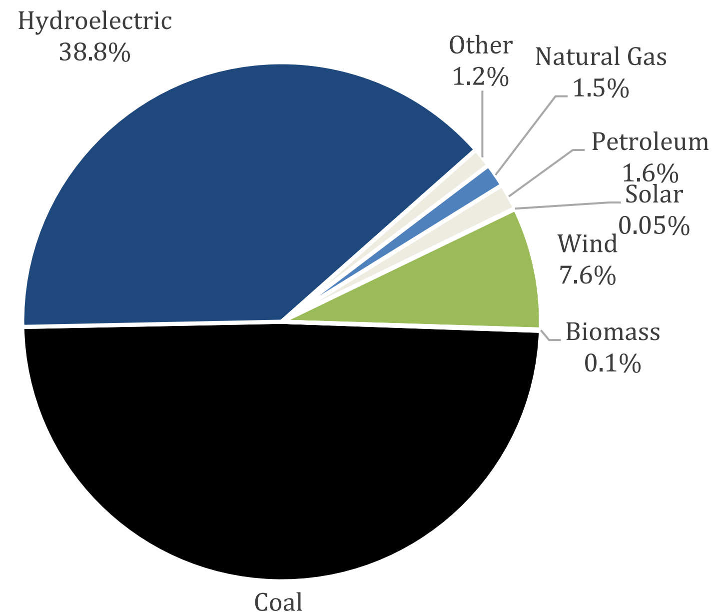
State Brief: Montana

BACKGROUND

Coal comprised just under half of Montana's net electricity generation in 2017. This is due to the state's vast coal resources: one quarter of the nation's coal reserves are located within the state. In recent years, demand for coal has been falling as a result of new regulatory pressures, declining exports, and the rise of inexpensive natural gas. Hydroelectricity is the state's second largest resource for electricity generation, compromising over a third of the state's energy mix. In 2017, Montana was the fifth largest producer of hydropower in the U.S. Construction on the Gordon Butte Pumped Hydro Storage Facility received regulatory approval in 2016 and will support the growth of the state's renewable energy industry.

Montana's Net Electric Generation, 2017



Total GWh: 28,220.9

Source: EIA

The Treasure State has taken strides in capitalizing upon its significant wind energy potential. Generation from wind has increased steadily over the decade, rising from 3.1% in 2010 to 7.7% in 2016. While generation from wind has leveled out since, wind development is expected to continue to grow. Proponents of wind development are advocating to end a Bonneville Power Administration (BPA) policy that imposes a transmission fee on electricity originating from Montana's wind farms. Montana has notable solar potential. While most solar development to-date has been customer-sited, several companies have proposed utility-scale solar installations.

Utilities in Montana are regulated by the five-member Public Service Commission (PSC). 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, while Democratic Governor Steve Bullock heads the executive branch.

POLICY STRENGTHS AND OPPORTUNITIES[1]

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.

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1 For more information on policy opportunities, please visit the SPOT for Clean Energy. For more information on specific policy actions related to these opportunities, please review the *Clean Energy Policy Guide for State Legislatures*.

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.

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

The transition to a digital economy requires affordable, sustainable, and reliable electricity and presents challenges and opportunities to the grid. Emerging physical and cyber security threats, along with increased demand for faster outage response times, require, at minimum, real-time incident tracking and response capabilities. Increased grid penetration of renewable energy coupled with the adoption of advanced metering, energy storage, microgrids, electric vehicles, and other technologies to modernize our electric system will provide economic benefits, increase security, and ensure more reliable, resilient, and clean electricity. These innovations will require substantial planning and investment in grid technologies.

Grid modernization will require a suite of state and federal policy changes to support advancements in grid technologies, grid management, and utility regulation. Grid modernization strategies, while recognizing regional and inter-state diversity and avoiding one-size-fits-all plans, should take a holistic view of the electric system.

According to the most recent Grid Modernization Index, Montana is in the bottom two states for overall grid modernization efforts. The state does not have a grid modernization plan, nor does the state energy plan address resilience or modernization of grid infrastructure. 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 to improve smart meter deployment and customer data access (see below).

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. 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, HB 267 directs the PSC to consider whether advanced meter customers should be afforded an opt-out provision. 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 by third parties. Montana took steps toward improving customer data access in 2019 with the passage of HB 267, which requires utilities to disclose anonymous aggregated energy data use and make individual customer data available upon request. Otherwise, the bill declares consumer data to be confidential. The state could also establish customer data access to energy data through the Green Button program, for example.

ENERGY STORAGE

Energy storage offers a unique opportunity to dynamically manage supply and demand while maximizing the value of grid resources. By deploying storage in strategic locations, utilities can more effectively manage their energy portfolios. First, storage provides management of intermittent demand – helping to flatten peak demand requirements for the utility. Second, the responsiveness of energy storage can allow the utility to implement voltage regulation and other ancillary services, which are useful for improving system efficiency. Third, storage can dispatch power to better integrate intermittent resources like renewable energy.

