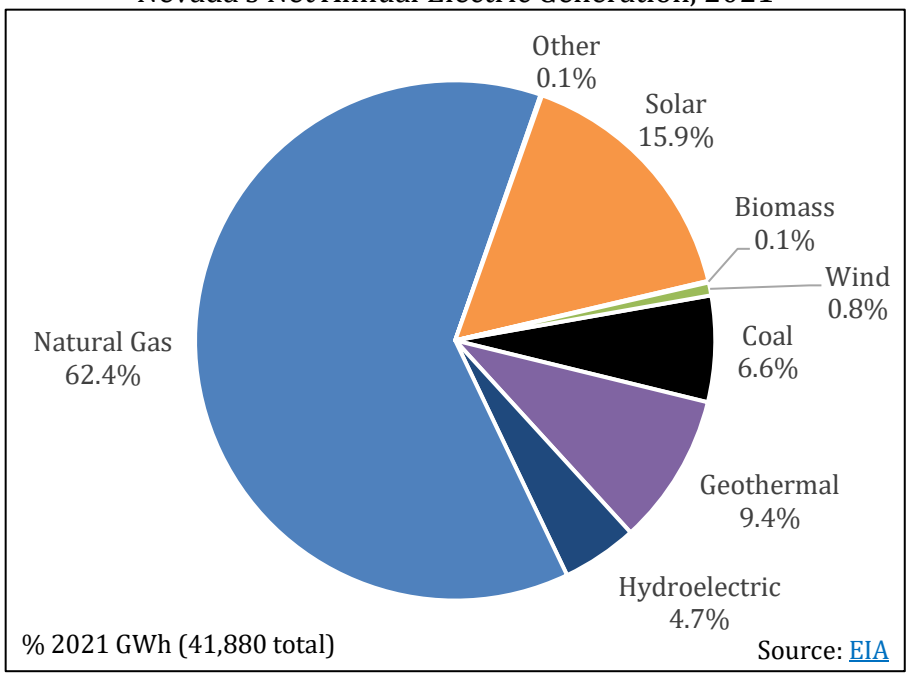
State Brief: Nevada

BACKGROUND

Nevada is a national leader in solar and geothermal energy. In 2021, Nevada ranked second in the U.S. (after California) for utility-scale net electricity generation from geothermal resources. The Silver State has the largest solar generating potential in the nation. While the state has some wind energy potential, it has only one utility-scale wind farm, which opened in 2012. Natural gas is the largest single source of electric generation in Nevada, comprising over 62% of the state's annual electricity generation mix. The state has no significant oil, natural gas, or coal reserves.

Nevada's Net Annual Electric Generation, 2021



In 2022, the Solar Energy Industries Association (SEIA) ranked Nevada 6th in the country in terms of installed capacity (4,967 MW) and 8th for projected growth (4,554 MW) over the next five years.

Nevada's Renewable Portfolio Standard (RPS) requires electric utilities to meet a 50% renewable energy by 2030 target. In September 2019, the Public Utilities Commission of Nevada (PUCN) joined the Western Public Utility Commissions' Joint Action Framework on Climate Change with California, Colorado, Oregon, and Washington. The Joint Action Framework aims to facilitate regional cooperation to address climate change, focusing on clean energy deployment. 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; 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 2022 U.S. Energy and Employment Report found that that Nevada has 57,804 energy workers (4.3% of total state employment), which includes 11,404 workers employed in energy efficiency. In 2021, Nevada ranked 29th nationally for clean energy jobs, with 31,191 Nevadans employed by the industry.[1]

Hayley Williamson chairs Nevada's bipartisan, three-member 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.

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

[1] To see clean energy job numbers for your Congressional District, visit: https://cleanjobsamerica.e2.org/#map.

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

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.

MODERNIZING UTILITIES AND EMPOWERING CONSUMERS

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, and 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 authorized electric utilities to submit an application to establish an alternative rate-making plan. The bill directed the PUCN to evaluate alternative ratemaking mechanisms and to adopt regulations regarding those plans, set deadlines for adopting those regulations, and included a mechanism for earnings sharing with utility customers.

In March 2021, the PUCN approved NV Energy's Greenlink Nevada project, which will invest more than $2.5 billion in statewide transmission upgrades to enable an estimated 5,000 megawatts (MW) of future renewable energy development. Senate Bill 21-448 provided legislative support for Greenlink Nevada and accelerated the required completion date of the project from 2031 to 2029.

