PJM Long Range Transmission Planning Workshop

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PINEGATE RENEWABLES

High-Level NOPR Assessment

Moves the long-term planning away from the Generation Interconnection Studies and back to Transmission Owners and Transmission Planners

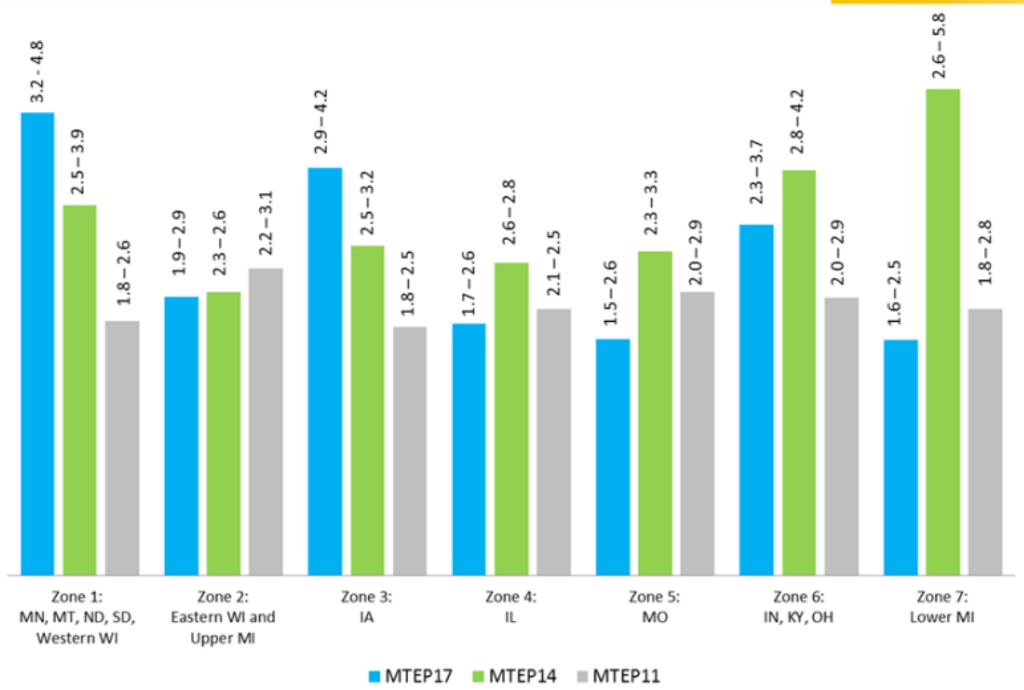
It is imperative to separate the technical and cost allocation pieces to promote fruitful and prompt study work

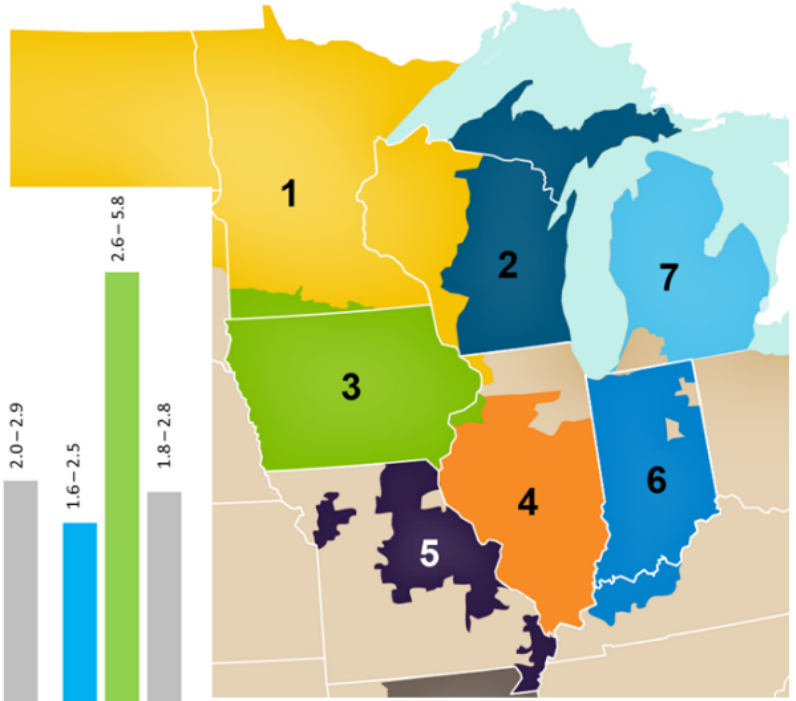
Topic One: Scenario Development & Enforcement

1. Bookend Scenarios
    - FERC proposes the ‘develop a plausible and diverse set of at least four Long-Term Scenarios (pg. 123)’
        a) Allows for a wide-range of futures to be incorporated
        b) Why four scenarios?
    - Increased confidence in results
    - Rolling 3-year Assessment (pg. 100)
2. Compliance Obligations Are A Great Motivator
    - Force all entities to abide by the same rules
    - Mandated study scopes will standardize analysis across seams
3. Results of Scenario-Based Planning
    - MISO’s MVP & LRTP
    - SPP-MISO JTIQ

