 2030 and 2032 base cases.

The transfer study consisted of a DC bulk transfer study using various sources of "Western PJM" and sink of "MAAC/PPL" pairs. Actual AC transfer levels will be lower but generally enabled through more localized reactive power compensation and smaller upgrades.

Table 24. MAAC Tie-line Loadings – 2032 Case with NJOSW offline and Additional 3.5 GW PPL Load (Negative Values represent imports into MAAC)

Tie Facility	kV	MAAC-1 (FirstEnergy 826)		MAAC-2 (NextEra/Exelon 237)	
		MW	MVAR	MW	MVAR
Keystone - Cabot	500	-940	222	-92	74
Keystone - South Bend	500	-2,439	321	-1,585	162
Erie West - Ashtabula	345	-32	35	69	22
Chanceford - Rocky Point	500	-862	181	-724	98
Brighton - Doubs	500	-2,283	314	-2,171	252
Dickerson - Aqueduct	230	-372	111	-374	111
Dickerson - Doubs	230	-389	111	-390	111
Dickerson - Edwards Ferry	230	-577	99	-546	73
Burches Hill - Possum Point	500	-1,632	500	-1,562	460
TOTAL MAAC import		**-9,525**	**1,893**	**-7,375**	**1,364**

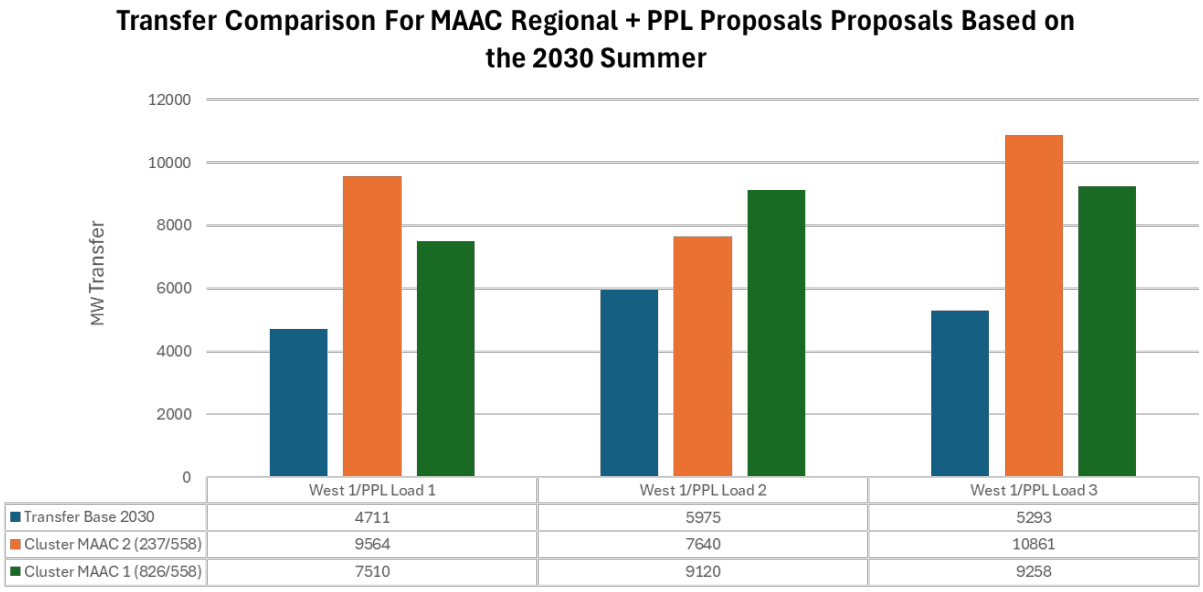
The following are the source and sink definitions used in PJM's incremental transfer studies.

Table 25. List of Sources and Sinks considered in the transfer study

Sources	Bus Name
West 1	BUS 246999 /Sorensen
	BUS 246751 /Vassell
	BUS 242516 /MOUNTAIN
West 2	BUS 235703 /WILLY RDG
	BUS 233108 /HATSFLD
	BUS 235102 /BELMONT
	BUS 235107 /HARRISON
West 3	BUS 246999 / 765 kV Sorensen
	BUS 246751 / 765 kV Vassell
	BUS 238889 / 345 kV Lemoyne
	BUS 242936 / 345 kV Fostoria Central
West 4	All PJM West generators

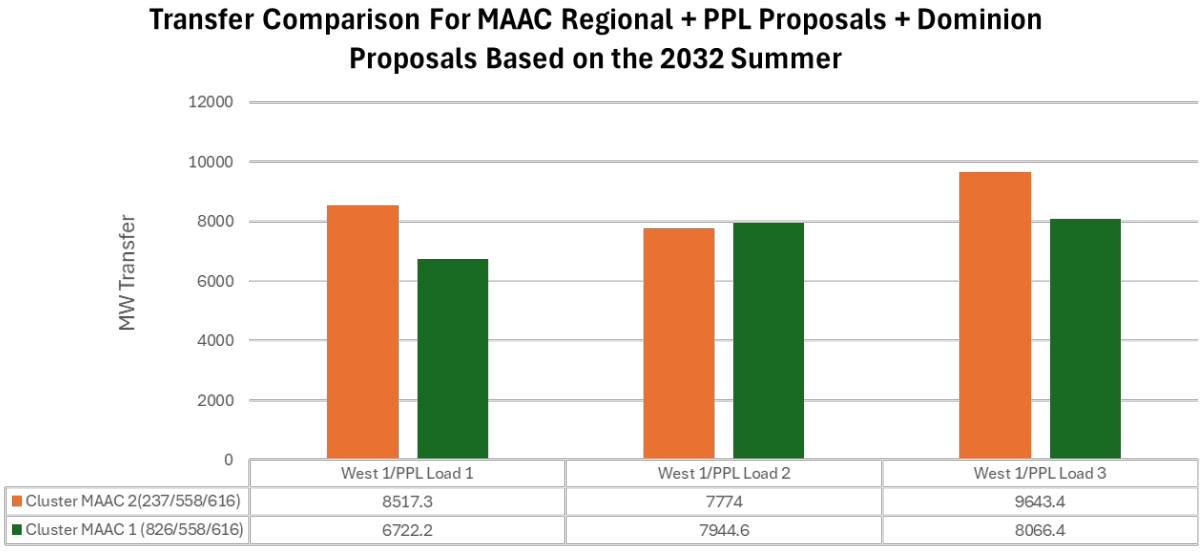
Sinks	Bus Name	Percentage
PPL Load 1	Bus 200009 /Juniata	100%
PPL Load 2	Bus 200022 /Susquehanna	100%
PPL Load 3	Bus 200009 /Juniata	50%
	Bus 200022 /Susquehanna	50%

Figure 4. Regional West-East Incremental Transfers for Base Model, MAAC-1 (500 kV double circuit) and MAAC-2 (765 kV) with One Sources and Various Sink



	West 1/PPL Load 1	West 1/PPL Load 2	West 1/PPL Load 3
Transfer Base 2030	4711	5975	5293
Cluster MAAC 2 (237/558)	9564	7640	10861
Cluster MAAC 1 (826/558)	7510	9120	9258

Figure 5. Regional West-East Transfers for MAAC-1 (500 kV double circuit) and MAAC-2 (765 kV) with One Sources and Various Sink



	West 1/PPL Load 1	West 1/PPL Load 2	West 1/PPL Load 3
Cluster MAAC 2(237/558/616)	8517.3	7774	9643.4
Cluster MAAC 1 (826/558/616)	6722.2	7944.6	8066.4

Figure 6. Regional West-East Transfers for MAAC-1 (500 kV double circuit) and MAAC-2 (765 kV) with Various Sources and One Sink

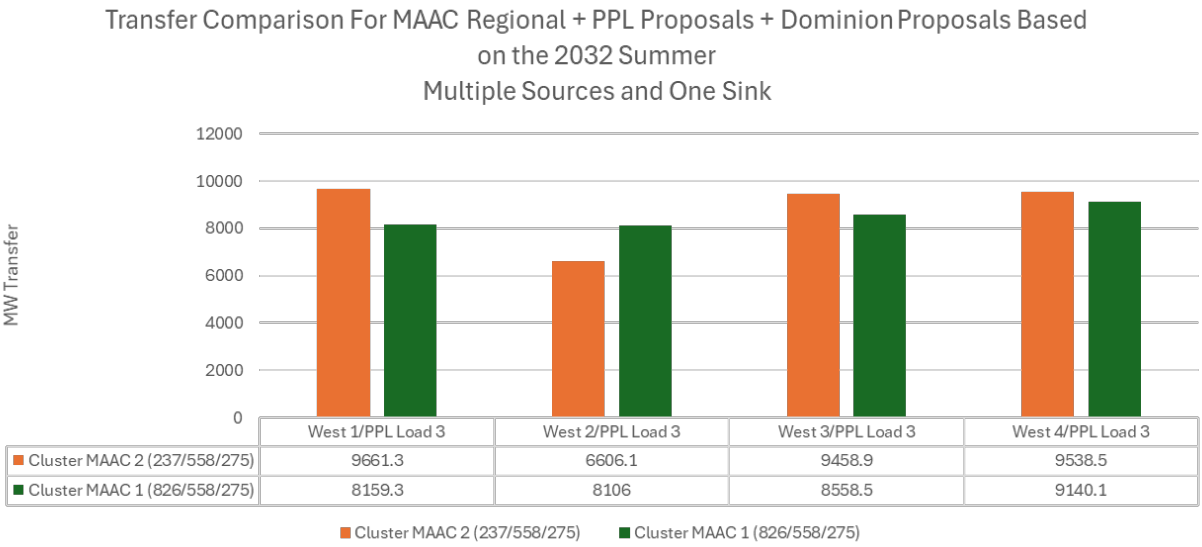
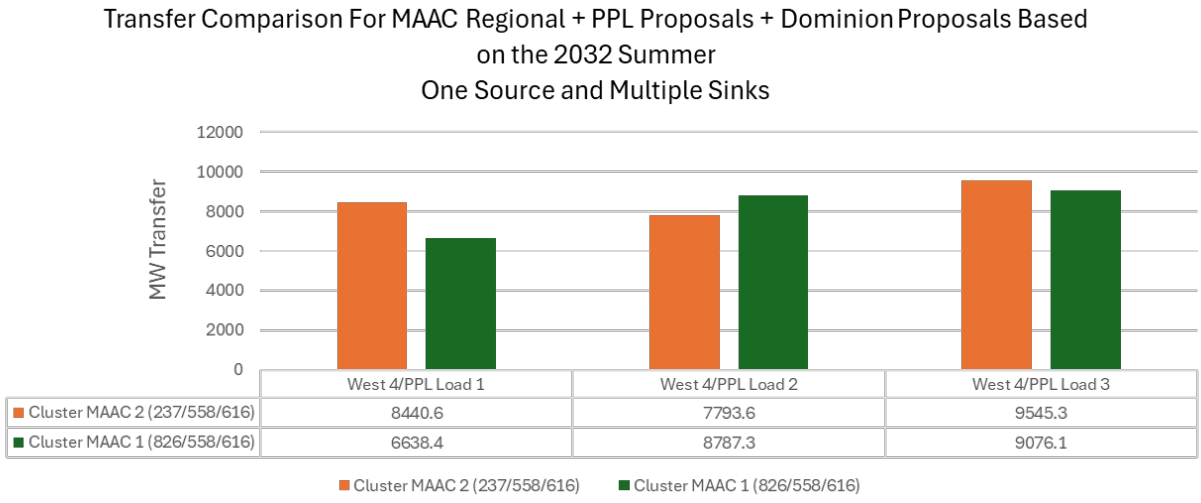


Figure 7. Regional West-East Transfers for MAAC-1 (500 kV double circuit) and MAAC-2 (765 kV) with One Sources and Various Sink



FirstEnergy (MAIT) proposal 826 (200 mi) consisting of constructing double circuit 500 kV transmission lines Keystone – Susquehanna in the PPL Transmission Zone. Reinforces the regional system within Mid-Atlantic area.

NextEra/Exelon proposal 237 (222 mi) consists of constructing of 765 kV development from Kammer to Juniata in the PPL Transmission Zone. Reinforces the entire West - East corridor from the current 765 kV system edge at Kammer through the Mid-Atlantic region terminating at Juniata.

While both 826 and 237 proposals mitigate the 500 kV overloads at varying degrees, proposal 237 provides stronger support to the Mid-Atlantic region, naturally extends the PJM 765 kV Western and Southern network into MAAC and

supports future load growth not only in PPL, but in the entire Mid-Atlantic region. Proposal 237 offers the highest transfer capability overall among studied transfer scenarios, preserves more of the existing 500 kV transmission capacity for utilization of interconnecting load or generation, and allows for adding further capability incrementally while maintaining more efficient or cost-effective orderly development of the transmission system.

Moreover, Proposal 237 supports delivery of future generation development in western Pennsylvania, PJM West and Southern region to load, based on the future generation outlook, as informed by the PJM New Service Requests Process.

PJM is recommending proposal #237 for development for the following reasons:

- Provides a stronger support to the Mid-Atlantic region including load growth in PPL and MAAC area in general, delays in OSW development, future generation retirements in MAAC, or any combination of these factors
- A natural expansion of the existing 765 kV backbone into the PJM eastern region. This allows for more flexibility in utilizing resources across the interconnection to serve load
- Offers ~2 GW more import capability to Mid-Atlantic than proposal 826 and preserves existing 500 kV capacity.
- Offers the highest transfer capability regardless of Source/Sink combination (incremental transfer capability could be easily added as load materializes in the future)
- PJM will work with the Project Proponent, and incumbent Transmission Owner(s) to enhance and finalize project details based on feedback received

Western Regional

Since the Nov. TEAC, PJM conducted additional analysis to compare the performance of the shortlisted proposals to recommend a solution for the Western Regional cluster. The following tables, figures and maps provide some insight into this analysis:

Table 26. Western Regional Shortlist 2030 Generator Deliverability Summary

Proposal ID	Proposing Entity	Proposal Cost ($M)	No. of Remaining Overloads (14 total)	Approx. Cost to Resolve Remaining Violations ($M)	No. of New Overloads	Projected Cost ($M)	Projected ISD
239	TRNSRC/FE	1,492.41	2	106.38	0	1,598.79	2030
570	TRNSRC/FE	2,775.19	0	0.00	0	2,775.19	2031
51 (Part of 570)	TRNSRC/FE	1,097.75	4	290.46	0	1,341.68	2030
152	NXTMID/Exelon	2,921.12	0	0.00	0	2,921.12	2031

Proposal ID	Proposing Entity	Proposal Cost ($M)	No. of Remaining Overloads (14 total)	Approx. Cost to Resolve Remaining Violations ($M)	No. of New Overloads	Projected Cost ($M)	Projected ISD
152 (2030 Comp only)	NXTMID	1,465.75	1	70.64	1 (765 kV terminal)	1,536.39+	2030

+ Unsolved overloads (related solution cost is not available)

Table 27. Western Regional Shortlist 2030 N-1 Voltage Summary

Proposal ID	Proposing Entity	Solve Existing Voltage Violation?	Creates New Voltage Violation(s)?
152	NXTMID	YES	NO
152 (2030 components)	NXTMID	YES	NO
51 (Part of 570)	TRNSRC/FE	YES	NO
570	TRNSRC/FE	YES	NO
239	TRNSRC/FE	YES	NO

Table 28. Western Regional Shortlist 2030 N-1-1 Thermal Summary

Proposal ID	Proposing Entity	Remaining Violation (if any)	New Violation
51 (Part of 570)	TRNSRC/FE	05KENNY-05ROBERT 138 kV 05INNOVATION-05INNOVAT2EQ/1EQ 345/138 kV	None
570	TRNSRC/FE	No issue	None
152 (2030 components)	NXTMID/Exelon	No issue	05CANAL-05CYPRUS12 138 kV
152	NXTMID/Exelon	No issue	05CANAL-05CYPRUS12 138 kV
239	TRNSRC/FE	05MALIS-05POLARS 138 kV	None

Table 29. Western Regional Shortlist 2030 N-1-1 Voltage Summary

Proposal ID	Proposing Entity	Solve Existing Voltage Violation?	Creates New Voltage Violation?	Note
239	TRNSRC/FE	Yes	No	

Proposal ID	Proposing Entity	Solve Existing Voltage Violation?	Creates New Voltage Violation?	Note
51 (Part of 570)	TRNSRC/FE	Yes	No	
570	TRNSRC/FE	Yes	No	
152	NXTMID/Exelon	Yes	No	
152 (2030 Components)	NXTMID/Exelon	No	Yes	Does not solve existing voltage drop issues at Marysville, Vassell, etc. New voltage drop issue at proposed 765 kV substations Matville, Buckeye Lake, etc.

Table 30. Western Regional Shortlist 2032 Generator Deliverability Summary

Proposal ID	Proposing Entity	Unsolved Violations		Creates New Violation		Performance
		765 kV	345 kV	765 kV	345 kV	
152	NXTMID	0	17	0	0	High
570	TRNSRC/FE	0	17	0	0	High
239	TRNSRC/FE	0	33	0	1	Mid-High

Table 31. Western Regional Shortlist 2032 N-1 Voltage Summary

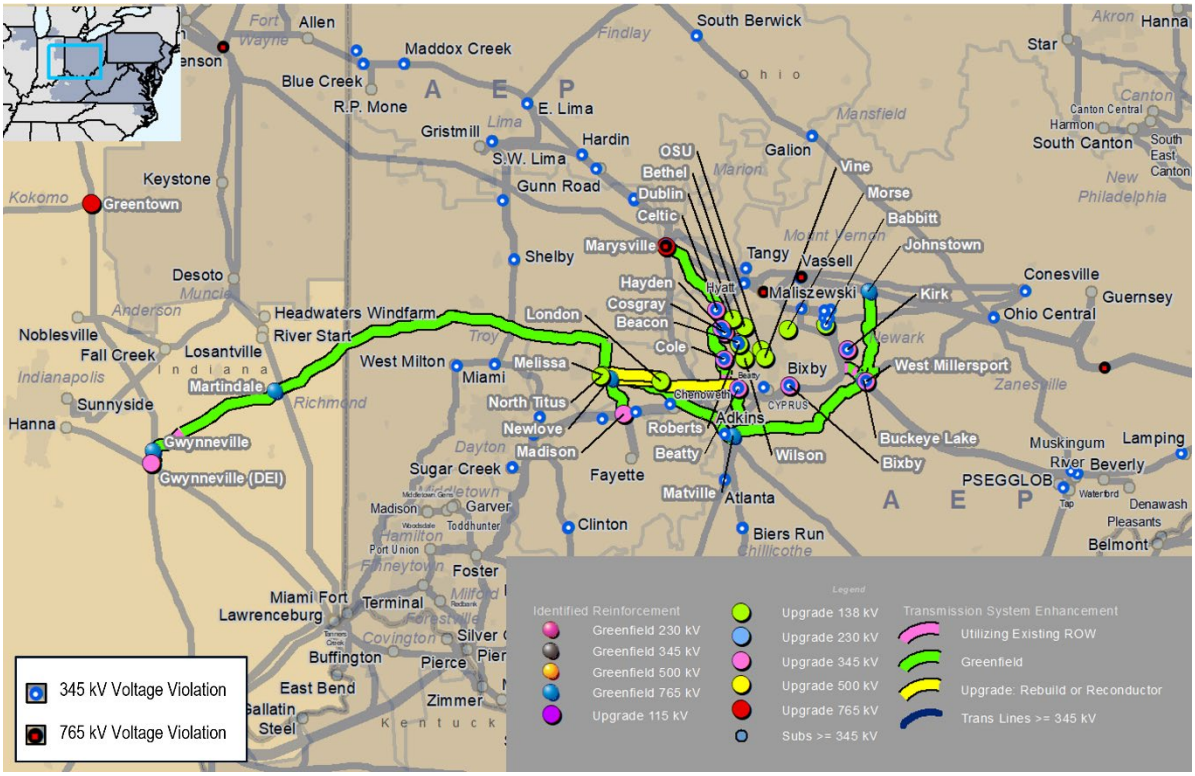
Proposal ID	Proposing Entity	Solve Existing Voltage Violation?	Creates New Voltage Violation?
152	NXTMID	Yes	No
570	TRNSRC/FE	Yes	No
239	TRNSRC/FE	Yes	No

Table 32. Western Regional Shortlist 2032 N-1-1 Voltage Summary

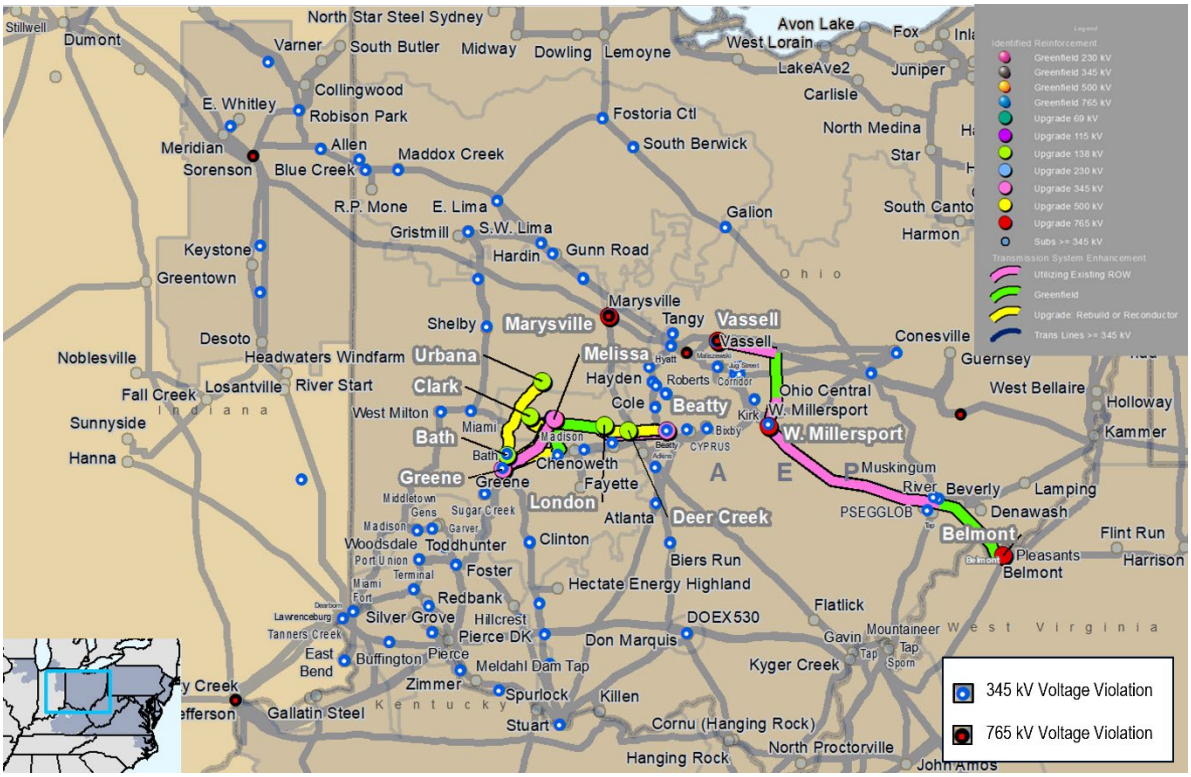
Proposal ID	Proposing Entity	No. of Volt Drop Violation		No. of Volt Magnitude Violation		No. of New Non-Convergence	Note
		765 kV	345 kV	765 kV	345 kV		
570	Transource/FE	0	0	0	0	0	

Proposal ID	Proposing Entity	No. of Volt Drop Violation		No. of Volt Magnitude Violation		No. of New Non-Convergence	Note
		765 kV	345 kV	765 kV	345 kV		
152	NXTMID/Exelon	363	1226	192	268	0	Voltage drop and magnitude issues in wide PJM west area
239	Transource/FE	1030	2452	2536	2649	0	Voltage drop and magnitude issues in massive PJM west area

Map 34. Proposal 152: 2032 N-1-1 765 kV and 345 kV Voltage Violations



Map 35. Proposal 239: 2032 N-1-1 765 kV and 345 kV Voltage Violations



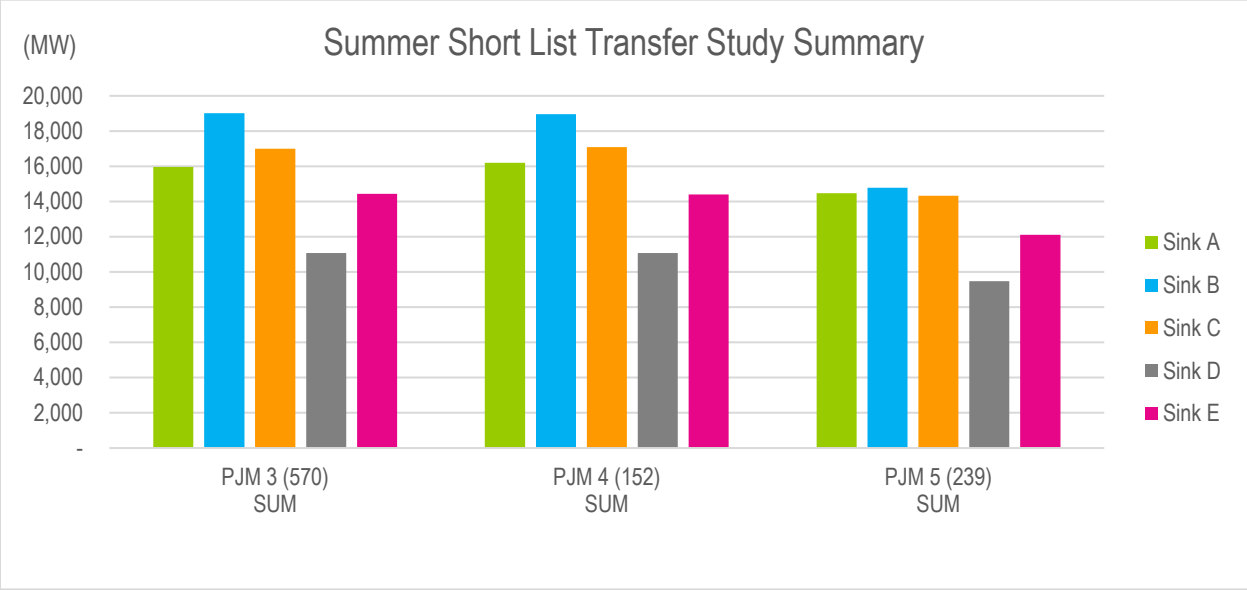
The following are the source and sink definitions used in PJM's incremental transfer studies:

Sources	Area	Percentage
A	AEP Generation	100%

Sinks	Area	Percentage
A	AEP	59.79%
	Dayton	14.70%
	DEOK	22.61%
	ATSI	2.90%
B	AEP	39.67%
	Dayton	9.75%
	DEOK	15.00%
	ATSI	1.92%
	PPL	13.46%
	PECO	10.10%
	PSEG	10.10%
C	AEP	46.67%
	Dayton	11.47%
	ATSI	2.26%

Sinks	Area	Percentage
	PPL	15.84%
	PECO	11.88%
	PSEG	11.88%
D	Dayton	21.51%
	ATSI	4.24%
	PPL	29.71%
	PECO	22.27%
	PSEG	22.27%
E	AEP	25.93%
	Dayton	15.93%
	ATSI	3.14%
	PPL	22.00%
	PECO	16.50%
	PSEG	16.50%

Figure 8. Western Regional Transfer Study – 345 kV and Above



Note: PJM 3, PJM 4 and PJM 5 are scenarios that were developed by PJM during proposal evaluations and the definitions/components for each scenario are defined in **Appendix E: Scenario Definitions**. The relevant western regional cluster proposal included in each of the scenarios is noted in parentheses in the above figure.

Transource/FirstEnergy Proposal 570

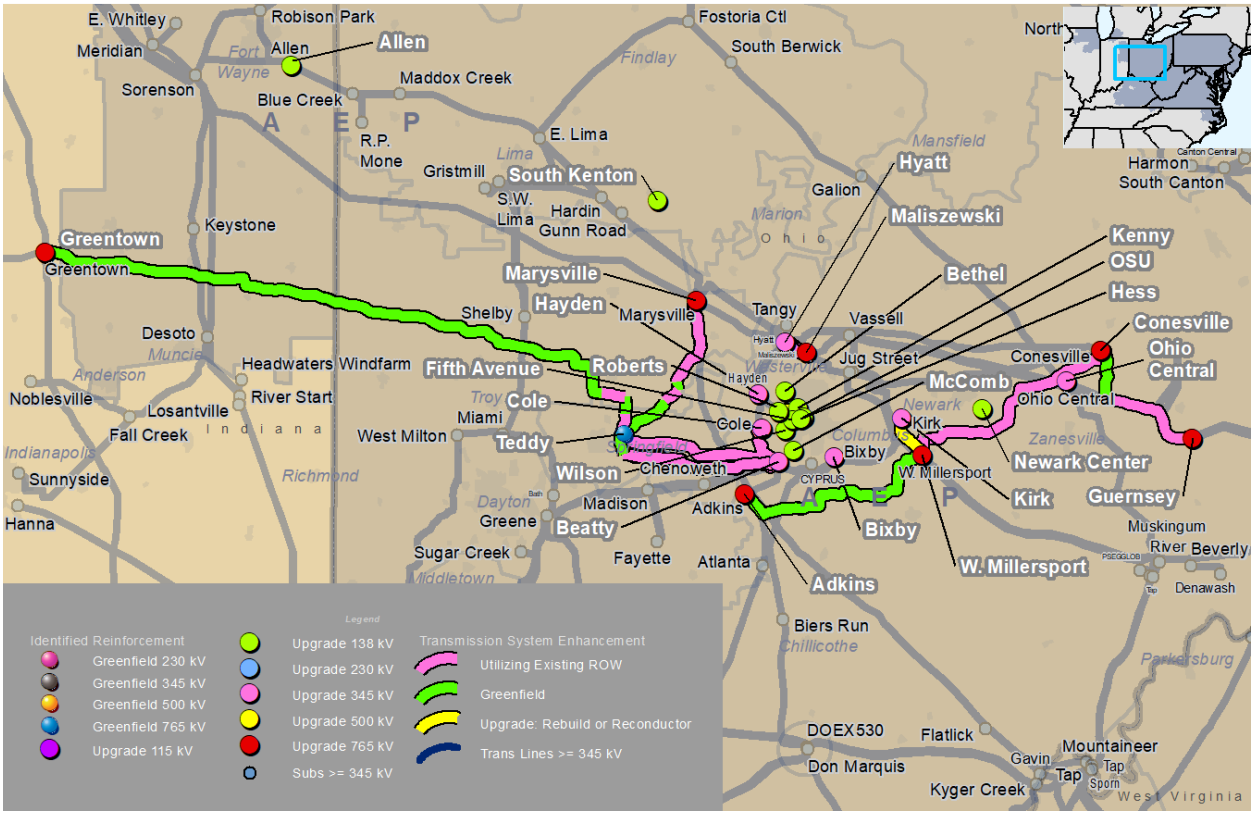
Transource/FirstEnergy Proposal 570 is comprised of the components listed in **Table 33** designed to address 2030 and 2032 needs. As illustrated in **Map 36**, the proposal offers a 765 kV transmission reinforcement both from the Northwest (from Greentown and Marysville) and from the East (Guernsey) into the load center combined with 345 kV upgrades. From a performance standpoint, proposal 570 is the most reliable solution as it resolves the most violations, and is one of the proposals that offers the best incremental transmission capability among the short-listed proposals as shown in **Figure 8**. The proposal also offers 138 kV zonal support in the area which mitigates the need for the majority of AEP cluster proposals.

Table 33. Proposal 570 Components

Proposal ID	Project Description	Submitted Cost ($M)
570	West Millersport - Kirk 345 kV	24.30
	Hyatt - Maliszewski Double Circuit 345 kV	34.13
	Hayden - Cole 345 kV	37.87
	Ohio Central Extension	3.50
	Roberts - Kenny 138 kV Rebuild	66.36
	Wilson - Fifth Avenue 138 kV line	18.26
	Teddy - Cole 345 kV #2 Circuit	21.63
	Kammer Dumont Structures	2.00
	Ohio Central - Fostoria Central Structure	1.00
	Gavin - Marysville Structures	3.00
	East Springfield - London Structures	1.00
	Beatty - Hayden Structures	3.00
	Greentown Station Expansion	45.29
	Marysville Station Upgrade	281.83
	Cole Station Upgrade	1.00
	Beatty Station Upgrade	3.86
	Guernsey Station Upgrade	5.54
	West Millersport Station Upgrade	118.11
	Bixby Station Upgrade	0.08
	Newark Center Station Upgrade	0.70
	Allen Station Upgrade	0.05
	McComb Station Upgrades	7.19
	Bethel Station Upgrade	0.50
	OSU Station Upgrade	0.50
	Hess 138 kV Station Upgrade	0.70
	South Kenton Station	0.11
	Meadow Lake Station Circuit Breaker	4.00
	Conesville Station Expansion	140.97
	Adkins Station Expansion	102.98
	Ohio Central Station Upgrade	3.00
	Greentown - Teddy 765 kV Line	633.79

Proposal ID	Project Description	Submitted Cost ($M)
	Teddy - Marysville 765 kV	176.46
	Teddy - Beatty DCT 345 kV	175.19
	Guernsey - Conesville 765 kV	166.17
	Bixby - West Millersport 345 kV	12.00
	West Millersport - Adkins 765 kV	201.83
	Conesville - West Millersport 765 kV	248.98
	Teddy 765/345 kV Station	228.33
Total		**2,775.19**

Map 36. Transource/FirstEnergy Proposal 570



NextEra/Exelon Proposal 152

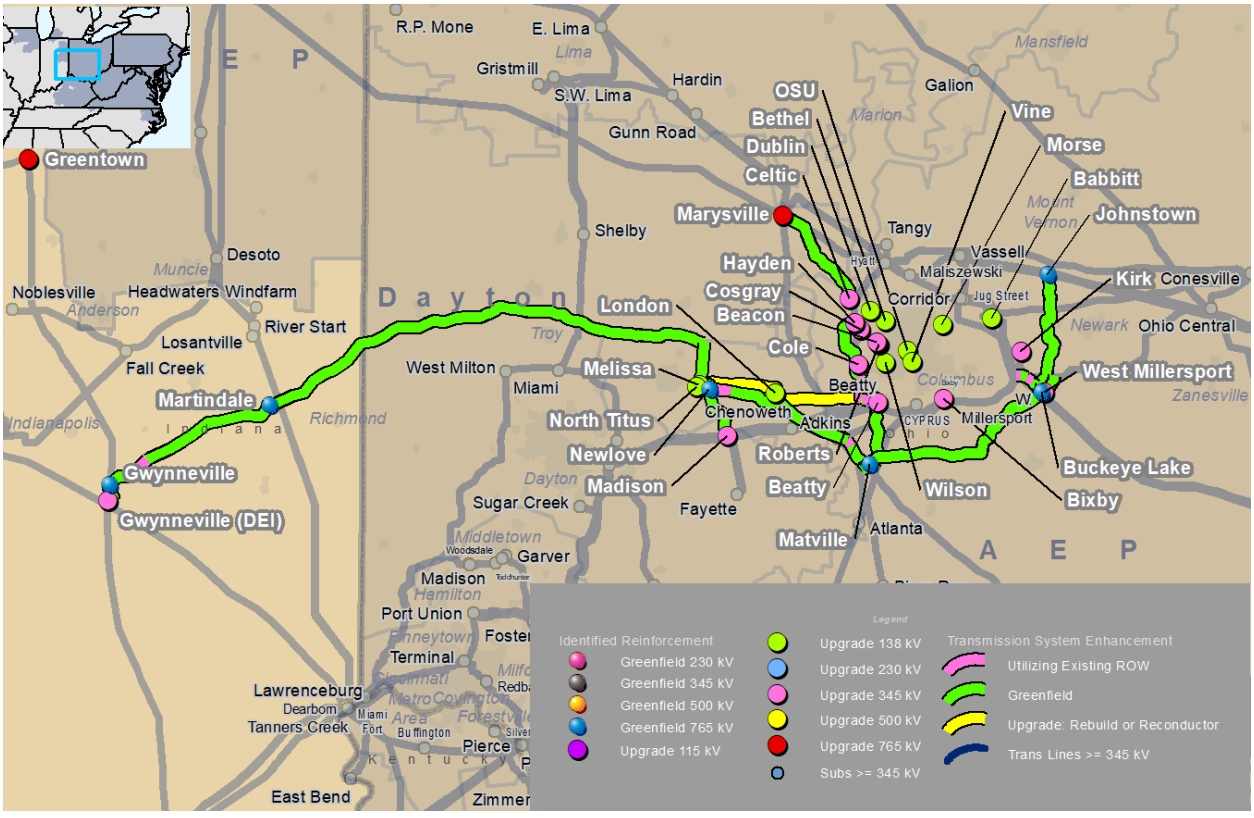
NextEra/Exelon Proposal 152 is comprised of the components listed in **Table 34** designed to address 2030 and 2032 needs. As illustrated in **Map 37**, the proposal offers a 765 kV transmission reinforcement from the Southwest (Gwynneville in MISO territory) and loops around the load center to the East (Johnstown), combined with 345 kV and 138 kV reinforcements into the load center areas. From a performance standpoint, proposal 152 offers the best incremental transmission capability among the short-listed proposals as shown in **Figure 8**, slightly outperforming even proposal 570. However, while initial reliability analysis performance showed promise, additional testing showed that in particular from a 2032 N-1-1 voltage perspective it does not perform as well as proposal 570 (see **Table 32** and **Map 34**), nor proposal 51 for 2030 N-1-1 voltage analysis (see **Table 29**). It was also identified during these further detailed studies that Proposal 152 causes one 2030 N-1-1 thermal violation as shown in **Table 28**.

