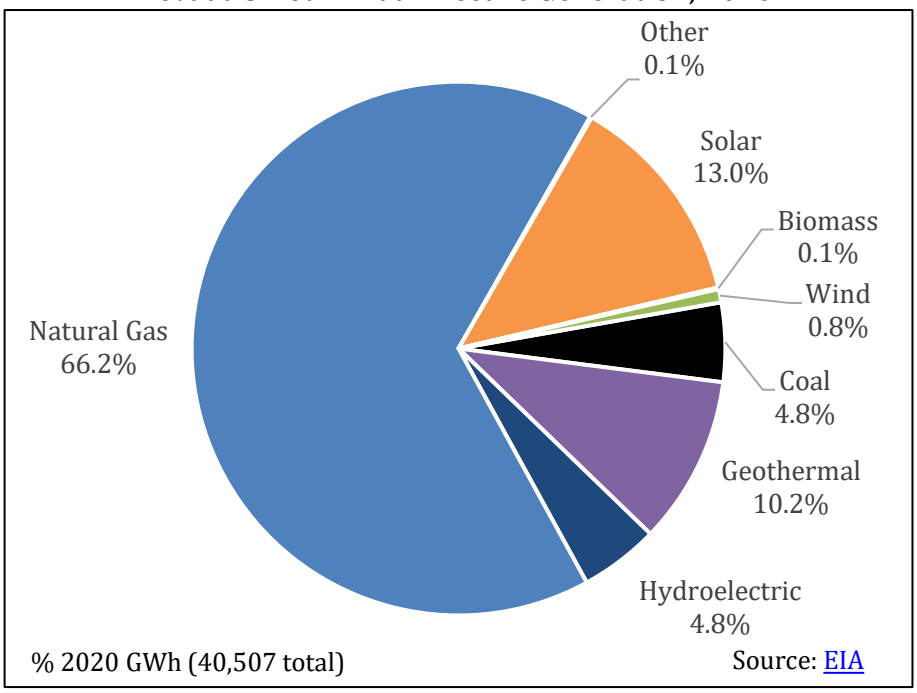
State Brief: Nevada

BACKGROUND

Nevada's Net Annual Electric Generation, 2020



In 2019, Nevada received about 85% of its energy from out-of-state, much of which was natural gas. The state is a national leader in solar and geothermal energy: In 2020, Nevada ranked second in the U.S. for utility-scale net electricity generation from geothermal sources and has the largest solar generating potential in the nation. While the state holds some potential for wind power, it has only one utility-scale wind farm which opened in 2012. Nevada has no significant oil, natural gas, or coal reserves.

As of mid 2021, the Silver State had nearly 3,904 megawatts (MW) of installed solar capacity. In 2020, the Solar Energy Industries Association (SEIA) ranked Nevada 7th in the nation for projected solar energy capacity growth over five years at 4,297 MW.

Nevada's Renewable Portfolio Standard (RPS) requires electric utilities to meet a 50% renewable energy by 2030 target. In July 2019, the Public Utilities Commission (PUCN) voted to join the West Coast Public Utility Commissions' Joint Action Framework on Climate Change with California, Oregon, and Washington, which will facilitate information sharing and promote clean energy investment. Enacted in June 2021, Senate Bill 448, among other provisions, extends property tax incentives to certain energy storage systems; requires that utilities' integrated resource plans (IRPs) include a scenario to achieve carbon dioxide emissions reductions of 80% below 2005 levels by 2030 and 100% by 2050; requires that IRPs outline plans for accelerating the electrification of the transportation sector; and creates a regional transmission task force and requires that every transmission provider in the state join a regional transmission organization before January 1, 2030 (the bill provides for waivers of this provision).

The 2020 U.S. Energy and Employment Report found that Nevada has 35,879 traditional energy workers (2.5% of total state employment). In 2020, Nevada ranked 29th nationwide for clean energy jobs and the industry employed 31,191 Nevadans. [1]

Hayley Williamson 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 Steve Sisolak is a Democrat.

