PSE&G

PSE&G Assumptions Overview

Electric Delivery Planning



December 10, 2026

Base Case Models

- Base Case Model will include PSE&G 69kV network
- PJM RTEP models shall be utilized for assessments of RTEP years
- Multi-regional Modeling Working Group (MMWG) 2026 series models for years where no PJM case is available, consistent with methodology in PJM Manual 14B
- RTEP projects will be modeled consistent with PJM Planning Modeling Data Requirements and Reporting Procedures manual

Baseline Planning Criteria

- Both PJM and PSEG study PSE&G's system to identify the need for baseline reliability upgrades using the following:
- NERC Reliability Standards
  - Applied to all BES facilities
  - TPL-001

  https://www.nerc.com/globalassets/standards/reliability-standards/tpl/tpl-001-5.1.pdf
- PJM Regional Transmission Planning Process: Manual 14B

  www.pjm.com/-/media/DotCom/documents/manuals/m14b.pdf
- PSE&G Planning Criteria
  - Detailed in FERC 715 filing

  https://www.pjm.com/library/request-access/ferc-form-715/private-ferc-form-715.aspx

System Load

- Summer and winter peaks loads will be consistent with the load levels shown in the 2027 PJM Load Forecast Report for regional level analyses
- PSE&G local area analyses use PSE&G non-coincident substation/customer peak loads
- Shoulder-season load modeling follows convention detailed in the Eastern Interconnection Reliability Assessment Group MMWG Procedural Manual, v41

  https://www.rfirst.org/wp-content/uploads/2025/12/MMWG_Procedural_Manual_v44.pdf
- Localized area re-dispatch
- Light Load Studies at 35% of that year's Summer Peak

PSE&G Supplemental Drivers

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

Criteria for Planning the Sub-Transmission and Distribution Systems

- PSE&G's system analysis also includes consideration of its Criteria for Planning the Sub-Transmission and Distribution Systems.
- The purpose of this criteria is to ensure consistent, safe and reliable service to PSE&G customers by:
  - Identifying and defining PSE&G specific planning principles;
  - Ensuring proper interaction between PSE&G's transmission and distribution systems; and
  - Establishing appropriate requirements for PSE&G's sub-transmission and distribution systems
- Enhancements to the transmission and distribution system consider system reliability, age and facility condition, ease of operation, environmental concerns, and economics.
- Each transmission and distribution system change takes into consideration the long-range future electric system needs as well as the intention of improving the reliability and/or the economics of the bulk power system.

PSE&G Supplemental Drivers
Equipment Material Condition, Performance and Risk

Equipment Material Condition, Performance and Risk

Degraded equipment performance, material condition, obsolescence, equipment failure, employee and public safety and environmental impact.

Equipment Reliability and Condition Assessment

- Frequency and duration of historical outages/events
- Inspection & test results
- Historical maintenance costs
- Equipment age & number of operations
- Equipment criticality & critical customers
- Availability of replacements/spares & restoration times

Asset Risk Model

- Consequence of Failure
  - Safety Impact – Risk of direct harm to personnel or the public as a result of asset failure.
  - Reliability Impact – Replacement availability, restoration time, and restoration complexity.
  - Customer Impact – Customer type, load, and number of customers served by an asset.
  - Environmental Impact – The impact to the environment associated with an asset failure.
- Likelihood of Failure
  - Survivor Curves
  - Effective Asset Age – Condition assessment & expected service life.

PSE&G Supplemental Drivers
Operational Flexibility and Efficiency

Operational Flexibility and Efficiency

Optimizing system configuration, equipment duty cycles and restoration capability, minimize outages.

- Violations for non-Bulk Electric System Transmission Voltage Facilities
  - Thermal & Voltage Violations
  - N-1-1 Load Drop Violations
  - PSE&G FERC 715 Criteria violations
  - PSE&G internal local planning criteria where applicable
- System Standardization
  - Modernize legacy system to meet current standards
  - Engineering directives & guidelines (both internal and external)

PSE&G Supplemental Drivers
Infrastructure Resilience

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.

