MISO April LRTP Workshop Review

OMS CAPCOM

May 17, 2021

April Workshop spoke to key stakeholder questions, a technical update, and background and purpose of the Indicative Roadmap

- Q & A dialogue – key questions
- Technical update - models, analysis, schedule
- Indicative Roadmap Discussion

Q & A discussion focused on the LRTP Objective and Process

- LRTP Objective
  - Reliable system performance (NERC) in Futures with heavy penetration of renewable energy, and increasing levels of electrification
- Differences from cyclic annual processes
  - LRTP is a part of the planning process – providing a continuum of plans for both the short- and long-term expectations
  - The only planning process that anticipates future resources and plans transmission to enable resource options
- Process
  - Futures / resource forecasts / transmission issues / alternatives including siting impacts
  - Identification of economic benefits
  - Stakeholder engagement throughout

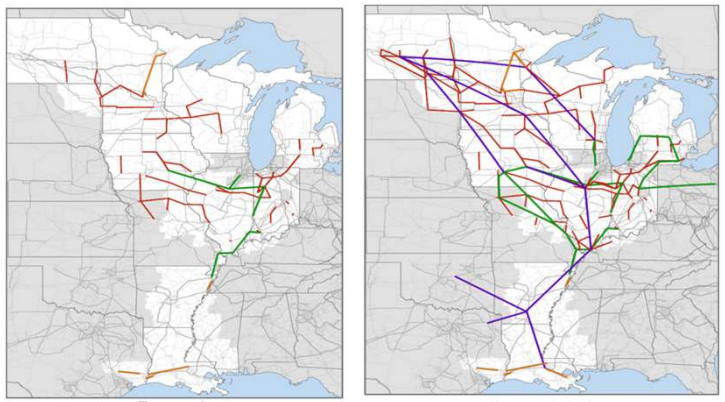
Other topics included how MISO will treat solution alternatives – NTA, facility grouping, resource siting

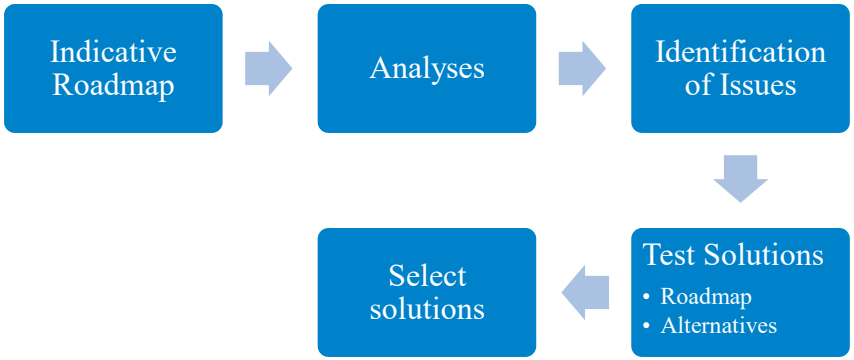
- Non-transmission alternatives are a part of the MISO planning considerations (generation, demand-side, non-transmission facilities)
- Groups of facilities are often needed to form a complete solution to specific grid issues – individual facilities not show to be needed will not be included in such groups
- Siting of future resources has an impact on Transmission Issues identified – LRTP is not intended to plan for localized interconnection needs
- LRTP focus is reliable grid performance, with identification of economic benefits (Production cost and others to be further developed)

Technical update: Stakeholders reviewing models

- Technical update was brief as MISO does not have system analyses yet to share
- Model review by stakeholders continues
- Stakeholders have been helpful in identifying certain anomalies in models – typical in model development

Indicative roadmaps reflect possible scope of transmission needs to be considered once analyses identify specific transmission impediments to resource development options





- Indicative Roadmap provides an initial set of possible solutions, similar to annual process where TO's provide potential solutions and MISO compares to Issues, seeks alternatives, and selects solutions
- The extent to which any of these projects are recommended, and the timeline for those is entirely dependent upon transparent system analysis
- Its possible that MTEP 21 may include some project recommendations , however full identification of needs will take several years of analyses

Further questions?

