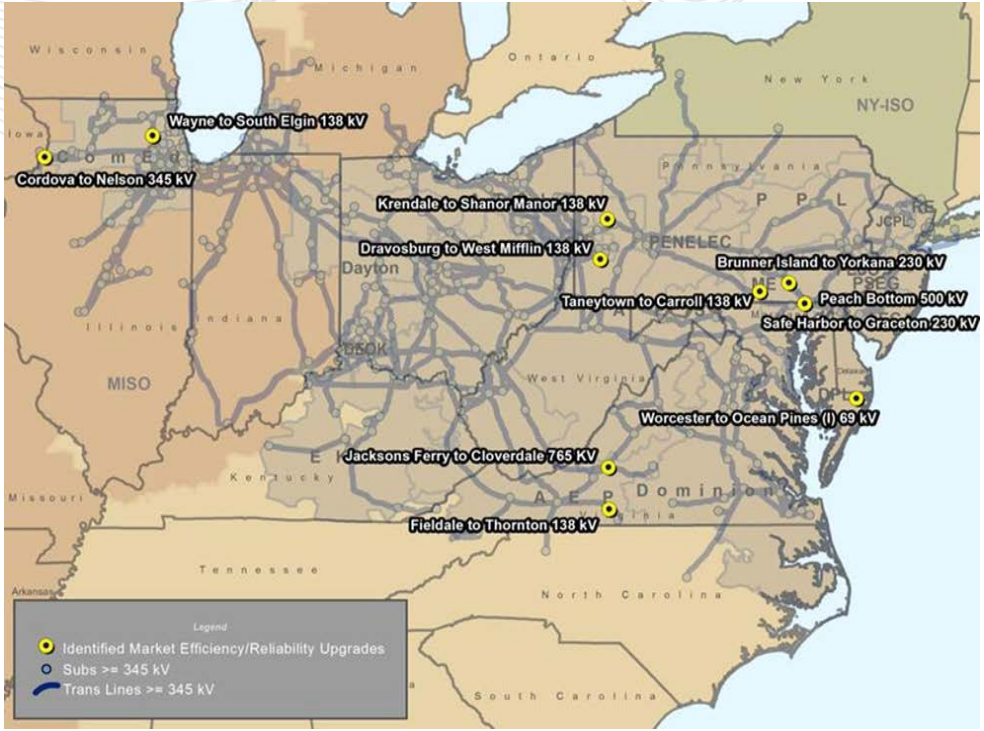
Transmission Expansion Advisory Committee
Market Efficiency Update

