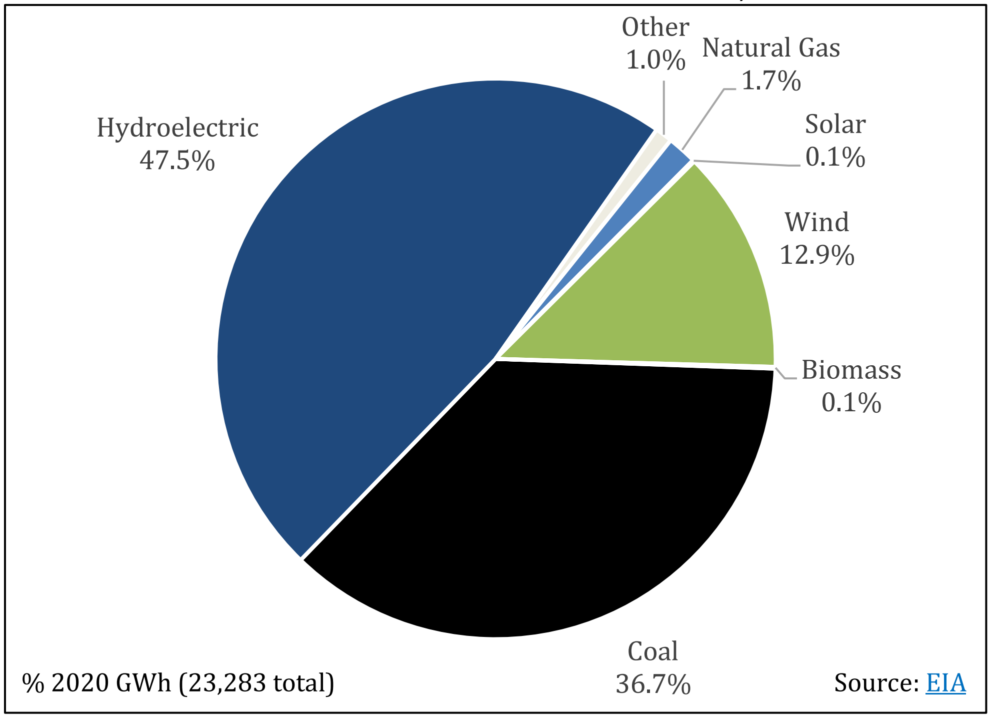
State Brief: Montana

BACKGROUND



Coal has historically provided the largest share of Montana's net electricity generation. However, in 2020 coal dropped below 40% of the state's net electricity generation, surpassed for the first time by hydroelectric generation. It is estimated that 30% of the nation's total coal reserves are located within the state. Most of the state's mined coal is exported to other states and countries, about 68% in 2019. In recent years, demand for coal has fallen as a result of new regulatory pressures, declining exports, and the rise of inexpensive natural gas and renewable energy resources. In 2019, Montana was the sixth largest producer of hydropower in the U.S. Construction on the 400 megawatt (MW) Gordon Butte Pumped Hydro Storage Facility received regulatory approval in 2016 and secured funding in 2019. The project will support the growth of the state's renewable energy industry.

The Treasure State has taken strides in capitalizing upon its significant wind energy potential, second only to Texas. Generation from wind has increased steadily over the past decade, increasing from 3.1% of net generation in 2010 to 12.9% in 2020. Proponents of wind development in the state are advocating for an end to a Bonneville Power Administration (BPA) policy that imposes a transmission fee on electricity originating from Montana's wind farms.

While most solar development to-date has been customer-sited, several companies have proposed utility-scale solar installations. As of mid-2021, Montana has 118.35 megawatts (MW) of installed solar capacity. In 2020, the Solar Energy Industries Association (SEIA) ranked Montana 37th in the nation for projected solar energy capacity growth over five years at just over 596 MW. The 2020 U.S. Energy and Employment Report found that Montana has 15,530 traditional energy workers (3.2% of total state employment). In 2020, Montana ranked 47th nationwide for clean energy jobs (including jobs in energy efficiency and solar) and the industry employed 9,460 Montanans.[1]

The five members of the Montana Public Service Commission (PSC) regulate the state's investor owned electric and natural gas utilities. Commissioners are selected via public election, and all members of the PSC are currently affiliated with the Republican Party. Republicans control both chambers of the state's legislature, and Governor Greg Gianforte is also a Republican.