May 2021 REBWG Feedback Review

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Organization of MISO States

Feedback Request

1. How would you define system-level reliability in the context of the projects identified through the LRTP process? Why? (see slide 8)
2. How should costs associated with the system-level reliability component of LRTP projects be allocated? Why? What is the appropriate level of granularity in allocating these costs (cost allocation zones, sub-regional level)? Why? (see slide 12)
3. What economic metrics should be used for allocating the economic component of LRTP projects? Why? Please include how any proposed metrics should be analyzed and quantified, and the appropriate level of granularity in allocating costs (cost allocation zone, sub-regional level, etc.) (see slide 11)
4. What project criteria should be used for LRTP projects, including minimum project cost, voltage, etc.? Why? (see slide 9)
5. Are there other elements not contained in the proposal by Certain TOs that should be considered? Do you have a better way for costs associated with projects identified through the LRTP process to be allocated? Please be as specific as possible, including how benefits should be calculated and how costs should be allocated (cost allocation zones, sub-regional level, etc.).

Q1 – Definition of LRTP System-Level Reliability

- Meeting NERC criteria 99.96% of the time
- NERC's Adequate Level of Reliability Performance Objectives
- Ability to move power beyond what is needed to support local load

- Should be no different than NERC and RE reliability standards
- Additional definition may be needed for 20-year reliability needs
- Any enhanced standard of reliability needs to be transparently developed and agreed upon by stakeholders

Q2 - Granularity and allocation of system-level reliability costs

- Postage stamp because reliability is public good that all load shares (smallest sub-region that clearly benefits)
- We don't know how certain TOs measure system-level reliability.
- Non-economic cost should be allocated via generator pays.
  - Merchant lines could provide examples

- Analysis should begin with accurate modeling
- Evaluate current reliability-based cost allocation methods (LODF, DFAX) & consider innovative approaches
- BRPs and Reliability-Other projects
- Postage stamp should only be used when other metrics don't capture benefits

Q3 - Economic metrics and scope for allocating LRTP costs

- Similar to MEP but more robust for better granularity
  - APC and Avoided Reliability Projects
- 2019 RECBWG Straw list of metrics as starting point
- Other metrics
  - Decrease Transmission Line Losses
  - Decreased operating reserves
  - Decreased PRMs
  - Reduced RDT settlement costs
  - Meeting Public Policy Goals
  - Benefit to generators
- These should be adjusted based on tailored methodologies and accuracy levels desired by parties

Initial 18-Benefit Straw List
Savings from reduced production costs
Reduced MISO – SPP JOA settlement charges
Reduced transmission energy losses
Future capacity expansion deferral due to increased capacity import and export limits
Avoided/deferred reliability projects
Reduced congestion due to transmission outages
Avoided Market to Market (M2M) Payment
Reduced Reliability-Must-Run (RMR) cost
Reduced Ancillary services cost
Reduced capacity cost due to reduced peak load losses
Reduced cost of meeting public policy goals/mandates
Improved grid reliability / stability performance
Resilience or Insurance values against extreme event
Option value of transmission under various future scenarios
Increased load diversity
Storm Hardening
Natural Gas Cost Savings
Increased fuel diversity

Q4 - Project criteria for LRTP projects

Voltage Threshold

- 100 kV
- Projects below 230kV are local and should not be part of LRTP
  - LRTP are backbone projects
  - Stakeholders should be encouraged to submit lower cost and voltage projects nonetheless
- 345 kV+
  - To support deliverability across long distance

Cost Threshold

- As low as possible
  - $20M is the correct range
- $50M+

Additional Considerations

- Voltage and benefit distribution are linked
- Need to reevaluate future projects (10 years out) as we get closer to construction

Q5 - Other considerations and alternative proposals beyond Certain TOs' proposal

- Transmission alternatives should be analyzed and reanalyzed in the context of these projects
- Competition should be encouraged
- There are other technologies beyond transmission that can ensure reliability
  - Storage
  - Non-wire alternatives
  - Locational Generation Planning
- MISO should use as many metrics as possible to distribute benefits before distributing costs as reliability
- Costs of dispatchable resources should be recognized differently than intermittent resources
- Does not include public policy on long-term needs
  - Customer desire for specific generation should be included
- Need a generator-pays component
  - Load would pay for generator interconnection
  - Transmission access charges for future generators once current bottlenecks are relieved
- CTO proposal sits outside of current project hierarchy
  - MISO currently allocates reliability locally
- MISO should move on to JTIQ projects once LRTP round one is approved