July 14, 2016

Market Efficiency 2014/15 Long Term Proposal Window Update

2014/15 Market Efficiency Approved Projects: October 2015

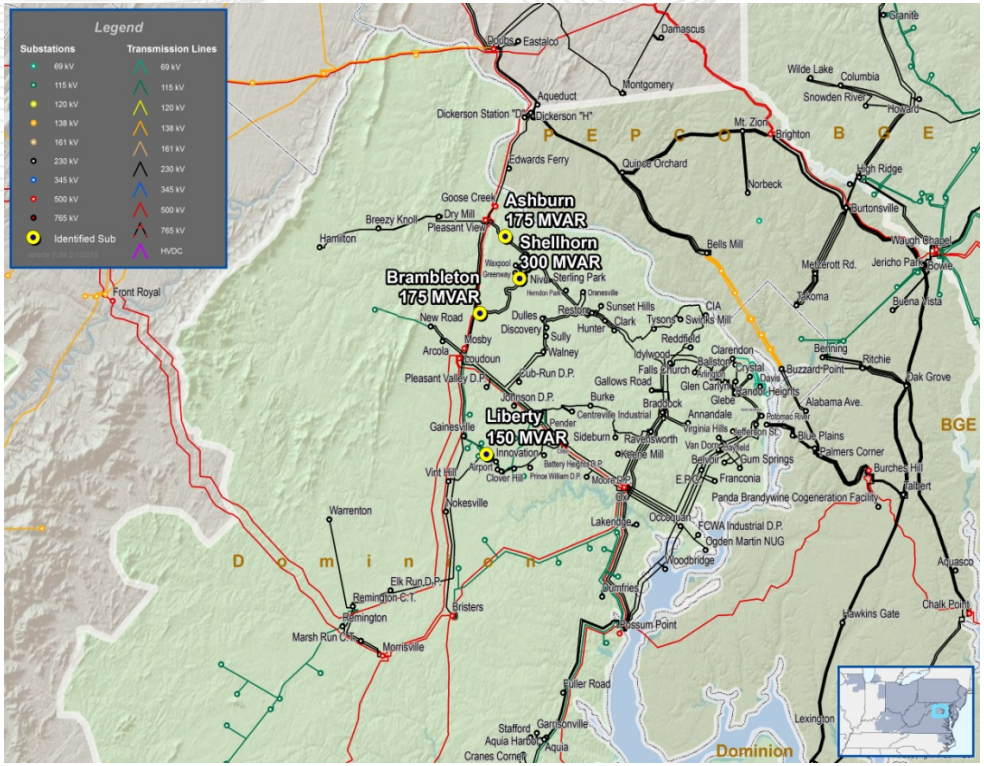
- In 2015, the PJM Board approved 11 Market Efficiency projects for inclusion into the 2015 RTEP.
- Projects consisted of upgrades to existing equipment.
- Designated to the incumbent transmission owners.



2014/15 Market Efficiency Approved Projects: February 2016

- At the February 2016 Board meeting, the PJM board approved a set of capacitors to address congestion associated with PJM IROL reactive interfaces.
  - ApSouth
  - AEP-DOM

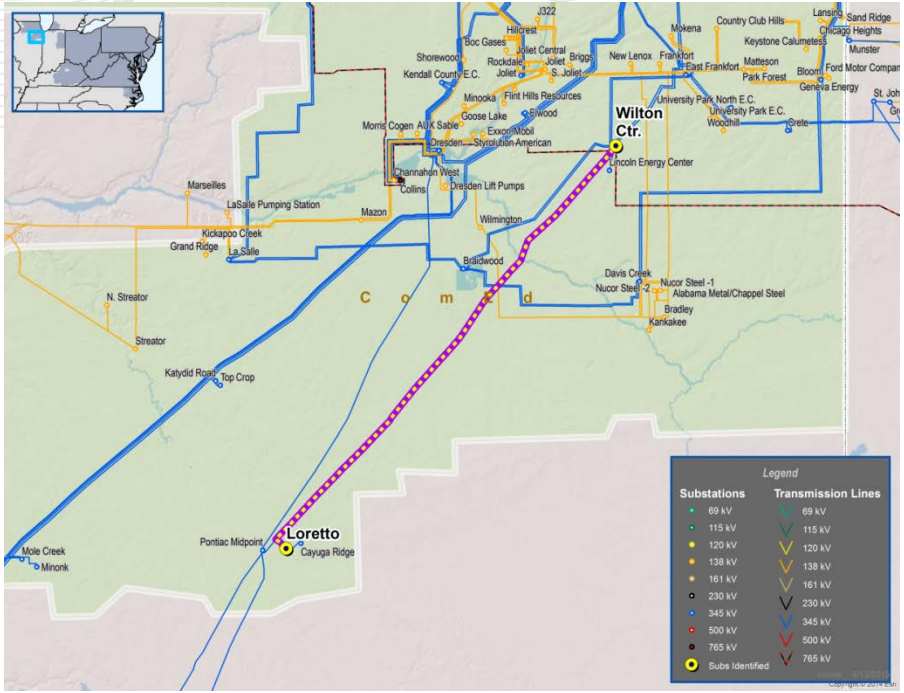
- Designated to the incumbent transmission owner.



2014/15 Market Efficiency Approved Projects: February 2016

- At the February 2016 Board meeting, the PJM board approved a RPM project to address increased capacity costs.
  - Mitigate sag limitations on Loretto-Wilton Center 345 kV line, and replace station conductor at Wilton Center.

