

The Benefits of MISO's "Tranche 2.1" Portfolio of Long-Distance Power Lines for the Upper Midwest

MISO's ["Tranche 2.1" portfolio of 24 long-range transmission lines](#) set for a board approval vote on December 12 will be the **biggest regional grid upgrade ever** in the United States.

- The lines will enable **nearly 116 gigawatts of new generation** — mainly solar, wind and storage — to come online economically and reliably at a time of shifting generation resources and growing demand for power.
- The lines enable more efficient regional transfer of power across states, and provide benefits for residents in North Dakota, South Dakota, Minnesota, Wisconsin, Michigan, Indiana, Illinois, Iowa, Missouri and Kentucky.

Creating up to 130,000 jobs building the new lines

- Building the 24 new Tranche 2.1 lines will create up to **65,000 direct jobs** for construction workers and other positions – with wages estimated to be about 30% higher than a typical worker's wages – and up to **130,000 jobs total** including the indirect jobs created at local businesses in hospitality and retail.
- MISO estimates that the work will spark up to **\$24 billion in total economic output** across the Upper Midwest.
- MISO's state-by-state breakout of jobs estimate ranges is available via the table on p. 28 of its [LRTP Tranche 2.1 Benefits Analysis Results Review](#).

Creating 745,000 jobs building and operating new solar, wind and battery storage projects

- The Tranche 2.1 transmission lines will help to enable development of nearly 100 gigawatts of solar, wind, battery and hybrid solar/storage projects through 2042. Based on standard job creation multipliers ([ACORE](#)) for each project type, this generation will support 745,000 jobs (job-years).
- Based on industry standard homes-powered-per-MW of solar ([SEIA](#)) and onshore wind ([American Clean Power](#)), this new generation will be enough to power about 24 million homes.

Avoiding the need to build expensive new power plants

- The new power lines in Tranche 2.1 will avoid the need for about 20 large new power plants' worth of generation – over 20 gigawatts in all – saving \$16.3 billion for bill-payers. The new lines do this by enabling access to more efficient lower-cost generators located further away from

customers. That averts the need for development of less efficient resources that would otherwise be required if the Tranche 2.1 lines aren't built.

Preventing power outages due to overloaded power lines

- If transmission lines carry too much electricity they become "overloaded" and fail to operate. By adding new transmission lines, electricity can be re-routed to these new lines, decreasing the likelihood that any line becomes overloaded or causes a blackout.
- Ensuring this reliability is essential for residents and businesses, and its financial benefit is measured by the market price of energy people would be willing to pay to avoid any blackout. With Tranche 2.1 this benefit is estimated to be at least \$14.8 billion.

Reducing grid congestion and avoiding expensive generators

- The Tranche 2.1 lines give MISO greater flexibility to tap the lowest-cost resources on the grid to meet demand, alleviating instances where grid congestion bottlenecks force residents to pay for running generators that are more costly.
- The more economically efficient dispatch of sources enabled by the Tranche 2.1 lines will provide \$8.1-\$11.3 billion in savings for consumers over a 20-40 year period.

Reducing the risk that extreme weather causes blackouts

- With more frequent extreme weather events, longer and higher-capacity transmission lines are important to move power from places unaffected by the extreme weather to serve customers in hard-hit areas, avoiding costly outages and energy price spikes. We all learned this lesson during 2022's Winter Storm Elliott, when 3 in 10 gas plants in MISO went down in the cold.
- The Tranche 2.1 lines will save consumers \$394-\$557 million over a 20-40 year period by increasing the amount of electricity conveyed over long distances and reducing the likelihood that areas hit by extreme weather will have blackouts.

Reducing energy losses on power lines

- As electricity travels from the generator to the customer, energy is lost along the way. Today's newer long-range power lines reduce those energy losses, which saves money for bill-payers in two ways: avoiding the need to run generators to replace that lost energy ("energy savings"); and avoiding the need for added capacity to compensate for those losses ("capacity savings").
- The Tranche 2.1 lines will provide consumers with energy savings of at least \$1.6-2.4 billion over a 20-40 year period, and capacity savings of between \$1.9 and \$2.2 billion.

Curbing pollution that is worsening climate change

- As more solar, wind and battery storage comes online with the construction of the Tranche 2.1 power lines, carbon pollution from gas and coal power plants will decline. MISO estimates the decarbonization financial benefits of the 24 lines will be in the range of \$7-\$37 billion over a 20-40 year time frame.

Reducing the costs of overcoming power line outages

- As the regional transmission grid is improved, MISO is better able to reroute electricity when a transmission line goes out – avoiding the need to operate more costly generators. By reducing these types of transmission outage costs, the Tranche 2.1 lines will save customers \$76-\$110 million over a 20-to-40 year period.

Avoiding the costs to replace aging transmission

- When local transmission lines get too old they need to be replaced, but new regional lines can alleviate the need to replace these old lines, which results in avoided costs. The new lines in Tranche 2.1 eliminate the need to replace over 700 miles of existing aging transmission, saving customers between \$1.2-\$1.8 billion over a 20-40 year period.