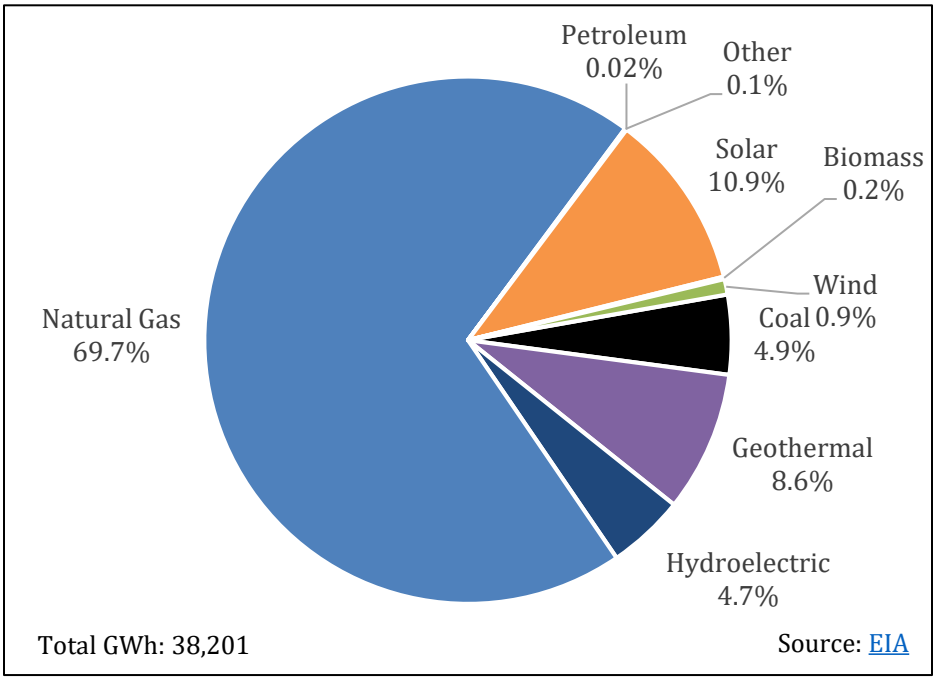
State Brief: Nevada

BACKGROUND

Nevada currently receives nearly 90% of its energy from out-of-state, much of which is natural gas. The state is a national leader in solar and geothermal energy: In 2018, Nevada ranked second in the U.S. for utility-scale net electricity generation from geothermal sources and fourth for solar energy. For the first eight months of 2018, Nevada received almost half its renewable electricity generation from solar resources.

Nevada's Net Electric Generation, 2017



A 2019 report by the National Association of State Energy Officials and the Energy Futures Initiative found that Nevada has 35,234 traditional energy workers (2.6% of total state employment) and an additional 11,155 workers employed in energy efficiency.

In June 2018, the group 'Nevadans for a Clean Energy Future' submitted over 230,000 signatures, more than double the number needed, in order to get its initiative for a 50% by 2030 RPS on November's ballot. Question 6 passed with nearly 60% of the vote, but a second vote in 2020 would have been required to amend Nevada's constitution. During the 2019 regular session, Governor Steve Sisolak signed Senate Bill 358, which requires electric utilities to acquire 50% of their electricity from renewable sources by 2030. In July 2018, the Public Utilities Commission (PUCN) voted to join the Joint Action Framework on Climate Change with California, Oregon, and Washington, which will facilitate information sharing and promote clean energy investment.

Ann Pongracz chairs Nevada's bi-partisan, three-member Public Utilities Commission (PUCN). The PUCN regulates the operations of NV Energy and the service territories of the state's municipally-owned and cooperative electric utilities. Democratic majorities control both chambers of the State Legislature. Governor Sisolak is a Democrat.

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.

[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.

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 in order 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

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.

Nevada has a solid foundation for advancing grid modernization efforts in the state. According to the 2018 Grid Modernization Index, Nevada ranks 8th in the country for overall grid modernization efforts, climbing one spot from the previous year. In February 2016, Governor Brian Sandoval reconvened the New Energy Industry Task Force, a group of diverse stakeholders to advise Nevada's Office of Energy on approaches to promote renewable energy development. The group's work included a focus on creating a modern, resilient, and cost-effective energy grid. In September 2016, the Task Force provided the Governor with a list of recommendations, several which were enacted in 2017 (Senate Bill 145 and Assembly Bill 405). Enacted in 2019, Senate Bill 300 authorizes electric utilities to submit an application to establish an alternative rate-making plan. The bill directs the PUCN to evaluate alternative ratemaking mechanisms and to adopt regulations regarding those plans, sets deadlines for adopting those regulations, and includes a mechanism for earnings sharing with utility customers.

There are supportive policies that Nevada's policymakers could adopt to enhance 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. Late in 2018, the PUCN issued a temporary regulation requiring that utilities' integrated resource plans (IRPs) include a distribute resource plan. Legislation could make this permanent and require that utilities' IRPs 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.

