

Transmission Expansion Advisory Committee

March 13, 2009



2009 RTEP Assumptions

- Generic assumptions consistent with those discussed at the January TEAC
- Loads – Based on the 2009 Load Report
 - RTO Peak: 150,467 MW
 - PJM South: 20,675 MW
 - PJM West: 65,791 MW
 - PJM Mid-Atlantic: 64,001 MW
 - * All Loads are Non-Coincidental Peaks
- Generation
 - Machine lists posted to TEAC page
 - Previously discussed units
 - Potomac River - in
 - Bergen - in
 - Indian River 3 & 4 – in
 - Sewaren - in
 - Catoctin – out
 - Benning and Buzzard Point - out

AREA	Area's Full Title	CETO
AE	Atlantic Electric	1850
AEP	American Electric Power	-1910
APS	Allegheny Power	890
BGE	Baltimore Gas & Electric	4480
ComEd	Commonwealth Edison	3580
Day	Dayton	820
DLCO	Duquesne Light Company	960
DOM VP	Dominion Virginia Power	1570

AREA	Area's Full Title	CETO
DPL	Delmarva Power & Light	1360
DPLS	Delmarva Power & Light South	1520
JCPL	Jersey Central Power & Light	4350
MetEd	Metropolitan Edison	620
PECO	PECO Energy Company	2020
PEPCO	Potomac Electric Power Company	3770
PLGRP	Pennsylvania Power & Light & UGI	670
PN	Pennsylvania Electric Company	510

AREA	Area's Full Title	CETO
PS	Public Service Electric & Gas	6290
PSN	Public Service Electric & Gas North	2720
Southern MA	Southern Mid-Atlantic(BGE, PEPCO)	5990
Western MA	Western Mid-Atlantic (PLGRP, MetEd, PN)	-6180
Eastern MA	Eastern Mid-Atlantic (AE, DPL, PECO, JCPL, PS, RECO)	7440
MAAC	Mid-Atlantic (AE, BGE, DPL, JCPL, MetEd, PECO, PEPCO, PLGRP, PN, PS, RECO)	5600
PJMW	PJM West (AEP, APS, ComEd, DLCO, Day)	-1830

