Energy 101

PRESENTATION TO
THE GOVERNOR'S COMMITTEE ON ENERGY CHOICE
April 26, 2017

Joseph C. Reynolds, Chairman
Paul A. Thomsen, Commissioner
Ann C. Pongracz, Commissioner
Stephanie Mullen, Executive Director

PUCN

Statutory Authority of the PUCN for Energy Issues

NRS Chapters 703-705, 701B, 704A, 704B, 707-710

Utility Regulation Overview

Utility regulation is increasingly more complex and has changed from merely traditional rate regulation of electricity, natural gas, investor-owned water and sewer utilities, and telecommunication to also include:

- Consumer Protection
- Resource Planning and adequacy
- Electric and natural gas procurement practices
- Electric renewable energy portfolio compliance
- Administration of the renewable generations programs for wind, solar and water resources
- Telephone universal service funds
- Coordination with federal regulatory authorities such as the Federal Communications Commission and Federal Energy Regulatory Commission
- U.S. DOT's Natural Gas Pipeline Safety Program for Nevada

Providers of Retail Electric Service in Nevada

This section presents energy data for calendar year 2015.

2015 Electric Energy Consumption

Table 1 [1]

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**

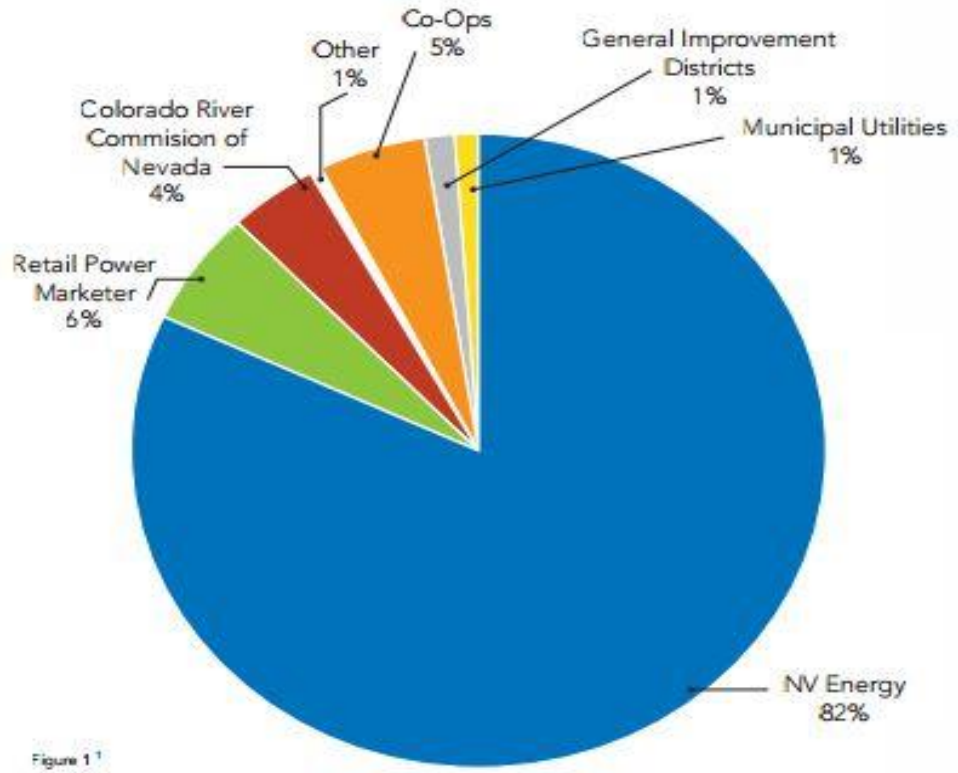


Figure 1 [1]

[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.

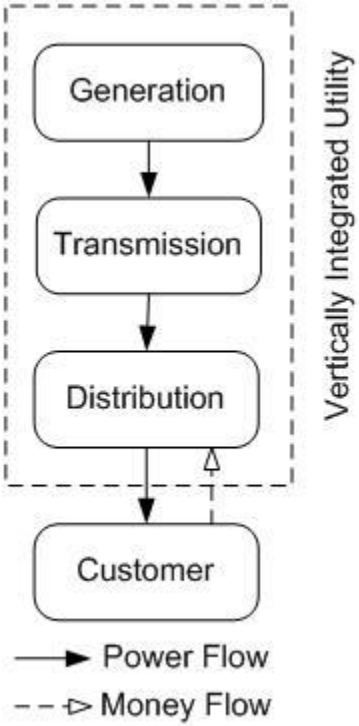
Nevada's Energy Generation Portfolio

Net Electric Generation for all Fuels
(Utility Scale)

