

Economic Opportunities from Transmission in Montana

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Clean Competitive Grids

States in Sync

The Western Win-Win Transmission Opportunity



About me and RMI

- **Tyler Farrell**

- Background in physics, economics, and energy system engineering
- Idaho resident since 2019
- RMI since 2022

- **RMI**

- Independent and nonpartisan nonprofit organization
- Based out of Boulder, Colorado
- Over 600 employees across the US and the globe



Our Clean Competitive Grids team works to ensure transmission supports the energy transition



We actively participate in Western and PJM transmission processes



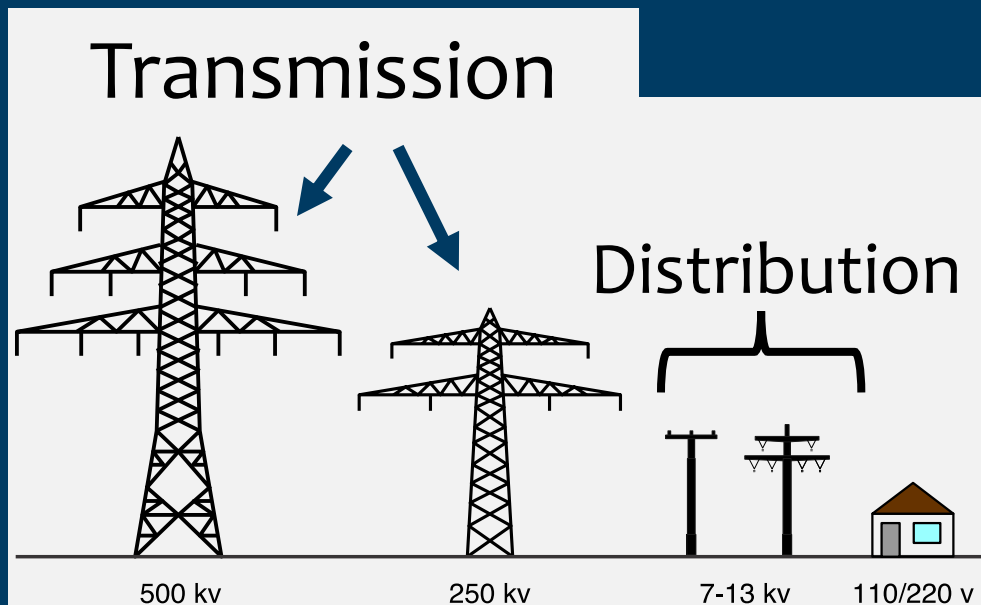
We publish insights on grid solutions: regional transmission planning, grid-enhancing technologies, federal funding opportunities, and more



We collaborate with PUCs, energy offices, legislators, and utilities



In this talk, I will share the economic opportunities from expanding Montana's transmission system



Outline

1. Transmission's economic benefits
2. The energy export opportunity
3. The extreme events cost saving opportunity
4. Action on transmission in Montana

“Transmission” is the very high voltage power lines that carry power long distances.

Transmission's economic benefits

Montana can seize multi-billion-dollar economic opportunities by expanding transmission capacity

Transmission benefits from the March 2024 CREPC Transmission Collaborative meeting

- **Enhanced grid reliability and resilience**
 - Transmission helps alleviate impacts of extreme weather on demand and grid operations
 - Imports reduce loss of load probability
 - Better prepared to address ongoing load and supply changes
- **Capture advantages of regional diversity**
 - Different seasonal peaks
 - Weather/fuel availability at different times
 - Time zones impact both demand and supply
- **Reduced congestion/power costs**
- **Economic development for power exporters and importers**
- **Helps states achieve policy goals**

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We quantify the investment opportunity for Montana

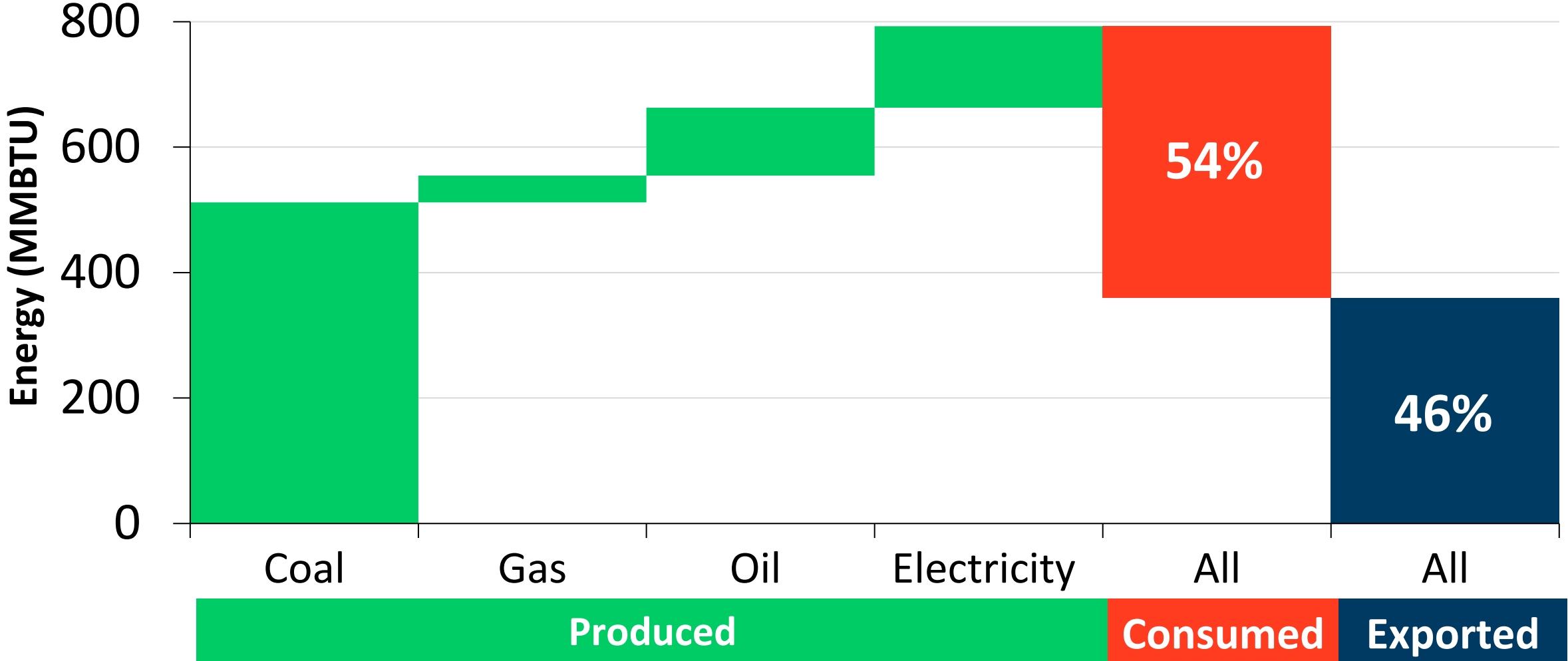
Montana can build on recent progress by planning and supporting transmission to neighboring states

- **Making transmission the center of the energy and economic development conversation.**
- **Supporting grid enhancing technologies**
 - Utah SB 191 (Bi-partisan Senate bill 2024)
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Transmission's energy export opportunity

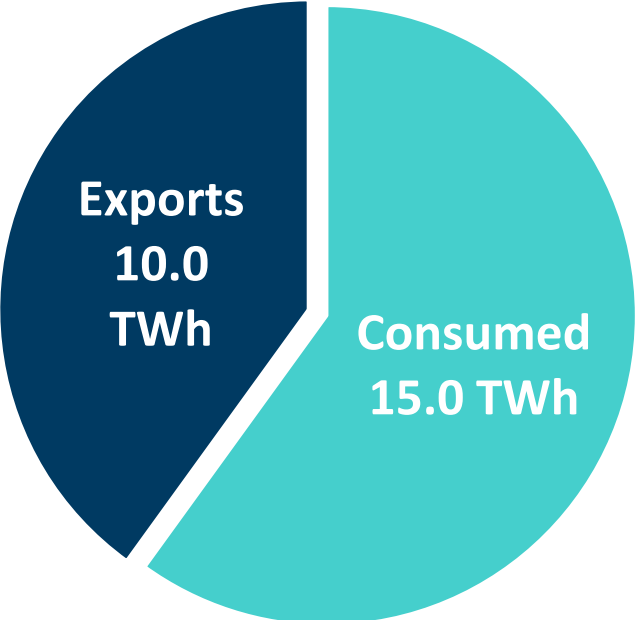
Montana is a leading energy export state in the West



RMI Graphic. Source: US EIA.