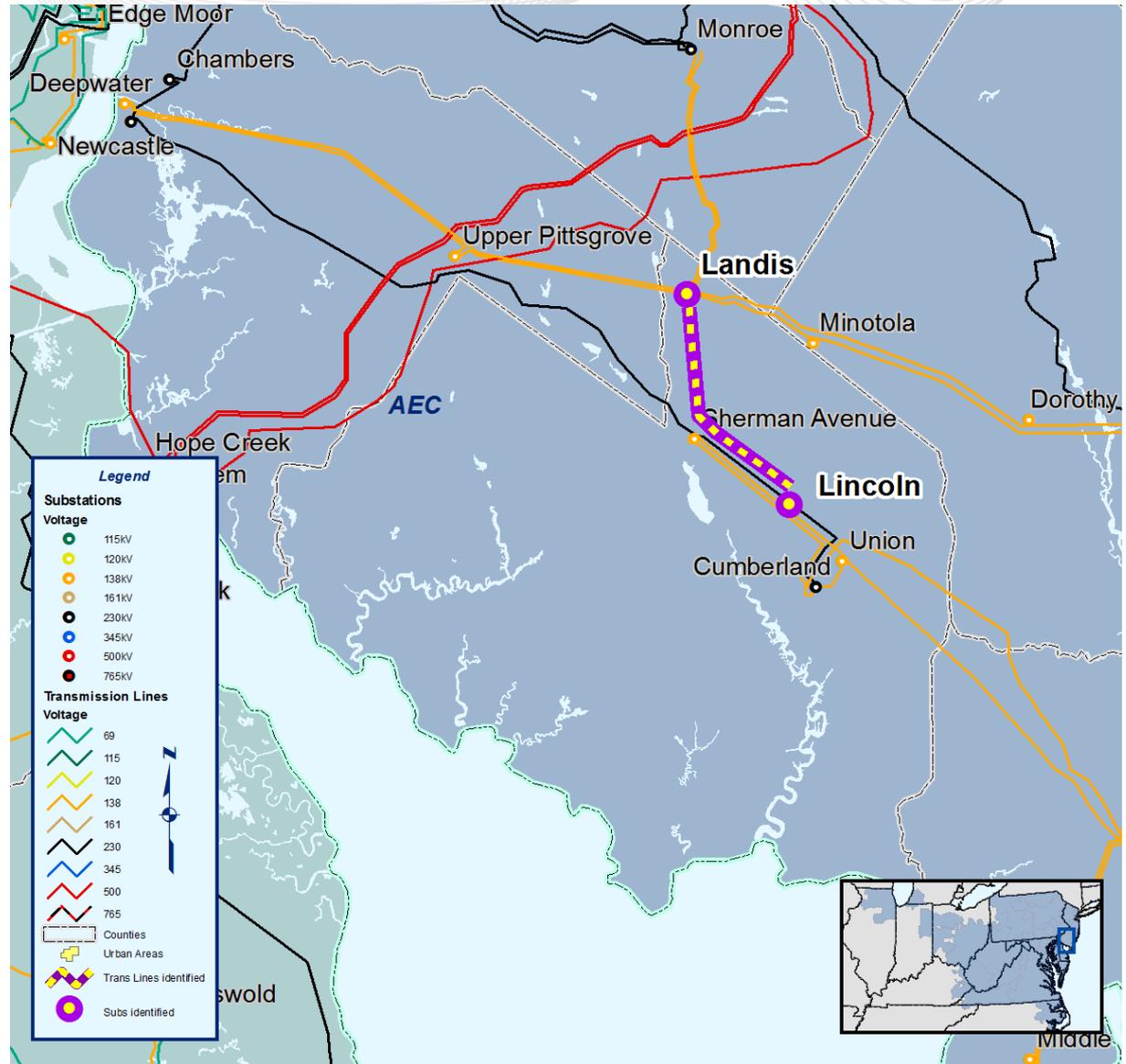


2013 Retool Results

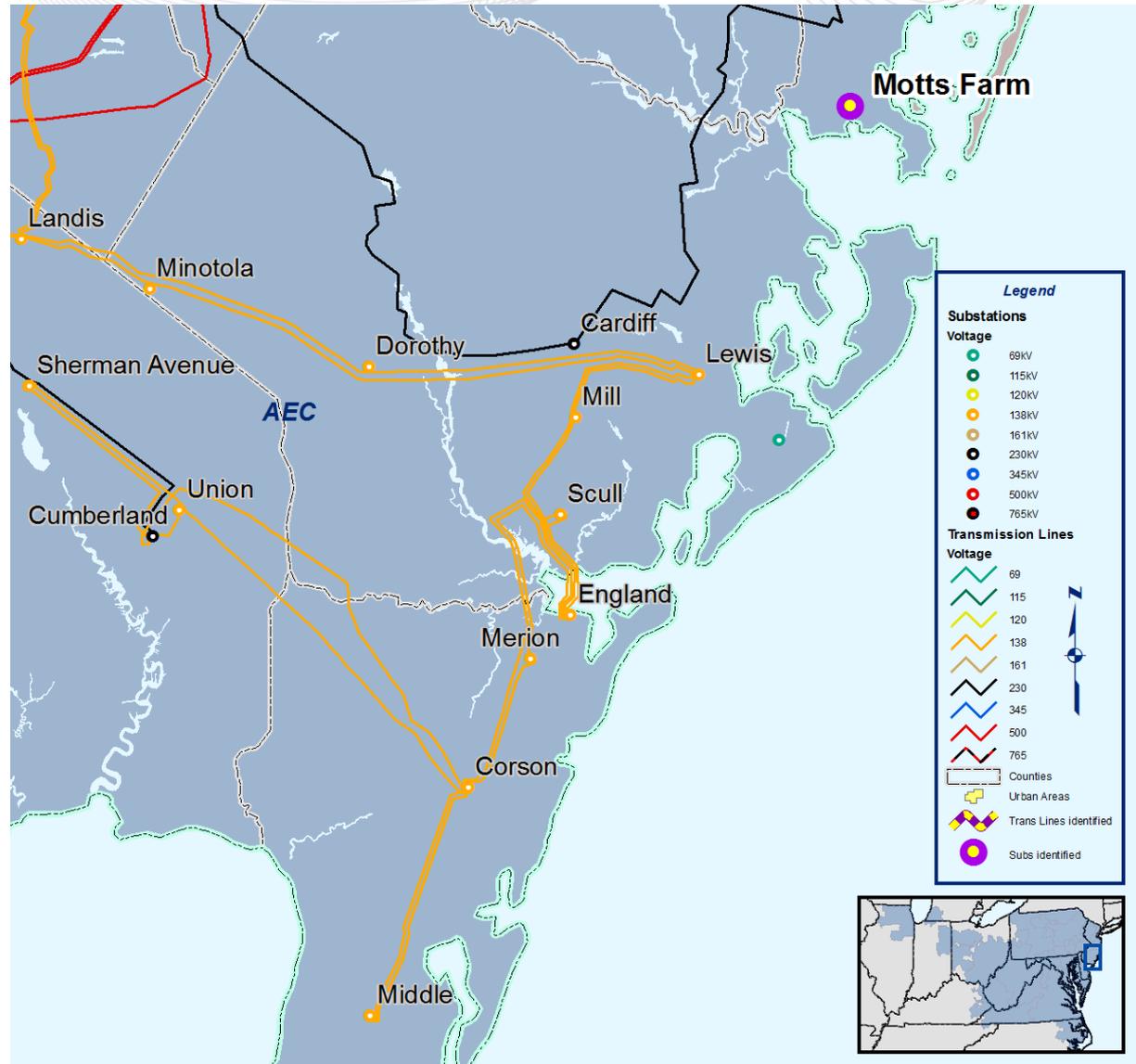


2013 N-1-1 Baseline Upgrades

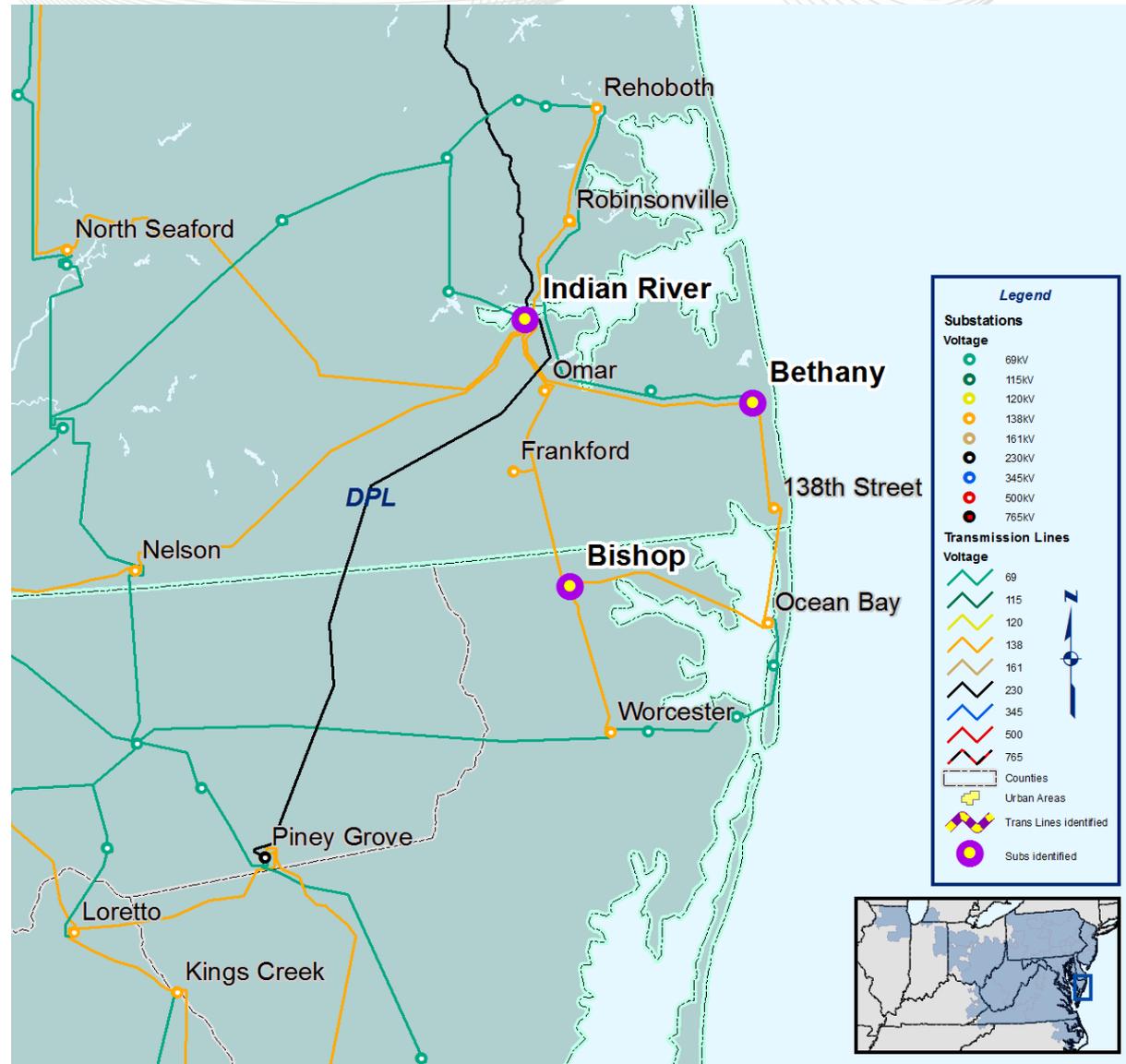
- Low voltage magnitude and voltage drop violations in the Lincoln, Landis, and Sherman areas for several 138 kV line contingency combinations.
- Recommended Upgrade: Build a new Lincoln-Landis 138 kV line
- Estimated Project Cost: \$12.5 M
- Expected IS Date: 6/1/2013



