2008 Status of Energy in Nevada

Report to Governor Gibbons and Legislature

by

Office of the Governor

Nevada State Office of Energy

101 N. Carson Street

Carson City, Nevada 89701

This document was prepared in compliance with the Nevada revised statutes (NRS) 701.160

The mission of the Nevada State Office of Energy (NSOE) within the Governors Office is to implement the Governor's energy policy, so our citizens can have a reliable, affordable, clean and balanced energy supply. Developing our renewable energy resources, improving the energy infrastructure, and encouraging energy conservation and efficiency will enhance the energy security, stimulate economic development, and create high paying jobs for Nevada. NSOE also develops and implements energy-related regulations, policies, and activities given to our agency by Nevada Legislators as per NRS 701: Energy Policy (NRS 701.010 - 701.260); NRS 701A: Energy Related Tax Incentives (NRS 701A.100 - 701A.110 Green Building); and NRS 333A: State Performance Contracts for operating cost savings measures (NRS 333A.080 - 333A.140). Furthermore, NSOE implements and coordinates the federal energy policies, energy programs and projects funded by the federal grants within the state of Nevada

Acknowledgements

This report is a collaborative effort between the Nevada State Office of Energy and Nevada's energy community. We would particularly like to acknowledge, and express our gratitude to the following entities for their invaluable contributions to the development of this report:

NV Energy (Sierra Pacific Power Company / Nevada Power Company)
Nevada Rural Electric Cooperatives
General Improvement Districts
Nevada Municipal Utilities
Colorado River Commission
Southwest Gas Corporation
LS Power Development, LLC
Governor's Renewable Energy Transmission Access Advisory Committee (Phase I and II)
Nevada Division of Environmental Protection Agency
Public Utility Commission of Nevada
Nevada Bureau of Land Management
Kinder Morgan, Inc.

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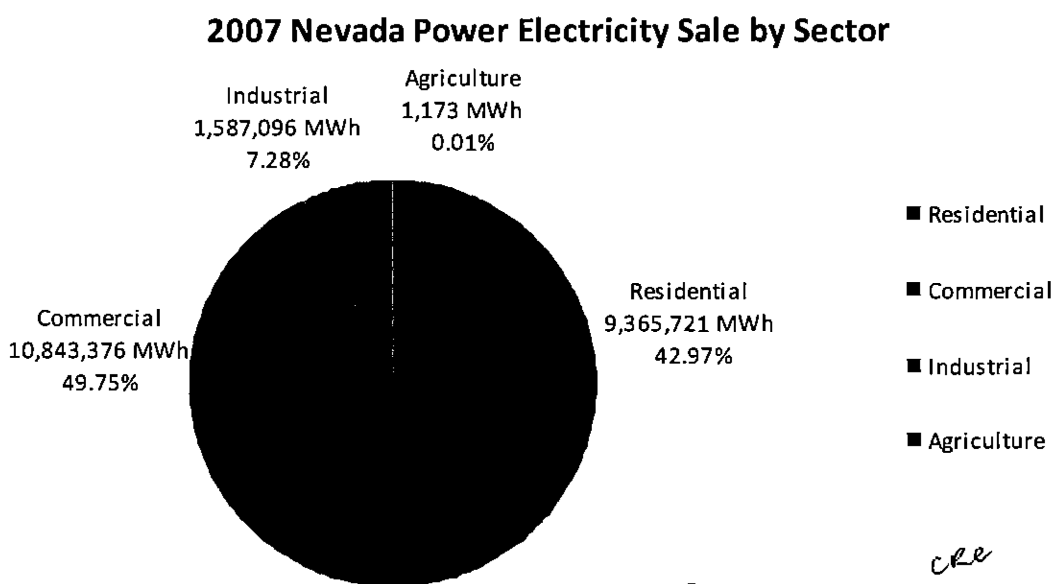
Executive Summary

This report overviews the state's supply of electricity, natural gas and transportation fuels between January 01, 2007 and December 31, 2008. Armed with this information, the report identifies the state's energy challenges and opportunities.

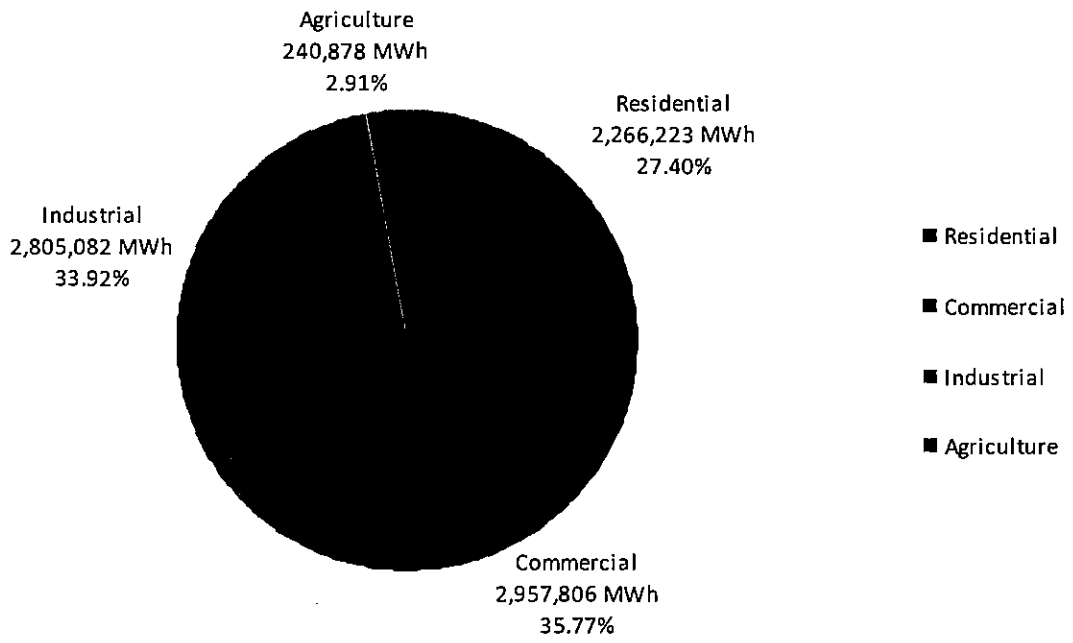
ELECTRICITY

Electric Providers	Use in 2007 (MWh)	% (2007)	Use in 2008 (MWh)	% (2008)
Nevada Power	21,797,366	-	21,572,516	66
Sierra Pacific	8,269,989	-	8,118,182	25
Other Providers		-	2,894,498	9
TOTAL	-	-	32,585,196	100

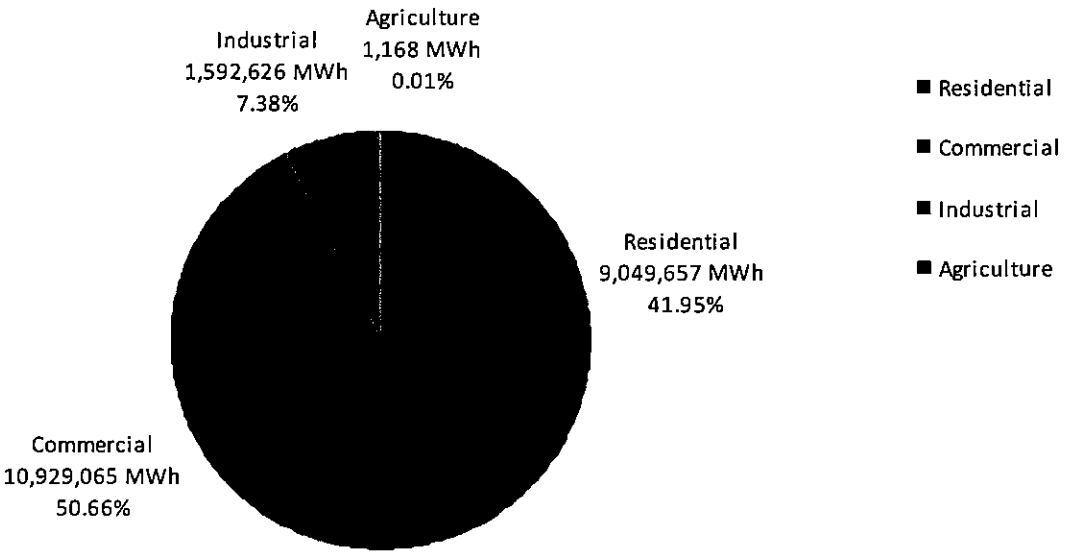
Electricity Sale by Sector – 2007 and 2008

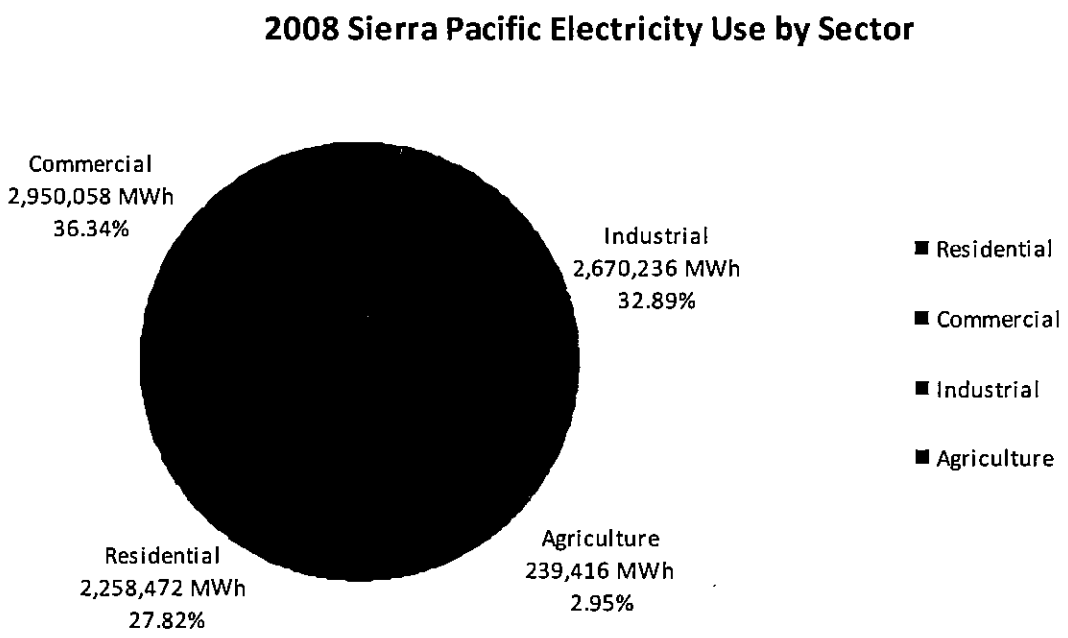


2007 Sierra Pacific Electricity Sale by Sector



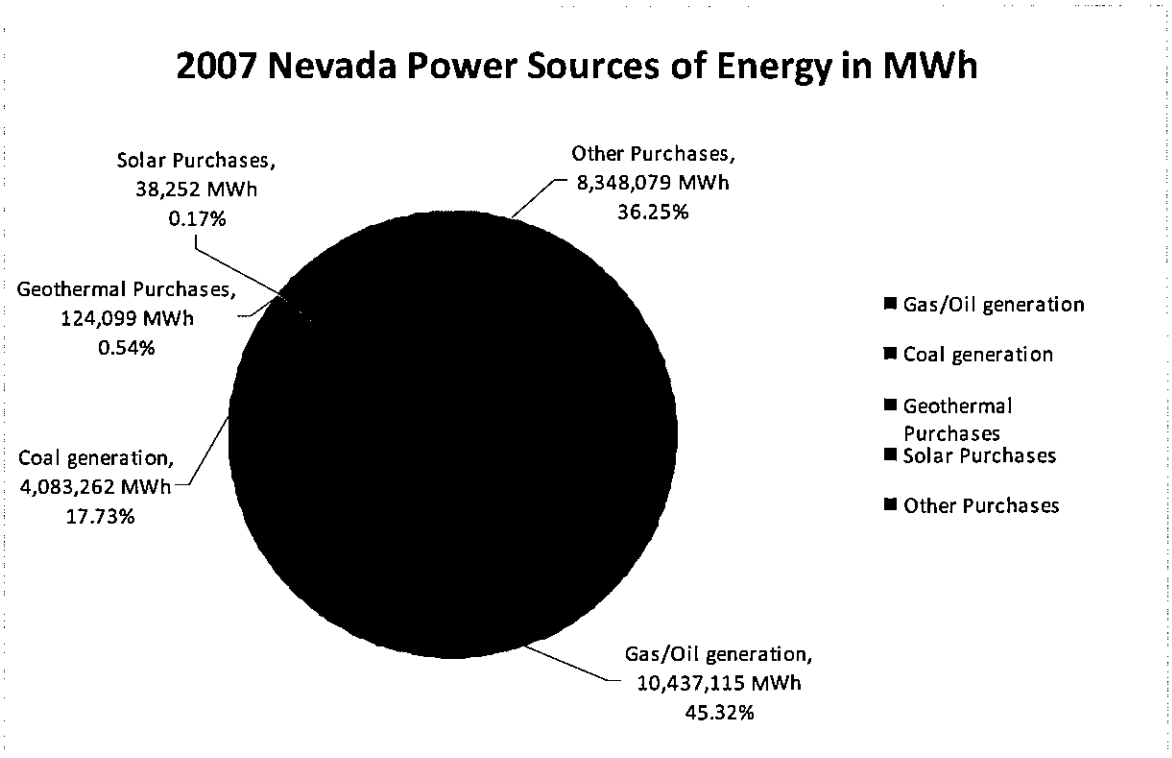
2008 Nevada Power Electricity Use by Sector



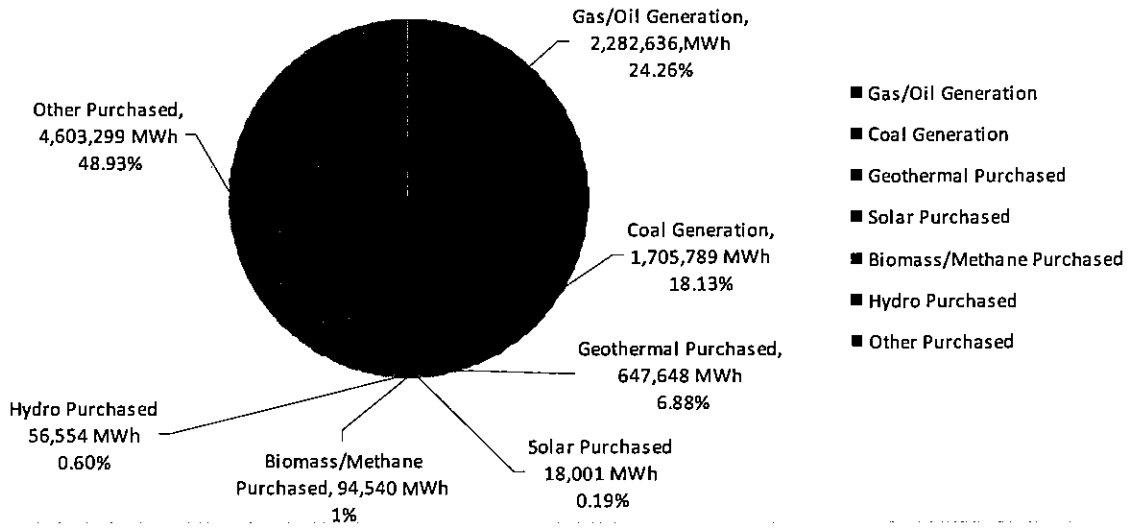


Electricity Sources of Energy– 2007 and 2008

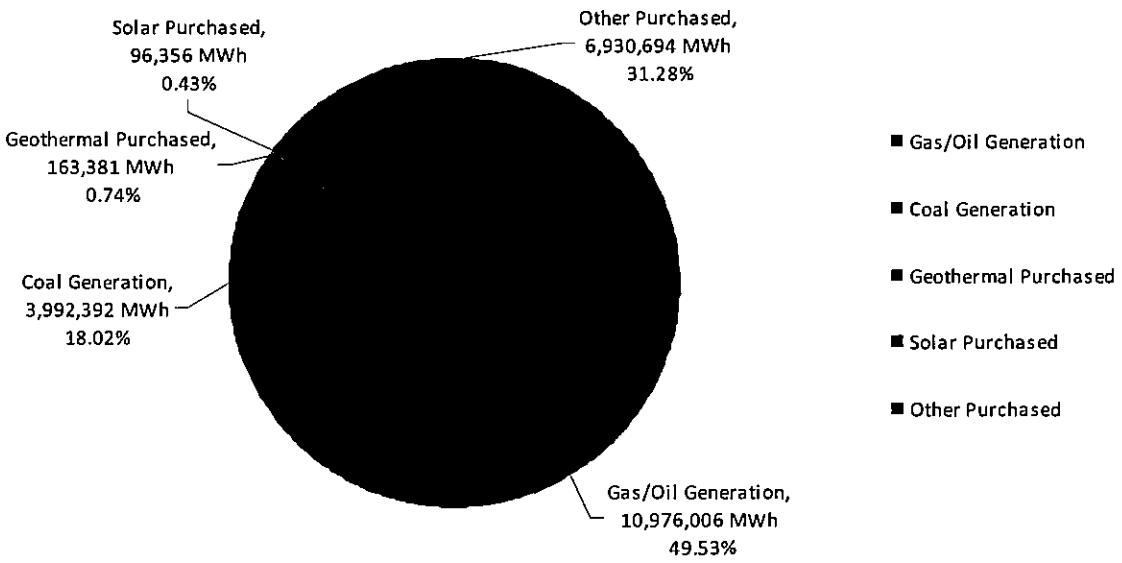
NOTE: Differences between the electricity use by sector and the sources of energy are about 5-6% due to system losses between the generation facility and the customers' meter.

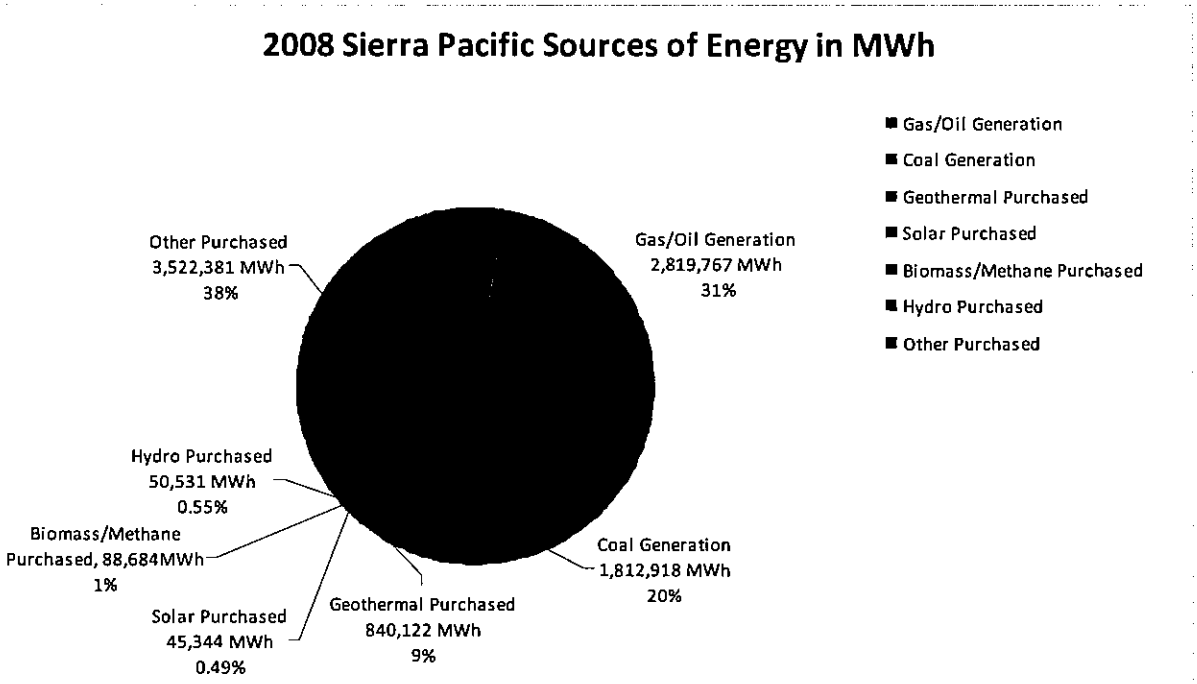


2007 Sierra Pacific Sources of Energy in MWh

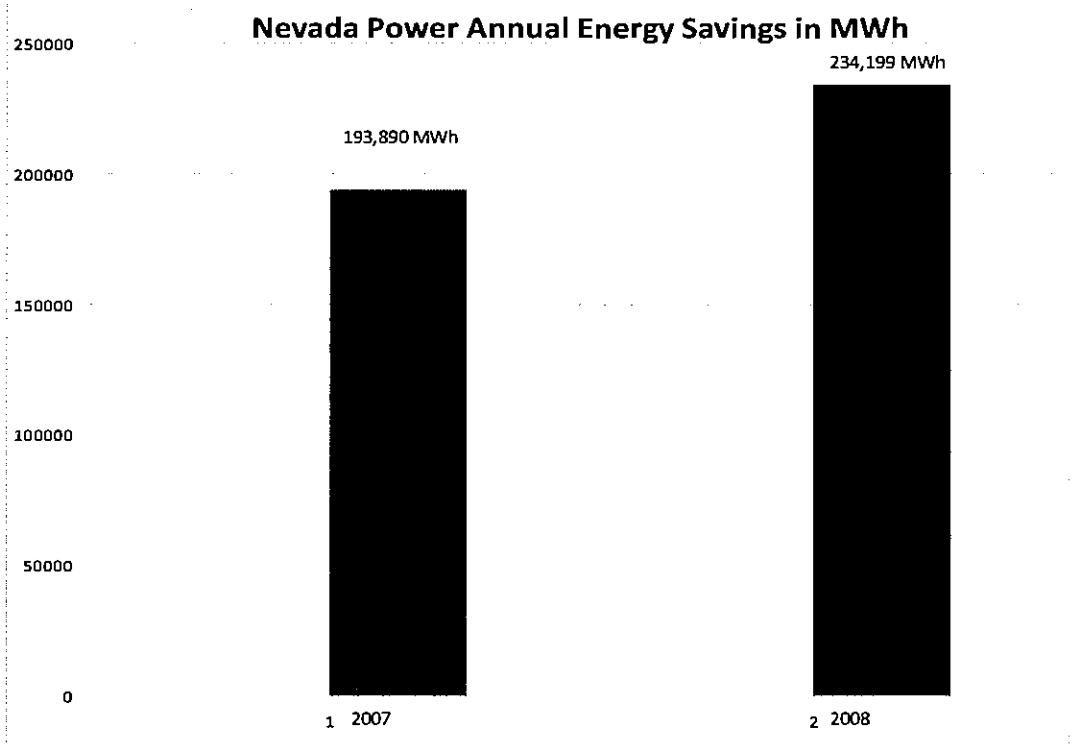


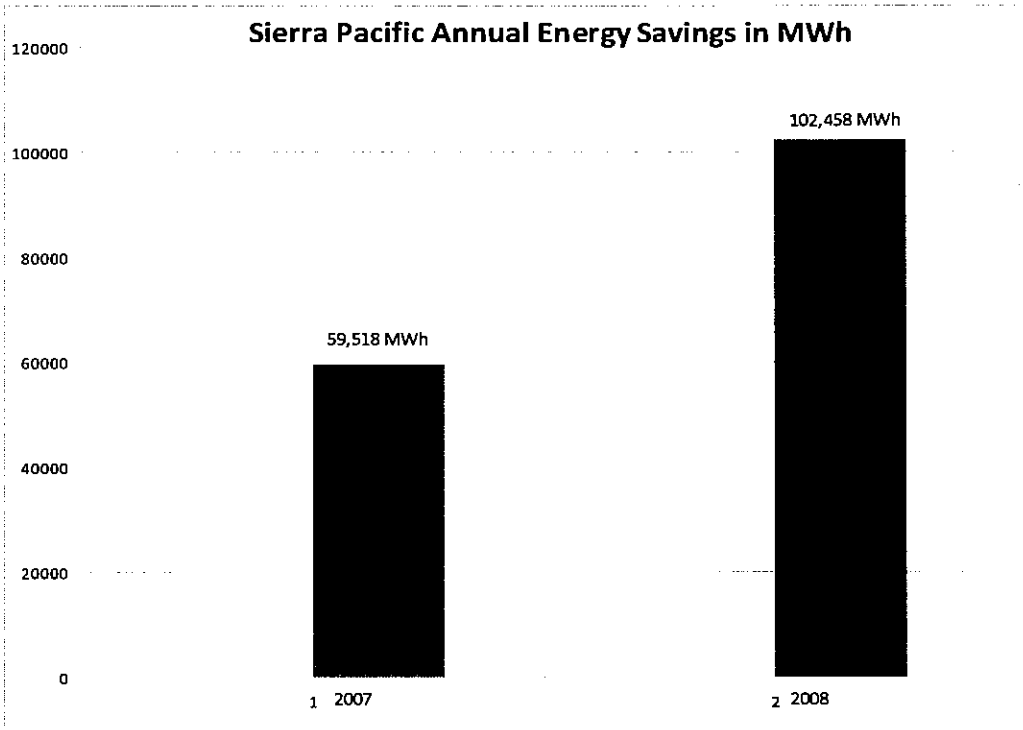
2008 Nevada Power Sources of Energy in MWh





Annual Energy Efficiency and Conservation Savings – 2007 and 2008





Nevada Rural Electric Cooperatives Electricity Consumption (44.7 % service area statewide)

The peak load for the cooperatives was 513 MW and usage was 2,496,000 MWh

Municipal Utilities Electricity Consumption

The peak load for the municipal utilities was 74 MW and usage was 288,488 MWh.