Table 34. Proposal 152 Components

Proposal ID	Project Description	Submitted Cost ($M)
152	A-103-A) North Titus Melissa - London 138 kV double circuit/London - Beatty 138 kV single circuit	57.19
	A-14-A) Marysville - Matville 765 kV Loop-In	2.64
	A-72-A) Matville - Flatlick 765 kV Loop-In	2.50
	A-155-A) Jefferson - Greentown 765 kV Loop-In	3.96
	A-156-A) Tanners Creek - Desoto 345 kV Loop-In	2.61
	A-157-A) Tanners Creek - Losantville 345 kV Loop- In	3.47
	A-108-A) Melissa substation upgrades	4.56
	A-112-A) Madison substation upgrades	6.65
	A-118-C) West Millersport substation upgrades	19.94
	A-119-B) Bixby terminal equipment upgrades	2.49
	A-124-B) Cole substation upgrade	3.32
	A-125-A) Hayden substation upgrade	13.35
	A-131-B) Celtic substation upgrade	6.65
	A-139-A) Cosgray 345 kV substation upgrade	3.54
	A-150-A) Bethel circuit breaker replacement	1.52
	A-151-A) Babbit circuit switcher replacement	0.76
	A-15-B) Marysville substation upgrade	77.72
	A-23-A) Kirk substation upgrade	2.49
	A-149-A) Beacon substation upgrade	3.54
	A-154-A) Gwynneville (DEI) substation upgrade	7.44
	A-158-A) Greentown substation upgrade	6.75
	A-159-A) Dublin reactor addition	1.14
	A-160-B) Beatty substation upgrades	9.50
	A-161-A) Wilson series reactor addition	1.14
	A-162-A) Roberts	1.14
	A-113-A) Newlove - Madison 345 kV	36.51
	A-114-A) Matville - Biers Run 345 kV Loop-In	8.66
	A-115-A) Matville - Bixby 345 kV Loop-In	9.67
	A-126-C) Cole - Hayden 345 kV	36.81
	A-127-B) Cole - Beatty 345 kV	37.49
	A-12-A) Newlove - Matville 765 kV	168.08
	A-132-A) Celtic - Marysville 345 kV	73.65
	A-136-A) Buckeye Lake - Johnstown 765 kV	119.78
	A-136-B) Matville - Beatty 345 kV	44.02
	A-140-B) Newlove - Melissa 138 kV	13.17
	A-140-C) Newlove - Melissa 138 kV	8.56
	A-143-A) Martindale - Newlove (Indiana Portion) 765 kV	98.63
	A-143-B) Martindale - Newlove (Ohio Portion) 765 kV	351.38

Proposal ID	Project Description	Submitted Cost ($M)
	A-145-A) New Gwynneville (765 kV substation) - Gwynneville 345 kV T-Line	19.09
	A-146-A) Gwynneville - Martindale 765 kV	160.67
	A-17-B) Matville - Adkins 345 kV Loop-In	9.93
	A-18-A) Matville - Buckeye Lake 765 kV	200.61
	A-20-A) Bixby/Kirk - West Millersport 345 kV Loop-In	26.41
	A-21-A) Bixby/Ohio Central - West Millersport 345 kV Loop-In	28.19
	A-70-A) Matville - Atlanta 345 kV Loop-In	11.84
	A-11-B) Newlove 765 kV Substation	234.77
	A-142-B) Gwynneville 765 kV Substation	223.09
	A-135-A) Johnstown 765 kV Substation	116.26
	A-144-A) Martindale 765 kV Substation	171.87
	A-19-B) Buckeye Lake 765 kV Substation	210.18
	A-13-E) Matville 765 kV Substation	255.82
Total		**2,921.12**

Map 37. NextEra/Exelon Proposal 152



FirstEnergy/Transource Proposal 239

FirstEnergy/Transource Proposal 239 is comprised of the components listed in **Table 35** designed to address 2030 and 2032 needs. As illustrated in **Map 38**, the proposal introduces a south-east 765 kV source from Belmont to West

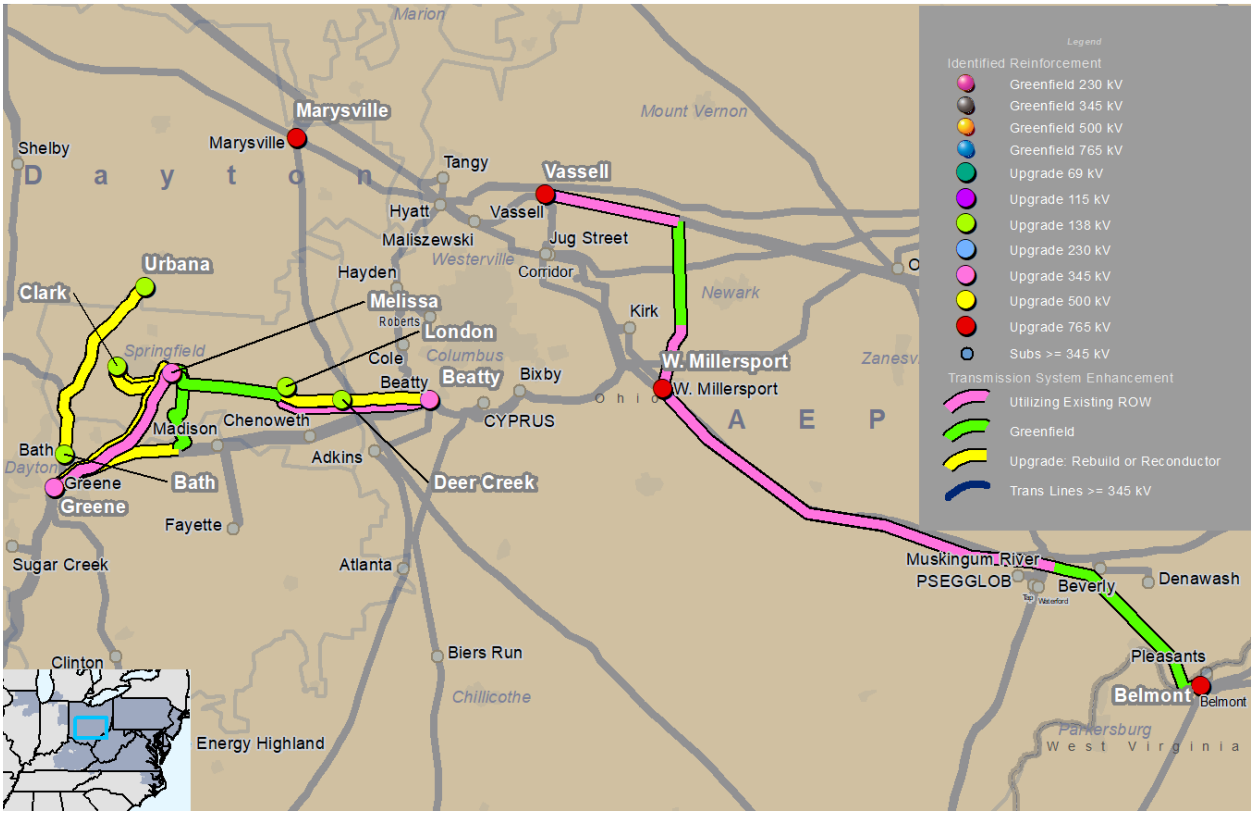
Millersport up to Vassell substation, which is close to the load center. The remaining reinforcements to the address the violations focus on the 345 and 138 kV transmission system, and while the proposal performs well in 2030 reliability analysis, it does not perform as well as proposals 570 and 152 in 2032 generator deliverability (see **Table 30**) or N-1-1 voltage analyses (see **Table 32** and **Map 35**). Also, the proposal does not provide as much transfer capability as demonstrated in **Figure 8**.

Table 35. Proposal 239 Components

Proposal ID	Project Description	Submitted Cost ($M)
239	Greene - Clark 138 kV Line [Phase 1]*	-
	Beatty - Deer Creek 138 kV Line [Phase 1]*	-
	Deer Creek - London 138 kV Line [Phase 1]*	-
	Greene (DP&L) - Melissa – Madison (AEP) 345 kV Line - - Rebuild [Phase 2]	58.39
	Greene - Clark 138 kV Line Rebuild	32.74
	East Springfield - Clark 138 kV Line Rebuild*	-
	Clark - East Springfield 138 kV [Phase 1]*	-
	Rebuild the Bath - Urbana 138 kV Line	103.13
	Melissa Substation 345 kV switchyard - Phase 1	33.75
	Melissa Substation 345 kV switchyard expansion - Phase 2	8.96
	Greene Substation (DP&L) 345 kV [Phase 1]*	-
	Beatty Substation (AEP) 345 kV [Phase 1]*	-
	Greene Substation (DP&L) 345 kV [Phase 2]*	-
	Madison Substation (AEP) 345 kV [Phase 2]*	-
	Belmont Substation 765 kV Expansion	46.81
	West Millersport 765/345 kV Substation	74.61
	Vassell Substation 765 kV Expansion	23.23
	Marysville Substation 765 kV STATCOM	104.65
	Greene - Melissa 345 kV Line [Phase 1]	95.02
	Melissa - Beatty 345 kV Line [Phase 1]	134.60
	Greene (DP&L) - Melissa – Madison (AEP) 345 kV Line [Phase 2]	58.05
	Belmont - West Millersport 765 kV Line	489.04
	West Millersport - Vassell 765 kV Line	229.43
Total		**1,492.41**

*Cost components are captured in other components.

Map 38. FirstEnergy/Transource Proposal 239



Short-Circuit Analysis

Drivers for the 2025 RTEP Window 1 are reliability violations primarily stemming from load flow analysis instead of short-circuit analysis. Short-circuit analysis followed a screening process to support the 2025 RTEP Window 1 evaluation of proposals. The short-circuit screening identified potential additional scope attributed to overdutied breakers, and potential switchyard rebuilds. Short-circuit analysis was applied holistically, where the scenario under study comprised one or more proposals, designed to address all Window violations at once, which ensures accounting for all short-circuit contributions by all proposed solution facilities of each scenario.

The screening process considered all TO breaker sets within the PJM footprint using the posted 2030 baseline case, then analyzed the proposals and scenarios using the associated Aspen Options Settings File (OSF) specific to each impacted TO area. Short-circuit screening was performed on all scenarios deemed promising based on power flow analysis results and on the base case containing the final recommended solution.

As part of the scenario screening process, breakers identified as overdutied attributed to the scenario under study were reviewed. For proposals that included breaker replacements, those breakers were reviewed for adequacy of their proposed interrupting capability. The study also identified breakers that became overdutied as a consequence of the scenario under study but were not addressed in the individual proposals received by PJM. If replacing the consequential overdutied breaker with a breaker having a greater interrupting capability could remediate the overduty condition, then the cost of the breaker replacement was factored into the overall scenario cost.

However, in some scenarios, the identified fault level increase was approaching the ratings of the substation ground grid and other fault current-sensitive facilities within the substation. In these situations, PJM reviewed in

detail, and in consultation with the facility owner, the calculated fault duties to ensure they did not exceed limits imposed by the substation ground grid, nor the maximum interrupting capability of standard circuit breakers commonly available on the market. For example, at the Brambleton 230 kV yard, excessively high fault level would require the entire substation to be rebuilt.

The 2025 RTEP Window 1 recommended scenario underwent a subsequent short-circuit analysis that was more rigorous than the short-circuit screening. An Aspen Breaker Duty Report, using the native TO Option Settings File, was generated for each TO area where overduty breakers were identified in the initial screening. Results were shared with the impacted TOs for validation and breaker replacement cost estimation.

Objectives of the short-circuit analysis were achieved with the 2025 Window 1 selected scenario. The Brambleton substation was not impacted for excessively high fault levels that exceed the existing short-circuit capability reported by the transmission owner. However, as shown in **Table 36 - 38**, there were an additional 83 breakers identified as overdutied, which were not included in the submitted proposals. These breakers are located in ATSI, PPL, and Dominion substations at nominal voltages of 138 kV, 230 kV, and 500 kV. Costs to remediate these overduty breakers are incorporated into the recommended scenario cost estimate.

Table 36. Additional Circuit Breaker Identified for Upgrades/Replacements (MAAC PPL Cluster - Selected)

TO Area	Substation	kV	Breaker (Qty)
PPL	Susquehanna	**230**	6

Table 37. Additional Circuit Breaker Identified for Upgrades/Replacements (Dominion Cluster – Short List 275)

TO Area	Substation	kV	Breaker (Qty)
DOM	Celestial	**230**	2
	Clifton	**230**	3
	Clifton	**500**	1
	Elmont	**230**	7

Table 38. Additional Circuit Breaker Identified for Upgrades/Replacements (Dominion Cluster – Short List 331)

TO Area	Substation	kV	Breaker (Qty)	
DOM	Brambleton	**230**	4	exceeds 80kA
	Celestial	**230**	2	
	Clifton	**230**	4	
	Clifton	**500**	1	
	Clover	**230**	1	
	Elmont	**230**	11	
	Elmont	**500**	2	
	Mars	**230**	10	exceeds 80kA

TO Area	Substation	kV	Breaker (Qty)
	Morrisville	**230**	2
	Morrisville	**500**	2
	North Anna	**500**	3
	Possum Point	**230**	10
	Rosslyn	**69**	3
	Shellhorn	**230**	6

Table 39. Additional Circuit Breaker Identified for Upgrades/Replacements (West Cluster – Short List 152)

TO Area	Substation	kV	Breaker (Qty)
ATSI	London	**138**	2

Table 40. Additional Circuit Breaker Identified for Upgrades/Replacements (West Cluster – Short List 570)

TO Area	Substation	kV	Breaker (Qty)
AEP	Huntington Court	**69**	1

Window 1 Evaluations Process – Zonal

While many of the flowgates associated with 2025 RTEP Window 1 are associated with the regional transfer needs, there are also those that are more zonal in nature. PJM received proposals from both the incumbent and non-incumbent entities for the zonal clusters. PJM has completed an initial review and screening of the proposals in each cluster based on data and information provided by the project sponsors as part of their submitted proposals. This review and screening included the following preliminary analytical quality assessment:

- ***Initial Performance Review –*** PJM evaluated whether or not the project proposal solved the required reliability criteria violation drivers posted as part of the open solicitation process.
- ***Initial Planning-Level Cost Review –*** PJM reviewed the estimated project cost submitted by the project sponsor and any relevant cost-containment mechanisms submitted as well.
- ***Initial Feasibility Review –*** PJM reviewed the overall proposed implementation plan to determine if the project, as proposed, can feasibly be constructed.
- ***Additional Benefits Review –*** PJM reviewed information provided by the proposing entity to determine if the project, as proposed, provides additional benefits, such as the elimination of other needs on the system.

Additionally, in order to ensure that PJM develops more efficient or cost-effective transmission solutions to identified regional needs, RTEP Process consideration must be given to the additional benefits a proposal window-submitted project may provide beyond those required to solve identified reliability criteria violations. As discussed in Section 1.1 and Section 1.4.2 of PJM Manual 14B, Transmission Owner Attachment M-3 needs and projects must

be reviewed to determine any overlap with solutions proposed to solve the violations identified as part of opening an RTEP proposal window.

PJM's initial planning-level cost review and initial feasibility review suggests that further constructability review and financial analysis would not materially contribute to the analysis of the other proposals submitted for this cluster. Further details regarding PJM's evaluation for the zonal clusters are included in the subsequent sections:

West Zonal Clusters

AEP Zone (AEP – 1)

The AEP-1 cluster includes those flowgates listed in **Table 41** with proposal details listed in **Table 42**.

Table 41. 2025 RTEP Window 1: AEP – 1 Cluster List of Flowgates

Cluster	Flowgate	kV Level	Driver
1	2025W1-AEP-T1, 2025W1-AEP-T2, 2025W1-AEP-T3, 2025W1-AEP-T4, 2025W1-AEP-T5, 2025W1-AEP-T6	69 kV	FERC 715 study

Table 42. 2025 RTEP Window 1: AEP – 1 Cluster List of Received Proposals

Proposal ID	Cluster	Project Type	Project Description	Total Construction Cost ($M)	Cost Capping Provisions (Y/N)
385	AEP – 1	Upgrade	Reconfigure 69 kV lines at Platter Creek to mitigate breaker contingency violation.	$1.646	N
724	AEP – 1	Upgrade	Rebuild approximately 14.6 miles of the Platter Creek-Sherwood and Sherwood-Auglaize 69 kV circuits with single circuit steel poles.	$28.679	N

Initial performance reviews yielded the following results:

- **Proposal 385:** Resolves the posted violations on the Platter Creek-Sherwood-Auglaize 69 kV line at least cost.
- **Proposal 724:** Resolves the posted violations on the Platter Creek-Sherwood-Auglaize 69 kV line. It is ~$27 million higher in cost compared to proposal 385.

Initial cost reviews provide no significant factors to consider other than the differences in apparent costs. A high-level review of the plans identified in the proposals does not reveal any concerns at this stage of review.

Based on the information provided by the sponsor, proposal 724 will address needs associated with aging infrastructure. The existing line was originally installed in 1923 and needs to be addressed for asset renewal reasons in the near future.

Proposal 724 solves the identified reliability criteria violations and offers additional benefits in the form of eliminating a potential Attachment M-3 need. Based on this information, proposal 724 appears to be the more efficient or cost-effective solution in cluster AEP - 1. PJM's initial planning-level cost review and initial feasibility review suggests that

further constructability review and financial analysis would not materially contribute to the analysis of the other proposals submitted for this cluster. AEP-1 cluster comparison and selection preference have been presented in TEAC meeting in Nov. 2025.

AEP Zone (AEP – 5)

The AEP-5 cluster includes those flowgates listed in **Table 43** with proposal details listed in **Table 44**.

Table 43. 2025 RTEP Window 1: AEP – 5 Cluster List of Flowgates

Cluster	Flowgate	kV Level	Driver
5	2025W1-GD-S480, 2025W1-GD-S488	138 kV	Generator Deliverability

Table 44. 2025 RTEP Window 1: AEP – 5 Cluster List of Received Proposals

Proposal ID	Cluster	Project Type	Project Description	Total Construction Cost ($M)	Cost Capping Provisions (Y/N)
63	AEP – 5	Upgrade	Rebuild 12.2 miles of the Smith Mountain - Rockcastle - Moneta 138 kV line and replace station conductor at Smith Mountain station.	$39.402	N
689	AEP – 5	Upgrade	Perform a sag study on the Smith Mountain - Rockcastle - Moneta 138 kV line and construct mitigations to raise emergency ratings of the line. Replace station conductor at Smith Mountain station.	$9.879	N

Initial performance reviews yielded the following results:

- **Proposal 63:** Resolves the posted violations on the Smith Mountain-Rockcastle-Moneta 138 kV line. It is ~$29.5 million higher in cost compared to proposal 689.
- **Proposal 689:** Resolves the posted violations on the Smith Mountain-Rockcastle-Moneta 138 kV line at least cost.

Initial cost reviews provide no significant factors to consider other than the differences in apparent costs. A high-level review of the plans identified in the proposals does not reveal any concerns at this stage of review. Based on this information, proposal 63 appears to be the more efficient or cost-effective solution in cluster AEP – 5. PJM's initial planning-level cost review and initial feasibility review suggests that further constructability review and financial analysis would not materially contribute to the analysis of the other proposals submitted for this cluster. AEP-5 cluster comparison and selection preference have also been presented in TEAC meeting in Nov. 2025.

Final Reliability Analysis and Recommended Solutions

Critical Substation Planning Analysis

The Critical Substation Planning Analysis (CSPA)[3] was created as an extension of the PJM Transmission Owners' Attachment M-4 process. The purpose of the CSPA is to conduct additional screening as part of a five-year annual PJM RTEP cycle to ensure no new CIP-14 facilities are introduced to the PJM system as the transmission network evolves.

PJM CSPA evaluates system reinforcements, consistent with RTEP CSPA methodology as described in Section 2.9 of Manual 14B. CSPA is performed to identify instability, uncontrolled separation or cascading resulting in one or more of the following outcomes due to the loss of all voltage levels 69 kV and above at a single transmission facility that meets the NERC CIP-14 substation criteria.

- Loss of load approaching 1000 MW
- Three levels of facility trips
- Case non-convergence issue in steady-state or dynamic analysis covering both angular and voltage stability tests

Load Deliverability Analysis

The load deliverability analysis is performed according to PJM Manual 14B requirements.[4] The baseline study was conducted using the 2025 series RTEP 2030 base case. Majority of the LDAs shows healthy CETL/CETO margin, with the exception of AEP, MAAC and PJM West which were limited by the amount of generation reserves in 2030. Because the 2030 case lacks sufficient generation to assess the additional import impacts of the proposed projects, PJM relied on the transfer study.

The transfer studies conducted during the proposal ensure that there is sufficient transfer capability with the recommended solution.

Recommended Solution – Regional Clusters

This section summarizes the preliminary recommended set of proposals and associated rationale to address the reliability needs for the 2025 RTEP Window 1. **Table 49** and Error! Reference source not found. at the end of this section provide summaries of evaluation rationale, relevant study scenarios supporting the selection, as well as a high-level summary of the scenario build up and analysis.

The total estimated cost to address the regional transfer related violations addressed in the regional clusters, including the short circuit breaker replacements, is approximately $9.3 billion. A detailed projects list is provided in **Appendix C: 2025 RTEP Regional Cluster Project List**.

PJM is also recommending in-zone baseline projects totaling approximately $2.3 billion. The detailed project list is provided in **Appendix D: 2025 RTEP In-Zone Project List**. The in-zone projects include both that were part of 2025 RTEP Window 1 and those that were excluded from the competitive window. Altogether, PJM is

[3] *See* PJM Manual 14B, Section 2.9 Critical Substation Planning Analysis
[4] PJM Manual 14B: PJM Region Transmission Planning Process

recommending approximately $11.6 billion worth of transmission enhancements through the 2032 planning year for system reliability.

Southern Region

For the Dominion zone PJM is recommending the HVDC proposal 275, as it is technically the superior solution, offering 500 ~ 1000 MWs higher South to North transfer capability. The HVDC development proposes significantly lower area impact than 765 kV overhead solution, using Dominion's existing rights-of-way and underground routing for the HVDC line. This proposal will increase operational flexibility and provide short circuit mitigation, which is a major concern in Dominion / Northern and Central VA.

The proposed HVDC link offers additional benefits (beyond transfer capability and lower ROW impacts) that were taken into consideration which include;

- Reactive Power support: provides additional 1000 MVAR at each converter-station
- Interconnection Coordination of needed upgrades for planned new generation – approximately $440M of overlapping upgrades and potentially $200M+ of avoided network upgrades
- Transmission Headroom: avoids rebuilding of recently upgraded 500kV lines and enhances headroom on existing lines from under 10% to 35%
- Short Circuit: avoiding equipment replacements (Breaker duty and Substation rebuilds)
- Operational Flexibility: managing bulk transfers
- Construction Outages: short duration outages for HVDC converter Stations integration
- Black Start: capability and flexibility through utilizing HVDC grid-forming capabilities

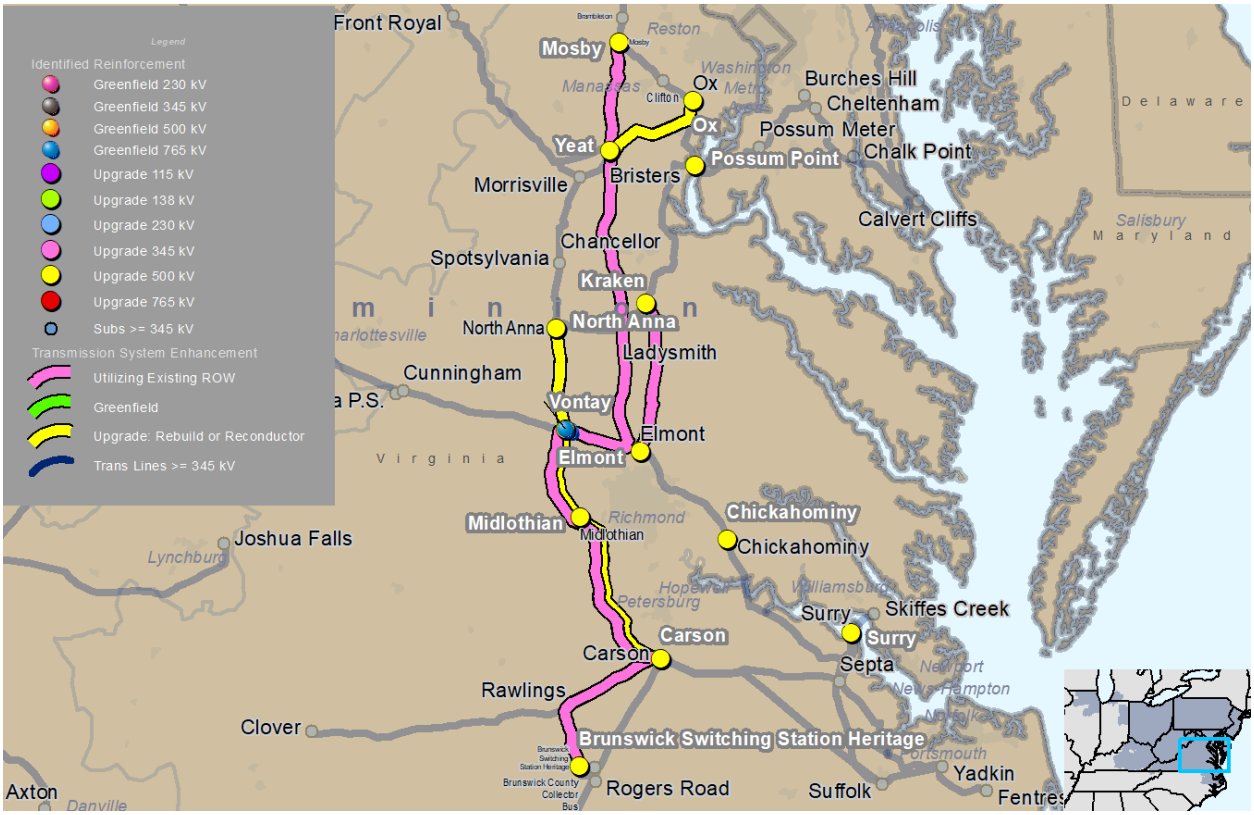
The next leading solution is Transource proposal 331 aided with a few of Dominion's 500 kV local fixes. The HVDC proposal 275 is approximately $2 billion more expensive than proposal 331, and preliminary cost allocation analysis shows Dominion zone carrying approximately 50% of the cost. A high-level summary of the recommended proposal 275, with modified scope, is shown in **Table 45** and **Map 39**.

Table 45. Southern Regional Recommended Solution – Proposal 275 Portfolio

Proposal ID	Project Description	Submitted Cost ($M)
9	Line 576 Partial Rebuild - Vontay to Midlothian 500 kV	104.86
117	Line 539 Rebuild - Yeat to Ox 500 kV	125.25
126	Line 567 Terminal Upgrade Chickahominy & Surry 500 kV	2.49
238	Line 563 Rebuild - Carson to Midlothian 500 kV	237.06
243	Carson Substation Equipment Upgrade 500 kV	12.44
247	New 765/500 kV Switching Station - Vontay	248.69
253	Line 5008 Cut-in into Mosby 500 kV Substation	16.25

Proposal ID	Project Description	Submitted Cost ($M)
306	New 500 kV Line - Elmont to Kraken	162.50
339	Line 576 Partial Rebuild - North Anna to Vontay 500 kV	104.86
815	New +/- 525 kV HVDC Transmission Link from Heritage to Mosby	3,790.85
916	Line 560 Rebuild - Possum Point to Burches Hill 500 kV	14.21
N/A	Scope Change: Yeat - Vint Hill 500 kV Uprate (reconductor)	-
N/A	Breaker Upgrades: Clifton, Elmont, Celestial	13.00
		4,832.45

Map 39. Proposal 275 Portfolio



MAAC Region

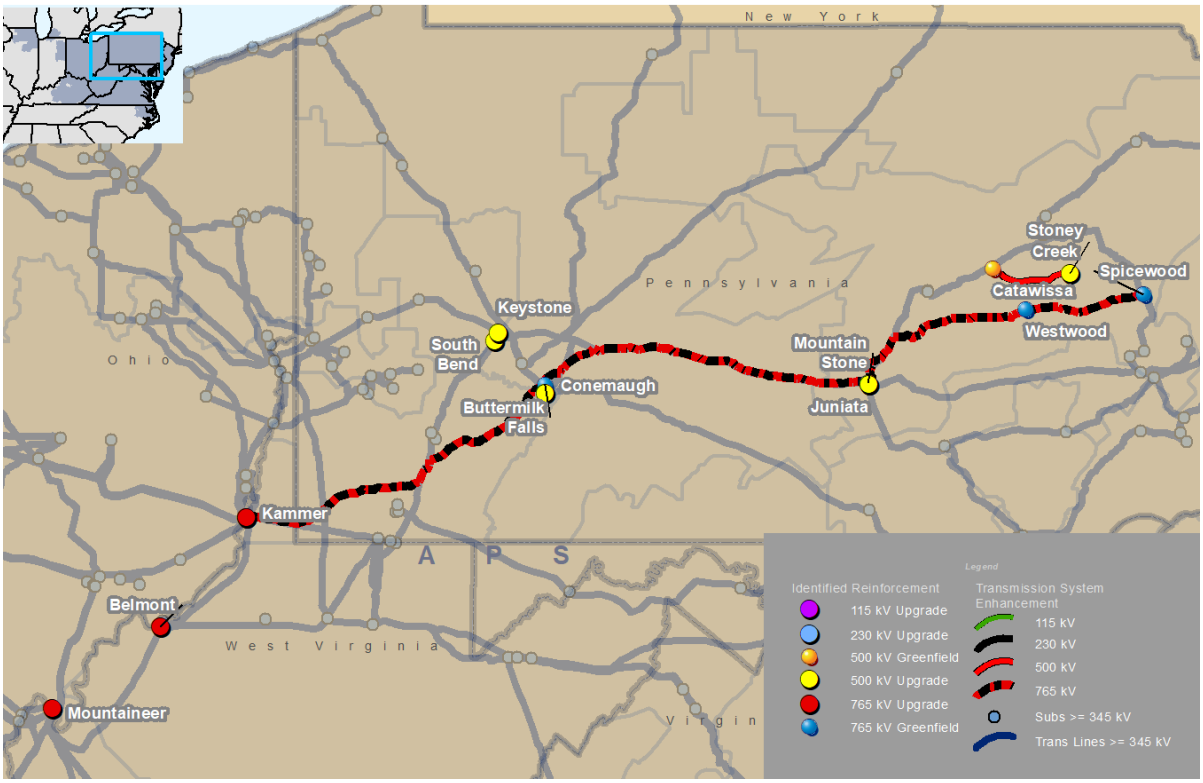
For the MAAC region PJM recommends proposal 237 as it provides stronger support to the MAAC region including load growth in PPL and MAAC area in general, delays in OSW development, future generation retirements in MAAC, or any combination of these factors. The proposal is also a natural expansion of the existing 765 kV backbone into the PJM eastern region. This allows for more flexibility in utilizing resources across the interconnection to serve load. As demonstrated by the transfer study results, proposal 237 also offers approximately 2 GW more import to the MAAC region than proposal 826 and preserves existing 500 kV capacity and offers the highest transfer capability regardless of the source/sink combination. PJM will work with the proposing entities and incumbent TOs to enhance and finalize the project details based on feedback.

A high-level summary of the recommended proposal 237 is shown in **Table 46** and **Map 40**.

Table 46. Preliminary MAAC Regional Recommended Solution – Proposal 237

Proposal ID	Project Description	Submitted Cost ($M)
237	B-30-A) South Bend - Keystone 500 kV terminal equipment upgrade	4.68
	B-32-A) Keystone-Juniata 500 kV terminal equipment upgrade	4.68
	B-33-A) Mountaineer-Belmont 765 kV terminal equipment upgrade	6.75
	B-01-A) Kammer substation upgrade	13.50
	B-07-A) Juniata substation upgrade	9.95
	B-31-A) Sunbury 500 kV substation upgrades	4.98
	B-34-A) Conemaugh circuit breaker upgrades	23.42
	B-20-A) Kammer - Buttermilk Falls 765 kV	694.72
	B-21-A) Buttermilk Falls - Mountain Stone 765 kV	633.35
	B-24-A) Mountain Stone-Juniata 500 kV	5.32
	B-06-A) Mountain Stone 765 kV Substation	166.94
	B-19-B) Buttermilk Falls 765 kV Substation	170.29
		1,738.59

Map 40. Proposal 237



Western Region

For the western region PJM is recommending proposal 570 as it is technically the superior solution with significantly better voltage performance under N-1-1 conditions. The proposal is the more efficient or cost-effective option, coming

in at approximately $600 million less than proposal 152 based on independent cost review. Proposal 570 also has lower constructability and regulatory risk and higher utilization of existing ROWs.

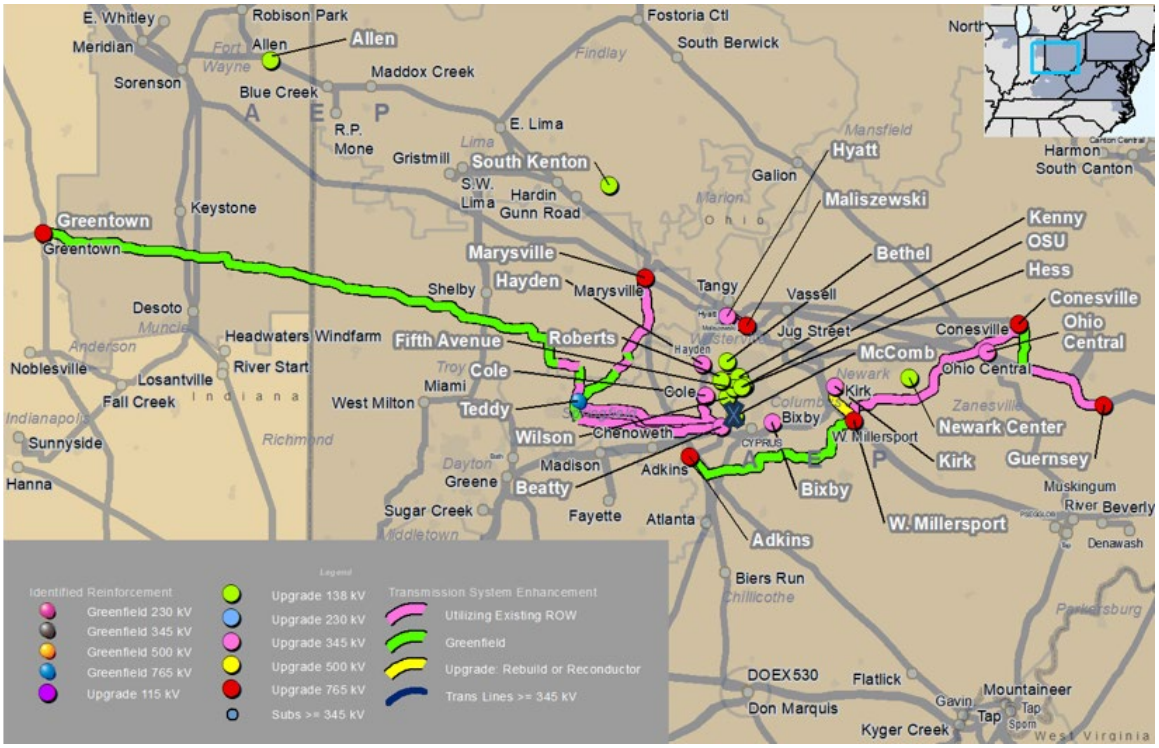
A high-level summary of the recommended proposal 570, with a minor scope reduction, is shown in **Table 47** and **Map 41**.

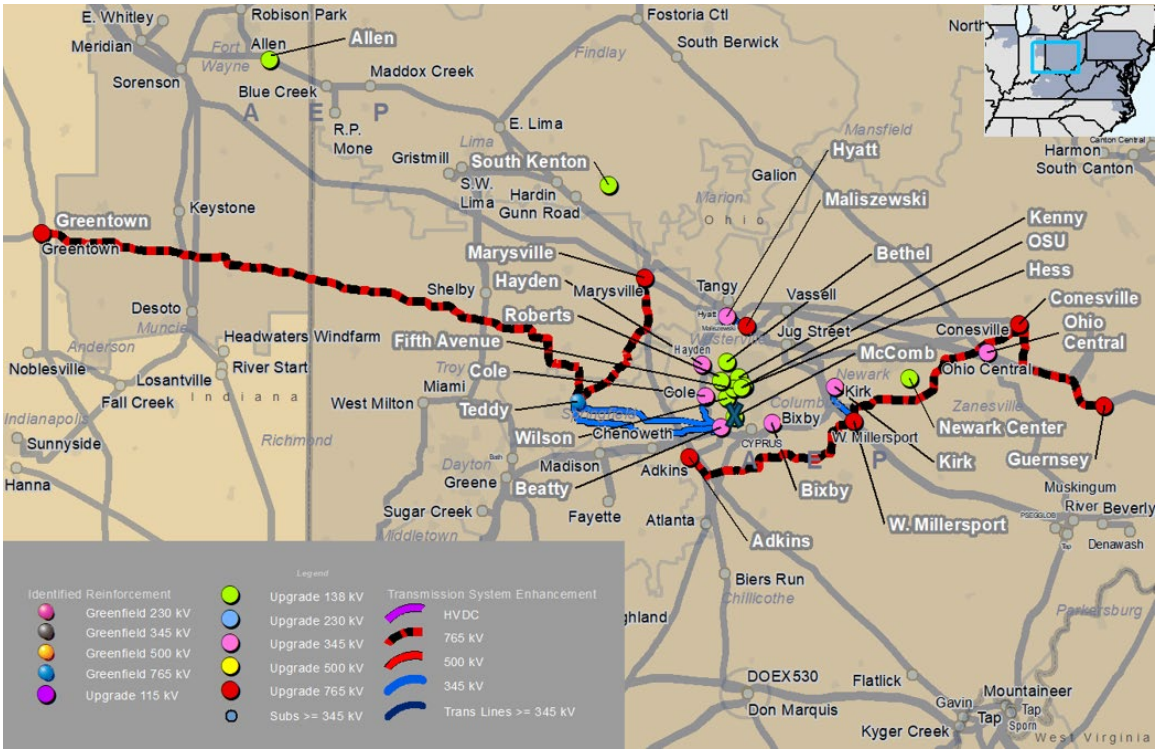
Table 47. Western Regional Recommended Solution – Proposal 570

Proposal ID	Project Description	Submitted Cost ($M)
570	Greentown Station Expansion	45.29
	Greentown - Teddy 765 kV Line	633.79
	Teddy 765/345 kV Station	228.33
	Teddy - Marysville 765 kV	176.46
	Marysville Station Upgrade	281.83
	Teddy - Beatty DCT 345 kV	175.19
	Cole Station Upgrade	1.00
	Beatty Station Upgrade	3.86
	Guernsey Station Upgrade	5.54
	Guernsey - Conesville 765 kV	166.17
	West Millersport Station Upgrade	118.11
	Bixby - West Millersport 345 kV	12.00
	Bixby Station Upgrade	0.08
	West Millersport - Adkins 765 kV	201.83
	West Millersport - Kirk 345 kV	24.30
	Hyatt - Maliszewski Double Circuit 345 kV	34.13
	Hayden - Cole 345 kV	37.87
	Newark Center Station Upgrade	0.70
	Ohio Central Extension	3.50
	Allen Station Upgrade	0.05
	Roberts - Kenny 138 kV Rebuild	66.36
	Wilson - Fifth Avenue 138 kV line	18.26
	Bethel Station Upgrade	0.50
	OSU Station Upgrade	0.50
	Hess 138 kV Station Upgrade	0.70
	South Kenton Station	0.11
	Meadow Lake Station Circuit Breaker	4.00
	Teddy - Cole 345 kV #2 Circuit	21.63
	Conesville Station Expansion	140.97
	Conesville - West Millersport 765 kV	248.98
	Adkins Station Expansion	102.98
	Ohio Central Station Upgrade	3.00
	Kammer Dumont Structures	2.00

	Ohio Central - Fostoria Central Structure	1.00
	Gavin - Marysville Structures	3.00
	East Springfield - London Structures	1.00
	Beatty - Hayden Structures	3.00
Total		**2,768.00**

Map 41. Transource/FirstEnergy Proposal 570





Recommended Solution – Zonal Clusters & Non-Competitive Projects

The following is a summary of the recommended baseline projects with estimated costs greater than $10 million. Projects with estimated costs of less than $10 million typically include, by way of example, transformer replacements, line reconductoring, breaker replacements and upgrades to terminal equipment, including relay and wave trap replacements. For reference, the evaluation of competitive projects that were part of a cluster is further detailed in the **Window 1 Evaluations Process – Zonal** section of this report.

Detailed project descriptions by component for baseline projects are available on the Project Status & Cost Allocation page on the PJM website.

Table 48. Zonal Cluster and Non-Competitive Projects > $10 Million

Transmission Owner	Baseline ID	Proposal ID	Project Description	Estimated Cost ($M)
AEP	b3970	N/A	Kenton-South Kenton 69 kV rebuild	$13.2
	b4028	195	Mound Street-St Clair Avenue 138 kV underground line rebuild	$41.6
APS	b4001	631	McCanns Rd 138 kV switching station	$23.9
ATSI	b3980	N/A	Bellevue-Groton 69 kV rebuild	$10.1
BGE	b4022	N/A	Greene Street-Constitution St. 115 kV cable replacement	$58.5
ComEd	b3943	N/A	State Line 345/138 kV transformer installation	$20.8
	b3981	N/A	Elk Grove 345/138 kV transformer installation	$29.0
	b4006	906	Wilton Center 765/345 kV transformer installation	$45.8
	b4025	N/A	Mendota-Sandwich 138 kV greenfield line	$171.9

Transmission Owner	Baseline ID	Proposal ID	Project Description	Estimated Cost ($M)
DEOK	b3940	N/A	Woodsdale 345 kV substation reconfiguration	$36.8
	b4003	156	Trenton-College Corner-Collinsville 138 kV rebuild	$45.1
Dominion	b4030	911	Dominion Zonal 2030 Solution	$314.9
DPL	b4024	N/A	Sharptown-Laurel 69 kV rebuild	$38.3
JCPL	b4017	N/A	Great Adventure substation expansion	$61.7
	b4018	N/A	Metedconk and Vermont Avenue substation rebuilds	$65.7
	b4032	140	Montville 500/230 kV substation upgrades	$66.8
MetEd	b4011	N/A	Jackson-North Hanover 115 kV rebuild	$61.8
ODEC	b4033	N/A	Oak Hall-Tasley 69 kV new line construction in existing ROW	$132.0
PEPCO	b4052	919, 851 component, & additional upgrades	Dickerson (new) 500 kV substation cutting into Aspen-Rocky Point 500 kV line	$282.2
PPL	b4029	558 & 853 component	PPL portfolio proposal 2 with Kelayres 500/230 kV transformer	$569.9
PSE&G	b4019	N/A	Rahway-Roselle 69 kV high-capacity reconductor	$29.4
	b4020	N/A	Gloucester-Nicholson 69 kV rebuild	$10.8
	b4021	N/A	Prospect Park-North Paterson 69 kV high-capacity reconductor	$15.7

PJM also recommended regional baseline projects totaling $157.8 million, whose individual cost estimates are less than $10 million. Together, PJM is recommending a total of approximately $2,303.6 million worth of competitive zonal cluster and non-competitive projects for the 2025 RTEP.