The Infrastructure Investment and Jobs Act of 2021 (IIJA) is a landmark federal spending bill that includes funding earmarked for grid modernization projects. This includes $11 billion for Department of Energy (DOE) grants directed specifically towards electric infrastructure resiliency projects (including grid hardening against severe weather and cybersecurity improvements), $2.5 billion for transmission development, and $3 billion for the Smart

Grid Investment Matching Grant Program.[3] Enacted August 2022, the Inflation Reduction Act (IRA) set aside $2 billion for loans for constructing new high-capacity transmission lines and upgrading interties. The bill includes funding for technical assistance and grants for states and tribal governments, which includes assistance for siting transmission projects. The bill also directs DOE to undertake interregional transmission planning, modeling, and analysis, including analysis of transmission for offshore wind and the use of grid-enhancing technologies (GETs).[4]

A 2020 analysis by Advanced Energy Economy (AEE) found that $1 billion in investments in transmission and grid modernization (including technology and software development for residential and commercial energy management) in Nevada could generate approximately $2 billion in Gross State Product (GSP) and create 19,000 new jobs.[5]

There are policies that Nevada's policymakers could adopt to support in-state grid 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. Require that utilities' integrated resource plans (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.

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.[6]

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

MAINSTREAMING RENEWABLES

Renewable energy is increasingly seen as the least cost and lowest risk form of energy (excluding energy efficiency). 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

[3] For more information on the grid-related earmarks included in the IIJA, see Potomac Law Group's January 2022 analysis: "The Infrastructure, Investment & Jobs Act of 2021: What's in It For You? (Part V: Grid Infrastructure and Resiliency)" https://www.potomaclaw.com/news-Infrastructure-Investment-Jobs-Act-of-2021-Whats-In-It-For-You-Part-V-Grid-Infrastructure-and-Resiliency.

[4] J. Runyon and J. Engel. 2022. "The Inflation Reduction Act is Signed into Law." *PowerGrid International*. 16 August. Available: https://www.power-grid.com/td/the-inflation-reduction-act-is-signed-into-law/#gref.

[5] P. Hibbard and P. Darling. 2020. "Economic Impact of Stimulus Investment in Advanced Energy: An Economic Assessment of Applying Stimulus Funds to Advanced Energy Technologies, Products, and Services in Nevada." *Analysis Group for Advanced Energy Economy*. October. Available: https://www.aee.net/aee-reports/advanced-energy-state-economic-impact-reports-for-2020.

[6] For a discussion of specific workforce needs 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."

standards and best practices for integrating distributed renewable energy resources. In the U.S., the expansion of renewable energy has been one of the most consequential shifts in electricity generation over the last decade. The U.S. Energy Information Administration (EIA) predicts that most of the growth in U.S. electricity generation in 2022 and 2023 will be from new renewable energy sources. It is in the interest of policymakers to ensure that their states are well positioned to benefit from this shift.

While the IIJA does not provide money for specific renewable energy projects, the energy funding in the Act will benefit renewable energy development as grid resiliency, increased deployment of energy storage, and modernized transmission are all essential to the successful integration of renewable energy generation. The IRA appropriated $369 billion to fund a variety of energy and climate initiatives – the largest climate investment in U.S. history. The bill also extended the investment tax credit (ITC) and the production tax credit (PTC) through the end of 2024 and revived the PTC for solar projects. For projects placed in service in 2025, the bill "effectively extended" the ITC and PTC by creating new tax credits for zero emission facilities. The bill also extended the residential energy property tax credit through 2034 and created a new advanced manufacturing production credit, to apply to sales of components for constructing wind and solar energy facilities beginning in 2023. [7]

The IRA also includes several provisions related to energy equity, including $3 billion to the Environmental Protection Agency (EPA) for grants for community-led projects in disadvantaged communities and $27 billion for nonprofit, state, and local climate finance institutions supporting the deployment of low- and zero-emission technologies. In support of rural communities, the bill includes a $1 billion appropriation to the U.S. Department of Agriculture (USDA) for loans to finance renewable energy projects, $1 billion for USDA's Rural Energy for America Programs, and $9.7 billion to USDA to finance rural electric cooperatives' purchases of renewable energy.

