



State of Nevada Governor's Office of Energy



**2018
Status of
Energy
Report**

Governor's Office of Energy

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Cover Photo: U.S. Highway 50, Nevada (Source: Travel Nevada)

Background Photo: Tungsten Geothermal Power Plant (Source: Ormat)

Governor's Office of Energy: 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 Governor's Office of Energy implements the laws of the State as defined in the Nevada Revised Statute, Chapters 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.

State Fiscal Year 2018 - Revenues

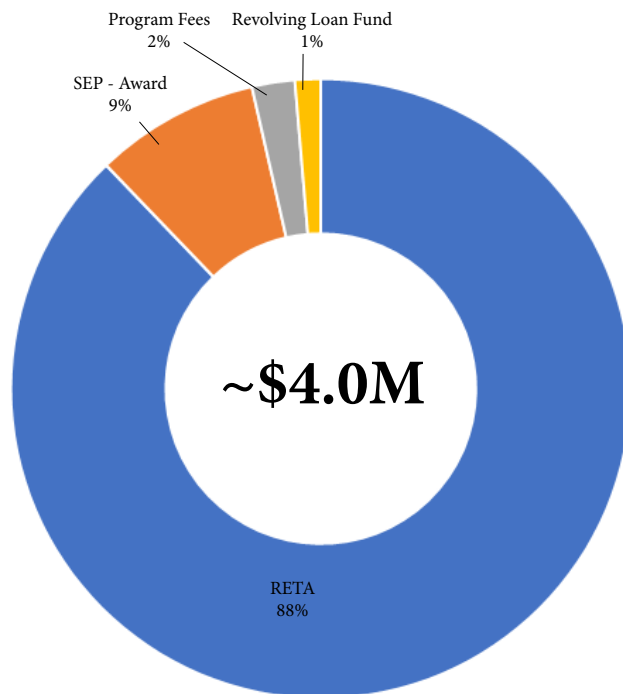


Figure 1 - Governor's Office of Energy Revenue (SFY 2018)

State Fiscal Year 2018 - Expenditures

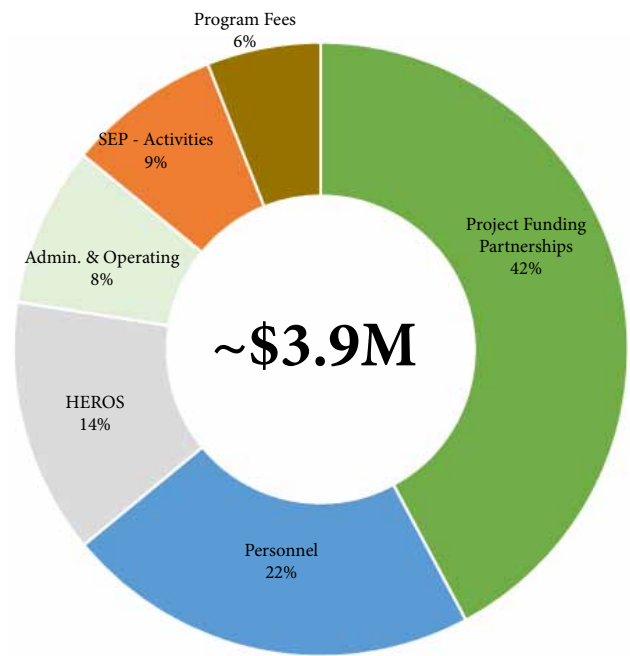


Figure 2 - Governor's Office of Energy Expenditures (SFY 2018)

Revenues:

- Renewable Energy Tax Abatements (RETA) - Income from renewable projects built before 2013; 55% taxes are abated, other 45% are paid, and those are split 45%-55% between the Governor's Office of Energy and the County respectively.
- US DOE State Energy Program (SEP) Formula Grant Award - annual source of income from federal government.
- Program fees - fees generated from the Green Building Tax Abatement (GBTA) and RETA programs (application and compliance fees).
- Revolving Loan - Interest earned off active loans (and money in the account).

Expenditures:

- Personnel - staff salaries, fringe and travel.
- Home Energy Retrofit Opportunity for Seniors (HEROS) - funds spent that went directly towards energy efficiency projects.
- Administration & Operating - building utilities, rent, etc.
- US DOE SEP Activities - grants issued for renewable energy, energy efficiency or transportation electrification projects; or on staff time in support of projects.
- Program Fees - fees that the HEROS and DEAL programs pay Nevada Housing Division (NHD) and the contractors to implement the program.
- Project Funding Partnerships - grants issued for renewable energy, energy efficiency or transportation electrification projects.

Energy in Nevada

2017 Nevada Electric Energy Consumption

Electric energy consumption in Nevada consists of customers of the major providers listed below. NV Energy (Sierra Pacific Power Co. and Nevada Power Co.) provides 81 percent of the state's electrical power; 9 percent is provided by retail power marketers; 5 percent by electric cooperatives; 3 percent by the Colorado River Commission of Nevada, and the remainder by businesses, general improvement districts, municipal utilities, and others. While some of the service areas of several service providers extend into neighboring states, the electric energy consumption estimates presented in the table below are for Nevada only.

Investor Owned	32,435,015 MWh
Nevada Power Co. (Bundled) ^[1]	20,570,469
Nevada Power Co. (Delivery) ^[1]	1,831,276
Sierra Pacific Power Co.(Bundled) ^[1]	8,637,624
Sierra Pacific Power Co. (Delivery) ^[1]	1,395,646
Retail Power Marketer	3,649,720
Coral Power LLC ^[1]	1,449,999
Exelon Generation Company ^[1]	181,087
Silver State Energy Association ^[1]	1,048,346
Tenaska Power Services Co. ^[1]	970,288
Cooperatives	1,972,774
Harney Electric Coop, Inc. ^[1]	104,183
Mt. Wheeler Power, Inc. ^[1]	521,948
Plumas-Sierra Rural Elec. Coop ^[1]	4,276
Raft Rural Elec. Coop Inc. ^[1]	50,094
Surprise Valley Electrification ^[1]	97
Valley Electric Assn., Inc. ^[1]	527,499
Wells Rural Electric Co. ^[1]	764,677
Political Subdivision	451,199
Aha Macav Power Service ^[1]	23,171
Overton Power District No. 5 ^[1]	369,392
Lincoln County Power District No. 1 ^[2]	44,868
Alamo Power District No. 3 ^[2]	13,768
Municipal	259,988
Boulder City ^[1]	153,373
City of Fallon ^[2]	87,560
City of Caliente ^[2]	11,613
City of Pioche ^[2]	7,442
Colorado River Comm. of NV (Bundled) ^[1]	595,663
Colorado River Comm. of NV (Delivery) ^[1]	628,195
Western Area Power Administration ^[1]	28,984
Behind the Meter	173,367
Greenbacker Renewable Energy Corp.	162
SolarCity Corporation ^[1]	114,135
Spruce Finance ^[1]	1,138
SunEdison LLC ^[1]	2,108
Sunnova ^[1]	20,764
SunPower Capital, LLC ^[1]	2,234
Sunrun Inc. ^[1]	32,826
Grand Total	40,194,905 MWh

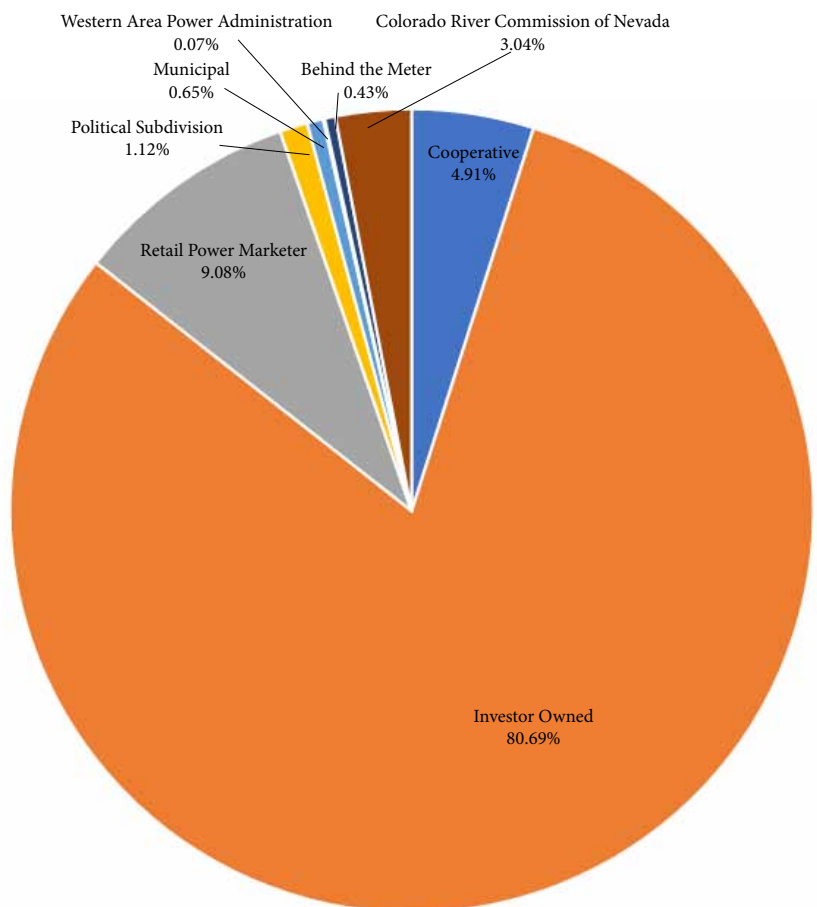


Figure 3 - Electric Energy Consumption by Provider

^[1]Source: U.S. Energy Information Administration (EIA) 2017 Form 861 (Utility Sales)

^[2]Source: EIA 2017 Form 861 (Short Form)

Nevada's Electric Energy Generation Portfolio

As shown in Figure 4, Nevada uses several sources to generate electricity including natural gas, renewables, coal, and a small amount from petroleum. 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 by natural gas fired power plants; renewables comprise most of the remaining amount; coal still remains as Nevada phases out its coal power plants. 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 has nearly doubled its renewable energy production during Governor Sandoval's administration beginning in 2011.