General Improvement Districts Electricity Consumption

The Peak load for the general improvement districts was 116.5 MW and usage was 100,010 MWh.

Wholesale Electricity Consumption

The wholesale usage was about 200 MW.

NATURAL GAS – 2007 and 2008

2007 Consumption

Residential:	38,088 mmcf
Commercial:	28,224 mmcf
Industrial:	13,234 mmcf
Electric Power:	171,473 mmcf
Other:	3,445 mmcf

Total Consumption: 254,464 mmcf

2008 Consumption

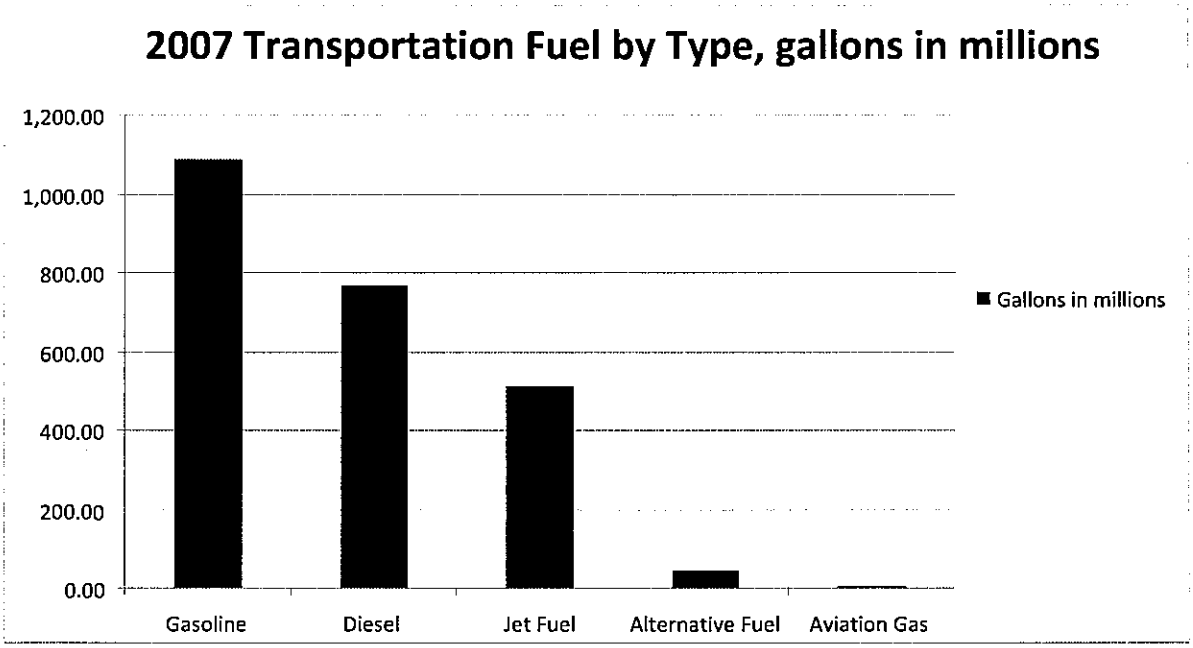
Residential:	38,671 mmcf
Commercial:	28,902 mmcf
Industrial:	12,797 mmcf
Electric Power:	176,325 mmcf
Other:	3,455 mmcf**

Total Consumption: 260,141 mmcf**

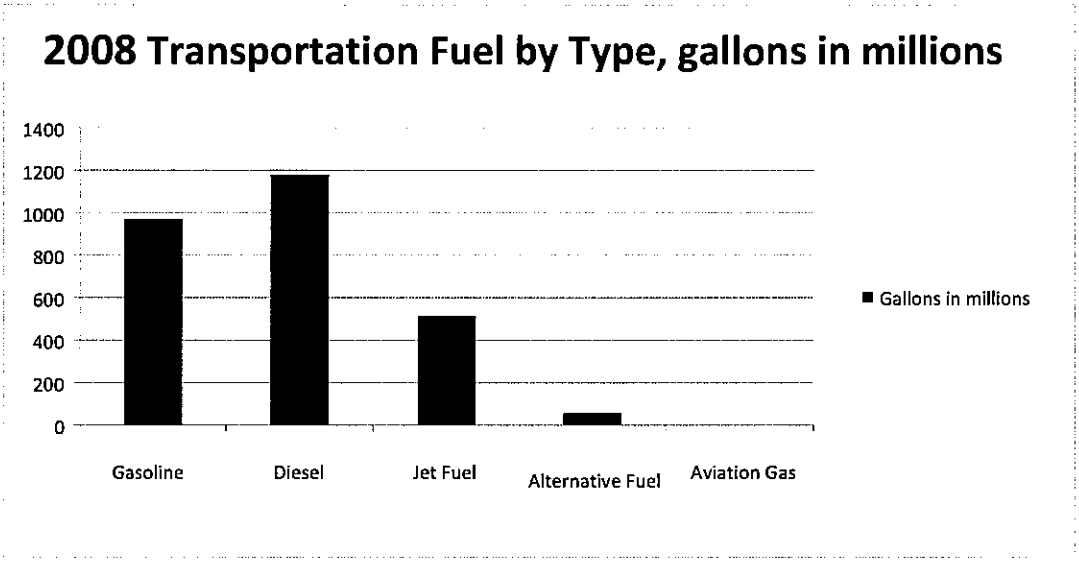
** estimated

TRANSPORTATION FUEL – 2007 and 2008

2007 Nevada Transportation Fuel by Type	Gallons in millions	%
Gasoline	1,085.70	44.85
Diesel	766.5	31.66
Jet Fuel	514.5	21.25
Alternative Fuel	44.94	2.12
Aviation Gasoline	2.982	0.12



2008 Nevada Transportation Fuel by Type	Gallons in millions	%
Gasoline	974.85	35.64
Diesel	1,179.78	43.14
Jet Fuel	516.6	18.89
Alternative Fuel	60.48	2.21
Aviation Gasoline	3.402	0.12



Transportation Fuel Consumption in gallons in 2008

Gasoline – 975 million gallons

Diesel – 1.18 billion gallons

Jet Fuel – 516 million gallons

Propane – 6.98 million gallons

Compressed Natural Gas – 837 thousand gallons (gge)

Hydrogen – Over 2000 gallons (gge)

Bio-diesel – 575,000 gallons

Ethanol – 52 million gallons

Glossary of Acronyms, Terms, Definitions & Conversion Factors

Glossary of Acronyms and Terms

ACLM – Air conditioning Load Management

APS – Arizona Public Service

bbl/day – barrels per day

Bcf – Billion cubic feet

Bcf/d – Billion cubic feet per day

BLM – Bureau of Land Management

BPA – Bonneville Power Administration

CAFÉ – Corporate Average Fuel Economy

CAISO – California Independent System Operator

CBG – Clean Burning Gasoline

CCSN – Community College of Southern Nevada

CFR – Code of Federal Regulations

CHP – Combined Heat and Power

COB – California –Oregon border

CREPC – Committee on Regional Energy Policy Coordination

DSM – Demand Side Management

Energy Star – Energy efficient equipment, appliances and structures that meet federal guidelines

EN-ti Project – Eastern Nevada Transmission Interconnection

EPA – Environmental Protection Agency

EVAMP – East Valley Master Plan

FOCUS – Facility Operator Certification for Utility Systems

gge – gasoline gallon equivalent

GWh – Gigawatt hours

HVAC – Heating Ventilation and Airconditioning

IPC – Idaho Power Company

IPP – Independent Power Producer

IRP – Integrated Resource Plan

Jet-A – Commercial aircraft turbine fuel

JP-8 – military turbine fuel

kV – kilo volts or one thousand volts

kWh – kilowatt hours

LADWP – Los Angeles Department of Water and Power

LDC – Local Distribution Company

LED – Light Emitting Diode

LEED – Leadership in Energy and Environmental Design

LLC – Limited Liability Corporation

LNG – Liquid Natural Gas

MAP – Management Assistance Partnership

mcf – thousand cubic feet

mmBtu – million BTU

mmcf - million cubic feet

mmscf – million standard cubic feet

MW – mega-watts

MWh – megawatt hours

NAS – Naval Air Station

NDEP – Nevada Division of Environmental Protection

NGA – National Governor's Association

NHTSA – National Highway Traffic Safety Administration

NPC – Nevada Power Company

NRS – Nevada Revised Statutes

NSHE – Nevada System of Higher Education

NSO – Nevada Solar One

NSOE – Nevada State Office of Energy

NVEN – NV Energy North

NVES – NV Energy South

PC – Portfolio Credits also personal computer

PG&E – Pacific Gas & Electric

PL – Public Law

PPA – Power purchase agreement

PS – Portfolio Standard

PSA – Public Service Announcement also Power Supply Assessment

PUCN – Public Utility Commission of Nevada

PV – Photo-Voltaic

REA – Rural Electrification Administration

REC – Renewable Energy Credit

RETAAC – Governor's Nevada Renewable Energy Transmission Access Advisory Committee

RFP – Request for Proposal

RFQ – Request for Qualifications

RPS – Renewable Portfolio Standard

RUS – Rural Utility Service

SAM – Supply Adequacy Module

SCE – Southern California Edison

SEER – Seasonal Energy Efficiency Ratio

SIP – State Implementation Plan

SPPC – Sierra Pacific Power Company

SRP – Salt River Project

SUV – Sport Utility Vehicle

SWIP – Southwest Inter-tie Project

UEPA – Utility Environmental Protection Act

U.S. – United States

U.S.C. – Untied States Code

VARS – Valley Area Routing & Siting

WAPA – Western Area Power Administration

WECC – Western Electricity Coordinating Council

WGA – Western Governor's Association

WIEB – Western Interstate Energy Board

WIRAB – Western Inter-connection Regional Advisory Body

WPEA – White Pine Energy Associates

WPES – White Pine Energy Station

Definitions

Energy is the ability to do work. It is stored in various forms including chemical energy in biomass, coal and oil, nuclear energy in uranium, gravitational energy in water used in hydroelectric plants, the wind and the sun.

British thermal unit (Btu) is the amount of energy in the form of heat which will raise the temperature of one pound of water one degree Fahrenheit. One Btu is equal to 252 calories.

Calorie is the amount of energy in the form of heat which will raise the temperature of one gram of water one degree Centigrade.

Watt is a unit of power, or rate of energy delivery, of one joule per second, or equivalently, one ampere of electric current delivered across a potential of one volt.

Heating degree days are relative measurements of outdoor air temperature and are obtained by subtracting the mean daily temperature from an established base temperature of 65 degrees Fahrenheit.

Cooling degree days are relative measurements of outdoor air temperature and are obtained by subtracting an established base temperature of 65 degrees Fahrenheit from the mean daily temperature.

Measurement of Energy Supplies

Petroleum products are measured in either gallons or barrels. A barrel contains 42 gallons.

Natural Gas is measured in either Mcf (1,000 cubic feet) or in therms. One Mcf contains approximately ten therms or one million Btu.

Coal is measured in tons.

Wood is usually measured in either tons or cords. A cord is an amount of stacked wood measuring 8 feet x 4 feet x 4 feet. The weight of a cord of wood varies according to the type of wood and its moisture contents, but is estimated at 1.5 to 2 tons. A face cord is the 8 feet x 4 feet face of a stacked cord but of shorter width. Common usage is three face cords to a full cord.

Conversion Factors

Average Energy Content of Various Fuels

1 kilowatt-hour of electricity.....3,413 Btu
1 cubic foot of natural gas.....1,008 to 1,034 Btu
1 therm of natural gas .....100,000 Btu
1 gallon of liquefied petroleum gas (LPG).....95,475 Btu
1 gallon of crude oil .....138,095 Btu
1 barrel of crude oil..... 5,800,000 Btu
1 gallon of kerosene or light distillate oil ....135,000 Btu
1 gallon of middle distillate or diesel fuel oil .....138,690 Btu
1gallon of residual fuel oil ....149,690 Btu
1 gallon of gasoline .....125,000 Btu
1 gallon of ethanol .....84,400 Btu
1 gallon of methanol .....62,800 Btu
1 gallon of gasohol (10% ethanol, 90% gasoline) ..... .120,900 Btu
1 pound of coal..... 8,100 to 13,000 Btu
1 ton of coal .....16,200,000 to 26,000,000 Btu
1 ton of coke .....26,000,000 Btu
1 ton of wood ..... 9,000,000 to 17,000,000 Btu
1 standard cord of wood .....8,000,000 to 24,000,000 Btu
1 face cord of wood ..... 6,000,000 to 8,000,000 Btu
1 pound of low pressure steam (recoverable heat) .....1,000 Btu

Measurement Conversions

1 short ton (ton) = 2,000 pounds = 6.65 barrels (crude oil)

1 metric ton (tonne) = 2,200 pounds

1 barrel (bbl) = 42 gallons = 5.615 cubic feet = 159.0 liters

1 Mcf = 1,000 cubic feet

1 therm = 100,000 Btu

1 thousand Btu (KBtu) = 1,000 Btu

1 million Btu (MMBtu) = 1,000,000 Btu

1 quad = 1.000,000,000 MMBtu

1 kilowatt-hour (kWh) = 1,000 watt-hours

1 megawatt-hour (MWh) =1,000 kWh or 1,000,000 watt-hours

1 gigawatt-hour (GWh) = 1,000 MWh or 1,000,000,000 watt-hours

1 gallon = 4.524 pounds liquefied petroleum gas

1 standard cord of wood = 8 feet x 4 feet x 4 feet = 128 cubic feet = approx. 4,000 lbs.

1 face cord of wood = 8 feet x 4 feet x 16 inches – 42.7 cubic feet = approx. 1,333 lbs.

Chapter 1- Electricity Assessment

Nevada's investor owned electric power utility operates within two control areas; the Sierra Pacific Power Company (Sierra Pacific) controlled areas located in Northern Nevada, and the Nevada Power Company (Nevada Power) controlled areas located in Southern Nevada. Several rural electric cooperatives, municipal power companies and general improvement districts also provide electricity service in Nevada. (see page 63 for the list of these companies).
On September 22, 2008, it was announced that Sierra Pacific and Nevada Power would change their operation to one name, NV Energy. For this report, the two who have become one will remain in separate format. To date, the company is in full operation under one name and information provided in future reports will be provided as one.

Sierra Pacific and Nevada Power serve 91 % of Nevada's electrical demand and the other electric providers collectively serve the remaining 9 % (see Table 1.1). Sierra Pacific and Nevada Power are not directly interconnected; therefore in evaluating the adequacy of electricity in Nevada it is appropriate to focus on the adequacy of supply in the two control areas separately. However, at least two potential transmission projects are being considered that would connect the two systems, resulting in enhanced opportunities for renewable energy development and improved system reliability.

Table 1.1 Nevada Electric Providers Service

Electric Providers	Use in 2007 (MWh)	% (2007)	Use in 2008 (MWh)	% (2008)
Nevada Power	21,797,366	-	21,572,516	66
Sierra Pacific	8,269,989	-	8,118,182	25
Other Providers	-	- 2884178	2,894,498	9
TOTAL	-	-	32,585,196	100

32575196

Investor Owned Utilities

Nevada Power Company

Nevada Power Company (Nevada Power) is a wholly owned subsidiary of NV Energy, an investor owned corporation with operating subsidiaries engaged in electric generation, transmission, and electric distribution in Southern Nevada. Nevada Power served approximately 827,000 costumers in Las Vegas, Henderson, Searchlight, Laughlin, Nellis Air Force Base, and U.S. Department of Energy's Nevada Test Site in Nye County.

Nevada Power's summer peak loads are driven by air conditioning demand. Winter peaks loads are low relative to the summer peak. Nevada Power's peak load increased at an average annual growth rate of 2.5% over the past five years while its total electric sales have increased at an average annual growth rate of 3.3% over the past five years. However, retail electric sales declined about 1.1 % in 2008 from 2007 (see Table 1-1) due to a decrease in residential costumer usage as a result of cooler summer weather and changes in residential costumer usage patterns. Nevada is ranked as the eight fastest growing state in the nation by the U.S. Census Bureau for the twelve months ended June 30, 2008. However, the southern Nevada's economy has been adversely affected by the recession facing the United States and the global economy, resulting in decrease in hotel/motel occupancy of 11.9% from the 2007 level and decrease in new home sales to 9,780 in 2008 compared to 19,670 in 2007 (36,051 in 2006).

Demand

Load and Resource Forecast

Nevada Power's integrated peak electric demand decreased from 5,866 MW in 2007 to 5,504 MW in 2008 due to varying weather conditions, economic conditions, and conservation efforts. Table 1-2 summarizes the Nevada Power's forecasted summer electric capacity requirement and resource needs

Table 1-2 Nevada Power's Forecasted Electric Capacity Requirements and Resources (MW)

	2009	2010	2011	2012	2013
Total Requirements	6,611	6,657	6,724	6,915	6,946
Resources					
Existing Generation	4,234	4,234	4,180	4,180	4,175
New Generation	-	-	489	489	489
Contracts for Power Purchases	2,431	2,231	2,237	2,237	2,275
Total Resources	6,665	6,465	6,906	6,906	6,939
Total Additional Required	-	192	-	9	7

Energy Supply

Nevada Power faces energy supply challenges for its load control area and continued price volatility in its service territory due to the whole sale market supply and gas prices.

Total System

In 2007, Nevada Power generated 63% and purchased 37% of its total system requirements while in 2008, it generated approximately 67.5% and purchased 32.5 % of its total system requirements. In 2008, company's generation also increased 3.1% from 2007.

Generation

The fossil generation resources owned by Nevada Power are listed in Table 1-3. Company's generation capacity consists of a combination of 33 gas, oil and coal generating units with a combined summer capacity of 4,002 MWs. In 2008, company completed construction of the Clark Peaking units for a total additional capacity of 619 MWs. Nevada Power is currently constructing additional 500 MW combined cycle unit at the Harry Allen Generating units with a operation date prior to summer of 2011. Also, company purchased 598 MW (nominally rated)

natural gas fired combined cycle power plant from Reliant Energy Inc (Higgins Generating Station)

Three of these facilities are jointly owned. The Southern Nevada Water Authority owns a 25% share of the Silverhawk combined-cycle natural gas plant; also the coal-fired Reid Gardner Unit 4 is jointly owned with the California Department of Water Resources; and the coal-fired Navajo plant located in Arizona has six regional co-owners including Nevada Power.

In 2007 Sierra Pacific Power and Nevada Power Companies (now NV Energy) proposed to build a 1,500 MW coal-fired power plant (2, 750 MW units) located approximately 15 miles north of Ely, Nevada. The proposed plant includes both wet and dry cooling to minimize water usage. The Nevada Division of Environmental Protection (NDEP) released a draft air quality permit in November 2007 with a public hearing on the project in January 2008. NDEP has not taken final action on the air permit application. The BLM released the Draft Environmental Impact Statement in January 2009. The BLM's Final EIS and Record of Decision have not yet been finalized. On February 9, 2009 NV Energy announced that it had "postponed its plans to construct a coal-fired power plant in eastern Nevada due to increasing environmental and economic uncertainties surrounding its development." The company has indicated that it is also pursuing a 235 mile 500 kV intertie project to connect the northern Nevada and southern Nevada power grids. The air permit application remains on temporary hold.

Table 1-3 Nevada Power's Generation Plants

Plant Name/ County	# of Units	Type (Fuel)	Summer Cap (MW)	Operating Status	Notes
Clark/	1	Gas (gas/oil)	54	In service	
Clark	6	Combined Cycle (gas/oil)	430		
	3	Peakers (gas)	619		
Higgins	3	Combined Cycle (gas)	530	In service	

Sunrise/ Clark	1 1	Gas (gas/oil) Steam (gas)	70 80	In service	
Harry Allen/ Clark	2	Gas (gas/oil)	142	In service	
Chuck Lenzie/ Clark	6	Combined Cycle (gas)	1,102	In service	
Silverhawk/ Clark	3	Combined Cycle (gas)	395	In service	NPC has 75% interest. Total capacity 520 MW
Navajo/ Arizona	3	Steam (coal)	255	In service	NPC has 11.3% interest. Total capacity is 2,250 MW
Reid Gardner/ Clark	4	Steam (coal)	325	In service	RG Unit #4 co-owned by CDWR; 32.2% owned by NPC. NPC will own 100% of RG #4 in 2013 (add'tl 232 MW) 232 MW of peaking capacity available to NPC from CDWR share of RG #4 through 2012, under contract through 2012.
Ely Energy/ White Pine	2	Steam (coal)	1,500	Postponed	750 MW in service June 2015; 750 MW in service June 2016. NPC ownership of 600 MW in each unit.

Purchased Power

During 2008, Nevada Power purchased 32.5% of its total energy requirements. Nevada Power has entered into long term purchase power contracts (3 or more years) generated by gas, hydro and renewable energy resource facilities with a total of 2,090 MW capacity and contract termination dates ranging from 2013 to 2032. 404 MWs of these contracts are renewable energy and approximately 325 MWs of this capacity are under construction.

Table 1-4 lists existing fossil generation resources located within the Nevada Power system, but not owned by the utility. They primarily comprise of natural gas-fired facilities, many of which use new and highly efficient combined-cycle technology.

Table 1-4 Nevada Power Non-Utility Generator In-System Resources – Privately Owned

Plant Name	# of Units	Type	Summer Cap (MW)	Operating Status	Notes
Mirant Apex/ Clark	1	Gas Combined Cycle	470	In service	
LV Cogen I and II	2	Gas Combined Cycle	274	In service	Contract for 274 MW with NPC
Sun Peak/ Clark	1	Gas Combustion Turbine	222 Peaking	In service	Contract for 222 MW with NPC
Hoover/ Clark		Hydro	200 Base	In service	Contract for 200 MW with NPC
QF/ Clark		Combustion Turbine and Combined Cycle	260	In service	Contract for 260 MW with NPC
El Dorado Energy/ Clark	1	Combined Cycle	492	In service	

Resource Planning Strategy

Nevada Power has the task of planning how best to meet the resource needs of electricity customers in southern Nevada. These plans are reviewed by many public and private stakeholders via regulatory proceedings before the Public Utilities Commission of Nevada (PUCN). The PUCN evaluates the utility's proposals and issues rulemakings regarding these energy resource plans for the state of Nevada.

A strategy is being pursued that provides a balance of generation supply and customer demand-side resources to best meet the state's growing energy needs and serve the public interest of Nevadans. These resources include fossil fuel generation, renewable energy generation, energy conservation and efficiency, demand-side management programs, and power purchases using intrastate and inter-state transmission assets.

Near-Term

The resources that Nevada Power owns, in conjunction with potential market purchases that may be available using the control area import capability and internal merchant generation, exceeds the capacity requirements by a safe margin in the near term. However as with Sierra Pacific, the potential for excess regional generation does not necessarily mean secured energy. Reserve margins in the southwest could become tight this summer if several unfavorable regional events occur. Resource challenges could periodically arise if regional energy supplies decline, for example as a result of a lower than expected hydro generation year in the Pacific Northwest and California; or customer demand is much greater than forecasted, for example, as during the unusually hot weather event that occurred in California during the summer of 2006. Such conditions could lead to calls for conservation or high spot market prices for energy. Therefore, it is important that Nevada Power's supply plan hedge against these possibilities through contracting forward for the power needed to meet the expected loads plus reserve requirements during the peak summer period.

Resource adequacy will be further enhanced by conservation and Demand Side Management (DSM) programs. The increased funding allocated by Nevada Power for DSM and conservation programs is an important step. As these programs take hold and as the State, Clark County and

Henderson conservation efforts further expand, the growth rate in the amount of energy needed to fulfill increasing demand should moderate.

Long–Term

The forecasted load growth on the Nevada Power system will require the future addition of resources to maintain resource adequacy and ensure system reliability. The planned addition of renewable resources and DSM programs are expected to provide a major contribution to future resource requirements but will not be adequate to meet all future resource requirements. The addition of 619 MW of natural gas-fired combustion turbines at the existing Clark station approved in the 2006 NPC Resource Plan, and a proposed 1,200 MW ownership share in the planned first phase of the 1,500 MW coal-fired Ely Energy Center (postponed) will also proposed to provide additional capacity needed to maintain resource adequacy. Even with these resource additions and planned conservation measures additional resources are forecast to be required. The optimal resource mix to maintain required reserve margins will be evaluated in future Resource Plans.

Renewable Portfolio Standards (RPS) and Renewable Generation in 2007 and 2008

As per NRS 704.7821, each provider of electric service is required to generate, acquire or save electricity from renewable portfolio energy systems or efficiency measures in an amount that is:

(a) For calendar years 2005 and 2006, not less than 6 percent of the total amount of electricity sold by the provider to its retail customers

(b) For calendar years 2007 and 2008, not less than 9 percent of the total amount of electricity sold by the provider to its retail customers

(c) For calendar years 2009 and 2010, not less than 12 percent of the total amount of electricity sold by the provider to its retail customers

(d) For calendar years 2011 and 2012, not less than 15 percent of the total amount of electricity sold by the provider to its retail customers

(e) For calendar years 2013 and 2014, not less than 18 percent of the total amount of electricity sold by the provider to its retail customers

(f) For calendar year 2015 and for each calendar year thereafter, not less than 20 percent of the total amount of electricity sold by the provider to its retail customers

Of the total amount of electricity that the provider is required to generate, acquire or save from renewable portfolio energy systems or efficiency measures during each calendar year, not less than 5 percent of that amount must be generated or acquired from solar renewable energy systems.

