Tranche 1 includes 18 projects in MISO's Midwest Subregion, totals $10.3B in investment, supports system reliability and provides benefits in excess of costs.

The System Planning Committee voted to recommend approval of the MTEP21 Report Addendum: Long Range Transmission Planning (LRTP) Tranche 1 Portfolio by the full Board of Directors on June 30, 2022.

The vote for approval of Tranche 1 is before the Board of Directors.
As part of MISO’s Reliability Imperative, Long Range Transmission Planning provides orderly and timely regional transmission expansion given the changing resource portfolio.

Reliable System
- Maintain robust and reliable performance in future conditions with greater uncertainty and variability in supply

Cost Efficient
- Enable access to lower-cost energy production

Accessible Resources
- Provide cost-effective solutions allowing the future resource fleet to serve load across the footprint

Flexible Resources
- Allow more flexibility in the fuel mix for customer choice
Tranche 1 provides a set of “least regrets” solutions focused on meeting portfolio changes of members and states as contemplated by Future 1.
Tranche 1, the first set of Long Range Transmission Planning projects, is the culmination of more than two years of planning activities.

**Long Range Transmission Planning Process**

- **Determine Futures, resource forecast**
- **Test system performance against Futures**
- **Identify transmission issues**
- **Update long range conceptual plan with proposals**
- **Consider long range plan when choosing solutions**
- **Integrate subregional issues and solutions**
- **Determine cost allocation based on values**

**Timeline**

- **2020**
  - Develop Futures
- **2021**
  - Develop models
  - Analyses: Continue identifying issues within the subregion
  - Initial Roadmap
  - Develop and test solutions
  - Evaluate benefits and cost allocation options, reliability, assess value, production cost, other
- **2022**
  - Finalize cost allocation
  - Stakeholder workshops
  - Recommend / approve Tranche 1 portfolio
Stakeholder input has been critical and numerous meetings have provided opportunities for strong engagement throughout the process.

Tranche 1 is the culmination of approximately:

- **200+ internal and external meetings**
- **200 - 300 attendees at each external meeting and workshop**
Tranche 1 represents the first iteration and includes 18 projects across the MISO Midwest subregion estimated at $10.3 billion. Costs as of 6/1/2022, and are subject to change (costs represent “overnight” costs).
Current analysis indicates total economic benefits of the Tranche 1 portfolio significantly exceed costs.

**LRTP Tranche 1 Benefits vs. Costs 20 – 40-Year Present Value (2022 $B)**

Calculations are generally based on conservative assumptions including the analysis period and discount rate.

- Present Value ($B):
  - Congestion and Fuel Savings: $13.1-$19.9B
  - Avoided capital costs of local resource investment: $17.5-$17.5B
  - Avoided transmission investment: $1.3-$1.9B
  - Resource adequacy savings: $0.6-$0.9B
  - Avoided risk of load shedding: $1.2-$11.6B
  - Decarbonization: $3.5-$17.4B
  - Total benefits: $37.3-$69.1B
  - Total portfolio investment: $14.1-$16.8B
  - Net benefits: $23.2-$52.2B

Values as of 6/1/2022
6.9% Discount Rate
Benefits will be broadly distributed across the Midwest subregion and deliver a benefit to cost ratio of at least 2.2 for all zones

**Range of Benefit/Cost Ratio by Cost Allocation Zone**
(20-year present value, 6.9% Discount Rate)

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lower-end</th>
<th>Higher-end</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>2.8</td>
<td>4.0</td>
</tr>
<tr>
<td>Zone 2</td>
<td>2.3</td>
<td>3.5</td>
</tr>
<tr>
<td>Zone 3</td>
<td>2.8</td>
<td>3.2</td>
</tr>
<tr>
<td>Zone 4</td>
<td>2.8</td>
<td>3.0</td>
</tr>
<tr>
<td>Zone 5</td>
<td>2.7</td>
<td>3.9</td>
</tr>
<tr>
<td>Zone 6</td>
<td>2.2</td>
<td>3.4</td>
</tr>
<tr>
<td>Zone 7</td>
<td>2.6</td>
<td>3.8</td>
</tr>
<tr>
<td>Total</td>
<td>2.8</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Values as of 6/1/2022
MISO has addressed substantive stakeholder feedback which generally focused on support for Tranche 1 approval, concerns for benefit calculation details and comments on a wide range of other topics.

<table>
<thead>
<tr>
<th>Stakeholder comments</th>
<th>MISO response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Support for Tranche 1 approval recommendation</strong></td>
<td>MISO staff appreciates these comments and support of the MTEP21 Addendum and LRTP process for the Tranche 1 portfolio.</td>
</tr>
<tr>
<td><strong>Benefit Metric Calculations</strong></td>
<td>In developing the business case for Tranche 1, MISO used conservative methods to quantify multiple types of benefits related to the needs captured in Future 1. MISO discussed these methods extensively in multiple workshops, and stakeholders broadly agreed with the types of benefits captured:</td>
</tr>
<tr>
<td>Some comments expressed concerns about potential overstating of benefits as a result of the methods used to calculate the various benefit metrics. These concerns generally focused on two areas:</td>
<td>1. Differences in reference cases were used to highlight the difference in benefits of resource construction (Avoided Capital Costs) and deliverability (Congestion and Fuel Savings, Decarbonization)</td>
</tr>
<tr>
<td>1. Differences in reference cases (i.e., cases without LRTP transmission)</td>
<td>2. Avoided Risk of Load Shedding benefits captures the mitigation of risks in alignment with NERC planning standards, focusing on risk reduction rather than probability</td>
</tr>
<tr>
<td>2. Avoided Risk of Load Shedding benefit</td>
<td></td>
</tr>
<tr>
<td><strong>Additional feedback</strong></td>
<td>MISO appreciates all the feedback and responded to each individual comment. MISO did not see any comments which diminish our confidence that the Tranche 1 Portfolio provides significant reliability and economic value, or any alternatives that would need to be considered further prior to our recommendation of the portfolio for approval by the MISO Board.</td>
</tr>
</tbody>
</table>
After reviewing the portfolio, substantive feedback and MISO responses, the System Planning Committee voted to recommend the approval of Tranche 1 to the full Board of Directors on June 30, 2022.

“The System Planning Committee recommends to the Board that it approve the 18 projects in the MTEP21 Report Addendum: Long Range Transmission Planning Tranche 1 Portfolio and also approve the inclusion of the 18 projects into Appendix A of MTEP 2021.”
A motion to approve the MTEP21 Addendum and inclusion of the Tranche 1 Portfolio in Appendix A is now before the Board

“The Board of Directors moves to approve the 18 projects in the presented MTEP21 Report Addendum and approve the inclusion of those projects into Appendix A of MTEP 2021.”