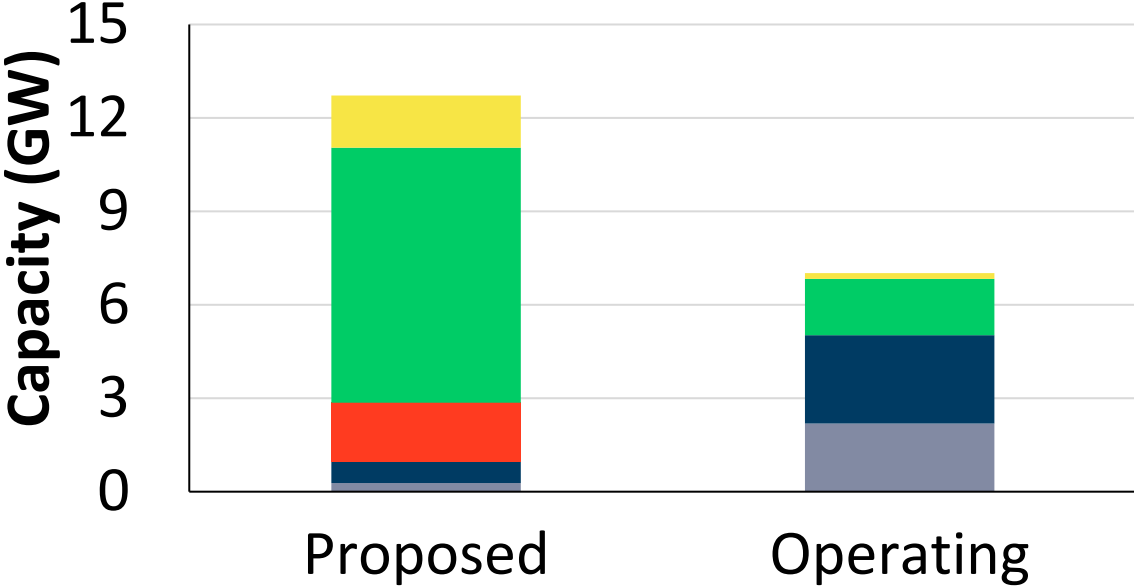
Montana exports significant amounts of electricity and has huge future potential

Over 40% of electricity generated is exported out of state



RMI Graphic. Source: RMI analysis and US EIA.

Almost twice as many projects proposed as online capacity

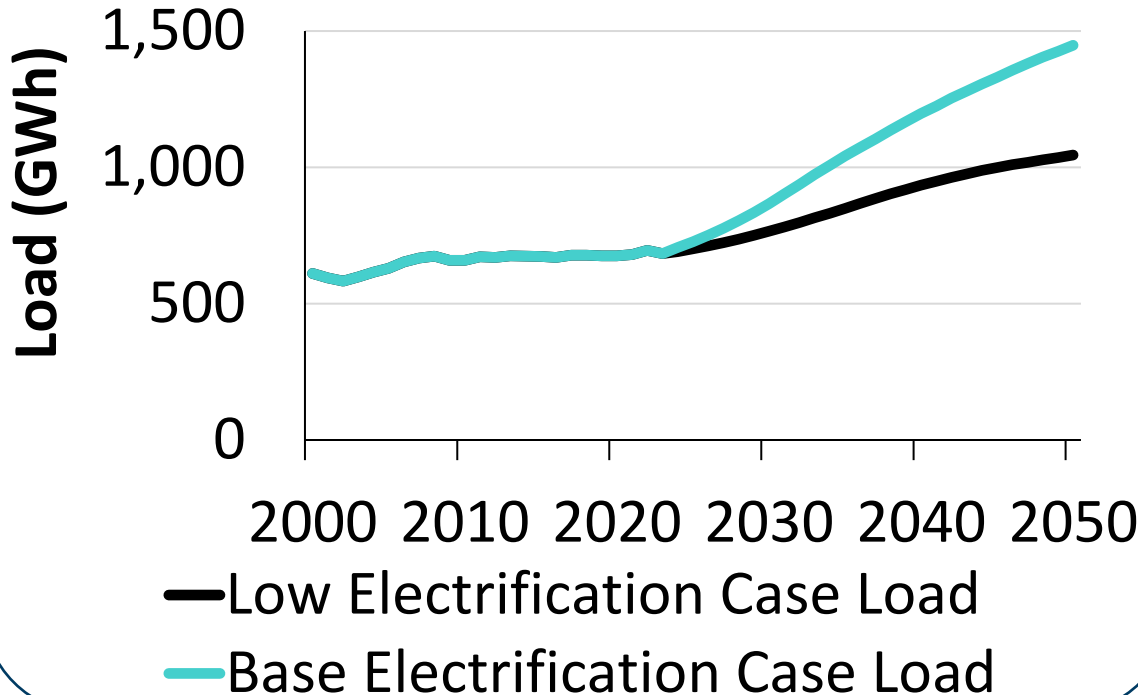


■ Fossil ■ Hydro ■ Battery Storage ■ Wind ■ Solar

RMI Graphic. Source: RMI analysis, the Lawrence Berkley National Laboratory, and S&P Global.

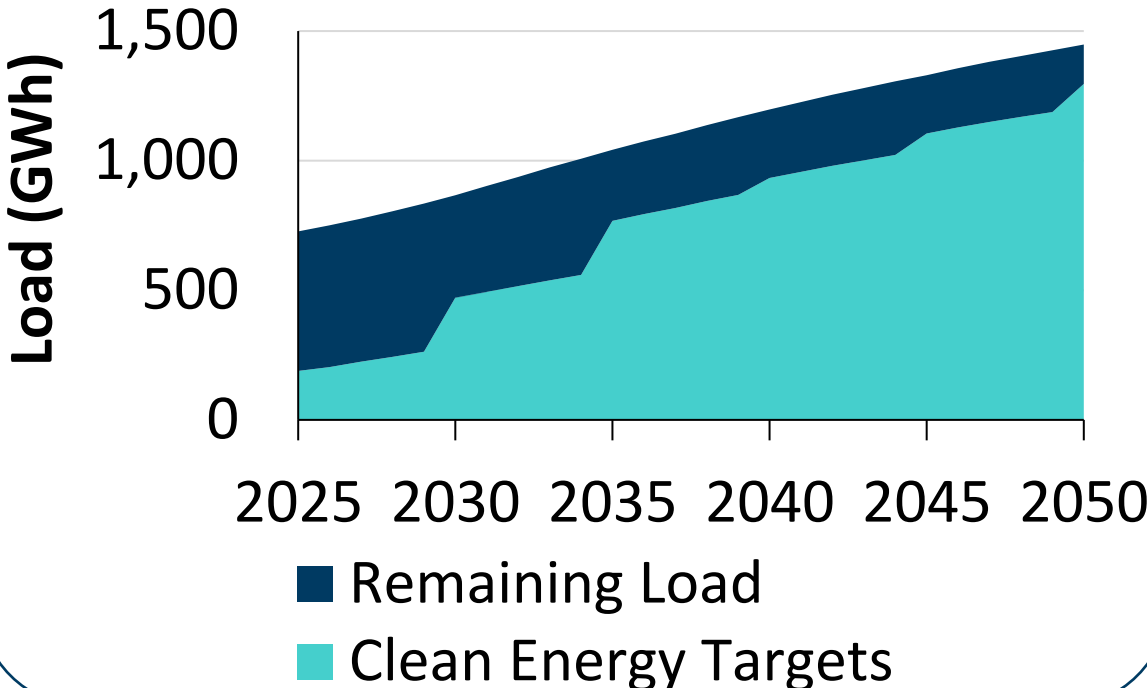
Load growth and public policy goals are driving a renewed need for new electric generation