[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.

Nevada has a solid foundation for advancing grid modernization. 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.

Increasing extreme weather events have stressed power grids across the West. In anticipation of future weather related energy demands, PUCN approved NV Energy's Greenlink Nevada project which will invest more than $2.5 billion in statewide transmission upgrades that would enable an estimated 5,000 MW of future

[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.

renewable energy development. Senate Bill 448 provides legislative support for Greenlink Nevada and accelerates the required completion date of the project to 2029 from 2031.

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. 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.

3. 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.

[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."

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.

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. In 2020, the PUCN established a 1 gigawatt (GW) energy storage target with 590 MW of storage already planned to be online by 2024. Senate Bill 448 expanded the state's renewable energy tax abatement program to include energy storage.

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 additional 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.

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 loans 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. Adopting 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 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.

To reduce barriers to customer and utility participation in the renewable energy market, Nevada 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, Nevada's policymakers could consider IREC's model interconnection procedures and removing net metering aggregate capacity limits. Expanding the state's aggregated net metering policy 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. Low credit ratings often deter participation in renewable energy markets; this can affect low- and moderate-income (LMI) households' adoption of renewable energy solutions. 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. Supportive policies for shared renewables can be designed to encourage participation by LMI households, which can increase adoption of renewable technologies and reduce energy costs. LMI 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. 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. NV Energy was one of the first utilities in 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 program currently supplies 598.5 MW of energy from 4 utility-scale solar projects to its participants. Nevada's policy allows companies to purchase renewable energy credits (RECs), allows renewable energy tariffs, and allows companies to develop or lease onsite renewable energy projects. The products available in Nevada meet five out of six of the Corporate Renewable Energy Buyers' Principles, and the state was ranked 4th overall in the Retail Industry Leaders Association's 2020 rankings of state corporate procurement policies. 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 (GHG) emissions and increase investments in clean energy resources. States might see an emissions or clean peak standard as the next step in a progression from RPSs. Nevada's RPS requires that utilities meet a 50% renewable energy by 2030 target. During the 2019 regular session, the state's RPS was expanded when Governor Sisolak signed Senate Bill 358 that sets a 100% from carbon-free resources by 2050 target. Also 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 subsequently adopted a GHG goal (Senate Bill 254) of 28% below 2005 levels by 2025, 45% below 2005 levels by 2030, and "zero or near-zero" by 2050. Enacted in June 2021, Senate Bill 448 accelerated the 2030 GHG target to 80% below 2005 levels. To increase utility adoption of clean energy technologies, Nevada's policy makers might consider the following:

1. **Accelerating and Amending Renewable Portfolio Standards –** States can revisit existing RPS policies to increase targets and/or accelerate target dates to continue to spur the development of renewable resources and save ratepayers money. Additionally, states might add one or more carve-outs to further incentivize the development of distributed generation. Embedding an RPS within broader clean electricity or emissions standard can allow technological flexibility.

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.

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."

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. 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. The American Council for an Energy-Efficient Economy (ACEEE) published a State Transportation Electrification Scorecard evaluating 29 states' progress in electrifying transportation in six key policy areas. Nevada ranked 14th in the 2021 report.

NV Energy offers discounted electricity rates to residential customers charging plug-in EVs during off-peak hours. 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. Senate Bill 448 requires NV Energy to submit a plan for the investment of $100 million in EV infrastructure by September 2021 with 40% of the investment directed towards benefiting traditionally underserved communities.

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

1. **EV and EV Charging Equipment 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 the credit is not applied at the time of purchase.[4] States have adopted other financial incentives including low-interest loans, grants, vouchers, and rebates. A handful of states qualify EV charging equipment 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. 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. Nevada 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. NV Energy is already working on a statewide Electric Highway. Originally intended to provide charging stations between Reno and Las Vegas, the project has grown to service all five major highway corridors throughout the state with completion expected summer of 2021.

