

State of
Nevada
Status of
Energy
Report

20
16

A Message from Director Angie Dykema



Welcome to the Governor's Office of Energy's 2016 Status of Energy Report. There have been many exciting developments in the energy sector over the past year that have helped to strengthen Nevada's clean energy economy. This report includes updated information on Nevada's energy portfolio through 2016 and highlights the innovative energy programs administered by the Governor's Office of Energy.

Regional and state-led partnerships highlighted Nevada's energy accomplishments in 2016. Governor Sandoval joined a bipartisan group of seventeen governors to announce the Governor's Accord for a New Energy Future, enabling participating states to collaborate on clean energy opportunities and address energy challenges. The New Energy Industry Task Force was reconvened to provide recommendations on policies to support distributed generation and storage, encourage development and integration of renewable energy technologies, and foster the creation of a modern, resilient and cost effective energy grid.

The expansion of electric vehicle (EV) infrastructure along Nevada's highways was also a priority initiative during 2016 for the Governor's Office of Energy, in collaboration with the Nevada Department of Transportation and Nevada's electric utilities. Governor Sandoval celebrated with industry officials and business leaders in inaugurating EV charging stations along Highway 95 in Beatty and Fallon. Nevada is now close to connecting Las Vegas and Reno as the first Electric Highway and planning is underway for our other key transportation corridors. These efforts bring us closer to our goals of encouraging clean transportation options and reducing the amount of imported fossil fuels consumed by our transportation sector.

The Governor's Office of Energy continues to successfully administer key energy efficiency programs – Direct Energy Assistance Loan (DEAL) and Home Energy Retrofit Opportunities for Seniors (H.E.R.O.S.) – that have weatherized homes throughout Nevada. By the end of 2016, these two programs enabled 119 State of Nevada employees and 331 seniors to reduce home energy consumption and lower their energy bills.

Nevada continues to experience increased production of renewable energy encouraged by the Governor's Office of Energy's Renewable Energy Tax Abatement program. Nevada saw the addition of 5 new large scale renewable energy projects in 2016, bringing the total to 30 large-scale renewable energy projects receiving incentives for investing \$6.9 billion in Nevada's economy and creating over 4,600 jobs.

These developments and more highlight the efforts of the Governor's Office of Energy to achieve results within our priority policy areas of renewable energy production, energy conservation, and exportation. While much has been accomplished, we will continue to seek opportunities to build upon our existing programs and create new partnerships and initiatives to ensure that Nevada's energy sector remains one of the cleanest in the country.

I welcome you to use this report to learn more about the Governor's Office of Energy and the status of energy in Nevada, and to become familiar with the unique energy programs administered by our office.

Mission

The mission of the Governor's Office of Energy is to ensure the wise development of Nevada's energy resources in harmony with local economic needs and to position Nevada to lead the nation in renewable energy production, energy conservation, and the exportation of energy. The GOE implements the laws of the State as defined in Nevada Revised Statutes 701 and 701A; manages energy-related programs; facilitates cooperation between key stakeholders; advises the Governor on energy policy; and collaborates with our local, regional, and federal partners to ensure a reliable and sustainable energy system.

Governor's Office of Energy

755 North Rook Street, Suite 202
Carson City, NV 89701
(775) 687-1850

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Energy in Nevada

2015 Electric Energy Consumption

Electric energy consumption in Nevada consists of customers of the major providers listed in Table 1. As shown in Figure 1, NV Energy provides 82 percent of the state's electrical power. Six percent is provided by retail power marketers, five percent by co-ops, four percent by the Colorado River Commission of Nevada, and the remaining three percent by businesses, general improvement districts, municipal utilities, and others. Megawatt hours of energy consumed in 2015 are presented in Table 1. For reference, maps showing the service areas of NV Energy, the GID's, municipal utilities, and co-ops are presented on pages 10 and 11. As shown on the map prepared by the Nevada Rural Electric Association (NREA), the service area of several service providers extends into neighboring states; however, the electric energy consumption figures presented in the table are estimated for Nevada only.

This section presents energy data for calendar year 2015.

2015 Electric Energy Consumption

Table 1¹

Provider Megawatt Hours

NV Energy

| | |
|--------------------------|------------|
| Sierra Pacific Power Co. | 9,560,829 |
| Nevada Power Co. | 22,073,111 |
| Subtotal | 31,633,940 |

Cooperatives

| | |
|---------------------------------|-----------|
| Harney Electric, Inc. | 111,806 |
| Mt Wheeler Power, Inc. | 513,873 |
| Plumas-Sierra Rural Electric | 3,935 |
| Surprise Valley Electrification | 119 |
| Valley Electric Association | 498,627 |
| Wells Rural Electric Co. | 772,155 |
| Raft Rural Electric, Inc. | 51,386 |
| Subtotal | 1,951,901 |

General Improvement Districts

| | |
|--|---------|
| Lincoln County Power District No. 1 ² | 72,689 |
| Overton Power District No. 5 | 357,237 |
| Subtotal | 429,926 |

Municipal Utilities

| | |
|----------------------|---------|
| City of Boulder City | 145,584 |
| City of Fallon | 86,034 |
| Subtotal | 231,618 |

Other

| | |
|-------------------------------------|-----------|
| Aha Macav Power Service | 51,124 |
| Colorado River Commission of Nevada | 1,610,703 |
| Behind the Meter ³ | 44,754 |
| Shell Energy North America, LP | 1,480,695 |
| Silver State Energy Association | 1,012,675 |
| Western Area Power Administration | 25,671 |
| Subtotal | 2,538,124 |

TOTAL 38,473,007 mWh

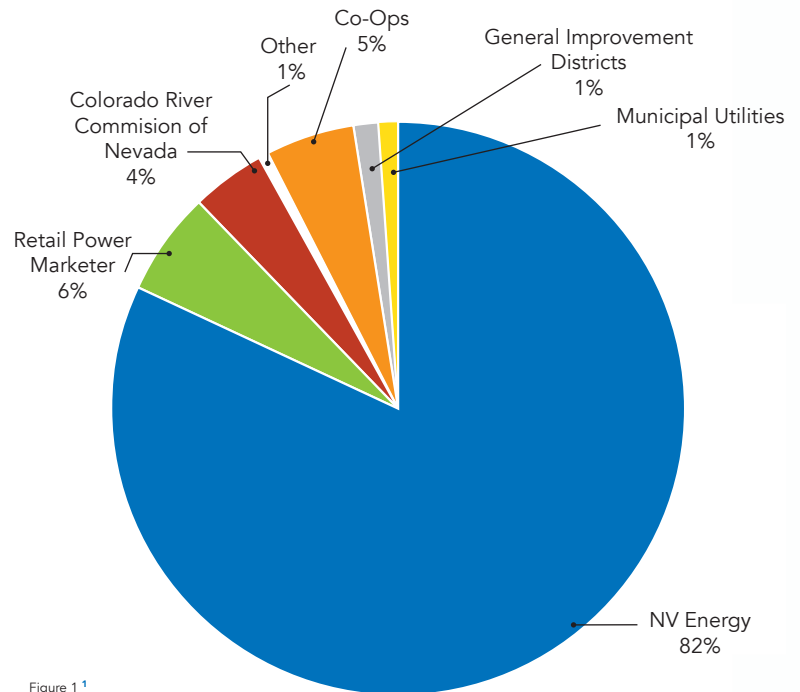


Figure 1¹

¹ Sources: EIA Form 826 and 861, NV Energy, Public Utilities Commission of Nevada, and the Nevada Rural Electric Association.

² Lincoln Power District No. 1 which includes Alamo Power District #3, Pioche Public Utility, Caliente Municipal Electric, and Penoyer Valley Electric Cooperative.

³ Behind the Meter includes leased distributed generation from SolarCity Corporation, SunEdison LLC, Kilowatt Financial LLC, Sunnova, SunPower Capital LLC, and Sunrun Inc.

Nevada's Energy Generation Portfolio

As shown in Figure 2, the state uses several sources to generate electricity including natural gas, renewables, coal, and a small amount from fuel oil or other gas. The combination of energy resources a utility uses to create electricity is known as a resource mix, or portfolio. Currently, more than two-thirds of the State's electricity is produced in natural gas fired power plants; coal and renewables comprise most of the remaining amount. Nevada has seen a significant increase in renewable energy production, and continues to develop its abundant renewable energy resources such as geothermal and solar for use both within the state and for exportation.