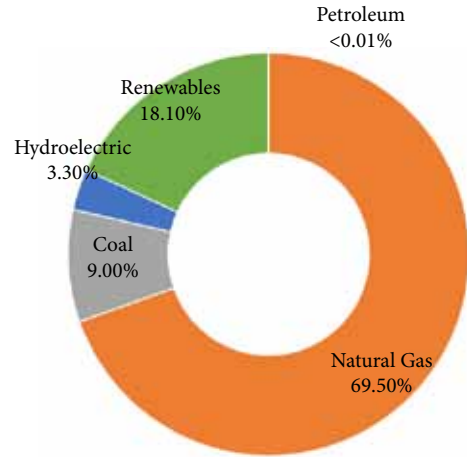


Figure 4 - Net Electricity Generation by Source (4,514 thousand MWh)
Source: EIA; Data, August 2018

Nevada's Renewable Portfolio Generation

The Governor's Office of Energy closely tracks 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 MWs.

Capacity vs. Generation

In the charts below you will see Nevada's renewable nameplate capacity, expressed in megawatts (MW) and renewable electricity generation, expressed in megawatt-hour (MWh) numbers. Awareness of 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. The difference is due to the fact that many generators do not or cannot operate at their full nameplate capacity all the time.

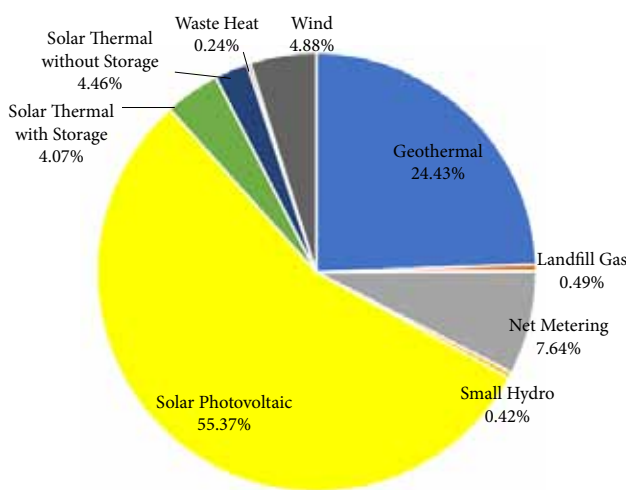


Figure 5 - 2017 Capacity (3,074 MW)
Source: EIA 2017 From 860; Note: graph does not show Hoover Dam.

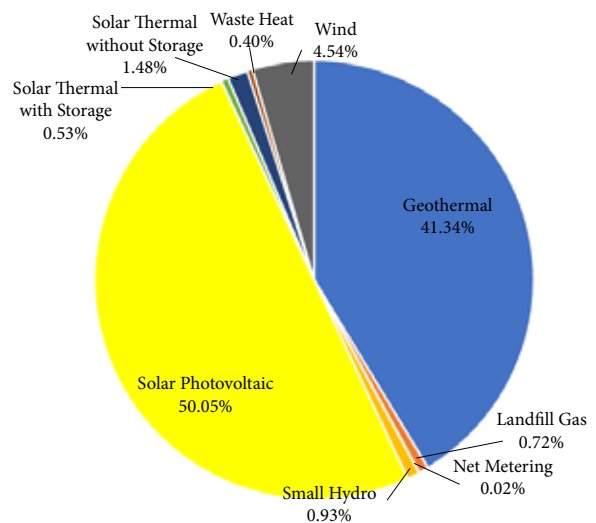


Figure 6 - 2017 Renewable Generation (7,963,545 MWh)
Source: EIA 2017 From 923; Note: net metering value represents the amount of energy sold back to the grid; graph does not show Hoover Dam

Energy in Nevada

Energy Usage by Sector

The figures below 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 approximately one-third of energy consumption and one-half of energy expenditures. Transitioning Nevada’s transportation infrastructure to 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. The chart below on the left shows the breakdown of energy consumption in Nevada by percentage. About 88% of the fuel for energy that Nevada consumes comes from outside the State (Source: EIA Quick Facts on Nevada).

Energy Expenditures

Energy expenditure is the amount of money used to purchase energy in order to power a process, organization, or society. The chart below on the right shows the breakdown of energy expenditures in Nevada by percentage. Almost half of all energy expenditures in Nevada is for transportation, which falls into the fossil fuel category (jet fuel, gasoline, diesel fuel, aviation gas) and alternative fuel category (natural gas, electricity, propane, methanol, ethanol, and certain blends).

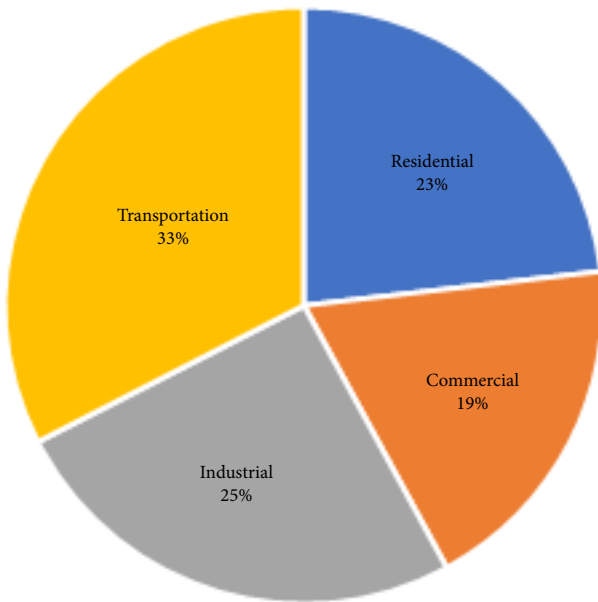


Figure 7 - Energy Consumption
Source: EIA Nevada Energy Consumption & Expenditures End-Use Sector 2016

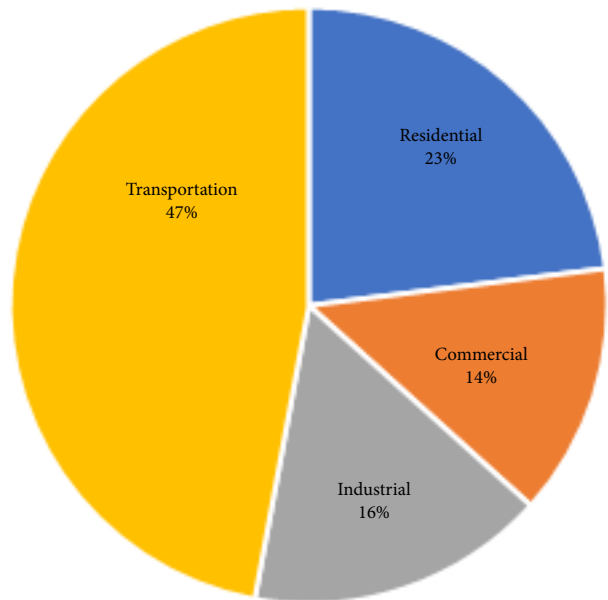


Figure 8 - Energy Expenditures
Source: EIA Nevada Energy Consumption & Expenditures End-Use Sector 2016

Renewable Portfolio Standard

Nevada’s Renewable Portfolio Standard (RPS), NRS 704.7801, was first adopted by the Nevada Legislature in 1997. The RPS establishes the percentage of electricity sold by an electric utility to retail customers that must come from renewable sources. 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 outlined on page 6 does not directly translate to RPS compliance. This difference is due to the fact that RPS carry-forward credits and credits from energy efficiency and conservation (through Demand Side Management [DSM]) are not accounted for in the generation data.



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.