3. Nevada does not have clear state policies governing customer data access and privacy protections. To address this, 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. While some utilities in the state have platforms that allow customers to access their usage data and will provide third parties that data, with customer consent, the state could establish customer access to energy data through a program like Green Button.

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.

In April 2018, NV Energy amended their interconnection rules to explicitly allow distributed energy storage systems to connect to the grid. In 2017, Senate Bill 204 required the PUCN to evaluate an energy storage procurement target. The resulting report determined that up to 175 megawatts (MW) of utility-scale battery storage could be deployed cost-effectively statewide by 2020. The PUCN is creating new energy storage targets.

Nevada is also home to the Tesla Gigafactory and has a unique opportunity to work with the battery manufacturer to support storage as a distributed energy technology. 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 interconnecting storage in statute, or legislation could provide an instruction to the PUCN to update existing policy.

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 (see above, at #2, under Grid Modernization).

4. 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. In response to Senate Bill 145 (2017), NV Energy currently offers Energy Storage Incentive programs for both residential and commercial customers.

5. Adopt clear data access policies that allow third parties to provide energy management services based on signals from the utility can greatly increase the value of efforts to monetize the value stream offered by energy storage. (See discussion above, under Grid Modernization.)

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.

To reduce barriers to customer and utility participation in the renewable energy market, policymakers in Nevada might consider several 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, Nevada's policymakers could consider IREC's model interconnection procedures, removing net metering aggregate capacity limitations and crediting net excess generation at the customer's retail rate. 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. 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 Las Vegas 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. Nevada might consider adopting 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).

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 ensured 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 LMI customers. States that have a shared renewable program may want to coordinate this program with implementation of the federal Weatherization Assistance Program or the Low Income Home Energy Assistance Program to provide recipients of assistance with participation in a shared renewable system.

There are several additional policy options that Nevada 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. Enacted in 2019, Assembly Bill 465 requires utilities to submit solar access plans to the PUCN that are required to expand access in an equitable way and provide low income residential customers with lower rates.

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. This is leading policymakers to provide additional avenues for businesses to procure renewable energy. NV Energy was one of the first utilities across the country to offer a renewable energy tariff, with its GreenEnergy Rider program in 2014. In 2016, NV Energy announced the expansion of the program to allow customers with one MW of demand or greater to source 50% or 100% of their electricity supply from solar energy. The generation will come from a new utility-scale solar photovoltaic power plant the utility will develop for these customers. Nevada's policy currently allows companies to purchase renewable energy credits (RECs), allows renewable energy tariffs, and allows companies to develop or lease onsite renewable energy projects. The state might consider incorporating corporate renewable purchase commitments into the IRPs that utilities submit to regulators to plan for resource needs over multiple decades. By integrating these renewable purchase commitments into the IRP 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 emissions and increase investments in clean energy resources. As of 2018, Nevada's renewable portfolio standard (RPS) called for 25% renewable energy by 2025. NV Energy reported in early 2019 that it is on track to exceed this target; the company achieved 24.2% renewable energy and related credits, above the 20% by 2019 required by state law. During the 2019 regular session, the state's RPS was expanded when Governor Steve Sisolak signed Senate Bill 358, which requires electric utilities to acquire 50% of their electricity from renewable sources by 2030 and 100% from carbon-free resources by 2050.

In July 2018, the PUCN voted to join the Joint Action Framework on Climate Change with California, Oregon, and Washington, which will facilitate information sharing and promote clean energy investment. In 2019 Governor Sisolak announced Nevada would join the U.S. Climate Alliance with goals to accelerate new and existing policies to reduce carbon pollution and promote clean energy deployment at the state and federal level. Nevada Adopted a GHG goal in 2019 (Senate Bill 254) of 28% below 2005 levels by 2025, 45% below 2005 levels by 2030, and "zero or near-zero" by 2050.

Policymakers might consider a clean peak standard. 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.

ELECTRIFICATION OF THE TRANSPORTATION SECTOR

Bloomberg New Energy Finance estimates that 57% of all new passenger vehicle sales will be electric by 2040 and that price parity with conventional vehicles will be met for most segments in the mid-2020s. Designing infrastructure that will facilitate easy connection of electric vehicles (EVs) to the grid is a key part of building a modernized grid. The relationship between the increased adoption of EVs and the availability of EV charging stations is complicated. On the one hand, consumer range anxiety creates a barrier to increased adoption. On the other hand, while greater availability of charging stations would ease this anxiety, the relatively low numbers of vehicles on the road provides little incentive to install and make these stations available to the public. The good news is that both supportive policies for developing charging infrastructure and advancements in technology have eased range anxiety.

Nevada has some incentives for citizens to purchase EVs. Local authorities are required to establish parking fines for non-EV vehicles parking in charging station spots, and alternative fuel vehicles and hybrid EVs are exempt from emissions inspections. NV Energy also offers discounted electricity rates to residential customers in their territory for charging plug-in EVs during off-peak hours. Furthermore, the Nevada Office of Energy established the Nevada Clean Energy Fund to fund qualified clean energy projects, including any program, technology, product, or service that supports the deployment of EVs and related infrastructure.