Nevada's Renewable Portfolio Generation

The Governor's Office of Energy tracks closely the renewable energy generated in Nevada, whether that energy is used in Nevada or exported to neighboring states. Renewable energy is defined in NRS 704.7811 as biomass, geothermal, solar, wind, and waterpower. Waterpower is further defined as power derived from standing, running, or falling water which is used for any plant, facility, equipment, or system to generate electricity if the generating capacity is not more than 30 MW. This is noted in the figures by the separation of large hydro, which does not count towards the state's RPS, and small hydro, which does.

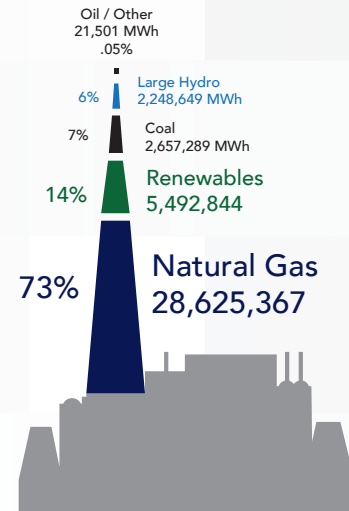
Capacity vs. Generation

In the pie charts below you will see Nevada's renewable MW nameplate capacity numbers and can compare those to the MWh generation numbers. The difference is due to the fact that many generators do not or cannot operate at their full nameplate capacity all the time. They may vary their output over time which can create a difference between nameplate capacity and actual generation.

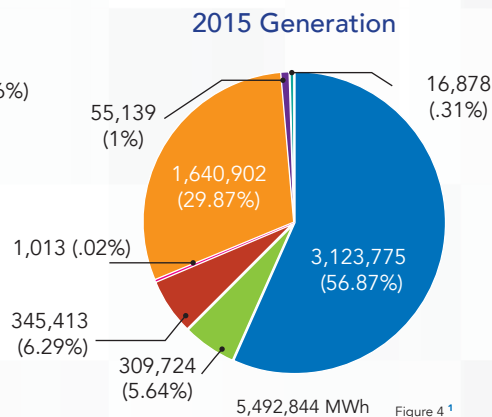
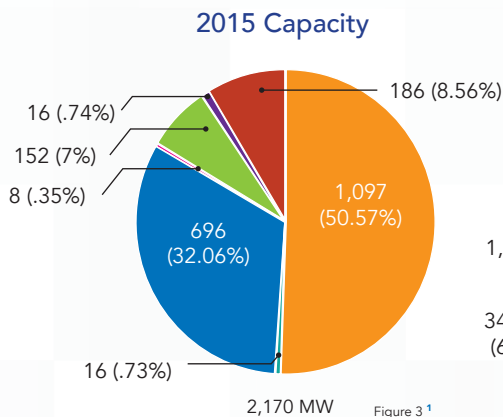
Understanding the difference between nameplate capacity and electricity generation is critical to improving reliability, lowering costs, and enhancing the integration of renewable resources. Nameplate capacity is the maximum rated electric output a generator can produce under specific conditions, and generation is the amount of electricity a generator produces over a specific period of time.

Nevada's Energy Sources

Figure 2¹



¹ Source: EIA Form 826 and 861, NV Energy, Public Utilities Commission of Nevada, and the Nevada Rural Electric Association.



- Geothermal
- Solar
- Biomass/Biogas
- Small Hydro
- Waste Heat
- Wind
- Distributive Generation

Note: 1,916,613 MWh sold out of state with a capacity of 895 MW. An additional 300 MW of renewable capacity came online in 2016.

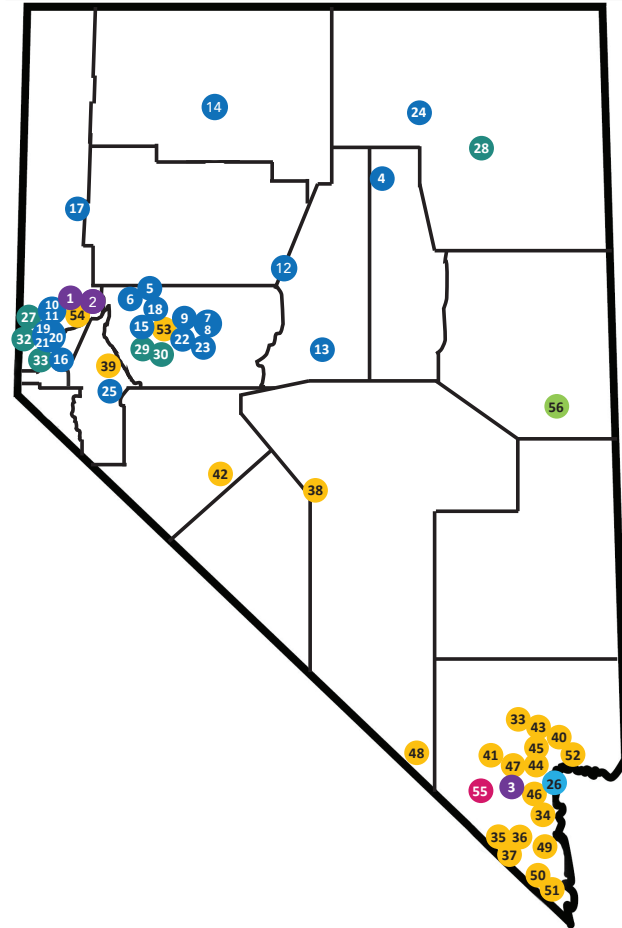
Renewable Generation in Nevada

* Began Generating in 2016

| Biomass / Biogas / Landfill | |
|---|----------------------|
| Power Plant Name | Capacity (Megawatts) |
| 1 City of Sparks/TMWW | 1 |
| 2 Clark County Landfill Energy | 12 |
| 3 Waste Management Lockwood LFGTE | 3 |
| Subtotal Biomass/Biogas | 16 |
| Geothermal | |
| Power Plant Name | Capacity (Megawatts) |
| 4 Beowawe Power | 18 |
| 5 Brady | 24 |
| 6 Desert Peak 2 Power Plant | 25 |
| 7 Don A Campbell 1 Geothermal | 20 |
| 8 Don A Campbell 2 Geothermal | 25 |
| 9 ENEL Salt Wells LLC | 47 |
| 10 Galena 2 Geothermal Power Plant | 13 |
| 11 Galena 3 Geothermal Power Plant | 27 |
| 12 Jersey Valley Geothermal Power Plant | 23 |
| 13 McGinness Hills | 96 |
| 14 NGP Blue Mountain I LLC | 50 |
| 15 Patua Geothermal Project Phase 1A | 70 |

| Geothermal (cont.) | |
|---|----------------------|
| Power Plant Name | Capacity (Megawatts) |
| 16 Richard Burdette Geothermal | 26 |
| 17 San Emidio | 12 |
| 18 Soda Lake Geothermal No I II | 23 |
| 19 Steamboat Hills LP | 15 |
| 20 Steamboat II | 13 |
| 21 Steamboat III | 13 |
| 22 Stillwater Facility | 47 |
| 23 Terra-Gen Dixie Valley | 72 |
| 24 Tuscarora Geothermal Power Plant | 32 |
| 25 Wabuska | 6 |
| Subtotal Geothermal | 696 |
| Large Hydro | |
| Power Plant Name | Capacity (Megawatts) |
| 27 Hoover Dam (NV) | 235 |
| Subtotal Large Hydro | 235 |
| Small Hydro | |
| Power Plant Name | Capacity (Megawatts) |
| 27 Fleish | 2 |
| 28 Hooper | 1 |
| 29 Lahontan | 4 |
| 30 New Lahontan | 4 |
| 31 Verdi | 2 |
| 32 Washoe | 3 |
| Subtotal Small Hydro | 16 |
| Distributive Generation | |
| Subtotal Distributive Generation | 186 |