A 2020 analysis by AEE found that a $1.5 billion investment in solar and a $500 million investment in wind energy resources in Nevada could add approximately $7 billion to the GSP and create 48,000 new jobs.[5]

To reduce barriers to customer and utility participation in the renewable energy market, and to build upon the federal initiatives, 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 adopting the Interstate Renewable Energy Council's (IREC)'s model interconnection procedures, removing net metering system size limitations and the aggregate capacity limit, and compensating Tier 4 net metering customers at the full retail rate. The state might also consider establishing either statewide standards for streamlined solar permitting processes, or resources to support local governments that voluntarily implement a streamlined program. In May 2021, NREL launched the SolarAPP+, an online platform designed to automate the solar permitting process. By running compliance checks and processing permit approvals, the service is intended to drastically reduce permit wait times. Currently restricted to rooftop solar, twenty communities in Arizona and California have adopted the platform, processing over 7,750 permits for more than 51 MW of generation with an estimated 7,750 hours saved in permit review time.

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. 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).

[7] For a detailed discussion of the IRA's tax provisions, see: A.S. Levin-Nussbaum. 2022. "Update: President Biden Signs Historic Legislation Providing Expansive Clean Energy Tax Incentives." *The National Law Review*. 17 August. Available: https://www.natlawreview.com/article/update-president-biden-signs-historic-legislation-providing-expansive-clean-energy

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 (WAP) or the Low Income Home Energy Assistance Program (LIHEAP) to provide recipients of assistance with access to participation in a shared renewable system.

Enacted in 2019, Assembly Bill 465 required utilities to submit expanded solar access plans to the PUCN that are required to expand access to solar energy in an equitable manner and provide participating low-income residential customers with lower rates. The PUCN approved a final set of rules in accordance with Assembly Bill 465 in December 2021. NV Energy's Expanded Solar Access Program (ESAP) has since selected two sites for future community solar projects in Reno and East Las Vegas' Freedom Park.

3. **Adapt Energy Assistance Programs –** Programs such as LIHEAP and WAP provide assistance for paying utility bills and reducing household energy costs. Including distributed energy resources as eligible for funding under these programs can reduce energy costs and increase energy security for those LMI families who are able to benefit from WAP and LIHEAP. Colorado, for example, includes rooftop solar in their WAP program. For approval to add solar to a state's implementation of WAP, a state must show that the investment would be cost-effective – achieving a Savings to Investment Ratio (SIR) of 1.0 or more.[8]

   Since 2010, Nevada has received $10.9 million from WAP and $5.9 million from the State Energy Program (SEP) which has helped to fund a number of energy initiatives in the state.

4. **Fund Distributed Generation (DG) for Community Organizations –** Organizations or groups that provide support services for LMI communities can be provided funding to install solar or other distributed energy resources. Sites such as homeless shelters, food banks, clinics, and community centers often have enough rooftop area for solar installations. After installation, these resources can reduce an organization's utility bills, freeing up funds for other activities that support the community.

5. **On-Bill Financing/Pay As You Save (PAYS) –** On-bill Financing and Repayment programs enable consumers to invest in energy upgrades with no upfront payment. The utility or a third party will pay the initial costs to install the upgrade with the cost of that upgrade recovered through the utility bill. Because repayment includes consideration of the cost savings resulting from the energy upgrade, customers can see monetary benefits almost immediately. Once equipment costs are recovered, the equipment belongs to the customer. State policies that reduce lending risk by creating a loan loss reserve and/or a credit enhancement fund can encourage lending to customers that might otherwise not qualify for a loan and can keep interest rates low.

6. **Corporate Procurement** – Many Fortune 100 and 500 companies have established either climate goals or commitments to purchase renewable energy. Since 2016, over 41 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 February 2022, NV Energy announced an updated program to allow eligible residential or business customers to offset their electricity use with existing or new renewable resources. The program currently makes 230 GWh of renewable energy available to 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 state might consider incorporating corporate renewable purchase commitments into the IRPs that utilities submit to regulators to plan for resource needs

[8] For guidance on the state approval process, see WAP Memorandum 024 (2017), the Solar Template for Incorporating Solar Photovoltaics into WAP, and the Preliminary Assessment Guide for Integrating Renewable Energy into Weatherization (2019).

over multiple decades. By integrating these renewable purchase commitments into the IRP process, utilities 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. 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, which set a 100% from carbon-free resources by 2050 target. Also in 2019, Governor Sisolak announced Nevada would join the U.S. Climate Alliance. Nevada subsequently adopted a GHG goal (Senate Bill 19-254) 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.

States might consider a clean peak standard as the next step in a progression from RPSs. 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.