[1] This is in addition to the number of traditional energy jobs in the state.

POLICY STRENGTHS AND OPPORTUNITIES

The National Renewable Energy Laboratory (NREL) developed the notion of "policy stacking,"[2] an important framework for policymakers to consider. The basic idea behind policy stacking is that there is an interdependency and sequencing of state policy that, when done effectively, can yield greater market certainty, private sector investment, and likelihood of achieving stated public policy objectives.

In theory, but not always in practice, clean energy policies can be categorized into one of three tiers of the policy stack. Tier 1, market preparation policies, remove technical, legal, regulatory, and infrastructure-related barriers to clean energy technology adoption. Tier 2, market creation policies, create a market and/or signal state support for clean energy technologies. Tier 3, market expansion policies, create incentives and other programs to expand an existing clean energy market by encouraging or facilitating technology uptake by additional market participants.

For example, before financial incentives for combined heat and power (CHP) will be successful, two key considerations for deployment are having clear interconnection standards and favorable stand-by rates for customers who opt to add CHP. In this example, states should adopt policies to address interconnection and stand-by rates before adopting financial incentive programs.

GRID MODERNIZATION

Digital technologies have enabled utilities to better manage the grid and provide opportunities for consumers to customize their services to fit their priorities. These technologies allow a two-way flow of information between the electric grid and grid operators and between utilities and their customers.

Emerging technologies improve system reliability and resiliency by enabling better tracking and management of resources. These technologies allow grid operators to incorporate central and distributed energy resources, energy storage technologies, electric vehicles, and assist in addressing the challenges associated with planning, congestion, asset utilization, and energy and system efficiency.

On the customer's side of the meter, dynamic pricing, advanced metering infrastructure, and other technologies allow an exchange of information and electricity between a consumer and their electric provider. Grid modernization is associated with greater consumer choice by allowing customers to meet their energy priorities by producing their own energy or through contracting innovative clean energy services from different providers.

Grid modernization will require a suite of state and federal policy changes to support advancements in grid technologies, grid management, and utility regulation.

Montana participated in the five-year Pacific Northwest Smart Grid Demonstration Project between 2010 and 2014. The $179 million, multi-state project co-funded by the Department of Energy (DOE) "was one of the largest and most comprehensive demonstrations of electricity grid modernization ever completed." The state's largest investor-owned utility (IOU), NorthWestern Energy, worked in conjunction with the BPA on several projects analyzing the grid impacts and benefits of smart technology deployments. The demonstration project's report produced several recommendations, but comprehensive grid modernization policy has yet to be developed. However, the state took steps in 2019 (House Bill 267) to improve smart meter deployment and protect customer data.

There are supportive policies that Montana's policymakers could adopt to begin in-state modernization efforts.

1. Develop a grid modernization strategy through a stakeholder process. Alternatively, states might decide to require that utilities develop and propose a ten-year grid modernization plan to the public utilities commission within a specified timeframe. Utilities would then be required to implement that plan within another specified timeframe. Strategies and/or plans should outline a clear set of grid modernization goals and describe methods to measure, report, verify, and enforce progress towards those goals.

[2] V.A. Krasko and E. Doris, *National Renewable Energy Laboratory*, 2012. Strategic Sequencing for State Distributed PV Policies: A Quantitative Analysis of Policy Impacts and Interactions. http://www.nrel.gov/docs/fy13osti/56428.pdf.

2. Require that utilities' electricity supply resource plans (ESRPs) include plans to enhance cybersecurity, integrate distributed energy resources (including electric vehicles and energy storage), increase smart meter deployment and demand response and/or demand-side management (DSM) programs, and measure and report on the results of grid modernization efforts. Montana does not have a statewide policy requiring smart meters. Enacted in 2019, House Bill 267 directs the PSC to consider whether customers should be provided the ability to opt-out of a smart meter program. Currently, most smart meters deployed in the state are owned by electric cooperatives.

