



THIS IS THE YEAR MONTANA DECIDES HOW TO REPLACE COAL

Few decisions weigh as heavily on the minds of Montana's consumers and policymakers than decisions about how we will generate electricity. After nearly 40 years of service, Montana's coal plants at the mouth of southeastern coal mines are increasingly costly, polluting, and unreliable. As Montana prepares to retire these mammoth thermal generators, there is little consensus on what comes next.

This decision comes only once in a generation, and the steps we take today will have profound impacts on Montana's economy, people, and environment. These decisions will affect how much Montanans pay for electricity each month, the technology and transportation we use every day, the technology we use to power our homes and vehicles, job growth and employment prospects, and whether we hold onto our burgeoning business as an energy powerhouse. Our decision must also take into account whether Montana is doing its part to meet the world's expectations to reduce greenhouse gases.

CLEAN ENERGY PATHWAYS FOR MONTANA

Montana's electricity generation is controlled by the state's major investor-owned utility, NorthWestern Energy, and regulated by an elected Public Service Commission. Both have been slow to embrace the rapidly falling cost of clean energy resources and the potential to save consumers money through decarbonization. In order to evaluate the benefits and tradeoffs of Montana's energy transition, 350 Montana retained Vibrant Clean Energy, a national leader in power systems modeling.

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The new study, “[Affordable and Reliable Decarbonization Pathways for Montana](#),” shows that Montana can retire its Colstrip coal plants, never build another natural gas plant, and still meet people’s energy needs through clean, renewable energy, while reducing consumer electricity bills and boosting the state’s economy. The study shows that:

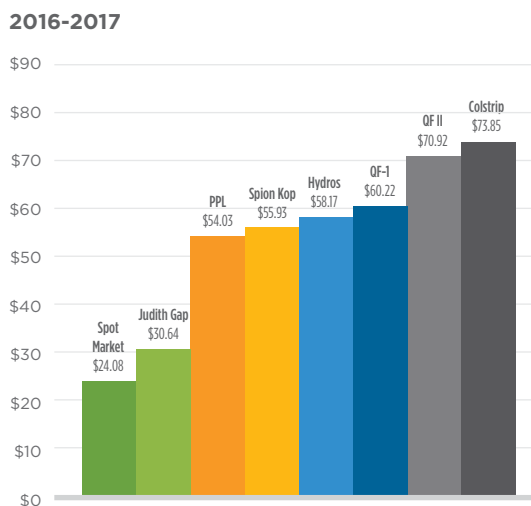
- **Electricity Costs Would Go Down:** If Montana retires its existing coal generation by 2030 and replaces it with low-cost renewable energy while electrifying the rest of its economy, electricity rates would decrease by approximately 40 percent by 2050, and Montana would save \$32.7 billion across its economy compared with keeping the coal plants.
- **Clean Energy Jobs Would Double:** Jobs in the clean energy sector would nearly double, driven mainly by both the distributed (rooftop) solar (DPV) and the utility-solar (UPV) industries, while the energy storage industry and the wind industry make up the next largest contributions.
- **Cleaner and Healthier Communities:** Decarbonizing Montana’s energy sector would reduce greenhouse gas emissions by 180 million metric tons over business-as-usual.
- **Clean Transportation and Buildings Provide Significant Savings:** If electrification of buildings, transportation, and industry are pursued in combination with a clean electricity

grid, the report shows residential customers would reduce household spending on electricity and transportation costs by nearly 50% by 2050.

INCREASINGLY UNECONOMIC COAL

Montana elected officials and regulators are willfully blind to coal’s full costs. Many existing analyses claim that coal is increasingly uncompetitive, such as a recent report from Energy Innovation that suggests that 80% of the nation’s coal fleet is uneconomic when compared to local wind and solar plants. Right now, according to the Montana Consumer Counsel, coal is the most expensive electricity in Montana ratepayers’ monthly bills (Figure 1).

Figure 1. Selected NorthWestern electricity average unit prices



Source: Montana Consumer Counsel. 2017. [Residential Electricity Prices of NorthWestern Energy Through June 2017](#).