The West is on the cusp of supercharged electricity demand



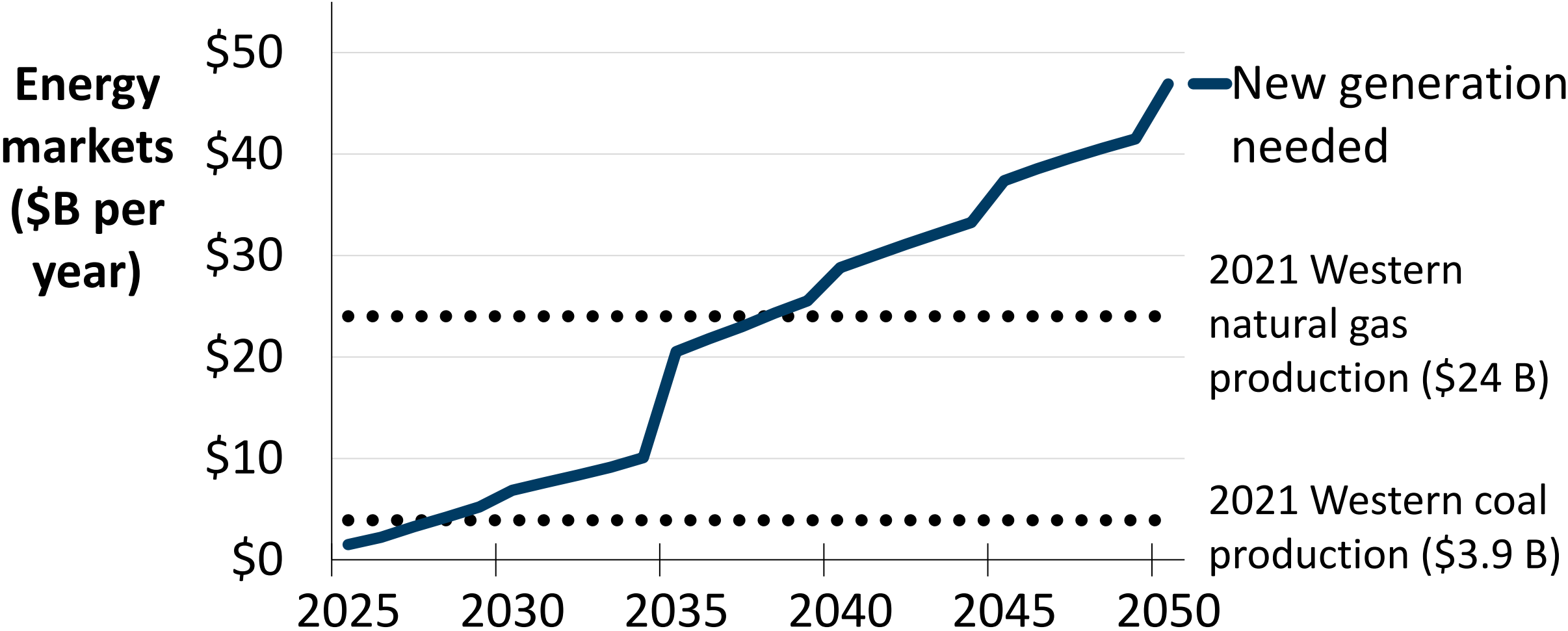
RMI Graphic. Source: RMI analysis, Energy Innovations, and the US EIA.

Clean energy targets will make up over 90% of Western demand by 2050



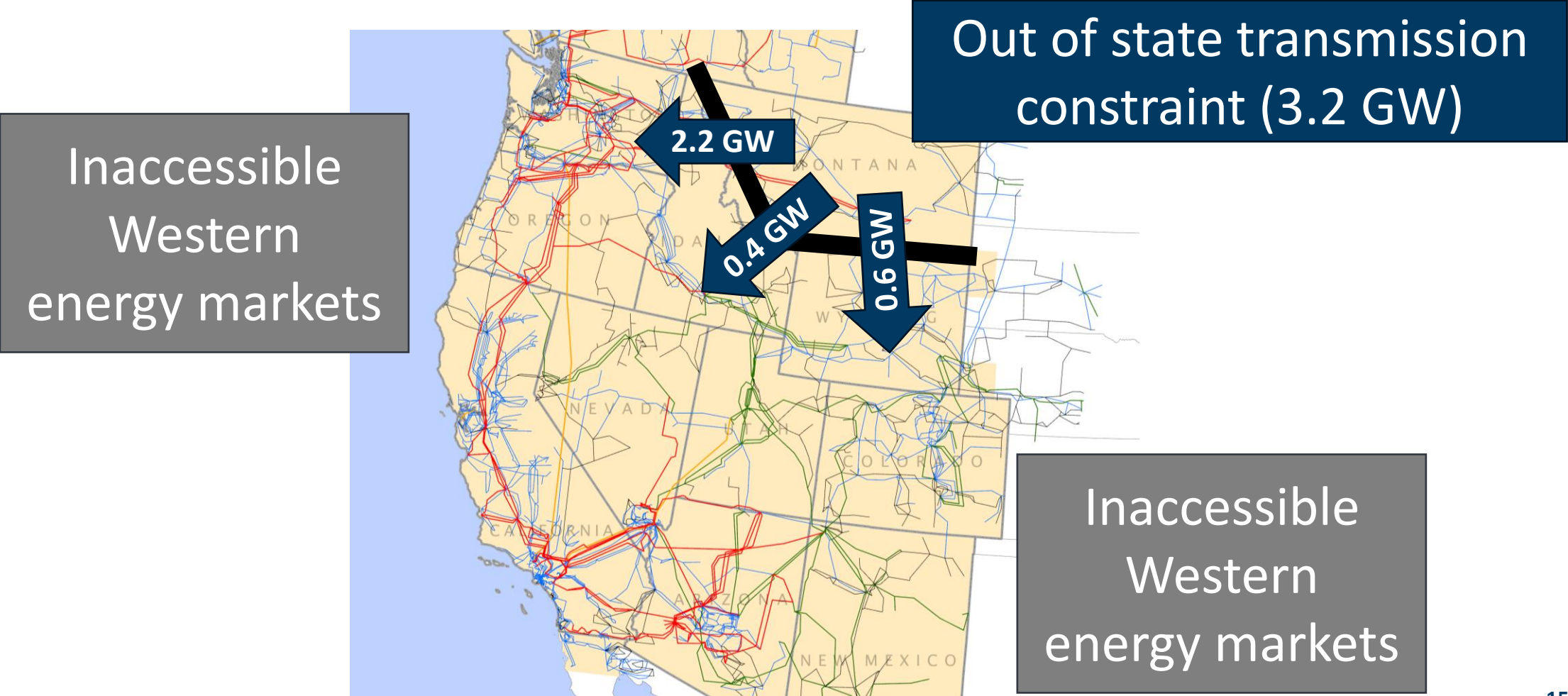
RMI Graphic. Source: RMI analysis and the Lawrence Berkley National Laboratory.