Benefit/Cost Ratio Ranges

Local Resource Zones

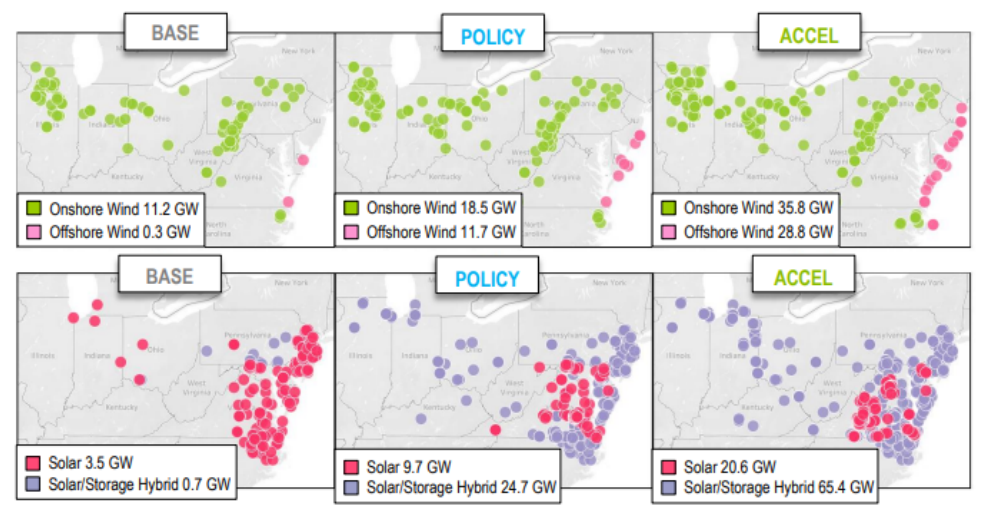


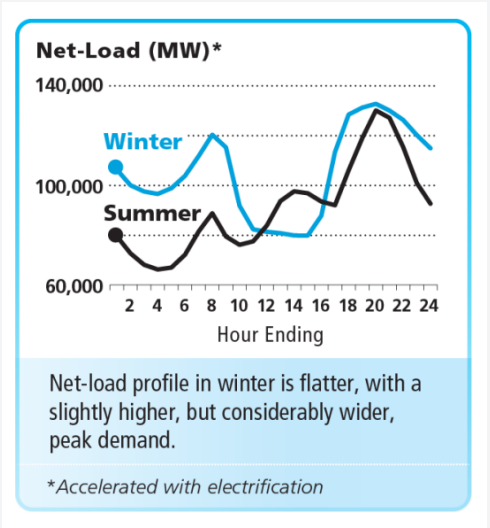


From MTEP17 MVP Triennial Review Report117065.pdf (misoenergy.org) Figure E-3

Topic Two: Long Range Scenario Planning

1. In 2050, what will the grid & society look like?
2. From power generation, to load, to demand side management a lot can change
3. PJM has already developed three robust scenarios. See [Energy Transition in PJM]





Topic Two: Resiliency & Geographic Zones

1. FERC defines resilience as:
    - “ability to withstand and reduce the magnitude and/or duration of disruptive events, which includes the capability to anticipate, absorb, adapt to, and/or rapidly recover from such an event.”
2. How do you incorporate this into planning models, like Reliability and TPL-001-05 Table 1?
    - Can we quantify geographic diversity, resource adequacy & access to lower cost renewables

1. Adoption of Geographic Zones allows for greater granularity when determining cost allocation
    - Example: SPP – MISO JTIQ Cost Allocation discussions are on going
2. Smaller study 'zones' could allow for more robust sensitivity development

Topic Three: Generation Interconnection & Cost Allocation

1. The costs of long-term transmission expansion should be born by the beneficiaries. Therefore, cost allocation tariff will likely have to be opened for comment.
    - 'But for' provision
2. ‘Sticker Shock’ of Network Upgrades
    - Backbone Upgrades versus Localized Issues
3. Value of Pursuing Reoccurring Network Upgrades
    - Assuming reasonable barriers to entry exist protecting against these supposed bad actors
    - Shows a willingness of financial institutions, landowners and developers to siting resources in these zone

Topic Five: Local Planning Requirements

1. Increased value in publishing expected maintenance plans:
    - Increases transparency
    - Allow for better optimized corridors
    - Allows developers to gain insight on ‘age and condition’ of circuits
2. Is the 230kV threshold too high?
3. Does optimizing 100kV corridors to +230kV make the most sense and potentially delivering greater economic value to customers?

Takeaways

It is imperative to separate the technical and cost allocation pieces to promote fruitful and prompt study work

How does FERC or PJM plan to move forward with viable projects?

Thank You

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