

Transmission Expansion Advisory Committee

January 6, 2011

Issues Tracking

Open Issues: None

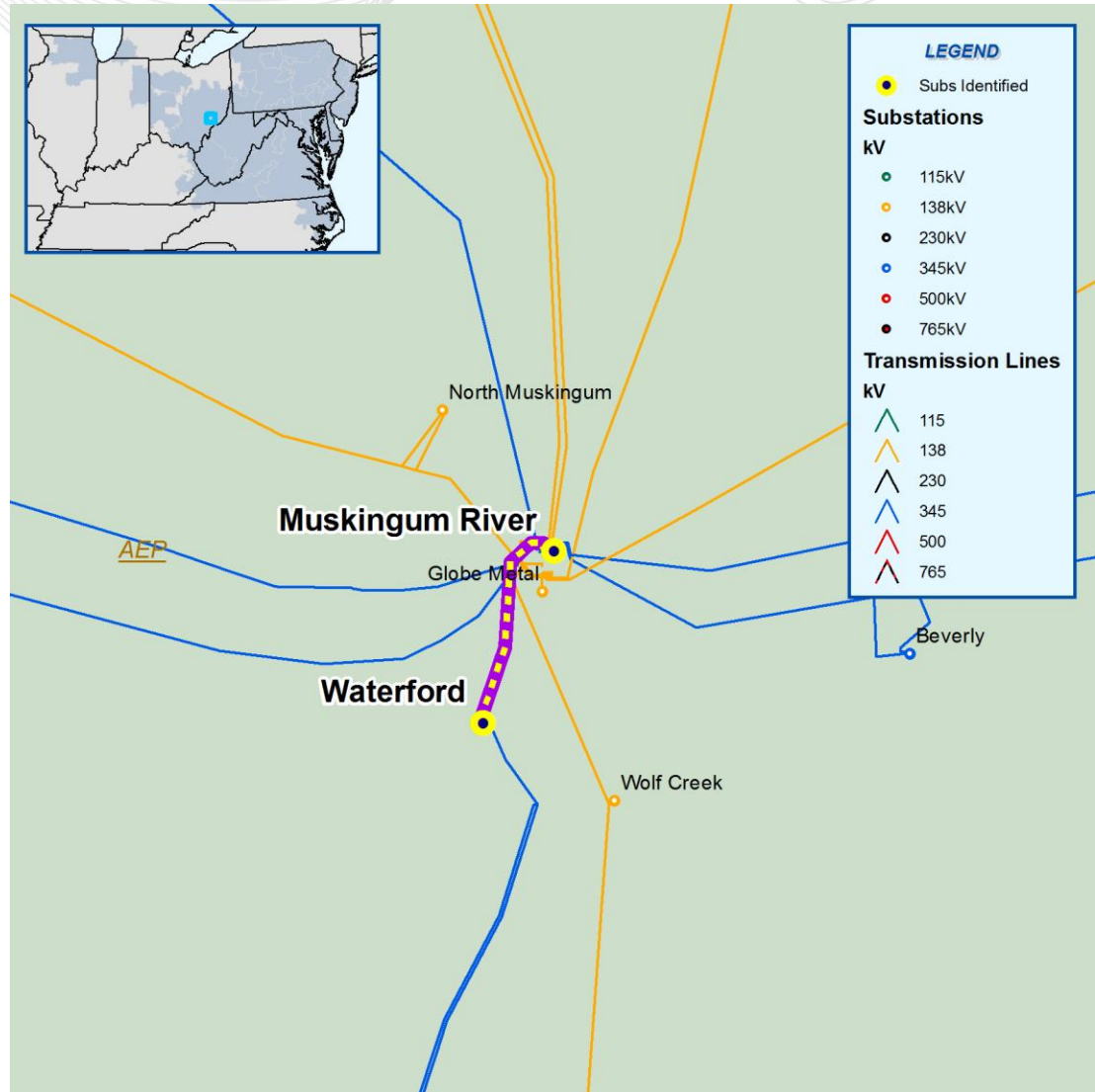
New Issues:

Baseline Reliability Update

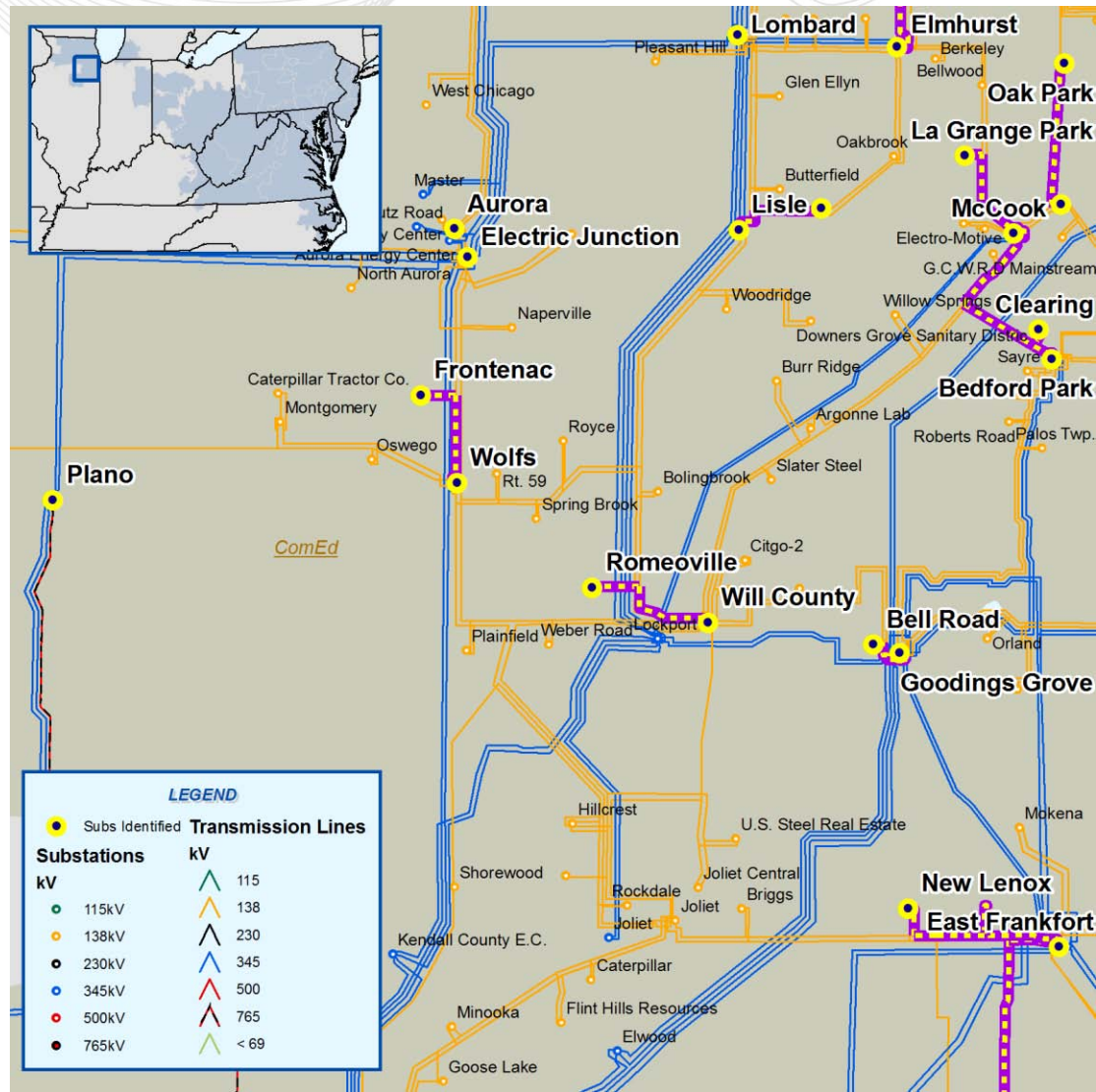
- 2015 N-1-1 voltage study
 - Results distributed to the TO's, mitigation plans developing
 - Dominion study in progress