Of the total amount of electricity that the provider is required to generate, acquire or save from renewable portfolio energy systems or efficiency measures during each calendar year, not more than 25 percent of that amount may be based on energy efficiency measures. If the provider intends to use energy efficiency measures to comply with its renewable portfolio standard during any calendar year, of the total amount of electricity saved from energy efficiency measures for which the provider seeks to obtain portfolio energy credits, at least 50 percent of that amount must be saved from energy efficiency measures installed at service locations of residential customers of the provider.

NV Energy is required to file their annual RPS compliance report by April 1 following the end of each compliance year (April 1, 2008 for compliance year 2007 and April 1, 2009 for compliance year 2008) as per NAC 704.8879.

The status of Nevada Power's renewable energy and portfolio credit position reported in 2007 is shown in Table 1-5. In the short term, credit deficits in any year will be satisfied by purchases of portfolio energy credits (PC) (formerly renewable energy credits or RECs) from Sierra Pacific Power Company and other holders of surplus credits.

Table 1-5 Sierra Pacific / Nevada Power – NV Energy Renewable Portfolio Energy Credit Position (2007)

	2007 Actual	2008	2009	2010	2011	2012	2013	2014	2015
TOTAL RETAIL SALES (MWh)	30,117,706	30,399,520	31,638,106	32,682,245	33,842,227	34,423,786	35,172,717	35,843,655	36,503,344
RPS Requirement %	9%	9%	12%	12%	15%	15%	18%	18%	20%
Total PC Requirement	2,710,594	2,735,957	3,796,573	3,921,868	5,046,334	5,163,565	6,331,088	6,451,858	7,300,669
Non-Solar Requirement (95%)	2,575,064	2,599,159	3,608,744	3,725,778	4,794,017	4,905,387	6,014,535	6,129,265	6,935,635
Solar Requirement (5%)	135,530	136,798	189,829	196,093	252,317	258,178	316,554	322,593	365,033
DSM Allowance (25%)	677,648	683,989	949,143	980,467	1,261,584	1,290,891	1,582,772	1,612,964	1,825,167
COMPANY-OWNED									
Non-Solar	12	12	12	12	12	12	12	12	12
Solar	628	689	689	689	689	689	689	689	689
Company Owned Total	640	701	701	701	701	701	701	701	701
QF CONTRACTS									
Non-Solar									
Brady	92,357	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
Empire Energy	18,719	27,165	27,165	27,165	27,165	27,165	27,165	27,165	27,165
Homestretch I	3,089	2,781	2,781	2,761	2,761	2,761	2,761	2,761	0
Homestretch II	2,881	2,741	2,741	2,741	2,741	2,741	2,741	2,741	2,741
Hooper Hydro	1,620	1,953	1,953	1,953	1,953	1,953	1,953	1,953	1,953
Sierra Pacific Industries	86,772	92,054	92,054	92,054	92,054	92,054	92,054	92,054	92,054
Soda Lake	64,663	69,215	69,215	69,215	69,215	69,215	69,215	69,215	69,215
Steamboat Hills	27,980	67,904	67,904	67,904	67,904	67,904	67,904	67,904	67,904
Steamboat I	4,446	2,223	6,000	0	0	0	0	0	0
Steamboat IA	5,848	2,923	14,000	14,000	14,000	14,000	14,000	14,000	14,000
Steamboat II	47,586	107,000	107,000	107,000	107,000	107,000	107,000	107,000	107,000
Steamboat III	69,218	107,000	107,000	107,000	107,000	107,000	107,000	107,000	107,000
Stillwater I	49,525	49,858	43,451	0	0	0	0	0	0
TCID New Lahontan	12,097	18,074	18,074	18,074	18,074	18,074	18,074	18,074	18,074
WAPA Stampede	9,875	0	0	0	0	0	0	0	0
QF Contracts Non-Solar Total	496,680	710,672	719,318	668,867	669,867	669,867	669,867	669,867	667,106
NEW CONTRACTS									
Non-Solar									
Beowawe	132,247	123,845	123,845	123,845	123,845	123,845	123,845	123,845	123,845
Brady Station Usage	47,183	54,000	54,000	54,000	54,000	54,000	54,000	0	0
Fleish	14,716	17,633	17,633	17,633	17,633	17,633	17,633	17,633	17,633
Galena 3	0	180,813	205,469	205,469	205,469	205,469	205,469	205,469	205,469
Richard Burdette	174,411	212,486	208,172	205,121	212,486	208,172	205,121	212,486	208,172
State of Nevada, Department of Corrections	0	8,278	8,278	8,278	8,278	8,278	8,278	8,278	8,278
Steamboat Hills Station Usage	10,387	6,400	6,400	6,400	6,400	6,400	6,400	0	0
Steamboat I, IA, II, & III Station Usage	74,253	90,000	90,000	90,000	90,000	90,000	90,000	0	0
Truckee Meadows Water Reclamation Facility	15,536	9,700	9,700	9,700	9,700	9,700	9,700	9,700	9,700
Vardi	15,887	15,396	15,396	15,396	15,396	15,396	15,396	15,396	15,396
Washoe	9,417	13,286	13,286	13,286	13,286	13,286	13,286	13,286	13,286
Buffalo Valley	0	0	0	142,257	236,900	229,793	222,899	236,900	229,793
Carson Lake (PPA)	0	0	0	33,567	201,400	195,324	189,464	201,400	195,324
Carson Lake Basin Project	0	0	0	0	193,840	387,678	491,690	488,249	484,831
Desert Peak 2	111,045	130,935	130,935	130,935	130,935	130,935	130,935	130,935	130,935
Faulkner 1	0	0	0	250,847	286,204	286,204	286,204	286,204	286,204
Galena 2	43,903	99,810	99,810	99,810	99,810	99,810	99,810	99,810	99,810
Grass Valley	0	0	0	0	200,916	236,900	229,793	222,899	236,900
Hot Sulphur Springs	0	0	44,212	334,052	340,313	339,152	338,969	341,476	355,109
Salt Wells	0	0	23,828	95,312	95,312	95,312	95,312	95,312	95,312
Stillwater	0	0	47,317	188,927	188,927	188,927	188,927	188,927	188,927
Carson Lake (Ownership)	0	0	0	33,567	201,400	195,324	189,464	201,400	195,324
Goodsprings	0	0	0	19,828	47,582	47,582	47,582	47,582	47,582
Development Project B	0	0	0	0	580,480	580,480	580,480	580,480	580,480
Development Project C	0	0	0	0	367,920	367,920	367,920	367,920	367,920
Amor IX, Soda Lake 1&2 SU Purchase	83,847	0	0	0	0	0	0	0	0
Homestretch Geothermal SU Purchase	10,281	0	0	0	0	0	0	0	0
Ormat 2003 Station Usage PCs	0	168,887	0	0	0	0	0	0	0
New Contracts Non-Solar Total	723,124	1,153,484	1,100,276	2,080,227	3,910,511	4,119,701	4,190,547	4,075,585	4,078,209
Solar									
Nellis AFB Solar Star	6,841	73,358	72,991	72,626	72,263	71,902	74,542	71,185	70,829
PowerLight	12,646	12,082	12,082	12,082	12,082	12,082	12,082	12,082	12,082
Procaps Laboratory	642	715	715	715	715	715	715	715	715
Nevada Solar One (NPC)	33,598	80,084	80,084	80,084	80,084	80,084	80,084	80,084	80,084
Nevada Solar One (SPPC)	15,811	37,687	37,687	37,687	37,687	37,687	37,687	37,687	37,687
New Contracts Solar Total	69,537	203,926	203,558	203,194	202,831	202,470	205,110	201,753	201,397
NET METERED									
Non-Solar	0	105	315	525	735	945	1,155	1,365	1,575
Solar	4,790	7,093	12,841	18,608	24,366	30,123	35,881	41,638	47,396
Net Metered Subtotal	4,790	7,198	13,156	19,133	25,101	31,068	37,036	43,003	48,971
NON-SOLAR SUMMARY									
Carried Forward	1,176,203	188,322	66,480	0	0	937,261	1,995,912	2,313,411	2,429,671
Non-Solar PCs	1,219,817	1,844,257	1,819,924	2,750,831	4,581,126	4,786,525	4,861,582	4,748,809	4,744,902
DSM PCs	414,383	683,989	949,143	980,467	1,261,584	1,290,891	1,582,772	1,612,964	1,825,167
California RECs	(48,997)	(48,929)	(65,763)	(110,501)	(111,431)	(112,378)	(113,321)	(114,248)	(115,181)
Total Non-Solar PCs	2,761,386	2,665,839	2,769,785	3,620,597	5,731,278	6,902,299	8,327,945	8,558,936	8,884,580
Non-Solar Requirement	2,575,064	2,599,159	3,608,744	3,725,778	4,794,017	4,905,387	6,014,535	6,129,265	6,935,635
Surplus / (Open Position)	186,322	66,480	(838,960)	(105,178)	937,261	1,996,912	2,313,411	2,429,671	1,948,945
SOLAR SUMMARY									
Carried Forward	0	0	74,911	102,181	128,580	104,149	79,263	4,379	0
Solar PCs	74,955	211,709	217,099	222,492	227,888	233,282	241,680	244,060	249,482
Purchases from Nevada Power	0	0	0	0	0	0	0	0	0
Total Solar PCs	74,955	211,709	292,010	324,673	356,468	337,431	320,933	249,459	249,482
Solar Requirement	135,530	136,798	189,829	196,093	252,317	258,178	316,554	322,593	365,033
Surplus / (Open Position)	(60,575)	74,911	102,181	128,580	104,149	79,263	4,379	(74,134)	(115,552)

Table 1-6 Summary of Portfolio Energy Credits (PC) for 2007

	Nevada Power	Sierra	Total
Retail Sales (MWh)	21,873,043	8,244,665	30,117,708
Total PC Requirement (9%)	1,968,574	742,020	2,710,594
Non-Solar Requirement	1,870,145	704,919	2,575,064
Solar Requirement	98,429	37,101	135,530
Non-Solar Position			
Non-Solar Resources			
Preexisting Contracts	0	496,680	496,680
New Contracts	229,076	494,048	723,124
DSM	305,177	109,186	414,363
Company Owned	0	12	12
Net Metering	0	0	0
Carried Forward	0	1,176,203	1,176,203
Non-Solar Subtotal	534,253	2,276,129	2,810,383
Gross Non-Solar Compliance Position	(1,335,892)	1,571,210	235,319
California Set-Aside	0	(48,997)	(48,997)
Purchase / (Sale)	1,335,892	(1,335,892)	0
Net Non-Solar Position	**0**	**186,322**	**186,322**
Solar Position			
Solar Resources			
Company Owned	456	172	628
Solar Thermal Contracts	33,598	15,811	49,408
Solar PV Contracts	20,129	0	20,129
Net Metering	1,975	2,816	4,790
Carried Forward	0	0	0
Solar Subtotal	56,157	18,798	74,955
Gross Solar Position	(42,272)	(18,303)	(60,575)
Purchase / (Sale)	0	0	0
Net Solar Position	**(42,272)**	**(18,303)**	**(60,575)**

For 2008, NV Energy has acquired sufficient portfolio energy credits (PCs) to exceed the RPS total percentage (9%) requirement in 2008 including the solar requirement (5% of the total). NV Energy will carry a surplus of 236,550 kPCs forward to 2009. In 2008, NV Energy costumers for the first time achieved more savings than maximum allowed for the RPS requirement using the Demand Side Management (DSM) programs (a maximum allowance of 25% of the total RPS requirement is permitted to be met using DSM savings).

Table 1-7 shows a summary of NV Energy's RPS requirements and PC supply. In order for NV Energy to meet the RPS, a loan of 880,691 kPCs from Sierra Pacific to Nevada Power was necessary for the 2008 compliance year. Nevada Power will carry no solar kPCs and 107,948

DSM kPCs forward into 2009 while Sierra Pacific will carry 15,578 solar kPCs and 128,602 DSM kPCs forward into 2009.

Table 1-7 Summary of NV Energy's 2008 RPS positions

NV Energy, Inc.	Nevada Power	Sierra	Total
Retail Sales (MWh)	21,612,520	8,041,042	29,653,562
Total:			
9% of Retail Sales	1,945,127	723,694	2,668,821
Credit Supply Available for Compliance Year 2008:			
Carry Forward from 2007	0	186,322	186,322
Geothermal	377,056	1,208,693	1,585,750
Solar (including Net Metered Solar)	201,097	51,763	252,860
Biomass/Methane	0	84,104	84,104
Hydro	0	53,347	53,347
Wind	0	1	1
DSM Allowed (25% of Requirement)	486,282	180,923	667,205
Subtotal	1,064,435	1,765,153	2,829,588
Credits Loaned by Sierra to Nevada Power	880,691	(880,691)	0
Credits Allocated for California Compliance	0	(85,685)	(85,685)
Total 2008 Credit Supply Available for Compliance	1,945,126	798,777	2,743,903
Credit Surplus to Carry Forward	0	75,083	75,083
DSM Credit Surplus to Carry Forward	107,948	53,519	161,467
Total Credit Surplus to Carry Forward to 2009	107,948	128,602	236,550
Solar:			
5% of Total Requirement	97,256	36,185	133,441
Credit Supply Available for Compliance Year 2008	201,097	51,763	252,860
Solar Credits in Excess of Solar Requirement	103,841	15,578	119,419
Solar Credits Needed to Meet Total Compliance	103,841	0	103,841
Solar Credit Surplus to Carry Forward	0	15,578	15,578

NV Energy reported the following achievements as part of their 2008 RPS requirement:

1. NV Energy exceeded all RPS requirements for the calendar year 2008, despite significant underproduction from a number of geothermal plants under contract to NV Energy
2. NV Energy produced sufficient DSM credits to use the total allowance in 2008 at both companies
3. During 2008 Ormat's 26.5 MW Galena 3 geothermal plant reached commercial operation

4. Construction was under way on three new geothermal projects totaling 120.3 additional MW
5. NV Energy completed three contracts to expand the supply of geothermal power by 34.9 MW
6. NV Energy signed a joint development agreement to invest in a 200 MW wind project named China Mountain. NVE is co-developing the project with RES Americas
7. In response to declining production, Ormat completed repowering of several units at its Steamboat complex
8. Following PUCN approval in August 2008, the 6 MW Goodsprings Recovered Energy Generation (REG) project was given full notice to proceed to contruction. This project will use waste heat from the Kern River Gas Transportation compressor station which is scheduled for completion in 2010
9. With completion of the 64 MW Nevada Solar One project and the 12 MW Nellis Solar Star project in 2007, NV Energy exceeded the solar PS requirement and achieved the rank of number three among the nation's utilities in total solar capacity behind Southern California Edison and Pacific Gas & Electric Company in California and number two in total solar electric capacity per customer (73.2 watts per costumer) behind Southern California Edison (86 watts per costumer)
10. A memorandum of understanding was signed with Solar Millennium for potential development of a utility scale concentrating solar power plant with energy storage capability IN Southern Nevada

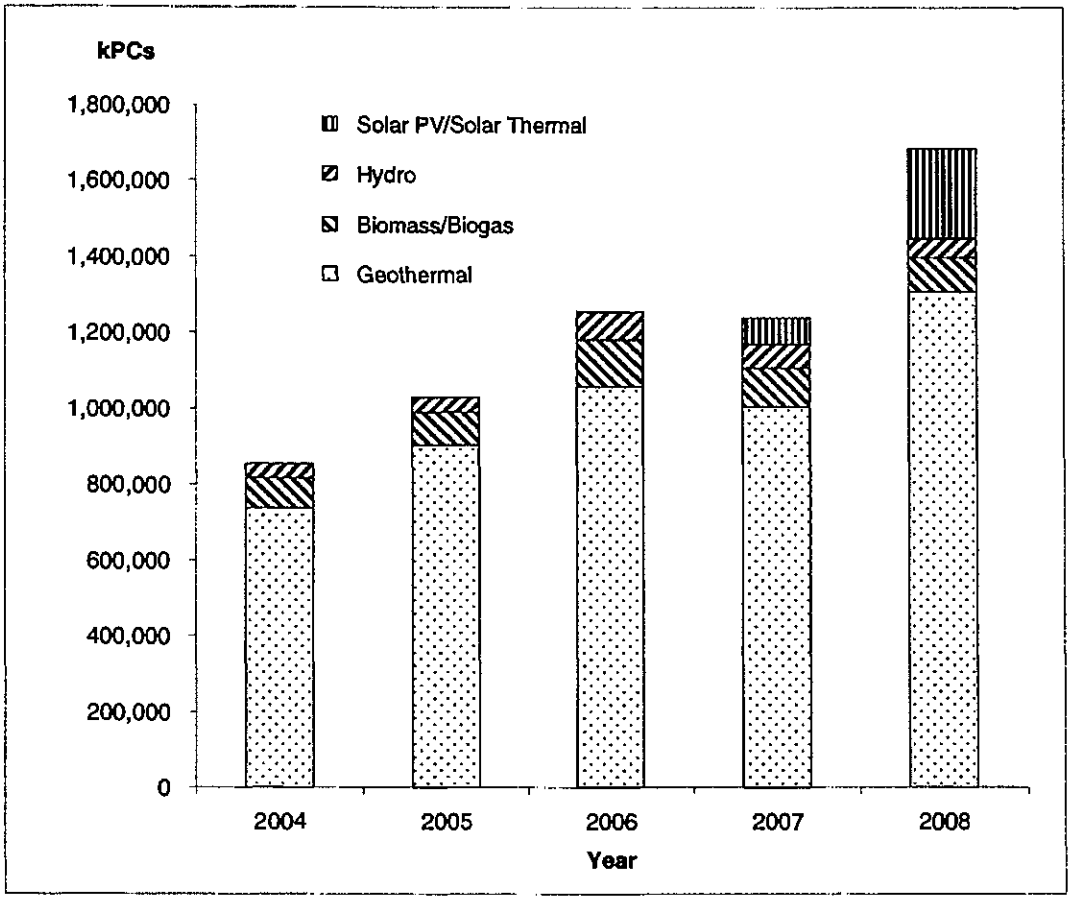
NV Energy, Inc.
Renewable Energy Project Contracts

No.	Project	MW	Annual MWhs	Status
	Geothermal Projects:			
1	Beowawe	17.70		In-Service
2	Brady	21.50		In-Service
3	Buffalo / Jersey Valley	31.50		Under Development
4	Carson Lake Basin	62.00		Under Development
5	Carson Lake	31.50		Under Development
6	Desert Peak 2	19.00		In-Service
7	Faulkner 1	49.50		Under Construction
8	Galena 2	13.00		In-Service
9	Galena 3	26.50		In-Service
10	Homestretch	2.10		In-Service
11	Richard Burdette	26.00		In-Service
12	Salt Wells	23.60		Under Construction
13	San Emidio	3.80		In-Service
14	Soda Lake 1	3.60		In-Service
15	Soda Lake 2	19.50		In-Service
16	Steamboat Hills	13.20		In-Service
17	Steamboat 1	5.00		In-Service
18	Steamboat 1A	2.00		In-Service
19	Steamboat 2	13.40		In-Service
20	Steamboat 3	13.40		In-Service
21	Stillwater 2	47.20		Under Construction
	Solar Projects:			
22	Las Vegas Valley Water District (6 sites)	3.06		In-Service
23	Nellis AFB Solar Star	12.00		In-Service
24	Nevada Solar One	64.00		In-Service
25	Procaps Laboratory	0.21		In-Service
	Biomass/Methane Projects:			
26	N. Nevada Correction Ctr.	1.00		In-Service
27	Sierra Pacific Industries	10.00		In-Service
28	Truckee Meadow Water Reclamation	1.40		In-Service
	Hydro:			
29	Fleish	2.25		In-Service
30	Hooper	0.75		In-Service
31	Truckee Carson Irrigation District	4.00		In-Service
32	Verdi	2.15		In-Service
33	Washoe	2.15		In-Service
	Waste Heat Recovery Project:			
34	Goodsprings	5.80		Under Construction
	Wind Projects			
35	China Mountain	200.00		Under Development

* Utility owned or co-owned as of 12/31/2008

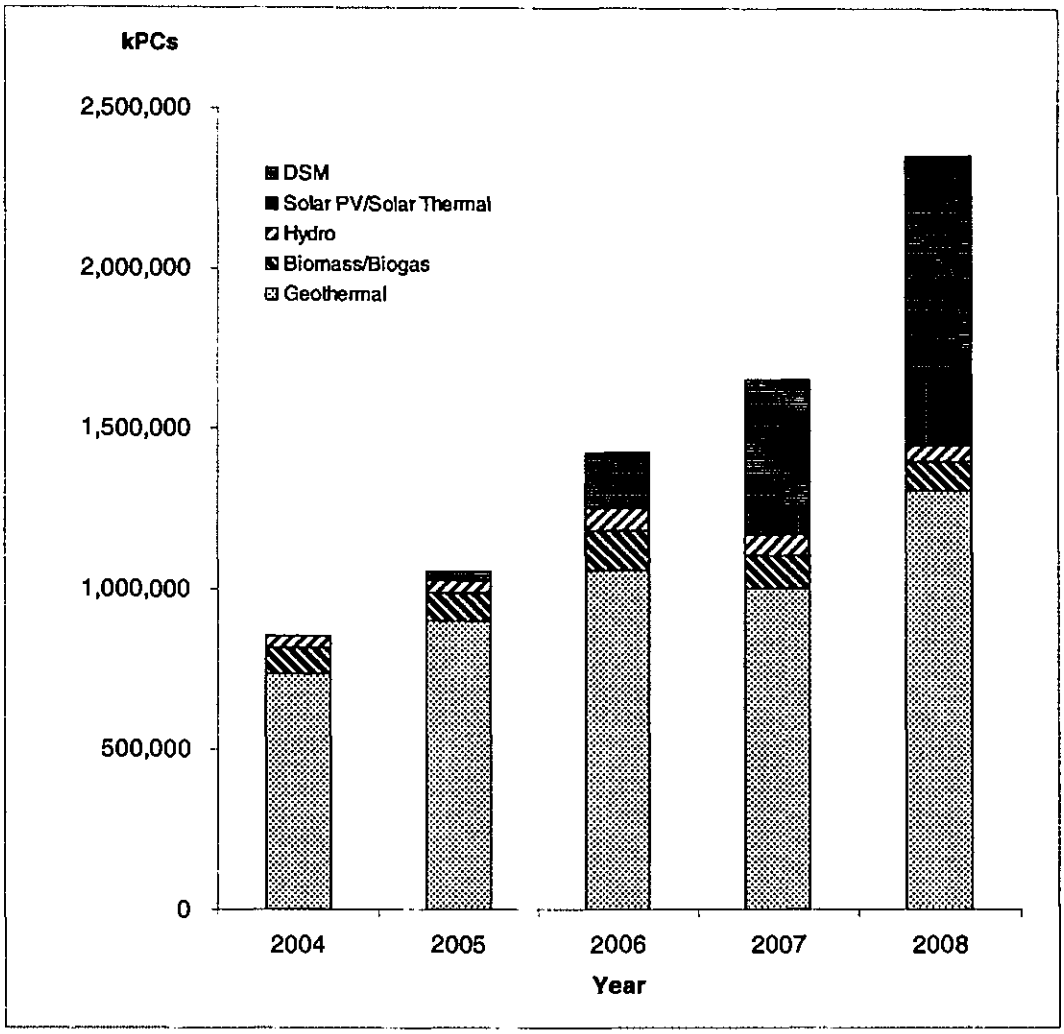
Since 2004 NVE has increased the amount of renewable energy in its portfolio by 98% through the addition of a substantial amount of new geothermal and solar energy. A total of eleven new renewable energy generation plants accounting for 132.3 MW of new capacity were brought on line in this time period. The following chart shows the production of credits from various energy sources since 2004. It does not include credits earned from energy efficiency (DSM) or the effect of any carry forward credits.

Figure 1-1 PCs produced by Energy Type 2004-2008



The following chart adds credits produced by customer energy efficiency programs (DSM). NVE doubled the amount of kWh saved through these programs in 2008 vs. 2007. This provided the full 25% of the RPS allowed and a surplus of 161,467 kPCs to carry forward. When all energy sources and DSM are taken together, the total number of portfolio credits increased by 42% from 2007 to 2008, despite underproduction from a number of geothermal facilities.

Figure 1-2 PCs produced 2004-2008 including DSM



Energy Efficiency and Conservation Opportunities

Table 1-8 provides a list of the energy efficiency and conservation programs currently offered by Nevada Power. More information is available on the utility's web site at http://www.nevadapower.com.

