

Long Term Transmission Planning Reform Workshop

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Objectives

• Interregional Transmission

• Significant consensus that interregional transmission is needed to:

- Deliver the lowest cost generation to load by locating renewable generation where it's most efficient
- Make the grid more reliable and resilience to withstand increasing extreme weather, cyber and physical treats
- Enhance national security by increasing energy independence
- Achieve federal, state and local (customer and utility-driven) clean energy goals

• There is growing agreement that a framework for minimum bulk power transfer capability between regions (i.e. Balancing Authorities) is a promising approach to kick-start interregional transmission planning.

- Need to advance the discussion around how to achieve such a framework
- Today, AEP will offer ideas on potential elements of this framework with the understanding that this is a complex nationwide issue

• Enhanced Regional Transmission Planning

• AEP supports PJM's direction in establishing a long-term, scenario-driven planning process

- AEP made similar comments to FERC in the ongoing ANOPR process and we will offer some additional detail today



Interregional Planning: Elements of a Minimum Transfer Capability Framework

- Conduct national planning study, possibly a collaboration of NERC and Department of Energy, to assess needed transfer capability among regions
 - PJM and other RTOs will play a pivotal role in collaborating with NERC and DOE
- Conduct expanded regional (i.e. PJM and other regions) loss of load expectation (LOLE) reserve margin analysis every 3-5 years that considers:
 - Extreme Weather: multi-regional events (winter storm Uri), regional weather, impact on consumption
 - Outages: forced generation outages, transmission outages
 - Threats: physical, cyber
 - Supply chain, fuel supply disruptions (national/regional), Other supply chain outages
- Based on this expanded regional analysis, new reserve margins are established for each region
- Based on these analyses, FERC establishes a new NERC reliability standard requiring each region to meet its reserve margin, including [X]% through interregional transfer capability
 - Regions, including PJM, given flexibility to address shortfalls by building capacity or demonstrate firm import capability, subject to the required transfer capability
 - Existing regional and interregional transmission planning processes may need modified to identify and approve new transmission facilities needed to meet this NERC reliability standard.
 - For example, alignment between competitive processes in PJM (sponsorship) and MISO (post-approval bidding)



Enhanced Regional Transmission Planning Construct

AEP Recommended Long Term Planning Process Enhancements in ANOPR Comments	Recommendation for FERC Implementation
Incorporate analyses of need over a 20-year horizon	<ul style="list-style-type: none"> • FERC should require regions to use at least a 20-year horizon
Review multiple scenarios (e.g., generation retirements, electrification, extreme weather)	<ul style="list-style-type: none"> • FERC should establish consistent principles for regional scenario development, including: <ul style="list-style-type: none"> • Build Business-As-Usual (BAU) case to better reflect expectations • Build least 3 additional scenarios that each consider as subset of categories, including: DER penetration, electrification, demand/energy growth, CO2 goals, utility-specific IRP goals, age-based retirements, renewable penetration • Build an extreme weather scenario (i.e. region-specific weather at 99-percentile event)
Update the long-term analyses on a regular three-year time frame	<ul style="list-style-type: none"> • FERC should establish regular three-year cycles synchronized across all regions - this will also facilitate integration with interregional planning processes
Quantify the full range of transmission expansion benefits – such as reliability and resource adequacy, generation capacity cost savings, energy cost savings, environmental benefits, public policy benefits, and employment and economic stimulus benefits – <u>based on a multi-value analysis;</u>	<ul style="list-style-type: none"> • FERC should establish a multi value analysis approach which includes a consistent set of benefits for each region
Implement identified transmission solutions found to be common among multiple scenarios to facilitate and incentivize efficient development of new generation	<ul style="list-style-type: none"> • FERC should require scenarios to be actionable in regions; i.e. if projects shows positive net contribution to the value of the portfolio in the robust BAU case plus one additional scenarios, or at 50% of the other sensitivity cases, then the project should be approved
Assess benefits and allocate costs based on benefits for entire portfolios of projects, not on a project-by-project basis	<ul style="list-style-type: none"> • Regions should establish a benefit construct that maximizes total portfolio benefits net of costs, rather than seeking to maximize B/C ratio • Modifications to the current PJM cost allocation methodology will be needed

Q & A

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