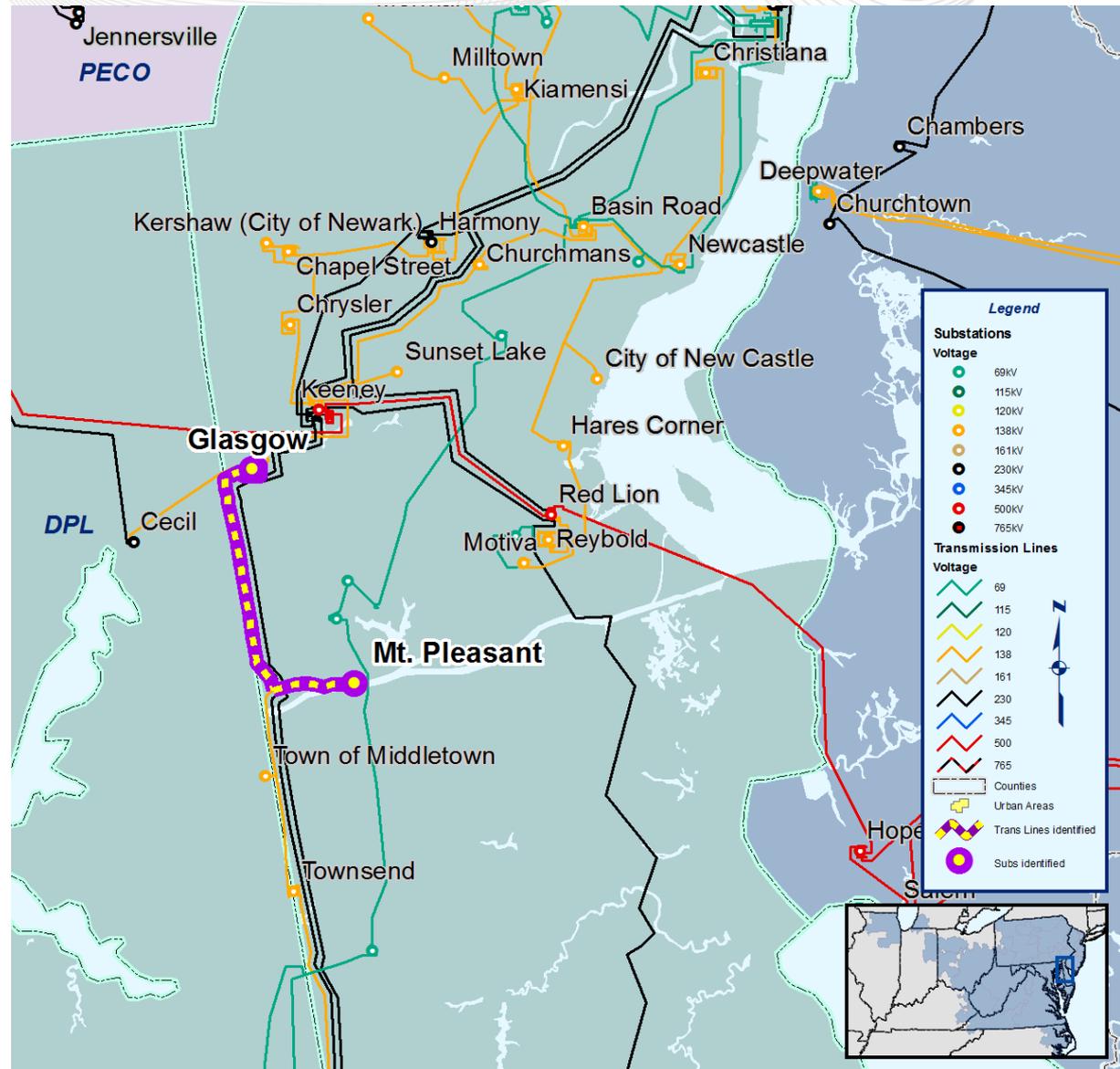
- Low voltage magnitude violations in the Motts Farm area for several contingency combinations.
- Recommended Upgrade: Install a 35 MVAR capacitor at the Motts Farm 69 kV bus
- Estimated Project Cost: \$2.8 M
- Expected IS Date: 6/1/2013



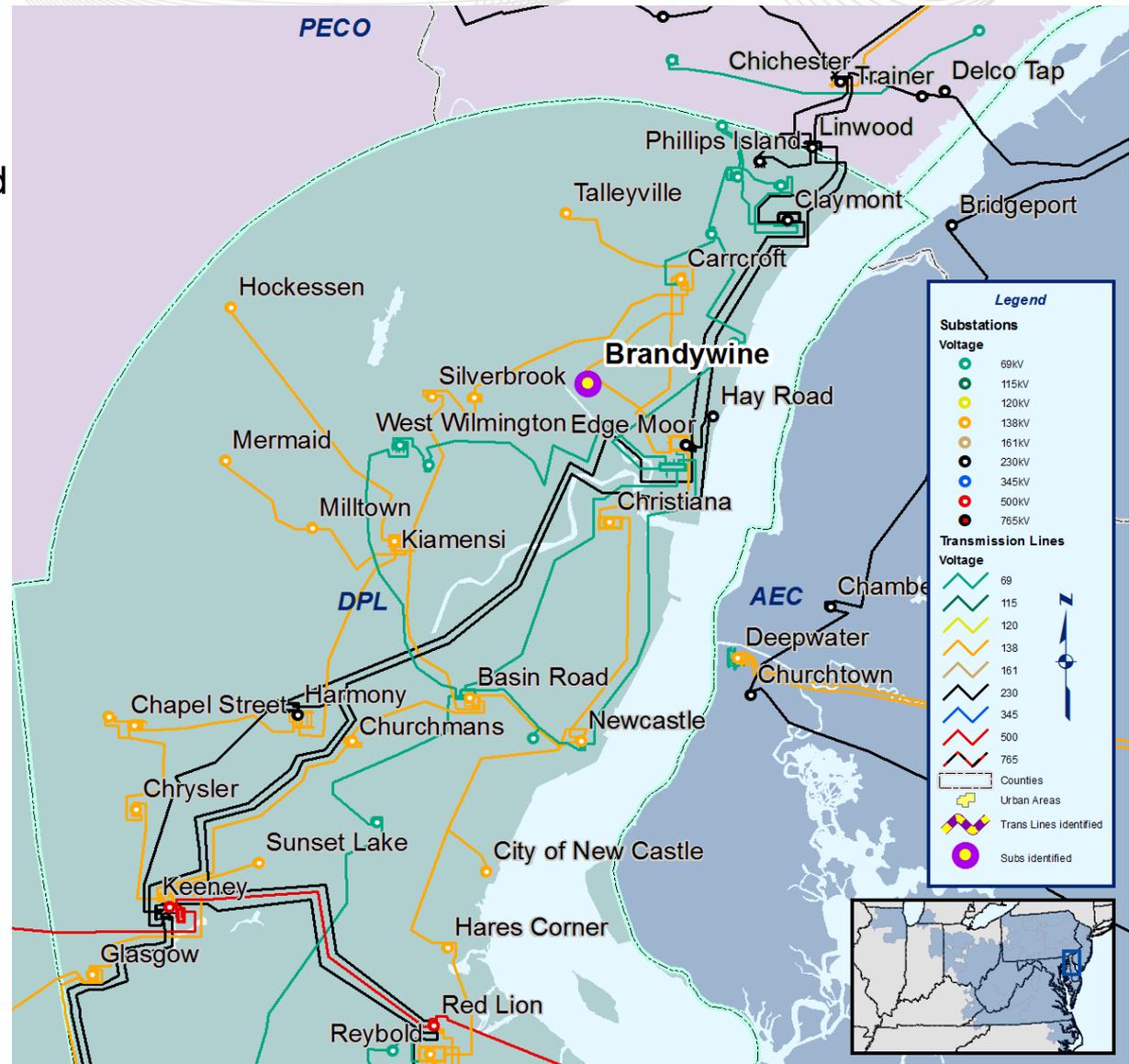
- Baseline upgrade to rebuild Indian River-Bethany 138 kV line(b0735) now cancelled
- The upgrade is no longer needed due to the baseline upgrade to build a new Indian River-Bishop 138 kV line
- Both upgrades were presented at the September 2008 TEAC