- Finalizing review of a few SRRTEP – South potential reinforcements

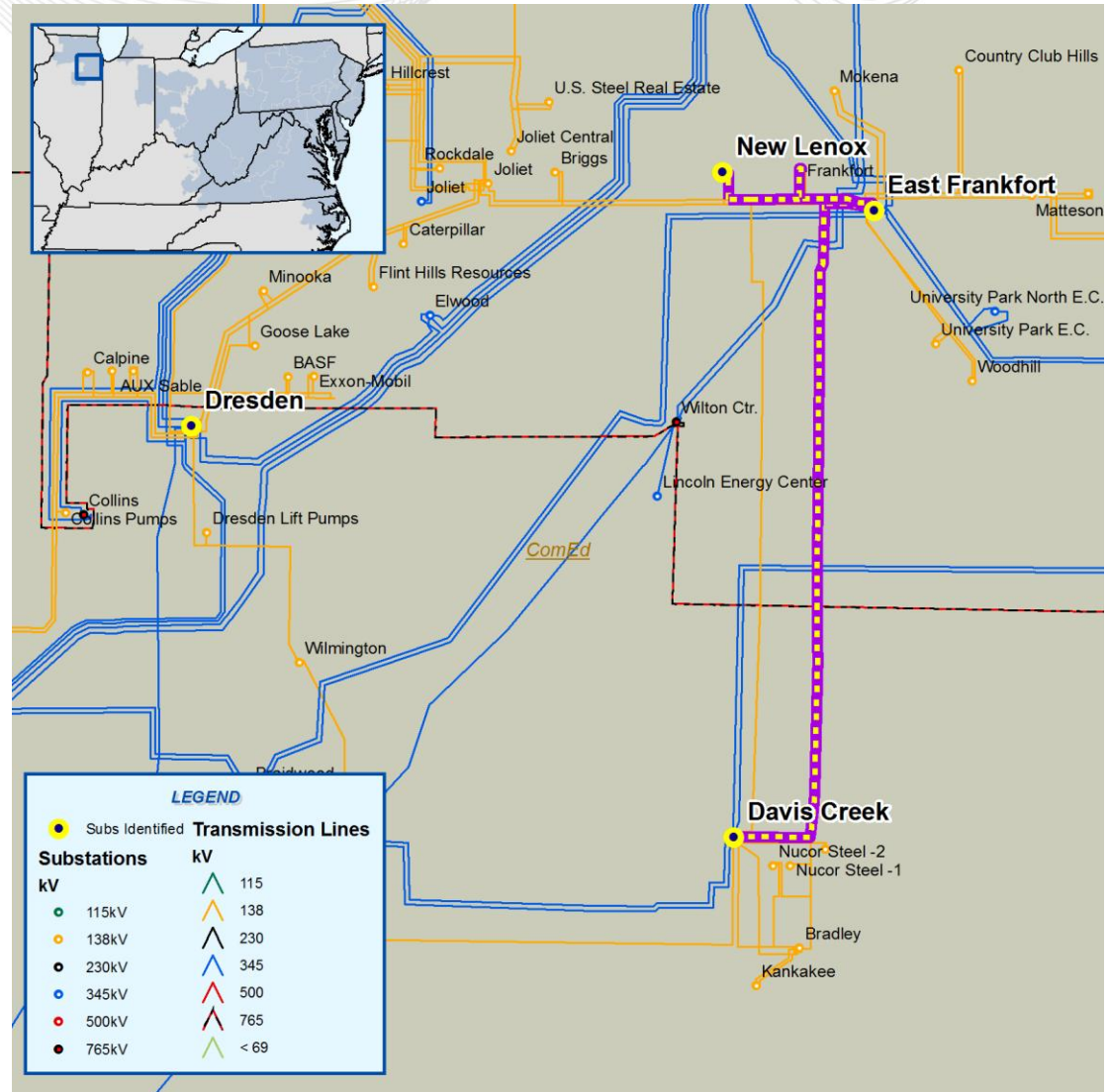
- The reliability criteria violation driving the need to reconductor the Waterford – Muskingum 345 kV circuit (5 miles) and upgrade of the Muskingum risers (B1460) can be accomplished by upgrading Muskingum risers only
- Recommended Solution: Modify B1460 to reflect this scope change
- Original Estimated Project Cost: \$14 M
- New Estimated Project Cost: \$0.5 M
- Expected IS Date: 6/1/2015



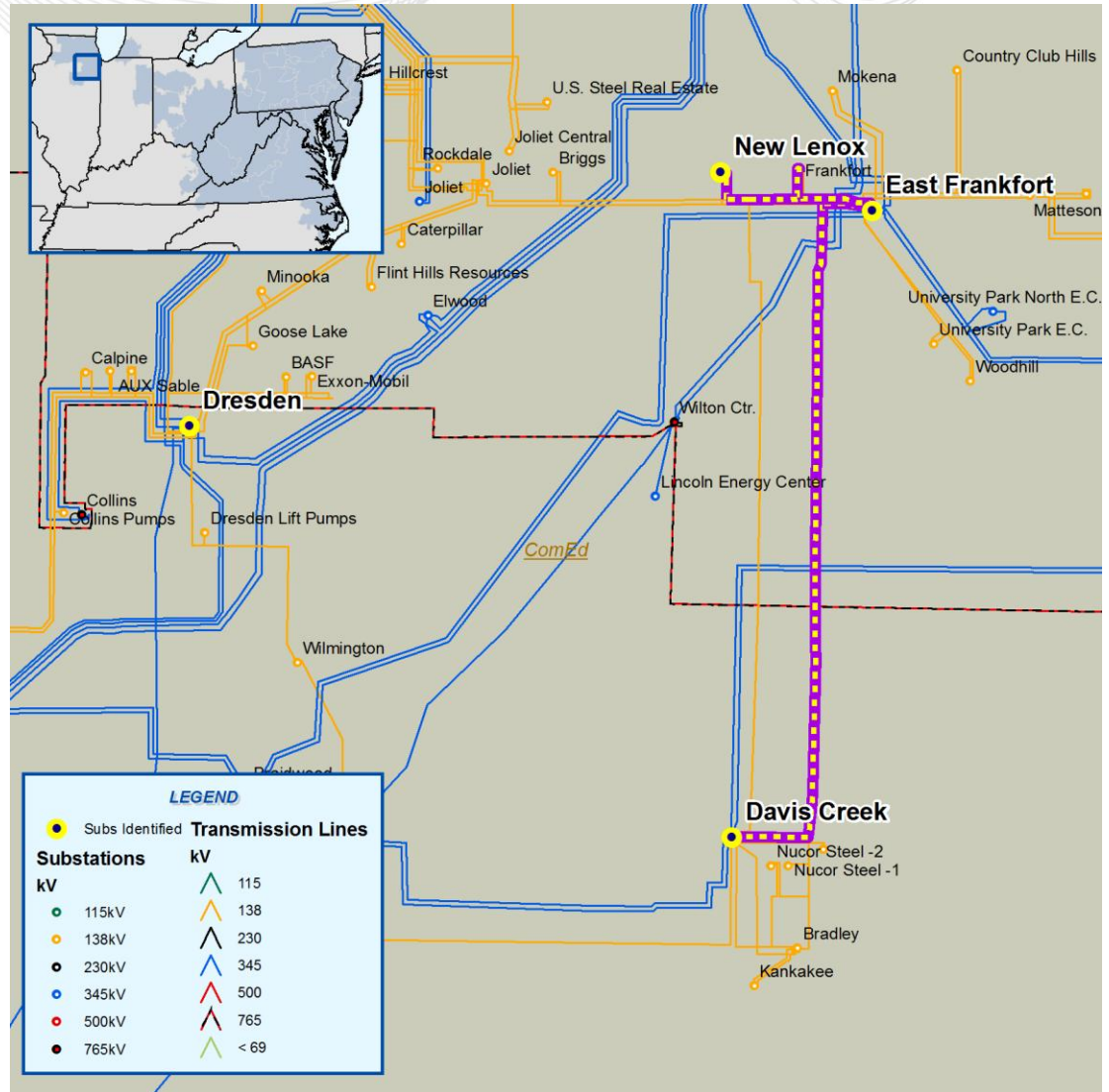
- N-1-1 Thermal Violation
- Bell Road RT – Goodings Grove R 138 kV line is overloaded for various combinations of single contingencies
- Recommended Solution: Reconductor a section of L1811 & replace station conductor (B1511)
- Estimated Project Cost: \$0.5 M
- Expected IS Date: 6/1/2014