Photo (Above): Sempra’s Copper Mountain solar plant (source: Sempra)

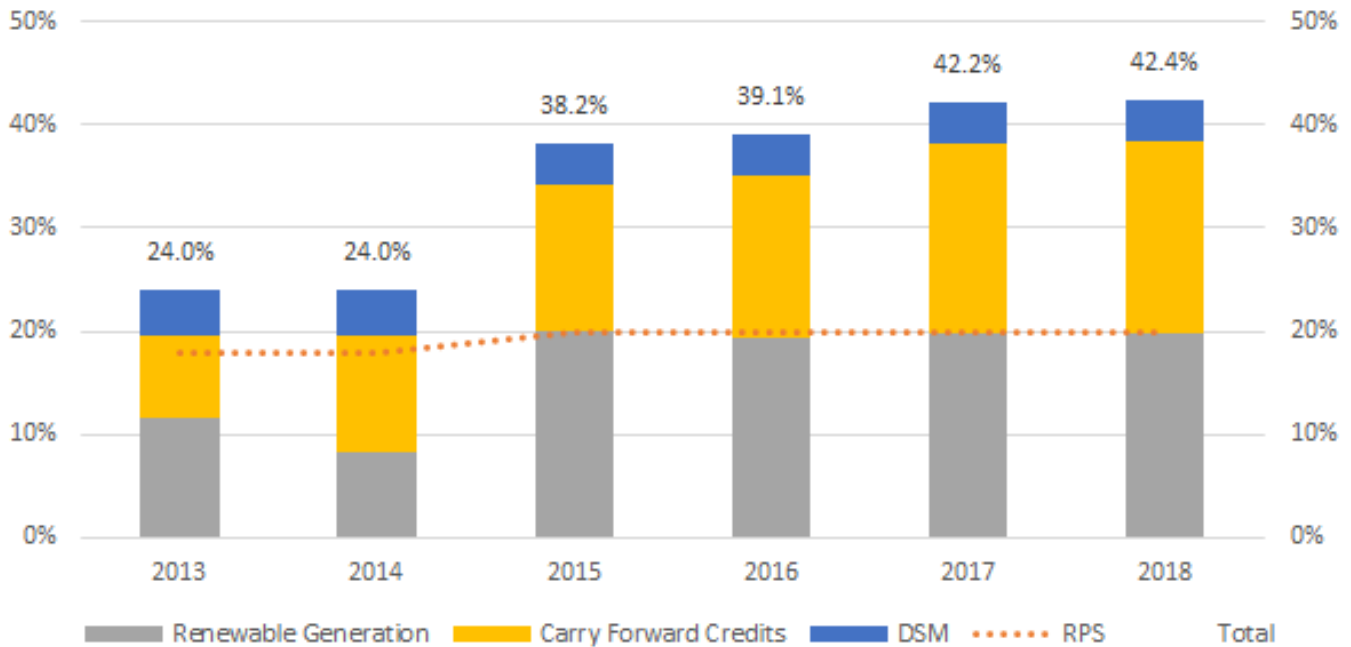


Figure 9 - NV Energy RPS Compliance

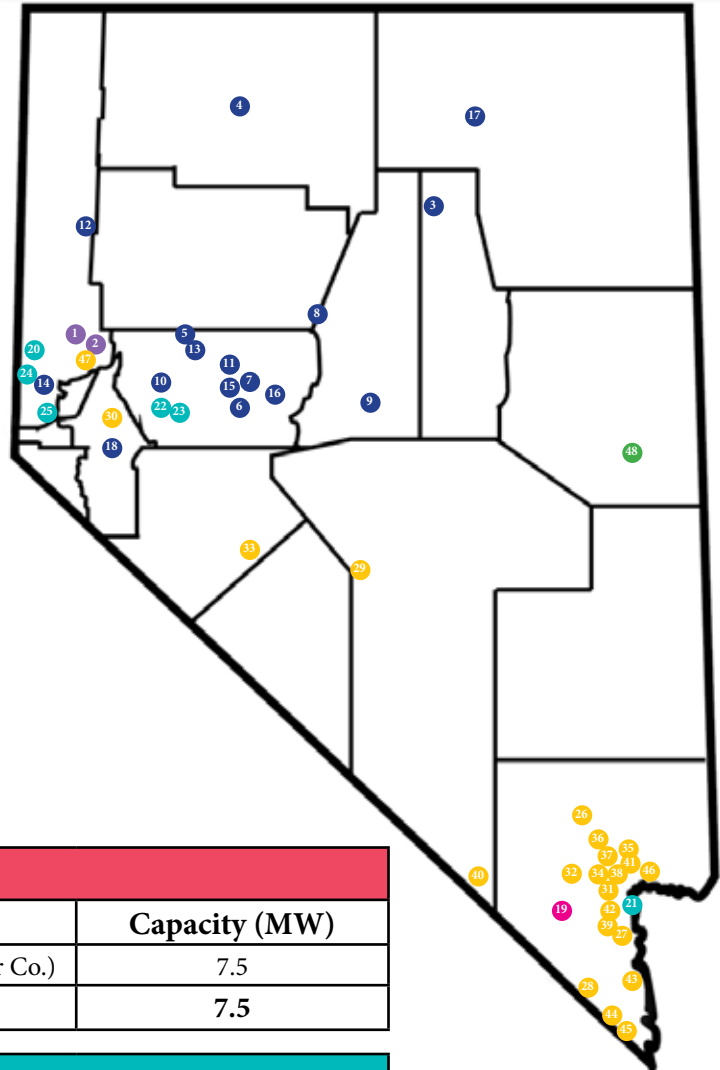
Source: NV Energy annual RPS compliance reports (2010-2017)

Notes: Carry-forward credits include both DSM and Generation; 2018 is forecasted based on NV Energy’s 2017 RPS compliance report.

Nevada's Renewable Energy Portfolio

Biomass / Biogas / Landfill		
	Power Plant Name	Capacity (MW)
1	Clark County Landfill Energy (DCO Energy LLC)	12.0
2	Waste Management Lockwood LFGTE (WM Renewable Energy LLC)	3.2
	Subtotal (Biomass)	15.2

Geothermal		
	Power Plant Name	Capacity (MW)
3	Beowawe Power (Terra-Gen)	20.6
4	Blue Mountain (NGP/AltaRock)	63.9
5	Brady Complex (Ormat)	58.9
6	Dixie Valley (Terra-Gen)	70.9
7	Don A. Campbell (I & II) (Ormat)	47.5
8	Jersey Valley (Ormat)	23.5
9	McGinness Hills (I & II) (Ormat)	100.0
10	Patua Phase 1A (Cyrq)	48.0
11	Salt Wells (Enel)	23.6
12	San Emidio (U.S. Geothermal)	11.8
13	Soda Lake No I II (Cyrq)	26.1
14	Steamboat Complex (Ormat)	142.5
15	Stillwater (Enel)	47.2
16	Tungsten Mountain (Ormat)	37.0
17	Tusarora (Ormat)	24.0
18	Wabuska (Homestretch)	5.4
	Subtotal (Geothermal)	750.9



Waste Heat		
	Power Plant Name	Capacity (MW)
19	Goodsprings Waste Heat Recovery (Nevada Power Co.)	7.5
	Subtotal (Waste Heat)	7.5

Hydroelectric		
	Power Plant Name	Capacity (MW)
20	Fleish (Truckee Meadows Water Authority)	2.0
21	Hoover Dam (NV Allocation)	1,039.4
22	Lahontan (Truckee-Carson Irrigation District)	1.8
23	New Lahontan (Truckee-Carson Irrigation District)	4.0
24	Verdi (Truckee Meadows Water Authority)	2.4
25	Washoe (Truckee Meadows Water Authority)	2.6
	Subtotal (Hydroelectric)	1,052.2

Figure 10 - Renewable Project Map

Source: EIA 2017 Form 860. Schedule 3.

Nevada's Renewable Energy Portfolio

Solar		
	Power Plant Name	Capacity (MW)
26	Apex Solar (Southern Power Co.)	20.0
27	Boulder Solar (Southern Power Co.)	100.0
27	Boulder Solar II (AEP Renewables)	50.0
28	Copper Mountain 1-4 (Semptra)	560.6
29	Crescent Dunes (SolarReserve) ^[1]	125.0
30	Ft. Churchill (Apple)	19.9
31	IKEA Las Vegas (IKEA)	1.0
32	Las Vegas WPCF (City of Las Vegas)	3.3
33	Luning Energy (Algonquin Power Co.)	50.0
34	Mandalay Bay-1 (MGM)	5.0
34	Mandalay Bay-2 (MGM)	1.9
35	Moapa Southern Paiute (First Solar)	250.0
36	Mountain View (NextEra)	20.0
37	Nellis Air Force Base (Solar Star NAFB)	14.0
38	Nellis PV II (Nevada Power Co.)	15.0
39	Nevada Solar One (Acciona Solar Power) ^[1]	75.7
40	Nevada Valley Solar Solutions II (VEA)	15.0
10	Patua Geothermal (Cyrq)	10.6
41	Playa Solar 2 (EDF), (Switch 1)	100.0
41	Playa Solar 1 (EDF), (Switch 2)	79.0
42	River Mountains Solar (SNWA)	14.4
43	Searchlight Solar (Searchlight Solar)	17.5
44	Silver State Solar North (Enbridge)	52.0
45	Silver State Solar South (NextEra)	250.0
46	Spectrum Solar (Southern Power Co.)	30.0
15	Stillwater (Enel)	22.0
47	Western 102 (Barrick Goldstrike Mines)	1.0
	Subtotal (Solar)	1,902.9
Net Metered		
	Subtotal (Net Metered, All Technologies, MW)	235
Wind		
	Power Plant Name	Capacity (MW)
48	Spring Valley Wind Project (Pattern)	150.0
	Subtotal (Wind)	150.0
		Total 4,113.7

Source: EIA 2017 Form 860. Schedule 3.
 Net Metered: EIA 2017 Form 861M (formerly 826).
^[1] Concentrated Solar Plant

Energy in Nevada

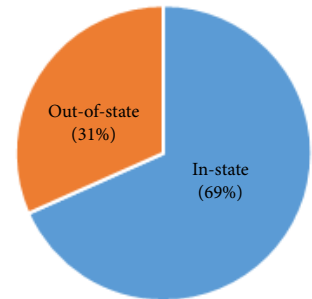


Figure 11 - Where the energy goes

Almost one-third of the nameplate capacity of Nevada's renewable projects (1,291 MW of 4,113 MW) have Power Purchase Agreements (PPAs) out of the State.