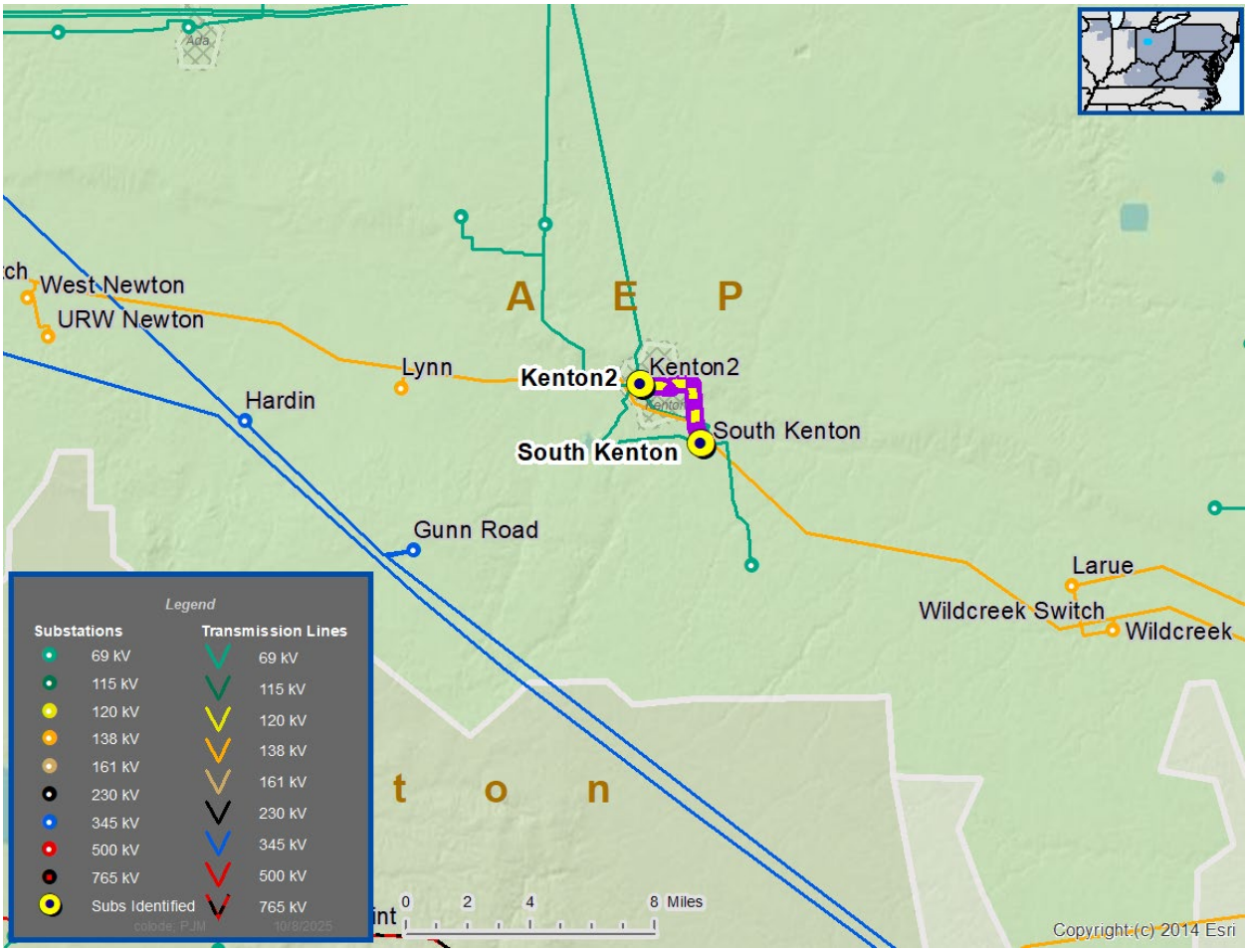
A more detailed description of the larger-scope projects that PJM is recommending is provided in the following section.

AEP:

Baseline Project b3970 – Kenton-South Kenton 69 kV Rebuild

In the 2030 summer case, the Kenton-South Kenton 69 kV line is overloaded for a N-1 outage under AEP's FERC Form 715 criteria. The flowgate associated with the violation was excluded from competition for the below 200 kV exclusion. The recommended solution is to rebuild the line, which is approximately 2.87 miles in length. The Kenton-South Kenton 69 kV line is made up of different vintage structures ranging from late 1940's, 1950's, 1960's and 1990's. The majority of the conductor is from the 1950's and consists of copper conductor sections and 1/0 ACSR Raven sections. In the last 6 years, the circuit has been impacted by 3 permanent outages that have resulted in approximately 1.7 million customer minutes of interruption, and so this line would likely have become a supplemental need candidate within the next five to ten years. The total estimated cost is $13.19 million, with a required and projected in-service date of June 2030. The local transmission owner, AEP, will be designated to complete this work.

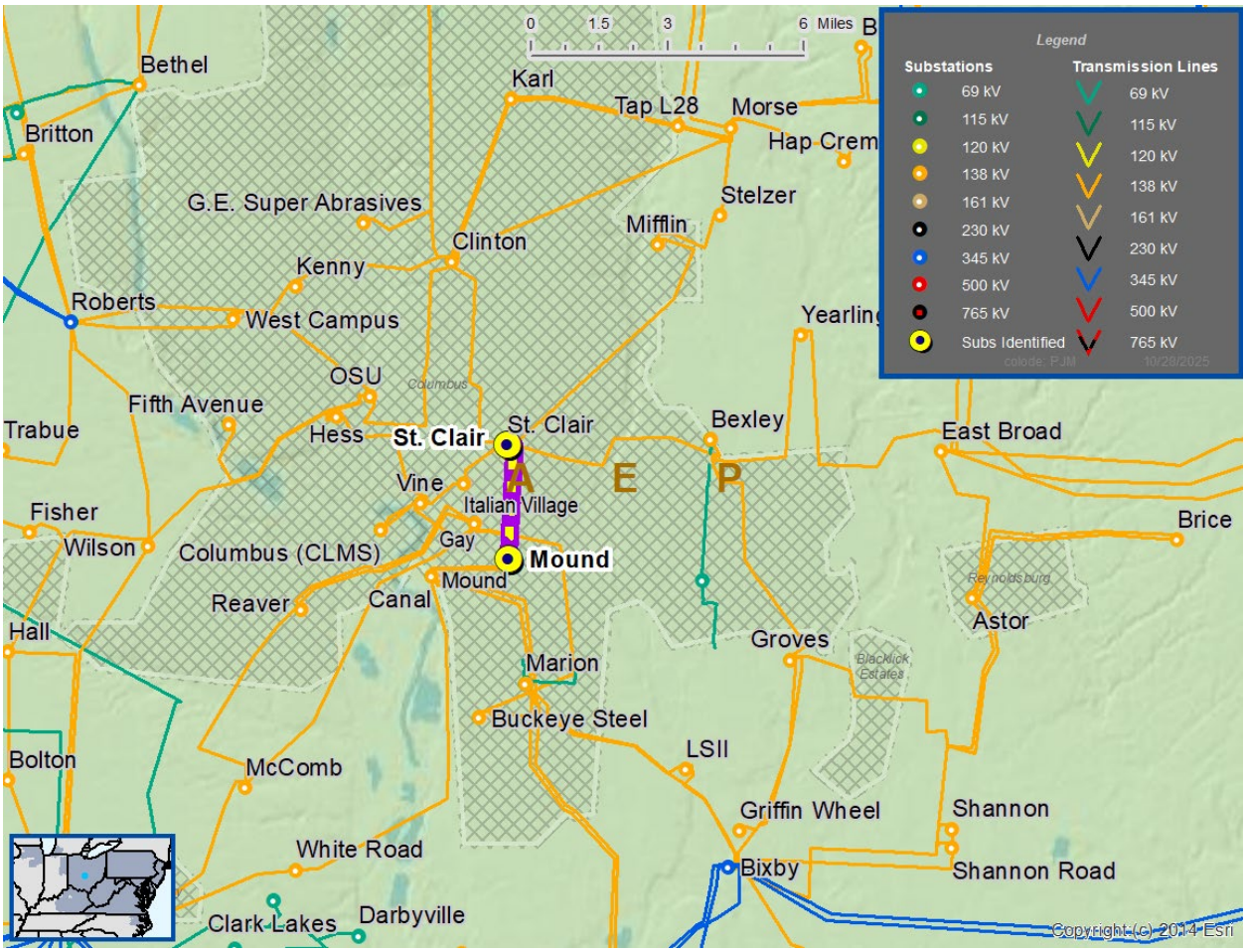
Map 42. Kenton-South Kenton 69 kV



Baseline Project b4028 (Proposal 195) – Mound Street-St Clair Avenue 138 kV Underground Line Rebuild

In the 2030 summer and winter cases, the Mound Street-St Clair Avenue 138 kV line is overloaded for a N-1, N-2 and N-1-1 outages. PJM solicited proposals through the 2025 RTEP Window 1 and received one proposal from AEP, the incumbent transmission owner. The recommended solution is to rebuild 2.3 miles of underground line between Mound Street and Saint Clair 138 kV substations. The total estimated cost is $41.59 million, with a required in-service date of June 2030 and projected in-service date of April 2030. The local transmission owner, AEP, will be designated to complete this work.

Map 43. Mound Street-St Clair Avenue 138 kV

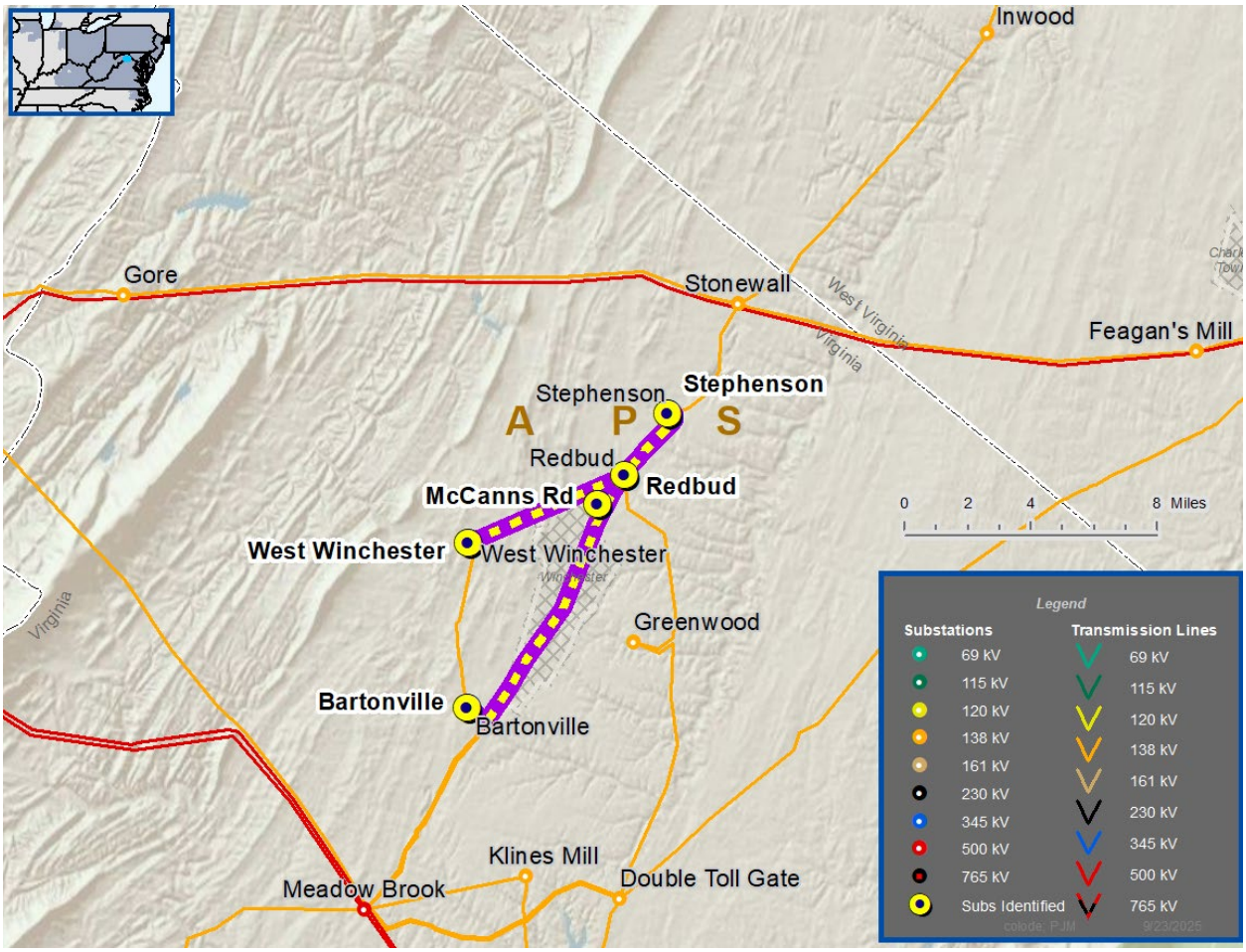


APS:

Baseline Project b4001 (Proposal 631) – McCanns Rd 138 kV Switching Station

In the 2030 summer and winter cases, the Redbud-West Winchester and Double Toll Gate-Greenwood 138 kV lines are overloaded for N-1-1 outages. PJM solicited proposals through the 2025 RTEP Window 1 and received one proposal from FirstEnergy, the incumbent transmission owner. The recommended solution is to construct a McCanns Rd 138 kV switching station and interconnect the existing Redbud-West Winchester 138 kV and Bartonville-Stephenson 138 kV lines. The project will install optical ground wire for the static, one new SCADA controlled 2000 A disconnect with whips, and reconductor the new Redbud- McCanns Rd 138 kV line (approximately 0.5 miles). The total estimated cost is $23.87 million, with a required and projected in-service date of June 2030. The local transmission owner, APS, will be designated to complete this work.

Map 44. McCanns Rd 138 kV Switching Station

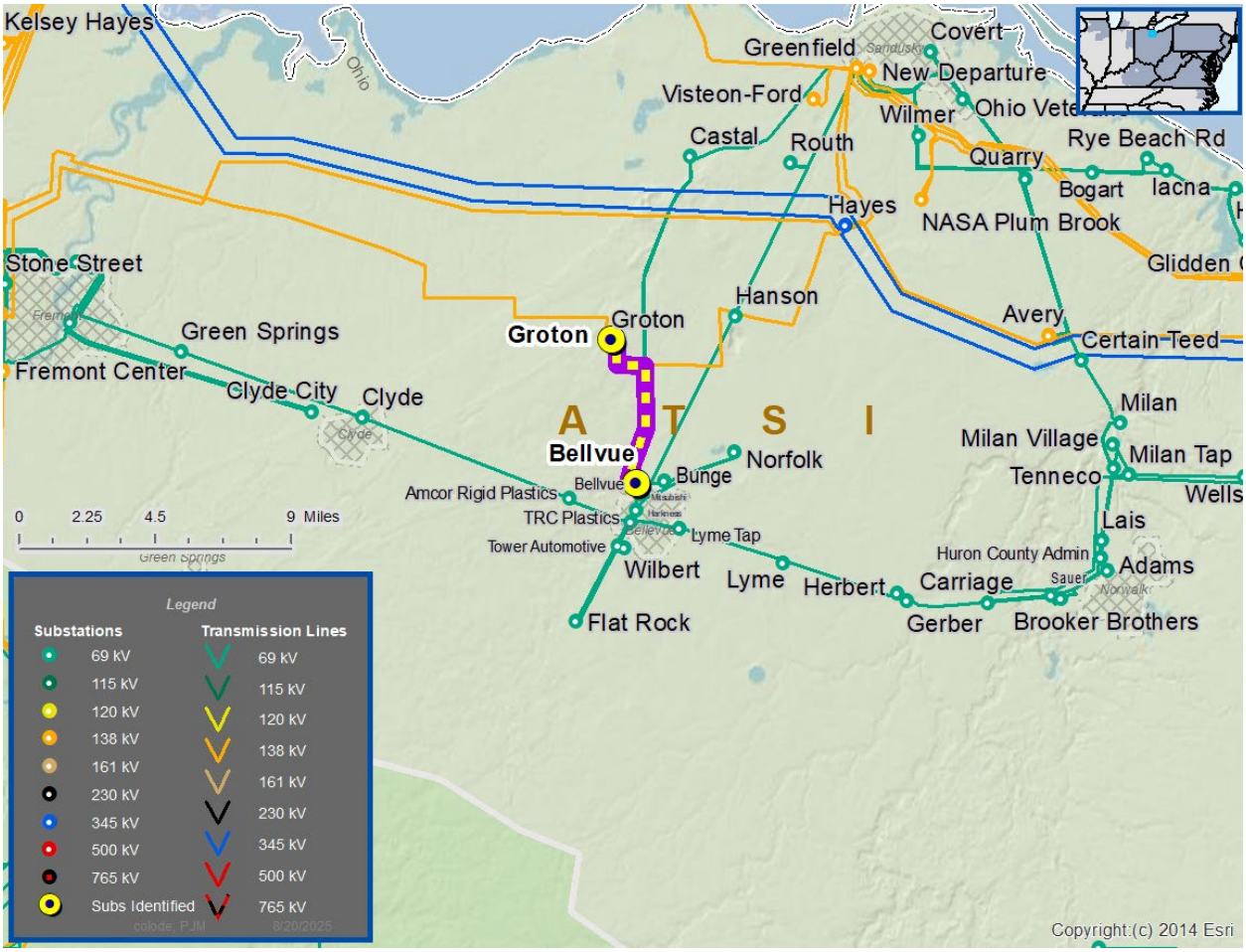


ATSI:

Baseline Project b3980 – Bellevue-Groton 69 kV Rebuild

In the 2030 summer case, the Bellevue-Groton 69 kV line is overloaded for a N-1 outage. The flowgate associated with the violation was excluded from competition for the below 200 kV exclusion. The recommended solution is to rebuild 4 miles of the line, and associated terminal equipment upgrades. The total estimated cost is $10.1 million, with a required and projected in-service date of June 2030. The local transmission owner, ATSI, will be designated to complete this work.

Map 45. Bellevue-Groton 69 kV

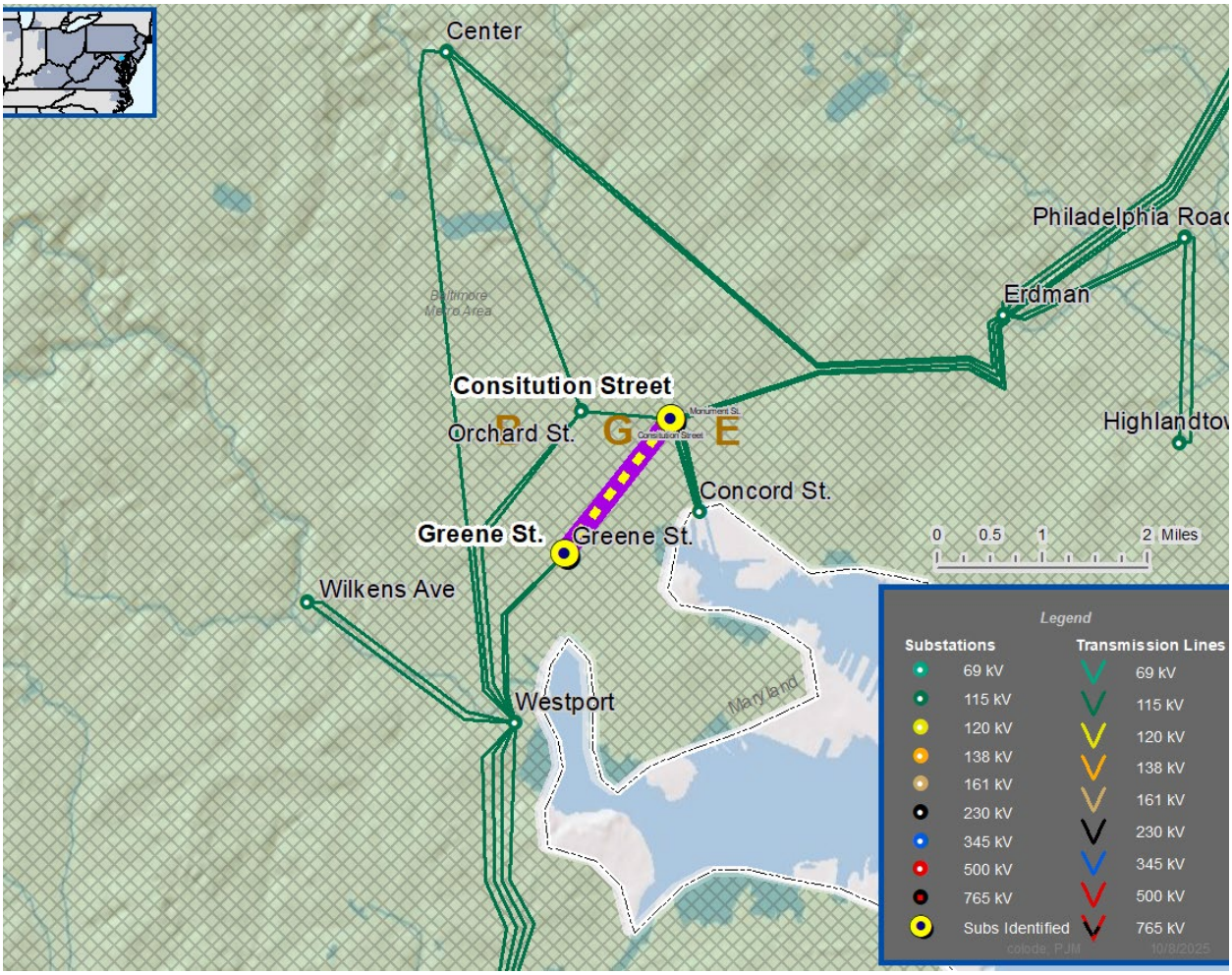


BGE:

Baseline Project b4022 – Greene Street-Constitution St. 115 kV Cable Replacement

In the 2030 summer case, the Greene St-Constitution St 115 kV line is overloaded for N-1-1 outages. The flowgates associated with these violations were excluded from competition for the below 200 kV exclusion. The recommended solution is to replace approximately 2 miles per circuit of the existing cables. The project has the ancillary benefit of replacing the aging cables installed in the 1970's. The total estimated cost is $58.49 million, with a required and projected in-service date of June 2030. The local transmission owner, BGE, will be designated to complete this work.

Map 46. Greene Street-Constitution St. 115 kV

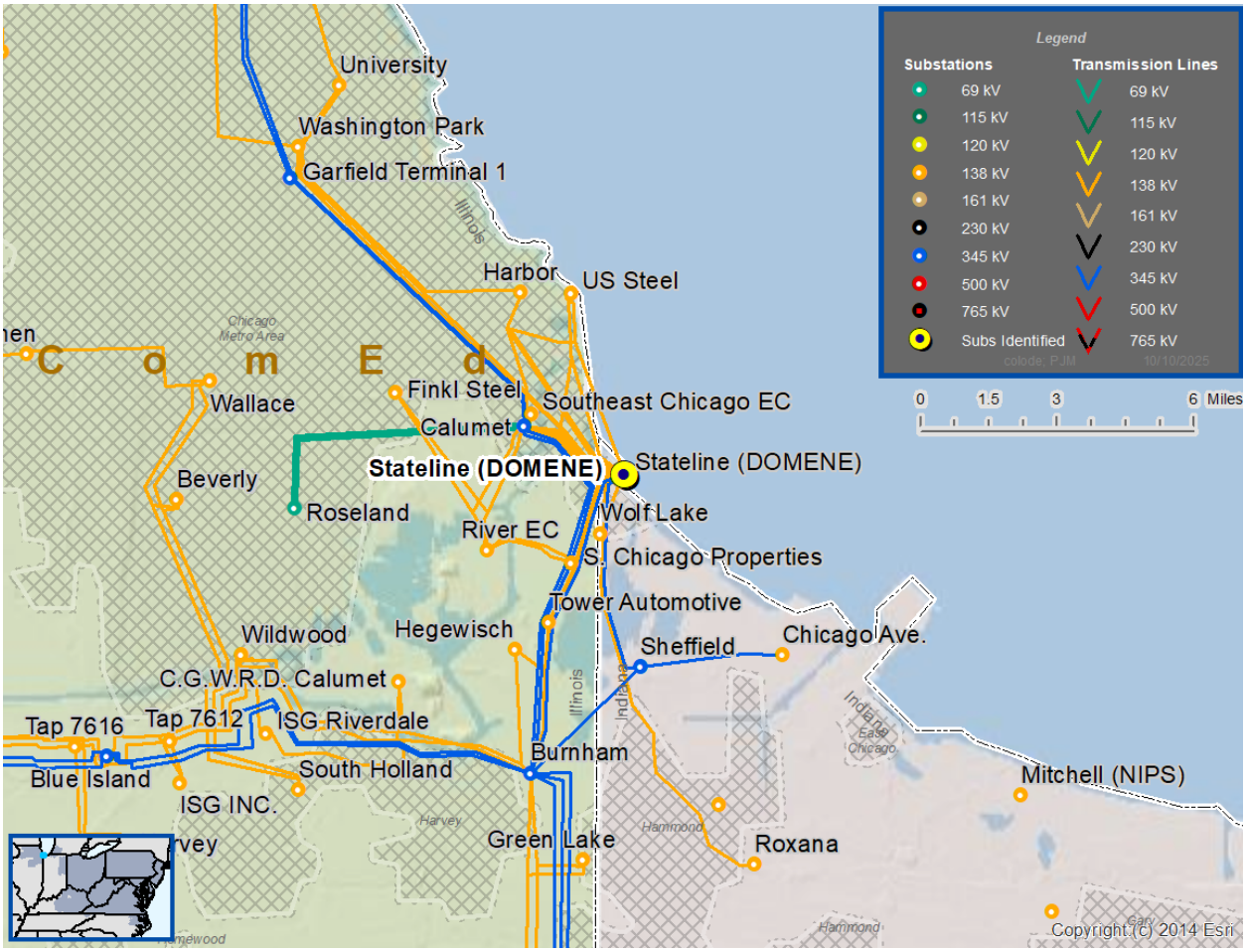


ComEd:

Baseline Project b3943 – State Line 345/138 kV Transformer Installation

In the 2030 winter case, the Stateline 345/138 kV transformer TR 82 is overloaded for N-2 outages. The flowgates associated with these violations were excluded from competition for the below 200 kV exclusion. The recommended solution is to install a new 345/138 kV transformer, TR 84, and associated equipment, including circuit breakers, at State Line substation. The total estimated cost is $20.81 million, with a required and projected in-service date of December 2030. The local transmission owner, ComEd, will be designated to complete this work.

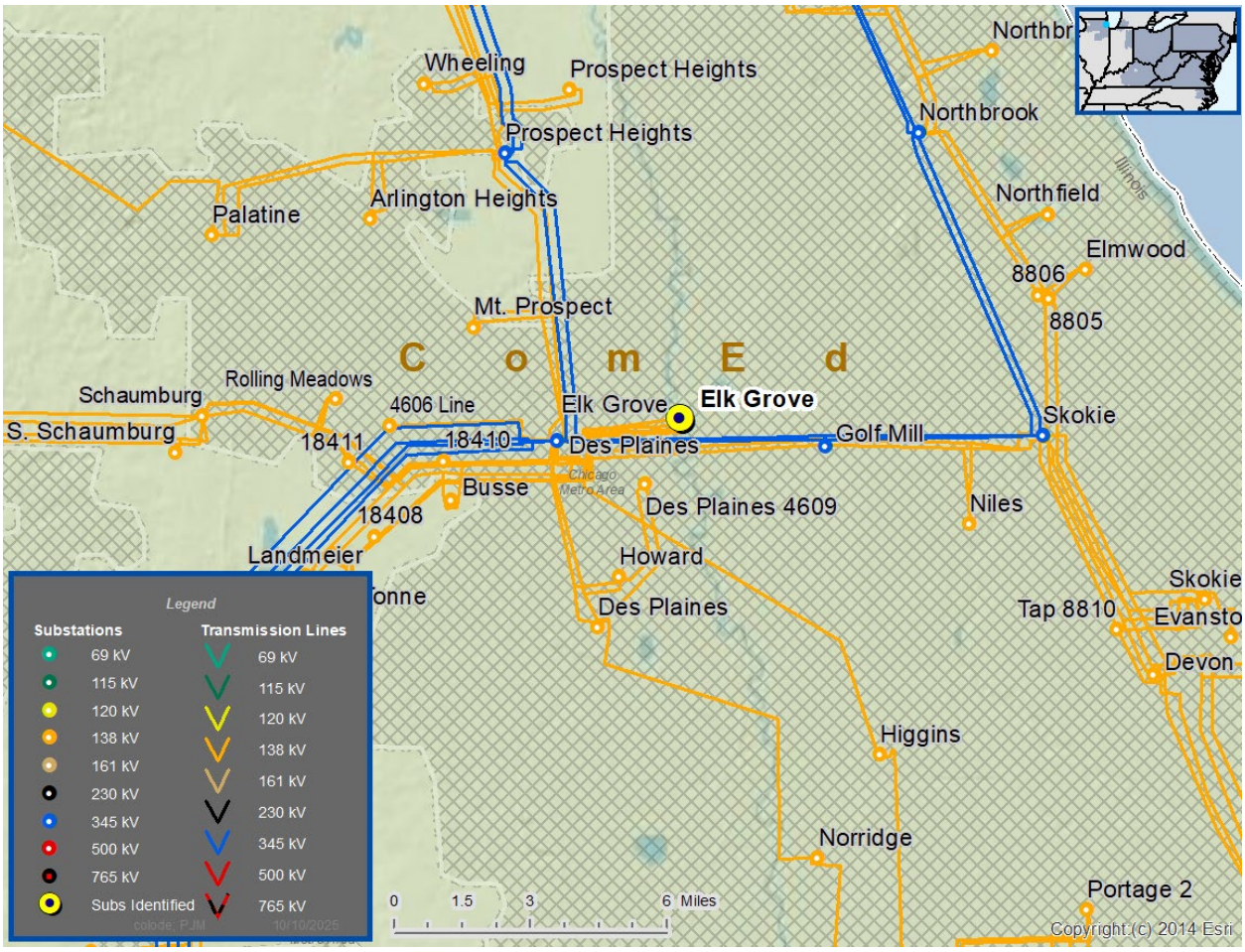
Map 47. State Line 345/138 kV Transformer



Baseline Project b3981 – Elk Grove 345/138 kV Transformer Installation

In the 2030 summer 90/10 case, the Elk Grove 345/138 kV transformer TR 82 is overloaded for a N-1 outage under ComEd's FERC Form 715 criteria. The flowgate associated with the violation was excluded from competition for the below 200 kV exclusion. The recommended solution is to install a new 345/138 kV transformer, TR 83, and associated equipment, including circuit breakers, at Elk Grove substation. The total estimated cost is $28.96 million, with a required and projected in-service date of June 2030. The local transmission owner, ComEd, will be designated to complete this work.

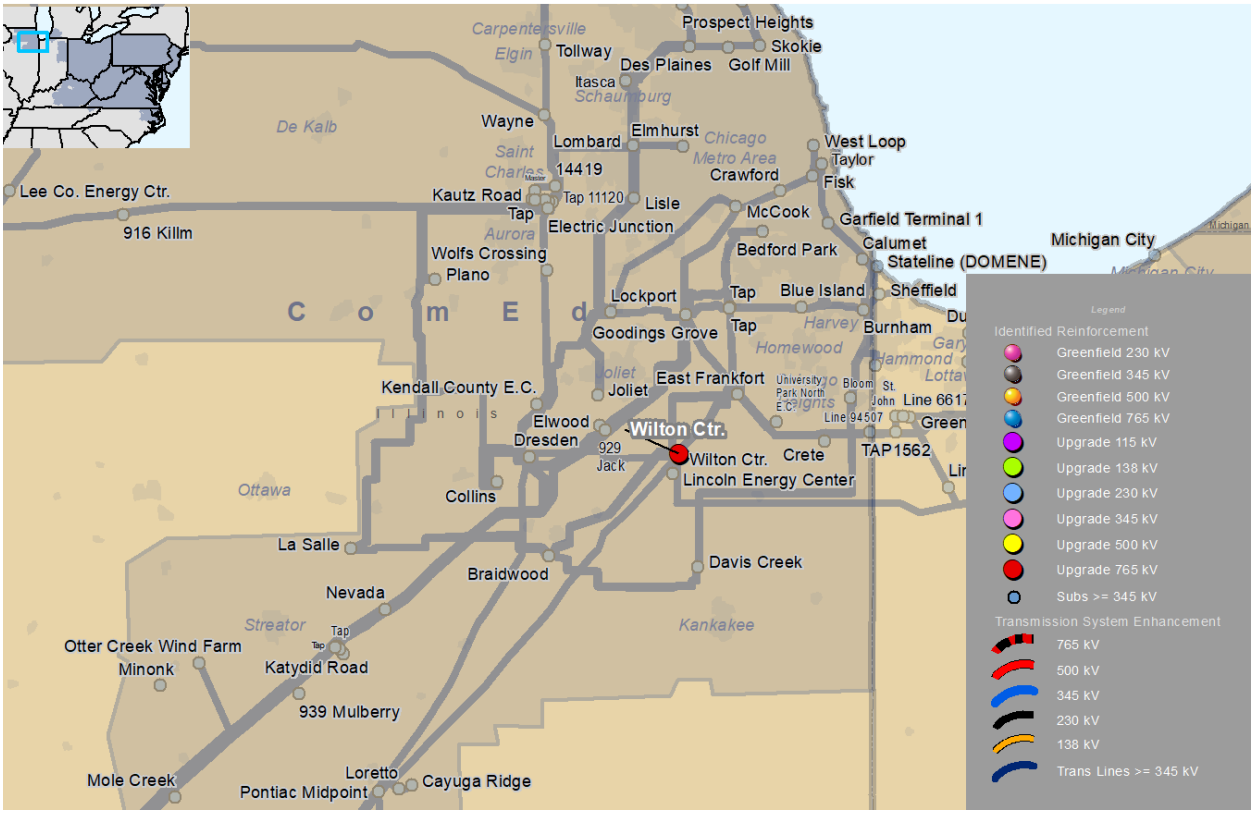
Map 48. Elk Grove 345/138 kV Transformer



Baseline Project b4006 (Proposal 906) – Wilton Center 765/345 kV Transformer Installation

In the 2030 winter case, the Wilton Center 765/345 kV transformers TR 93 and TR 94 are overloaded for N-1 and N-2 outages. PJM solicited proposals through the 2025 RTEP Window 1 and received one proposal from Exelon, the incumbent transmission owner. The recommended solution is to install a new 765/345 kV TR91 transformer at Wilton Center substation. The total estimated cost is $45.81 million, with a required and projected in-service date of December 2030. The local transmission owner, ComEd, will be designated to complete this work.

Map 49. Wilton Center 765/345 kV Transformer



Baseline Project b4025 – Mendota-Sandwich 138 kV Greenfield Line

In the 2030 light load and winter case, the Waterman-Sandwich 138 kV and Steward-Haumesser 138 kV lines are overloaded for N-1 and N-2 outages. The flowgates associated with these violations were excluded from competition for the below 200 kV exclusion. The area also faces real-time operational issues. The network in the area hosts 85 MW of wind generation, making stability and control more difficult from an operational perspective. The system faces significant voltage regulation challenges, made worse by both manual and automatic capacitor bank controls under fluctuating wind output. Multiple configurations (single contingency scenarios) has left wind generation with no exit path except through overloaded transformers or lines. ComEd took these additional operational difficulties into consideration when they developed the below solution.

The recommended solution is to build a new 28-mile transmission 138 kV line from Mendota to Sandwich, and convert the straight bus at Mendota substation to a ring by installing four new 138 kV circuit breakers. An additional 138 kV circuit breaker and associated equipment will also be required at the Sandwich 138 kV substation. The recommended project will address the posted reliability violations and alleviate the stability and control challenges seen in real-time operations. The total estimated cost is $171.88 million, with a required and projected in-service date of April 2030. The local transmission owner, ComEd, will be designated to complete this work.

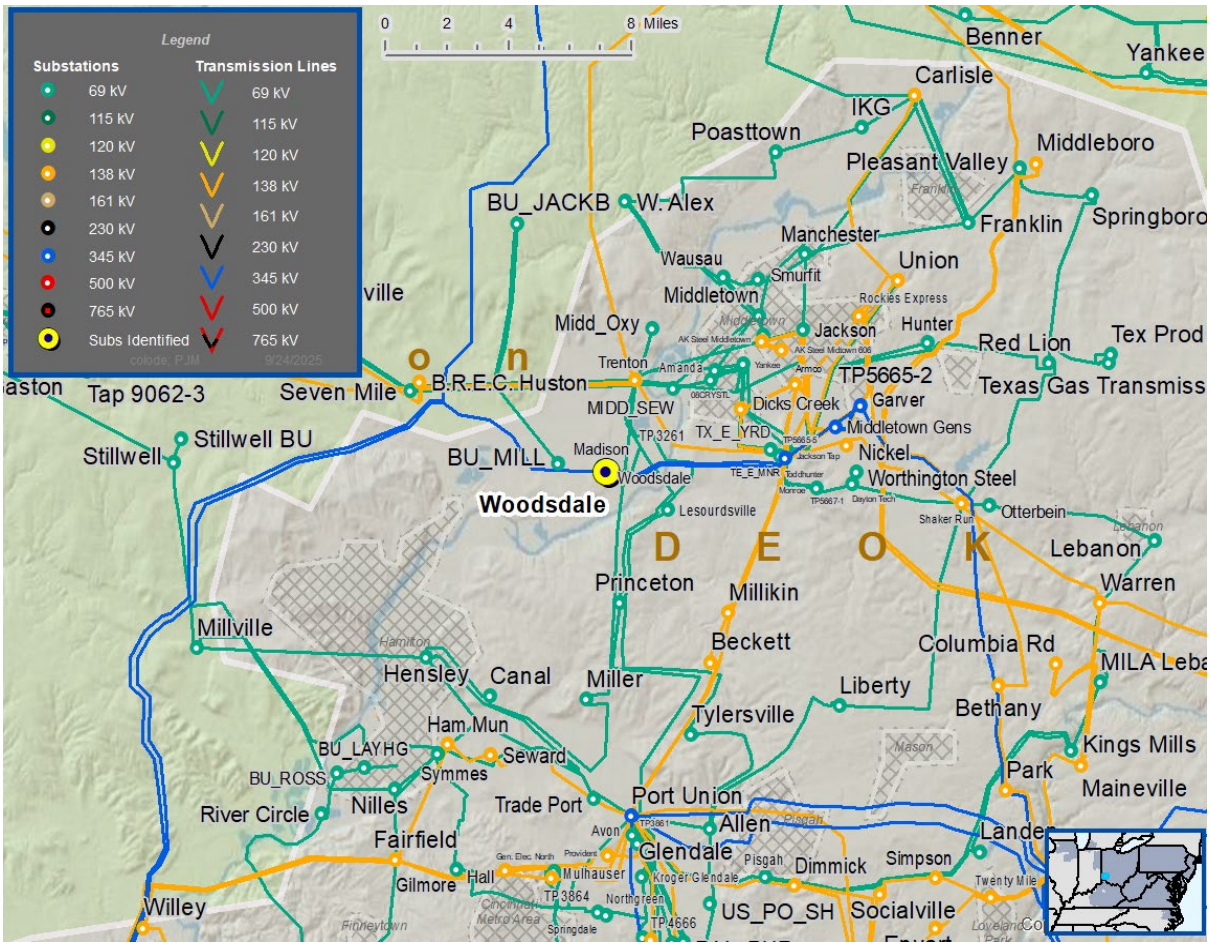
Map 50. Mendota-Sandwich 138 kV

DEOK:

Baseline Project b3940 – Woodsdale 345 kV Substation Reconfiguration

In the 2030 summer case, the Woodsdale-Todhunter 345 kV No. 1 and 2 lines are overloaded for N-2 outages. The flowgates associated with these violations were excluded from competition for the substation equipment exclusion. The recommended solution is to reconfigure the Woodsdale 345 kV substation from a ring bus to breaker-and-half yard to improve substation. DEOK currently has two supplemental projects planned at the Woodsdale substation: s3447.1 and s3601.1. PJM is converting all of s3447.1 and parts of s3601.1 to a baseline project to address the reliability violations. The total estimated cost is $36.82 million, with a required and in-service date of June 2030 and projected in-service date of November 2028. The local transmission owner, DEOK, will be designated to complete this work.