- Supply Diversification
  - Reduce single points of failure
  - Mitigate effects of significant event at single facility
  - Provide backup for load pockets
- Storm Hardening & Flood Mitigation
  - FEMA Flood Elevation
  - Flood Hazard Area Limits
  - Outages due to historical storm events

PSE&G Supplemental Drivers
Customer Service

Customer Service

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

- Localized Load Growth & Contingency Overloads
  - Increased capacity requirements for new load
  - Contingency overloads at existing stations
- Customer Substations
  - Address customer requests
  - Maintain system reliability for interconnections

PSE&G Supplemental Drivers Other

Other

Meet objectives not included in other definitions such as, but not limited to, technological pilots, industry recommendations, environmental and safety impacts, etc.

- Environmental & Safety Impacts
- New Technologies
- Distributed Energy Resource System Impacts
  - Voltage impacts due to DERs
  - Frequency market energy storage impacts
  - Backfeed through station transformers
  - Ride-through issues and concerns

PSE&G End of Useful Life (EOL) Assessment

Electric Delivery Planning

PSE&G's FERC Form 715 Condition Assessment Planning Criteria/End of Useful Life (EOL) Planning Criteria

- PSE&G incorporates condition assessment planning criteria within its FERC Form 715 to address inside and outside plant EOL Needs associated with PJM Tariffed facilities.
- Projects approved by PJM under this criteria are classified as baseline.
- All other asset management infrastructure is covered by Attachment M-3 of the PJM Tariff.
- End of Life Methodology for 100 kV & above: PSE&G assesses if any PSE&G inside and outside plant equipment rated 100kV and above is nearing its end of useful life and warrants replacement based on equipment performance, condition, risk and system needs.
  - PSE&G may elect to perform the condition assessment internally or hire a third party to perform and/or review the assessment
- The purpose of PSE&G's EOL assessment is to maintain system integrity and the reliability of the transmission system. Key benefits are reduction of outage duration and frequency along with improved system operations.

PSE&G EOL Assessment – General Overview

- PSE&G performs regular asset inspections and evaluates system performance to form the basis of its EOL assessment.
- The PSE&G EOL assessment identifies possible complete asset replacements. Additionally, starting in 2021, annually in February PSE&G provides a nonbinding five-year forecast of EOL candidates to PJM.
- Facilities that may qualify as an EOL Candidate include, but are not limited to, possible complete transmission line replacements between breakers operating at or above 100 kV or a transformer, where the high side operates at or above 100 kV and the low side is not connected to distribution facilities, which PSE&G has determined to be near the end of its useful life based on the material provided as part of our EOL assessment.

EOL: Inside Plant

The assessment can include:

- Physical condition
- Age
- Electrical parameters
- Past history of asset
- Performance of similar equipment in a peer group
- Impact on reliability of retiring the facility

Also considered:

- Remaining load levels beyond peak load
- Future system loads, generation retirements, new generation
- The numerous facility and circuit outages that occurs daily for maintenance or required for construction
- Load connected to and/or supplied by the transmission facility
- Transformer and other long lead time equipment failure

PSE&G may elect to perform the facility condition assessment internally or hire a third party to perform and/or review the assessment.

EOL: Outside Plant

The assessment can include:

- Physical condition
- Age
- Electrical parameters
- Environmental
- Past history of asset
- Performance of similar equipment in a peer group
- Impact on reliability of retiring the facility

Also considered:

- Remaining load levels beyond peak load
- Future system loads, generation retirements, new generation
- The numerous facility and circuit outages that occur daily for maintenance or required for construction
- Load connected to and/or supplied by the transmission facility
- Long lead time equipment failure
- Loss of capacity on the system and impact on transfer capability
- Loss of ability of construct future circuits on the ROW

PSE&G may elect to perform the facility condition assessment internally or hire a third party to perform and/or review the assessment.

EOL – Design Considerations

- Effectiveness of the replacement in kind vs the alternative
- Construction cost effectiveness
- Operational performance improvement effectiveness
- Meeting future requirements of meeting load and maintaining the ability to secure future ROW if existing is forfeited
- Market efficiency impacts
- Serving radial load at the plant
- Preventing cascading or excessive use of margins in the system

Considerations shall be given to ultimate and future system needs. Steps may also be taken to ensure resilience to withstand natural disaster and restore load.

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.

PSE&G

Thank *you*

Contact Information