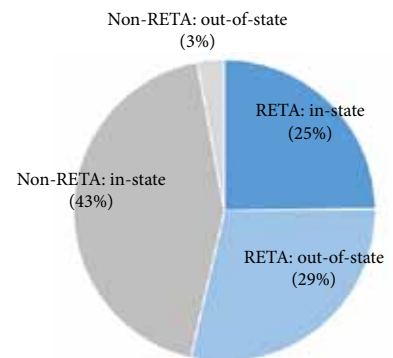


Figure 12 - Renewable projects and participation in the Renewable Energy Tax Abatement (RETA) Program relating to in/out of state PPAs
 Note: refer to page 20 for more information on RETA.

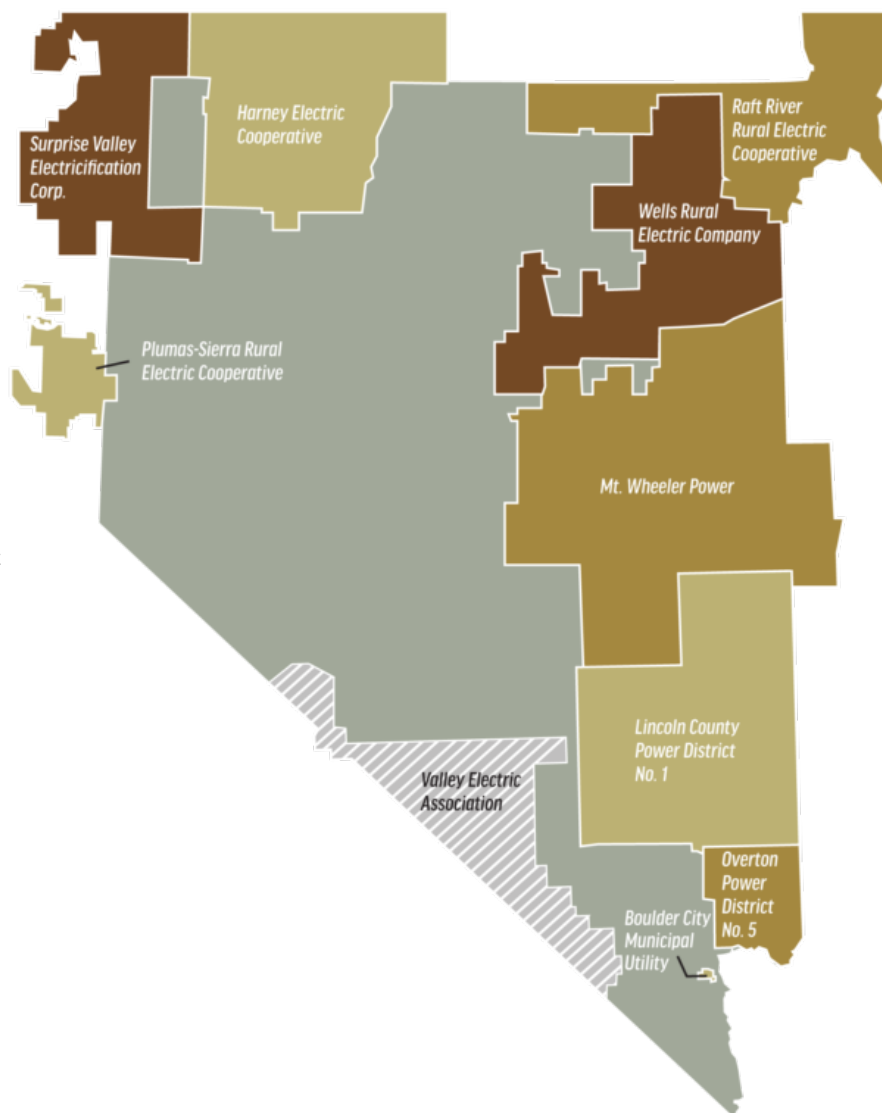
Energy in Nevada

Nevada Rural Utility Service Areas

Nevada Rural Electric Association (NREA) 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.

NREA Members

- Boulder City Electric, Boulder City, NV
- Desert 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 (associate member)
- Wells Rural Electric Company, Wells, NV



Utilities & Energy Service Providers

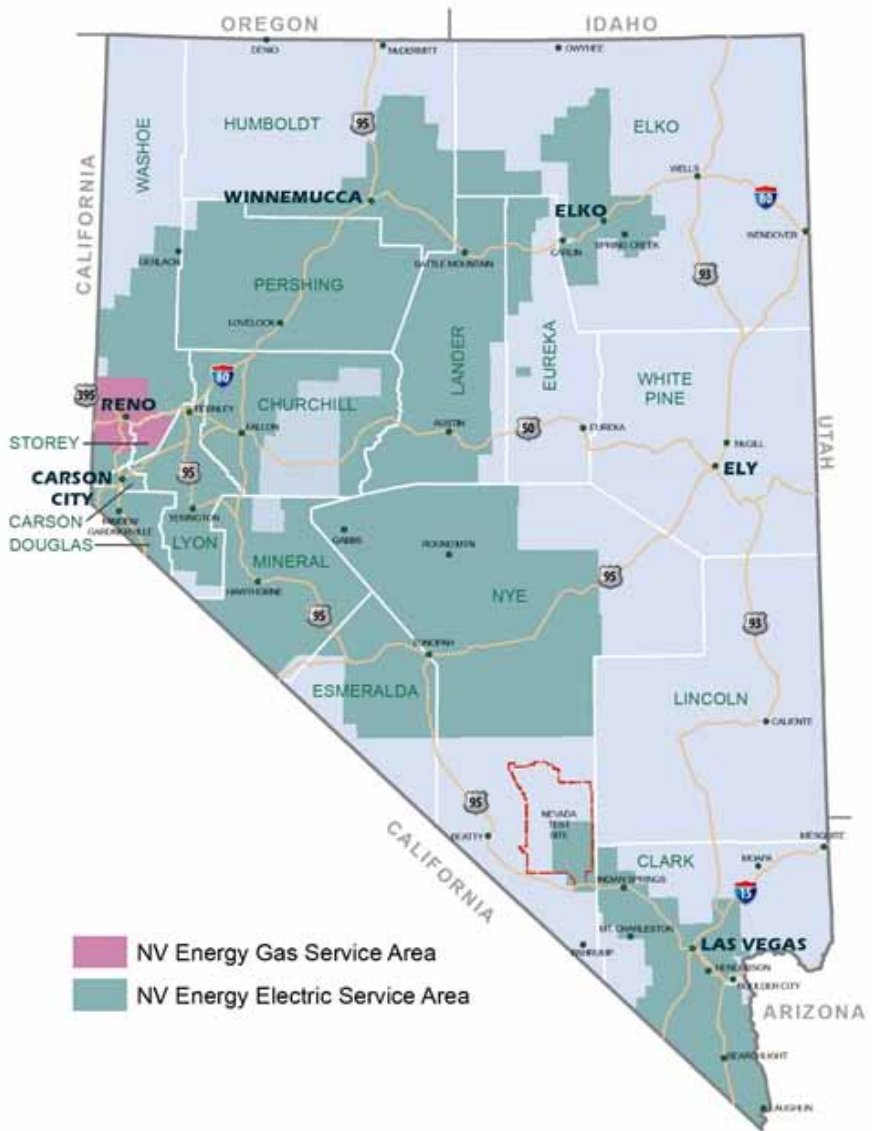
Electric energy consumption in Nevada consists of customers of the State's largest investor-owned utility (NV Energy), rural electric cooperatives, municipal utilities, and general improvement districts.



NV Energy has served citizens in northern Nevada for more than 150 years, and southern Nevada since 1906. Today, NV Energy has a service area that covers nearly 46,000 square miles of the fastest growing State in the U.S., including the communities of Las Vegas, Reno-Sparks, Henderson and Elko. NV Energy provides a wide range of energy services to 1.3 million customers throughout the State and more than 40 million tourists annually. NV Energy also provides natural gas to more than 160,000 citizens in the Reno-Sparks area.

Nevada Power, Sierra Pacific Power and Sierra Pacific Resources merged in July 1999. In 2008, the subsidiaries began doing business as NV Energy.

NV Energy, which is headquartered in Las Vegas, was acquired by Berkshire Hathaway Energy in 2013.