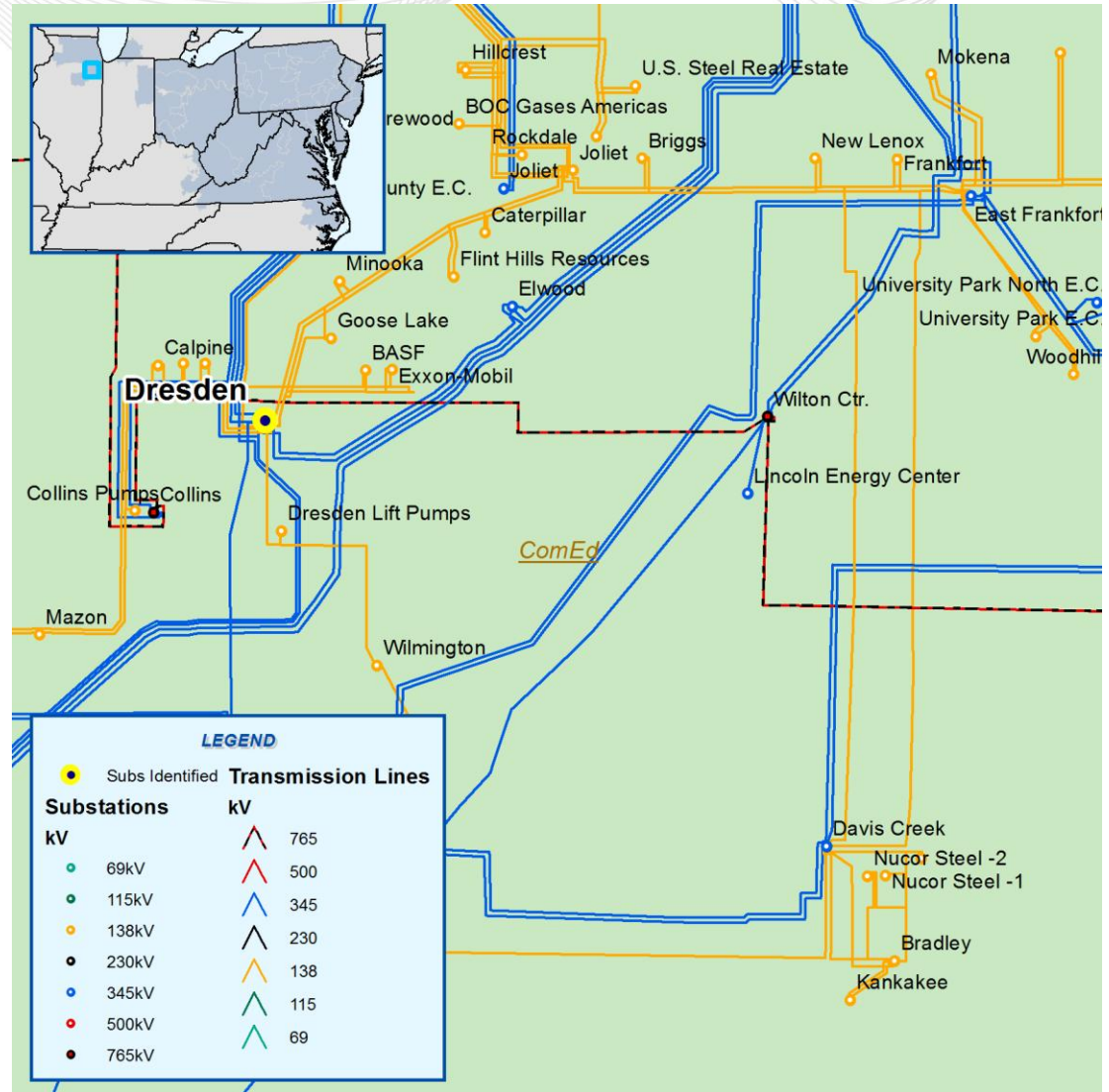
- N-1-1 Thermal Violation
- Davis Creek – East Frankfort Red 38 kV line is overloaded for various combinations of single contingencies
- Recommended Solution: Reconductor L0902 (section 4). Reconductor 1.493 mi of 477 ACSR cond. (B1512)
- Estimated Project Cost: \$2.1 M
- Expected IS Date: 6/1/2014



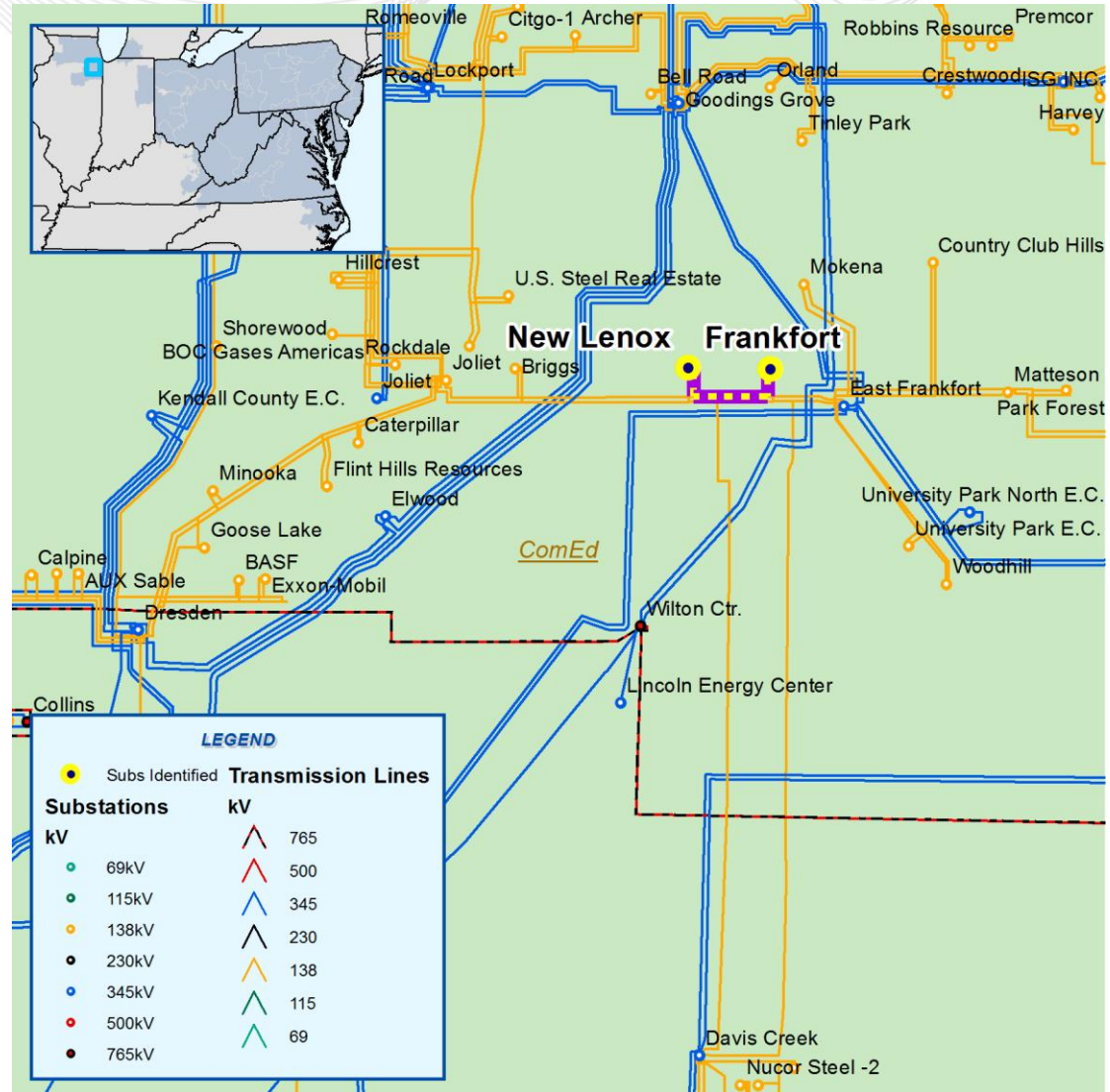
- N-1-1 Thermal Violation
- Davis Creek – New Lenox Blue 138 kV line is overloaded for various combinations of single contingencies
- Recommended Solution: Reconductor a section of L0901 (B1513)
- Estimated Project Cost: \$1.5 M
- Expected IS Date: 6/1/2014



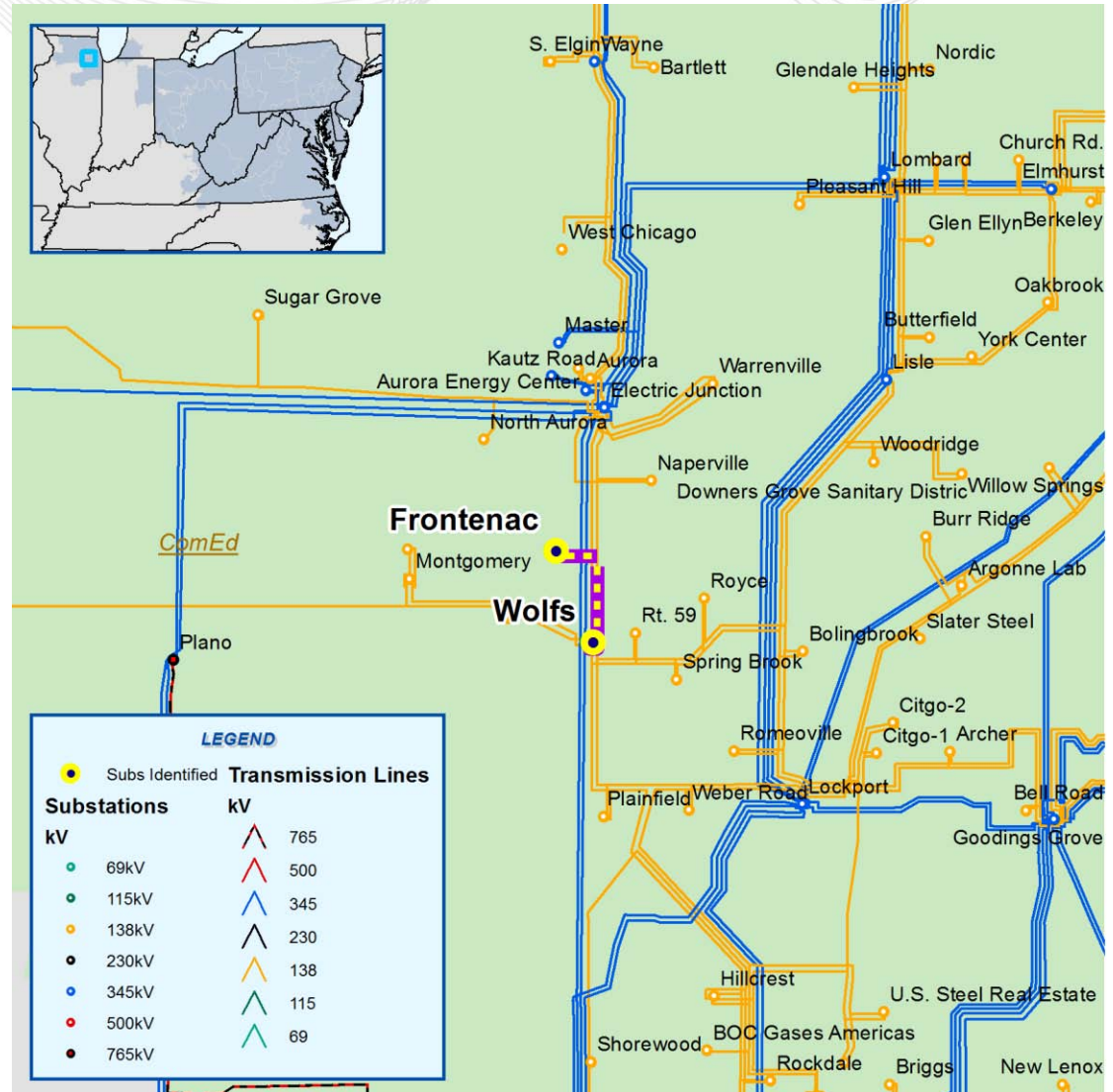
- N-1-1 Thermal Violation
- Dresden B – J390 BT 138 kV line is overloaded for various combinations of single contingencies
- Recommended Solution: Replace line trap on L1210 at Station 12 Dresden (B1514)
- Estimated Project Cost: \$0.071 M
- Expected IS Date: 6/1/2014