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 a number of economic and environmental gains.

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

Montana currently does not have any polices to support energy storage development. There are several opportunities for developing supportive state policies:

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 utilities to 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 has matured, technology has improved, and global production of generating equipment has increased, renewable energy is increasingly seen as the least cost and lowest risk form of energy (excluding energy efficiency). A 2019 Bloomberg New Energy Finance report predicts that renewable resources will generate at least 60% of total global electricity and 43% of U.S. electricity 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 energy resources.

Montana has been working on developing its renewable resources. In June 2018, the Bonneville Power Administration (BPA) in conjunction with the 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 system 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, HB 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 requires 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. 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. Additionally, Northwestern plans to add 20 MW of capacity from a community project in Billings. To enhance participation in shared projects, policymakers could increase and extend the shared renewables carve-out and 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 available 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. Low-income 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 to provide recipients of assistance with participation in a shared renewable system.

There are several additional policy options that Montana might consider to promote renewable energy uptake by low- and moderate-income 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. Over the last five years, over 16 gigawatts (GW) of renewable contracts have been announced by corporate entities. In the second quarter of 2019 alone, corporations signed 14 agreements for over 2000 MW 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,[3] 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, allowing companies to enter into onsite third-party PPAs, or enacting a policy that allows for greater retail choice in selecting an electricity provider. State policy might be designed to meet the Corporate Renewable Energy Buyers' Principles. 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 requires IOUs and competitive electricity suppliers to provide 15% of their electricity from renewable sources by 2015 and each year thereafter. Some cities have been taking the lead in increasing their clean energy usage – Missoula became the first in Montana committed to a goal of 100% clean electricity by 2030. In July, Governor Bullock issued an Executive Order creating the Montana Climate Solutions Council. The Council is tasked with developing policy recommendations to reduce GHG emissions, prepare the state for the impacts of climate change, and assist communities impacted by the transition to clean energy.

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

1. Emission standards are designed to drive emission reductions through either 1) a carbon portfolio standard or 2) a market-based approach. Both types of approaches can take a technology neutral stance that drives emissions down with a combination of renewables, traditional fuels, efficiency, and technological advances. These policies can also address other concerns such as pollution, asthma risk, environmental justice, and water use.

   A portfolio emissions standard sets emissions reduction targets to be achieved over time. This can be implemented through the utility planning process or by establishing a maximum allowable rate of emissions per unit.

   Market-based approaches can take the form of an emissions trading regime or a tax. Under a market-based approach, a state or a group of states might set a certain emissions reduction target, for example, 40% below 1990 levels by 2030. This reduction is achieved by the distribution of annual emission allowances that decrease over time until the goal is met. Allowances can be bought and sold on a market that allows utilities and other emitting firms flexibility in reaching total emissions goals. Revenue generated by these markets can be used to support the development of renewable energy, energy storage, and energy efficiency programs. There are emissions trading markets in operation today that states can join. The other pathway to reaching emissions targets is through a tax on fossil fuel use that can be used to generate revenue to fund emissions reductions policies and technologies and to incentivize the reduction of emissions over time. One of the advantages of a

[3] 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.

market-based program is that these are designed to reduce emissions in the most economically efficient manner possible.

2. 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 requirements that focus on peak demand; a moratorium on the construction of new peaking units or a phase out of existing units; incentives 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.

ELECTRIFICATION OF THE TRANSPORTATION SECTOR

An estimated 57% 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. Another important barrier to increased adoption of EVs is their higher up-front cost as compared to similar conventionally fueled vehicles. The good news is that both supportive policies for developing charging infrastructure and technological advancements have eased "range anxiety." There are several opportunities to expand the market for EVs in Montana:

1. EV and EV Supply Equipment (EVSE) Financing and Financial Incentives – Providing additional financial incentives and innovative financing options can help spur greater 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.[4] 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. Montana currently does not have incentives for citizens to purchase EVs or EVSE. However, the state offers a tax credit for converting vehicles to operate on alternative fuels. Passed in 2019, HB 456 allows utilities to design a rate that recovers the costs of supplying EVSE.

2. Charging Infrastructure Plan – Locating charging infrastructure is different from locating conventional fueling stations. For the most part, EVs are cars used for commuting and local trips. Furthermore, while a driver of a conventional vehicle stops only briefly at a gas station for the specific purpose of filling up, a driver of an EV is generally looking to refuel when they are parked for a longer period of time, for example when going shopping, going to a restaurant, or going to work. Charging infrastructure plans should attempt to pair the appropriate level of 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.

   Montana joined Arizona, Colorado, Idaho, New Mexico, Nevada, Utah, and Wyoming in signing the Regional Electric Vehicle West (REV West) memorandum of understanding to create an Intermountain West EV Corridor. The goal is to develop best practices and voluntary minimum standards for stations, expand access to new EVs, and create consistent charging experiences.