| Solar | |
|--------------------------------------|----------------------|
| Power Plant Name | Capacity (Megawatts) |
| 33 Apex Solar PV Power Project | 20 |
| 34 Boulder Solar* | 100 |
| 35 CM10 & 48 | 58 |
| 36 Copper Mountain Solar 2 | 150 |
| 37 Copper Mountain Solar 3 | 250 |
| 38 Crescent Dunes Solar Energy | 110 |
| 39 Ft. Churchill PV | 20 |
| 40 K Road Moapa Solar* | 250 |
| 41 Las Vegas WPCF Solar Plant | 3 |
| 42 Luning* | 50 |
| 43 Mountain View Solar | 20 |
| 44 Nellis Air Force Base Solar Array | 13 |
| 45 Nellis Solar PV II | 15 |
| 46 Nevada Solar One | 69 |
| 47 NRG Solar Las Vegas MB-1 | 5 |
| 48 NVSS - II* | 15 |
| 49 Searchlight Solar | 18 |
| 50 Silver State Solar Power North | 52 |
| 51 Silver State Solar Power South | 250 |
| 52 Spectrum Solar PV Power Project | 30 |
| 53 Stillwater Facility | 22 |
| 54 Western 102 Power Plant | 1 |
| Subtotal Solar | 1521 |
| Waste Heat | |
| Power Plant Name | Capacity (Megawatts) |
| 55 Goodsprings Waste Heat Recovery | 8 |
| Subtotal Waste Heat | 8 |



Sources: EIA Form 826 and 861, NV Energy, Public Utilities Commission of Nevada, and the Nevada Rural Electric Association.

| Wind | |
|-------------------------------|----------------------|
| Power Plant Name | Capacity (Megawatts) |
| 56 Spring Valley Wind Project | 152 |
| Subtotal Wind | 152 |
| Total 2,830 | |

Energy in Nevada

Renewable Portfolio Standard

Nevada's Renewable Portfolio Standard (RPS), NRS 704.7801, was first adopted by the Nevada Legislature in 1997, and has been modified by nearly every legislative session since. The RPS establishes the percentage of electricity sold by an electric utility to retail customers that must come from renewable sources. More specifically, electric utilities are required to generate, acquire, or save with portfolio energy systems or energy efficiency measures, a certain percentage of electricity annually. It should be noted that the renewable energy generated in the state shown on page 5 does not directly translate to RPS compliance. This discrepancy is due to the fact that RPS carryover credits and credits from energy efficiency and conservation are not accounted for in the generation data. Energy produced in Nevada for exportation or outside of NV Energy's service territory is also not reflected on Figure 1.

25% by 2025

The percentage of renewable energy required by the RPS will increase every two years until it reaches 25% in 2025. Included within the RPS is a requirement that at least 6% of the portfolio's total renewable energy must be generated by solar facilities beginning in 2016.

Compliance

In 2015 the RPS requirement for NV Energy was 20% with a 5% solar carve out. Nevada Power's 2015 RPS was 21.2%, with a solar carve out of 31%. Sierra Pacific's 2015 RPS was 31.3%, with a solar carve out of 22.8%.

Renewable Portfolio Standards Compliance Chart 2006-2015

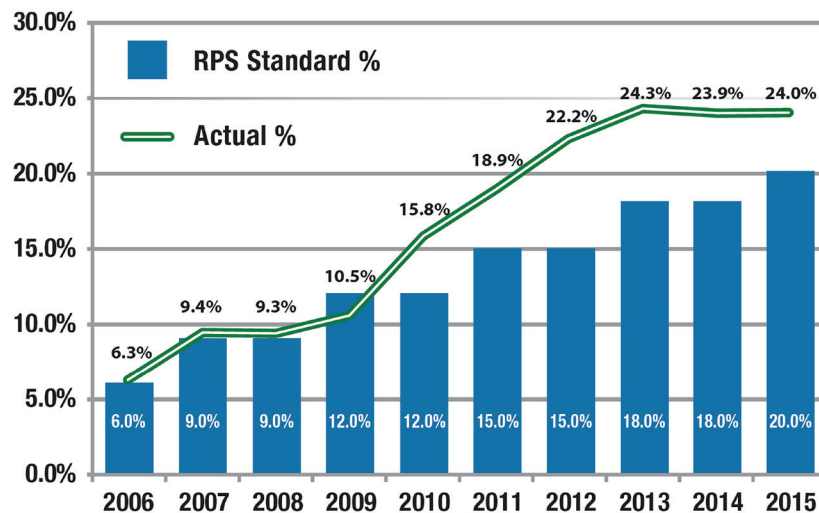


Figure 1

Energy Usage by Sector

Figures 2 and 3 show the energy consumption and expenditures by sector in Nevada. With most fossil fuels imported to the state, transitioning to domestically produced sources like renewables can keep more of these dollars in Nevada. In particular, the transportation sector accounts for 1/3rd of energy consumption and a majority of expenditures. Transitioning Nevada's transportation infrastructure to alternative fuel and electric vehicles will lessen the state's dependency on out of state resources.

Energy Consumption

Energy consumption is the amount of energy used in a process, organization, or society. Figure 2 shows the breakdown of energy consumption in Nevada by percentage. About 90% of the energy Nevada consumes comes from outside the state.

Energy Expenditures

Energy expenditures are the amount of money used to purchase energy to power a process, organization, or society. Figure 3 shows the breakdown of energy expenditures in Nevada by percentage. More than half of all energy purchased in Nevada goes toward transportation, which falls into the categories of fossil fuel (gasoline, jet fuel, diesel fuel, aviation gas) and alternative fuel (natural gas, electricity, propane, methanol, ethanol, and certain blends).

Energy Consumption by Sector

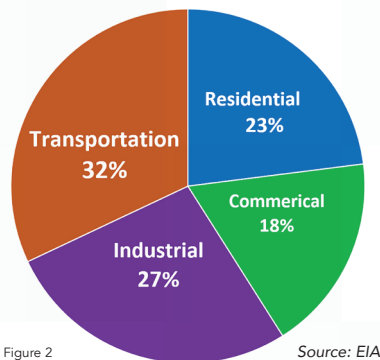


Figure 2

Source: EIA

Energy Expenditures by Sector

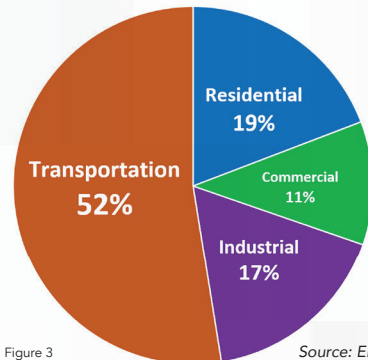


Figure 3

Source: EIA

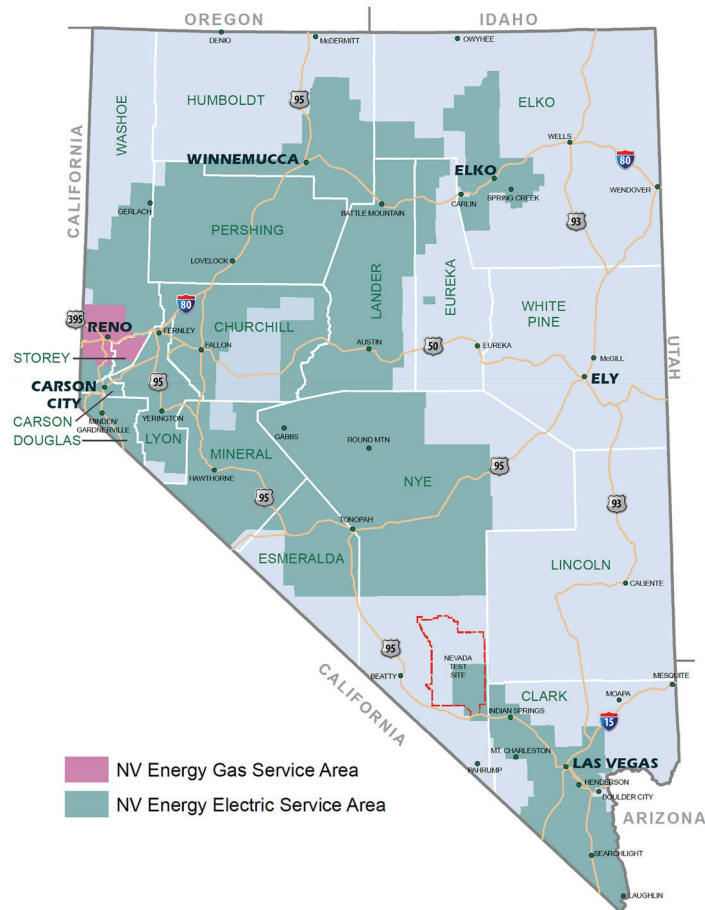
Energy in Nevada

Utilities & Energy Service Providers

Electric energy consumption in Nevada consists of customers of the state's largest investor-owned utility (NV Energy), rural electric cooperatives, municipal utilities, general improvement districts.