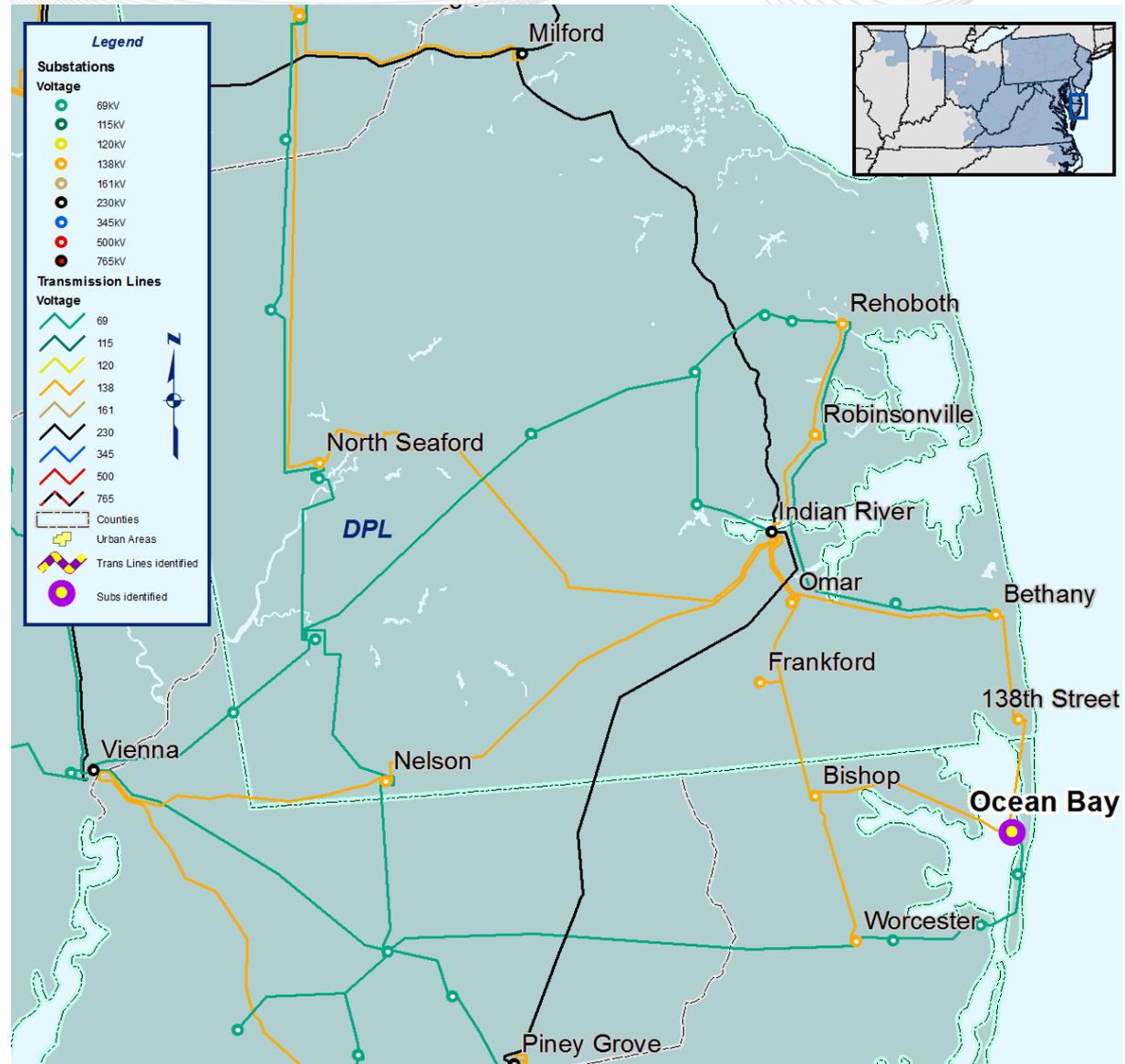
- Baseline upgrade to rebuild Steele-Church 138 kV line (b0734) now cancelled
- This upgrade was presented at the September 2008 TEAC
- This upgrade addressed the thermal violations in the area, but does not address the reactive violations.
- The new proposed upgrade is to build a 2nd Glasgow-Mt Pleasant 138 kV line which resolves both the thermal and reactive violations.
- Estimated Project Cost: TBD
- Expected IS Date: 6/1/2013