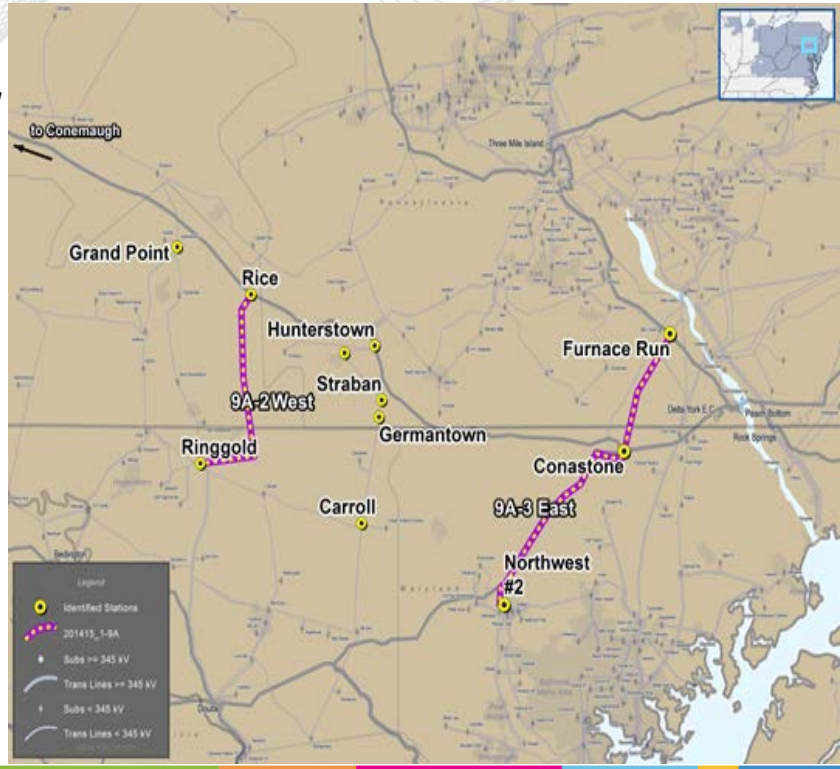
- Designated to the incumbent transmission owner.



2014/15 Market Efficiency Recommended Project: August 2016

Project 9A (Without Capacitors)