NV Energy, Inc. provides energy services to 1.3 million customers throughout Nevada and nearly 40 million tourists annually. Among the communities that receive power from NV Energy are Henderson, Las Vegas, and North Las Vegas in the south, and Carson City, Elko, Fernley, Reno, and Sparks in the north. NV Energy also provides natural gas to more than 155,000 citizens in the Reno-Sparks area. NV Energy is a holding company whose principal subsidiaries, Nevada Power Company and Sierra Pacific Power Company, are doing business as NV Energy. The company is headquartered in Las Vegas, and was acquired by Berkshire Hathaway Energy in 2013.

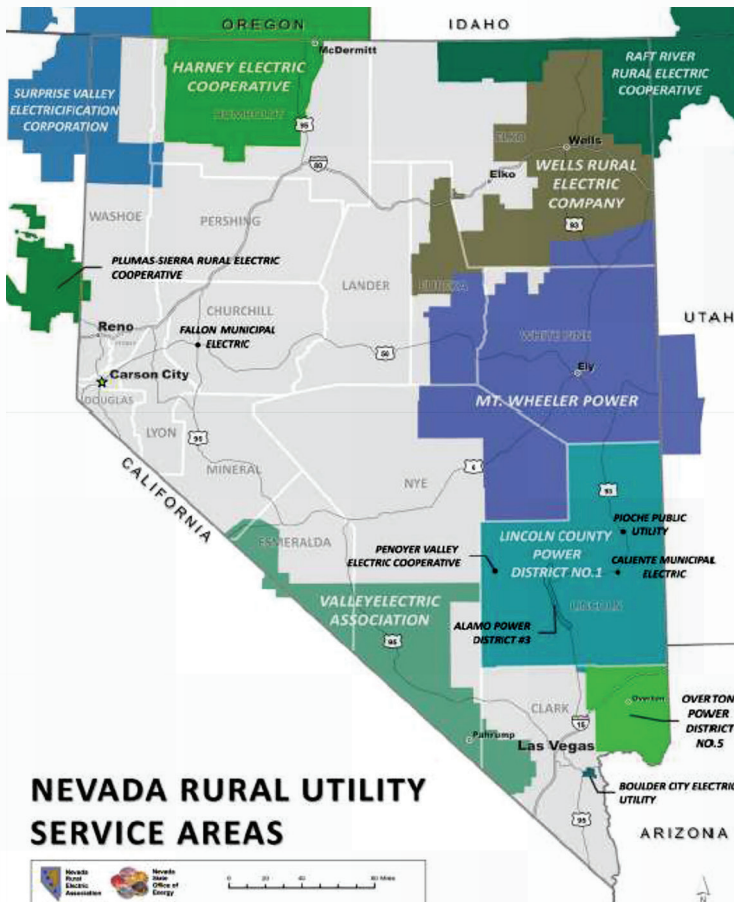


Source: NV Energy

Nevada Rural Utility Service Areas

Nevada Rural Electric Association utilities are democratically organized and controlled by their members, who actively participate in setting policies and making decisions. Members of the Board of Directors are elected by and from local citizens who take service from the utility. Each member is cooperatively organized and owned by their members or a consumer-owned not for profit utility.

Energy in Nevada



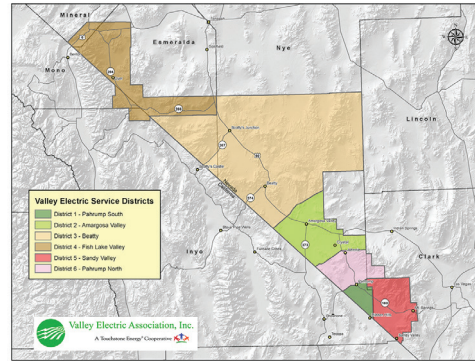
NREA Members

- Boulder City Electric, Boulder City, NV
- Deseret Power, South Jordan, UT (affiliate member)
- Harney Electric Cooperative, Hines, OR
- Lincoln County Power District No. 1, Pioche, NV
- Mount Wheeler Power, Ely, NV
- Overton Power District #5, Overton, NV
- Plumas-Sierra Rural Electric Co-op, Portola, CA
- Raft River Rural Electric, Malta, ID
- Surprise Valley Electrification Corporation, Alturas, CA
- Wells Rural Electric Company, Wells, NV

Source: NREA

Energy in Nevada

Valley Electric Association



Source: Valley Electric



Valley Electric Association, Inc. (VEA) is a member-owned electric cooperative headquartered in Pahrump, which provides service to more than 45,000 people within a 6,800-square-mile service area along the California-Nevada border. VEA's residential members are the co-op's largest single consumer group.

Southwest Gas Corporation



Source: SW Gas



SOUTHWEST GAS

Southwest Gas Corporation is an investor-owned utility based in Las Vegas that provides natural gas service to approximately 1.9 million residential, commercial, and industrial customers in parts of Arizona, Nevada, and California. The company is the largest distributor of natural gas in Arizona and Nevada.

Legend

- CITIES, AREAS, OR CUSTOMERS SERVED
- CITIES, AREAS, OR CUSTOMERS SERVED BY OTHER COMPANIES
- DIVISION HEADQUARTERS
- PAUTE PIPELINE COMPANY
- NORTHERN NEVADA SERVICE TERRITORY
- SOUTHERN NEVADA SERVICE TERRITORY

Energy in Nevada: 2016 Year in Review

Governor's Accord for a New Energy Future

In February 2016, Governor Sandoval joined a bipartisan group of seventeen governors to announce the Governor's Accord for a New Energy Future. This state-led initiative enables participating states to work together to capture clean energy opportunities across the country and tackle growing energy challenges. States involved in the Accord will:

- Diversify energy generation and expand clean energy sources.
- Modernize energy infrastructure.
- Encourage clean transportation options.
- Plan for energy transition.
- Work together to make transformational policy changes.
- Secure a stronger national energy future.



Nevada is considered a national leader in renewable energy development, innovation and commercialization. This bipartisan Accord provides a platform for Nevada to leverage new partnerships, gain and share knowledge and an opportunity to introduce our energy advancements to other states. I remain committed to pursue policies that will allow Nevada to continue to lead the nation in renewable energy production, energy conservation, and the exportation of energy. Nevada has many energy accomplishments and will continue to seek opportunities that build upon our existing programs and create new pathways to ensure that our energy sector remains one of the cleanest in the country.



**- Brian Sandoval,
Nevada Governor**



Community Solar



Source: Pahrump Valley Times

Valley Electric Association's 15 megawatt community solar project (pictured) near Pahrump began delivering energy in late summer. The project consists of 54,000 photovoltaic panels across an 80-acre site. It will provide enough energy to power 35,000 homes each year, and offset 550,000 metric tons of greenhouse gases. It is the largest community solar project to be built in Nevada. The Governor's Office of Energy played an essential role in moving this project forward through financial incentives offered through the Renewable Energy Tax Abatement program.

New Energy Industry Task Force

In February 2016, Governor Sandoval issued Executive Order 2016-04 reconvening the New Energy Industry Task and charging it with providing recommendations on the best energy policies for Nevada's future. The Task Force is a statutory body created by NRS 701.500. The GOE Director serves as the chair of the Task Force and appoints the membership pursuant to statute, which includes representation by the renewable energy industry, electric utilities, environmental advocates, labor organizations, contractors, state and local governments.