Table 1-8 Nevada Power Energy Efficiency and Conservation Programs

Program	Description
Air Conditioning Load Management (ACLM)	This program reduces peak demand caused by air conditioning load by either cycling a participant's air conditioning system or by increasing the temperature by 1-4 degrees on a provided thermostat. The normal operation lasts three hours in the late afternoon or early evening.
Cool Controls Plus Project	This project assists small hotel and motel owners reduce energy consumption by installing thermostats with occupancy sensors in each room that adjusts the temperature when a room is vacant after a specified period of time to reduce heating or air conditioning energy usage. The project also provides upgrades to fluorescent lighting and LED (light emitting diode) exit signs.
ENERGY STAR Lighting and Appliances	This program provides upstream buy downs for the costs of compact fluorescent bulbs and direct cash incentives to customers purchasing energy-efficient qualified appliances.
ENERGY STAR Manufactured Homes	This program provides incentives to manufacturers, dealers and contractors for the installation of ENERGY STAR qualified manufactured homes. Step taken include building envelope measures, air distribution systems, air conditioners, and compact fluorescent lamps.
High Efficiency AC Rebate	This program provides rebates to home builders and homeowners for the installation or retrofit of high efficiency air conditioning equipment with a 14 SEER rating or higher, duct sealing, and quality installation assurance measure.
Low Income Weatherizatio n for Single and Multi-Family	This project provides home weatherization measures to low income customers with family incomes that are between 150% of the Federal Poverty level and 60% of the county median income. These "gap customers" are not eligible for other weatherization programs. The program also provides participants with basic energy conservation education.

Market and Technology Trials	This program evaluates new or innovative energy-efficient technologies for potential energy conservation benefits. The target is to identify potential new projects to include in program offerings to customers as a part of the demand side management portfolio or for promotion through education programs.
Non-Profit Grants	This program assists non-profit organizations with energy efficient improvements in new and existing building projects. Grants are awarded based on the highest energy savings potential from the applications submitted.
Pool Pumps	This project provides incentives to residential customers who retrofit their pools with energy-efficient two-speed pool pumps.
Second Refrigerator Collection and Recycling	This program helps customers reduce their energy consumption by removing a second refrigerator or freezer from their residences. Each refrigerator or freezer is dismantled and all materials are either recycled or safely disposed of in an environmentally correct manner.
SureBet Commercial Incentives	The program facilitates the implementation of cost-effective and energy efficient lighting, HVAC, motors, refrigeration, and other energy efficiency measures for commercial, industrial and institutional facilities through a comprehensive incentive program (Prescriptive and Custom) and energy efficiency engineering services targeted at both customers and contractors.
SureBet New Construction	This program provides incentives and engineering design assistance for new buildings that are designed and constructed to achieve energy efficiencies at least 10% better than the efficiency required by code. LEED-based incentives are also available.
SureBet Schools	This project facilities energy efficiency and peak demand reduction in public schools by providing design assistance, technology assessments, case studies, and financial incentives for installed energy efficiency measures.
Zero Energy Homes	This new pilot project is designed to support the introduction and promotion of zero and near-zero energy homes in the Las Vegas new home construction market. It is structured to expose the value of investing in energy efficiency and renewable energy to home buyers, home appraisers, real estate agents, and financial companies.
Energy Education	This program provides energy education and efficiency outreach to customers through: Home and Trade Shows – Energy experts are available for speaking engagements and public events to provide information to customers

	and assist customers with energy related questions. Residential and Commercial Builders Support – Energy experts are available through public events and workshop opportunities to educate train the builder community regarding energy conservation. Energy Star Homes are promoted. Facility Operator Certification for Utility Systems (FOCUS) – A collaborative effort of Nevada Power, Sierra Pacific Power, the Community College of So NV (CCSN) and the Management Assistance Partnership (MAP) of the Nevada System of Higher Education. This program trains building facility operators on how to incorporate energy conservation in daily operations and how to evaluate, develop, and see lot management energy conservation upgrade projects for their businesses.

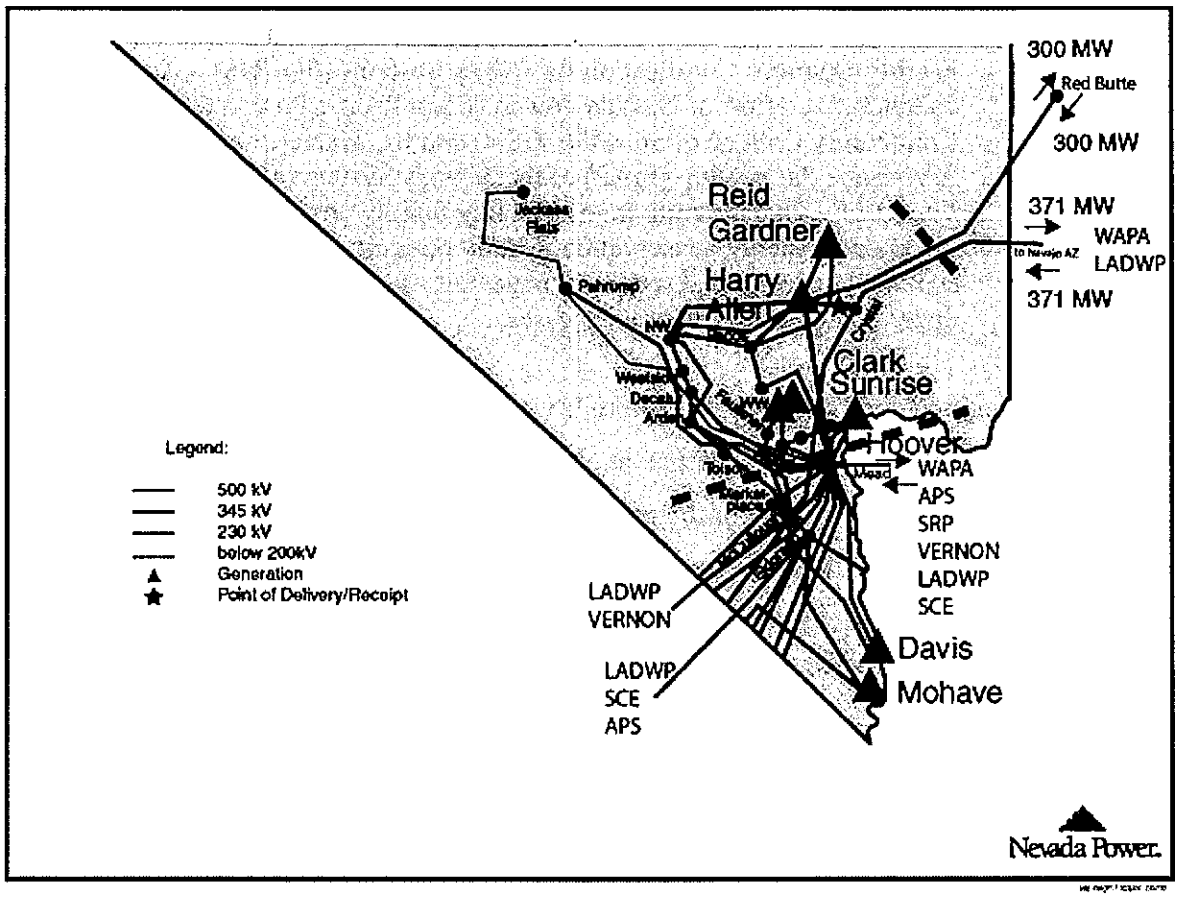
In completing an integrated resource plan, Nevada utilities are required to treat energy efficiency and energy conservation as if they were potential generation resources. This is a reasonable approach because it treats avoided consumption as if it had been actual consumption supplied by an internal generator. Also, there are generally two types of consumption to be avoided: energy consumption and peak capacity consumption. The two are broken out and treated differently because the costs associated with energy and capacity are different and they are billed differently to larger customers.

The Nevada Power system has a relatively low load factor, meaning that the difference between peak energy demand (peak capacity) and the average energy demand is fairly large. This is important because it follows that it will be relatively important to reduce the peak capacity. Accordingly, Nevada Power's energy efficiency and conservation programs are aimed at reducing energy consumption overall and especially during peak times.

Transmission System

The NV Energy South ("NVES") bulk transmission system is depicted in the map in Figure 1-3. The system primarily consists of 500 kV lines from Crystal to Harry Allen, Harry Allen to Northwest, and Harry Allen to Mead. Additionally, NVES has a 345 kV line from Harry Allen to Red Butte and several 230 kV lines from Mead, McCullough and Crystal. Extensive 230 kV, 138 kV and 69 kV lines interconnect throughout the Las Vegas Valley to complete the system.

Figure 1-3 NVES Power Transmission System



The NVES system also has three major interties that connect it to neighboring utilities. These interconnections allow for transfer of energy among the west coast utilities. A description of each intertie is provided below:

NVES to the Eldorado Valley - The NVES to Eldorado Valley interconnection is composed of nine 230 kV lines and one 500 kV line extending from the Las Vegas Valley to the Mead, McCullough, and Eldorado Substations. These lines are capable of approximately 3,000 MW of import and 3,800 MW of export with the new Harry Allen – Mead 500kV line in service. This is NVES's largest interconnection in terms of transmission capacity and is used to deliver off-system energy including its share of the Hoover Dam. NVES owns 10 of the 13 lines from the Las Vegas Valley into the Eldorado Valley.

NVES to Navajo – McCullough (Crystal Tap) - The Crystal Tap allows for 950 MW of transfers from the Navajo 500 kV system into or out of the NVES system. The Crystal Tap is composed of a pair of 500/230 kV step down transformers and a pair of 230 kV phase regulating transformers. NVE owns the entirety of the Crystal facilities.

NVES to Utah - The Red Butte to Harry Allen line is a 345 kV line running from the Las Vegas Valley to PacifiCorp's southern Utah system. This line is rated for 300 MW of transfer in both directions. NVE owns this line from Harry Allen to the Utah – Nevada state line.

Import Capability

The NVES transmission system is capable of importing up to 4,250 MW as the total simultaneous limit of flow on the three interties. As described above in the Transmission System section for NVEN, this limit is governed by the system ability to survive the loss of its single largest element; and the limit itself may also be less than 4,250 MW depending on generation dispatch patterns.

Export Capability

The NVES system is currently capable of exporting approximately 3,800 MW. However, this number is limited when generation resources are committed to serve balancing area load.

Recent and Planned Additions

Current and planned transmission resources in the NVES system are expected to be adequate to reliably serve customers in southern Nevada. NVES is continually in the process of upgrading its transmission facilities to serve the load growth in Las Vegas, North Las Vegas, Henderson, and other nearby communities.

One recent addition called the Centennial Project is a 500 kV system interconnected at Crystal, Mead, and Northwest Substations. It provides 3,000 MW of transmission service from Harry

Allen / Crystal to the Eldorado and Las Vegas Valleys. The system was completed in March of 2007. This system provides the base system for all future bulk system expansions including the ON Line project and the Sunrise Tap.

In planning for future system needs NVES has also received approval for portions of the East Valley Master Plan (EVAMP), Valley Area Routing and Siting (VARS) and West Henderson Master Plan. These are major bulk transmission expansions to meet load growth. Additionally, NVES is installing 7 major bulk/network 230/138 kV transformers and 14 new transmission/distribution substations. The timing of all of these facilities has been reviewed and many of these projects have been delayed to match the downturn in Las Vegas growth.
The proposed One Nevada Line (ON Line) transmission project (late 2012) that would interconnect northern and southern Nevada, will improve reliability in Nevada. The Robinson Summit to Harry Allen Substation 500 kV transmission line that is being considered as a north-south interconnection would provide southern Nevada with access to renewable energy, operational flexibility, and energy supplies that may exist in the regional northwest power pool during the summer. In addition, interstate transmission projects that are currently being studied may address bottlenecks outside of the Nevada Power system and increase reliability.

Sierra Pacific Power Company

Sierra Pacific Power Company (Sierra Pacific) is a wholly owned subsidiary of Sierra Pacific Resources, an investor owned corporation with operating subsidiaries engaged in energy and utility services. Sierra Pacific's electric division serves customers in a 50,000 square mile region of Northern Nevada and Northeastern California.

Demand

Load and Resource Forecast

Sierra Pacific forecasts its summer peak demand (including a planning reserve margin) to increase from 1,946 MW in 2009 to 2,459 MW by 2028, or 513 MW for an average annual growth rate of 1.2%. System energy requirements are projected to grow from 8,562 GWh in 2009 to over 10,448 GWh by 2028, for an average annual growth rate of 1%. The number of residential customers increases over the same 20-year period from 323,563 to 416,189, for an average annual growth rate of 1.3%. These projections are summarized in Table 1-9 and include forecasted energy savings from conservation and demand-side management (DSM) programs.

Table 1-9 Sierra Pacific Peak Demand, Annual Energy Requirements and Customers (Forecast)

	2009	2013	2018	2023	2028	Change
MW *	1,946	2,068	2,178	2,302	2,459	513
GWh	8,562	9,065	9,402	9,844	10,448	1,886
Residential Customers	323,563	347,729	375,560	397,659	416,189	92,626

* Includes planning reserve requirements.

Energy Supply

Generation Resources

Sierra Pacific meets its customers' needs through a combination of electricity generated at company-owned facilities and also with energy purchases from other electric generators. Electricity purchased from other utilities is usually imported into Sierra Pacific's system from Idaho (Midpoint Substation), Utah (Gonder Substation), or California (Hilltop Substation). These import ties are discussed under the Transmission System section below (see page 29). Electricity may be also purchased from non-utility generators located within the Sierra Pacific transmission system or may be delivered from Independent Power Producers (IPP's) through these import gateways. A summary of Sierra Pacific's plan to meet forecasted peak demand requirements is shown in Table 1-10.

Table 1-10 Sierra Pacific Forecast of Planned Resources

	2009	2013	2018	2023	2028
Demand (MW)	1,946	2,068	2,178	2,302	2,459
Existing Generation (MW) (net of retirements)	1,780	1,770	1,624	1,054	680
Planned Generation (MW)	-	-	300	841	1,923
Generation Total	1,780	1,770	1,924	1,895	2,603
Purchases (MW)					
Existing Long-Term	105	116	101	45	11
New Contracts	57	89	126	183	209
Purchases Total	162	205	227	228	220
Available Resources	1,942	1,975	2,151	2,123	2,823
Open Position	4	93	27	179	-

Fossil Generation

The fossil generation resources owned by Sierra Pacific are listed in Table 1-11. The 522 MW coal-fired Valmy facility is co-owned with Idaho Power Company. Its 50% output share of 261

MW may at times be available for purchase by Sierra Pacific when Idaho Power has excess generation at this facility.

Additionally, Table 1-12 lists existing and proposed fossil generation resources located within the Sierra Pacific system, but not owned by the utility.

Table 1-11 Sierra Pacific Fossil Generation Resources

Plant Name/ County	# of Units	Type	Summer Cap (MW)	Operating Status	Notes
Valmy/ Humboldt	2	Coal Steam	261 Base load	In service	50% ownership share shown
Tracy/ Storey	3	Gas/oil Steam	244 Intermed.	In service	
Pinon Pine/ Storey	1	Gas Combined Cycle	104 Base/Intermed.	In service	Originally designed as coal gasification
Clark Mtn/ Storey	2	Gas/oil Comb Turbine	132 Peaking	In service	
Tracy/Storey	1	Gas Comb Turbine	514 Base/Intermed.	In service	
Ft Churchill/ Churchill	2	Gas/oil Steam	226 Intermed.	In service	
Ely Energy/ White Pine	2	Coal Steam	300 Base	Postponed	750 MW in service June 2015; 750 MW in service June 2016. Sierra Pacific ownership of 150 MW in each of the two units.
Various small sites	16	Gas/Oil, Diesel	69 Peaking	In service	

Table 1-12

Sierra Pacific

Non-Utility Generator In-System Resources –Privately Owned

Plant Name/ County	# of Units	Type	Summer Cap (MW)	Operating Status	Notes
Boulder Valley/Eureka Newmont Mining	2	Coal Steam	203 Base load	In Service	
WP Power Sta./ White Pine	3	Coal Steam	1600 Base load	Planned/on hold	LS Power

Resource Planning Strategy

Sierra Pacific has the task of planning how best to meet the resource needs of electricity customers in northern Nevada. These plans are reviewed by many public and private stakeholders via regulatory proceedings before the Public Utilities Commission of Nevada (PUCN). The PUCN evaluates the utility's proposals and issues rulemakings regarding these energy resource plans for the state of Nevada.

A strategy is being pursued that provides a balance of generation supply and customer demand-side resources to best meet the state's growing energy needs and serve the public interest of Nevadans. These resources include fossil fuel-fired generation, renewable energy generation, energy conservation and efficiency, demand-side management programs, and power purchases using intrastate and inter-state transmission assets.

Near-Term

Sierra Pacific currently expects to have sufficient resources to meet its customers' energy requirements in 2009. Resource challenges could periodically arise if regional energy supplies decline, for example as a result of a lower than expected hydro generation year in the Pacific Northwest and California; or customer demand is much greater than forecasted, for example, as during the unusually hot weather event that occurred in California during the summer of 2006.

Long-Term

Sierra Pacific has new generation planned inside its control area during its three-year action plan. The utility is also studying the material condition of its existing power plants.
Sierra Pacific's long-term planning indicates the need for additional base load generation, also spurring a feasibility study for adding capacity at the Valmy Power Station. Further, non-utility entities are proposing new fossil-fueled and renewable generation located in Nevada. The construction of renewable energy facilities, the completion of the Falcon to Gonder transmission project which facilitates power imports, and the possibility of other projects in northern Nevada should ensure an adequate electricity supply.
Programs that aim to reduce electrical consumption of customers are also very important to a long-term resource strategy. The plans for demand-side management projects and other energy saving initiatives are more fully discussed in the section, Energy Efficiency and Conservation Opportunities.

The adequacy of Sierra Pacific's resource plans depends on a significant part on the utility's ability to implement its action plan. The financial condition of Sierra Pacific and other utilities in the west, as well as their access to capital and energy markets following the western energy crisis in 2001, continues to improve.

Renewable Generation

Table 1-13 lists the renewable generation resources currently under contract with Sierra Pacific and Nevada Power (NV Energy), as well as planned renewable energy projects as of January 2009. Figure 1-4 also provides a map of these facilities.

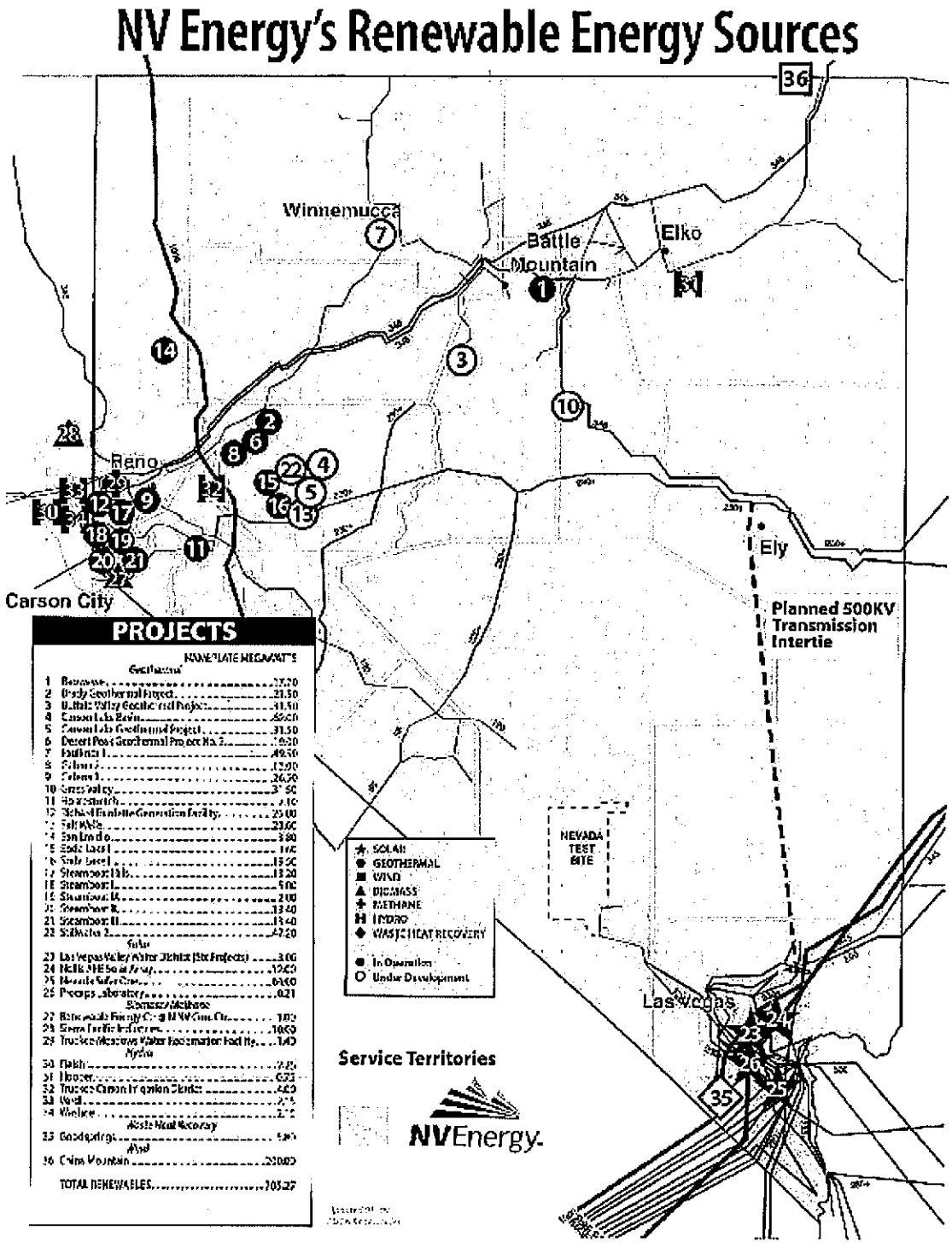
Table 1-13 Sierra Pacific and Nevada Power aka NV Energy, Inc.

Existing and Planned Renewable Energy Projects - January 2009

Energy Type	No.	Project	Company	MW	Annual MWh	Status
Geothermal	1	Beowawe	NV Energy	17.70		In-Service
	2	Brady	NV Energy	21.50		In-Service
	3	Buffalo Valley	NV Energy	31.50		Under Development
	4	Carson Lake Basin	NV Energy	62.00		Under Development
	5	Carson Lake	NV Energy	31.50		Under Development
	6	Desert Peak 2	NV Energy	19.00		In-Service
	7	Faulkner 1	NV Energy	49.50		Under Development
	8	Galena 2	NV Energy	13.00		In-Service
	9	Galena 3	NV Energy	26.50		In-Service
	10	Grass Valley	NV Energy	31.50		Under Development
	11	Homestretch	NV Energy	2.10		In-Service
	12	Richard Burdette	NV Energy	26.00		In-Service
	13	Salt Wells	NV Energy	23.60		Under Development
	14	San Emidio	NV Energy	3.80		In-Service
	15	Soda Lake 1	NV Energy	3.60		In-Service
	16	Soda Lake 2	NV Energy	19.50		In-Service
	17	Steamboat Hills	NV Energy	13.20		In-Service
	18	Steamboat 1	NV Energy	5.00		In-Service
	19	Steamboat 1A	NV Energy	2.00		In-Service
	20	Steamboat 2	NV Energy	13.40		In-Service
	21	Steamboat 3	NV Energy	13.40		In-Service
	22	Stillwater 2	NV Energy	47.20		Under Development
		Subtotal		**476.50**	**2,992,353**	
Solar	23	Las Vegas Valley Water District	NV Energy	3.06		In-Service

	24	Nellis AFB Solar Star	NV Energy	12.00		In-Service
	25	Nevada Solar One	NV Energy	64.00		In-Service
	26	Procaps Laboratory	NV Energy	0.21		In-Service
		Subtotal		**79.27**	**153,516**	
Biomass/Methane	27	Renewable Energy Ctr. @ N. NV. Correction Ctr.	NV Energy	1.00		In-Service
	28	Sierra Pacific Industries	NV Energy	10.00		In-Service
	29	Truckee Meadow Water Reclamation Facility	NV Energy	1.40		In-Service
		Subtotal		**12.40**	**1,937**	
Hydro	30	Fleish	NV Energy	2.25		In-Service
	31	Hooper	NV Energy	0.75		In-Service
	32	Truckee Carson Irrigation District	NV Energy	4.00		In-Service
	33	Verdi	NV Energy	2.15		In-Service
	34	Washoe	NV Energy	2.15		In-Service
		Subtotal		**11.30**	**49,494**	
Waste Heat Recovery	35	Good springs	NV Energy	5.80		Under Development
		Subtotal		**5.80**	**40,646**	
Wind	36	China Mountain	NV Energy	200.00		Under Development
		Subtotal		**200.00**	**350,400**	
Total				**785.27**	**3,588,346**	

Figure 1-4 NV Energy's Renewable Energy Sources



2006 was a watershed year for Sierra Pacific's and Nevada Power's renewable energy program. The utilities moved forward with a three-pronged strategy for compliance with the state of Nevada's Portfolio Standard (PS) by: 1) accelerating their renewable energy procurement ("RFP") process, 2) ramping-up DSM, and 3) direct utility investments in the development of renewable energy facilities. These efforts have resulted in more new renewable energy power purchase agreements and new renewable project development activity than at any time in the past.

In addition, as shown on Table 1-14 the utilities have added a number of customer-scale PV systems. These systems have provided the utilities with a useful test-bed to reveal the kinds of practical issues that may be encountered by customers and PV contractors in installing such systems.