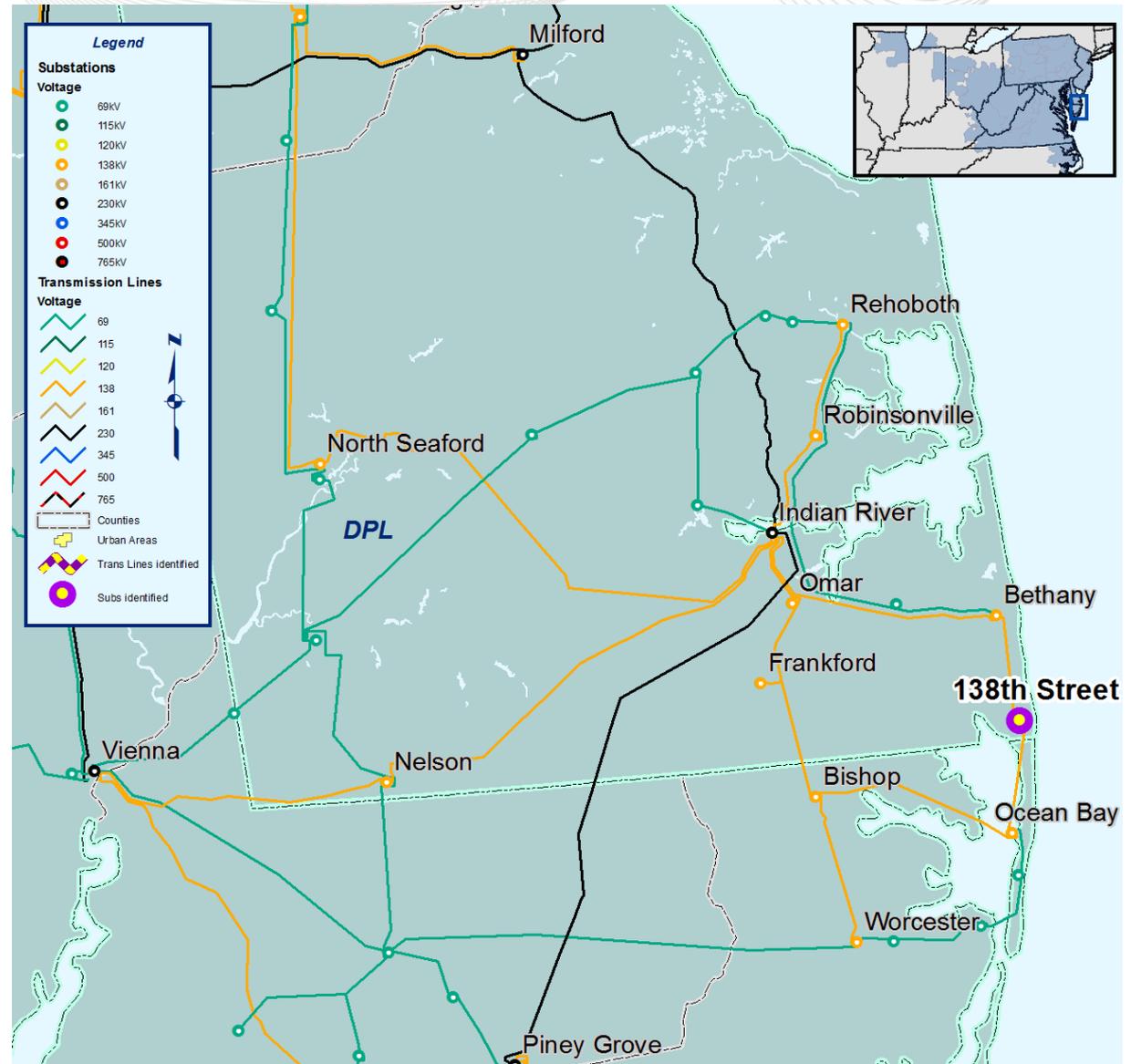
- Baseline upgrade to rebuild Edge Moor-Silverside 69 kV line(b0736) now cancelled
- This upgrade was presented at the September 2008 TEAC
- This upgrade addressed the thermal violations in the area, but does not address the reactive violations.
- The new proposed upgrade is to reconfigure the Brandywine 138 kV substation which resolves both the thermal and reactive violations.
- Estimated Project Cost: TBD
- Expected IS Date: 6/1/2013



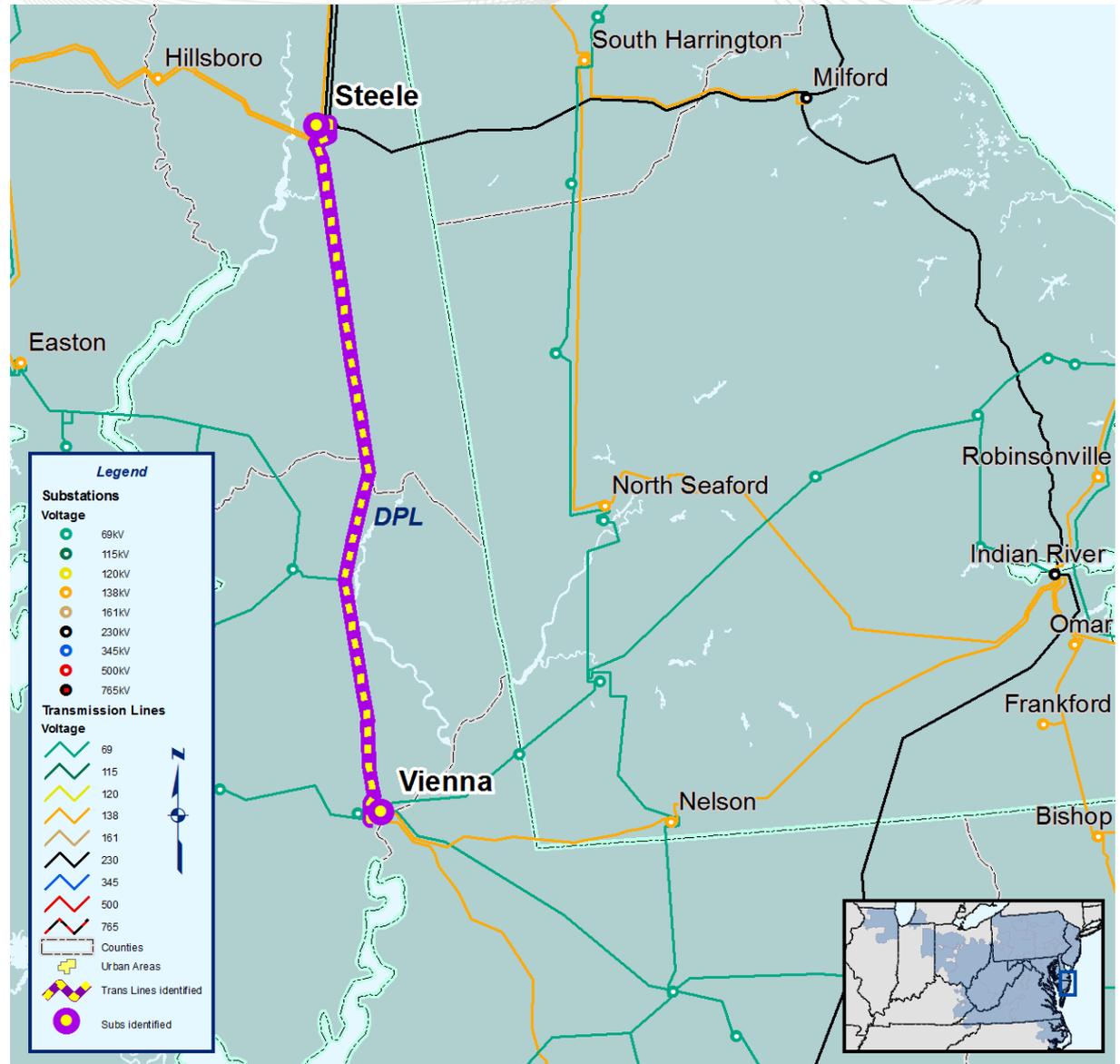
- Low voltage magnitude violations in the Ocean Bay area for several contingency combinations.
- Install a 30 MVAR capacitor at the Ocean Bay 69 kV bus
- Estimated Project Cost: TBD
- Expected IS Date: 6/1/2013