The Task Force was asked to provide recommendations on the best energy policies for Nevada's future and to specifically address policies that achieve the following:

- Encourage the development of clean energy sources and integrate renewable energy technologies into Nevada's energy sector;
- Foster the creation of a modern, resilient, and cost-effective energy grid; and
- Support distributed generation and storage, with a specific focus on rooftop solar and net metering.

Three separate Technical Advisory Committees (TACs) were established to assist the Task Force with each of the policy areas set forth above, and over the course of 2016 the Task Force and TACs held 23 public meetings. The Task Force and TACs received presentations by a number of industry experts around the country on a diversity of issues related to the policy focus areas outlined in the Executive Order. The final report submitted to the Governor on September 30, 2016 included 27 legislative and policy recommendations intended to ensure Nevada's future as a leader in clean and renewable energy. All meetings were held in compliance with Nevada's open meeting law policies and procedures. Materials including notices/agendas, presentations, meeting minutes and final recommendations are available to the public on the Governor's Office of Energy website at www.energy.nv.gov.



Source: GOE

The New Energy Industry Task Force discusses policy recommendations during a meeting in Carson City.

Renewable Energy Tax Abatement Program

Awards partial sales and use tax and partial property tax abatements to renewable energy producers. To be eligible, projects must employ at least 50% Nevada workers, pay 175% of Nevada's average wage, and offer health care benefits to workers and their dependents. The Governor's Office of Energy reviews the applications, conducts public hearings to determine eligibility, and reviews annual compliance reports after abatements are granted.

Since the program's inception, Nevada's investment of \$721 million in tax incentives has attracted \$6.9 billion in capital investments, payroll, and taxes paid, representing a 10-to-1 return on Nevada's investment. The projects that have received an abatement from the Governor's Office of Energy created over 4,600 jobs that paid an average wage of over \$37 an hour. This represents a total of 30 renewable power plants and one transmission project in Nevada.

Governor's Office of Energy Programs

Meets requirements for NRS 701.190 (1a)(1b)(2c)(2d1)(2d2). Governed by NRS 701(A)300-450.

The Renewable Energy Tax Abatement program is a crucial tool in attracting developers to Nevada because it provides an incentive for the construction of commercial power plants. These projects increase Nevada's tax revenue and lead to job creation in a growing industry.

Projects granted an abatement in 2016:

Boulder Solar I

Company: **Sun Power**
County: **Clark**
Type: **Solar**
Nameplate Capacity: **100 MW**
Power Purchaser: **NV Energy**
GOE Incentive: **\$22.1 million**
Total Project Investment: **\$228.1 million**

Nevada's Return
on Investment: **10-to-1**

Boulder Solar II

Company: **Sunpower**
County: **Clark**
Type: **Solar**
Nameplate Capacity: **50 MW**
Power Purchaser: **NV Energy**
GOE Incentive: **\$11.9 million**
Total Project Investment: **\$115 million**

Nevada's Return
on Investment: **10-to-1**

“ With its Renewable Energy Tax Abatement Program, the GOE is promoting the development of large scale solar in Nevada, contributing to job creation and economic development opportunities. ”

- Ty Daul, SunPower Senior Vice President, Americas Power Plants

Governor's Office of Energy Programs

Renewable Energy Tax Abatement Program

“ The Tungsten tax incentive is another great example of how government and industry are working to bring sustainable jobs and business to Nevada. Incentives such as these are critical in allowing Nevada to take advantage of its vast renewable resources in today's highly competitive renewable energy market while bringing quality jobs and economic development to rural areas of our home state. ”

- Isaac Angel, Ormat Technologies, Inc,
Chief Executive Officer



Playa Solar I
Source: First Solar

Luning

Company: **Luning Energy, LLC**
County: **Mineral**
Type: **Solar**
Nameplate Capacity: **50 MW**
Power Purchaser: **NV Energy**
GOE Incentive: **\$17.9 million**
Total Project Investment: **\$129.3 million**

Nevada's Return
on Investment: **7-to-1**

Playa Solar I

Company: **First Solar**
County: **Clark**
Type: **Solar**
Nameplate Capacity: **79 MW**
Power Purchaser: **NV Energy**
GOE Incentive: **\$18.7 million**
Total Project Investment: **\$169.5 million**

Nevada's Return
on Investment: **9-to-1**

Tungsten

Company: **Ormat Technologies, Inc.**
County: **Churchill**
Type: **Geothermal**
Nameplate Capacity: **33.5 MW**
Power Purchaser: **Imperial Irrigation District, Los Angeles Department of Water & Power, Southern California Public Power Authority**
GOE Incentive: **\$11.8 million**
Total Project Investment: **\$113.9 million**

Nevada's Return
on Investment: **10-to-1**

Nevada Renewable Energy Technical Assistance Program

The Nevada Renewable Energy Technical Assistance Program initiative is a U.S. Department of Agriculture technical assistance grant administered by the Governor's Office of Energy. This initiative provides development assistance for small businesses and agricultural producers in Nevada's rural counties. Through the program, GOE partners educate participants about the renewable energy technologies available to them and the pathways to financial assistance. The goal of NRETA is to help drive the development of new renewable energy resources by assisting customers who install solar, wind, and water systems at small rural farms and ranches and small businesses.

Meets requirements for NRS 701.190 (1a)(1b)(2d1)(2d2).

Governor's Office of Energy Programs



Source: Nevada Farm Bureau

NRETA educates participants about renewable energy technologies available to them, for example solar water pumps like this one at a ranch near Pahrump.

“ We at USDA Rural Development have the opportunity to assist small businesses and agricultural producers with energy projects, but that only happens when we get the word out. Fortunately we have an excellent partner in the Governor's Office of Energy, which received a grant for outreach. They have the expertise to be an excellent voice for our programs. ”



**- Sarah Adler, Nevada Director, U.S.
Department of Agriculture**

Governor's Office of Energy Programs

Revolving Loans for Renewable Energy & Energy Efficiency

Funded from the American Recovery and Reinvestment Act (ARRA) of 2009 and provides short-term, low-cost loans to developers of eligible projects in Nevada. These loans serve as a bridge financing option to provide funding for various costs associated with these projects. Eligible applicants may receive a minimum of \$100,000 and a maximum of \$1 million. Loan terms are 15 years with an interest rate of 3% or less.

Since the program's inception in 2009, more than \$17.4 million has been loaned to 20 projects. The original \$8.2 million in funding has revolved and increased to more than \$17.4 million, primarily due to moving unspent ARRA funds from other programs into the Loan Fund.



Source: City of Las Vegas

Meets requirements for NRS 701.190 (1b)(2c)(2d1)(2d2). Governed by NRS 701.545-595.

The Nevada Governor's Office of Energy is accepting project applications for this program. To apply, please visit www.energy.nv.gov.

Nevada's Revolving Loan Program funded three City of Las Vegas solar parking shade structures. City of Las Vegas received **\$1.2 million** from the Governor's Office of Energy to build the structures, which created **12** construction jobs, and produce **1.2 million kWh** of electricity annually and reduce carbon emissions **23.8 million** pounds of CO₂ during the first **20 years** of operation.

A qualified project must meet one of the following criteria:

- Construction or expansion of a renewable energy system¹
- Construction or operation of an energy conservation project²
- Construction or operation of an energy efficiency project³

All projects must comply with the:

- Davis-Bacon Act
- National Environmental Policy Act
- National Historic Preservation Act
- American Recovery and Reinvestment Act of 2009

1 - "Renewable energy system" means a facility or energy system that uses renewable energy or energy from a qualified energy recovery process to generate electricity and:

(a) Uses the electricity that it generates from renewable energy or energy from a qualified recovery process in this State; or
(b) Transmits or distributes the electricity that it generates from renewable energy or energy from a qualified energy recovery process to a provider of electric service for delivery into and use in this State.

2 - "Energy conservation project" means a project designed, intended or used to improve energy conservation or to reduce the wasteful, inefficient, unnecessary, or uneconomical use of energy.

3 - "Energy efficiency project" means a project designed, intended or used to improve energy efficiency or to reduce the consumption of energy that is necessary to provide a certain product, function or service.

State Energy Program (SEP) Formula Grant

Is an annual source of federal funds from the U.S. Department of Energy. The program goal is to improve the reliability and maintain the affordability of energy supplies available to Nevada residents and businesses. The SEP Formula Grant is used to fund and promote energy efficiency and renewable energy programs and projects throughout Nevada.