Table 1-14 Sierra Pacific and Nevada Power Utility Owned Renewable Generation

	Date of Initial Operations	**Capacity (kW)**
Nevada Power		
Clark Amonix System	April 06	75
Ryan PV System	February 07	115
Pearson PV System	May 05	19
UNLV PV-1	June 05	14
Subtotal		**223**
Sierra Pacific		
Sierra Plaza PV	November 06	75
Sierra Plaza Tracking PV	November 06	1.2
Sierra Plaza Wind Generator	November 06	10
Ohm Fleet Facility	March 08	75
Subtotal		**161.2**
Total		**384.2**

Solar Energy

In June 2007, 64 MW Nevada Solar One (NSO) concentrated solar power (CSP) project was completed which was the largest solar project undertaken in the U.S. in over 15 years. Sierra Pacific has contracted to purchase 32 percent of the total output of the NSO project and Nevada Power has contracted with the remaining 68 percent. To further reinforce and diversify the utilities' solar supply portfolio, Nevada Power contracted to purchase portfolio energy credits from the 15 MW Nellis Air Force Base SolarStar photovoltaic (PV) project. SolarStar is the largest single photovoltaic project in the U.S which was completed in December 2007.
When these projects went into service in 2007, Nevada was be ranked **number one** in use of solar energy as measured in watts per person and percent of retail sales (kWh).

SolarGenerations Program

The Solar Energy Systems Demonstration Program (SolarGenerations) was created by the 2003 Nevada Legislature to encourage the development of a Nevada solar photovoltaic industry. The program was revised from a demonstration program to an ongoing program by the Legislature in 2007. The program provides customers in three categories with rebates for installing solar photovoltaic systems. The customer categories are: residents, small businesses, schools and other public buildings.

The SolarGenerations program is consistently oversubscribed in the residential and small business categories. Demand continued to be strong in 2008 with the residential and small business category fully subscribing within two hours.
On October 23, 2008 the Nevada Task Force on Renewable Energy and Energy Efficiency (Task Force) approved 869 applicants for participation in program year 2009/10. The number of applicants continues to increase over the previous years. Applications for public buildings exceed the program cap with a significant waiting list and schools applied for almost the entire two Megawatts of authorized capacity. An application was also submitted by the Nevada State Office of Energy for the State Capitol Building.

The number of solar contractors and consultants in Nevada continues to grow as a result of the SolarGenerations program and the quality of the installations is getting better as evidenced by the reduction in the issues discovered during final inspections. In addition training classes for building officials and inspectors have resulted in an increased level of confidence in various building departments. Building officials now quickly and routinely review and approve project plans. Training continues to be a high priority for all jurisdictions in the state as evidenced by new programs offered by Truckee Meadows Community College and the University of Nevada Reno.

Geothermal Energy

Geothermal development began resurgence in Nevada within last year few years. During 2006, the utilities completed negotiation and filed for PUCN approval of long-term power purchases from six new geothermal plants that will total over 120 MW when completed. In addition, as part of their long term strategy of promoting geothermal development in Nevada, the utilities are pursuing acquisition of geothermal leases and other development assets, and entered into joint development arrangements with ORMAT geothermal company that involves the utilities investing in geothermal projects.

Based on its existing portfolio Nevada ranks as the **number one** state in geothermal energy use measured in watts per capita, and second in percent of kWh sales. The state's leadership in geothermal development should continue into the future as projects currently in the development pipeline are completed.

Wind Energy

Consistent with the renewable energy development plans laid out in Nevada Power's 2006 Integrated Resource Plan (IRP) filing to help ensure a robust pipeline of wind projects, the utilities are negotiating joint development arrangements with several wind developers. The utilities are also in the process of acquiring the rights to sites with a potential capacity of 200 MW, installing anemometers, and conducting analyses to determine the potential viability of those sites.

WindGenerations Program

In 2007, the Nevada State Legislature created the Wind Energy Systems Demonstration Program. In the summer of 2008, NV Energy launched the WindGenerations program to implement this new program. WindGenerations is operated almost identically to the SolarGenerations program described above.

As of the end of January 2009, 106 applications have been approved by the Task Force and many of these projects are underway as of the preparation of this report. The application process is still open as the program is not oversubscribed in any category.

Many municipalities throughout the state have passed ordinances to encourage and facilitate the installation of wind power systems. Many municipalities however, are still evaluating the requirements. The program has provided training and has additional training scheduled to assist governing bodies in developing codes and ordnances governing wind energy installations. The Task Force, along with NV Energy are continuing to reach out to all municipalities throughout the state to encourage the development of these renewable energy friendly ordinances.

Hydro Energy

HydroGenerations Program

In 2007, the Nevada State Legislature also created the Waterpower Demonstration Program. In the summer of 2008, NV Energy launched the HydroGenerations program to implement this new program. HydoGenerations is aimed exclusively at agricultural uses throughout the state. NV Energy has reached out to all its' irrigation customers throughout the state and is expanding their effort to identify all of their customers who are eligible for this incentive program.

In the fourth quarter of 2008, 6 applications were approved by the Task Force. Waterpower systems are very involved in the design and permitting phase, so no projects are complete as of the report preparation period. Several projects are currently in the design phase and show great promise for completion in 2009.

Energy Efficiency and Conservation Opportunities

Table 1-15 provides a list of the energy efficiency and conservation programs currently offered by Sierra Pacific. More information is available on the utility's web site at http://www.sierrapacific.com/

Table 1-15 Sierra Pacific Energy Efficiency and Conservation Programs

Program	Description
ENERGY STAR Lighting and Appliances	This program provides upstream buy downs for the costs of compact fluorescent bulbs and direct cash incentives to customers purchasing energy-efficient qualified appliances.
High Efficiency AC Rebate	This program provides rebates to home builders and homeowners for the installation or retrofit of high efficiency air conditioning equipment with a 14 SEER rating or higher, duct sealing, and quality installation assurance measure.
Low Income Weatherization for Single and Multi-Family	This project provides home weatherization measures to low income customers with family incomes that are between 150% of the Federal Poverty level and 60% of the county median income. These "gap customers" are not eligible for other weatherization programs. The program also provides participants with basic energy conservation education.
Market and Technology Trials	This program evaluates new or innovative energy-efficient technologies for potential energy conservation benefits. The target is to identify potential new projects to include in program offerings to customers as a part of the demand side management portfolio or for promotion through education programs.
Non-Profit Grants	This program assists non-profit organizations with energy efficient improvements in new and existing building projects. Grants are awarded based on the highest energy savings potential from the applications submitted.
Second Refrigerator Collection and Recycling	This program helps customers reduce their energy consumption by removing a second refrigerators or freezers from their residences. Each refrigerator or freezer is dismantled and all materials are either recycled or safely disposed of in an environmentally correct manner.

SureBet Commercial Incentives	The program facilitates the implementation of cost-effective and energy efficient lighting, HVAC, motors, refrigeration, and other energy efficiency measures for commercial, industrial and institutional facilities through a comprehensive incentive program (Prescriptive and Custom) and energy efficiency engineering services targeted at both customers and contractors.
SureBet New Construction	This program provides incentives and engineering design assistance for new buildings that are designed and constructed to achieve energy efficiencies at least 10% better than the efficiency required by code. LEED-based incentives are also available.
SureBet Schools	This project facilities energy efficiency and peak demand reduction in public schools by providing design assistance, technology assessments, case studies, and financial incentives for installed energy efficiency measures.
Energy Education	This program provides energy education and efficiency outreach to customers through: Home and Trade Shows – Energy experts are available for speaking engagements and public events to provide information to customers and assist customers with energy related questions. Residential and Commercial Builders Support – Energy experts are available through public events and workshop opportunities to educate train the builder community regarding energy conservation. Energy Star Homes are promoted. Facility Operator Certification for Utility Systems (FOCUS) – A collaborative effort of Nevada Power, Sierra Pacific Power, the Community College of So NV (CCSN) and the Management Assistance Partnership (MAP) of the Nevada System of Higher Education.. This program trains building facility operators on how to incorporate energy conservation in daily operations and how to evaluate, develop, and see lot management energy conservation upgrade projects for their businesses.

In completing an integrated resource plan, Nevada utilities are required to treat energy efficiency and energy conservation as if these programs were potential generation resources. This is a reasonable approach because it treats avoided consumption as if it had been actual consumption supplied by an internal generator. There are generally two types of consumption to be avoided:

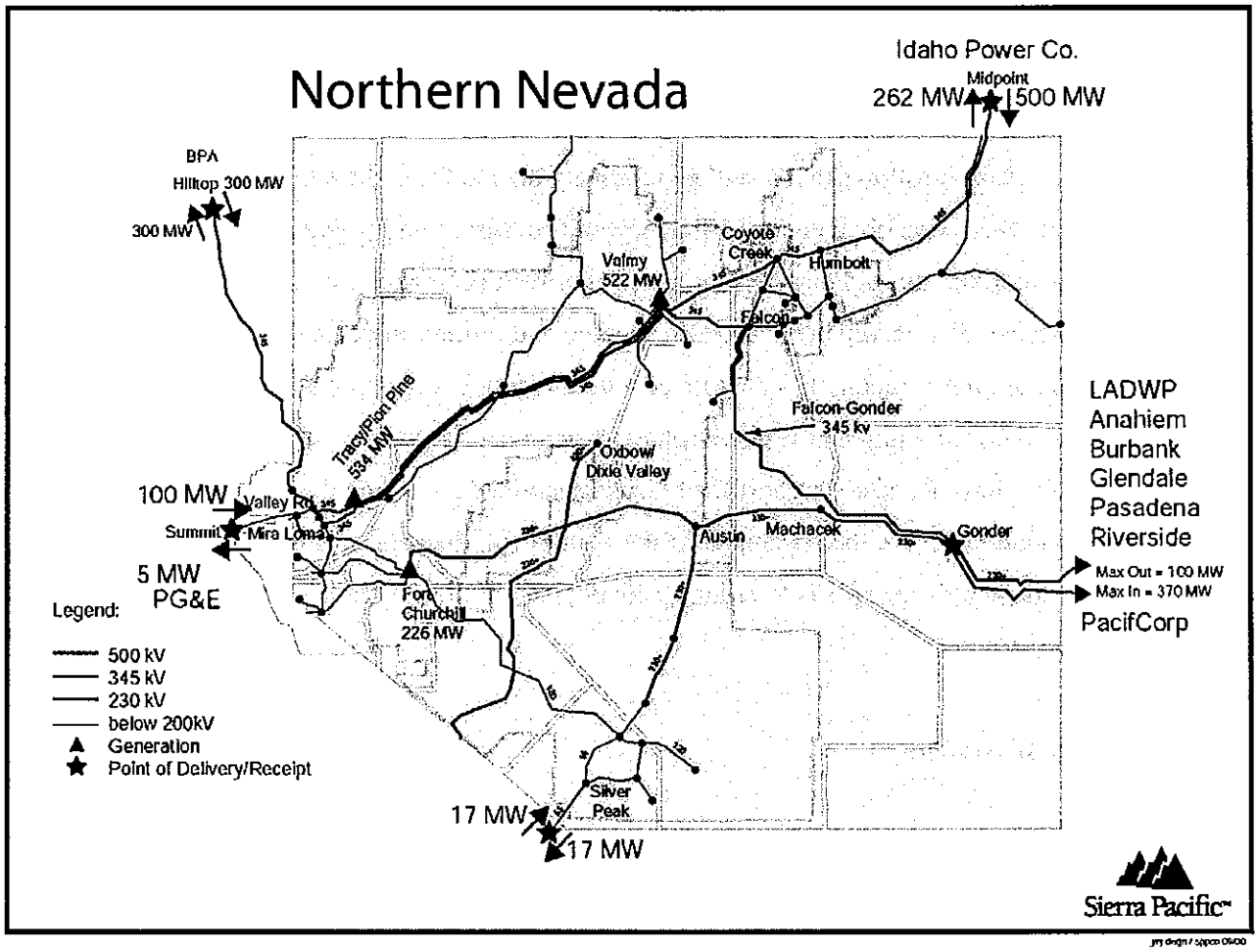
energy consumption and peak capacity consumption. The two are treated differently because the costs associated with energy and capacity is different and they are billed differently to larger customers.

The Sierra Pacific system has a relatively high load factor, meaning that the difference between peak energy demand (peak capacity) and the lowest energy demand is fairly small. This is important because it follows that it will be relatively difficult to reduce the peak capacity. Accordingly, Sierra Pacific's energy efficiency and conservation programs are aimed at reducing energy consumption throughout the year, i.e., not only during peak times.
In the future the relationship between peak demand and minimum demand is expected to change because one mining company has completed construction of a new power facility (Barrick) and a second is also constructing a new power plant (Newmont). This is relevant because the mines are generally Sierra Pacific's highest load factor customers and when they supply their own power, the load factor for the remainder of the system will decrease. This will have the effect of improving the payoff for efforts to reduce peak demand in the future.

Transmission System

The Sierra Pacific / NV Energy North ("NVEN") bulk transmission system is depicted in the map in Figure 1-5. The system primarily consists of single 345 kV lines from North Valley Road and Mira Loma to Tracy; a pair of 345 kV lines from Tracy to Valmy; and a 345 kV line from Valmy to Gonder. Additionally, there are single 345 kV lines connecting to Bonneville Power Administration (BPA) at Hilltop and to Idaho Power at Midpoint, as well as a 230 kV line that runs from Ft. Churchill (Yerington) to Gonder (Ely). Numerous smaller capacity 120 kV and 60 kV circuits complete the transmission system.

Figure 1-5 Sierra Pacific / NVEN Transmission System



As the transmission system Balancing Authority, NVEN (Sierra Pacific) is responsible for balancing electric supply and demand in real-time. Table 1-16 lists the major transmission interties between the NVEN system and neighboring systems, including transmission line voltages and non-simultaneous transmission line capacities. The transmission "capacity" refers to the non-simultaneous amount of electricity that each of the interties can import or export on an individual basis.

Table 1-16 NVEN Transmission Interties & Non-Simultaneous Design Capacities

Intertie	Balancing Area	Voltage (kV)	Capacity In/Out (MW)	Notes
Humboldt Line	Idaho Power	345	500/262	
Summit Line	CAISO PG&E	120 (2) & 60	100/120	
Alturas Line	COB/ BPA System	345	300/300	BPA has 110 MW cap into NVEN System
Utah Intertie	Gonder to PacifiCorp/Pavant and to LADWP et.al. /Intermountain PP	230	370/235	

A more detailed description of these four major interties with neighboring utility systems is provided below.

NVEN to Idaho (the Humboldt to Midpoint 345 kV line) – The Humboldt to Midpoint 345 kV line connects the NVEN system to Idaho Power Company. This is NVEN's largest intertie, with a capability of transferring 500 MW from Idaho to NVEN and 262 MW from NVEN to Idaho. NVEN and Idaho Power jointly own the line with ownership rights ending at the Idaho/Nevada border. NVEN has rights to the transmission capacity from Midpoint into Nevada. Idaho Power has rights to the transmission capacity from Humboldt to Idaho to move its 50% ownership of the Valmy power plant to Idaho.

NVEN to California/Oregon (the Alturas line) – The Bordertown to Hilltop 345 kV line connects NVEN to the energy-trading hub at the California – Oregon Border (COB) via a BPA 230 kV line from Alturas to COB. The Alturas intertie is capable of transferring 300 MW between COB and NVEN in both directions. The intertie is wholly owned by NVEN. BPA has

rights to 110 MW of the capacity from COB to NVEN to serve its contracts with the Harney and Wells Rural Electric Cooperatives.

NVEN to Utah (the Utah Intertie) – The Utah Intertie is composed of two 230 kV lines. One extends from the Gonder Substation (located near Ely, Nevada) to PacifiCorp's Pavant Substation. The other extends from Gonder to the Intermountain Power Project Substation (owned by the Los Angeles Department of Water and Power and others). These lines, in combination, are capable of transferring 370 MW east to west and 235 MW west to east. NVEN owns the Gonder to Pavant Line from Gonder to the state line. NVEN has no ownership in the Gonder Intermountain line.

NVEN to California (the Summit line) – The Summit intertie is composed of two 120 kV lines and one 60 kV line extending from NVEN over Donner Summit to the Pacific Gas and Electric (PG&E) system operated by the California Independent System Operator (CAISO). These lines are capable of transferring ~100 MW to and from California. Specific operating conditions in the PG&E and NVEN systems can dramatically reduce this tie's capability. NVEN owns these lines up to the Summit metering station on top of Donner Summit.

The total import capacity via these four interties that NVEN's control area can rely on at any given time (i.e., that can deliver firm imported power) is referred to as the simultaneous capacity. The simultaneous import capacity of the NVEN system is 1,000 MW, i.e., much lower than the summation of the four non-simultaneous line capacities. Simultaneous import ratings are developed under operating scenarios in which one of these transmission interties is taken out of service due to an unforeseen fault condition. Import limits are thereby established so that a loss of the most critical intertie will not overload the remaining interties and cause cascading outages. The import limit can also vary depending upon how much power is actually flowing on each of the four interties. The 1,000 MW simultaneous limit describes the system condition when actual import flows are optimized. However, it is important to note that it is not always possible to achieve the optimal flows for maximum import; for example, if a relatively large amount of power is imported on the Summit Line, the total system capacity can be less than half of the 1,000 MW simultaneous limit. Additionally, ambient temperatures can also affect total system capacity; for example, higher temperatures reduce the amount of power that can be transported

because of thermal loading limitations inherent in the type and size of conductor used in the transmission line. As a practical matter, NVEN maintains a series of nomographs that visually display the load limits for control area operators.

Import Capability

NVEN has approximately 283 MW of import capacity commitments under long-term contract to wholesale and retail access transmission customers. The remaining import capacity (of the 1,000 MW limit) which would be available for use by NVEN's native load customers is therefore 717 MW. This import capacity value represents the maximum amount of off-system purchases that NVEN can import into its system to serve its native load requirements.

Export Capability

In addition to the limitations outlined in Table 1-16, there is a total system export limit of approximately 700 MW out of NVEN's control area. Currently, NVEN does not export a great deal of power to wholesale customers; however this could change in the future as more internal generation is added to NVEN's system and also with the planned interconnection of the NVEN and NVES balancing areas via the 500 kV EN-ti Project in late 2012. Such an interconnection would allow for the interchange of power between the two control areas. Moreover this proposed interconnection will also serve to increase the existing import and export limits on the NVEN system. The following section describes the EN-TI Project in more detail.

Recent and Planned Additions

Current and planned transmission resources for the NVEN system are expected to be adequate to reliably serve customers in northern Nevada. NVEN is in the process of upgrading its transmission facilities to serve load growth in Reno, Sparks, Carson City, and other nearby communities. The demand for new and upgraded distribution facilities is among the highest in the west, however, due to the recent economic downturn, many facilities are being delayed.

Among the intrastate projects that are currently being discussed is a north-south Intertie from Robinson Summit near the Gonder Substation to the Harry Allen Substation near Las Vegas, One Nevada Transmission Line (ON Line) project. The completion of this or a similar link between the two systems is quite important. Not only does such a line provide needed operational flexibility for the utilities, but it also provides a path for renewable generation which is largely located in the northern part of the state to access the larger market in the southern part of the state. With respect to the permitting, ON Line will be included for final construction approval by the PUCN in NV Energy South's Integrated Resource Planning (IRP) filing due by July 1, 2009 (final decision 180 days thereafter). NV Energy has been permitted cost recovery for licensing and permitting activities associated with the line that are forecasted to be sufficient to continue with the project until a Commission decision in December '09. BLM permitting is ongoing. NV Energy expect that BLM can issue a decision in the 4th quarter of '09.

NVEN and NVES are also conducting routing studies for potential 345 kV (or higher) transmission lines along the western side of the State that may deliver future renewable projects to load centers throughout the State and beyond. NVE has filed a Statement of Interest with the Western Area Power Administration (WAPPA) to explore the joint permitting and construction of facilities along the western Nevada border between Las Vegas and Reno in a phased approach as needs arise.

Other Electric Service Providers

Nevada's rural areas and small cities are served by three types of electric service providers: rural electric cooperatives, municipal utilities and general improvement districts. Rural electric cooperatives are chartered under federal laws associated with the Rural Utility Service, the successor agency to the more widely know Rural Electrification Administration. Municipalities and improvement districts are chartered under state law, NRS 710, Utilities Owned by Local Governments, and NRS 318, General Improvement Districts, respectively. All of these providers are self-regulated and either owned by their members/customers or is accountable to them at the ballot box.

Rural Electric Cooperatives

Harney Electric

Headquartered in Burns, OR, Harney serves customers in south-eastern Oregon and north-central Nevada. Approximately 1,500 of Harney's customers are located in Nevada. Its highest peak load was 57 MW and it supplies approximately 183,000 MWh annually.

Mount Wheeler Power

Headquartered in Ely NV, Mount Wheeler serves approximately 7000 customers northeastern Nevada customers in Elko, White Pine, Eureka, and Nye Counties, as well as three Utah counties. Its highest peak load was 83 MW and it supplies approximately 505,000 MWh annually.

Penoyer Valley Electric Cooperative

Headquartered in Rachel, NV, Penoyer Valley serves customers in southeastern Nevada. Its highest peak load was less than 1 MW and it supplies approximately 1,000 MWh annually.

Plumas-Sierra Rural Electric Cooperative

Headquartered in Portola CA, Plumas-Sierra serves customers in California and Washoe County, Nevada. Its highest peak load was 25 MW and it supplies approximately 147,000 MWh annually.

Raft River Rural Electric Cooperative

Headquartered in Malta, ID, Raft River serves customers in Idaho, Utah and extreme northeastern Nevada. Its highest peak load was 75 MW and it supplies approximately 278,000 MWh annually.

Surprise Valley Electric

Headquartered in Alturas CA, Surprise Valley serves customers in California and northwestern Nevada. Its highest peak load was 33 MW and it supplies approximately 122,000 MWh annually.

Valley Electric Association, Inc.

Headquartered in Pahrump, NV, Valley Electric serves 20,913 services and 16,512 memberships in southern Nevada, west of Las Vegas, in Nye, Esmeralda, Clark and Mineral Counties. Its highest peak load was 123 MW and it supplies more than 464,000 MWh annually.

Wells Rural Electric

Headquartered in Wells, NV, Wells Rural Electric serves approximately 5,000 customers in northeastern Nevada, in Elko County and 1,000 customers in Western Utah. Its highest peak load was 116 MW and it supplies more than 796,000 MWh annually.

Municipal Utilities

Boulder City

Boulder City Utilities serves the citizens of Boulder City, southern Clark County. Its peak load has remained at approximately 51 MW and the supply has increased approximately 12% to over 183,000 MWh.

Caliente

Caliente Utilities serves the citizens of Caliente, south central Lincoln County. The peak load has remained the same at approximately 3 MW and the supply has increased approximately 46% to over 14,600 MWh.

Fallon

Fallon Utilities serves the citizens of Fallon in western Churchill County. Its highest peak load was 18 MW and it supplies slightly more than 83,000 MWh annually.

Pioche

Pioche Utilities serves the citizens of Pioche in east-central Lincoln County. Its highest peak load was 2 MW and it supplies approximately 7,888 MWh annually.

General Improvement Districts

Alamo Power District

Headquartered in Alamo, Nevada, Alamo Power District #3 serves customers in Lincoln County. Its highest peak load was 4.5 MW and it supplies approximately 14,600 MWh annually. Since the last report, the peak load has increased by 50% and the annual supply by 33%.

Lincoln County Power District #1

Headquartered in Caselton, Nevada, Lincoln County Power District #1 serves customers in Lincoln County. Its highest peak load was 20 MW and it supplies more than 85,000 MWh annually. Since the last report, the peak load has increased by 25% and the annual supply by 18%.

Overton Power District #5

Headquartered in Overton, Nevada, Overton Power District #5 serves 13,444 customers in eastern Clark County. Its highest peak load was 92 MW with annual kWh sales of 410,202.133.

Wholesale Electric Service Providers

Colorado River Commission (CRC)

The Colorado River Commission is a Nevada state agency. It is registered with FERC as a scheduling coordinator and is responsible for accepting and distributing power from Hoover Dam, as well as providing power for the Southern Nevada Water Authority and its associated water utilities, Nevada Power Company and a specific list of industrial customers located near Hoover Dam.

Proposed Electric Generation and Other Transmission Facilities

Table 1-17 lists the generation facilities currently in the permitting process, or under construction throughout the state. The table has been provided by the Public Utilities Commission of Nevada. A description of some of the larger projects follows the table.

Table 1-17 State of Nevada Proposed Electric Generation

Name	MW Generation	Location	Permits	Target Online Date
Salt Wells Geothermal Project	17 Geothermal	Salt Wells Churchill County 10 miles east of Fallon	Ongoing	MARCH 2009
Ely Wind Generation Facility	50 Wind	Ruth White Pine County 5 miles east of Ely	Ongoing	N/A
Falkner 1	25 Geothermal	Blue Mountain Humboldt County 20 miles west of Winnemucca	Ongoing	DECEMBER 2009
Granite Fox Power Project	1450 Coal	Gerlach Washoe County 100 miles north of Reno	Postponed	
LS Power White Pine Project	1600 Coal	White Pine County	On Hold	
Ely Energy Project	1500 + 1000 Coal	White Pine County	Postponed	N/A
Toquop Energy Project	750 Coal	Lincoln County	On Hold	
Carson Lake - Fallon Naval Air Station	30 Geothermal	Churchill County	TBD	N/A
Buffalo Valley	31.5 Geothermal	Lander County	TBD	N/A
Vulcan Power Fish Creek	30 Geothermal	Esmeralda County	TBD	N/A

Ely Energy Center

In 2007 Sierra Pacific Power and Nevada Power Companies (now NV Energy) proposed to build a 1,500 MW coal-fired power plant (2, 750 MW units) located approximately 15 miles north of Ely, Nevada. The proposed plant includes both wet and dry cooling to minimize water usage. The NDEP released a draft air quality permit in November 2007 with a public hearing on the project in January 2008. NDEP has not taken final action on the air permit application. The BLM released the Draft Environmental Impact Statement in January 2009. The BLM's Final EIS and Record of Decision have not yet been finalized.