New electric power investments will grow rapidly over the coming decades



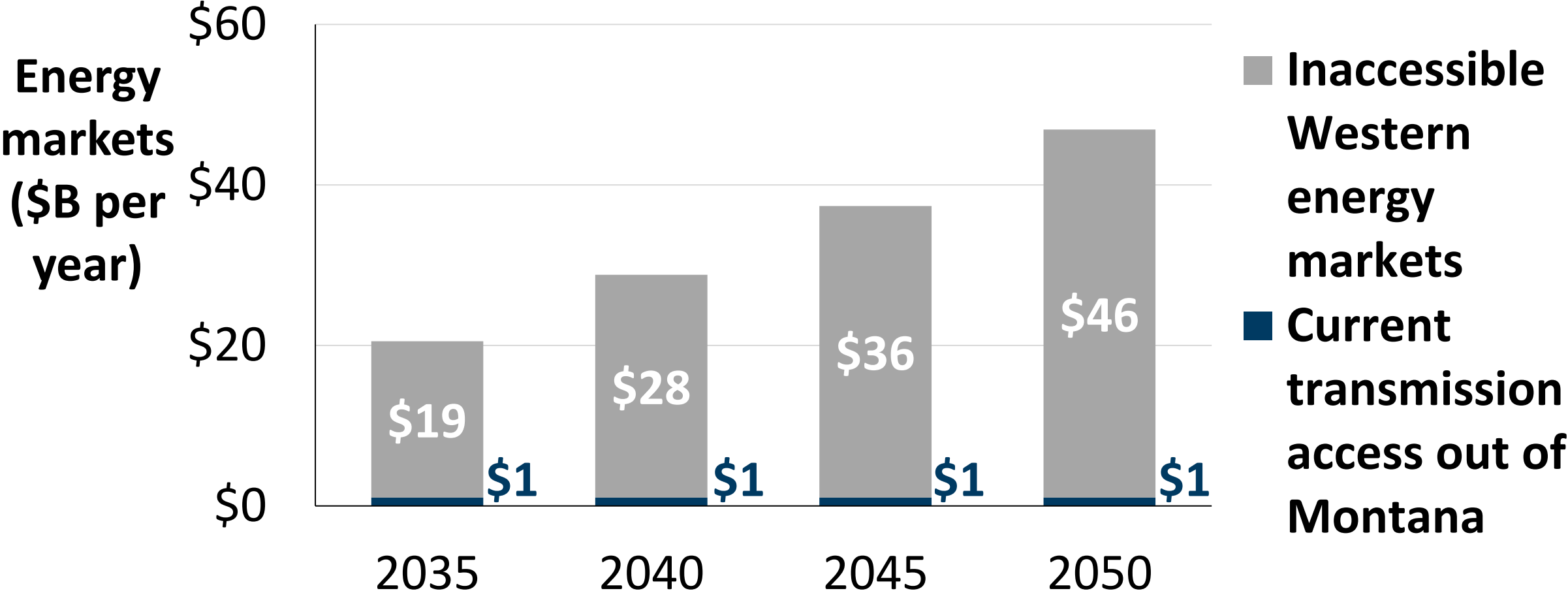
RMI Graphic. Source: RMI analysis, Lawrence Berkeley National Laboratory, and Energy Innovation

Montana has limited inter-state transmission export capacity



RMI Graphic. Source: WECC and NorthWestern Energy.

Without transmission upgrades, Montana will have access to only 2% of this new opportunity



RMI Graphic. Source: RMI analysis, Lawrence Berkeley National Laboratory, and Energy Innovation

Case Study: New Mexico

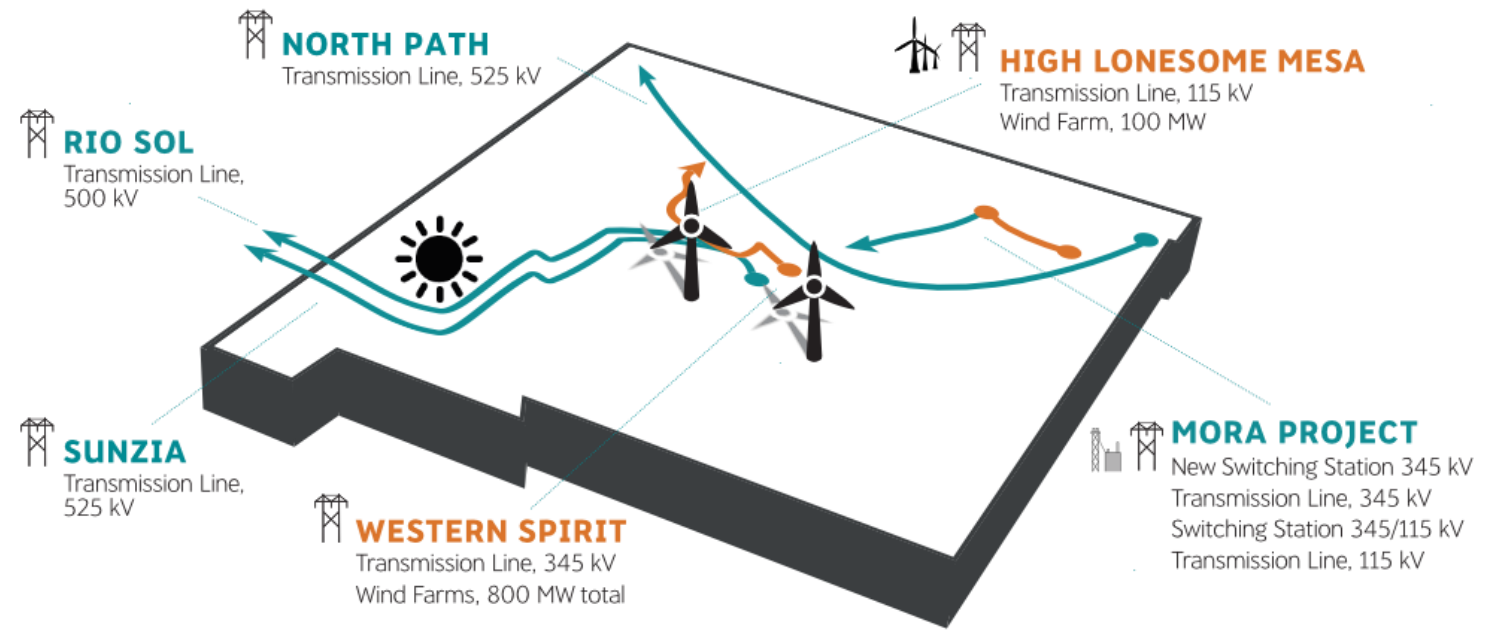
New Mexico Renewable Energy Transmission Authority (RETA) is enabling NM's future energy economy

- NM state legislature created RETA in 2007
- Eases hurdles across:
 - Paying
 - Permitting
 - Planning

New Mexico RETA Projects

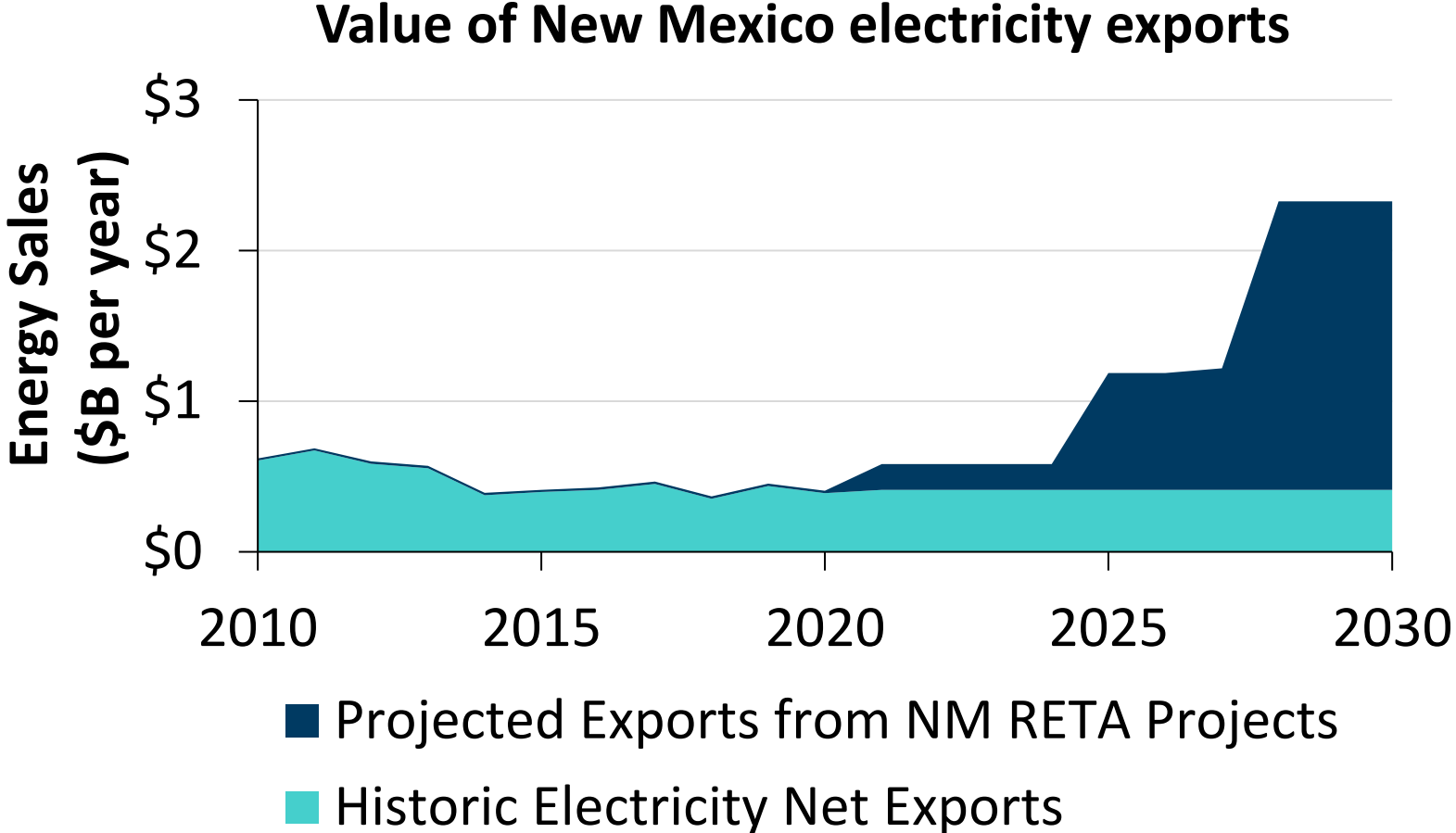
Orange projects are online projects

Blue projects are expected to be in service by 2028



NM RETA projects expected to quadruple the exported electricity at no cost to ratepayers

