Duke Energy Ohio & Kentucky

2020 Local Planning Assumptions

PJM Subregional RTEP Committee Meeting – Western
12-18-2019

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- Power Flow Models
  - DEOK works with PJM to develop the RTEP and MMWG power flow models
    - Topology verified
    - Contingencies verified
    - Load profile submitted
    - Seasonal ratings profiles submitted
  - DEOK uses the most recently issued RTEP model for analysis

- Baseline Assessment

  - PJM analyzes the DEOK area using RTEP model
  - DEOK validates the analysis and coordinates with PJM to identify baseline reliability upgrades based on the following criteria:
    - NERC TPL Standards
    - PJM Reliability Criteria
    - DEOK FERC Form 715 Criteria

      (https://www.pjm.com/planning/planning-criteria/to-planning-criteria.aspx)

  - Baseline needs and solutions are presented to the Subregional RTEP Committee – Western and Transmission Expansion Advisory Committee

- Supplemental Projects

  - Supplemental needs and solutions are presented at the Subregional RTEP Committee – Western and Transmission Expansion Advisory Committee meetings
  - Supplemental Project Drivers include:
    - Equipment condition, performance and risk
    - Operational flexibility and efficiency
    - Infrastructure resilience
    - Customer service
    - Other

- Supplemental Project Driver: Equipment Condition, Performance and Risk

  - Degraded equipment performance, material condition, obsolescence, equipment failure, employee and public safety and environmental impact
    - Criteria includes:

      Outage frequency and duration
      At risk load
      Number of customers and customer type affected
      Normal loading and loading limits
      Negative maintenance trends
      Increasing maintenance costs
      Availability of spare parts or vendor support
      Expected service life/age of equipment

- Supplemental Project Driver: Equipment Condition, Performance and Risk

  - Criteria includes (continued):
    - Related ancillary equipment performance
    - Programmatic replacement of equipment
    - Long lead time or construction time required for replacement
    - Risk of failure based on industry or company data

- Supplemental Project Driver: Operational Flexibility and Efficiency

  - Optimizing system configuration, equipment duty cycles and restoration capability, minimize outages
    - Criteria includes:

      Operational options for switching
      Networking of radial lines
      Remedy recurring operational problems
      Provide more options to deal with non-standard operating conditions
      Enhance system operational functionality

- Supplemental Project Driver: Infrastructure Resilience

  - Improve system ability to anticipate, absorb, adapt to, and/or rapidly recover from a potentially disruptive event, including severe weather, geo-magnetic disturbances, physical and cyber security challenges, critical infrastructure reduction
    - Criteria includes:

      Improving system's ability to absorb and recover from an interruption

      Networking radial lines

      Separate circuits from shared structures or paths

      Adding infrastructure to limit circuit and/or load loss

      Diversify sources and source paths to load areas

- Supplemental Project Driver: Customer Service

  - Service to new and existing customers. Interconnect new customer load. Address distribution load growth, customer outage exposure, equipment loading
    - Criteria includes:

      Serving new customer load

      Serving additional customer load

      Customer requested infrastructure

      New infrastructure to support economic development

- Supplemental Project Driver: Other
  - Meet objectives not included in other drivers
    - Criteria includes:
      - New technology pilot projects
      - Utility industry recommendations
      - Roadway relocation or expansion projects

- Retirement of Existing Facilities

  - The purpose of transmission planning is to ensure that the capacity of the existing transmission system is maintained or expanded as needed to ensure the reliability, efficiency, safety, resilience and security of the transmission system for the benefit of customers. There are no national, regional or local standards or criteria driving the retirement and not replacement of existing facilities. Although in specific situations, facilities may be removed and not replaced as dictated by system and/or customer needs, or the design and construction of new or replacement transmission projects, decisions to not replace individual facilities may have the cumulative effect of negatively impacting the reliability, efficiency, safety, resilience and security of the transmission system. That cumulative negative impact could also drive the need for additional facilities to be constructed to compensate for those removed, including greenfield installations. Accordingly, existing facilities are maintained in service or retired based on Good Utility Practice.

- Asset Management

  - Some asset management parameters may be presented as part of needs and solutions during the Supplemental Project planning process. These considerations are beyond the scope of FERC Order 890 but may be presented to help stakeholders better understand the need or solution, and for purposes of transparency.


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