Governor's Office of Energy was awarded \$345,320 in Program Year 2015 / Fiscal Year 2016, and \$414,516 in Program Year 2015 / Fiscal Year 2017. The State of Nevada is required to provide a 20% match.

Meets requirements for NRS 701.190 (1a)(1b)(2d1)(2d2).

Governor's Office of Energy Programs

Promoting Energy Conservation and Renewable Energy Development



Source: GOE

The Governor's Office of Energy used SEP funds to sponsor 2012 International Energy Conservation Codes (IECC) training in Las Vegas, Reno, and Fernley. The training attracted residential builders and contractors who learned about design and construction requirements for energy efficiency (please see page 20 for more information).

IECC training in Fernley.



Source: GOE

SEP funds were also used to help finance construction of the first Nevada Electric Highway charging stations in Beatty and Fallon. The Nevada Electric Highway will provide owners of extended range EVs and plug-in hybrid vehicles the ability to reliably drive and charge their vehicles between southern and northern Nevada's major population centers in Clark and Washoe counties (please see pages 24 for more information).

Governor Brian Sandoval speaks at a ribbon cutting ceremony for the Nevada Electric Highway Beatty charging stations.

Governor's Office of Energy Programs

Home Energy Retrofit Opportunities for Seniors (H.E.R.O.S.)

Funded by the Governor's Office of Energy and administered by the Nevada Housing Division, the Home Energy Retrofit Opportunities for Seniors (H.E.R.O.S.) program provides an energy assessment of a qualifying senior's home and installation of recommended weatherization measures.

The program reduces energy costs by improving the energy efficiency of the home. H.E.R.O.S. funding up to \$6,000 is offered at no cost to qualifying seniors who own their home. Since the program's inception, 331 homeowners have received weatherization benefits. Each senior annually saved an average of 5,175 kilowatt hours (kWh) of electricity and 262 Therms of natural gas in their home. This represents an annual savings of \$927 on their utility bills which equates to a 48% savings.

Meets requirements for NRS 701.190 (1a)(1c)(2a)(2b)(2c)(2d1)(2d3)(2e).

Program Requirements

- Be age **60 years** and greater
- Be an NV Energy customer
- Own and reside in the home
- Have an income at or below **200%** of federal poverty guidelines

Benefits

- Helps seniors live in healthier, safer homes
- Weatherization diagnostic tests help identify dangerous carbon monoxide levels
- Makes home more comfortable thanks to better temperature distribution
- Makes home more efficient, resulting in lower monthly energy costs for each household

Contractor Recommended Measures Include:

- Air and Duct Sealing
- Low Flow Showerhead Install
- Broken Window Repair
- Water Heater Replacement
- HVAC Repair or Replacement
- Solar Screens (Southern Nevada Only)
- Attic Insulation
- CFL or LED Retrofits
- Floor Insulation

Service Providers



Performance Contract Audit Assistance Program (PCAAP)

Performance Contracting is an alternative financing mechanism to accelerate investment in cost effective energy conservation measures and accomplish energy savings projects without up-front capital. It is a partnership between a building owner and an Energy Service Company (ESCO) that conducts an energy audit identifying improvements that will save energy. The ESCO guarantees that the improvements will generate cost savings sufficient to pay for the project over the term of the contract.

The Performance Contract Audit Assistance Program (PCAAP) funds a financial grade audit, which is the first step to determine if a project is worth pursuing. Since PCAAP's inception in 2014, the Governor's Office of Energy has awarded \$1.12 million to accelerate performance contracting.

In addition, the Governor's Office of Energy continues receiving applications for PCAAP funds, and expects to process more than \$210,000 that will lead to \$12 million in performance contracts in 2017.

Meets requirements for NRS 701A.450 and 332.



Source: City of Henderson

The City of Henderson received **\$112,000** to cover the cost of a financial grade audit for a project that will include energy efficient motion and occupancy sensor lights for City Hall (pictured) trails, parks, a justice center, and many municipal buildings. The resulting **\$3.1 million** project will create 31 full-time jobs and save the city 3.9 million kilowatt hours annually.



Source: Clark County School District

Clark County School District received **\$476,509** to cover the cost of a financial grade audit for projects that will install programmable thermostats and retrofit exterior and interior lighting at dozens of schools, including Staton Elementary (pictured). The resulting **\$19.6 million** projects will create 169 full-time jobs, save the district \$2.34 million in energy costs, and reduce consumption by 22.3 million kilowatt hours and 187,000 Therms annually.

Governor's Office of Energy Programs

“ We're thrilled to roll out a comprehensive outdoor lighting retrofit project throughout our public spaces. We were recently recognized and awarded the National Gold Metal by the NRPA for our outstanding parks, and soon the City of Henderson will also be celebrated as having one of the most energy efficient park systems as well. ”

- Mark Hobaica, City of Henderson Architect & Redevelopment Manager

Governor's Office of Energy Programs

State Building Energy Benchmarking

The Nevada Governor's Office of Energy (GOE) is working with Lucid Design Group, Inc. to integrate the 500 largest State-owned Buildings into a database and utilize the BuildingOS energy management information software capable of organizing, tracking, benchmarking, analyzing, and reporting all usage and costs related to energy and water consumed and purchased by the State of Nevada.

The purpose of the benchmarking program is to provide the State with a tool to achieve the goals set in NRS 701.215 and 701.218 and reduce energy consumption, lower energy costs, target buildings with inefficient energy use, and promote a sustainable energy future.

Service Providers



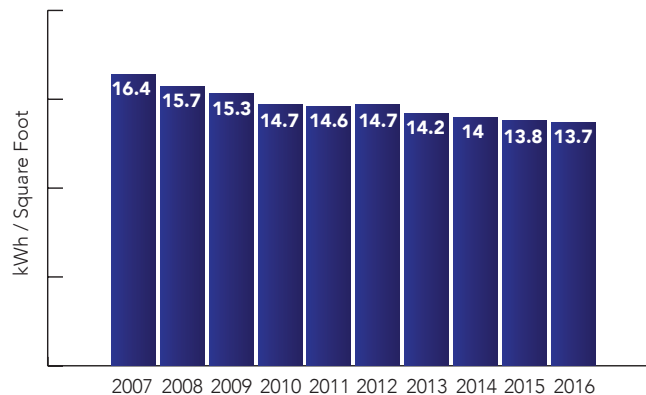
GOE hosts Energy Benchmarking workshop for State Facility Managers.

Source: GOE

GOE hosted trainings for State facility managers in Carson City, Las Vegas, and Reno in 2016. The advanced training covered specific uses of BuildingOS related to achieving the State of Nevada's energy reduction and reporting goals.

The majority of information relative to energy consumption in state-owned buildings is obtained from NV Energy, which provides service to 93 percent of the buildings owned by the state. Since 2005 there has been a 14.36% reduction in energy consumption in NV Energy's territory. The remaining 7 percent of usage data is compiled from 11 municipal utilities, co-ops, and general improvement districts. Since 2010 there has been a 13.81% reduction in energy consumption from state-owned buildings in these territories.

Figure 1



Source: NV Energy and Nevada State Public Works Department (SPWD)

International Energy Conservation Code (IECC)

The Governor's Office of Energy is required to adopt the latest version of the International Energy Conservation Code (IECC), a model for the establishment of minimum design and construction requirements for energy efficiency. Every third year the Governor's Office of Energy adopts the most recent version of the IECC. On July 1, 2015, Nevada adopted the 2012 IECC.

Meets requirements for NRS 701.190 (1c)(2c)(2d3)(2e). Governed by NRS 701.220-230.

Why does the Department of Energy require IECC?

In order to receive the American Recovery and Reinvestment Act (ARRA), a.k.a the Stimulus, Nevada accepted a statutory provision (Section 410) linking funding to building energy code adoption and enforcement. As a condition of accepting ARRA funding, Nevada provided assurances that the state would comply with the terms of Section 410.

All 50 states accepted ARRA money, and all 50 governors provided commitment letters agreeing to update their building energy codes. Nevada took it a step further and committed to adopting the most current IECC codes every three years. Research indicates that building energy codes are an inexpensive way to achieve energy efficiency, thus the tie between ARRA funding and energy code adoption.