3. Montana is working to clarify state policies governing customer data access and privacy protections. Policymakers could develop legislation or rules that, at minimum, do the following: clarify who owns the energy data associated with consumer energy usage; protect customer privacy; outline the process for allowing direct access to data by third parties; and promote access to the highest resolution of data possible. Enacted in 2019, House Bill 267 requires utilities to disclose anonymous aggregated energy data use make individual customer data available upon request. Otherwise, the bill declares consumer data to be confidential. The state could establish customer data access to energy data through the Green Button program, for example.

4. State departments of workforce services or their equivalent can be directed to work with utilities and other stakeholders to develop training programs for grid technicians and engineers. With new grid technology and distributed energy systems coming online, a new generation of workers can be trained to meet evolving needs, which will keep jobs local, and contribute to economic development.[3]

The adoption of incentives for or a requirement to integrate a certain amount of energy storage on the grid alongside enhancing renewable energy and electric vehicle policies can support modernization efforts and improve the chances of successful grid modernization.

ENERGY STORAGE

Energy storage offers a unique opportunity to manage supply and demand dynamically while also maximizing the value of grid resources. By deploying storage to strategic locations, utilities can more effectively manage their energy portfolios. First, storage allows utilities to manage intermittent demand – helping reduce peak demand requirements. Because the generation resources that provide peak power are the system's most expensive, reducing peak demand can save consumers money. Second, the responsiveness of energy storage can allow utilities to implement voltage regulation and other ancillary services, which are useful for improving system efficiency. Third, because storage technologies can both store and dispatch power, storage enables better integration of intermittent power generation resources like renewable energy to the grid. Finally, energy storage can help the commercial sector avoid costly demand charges. As utilities around the country consider implementing or extending demand charges to other sectors, energy storage will become more relevant as a customer cost-saving investment.

The flexibility of battery storage, combined with advanced metering infrastructure, allows customers to control, for instance, how and when they use energy from the grid or from solar panels installed on their home or business. In most cases, this can provide greater cost savings than standalone solar systems. Combined with time-varying rates or real-time pricing programs, state policy can further support customer choice and open a new market for energy services. Prices that better reflect the time-varying and location-dependent costs of producing and delivering electricity can lead to several economic and environmental gains.

Two major trends have enabled increased deployment of energy storage: declining costs and technological advances. State policies can help maximize these benefits by establishing both a framework for easy integration of energy storage resources onto the grid and a marketplace that monetizes the benefits of energy storage for cost-effective investment.

Montana does not have any polices to support energy storage deployment. There are several policy opportunities to take advantage of the growing technological advances in and declining costs of energy storage. The

[3] For a discussion of specific workforce needs that states might explore see: GridWise Alliance and U.S. Department of Energy. 2020. "Grid Modernization Index Insights into a Transformation: Principles for the Next Decade of Progress."

recommendations here draw heavily from the Interstate Renewable Energy Council's (IREC) 2017 report, "Charging Ahead – An Energy Storage Guide for Policymakers." Policymakers in Montana could consider the following:

1. Amend existing interconnection policies to ensure that storage can connect to the grid through a transparent and simple process. The Interstate Renewable Energy Council (IREC) has produced a series of interconnection protocols that states can easily adopt. The state could establish best practices for interconnection in statute, or legislation could provide an instruction to utilities to implement these best practices.

2. Instruct utilities to evaluate the value of energy storage in multiple strategic locations across the utility system and consider a requirement to deploy storage where it will be cost effective or identify the price point at which it will become cost effective.

3. Require the inclusion of energy storage as a critical piece of the energy system as both a demand and supply management resource. Some states have required that utilities evaluate the cost effectiveness of non-wires alternatives (NWAs) to large transmission and generation investments. Alternatively, states might want to require that utilities develop a distribution investment plan that identifies the locations on the distribution system where energy storage or other distributed resources would offer the greatest value.

4. Consider creating a mandatory energy storage procurement target or requirement for energy storage with a documented process for periodic review of progress towards that goal. Procurement targets can limit the amount of utility owned storage to be procured; require that a certain amount of storage be targeted to low-income customers; and create carve-outs for specific amounts of storage to be procured at the transmission, distribution, and customer levels. Procurement targets can jump-start market creation, spur fast learning, and guide the development of a regulatory framework.