ENERGY STORAGE

Energy storage offers a unique opportunity to dynamically manage supply and demand 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 improve system efficiency. Third, because storage technologies can both store and dispatch power, storage enables better integration of intermittent power generation resources, like wind and solar, to the grid.

The flexibility of battery storage combined with advanced metering infrastructure can allow customers to control 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 also lead to a number of economic and environmental gains.

Energy storage can also help the commercial sector avoid demand charges, which establish an incremental cost above energy usage based on the highest period (highest 15 minutes, for example) of demand during the month. Eliminating spikes in demand with storage can reduce these costly charges for businesses. As utilities around the country consider implementing or extending demand charges to other sectors, energy storage will become more relevant as both a customer cost-saving investment and a system efficiency measure.

Declining costs and technological advancements in battery storage have contributed to increased deployment. State policies can further encourage this 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 2017, Senate Bill 204 required the PUCN to evaluate an energy storage procurement target. In April 2018, NV Energy amended their interconnection rules to explicitly allow distributed energy storage systems to connect to the grid. In 2020, the PUCN established a target of 1 GW energy storage by 2030. NV Energy said that it was on track to meet the target, with 590 MW of storage planned to be online by 2024. Senate Bill 21-448 expanded the state's renewable energy tax abatement program to include energy storage.

Nevada is home to the Tesla Gigafactory, which provides a unique opportunity to work with the battery manufacturer to support storage as a distributed energy technology. Nevada will host a planned Google data center, that will partner with NV Energy to procure 350 MW of solar and 280 MW of energy storage.

The IIJA provides a unique opportunity for funding energy storage projects. According to an analysis by the Energy Storage Association, the IIJA provides $505 million for grants to support energy storage demonstration projects, $6.15 billion for building out the U.S. battery supply chain, and $14.7 billion for grid resilience programs that include energy storage as a qualified technology. The IRA extended the ITC to include standalone energy storage systems. When the ITC is replaced by the technology neutral Clean Electricity Investment Tax Credit (CEITC) in 2025, qualified storage facilities placed in service after 2024 will remain eligible. The advanced manufacturing production credit, established by the bill, will apply to battery cells and modules and the critical minerals used in their production. The $27 billion GHG Reduction Fund, also established by the bill, will provide funding enabling low-income or disadvantaged communities to adopt zero-emission technologies including energy storage.

A 2020 analysis by AEE found that a $1.5 billion investment in energy storage resources in Nevada could add approximately $3 billion to the GSP and create 35,000 new jobs.[5]

There are several policy opportunities to take advantage of the growing technological advances in and declining costs of energy storage and build upon recent federal initiatives. The recommendations here draw heavily from IREC's 2017 report, "Charging Ahead – An Energy Storage Guide for Policymakers." Policymakers in Nevada could consider the following:

1. Instruct the utilities commission to evaluate the value of energy storage in multiple strategic locations across the utility system and consider a requirement to deploy storage where it is cost-effective or identify the price point at which it will be cost-effective. Ensure that cost-effectiveness calculations include all the benefits storage can deliver to the system, including frequency regulation and avoided investments in new infrastructure.

2. 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.

3. 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 of 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 could also signal to customers the value of leveraging storage and better align 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. Senate Bill 17-145 required the PUCN to establish regulations for utility energy storage incentive programs. NV Energy offers incentives for both residential and commercial customers.

4. 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. State policy should include measures to protect customer data, while also encouraging the use of this information to facilitate additional improvements to grid management and customer services. To address this, policymakers can develop legislation or rules that clarify who owns the energy data associated with customer 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.

THE BUILT ENVIRONMENT

In the U.S., buildings consume nearly 40% of total energy used.[9] Because it reduces energy demand and emissions, and creates savings for utility customers, energy efficiency[10] often plays a prominent role in state energy and climate policies. Coupled with beneficial electrification, which involves replacing direct fossil fuel use with electricity, there is even greater potential to reduce energy costs and pollution, and provide more resilient, comfortable, and healthy buildings. This is especially the case in states where increasing levels of low carbon resources are supplying the electric grid. When policies are adopted to shift energy uses based on fossil fuels (such as natural gas) for building heating, water heating, and appliances, to highly efficient electric alternatives, states can maximize achieving the dual objectives of increased energy efficiency and reduced emissions. In some cases, this can also result in lower energy costs.