Stakeholder Outreach

The Governor's Office of Energy, in collaboration with SWEEP, NV Energy, SW Gas, and the state Builders Associations, presented the 2012 IECC trainings in Las Vegas, Reno, and Fernley that attracted residential builders and contractors.



IECC workshop in Las Vegas

Source: GOE



IECC workshop in Reno

Source: GOE



SOUTHWEST GAS



SOUTHWEST ENERGY
EFFICIENCY PROJECT



SOUTHERN NEVADA
HOME BUILDERS
ASSOCIATION

Governor's Office of Energy Programs

Green Building Tax Abatement Program

The Governor's Office of Energy administers the Green Building Tax Abatement Program which offers building owners tax incentives to improve the energy efficiency of their buildings. The incentives range from 25% to 35% of the property taxes paid for a period of five to 10 years, depending on the building's LEED certification level or Green Globes and their ability to optimize energy performance.

Currently, Nevada's investment of \$172 million in incentives has attracted \$3.2 billion in capital improvements, representing an 18-to-1 return on Nevada's investment.

Meets requirements for NRS 701.190 (1a)(1c)(2a)(2b)(2c)(2dB)(2d3)(2e). Governed by NRS 701A 100-115.

U.S. Green Building Council

The **USGBC** is a membership-based, non-profit that promotes sustainability in how buildings are designed, built, and operated. USGBC's LEED system is point based and distributed across **six categories**:

- Sustainable Sites
- Water Efficiency
- Innovation in Design
- Materials and Resources
- Indoor Environmental Quality
- Energy and Atmosphere

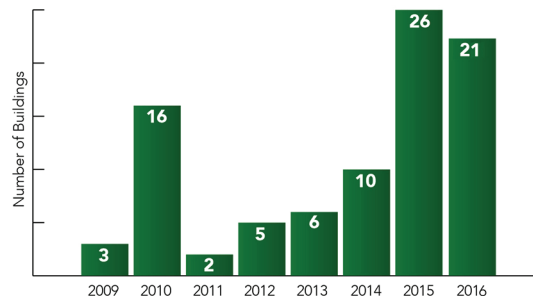
Green Globes

The Green Globes system delivers an online assessment protocol, rating system and guidance for green building design, operation and management.

LEED Certified Buildings

In 2016, 21 buildings in Nevada received LEED certification or equivalency, and more than 7.6 million square feet of LEED certified floor space in Nevada received Governor's Office of Energy tax incentives.

There are currently 89 buildings in Nevada eligible for tax abatements from the GOE program. The



buildings range from existing, new construction, and core and shell. These include a wide range of building types: hotel casino resorts, retail shopping centers, health care facilities, manufacturing and distribution centers and restaurants. Of the 89 buildings in Nevada, currently 29 are Silver, 54 are Gold, and 2 are Platinum, and 4 are Green Globes. GOE also has 59 properties registered in the program that are in the process of obtaining certification.



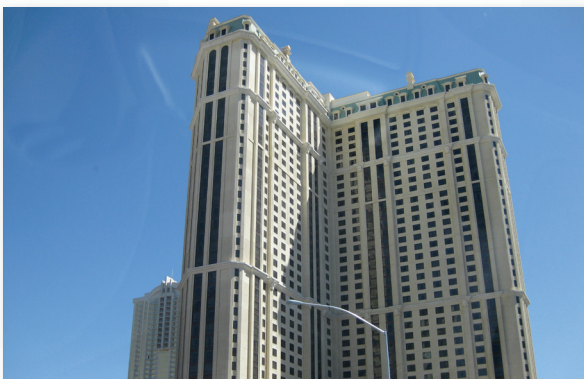
Source: Google

Macy's Inc. earned eight LEED Gold certificates, and received incentives for the energy efficient upgrades made to more than **1.1 million square feet** of retail space. Seven properties received an incentive in Clark County, and one in Washoe County. Management installed energy efficient light emitting diode (LED) lights and rewired lighting systems for better control.



Source: Valley Health Systems

Valley Health Systems in Clark County earned one LEED Gold certificate and received incentives for the energy efficient upgrades made to their **359,103 square feet medical center** in Clark County. Management introduced day lighting controls among other upgrades.



Source: Marriot Vacations

Marriott Vacations earned three Green Globes certificates and received incentives for the energy efficient upgrades made to **1.3 million square feet** of hotel space in Clark County. Management built on existing energy efficient measures.



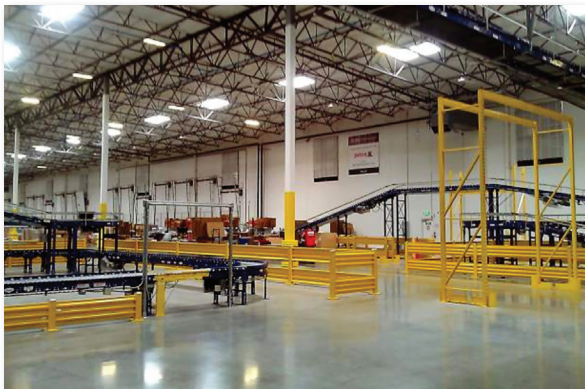
Source: Las Vegas Cyclery

Las Vegas Cyclery earned one LEED Platinum certificate and received incentives for the energy efficient upgrades made to **9,793 square feet** of retail space in Clark County.



Source: Diversified First Realty

Three Turnberry Place Homeowners Association earned one LEED Gold certificate and received incentives for the energy efficient upgrades made to **586,983 square feet** of condominium space in Clark County.



Source: Northern Nevada Business Weekly

AEW Capital Management earned one LEED Silver certificate and received incentives for the energy efficient upgrades made to **770,650 square feet** of retail space at the PECO Distribution Center in Washoe County. Management installed energy efficient light emitting diode (LED) lights, introduced day lighting controls, and rewired lighting systems for better control.

Direct Energy Assistance Loan (DEAL)

A benefit that provides State of Nevada employees an interest-free loan for energy efficiency upgrades at their home. The loan is paid off via a monthly payroll deduction. The Governor's Office of Energy funds the Direct Energy Assistance Loan (DEAL) program through NRS 701A.450. The Nevada Housing Division administers the program through its established delivery system of contractors.

Since its inception, 119 State of Nevada employees have received weatherization improvements at their home through the DEAL program. The counties that saw the most State of Nevada employees apply for DEAL were Carson (54), Washoe (54), Clark (35), and Lyon (23). The resulting savings of these energy efficiency measure will reduce consumption an estimated 254,843 kilowatt hours and 31,742 Therms annually.

Governor's Office of Energy Programs

Meets requirements for NRS 701.190 (1a)(1c)(2a)(2b)(2c)(2d1)(2d3)(2e).

To be eligible for a loan, State of Nevada employees must meet the following criteria:

- Be an active full-time employee, employed at least 12 months by the State of Nevada
- Must be part of the Nevada Employee Action and Timekeeping System (NEATS)
- Must not owe debt to the State of Nevada
- Must own the home
- Must be an electric customer of NV Energy

Once an employee's application is accepted, a state-approved energy auditor conducts an assessment of their home and recommends energy savings measures. After the employee selects from the recommended measures, the contractor performs the upgrades and receives payment from the Nevada Housing Division. The maximum payback length is **60 months**. A loan of **\$1 – \$3,000** has a monthly payment of **\$50**; a loan of **\$3,001 – \$6,000** has a monthly payment of **\$100**. Employees who are U.S. military veterans are eligible for a loan of up to **\$8,000**, with a longer term.



Source: GOE

GOE staff and a Nevada Housing Division contractor use a thermal spectrometer to test heat loss at a state employee's home in Washoe County.

Contractor Recommended Measures Include:

- Duct and Shell Sealing
- Air Conditioner Replacement
- Heat Pump Replacement
- Water Heater Replacement
- Heat Pump Water Heater
- Programmable Thermostat Installation

“ I wanted to impart how happy I am with my participation in the DEAL Program. Working with our contractor Nevada Glass was smooth and worry free. They were professional and delivered the product in a timely manner. Their workmanship was absolutely superb and I could not be happier with the results.” ”

- Denise Cox, State of Nevada employee

Governor's Office of Energy Programs

Nevada Electric Highway

The Nevada Electric Highway started as a joint initiative between the Governor's Office of Energy and NV Energy to expand the state's electric vehicle charging infrastructure by placing charging stations at cost-effective and strategic locations along US 95. Once complete, the Nevada Electric Highway will connect Nevada's northern and southern urban centers and eliminate range anxiety for EV owners while also bringing business to local communities.