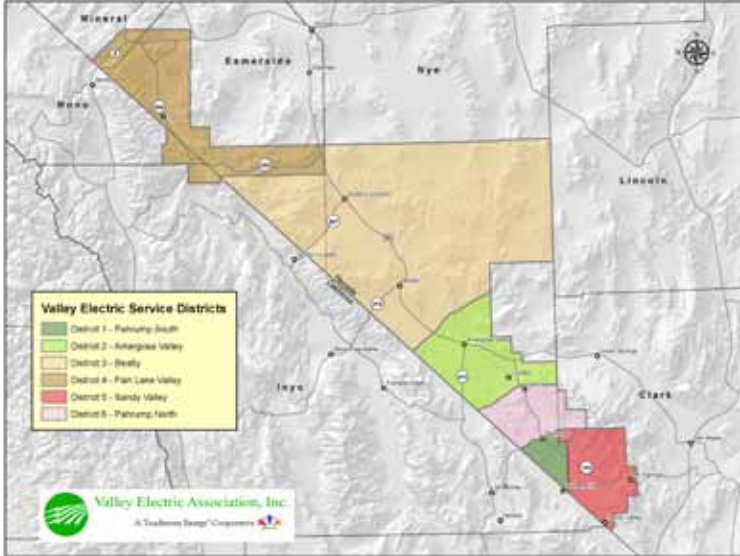


Source: NV Energy

Energy in Nevada

Valley Electric Association

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.



VEA was the first non-California utility to join the California Independent System Operator (CAISO) in 2013.



Southwest Gas

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



2018 Nevada Energy Policy Updates



Electric Vehicle Infrastructure:

Senate Bill 145 (2017) established, among other things, the Electric Vehicle (EV) Infrastructure Demonstration Program. The Governor’s Office of Energy participated in the Public Utilities Commission of Nevada (PUCN) rulemaking proceedings (Docket No. 17-08021) to advocate for a demonstration program installing EV charging infrastructure along the highway corridors (I-80, I-15, US 50, and US 95) of Nevada in concert with the Governor’s Nevada Electric Highway (NEH) Initiative.

The Governor’s Office of Energy also participated in NV Energy’s annual plan filing that included the EV Demonstration Program before the PUCN (Docket No. 18-02002), which approved a \$15 million total set aside for the Program. Governor’s Office of Energy has currently identified 38 sites, including 20 in NV Energy’s service territory, along Nevada’s highway corridors for possible EV charging infrastructure deployment. NV Energy’s incentive is critical to the success of the Nevada Electric Highway program as the program does not have sufficient funding from the VW settlement alone to complete the corridors.

Regional Electric Vehicle West Plan (REV West)

In 2017, the Governor’s Office of Energy led a multi-state effort to coordinate and encourage EV infrastructure development along major interstates throughout the western region. Nevada is a critical hub for the adoption of EV infrastructure across the West and is working directly with neighboring states to coordinate priority corridors, siting considerations and technical standards.

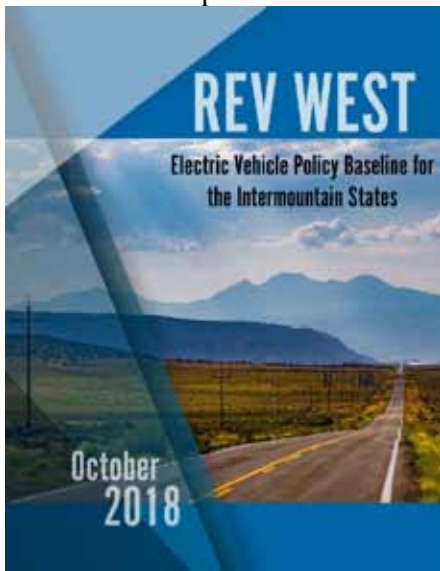


Photo (Above): Cover of the 2018 NASEO report for Baseline EV policies for the REV West States (Source: NASEO).

After an initial partnership was announced between Nevada, Colorado, and Utah, a Memorandum of Understanding was signed in October 2017 announcing the Regional Electric Vehicle “REV” West Plan that was expanded to also include Idaho, Wyoming, New Mexico, and Arizona.

In 2018, co-chaired by Nevada, the REV West group released a study produced by the National Association of State Energy Offices (NASEO) and funded by the Governor’s Office of Energy that is designed to help REV West states take a first step toward electrifying their corridors. The baseline assessment on EV charging infrastructure developed an inventory of policies across the region.

The analysis:

- Presents data on charging station availability in the intermountain west;
- Highlights policy and program trends in the REV West region, touching on EV and EVSE incentives, state-level procurement and deployment targets, electricity rates and regulations, education and outreach initiatives, relevant building codes, and other policies; and
- Presents individual state profiles detailing state-level policies and spending priorities under the Volkswagen Settlement’s Environmental Mitigation Trust.

2018 Nevada Energy Policy Updates

Storage Procurement Targets

Senate Bill 204 (2017) required the PUCN to “determine whether it is in the public interest to establish by regulation biennial targets for the procurement of energy storage systems by an electric utility.” (citation: Nevada Senate Bill 204 (2017).)

The PUCN began the investigation and rulemaking to implement SB 204 through Docket 17-07014, and the Governor’s Office of Energy commissioned a study to provide information for the PUCN when evaluating at what levels energy storage deployment would be economically beneficial for the state of Nevada, whether procurement targets for energy storage systems should be set and, if so, at what levels. The Brattle Group was selected to perform the study with federal funding from the U.S. DOE State Energy Program and state funding from the Renewable Energy Account.

The Brattle Group determined that up to 175 MW of utility-scale battery storage could be deployed cost-effectively statewide by 2020. In addition, 700 - 1,000 MW could be deployed by 2030 statewide, on the extent to which storage costs decline over time. The PUCN voted in late 2018 to accept the report and adopt its recommendations, which were to proceed with a rulemaking to establish energy storage targets.

Integrated Resource Planning (IRP)

Senate Bill 65 (2017), sponsored by the Governor’s Office of Energy, established requirements to allow for greater public participation in the PUCN’s IRP pre-filing meetings between the PUCN and the utility and ensured that during the IRP process, preference will be given by the PUCN to resources which provide the greatest economic and environmental benefits, the greatest opportunity for the creation of new jobs in the state, diversify energy portfolios, reduce fuel and carbon-price risk, and help to position Nevada to lead the nation as a producer and consumer of clean and renewable energy consistent with established State policy.

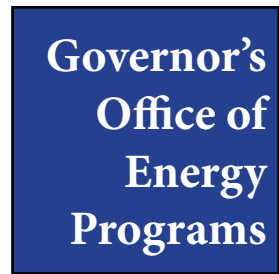
The Governor’s Office of Energy participated in the PUCN’s rulemaking proceedings for the adoption of regulations to effectively implement the law. The regulations adopted and approved in 2018 require that the social cost of carbon be included in the calculations for environmental costs, including costs associated with operating and maintaining a supply plan or demand side plan and excluding the cost from emissions of carbon internalized as private costs to the utility, and also requires an electric utility to determine the social cost of carbon using the best available science and economics.

Property Assessed Clean Energy (PACE):

Assembly Bill 5 (2017), sponsored by the Governor’s Office of Energy, enabled local governments to implement commercial PACE programs. Local governments now have the authority to create a Special Improvement District, or SID, for the purpose of financing an energy efficiency or renewable energy projects on private property. It is a financing structure through which a building owner repays a loan in the same way that property taxes are collected via a new lien on the building.

PACE funding covers 100% of a project’s hard and soft costs and will often have guaranteed low interest rates for terms of up to 20 years. The long loan amortization period enables positive cash flow resulting in annual energy savings that are larger than the annual repayment. PACE also increases the value of properties, creates jobs, helps the state achieve its policy goals and boosts the local economy bringing private investment dollars to local communities.

2018 Nevada Energy Policy Updates



PACE - Continued:

The City of Las Vegas has created a SID to implement PACE within city limits. In their implementation phase, the City of Las Vegas will decide whether the program will be managed internally or by a third party administrator. The City of Reno has hired a third-party administrator to create a SID and enable PACE financing. Several other jurisdictions in Nevada are also exploring steps to implement PACE programs within their boundaries.

Nevada Clean Energy Fund (NCEF):

Established by Senate Bill 407 (2017), NCEF is an independent, nonprofit corporation to provide funding for, and increase significantly, the pace and amount of financing available for qualified clean energy projects in the State; improve the standard of living by promoting more efficient and lower cost clean energy projects that create high-paying, long-term jobs; foster the development of transparent underwriting standards, standard contractual terms, and measurement and verification protocols for clean energy projects; promoting the creation of performance data that enables effective underwriting, risk management and pro forma modeling of financial performance of qualified clean energy projects to stimulate the development of secondary investment markets; and achieving a level of financing support for clean energy projects in the State.



Photo (Above): Solar installation on the Henderson DMV building (source: GOE).

SB 407 also created the Board of Directors to administer NCEF and set forth the duties of the Board.

Nevada Clean Energy Fund Board of Directors (section 16 of SB 407)

- (a) The Director of the Office of Energy – (TBD at time of publication of this report)
- (b) The Executive Director of the Office of Economic Development or his or her designee – Paul Anderson
- (c) The Real Estate Administrator of the Department of Business and Industry or his or her designee – Sharath Chandra
- (d) The Commissioner of Financial Institutions or his or her designee – George Burns
- (e) One member appointed by the Governor from among a list of nominees submitted by the State Contractors’ Board – Chris Brooks
- (f) One member appointed by the Governor from among a list of nominees submitted by labor organizations in this State – VACANT
- (g) One member appointed by the Governor from among a list of nominees submitted by the board of county commissioners of the county in this State with the largest population – VACANT
- (h) One member appointed by the Governor from among a list of nominees submitted by the board of county commissioners of the county in this State with the second largest population – Jason Geddes
- (i) One member appointed by the Governor from among a list of nominees submitted by the boards of county commissioners of the counties in this State not described in paragraph (g) or (h) – VACANT

The Coalition for Green Capital (CGC) is providing pro bono consulting services to the NCEF to assist with the startup of the organization including business planning and staffing, fundraising and operating support. This activity is funded with philanthropic grants provided to the CGC.

