



EKPC Local Planning Assumptions

January 2017

East Kentucky Power Cooperative

- Generation & Transmission cooperative serving mainly rural portions of eastern two-thirds of KY
- Total Miles of Transmission Line = 2930 miles
 - 122 miles of 345 kV
 - 370 miles of 161 kV
 - 431 miles of 138 kV
 - 2007 miles of 69 kV
- EKPC Forecasted Net Peak Demand (50/50 Probability)
 - 2017 Summer – 2260 MW
 - 2017-18 Winter – 3072 MW
 - 2022 Summer – 2381 MW
 - 2022-23 Winter – 3169 MW

EKPC Project Identification Process

- EKPC identifies different categories of projects:
 - Planning Criteria Projects are reliability projects, or baseline projects, that address planning criteria violations which originate from internal analysis and/or PJM RTEP analysis.
 - Interconnection projects to provide facilities for connection of new generation, transmission, and/or distribution facilities
 - Supplemental Projects are not covered by baseline analysis and address items such as, but not limited to: equipment condition, operational performance and flexibility, and outage history, among others.

EKPC Planning Criteria

- EKPC provides information to PJM for the annual SERC LTSG DBU process
 - Develops near-term and long-term cases to be used by SERC NTSG and LTSG
 - This case set includes annual models for the ERAG MMWG base case development.
- EKPC presently jointly develops internal base cases with LGE/KU for internal studies
 - EKPC and LGE/KU have 54 free-flowing interconnections
 - EKPC has 56 distribution delivery points connected to the LGE/KU system (600+MW at peak)
 - LGE/KU has 17 distribution delivery points connected to the EKPC system (100+ MW at peak)
 - Load flow topology is based on the most recent MMWG modeling efforts extended to include both the EKPC and LGE/KU respective area topology updates since the creation of the MMWG models.
 - All EKPC future projects are modeled as in service.

EKPC Planning Criteria (cont.)

- EKPC plans its system to meet:
 - NERC Reliability Standards requirements
 - SERC Regional criteria
 - PJM Planning Criteria
 - EKPC transmission planning criteria – posted on PJM website
- EKPC planning criteria is similar to Table I of the existing NERC TPL Standards in most respects
 - EKPC considers the loss of a line, transformer, or generator in conjunction with the loss of a generator to be a single-contingency (P1) event.
 - EKPC planning criteria posted at <http://www.pjm.com/planning/planning-criteria/to-planning-criteria.aspx>

EKPC Planning Criteria (cont.)

- EKPC uses the following assumptions:
 - EKPC developed load forecast based on 1 in 2 coincident individual substation peak demands (summer and winter) forecasted on a normal weather basis.
 - Base case generation assumptions – EKPC generators dispatched as needed to meet EKPC load based on economic merit order.
 - EKPC uses the generation dispatch scenarios below during annual planning analysis. These generation dispatch scenarios, when coupled with a contingency, are assumed to create the worst case power flow condition.

Generation Outage	Replacement Generation Imported From
Big Sandy	South
Brown 3	North
Cooper 1&2	North
Ghent 1	South
JK Smith 7	North
JK Smith 7	South
JK Smith 9	North
JK Smith 9	South
Mill Creek 4	South
Spurlock 2	South
Trimble 2	South

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Supplemental Projects

- Supplemental Projects – EKPC supplemental projects are identified based on several criteria
 - Outage history – Identified based on historical SAIDI and outage frequency data.
 - Obsolescence – Identified to replace outdated equipment.
 - Equipment Condition – Projects identified based on criteria such as DGA information, line conductor assessments, visual inspection, and maintenance history.
 - Member System Needs – Identified based on Member System requirements for service to end-use customers.
 - New Customer Connection – Identified to serve new Member System load.
 - Operational Performance and Flexibility – Identified based on EKPC Operations identified issues.

EKPC Project Approval Process

- EKPC has a Capital Management Committee (CMC)
 - Members include all levels of leadership at the Manager level and above in the Power Delivery business unit.
 - Process starts with a problem to be addressed.
 - SME Team develops solution projects (alternatives) to address the identified problem.
 - All solution projects and the recommended solution are presented to the CMC.
 - CMC reviews solutions and approves projects.
 - All projects are approved by the CMC, COO, CEO and the EKPC Board.

EKPC/PJM Coordination and RTEP (cont.)

- EKPC will share its assessment results with PJM
- EKPC will work with PJM to develop appropriate upgrades/mitigation plans for identified planning criteria violations
- EKPC will coordinate with PJM to present identified projects, project justification, and processes at PJM TEAC and sub-regional RTEP meetings as necessary to allow stakeholder input and feedback.