In 2016, two of the four charging stations planned along the highway went operational in the communities of Beatty and Fallon. Each charging station includes two Level 2 chargers and one Direct Current (DC) Fast Charger in order to accommodate all different types of EVs currently on the road. Additional EV charging stations will be completed in 2017 in the communities of Hawthorne and Tonopah, completing the first Nevada Electric Highway.



The Governor's Office of Energy and Nevada Department of Transportation are now working with Nevada's rural electric utilities and local businesses to expand the reach of the Nevada Electric Highway and electrify the entire state highway system, including US 50 and US 93 in addition to key regional corridors I-80 and I-15.



Nevada Governor Brian Sandoval participates in a ribbon cutting in Beatty for the first Nevada Electric Highway charging stations. Joining the Governor are Governor's Office of Energy Director Angie Dykema and GOE's John Fairman.

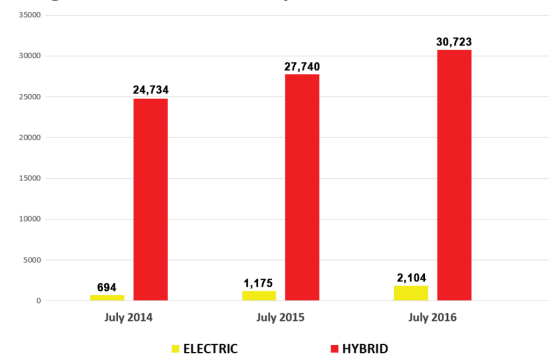
Source: GOE

“ Electric vehicles are going to be so common in the future and we need to put the infrastructure in-place now. We have remote roads and it's important that EV drivers have confidence that they can travel and visit the great State of Nevada. ”

- Brian Sandoval, Nevada Governor



Registered Electric and Hybrid Vehicles in Nevada



Source: Nevada Department of Motor Vehicles

Exportation of Energy

While Nevada hosts a wealth of domestic renewable resources, the exportation of these resources to help neighboring states meet their clean energy goals is important to both our economy and environment. The Governor's Office of Energy continues working collaboratively with western states on regional energy issues that maximize opportunities to advance the development of Nevada's renewable resources, reduce air pollution, and lower costs for consumers.



EIM is a proven success, producing reliability benefits, operational efficiencies and cost savings for its participants. Increased participation leads to an increase in those benefits.



- Steve Berberich, CAISO President and CEO

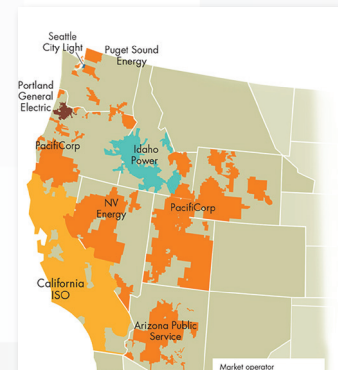
Governor's Office of Energy Programs

Western Energy Imbalance Market (EIM)

NV Energy successfully began operating in the EIM on December 1, 2015. NV Energy's participation was estimated to save Nevada ratepayers an estimated \$6 to \$10 million per year by enhancing the ability to analyze supply and demand by dispatching the lowest cost resource to meet energy needs every five minutes, and integrating more renewable resources, and results from the first year of participation are in line with these projections. According to the California ISO, NV Energy's participation improved transmission access throughout Nevada and exportation opportunities to other states.

The western EIM currently serves consumers in Arizona, California, Idaho, Nevada, Oregon, Utah, Washington, and Wyoming. A recent report analyzing the benefits of the EIM, participants saved nearly \$115 million from November 2014 through September 2016. The EIM allows CAISO operators using advanced software to draw on least-cost power to serve consumer demand. Additional benefits are produced by more efficiently using renewable energy, including excess energy, across a wide geographic region. EIM also reduces costly energy reserves utilities are required to secure to ensure reliability.

Oregon-based PacifiCorp, which serves customers in six western states, was the first EIM participant, followed by NV Energy, which serves customers in Nevada. Puget Sound Energy of Washington State and Arizona Public Service, both joined the EIM in October 2016. Other utilities set to join the EIM include Portland General Electric in October 2017, Idaho Power in April 2018, and Seattle City Light in April 2019.



Source: CAISO

Harry Allen-Eldorado Transmission Line

The Harry Allen - Eldorado **500 kV** Transmission Line is a **60-mile** extension of the One Nevada Line that will connect Nevada's transmission system with the California power grid. This electric gateway will accelerate the integration and exportation of Nevada's renewable energy resources. In early 2016, the California Independent System Operator (CAISO) selected LS Power to finance, own, construct, and maintain the Harry Allen - Eldorado Line based on cost, experience, and ability to meet a May 2020 in-service date. The transmission line will run along the eastern edge of Las Vegas.

TransWest Express Project

In 2016 BLM gave approval to Anschutz Corp.'s \$3 billion TransWest Express Project, which spans more than 730 miles from Wyoming to southern Nevada. The project was among seven the Obama administration in 2011 selected for fast-tracking with help from a Rapid Response Transmission Team. The TransWest Express Project will provide the transmission infrastructure and 3,000 MW of capacity and deliver approximately 20,000 GWh/yr of electric energy generated in Wyoming to the Desert Southwest region in Arizona, southern Nevada and southern California, enabling more efficient renewable integration across the West. The project has been under development since 2005 and is slated to be completed by 2019.

Governor's Office of Energy Programs



Governor's Office of Energy Around the Silver State

Director Dykema highlights the economic, environmental, and tourism benefits of the Nevada Electric Highway during a ribbon cutting ceremony in Beatty.



Suzanne Linfante discusses GOE's Nevada Renewable Energy Technical Assistance program on the Jon Sanchez Show, KKOH AM 780 in Carson City.

Director Dykema with Clean Energy Project Director Jennifer Taylor at the inauguration of Enel Green Power's Stillwater renewable hybrid facility, the world's first to combine several unique renewable energy technologies at the same site in Fallon, NV.



Scott Kelley participates in a Public Information Officer training exercise at Nevada's Emergency Operations Center in Carson City.

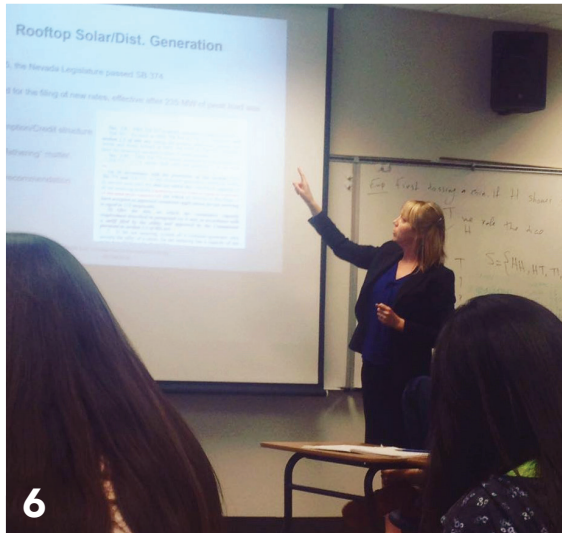
Laura Wickham signs in a participant of a GOE-sponsored IECC workshop in Fernley.



John Fairman discusses the Nevada Electric Highway initiative during an Interim Legislative Committee on Energy meeting in Las Vegas.



Director Dykema joins industry officials at the inauguration of Silver State South Solar Energy Center, a 250 megawatt nameplate power plant in Clark County.



Suzanne Linfante highlights Nevada energy policies and programs for University of Nevada students at their 'Intro to Renewable Energy' class in Reno.



Kelly Thomas hosts an Energy Benchmarking workshop for State Facility Managers in Reno.

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755 North Roop Street, Suite 202
Carson City, NV 89701