The IIJA provides $500 million for grants to fund energy efficiency and renewable energy upgrades in public schools, $3.5 billion for the Weatherization Assistance Program, and further funds the Energy Efficiency and Conservation Block Grant program by $550 million and the State Energy Program by $500 million. The IRA appropriates $4.3 billion to DOE for an energy efficiency rebate program that will be administered through state energy offices. Another $4.3 billion appropriation will fund electrification rebates for single- and multi-family homes. The bill also extends the tax credits for residential energy efficiency improvements and new efficient home construction and increases the maximum deduction for energy efficient commercial buildings. A $837.5 million appropriation will be used by the Department of Housing and Urban Development (HUD) for resiliency, energy efficiency, renewable energy, and grid integration projects at public housing units.

A 2020 analysis by AEE found that a $2.5 billion investment in energy efficiency in Nevada could add approximately $38 billion to the GSP and create 210,000 new jobs.[5]

Policymakers in Nevada can consider a variety of policies to encourage energy efficiency and beneficial electrification:

Energy Efficiency Policies

1. **Building Codes** – The Department of Energy projects that, over time, improvements in building codes can have the greatest single impact in energy efficiency within the built environment. On average, commercial buildings waste 30% of energy used.[11] Because buildings will be around for generations, energy efficiency within the built environment is a matter of statewide and long-term importance. States can set requirements for energy systems, require disclosure of energy use, and set performance standards for energy use or emissions. Building codes can be required by state legislation or implemented through 'home rule,' where local governments set their own standards.

   Currently, Nevada follows the 2021 International Energy Conservation Code (IECC). The state adopts the most recent edition of the IECC on a triennial basis. Local governments must update their codes to match the state code but can adopt amendments that are more stringent than the state code. NV Energy's PowerShift program provides free energy assessments, smart thermostats, appliance replacements, and energy efficiency information for residential and commercial customers.

   The IIJA appropriated $225 million for a competitive grant program to support the "sustained cost-effective implementation of updated building energy codes." The grant program will run for five years, through fiscal years 2022 – 2026. On July 21, 2022, DOE issued a Notice of Intent (NOI) to publish a funding opportunity to support the implementation of "resilient and efficient" building energy codes. This competitive grant program requires the participation of a "relevant state agency" and projects must be tied to "an updated building energy code."

2. **Appliance Efficiency Standards** – Appliance efficiency standards set minimum requirements for efficiency in everything from washing machines to water heaters. Efficiency standards save consumers money on utility bills

[9] For additional information, see ACEEE Building Policies and Codes.
[10] Energy efficiency includes a multitude of measures to reduce the energy consumption of a building. These measures range from installing energy efficient appliances to full building renovations updating a building envelope.
[11] For more information, see the Office of Energy Efficiency & Renewable Energy's Commercial Buildings Integration (CBI) Program.

and reduce energy demand on the grid, most importantly reducing peak energy demand. Some states have elected to adopt the federal appliance standards that were in effect on January 1, 2017.[12] These include, among other things, standards on metal halide lamp fixtures, residential furnaces and boilers, and external AC to DC power supplies. In 2021, Assembly Bill 383 directed the Office of Energy to establish minimum appliance efficiency standards for a range of equipment.

3. **Energy Saving Performance Contracts (ESPCs)** – ESPCs are a financing mechanism for energy efficiency upgrades. ESPCs are often used within large institutions, such as college or government campuses, allowing them to meet their energy and environmental goals. An energy service company will pay the upfront cost of efficiency upgrades and execute the project, often guaranteeing the projected energy savings. The large institution will then pay back the service company with savings from their utility bills. This allows institutions to pay for their upgrades from their operating budget, instead of finding new financing, such as loans or bonds, for capital upgrades. Essentially, they pay their upgrade costs with their energy savings. ESPC has been authorized for state and local agencies since 2003. The Nevada Governor's Office of Energy offers technical assistance and grants for state entities pursuing an ESPC.

4. **Low-Income Energy Efficiency Programs** – While equity should be incorporated into all policy development, it is often necessary to ensure that specific programs are targeted towards historically underserved populations. Recent research suggests that weatherization can reduce energy use by 25-35%, allowing households to reduce their financial energy burden. The federal Weatherization Assistance Program (WAP) provides energy efficiency upgrades for income qualified homeowners. However, in many states there is difficulty in reaching individuals who may be eligible. Lawmakers can pass legislation requiring outreach and education to groups eligible for WAP.

