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MONTANA WIND JOBS



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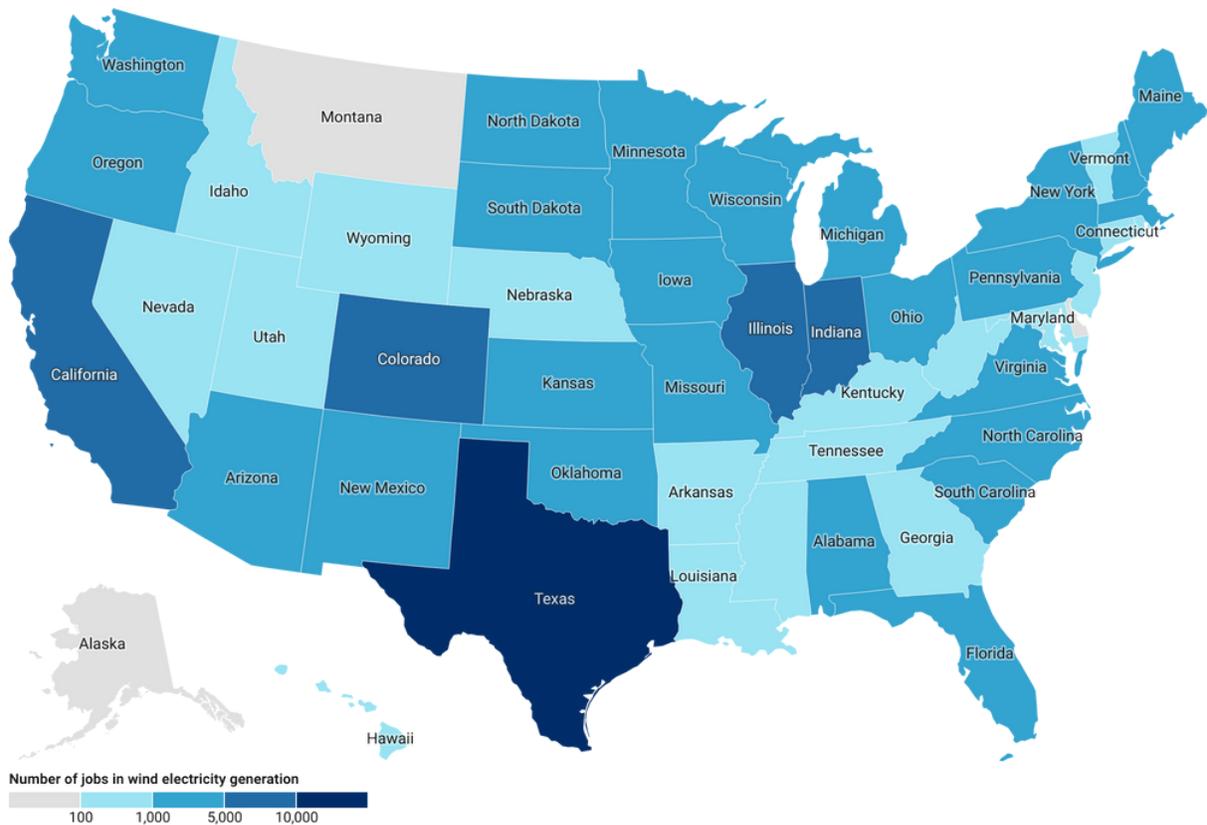


**RENEWABLE
NORTHWEST**

MONTANA LAGS ON WIND AND SOLAR EMPLOYMENT

A recent analysis in Yale Climate Connections compares all 50 states in their job creation in the wind and solar industries. Montana ranks near the bottom.

Wind jobs in each state



Map: Karin Kirk for Yale Climate Connections • Source: 2020 U.S. State Energy Employment Reports • Created with Datawrapper