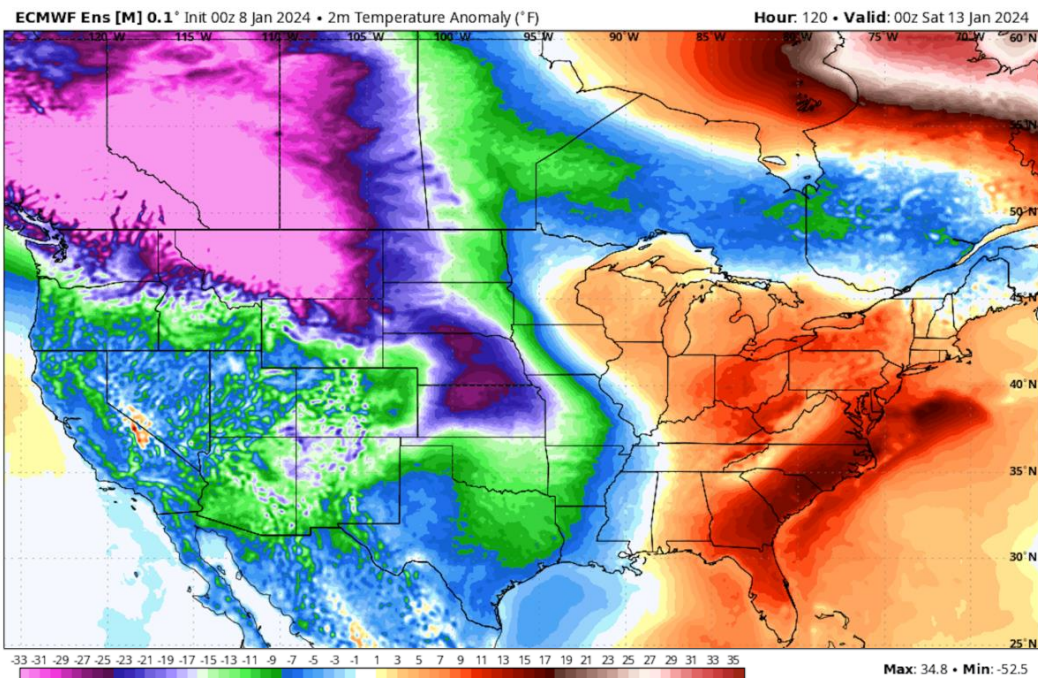
- Opening 8.6 GW of new transmission capacity
- Exporting 3.4 TWh per year to new energy markets



Transmission's Cost Saving Opportunity During Extreme Events

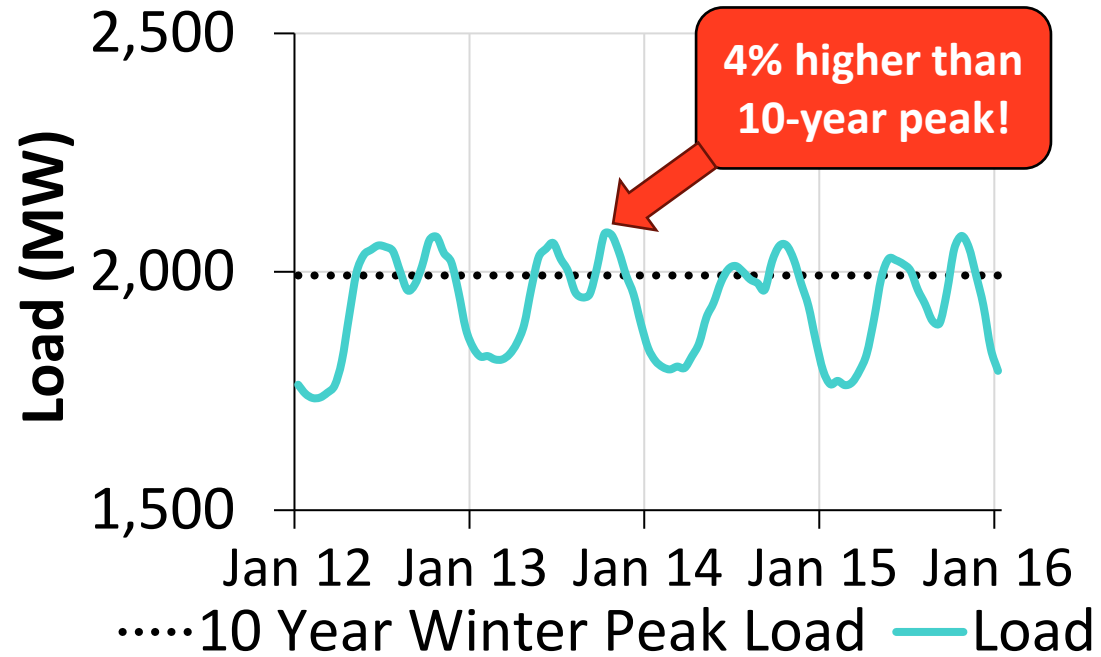
In January 2024, the Northwest region experienced an extreme cold event

Montana's temperatures were 30 degrees below normal



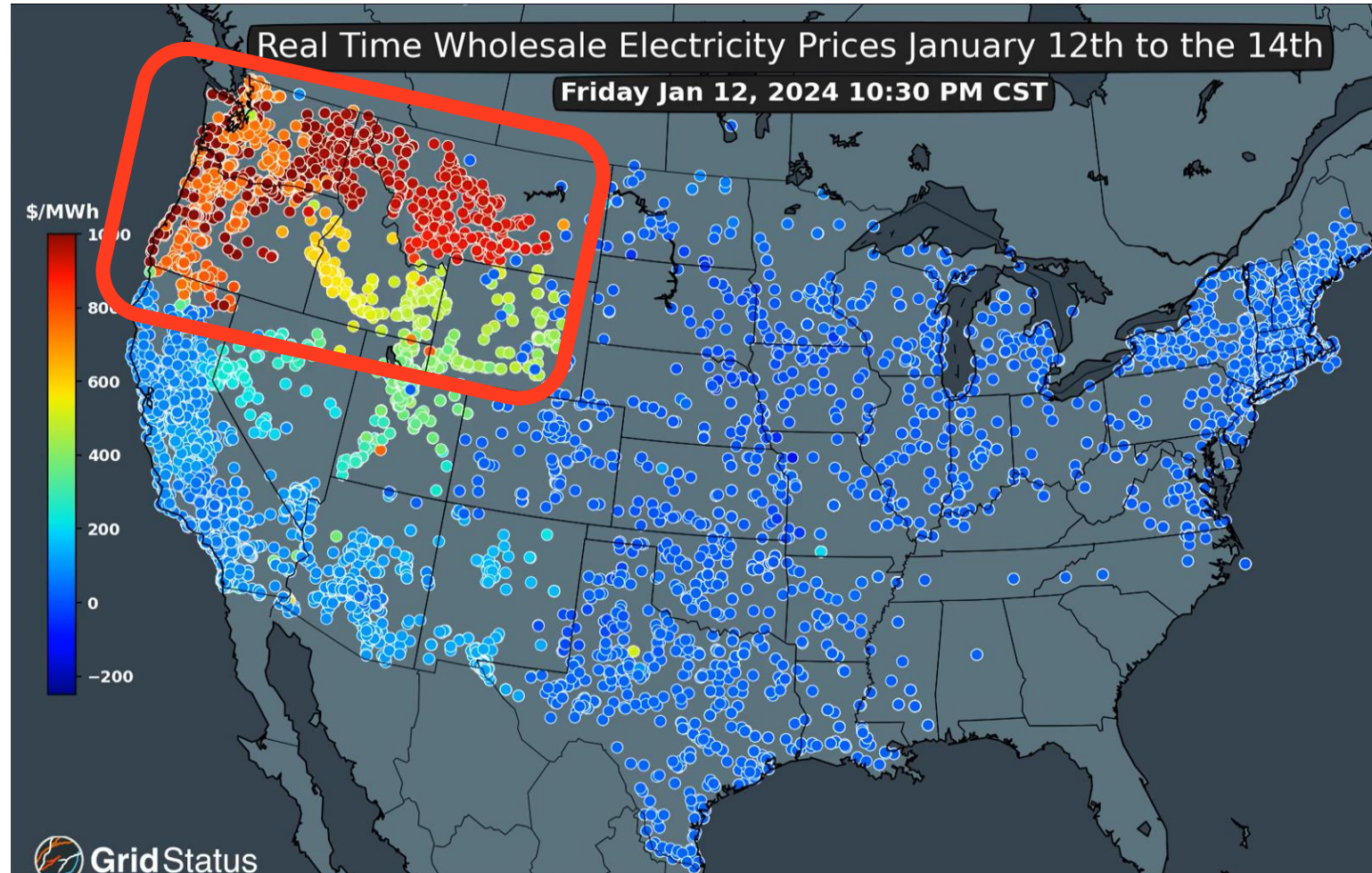
Source: weatherbell.com.