On February 9, 2009 NV Energy announced that it had "postponed its plans to construct a coal-fired power plant in eastern Nevada due to increasing environmental and economic uncertainties surrounding its development." The company has indicated that it is also pursuing a 235 mile 500 kV intertie project to connect the northern Nevada and southern Nevada power grids. The air permit application remains on temporary hold.

Toquop Power Plant

now natural gas

In 2007 Sithe Global proposed to build a single unit 750 MW coal-fired power plant located approximately 15 miles northwest of Mesquite, Nevada. The proposed plant includes both wet cooling only. The NDEP released a draft air quality permit in December 2007 with a public hearing on the project in February 2008. NDEP has not taken final action on the air permit application. The BLM released the Draft Environmental Impact Statement in October 2007. The BLM's Final EIS and Record of Decision have not yet been finalized.

White Pine Energy Station

In 2004, White Pine Energy Associates, LLC (WPEA), a member of the LS Power Group (www.lspower.com), announced plans for a 1,600 MW coal-fired plant approximately 30 miles north of Ely in White Pine County (the White Pine Energy Station or WPES). The WPES is proposed to be located primarily on federal lands managed by the BLM. The WPEA will lease permitted water rights held by White Pine County and has stated the WPES will utilize a hybrid

cooling system that will use up to 5,000 acre-ft/yr of water which is approximately 80% less than a conventional cooled plant. WPEA has aided the City of Ely efforts in acquiring the Nevada Northern Railway and continues to aid Ely in efforts to rehabilitate the railroad for delivery of coal to the WPES, which includes a relocation of the rail spur to facilitate wildlife movement.

The following actions have occurred to date: (i) NDEP has released a draft air permit for the facility and a public hearing was held to solicit comments (ii) water rights are permitted, (iii) the BLM released the Draft Environmental Impact Statement in April 2007, (iv) the final EIS was released in October 2008, and (v) the Record of Decision was issued in December 2008. NDEP has not yet taken final action on the air permit application.

On March 5, 2009 LS Power announced that it was indefinitely postponing construction of the WPES due to "current economic conditions and increasing regulatory uncertainties." Also on March 5, LS Power withdrew its UEPA application with the Nevada PUC, indicating that it would re-file upon obtaining the final air permit from NDEP. Instead, LS Power announced that it "will focus the company's efforts on completing the Southwest Intertie Project ("SWIP")" – see **SWIP Transmission Line** discussion below.

SWIP Transmission Line

In 2005, the LS Power Group, an independent power company (www.lspower.com), announced plans to complete the Southwest Intertie Project (SWIP), a 500-mile 500 kV north-south AC transmission line which will interconnect the transmission systems of Idaho Power Company (IPC), Sierra Pacific Power Company (SPPC), and Nevada Power Company (NPC). The SWIP was conceived more than 20 years ago and a right-of-way was granted to IPC by the U.S. Bureau of Land Management in 1994. LS Power's affiliate, Great Basin Transmission, is completing the development and engineering of the project. The Phase 1 includes the southern half of the SWIP connecting SPPC and NPC and is slated to start construction in 2009 with commercial operation expected as early as 2010. Phase 2 includes the northern half connecting the Nevada systems to IPC and could commence commercial operation as early as 2011 (*http://www.reuters.com/article/pressRelease/idUS270102+06-Nov-2008+PRN20081106*). The

SWIP serves as the anchor for a BLM designated utility corridor and a number of transmission projects proposed for the eastern side of the state. It is designed to provide system stability and seasonal flexibility for delivering base load and renewable resources where needed most.

Wind Generation Projects

LS Power has partnered with Nevada Wind, LLC to develop a number of wind energy generation projects in western and eastern Nevada. Currently the developers are planning a 50 MW wind generation project in Washoe County. In addition, at least 250 MW of planned wind capacity is being developed in eastern Nevada along the SWIP corridor.

Regional Considerations

Regional Transmission Projects

Several regional transmission projects are underway that involve routes through Nevada. Those projects include the: Frontier Transmission Project supported by the Governors of Nevada, Utah, Wyoming and California; NorthernLights Inland Project developed by TransCanada and supported by the Governors of Montana, Idaho and Nevada; Eastern Nevada transmission Intertie supported by Nevada Power Company and Sierra Pacific Power company; Great Basin Transmission proposed by LS Power; TransWest Express Project proposed by Arizona Public Service and the Pacific Northwest/Canada to Northern California Project proposed by Pacific Gas and Electric. Sierra Pacific and Nevada Power are reviewing the results of these studies as they are produced to determine the impacts to customers.

Regional Reserve Margins

The Western Electricity Coordinating Council (WECC) approved a resource adequacy forecast in 2006, called the WECC 2006 Power Supply Assessment (WECC PSA). The demand forecasts and supply resources included in the analysis are based upon data through December

31, 2005. The WECC modeling effort uses data for all of the western interconnection that includes all of the far western, southwestern and intermountain states.

A primary purpose of the WECC PSA is to study the resource reserve margins on a Council-wide basis, identifying any sub-regions within WECC that have the potential for electricity supply shortages based on reported demand and generation while considering transmission constraints between the defined sub-regions. The WECC breaks the western states into 6 sub-regions along with further subdivision into a total of 26 zones. The strength of the WECC's Supply Adequacy Model ("SAM") is that it provides a summary of projected loads and resources for the entire western interconnection using the most recent data available. While SAM does consider transfer capabilities between zones, the model is not designed to perform more sophisticated transmission analysis with respect to the sub-regions. Therefore, while the model is useful for gaining a general understanding of Nevada's regional resource adequacy outlook, it cannot be relied upon as the final answer. A collection of efforts including modeling by Sierra Pacific and Nevada Power, supply plans filed by the utilities with the PUCN, and the critique of these models and supply plans in proceedings before the PUCN, must also be relied upon for a more comprehensive understanding of Nevada's resource adequacy.

The WECC modeled seven scenarios that covered summer and winter peak periods, as well as varying forecast assumptions with respect to high load conditions, planning reserve requirements, and the expected amount of new generation that becomes operational through the forecast period ending in 2015.

Under all scenarios, the Desert Southwest sub-region (which includes Nevada Power's service territory) and the Northwest sub-region (which includes Sierra Pacific Power's service territory) demonstrated adequate supplies for the near-term forecast year of 2007. The Desert Southwest sub-region showed the potential for slight generation deficits beginning in 2008 in two of the four summer scenarios, followed by the other two summer scenarios showing deficits beginning in 2009. In the Northwest, energy supplies were forecasted to be adequate through at least 2010. A full copy of the WECC 2006 Power Supply Assessment is available at the following web-link: http://www.wecc.biz/modules.php?op=modload&name=Downloads&file=index&req=viewsdownload&sid=56

Regional Organizations

NSOE and the PUCN, along with colleagues from the Consumer Advocate's office and the electric utilities, are called upon to engage their counterparts in other western states on electricity and natural gas issues. Much of the interaction among the states is directly in response to a greater willingness of the Western Governors Association to assert the interests of the western states in response to federal intentions to compromise those interests by proposing to exercise greater direct authority in western markets. In responding to the governors' directions, a fairly large number of organizations have emerged to perform analyses, communicate with Congressional Delegations, and basically formulate a cogent position for the western states. These organizations are identified in the following paragraphs.

Western Governors Association (WGA)

The WGA is a forum established to explore and act jointly on issues of mutual interest or concern. Recent WGA activities include environmental issues (for example, joint action on the status of listing the sage grouse as an endangered species) and several energy issues. Energy issues are generally addressed by the WGA directly or through the Western Interstate Energy Board (WIEB). The WGA has chosen to deal with the Clean and Diversified Energy resolution directly (this is the resolution that calls for the building of 30,000 MW of "clean and diversified energy" and the 20 percent improvement of energy efficiency by 2020).

Western Interstate Energy Board (WIEB)

The WIEB is a non-profit organization established to implement some of the energy initiatives of the WGA. Issues that fall within the purview of WIEB include activities related to (1) the Western Interstate Nuclear Compact, (2) the WGA protocol on transmission siting in the west, (3) a series of activities related to operational transmission issues and regional transmission organizations, and (4) actions taken to unify resource adequacy assessments, a role that has been delegated to Committee on Regional Energy Policy Coordination (CREPC).

Committee on Regional Energy Policy Coordination (CREPC)

CREPC functions in concert with WIEB and is active in carrying out several WGA initiatives. These include a very substantial effort to determine electric resource adequacy for the west. In connection with its work on electric adequacy, it soon became apparent that in order to determine electric resource adequacy, it was necessary to determine natural gas resource adequacy.

Western Interconnection Regional Advisory Body (WIRAB)

WIRAB was created by Western Governors under Section 215 of the Federal Power Act. The WIRAB is to advise WECC, the ERO and FERC on whether proposed reliability standards and the governance and budgets of the ERO and WECC are in the public interest. FERC may request that WIRAB provide advice on other topics.

Western Electricity Coordinating Council (WECC)

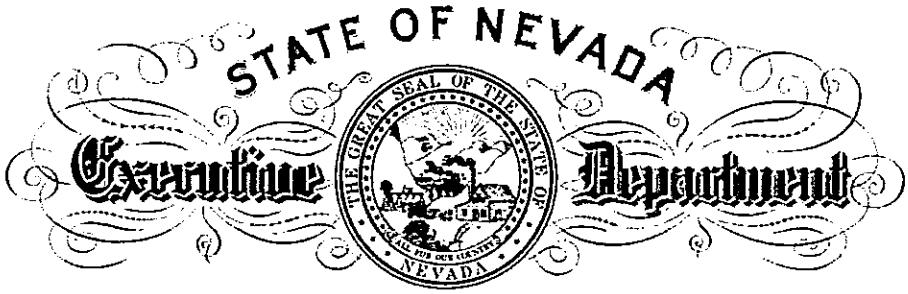
The WECC is an association with membership representing the entire spectrum of organizations with an interest in western interconnection reliability. It is the largest most diverse of the eight North American Electric Reliability Corporation (NERC) regional reliability councils. Until recently, the WECC's essential function was to establish and enforce voluntary reliability standards. However, compliance with reliability standards will become mandatory in accordance with the Energy Policy Act of 2005 and the Federal Energy Regulatory Commission has certified NERC as the Electric Reliability Organization. Therefore, WECC's role will transform into a monitor and enforcer of mandatory reliability standards through statutory authority delegated by NERC.

Governor's Renewable Energy Executive Orders

In 2007 and 2008, Governor Gibbons issued four executive orders. These executive orders are:

1) Encouraging the Development of Renewable Energy Resources in Nevada (February 16, 2007)
2) Establishing the Nevada Climate Change Advisory Committee (April 10, 2007)
3) Establishing the Nevada Renewable Energy Transmission Access Advisory Committee (RETAAC)-Phase I (MAY 9, 2007)
4) Establishing the Nevada Renewable Energy Transmission Access Advisory Committee (RETAAC) – Phase II (June 12, 2009)

The executive orders and press releases are posted at
(**http://gov.state.nv.us/GibbonsEnergy/**)



EXECUTIVE ORDER BY THE GOVERNOR

ENCOURAGING THE DEVELOPMENT OF RENEWABLE ENERGY RESOURCES IN NEVADA

WHEREAS, renewable energy reduces pollution and is available at prices that are stable and predictable for the life of the project; and

WHEREAS, renewable energy has the potential to supply a significant portion of Nevada's energy needs, provide economic development opportunities for Nevada's rural communities, diversify the State's economy, create high-paying jobs and create many other public benefits for the citizens of Nevada; and

WHEREAS, Nevada is a leader in renewable energy resources and is blessed with an abundance of these resources; and

WHEREAS, solar energy is both an abundant and natural form of energy and can be utilized to reduce energy consumption and Nevada leads the nation in the production of solar energy; and

WHEREAS, wind is the fastest growing energy resource in the world, is emission free and requires no water to produce electricity and Nevada ranks third in the western United States in wind resource potential; and

WHEREAS, the upper six miles of the Earth's crust has geothermal resources that far exceed the combined energy of all the oil and gas resources in the world and Nevada ranks first in the nation in geothermal resources and currently less than 10% of Nevada's geothermal power potential is being produced; and

WHEREAS, the use of biomass for energy helps reduce threats from wildfire while simultaneously improving the health of our range and woodlands; and

WHEREAS, there is an extensive list of permits required by Federal, State and County offices in order to utilize Nevada's renewable energy resources; and

WHEREAS, the permitting process can take in excess of three years; and

WHEREAS, Nevada should encourage renewable energy development within our State; and

WHEREAS, Article 5, Section 1 of the Nevada Constitution provides that "The supreme executive power of this State, shall be vested in a Chief Magistrate who shall be Governor of the State of Nevada."

NOW, THEREFORE, I, Jim Gibbons, Governor of the State of Nevada, by virtue of the power and authority vested in me by the Constitution and laws of the State of Nevada do hereby issue this order to become effective immediately:

1. The Nevada Office of Energy will serve as a central "informational resource" for renewable energy permitting. The Nevada Office of Energy will furnish information pertaining to the number and types of permits required. The Nevada Office of Energy will also provide information pertaining to the agencies/companies that are involved in the process.
2. The Nevada Office of Energy will update its website to include links and information pertaining to the permitting processes. The Nevada Office of Energy will serve as the informational hub for the renewable energy permitting processes.
3. All relevant State agencies shall review their permitting processes to ensure the timely and expeditious permitting of renewable energy projects. Agencies shall submit the results of this review to the Governor's Energy Advisor no later than June 1, 2007.
4. Expediting the permitting process should not diminish any public health and environmental regulations and/or the Nevada State Historic Preservation aspects of the permitting process.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City this 26th day of February, in the year two thousand seven.

Jim Gibbons
Governor of the State of Nevada

By the Governor:

Secretary of State of Nevada

Deputy

FILED
MAR 1 2 2007
SECRETARY OF STATE
ELECTIONS DIVISION

STATE OF NEVADA

Executive Department

EXECUTIVE ORDER BY THE GOVERNOR

ESTABLISHING THE NEVADA CLIMATE CHANGE ADVISORY COMMITTEE

WHEREAS, there is a concern that increased emissions of greenhouse gases may cause a change to the climate; and

WHEREAS, studies show that on a per capita basis, Nevada emits less greenhouse gas than the national average; and

WHEREAS, studies also show that per capita emissions of greenhouse gas in Nevada have decreased between 1990 and 2004 while national per capita emissions have remained constant; and

WHEREAS, Nevada can and should remain at the forefront of responsible and scientific efforts to evaluate ways to reduce emissions of greenhouse gases; and

WHEREAS, Nevada is a leader in renewable energy resources and is blessed with an abundance of these resources; and

WHEREAS, Nevada can further reduce greenhouse gas emissions by encouraging the development of renewable energy industries; and

WHEREAS, encouraging energy conservation policies will reduce greenhouse gas emissions and will help reduce cost of energy in the future; and

WHEREAS, Article 5, Section 1 of the Nevada constitution provides that "The supreme executive power of this State, shall be vested in a Chief Magistrate who shall be Governor of the State of Nevada."

NOW, THEREFORE, I, Jim Gibbons, Governor of the State of Nevada, by virtue of the power and authority vested in me by the Constitution and laws of the State of Nevada do hereby order and create the Nevada Climate Change Advisory Committee. The Committee will propose recommendations by which greenhouse gas emissions can be further reduced in Nevada, including the use of renewable energy resources. The Committee shall consist of 12 voting members and 1 non-voting member appointed by the Governor and who serve at the pleasure of the Governor. The Committee shall submit a final report and recommendation to the Governor by May 31, 2008.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City this 10th day of April, in the year two thousand seven.

Governor of the State of Nevada

By the Governor:

Secretary of State of Nevada

Deputy

STATE OF NEVADA

Executive Department

EXECUTIVE ORDER BY THE GOVERNOR

AMENDING THE NUMBER OF MEMBERS ON THE NEVADA CLIMATE CHANGE ADVISORY COMMITTEE

WHEREAS, the Nevada Climate Change Advisory Committee was formed by Executive Order on April 10, 2007; and

WHEREAS, Article 5, Section 1 of the Nevada Constitution provides that "The supreme executive power of this State, shall be vested in a Chief Magistrate who shall be Governor of the State of Nevada."

NOW, THEREFORE, this Executive Order is hereby issued and the number of members of the Nevada Climate Change Advisory Committee is changed from twelve voting members and 1 non-voting member to fifteen voting members. The Executive Order of April 10, 2007, is in all other ways unchanged and remains in full force and effect.

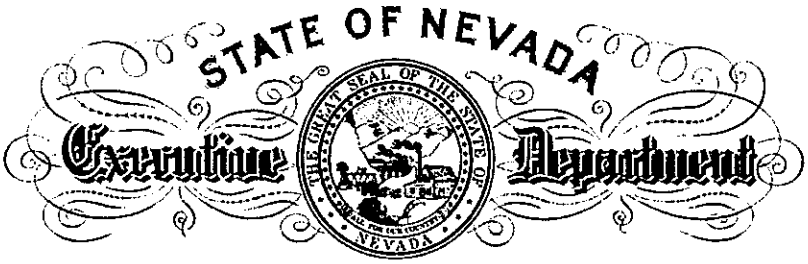
IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City this 15th day of August, in the year two thousand seven.

Governor of the State of Nevada

By the Governor:

Secretary of State of Nevada

Deputy



EXECUTIVE ORDER BY THE GOVERNOR

ESTABLISHING THE NEVADA RENEWABLE ENERGY TRANSMISSION ACCESS ADVISORY COMMITTEE

WHEREAS, Nevada is a leader in renewable energy resources and is blessed with an abundance of these resources; and

WHEREAS, the upper six miles of the earth's crust has geothermal resources that far exceed the combined energy of all the oil and gas resources in the world and Nevada ranks first in the nation in geothermal resources and currently less than 10% of Nevada's geothermal power potential is being utilized; and

WHEREAS, solar energy is both an abundant and natural form of energy and can be utilized to reduce energy consumption and Nevada anticipates leading the nation in the production of solar energy; and

WHEREAS, wind is the fastest growing energy resource in the world, is emission free and requires no water to produce electricity and Nevada ranks third in the western U.S. in wind resource potential; and

WHEREAS, the use of biomass for energy helps reduce threats from wildfire while simultaneously improving the health of our range and woodlands; and

WHEREAS, currently Nevada is a net importer of energy and development of our renewable energy resources will help reverse Nevada's dependence on imported energy; and

WHEREAS, Nevada's renewable portfolio standard (RPS) requires electric service providers to sell 20% of their sales from renewable energy and energy efficiency measures by 2015; and

WHEREAS, renewable energy has the potential to supply a significant portion of Nevada's energy needs, provide economic development opportunities for Nevada's rural communities, diversify the state's economy, create high-paying jobs and create many other public benefits for the citizens of Nevada; and

WHEREAS, Nevada should encourage renewable energy development and renewable energy policies within our State; and

WHEREAS, encouraging the development of renewable energy industries can reduce greenhouse gas emissions; and

WHEREAS, encouraging renewable energy policies will help reduce cost of energy in the future; and

WHEREAS, renewable energy is in many instances located in areas without developed transmission infrastructure; and

WHEREAS, renewable energy development requires reliable transmission access; and

WHEREAS, Article 5, Section 1 of the Nevada Constitution provides that "The supreme executive power of this State, shall be vested in a Chief Magistrate who shall be Governor of the State of Nevada."

NOW, THEREFORE, I, Jim Gibbons, Governor of the State of Nevada, by virtue of the power and authority vested in me by the Constitution and laws of the State of Nevada do hereby order and create the Nevada Renewable Energy Transmission Access Advisory Committee. The Committee will propose recommendations for improved access to the grid system by which renewable energy industries can set up and have market access in Nevada and neighboring states. The Committee shall follow the open meeting law. The Committee shall consist of 14 voting members appointed by the Governor and who serve at the pleasure of the Governor. The Committee shall submit a final report and recommendation to the Governor by December 31, 2007.

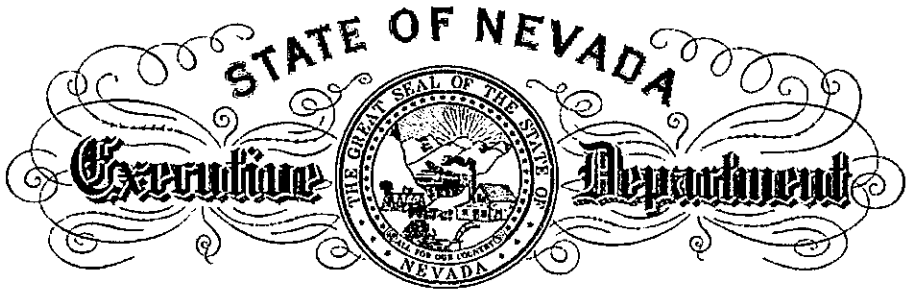
IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City this 9th day of May, in the year two thousand seven.

Governor of the State of Nevada

By the Governor:

Secretary of State of Nevada

Deputy



EXECUTIVE ORDER BY THE GOVERNOR

ESTABLISHING THE NEVADA RENEWABLE ENERGY TRANSMISSION ACCESS ADVISORY COMMITTEE (PHASE II)

WHEREAS, Nevada currently imports more than half of its electricity; and

WHEREAS, Nevada is blessed with an abundance of renewable energy resources and development of our renewable energy resources will help reverse Nevada's dependence on imported electricity; and

WHEREAS, renewable energy has the potential to provide economic development opportunities for Nevada's rural communities, diversify the state's economy, create high-paying jobs and create many other public benefits for the citizens of Nevada; and

WHEREAS, encouraging the development of renewable energy industries and renewable energy policies will help reduce cost of energy and also help reduce greenhouse gas emissions; and

WHEREAS, Nevada's renewable portfolio standard (RPS) requires that by the year 2015, twenty percent of the total electricity sold in this State by a provider of electric service (as defined in NRS 704.7808), must come from renewable energy systems and energy efficiency measures. Renewable energy development has accelerated with the implementation of the RPS; and

WHEREAS, renewable energy is in many instances located in areas without developed transmission infrastructure and renewable energy development requires reliable transmission access; and

WHEREAS, I established the Nevada Renewable Energy Transmission Access Advisory Committee (RETAAC) by an executive order on May 9, 2007; and

WHEREAS, the purpose of the RETAAC was to: (1) Identify locations where renewable energy can be commercially developed, ranking them based on size and viability and comparing them to Nevada's energy needs and demand; (2) Assess existing and planned transmission access to these locations; and (3) Make recommendations for additional transmission lines; and

WHEREAS, the RETAAC finalized their report on December 31, 2007 and presented their recommendations to the Governor on January 24, 2008; and

WHEREAS, the RETAAC examined geothermal, solar, wind and biomass potential using the best available databases and models, compared available transmission access to these renewable energy zones and overlaid areas of constraint on the resulting three maps; and

WHEREAS, the RETAAC made the following three recommendations: (1) The Governor's Office should support the construction of thirteen transmission lines and collector systems to enable access for renewable energy development in each of the identified Renewable Energy Zones; (2) The Governor's Office should support the construction of a transmission line to connect the state's northern and southern electric grids of sufficient capacity to provide Nevada Power with their non solar renewable energy requirements from the abundant geothermal and wind resources in northern Nevada and provide Sierra Pacific Power access to the abundant solar resources in southern Nevada; and (3) Phase II of the RETAAC should be initiated to define the environmental and physical feasibility issues, costs and potential financing mechanisms associated with the recommended transmission routes; and

WHEREAS, Article 5, Section 1 of the Nevada Constitution provides that "The supreme executive power of this State, shall be vested in a Chief Magistrate who shall be Governor of the State of Nevada."

NOW, THEREFORE, I, Jim Gibbons, Governor of the State of Nevada, by virtue of the power and authority vested in me by the Constitution and laws of the State of Nevada do hereby order and create the Nevada Renewable Energy Transmission Access Advisory Committee Phase II (RETAAC II). The RETAAC II shall: determine the power potential capacity for each renewable energy zone that is available for commercial development; investigate environmental, land use, and permitting constraints; identify routes that can accommodate immediate construction of transmission lines while avoiding constraint areas; determine the cost and revenue structure of transmission lines based on supply curves; identify and rank the lines that are feasible to build; address the possible financing mechanisms to build these transmission lines and collector systems; and provide related policy recommendations. The RETAAC II shall follow the open meeting law. The RETAAC II shall consist of an appropriate number of members as determined by the Governor and who serve at the pleasure of the Governor. The Committee shall submit a final report and recommendation to the Governor by July 31, 2009.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City this 12th day of June, in the year two thousand eight.