In June 2018, the PUCN voted unanimously to approve several new clean energy investments by NV Energy, including $15 million to incentivize the development of publicly available charging stations. Nevada joined Arizona, Colorado, Idaho, Montana, New Mexico, 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. NV Energy is already working on a statewide Electric Highway.

There are several additional opportunities to expand the market for EVs in Nevada:

1. EV and EV Supply Equipment (EVSE) Financing and Financial Incentives – The state offers limited incentives for EVs and EVSE. 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 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.[3] Some states have adopted other financial incentives including low-interest loans. 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.

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.

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

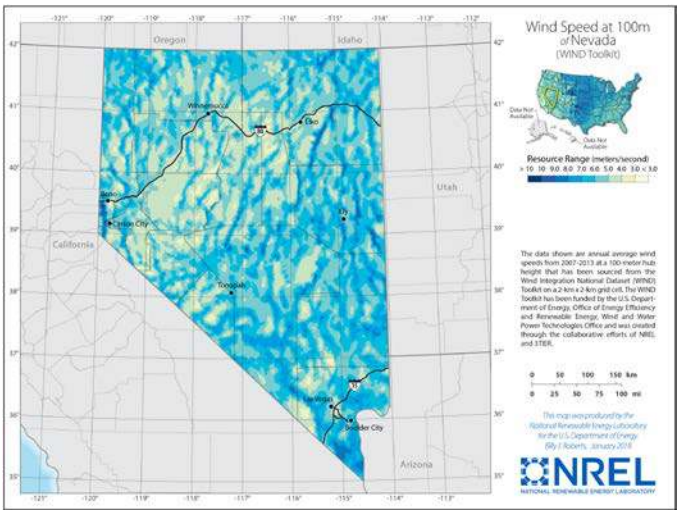
3. Parking Infrastructure Requirements – In tandem with the development of a statewide plan, legislation could set requirements for EV parking infrastructure. Some states have adopted permitting standards for parking lots, requiring, for instance, that for every 100 parking spaces, there must be at least 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. Nevada's building energy code could also be updated to include requirements for EV charging infrastructure.

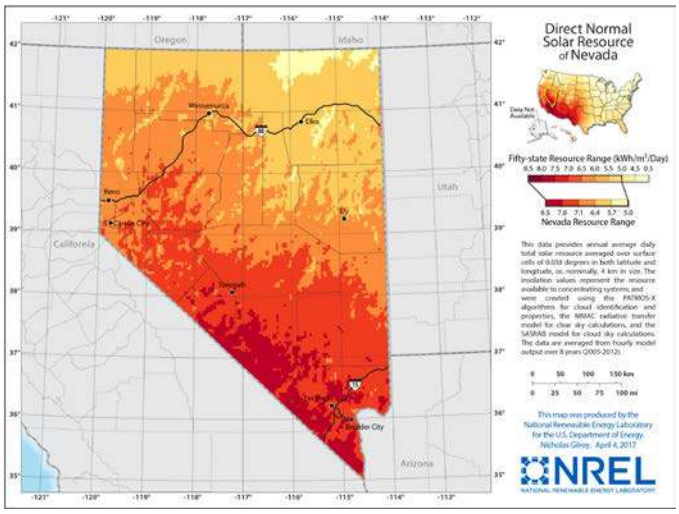
NEWS

- September 3, 2019: $3.1 Million Donations to Foster Next-Generation Energy Experts
- August 19, 2019: NV Energy Announces 'Hulkingly Big' Solar-Plus-Storage Procurement
- August 13, 2019: Nevada PUC Joins WA, OR, CA Regulators in Joint Action Framework on Climate Change
- July 23, 2019: NV Energy, Clark County School District Reach Five-Year Bundled Electric Service Agreement
- July 2, 2019: $1 Billion Deal for World's Largest Solar-Powered Battery System
- June 25, 2019: NV Energy to Add 1.2 GW Solar, 2.3 Gwh Storage as Large Customer Exit Slows
- May 30, 2019: Nevada Follows Hawaii, Moves Toward Performance-Based Ratemaking
- April 22, 2019: Nevada Passes Bill for 50% Renewables By 2030, 100% Carbon Free By 2050

NEVADA'S WIND AND SOLAR RESOURCES

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





OTHER RESOURCES

- Nevada Governor's Office of Energy: http://energy.nv.gov/
- The American Council for an Energy-Efficient Economy State and Local Policy Database, Nevada: https://database.aceee.org/state/nevada
- The Database of State Incentives for Renewables and Efficiency, Nevada: http://programs.dsireusa.org/system/program?fromSir=0&state=NV
- U.S. Energy Information Administration, Nevada: https://www.eia.gov/state/?sid=NV
- 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, Nevada: https://www.afdc.energy.gov/states/nv
- SPOT for Clean Energy, Nevada: https://spotforcleanenergy.org/state/nevada/

- 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

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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