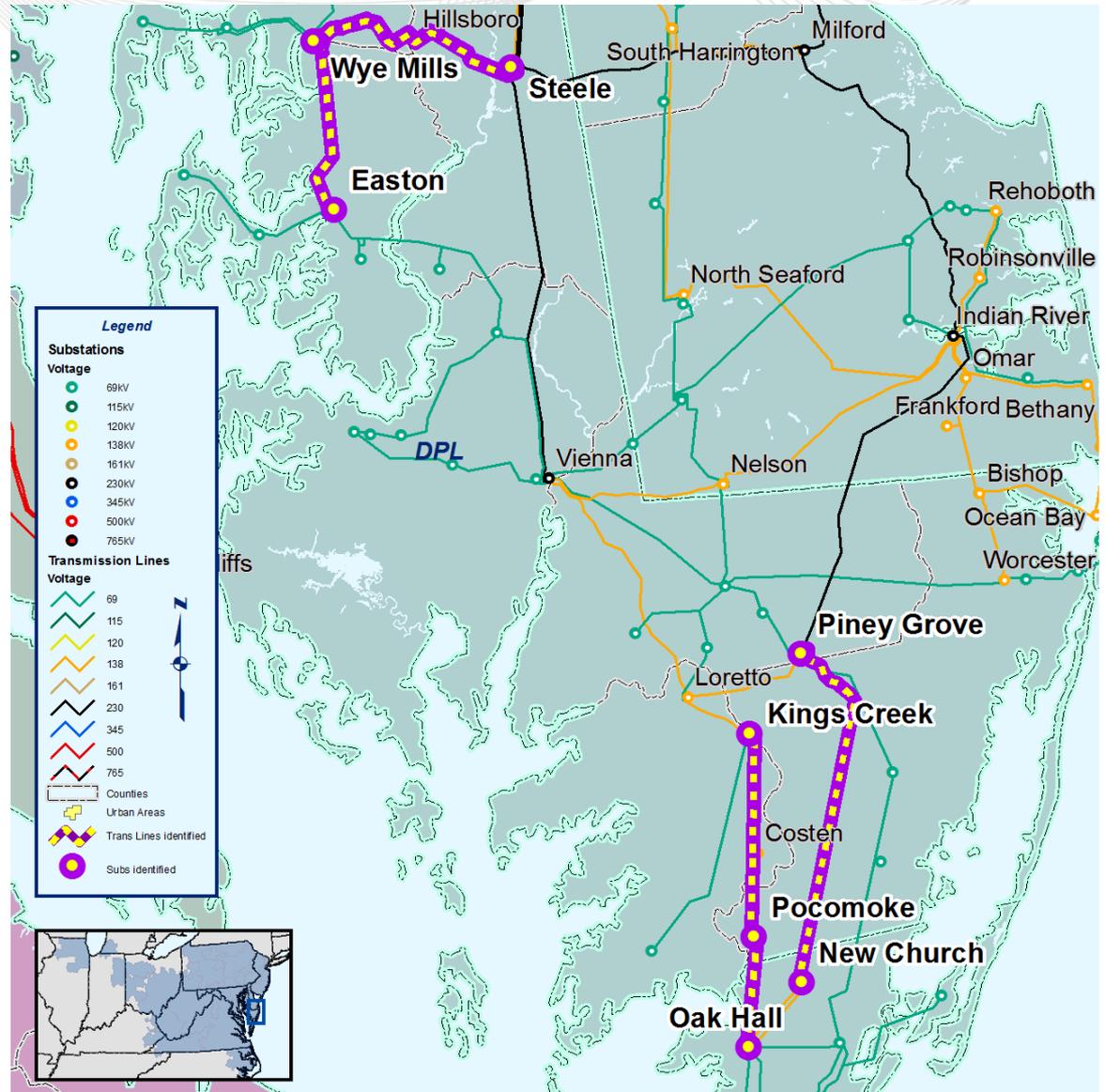
- Low voltage magnitude and voltage drop violations in the 138th Street area for several contingency combinations.
- Install a 50 MVAR SVC at the 138th Street 138 kV bus
- Estimated Project Cost: TBD
- Expected IS Date: 6/1/2013