Montana's grid strained under extreme load

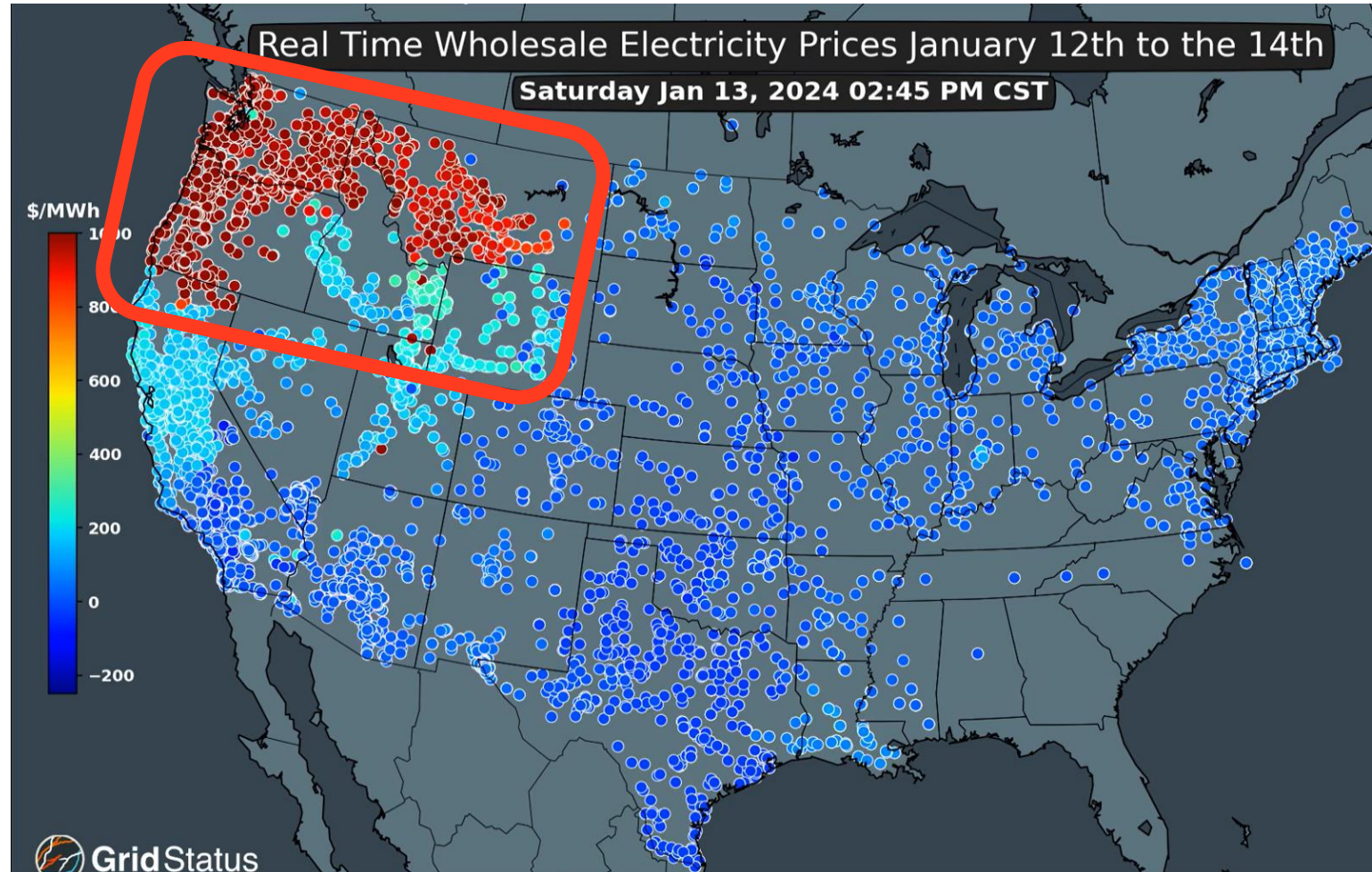


Source: US EIA.

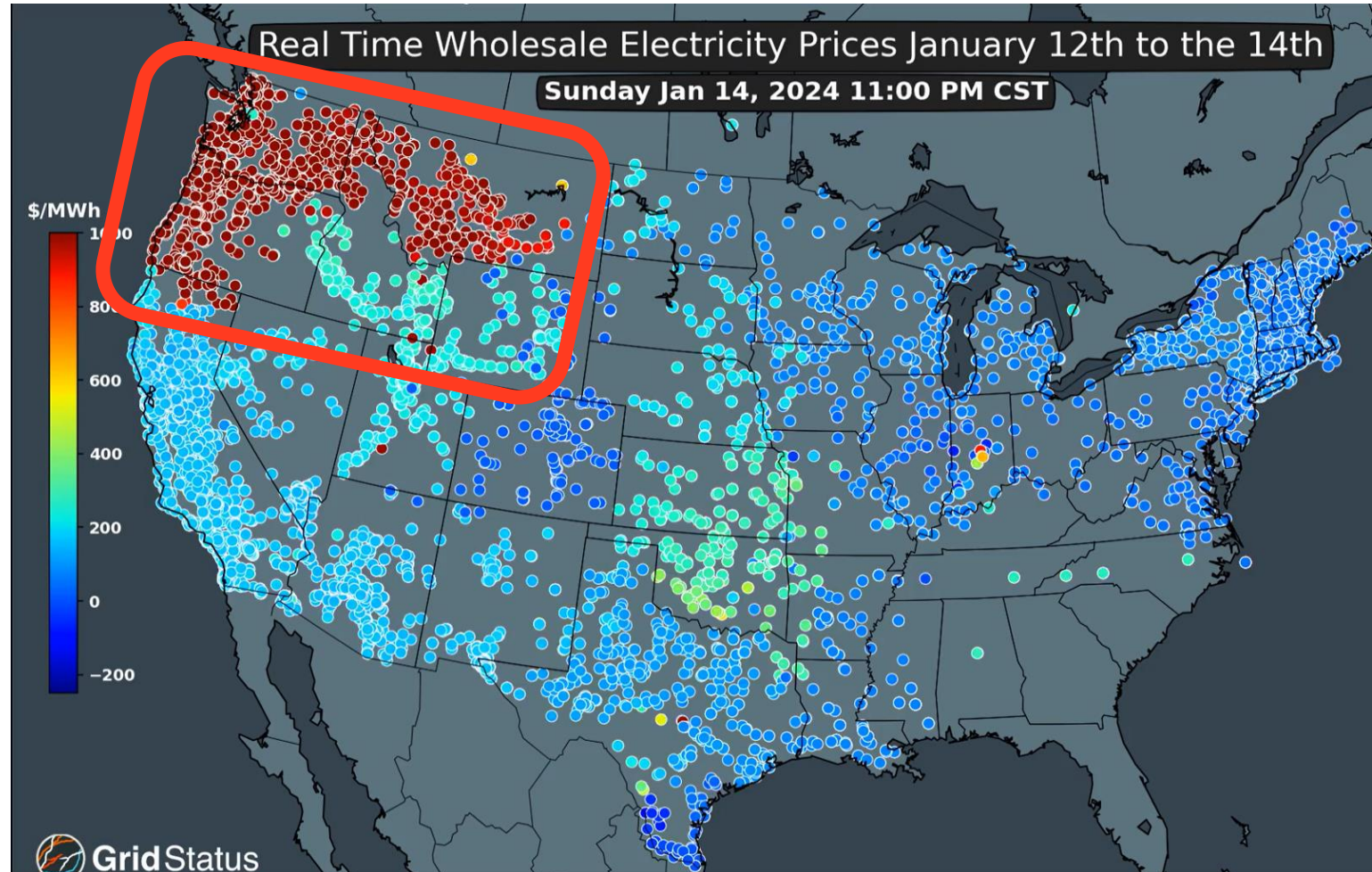
This led to extreme electricity prices throughout the Northwest



