UGI Utilities, Inc. Electric Division

2025 Annual Planning Assumptions

PJM Mid-Atlantic Sub-Regional RTEP Committee

December 2024

Agenda

1. Base Case Power Flow Model
2. Baseline Analysis
3. Supplemental Project Drivers
4. Asset Management - End of Life Criteria
5. Retirement of Existing Facilities

1. Base Case Power Flow Model

- UGI uses PJM-developed power flow models for all assessments
- 5-year assessment: 2029 PJM RTEP case
- Loads scaled to be consistent with latest PJM Load Forecast Report
- Use Multi Modeling Working Group (MMWG) power flow models if RTEP cases unavailable

2. 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 its BES and performs an analysis on its non-BES facilities

- Reliability violations identified because of above analyses are addressed via baseline projects

3. Guidelines for Attachment M-3 Process Supplemental Project Drivers

	Driver	Definition
3a	Customer Service	Service to new and existing customers. Interconnect new customer load. Address distribution load growth, customer outage exposure, equipment loading.
3b	Equipment Material Condition, Performance and Risk	Degraded equipment performance, material condition, obsolescence, including at the end of the useful life of equipment or a facility, equipment failure, employee and public safety and environmental impact.
3c	Operational Flexibility and Efficiency	Optimizing system configuration, equipment duty cycles and restoration capability, minimize outages.
3d	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.
3e	Other	Meet objectives not included in other definitions such as, but not limited to, technological pilots, industry recommendations, environmental and safety impacts, etc.

Supplemental Project Drivers

3a. Customer Service

These projects are necessary to serve new customers or additional load growth from existing customers. Projects may include improvements to substations or lines to ensure reliable service to our customers.

Project Drivers may include:

- Improve/upgrade facilities to increase capacity due to load growth
- Interconnection of new customers
- Address facility/equipment overloads due to contingencies

Supplemental Project Drivers

3b. Equipment Material Condition, Performance and Risk

These projects are necessary to upgrade/replace equipment based on performance, increased maintenance costs, age, reliability concerns and good engineering practice. Addressing these project drivers ensure the safe and reliable operation of the transmission system.

Project Drivers may include:

- Public and employee safety concerns
- Asset analytics including failure rate by age
- Historical maintenance costs
- Asset health and age
- Ability to service and maintain assets
- Upgrading facilities to current standards
- Environmental drivers

Supplemental Project Drivers

3c. Operational Flexibility and Efficiency

These projects are necessary to ensure a reliable and robust transmission system to serve customers. These projects are designed to provide flexibility to address abnormal system configurations, reducing customer exposure and improving restoration.

Project Drivers may include:

- Improving system design for flexibility and increased capacity
- Improving system design to minimize outages
- Upgrading facilities to meet current standards
- Ensuring the availability of assets

Supplemental Project Drivers

3d. Infrastructure Resilience

These projects are necessary to improve system design to create a more resilient transmission system, increasing operability and reducing customer exposure to events.

Project Drivers may include:

- Improving system design for sectionalizing opportunities
- Converting radial facilities to networked
- Storm hardening facilities
- Physical/Cyber Security

Supplemental Project Drivers

3e. Other

These projects do not meet the objectives of previous categories.

Project Drivers may include:

- Projects required by governmental entities
- New technology projects
- Impacts due to the connection of DER's
- Environmental or safety projects
- Others

4. Asset Management - End of Life Criteria

- The following slides identify the planning criteria for UGI Utilities' Asset Management End Of Life (EOL) needs. An EOL need is defined as the need to replace a transmission line between breakers operating at or above 100 kV or a transformer, the high side of which operates at or above 100 kV and the low side of which is not connected to distribution facilities, which the Transmission Owner has determined to be near the end of its useful life, the replacement of which would be an Attachment M-3 Project.
- The goal of the UGI Utilities' asset management strategy is to ensure the reliability, efficiency, safety, resilience, and security of the transmission system for the benefit of customers.
- In the evaluation of the assets, UGI Utilities' review may consider age, operational history, maintenance, performance, manufacturer and accepted industry practices, and current engineering design standards associated with the asset types. The evaluation includes, but is not limited to, the following components and parameters:

Substation

Assets

- Transformers
- Breakers
- Relay
- Other support components

Drivers

Various drivers impact decisions to manage assets. Some examples that may aid in EOL need:

- Age
- Risk of failure
- System criticality
- Increasing negative trend in tests
- Obsolescence/spare part availability
- Loading and fault history
- Dissolved gas in oil
- Insulation power factor
- Moisture content
- Good Engineering Judgement/Industry Best Practices
- Environmental considerations

Transmission Lines

Assets

- Line Conductors
- Line Support Structures
  - Poles
  - Towers
  - Attachment hardware

Drivers

Various drivers impact decisions to manage assets. Some examples that may aid in EOL need:

- Safety Concerns
- Age
- Wood decay/rot
- Lattice tower packout
- Lattice tower member deformation
- Foundation/Subsidence
- Number of splices
- Insulator/connector condition
- Risk of failure
- System criticality
- Engineering analysis
- Good Engineering Judgement/Industry Best Practices

5. 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 of existing facilities. Although in specific situations, facilities may be removed or not replaced as dictated by system and/or customer needs, and 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.

Thank you