

Transmission Expansion Advisory Committee Market Efficiency Update

May 12, 2016

Market Efficiency 2014/15 Long Term Proposal Window Update



AP-South Combination Project Results: Updated Cost

	9A (Without Capacitors)	Combo 18H(Modified)+ (9A-3 East)	Combo 19B+(9A-3 East)	Transource PA Combo 19D+(9A-3 East)
Project Cost	\$281.60	\$220.50	\$192.16	\$252.99
Reliability Upgrades Description	Ringgold Substation: Expand station to 230kV double breaker/double bus and replace 230/138 kV transformers.	Reliability analysis not performed	Grand Point Substation: Expand station to breaker and half.	Ringgold Substation: Expand station to 230kV double breaker/double bus and replace 230/138 kV transformers.
	Ringgold-Catoctin: Upgrade terminal equipment, rebuild/reconductor			Ringgold-Catoctin: Upgrade terminal equipment, rebuild/reconductor
Total Reliability Upgrades Cost	\$59.03		\$5.28	\$59.03
Total Cost (w Upgrd)	\$340.63	\$220.50	\$197.44	\$312.02
ISD	2020	2020	2020	2020
Delta in AEP-DOM L/O BED-BLA	(\$4)	(\$5)	(\$4)	(\$7)
Delta in AP SOUTH L/O BED-BLA	(\$49)	(\$19)	(\$26)	(\$31)
Delta in Total Interfaces Cong	(\$54)	(\$24)	(\$31)	(\$38)
Delta in Total PJM Cong	(\$83)	(\$41)	(\$44)	(\$61)
B/C Ratio	2.48	2.46	2.39	1.97
Delta in Gross Load Payment	(\$30)	(\$9)	(\$33)	(\$13)
Delta in Production Cost	(\$31)	(\$16)	(\$17)	(\$25)
Comments		Minor congestion increase on Graceton – Bagley (BGE)	Minor congestion increase on Graceton – Bagley (BGE)	Minor congestion increase on Graceton – Bagley (BGE)

*Deltas represent totals of 2019 and 2022 study years

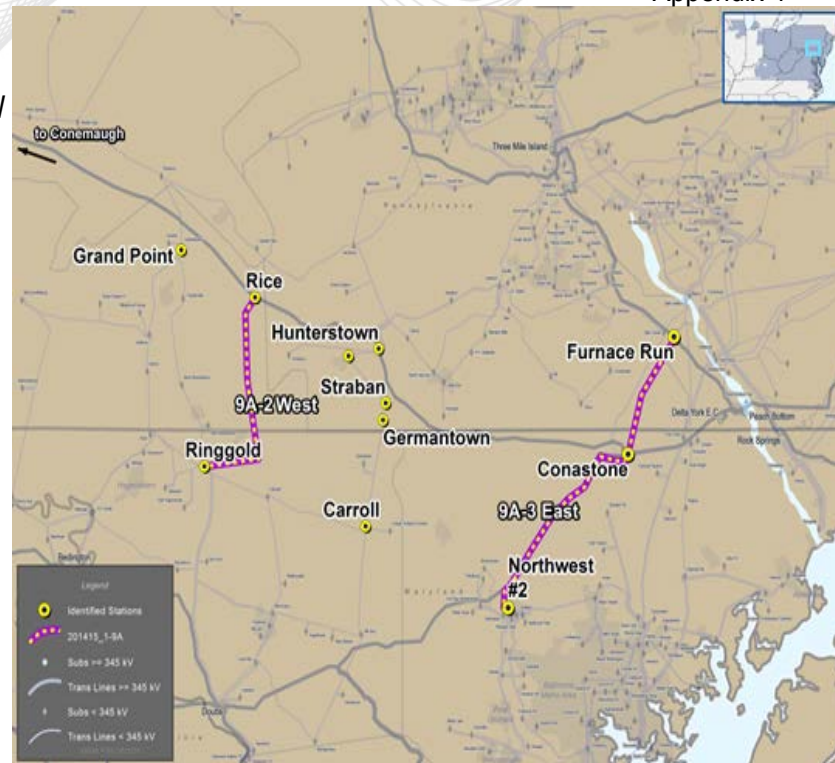
Project 9A (Without Capacitors) provides the most benefits

- Highest B/C ratio
- Most AP-South congestion savings
- Most total PJM congestion savings
- Most production cost savings

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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 next PJM Board.