Meanwhile, Montana runs the risk of losing domestic energy prowess in the transition to clean energy. While Montana's neighbors once relied on the state for its abundant coal resources, those neighbors are increasingly embracing cheap, clean, and reliable renewable energy. Our report suggests Montana can remain a net-energy exporter, providing increased investment and keeping bills low, through a dramatic expansion in in-state renewable energy generation.

More broadly, the United States has committed to building a clean electricity system by 2035. To get there, the United States will need to build 750 gigawatts of solar and wind power and spend some \$60 billion a year for the next 15 years, mostly in rural communities like those in Montana where the wind and solar resources proliferate.¹ Montana is poised for increasing investments in local land leases, construction, manufacturing, local tax revenues, and jobs for operation and maintenance of solar, wind, and battery storage projects.

IS BUSINESS-AS-USUAL WORKING?

350 Montana asked Vibrant Clean Energy to compare the costs of five clean energy pathways for Montana:

1. **Business-as-Usual:** Assumes current state and federal policy, as well as modest load growth commensurate with historical assumptions.
2. **Keep Coal:** In-state coal generation remains online through 2040.
3. **100% by 2035 (RPS100):** Requires that Montana achieve 100% clean electricity generation by 2035 while the rest of the Western United States maintains business-as-usual operations.
4. **100% by 2035 Exporter (RPS100Export):** Requires that Montana achieve 100% clean electricity generation by 2035 and continues

¹ The National Renewable Energy Laboratory says Montana's wind potential ranks in the top five states. According to a report, "Seeds of Opportunity" by the Rocky Mountain Institute, wind and solar are the new cash crops in rural America and will double capacity by 2030. Local manufacturing of wind components is particularly promising because turbines and towers are difficult to transport.

to export more electricity than it uses for in-state demand.

5. **Deep Decarbonization (RPS100Elec):** Requires that Montana achieve 100% clean electricity generation by 2035 while the building, transportation, and industrial sectors electrify.

The results are startling. Because Montana is blessed with world-class hydroelectric generation, plus exceptional wind and solar resources, Montana can meet all its future needs, including peak loads in summer and winter, with clean energy. This transition can expand employment and increase energy exports to fill an almost insatiable regional energy demand via surplus clean energy.

As our region retires fossil fuel plants and replaces them with variable renewable energy (VRE) generation, it will save billions of dollars. If we keep Colstrip going, on the other hand, it will cost Montana ratepayers more than a \$1 billion by 2040. Our report states that "coal generation is the main impediment to achieving lower system costs and retail rates for customers in Montana."²

In short, Montana's unending reliance on coal is costing ratepayers in the form of expensive monthly energy bills, dirty air, dwindling economic competitiveness, and disappearing employment prospects. If Montana continues to burn coal or switches to expensive natural gas, Montana ratepayers will pay higher systemwide electricity costs and thus higher monthly bills. Montanans will not capture the employment opportunities of a booming clean energy economy, while neighboring states continue to invest in wind and solar. And the effects of climate change, from disastrous forest fires to punishing droughts, will continue to impact our states farms, rivers, and beautiful public lands, decimating farmer, tourism, and recreation income.

² Even with massive market manipulations, our "Keep Coal" scenario retires coal in 2040, resulting in an immediate drop in costs from \$2.12 billion in 2040 to \$1.3 billion in 2045 (Report, p.28).

ACCELERATING MONTANA'S CLEAN ENERGY FUTURE

Montana can achieve a carbon-free electricity system by 2035 and create a thriving clean electricity export market that lowers ratepayer bills.

Montanans can achieve the greatest savings through one scenario, **Deep Decarbonization**, that not only achieves 100% clean electricity by 2035, but that transitions the state's building, transportation, and industrial sectors to efficient, zero-carbon systems by 2050. The **Deep Decarbonization** scenario decreases household electricity spending by 40 percent. Cumulatively, Montana stands to save more than \$30 billion by 2050 across its economy as compared to keeping its coal-fired generators. This pathway also creates the most jobs.

The business-as-usual and keep coal scenarios show limited prospects for creating new jobs, while the three carbon-free scenarios result in increasing employment opportunities as the grid expands to accommodate more wind, solar, and battery storage. The **Deep Decarbonization** scenario, which moves Montana's entire economy to carbon-free technologies, more than doubles jobs in the wind, rooftop solar, utility-scale solar, and storage industries (Figure 2).



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