   Nevada's LIHEAP program offers assistance with energy bill payment and energy crises. The state also offers a Weatherization Assistance Program, which provides energy conservation measures for qualifying households. Enacted in 2017, Senate Bill 150 required that utilities devote at least 5% of their energy efficiency program budgets to low-income customers. The state has also adopted revised cost-effectiveness tools for low-income programs, including a 25% non-energy benefits adder.

5. **Energy Efficiency Resource Standards (EERS)** – EERS require utilities to demonstrate a reduction in energy demand from programs offered to their consumers. Because this means selling less energy and reducing revenues, there is not always an incentive for utilities to make their consumers more productive or efficient users of energy. If legislatures want to ensure a more productive and efficient energy distribution system that takes advantage of the latest technological innovations, they may want to require that a utility demonstrate a percent reduction in demand through efficiency or "demand side" programs. Legislators can also instruct their utility commissions to consider energy efficiency when approving rate cases by allowing cost-recovery of energy efficiency improvements on utility bills.

   Nevada's EERS is currently implemented through the state's RPS, under which utilities can count energy efficiency investments to meet up to 10% of the state's target. This provision was set to expire in 2025. Senate Bill 17-150 directed the PUCN to establish separate energy efficiency targets for NV Energy and to adopt performance incentives for exceeding the new target. In 2019, the PUCN approved NV Energy's $55 million budget for energy efficiency programs, representing a savings of 1.25% of total sales.

6. **Revenue Decoupling and Performance-Based Incentives** – Utilities earn revenue by selling energy. As a result, there is little to no incentive for them to promote energy efficiency because it leads to a reduction in sales, and therefore a reduction in revenue. Revenue decoupling disconnects revenue from the amount of energy sold. Rather than selling as much energy as they can, utilities are allowed a set amount of revenue regardless of the amount of energy sold. While this does not directly incentivize energy efficiency, it does remove the inherent disincentive to promote energy efficiency.

   Incentive policies can be layered on top of a decoupling policy. For example, if a utility meets set energy reduction targets, performance-based incentives, as determined by a state's PUC, can provide monetary rewards for

[12] Based upon research conducted by the Center for the New Energy Economy.

meeting those targets. As the electricity generation mix changes, it is important to incorporate a regular review of decoupling and other incentive policies to ensure they are still meeting their intended purpose.

As noted above, Senate Bill 17-150 directed the PUCN to adopt performance incentives for exceeding new energy efficiency targets. Senate Bill 19-300 directed the PUCN to adopt regulations to allow utilities to apply for approval of an alternative ratemaking plan. Ratemaking plans can include performance-based rates tied to performance, outcomes, lower administrative costs, or better customer service. The PUCN is implementing Senate Bill 300 through Docket 19-06008.

Electrification Policies

1. **Strategically Target Beneficial Electrification** – Target areas of beneficial electrification in buildings include space and water heating systems and other systems and appliances that typically use natural gas or another fossil fuel as an energy source. According to the Environment and Energy Study Institute, new electric heat pump technology can heat space and water at efficiencies of 200 to 300%, compared to 67% efficiency in typical Energy Star gas water heaters.[13] This not only allows savings on energy bills, it also results in reduced greenhouse gas emissions and improved indoor air quality.

2. **Adopt Tools for Advancing Electrification** – Building codes and financial incentive programs can be used to advance beneficial electrification. While in some states, local governments are primarily responsible for adopting and implementing building energy codes, in other states, a state legislature, or a code commission tasked by the legislature, adopts and implements statewide standards. Incentive programs established and implemented by states, local governments, or utilities can target replacing systems and appliances that traditionally rely on fossil fuel resources with high efficiency electric systems and appliances including water heaters, furnaces, ovens, and ranges. As an example, heat pump water heaters and space heating systems are being promoted as high efficiency replacements for traditionally fossil-based equipment. In conjunction with utility regulatory policy, these technologies can also serve as demand response management tools by utilities in exchange for compensation to the ratepaying customer.

   As a note, cities across the country are implementing new building codes promoting beneficial electrification by limiting or banning the installation of natural gas in new construction. State legislatures can pass enabling legislation, allowing municipalities to make independent decisions on beneficial electrification. On the other hand, some states have adopted pre-emptive legislation, banning local governments from adopting policies that limit utility service.[14]

Programmatically, there will always be greatest benefit by combining measures – incentives that bundle improvements will generate greater gains than individual measures. For example, a high efficiency heat pump will be much more effective and efficient when coupled with improved building insulation. Rather than only realizing the gains of the new mechanical component, this combination of measures will increase the efficiency of the entire system.

