

OVEC Transmission Local Planning Assumptions, Models, and Criteria

*PJM Sub-Regional RTEP
Western Meeting*

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Overview of OVEC

- OVEC and its wholly owned subsidiary, IKEC, were formed in 1952 by investor-owned utilities furnishing electric service in the Ohio River Valley area and their parent holding companies for the purpose of providing the large electric power requirements for the uranium enrichment facilities by the Atomic Energy Commission (AEC) near Portsmouth, Ohio. Transmission planning services are provided to OVEC by its parent company AEP.
 - 1 customer
 - 2.2 GW of generating capacity
 - 705 miles of electric transmission lines
 - 4 substations
 - Own, operate, and maintain transmission facilities in 1 RTOs and 3 states
 - Interconnection with 3 major utilities across the U.S.

Overview of OVEC Zone

- Total OVEC Transmission facilities in PJM region:
 - 345 kV ~705 miles
- In 2026/27 models, there will be 0 MW of connected demand modeled in the OVEC Transmission zone in PJM.

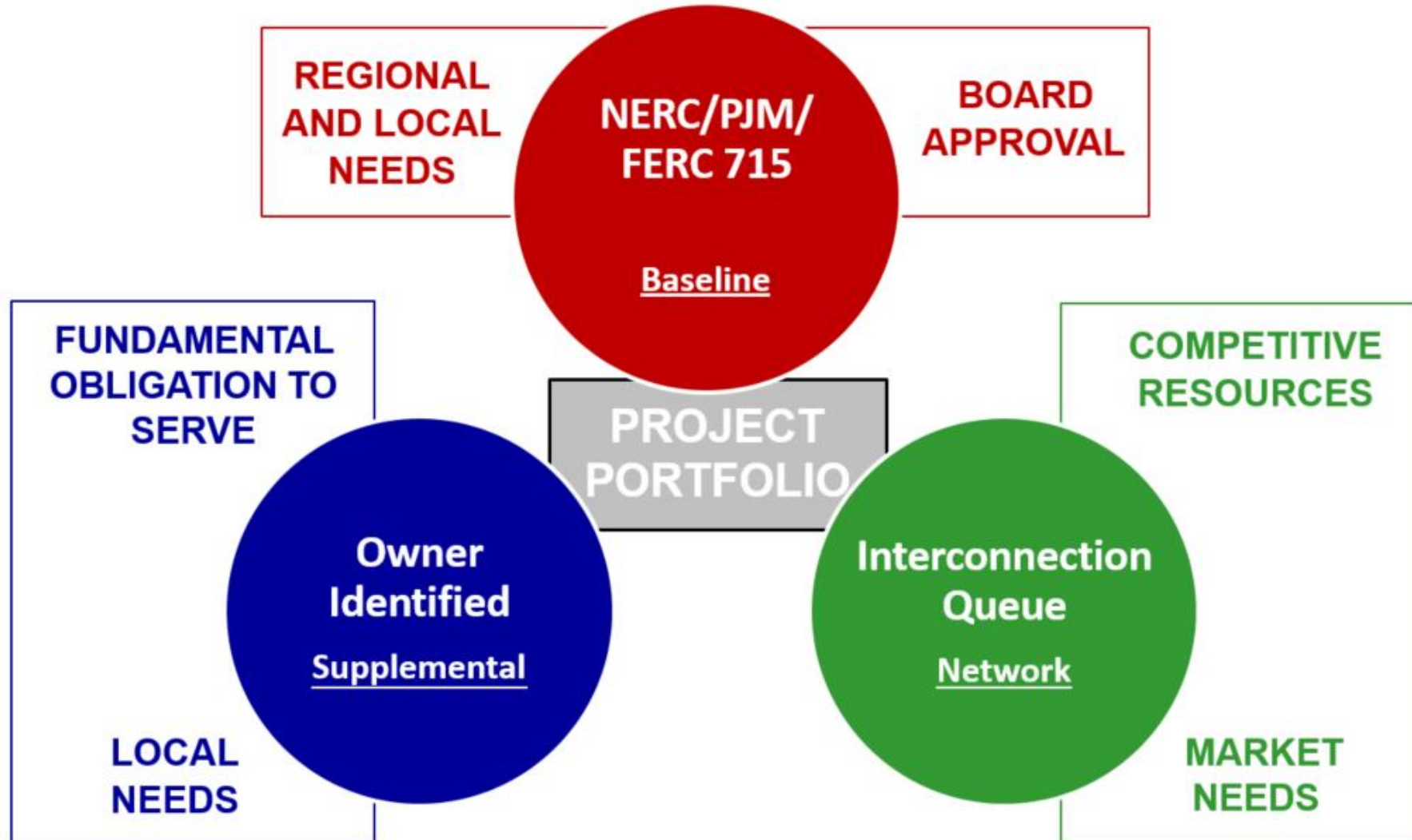
Assumptions

- This entire slide deck constitutes and addresses the assumptions requirement outlined in Attachment M-3 to the PJM Tariff.

Models

- OVEC supports development of and updates to RTEP base cases.
- OVEC participates in development of annual series of ERAG MMWG base cases.
 - Cases include seasonal, near-term, and long-term models used in ERAG and RFC assessments of the Transmission system.
- OVEC planning studies utilize available PJM RTEP base cases.