5. Finance and incentivize energy storage for customers and utilities. Incentives could enable customers to use storage to manage their electric load and store locally produced renewable energy. Incentives in the form of rebates, grants, and tax credits can provide a bridge to scalable deployment for storage. Incentives can be designed to decline as storage values become more readily monetized and/or as the cost of storage decreases. Policymakers could allow utilities that provide incentives to customers to recover the costs of installing smart meters. This would enable dynamic and time-varying energy management from multiple distributed battery systems. This should signal to customers the value of leveraging storage while better aligning customer costs with system costs. Financing energy storage installations for commercial customers could help reduce their demand charges. Policymakers might want to start first with a policy that provides grants to pilot projects. Policy might also target solar system owners. Financial incentives should be designed to ensure that the state will meet other goals including emissions and peak demand reductions, and equitable access to clean energy.

MAINSTREAMING RENEWABLES

As the renewable energy industry matured, technology improved, and global production of generating equipment increased. Renewable energy is increasingly seen as the least cost and lowest risk form of energy (excluding energy efficiency). A 2021 Energy Information Administration report predicts that the share of the United States' electricity generation mix supplied by renewable energy resources will increase from 21% in 2020 to 42% by 2050. With increased deployment, utilities are learning more about how to integrate renewables effectively, investors are becoming more comfortable with the technologies, and building code officials are recognizing common standards and best practices. For these reasons, it is in the interest of policymakers to ensure that their states are well positioned to benefit from the transition to clean and sustainable energy resources.

In June 2018, BPA in conjunction with the Montana Governor's Office released the Montana Renewable Development Action Plan, which identifies barriers to expanding the renewable market by focusing on transmission issues (especially related to Colstrip retirements), exporting renewable energy, and regional coordination with Pacific Northwestern states. To reduce barriers to customer and utility participation in the renewable energy market, Montana's policymakers might consider several policy options.

Customer-Oriented Policies

1. **Interconnection, Net Metering, and Streamlined Permitting** – In general, customers want a clear, streamlined, affordable, and predictable process for connecting renewable energy systems to the grid. To ensure this, policymakers could consider adopting IREC's model interconnection procedures and removing net metering system size limitations. Allowing aggregated net metering would be especially beneficial to the state's agricultural operations. Other applications for aggregated net metering include commercial properties and public entities like state and local governments, universities, and schools. Enacted in 2017, House Bill 219 directed public utilities to submit a cost-benefit study on distributed generation to the PSC. NorthWestern submitted their cost-benefit analysis in March 2018. The utility concluded that net metering participants were being over-compensated. Legislation might direct the PSC to undertake an independent review of the value of distributed resources that accounts for a wider range of costs and benefits that distributed energy projects provide to the grid. The state might also consider establishing either statewide standards for streamlined permitting processes, or resources to support local governments that voluntarily implement a streamlined program, as Helena has done. State incentives, such as tax credits, financial incentives, or loans can be tied to systems that are established within a designated streamlined permitting jurisdiction.

2. **Shared Renewables** – Due to building and property attributes and ownership issues, many customers are unable to install renewable energy technologies where they live or work. Allowing shared, or community, renewable energy projects addresses these barriers. These projects have multiple owners or subscribers who pay for a portion of the project or the generation provided by the system. Montana's Renewable Resource Standard required that utilities purchase both the renewable energy credits (RECs) and the electricity output from community projects totaling at least 75 megawatts (MW) in nameplate capacity. Senate Bill 237, enacted in May 2021, removed this provision. At least five electric cooperatives have installed or are planning to install shared solar projects in the state. The Montana Solar Community Project is a partnership between the Montana Energy Office and DOE's SunShot Initiative to expand community-scale solar developments throughout the state. However, this program is not currently awarding grants. NorthWestern plans to add 20 MW of capacity from a community project in Billings. To increase participation in shared projects, policymakers might adopt a virtual net metering policy. Virtual net metering allows a customer to receive credits from a shared system as if the generation were on site. Virtual net metering is different from a power purchase agreement (PPA), which pays the customer for the proportion of power they produce. Because it is treated as a credit on the customer's bill, the customer can avoid the tax implications of a PPA payment - which can adversely affect the economics of the system (and may come as a surprise to the participant). Additionally, expanding existing tax credits could incentivize the development of community-based renewable energy projects.