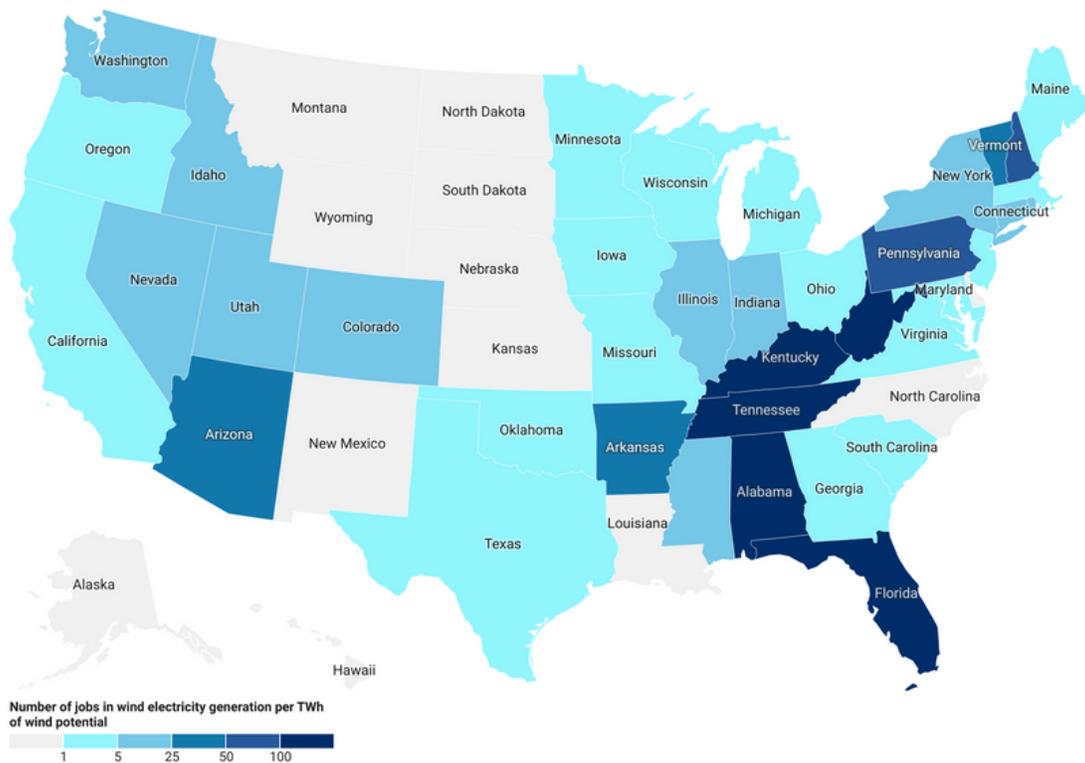
According to the 2020 U.S. State Energy Employment Report:

- Montana has **86 jobs in wind energy generation**, ranking 48th out of 50 states.
- Montana has **321 jobs in solar electricity generation**, ranking 47th.

POOR JOB PERFORMANCE DESPITE ABUNDANT WIND POTENTIAL

- Montana ranks **5th in the nation for land-based wind potential** and 7th when accounting for both offshore and onshore wind.
- When considering the size of its potential wind resource, **the Big Sky State ranks dead last for creating wind jobs.**

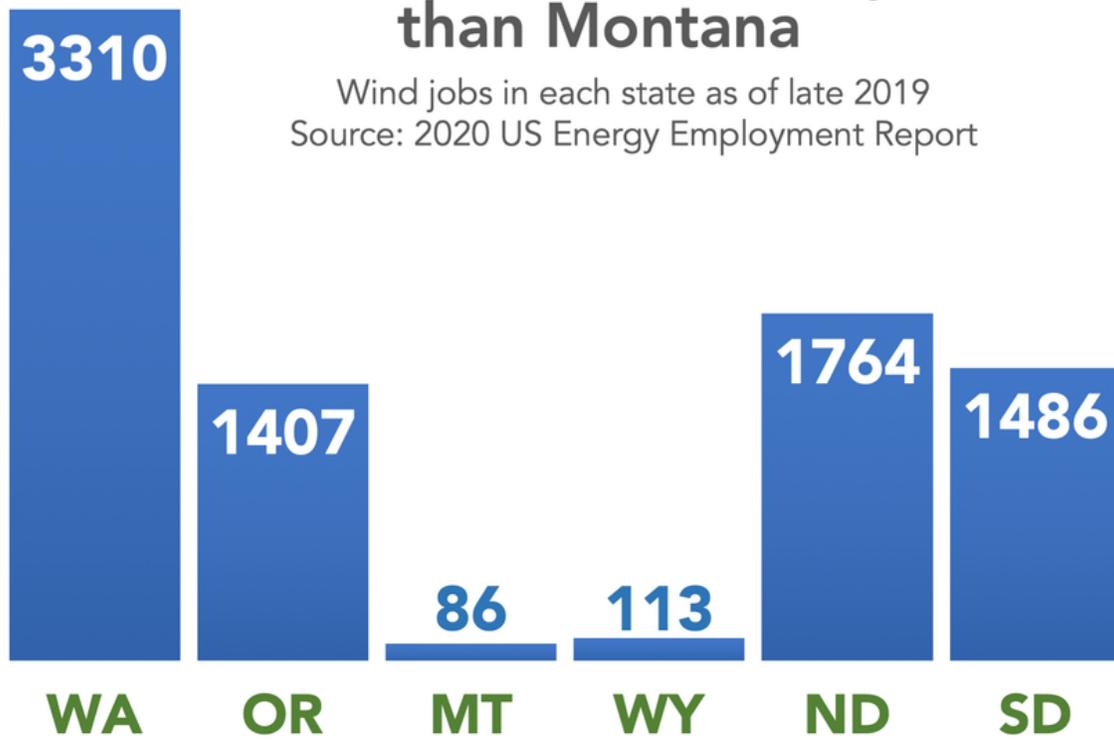
Wind jobs per TWh of wind potential



Map: Karin Kirk for Yale Climate Connections • Source: 2020 U.S. State Energy Employment Reports • Created with Datawrapper