In 2018, Governor Sandoval selected the Board of Directors, and meetings were held to establish bylaws, develop a mission statement, create a website, and draft a business plan among other startup activities.

Governor's Office of Energy Programs

Nevada Electric Highway

The Nevada Electric Highway (NEH) began as a partnership between the Governor's Office of Energy, NV Energy, and Valley Electric Association to expand the state's electric vehicle (EV) charging infrastructure by placing charging stations at cost-effective and strategic locations, initially along U.S. 95 between Reno and Las Vegas.

Nevada's Strategic Planning Framework established the goal to complete an "electric highway" system serving the entire state by 2020, building on the initial agency plans to install publicly available EV fast-charging infrastructure along U.S. Highway 95 between Reno and Las Vegas (NEH Phase I). The NEH initiative, led by the Governor's Office of Energy, aims to achieve this goal through partnership with the Nevada Department of Transportation, Nevada's electric utilities, and private commercial host sites. Each station incentivized by the Governor's Office of Energy in Phase I includes two Level 2 charges and one Direct Current (DC) fast charger.

Phase I of the NEH, along U.S. 95, nears completion with three charging stations operational in Beatty, Fallon and Hawthorne and two final stations in Tonopah and Indian Springs slated to come on-line in 2019.

Phase II of the NEH began with planning for EV charging infrastructure deployment on the State's remaining major interstate and highway corridors, including I-15, I-80, U.S. 93, and U.S. 50. Phase II charger requirements are similarly a minimum of two chargers, but with the option to have them both be Direct Current (DC) fast chargers. Phase II development officially began in 2017 with the completion of the EV charging station in Panaca along U.S. Highway 93, but accelerated during 2018 with the influx of the Volkswagen Mitigation Trust settlement funds to the state. The Governor's Office of Energy has designated a total of 38 sites along the 5 major corridors and has been actively engaged with the state's utility providers, who are the designated recipients of the funding, to award subgrants to install EV charging infrastructure at all of these sites.

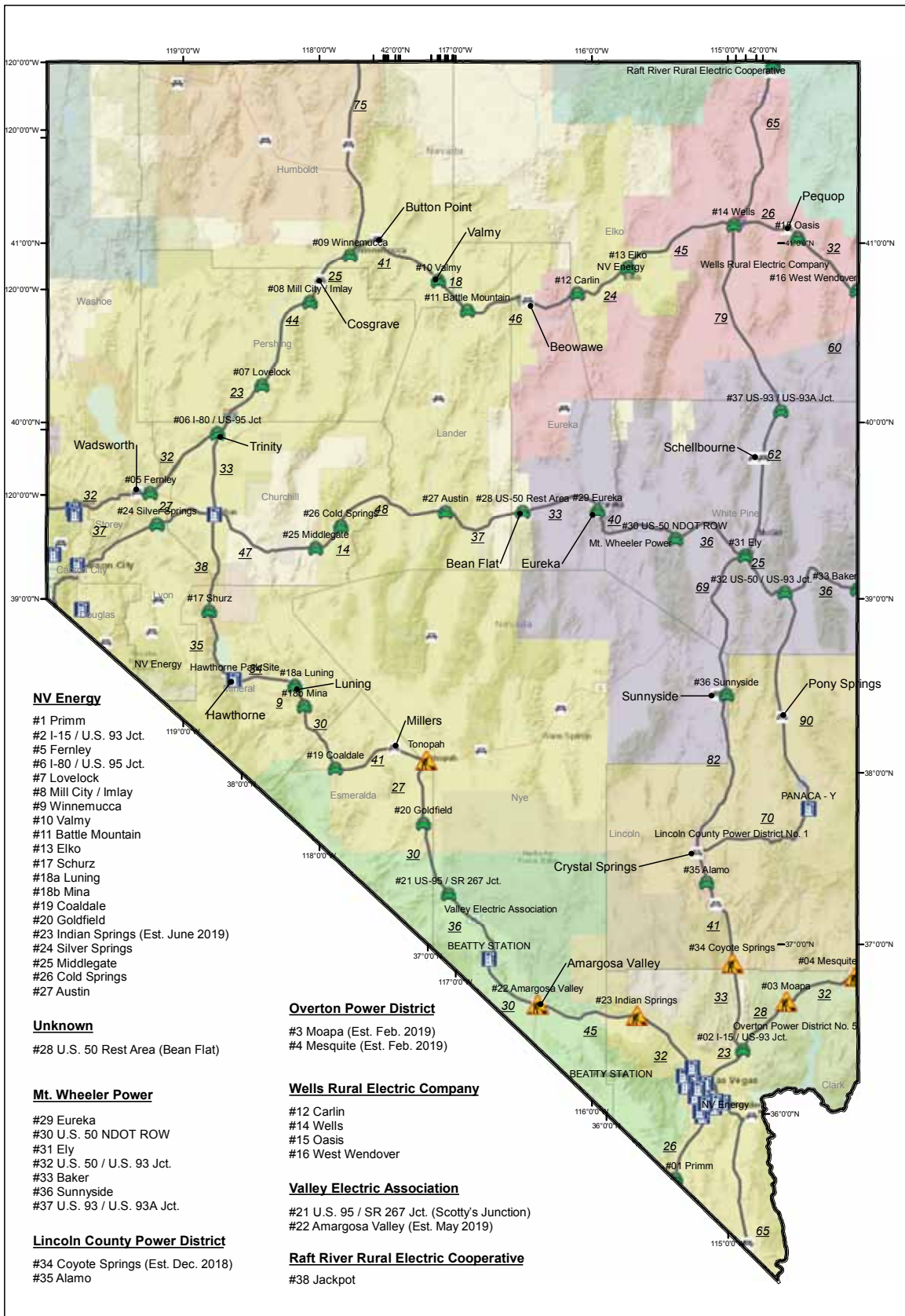


Photo (Above): Dave Luttrell (Lincoln County Power District) explains the DC-FC project to GOE and U.S. DOE staff as they make a site visit to the EV charging station in Panaca, NV. (source: GOE).



Over 40% EV adoption growth in Nevada (2018 vs 2017)

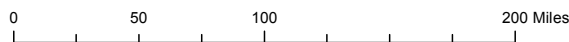
(source: Nevada Department of Motor Vehicles)



Nevada Governor's
Office of Energy

Nevada Electric Highway

- Installed DC Fast Charging Stations
- GOE planned DC FC station
- NDOT Rest Area
- DC FC station in the works



Created 8/30/2018; v2.5

**Governor's
Office of
Energy
Programs**

Renewable Energy Tax Abatement Program

{See NRS 701A.300-390 & NAC 701A.500-660}

The Renewable Energy Tax Abatement (RETA) Program awards partial sales and use tax and partial property tax abatements to renewable energy facilities. To be eligible, projects must employ at least 50% Nevada workers, pay 175% of Nevada's average wage during construction, 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.

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.

Since the Program's inception, Nevada's investment of \$856 million in tax abatements has attracted \$7.7 billion in capital investments, payroll, and taxes paid. The projects that have received an abatement from the Governor's Office of Energy created over 8,100 jobs that paid an average wage of over \$41 an hour. This represents a total of 37 renewable power plants and one transmission project in Nevada.

Projects granted a tax abatement in 2018:

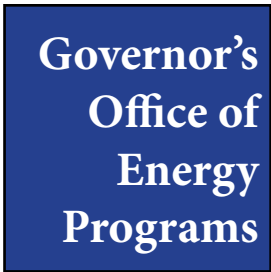
McGinness Hills III

Company:	Ormat Nevada
County:	Lander
Type:	Geothermal
Nameplate Capacity:	74 MW
Power Purchaser:	Southern California Public Power Authority (SCPPA)
Tax Abatement:	~\$14.3M
Total Project Investment:	~\$122M



Photo: Ormat's McGinness Hills geothermal power plant (Source: Ormat).

Renewable Energy Tax Abatement Program (Continued)



Sunshine Valley Solar

Company: First Solar, Inc
County: Nye
Type: Solar
Nameplate Capacity: 110 MW
Power Purchaser: Southern California Edison (SCE)
Tax Abatement: ~\$13M
Total Project Investment: ~\$100M

Techren Solar I

Company: Techren Solar, LLC
County: Clark
Type: Solar
Nameplate Capacity: 100 MW
Power Purchaser: NV Energy
Tax Abatement: ~\$19M
Total Project Investment: ~\$83M

Techren Solar II

Company: Techren Solar, LLC
County: Clark
Type: Solar
Nameplate Capacity: 200 MW
Power Purchaser: NV Energy
Tax Abatement: ~\$36M
Total Project Investment: ~\$152M



Photo: Sempra's Copper Mountain Solar Project
(Source: Sempra).