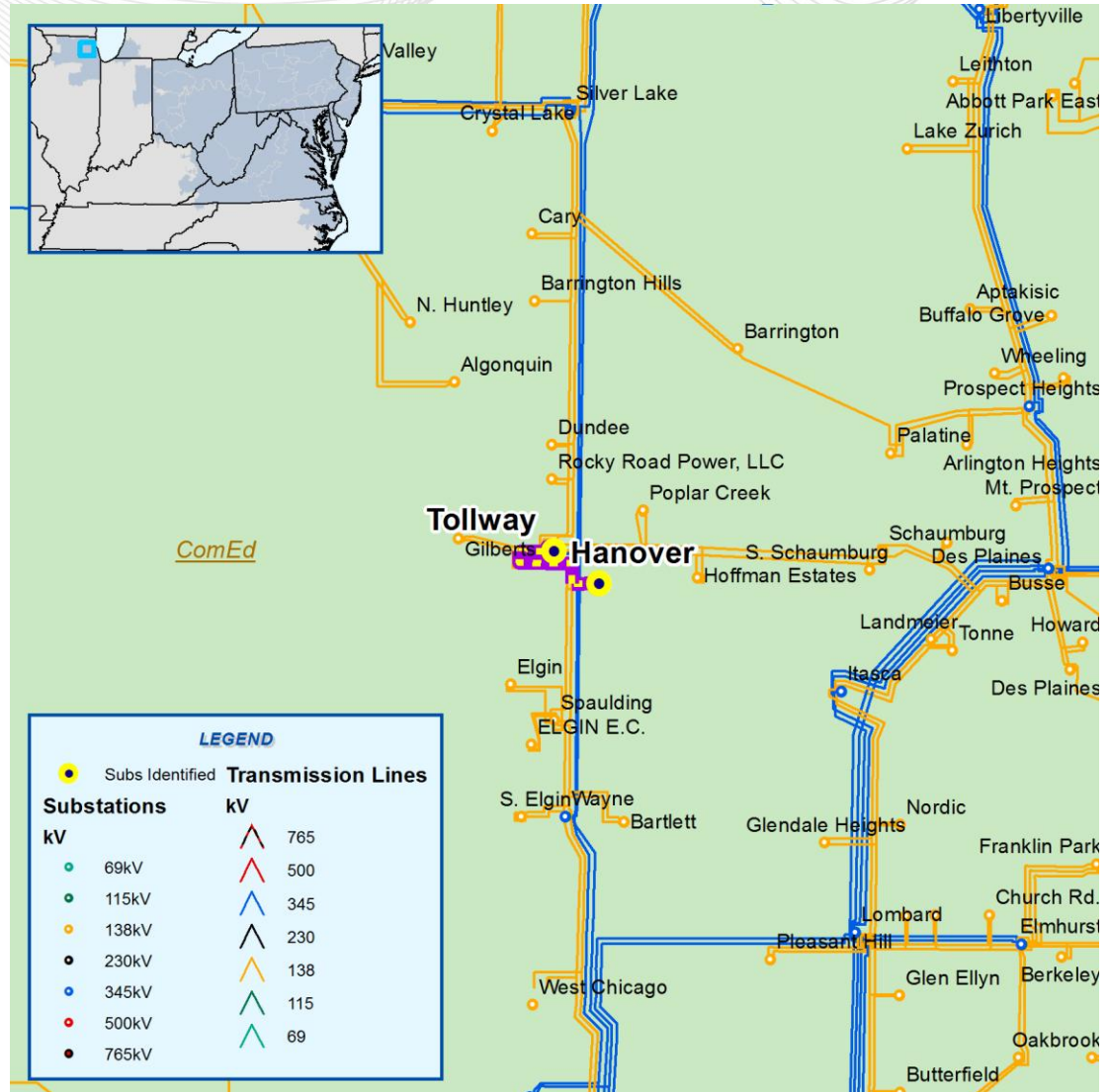
- N-1-1 Thermal Violation
- Frankfort R – New Lenox Red 138 kV line is overloaded for various combinations of single contingencies
- Recommended Solution: Reconductor a section of L0902 (B1515)
- Estimated Project Cost: \$2.8 M
- Expected IS Date: 6/1/2014



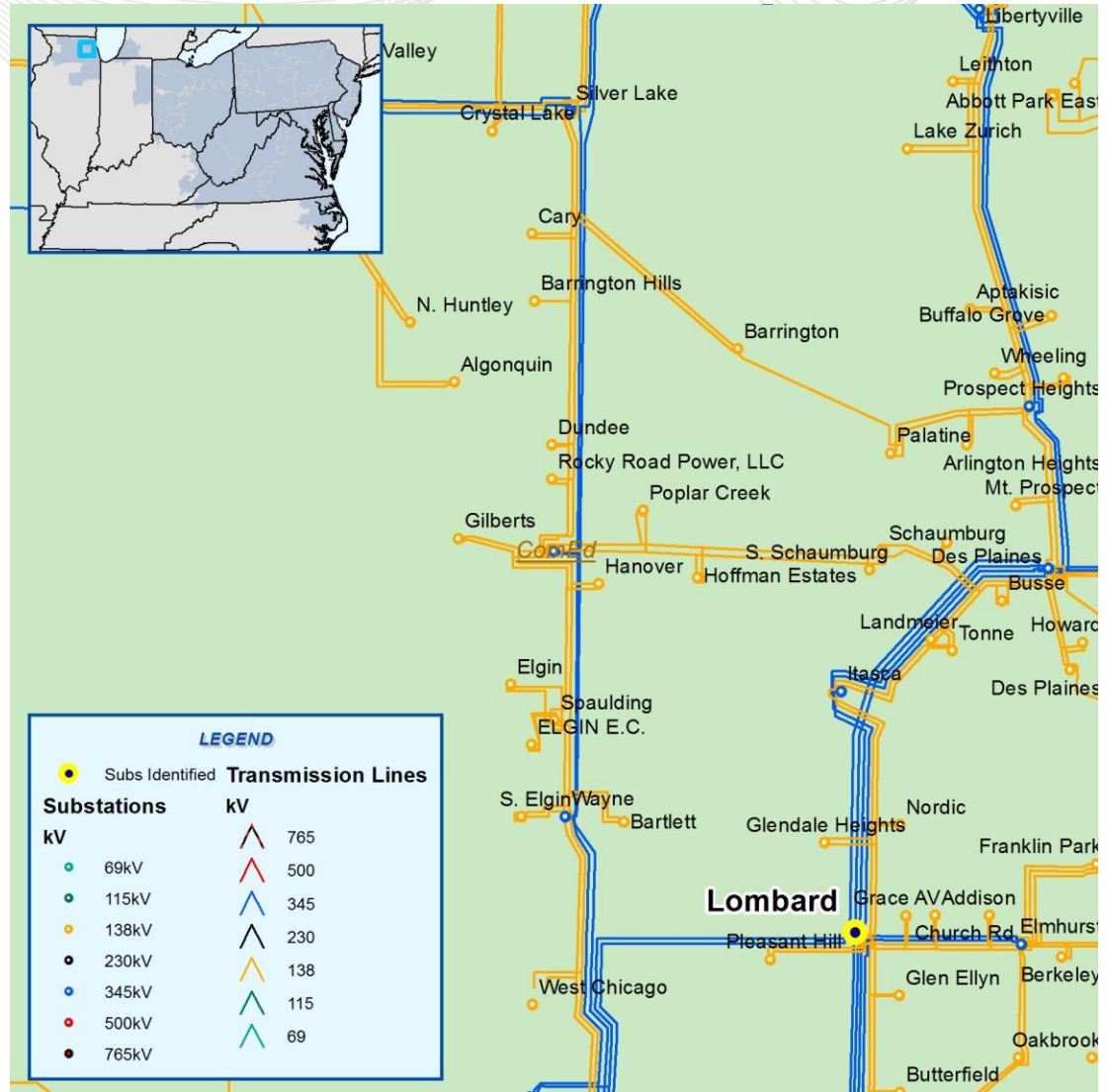
- N-1-1 Thermal Violation
- The Frontenac Blue – Wolfs Blue 138 kV line is overloaded for various combinations of single contingencies
- Recommended Solution: Reconductor a section of L11102 (B1516)
- Estimated Project Cost: \$ 2.1 M
- Expected IS Date: 6/1/2014