   Low credit ratings often deter participation in renewable energy markets; this can affect low- and moderate-income (LMI) households' adoption of renewable energy solutions. Supportive policies for shared renewables can be designed to encourage participation by LMI households; this can increase adoption of renewable technologies and reduce energy costs. LMI participation can be encouraged either through a percentage mandate for the overall annual contracted capacity, or by offering a higher rate of payment for the portion of shared solar capacity attributed to low-income customers. States that have a shared renewable program may want to coordinate this program with implementation of the federal Weatherization Assistance Program (WAP) to provide recipients of assistance with participation in a shared renewable system. Since 2010, Montana has received $23.1 million from WAP and $3 million from the State Energy Program (SEP) that has helped to fund a number of energy initiatives in the state.

   There are several additional policy options that Montana might consider to promote renewable energy uptake by LMI consumers. Generally, successful state policies should be tailored to these customers, be cost-effective and financially sustainable, have measurable performance indicators, and be flexible enough to allow later changes in design.

3. **Corporate Procurement** – Many Fortune 100 and 500 companies have established either climate goals or commitments to purchase renewable energy. Since 2016, nearly 31 gigawatts (GW) of renewable contracts have been announced by corporate entities. In 2020 alone, corporations signed 100 agreements for over 10 GW of renewable energy. This is leading policymakers to provide additional avenues for businesses to procure

renewable energy. Montana's policy allows companies to purchase RECs,[4] access renewable energy through the wholesale market, and develop or lease onsite renewable energy projects. To improve corporate access to renewable resources, the state might consider developing a green tariff for commercial customers and/or allowing companies to enter into onsite third-party PPAs. State policy might be designed to meet the Corporate Renewable Energy Buyers' Principles. Montana was ranked 37th overall in the Retail Industry Leaders Association's 2020 rankings of state corporate procurement policies. In addition, it is prudent to incorporate corporate renewable purchase commitments into the ESRPs that utilities submit to regulators to plan for resource needs over multiple decades. By integrating these renewable purchase commitments into the resource planning process, regulators can avoid over-building resources and stranding generation assets.

Utility-Oriented Policies

Some states have created programs that aim to reduce greenhouse gas (GHG) emissions and increase utility investments in clean energy resources. Montana's RPS required IOUs and competitive electricity suppliers to provide 15% of their electricity from renewable sources by 2015 and each year thereafter. Senate Bill 237, enacted May 4, 2021, removed a provision in the RPS that required large-scale utilities to purchase electricity from locally-owned community energy projects. House Bill 576, enacted 10 days later, fully repealed Montana's RPS. Some cities have taken the lead in increasing their clean energy usage – Missoula was the first city in Montana to set a goal of 100% clean electricity by 2030. However, the these recent bills may endanger Missoula's renewables goal.

To increase utility adoption of clean energy technologies, Montana's policymakers might consider the following:

1. **Emissions Standards –** Emissions standards can take a technology neutral approach that looks at the total emissions of the utility portfolio and drives emissions down with a combination of renewables, traditional fuels, efficiency, and technological advances. Emissions reductions can be achieved through 1) a carbon portfolio standard approach, or 2) a market-based approach. A portfolio emissions standard sets emissions reduction targets to be achieved over time. This can be implemented through the IRP process or by establishing a maximum allowable rate of emissions per unit. Under a market-based approach, a state or a group of states might set a certain emissions reduction target, for example, 50% below 2005 levels by 2025. This reduction is achieved by the distribution of annual emission allowances that decrease to the point that the standard is met in 2025. One of the advantages of a market-based program is that it is designed to reduce emissions in the most economically efficient manner possible. Such a standard can also address other concerns such as pollution, asthma risk, environmental justice, and water use.