Renewable Energy Tax Abatement Program (Continued)

Turquoise Solar

Company:	Turquoise Liberty ProjectCo, LLC
County:	Washoe
Type:	Solar
Nameplate Capacity:	10 MW
Power Purchaser:	Liberty Utilities
Tax Abatement:	~\$2M
Total Project Investment:	~\$19M

Apex Astra Renewable Energy

Company:	EP Renewables Las Vegas, Inc.
County:	Clark
Type:	Biomass
Nameplate Capacity:	150 MW
Power Purchaser:	Southern California Public Power Authority (SCPPA)
Tax Abatement:	~\$35M
Total Project Investment:	~\$473M



Photo (Left):
Turquoise
Solar Project
(Source:
Turquoise
Solar).

Revolving Loans for Renewable Energy, Energy Efficiency, and Energy Conservation

{See NRS 701.545-595 & NAC 701.600-700}

The Governor’s Office of Energy administers the Revolving Loan Fund for projects that develop or expand renewable energy systems, energy efficiency projects, energy conservation, and manufacturing of components of renewable energy systems in Nevada.



Over \$18 million has been funded, since inception, under the federal American Recovery and Reinvestment Act of 2009. During 2018 two revolving loans were paid in full: a \$1,274,000 loan to the Truckee Carson Irrigation District for a 375 kW hydroelectric project and a \$300,000 loan to the Desert Research Institute for a 437 kW solar PV project.

ACTIVE PROJECTS	SIZE	TYPE	COUNTY	YEAR
Residence Washoe Valley (1)	7 kW	Wind	Washoe	2010
City of Las Vegas - East Yard	100 kW	PV	Clark	2014
City of Las Vegas - West Yard	200 kW	PV	Clark	2014
City of Las Vegas - Durango Hills	200 kW	PV	Clark	2014
Railroad Valley Farms	305 kW	PV	Nye	2017



Photo (Left): Aerial view of PV installation at Railroad Valley Farms (Source: Railroad Valley Farms).



Photo (Right): Solar install over parking structure for the City of Las Vegas - West Yard (Source: City of Las Vegas).

Governor's Office of Energy Programs

Direct Energy Assistance Loan (DEAL) Program

The DEAL program 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 program and the Nevada Housing Division administers the program through its established delivery system of contractors.

Since its inception, 128 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 City, Washoe, Clark, and Lyon. The resulting savings of these energy efficiency measures will reduce energy consumption an estimated 340,252 kilowatt hours and 46,046 therms annually. The average savings per home is 2,658 kWh and 360 therms annually.

Program Requirements

- 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 the 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 loans of up to \$8,000, with a longer term.

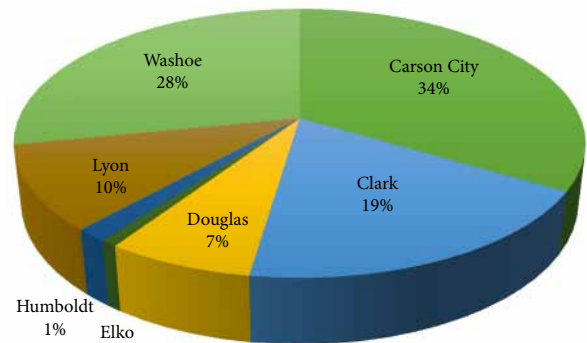


Figure 13 - DEAL Participation by County

Contractor Recommended Measures Include:

- Duct and shell sealing
- Air conditioner replacement
- Heat pump replacement
- Water heater replacement
- Heat pump water heater
- Programmable thermostat installation

Photo: 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 (Source: GOE).



Home Energy Retrofit Opportunities for Seniors (HEROS) Program



The HEROS Program provides energy assessments of a qualifying seniors' homes and installation of recommended weatherization measures. The Governor's Office of Energy funds the program and the Nevada Housing Division administers the program through its established delivery system of contractors.

The program reduces energy costs for savings by improving the energy efficiency of their homes. HEROS funding of up to \$8,000 is offered at no cost to qualifying seniors who own their home. Since the Program's inception, 629 homeowners have received weatherization benefits. Each senior participant annually saved an average of 8,110 kilowatt hours (kWh) of electricity and 278 therms of natural gas in their home. This represents an annual savings of \$1,302 on their utility bills which equates to a 67% savings.

Program Requirements

- Be age 60 years or 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

Contract Recommended Measures Include:

- Air and duct sealing
- Low flow shower head 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:



Photo: GOE Robin Isaacs talking to seniors about HEROS in Reno at Senior Fest (Source: GOE).



Performance Contract Audit Assistance Program

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 \$1.3 million to accelerate performance contracting, resulting in project investments totaling \$77 million, while creating an estimated 600 jobs, saving over 41 million kilowatt hours, and 325,000 therms annually.

Upgrade Government Buildings: Performance contracting offers an opportunity to upgrade and modernize government facilities by replacing aging HVAC equipment and thermostats, installing indoor and outdoor LED lighting, improving plug load management systems, and improving water conservation. These improvements decrease operations and maintenance costs and simplify the management of municipal energy budgets. This is all accomplished with no up front capital costs.

Financial Benefits: A few financial examples include but are not limited to: reduced taxpayer burden of growing energy budgets, incorporation of renewable energy, and job creation right here in Nevada. Also, the contractually guaranteed and measured savings reduce the risk of savings erosion over time. Finally, the use of a third-party financing mechanism ensures that energy efficiency improvements are completed and that the guaranteed reduced energy costs are achieved.

Quality Assurance: All contractors performing the Financial-Grade Operational Audit (FGOA) are Nevada licensed ESCO pre-approved through the Public Works Division (PWD). The ESCO's are also overseen by PWD pre-qualified third party consultants for performance contracting projects. The Governor's Office of Energy has also developed model contract documents to guide municipalities through the process. Additionally, applicants must utilize e-Project Builder to store and track the performance contract progress and document best practices.

In 2018, Washoe County School District (WCSD) received \$240,307 from the Governor's Office of Energy to cover the cost of a financial grade audit for a project that included lighting retrofits, HVAC and heat-pump improvements and water conservation measures for 33 facilities. The resulting \$11.2 million project created an estimated 130 jobs and saves the school district over \$1 million annually in energy costs and operations and maintenance.



International Energy Conservation Code

{See NRS 701.220 & NAC 701.010-245}

The International Energy Conservation Code (IECC) is a model for the establishment of minimum design and construction requirements for energy efficiency.

Internationally, code officials recognize the need for a modern, up-to-date energy conservation code addressing the design of energy-efficient building envelopes and installation of energy-efficient mechanical, lighting and power systems through requirements emphasizing performance. The IECC is designed to meet these needs through model code regulations that will result in the optimal utilization of fossil fuel and nondepletable resources in all communities, large and small.

This code contains separate provisions for commercial buildings and for low-rise residential buildings (three stories or less in height above grade). Each set of provisions, IECC—Commercial Provisions and IECC—Residential Provisions, is separately applied to buildings within their respective scopes.

This comprehensive energy conservation code establishes minimum regulations for energy-efficient buildings using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new energy-efficient designs. The IECC is fully compatible with the Family of International Codes.

The Governor’s Office of Energy adopted the 2018 IECC in June 2018, making Nevada one of the first states in the nation to do so.

Stakeholder Outreach

The Governor’s Office of Energy provided funding for trainings on the 2018 IECC in both Northern Nevada and Southern Nevada. The Northern Nevada International Code Council (NNICC) and the Southwest Energy Efficiency Project (SWEET) hosted residential and commercial training sessions for residential and commercial builders and contractors across the State.

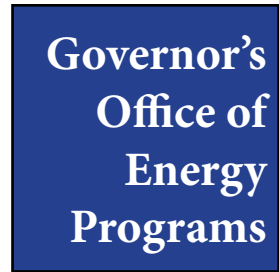


Photo: IECC 2018 cover image
(Source: www.iccsafe.org)

Governor's Office of Energy Programs

Green Building Tax Abatement Program

{See NRS 701A.100-110 & NAC 701A.010-370}

The Governor's Office of Energy administers the Green Building Tax Abatement (GBTA) program based on criteria set forth in the Leadership in Energy and Environmental Design (LEED) or Green Globes rating systems from the Green Business Certification Inc. (GBCI) or the Green Building Initiative (GBI). The LEED and Green Globes rating systems are based on a set of standards for the environmentally sustainable design, construction, and operation of buildings.

The program began in 2007 as an incentive for business owners to improve the energy efficiency of new and existing buildings. In 2013, the State established new standards for how the program is administered and partial abatements are awarded.

To qualify for the partial tax abatement, applicants must earn a minimum number of points for energy conservation, which is determined by the Energy Star score or equivalent score, to meet the Silver Level or higher through the LEED rating system or two globes or higher through the Green Globes rating system.

The partial tax abatements range from 25% to 35% for a period of 5 to 10 years (depending on the certification level) on the portion of the taxes (other than taxes for public education) imposed pursuant to Chapter 361 of the Nevada Revised Statutes. The percentage and term of the partial tax abatements can be found in Nevada Administrative Code 701A.280.

Projects Receiving Tax Abatements

In 2018, 28 buildings in Nevada received a Green Globes or LEED certification or equivalency, representing more than 21 million square feet of space.