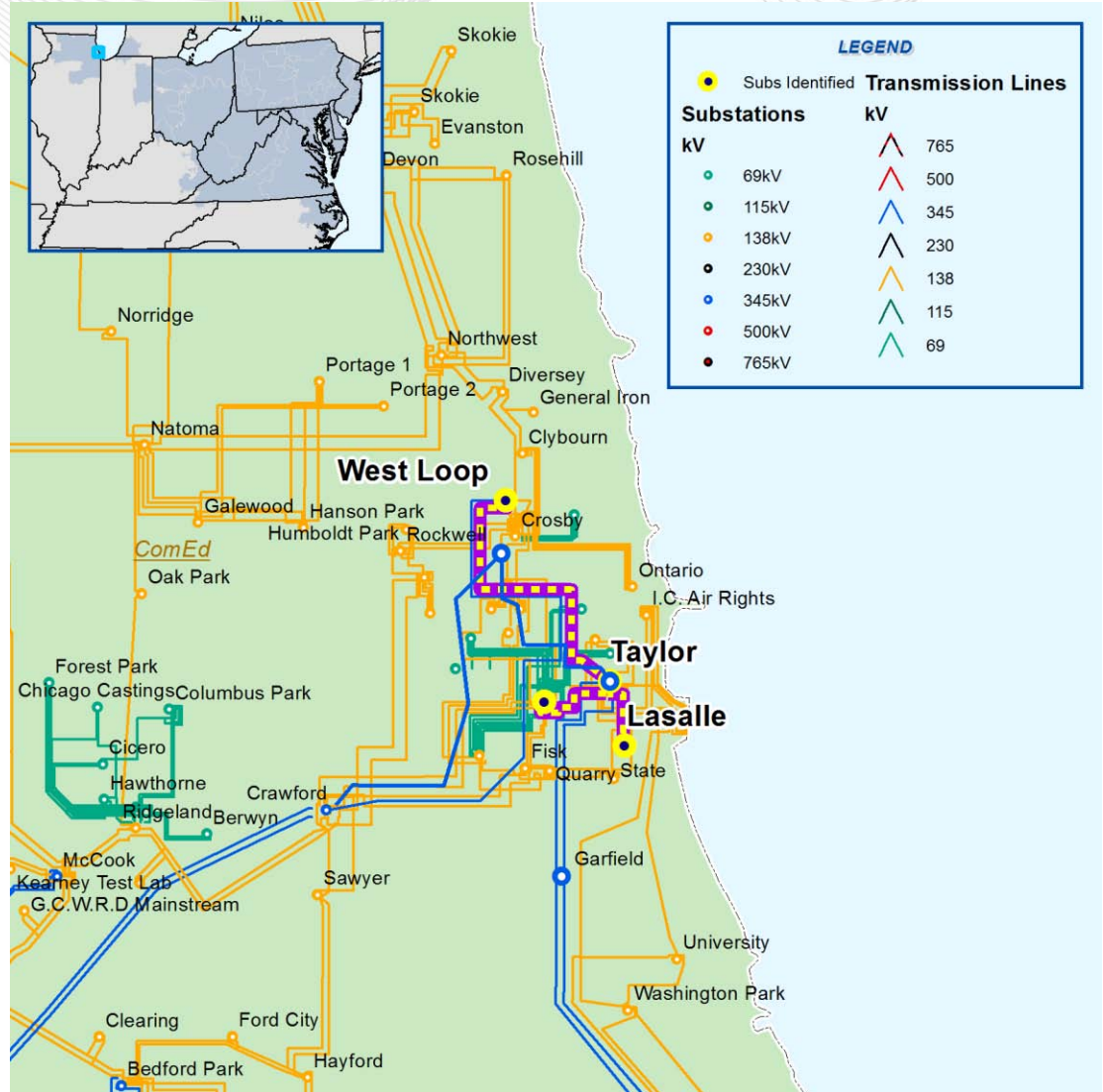
- N-1-1 Thermal Violation
- The Hanover Red – Tollway Red 138 kV line is overloaded for various combinations of single contingencies
- Recommended Solution: Replace circuit switcher 0303 (B1517)
- Estimated Project Cost: \$0.22 M
- Expected IS Date: 6/1/2014



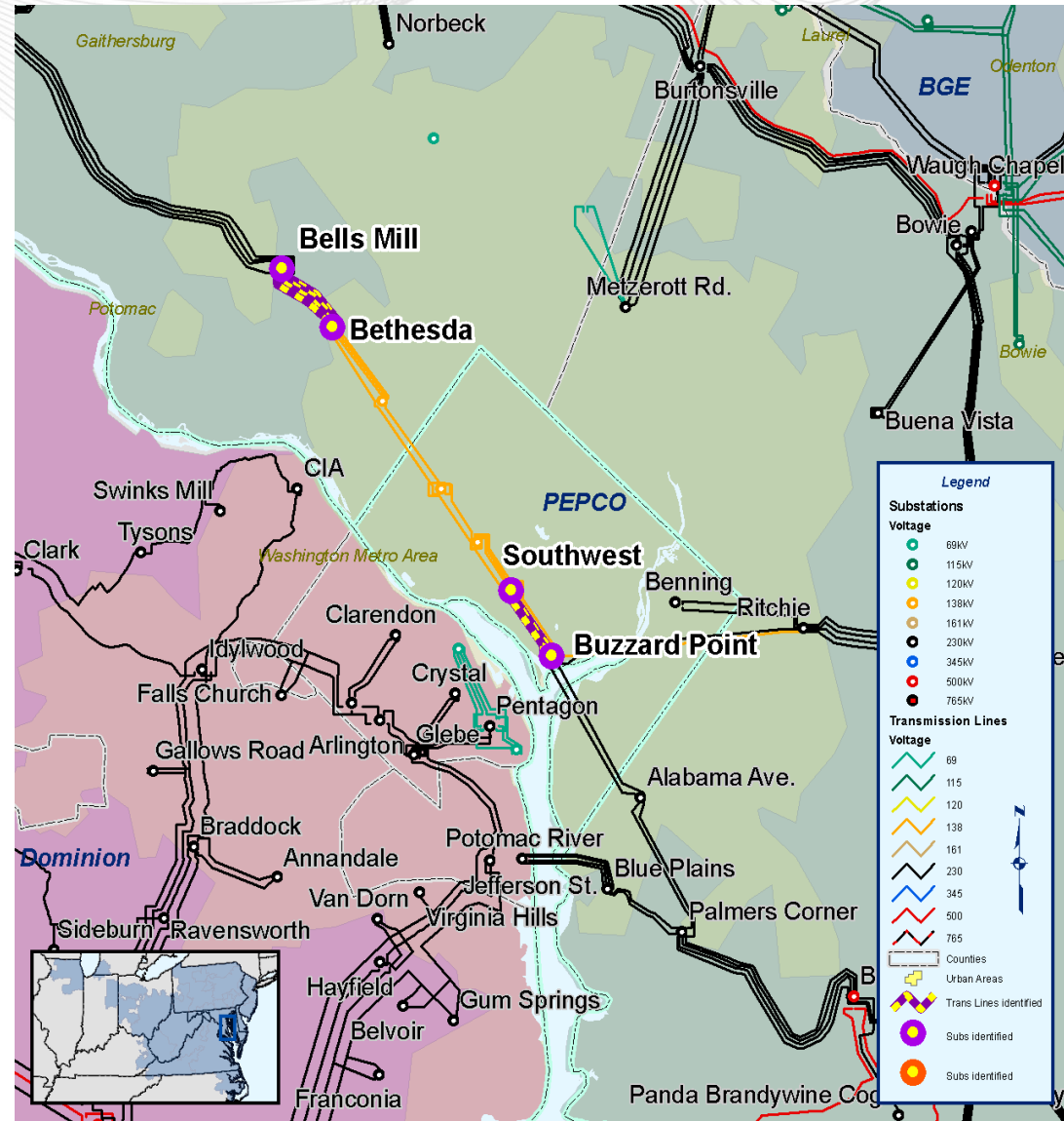
- N-1-1 Thermal Violation
- Lombard Blue “4M”
345/138 kV transformer is overloaded for various combinations of single contingencies
- Recommended Solution:
Install a 4th Lisle auto transformer (B1518)
- Estimated Project Cost:
\$15.0 M
- Expected IS Date: 6/1/2014



