



PPL 2017 RTEP Planning Assumptions

PJM Sub-Regional RTEP Committee
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PPL Electric Utilities

2017 RTEP assumptions

Topology and contingency

- PPL works closely with the PJM modeling group to update the 2022 RTEP case which includes 69 kV and above system topology
- All RTEP projects expected to be in-service by 2022 are modeled as in-service
- Contingencies are updated as per NERC TPL 001-4 standard



2017 RTEP assumptions

Load and Generation Assumptions

- Loads are modeled consistent with the 2017 PJM Load Forecast Report
- PPL EU breaks the PJM forecasted load down to a more specific load distribution per region based on historical load profiles
- PPL considers a 50/50 weather normalized peak summer, winter and light load for analysis consistent with PJM methodology
- PJM provides generation dispatch as per Capacity and/or Energy Injection Rights.



Baseline Assessment Approach

- PJM performs baseline analysis to identify Thermal, Voltage, Stability and Short circuit issue as per the following criteria:
 - ✓ NERC Reliability Standards
 - ✓ PJM Transmission Planning Criteria as specified in Manual 14B
 - ✓ PPL EU Transmission Planning Criteria filed with PJM and FERC under FERC Form 715. The form 715 can be accessed at:
<http://www.pjm.com/library/request-access/ferc-form-715.aspx>
- PPL performs analysis by applying TO criteria (Form 715) on BES and non-BES system
- PJM and PPL planning department work closely with each other to assure violation exists and requires an upgrade



Supplemental Projects

- Asset Management Non-Criteria based upgrades to address:
 - Public and Personnel Safety
 - System Reliability Performance
 - System Risk
 - Operational Flexibility
 - Total Cost of Ownership
 - Modernization of Infrastructure
 - Obsolescence of Assets and Equipment
 - System Resilience and Security



Supplemental Projects

- Typical factors considered for Supplemental projects include:
 - Asset Health (Age, Condition, Obsolescence, Service Life, Health Index, etc.)
 - Reliability Performance and Metrics (SAIFI, MAIFI, SAIDI, Historical and Projected Reliability, Operating Events, etc.)
 - Asset Criticality (System Topology, Loading, Redundancy, Operability, etc.)
 - Failure Analysis (Probability of Failure, Mortality Analysis, Survival Rate, etc.)
 - Maintainability/Serviceability
 - Asset Availability
 - Asset Attributes (Structure type, Material, Conductor Type, Insulation level, Spacing/Clearances, Lightning Protection, etc.)
 - Environmental Factors
 - Public Impact (ROW, Critical Crossings, etc.)
 - Supplying Distribution System
 - Inspection Results
 - Equipment Failure
 - Maintenance Costs
- Supplemental projects are reviewed with stakeholders at sub-regional RTEP meetings



Questions?



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