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

- The draft 2014/15 Long-term proposal window constructability white paper has been posted
- The white paper summarizes the independent cost review for several projects with costs exceeding \$50 million
 - <http://www.pjm.com/~media/committees-groups/committees/teac/20160512/20160512-2014-2015-long-term-proposal-window-independent-cost-review-white-paper.ashx>

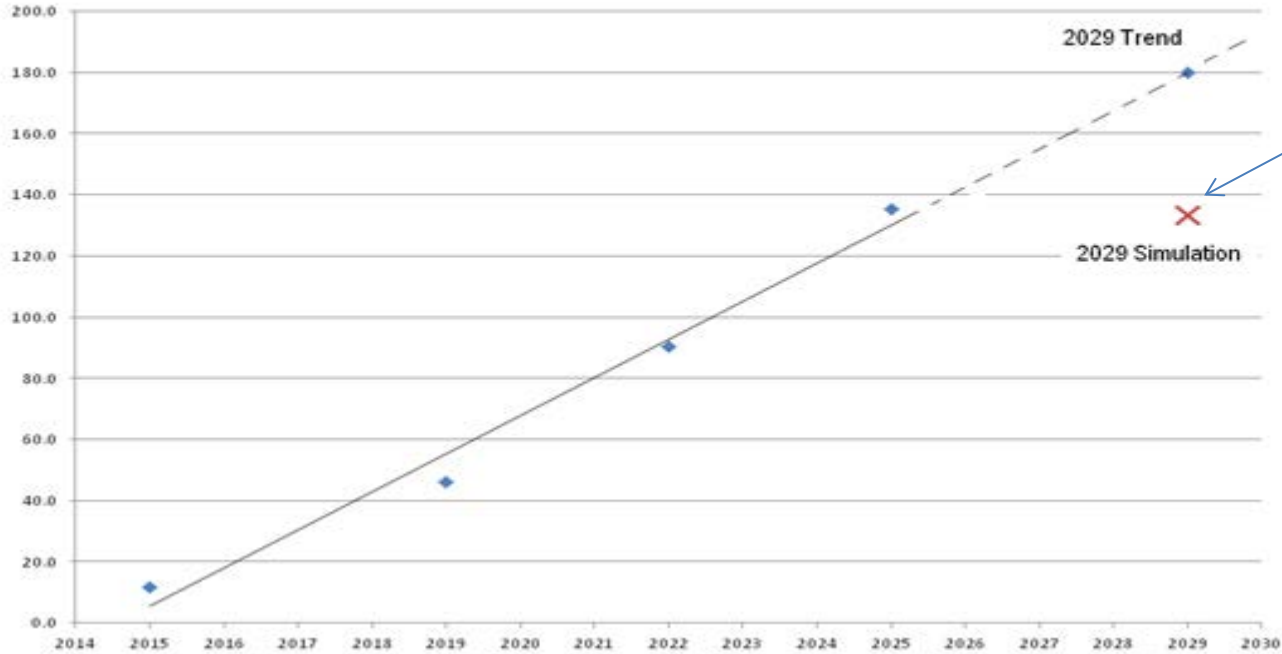




Trend for Net Load Benefits of Recommended Project 9A (Without Capacitors)