2. **Clean Peak Standards (CPS)** – Clean Peak Standards aim to increase the share of clean energy resources used to meet peak demand and decrease energy bills over the long-term by reducing peak demand in the hours when energy costs are highest. These objectives can be met through different policy options, including planning and procurement that focuses on peak demand; a moratorium on the construction of new peaking units or a phase out of existing units; incentives – including carve-outs in states with RPSs – for clean energy resources delivered during peak times; and/or adopting a new clean peak standard that sets a target for clean energy deliveries during peak times.

In combination, these initiatives can increase available clean energy for dispatch during peak hours, reduce peak demand, and increase efficiency, all while reducing energy bills for customers.

ELECTRIFICATION OF THE TRANSPORTATION SECTOR

An estimated 58% of new car sales will be electric by 2040. Therefore, a key part of building a modernized grid involves designing infrastructure that will facilitate easy connection of electric vehicles (EVs) to the grid. One of the most important barriers to increased adoption of EVs is the consumer's awareness of the availability of EV charging stations. Ultimately, drivers want to be sure that their car will get them where they need to go. The good news is that both supportive policies for developing charging infrastructure and technological advancements have eased "range anxiety."

[4] Customers of NorthWestern Energy can also take advantage of the state mandated E+Green program, in which customers can purchase 100 kilowatt hour (kWh) blocks of renewable energy directly from the utility.

The American Council for an Energy-Efficient Economy (ACEEE) publishes a State Transportation Electrification Scorecard that evaluates states' progress in electrifying transportation in six key policy areas and offers policy recommendations. Montana is unranked in the 2021 report, however the report does provide an overview of the current state of the state's EV policies and infrastructure. Montana has a limited number of incentives to support the deployment of EVs and alternatively-fueled vehicles.

There are opportunities to expand the market for EVs in Montana:

1. **EV and EV Charging Equipment Financing and Financial Incentives –** Providing additional financial incentives and innovative financing options can increase market penetration of EVs. Sales, property, and income tax credits are some of the simplest methods for addressing high up-front costs of EVs and EV supply equipment (EVSE). While sales tax credits are typically applied at the time of purchase, property and income tax credits may do less to address upfront cost barriers as receipt of the credit is typically removed in time from the purchase.[5] States have adopted other financial incentives including low-interest loans, grants, vouchers and rebates. A handful of states qualify EVSE under their property assessed clean energy (PACE) programs. A simple solution is to increase and expand existing tax credits to incentivize commercial, publicly available charging stations. The State of Montana currently does not offer incentives for citizens to purchase EVs or EVSE. However, the state offers a tax credit for converting vehicles to operate on alternative fuels.

1. **Charging Infrastructure Plan –** Locating charging infrastructure is different from locating conventional fueling stations. While some drivers will need to charge more quickly, others will refuel when they are parked for longer periods of time, for example when shopping at the mall or going to work. Charging infrastructure plans should attempt to pair the appropriate level of charging (level 2 or direct current fast charging) with a reasonable amount of time a person will be at that location. Legislation could direct a state agency to develop an infrastructure plan through a stakeholder process.

   Regional collaborations around the U.S. are emerging to coordinate the development of EV infrastructure. Montana is a signatory of the REV West Plan, a collaborative effort among western states to construct a regional EV charging corridor. The memorandum of understanding (MOU) intends to reduce transportation sector carbon emissions, bolster EV adoption, increase consumer awareness about the benefits of EVs, coordinate development of charging infrastructure, and incentivize manufacturing of EVs.

2. **Parking Infrastructure Requirements –** In tandem with the development of a statewide plan, legislation could set requirements for EV parking infrastructure. Some states have adopted permitting standards for parking lots, requiring, for instance, that for every 100 parking spaces, there must be at least one EV charging space. Legislation could also incentivize utilities to develop make-ready locations. These locations supply power to the point where a utility or third-party developer might install an EV charging station. Montana's statewide building energy code could be updated to include requirements for EV charging infrastructure.