Neighboring states have created far more wind jobs than Montana

Wind jobs in each state as of late 2019
Source: 2020 US Energy Employment Report



Neighboring states manufacture wind turbine components:

- North Dakota manufactures wind turbine blades.
- South Dakota manufactures wind turbine blades and towers.

North Dakota has a smaller wind resource than Montana, but has more than 20 times the wind jobs than Montana.

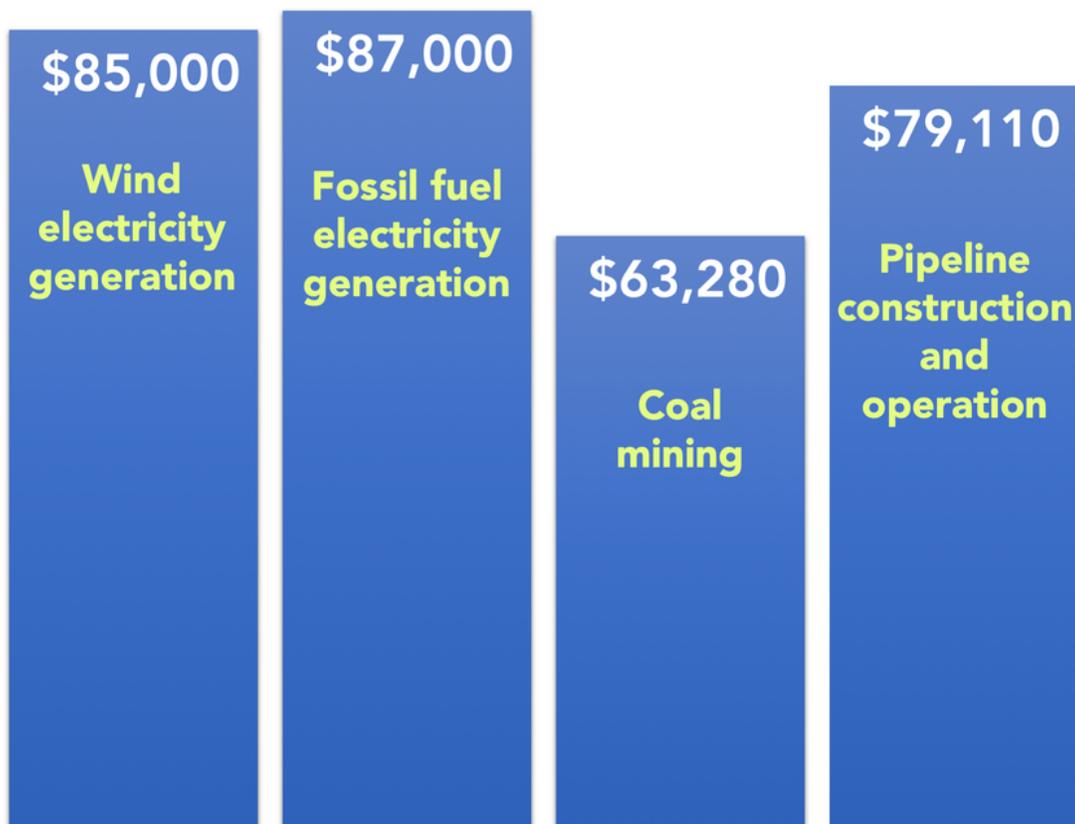
MONTANA HAS NO WIND MANUFACTURING

WIND ENERGY HAS ENORMOUS ECONOMIC POTENTIAL FOR MONTANA

- A clean energy economy could **double** Montana's statewide energy jobs by 2030 while also growing wages.
- Median wages in wind energy are **34% higher than those in coal mining** and are comparable to those in fossil fuel electricity generation.