Governor of the State of Nevada

By the Governor:

Secretary of State of Nevada

Deputy

Transmission Access Advisory Committee (RETAAC) Phase I Report

http://gov.state.nv.us/RETAAC-I/ and www.RETAAC.org

Nevada is extremely fortunate to possess abundant renewable energy resources that can accommodate the development of technologies that include wind, geothermal, solar and biomass. The great development potential positions Nevada as one of the top states for pursuing alternative energy. However, the locations for renewable energy development can be in remote regions that do not possess access to the transmission system grid that would enable transfer of that energy across the State. Governor Jim Gibbons recognized this challenge and issued an Executive Order forming the Renewable Energy Transmission Access Advisory Committee (RETAAC).

In a May 9, 2007 press release, Nevada Governor Jim Gibbons stated "Renewable energy development is good for Nevada and good for the nation. Much of Nevada's renewable energy resources are located away from the grid. In order for companies to locate in Nevada and develop our renewable energy resources, we need to ensure they have access to the transmission infrastructure that will allow them to bring their energy to the marketplace."

The mission statement in the Governor's Executive Order states "The Committee will propose recommendations for improved access to the grid system by which renewable energy industries can set up and have market access in Nevada and neighboring states."

The purpose of the Committee is to:

1. Identify commercially developable locations for renewable energy, ranking them based on size and viability and comparing them to Nevada's energy needs and demand.
2. Assess existing and planned transmission access to these resources.
3. Make recommendations for additional transmission lines.

At the Committee's initial meeting on June 15, 2007 the Governor expanded on the need to develop the state's renewable energy resources and to deliver the power to the grid. He explained that every year Nevada spends as much as $6 billion importing energy. He

encouraged the committee to take up this "$6 billion opportunity" to change the energy face of Nevada. He indicated that renewable energy could help reduce dependence on imported energy and Nevada's renewable resources could be exported to supply the clean energy needs of neighboring states. He stated that this committee could make meaningful recommendations to the leadership of Nevada. He continued by saying that this group would review all of the electricity needs and the demands in this state. Together, this committee and Nevada's leaders could bring our state into the 21st century and into energy independence.

Executive Summary of Phase I Report

Nevada was one of the first states to adopt a Renewable Portfolio Standard. The Portfolio Energy Standard is commonly referred to as the "RPS," or simply the "Portfolio Standard." Since its inception in 1997 the RPS has been modified by the Legislature several times. Currently Nevada's RPS encompasses both renewable energy and energy efficiency. The RPS requires the state's investor owned electric utilities (Sierra Pacific Power and Nevada Power Companies) to generate, acquire, or save electricity from renewable energy systems or energy efficiency measures of not less than 20 percent (20%) by 2015. For more detail about the RPS please see Appendix I.

Renewable energy development has accelerated with the implementation of the RPS. To facilitate delivering this new energy to users it is recognized that transmission adequacy must be assessed, limitations identified and new electrical interconnects proposed. The Renewable Energy Transmission Access Advisory Committee ("RETAAC" or "the Committee") initiated this process of review. Wind, solar, geothermal and biomass potential was examined using the best available databases and models. Available transmission access was compared to these renewable energy zones and areas of constraint were overlaid on the resulting maps. Three recommendations were made by the committee:

#1 The Governor's Office support the construction of transmission lines and collector systems to enable access for renewable energy development in each of the identified Renewable Energy Zones (See Fig 1-6, 1-7 and 1-8)

There are renewable energy zones that have enough resource density to require transmission lines and collector systems. The collector system located, where feasible, within 25 miles of the sites within the zone so that developers can build their own radial line to the collector system.

#2 The Governor's Office supports the construction of a transmission line to connect the state's northern and southern electric grids of sufficient capacity to provide Nevada Power with their non solar renewable energy requirements from the abundant geothermal and wind resources in northern Nevada and provide Sierra Pacific Power access to the abundant solar resources in southern Nevada.

Given that the northern and southern grids are not electrically interconnected and the location of certain resources are unique to either the north or south of the state, a connection between the two grids would allow for greater use of the renewable energy potential. There is a planned transmission line that would interconnect the north and the south already in the two utilities' respective resource plans called the Eastern Nevada Transmission Interconnection (EN-ti) by the Ely Energy Center (NV Energy).

#3 Initiate Phase II of the RETAAC to define the environmental and physical feasibility issues, costs and potential financing mechanisms associated with the recommended transmission routes beginning in first quarter 2008 with a completion date of December 31, 2008.

Challenges are introduced when new rights-of-way are sought for new construction. Further analysis must be done to investigate the constraints and routes that can accommodate construction of transmission lines while avoiding constraint areas. Also, further study of the cost to build the proposed transmission lines and the potential of the renewable energy zones must be performed to arrive at a cost benefit that would ultimately rank the lines and perhaps identify ones that are not feasible. Finally, Phase II must address the means of financing the building of the transmission lines and collector systems contemplated here in this Phase I report.

Identification of Renewable Energy Zones

Committee developed three maps (attached):

Renewable Energy Zones and Transmission Interconnects Map (Fig. 1-6)

Renewable Energy and Transmission Constraints Map (Fig. 1-7)

Military Airspace and Radar Interference Constraints Map (Fig. 1-8)

As seen in Figure 1-6, the committee defined:

- Six geothermal zones, and
- Four solar zones,
- Twelve wind zones, and
- Four biomass zones

The exact megawatt potential of these zones is not identified in the final report and was deferred to Phase II of RETAAC. Using map information and expert opinion and experience, the zones were prioritized from highest to lowest probable potential.

Transmission Needs Analysis –Access to the Grid

Access to the grid already exists for geothermal zone 4, solar zone 2, wind zones 4, 9, 10 and 11, and biomass zone 2 and 4.

Committee identified **thirteen possible transmission links** to connect the renewable energy zones to Sierra's transmission grid (see Table 1-18 and Figure 1-6).

Committee made below assumptions:

- the minimum voltage for effective transmission of renewable energy is 230 kV (The 230 kV lines can deliver electricity between 300 MW and 500 MW)
- A typical renewable project generation capacity of 30 MW or greater
- Identified zones approximately 25 miles or further from existing transmission lines because a transmission line of 25 miles or less would be cost justified.

For the transmission need analysis:

- Network or distribution upgrades were not addressed.

- State public power utilities, rural cooperatives, General Improvement Districts and other agencies' transmission systems information was not readily available to this Committee and were not considered in the report. This is particularly important since a portion of the state's renewable resources do not lie within Sierra Pacific and Nevada Power service territories.
- Deliverability, line capacity, cost, siting and other considerations were not investigated as part of their analysis.
- The proposed transmission links on Figure 1-6 show possible electrical interconnections, not specific geographic corridors.

Table 1-18 Transmission Links Detail

Line #	Zone(s) Covered	Starting Point Zone	Ending Point City (substation)
1	Wind 8, Geothermal 2	Geothermal 2, Wind 8	Alturas, CA (Hilltop)
2	Wind 8, Geothermal 2	Geothermal 2, Wind 8	Lovelock, NV (Oreana)
3	Wind 7	Wind 7	Doyle, CA (Ft. Sage)
4	Wind 7	Wind 7	Wadsworth, NV (Tracy)
5	Wind 6, Biomass 1	Wind 6, Biomass 1	Carson City, NV (Blackhawk)
6	Geothermal 1	Geothermal 1	Lovelock, NV (Oreana)
7	Geothermal 1	Geothermal 1	Yerington, NV (Ft. Churchill)
8	Geothermal 3, Wind 12, Solar 1	Yerington (Ft. Churchill)	Las Vegas, NV (Northwest)
9	Wind 2, Wind 3, Biomass 3	Wind 3	Ely, NV (Robinson Summit)
10	Solar 3, Wind 2, Biomass 3	Solar 3	Ely, NV (Robinson Summit)
11	Solar 4, Geothermal 5	Solar 4, Geothermal 5	Ely, NV (Robinson Summit)
12	Wind 1, Geothermal 6	Wind 1, Geothermal 6	Ely, NV (Robinson Summit)
13	Wind 5	Wind 5	Cortez, NV (Cortez)

Committee also evaluated certain constraints such as environmental and right of way (ROW), land stakeholders, and military airspace training (see pages 10 – 15 of the final report, Figures 1-4 and 1-5).

The Phase I final report as is posted at: http://gov.state.nv.us/Energy/FinalReport.htm

Figure 1-6 Renewable Energy Zones and Transmission Interconnects Map

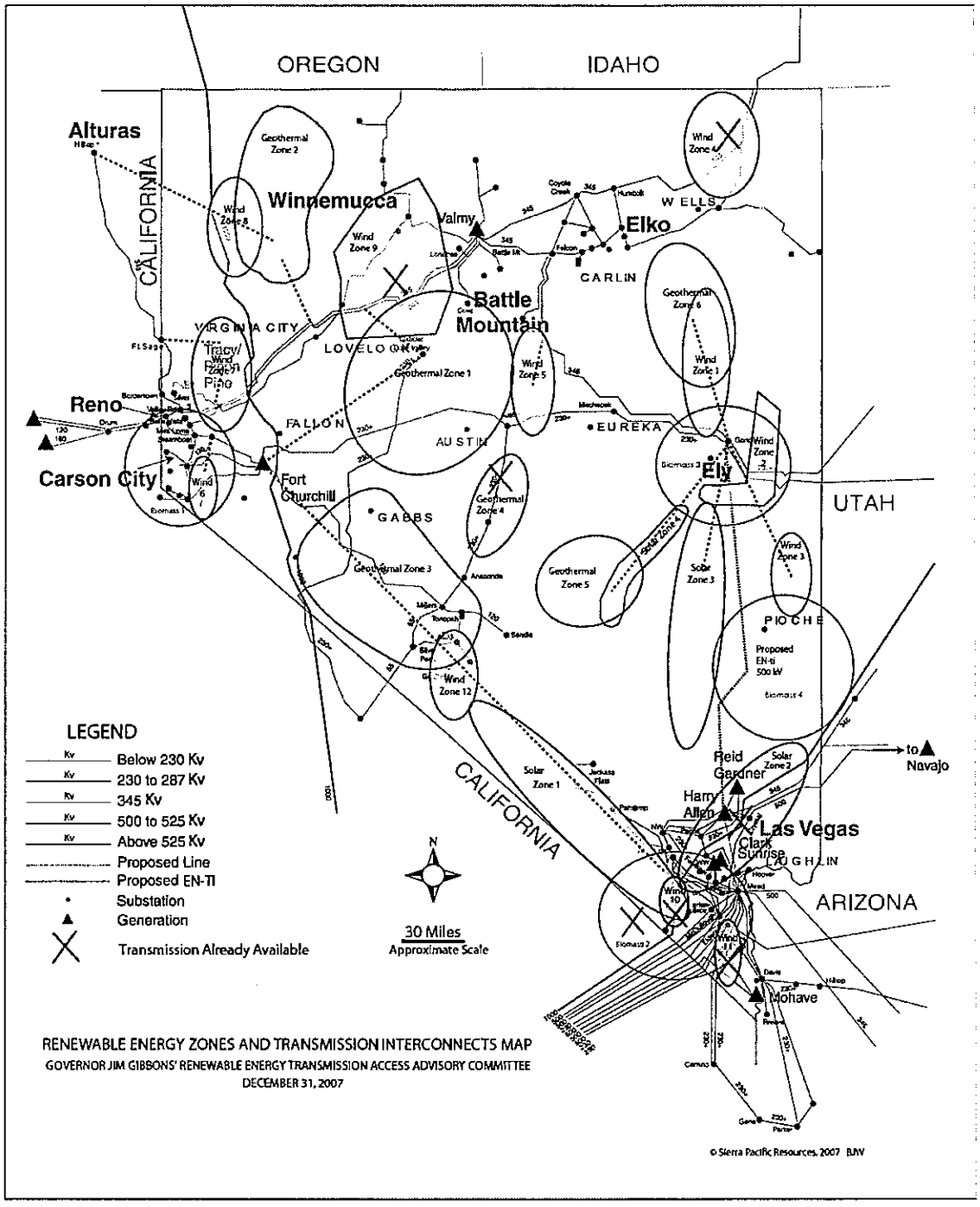


Figure 1-7 Renewable Energy Zones and Transmission Constraints Map

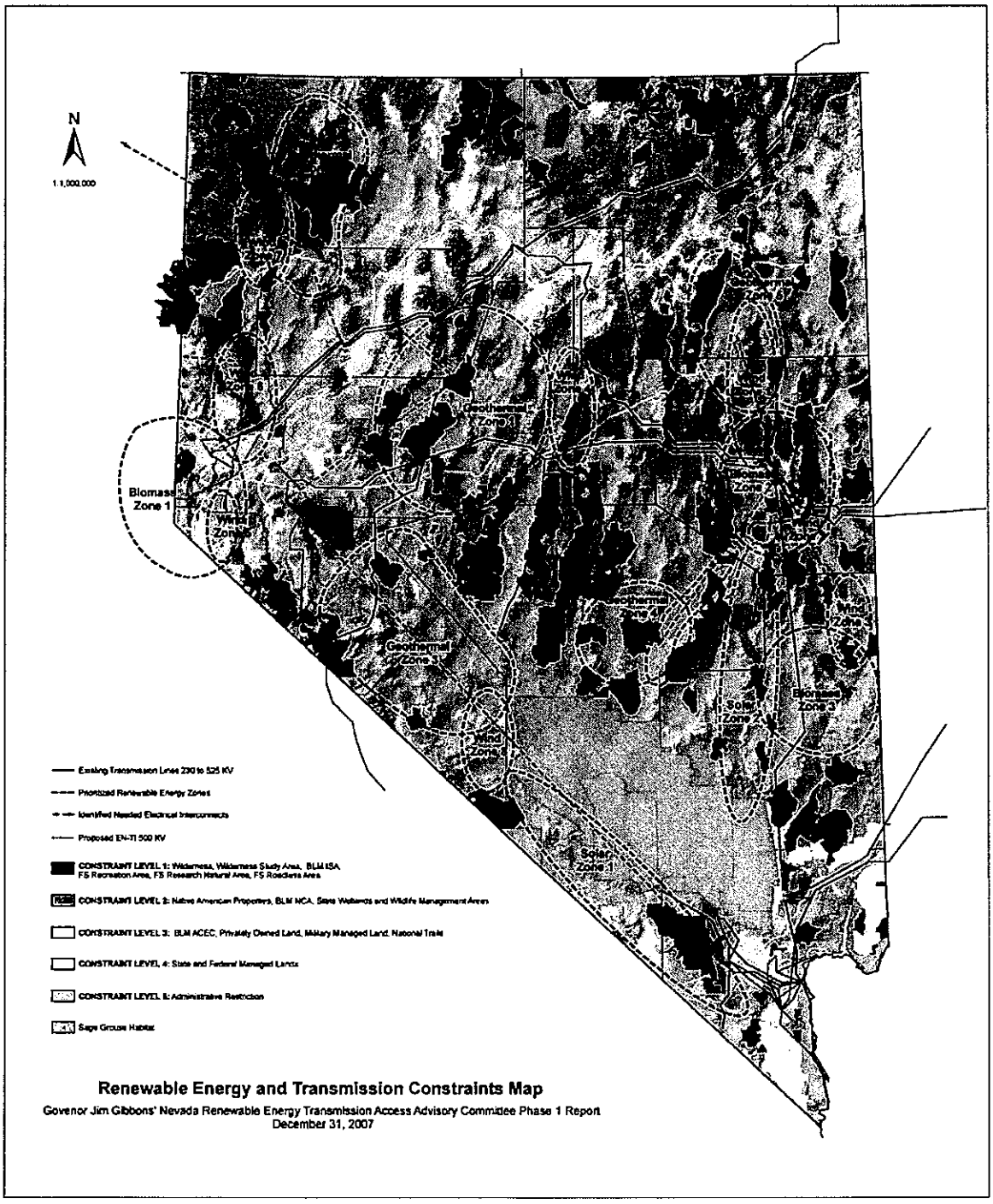
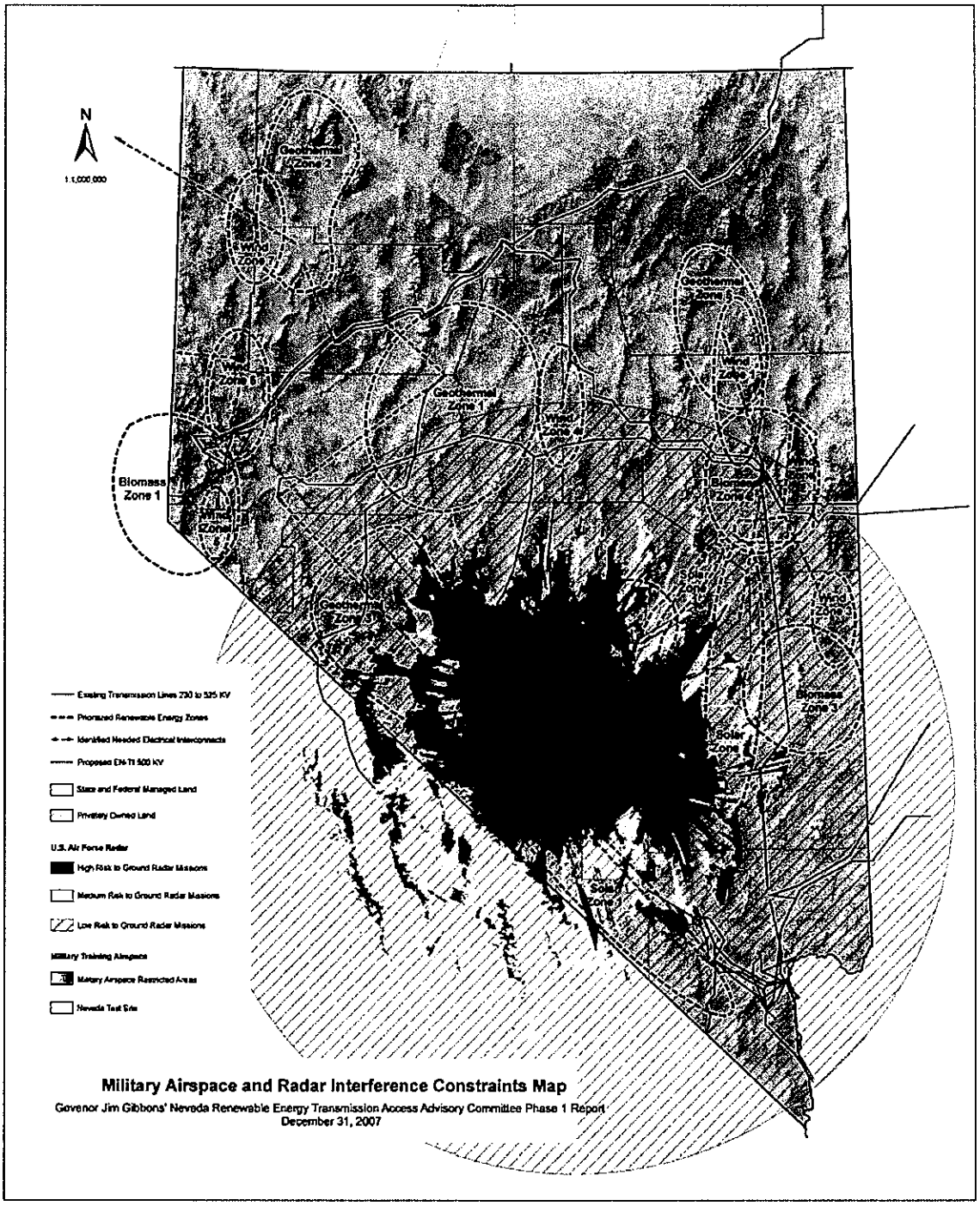


Figure 1-8 Renewable Energy Zones and Transmission Interconnects Map



Transmission Access Advisory Committee (RETAAC) Phase II Report

The RETAAC II report will include the power potential capacity for each renewable energy zone that is available for commercial development; environmental, land use, and permitting constraints; identified routes that can accommodate immediate construction of transmission lines while avoiding constraint areas; the cost and revenue structure of transmission lines based on supply curves; identified and ranked transmission lines that are feasible to build; the possible financing mechanisms to build these transmission lines and collector systems; related policy recommendations.

In December 2009, Governor Gibbons released two maps produced by the RETAAC Phase II committee (see Figure 1-9 and Figure 1-10). These maps and the Governor's press release are posted at http://gov.state.nv.us/RETAAC-II/.

As of January 2009, RETAAC Phase II committee accomplished the followings

1. Phase1 identified Renewable Energy Zones (REZ) in Nevada, quantified potential capacity of each, identified land use and environmental issues and concluded that additional transmission feeder lines and concluded that transmission line to interconnect northern Nevada with southern Nevada was justified on the basis of the State's renewable energy portfolio requirements.

2. Phase 2, which was initiated in June 2008 via Governor's executive order (see Figure 4), Study Groups were formed and thus far the following has been accomplished:

    a. REZ Study Group has refined and requantified renewable capacity in each zone based on estimates from a number of sources (WGA, NREL etc) as well as proposals offered to NV Energy through November 2008.

    b. The Land Use/Environmental Study Group has conducted an in depth review of these issues and recommended changes to transmission route plans. A new REZ/Transmission Map has been prepared.

c. The Economic Study Group has prepared a cost estimate of the recommended transmission lines.

d. The three aforementioned groups working together with utility experts have prepared a Prioritization Matrix which provides a cost/impact rating for each transmission line recommended.

e. The Export study Group has investigated opportunities for exporting excess renewable energy from Nevada to surrounding states and has prepared recommendations for additional transmission to accomplish this goal, as shown in Figure 10.

f. The Feasibility Study Group is planning to hold its meetings to formulate proposed RETAAC II recommendations to Governor Gibbons, based on the work products of the other Study Groups.

g. The Report preparation Study Group has begun work on the frame work for the phase II Report to be ready for presentation to the Governor and others in July 2009.

RETAAC Phase II report will be completed on July 31, 2009 and presented to the Governor. The final report will be posted at