NEWS

- July 6, 2021: Montana Rural Solar Access Project Coming to Havre
- June 23, 2021: Federal Government Awards Renewable Energy Research Funds to Montana State University
- June 23, 2021: Fools Gold Could Be the Key to Montana's Energy Future
- June 24, 2021: Montana's NorthWestern Energy Joins Western Energy Imbalance Market
- June 21, 2021: Largest in Montana: Missoula County Inks Agreement for Solar Array atop Jail
- June 2, 2021: Montana's Largest Wind Farm Contracts With Puget Sound Energy
- February 12, 2021: Montana Senate Panel OKs Study to Convert Colstrip Coal Plant to Nuclear

OTHER RESOURCES

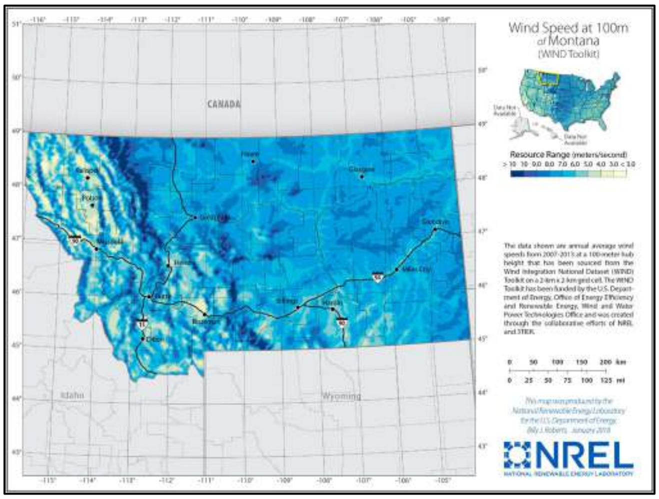
- Montana Department of Environmental Quality: http://deq.mt.gov/energy
- Northern Plains Resource Council, Clean Renewable Energy: https://www.northernplains.org/issues/clean-energy/

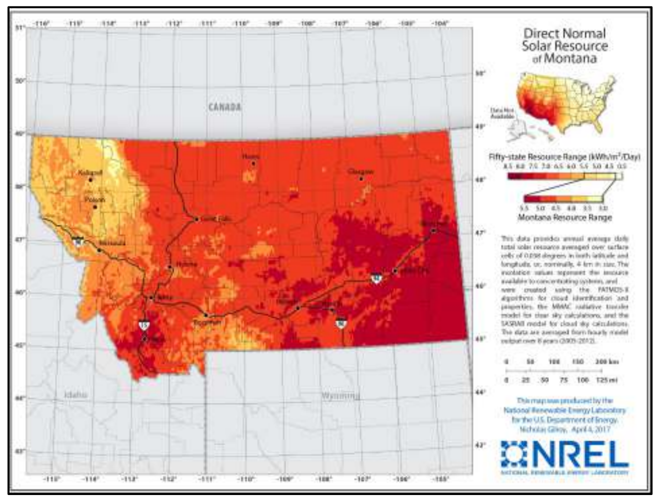
[5] A study by the Congressional Research Service suggests that tax credits are important tools for ensuring increased adoption of alternative-fueled vehicles.

- American Clean Power Association, Montana State Fact Sheet: https://cleanpower.org/wp-content/uploads/2021/05/Montana_clean_energy_factsheet_Q2-2021.pdf
- The American Council for an Energy-Efficient Economy State and Local Policy Database, Montana: https://database.aceee.org/state/montana
- The Database of State Incentives for Renewables and Efficiency, Montana: https://programs.dsireusa.org/system/program/mt
- U.S. Department of Energy's Alternative Fuels Data Center, Montana: https://www.afdc.energy.gov/states/mt
- U.S. Energy Information Administration, Montana: https://www.eia.gov/state/?sid=MT
- SPOT for Clean Energy, Montana: https://spotforcleanenergy.org/state/montana/

MONTANA'S WIND AND SOLAR RESOURCES

WIND https://windexchange.energy.gov/states/mt





Our Resources

CNEE Homepage: https://cnee.colostate.edu/

The SPOT for Clean Energy: https://spotforcleanenergy.org/

The Advanced Energy Legislation (AEL) Tracker: https://www.aeltracker.org/

CNEE Contact Information

Tom Plant, Senior Policy Advisor
Tom.Plant@colostate.edu

Trina Hoffer, Research Manager
Katherine.Hoffer@colostate.edu