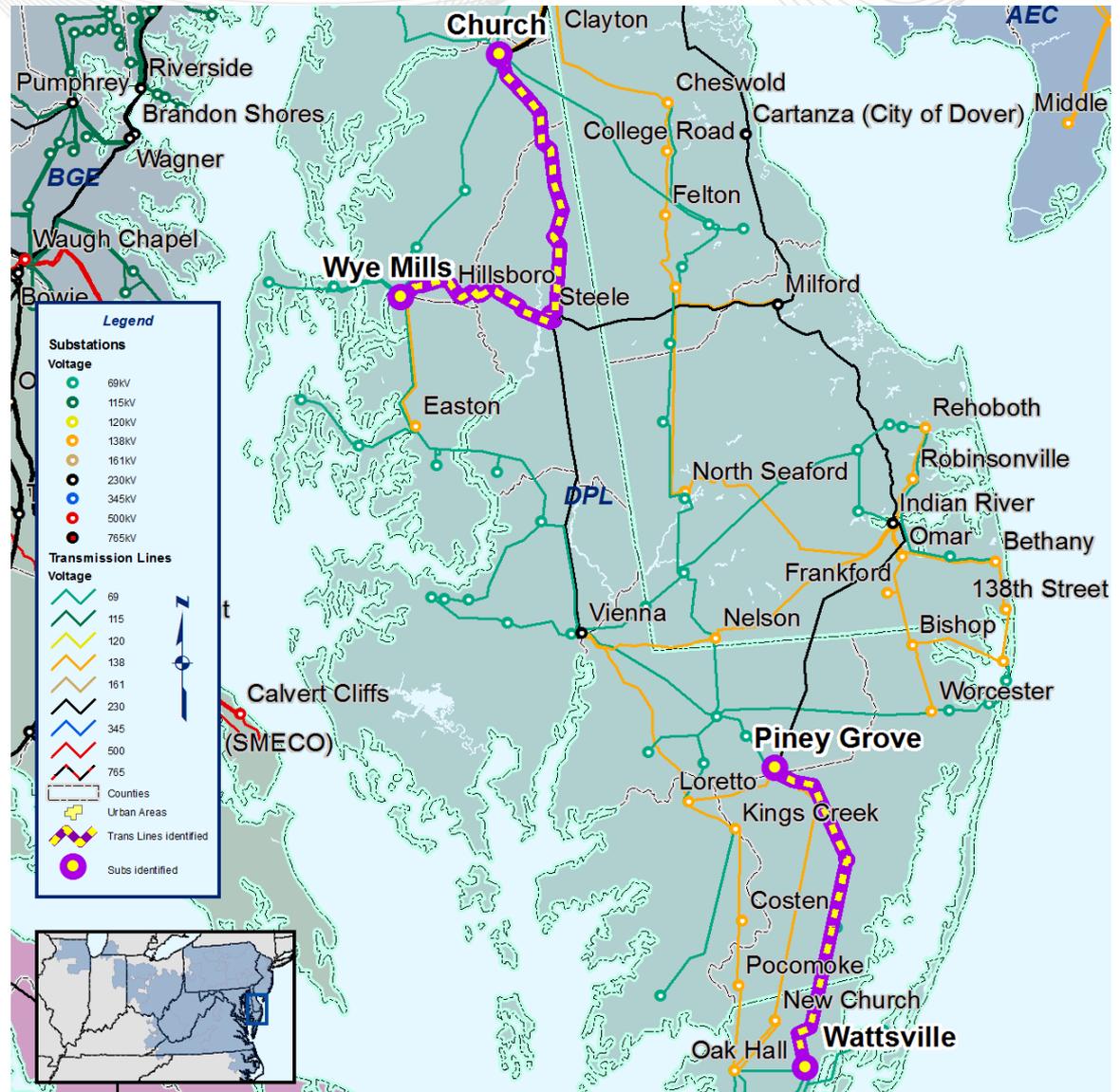
- Low voltage magnitude and voltage drop violations as well as non-convergence for several N-1-1 combinations of contingencies involving the loss of Steele-Vienna 230 kV line
- Build a 2nd Steele-Vienna 230 kV line
- Estimated Project Cost: TBD
- Expected IS Date: 6/1/2013



- Low voltage magnitude and voltage drop violations as well as non-convergence for the following N-1-1 contingencies:
 - Loss of Steele-Wye Mills 138 kV line + loss of Steele-Easton 138 kV line
 - Loss of Pocomoke-Kings Creek 138 kV line + loss of Piney-N.Church 138 kV line
 - Loss of Pocomoke-Oak Hall 138 kV line + loss of Piney-N.Church 138 kV line



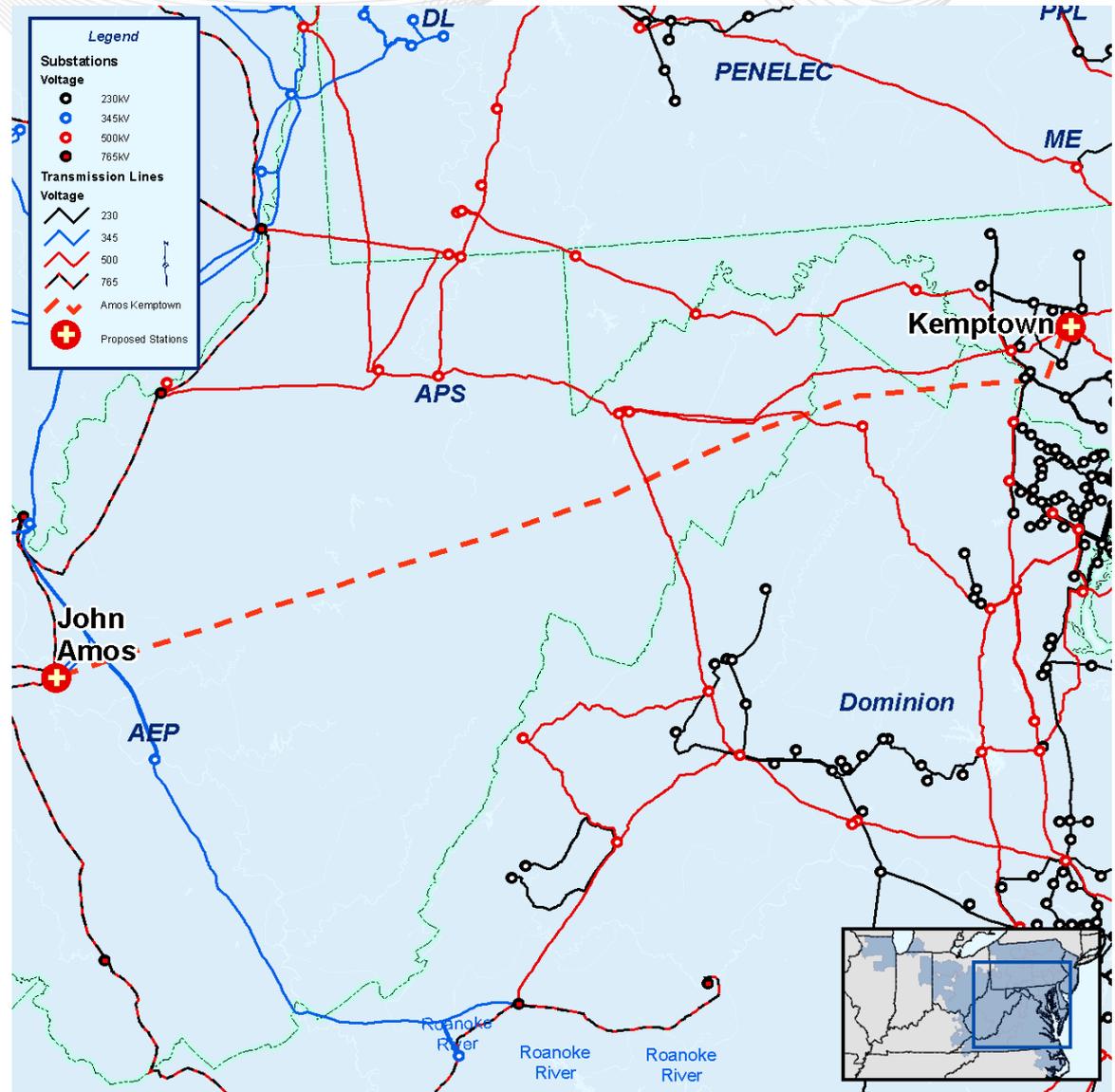
- The following upgrades resolve the violations on the previous slide:
- Proposed Upgrade: Build a new Wye Mills-Church 138 kV line
- Estimated Project Cost: TBD
- Expected IS Date: 6/1/2013
- Proposed Upgrade: Build a new Wattsville-Piney Grove 138 kV line
- Estimated Project Cost: TBD
- Expected IS Date: 6/1/2013