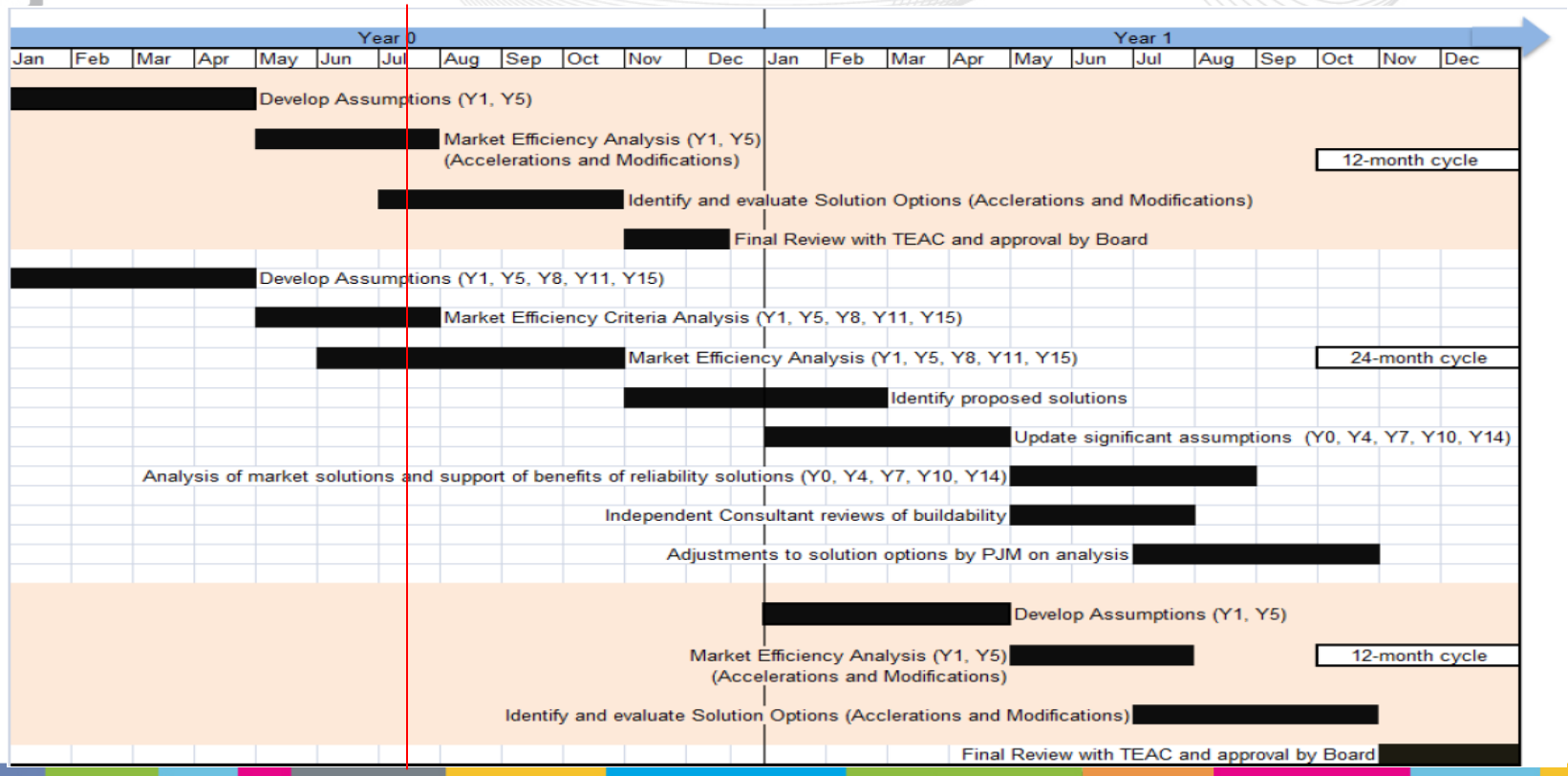
- Tap the Conemaugh - Hunterstown 500 kV line and build new 230 kV double circuit line between Rice and Ringgold.
- Build new 230 kV double circuit line between Furnace Run and Conastone.
- Rebuild of the Conastone - Northwest 230 kV line.
- Replace the Ringgold #3 and #4 transformers with 230/138 kV autotransformers
- Ringgold bus reconfiguration
- Reconductor of Ringgold-Catoctin 138 kV.
- Cost ($M)~ $340.6
- IS Date: 2020
- Recommendation to be made at August PJM Board*.



*See Appendix A for cost allocation and designated entities

Market Efficiency 2016/17 Long Term Proposal Window Update

Market Efficiency Timeline



Base Case Modeling Status

Complete

- PJM Generation Expansion model
- PJM load forecast model
- PJM Fuel & Emissions

In Progress

- Event File
- ConEd wheel removal
- Outside Regions

2016-2017 24-Month Market Efficiency Cycle Timeline

- Long Term proposal window: November 2016 - February 2017
- Analysis of proposed solutions: March 2017 - November 2017
- Determination of Final projects: December 2017

Next Steps

Milestone	Schedule 2016
Board Review of Market Efficiency Input Assumptions	August
Post Market Efficiency 2016/17 Base Scenarios (first draft)	August
Market Efficiency Preliminary Results	September
PJM review for acceleration candidates	August-September
Stakeholder feedback on model	August-September
Update Market Efficiency 2016/17 Base Scenarios	August-September
Post Market Efficiency 2016/17 Base Scenarios (final)	October
Proposal window opens	November

APPENDIX A
Final ApSouth Market Efficiency Project Recommendation

Final AP-South Market Efficiency Project Recommendation

Project 9A (Without Capacitors)