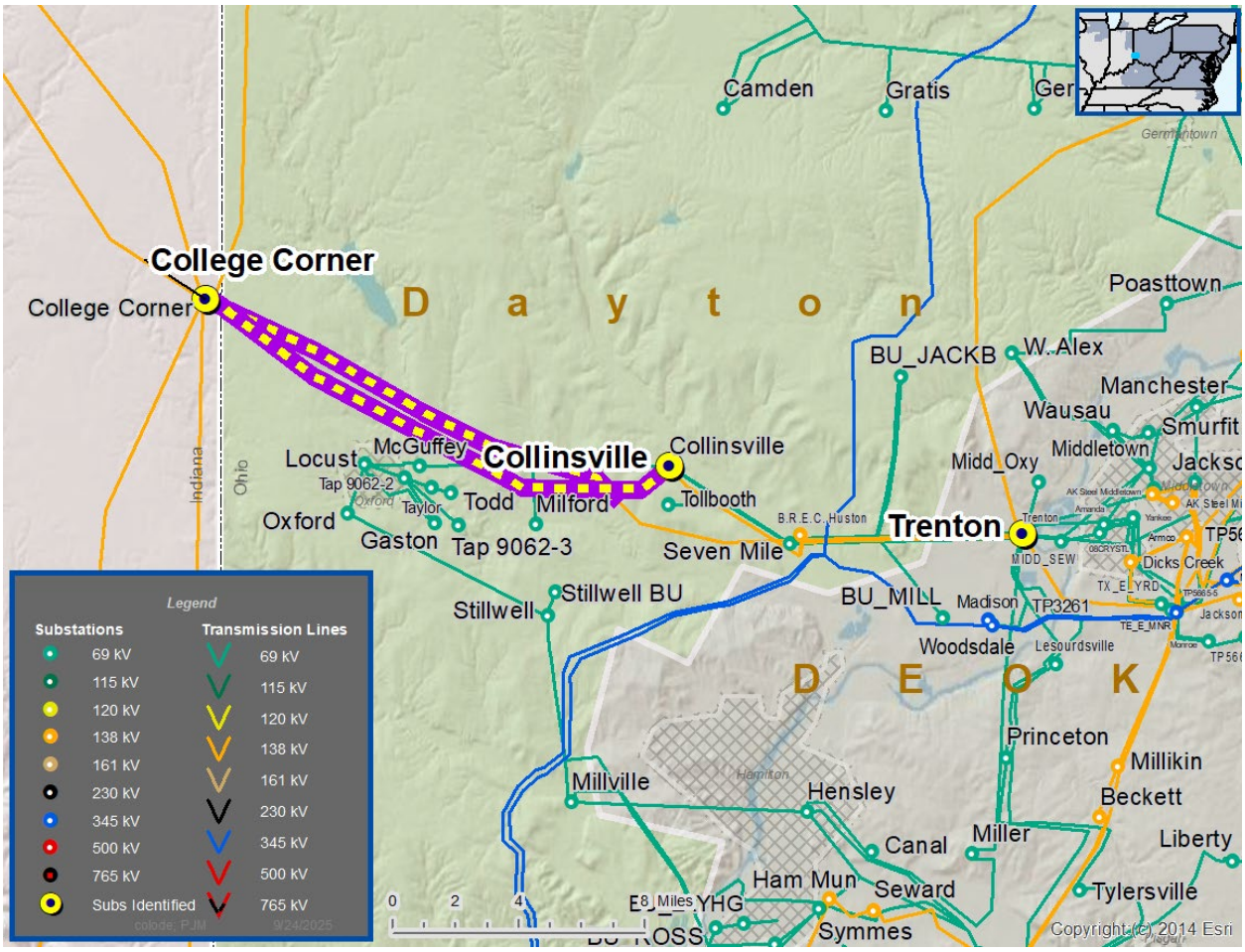
Map 51. Woodsdale 345 kV



Baseline Project b4003 (Proposal 156) – Trenton-College Corner-Collinsville 138 kV Rebuild

In the 2030 summer case, the College Corner-Collinsville 138 kV tie line between AEP and DEOK is overloaded for N-2 outages. PJM solicited proposals through the 2025 RTEP Window 1 and received one proposal from DEOK, the primary incumbent transmission owner. The College Corner (AEP)-Collinsville (DEOK) 138 kV line is approximately 11.90 miles, and shares common towers with DEOK's College Corner-Trenton 138kV line. The recommended solution to address the posted violations is to rebuild the approximately 11.9 mile College Corner-Collinsville 138 kV line from the OH/IN State Line to Collinsville substation. In doing so, a portion of the College Corner-Trenton 138kV line will also be rebuilt. Relay settings will also need to be updated at DEOK's Collinsville and Trenton 138 kV substations and at the AEP's College Corner 138 kV substation. The total estimated cost is $58.47 million, with a required and projected in-service date of June 2030. The local transmission owners, DEOK and AEP, will be designated to complete this work.

Map 52. Trenton-College Corner-Collinsville 138 kV



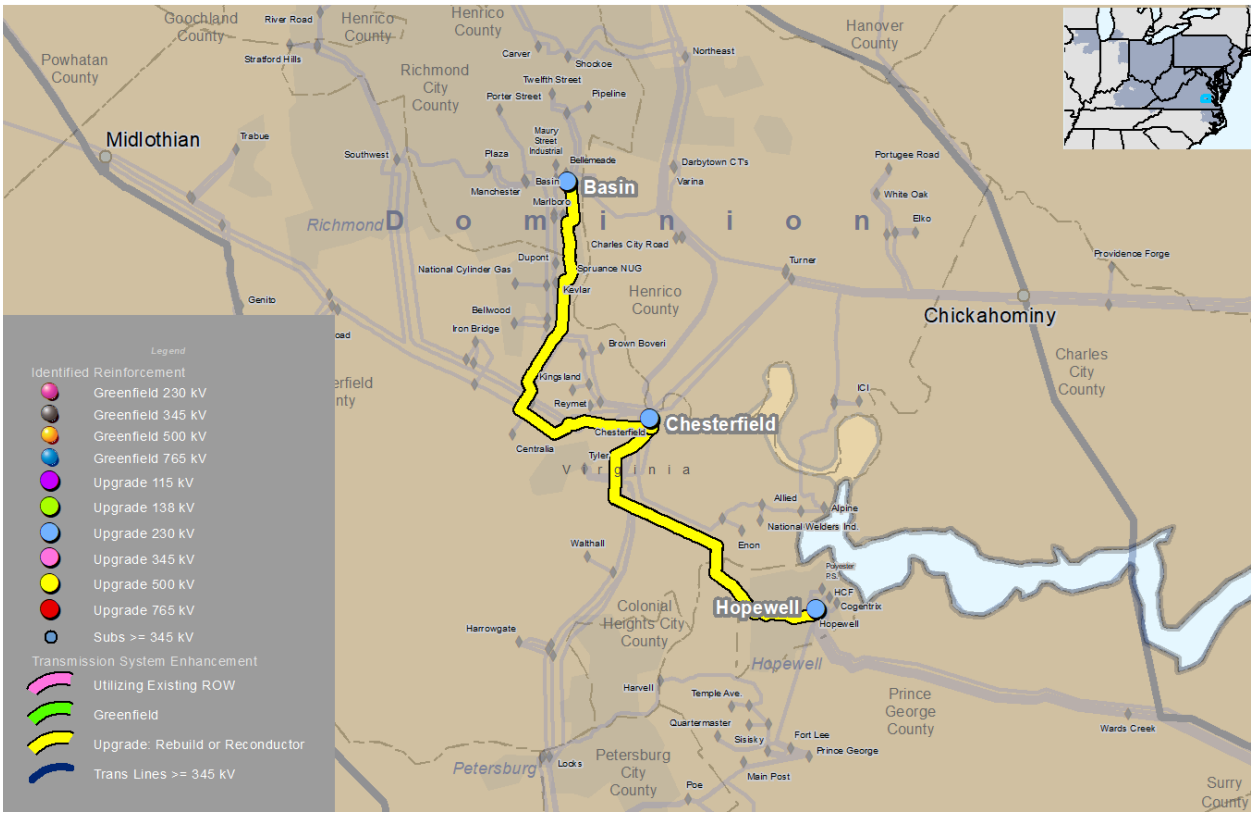
Dominion:

Baseline Project b4030 (Proposal 911) – Dominion Zonal 2030 Solution

In the 2030 summer, winter and light load cases, the Basin-Chesterfield-Hopewell 230 kV lines overloaded for N-1 and N-2 outages. In the 2030 light load case, the Charlottesville-Fork Union-Bremo 230 kV lines are overloaded for N-1 and N-2 outages. Additionally, the Suffolk-Yadkin 500 kV 565 line has been identified under Dominion's FERC From 715 criteria, C.2.9 – End of Life Criteria. The 565 line is approximately 13.43 miles of 500 kV transmission line from Suffolk to Yadkin. The line is a combination of weathering-steel 5-series towers and aluminum guyed-Y towers. These structures were installed in 1970 and are approaching the end of their service life. Weathering-steel 5-series towers have been problematic for many years and are experiencing packout and deterioration. They were extensively rehabbed in 2020, but have fallen into the observed pattern where Dominion can expect to return for future maintenance if the line is not rebuilt by the requested target date. The porcelain insulators along this line have deteriorated significantly, and several have failed in recent years. Due to the location of this line, access to the structures is limited, which increases the time and complexity of repairs and restoration. PJM solicited proposals through the 2025 RTEP Window 1 and received two proposals from Dominion, the incumbent transmission owner.

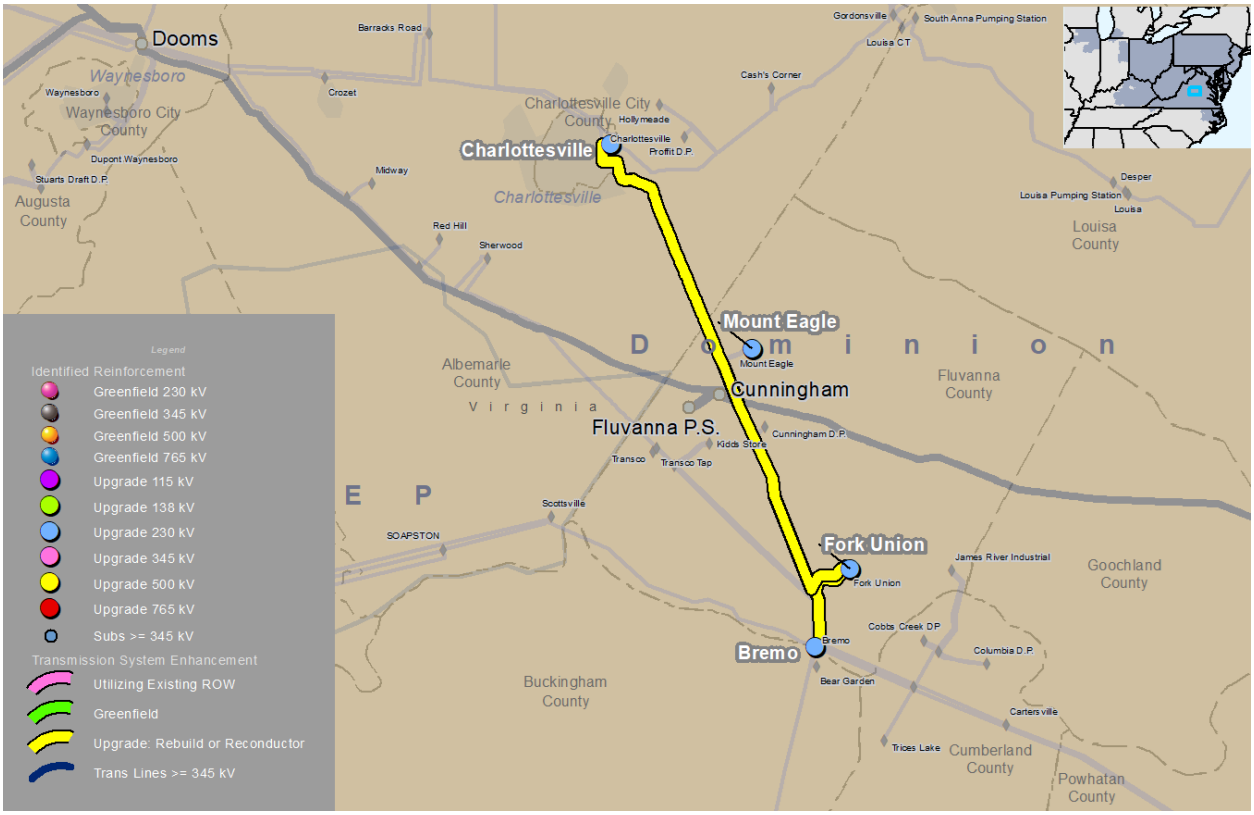
The recommended solution to address the violations on the Basin-Chesterfield-Hopewell 230 kV lines is to rebuild approximately 12.5 miles of the Basin-Chesterfield 230 kV line and approximately 3 miles of the Chesterfield-Hopewell 230 kV line with larger conductor. Terminal equipment upgrades will also be required, including a new 230 kV circuit breaker at Chesterfield substation. The estimated cost for this scope of the project is $113.55 million.

Map 53. Basin-Chesterfield-Hopewell 230 kV



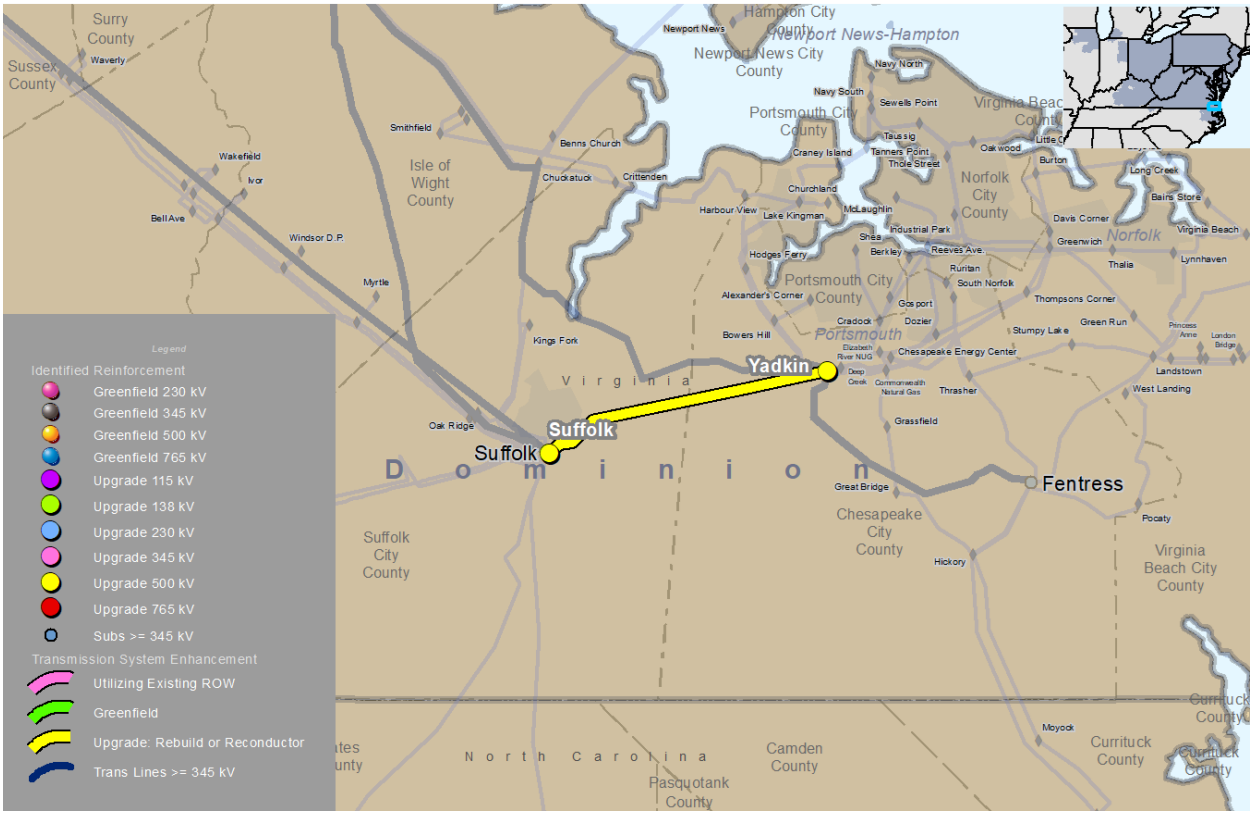
The recommended solution to address the violations on the Charlottesville-Fork Union-Bremo 230 kV lines is to rebuild approximately 24 miles of the Charlottesville-Fork Union 230 kV line and approximately 1.74 miles of the Fork Union-Bremo 230 kV line with larger conductor. Terminal equipment upgrades will also be required at the substations, along with two disconnect switch upgrades at the Mt. Eagle Tap 230 kV substation. The estimated cost for this scope of the project is $127.05 million.

Map 54. Charlottesville-Fork Union-Bremo 230 kV



The recommended solution to address the End of Life criteria violations on the Suffolk-Yadkin 500 kV 565 line is to rebuild approximately 13.2 miles of the 500 kV 565 line between Septa and Yadkin. Terminal equipment upgrades will also be required at the Suffolk and Yadkin substations. The estimated cost for this scope of the project is $74.3 million.

Map 55. Suffolk-Yadkin 500 kV



The total estimated cost for this recommended solution is $314.9 million, with a required and projected in-service date of June 2030. The local transmission owners, Dominion, will be designated to complete this work.

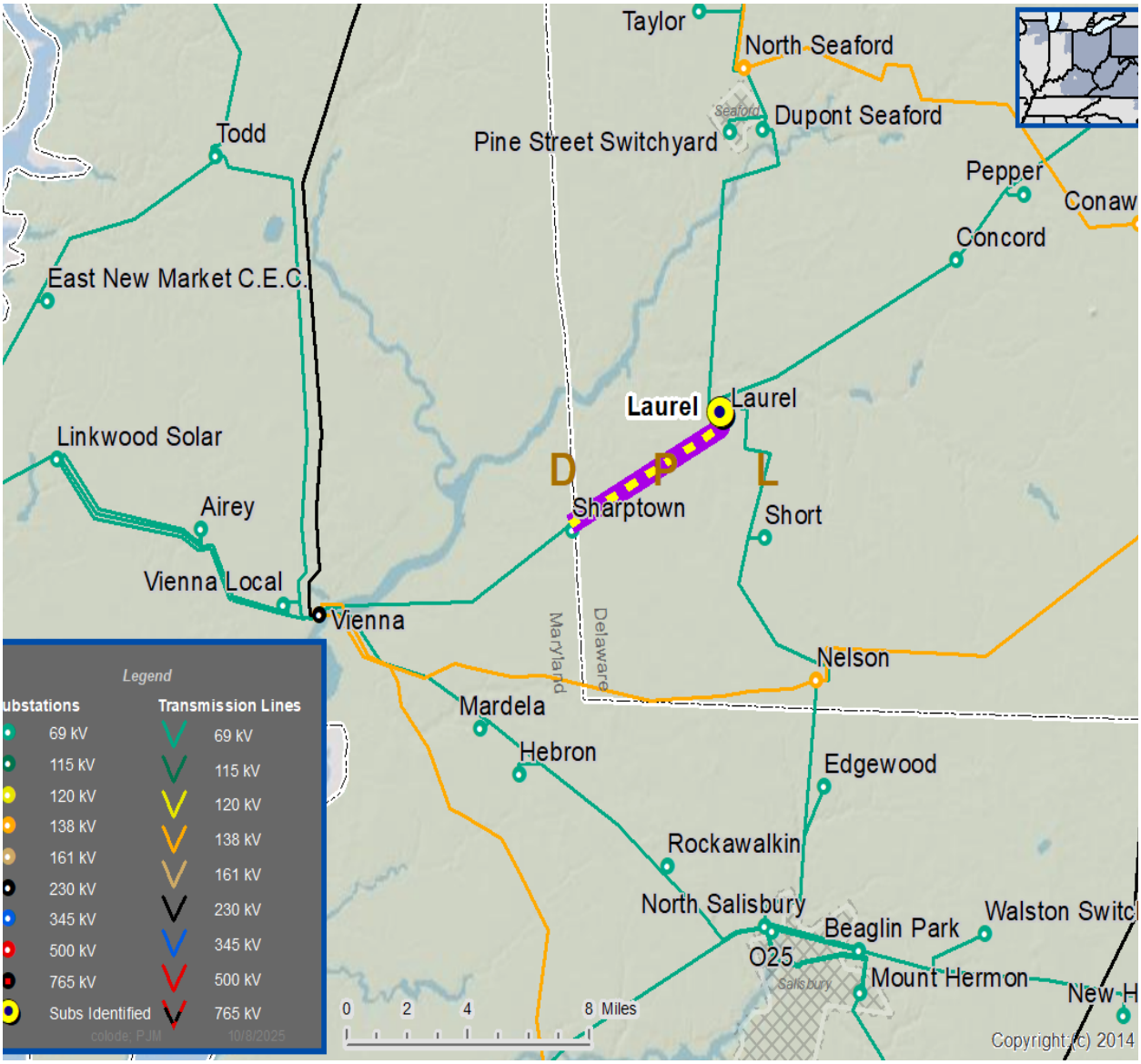
Dominion proposed an alternative proposal 975, that had a total cost of $318.16 million and included additional scope beyond the recommended solution to address 2032 230 kV violations and potential load growth in the Lousia County (not considered long-lead). PJM determined that the additional project scope can be addressed through the M-3 process as the load materializes.

DPL:

Baseline Project b4024 – Sharptown-Laurel 69 kV Rebuild

In the 2030 summer case, the Sharptown-Laurel 69 kV line is overloaded for N-2 outages. The flowgates associated with these violations were excluded from competition for the below 200 kV exclusion. The recommended solution is to rebuild the Sharptown-Laurel 69 kV line and upgrade terminal equipment at Laurel 69 kV substation. The total estimated cost is $38.25 million, with a required and projected in-service date of June 2030. The local transmission owner, DPL, will be designated to complete this work.

Map 56. Sharptown-Laurel 69 kV

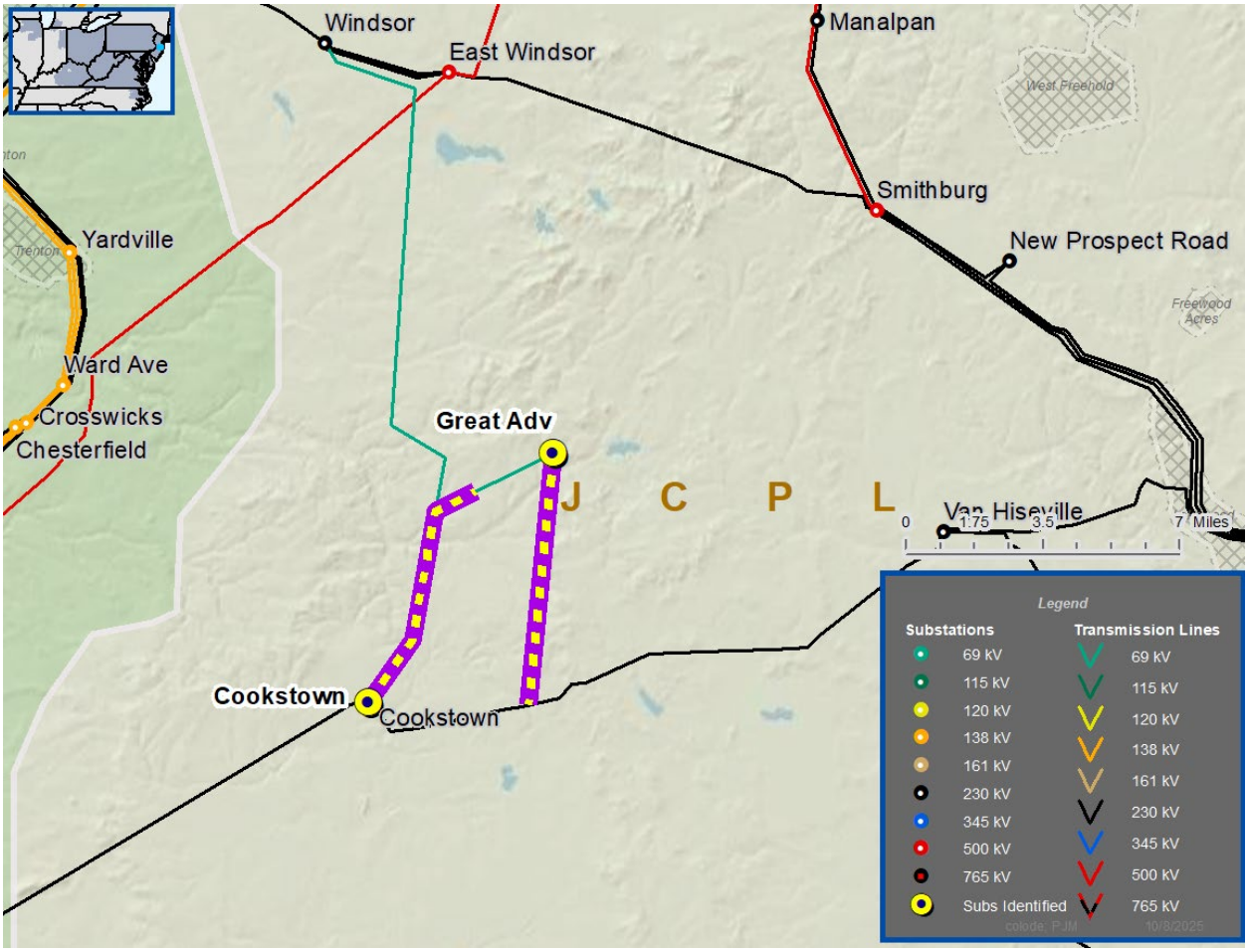


JCPL:

Baseline Project b4017 – Great Adventure 34.5 kV Substation Expansion

In the 2030 summer case, the Cookstown-Great Adventure Tap 34.5 kV line is overloaded in the base case and for a N-1 outage under FirstEnergy's FERC Form 715 criteria. Also, in the 2030 winter and light load cases, the Great Adventure 34.5 kV bus exhibits low voltage and voltage drop violations for N-1 outages. The flowgates associated with these violations were excluded from competition for the below 200 kV exclusion. The recommended solution is to rebuild the Great Adventure 34.5 kV substation as an eleven-breaker, breaker-and-a-half station, and rebuild approximately 4.7 miles of the Cookstown-Windsor 34.5 kV H60 line and 5.2 miles of the Cookstown-Van Hiseville 34.5 kV V22 line as double circuit. Additional terminal equipment upgrades will also be required at Cookstown 34.5 kV substation, and relay upgrades at the Windsor and Van Hiseville 34.5 kV substations. The total estimated cost is $61.68 million, with a required and projected in-service date of June 2030. The local transmission owner, JCPL, will be designated to complete this work.

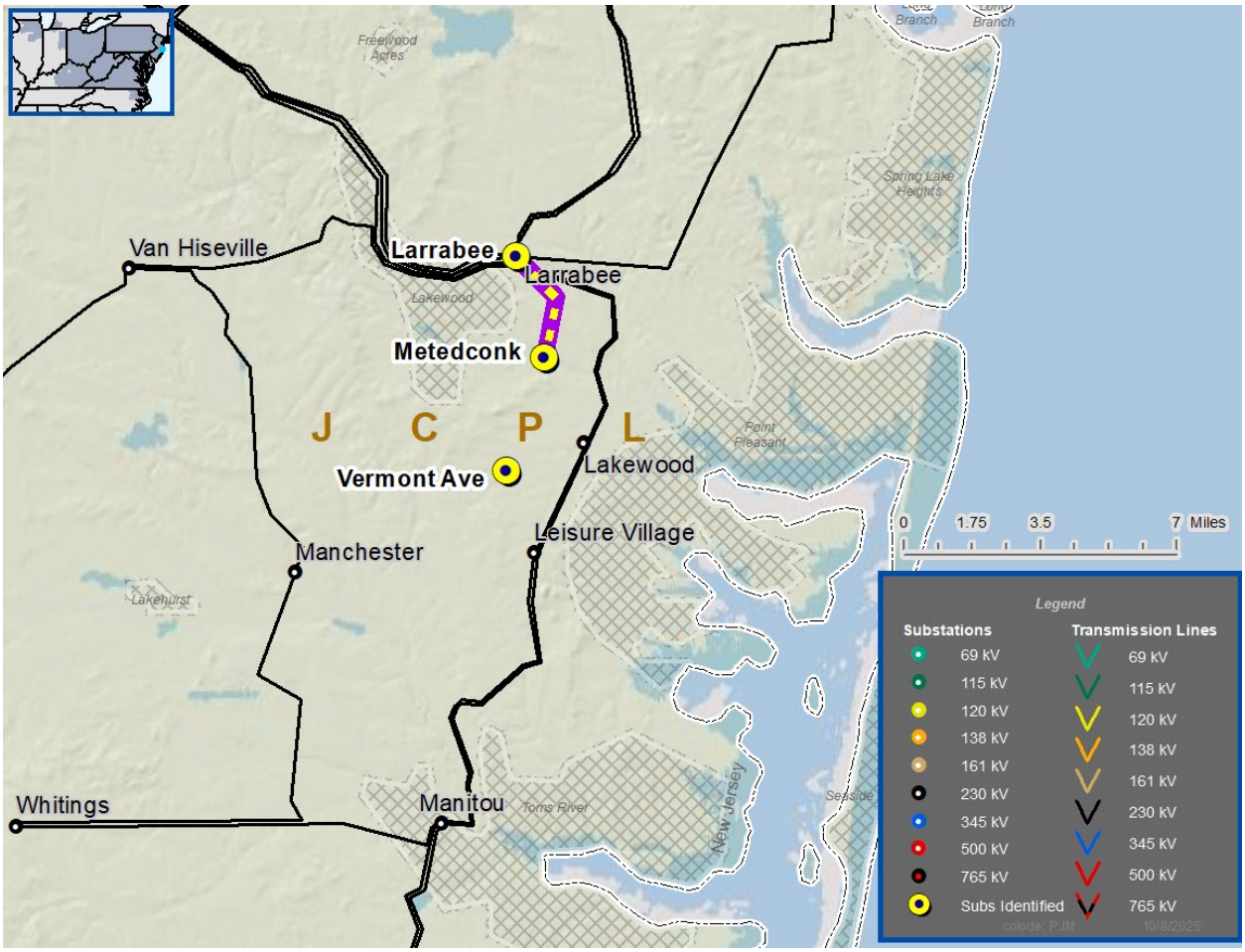
Map 57. Cookstown & Great Adventure 34.5 kV



Baseline Project b4018 – Metedconk and Vermont Avenue Substation Rebuilds

In the 2030 summer and winter cases, the Larrabee-Metedconk 34.5 kV lines No. 1 and 2, as well as Medtedconk 34.5 kV bus tie breaker circuit are overloaded for N-1 outages. Also, in the 2030 summer and winter cases, the Vermont Ave 34.5 kV bus exhibits low voltage violations in the base case and for N-1 outages. All violations were identified under FirstEnergy's FERC Form 715 criteria, and the flowgates were excluded from competition for the below 200 kV exclusion. The recommended solution is to rebuild the Metedconk 34.5 kV substation as a nine-breaker, breaker-and-a-half station. The existing Vermont Ave 34.5 kV equipment will be retired, and a new 34.5 kV Vermont Avenue substation will be constructed in a new plot nearby. The project also replaces limiting conductor at Larrabee 34.5 kV substation, and line relaying at the South Lakewood and Leisure Village 34.5 kV substations. The South Lakewood-Leisure Village 34.5 kV F214 line will be looped into the new 34.5 kV ring bus station (approximately 0.1 miles), and the following lines will be upgraded to support the project (each approximately 2.6 miles): Herbertsville-Larrabee 34.5 kV Q43 line and Larrabee-Point Pleasant No. 2 34.5 kV R44 line. The total estimated cost is $65.74 million, with a required and projected in-service date of June 2030. The local transmission owner, JCPL, will be designated to complete this work.

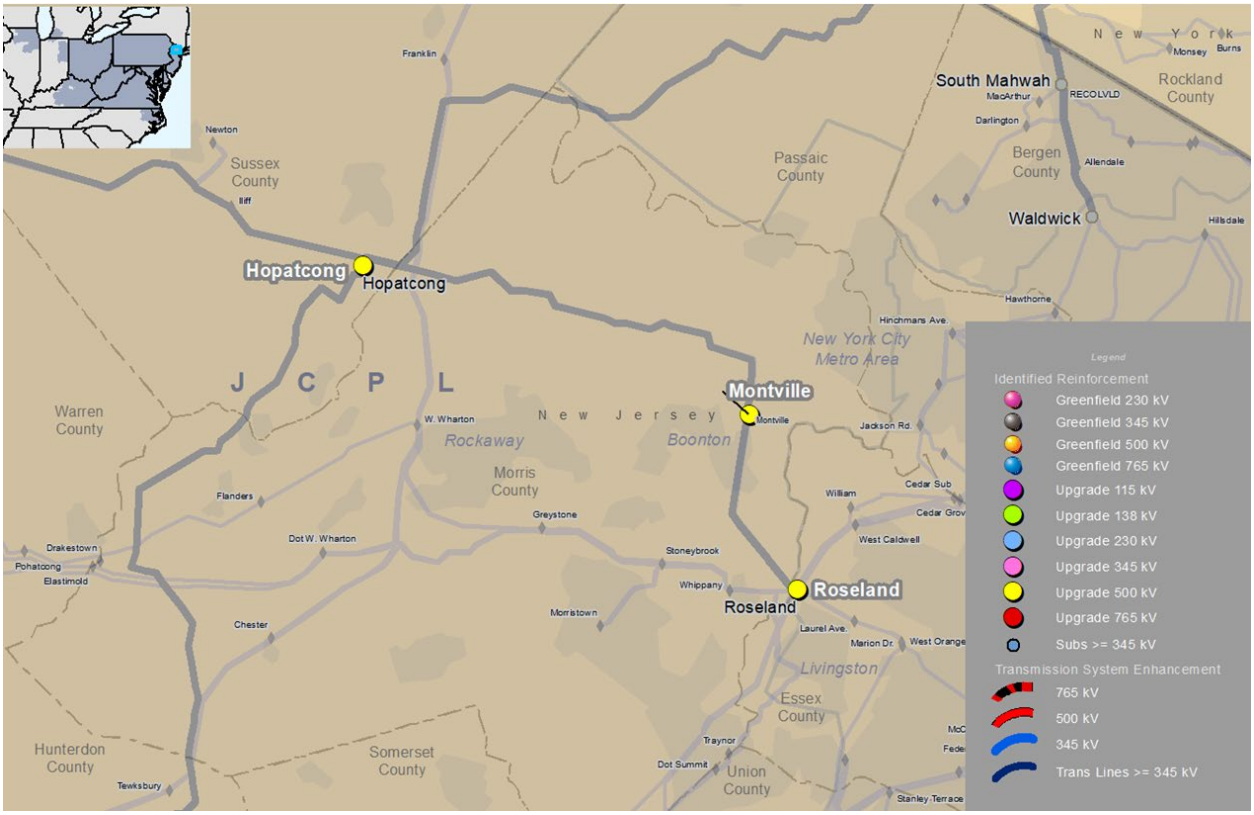
Map 58. Metedconk & Vermont Avenue 34.5 kV



Baseline Project b4032 (Proposal 140) – Montville 500/230 kV Substation Upgrades

In the 2030 summer case, the Montville and surrounding 34.5 kV system exhibit voltage collapse and load loss greater than 300 MW under N-1-1 conditions. PJM solicited proposals through the 2025 RTEP Window 1 and received one proposal from JCPL, the incumbent transmission owner. The recommended solution is to upgrade the Montville substation by installing a 500 kV double-bus, double-breaker scheme, a 500/230 kV transformer and high-side breaker, and a new breaker string in the 230 kV yard to create a breaker and a half layout. The Roseland-Hopatcong 500 kV line will be looped into the new 500 kV switchyard at Montville substation. The two-pole wood structure No. 154 on the Montville-Whippany 34.5 kV K115 and O93 lines will be replaced with a monopole underground riser, and approximately 200 ft of new underground conductor will be installed and spliced with the existing underground conductor into the Montville substation. In addition to this proposal 140 scope, PJM worked with PSE&G to identify additional required scope that is required. Additional scope includes remote terminal work, including any relaying, and line work around Montville substation to reconnect the 230 kV lines. The total estimated cost is $98.13 million, with a required and projected in-service date of June 2030. The local transmission owners, JCPL and PSE&G, will be designated to complete this work.

Map 59. Montville 500/230 kV Substation Area

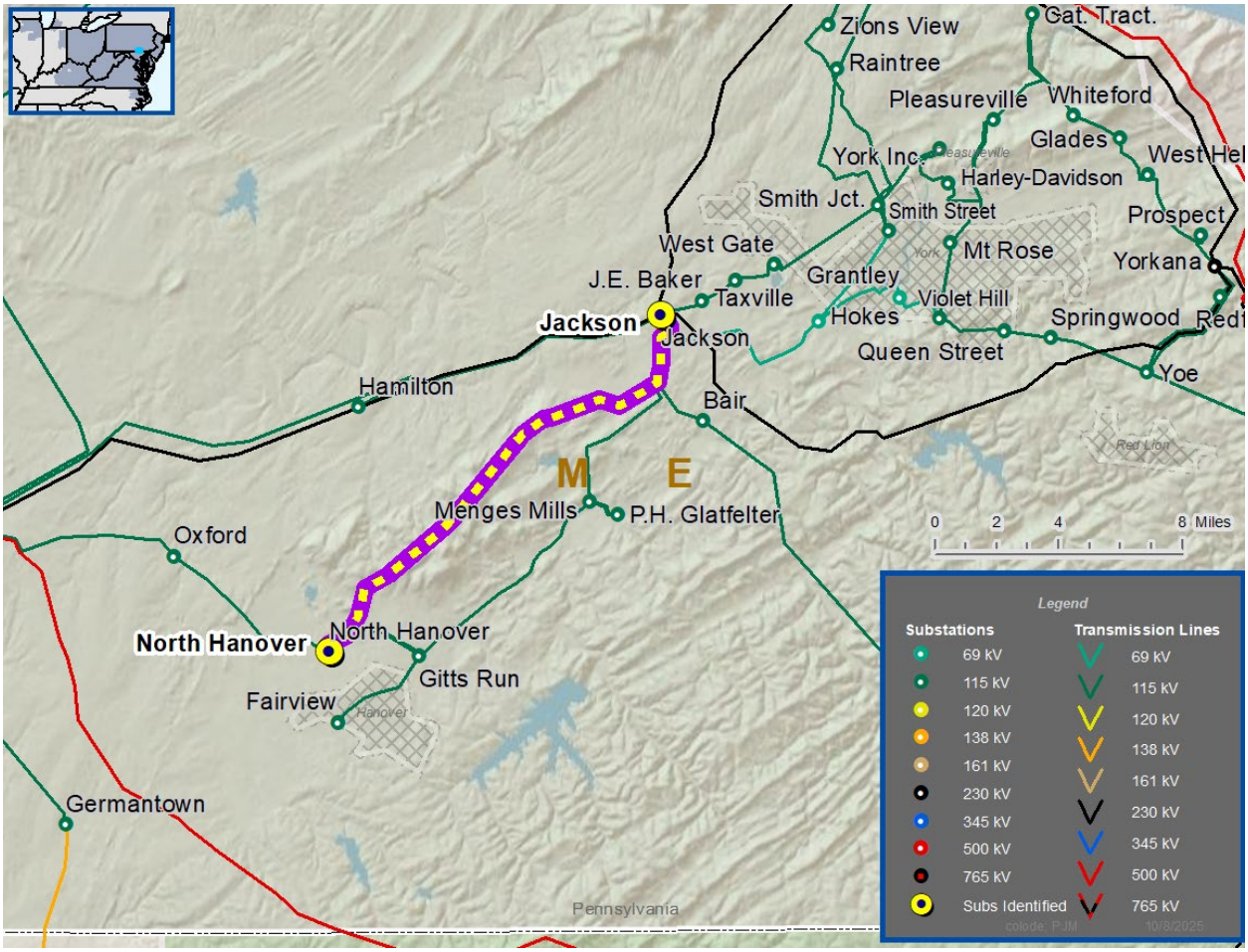


MetEd:

Baseline Project b4011 – Jackson-North Hanover 115 kV Rebuild

In the 2030 summer case, Jackson-North Hanover 115 kV line is overloaded, and low voltage violations are observed at the North Hanover, Eisenhower, Gitts Run and Fairview 115 kV buses for N-1-1 outages. The flowgates associated with these violations were excluded from competition for the below 200 kV exclusion. The recommended solution is to rebuild the Jackson-North Hanover 115 kV 968 line as a six-wire circuit (approximately 13.2 miles). Terminal equipment replacements and upgrades are also required. The total estimated cost is $61.79 million, with a required and projected in-service date of June 2030. The local transmission owner, MetEd, will be designated to complete this work.