2013 Backbone Projects

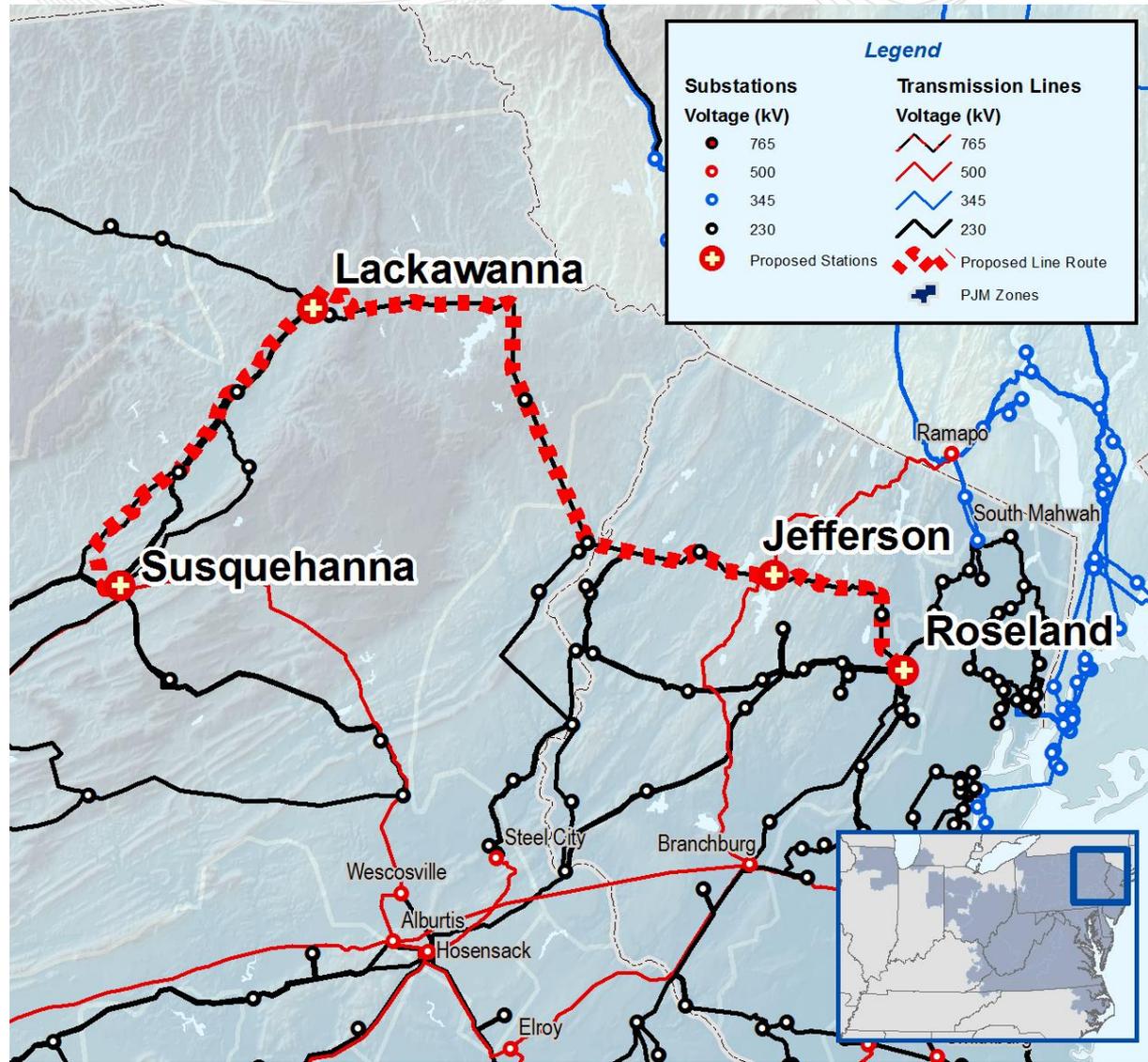
- Previous analysis identified several overloads on 500 kV facilities across the central Pennsylvania / Allegheny Mountain corridor
- Results of the March 2009 retool of 2013 show that without the Amos to Kemptown project there are no thermal overloads in 2013 through the same area
- This assumed the TRAIL line is placed in-service as retool analysis continues to demonstrate the need for the line by June 2011
- Preliminary results of 2014 analysis identified violations starting in 2014.
- Final results of this work will be presented at the next TEAC





2012 Retool Results

- Previous analysis identified multiple overloads on EMAAC facilities starting in 2012
- Initial results of the March 2009 retool show similar problems to those identified in previous assessments
- The following slides show overloaded facilities without the Susquehanna – Roseland line.
- Based on these retool results the required in-service date for the Susquehanna – Roseland line remains June 2012.



Overloaded Facility			Year Overloaded
Fr Name	To Name	KV	
Readington	Roseland	230	2012
Branchburg	Readington	230	2012
Greystone	Whippany	230	2013
Whippany	Roseland	230	2013
Montville	Roseland	230	2016
Martins Creek	Portland	230	2016
Richmond	Camden	230	2017
Kittatinny	Pohatcong	230	2018
West Wharton	Greystone	230	2018
Glenn Gardner	Chester	230	2019
Kittatinny	Newton	230	2021
Newton	Lake Illiff	230	2022
Coxs Corner	Lumberton	230	2022

Overloaded Facility			Year Overloaded
Fr Name	To Name	KV	
Newton	Lake Illiff	230	2012
Kittatinny	Newton	230	2012
Lake Illiff	Montville	230	2012
Greystone	Whippany	230	2012
West Wharton	Greystone	230	2012
Martins Creek	Portland	230	2013
Kittatinny	Pohatcong	230	2014
Portland	Kittatinny	230	2015
Glen Gardner	Chester	230	2015
Martins Creek	Morris Park	230	2021



2010 Retool

- Jack's Mountain (b0284.1) – formerly known as Airydale was evaluated to determine if it was still required in 2010.
- Originally identified to address widespread voltage issues for Eastern Mid-Atlantic load deliverability conditions.
- Initial results of our 2010 retool indicates the project is not required in 2010
- Analysis of 2011 is pending base case development

- Subregional RTEP Committee meetings
 - Review 2009 RTEP assumptions
- 2010, 2012, 2013 and 2014 analysis is underway
- 2011 case development is in-progress