- N-1-1 Thermal Violation
- Overloaded facilities for various combinations of single contingencies
 - Jefferson R – Taylor R 138 kV line
 - LaSalle R – Taylor R 138 kV line
 - Taylor B – West Loop B 345 kV line
 - Taylor R “1M” 345/138 kV transformer
 - Taylor B “2M” 345/138 kV transformer
 - West Loop B “82” 345/138 kV transformer
- Recommended Solution:
 - West Loop II Project:
 - New 345 kV transmission from Crawford to Fisk to Taylor
 - Two 345/138 kV autotransformers at Fisk
 - Two 138 kV 115.2 MVAR cap banks at Fisk (B1519)
- Estimated Project Cost: \$178 M
- Expected IS Date: 1/1/2012

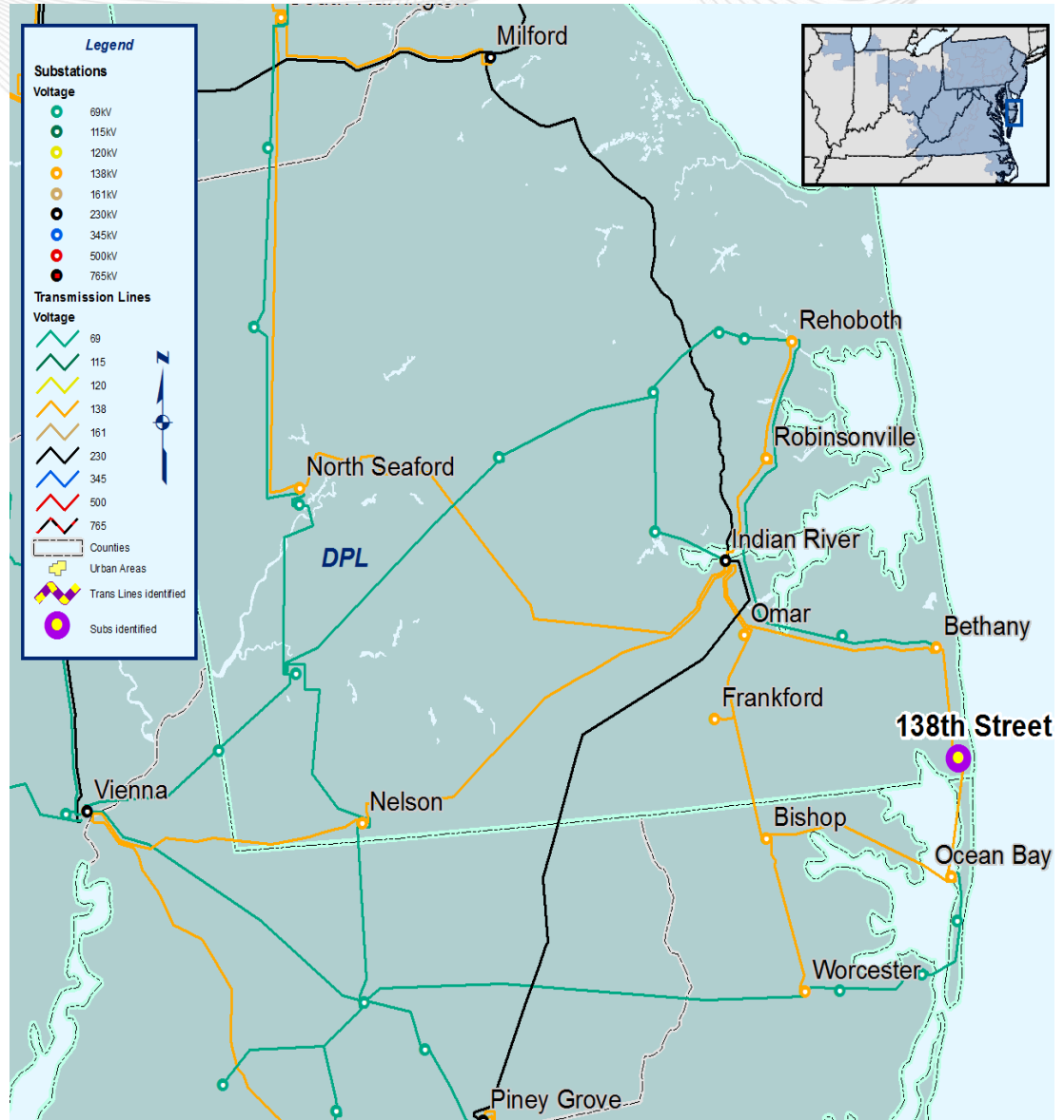


- There is an existing upgrade B0730 to add slow oil circulation to 4 Bells Mill Road – Bethesda 138 kV lines & also to the 2 Buzzard Point – Southwest 138 kV lines. PEPCO has determined that slow oil circulation or forced cooling is not a viable option for these feeders. The scope of the project needs to be modified.
- Modify scope of B0730
 - Increase the rating of the 4 Bells Mill Road – Bethesda 138 kV lines & the 2 Buzzard Point – Southwest 138 kV lines, and replace terminal equipment at Bells Mill Road, Southwest and Buzzard Point substations.
 - Replace the 138kV “O” Street Phase Shifters
- Original Estimated Project Cost Estimate: \$6.0 M
- New Estimated Project Cost Estimate: \$15.0 M
- Expected IS Date: 6/1/2013



Previously Presented Baseline Reliability Upgrades

- Baseline upgrade to install 50 MVAR SVC at the 138th Street 138 kV bus (B0876) is replaced with install 75 MVAR SVC at the 138th Street 138 kV bus due to N-1-1 criteria violation
- Original Estimated Project Cost: \$8.65M
- New Estimated Project Cost: \$22.8
- Expected IS Date: 6/1/2013