Map 60. Jackson-North Hanover 115 kV



ODEC:

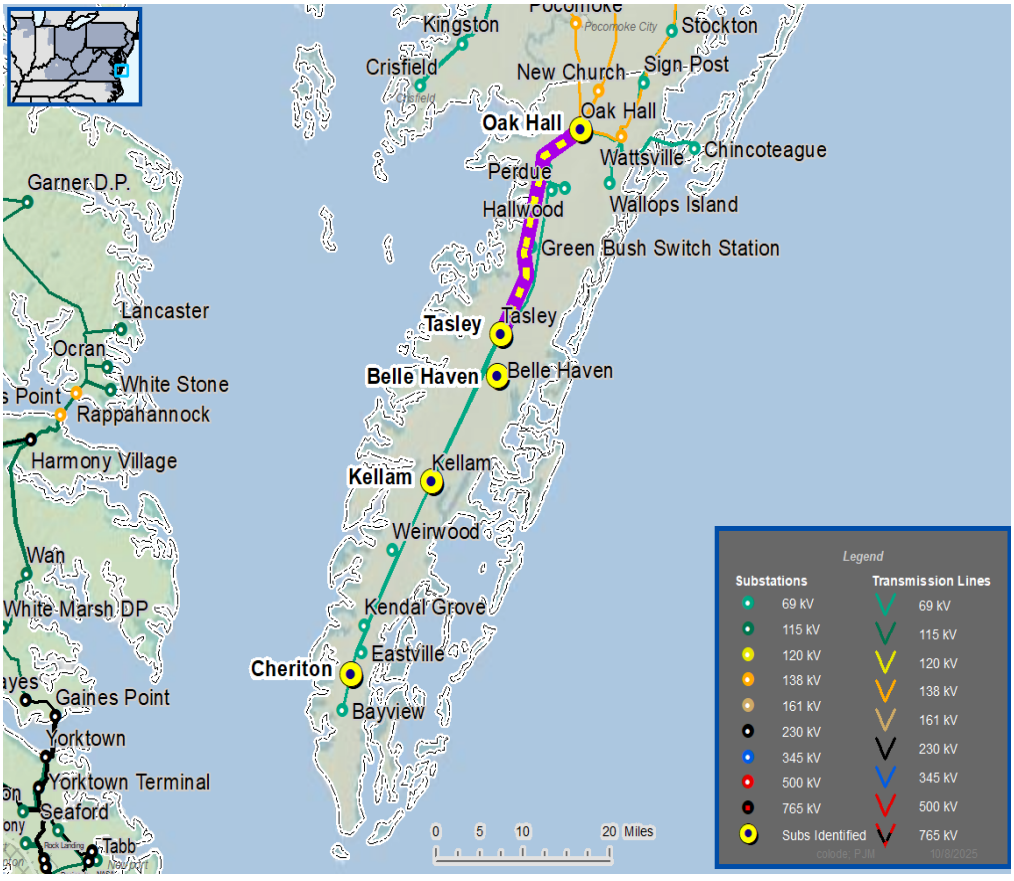
Baseline Project b4033 – Oak Hall-Tasley 69 kV New Line Construction in Existing ROW

In the 2030 summer and winter cases, the Hallwood-Parsley, Oak Hall-Hallwood, Oak Hall-Perdue, Tasley-Kellam, Tasley-Perdue and Tasley-Parksley 69 kV lines are overloaded, and there are numerous low voltage and voltage drop violations on 69kV ODEC system for N-1-1 outages. All violations were identified under ODEC's FERC Form 715 criteria, which consider assumptions such as the following:

- Higher load in ODEC system per the observed January 23, 2025, winter event
- NRBTMG generators (solar) offline per planning criteria. Solar output near 0 MW during the observed January 23, 2025, winter event
- Belle Haven STATCOM retired – it is in the ODEC EOL list

The flowgates associated with these violations were excluded from competition for the below 200 kV exclusion. The recommended solution is to rebuild the existing Oak Hall-Hallwood-Tasley 69 kV line, and construct a new 69 kV transmission line from Oak Hall-Tasley in the existing ROW. The Tasley substation will be upgraded to breaker-and-a-half and Oak Hall substation requires expansion/reconfiguration to accommodate the new line. The project will also replace capacitors at Tasley, Kellam, Cheriton and Belle Haven 69 kV substations, and upgrade relays at Oak Hall, Tasley and Kellam 69 kV substations. The total estimated cost is $132.01 million, with a required in-service date of June 2030 and projected in-service date of December 2030. The local transmission owner, ODEC, will be designated to complete this work.

Map 61. Oak Hall-Tasley 69 kV



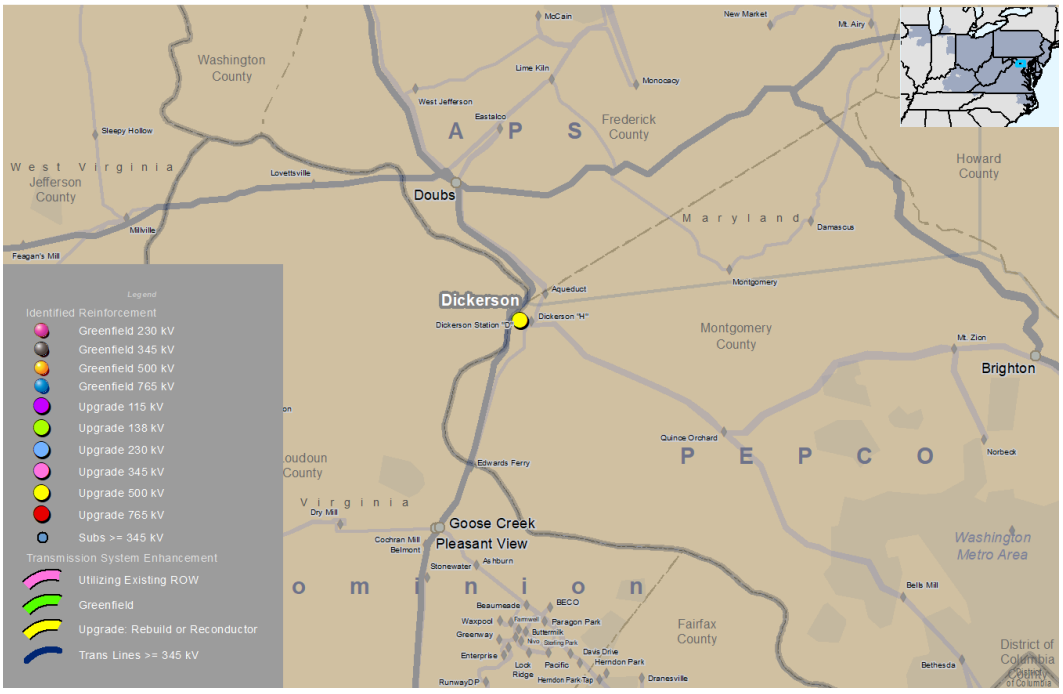
PEPCO:

Baseline Project b4052 (Proposal 919, 851 Component, and Additional Upgrades) – Dickerson (New) 500 kV Substation Cutting into Aspen-Rocky Point 500 kV Line

In the 2032 base case, multiple 500 kV and 230 kV lines in PEPCO and PEPCO/Dominion tie lines are overloaded. The overloads worsen when the NJ OSW delays and the additional 3.5 GW of load in PPL (not included in the 2025 load forecast) is taken into consideration. While PJM did not post FGs for the overloads through the 2025 RTEP Window 1, PJM did post the results without OSW generation for reference and guidance (for consideration part of robustness evaluations) in the event that the NJ and DE OSW generation is delayed beyond 2032. PJM also provided modeling files for the PPL load to the prosing entities for reference and transparency. PJM received three proposals from the primary incumbent transmission owner, Exelon (PEPCO). Additional details surrounding the evaluation of this cluster are included in the **MAAC-PEPCO Cluster** section of this report.

The recommended solution is to build a new Dickerson 500 kV substation by cutting into the Aspen-Rocky Point 500 kV line (remove work will be required at both Aspen and Rocky Point 500 kV substations to accommodate the new station), and install two new 500/230 kV transformers (proposal 919 scope). The proposal 851 component that is being recommended is Brighton 500 kV substation upgrades, including replacements of two circuit breakers, two disconnect switches, a bushing CT and a stranded bus conductor. During the evaluation process, PJM also determined that additional upgrades were required. These upgrades include the replacement of the Bells Mill T3 transformer with a new PEPCO standard 260 MVA 230/138 kV transformer and upgrades at the Quince Orchard 230 kV substation: replacement of a bus conductor, three relays and two disconnect switches. The total estimated cost is $282.16 million, with a required in-service date of June 2032 and projected in-service date of June 2031. The local transmission owner, Exelon, Dominion and APS will be designated to complete this work.

Map 62. Dickerson 500 kV



PPL:

Baseline Project b4029 – (Proposal 558 and 853 component) – PPL portfolio proposal 2 with Kelayres 500/230 kV transformer

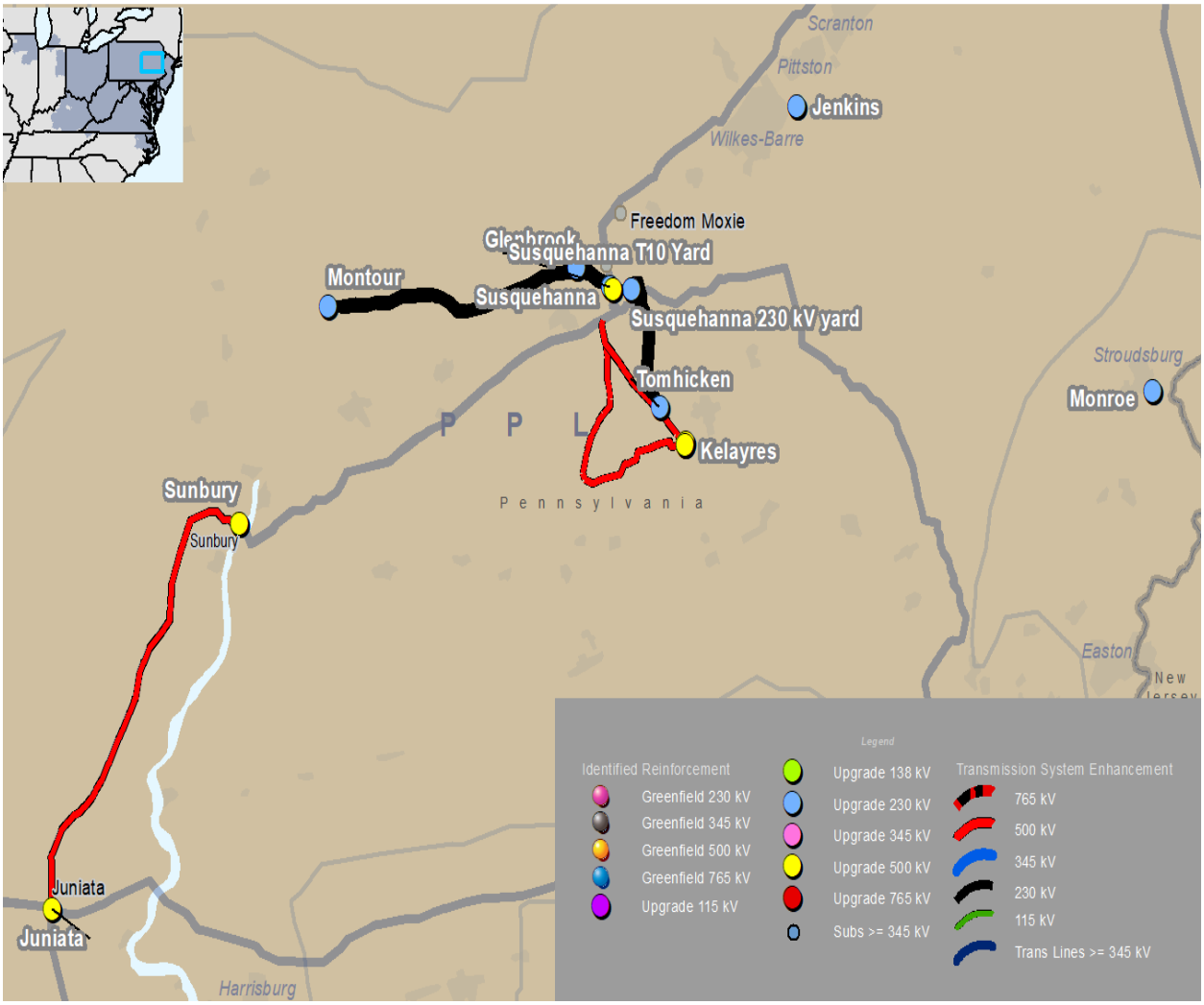
In 2030 summer, light load and winter cases, multiple lines in the Susquehanna and Juniata area of PPL zone are overloaded for N-1, N-2 and N-1-1 outages. Multiple facilities in the PPL zone also exhibit voltage violations under N-2 and N-1-1 conditions. PJM solicited proposals through the 2025 RTEP Window 1 and received 29 proposals from four proposing entities. Additional details surrounding the evaluation of this cluster are included in the **MAAC-PPL Cluster** section of this report.

The major components of the recommended solution include the following:

- Expand existing Slykerville 230 kV substation to add a 500 kV yard (Slykerville would be renamed Kelayres with the addition of this 500 kV yard)
- Bifurcate the Sunbury-Susquehanna 500 kV line bringing both segments into a new Kelayres 500 kV Station on separate towers
- Susquehanna-Tomhicken 230 kV No. 1 and 2 line reconductor
- Upgrade the Monroe 230/138 kV substation to a 2-bay breaker and a half on the 230 kV side (with space to accommodate 2 future bays), and a double-bus double-breaker design on the 138 kV side
- Rebuild 5.2 miles and reconductor 0.7 miles of Montour-Glen Brook 230 kV No. 1 and 2 lines (the remaining 19 miles is being rebuilt and reconductored as part of supplemental project s2373)
- Jenkins 230/69 kV substation upgrades, including transformer re-terminations and installation of one new 230 kV and two new 69 kV circuit breakers
- Construction of a new Susquehanna T10-Susquehanna 230 kV No. 3 line (approximately 2.7 miles) using an approximately 75% brownfield route
- Rebuild the existing 38-mile Juniata-Sunbury 500 kV line (ancillary benefit of addressing aging infrastructure)
- Addition of Kelayres 500/230 kV T3 transformer (proposal 853 component)

The total estimated cost is $565.41 million, with a required and projected in-service date of June 2030. The local transmission owner, PPL, will be designated to complete this work.

Map 63. MAAC-PPL Cluster Solution

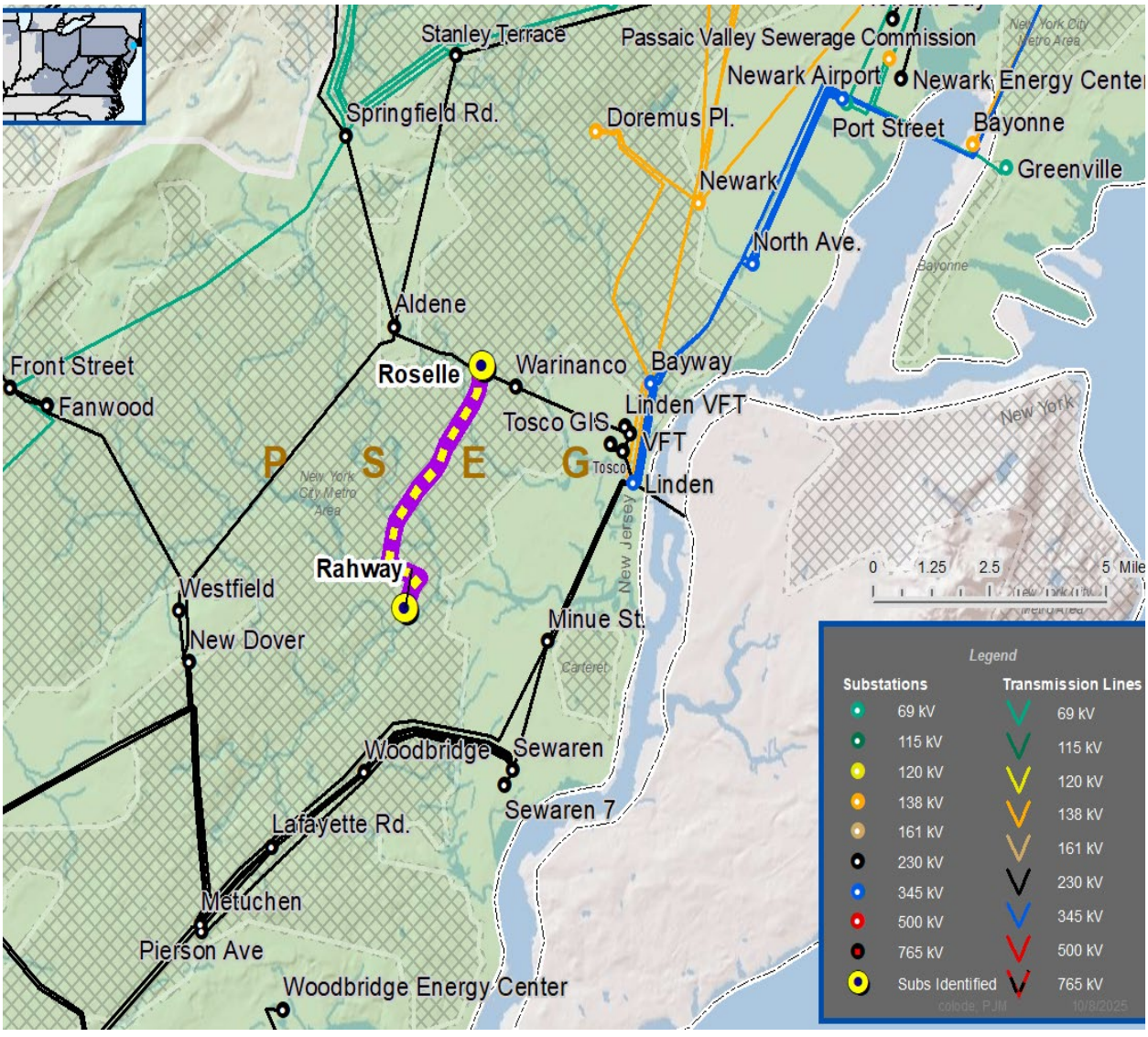


PSE&G:

Baseline Project b4019 – Rahway-Roselle 69 kV High-Capacity Reconductor

In the 2030 summer case, the Rahway-Roselle 69 kV line is overloaded in the base case under PSE&G's FERC Form 715 criteria. The flowgate associated with the violation was excluded from competition for the below 200 kV exclusion. The recommended solution is to reconductor the Rahway-Roselle 69 kV line with high-capacity conductor to be rated at least 1100 A summer normal and 1200 A summer emergency. Approximately 2 miles of overhead wreck and rebuilding, 2.5 miles of new overhead construction and 0.2 miles of underground fiber replacement is also included as part of the scope. The total estimated cost is $29.4 million, with a required in-service date of June 2030 and projected in-service date of December 2029. The local transmission owner, PSE&G, will be designated to complete this work.

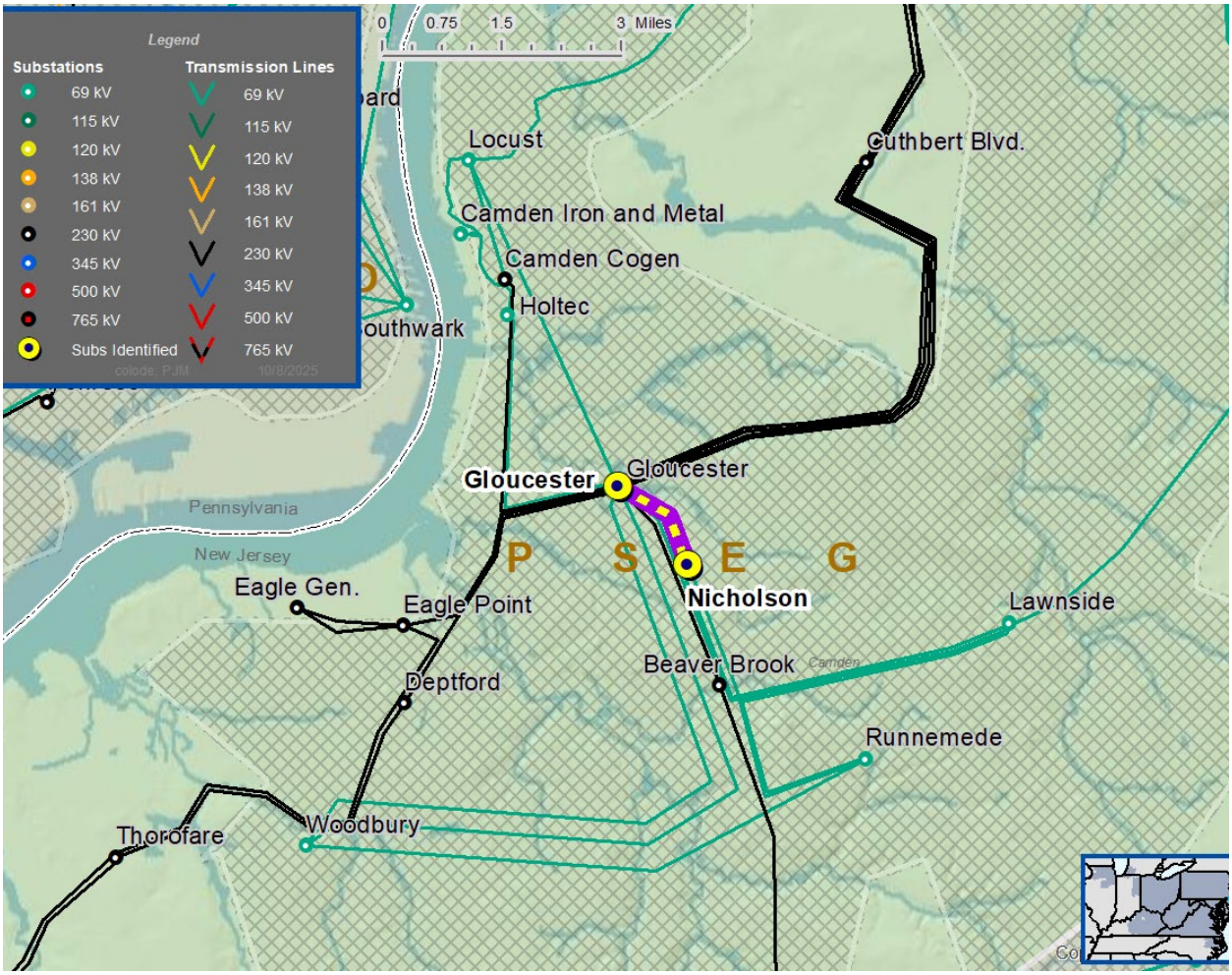
Map 64. Rahway-Roselle 69 kV



Baseline Project b4020 – Gloucester-Nicholson 69 kV Rebuild

In the 2030 summer case, the Gloucester-Nicholson 69 kV line is overloaded for a N-1 outage under PSE&G's FERC Form 715 criteria. The flowgate associated with the violation was excluded from competition for the below 200 kV exclusion. The recommended solution is to rebuild the Gloucester-Nicholson 69 kV line, including terminal equipment upgrades. The total estimated cost is $10.8 million, with a required and projected in-service date of June 2030. The local transmission owner, PSE&G, will be designated to complete this work.

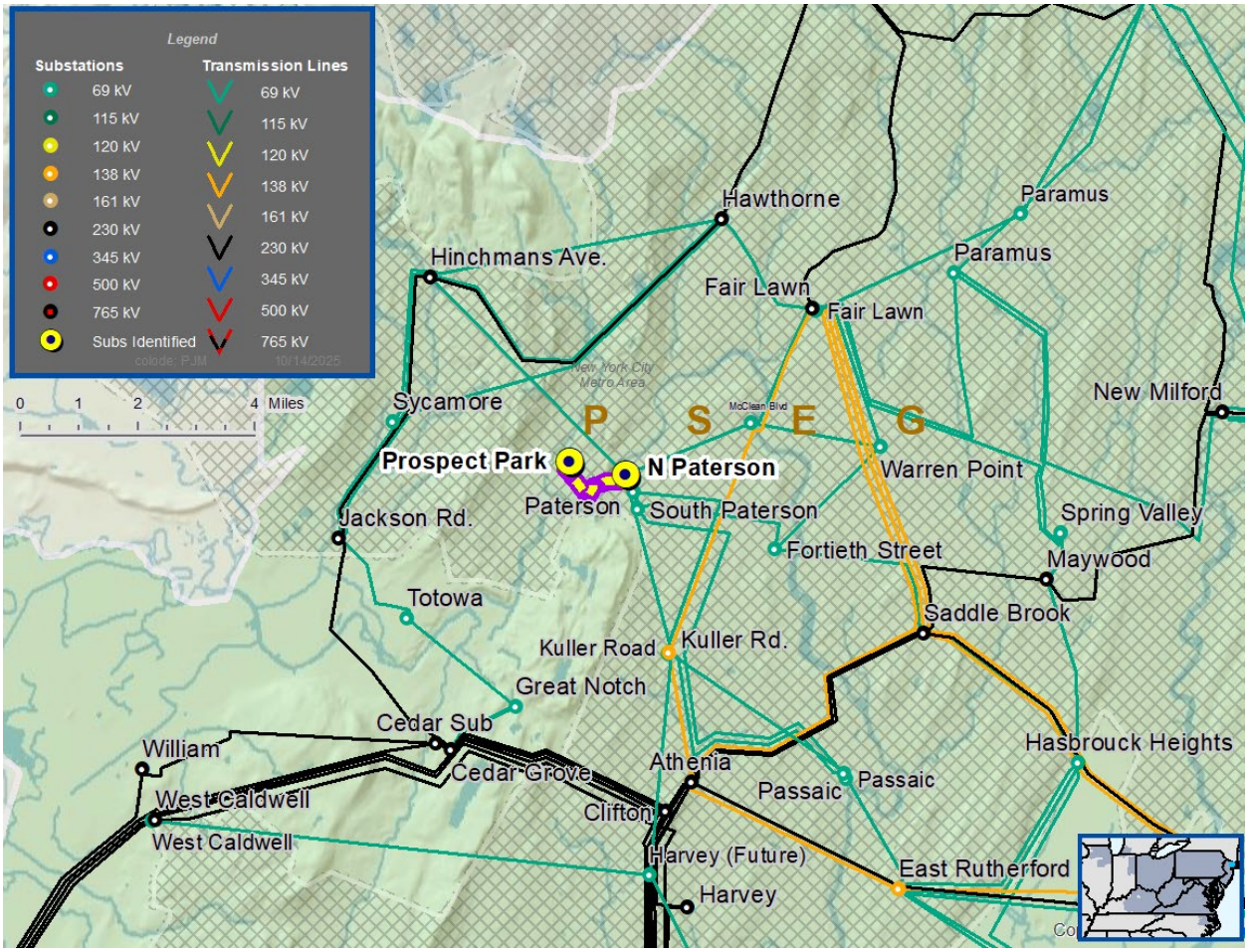
Map 65. Gloucester-Nicholson 69 kV



Baseline Project b4021 – Prospect Park-North Paterson 69 kV High-Capacity Reconductor

In the 2030 summer case, the Prospect Park-North Paterson 69 kV line is overloaded for N-2 outages. The flowgates associated with these violations were excluded from competition for the below 200 kV exclusion. The recommended solution is to reconductor the Prospect Park-North Paterson 69 kV line with high-capacity conductor, including installing new composite poles and manholes along the line as required. Terminal equipment upgrades are also required to accept the new high-capacity cable. The total estimated cost is $15.7 million, with a required and projected in-service date of June 2030. The local transmission owner, PSE&G, will be designated to complete this work.

Map 66. Prospect Park-North Paterson 69 kV



Project Evaluation and Selection Rationale Tables

The following **Table 49** and Error! Reference source not found. provide summaries of evaluation rationale, relevant study scenarios supporting the selection, as well as a high-level summary of the scenario build up and analysis:

Table 49. Project Evaluation and Selection Rationale – 2025 RTEP Window 1 Proposals

#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
1	63	AEPSCT	AEPC5	Smith Mountain - Rockcastle - Moneta 138 kV Rebuild	$39.40	Y	N/A	N	Proposal is less cost-effective compared to proposal 689 in the same cluster.	N/A - Zonal Cluster
2	195	AEPSCT	No Competition	Mound Street-St Clair 138 kV Underground Line Rebuild	$41.59	Y	N/A	Y	Resolves posted FGs	N/A - no competition
3	298	AEPSCT	No Competition	Hyatt-Celtic 345 kV Re-Rate	$7.81	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - no competition
4	341	AEPSCT	AEPC4	Allen-Sorenson 345 kV Sag Study	$37.38	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
5	348	AEPSCT	AEPC2	Trabue-Hilliard-Davidson 69 kV Rebuild & Relay Upgrades	$16.23	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
6	354	AEPSCT	AEPC8	Green Chapel-Curleys 345 kV Circuit	$15.79	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
7	377	AEPSCT	AEPC6	Beatty-Bolton-Phillipi 138 kV Line	$29.63	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
8	385	AEPSCT	AEPC1	Platter Creek 69 kV Station Reconfiguration	$1.65	N/A (aging issue, no idv)	N/A	N	The line asset associated with the Platter Creek proposal was originally installed in the 1920s. If not ordered as a baseline rebuild project, that line would need to be addressed for asset renewal reasons in the near future. Thus, compared to station reconfiguration (proposal 385), rebuild (proposal 724) is the preferred path moving forward.	N/A - Zonal Cluster
9	431	AEPSCT	No Competition	McComb 138 kV Station Reconfiguration	$3.23	N/A	N/A	N	FG removed, AEP will address through M-3.	N/A - no competition

[5] The columns represent if the proposed project solves the intended flowgates that the proposal targeted, and is not representative of solving the entire PJM system need.

* The proposal causes new violation(s) that requires additional mitigation.

#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
10	439	AEPSCT	No Competition	Maliszewski-Polaris 138 kV Circuit Rebuild	$15.17	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - no competition
11	459	AEPSCT	AEPC8	Green Chapel-Bermuda 345 kV Circuit	$27.28	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
12	515	AEPSCT	AEPC3	Harrison-Obetz-Marion Road 138 kV Line Rebuild	$35.74	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
13	517	AEPSCT	AEPSTATCOM	Central OH STATCOM Installations & Station Upgrades	$736.61	N	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - AEP STATCOM Cluster
14	626	AEPSCT	AEPC6, AEPC7	Beatty-Cole 345 kV Circuit #2	$31.04	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
15	662	AEPSCT	AEPC3	Harrison-Obetz-Marion Rd 138 kV Line Sag Study & Terminal Equipment Upgrades	$14.82	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
16	689	AEPSCT	AEPC5	Smith Mountain - Rockcastle - Moneta 138 kV Sag Study	$9.88	Y	N/A	Y	Proposal resolves identified reliability violations and is with lower cost compared to proposal 63 in the same cluster.	N/A - Zonal Cluster
17	724	AEPSCT	AEPC1	Platter Creek-Sherwood-Auglaize 69 kV Line Rebuild	$28.68	Y	N/A	Y	The line asset associated with the Platter Creek proposal was originally installed in the 1920s. If not ordered as a baseline rebuild project, that line would need to be addressed for asset renewal reasons in the near future. Thus, compared to station reconfiguration (proposal 385), rebuild (proposal 724) is the preferred path moving forward.	N/A - Zonal Cluster
18	729	AEPSCT	No Competition	Beatty-McComb 138 kV Line	$10.42	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - no competition
19	749	AEPSCT	AEPSTATCOM	Central OH STATCOM Installations	$589.74	N	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - AEP STATCOM Cluster

[5] The columns represent if the proposed project solves the intended flowgates that the proposal targeted, and is not representative of solving the entire PJM system need.

* The proposal causes new violation(s) that requires additional mitigation.

#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]: 2030 Model	Meet Reliability Needs In[5]: 2032 Model	Selected Y/N	Rationale	Applicable Scenarios
20	757	AEPSCT	AEPC7	Clinton-St Clair 138 kV UG Line	$63.20	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
21	873	AEPSCT	AEPC8	Green Chapel-Vassell 345 kV Circuit #2	$58.57	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
22	940	AEPSCT	AEPC2	Trabue-Hilliard-Davidson 138 kV Conversion	$79.26	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
23	980	AEPSCT	AEPC6	Beatty-Bolton 138 kV Line	$7.27	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
24	981	AEPSCT	AEPSTATCOM	Patina 765/345 kV Station & UG Line Rebuilds	$976.34	N	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - AEP STATCOM Cluster
25	996	AEPSCT	AEPC4	Allen-Sorenson 345 kV Line Rebuild	$70.64	Y	N/A	N	regional comprehensive solution addressed the issue, thus no longer need this one.	N/A - Zonal Cluster
26	239	ATSI	ATSI/AEP/DAYTON	345 kV Solution Phase 1 and Phase 2	$1,492.41	Y	N/A	N	765 kV source from west of Columbus OH provides better reliability support than 765 kV development from east.	PJM 5, PJM West 2
27	334	ATSI	ATSI/AEP/DAYTON	West Glade Run 765/345 kV Solution	$1,690.26	Y*	N/A	N	Identical 765 kV configuration to ATSI proposal 239 with difference in 345 kV configuration only. More cost compared to proposal 239 with similar reliability performance.	PJM 51
28	156	CINSI	No Competition	College Corner - Collinsville 138 kV Rebuild	$58.47	Y	Y	Y	Resolves posted FGs	N/A - no competition
29	20	CNTLTM	PPL	Tri-Segment 500 kV Transmission Project	$494.29	Y	Y	N	Remaining Voltage Violations in 2030 and 2032 Additional Thermal Violations with additional ~3.5 GW Load in PPL	PPL 4
30	260	CNTLTM	DOM Regional	Virginia Transmission Project	$2,207.36	N/A	N	N	Transfer capability is limited compared to other scenarios and does not resolve all 2032 FGs posted in Dominion.	Dominion 2

[5] The columns represent if the proposed project solves the intended flowgates that the proposal targeted, and is not representative of solving the entire PJM system need.

* The proposal causes new violation(s) that requires additional mitigation.

#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
31	543	CNTLTM	ATSI/AEP/DAYTON	Greene - South Bird Transmission Project	$121.41	N*	N/A	N	Greenfield development that overlaps with one of ATSI 239 and 334 proposal. ATSI's proposal is utilizing existing ROW while rebuilding 138 kV FACs on EOL list. Doesn't resolve all Reliability criteria violations	
32	672	CNTLTM	AEPC4	Allen to Sorenson Transmission Project	$105.92	Y	N/A	N		
33	402	COMED	No Competition	Install new 765/345 kV TR at Plano	$87.90	N/A	N/A	N	PJM did not solicit a proposal for this FG and given that this transformer is not overloaded in 2030 and was only seen overloaded in 2032, PJM will continue to monitor.	N/A - no competition
34	457	COMED	No Competition	Install new 765/345 kV TR at Collins	$66.30	N/A	N/A	N	PJM did not solicit a proposal for this FG and given that this transformer is not overloaded in 2030 and was only seen overloaded in 2032, PJM will continue to monitor.	N/A - no competition
35	906	COMED	No Competition	Install new 765/345 kV TR 91 at Wilton Center	$45.81	Y	Y	Y	Resolves posted FGs	N/A - no competition
36	465	DPL	No Competition	New 500 kV Circuit Keeney (DPL) - Bramah	$491.16	N/A	N/A	N	This proposal addresses overload in 2032 related to NJ OSW, thus PJM did not solicit a proposal for this flowgate. Need deferred - PJM will continue to monitor.	N/A - no competition
37	823	DPL	No Competition	Red Lion - Keeney Facility Upgrades	$90.70	N/A	N/A	N	This proposal addresses overload in 2032 related to NJ OSW, thus PJM did not solicit a proposal for this flowgate. Need deferred - PJM will continue to monitor.	N/A - no competition
38	140	JCPL	No Competition	Montville 500/230 kV Transformer Installation and Associated Upgrades	$66.83	Y	Y	Y	Resolves posted FGs	N/A - no competition

[5] The columns represent if the proposed project solves the intended flowgates that the proposal targeted, and is not representative of solving the entire PJM system need.

* The proposal causes new violation(s) that requires additional mitigation.

#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
39	493	MATLIT	MAAC Regional	PPL Load Addition Proposal - Keystone - Susquehanna Dual 500 kV Double Circuit with Jack's Mt.	$1,515.23	Y	Y	N	This FE Proposal with STATCOM does not provide significant benefit compared to FE Proposal 826.	
40	578	MATLIT	MAAC Regional	PPL Load Addition Proposal - Keystone - Susquehanna Dual 500 kV Single Circuits with Jack's Mt.	$2,418.26	Y	Y	N	Not efficient nor cost effective - alternative selected	MAAC 4
41	826	MATLIT	MAAC Regional	PPL Load Addition Proposal: Keystone - Susquehanna 500 kV Double Circuit	$1,348.91	Y	Y	N	Shortlisted – the proposal resolved 500 kV overloads for MAAC Regional but project 237 was selected for the rationale listed below (more efficient or cost effective).	PJM 9, MAAC 1
42	838	MATLIT	MAAC Regional	PPL Load Addition Proposal: Keystone - Susquehanna Dual 500 kV Single Circuits	$2,251.95	Y	Y	N	Not efficient nor cost effective - alternative selected	MAAC 3 (partial), MAAC 5 (partial)
43	237	NXTMID	MAAC Regional	Kammer to Juniata	$1,738.59	Y	Y	Y	Selected proposal as the more efficient or cost effective development - it provides stronger support to the MAAC region including load growth in PPL and MAAC area in general, provides higher transfer throughput for similar 500kV greenfield developments, future generation retirements (or new generation delays – like NJOSW) in MAAC, or any combination of these factors. The proposal is a natural expansion of the existing 765 kV backbone into the PJM eastern region. This allows for more flexibility in utilizing resources across the interconnection to serve load. As demonstrated by the transfer study results, proposal 237 also offers approximately 2 GW more import capability into the MAAC region than proposal 826 and preserves existing 500 kV capacity (for load and generation interconnection use – i.e. less	PJM 2, PJM 3, PJM 4, PJM 41, PJM 5, PJM 51, PJM 6, PJM 61, PJM 7, PJM 8, PJM10, PJM 11, MAAC 2, MAAC 3

[5] The columns represent if the proposed project solves the intended flowgates that the proposal targeted, and is not representative of solving the entire PJM system need.