Transource PA
Appendix 4

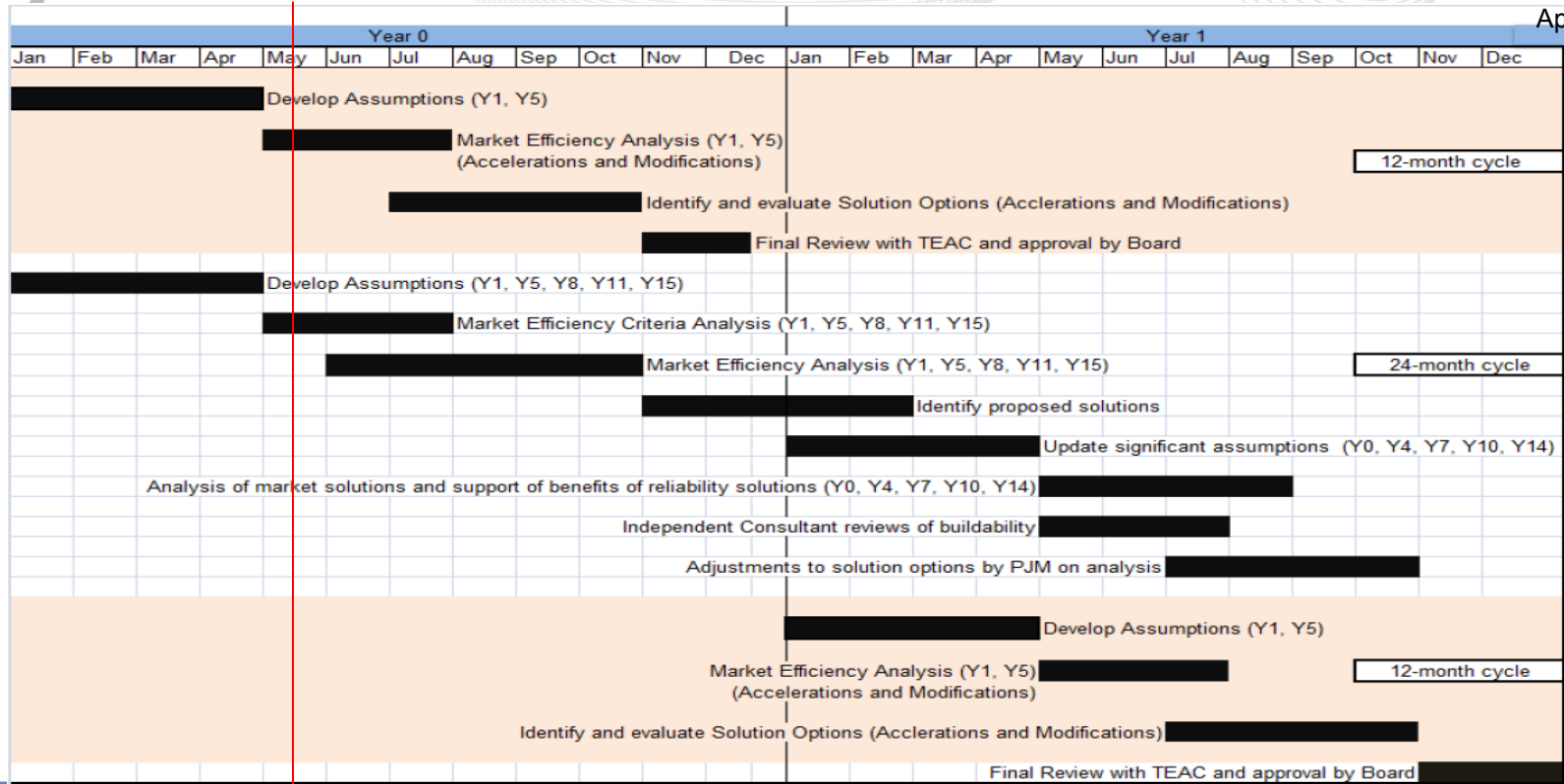
Market Efficiency Project 9A (Without Capacitors) Trend of Net Load Benefits



Not used in Actual
B/C Evaluation



Market Efficiency 2016/17 Long Term Proposal Window Update



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

Finalize Market Efficiency Inputs	June
Board Review of Market Efficiency Input Assumptions	June
Market Efficiency Preliminary Results:	July
Post Market Efficiency Base Scenarios:	July
Stakeholder feedback on model:	August-September
PJM review for acceleration candidates:	August-October
Proposal window opens:	November

Questions?

Email: RTEP@pjm.com