This led to extreme electricity prices throughout the Northwest



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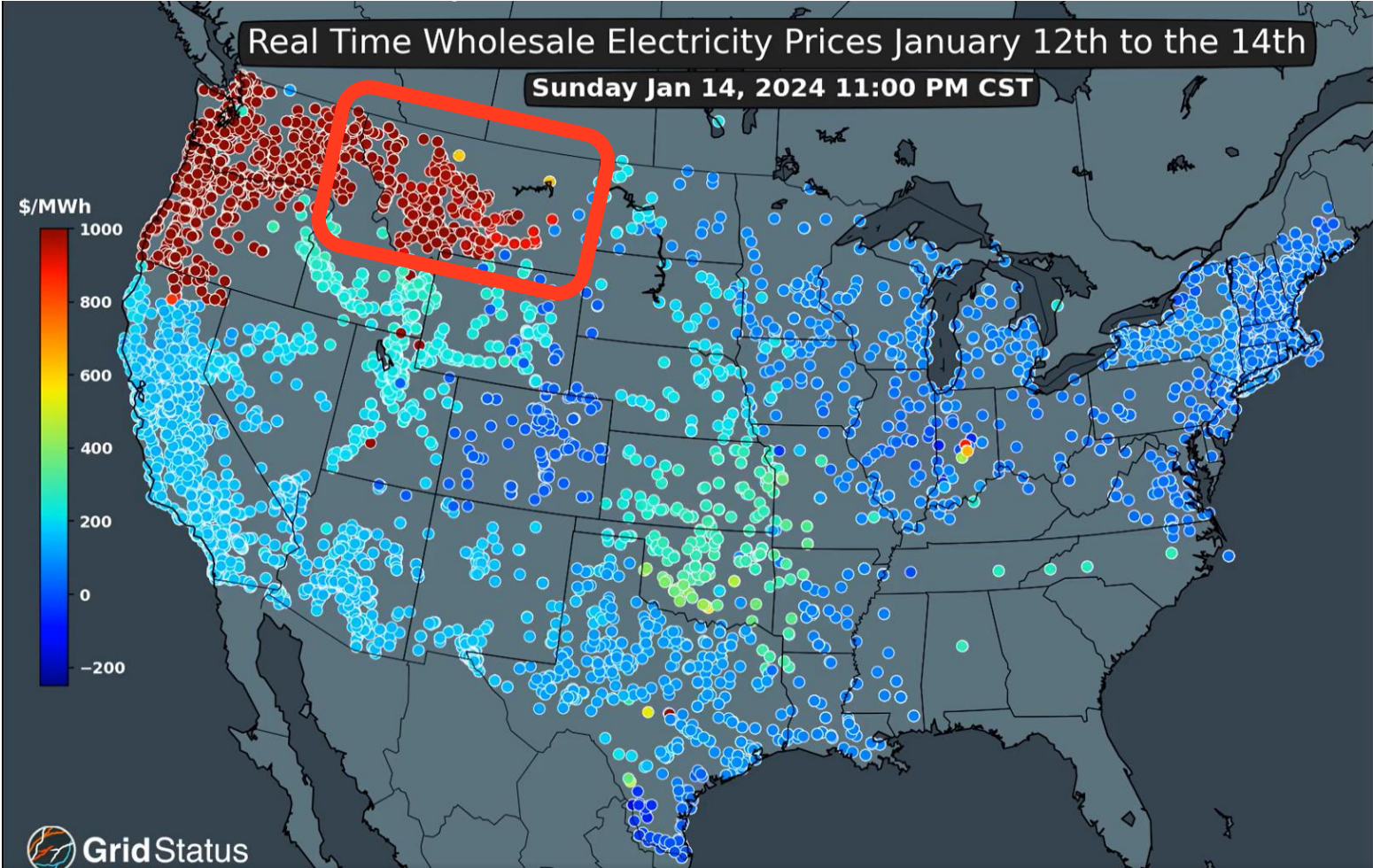
And high costs for Montanan ratepayers...

“The utility estimates residential electric customers will pay another \$6.73 a month ... a 6.4% increase for all adjustments in the quarter.”

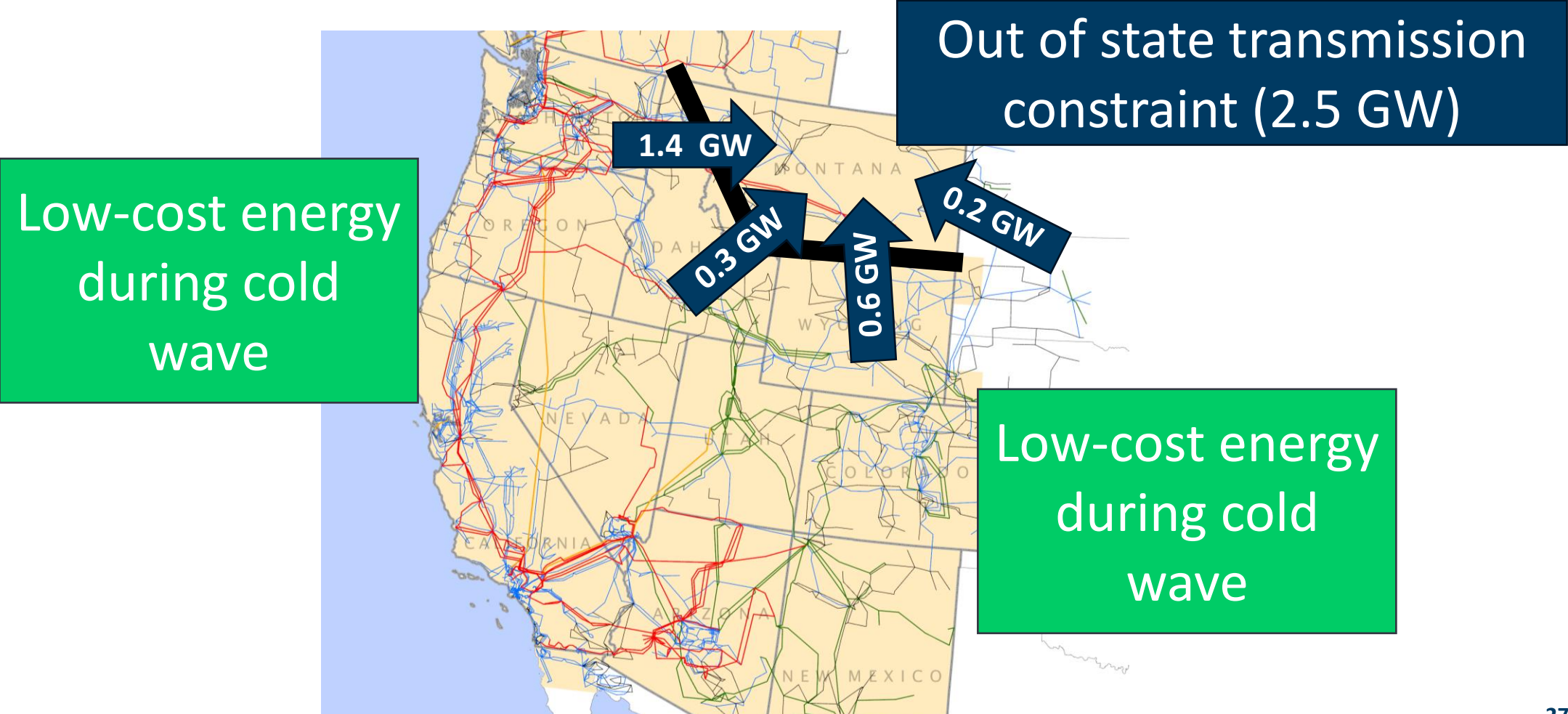
Daily **Montanan**

**January 2024 cold snap
to cost NorthWestern
customers \$39M**

Out of state transmission would have been invaluable to Montana during this 5-day stretch