Overview of RTEP Projects



OVEC Planning Criteria – FERC 715

- Local Needs Driven by Local Planning Criteria in FERC Form 715
- Drive Baseline and Network Projects
- Address Needs that Lend Themselves to Bright-Line Criteria

OVEC Planning Criteria – FERC 715

- OVEC transmission system is planned in adherence with NERC TPL-001-4 and PJM Planning Criteria outlined in Manual 14B.
- OVEC Planning Criteria (FERC 715) aligns with NERC and RTO planning criteria.
- All planning studies utilize the latest available PJM RTEP base cases.
 - Special cases are created to perform local area studies, as needed
- PJM evaluates compliance and adherence to above standards and criteria from regional perspective (top down), and OVEC does the same from a local perspective (bottom up).

Link to OVEC FERC 715:

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

OVEC Planning Criteria – Attachment M3

- Local Needs Driven by Local Planning Criteria under Attachment M-3
- Drive Supplemental and Asset Management Projects
- Address Needs that Do Not Lend Themselves to Bright-Line Criteria
 - For Example, Application of Requirements Not Reflected in TPL-001

OVEC Planning Criteria – Attachment M3

- **Customer Service Criteria**
 - Service to new and existing customers. Interconnect new customer load. Address distribution load growth, customer outage exposure, equipment loading.
- **Equipment Material Condition, Performance and Risk Criteria**
 - 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.
- **Operational Flexibility and Efficiency Criteria**
 - Optimizing system configuration, equipment duty cycles and restoration capability, minimize outages.
- **Infrastructure Resilience Criteria**
 - Improve system ability to anticipate, absorb, adapt to, and/or rapidly recover from a potentially disruptive event, including severe weather, geo-magnetic disturbances.
- **Other Criteria**
 - Meet objectives not included in other definitions such as, but not limited to, technological pilots, industry recommendations, environmental and safety impacts, etc.

Customer Service

- In accordance with NERC Standard FAC-001-2, OVEC has posted requirements for interconnections of end-use customers, generators, and transmission facilities.
- To provide service to end-use customers, OVEC performs initial studies to determine the system impacts and develop a plan of service for contracted load levels.
 - Required transmission upgrades are validated by PJM under baseline reliability criteria.
- OVEC may, at its discretion, enhance plans to serve projected contracted load levels such that the plans are able to serve any projected non-contracted load
 - OVEC consults with the customers as well as the local and state economic development organizations in assessing the likelihood of non-contracted projections.
 - Any required upgrades to meet projected non-contracted loads are considered supplemental.
 - Any required upgrades to improve grid capacity to meet projected contracted load are considered baseline.

Link to OVEC Interconnection Requirements:

<https://www.ovec.com/EO/OVEC%20Interconnection%20Requirements.pdf>

Condition, Performance and Risk

- OVEC follows AEP guidelines for transmission owner identified needs address equipment material conditions, performance, and risk while considering infrastructure resilience, operational flexibility and efficiency, and other criteria needs.
- The AEP criteria and guidelines allow determination of asset needs which must be revitalized to ensure safe, reliable and cost-effective operation of the grid, and include those that address End-Of-Life needs in accordance with the provisions in Attachment M-3 of the PJM Tariff.
- AEP takes a holistic view of all the needs in developing solution options to best address the identified needs.
- AEP may also consider programmatic needs – for example, in 2019, AEP reviewed transmission needs that were addressed through the AEP Eastern System Pre-1930s Era Lattice Tower and Transmission Line System program.

Link to AEP Transmission Planning Criteria for End-Of-Life and Other Asset Management Needs:
<https://www.aep.com/about/codeofconduct/OASIS/TransmissionStudies/>

Operational Flexibility and Efficiency

- Optimize system configuration, equipment duty cycles and restoration capability.
- Minimizing facility outages.
- Maximize system reliability through improved system restoration, equipment sectionalization, and system configuration.
- Removal and replacement of Special Protection Systems (SPS).
- Improve system reliability and safety by reducing operator interventions and actions.
- Enhance legacy facilities to modern engineering design standards.
 - Eliminate hard taps
 - Reduce multiple zones of protection
 - Loop radial facilities above a 75-MW/mile threshold
- Address safety hazards and reliability risks to system operations.

Infrastructure Resilience

- Improve system ability to anticipate, absorb, adapt to, and/or rapidly recover from a potentially disruptive events, including severe weather, geo-magnetic disturbances.
- Evaluate system strength and adaptability to reduce customer outages and disruptions from severe events.
- Mitigate risks across the system (reliability, safety, compliance, financial, etc.).
- Identify and reduce single points of failure.
- Harden grid against potential low-frequency, high-impact threats (physical, cyber, GMD, EMP, etc.).
- Optimize inventory of replacement facilities (spares, mobiles, etc.).

Other

- Meet objectives not included in previous four categories:
 - Customer Service
 - Equipment Material Condition, Performance & Risk
 - Operational Flexibility & Efficiency
 - Infrastructure Resilience
- Obligation to meet environmental requirements and needs.
- Obligation to meet state and/or local requirements and directives.
- Address reliability needs in anticipation of generation retirements.
- Support implementation of technological pilot projects.
- Ensure adherence to Good Utility Practice.

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.

Questions?