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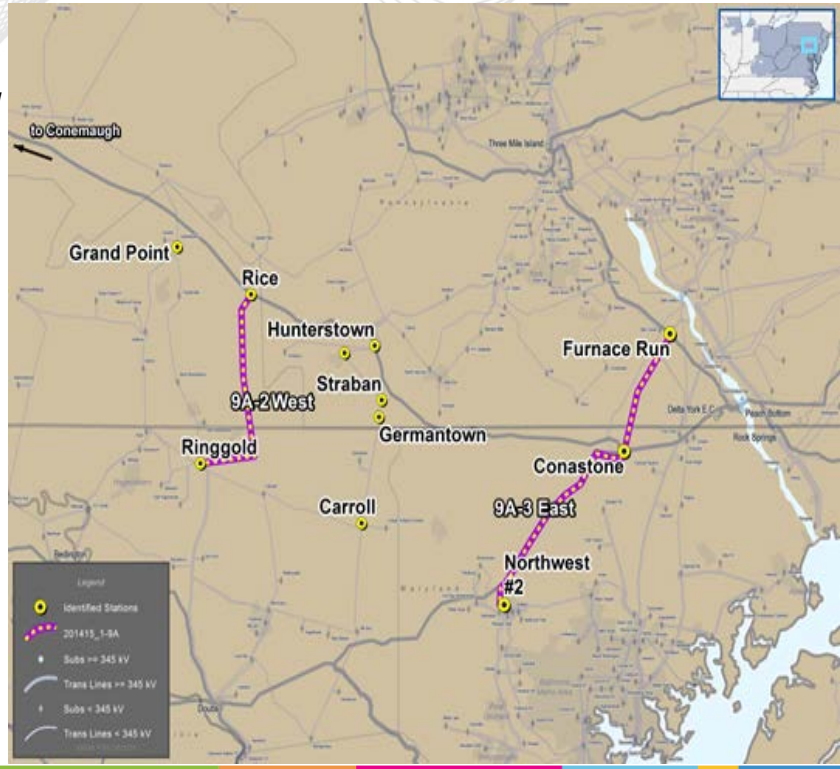

Recommended Project Designated Entities

Component Description	Designated Entity
Project 9A (Without Capacitors)	
Tap the Conemaugh - Hunterstown 500 kV line & create new Rice 500 kV & 230 kV stations. Install two 500/230 kV transformers.	Transource Energy, LLC
Build new 230 kV double circuit line between Rice and Ringgold.	Transource Energy, LLC
Tap the Peach Bottom – TMI 500 kV line & create new Furnace Run 500 kV & 230 kV stations. Install two 500/230 kV transformers.	Transource Energy, LLC
Build new 230 kV double circuit line between Furnace Run and Conastone.	Transource Energy, LLC
Rebuild the Conastone - Northwest 230 kV line.	Baltimore Gas & Electric
Additional Reliability Upgrades	
Replace the Ringgold #3 and #4 230/138 kV transformers.	Allegheny Power
Ringgold bus reconfiguration.	Allegheny Power
Rebuild/reconductor the Ringgold-Catoctin 138 kV & replace terminal equipment at both ends of the circuit.	Allegheny Power

Project 9A (Without Capacitors) Cost Allocation

Zone	Cost Allocation %
AECO	0.00%
AEP	6.46%
APS	8.73%
BGE	19.73%
COMED	2.16%
CONABCJK	0.06%
DAY	0.59%
DEOK	1.02%
DOM	39.92%
DPL	0.00%
DUQ	0.01%
EKPC	0.45%

Zone	Cost Allocation %
FE-ATSI	0.00%
JCPL	0.00%
LINDVFT	0.00%
METED	0.00%
NEPTHVDC	0.00%
O66HVDC	0.00%
PECO	0.00%
PENELEC	0.00%
PEPCO	20.87%
PLGRP	0.00%
PSEG	0.00%
RECO	0.00%

Questions?

Email: RTEP@pjm.com