* The proposal causes new violation(s) that requires additional mitigation.

#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]: 2030 Model	Meet Reliability Needs In[5]: 2032 Model	Selected Y/N	Rationale	Applicable Scenarios
									impactful and ore efficient) and offers the highest transfer capability regardless of the source/sink combination.	
44	109	NXTMID	ATSI/AEP/DAYTON	Muckshaw - Johnstown 765 kV	$3,322.00	Y	N/A	N	Very similar to NextEra proposal 152 with only difference in starting 765 kV line in the west. More cost compared to proposal 152 with similar reliability performance.	PJM 41, PJM West 5
45	152	NXTMID	ATSI/AEP/DAYTON	Gwynneville - Johnstown 765 kV	$2,921.12	Y*	N/A	N	Higher cost and exhibits more reliability violations compared to proposal 570.	PJM 4, PJM West 1, PJM West 6
46	687	NXTMID	MAAC Regional	Kammer to Juniata to Spicewood 765 kV	$3,238.74	Y	Y	N	Not cost effective - alternative selected Other 765 kV developments meet the need, and incremental Juniata to Spicewood 765kV component could be developed later on as load materializes (staging).	
47	771	NXTMID	PPL	Montour to Slykerville Reinforcement	$539.25	Y	Y	N	Remaining Voltage Violations in 2030 and 2032 Does not provide margin in Thermal analysis with additional ~3.5 GW of Load in PPL.	PPL 5
48	987	NXTMID	Scenario	Combined solution	$6,731.58	Y*	Y	N	This proposal was a combination of other proposals that overlapped different clusters. The individual proposals were studies as part of the relevant clusters.	PJM 1
49	871	NXTMID	MAAC Regional	Blockhouse Creek to Susquehanna and Montour to Stoney Creek	$1,136.38	Y	Y	N	Not cost effective - alternative selected	PPL 6
50	896	NXTMID	MAAC Regional	Fort Martin - Woodside Double Circuit 500 kV	$571.70	N/A	N/A	N	Does not target any specific need	
51	125	PE	No Competition	Trainer (PECO) - Delco Tap (PECO) - Mickleton (ACE)	$67.58	N/A	N/A	N	This proposal addresses an overload on a 230 kV circuit (Trainer - Delco Tap - Mickleton) in 2032. Since it is not EHV and only present in 2032, PJM did not	N/A - no competition

[5] The columns represent if the proposed project solves the intended flowgates that the proposal targeted, and is not representative of solving the entire PJM system need.

* The proposal causes new violation(s) that requires additional mitigation.

#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
									solicit a proposal for this flowgate. Need can be deferred.	
52	579	PE	No Competition	220-84 Linwood-Claymont 230 kV Tie-Line Facility Upgrade	$10.60	N/A	N/A	N	This proposal addresses an overload on a 230 kV circuit (Linwood - Claymont) in 2032. Since it is not EHV only present in 2032, PJM did not solicit a proposal for this flowgate. Need can be deferred.	N/A - no competition
53	758	PE	No Competition	220-85 Linwood-Edgemoor 230 kV Tie-Line Facility Upgrade	$76.85	N/A	N/A	N	This proposal addresses an overload on a 230 kV circuit (Linwood - Edgemoor) in 2032. Since it is not EHV and only present in 2032, PJM did not solicit a proposal for this flowgate. Need can be deferred.	N/A - no competition
54	371	PEPCO	MAAC-PEPCO	Dickerson 500 kV Substation & New Dickerson - Brighton 500 kV Line	$857.22	Y	Y	N	Not cost effective - alternative selected. Requires additional ROW.	
55	851	PEPCO	MAAC-PEPCO	Brighton - Doubs 500 kV Rebuild	$101.86	Y	Y	N	Does not address all needs identified in the area.	
56	919	PEPCO	MAAC-PEPCO	Dickerson 500 kV Substation	$257.61	Y	Y	Y	Addresses all reliability needs in the area. Additional component required from Proposal 851 to upgrade the terminal at Brighton for Doubs-Brighton 500 kV line.	PJM 10, PJM 11 (partial)
57	631	POTOED	No Competition	McCanns Rd 138 kV Switching Station	$23.87	Y	Y	Y	Resolves posted FGs	N/A - no competition
58	692	POTOED	No Competition	Garrett Tap - Garrett 115 kV Line Rebuild	$9.15	Y	Y	Y	Resolves posted FGs	N/A - no competition
59	16	PPLTO	PPL	Juniata - Sunbury 500 kV line EOL SCT rebuild	$162.89	Y	Y	Y	Included in recommended portfolio solution - Proposal 558	MAAC 1, MAAC 2, MAAC 5, PPL 1, PPL 2, PPL 3
60	158	PPLTO	PPL	Portfolio Proposal 1: Year 2030 Area 229 Essential Reliability Solution	$415.07	Y	Y	N	Does not address 2032 needs and provides no margin for future load growth in the PPL Zone including the additional submitted ~ 3.5 GW of load.	

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* The proposal causes new violation(s) that requires additional mitigation.

#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
61	190	PPLTO	PPL	Glen Brook - Susquehanna T10 - Susquehanna 230 kV 1 & 2 DCT line rebuild	$40.64	Y	Y	N	Not cost effective - alternative selected	
62	199	PPLTO	PPL	Siegfried 500/230 kV Substation expansion project	$124.27	Y	Y	N	Not cost effective - alternative selected	
63	290	PPLTO	PPL	Siegfried - Drakestown 500 kV line (PA segment)	$88.16	Y	Y	N	Not cost effective - alternative selected	
64	317	PPLTO	PPL	Sunbury - Susquehanna 500 kV line bifurcation and reroute through Kelayres 500 kV Station	$227.42	Y	Y	Y	Included in recommended portfolio solution - Proposal 558	MAAC 1, MAAC 2, MAAC 5, PPL 2, PPL 3
65	333	PPLTO	PPL	Kelayres - Tresckow 230 kV # 3 line	$20.13	Y	Y	N	Not cost effective - alternative selected	MAAC 1, MAAC 2, MAAC 5, PPL 3
66	422	PPLTO	PPL	Susquehanna - Tomhicken 230 kV 1 & 2 separated lines with reconductors	$60.82	Y	Y	N	Not cost effective - alternative selected	MAAC 1, MAAC 2, MAAC 5, PPL 3
67	434	PPLTO	PPL	Sandy Run - Kelayres 500 kV line project	$184.73	Y	Y	N	Not cost effective - alternative selected	
68	491	PPLTO	PPL	Glen Brook - Nescopeck 230 kV line	$32.58	Y	Y	N	Not cost effective - alternative selected	
69	556	PPLTO	PPL	Lackawanna - Sandy Run - Siegfried 500 kV line project	$464.86	Y	Y	N	Not cost effective - alternative selected	
70	558	PPLTO	PPL	Portfolio Proposal 2: Year 2032 Area 229 Essential Reliability Solution	$536.39	Y	Y	Y	Recommended portfolio solution. Additional component required from Proposal #853.	PPL 7

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#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
71	588	PPLTO	PPL	Glen Brook - Susquehanna T10 1 & 2 DCT line reconductor and Susquehanna T10 - Susquehanna # 3 line	$27.31	Y	Y	Y	Included in recommended portfolio solution - Proposal 558	MAAC 1, MAAC 2, MAAC 5, PPL 1, PPL 2, PPL 3
72	647	PPLTO	PPL	Jenkins 230/69 kV Substation transformers re-termination	$10.17	Y	Y	Y	Included in recommended portfolio solution - Proposal 558	MAAC 1, MAAC 2, MAAC 5, PPL 1, PPL 2, PPL 3
73	688	PPLTO	PPL	Monroe 230/138 kV Substation upgrade	$39.21	Y	Y	Y	Included in recommended portfolio solution - Proposal 558	MAAC 1, MAAC 2, MAAC 5, PPL 1, PPL 2, PPL 3
74	756	PPLTO	PPL	Juniata - Sunbury 500 kV line EOL DCT rebuild	$217.93	Y	Y	N	Not cost effective - alternative selected	
75	769	PPLTO	PPL	Mohrsville - Kelayres 500 kV line	$418.11	Y	Y	N	Not cost effective - alternative selected	
76	794	PPLTO	PPL	Frackville - Siegfried 500 kV line	$253.50	Y	Y	N	Not cost effective - alternative selected	
77	824	PPLTO	PPL	Susquehanna - Tomhicken 230 kV 1 & 2 DCT line reconductor	$29.73	Y	Y	Y	Included in recommended portfolio solution - Proposal 558	PPL 1, PPL 2
78	853	PPLTO	PPL	Portfolio Proposal 3: Year 2032 + 4 GW Area 229 Essential Reliability Solution	$797.94	Y	Y	N	The Portfolio addressed all of the violations, however this is not the most cost-effective solution. Only 1 component selected (third 500/230 kV transformer at Kelayres substation).	PJM 2, PJM 3, PJM 4, PJM 41, PJM 5, PJM 51, PJM 6, PJM 61, PJM 7, PJM 8, PJM 9, PJM10, PJM 11, MAAC 1, MAAC 2, PPL 3, PPL 7 (partial)

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#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
79	855	PPLTO	PPL	Nescopeck - Kelayres 500 kV line project	$145.75	Y	Y	N	Not cost effective - alternative selected	PPL 1
80	918	PPLTO	PPL	Sunbury - Kelayres 500 kV line	$347.99	Y	Y	N	Not cost effective - alternative selected	
81	945	PPLTO	PPL	Juniata - Lewistown 230 kV # 2 line	$159.08	N/A	Y	N	This is 230 kV long term need. PJM will monitor in the 2026 RTEP cycle.	
82	946	PPLTO	PPL	Susquehanna - Wescosville 500 kV line bifurcation and reroute through Kelayres 500 kV Station	$181.32	Y	Y	N	Not cost effective - alternative selected	MAAC 1, MAAC 2, MAAC 5, PPL 3
83	958	PPLTO	PPL	Montour - Glen Brook 230 kV 1 & 2 DCT line reconductor or rebuild	$39.65	Y	Y	Y	Included in recommended portfolio solution - Proposal 558	MAAC 1, MAAC 2, MAAC 5, PPL 2, PPL 3
84	656	PSEG	No Competition	Roseland - Livingston & Roseland - Laurel 230 kV Reconductoring	$9.93	Y	Y	Y	Resolves posted FGs	N/A - no competition
85	60	PSEGRT	ATSI/AEP/DAYTON	765 kV Standalone Solution	$1,333.61	N*	N/A	N	Proposal 60 standalone doesn't resolve Reliability Criteria violation in AEP's Colombus OH & ATSI's Melissa's territory.	PJM West 7
86	241	PSEGRT	ATSI/AEP/DAYTON	STATCOM Solution	$143.36	N	N/A	N	STATCOM only project to be used as an add-on for greenfield 765 kV substation AEP Central OH voltage issues. Not needed due to the fact that Shortlist project resolve Reliability issues.	PJM 6, PJM 61, PJM West 7, PJM West 8, PJM West 9
87	423	PSEGRT	ATSI/AEP/DAYTON	345 kV Standalone Solution	$475.11	N	N/A	N	Proposal 423 standalone doesn't resolve Reliability Criteria violation in AEP's Colombus OH & ATSI's Melissa's territory.	
88	619	PSEGRT	ATSI/AEP/DAYTON	345 kV Solution + 765 kV Solution (Alternative)	$1,942.65	Y*	N/A	N	Proposed Northern source not as ideal as west or east source by other proposals. More Reliability	PJM 6, PJM West 3, PJM West 8

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#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
									violations remain compared to ATSI, NextEra and Transource proposals.	
89	907	PSEGRT	ATSI/AEP/DAYTON	345 kV/765 kV Combined Project	$1,841.18	N	N/A	N	Proposed Northern source not as ideal as west or east source by other proposals. More Reliability violations remain compared to ATSI, NextEra and Transource proposals.	PJM 61, PJM West 9
90	938	TRAIL	DOM Regional	Dominion Regional Solution	$3,426.93	N/A	N	N	Transfer capability is limited compared to other scenarios and does not resolve all posted 2032 FGs in Dominion	Dominion 3
91	552	TRNSLK	PPL	Siegfried - Drakestown 500 kV line (brownfield NJ segment route)	$194.25	Y	Y	N	Not cost effective - alternative selected	
92	51	TRNSRC	ATSI/AEP/DAYTON	Ohio Five Year Solution	$1,051.22	N	N/A	N	Shortlisted. part of 570	
93	331	TRNSRC	DOM Regional	Virginia Area Seven Year Solution 1	$2,895.32	N/A	Y	N	Shortlisted. Transfer capability is higher than Dominion's 765 kV portfolios with some additional Dominion scope. Proposal does resolve all posted 2032 FGs in Dominion but loads 500 kV Line Elmont-Ladysmith to ~97% which will to be rebuilt to 5000A in 2026. Under S4+PPL scenario, 3-500 kV violations remain including 500 kV Line Elmont-Ladysmith. Creates 61 over duty breakers in Dominion. Greater area impact due to overhead nature of solution.	PJM 7, Dominion 4, Dominion 9
94	570	TRNSRC	ATSI/AEP/DAYTON	Ohio Seven Year Solution	$2,775.19	Y	N/A	Y	Resolves most amount of 2030 and 2032 reliability violations. West and east sources are more ideal among all western proposals as a whole to serve PJM system in and around Columbus, OH. Proposal 570 brings in power at several key EHV locations by creating/upgrading high voltage substations.	PJM 3, PJM 7, PJM 8, PJM 9, PJM 10, PJM 11, PJM West 4, PJM West 10, PJM West 11
95	781	TRNSRC	DOM Regional	Virginia Area Seven Year Solution 2	$1,986.45	N/A	N	N	Transfer capability is lower in comparison to other 765 kV scenarios and does not resolve all posted 2032 FGs in Dominion.	N/A

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#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
96	9	VEPCO	DOM2032_2 (Components)	Line 576 Partial Rebuild - Vontay to Midlothian	$104.86	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 275, 547, 352, 848, 616
97	24	VEPCO	DOM2032_2 (Components)	Line 568 Partial Rebuild - Ladysmith to Kraken	$48.59	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 352, 616
98	48	VEPCO	DOM2032_2 (Components)	New 500 kV Line - North Anna to Vontay	$121.09	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion 9, Dominion portfolio 352
99	55	VEPCO	DOM2032_2 (Components)	New 765 kV Line - Heritage to Yeat	$1,665.29	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 705, 848, 474
100	98	VEPCO	DOM2032_2 (Components)	New 500 kV Line - Chickahominy to Kraken	$414.94	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 326, 705
101	117	VEPCO	DOM2032_2 (Components)	Line 539 Rebuild - Yeat to Ox	$125.25	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion 6, Dominion portfolios 275, 326, 547, 352
102	126	VEPCO	DOM2032_2 (Components)	Line 567 Terminal Upgrade Chickahominy & Surry	$2.49	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion 6, Dominion 9, Dominion portfolios 275, 326, 547, 352, 705, 848, 474, 616
103	238	VEPCO	DOM2032_2 (Components)	Line 563 Rebuild - Carson to Midlothian	$237.06	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion 6, Dominion portfolios 275, 547, 352, 848, 474
104	243	VEPCO	DOM2032_2 (Components)	Carson Substation Equipment Upgrade	$14.21	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion 6, Dominion portfolios 275, 326, 547, 352, 705, 848, 474
105	245	VEPCO	DOM2032_2 (Components)	Line 5008 Cut-in into Mosby Substation	$16.25	N/A	N/A	N	Not Used. Duplicate Dominion Proposal 2025-W1-253.	N/A
106	247	VEPCO	DOM2032_2 (Components)	New 765/500 kV Switching Station - Vontay	$239.49	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 275, 326, 547, 352, 705, 848, 616

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* The proposal causes new violation(s) that requires additional mitigation.

#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
107	253	VEPCO	DOM2032_2 (Components)	Line 5008 Cut-in into Mosby Substation	$16.25	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion 6, Dominion portfolios 275, 326, 547, 352
108	264	VEPCO	DOM2032_2 (Components)	Line 539 Rebuild - Bristers to Ox	$132.37	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion 9, Dominion portfolios 474, 616
109	275	VEPCO	DOM Regional	HVDC backbone - Portfolio 1A	$4,819.51	N/A	Y	Y*	Shortlisted. Proposal offers high transfer capability and the most throughput when the source is completely within Dominion (south). Resolves all posted 2032 FGs in Dominion and also under the S4+PPL Load scenario. Lowest cost of the 4 submitted HVDC proposals. HVDC component does not create additional short circuit issues already present in Dominion. Significantly lower area impact than 765 kV overhead solution (use of Dominion existing rights-of-way and underground routing of the HVDC line).	PJM 2, PJM 3, PJM 4, PJM 41, PJM 5, PJM 51, PJM 6, PJM 61, PJM 9, PJM 11, Dominion 1,
110	302	VEPCO	DOM2032_2 (Components)	New 500 kV Line - Vontay to Kraken	$265.29	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 848, 547
111	306	VEPCO	DOM2032_2 (Components)	New 500 kV Line - Elmont to Kraken	$180.30	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion portfolio 275
112	311	VEPCO	DOM2032_2 (Components)	Line 578 (Septa-Surry) Terminal Equipment Upgrade	$3.90	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 326, 705
113	321	VEPCO	DOM2032_4	New 765 kV line from Joshua Falls to Durandal	$545.00	N/A	N/A	N	Component overlaps with Transource proposals 331 & 781.	N/A
114	326	VEPCO	DOM Regional	HVDC backbone - Portfolio 1B	$5,009.03	N/A	Y	N	Proposal offers comparable transfer capability to other HVDC proposals. Resolves all posted 2032 FGs in Dominion. Cost is 2nd highest among the 4 submitted HVDC proposals. HVDC component does	N/A

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#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
									not create additional short circuit issues already present in Dominion.	
115	339	VEPCO	DOM2032_2 (Components)	Line 576 Partial Rebuild - North Anna to Vontay	$104.86	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 275, 326, 547, 352, 705, 848, 616
116	352	VEPCO	DOM Regional	HVDC backbone - Portfolio 1D	$5,013.97	N/A	Y	N	Proposal offers comparable transfer capability to other HVDC proposals and the most throughput when the source is 50% at 765 kV West and 50% at 500 kV South. Resolves all posted 2032 FGs in Dominion. Highest cost among the 4 submitted HVDC proposals. HVDC component does not create additional short circuit issues already present in Dominion.	N/A
117	409	VEPCO	DOM2032_2 (Components)	New 500 kV Line Morrisville - Cunningham	$539.55	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolio 616
118	458	VEPCO	DOM2032_2 (Components)	New 500 kV Line - Heritage to Morrisville	$794.27	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolio 616
119	474	VEPCO	DOM Regional	765 kV backbone - Portfolio 2C	$2,273.85	N/A	Y	N	Transfer capability on the lower end of Dominion's other 765 kV proposals when the source is split between West & South and less than TRNSC proposal 331 with Dominion scope. Proposal leaves 1 posted 2032 FG in Dominion. The proposing entity has not built and operated 765 kV facilities.	N/A
120	476	VEPCO	DOM2032_3 (Safety)	Safety Solutions	$1,441.10	N/A	N/A	N	Only for consideration when mixing and matching proposals. Not needed with final proposal selection.	N/A
121	547	VEPCO	DOM Regional	HVDC backbone - Portfolio 1C	$4,904.50	N/A	Y	N	Proposal offers comparable transfer capability to other HVDC proposals but the least throughput when the source is completely within Dominion (south). Resolves all posted 2032 FGs in Dominion. HVDC component does not create additional short circuit issues already present in Dominion.	N/A

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#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
122	557	VEPCO	DOM2032_2 (Components)	New 500 kV Line - Skiffes Creek to Chickahominy	$292.89	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 326, 705
123	616	VEPCO	DOM Regional	500 kV backbone - Portfolio 3	$2,349.26	N/A	Y	N	Proposal offers the lowest transfer capability in comparison with the HVDC proposals and the well-performing 765 kV proposals. Resolves all posted 2032 FGs in Dominion and also under the S4+PPL Load scenario. 500 kV-based proposals are insufficient to support Dominion's continued load growth in the long term.	PJM 8, PJM 10, Dominion 5
124	627	VEPCO	DOM2032_2 (Components)	Line 597 Rebuild - Spotsylvania to Morrisville	$102.05	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 352, 848
125	705	VEPCO	DOM Regional	765 kV backbone - Portfolio 2A	$2,864.73	N/A	Y	N	Transfer capability on the higher end to Dominion's other 765 kV proposals but less than TRNSC proposal 331 with Dominion scope. Proposal does resolve all posted 2032 FGs in Dominion but has 1-500 kV violation under S4+PPL Load scenario. The proposing entity has not built and operated 765 kV facilities.	Dominion 7
126	755	VEPCO	DOM2032_2 (Components)	Line 576 Rebuild - North Anna to Midlothian	$210.99	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion 6, Dominion portfolio 474
127	815	VEPCO	DOM2032_2 (Components)	New HVDC Transmission Link from Heritage to Mosby	$3,790.85	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion 6, Dominion portfolios 275, 326, 547, 352
128	825	VEPCO	DOM2032_2 (Components)	New 500 kV Line - Finneywood to Cunningham	$483.74	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolio 616
129	848	VEPCO	DOM Regional	765 kV backbone - Portfolio 2B	$2,969.05	N/A	Y	N	Transfer capability is highest among Dominion's other 765 kV proposals for both sources but less than TRNSC proposal 331 with Dominion scope. Proposal does resolve all posted 2032 FGs in Dominion and under S4+PPL Load scenario. The proposing entity has not built and operated 765 kV facilities.	Dominion 8

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#	ID	Proposing Entity	Focus Area (s)	Project Title	Submitted Cost ($M)	Meet Reliability Needs In[5]:		Selected Y/N	Rationale	Applicable Scenarios
						2030 Model	2032 Model			
130	868	VEPCO	DOM2032_2 (Components)	Topology Changes at Ladysmith, Kraken, and Carson substations	$10.03	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion 6, Dominion portfolio 474
131	911	VEPCO	DOM2030_1	2030 Solution	$314.91	Y	N/A	Y	Resolves all the posted FGs in 2030	N/A - no competition
132	916	VEPCO	DOM2032_2 (Components)	Line 560 Rebuild - Possum Point to Burches Hill	$3.89	N/A	Y	Y	Component of larger Dominion 2032 regional portfolios.	Dominion 6, Dominion 9, Dominion portfolios 275, 326, 547, 352, 705, 848, 474, 616
133	948	VEPCO	DOM2032_2 (Components)	Line 573 Rebuild - North Anna to Spotsylvania	$103.03	N/A	N/A	N	Component of larger Dominion 2032 regional portfolios.	Dominion portfolios 352, 848
134	975	VEPCO	DOM2030_2	2030 Western Solution	$318.17	N	N/A	N	Additional scope above 2025-W1-911 to address 2032 230 kV violations and potential load growth in Louisa County not considered long-lead. Scope can be handled through the M3 process as load materializes.	N/A - no competition

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Appendix A: Scope of Final Reliability Analysis

PJM seeks technical solutions, also called proposals, to resolve potential reliability criteria violations on facilities identified below in accordance with all applicable planning criteria (PJM, NERC, SERC, RFC, and Local Transmission Owner criteria).

Criterion Applied by PJM for This Proposal Window

- 2030 Summer Baseline Thermal and Voltage N-1 Contingency Analysis
- 2030 Summer Generator Deliverability/IPD Analysis
- 2030 Summer N-1-1 Thermal and Voltage Analysis
- 2030 Winter Baseline Thermal and Voltage N-1 Contingency Analysis
- 2030 Winter Generator Deliverability/IPD Analysis
- 2030 Winter N-1-1 Thermal and Voltage Analysis
- 2030 Light Load Baseline Thermal and Voltage N-1 Contingency Analysis
- 2030 Light Load Generator Deliverability/IPD Analysis
- 2030 Winter/Summer Load Deliverability Analysis
- 2030 Short Circuit Analysis
- AEP FERC Form 715
- AMPT FERC Form 715
- ComEd FERC Form 715
- DEOK FERC Form 715
- DOM FERC Form 715
- FE FERC Form 715
- PPL FERC Form 715
- PSEG FERC Form 715
- ODEC FERC Form 715
- 2032 Summer Generator Deliverability
- 2032 Winter Generator Deliverability
- 2032 Light Load Generator Deliverability

Appendix B: 2025 RTEP Full Project List

Baseline ID / Proposal ID	Transmission Owner / Proposing Entity	Description	Category	Cost Estimate ($M)
b3945	**AEP**	Adjust Mullens 138 kV Cap Bank Vhi setting to 1.04. Adjust protection settings as needed at the station.	In-Zone	0.10
b3946	**AEP**	Adjust existing Jarrett 138/46 kV transformer tap to 1:1 to boost voltages on the sub-transmission network. Estimated Cost: 0.10M Adjust the existing Hartland 46 kV cap bank Vhi setting to 1.04. Estimated Cost: 0.10M	In-Zone	0.10
b3947	**AEP**	Remove cans on existing Baileysville 46 kV Cap Bank to reduce it to 7.2 MVAR.	In-Zone	0.10
b3948	**AEP**	Replace the existing 9.6 MVar 69kV capacitor bank at Johns Creek station with a 17.2 MVar capacitor bank. Circuit switcher "AA" will also be replaced	In-Zone	1.48
b3949	**AEP**	Change XF tap settings at Chauncey station to boost the sub-transmission voltage. Estimated Cost: 0.10M Change the XF tap settings at Huff Creek station to boost the sub-transmission voltage. Estimated Cost: 0.10M	In-Zone	0.10
b3950	**AEP**	Adjust existing Tazewell 138/34.5 kV transformer tap to 1:1 to help mitigate voltages on the 34.5 kV bus.	In-Zone	0.10
b3951	**AEP**	Install a 69kV circuit switcher and a 11.5 MVar capacitor bank at the 69kV bus at Falcon station. Falcon station will need to be expanded to fit the capacitor bank.	In-Zone	3.35
b3952	**AEP**	Replace 138 kV, 3000 A circuit breakers H and H1 with 4000 A circuit breakers.	In-Zone	1.51
b3953	**AEP**	Replace the overdutied New Carlisle 138 kV circuit breaker “XT3" with a 63 kA circuit breaker.	In-Zone	1.02
b3954	**AEP**	Replace overdutied Thomas Road 69 kV circuit breaker XT1 with an interrupting rating of 40 kA.	In-Zone	0.71
b3955	**AEP**	Build ~0.8 mile 138kV double circuit extension from Roberts - Wilson 138kV line into the Milepost 138kV substation. Estimated Cost: 8.33M Install additional 2-138kV circuit breakers at Milepost substation to allow for the Robert - Wilson 138kV line to come into the milepost substation. DICM will need an expansion for additional relaying panels. Estimated Cost: 3.84M.	In-Zone	8.33
b3956	**AEP**	Upgrade 336.4 ACSR 26/7 station conductor at Galloway 69kV. Estimated Cost: 0.18M.	In-Zone	0.18
b3957	**AEP**	At Haviland substation, replace TR#4 with 138/69/12kV 130MVA bank, along with associated equipment such as the Switch (600A), Sub cond 795 AAC 37 Str., and Sub cond 300 MCM CU bus equipment.	In-Zone	5.87
b3958	**AEP**	Perform sag study mitigations on ~1.4 miles of line from str. 8 to str 21 to bring conductor to full 142 MVA SE rating.	In-Zone	0.36
b3959	**AEP**	The line section overloading is roughly ~0.8 miles consisting of 336 ACSR 30/7 Oriole from structure 44 to Lick station. Reconductor limiting line conductor on the Lick-Ironman 69kV circuit to match the rest of the line.	In-Zone	1.10

b3960	**AEP**	Replace the overdutied Tidd 138 kV circuit breaker “DD" with a 63 kA circuit breaker.	In-Zone	0.77
b3961	**AEP**	Replace station terminal equipment: South Side Lima 34.5 kV replace 4/0 AAC, 7-Str. Replace 34.5KV CB-L jumpers and 34.5KV Sterling line riser.	In-Zone	0.08
b3962	**AEP**	Replace the 2 overdutied Roberts 138 kV circuit breakers “CB-H014F2 and CB-H014F5" with 63 kVA circuit breakers.	In-Zone	0.85
b3963	**AEP**	Replace the 3 overdutied OSU 138 kV circuit breakers “102, 103, XT4" with 63 kVA circuit breakers.	In-Zone	2.89
b3964	**AEP**	Replace the overdutied New Proctorville 138 kV circuit breaker “XT3" with a 63 kA circuit breaker.	In-Zone	0.94
b3965	**AEP**	Replace the 5 overdutied Hess Street 138 kV circuit breaker "4, XT1, XT2, XT3, XT4" with 63 kVA circuit breakers	In-Zone	4.60
b3966	**AEP**	Replace the 7 overdutied Bethel Road 138 kV circuit breakers "A, D, E, F, AA, XT1, XT2" with 63 kVA circuit breakers.	In-Zone	3.56
b3967	**AEP**	Replace overdutied Cambridge 34.5 kV circuit breaker F with an interrupting rating of 40 kA.	In-Zone	0.80
b3968	**AEP**	Replace North Newark TR#1 with a 90 MVA bank. DICM expansion will be required. Replace Motor Operators on High side switch “Z”. Install (2) 138kV disconnects on existing 138kV lattice box bay. Install (2) 69kV disconnects on existing 69kV H-frame structure.	In-Zone	6.33
b3969	**AEP**	Replace Findlay Center Transformer #1 with a 138/69/34.5 90 MVA Unit. Replace the TR1 LS Disconnect Switch	In-Zone	3.94
b3970	**AEP**	Rebuild Line: ~2.87 miles Kenton - South Kenton 69kV.	In-Zone	13.19
b3971	**AEP**	At Haviland, Reconductor Bus#1 Sub cond 500 MCM CU 37 Str towards Haviland Bus#2 and Reconductor Haviland Bus#2 500 KCM CU, 37-Str. & 795 KCM AAC, 37-Str. towards Timber SW 138kV.	In-Zone	1.47
b3972	**AEP**	Perform sag study and implement mitigations on 5.55 miles of the East Lima-Haviland 138kV circuit from East Lima to structure 28	In-Zone	6.80
b3974	**AEP**	Replace overdutied Hazard 69 kV circuit breaker R with an interrupting rating of 40 kA.	In-Zone	0.85
b3975.1	**AEP**	Install a new 138/69 kV transformer at Catawba station with a high side Circuit Switcher and a low side Circuit Breaker.	In-Zone	7.77
b3975.2	**AEP**	Replace Huntington Court 69kV Breaker	In-Zone	1.00
b4026	**AEP**	b4026.1.Rebuild approximately 3.5 miles of 69kV line from Platter Creek to Sherwood station. b4026.2.Rebuild approximately 11.1 miles of 69kV line from Sherwood to Auglaize station.	In-Zone	7.17
b4027	**AEP**	b4027.1.Sag Study the Smith Mountain - Moneta 138 kV line. Approximately 14 structures will need to be added in existing Rights of Way to increase the sag along the existing centerline such that the higher requested ampacity can be achieved along the corridor and maintain	In-Zone	9.60

		safety clearances. b4027.2.Replace the 2" IPS Sch. 40 conductor with 4" IPS Sch. 40 conductor at Smith Mountain station on the Smith Mountain-Rock Castle branch allowing the branch to exceed a summer emergency rating of 1765 A.		
b4028	**AEP**	Rebuild 2.3 miles of the Mound Street-St Clair Avenue 138kV UG line with 5000 KCM XLPE cable.	In-Zone	41.59
b3976.1	**APS**	At Bedington: • Install foundation, conduit, and grounding for new equipment. • Install (3) 138 kV surge arresters. • Replace (1) existing 138 kV CVT with (3) 138 kV CVT's • Replace (1 Lot) of limiting conductor. • Install (1 Lot) of cables and grounding • Replace (1) existing 138 kV Eagle line terminal relay panel and breaker failure, with (1) standard line relaying panel consisting of (1) SEL-421, (1) SEL-411L, and (1) SEL-451	In-Zone	1.96
b3977.1	**APS**	At Meadow Brook: • Install conduit and grounding for new equipment. • Install (1) lot of cables and grounding for new equipment. • Replace (1) 138 kV wave trap on the West Winchester line terminal	In-Zone	0.36
b4001.1	**APS**	Construct the McCanns Rd 138 kV Switching Station and interconnect the existing Redbud – West Winchester 138 kV Line and Bartonville – Stephenson 138 kV Line. Install OPGW for the static & install one new SCADA controlled 2000 A disconnect with whips	In-Zone	18.83
b4001.2	**APS**	Reconductor new Redbud McCanns Rd 138 kV Line with 795 KCMIL 45/7 ACSS for 0.5 miles from Redbud 138 kV Substation to Str. 175 of the existing Redbud - West Winchester 138 kV Line	In-Zone	5.04
b4002.1	**APS**	Rebuild approximately 1.9 miles of 115 kV line with larger conductor. Install OPGW for the static & install one new SCADA controlled 2000 A disconnect with whips	In-Zone	9.02
b4002.2	**APS**	Adjust the relay settings at Penn Mar, Garrett, and Deep Creek substations to accommodate the new ratings and impedance changes associates with the Garrett- Garrett Tap 115 kV Line rebuild	In-Zone	0.13
b3978.1	**ATSI**	• Reconductor 1 span of transmission line outside Ottawa Substation • Reconductor 1 span of transmission line outside Lakeview Substation	In-Zone	1.41
b3978.2	**ATSI**	Replace Limiting Terminal Equipment at Lakeview Substation: • (2) Thermal Relays • (2) 138 kV Disconnect Switches Limiting Substation Conductor	In-Zone	-

b3979.1	**ATSI**	Abbe-Johnson No.1 69 kV Line (Johnson - Elyria Water P.C.): - Reconductor one span of transmission line between Johnson Substation and Elyria Water P.C. - Replace (1) 69 kV Disconnect Switch - Upgrade (1) Thermal Relay - Modify Elyria Loop Tap configuration - Install (1) 69 kV Disconnect Switch	In-Zone	3.22
b3979.2	**ATSI**	Abbe-Johnson No.1 69 kV Line (Elyria Water P.C.-Spring Valley): - Replace (1) 69 kV Disconnect Switch	In-Zone	-
b3979.3	**ATSI**	Abbe-Johnson No.1 69 kV Line (Spring Valley-Lorain College) - Replace (2) 69 kV disconnect switches	In-Zone	-
b3980.1	**ATSI**	Bellevue-Groton 69 kV Line: - Rebuild 4 miles of the Bellevue - Groton 69 kV Line	In-Zone	10.10
b3980.2	**ATSI**	Bellevue Substation: - Replace (3) 69 kV disconnect switches - Revise relay settings - Replace limiting substation conductor	In-Zone	-
b3980.3	**ATSI**	Groton Substation: - Revise relay settings	In-Zone	-
b4022.1	**BGE**	Greene Street – Constitution St 115 kV Line - Replace approx. 2 miles per circuit of existing HPFF cables with new 3500 KCM CU LPP HPFF cables.	In-Zone	58.49
b3943.1	**ComEd**	Install a new 345/138 kV transformer TR 84, and associated equipment at State Line substation. Install two 345 kV circuit breakers, one 138 kV circuited breaker and associated equipment, also replace the 138 kV BT 732 circuit breaker at State Line substation.	In-Zone	20.81
b3981.1	**ComEd**	Install a new 345/138 kV TR83 at Elk Grove and associated equipment. Install three 138 kV and one 345 kV circuited breakers and associated equipment at Elk Grove substation.	In-Zone	28.96
b3982.1	**ComEd**	Disconnect and remove the 34 kV tertiary cap bank on the Cherry Valley 345/138 kV transformer TR 82 and install a 138 kV bus 3 cap bank and associated equipment at Cherry Valley substation.	In-Zone	7.73
b4006.1	**ComEd**	Install 765/345 kV TR 91 and associated 765 kV and 345 kV circuit breakers at Wilton Center.	In-Zone	45.81
b4025.1	**ComEd**	Build a new 28 mile transmission 138 kV line from Mendota to Sandwich substations.	In-Zone	159.57
b4025.2	**ComEd**	Convert Mendota straight bus to a ring bus by installing four new 138 kV circuit breakers.	In-Zone	10.37
b4025.3	**ComEd**	Install 138 kV circuit breakers and associated equipment at Sandwich substation.	In-Zone	1.95
b3940.1	**DEOK**	Currently two DEOK Supplemental Projects that are planned at Woodsdale Substation: s3447.1 & s3601.1. DEOK will convert all of s3447.1 & parts of s3601.1 to address these reliability violations. The 345 kV ring bus at Woodsdale Substation will be reconfigured into a 345 kV breaker-and-half yard to improve substation reliability. Additionally, all 2000A	In-Zone	36.82

		equipment at Woodsdale Substation will be upgraded to 3000A to increase substation capacity.		
b3944.1	**DEOK**	Rebuild the McGuffey to Locust 69 kV line (~1.35 miles) with 954ACSR Rail Conductor and OPGW. The (54) wood poles will be replaced with light duty, steel poles. The rebuild will take place in the existing right-of-way and the distribution underbuilds will also be restored. Conductor drops going into McGuffey and Locust substations will be replaced with 954 AAC conductor.	In-Zone	5.32
b4003.1	**DEOK**	Rebuild the College Corner – Collinsville 138 kV line from the OH/IN State Line to Collinsville Substation (~11.90 miles).Rebuild the 138 kV line College Corner – Trenton with common tower section (~ 11.90 miles) (2025-W1-156). Relay settings will need to be updated at DEOK's Collinsville & Trenton Substations and at the AEP's College Corner Substation (b4003.1).	In-Zone	45.11
b4030.1	**DOM**	Wreck and rebuild 230kV line 259 Chesterfield to Basin from structure 259/1A (Basin Substation) to 259/106A (Chesterfield Substation), with portions of line 2065, line 282 and line 208 to be rebuilt along the same structures as line 259.	In-Zone	100.31
b4030.2	**DOM**	Reconductor 230 kV Lines 211 and 228 from structure 211/19 (228/19) to structure 211/34 (228/34) for approximately 2.75 miles in Chesterfield County, VA.	In-Zone	6.34
b4030.3	**DOM**	Uprate all Line #259 terminal equipment, line leads, and bus at Basin substation to be rated to 4000A.	In-Zone	1.96
b4030.4	**DOM**	Uprate all Line #259 terminal equipment, line leads, and bus at Chesterfield substation to be rated to 4000A.	In-Zone	3.51
b4030.5	**DOM**	Install new 230kV circuit breaker at Chesterfield Substation.	In-Zone	1.50
b4030.6	**DOM**	This project serves to rebuild 500kV Line 565 from Suffolk Substation to structure 565/253 outside of Yadkin Substation in Suffolk and Chesapeake Counties, VA.	In-Zone	68.86
b4030.7	**DOM**	Uprate Line 565 equipment at Suffolk Sub to 5000A.	In-Zone	5.23
b4030.8	**DOM**	Uprate Line 565 equipment at Yadkin Sub to 5000A.	In-Zone	0.24
b4030.9	**DOM**	Wreck and rebuild 230kV Line 2028 from structure 2028/1A (I5/1A) (Charlottesville Substation) to 2028/176 (Fork Union Substation).	In-Zone	106.49
b4030.10	**DOM**	This project serves to rebuild 230kV Line 2193 from structure 2193/171 (Fork Union Substation) to 2193/186A (Bremo Substation).	In-Zone	10.81
b4030.11	**DOM**	Upgrade terminal equipment at Charlottesville substation to support new line conductor rating.	In-Zone	3.35
b4030.12	**DOM**	Upgrade terminal equipment at Fork Union substation to support new line conductor rating.	In-Zone	2.24

b4030.13	**DOM**	Upgrade Switches, breaker, CT and Leads at Fork Union substation.	In-Zone	1.60
b4030.14	**DOM**	Uprate Line 2193 and all associated equipment to 4000A at Bremo substation.	In-Zone	1.80
b4030.15	**DOM**	Upgrade disconnect switches 202809 and 202806 at Mt. Eagle Tap to 4000 A.	In-Zone	0.65
b4030.16	**DOM**	Reset relays at Sycamore Springs Substation	In-Zone	0.04
b4031.1	**DOM**	Wreck and rebuild line #5 using conductor with minimum summer rating of 393 MVA	In-Zone	5.00
b4004.1	**DPL**	Upgrade existing 1590 ACSR stranded bus at Claymont substation to increase the rating on the Claymont – Linwood 230 kV circuit.	In-Zone	0.03
b4023.1	**DPL**	Upgrade existing 500 & 750 SDCU on Vienna side of Vienna - Loretto facility with 2x954 ACSR. Replace 3 - 138kV 600A disconnect switches with 2000A rated units.	In-Zone	1.81
b4024.1	**DPL**	Rebuild existing Sharptown - Laurel 69kV circuit utilizing 954 ACSR "Rail" 45/7 conductor.	In-Zone	36.55
b4024.2	**DPL**	Upgrade breaker, rigid bus, relay, and disconnect switch at Laurel Substation on the Sharptown - Laurel Facility.	In-Zone	1.70
b3987.1	**JCPL**	East Flemington Substation - Overduty Breakers - Replace 34.5 kV circuit breakers C731, V724, A729, TC, H736, AV, YH, and Y727 with 40 kA, 3000 A breakers	In-Zone	3.46
b3986.1	**JCPL**	Windsor Substation Overduty Breakers - Replace 34.5 kV Breakers KQ, Q143, 324-B-25 (J136-1), 324-B-22 (J2), 324-B-31 (MG), 324-B-34 (K137-1), 324-B-19 (BK2), 324-B-28 (M65-1), 324-B-16 (G215-1), BK4, 324-B-7 (H4), 324-B-8 (H60), 324-B-54 (BK5_BBUS), 324-B-51 (BK5_ABUS).	In-Zone	8.36
b4013.1	**JCPL**	Colts Neck Substation: Install 34.5 kV Capacitor	In-Zone	2.69
b4014.1	**JCPL**	Sussex Substation: Install 34.5 kV Capacitor	In-Zone	2.28
b4015.1	**JCPL**	At Long Branch Substation replace the Allenhurst 34.5 kV V74 Line Terminal disconnect switch	In-Zone	0.53
b4016.1	**JCPL**	b4016.1 - Rebuild the Jamesburg - Monroe 34.5 kV N40 Line from Jamesburg Substation to Monroe Junction Substation, approximately 1.2 miles. b4016.2 - Monroe Substation: Upgrade Terminal Equipment b4016.3 - Costco Substation: Install New Relay b4016.4 - Rebuild a section of the Englishtown - Monroe Junction 34.5 kV H34 Line that is mutual with the Costco - Monroe Junction 34.5 kV N40 Line near Monroe Junction Substation, approximately 0.4 miles.	In-Zone	6.36
b4017.1	**JCPL**	Great Adventure Substation Expansion b4017.2 - Great Adventure 34.5 kV Breaker-and-a-half Substation b4017.1 - Van Hiseville Substation: Upgrade Protection b4017.3 - Windsor: Upgrade 34.5 kV Relay Settings b4017.4 - Rebuild the Cookstown – Windsor 34.5 kV H60 line from Cookstown Sub to Str #58 as double circuit, approximately 4.7 miles. Terminate new line into Cookstown Substation. b4017.5 - Rebuild the Cookstown – Van Hiseville 34.5 kV	In-Zone	61.68