				Less Reid Gardner	
	Unit	2016	Percent of Total	2016	Percent of Total
Nevada Total Electric Power:	1,000 MWh	39,549	100.00%	39,231	100.00%
Coal		2,167	5.48%	1,851	4.72%
Natural Gas		28,839	72.92%	28,837	73.51%
Petroleum Liquids		11	0.03%	11	0.03%
Other Gases		1	0.00%	1	0.00%
Hydroelectric Conventional		1,748	4.42%	1,748	4.46%
Solar:					
Utility Scale PV		2,299	5.81%	2,299	5.86%
Utility Scale Solar Thermal		244	0.62%	244	0.62%
Geothermal		3,848	9.73%	3,848	9.81%
Wind		344	0.87%	344	0.88%
Biomass		26	0.07%	26	0.07%

Source: U.S. Energy Information Administration

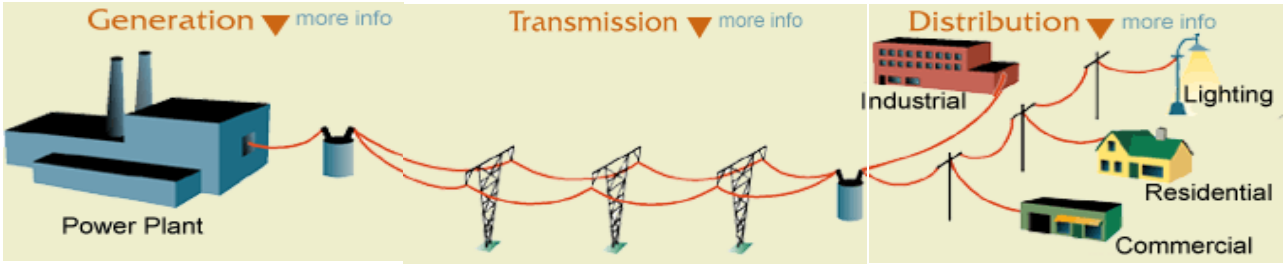
Vertically Integrated Utility Structure



The term “vertically integrated utility” refers to a utility that owns all levels of the supply chain: generation, transmission, and distribution.

A utility is given a monopoly over electric service in a specific area. The utility’s obligation to serve demand in a defined service territory at regulated rates comes with the monopoly.

Electricity Delivery System



Generation
Natural gas, solar, hydro, geothermal, nuclear, oil, or wind.

Utility owned, Power Purchase Agreements, Market purchases; (jurisdiction varies - PUCN and FERC)

Transmission
High-voltage transportation to load centers.

Utility owned; (jurisdiction varies - PUCN and FERC)

Distribution
Lower-voltage delivery to end-use customers.