There are currently 145 buildings participating in the GBTA program.



Photo (Left): Aspire Apartments, Las Vegas, NV. Green Globes certified. (Source: lasvegasliving.com/community/aspire).

Photo (Right): El Dorado Resort & Casino, Reno, NV. Green Globes certified. (Source: www.eldoradoreno.com).



Lower Income Solar Energy Program

The Lower Income Solar Energy Program (LISEP) is a joint effort of NV Energy and the Nevada Governor's Office of Energy that offers incentives for solar photovoltaic (PV) systems that serve low income populations. The program was originally created in 2013 as a pilot program through Assembly Bill 428 and was made permanent through Senate Bill 145 in 2017.



Applications opened for Phase 3 (July 1, 2017 - June 30, 2018) of the program on November 1, 2017. To qualify for an incentive, the recipient had to be an NV Energy customer whose primary business serves a significant population of lower income customers. This included lower income housing, homeless shelters, food banks and other lower income services. Phase 3 incentives combine an incentive of 50% of the total PV system installation cost from NV Energy and \$200 per kilowatt of installed capacity from the Governor's Office of Energy. Phase 3 allocated 500 kW of capacity for each territories of NV Energy; Sierra Pacific Power Company in the North and Nevada Power Company in the South.

Phase 3 supports projects in major cities and rural towns throughout Nevada, providing benefit to Nevadans in most need of assistance. More than 1,000 lower income households throughout the State are benefiting as well as close to 200 youths who will be participating in programs designed to enable them to reach their full potential as productive, caring and responsible citizens.

Phase 4 (July 1, 2018 - June 30, 2019) has a total \$1,200,000 program budget (\$1 million from NV Energy and \$200,000 from the Governor's Office of Energy). The incentive levels are set at \$2.20/watt for Low Income Housing and \$2.50/watt for other entities that serve the lower income sector. As of December 2018, the program is fully subscribed.

Alpine Haven
NVE-43168
76.896 kW (CEC) AC
NVE Incentive - \$141,388
GOE Incentive - \$15,379

An aerial photograph showing a large-scale solar photovoltaic array installed on a flat roof. The panels are arranged in neat rows, and the surrounding area appears to be a large commercial or industrial building.

Governor's Office of Energy Programs

Partnerships & Projects Funded

Nevada Revised Statutes (NRS) 701 and 701A regulate and define the Governor's Office of Energy priorities and programs. NRS 701A.450 specifically creates the Renewable Energy Account, which is administered by the Director of the Governor's Office of Energy, and may be used to accomplish the initiatives and goals of the State related to renewable energy, energy efficiency and electric vehicles.

In addition, the Governor's Office of Energy receives funding from the U.S. Department of Energy's (DOE) State Energy Program (SEP) Formula Grant. The SEP Formula Grant is used to fund and promote clean energy programs and projects throughout Nevada.



Photo (Left): In 2018, the Governor's Office of Energy staff inspected previously completed projects, including the Lincoln County Power District's community solar project seen here. (source: GOE)

In 2018, the Brattle Group received funds to conduct a study for the Public Utilities Commission on the statewide potential for cost-effective energy storage. Depending on storage costs, the Brattle Group concluded that by 2020 up to 175MW of storage could be deployed cost-effectively with greater than 700 MW by 2030.

In 2018, Viridity Energy received funds for a battery storage pilot project. The project is to analyze, acquire, install, and monitor a battery energy storage system at the Grant Sawyer State Office Building. This system will demonstrate the viability of using battery storage to reduce electricity demand charges for state-owned buildings.

The Economic Potential for Energy Storage in Nevada

PREPARED FOR
Public Utilities Commission of Nevada
Nevada Governor's Office of Energy

PREPARED BY
Ryan Hledik
Judy Chang
Roger Lueken
Johannes Pfeifenberger
John Imon Pedtke
Jeremy Vollen

October 1, 2018

THE Brattle GROUP



In 2018, State of Nevada continues to participate in the City of Reno's ReEnergize Reno program, which is aimed at reducing energy consumption by 25% by 2025.

Photo (Left): Governor's Office of Energy staff Mark Brady presents at the City of Reno's, ReEnergize Reno first award ceremony (source: City of Reno)

Partnerships & Projects Funded

**Governor's
Office of
Energy
Programs**



In 2018, Viridity Energy received funds for a project with RTC Washoe that will measure energy consumption and demand at electric vehicle (bus) charging station facilities and evaluate opportunities to reduce utility costs through the use of energy storage. RTC Washoe has purchased and deployed 21 electric buses in its fleet to date.



In 2018, Envirolution received an award to expand Project ReCharge, STEM Energy program education in Northern Nevada for the 2018/2019 school year. The project aims to provide professional development to 20 teachers from 5 schools for the summer and possibly winter session as well. The project will also provide curriculum to the teachers that attend the professional development sessions and provide classroom resources for both teachers and students. Project ReCharge will work with students on energy audits throughout the schools and

subsequently provide proposals to the school district on how the schools can be come more energy efficient.



Photo (Left): The different electric vehicle options shown here at a local ride-and-drive event hosted in Reno. (source: SWEEP)

Photo (Below): Demonstrating and educating the capability of electric school buses at the legislature. (source: SWEEP)

In 2018, e-centricity received an award to conduct a study to assess existing policies and programs in Nevada that further transportation electrification and other means to increase reliance on renewable energy in the transportation sector, and recommendations for a coordinated policy and programming strategy across Nevada's state and local public agencies.



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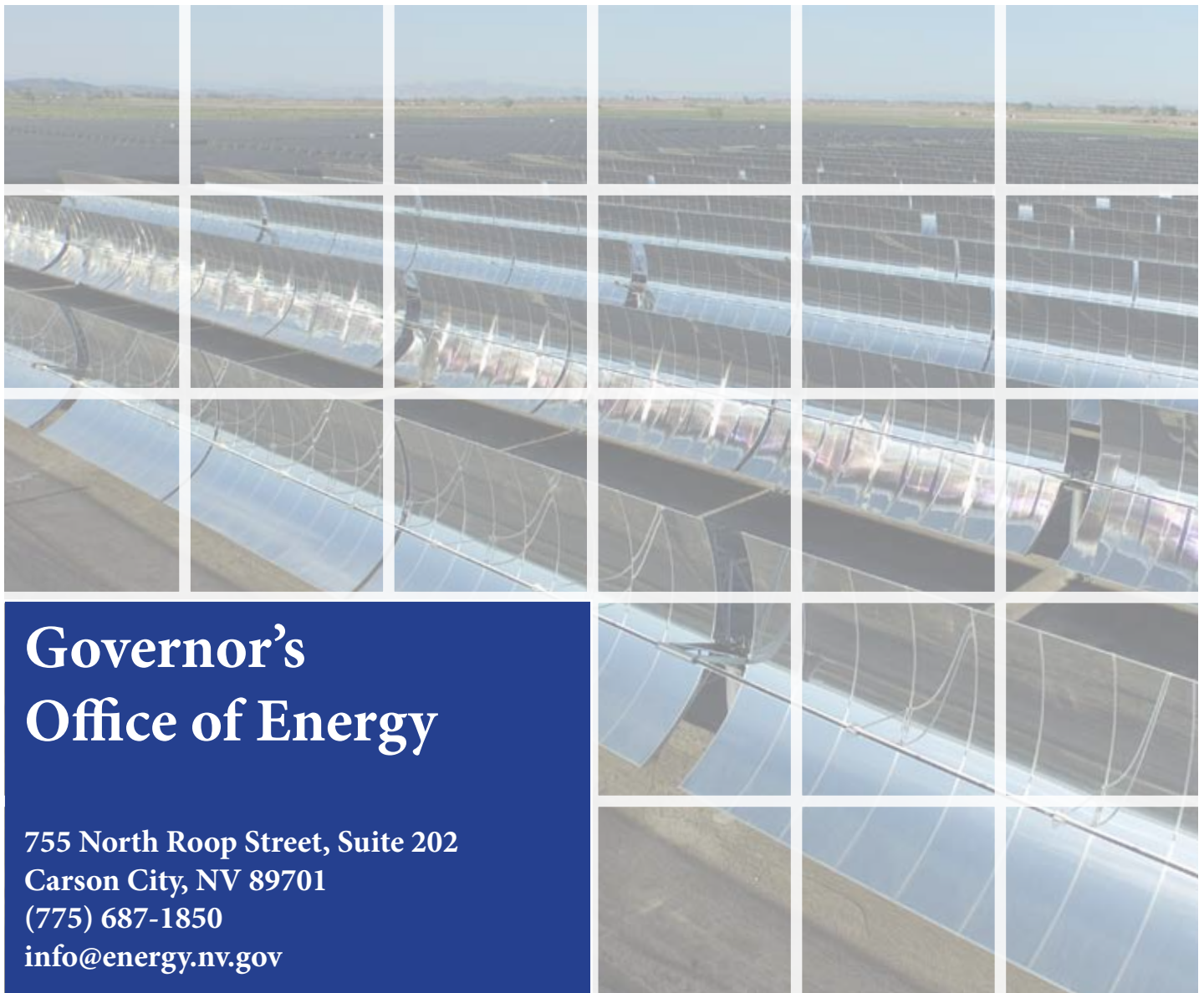
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Governor's Office of Energy

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