		V22 line from Str #91445 to Greater Adventure Substation as double circuit, approximately 5.2 miles. b4017.6 - Cookstown: Install New 34.5 kV Line Terminal		
b4018.1	**JCPL**	Rebuild Metedconk Substation and Vermont Avenue Substation b4018.7 - Reconfigure 34.5 kV switchyard at Metedeconk Substation to a breaker-and-a-half yard b4018.8 - Build a new 34.5 kV Ring Bus switching station (Adjacent to Vermont Avenue Substation) b4018.5 - Metedconk Substation: Add Breakers and Switches for new line terminals b4018.2 - South Lakewood Substation: Relay Upgrade b4018.3 - Vermont Avenue Substation: Terminate 34.5 kV lines b4018.4 - Larrabee Substation: Reconductor and Reroute Vermont Avenue Lines b4018.6 - Leisure Village Substation: Relay Upgrade b4018.9 - Loop the Leisure Village-South Lakewood 34.5 kV F214 line into the new 34.5 kV ring bus station, approximately 0.1 miles. b4018.10 - Install new hardware and wire on the Herbertsville - Larrabee 34.5 kV Q43 line to support the rebuild project of approximately 2.6 miles. b4018.11 - Install new hardware and wire on the Larrabee - Point Pleasant No. 2 34.5 kV R44 line to support the rebuild project, approximately 2.6 miles. b4018.12 - Install a new tie line from the existing Vermont Avenue Substation to the new 34.5 kV ring bus station, approximately 0.1 miles. b4018.13 - Install a new tie line from the existing Vermont Avenue Substation to the new 34.5 kV ring bus station, approximately 0.1 miles.	In-Zone	65.74
b4032.1	**JCPL**	At Montville Substation establish a new 500 kV ring bus by looping the Hopatcong – Roseland 500 kV Line, install a new 500/230 kV transformer, and converting the existing 230 kV yard to a 230 kV breaker-and-a-half layout.	In-Zone	66.83
b4011.1	**METED**	b4011.3 - Rebuild the Jackson - North Hanover 115 kV 968 Line as six-wire configuration, approximately 13.2 miles. b4011.1 - North Hanover Substation: Install Capacitor and Replace Terminal Equipment b4011.2 - Jackson Substation: Replace Terminal Equipment	In-Zone	61.79
b3942.1	**PECO**	Replace existing and install new relays at Chichester 230 kV substation to increase the rating on Chichester – Trainer 230 kV circuit.	In-Zone	0.69
b3988.1	**PENELEC**	Warren Substation Overduty Breaker - Replace 115 kV NO.1 XFMR Breaker	In-Zone	0.96

b4012.1	**PENELEC**	Belleville – Center Union 46 kV Line - Replace structures and use 795 ACSR 26/7 conductor on spans D-356 through D-360	In-Zone	2.72
b4029.1	**PPL**	Expand existing Slykerville 230 kV Station to add a 500 kV yard. Build a new Kelayres 500 kV breaker and a half substation with 3 bays, six 500 kV 4,000 amp circuit breakers, and twelve 500 kV 4,000 amp MODs. Add two 890 MVA 500/230 kV transformers at Kelayres (Slykerville 230 kV Station in Supplemental Project s3549.2 would be renamed Kelayres with the addition of this 500 kV yard). Future site expandability to accommodate up to 5 breaker and a half bays in the 500 kV yard (planned to accommodate all lines from this Developer's various proposals that terminate into Kelayres in this window; proposals 2025-W1-769, 2025-W1-918, 2025-W1-855 or 2025-W1-317, and 2025-W1-434 or 2025-W1-946).	In-Zone	72.92
b4029.2	**PPL**	Add one 500 kV 4,000 amp circuit breaker, two 500 kV 4,000 amp MODs, and a Kelayres 890 MVA 500/230 kV T3 transformer.	In-Zone	29.02
b4029.3	**PPL**	Bifurcate the Sunbury - Susquehanna 500 kV line. From the bifurcation point, build a 13-mile long extension to Kelayres, resulting in a Susquehanna - Kelayres 500 kV line. For this line extension, construct with Triple-Bundled 1590 kcmil 45/7 ACSR conductor. Double circuit this line with the Nescopeck - Tomhicken 230 kV line on existing PPL ROW. This line would replace the 12-mile Nescopeck - Harwood 230 kV line (a line already being constructed at 500 kV design standards in the Supplemental Project it is associated with. Construct approximately 1 additional mile of new 500 kV line between Harwood Substation and Kelayres Substation to complete the line route into Kelayres.	In-Zone	20.87
b4029.4	**PPL**	Bifurcate the Sunbury - Susquehanna 500 kV line bringing both segments into a new Kelayres 500 kV Station on separate towers. From the bifurcation point, build a 24-mile long extension to Kelayres, resulting in a Sunbury - Kelayres 500 kV line. For this line extension, construct with Triple-Bundled 1113 kcmil 54/19 ACSS conductor following a path that is approximately 75% PPL EU Future-Use ROW, and 25% greenfield.	In-Zone	133.64
b4029.5	**PPL**	Susquehanna - Tomhicken 230 kV 1 & 2 DCT line reconductor: Reconduct both circuits on the existing DCT tower with ACCC 1036/87/392 (2045 kcmil) conductor.	In-Zone	29.73
b4029.6	**PPL**	Upgrade the existing Monroe 230/138 kV Substation to a 2-bay breaker and a half on the 230 kV side (with space to accommodate 2 future bays), and a double-bus double-breaker design on the 138 kV side. To accomplish this expansion, add 2 full breaker and a half 230 kV bays, 6 new 230 kV 3,000 amp circuit breakers and 12 230 kV 3,000 amp MODs to complete the 230 kV yard	In-Zone	30.95

		expansion, and expand the 138 kV by creating 2 double-bus double-breaker bays, adding 3 new 138 kV 2,000 amp circuit breakers, and 6 138 kV 2,000 amp MODs. Add a 2nd 230/138 kV transformer matching the size of the existing transformer (340 MVA).		
b4029.7	**PPL**	Re-termination of the Monroe - Fox Hill and Monroe - Martins Creek 230 kV lines into their new locations in the upgraded 230 kV breaker and a half yard.	In-Zone	8.27
b4029.8	**PPL**	Address End of Life concerns by rebuilding the existing 38-mile Juniata - Sunbury 500 kV line using single circuit design.	In-Zone	162.89
b4029.9	**PPL**	The Montour - Glen Brook 230 kV 1 & 2 DCT line is 24.9 miles long. For this project, the Developer will reconduct 0.70 miles of this route with ACCC 1036/87/392 (2045 kcmil) conductor. Another 5.2 miles of the route will be rebuilt with new steel pole structures and double-bundle 1590 ACSR conductor. The remaining 19 miles of the route is being rebuilt and reconductored as part of Supplemental Project s2373 to address End of Life for CORTEN structures.	In-Zone	37.15
b4029.10	**PPL**	At Glen Brook 230/69 kV Substation, replace ten 230 kV 2,000 amp MODs with 230 kV 3,000 amp MODs.	In-Zone	2.50
b4029.11	**PPL**	At the Jenkins 230/69 kV Substation, re-terminate the Jenkins 230/69 kV T2 and T4 transformers into bay positions in the 69 kV and 230 kV yards respectively. Add one new 230 kV 3,000 amp circuit breaker, and two 230 kV 3,000 amp MODs to accommodate the re-termination of the T4 transformer into the east bay position in the existing 230 kV breaker and a half Bay 2. Add two new 69 kV 3,000 amp circuit breakers, and 4 69 kV 3,000 amp switches to accommodate the re-termination of the T2 transformer into a new 69 kV double-bus double-breaker Bay 4.	In-Zone	8.71
b4029.12	**PPL**	Re-terminate high side of T4 transformer into Bay 2E of the 230 kV yard.	In-Zone	1.46
b4029.13	**PPL**	Glen Brook - Susquehanna T10 1&2 DCT line reconductor: Glen Brook - Susquehanna T10 1 & 2 DCT line reconductor and Susquehanna T10 - Susquehanna # 3 line: On the Glen Brook - Susquehanna T10 1 & 2 (3.72 miles) lines, Supplemental Project s2373 has a scope that involves a line rebuild and reconductoring with double-bundle 1590 ACSS for 3.02 miles of the route. This project (2025-W1-588) scope involves reconducting the remaining 0.70 miles of the route with ACCC 1036/87/392 (2045 kcmil) conductor.	In-Zone	2.63
b4029.14	**PPL**	Susquehanna T10 - Susquehanna 230 kV # 3 line: Construct a new Susquehanna T10 - Susquehanna 230 kV # 3 line (approximately 2.7 miles) using an approximately 75% brownfield route (an unused circuit	In-Zone	14.33

		position on transmission line towers associated with presented M3 Solution PPL-2025-0003), with a short greenfield segment near the Susquehanna station.		
b4029.15	**PPL**	Construct a new breaker and a half bay at Susquehanna T10 230 kV Station and initially populate with two 230 kV 3,000 amp circuit breakers and four 230 kV 3,000 amp MODs, leaving a position for a future breaker to be added.	In-Zone	6.62
b4029.16	**PPL**	Reuse existing bay and upgrade to 3,000 amps. Existing bay at Susquehanna vacated by the former Sunbury line. Inspect all facilities, refurbish, and insure bay rating of 3,000 amps.	In-Zone	1.24
b4029.17	**PPL**	At Glen Brook 230/69 kV Substation, replace ten 230 kV 2,000 amp MODs with 230 kV 3,000 amp MODs.	In-Zone	2.50
b4029.18	**PPL**	Replace 6 230kV breakers at Susquehanna	In-Zone	4.50
b4005.1	**PSEG**	Replace the existing 1590 ACSR single conductor on the Roseland to Livingston 230kV line with a 1590 ACSS single conductor.	In-Zone	4.87
b4005.2	**PSEG**	Replace the existing 1590 ACSR single conductor on the Roseland to Laurel Ave 230kV line with a 1590 ACSS single conductor.	In-Zone	5.06
b4019.1	**PSEG**	Replace/update riser structure, pot head, cable and sweeps as required to accept high-capacity conductor. Rebuild duct banks as needed	In-Zone	1.05
b4019.2	**PSEG**	Replace/update riser structure, pot head, cable and sweeps as required to accept high-capacity conductor. Rebuild duct banks as needed.	In-Zone	1.35
b4019.3	**PSEG**	Reconductor 69kV line from Rahway to Roselle Station. High capacity conductor to be rated at least 1100 Summer Normal and 1200 Summer Emergency. 2 miles of OH wreck and rebuild 2.5 miles of OH new construction 0.2 miles of UG Replace fiber as required.	In-Zone	27.00
b4020.1	**PSEG**	Replace/update pole riser, pot head riser, associated sweeps and cable as required to accept high-capacity conductor. Replace LP41K relays with new primary SEL-311L and backup SEL-411L relays Replace duct banks as required.	In-Zone	1.20
b4020.2	**PSEG**	Replace existing OH wire with high capacity conductor. Replace LP10K relays with new primary SEL-311L and backup SEL-411L relays	In-Zone	0.15
b4020.3	**PSEG**	Gloucester-Nicholson 69kV Line	In-Zone	9.45
b4021.1	**PSEG**	Upgrade the Pfisterer connection inside of Prospect Park to accept new high-capacity cable, modify conduit as needed	In-Zone	0.67
b4021.2	**PSEG**	Upgrade the Pfisterer connection inside of North Paterson to accept new high-capacity cable, reconfigure duct banks in North Paterson to accommodate new high-capacity cable	In-Zone	1.17

b4021.3	**PSEG**	?Reconductor 69kV line from Prospect Park to North Paterson with a high-capacity conductor, including installing new composite poles and manholes along the line as required.	In-Zone	13.87
b4033.1	**ODEC**	1. Tasley Reactive Compensation Improvements: Replace and add additional cap banks	In-Zone	-
b4033.2	**ODEC**	2. Tasley Station: Converting to Breaker and a Half	In-Zone	22.58
b4033.3	**ODEC**	3. Kellam Reactive Compensation Improvements: Replace and add additional cap banks	In-Zone	2.52
b4033.4	**ODEC**	4. Cheriton Reactive Compensation Improvements: Replace and add additional cap banks	In-Zone	1.19
b4033.5	**ODEC**	5. Belle Haven Reactive Compensation Improvements: Replace and add additional cap banks	In-Zone	1.14
b4033.6	**ODEC**	6. Oak Hall Substation Expansion: Expand/reconfigure Oak Hall substation to accommodate the new line	In-Zone	32.46
b4033.7	**ODEC**	7. Replace 69 kV Line 6790: Rebuild 69kV line from Oak Hall – Hallwood – Tasley.	In-Zone	29.81
b4033.8	**ODEC**	8. Build new 69 kV Line 6786: Construct new 69kV transmission line from Oak Hall – Tasley in existing ROW.	In-Zone	41.74
b4033.9	**ODEC**	9. Tasley Line 6721 and 6778 Relay Upgrades: Upgrade relays at Tasley an Oak Hall	In-Zone	-
b4033.10	**ODEC**	10. Kellam – Line 6721 Relay Upgrade: Upgrade relays at Kellam	In-Zone	0.58
PEPCO Cluster (2025-W1-919)	**PEPCO**	New 500 kV substation (Dickerson) by cutting into the Aspen - Rocky Point 500 kV line installing two new 500/230kV transformers.	In-Zone	257.61
PEPCO Cluster (2025-W1-851 component)	**PEPCO**	Replace 2- Breakers, 1- Bushing CT, 1- Stranded Bus Conductor, 4- Disconnect Switches at Brighton 500 kV Substation	In-Zone	8.00
PEPCO Cluster (Additional upgrade)	**PEPCO**	Replace 1- Stranded Bus Conductor, 3- Thermal Relay, 2- Disconnect Switches at Quince Orchard 230 KV Substation	In-Zone	3.75
PEPCO Cluster (Additional upgrade)	**PEPCO**	Replace Bells Mill T3 XF with new PEPCO standard 260 MVA 230/138 kV Transformer	In-Zone	12.80
570	**TRNSRC**	Greentown Station Expansion	Regional Cluster	45.29
570	**TRNSRC**	Greentown - Teddy 765 kV Line	Regional Cluster	633.79
570	**TRNSRC**	Teddy 765/345 kV Station	Regional Cluster	228.33
570	**TRNSRC**	Teddy - Marysville 765 kV	Regional Cluster	176.46
570	**TRNSRC**	Marysville Station Upgrade	Regional Cluster	281.83
570	**TRNSRC**	Teddy - Beatty DCT 345 kV	Regional Cluster	175.19

570	**TRNSRC**	Cole Station Upgrade	Regional Cluster	1.00
570	**TRNSRC**	Beatty Station Upgrade	Regional Cluster	3.86
570	**TRNSRC**	Guernsey Station Upgrade	Regional Cluster	5.54
570	**TRNSRC**	Guernsey - Conesville 765 kV	Regional Cluster	166.17
570	**TRNSRC**	West Millersport Station Upgrade	Regional Cluster	118.11
570	**TRNSRC**	Bixby - West Millersport 345 kV	Regional Cluster	12.00
570	**TRNSRC**	Bixby Station Upgrade	Regional Cluster	0.08
570	**TRNSRC**	West Millersport - Adkins 765 kV	Regional Cluster	201.83
570	**TRNSRC**	West Millersport - Kirk 345 kV	Regional Cluster	24.30
570	**TRNSRC**	Hyatt - Maliszewski Double Circuit 345 kV	Regional Cluster	34.13
570	**TRNSRC**	Hayden - Cole 345 kV	Regional Cluster	37.87
570	**TRNSRC**	Newark Center Station Upgrade	Regional Cluster	0.70
570	**TRNSRC**	Ohio Central Extension	Regional Cluster	3.50
570	**TRNSRC**	Allen Station Upgrade	Regional Cluster	0.05
570	**TRNSRC**	Roberts - Kenny 138kV Rebuild	Regional Cluster	66.36
570	**TRNSRC**	Wilson - Fifth Avenue 138kV line	Regional Cluster	18.26
570	**TRNSRC**	Bethel Station Upgrade	Regional Cluster	0.50
570	**TRNSRC**	OSU Station Upgrade	Regional Cluster	0.50
570	**TRNSRC**	Hess 138 kV Station Upgrade	Regional Cluster	0.70
570	**TRNSRC**	South Kenton Station	Regional Cluster	0.11
570	**TRNSRC**	Meadow Lake Station Circuit Breaker	Regional Cluster	4.00
570	**TRNSRC**	Teddy - Cole 345 kV #2 Circuit	Regional Cluster	21.63
570	**TRNSRC**	Conesville Station Expansion	Regional Cluster	140.97
570	**TRNSRC**	Conesville - West Millersport 765 kV	Regional Cluster	248.98
570	**TRNSRC**	Adkins Station Expansion	Regional Cluster	102.98
570	**TRNSRC**	Ohio Central Station Upgrade	Regional Cluster	3.00
570	**TRNSRC**	Kammer Dumont Structures	Regional Cluster	2.00

570	**TRNSRC**	Ohio Central - Fostoria Central Structure	Regional Cluster	1.00
570	**TRNSRC**	Gavin - Marysville Structures	Regional Cluster	3.00
570	**TRNSRC**	East Springfield - London Structures	Regional Cluster	1.00
570	**TRNSRC**	Beatty - Hayden Structures	Regional Cluster	3.00
237	**NXTMID**	B-20-A) Kammer - Buttermilk Falls 765kV	Regional Cluster	694.72
237	**NXTMID**	B-21-A) Buttermilk Falls - Mountain Stone 765kV	Regional Cluster	633.35
237	**NXTMID**	B-24-A) Mountain Stone-Juniata 500kV	Regional Cluster	5.32
237	**NXTMID**	B-06-A) Mountain Stone 765kV Substation	Regional Cluster	166.94
237	**NXTMID**	B-19-B) Buttermilk Falls 765kV Substation	Regional Cluster	170.29
237	**NXTMID**	B-30-A) South Bend - Keystone 500kV terminal equipment upgrade	Regional Cluster	4.68
237	**NXTMID**	B-32-A) Keystone-Juniata 500 kV terminal equipment upgrade	Regional Cluster	4.68
237	**NXTMID**	B-33-A) Mountaineer-Belmont 765 kV terminal equipment upgrade	Regional Cluster	6.75
237	**NXTMID**	B-01-A) Kammer substation upgrade	Regional Cluster	13.50
237	**NXTMID**	B-07-A) Juniata substation upgrade	Regional Cluster	9.95
237	**NXTMID**	B-31-A) Sunbury 500 kV substation upgrades	Regional Cluster	4.98
237	**NXTMID**	B-34-A) Conemaugh circuit breaker upgrades	Regional Cluster	23.42
9	**VEPCO**	Line 576 Rebuild - Vontay to Midlothian	Regional Cluster	102.70
9	**VEPCO**	Midlothian Equipment Upgrade	Regional Cluster	2.16
117	**VEPCO**	Line 539 Rebuild - Yeat to Ox	Regional Cluster	122.66
117	**VEPCO**	Ox Substation Terminal Equipment Upgrade	Regional Cluster	2.25
117	**VEPCO**	Yeat Substation Terminal Equipment Upgrade	Regional Cluster	0.33
126	**VEPCO**	Chickahominy Substation Line Terminal Upgrade (993592 Alt_1)	Regional Cluster	0.03
126	**VEPCO**	Surry Substation Line Terminal Upgrade (993592 Alt_1)	Regional Cluster	2.46
238	**VEPCO**	Line 563 Rebuild - Carson to Midlothian (99-3597)	Regional Cluster	228.48
238	**VEPCO**	Carson Terminal Equipment Uprate (993597)	Regional Cluster	6.15
238	**VEPCO**	Midlothian Terminal Equipment Uprate (993597)	Regional Cluster	2.43
243	**VEPCO**	Carson Substation 500 KV Equipment Upgrade - Alternative 1	Regional Cluster	12.44

247	**VEPCO**	New 765/500kV Switching Station - Vontay	Regional Cluster	217.76
247	**VEPCO**	500 kV Cut-In - Cunningham to Elmont	Regional Cluster	6.69
247	**VEPCO**	500 kV Cut-In - North Anna to Midlothian	Regional Cluster	6.69
247	**VEPCO**	765 kV Cut-In - Joshua Falls to Yeat	Regional Cluster	8.36
247	**VEPCO**	Cunningham substation Terminal Equipment Upgrade	Regional Cluster	9.20
253	**VEPCO**	Line 5008 Cut-in to Mosby Substation	Regional Cluster	6.69
253	**VEPCO**	Mosby Substation Equipment Upgrade	Regional Cluster	9.56
306	**VEPCO**	New 500 kV Line - Elmont to Kraken	Regional Cluster	147.85
306	**VEPCO**	Elmont Substation Line Terminal	Regional Cluster	6.04
306	**VEPCO**	Kraken Substation Line Terminal	Regional Cluster	8.61
339	**VEPCO**	Line 576 Rebuild - North Anna to Vontay	Regional Cluster	102.70
339	**VEPCO**	North Anna Equipment Upgrade	Regional Cluster	2.16
815	**VEPCO**	New HVDC Line - Heritage to Mosby_Alt 1 (Primary Alternative)	Regional Cluster	2,271.70
815	**VEPCO**	Heritage Substation – HVDC Converter Station Scope	Regional Cluster	773.73
815	**VEPCO**	Mosby Substation - HVDC Converter Station Scope	Regional Cluster	745.42
916	**VEPCO**	Line 560 Rebuild - Possum Point to Burches Hill	Regional Cluster	3.49
916	**VEPCO**	Possum Point Substation Equipment Upgrade	Regional Cluster	0.40
916	**VEPCO**	Burches Hill Substation Equipment Upgrade	Regional Cluster	10.31
b3800.313	**VEPCO**	Yeat - Vint Hill Uprate (Scope change for Southern regional cluster)	Regional Cluster	-
TBD	**VEPCO**	Breaker replacement: Clifton, Elmont, Celestial	Regional Cluster	13.00
Total				**11,642.64**

Appendix C: 2025 RTEP Regional Cluster Project List

Baseline ID / Proposal ID	Transmission Owner / Proposing Entity	Description	Category	Cost Estimate ($M)
570	**TRNSRC**	Greentown Station Expansion	Regional Cluster	45.29
570	**TRNSRC**	Greentown - Teddy 765 kV Line	Regional Cluster	633.79
570	**TRNSRC**	Teddy 765/345 kV Station	Regional Cluster	228.33
570	**TRNSRC**	Teddy - Marysville 765 kV	Regional Cluster	176.46
570	**TRNSRC**	Marysville Station Upgrade	Regional Cluster	281.83
570	**TRNSRC**	Teddy - Beatty DCT 345 kV	Regional Cluster	175.19
570	**TRNSRC**	Cole Station Upgrade	Regional Cluster	1.00
570	**TRNSRC**	Beatty Station Upgrade	Regional Cluster	3.86
570	**TRNSRC**	Guernsey Station Upgrade	Regional Cluster	5.54
570	**TRNSRC**	Guernsey - Conesville 765 kV	Regional Cluster	166.17
570	**TRNSRC**	West Millersport Station Upgrade	Regional Cluster	118.11
570	**TRNSRC**	Bixby - West Millersport 345 kV	Regional Cluster	12.00
570	**TRNSRC**	Bixby Station Upgrade	Regional Cluster	0.08
570	**TRNSRC**	West Millersport - Adkins 765 kV	Regional Cluster	201.83
570	**TRNSRC**	West Millersport - Kirk 345 kV	Regional Cluster	24.30
570	**TRNSRC**	Hyatt - Maliszewski Double Circuit 345 kV	Regional Cluster	34.13
570	**TRNSRC**	Hayden - Cole 345 kV	Regional Cluster	37.87
570	**TRNSRC**	Newark Center Station Upgrade	Regional Cluster	0.70
570	**TRNSRC**	Ohio Central Extension	Regional Cluster	3.50
570	**TRNSRC**	Allen Station Upgrade	Regional Cluster	0.05
570	**TRNSRC**	Roberts - Kenny 138kV Rebuild	Regional Cluster	66.36
570	**TRNSRC**	Wilson - Fifth Avenue 138kV line	Regional Cluster	18.26

Baseline ID / Proposal ID	Transmission Owner / Proposing Entity	Description	Category	Cost Estimate ($M)
570	**TRNSRC**	Bethel Station Upgrade	Regional Cluster	0.50
570	**TRNSRC**	OSU Station Upgrade	Regional Cluster	0.50
570	**TRNSRC**	Hess 138 kV Station Upgrade	Regional Cluster	0.70
570	**TRNSRC**	South Kenton Station	Regional Cluster	0.11
570	**TRNSRC**	Meadow Lake Station Circuit Breaker	Regional Cluster	4.00
570	**TRNSRC**	Teddy - Cole 345 kV #2 Circuit	Regional Cluster	21.63
570	**TRNSRC**	Conesville Station Expansion	Regional Cluster	140.97
570	**TRNSRC**	Conesville - West Millersport 765 kV	Regional Cluster	248.98
570	**TRNSRC**	Adkins Station Expansion	Regional Cluster	102.98
570	**TRNSRC**	Ohio Central Station Upgrade	Regional Cluster	3.00
570	**TRNSRC**	Kammer Dumont Structures	Regional Cluster	2.00
570	**TRNSRC**	Ohio Central - Fostoria Central Structure	Regional Cluster	1.00
570	**TRNSRC**	Gavin - Marysville Structures	Regional Cluster	3.00
570	**TRNSRC**	East Springfield - London Structures	Regional Cluster	1.00
570	**TRNSRC**	Beatty - Hayden Structures	Regional Cluster	3.00
237	**NXTMID**	B-20-A) Kammer - Buttermilk Falls 765kV	Regional Cluster	694.72
237	**NXTMID**	B-21-A) Buttermilk Falls - Mountain Stone 765kV	Regional Cluster	633.35
237	**NXTMID**	B-24-A) Mountain Stone-Juniata 500kV	Regional Cluster	5.32
237	**NXTMID**	B-06-A) Mountain Stone 765kV Substation	Regional Cluster	166.94
237	**NXTMID**	B-19-B) Buttermilk Falls 765kV Substation	Regional Cluster	170.29
237	**NXTMID**	B-30-A) South Bend - Keystone 500kV terminal equipment upgrade	Regional Cluster	4.68
237	**NXTMID**	B-32-A) Keystone-Juniata 500 kV terminal equipment upgrade	Regional Cluster	4.68

Baseline ID / Proposal ID	Transmission Owner / Proposing Entity	Description	Category	Cost Estimate ($M)
237	**NXTMID**	B-33-A) Mountaineer-Belmont 765 kV terminal equipment upgrade	Regional Cluster	6.75
237	**NXTMID**	B-01-A) Kammer substation upgrade	Regional Cluster	13.50
237	**NXTMID**	B-07-A) Juniata substation upgrade	Regional Cluster	9.95
237	**NXTMID**	B-31-A) Sunbury 500 kV substation upgrades	Regional Cluster	4.98
237	**NXTMID**	B-34-A) Conemaugh circuit breaker upgrades	Regional Cluster	23.42
9	**VEPCO**	Line 576 Rebuild - Vontay to Midlothian	Regional Cluster	102.70
9	**VEPCO**	Midlothian Equipment Upgrade	Regional Cluster	2.16
117	**VEPCO**	Line 539 Rebuild - Yeat to Ox	Regional Cluster	122.66
117	**VEPCO**	Ox Substation Terminal Equipment Upgrade	Regional Cluster	2.25
117	**VEPCO**	Yeat Substation Terminal Equipment Upgrade	Regional Cluster	0.33
126	**VEPCO**	Chickahominy Substation Line Terminal Upgrade (993592 Alt_1)	Regional Cluster	0.03
126	**VEPCO**	Surry Substation Line Terminal Upgrade (993592 Alt_1)	Regional Cluster	2.46
238	**VEPCO**	Line 563 Rebuild - Carson to Midlothian (99-3597)	Regional Cluster	228.48
238	**VEPCO**	Carson Terminal Equipment Uprate (993597)	Regional Cluster	6.15
238	**VEPCO**	Midlothian Terminal Equipment Uprate (993597)	Regional Cluster	2.43
243	**VEPCO**	Carson Substation 500 KV Equipment Upgrade - Alternative 1	Regional Cluster	12.44
247	**VEPCO**	New 765/500kV Switching Station - Vontay	Regional Cluster	217.76
247	**VEPCO**	500 kV Cut-In - Cunningham to Elmont	Regional Cluster	6.69
247	**VEPCO**	500 kV Cut-In - North Anna to Midlothian	Regional Cluster	6.69
247	**VEPCO**	765 kV Cut-In - Joshua Falls to Yeat	Regional Cluster	8.36

Baseline ID / Proposal ID	Transmission Owner / Proposing Entity	Description	Category	Cost Estimate ($M)
247	**VEPCO**	Cunningham substation Terminal Equipment Upgrade	Regional Cluster	9.20
253	**VEPCO**	Line 5008 Cut-in to Mosby Substation	Regional Cluster	6.69
253	**VEPCO**	Mosby Substation Equipment Upgrade	Regional Cluster	9.56
306	**VEPCO**	New 500 kV Line - Elmont to Kraken	Regional Cluster	147.85
306	**VEPCO**	Elmont Substation Line Terminal	Regional Cluster	6.04
306	**VEPCO**	Kraken Substation Line Terminal	Regional Cluster	8.61
339	**VEPCO**	Line 576 Rebuild - North Anna to Vontay	Regional Cluster	102.70
339	**VEPCO**	North Anna Equipment Upgrade	Regional Cluster	2.16
815	**VEPCO**	New HVDC Line - Heritage to Mosby_Alt 1 (Primary Alternative)	Regional Cluster	2,271.70
815	**VEPCO**	Heritage Substation – HVDC Converter Station Scope	Regional Cluster	773.73
815	**VEPCO**	Mosby Substation - HVDC Converter Station Scope	Regional Cluster	745.42
916	**VEPCO**	Line 560 Rebuild - Possum Point to Burches Hill	Regional Cluster	3.49
916	**VEPCO**	Possum Point Substation Equipment Upgrade	Regional Cluster	0.40
916	**VEPCO**	Burches Hill Substation Equipment Upgrade	Regional Cluster	10.31
b3800.313	**VEPCO**	Yeat - Vint Hill Uprate (Scope change for Southern regional cluster)	Regional Cluster	-
TBD	**VEPCO**	Breaker replacement: Clifton, Elmont, Celestial	Regional Cluster	13.00
Total				**9,339.05**

Appendix D: 2025 RTEP In-Zone Project List

Baseline ID / Proposal ID	Transmission Owner / Proposing Entity	Description	Category	Cost Estimate ($M)
b3945	**AEP**	Adjust Mullens 138 kV Cap Bank Vhi setting to 1.04. Adjust protection settings as needed at the station.	In-Zone	0.10
b3946	**AEP**	Adjust existing Jarrett 138/46 kV transformer tap to 1:1 to boost voltages on the sub-transmission network. Estimated Cost: 0.10M Adjust the existing Hartland 46 kV cap bank Vhi setting to 1.04. Estimated Cost: 0.10M	In-Zone	0.10
b3947	**AEP**	Remove cans on existing Baileysville 46 kV Cap Bank to reduce it to 7.2 MVAR.	In-Zone	0.10
b3948	**AEP**	Replace the existing 9.6 MVar 69kV capacitor bank at Johns Creek station with a 17.2 MVar capacitor bank. Circuit switcher "AA" will also be replaced	In-Zone	1.48
b3949	**AEP**	Change XF tap settings at Chauncey station to boost the sub-transmission voltage. Estimated Cost: 0.10M Change the XF tap settings at Huff Creek station to boost the sub-transmission voltage. Estimated Cost: 0.10M	In-Zone	0.10
b3950	**AEP**	Adjust existing Tazewell 138/34.5 kV transformer tap to 1:1 to help mitigate voltages on the 34.5 kV bus.	In-Zone	0.10
b3951	**AEP**	Install a 69kV circuit switcher and a 11.5 MVar capacitor bank at the 69kV bus at Falcon station. Falcon station will need to be expanded to fit the capacitor bank.	In-Zone	3.35
b3952	**AEP**	Replace 138 kV, 3000 A circuit breakers H and H1 with 4000 A circuit breakers.	In-Zone	1.51
b3953	**AEP**	Replace the overdutied New Carlisle 138 kV circuit breaker “XT3" with a 63 kA circuit breaker.	In-Zone	1.02
b3954	**AEP**	Replace overdutied Thomas Road 69 kV circuit breaker XT1 with an interrupting rating of 40 kA.	In-Zone	0.71
b3955	**AEP**	Build ~0.8 mile 138kV double circuit extension from Roberts - Wilson 138kV line into the Milepost 138kV substation. Estimated Cost: 8.33M Install additional 2-138kV circuit breakers at Milepost substation to allow for the Robert - Wilson 138kV line to come into the milepost substation. DICM will need an expansion for additional relaying panels. Estimated Cost: 3.84M.	In-Zone	8.33
b3956	**AEP**	Upgrade 336.4 ACSR 26/7 station conductor at Galloway 69kV. Estimated Cost: 0.18M.	In-Zone	0.18
b3957	**AEP**	At Haviland substation, replace TR#4 with 138/69/12kV 130MVA bank, along with associated equipment such as the Switch (600A), Sub cond 795 AAC 37 Str., and Sub cond 300 MCM CU bus equipment.	In-Zone	5.87

b3958	**AEP**	Perform sag study mitigations on ~1.4 miles of line from str. 8 to str 21 to bring conductor to full 142 MVA SE rating.	In-Zone	0.36
b3959	**AEP**	The line section overloading is roughly ~0.8 miles consisting of 336 ACSR 30/7 Oriole from structure 44 to Lick station. Reconductor limiting line conductor on the Lick-Ironman 69kV circuit to match the rest of the line.	In-Zone	1.10
b3960	**AEP**	Replace the overdutied Tidd 138 kV circuit breaker “DD" with a 63 kA circuit breaker.	In-Zone	0.77
b3961	**AEP**	Replace station terminal equipment: South Side Lima 34.5 kV replace 4/0 AAC, 7-Str. Replace 34.5KV CB-L jumpers and 34.5KV Sterling line riser.	In-Zone	0.08
b3962	**AEP**	Replace the 2 overdutied Roberts 138 kV circuit breakers “CB-H014F2 and CB-H014F5" with 63 kVA circuit breakers.	In-Zone	0.85
b3963	**AEP**	Replace the 3 overdutied OSU 138 kV circuit breakers “102, 103, XT4" with 63 kVA circuit breakers.	In-Zone	2.89
b3964	**AEP**	Replace the overdutied New Proctorville 138 kV circuit breaker “XT3" with a 63 kA circuit breaker.	In-Zone	0.94
b3965	**AEP**	Replace the 5 overdutied Hess Street 138 kV circuit breaker "4, XT1, XT2, XT3, XT4" with 63 kVA circuit breakers	In-Zone	4.60
b3966	**AEP**	Replace the 7 overdutied Bethel Road 138 kV circuit breakers "A, D, E, F, AA, XT1, XT2" with 63 kVA circuit breakers.	In-Zone	3.56
b3967	**AEP**	Replace overdutied Cambridge 34.5 kV circuit breaker F with an interrupting rating of 40 kA.	In-Zone	0.80
b3968	**AEP**	Replace North Newark TR#1 with a 90 MVA bank. DICM expansion will be required. Replace Motor Operators on High side switch “Z”. Install (2) 138kV disconnects on existing 138kV lattice box bay. Install (2) 69kV disconnects on existing 69kV H-frame structure.	In-Zone	6.33
b3969	**AEP**	Replace Findlay Center Transformer #1 with a 138/69/34.5 90 MVA Unit. Replace the TR1 LS Disconnect Switch	In-Zone	3.94
b3970	**AEP**	Rebuild Line: ~2.87 miles Kenton - South Kenton 69kV.	In-Zone	13.19
b3971	**AEP**	At Haviland, Reconductor Bus#1 Sub cond 500 MCM CU 37 Str towards Haviland Bus#2 and Reconductor Haviland Bus#2 500 KCM CU, 37-Str. & 795 KCM AAC, 37-Str. towards Timber SW 138kV.	In-Zone	1.47
b3972	**AEP**	Perform sag study and implement mitigations on 5.55 miles of the East Lima-Haviland 138kV circuit from East Lima to structure 28	In-Zone	6.80
b3974	**AEP**	Replace overdutied Hazard 69 kV circuit breaker R with an interrupting rating of 40 kA.	In-Zone	0.85
b3975.1	**AEP**	Install a new 138/69 kV transformer at Catawba station with a high side Circuit Switcher and a low side Circuit Breaker.	In-Zone	7.77