ELECTRIFICATION OF THE TRANSPORTATION SECTOR

Bloomberg New Energy Finance estimates that nearly 80% of new car sales in the U.S. 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 this "range anxiety."

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 2020, Nevada joined 14 other states and the District of Columbia in signing an MOU to support the deployment of medium- and heavy-duty ZEVs. Senate Bill 21-448 required NV Energy to file transportation

[13] For more information, see EESI's Beneficial Electrification.
[14] See, "Battle Brews over Banning Natural Gas to Homes." The Wall Street Journal, 1 June 2021, https://www.wsj.com/articles/battle-brews-over-banning-natural-gas-to-homes-11622334674.

electrification plans with the PUCN; 40% of the utility's investment must be directed towards benefiting traditionally underserved communities. In October 2021, the state adopted California's low-emission vehicle (LEV) and zero-emission vehicle (ZEV) standards.

NV Energy offers a number of programs to incentivize EV adoption. These include EV time-of-use rates for residential and commercial charging, a $2,500 rebate for low-income customers purchasing a new or used EV, and a $500 rebate for residential customers installing Level 2 charging equipment. NV Energy also offers rebates for commercial customers installing Level 2 or direct current fast charging (DCFC) stations. NV Energy is also a member of the National Electric Highway Coalition (NEHC), committed to creating a network of fast charging stations across the country.

The American Council for an Energy-Efficient Economy (ACEEE) published a State Transportation Electrification Scorecard evaluating 31 states' progress in electrifying transportation in six key policy areas. Nevada ranked 14th out of the 31 states ranked in the 2021 report.

The IIJA provides nearly $5 billion over the next five years to support the electrification of the transportation sector. In 2022, $615 million will be made available for the installation of charging stations along designated alternative fuel corridors. The Act also provides approximately $1.1 billion for grants to state and local governments to assist with the purchase or lease of low- or no-emission vehicles for transportation fleets. To be eligible, a state must have a Zero-Emission Fleet Transition Plan in place.

The IRA extended the $7,500 EV tax credit for purchases of new plug-in EVs through 2032 and removed the eligibility cap based on number of vehicles sold by manufacturers. The Act includes requirements for material sourcing that must be met by manufacturers starting in 2027. The IRA also created a new $4,000 refundable tax credit for the purchase of used EVs and a new credit for commercial EVs. Appropriations in the Act include $1 billion for replacing medium- and heavy-duty vehicles with EVs, $3 billion to fund projects to reduce transportation sector emissions, and $3 billion to procure alternatively fueled vehicles for the federal fleet.

A 2020 analysis by AEE found that a $2 billion investment in EVs including financial incentives to reduce up-front costs of purchases and state support for charging infrastructure deployment in Nevada could add approximately $6 billion to the GSP and create 48,000 new jobs.[5]

There are policy opportunities to further encourage and prepare for increased market penetration of EVs in the state, including:

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.

   The IIJA included a new National Electric Vehicle Infrastructure (NEVI) formula grant program to provide dedicated funding to states to deploy charging infrastructure with the goal of creating an interconnected network of vehicle charging stations across the nation's highways. To be eligible to receive funding, states must develop and submit a NEVI plan to the Federal Highway Administration (FHWA) by August 1, 2022. NEVI funds cannot be obligated until a state's plan is approved by the FHWA. The Nevada Department of Transportation developed and submitted (on July 29, 2022) a NEVI state plan to coordinate the use of Nevada's expected allocation of $38 million in formula funding from the IIJA.

   Regional collaborations around the U.S. are coordinating the development of EV infrastructure. Nevada is a signatory of the Regional EV (REV) West Plan, a collaborative effort among eight western states to construct a regional EV charging corridor. The goals of the multi-state effort are 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** – Legislation could set requirements for parking lots and other 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 statewide building energy codes could also be updated to include requirements for EV charging infrastructure.

3. **EV and Charging Equipment Financing and Financial Incentives** – Providing 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 the high up-front costs of EVs and EV charging equipment. 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.[15] 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.

   States might consider adopting programs to incentivize the purchase of used EVs. With increasing battery capacities and falling prices, there are an increasing number of EVs with relatively low milage that are being traded in. States might also consider programs that target low- and moderate-income (LMI) customers that may not qualify for a loan directly. Such a program could facilitate sales through such things as loan loss reserve and interest buy down programs.