Median salaries

May 2020, Bureau of Labor Statistics U.S. median salaries



COAL IS COSTLY FOR HEALTH AND ECONOMY

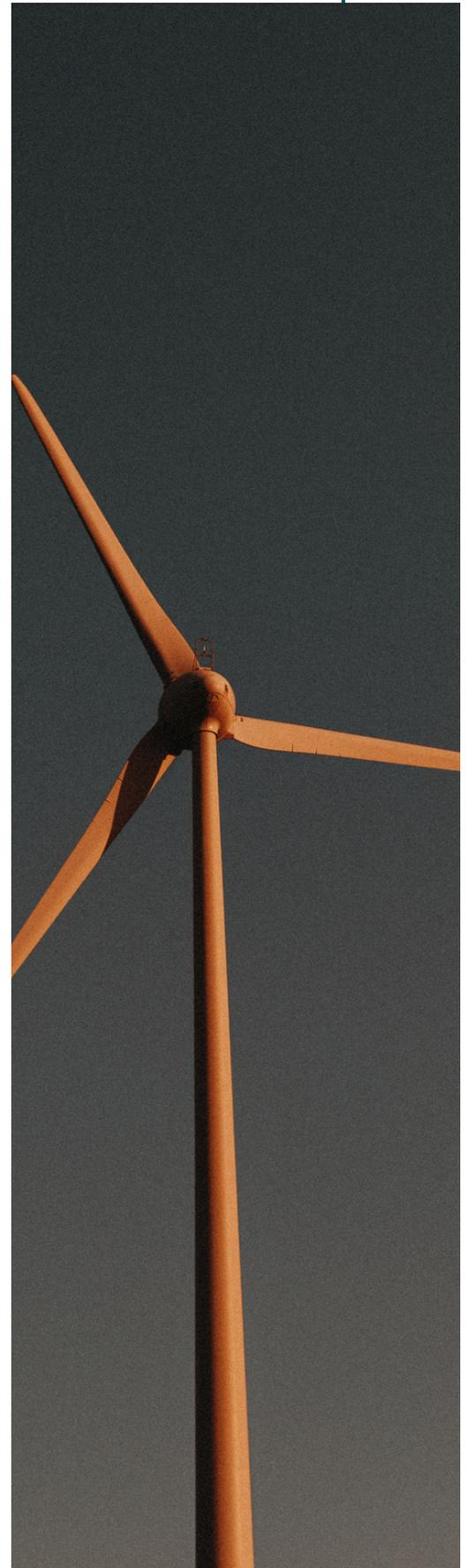
Moving to cleaner energy sources can save Montana over \$40 million per year in avoided health impacts from coal burning.



- **Coal has become uneconomic** as other forms of energy have dropped in price.
- Coal is costing ratepayers more in operations, maintenance, and cleanup.
- Meanwhile, **wind has become one of the cheapest** forms of electricity generation.

MONTANA IS WELL-POSITIONED TO TRANSITION TO CLEAN ENERGY

- West coast states have ambitious clean energy goals and will **stop buying coal-fired electricity from Montana** in the coming years.
- These states will purchase replacement clean energy, which can be sourced from Montana.
- Washington is phasing out all coal-fired electricity by 2025; Oregon by 2035.
- Montana is **already connected** to the West Coast grid via 500KV transmission line.
- A wind project located near Colstrip is one example of Montana's potential, **bringing 350 construction jobs and \$217 in tax revenue plus \$226 million in landowner payments over 30 years.**





WIND ENERGY IS MORE MARKETABLE THAN COAL

- Given Montana's grid connection and large wind resource, the state is **well-positioned** for strong growth in the clean energy economy.
- Other states have a substantial head start, putting Montana at a disadvantage.
- Strong, forward-thinking leadership can help Montana reach its extraordinary potential for wind energy.
- Developing wind in Montana would **grow high-paying jobs, improve public health, and keep Montana relevant** in the modern energy industry.

REFERENCES

Yale Climate Connections report

<https://yaleclimateconnections.org/2021/04/wind-and-solar-energy-are-job-creators-which-states-are-taking-advantage/>

Wind jobs

<https://www.usenergyjobs.org/2020-state-reports>

Wind potential

<https://www.nrel.gov/docs/fy12osti/51946.pdf>

Wind manufacturing

<https://maps.nrel.gov/wind-prospector>

Statewide energy jobs, currently

<https://static1.squarespace.com/static/5a98cf80ec4eb7c5cd928c61/t/5e781502f5dc9f392974742e/1584928004547/Montana-2020.pdf>

Statewide energy jobs, projected <https://netzeroamerica.princeton.edu/img/nzap-montana-report.pdf>

Monetary damages from air pollution

<https://netzeroamerica.princeton.edu/img/nzap-montana-report.pdf>

Wages

https://www.bls.gov/oes/current/naics5_221115.htm

Energy costs

<https://www.lazard.com/perspective/levelized-cost-of-energy-and-levelized-cost-of-storage-2020/>

Colstrip wind project details

https://billingsgazette.com/news/state-and-regional/montanas-largest-wind-farm-contracts-with-puget-sound-energy/article_1998692a-0264-594c-b69a-3ad6876a6e19.html