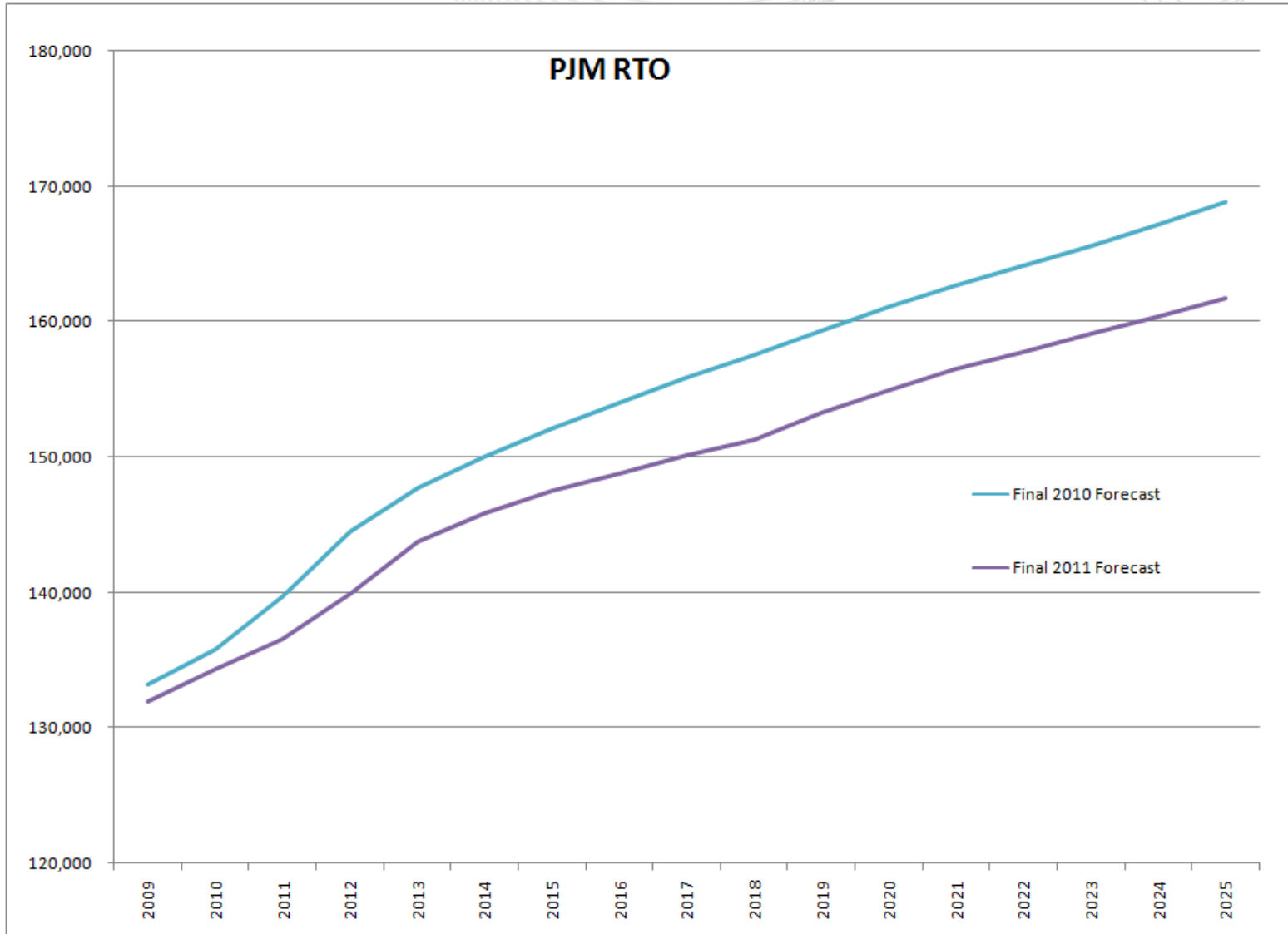


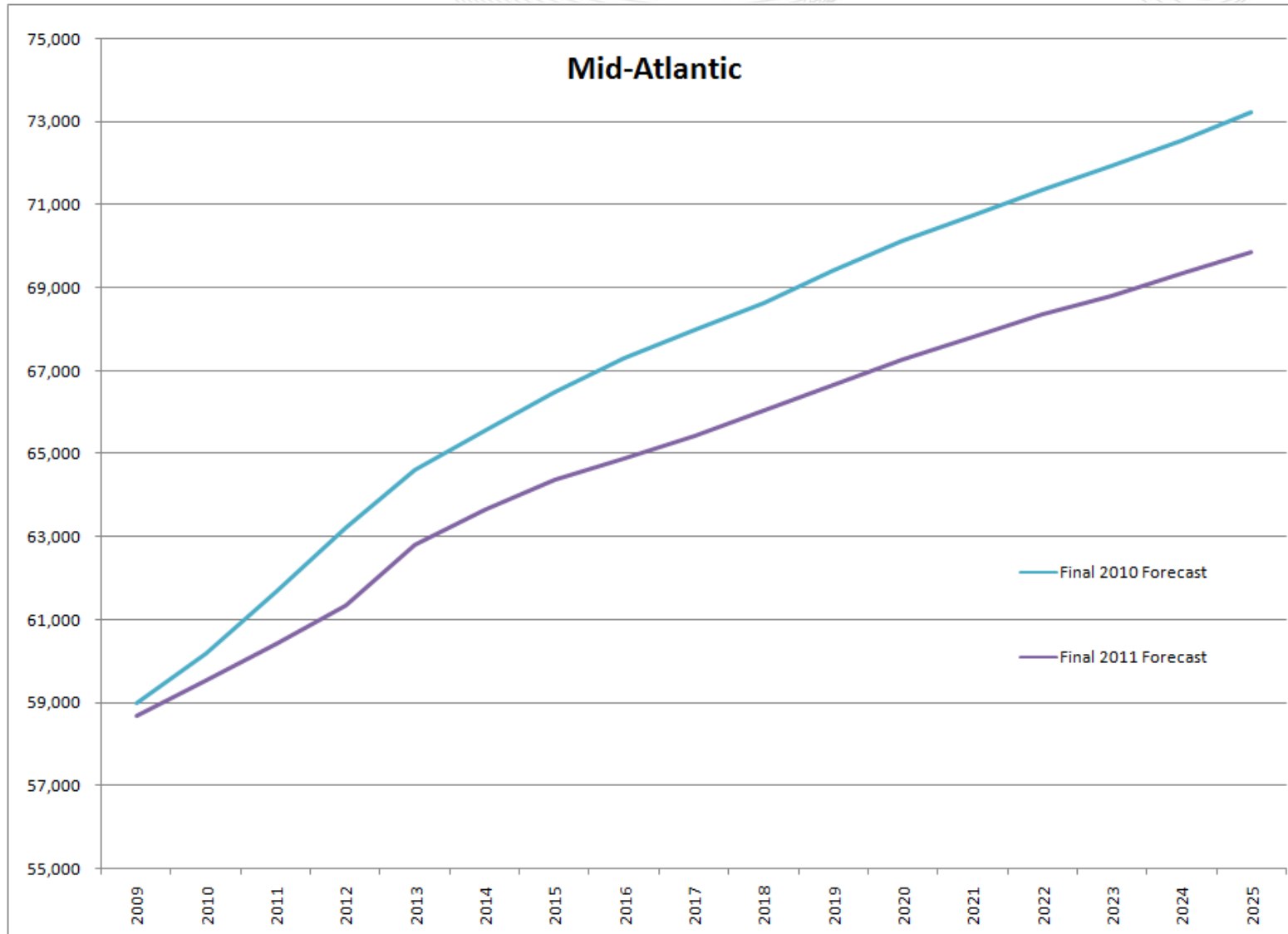
- Upgrades in the “Baseline Reliability Update” section and “Previously Presented Baseline Reliability Upgrades” section of this presentation will all be presented to the PJM Board for approval in Feb 2010
- Please submit any questions to RTEP@pjm.com