PUCN jurisdiction

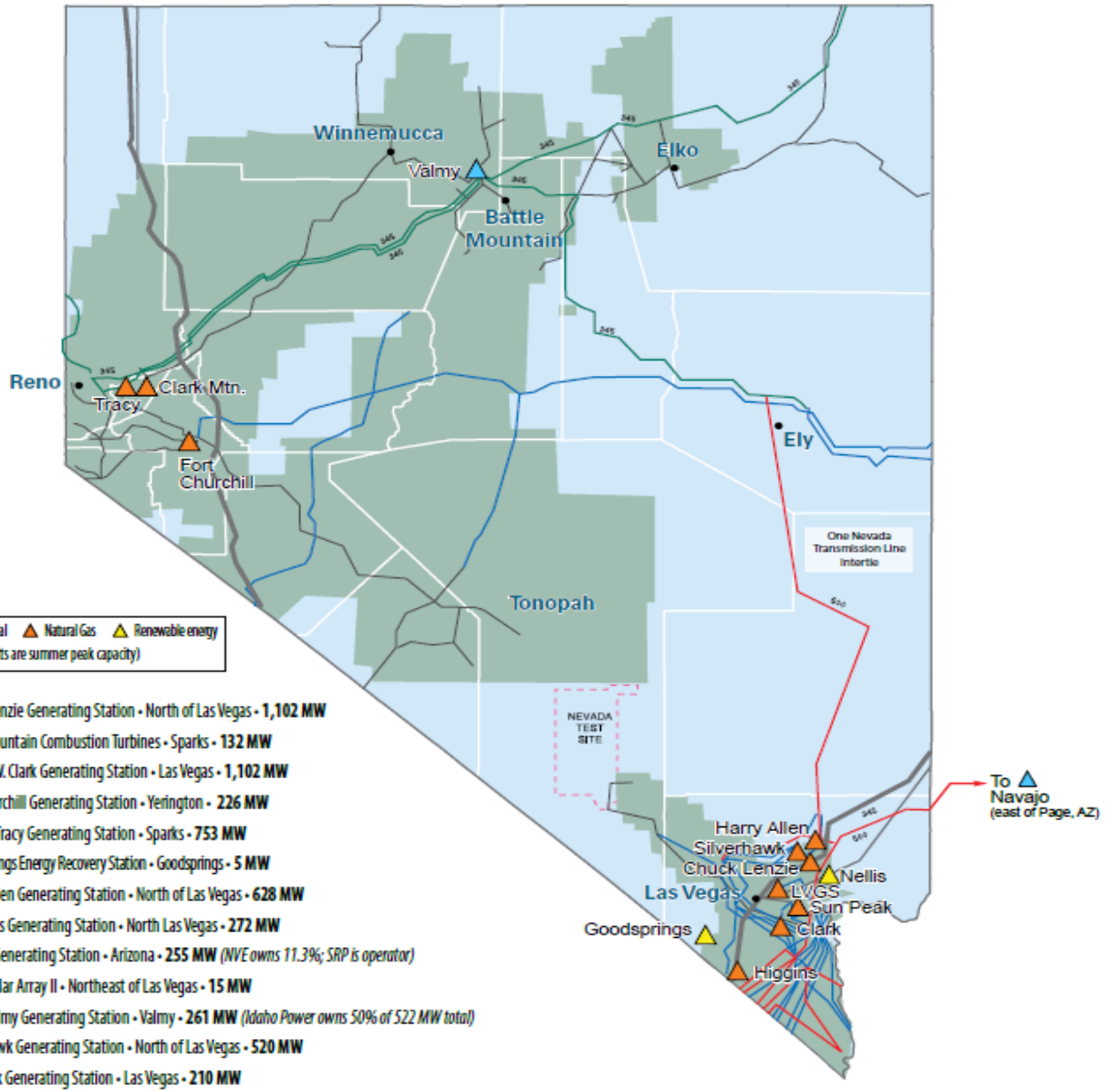
The Electric Grid

Transmission: the act or process of transporting energy in bulk.

Distribution: the system of wires, switches and transformers that serve neighborhoods and businesses, typically lower than 69,000 volts.

Generating Resources

NVEnergy



Key: Coal · Natural Gas · Renewable energy
(All megawatts are summer peak capacity)

- Chuck Lenzie Generating Station • North of Las Vegas • **1,102 MW**
- Clark Mountain Combustion Turbines • Sparks • **132 MW**
- Edward W. Clark Generating Station • Las Vegas • **1,102 MW**
- Fort Churchill Generating Station • Yerington • **226 MW**
- Frank A. Tracy Generating Station • Sparks • **753 MW**
- Goodsprings Energy Recovery Station • Goodsprings • **5 MW**
- Harry Allen Generating Station • North of Las Vegas • **628 MW**
- Las Vegas Generating Station • North Las Vegas • **272 MW**
- Navajo Generating Station • Arizona • **255 MW** *(NVE owns 11.3%; SRP is operator)*
- Nellis Solar Array II • Northeast of Las Vegas • **15 MW**
- North Valmy Generating Station • Valmy • **261 MW** *(Idaho Power owns 50% of 522 MW total)*
- Silverhawk Generating Station • North of Las Vegas • **520 MW**
- Sun Peak Generating Station • Las Vegas • **210 MW**
- Walter M. Higgins Generating Station • Stateline • **530 MW**

rev. 2017-04-06

Utility Planning

Planning for a utility includes generation, transmission, and distribution planning to ensure adequate electric procurement and safe, reliable, and cost-effective electricity supply. The PUCN looks at system needs (reliability needs of the overall electric system), local needs (reliability needs for specific areas), and flexibility needs (such as resources needed to integrate renewables).

Integrated Resource Planning (IRP)

- An IRP is a utility's long-term (20-year) plan to meet demand for electric services in an efficient, reliable, and sustainable manner at the lowest reasonable cost to consumers.
- IRPs must be accepted, deemed inadequate, or modified by the PUCN within 180 days. Fully-jurisdictional utilities must submit a new IRP every 3 years.
- Benefits of the IRP process include that it: contemplates the long lead times for utility investments; mitigates risk associated with cost recovery for approved projects; and allows for prudent implementation of legislative policies.

Rates

The PUCN sets just and reasonable rates that allow a utility to recover the costs of providing service plus a fair return on investment that is adequate to attract and maintain investment capital.

General Rate Case

- Filed at least once every 3 years
- 210-day timeline
- 3 Phases
  - Cost of Capital
  - Revenue Requirement
  - Rate Design

Electric Rate Components

"BTGR" – Base Tariff General Rate (Filed every 3 years)

- Wages, Office expenses, Meters, Wires, Trucks, Generators, and other Capital Costs (includes operating expenses and a Rate of Return)

"BTER" – Base Tariff Energy Rate (Filed every quarter)

- A forecasted rate to recover the expected cost of fuel and market purchases of power only

"DEAA" – Deferred Energy Accounting Adjustment (Filed annually)

- Recovers the difference between the forecasted and the actual cost of fuel and purchased power

"EE" – Energy Efficiency Rates (Filed annually)

- Recovers the "lost revenues" of the company as a result of Energy Efficiency measures
- Broken up into EEPR (Program Costs) and EEIR (lost revenues)

"REPR" – Renewable Energy Program Rate (Filed annually)

- Recovers the expenditures made to promote renewable energy via NRS 701B

"TRED" – Temporary Renewable Energy Development (Filed annually)

- A trust payment to benefit a solar project in case of utility financial difficulties

"UEC" – Universal Energy Charge

- Assists low-income customers with their energy bills and weatherization.

Questions?

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