b3975.2	**AEP**	Replace Huntington Court 69kV Breaker	In-Zone	1.00
b4026	**AEP**	b4026.1.Rebuild approximately 3.5 miles of 69kV line from Platter Creek to Sherwood station. b4026.2.Rebuild approximately 11.1 miles of 69kV line from Sherwood to Auglaize station.	In-Zone	7.17
b4027	**AEP**	b4027.1.Sag Study the Smith Mountain - Moneta 138 kV line. Approximately 14 structures will need to be added in existing Rights of Way to increase the sag along the existing centerline such that the higher requested ampacity can be achieved along the corridor and maintain safety clearances. b4027.2.Replace the 2" IPS Sch. 40 conductor with 4" IPS Sch. 40 conductor at Smith Mountain station on the Smith Mountain-Rock Castle branch allowing the branch to exceed a summer emergency rating of 1765 A.	In-Zone	9.60
b4028	**AEP**	Rebuild 2.3 miles of the Mound Street-St Clair Avenue 138kV UG line with 5000 KCM XLPE cable.	In-Zone	41.59
b3976.1	**APS**	At Bedington: • Install foundation, conduit, and grounding for new equipment. • Install (3) 138 kV surge arresters. • Replace (1) existing 138 kV CVT with (3) 138 kV CVT's • Replace (1 Lot) of limiting conductor. • Install (1 Lot) of cables and grounding • Replace (1) existing 138 kV Eagle line terminal relay panel and breaker failure, with (1) standard line relaying panel consisting of (1) SEL-421, (1) SEL-411L, and (1) SEL-451	In-Zone	1.96
b3977.1	**APS**	At Meadow Brook: • Install conduit and grounding for new equipment. • Install (1) lot of cables and grounding for new equipment. • Replace (1) 138 kV wave trap on the West Winchester line terminal	In-Zone	0.36
b4001.1	**APS**	Construct the McCanns Rd 138 kV Switching Station and interconnect the existing Redbud – West Winchester 138 kV Line and Bartonville – Stephenson 138 kV Line. Install OPGW for the static & install one new SCADA controlled 2000 A disconnect with whips	In-Zone	18.83
b4001.2	**APS**	Reconductor new Redbud McCanns Rd 138 kV Line with 795 KCMIL 45/7 ACSS for 0.5 miles from Redbud 138 kV Substation to Str. 175 of the existing Redbud - West Winchester 138 kV Line	In-Zone	5.04
b4002.1	**APS**	Rebuild approximately 1.9 miles of 115 kV line with larger conductor. Install OPGW for the static & install one new SCADA controlled 2000 A disconnect with whips	In-Zone	9.02
b4002.2	**APS**	Adjust the relay settings at Penn Mar, Garrett, and Deep Creek substations to accommodate the new ratings and impedance changes associates with the Garrett- Garrett Tap 115 kV Line rebuild	In-Zone	0.13

b3978.1	**ATSI**	• Reconductor 1 span of transmission line outside Ottawa Substation • Reconductor 1 span of transmission line outside Lakeview Substation	In-Zone	1.41
b3978.2	**ATSI**	Replace Limiting Terminal Equipment at Lakeview Substation: • (2) Thermal Relays • (2) 138 kV Disconnect Switches Limiting Substation Conductor	In-Zone	-
b3979.1	**ATSI**	Abbe-Johnson No.1 69 kV Line (Johnson - Elyria Water P.C.): - Reconductor one span of transmission line between Johnson Substation and Elyria Water P.C. - Replace (1) 69 kV Disconnect Switch - Upgrade (1) Thermal Relay - Modify Elyria Loop Tap configuration - Install (1) 69 kV Disconnect Switch	In-Zone	3.22
b3979.2	**ATSI**	Abbe-Johnson No.1 69 kV Line (Elyria Water P.C.-Spring Valley): - Replace (1) 69 kV Disconnect Switch	In-Zone	-
b3979.3	**ATSI**	Abbe-Johnson No.1 69 kV Line (Spring Valley-Lorain College) - Replace (2) 69 kV disconnect switches	In-Zone	-
b3980.1	**ATSI**	Bellevue-Groton 69 kV Line: - Rebuild 4 miles of the Bellevue - Groton 69 kV Line	In-Zone	10.10
b3980.2	**ATSI**	Bellevue Substation: - Replace (3) 69 kV disconnect switches - Revise relay settings - Replace limiting substation conductor	In-Zone	-
b3980.3	**ATSI**	Groton Substation: - Revise relay settings	In-Zone	-
b4022.1	**BGE**	Greene Street – Constitution St 115 kV Line - Replace approx. 2 miles per circuit of existing HPFF cables with new 3500 KCM CU LPP HPFF cables.	In-Zone	58.49
b3943.1	**ComEd**	Install a new 345/138 kV transformer TR 84, and associated equipment at State Line substation. Install two 345 kV circuit breakers, one 138 kV circuited breaker and associated equipment, also replace the 138 kV BT 732 circuit breaker at State Line substation.	In-Zone	20.81
b3981.1	**ComEd**	Install a new 345/138 kV TR83 at Elk Grove and associated equipment. Install three 138 kV and one 345 kV circuited breakers and associated equipment at Elk Grove substation.	In-Zone	28.96
b3982.1	**ComEd**	Disconnect and remove the 34 kV tertiary cap bank on the Cherry Valley 345/138 kV transformer TR 82 and install a 138 kV bus 3 cap bank and associated equipment at Cherry Valley substation.	In-Zone	7.73
b4006.1	**ComEd**	Install 765/345 kV TR 91 and associated 765 kV and 345 kV circuit breakers at Wilton Center.	In-Zone	45.81
b4025.1	**ComEd**	Build a new 28 mile transmission 138 kV line from Mendota to Sandwich substations.	In-Zone	159.57

b4025.2	**ComEd**	Convert Mendota straight bus to a ring bus by installing four new 138 kV circuit breakers.	In-Zone	10.37
b4025.3	**ComEd**	Install 138 kV circuit breakers and associated equipment at Sandwich substation.	In-Zone	1.95
b3940.1	**DEOK**	Currently two DEOK Supplemental Projects that are planned at Woodsdale Substation: s3447.1 & s3601.1. DEOK will convert all of s3447.1 & parts of s3601.1 to address these reliability violations. The 345 kV ring bus at Woodsdale Substation will be reconfigured into a 345 kV breaker-and-half yard to improve substation reliability. Additionally, all 2000A equipment at Woodsdale Substation will be upgraded to 3000A to increase substation capacity.	In-Zone	36.82
b3944.1	**DEOK**	Rebuild the McGuffey to Locust 69 kV line (~1.35 miles) with 954ACSR Rail Conductor and OPGW. The (54) wood poles will be replaced with light duty, steel poles. The rebuild will take place in the existing right-of-way and the distribution underbuilds will also be restored. Conductor drops going into McGuffey and Locust substations will be replaced with 954 AAC conductor.	In-Zone	5.32
b4003.1	**DEOK**	Rebuild the College Corner – Collinsville 138 kV line from the OH/IN State Line to Collinsville Substation (~11.90 miles).Rebuild the 138 kV line College Corner – Trenton with common tower section (~ 11.90 miles) (2025-W1-156). Relay settings will need to be updated at DEOK's Collinsville & Trenton Substations and at the AEP's College Corner Substation (b4003.1).	In-Zone	45.11
b4030.1	**DOM**	Wreck and rebuild 230kV line 259 Chesterfield to Basin from structure 259/1A (Basin Substation) to 259/106A (Chesterfield Substation), with portions of line 2065, line 282 and line 208 to be rebuilt along the same structures as line 259.	In-Zone	100.31
b4030.2	**DOM**	Reconductor 230 kV Lines 211 and 228 from structure 211/19 (228/19) to structure 211/34 (228/34) for approximately 2.75 miles in Chesterfield County, VA.	In-Zone	6.34
b4030.3	**DOM**	Uprate all Line #259 terminal equipment, line leads, and bus at Basin substation to be rated to 4000A.	In-Zone	1.96
b4030.4	**DOM**	Uprate all Line #259 terminal equipment, line leads, and bus at Chesterfield substation to be rated to 4000A.	In-Zone	3.51
b4030.5	**DOM**	Install new 230kV circuit breaker at Chesterfield Substation.	In-Zone	1.50
b4030.6	**DOM**	This project serves to rebuild 500kV Line 565 from Suffolk Substation to structure 565/253 outside of Yadkin Substation in Suffolk and Chesapeake Counties, VA.	In-Zone	68.86
b4030.7	**DOM**	Uprate Line 565 equipment at Suffolk Sub to 5000A.	In-Zone	5.23
b4030.8	**DOM**	Uprate Line 565 equipment at Yadkin Sub to 5000A.	In-Zone	0.24

b4030.9	**DOM**	Wreck and rebuild 230kV Line 2028 from structure 2028/1A (I5/1A) (Charlottesville Substation) to 2028/176 (Fork Union Substation).	In-Zone	106.49
b4030.10	**DOM**	This project serves to rebuild 230kV Line 2193 from structure 2193/171 (Fork Union Substation) to 2193/186A (Bremo Substation).	In-Zone	10.81
b4030.11	**DOM**	Upgrade terminal equipment at Charlottesville substation to support new line conductor rating.	In-Zone	3.35
b4030.12	**DOM**	Upgrade terminal equipment at Fork Union substation to support new line conductor rating.	In-Zone	2.24
b4030.13	**DOM**	Upgrade Switches, breaker, CT and Leads at Fork Union substation.	In-Zone	1.60
b4030.14	**DOM**	Uprate Line 2193 and all associated equipment to 4000A at Bremo substation.	In-Zone	1.80
b4030.15	**DOM**	Upgrade disconnect switches 202809 and 202806 at Mt. Eagle Tap to 4000 A.	In-Zone	0.65
b4030.16	**DOM**	Reset relays at Sycamore Springs Substation	In-Zone	0.04
b4031.1	**DOM**	Wreck and rebuild line #5 using conductor with minimum summer rating of 393 MVA	In-Zone	5.00
b4004.1	**DPL**	Upgrade existing 1590 ACSR stranded bus at Claymont substation to increase the rating on the Claymont – Linwood 230 kV circuit.	In-Zone	0.03
b4023.1	**DPL**	Upgrade existing 500 & 750 SDCU on Vienna side of Vienna - Loretto facility with 2x954 ACSR. Replace 3 - 138kV 600A disconnect switches with 2000A rated units.	In-Zone	1.81
b4024.1	**DPL**	Rebuild existing Sharptown - Laurel 69kV circuit utilizing 954 ACSR "Rail" 45/7 conductor.	In-Zone	36.55
b4024.2	**DPL**	Upgrade breaker, rigid bus, relay, and disconnect switch at Laurel Substation on the Sharptown - Laurel Facility.	In-Zone	1.70
b3987.1	**JCPL**	East Flemington Substation - Overduty Breakers - Replace 34.5 kV circuit breakers C731, V724, A729, TC, H736, AV, YH, and Y727 with 40 kA, 3000 A breakers	In-Zone	3.46
b3986.1	**JCPL**	Windsor Substation Overduty Breakers - Replace 34.5 kV Breakers KQ, Q143, 324-B-25 (J136-1), 324-B-22 (J2), 324-B-31 (MG), 324-B-34 (K137-1), 324-B-19 (BK2), 324-B-28 (M65-1), 324-B-16 (G215-1), BK4, 324-B-7 (H4), 324-B-8 (H60), 324-B-54 (BK5_BBUS), 324-B-51 (BK5_ABUS).	In-Zone	8.36
b4013.1	**JCPL**	Colts Neck Substation: Install 34.5 kV Capacitor	In-Zone	2.69
b4014.1	**JCPL**	Sussex Substation: Install 34.5 kV Capacitor	In-Zone	2.28
b4015.1	**JCPL**	At Long Branch Substation replace the Allenhurst 34.5 kV V74 Line Terminal disconnect switch	In-Zone	0.53
b4016.1	**JCPL**	b4016.1 - Rebuild the Jamesburg - Monroe 34.5 kV N40 Line from Jamesburg Substation to Monroe Junction Substation, approximately 1.2 miles. b4016.2 - Monroe Substation: Upgrade Terminal Equipment b4016.3 - Costco Substation: Install New Relay	In-Zone	6.36

		b4016.4 - Rebuild a section of the Englishtown - Monroe Junction 34.5 kV H34 Line that is mutual with the Costco - Monroe Junction 34.5 kV N40 Line near Monroe Junction Substation, approximately 0.4 miles.		
b4017.1	**JCPL**	Great Adventure Substation Expansion b4017.2 - Great Adventure 34.5 kV Breaker-and-a-half Substation b4017.1 - Van Hiseville Substation: Upgrade Protection b4017.3 - Windsor: Upgrade 34.5 kV Relay Settings b4017.4 - Rebuild the Cookstown – Windsor 34.5 kV H60 line from Cookstown Sub to Str #58 as double circuit, approximately 4.7 miles. Terminate new line into Cookstown Substation. b4017.5 - Rebuild the Cookstown – Van Hiseville 34.5 kV V22 line from Str #91445 to Greater Adventure Substation as double circuit, approximately 5.2 miles. b4017.6 - Cookstown: Install New 34.5 kV Line Terminal	In-Zone	61.68
b4018.1	**JCPL**	Rebuild Metedconk Substation and Vermont Avenue Substation b4018.7 - Reconfigure 34.5 kV switchyard at Metedeconk Substation to a breaker-and-a-half yard b4018.8 - Build a new 34.5 kV Ring Bus switching station (Adjacent to Vermont Avenue Substation) b4018.5 - Metedconk Substation: Add Breakers and Switches for new line terminals b4018.2 - South Lakewood Substation: Relay Upgrade b4018.3 - Vermont Avenue Substation: Terminate 34.5 kV lines b4018.4 - Larrabee Substation: Reconductor and Reroute Vermont Avenue Lines b4018.6 - Leisure Village Substation: Relay Upgrade b4018.9 - Loop the Leisure Village-South Lakewood 34.5 kV F214 line into the new 34.5 kV ring bus station, approximately 0.1 miles. b4018.10 - Install new hardware and wire on the Herbertsville - Larrabee 34.5 kV Q43 line to support the rebuild project of approximately 2.6 miles. b4018.11 - Install new hardware and wire on the Larrabee - Point Pleasant No. 2 34.5 kV R44 line to support the rebuild project, approximately 2.6 miles. b4018.12 - Install a new tie line from the existing Vermont Avenue Substation to the new 34.5 kV ring bus station, approximately 0.1 miles. b4018.13 - Install a new tie line from the existing	In-Zone	65.74

		Vermont Avenue Substation to the new 34.5 kV ring bus station, approximately 0.1 miles.		
b4032.1	**JCPL**	At Montville Substation establish a new 500 kV ring bus by looping the Hopatcong – Roseland 500 kV Line, install a new 500/230 kV transformer, and converting the existing 230 kV yard to a 230 kV breaker-and-a-half layout.	In-Zone	66.83
b4011.1	**METED**	b4011.3 - Rebuild the Jackson - North Hanover 115 kV 968 Line as six-wire configuration, approximately 13.2 miles. b4011.1 - North Hanover Substation: Install Capacitor and Replace Terminal Equipment b4011.2 - Jackson Substation: Replace Terminal Equipment	In-Zone	61.79
b3942.1	**PECO**	Replace existing and install new relays at Chichester 230 kV substation to increase the rating on Chichester – Trainer 230 kV circuit.	In-Zone	0.69
b3988.1	**PENELEC**	Warren Substation Overduty Breaker - Replace 115 kV NO.1 XFMR Breaker	In-Zone	0.96
b4012.1	**PENELEC**	Belleville – Center Union 46 kV Line - Replace structures and use 795 ACSR 26/7 conductor on spans D-356 through D-360	In-Zone	2.72
b4029.1	**PPL**	Expand existing Slykerville 230 kV Station to add a 500 kV yard. Build a new Kelayres 500 kV breaker and a half substation with 3 bays, six 500 kV 4,000 amp circuit breakers, and twelve 500 kV 4,000 amp MODs. Add two 890 MVA 500/230 kV transformers at Kelayres (Slykerville 230 kV Station in Supplemental Project s3549.2 would be renamed Kelayres with the addition of this 500 kV yard). Future site expandability to accommodate up to 5 breaker and a half bays in the 500 kV yard (planned to accommodate all lines from this Developer's various proposals that terminate into Kelayres in this window; proposals 2025-W1-769, 2025-W1-918, 2025-W1-855 or 2025-W1-317, and 2025-W1-434 or 2025-W1-946).	In-Zone	72.92

b4029.2	**PPL**	Add one 500 kV 4,000 amp circuit breaker, two 500 kV 4,000 amp MODs, and a Kelayres 890 MVA 500/230 kV T3 transformer.	In-Zone	29.02
b4029.3	**PPL**	Bifurcate the Sunbury - Susquehanna 500 kV line. From the bifurcation point, build a 13-mile long extension to Kelayres, resulting in a Susquehanna - Kelayres 500 kV line. For this line extension, construct with Triple-Bundled 1590 kcmil 45/7 ACSR conductor. Double circuit this line with the Nescopeck - Tomhicken 230 kV line on existing PPL ROW. This line would replace the 12-mile Nescopeck - Harwood 230 kV line (a line already being constructed at 500 kV design standards in the Supplemental Project it is associated with. Construct approximately 1 additional mile of new 500 kV line between Harwood Substation and Kelayres Substation to complete the line route into Kelayres.	In-Zone	20.87
b4029.4	**PPL**	Bifurcate the Sunbury - Susquehanna 500 kV line bringing both segments into a new Kelayres 500 kV Station on separate towers. From the bifurcation point, build a 24-mile long extension to Kelayres, resulting in a Sunbury - Kelayres 500 kV line. For this line extension, construct with Triple-Bundled 1113 kcmil 54/19 ACSS conductor following a path that is approximately 75% PPL EU Future-Use ROW, and 25% greenfield.	In-Zone	133.64
b4029.5	**PPL**	Susquehanna - Tomhicken 230 kV 1 & 2 DCT line reconductor: Reconduct both circuits on the existing DCT tower with ACCC 1036/87/392 (2045 kcmil) conductor.	In-Zone	29.73
b4029.6	**PPL**	Upgrade the existing Monroe 230/138 kV Substation to a 2-bay breaker and a half on the 230 kV side (with space to accommodate 2 future bays), and a double-bus double-breaker design on the 138 kV side. To accomplish this expansion, add 2 full breaker and a half 230 kV bays, 6 new 230 kV 3,000 amp circuit breakers and 12 230 kV 3,000 amp MODs to complete the 230 kV yard expansion, and expand the 138 kV by creating 2 double-bus double-breaker bays, adding 3 new 138 kV 2,000 amp circuit breakers, and 6 138 kV 2,000 amp MODs. Add a 2nd 230/138 kV transformer matching the size of the existing transformer (340 MVA).	In-Zone	30.95
b4029.7	**PPL**	Re-termination of the Monroe - Fox Hill and Monroe - Martins Creek 230 kV lines into their new locations in the upgraded 230 kV breaker and a half yard.	In-Zone	8.27
b4029.8	**PPL**	Address End of Life concerns by rebuilding the existing 38-mile Juniata - Sunbury 500 kV line using single circuit design.	In-Zone	162.89

b4029.9	**PPL**	The Montour - Glen Brook 230 kV 1 & 2 DCT line is 24.9 miles long. For this project, the Developer will reconduct 0.70 miles of this route with ACCC 1036/87/392 (2045 kcmil) conductor. Another 5.2 miles of the route will be rebuilt with new steel pole structures and double-bundle 1590 ACSR conductor. The remaining 19 miles of the route is being rebuilt and reconductored as part of Supplemental Project s2373 to address End of Life for CORTEN structures.	In-Zone	37.15
b4029.10	**PPL**	At Glen Brook 230/69 kV Substation, replace ten 230 kV 2,000 amp MODs with 230 kV 3,000 amp MODs.	In-Zone	2.50
b4029.11	**PPL**	At the Jenkins 230/69 kV Substation, re-terminate the Jenkins 230/69 kV T2 and T4 transformers into bay positions in the 69 kV and 230 kV yards respectively. Add one new 230 kV 3,000 amp circuit breaker, and two 230 kV 3,000 amp MODs to accommodate the re-termination of the T4 transformer into the east bay position in the existing 230 kV breaker and a half Bay 2. Add two new 69 kV 3,000 amp circuit breakers, and 4 69 kV 3,000 amp switches to accommodate the re-termination of the T2 transformer into a new 69 kV double-bus double-breaker Bay 4.	In-Zone	8.71
b4029.12	**PPL**	Re-terminate high side of T4 transformer into Bay 2E of the 230 kV yard.	In-Zone	1.46
b4029.13	**PPL**	Glen Brook - Susquehanna T10 1&2 DCT line reconductor: Glen Brook - Susquehanna T10 1 & 2 DCT line reconductor and Susquehanna T10 - Susquehanna # 3 line: On the Glen Brook - Susquehanna T10 1 & 2 (3.72 miles) lines, Supplemental Project s2373 has a scope that involves a line rebuild and reconductoring with double-bundle 1590 ACSS for 3.02 miles of the route. This project (2025-W1-588) scope involves reconducting the remaining 0.70 miles of the route with ACCC 1036/87/392 (2045 kcmil) conductor.	In-Zone	2.63
b4029.14	**PPL**	Susquehanna T10 - Susquehanna 230 kV # 3 line: Construct a new Susquehanna T10 - Susquehanna 230 kV # 3 line (approximately 2.7 miles) using an approximately 75% brownfield route (an unused circuit position on transmission line towers associated with presented M3 Solution PPL-2025-0003), with a short greenfield segment near the Susquehanna station.	In-Zone	14.33
b4029.15	**PPL**	Construct a new breaker and a half bay at Susquehanna T10 230 kV Station and initially populate with two 230 kV 3,000 amp circuit breakers and four 230 kV 3,000 amp MODs, leaving a position for a future breaker to be added.	In-Zone	6.62

b4029.16	**PPL**	Reuse existing bay and upgrade to 3,000 amps. Existing bay at Susquehanna vacated by the former Sunbury line. Inspect all facilities, refurbish, and insure bay rating of 3,000 amps.	In-Zone	1.24
b4029.17	**PPL**	At Glen Brook 230/69 kV Substation, replace ten 230 kV 2,000 amp MODs with 230 kV 3,000 amp MODs.	In-Zone	2.50
b4029.18	**PPL**	Replace 6 230kV breakers at Susquehanna	In-Zone	4.50
b4005.1	**PSEG**	Replace the existing 1590 ACSR single conductor on the Roseland to Livingston 230kV line with a 1590 ACSS single conductor.	In-Zone	4.87
b4005.2	**PSEG**	Replace the existing 1590 ACSR single conductor on the Roseland to Laurel Ave 230kV line with a 1590 ACSS single conductor.	In-Zone	5.06
b4019.1	**PSEG**	Replace/update riser structure, pot head, cable and sweeps as required to accept high-capacity conductor. Rebuild duct banks as needed	In-Zone	1.05
b4019.2	**PSEG**	Replace/update riser structure, pot head, cable and sweeps as required to accept high-capacity conductor. Rebuild duct banks as needed.	In-Zone	1.35
b4019.3	**PSEG**	Reconductor 69kV line from Rahway to Roselle Station. High capacity conductor to be rated at least 1100 Summer Normal and 1200 Summer Emergency. 2 miles of OH wreck and rebuild 2.5 miles of OH new construction 0.2 miles of UG Replace fiber as required.	In-Zone	27.00
b4020.1	**PSEG**	Replace/update pole riser, pot head riser, associated sweeps and cable as required to accept high-capacity conductor. Replace LP41K relays with new primary SEL-311L and backup SEL-411L relays Replace duct banks as required.	In-Zone	1.20
b4020.2	**PSEG**	Replace existing OH wire with high capacity conductor. Replace LP10K relays with new primary SEL-311L and backup SEL-411L relays	In-Zone	0.15
b4020.3	**PSEG**	Gloucester-Nicholson 69kV Line	In-Zone	9.45
b4021.1	**PSEG**	Upgrade the Pfisterer connection inside of Prospect Park to accept new high-capacity cable, modify conduit as needed	In-Zone	0.67
b4021.2	**PSEG**	Upgrade the Pfisterer connection inside of North Paterson to accept new high-capacity cable, reconfigure duct banks in North Paterson to accommodate new high-capacity cable	In-Zone	1.17
b4021.3	**PSEG**	?Reconductor 69kV line from Prospect Park to North Paterson with a high-capacity conductor, including installing new composite poles and manholes along the line as required.	In-Zone	13.87
b4033.1	**ODEC**	1. Tasley Reactive Compensation Improvements: Replace and add additional cap banks	In-Zone	-

b4033.2	**ODEC**	2. Tasley Station: Converting to Breaker and a Half	In-Zone	22.58
b4033.3	**ODEC**	3. Kellam Reactive Compensation Improvements: Replace and add additional cap banks	In-Zone	2.52
b4033.4	**ODEC**	4. Cheriton Reactive Compensation Improvements: Replace and add additional cap banks	In-Zone	1.19
b4033.5	**ODEC**	5. Belle Haven Reactive Compensation Improvements: Replace and add additional cap banks	In-Zone	1.14
b4033.6	**ODEC**	6. Oak Hall Substation Expansion: Expand/reconfigure Oak Hall substation to accommodate the new line	In-Zone	32.46
b4033.7	**ODEC**	7. Replace 69 kV Line 6790: Rebuild 69kV line from Oak Hall – Hallwood – Tasley.	In-Zone	29.81
b4033.8	**ODEC**	8. Build new 69 kV Line 6786: Construct new 69kV transmission line from Oak Hall – Tasley in existing ROW.	In-Zone	41.74
b4033.9	**ODEC**	9. Tasley Line 6721 and 6778 Relay Upgrades: Upgrade relays at Tasley an Oak Hall	In-Zone	-
b4033.10	**ODEC**	10. Kellam – Line 6721 Relay Upgrade: Upgrade relays at Kellam	In-Zone	0.58
PEPCO Cluster (2025-W1-919)	**PEPCO**	New 500 kV substation (Dickerson) by cutting into the Aspen - Rocky Point 500 kV line installing two new 500/230kV transformers.	In-Zone	257.61
PEPCO Cluster (2025-W1-851 component)	**PEPCO**	Replace 2- Breakers, 1- Bushing CT, 1- Stranded Bus Conductor, 4- Disconnect Switches at Brighton 500 kV Substation	In-Zone	8.00
PEPCO Cluster (Additional upgrade)	**PEPCO**	Replace 1- Stranded Bus Conductor, 3- Thermal Relay, 2- Disconnect Switches at Quince Orchard 230 KV Substation	In-Zone	3.75
PEPCO Cluster (Additional upgrade)	**PEPCO**	Replace Bells Mill T3 XF with new PEPCO standard 260 MVA 230/138 kV Transformer	In-Zone	12.80

Appendix E: Scenario Definitions

Scenario	Proposal ID	Proposing Entity	High Level Description
PJM 1	987	NextEra	This NextEra Proposal 987 combines the following proposals: - Proposal 687 (see above) - Proposal 152 (for PJM West region)
PJM 2	237, 853, 275	NextEra PPL Dominion	MAAC 2 + Dominion 1
PJM 3	237, 853, 275, 570	NextEra PPL Dominion TRSRC	MAAC 2 + Dominion 1 + PJM West 4
PJM 4	237, 853, 275, 152	NextEra PPL Dominion NextEra	MAAC 2 + Dominion 1 + PJM West 1
PJM 41	237, 853, 275, 109	NextEra PPL Dominion NextEra	MAAC 2 + Dominion 1 + 109
PJM 5	237, 853, 275, 239	NextEra PPL Dominion ATSI	MAAC 2 + Dominion 1 + PJM West 2
PJM 51	237, 853, 275, 334	NextEra PPL Dominion ATSI	MAAC 2 + Dominion 1 + 334
PJM 6	237, 853, 275, 619, 241	NextEra PPL Dominion PSEGRT	MAAC 2 + Dominion 1 + PJM West 8
PJM 61	237, 853, 275, 907, 241	NextEra PPL Dominion PSEGRT	MAAC 2 + Dominion 1 + 907/241 combo
PJM 7	237, 853, 331, 570	NextEra PPL TRSRC	MAAC 2 + Dominion 4 + PJM West 4
PJM 8	237, 853, 616, 570	NextEra PPL Dominion TRSRC	MAAC 2 + Dominion 5 + PJM West 4

Scenario	Proposal ID	Proposing Entity	High Level Description
PJM 9	826, 853, 275, 570	NextEra PPL Dominion TRSRC	MAAC 1 + Dominion 1 + PJM West 4
PJM 10	237, 853, 616, 570, 919	NextEra PPL Dominion TRSRC PEPCO	PJM 8 (MAAC 2 + Dominion 5 + PJM West 4) + Proposal 919 [PEPCO: New 500 kV substation (Dickerson) by cutting into the Aspen - Rocky Point 500 kV line installing two new 500/230kV transformers.]
PJM 11	237, 853, 275, 570, 919 partial	NextEra PPL Dominion TRSRC PEPCO	PJM 3 + component from Proposal ID 919 (#4 and 5 in the modeling idev, see description below) • Install 3.2% series reactor on the Edwards Ferry – Dickerson 230 kV circuit • Relocate the Dickerson "D"- Quince Orchard 23035 to terminate at Dickerson "H" at Dickerson #2 Tie Location, Remove Dickerson #2 Tie
PJM West 1	152	NextEra	Reinforce AEP system by adding 765kV and 345 kV transmission and substations to strengthen transmission network.
PJM West 2	239	ATSI	This proposal incorporates construction of multiple transmission lines and substation expansions to provide a robust, expandable transmission solution to address the 2025 Open Window 1 violations. This proposal will also ensure the PJM transmission system can safely and reliably accommodate future load growth. Refer to Executive Abstract attached to Market Efficiency simulation modeling files section.
PJM West 3	619	PSEGRT	Combined Solution Alternative (765kV between Greenfield Station and Madison)
PJM West 4	570	TRSRC	The proposed solution will address Ohio area violations in the PJM 2032 RTEP model. The solution includes the following components: Greentown – Teddy 765 kV line, Teddy 765/345kV substation, Teddy – Marysville 765kV line, Teddy – Beatty 345kV double-circuit line, Teddy – Cole 345kV line, Guernsey – Conesville 765kV line, Conesville – West Millersport – Adkins 765 kV line, and upgrades to existing facilities.
PJM West 5	109 modified	NXTMID	Proposal 109 with any ties to/stations in MISO removed.
PJM West 6	152 modified	NXTMID	Proposal 152 with any ties to/stations in MISO removed.
PJM West 7	60+241	PSEGRT	Proposal 60 with the STATCOM add-on
PJM West 8	619+241	PSEGRT	Proposal 619 with the STATCOM add-on
PJM West 9	907+241	PSEGRT	Proposal 907 with the STATCOM add-on
PJM West 10	570 modified	TRNSRC	Proposal 570 with any ties to/stations in MISO removed.
PJM West 11	51, 570 partial	TRNSRC	Proposal 51 plus the following components from proposal 570: 1. Greentown Station Expansion 2. Greentown - Teddy 765 kV Line

Scenario	Proposal ID	Proposing Entity	High Level Description
Dominion 1	275 (1A)	Dominion	The following projects make up this violation-free Portfolio: 1. 993606 - New HVDC Transmission Link from Heritage to Mosby (PJM ID: 2025-W1-815) 2. 993610 - Line 560 Rebuild - Possum Point to Burches Hill (PJM ID: 2025-W1-916) 3. 993612 - Line 5008 (Morrisville to Wishing Star) Cut-in into Mosby Substation (PJM ID: 2025-W1-253) 4. 993619 - New 500kV Line - Elmont to Kraken (PJM ID: 2025-W1-306) 5. 993592 - Line 567 Terminal Upgrade - Chickahominy to Surry (PJM ID: 2025-W1-126) 6. 993597 - Line 563 Rebuild - Carson to Midlothian (PJM ID: 2025-W1-238) 7. Planning 01 - New 765/500kV Switching Station - Vontay (PJM ID: 2025-W1-247) 8. Planning 02 - Line 576 Partial Rebuild - North Anna to Vontay (PJM ID: 2025-W1-339) 9. Planning 03 - Line 576 Partial Rebuild - Vontay to Midlothian (PJM ID: 2025-W1-9) 10. Planning 04 - Line 539 Rebuild - Yeat to Ox (PJM ID: 2025-W1-117) 11. 99-3618 - Carson Substation Equipment Upgrade (PJM ID: 2025-W1-243)
Dominion 2	260	LS Power	The Virginia Transmission Project includes two new 765/500kV substations with a 765kV connecting the two as well as various 500kV connections to strengthen the 500kV backbone in Virginia. The project also includes various 230kV connections.
Dominion 3	938	TRAIL	This proposal incorporates construction of multiple transmission lines and substations to provide a robust, expandable transmission solution to address the 2025 Open Window 1 violations identified in 2032 studies. This proposal will also ensure the PJM transmission system can safely and reliably accommodate future load growth. Refer to Executive Abstract attached to Market Efficiency simulation modeling files section.
Dominion 4	331	TRSRC	This solution addresses violations identified in PJM's 2032 model for the Virginia area: Construct Bagpipe 765 kV, Vontay 765, Durandal 765/500, Starfruit 765/230, Lodi 765/500, and Kaladin 500/230 substations. Construct Bagpipe - Vontay, Joshua Falls – Durandal 765kV, Durandal – Starfruit 765kV, Starfruit – Lodi 765kV, Lodi - Cunningham 500kV, Lodi – Kaladin 500kV, Kaladin - North Anna 500kV, and Kaladin – Morrisville 500kV lines.

Scenario	Proposal ID	Proposing Entity	High Level Description
Dominion 5	616 (3)	Dominion	The following projects make up this violation-free Portfolio: 1. 993595 - New 500kV Line - Heritage to Morrisville (PJM ID: 2025-W1-48) 2. 993610 - Line 560 Rebuild - Possum Point to Burches Hill (PJM ID: 2025-W1-916) 3. 993599 - Line 568 Partial Rebuild - Ladysmith to Kraken (PJM ID: 2025-W1-24) 4. 993622 - New 500kV Line - Finneywood to Cunningham (PJM ID: 2025-W1-825) 5. Planning 01 - New 765/500kV Switching Station - Vontay (PJM ID: 2025-W1-247) 6. Planning 02 - Line 576 Partial Rebuild - North Anna to Vontay (PJM ID: 2025-W1-339) 7. Planning 03 - Line 576 Partial Rebuild - Vontay to Midlothian (PJM ID: 2025-W1-9) 8. 993152 - Line 539 Rebuild - Bristers to Ox (PJM ID: 2025-W1-264) 9. 993592 - Line 567 Terminal Upgrade - Chickahominy to Surry (PJM ID: 2025-W1-126) 10. 993593 - New 500 kV Line Morrisville – Cunningham (PJM ID: 2025-W1-409)
Dominion 6	1E	Dominion	The following projects make up this violation-free Portfolio: 1. 993606 - New HVDC Transmission Link from Heritage to Mosby (PJM ID: 2025-W1-815) 2. Planning 06 - Carson/Kraken/Ladysmith Topology Changes (PJM ID: 2025-W1-868) 3. 993592 - Line 567 Terminal Upgrade - Chickahominy to Surry (PJM ID: 2025-W1-126) 4. 993597 - Line 563 Rebuild - Carson to Midlothian (PJM ID: 2025-W1-238) 5. 993610 - Line 560 Rebuild - Possum Point to Burches Hill (PJM ID: 2025-W1-916) 6. 993612 - Line 5008 (Morrisville to Wishing Star) Cut-in into Mosby Substation (PJM ID: 2025-W1-253) 7. 99-3618 - Carson Substation Equipment Upgrade (PJM ID: 2025-W1-243) 8. Planning 04 - Line 539 Rebuild - Yeat to Ox (PJM ID: 2025-W1-117) 9. Line 576 Rebuild - North Anna to Midlothian (PJM ID: 2025-W1-755)
Dominion 7	705 (2A)	Dominion	The following projects make up this violation-free Portfolio: 1. 993596 - New 765 kV Line - Heritage to Yeat (PJM ID: 2025-W1-55) 2. 993610 - Line 560 Rebuild - Possum Point to Burches Hill (PJM ID: 2025-W1-916) 3. 993607 - New 500kV Line - Chickahominy to Kraken (PJM ID: 2025-W1-98) 4. 993620 - New 500kV Line - Skiffes Creek to Chickahominy (PJM ID: 2025-W1-557) 5. Planning 01 - New 765/500kV Switching Station - Vontay (PJM ID: 2025-W1-247) 6. Planning 02 - Line 576 Partial Rebuild - North Anna to Vontay (PJM ID: 2025-W1-339) 7. Planning 04 - Line 539 Rebuild - Yeat to Ox (PJM ID: 2025-W1-117) 8. 993591 - Line 578 Terminal Equipment Upgrade (PJM ID: 2025-W1-311) 9. 99-3618 - Carson Substation Equipment Upgrade (PJM ID: 2025-W1-243) 10. 993592 - Line 567 Terminal Upgrade - Chickahominy to Surry (PJM ID: 2025-W1-126)

Scenario	Proposal ID	Proposing Entity	High Level Description
Dominion 8	848	Dominion	The following projects make up this violation-free Portfolio: 1. 993596 - New 765 kV Line - Heritage to Yeat (PJM ID: 2025-W1-55) 2. 993610 - Line 560 Rebuild - Possum Point to Burches Hill (PJM ID: 2025-W1-916) 3. 993608 - New 500kV Line - Vontay to Kraken (PJM ID: 2025-W1-302) 4. 993405 - Line 573 Rebuild - North Anna to Spotsylvania (PJM ID: 2025-W1-948) 5. Planning 01 - New 765/500kV Switching Station - Vontay (PJM ID: 2025-W1-247) 6. Planning 04 - Line 539 Rebuild - Yeat to Ox (PJM ID: 2025-W1-117) 7. 993406 - Line 597 Rebuild - Spotsylvania to Morrisville (PJM ID: 2025-W1-627) 8. Line 576 Rebuild - North Anna to Vontay to Midlothian (PJM ID: 2025-W1-339 & 2025-W1-9) 9. 993592 - Line 567 Terminal Upgrade - Chickahominy to Surry (PJM ID: 2025-W1-126) 10. 993597 - Line 563 Rebuild - Carson to Midlothian (PJM ID: 2025-W1-238) 11. 99-3618 - Carson Substation Equipment Upgrade (PJM ID: 2025-W1-243)
Dominion 9	331, 264, 916, 126, 48 + Yeat-Vint Hill Scope	TRNSRC + DOMINION	TRNSC 331 + the following Dominion scope: 1. Yeat – Vint Hill uprate 2. Line 539 Rebuild - Bristers to Yeat to Ox (PJM ID: 2025-W1-264) (ONLY BRISTERS-YEAT portion - Project_993152-1_xxx.idv) 3. Line 560 Rebuild - Possum Point to Burches Hill (PJM ID: 2025-W1-916) 4. Line 567 Terminal Upgrade - Chickahominy to Surry (PJM ID: 2025-W1-126) 5. New 500kV Line - North Anna to Vontay (PJM ID: 2025-W1-48)
MAAC 1	826, 558, 853 Component #2	FirstEnergy PPL	MAIT/FE Proposal 826 + PPL 7
MAAC 2	237, 558, 853 Component #2	NextEra PPL	NextEra Proposal 237 + PPL 7
MAAC 3	237, 838 Component, 558, 853 Component #2	NextEra FirstEnergy PPL	NextEra Proposal 237 + PPL 7 + FE Proposal 838 Component for a single 500 kV line from Keystone to Susquehanna
MAAC 4	578, 558, 853 Component #2	FirstEnergy PPL	MAIT/FE Proposal 578 + PPL 7
MAAC 5	838 component, 558, 853 Component #2	FirstEnergy PPL	FE Proposal 838 Component for a single 500 kV line from Keystone to Susquehanna + PPL7
PPL 1	158	PPL	PPL Portfolio 1
PPL 2	558	PPL	PPL Portfolio 2

Scenario	Proposal ID	Proposing Entity	High Level Description
PPL 3	853	PPL	PPL Portfolio 3
PPL 4	20	LS Power	LS Power Proposal #20
PPL 5	771	NextEra	NextEra Proposal #771
PPL 6	871	NextEra	NextEra Proposal #871
PPL 7	558,853 component	PPL	PPL Portfolio 2 (Proposal 558) + Kelayres 500 kV yard expansion (PPL Proposal 853 component #2)

Document Revision History

12/07/2025 – R1: Original version posted.

01/02/2026 – R2: Final Version