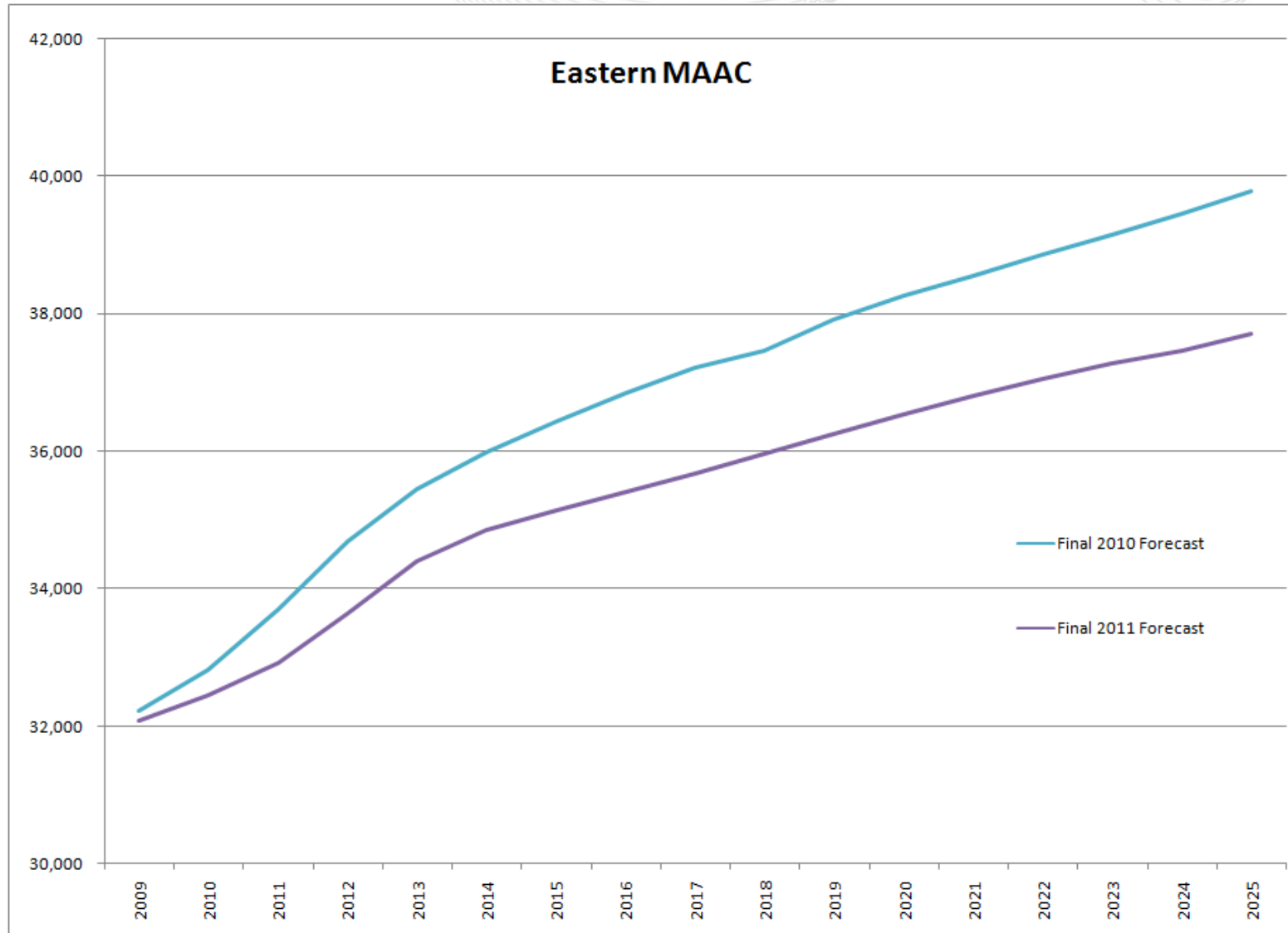


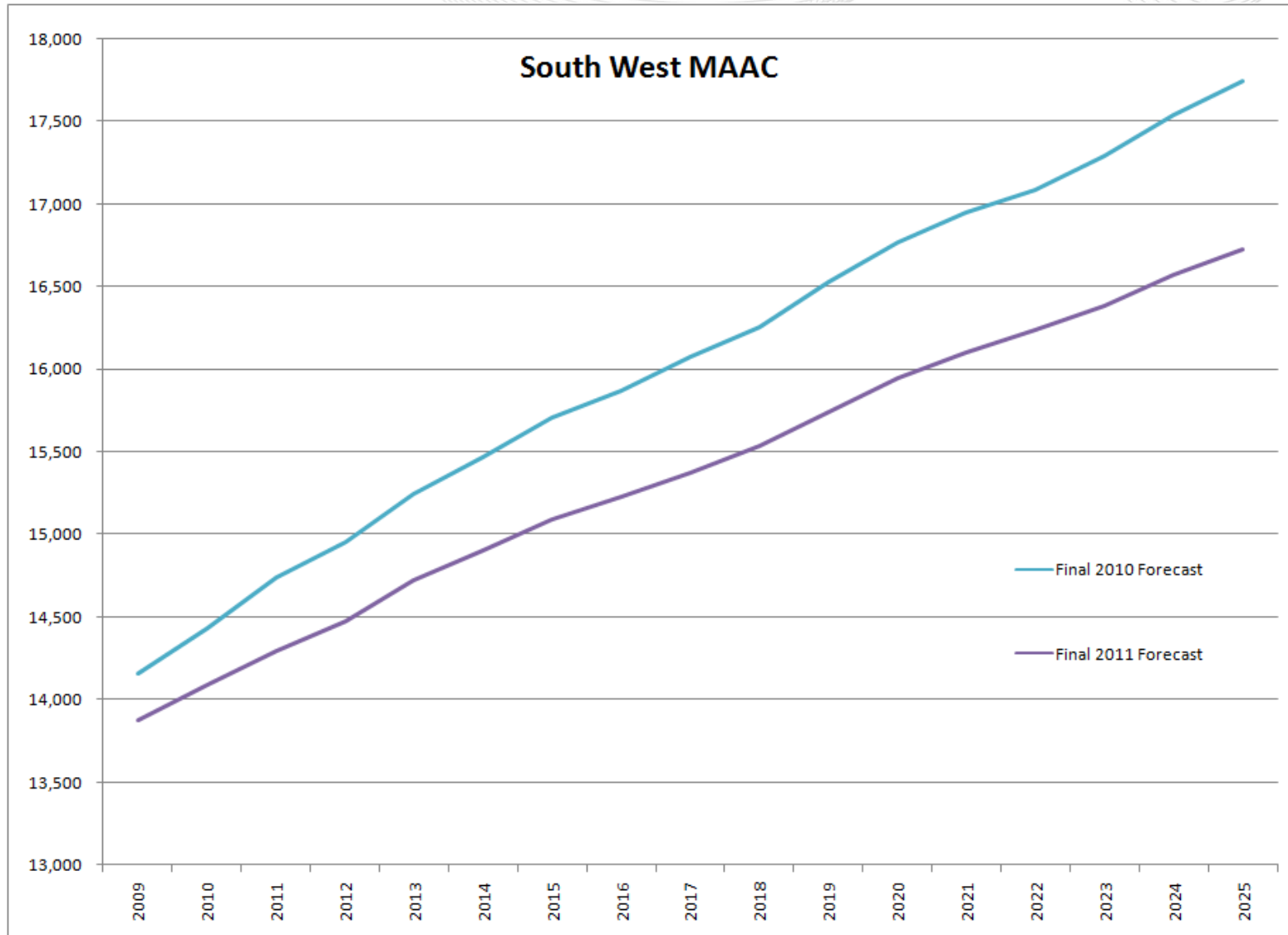
2011 RTEP

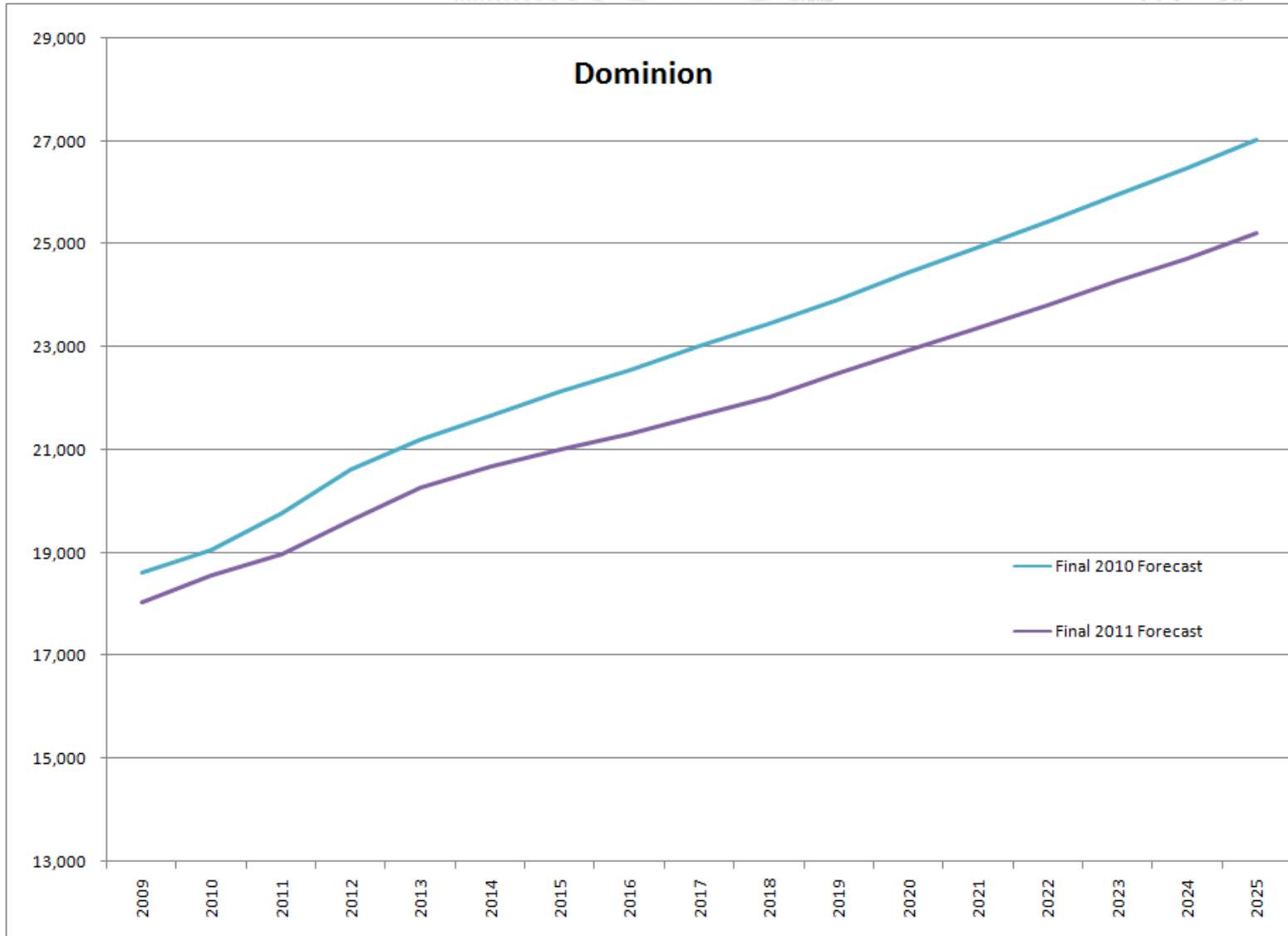
2010 vs 2011 Load Forecast Comparison











2011 RTEP Assumptions

- Power flow models for world load, capacity and topology will be based on the 2016 summer case from the 2010 ERAG MMWG series power flow base case
- PJM topology will be based on the 2015 RTEP case that was used in the 2010 RTEP
 - Will include all PJM Board approved upgrades through the December 1, 2010 PJM Board of Manager approvals
- ATSI Included
- Duke Energy Ohio Kentucky (DEOK) included

- Long term firm transmission service will be consistent with operations
- Generation outage rates will be based on the most recent Reserve Requirement Study performed by PJM
- Generation outage rates for future PJM units will be estimated based on class average rates

- Load will be modeled consistent with the 2011 PJM Load Forecast Report
- PJM RTO Peak (for 2016): 168,030 MW
 - PJM South Peak: 22,084 MW
 - PJM West Peak: 85,865 MW
 - PJM Mid-Atlantic: 64,858 MW

*Note – All loads are Non Coincident Peaks
- Load Management will be modeled consistent with the 2011 Load Forecast Report
 - Used in LDA under study in load deliverability analysis

- All existing generation expected to be in service for the year being studied will be modeled.
- Future generation with a signed Interconnection Service Agreement will be modeled along with any associated upgrades.
- Generation with a signed ISA will contribute to and be allowed to back-off problems.
- Generation with a signed Facility Study Agreement (FSA) will be modeled along with any associated network upgrades.

- Generation with an FSA will be modeled consistent with the procedures noted in manual 14B
- Generation with an executed FSA will be modeled off-line but will be allowed to contribute to problems in the generation deliverability testing.
- Generation with an executed FSA will not be allowed to back-off problems.
- If the PJM load exceeds the sum of the available generation and generation with an executed ISA then queued generation that has an executed FSA will be turned on to meet firm interchange.
- Additional generation information (i.e. machine lists) will be posted to the TEAC page.

- All PJM bulk electric system facilities, all tie lines to neighboring systems and all lower voltage facilities operated by PJM will be monitored.
- Contingency analysis will include all bulk electric system facilities, all tie lines to neighboring systems and all lower voltage facilities operated by PJM.
- Thermal and voltage limits will be consistent with those used in operations.

- 2016 base case development started in December
- 2016 base case development in progress
- Initial focus on retool of previous RTEP analyses

- Previous RTEP base case update will be coordinated with the Transmission Owners
- Retools will evaluate backbone and significant lower voltage transmission facilities
- Future TEAC and Subregional RTEP Committee meetings will be scheduled as analysis is completed

Email RTEP@pjm.com with any comments

Next Steps

Review Issues Tracking