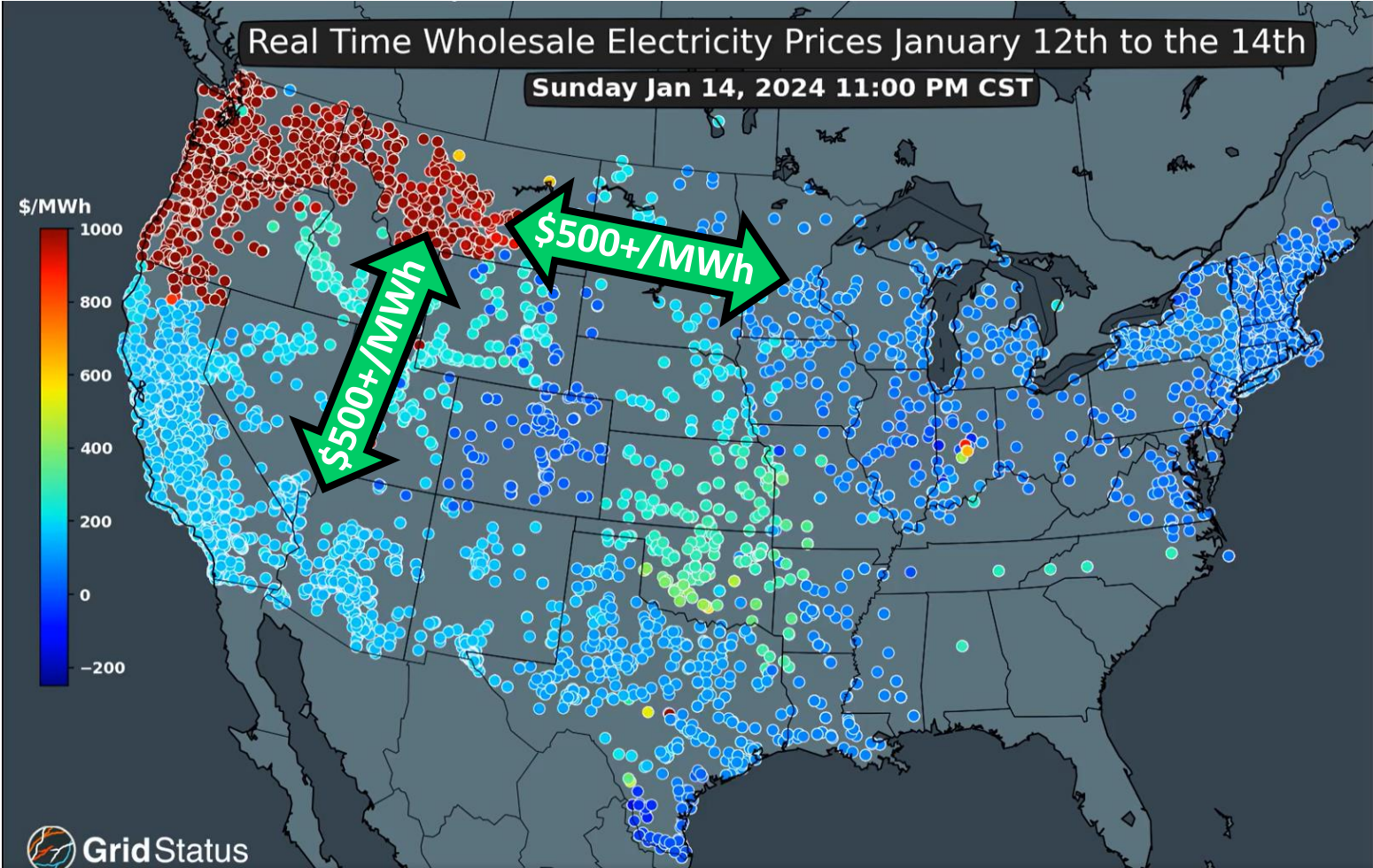


Montana has limited inter-state transmission import capacity



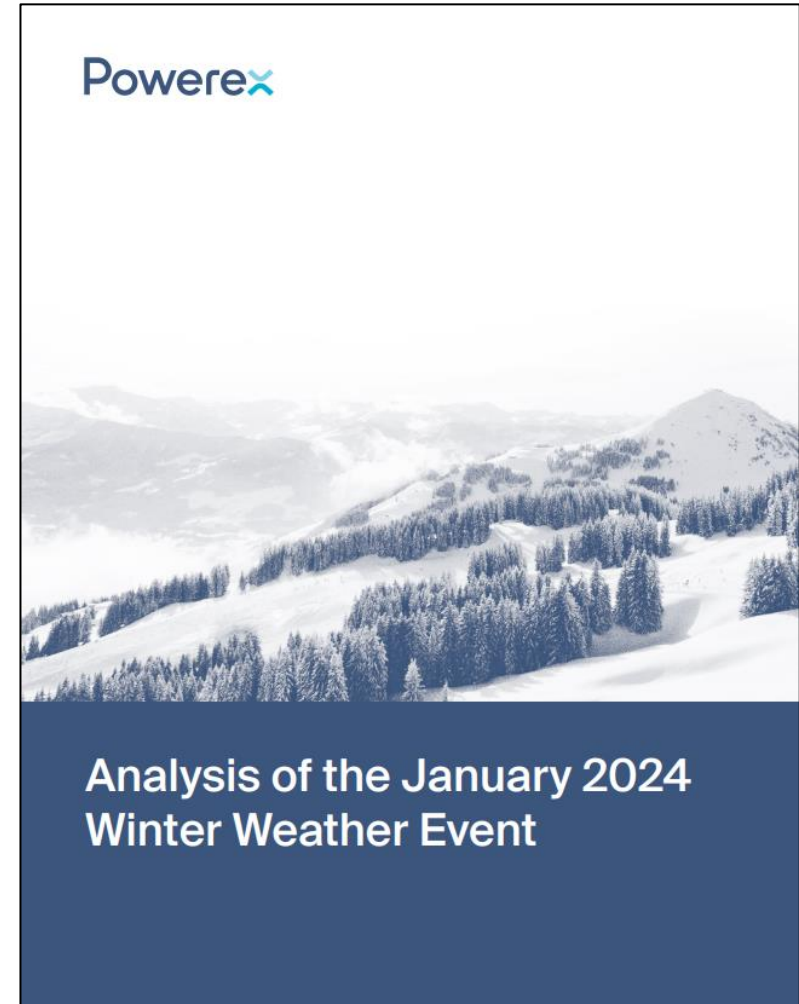
RMI Graphic. Source: WECC and NorthWestern Energy.

Out of state transmission could have brought low-cost power into the state during this period



Expanded transmission to the desert southwest region would have brought millions in benefits

*“...an additional 2,000 MW of direct transfer capability between these regions could have provided **up to \$140 million in additional economic benefit in just five days**, while greatly reducing the reliability risk for the U.S. Northwest region.”*



Who is going to pay for transmission?

Any allocation of cost should be proportional to the benefits that Montana receives

FERC Order 1920: Building for the Future Through Electric Regional Transmission Planning and Cost Allocation (May 13, 2024)

“to allocate the costs of transmission facilities...that is at least roughly commensurate with benefits.”

New Mexico RETA projects are expected to quadruple the exported electricity at no cost for New Mexican ratepayers.

In Iowa, a tranche of Midwest transmission project led to benefits that were 4.5 times higher than the allocated costs for the state of Iowa.

Action on transmission in Montana

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Thank you
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