NEWS

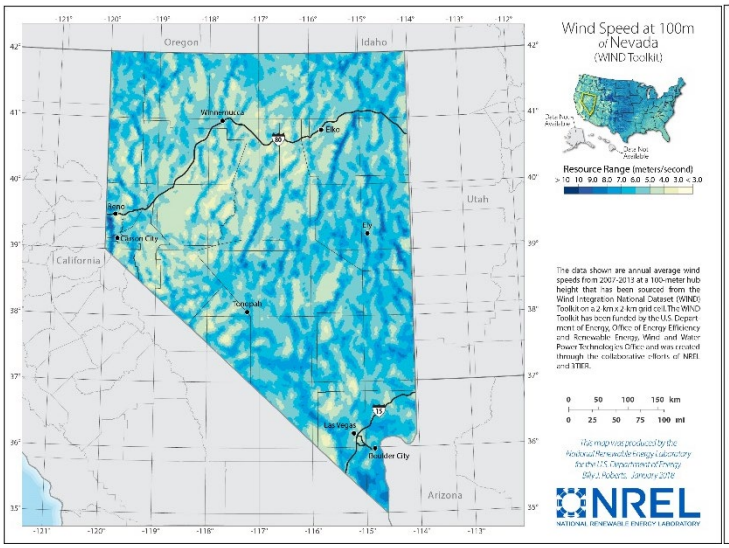
- September 3, 2022: NV Energy Looks to Merge Subsidiaries, a Move Drawing Pushback
- September 1, 2022: Western Utilities to Share Capacity under Proposed Resource Adequacy Program
- August 13, 2022: Nevada Could Net Jobs Joining West Energy Collective, Study Says
- August 2, 2022: MGM Resorts, Others Urge FERC to Reject Incentives for NV Energy's $2.5B Greenlink Transmission Project
- June 7, 2022: NV Energy Seeks Northern Nevada's 1st Rate Hike in 12 Years
- June 1, 2022: Haaland Announces Moves to Boost Clean Energy Production on Public Lands in the Southwest
- May 30, 2022: Air Liquide Inaugurates USD-250M Liquid Hydrogen Plant in Nevada
- May 19, 2022: Ormat Technologies Signs Two PPAs with NV Energy for Up to 160 MW of Geothermal Capacity
- April 28, 2022: NV Energy Exceeds Nevada's Renewable Energy Requirement for 12th Straight Year
- April 25, 2022: Battery Storage Firm Wins $2M for Nevada Air Force Base Project
- April 24, 2022: Storey County Renewable Energy Project Gets Tax Abatement
- April 22, 2022: Rural Nevada is at the Frontline of Renewable Energy Development
- April 15, 2022: Transmission, Public Land and Promise of RTO Drive Solar Boom in Nevada
- April 13, 2022: Nevada Utility Seeks 20MW-Plus Renewables Projects
- January 25, 2022: Approval in Nevada for Large-Scale Solar-Plus-Storage Projects to Replace Coal

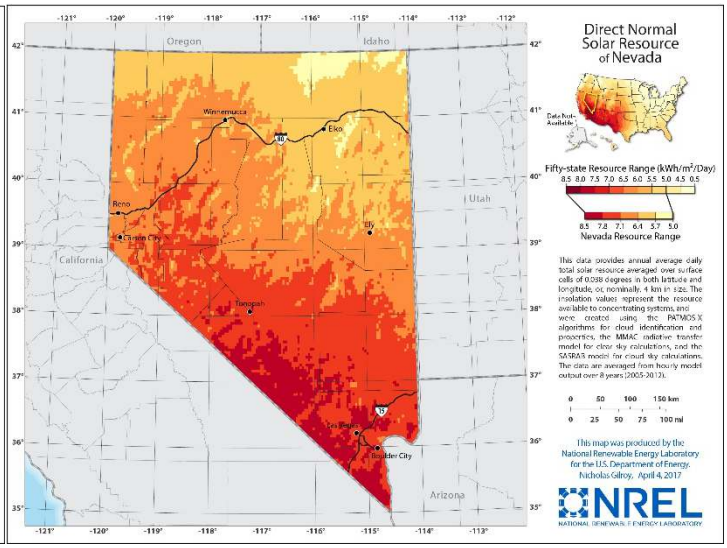
OTHER RESOURCES

- Nevada Governor's Office of Energy: http://energy.nv.gov/
- Environment Nevada: https://environmentnevada.org/
- American Clean Power Association, Nevada State Fact Sheet 2022: https://cleanpower.org/wp-content/uploads/2022/07/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/

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

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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