UGI Utilities, Inc. Electric Division

2020 Annual Planning Assumptions

Agenda

- Base Case Power Flow Model
- Baseline Analysis
- Supplemental Project Drivers
- Statement on Retirement of Existing Facilities

Base Case Power Flow Model

- UGI uses PJM-developed power flow models for all assessments
- 5-year assessment: 2025 PJM RTEP case
- Use ERAG MMWG power flow models if RTEP cases unavailable
- Loads scaled to be consistent with 2020 PJM Load Forecast Report

Baseline Analysis

- PJM performs baseline analysis to identify thermal, voltage, stability, and short circuit issues in accordance with the following criteria:
  - NERC Reliability Standards
  - PJM's Transmission Planning Criteria as per Manual 14B
  - UGI's Transmission Planning Criteria as filed with PJM and FERC (FERC Form 715)
- UGI verifies PJM's analysis on BES part of system and performs analysis on non-BES part of system
- Reliability violations identified as a result of above analyses are addressed via baseline projects

Supplemental Project Drivers

1) Equipment Material Condition, Performance, and Risk

2) Operational Flexibility and Efficiency

3) Infrastructure Resilience

4) Customer Service

5) Other

Supplemental Project Drivers

(Equipment Material Condition, Performance, and Risk)

Examples:

- Degraded equipment performance
- Operational performance
- Asset health and age
- Ability to service and maintain lines and equipment
- Obsolescence
- Asset modernization and standardization
- Equipment failure
- Asset analytics (failure rate by age, historical maintenance)
- Safety (Public and Employee)
- Environmental impacts

Supplemental Project Drivers

(Operational Flexibility and Efficiency)

Examples:

- System configuration optimization
- Criticality of assets
- Availability of assets
- Equipment duty cycles
- Ability to restore
- Outage time minimization
- Radial customers
- Improving system functionality

Supplemental Project Drivers

(Infrastructure Resilience)

Examples:

- Sectionalization opportunities
- Weather-related concerns
- Converting radial facilities to networked
- Ring bus

Supplemental Project Drivers

(Customer Service)

Examples:

- Serving existing and anticipated new business
- Support future load growth
- Exposure to outages
- Equipment loading

Supplemental Project Drivers

(Other)

Examples:

- Generation projects including distributed generation
- Technological enhancements
- MVAR support capability
- Industry-based recommendations

Statement on 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. In specific situations, facilities may be removed and not replaced as dictated by system and/or customer needs, or by the design and construction of new or replacement transmission projects, and as such, decisions to not replace individual facilities will 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.