3. 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 also be updated to include requirements for EV charging infrastructure.

[4] A study by the Congressional Budget Office however suggests that tax credits are important tools for ensuring increased adoption of alternative-fueled vehicles.

NEWS

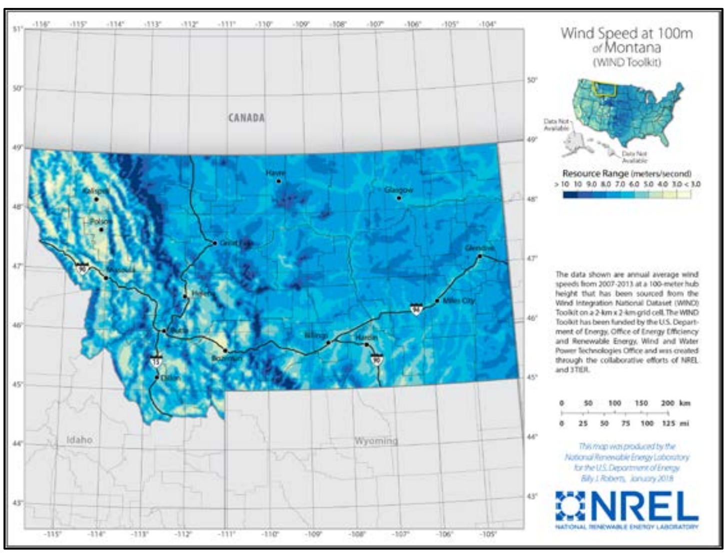
- August 10, 2019: Montana Supreme Court Order Favors Large Billings Solar Farm
- August 8, 2019: Clean Energy Fair in Bozeman to Showcase Renewable Energy Options
- August 6, 2019: Judge: NorthWestern Illegally Put Off Renewable Energy Projects, Regulators Didn't Enforce Law
- July 23, 2019: Governor Names Climate Solutions Board Members
- July 14, 2019: Montana Energy Storage Project Lines up Financial Partner

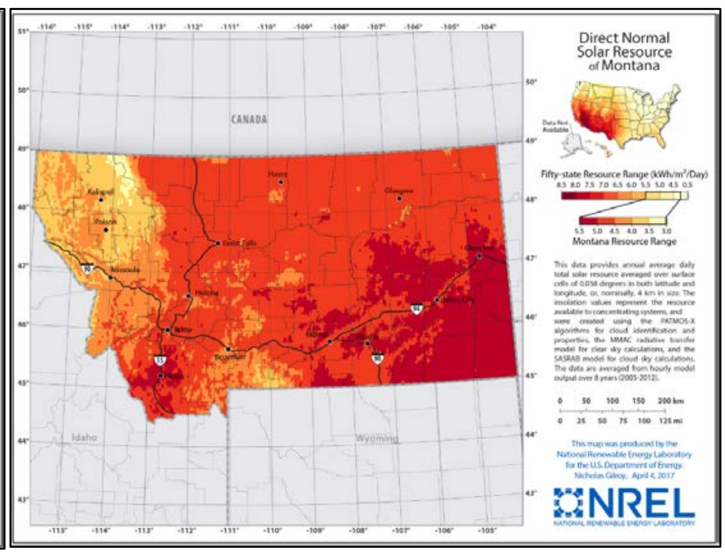
OTHER RESOURCES

- Montana Department of Environmental Quality: http://deq.mt.gov/energy
- Northern Plains Resource Council, Clean Renewable Energy: https://www.northernplains.org/issues/clean-energy/
- 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: http://programs.dsireusa.org/system/program?fromSir=0&state=MT
- U.S. Energy Information Administration, Montana: https://www.eia.gov/state/?sid=MT
- American Wind Energy Association (AWEA): https://www.awea.org/resources/fact-sheets/state-facts-sheets
- National Renewable Energy Laboratory Biomass Maps: https://www.nrel.gov/gis/biomass.html
- U.S. Department of Energy's Alternative Fuels Data Center, Montana: https://www.afdc.energy.gov/states/mt
- SPOT for Clean Energy, Montana: https://spotforcleanenergy.org/state/montana/
- The Rocky Mountain Institute: From Gas to Grid – Building Charging Infrastructure to Power Electric Vehicle Demand
- The GridWise Alliance: EVs - Driving Adoption, Capturing Benefits
- The Regulatory Assistance Project: Performance-Based Regulation

MONTANA'S WIND AND SOLAR RESOURCES

WIND https://windexchange.energy.gov/states/mt
SOLAR https://www.nrel.gov/gis/solar.html





Our Resources

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

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

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

Clean Energy Policy Guide for State Legislatures: http://cnee.colostate.edu/cleanenergypolicyguide/

The Energy Policy Podcast: http://energypodcast.colostate.edu/

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