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

- July 5, 2021: Reno Claims US First with Real-Time Emissions Tracking
- June 29, 2021: ICYMI: MGM Resorts Launches 100MW Solar Array in Las Vegas
- June 17, 2021: Soon-to-Open Resorts World, NV Energy Propose Unique Renewable Electric Service Deal to State Regulators
- June 10, 2021: U.S. Department of Energy Announces $14.5 Million to Accelerate Deployment of Geothermal Electricity
- June 9, 2021: Sunrise Brief: NV Energy Plans to Replace a Coal Plant with 600 MW of Solar and 480 MW of Storage
- June 7, 2021: NV Energy Sets Out Clean Energy Plans for Nevada
- March 10, 2021: Accelerating Its Clean Energy Revolution Would Add $700 Million to Nevada's Economy Per Year by 2030

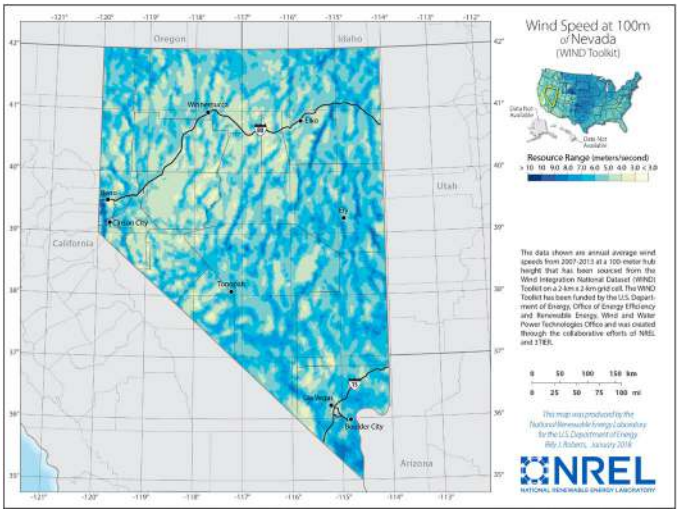
[4] A study by the Congressional Research Service suggests that tax credits are important tools for ensuring increased adoption of alternative-fueled vehicles.

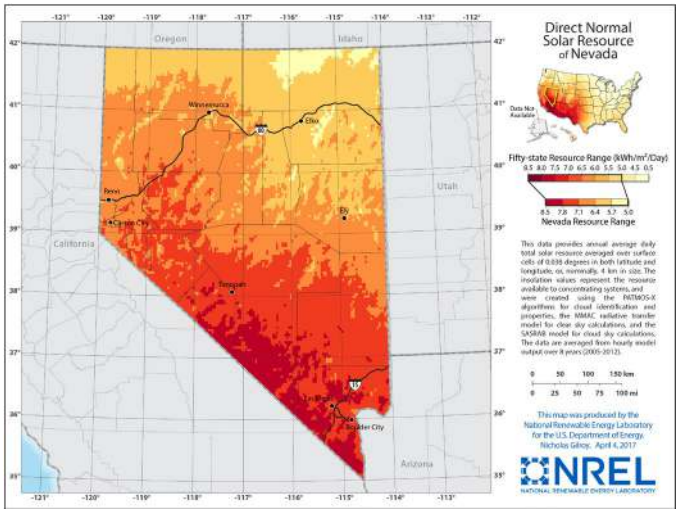
OTHER RESOURCES

- Nevada Governor's Office of Energy: http://energy.nv.gov/
- Environment Nevada: https://environmentnevada.org/
- American Clean Power Association, Nevada State Fact Sheet: https://cleanpower.org/wp-content/uploads/2021/01/Nevada-clean-energy-factsheet.pdf
- 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: https://programs.dsireusa.org/system/program/nv
- U.S. Department of Energy's Alternative Fuels Data Center, Nevada: https://www.afdc.energy.gov/states/nv
- U.S. Energy Information Administration, Nevada: https://www.eia.gov/state/index.php?sid=NV
- SPOT for Clean Energy, Nevada: https://spotforcleanenergy.org/state/nevada/

NEVADA'S WIND AND SOLAR RESOURCES

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





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/

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