http://gov.state.nv.us/RETAAC-II/ and www.RETAAC.org

Figure 1-9 RETAAC Phase II Transmission Interconnections

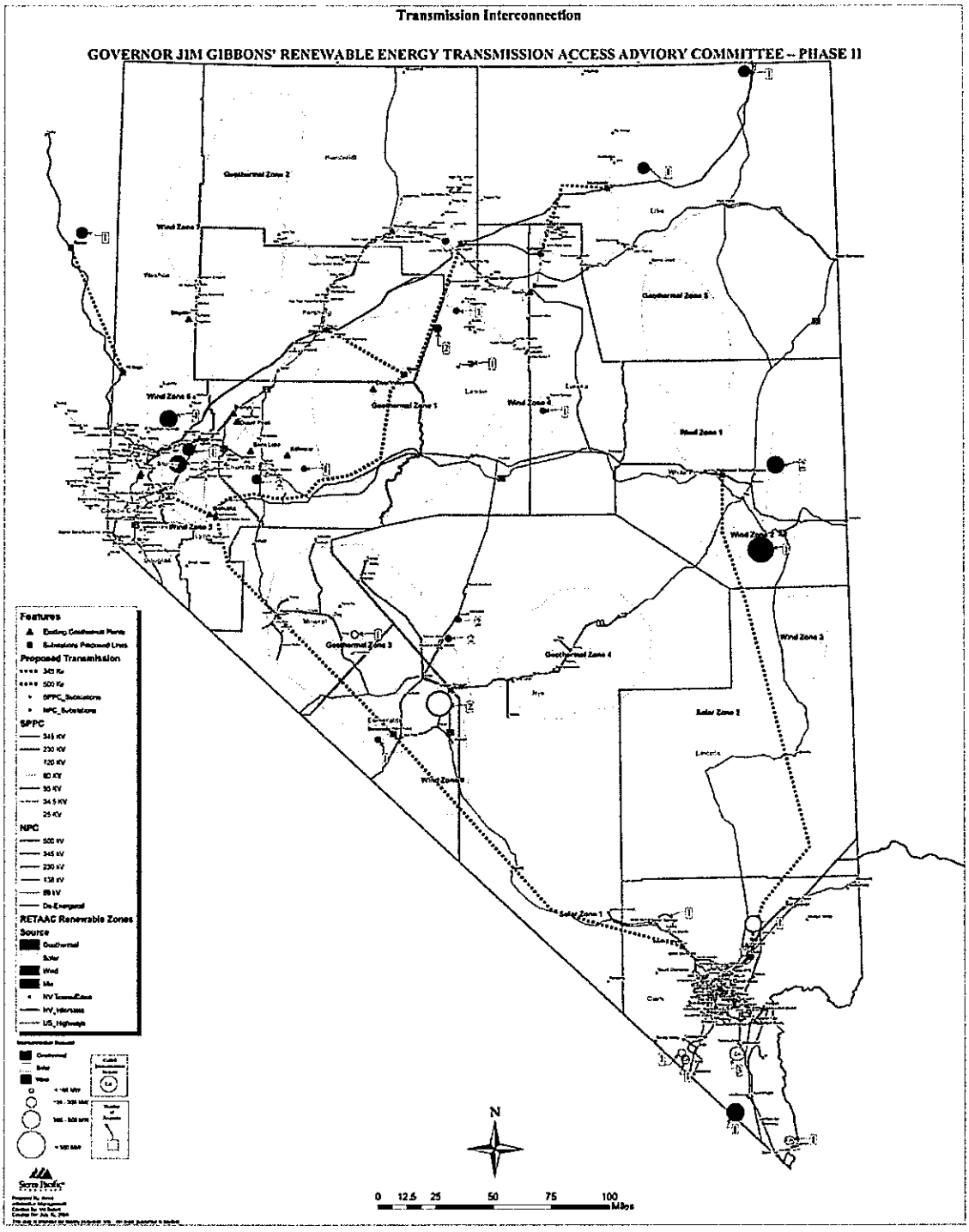
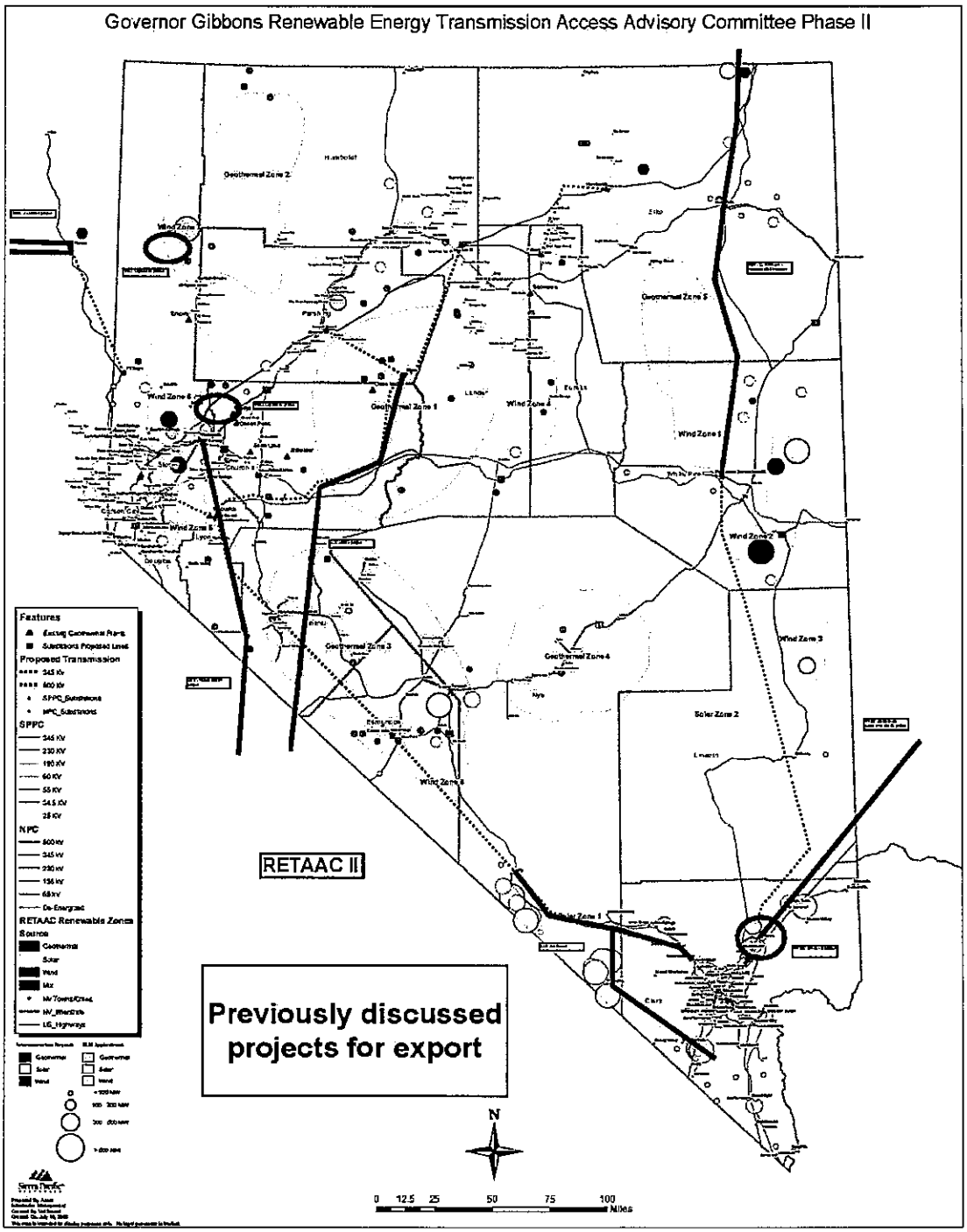


Figure 1-10 RETAAC Phase II Transmission Lines for Export



Nevada Federal Land Development for Renewable Energy

The State of Nevada on any given day is roughly 86% managed by the United States Federal Government. The vast majority of land in Nevada is monitored by the Bureau of Land Management (BLM). Recently, with more interest in renewable energy, the BLM has released some this land for renewable development. Below are applications and recent lease sales through the BLM for various renewable energy projects. The BLM has also identified the projects in Figure 1-6. The BLM Energy program data can be found at: http://www.blm.gov/nv/st/en/prog/energy.html

Geothermal

In August 2007 and 2008, the BLM auctioned of various lots of Nevada parcels for geothermal energy exploration. The competitive sale resulted in record prices to lease parcels in Nevada. Royalty distribution under the 2005 Geothermal Steam Act is 50% to the State, 25% directly to the County, and 25% to the Federal Treasury.

NEVADA GEOTHERMAL COMPETITIVE SALE RESULTS August - 2007

1. PARCELS OFFERED: 43
2. ACRES OFFERED: 122,849.270
3. PARCELS SOLD: 43
4. ACRES SOLD: 122,849.270
5. TOTAL BONUS BID: $11,418,509.00
6. HIGHEST BID/PARCEL: $2,611,200.00
7. HIGHEST BID/ACRE: $510.00
8. TOTAL RECEIPTS: $11,669,821.00

These leases are located in Churchill, Pershing, Lander, Mineral, Humboldt, Esmeralda and Nye counties.

NEVADA GEOTHERMAL COMPETITIVE SALE RESULTS (August – 2008)

1. PARCELS OFFERED: 35
2. ACRES OFFERED: 105,211.540
3. PARCELS SOLD: 35
4. ACRES SOLD: 105,211.540
5. TOTAL BONUS BID: $27,992,464.00
6. HIGHEST BID/PARCEL: $3,204,000.00
7. HIGHEST BID/ACRE: $1,000.00
8. TOTAL RECEIPTS: $28,207,806.00

These leases are located in Churchill, Pershing, Elko, Lander, Mineral, Humboldt, Esmeralda and Nye counties

http://www.blm.gov/nv/st/en/prog/minerals/leasable_minerals/geothermal0/ggeothermal_leasing/

Solar and Wind

The BLM has had many applications come forth for proposed solar projects, Table 1-19. There are still necessary environmental studies needed before any development on the land.

Table 1-19 BLM Right of Way Solar Applications

Solar Applications by District As of January 20, 2009			
District	No of Solar Applications	Acreage	Planned Technology
Southern Nevada	55	605,901	Concentrated Solar Power Commercial Solar Trough Photovoltaic Parabolic Troughs Solar Thermal Compact Linear Fresno Reflector

Battle Mountain (Tonopah Field Station)	9	111,978	Parabolic Trough Power Tower
Ely (Caliente Field Station)	2	9,920	Photovoltaic Heliostat Tower Concentrated Solar Power (Tower)
Carson City	2	612	Photovoltaic Solar Panels
TOTAL	**68**	**728,411**	

Important Points to Make:

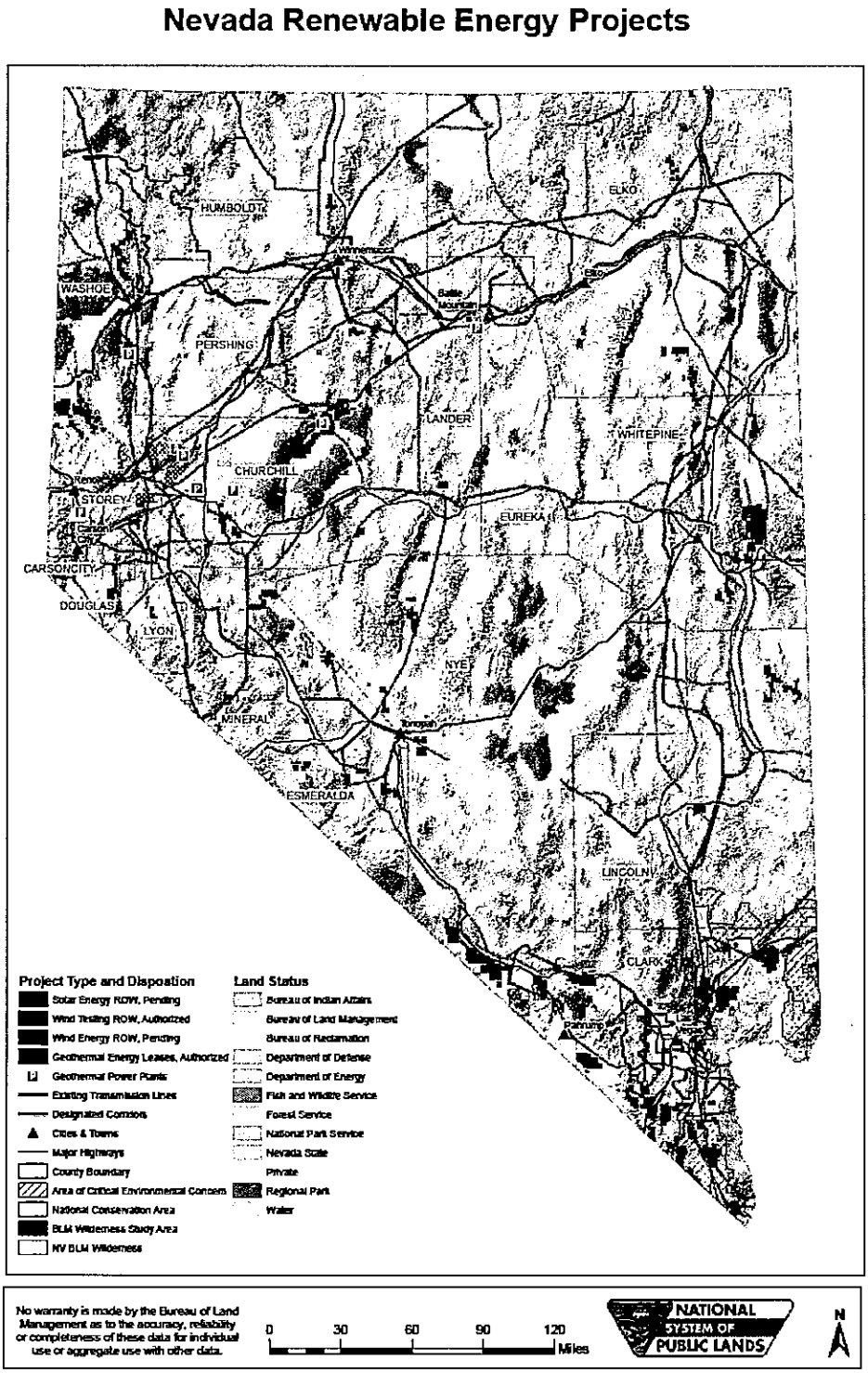
1. The information provided is accessible on BLM Nevada's web site: www.blm.gov/nv
2. Within the Southern Nevada and Battle Mountain Districts, there is overlap in terms of area between applications:
    a. Southern Nevada District: 26 applications overlap 100% and 5 have a partial overlap.
    b. Battle Mountain District: 3 overlap in some fashion

As of January 2009, BLM applications included 6 wind development projects and 44 authorizations for monitoring and testing

Renewable Energy Projects and pending applications for Wind, Solar & Transmission lines can be found at

www.blm.gov/pgdata/etc/medialib/blm/nv/energy.Par.18077.File.dat/renewable_energy_projects_table.pdf

Figure 1-11 BLM Nevada Renewable Energy Projects



Ruby pipeline

Chapter 2 - Natural Gas Assessment

Natural gas is moved from production areas in central-southwestern states, Rocky Mountain states and western Canada, via interstate pipelines to three types of customers: "sales" customers (residential, commercial and sometimes industrial), "transportation" customers (generally commercial and industrial customers), and "power generation" customers. Sales customers receive gas from a Local Distribution Company (LDC) and typically pay a bundled price for the gas service they use. Transportation customers buy their gas commodity and gas transportation separately. They are usually large customers who may take gas from the LDC or directly from an interstate or intrastate transmission pipeline. Electric utilities and merchant power plants are the only major power generation customers, although some combined heat and power (CHP) installations or self-generating customers also need to take gas at the higher pressures needed for electric generation.

Natural Gas Fundamentals

Natural gas was known as the "perfect fuel" some 25 years ago because it was reasonably available and transportable, and it was virtually non-polluting in the eyes of 1980 regulators and consumers. It was so perfect, in fact, that it was assumed to be in short supply and considered too valuable to be used to generate electricity. It was used as a heating fuel and as a feedstock in industrial processes. In such a world, the principal short-term variable was the weather; so, if suppliers could simply have enough storage to get through two or three weeks of unseasonably cold weather, natural gas prices would remain reasonably stable. As things turned out, this was generally the case. There were a few spikes, but after the mid-1980s natural gas prices typically hovered around $2.00 per mmBTU (million BTUs) and the spikes that did occur were relatively small and short-lived; that is, until about 1999 to 2000. During the 1990s abundant gas supplies and environmental benefits had all but removed the tacit proscription on natural gas powered electric generating stations. The concept of savings derived from electric deregulation also had become very popular in the middle of the previous decade.

Electric deregulation brought significant uncertainty to the relatively stable natural gas markets. It did this in two ways. First, the potential for substantial profits in electric markets caused a building boom in natural gas powered generators – the least expensive and fastest way to acquire electric capacity. In order to finance such plants, builders needed to assure investors that they had sufficient quantities of natural gas to power the plants being built. To do this, builders needed options on natural gas supply availability as well as delivery pipeline operating flexibility to match the operating cycles of their new plants. Second, natural gas electric power plants are relatively expensive to operate but easy to startup and shutdown. As a result, natural gas plants are often "on the margin"; that is, they are the plants that have the least predictable operating cycle. Therefore, the amount of fuel – natural gas – they need to operate is the most uncertain, which again introduces uncertainty and an opportunity for arbitrage.

Today, the natural gas companies in Nevada, Southwest Gas Corporation (Southwest) and Sierra Pacific Power Company (Sierra, once known as WestPac), have adequate supplies of natural gas. Reno and much of the I-80 corridor in the north and Clark County in the south have sufficient access to natural gas commodity, as well as capacity for some additional growth in demand. Generally, those areas that are un-served with natural gas, such as Mesquite and Pahrump, would benefit substantially if it could be made available to them. Other areas, such as Elko, see future economic development tied to increased access to natural gas.

Since the 1990's through 2008, Nevada natural gas utilities were not required to file Gas Resource Plans; however, they annually file Gas Supply reports. These documents provide both an historical look at purchases in the previous regulatory year and a forecast for the coming year and beyond. Figures 2-1 and 2-2 shows natural gas consumption during the past six years for both of Southwest's systems and for Sierra. Importantly, nearly all of the variability occurs in natural gas used for electric generation.

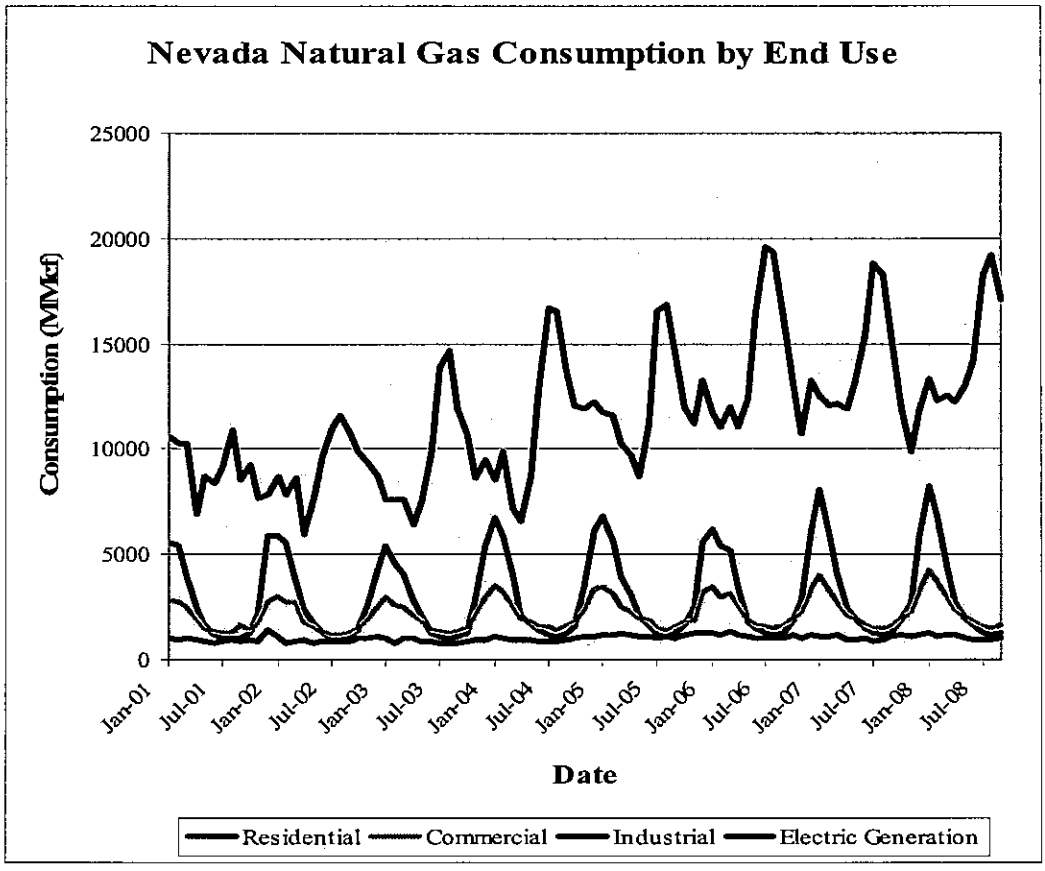
Table 2-1 Total Natural Gas Consumption and Demand History for Nevada

Natural Gas Consumption by End Use (Million Cubic Feet)							
	2002	2003	2004	2005	2006	2007	2008
Total Consumption	176,596	185,846	214,984	227,149	249,149	254,464	260,141**
Lease and Plant Fuel							
Lease Fuel	6	6	5	5	5	5	5**
Pipeline & Distribution Use	851	1,689	2,256	2,224	2,737	2,976	2,976**
Volumes Delivered to Consumers	175,739	184,153	212,078	224,444	246,424	251,018	256,695
Residential	31,958	32,848	36,534	36,397	37,937	38,088	38,671
Commercial	22,685	24,099	26,862	26,552	28,046	28,224	28,902
Industrial	11,022	10,671	11,737	13,753	13,574	13,234	12,797
Vehicle Fuel	470	574	645	475	441	465	465**
Electric Power	109,605	115,960	136,945	147,743	166,867	171,473	176,325

Source: Energy Information Administration/DOE

** estimated - not available on DOE website at this time

Figure 2-1 Total Natural Gas Consumption and Demand History for Nevada



Significant gas fired generating plants have been built in the southern part of the State. As an example in 2006, Nevada Power completed the 1,102 MW Chuck Lenzie Combined Cycle Generating Station, acquired a 75% ownership in the Silverhawk Generating Station. It also installed a new 72 MW combustion turbine at its Harry Allen Site, essentially doubling the Company's generating capacity, which has also added to the natural gas fuel supply requirements. Nevada Power continues to support its gas fired generating fleet with modifications, plant acquisition, and new generation build out. During late 2007, Nevada Power began site work for a new 500 MW combined cycle facility at its Harry Allen site and during 2008 acquired the BigHorn Power Plant and substantially completed construction on a total of 600 MW of gas fired peaking generating facilities at its Clark generating site. Also during 2007 and 2008, diesel oil (used for start-up, shut-down, and ramping change operations) at the coal fired Reid Gardner generating facility was replaced with natural gas.

Nevada Power recently received PUCN pre-approval to proceed with a long term gas transport contract with Kern River Gas Transmission Company that will result in an increase of deliveries to Clark County, Nevada of 266,000 mmBTUs daily of Rocky Mountain Basin gas supplies and up to 440,000 mmBTUs daily of gas supply from California gas production as well as increased gas deliverability from the Permian and San Juan gas supply basins. The 440,000 mmBTU daily firm delivery capability will be available beginning April 1, 2009 while the 266, mmBTU firm delivery capability is expected to be available during the latter part of 2011.

In Northern Nevada, Sierra Pacific Power Company, during the first half of 2008 completed its 541 MW gas fired combined cycle generating facility at its Tracy generating site. To support this new generating plant, Sierra caused Tuscarora to expand its pipeline capacity by 40,000 mmBTUs daily.

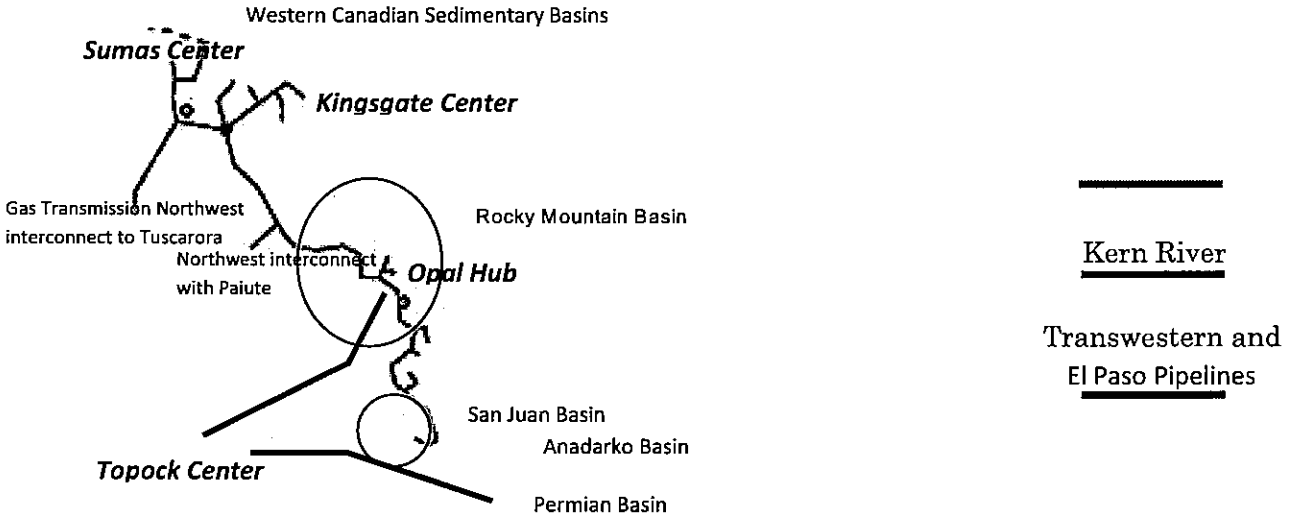
An LDC, as well as owners of gas fired generating facilities, typically purchases gas on one month or multiple month contracts. These contracts specify a daily volume of gas, but may have certain options available to the purchaser or the supplier. Gas may also be purchased such that a minimum and maximum take is specified, so-called "swing contracts." This allows large gas buyers some flexibility when the weather or other conditions cause the forecast to be off for the

day. Gas may also be purchased on the spot market for a day or for multiple days. Large gas buyers have purchasing strategies that ensure a base amount of gas is purchased to cover loads that are constant and swing contracts to cover normal variations in weather driven gas demand. They also use the spot market to buy or sell commodity on days when it is economically advantageous to do so. Unlike electricity, natural gas deliveries can be somewhat flexible, and may be slowed down by "packing" transmission and distribution pipes, or speeded up by drawing down pressure in pipelines, which is also referred to as "drafting" the pipe. This "packing and drafting" of pipelines occurs daily and is offered by the pipeline operators as a "park and lend" gas commodity service. The amount of gas scheduled or requested for delivery on a pipeline is called a "nomination, while the amount of gas supply that is confirmed for delivery to a delivery point is called a "confirmation."

The purchase and delivery of natural gas involves arrangement for both the commodity, natural gas in a specific number of million BTUs (mmBTU), dekatherms (ten therms), or million standard cubic feet (mmscf) over a given time period; and the transportation of that gas from the point of purchase generally to the utility's "city gate." The city gate is the point where an LDC's system connects to an interstate or intrastate pipeline. Also, the three units of gas volume (and therefore, energy) measurement are very close to the same quantity of gas and are sometimes used interchangeably.

Southwest's and Sierra's supply for northern Nevada typically come from two production basin areas: the Rocky Mountain basins, , and Western Canadian Sedimentary basins. These production basins and their nominal basin market delivery points; Opal, Sumas (British Columbia), and Kingsgate (Alberta and Saskatchewan), respectively are shown in Figure 2-2. Southwest's supplies for southern Nevada typically come from the Wyoming Thrust Belt and Green River (Rocky Mountain), San Juan, Anadarko, and Permian Basins. In general the production of natural gas from Rocky Mountain basin is increasing significantly. Gas production in the Western Canadian Sedimentary basin has declined since 2006, but is expected to remain steady between 18 Bcf/d and 19 Bcf/d.. Production from the basins located primarily in New Mexico, and Texas has been relatively stable since 2002.

Figure 2-2 Interstate Pipeline and Basin Supplies to Paiute Pipeline



Southwest Gas Corporation

Southwest serves both the northern and southern parts of Nevada and, similar to the physical situation with electricity, the two systems are not interconnected within the state. In the northern Nevada service territory, Southwest serves the following counties: Carson City, Churchill, Douglas, Elko, Eureka, Humboldt, Lander, Lyon, Nye, Pershing, Storey and Washoe. In the southern part of the state, Southwest serves Clark County.

Natural Gas Supply and Pipelines

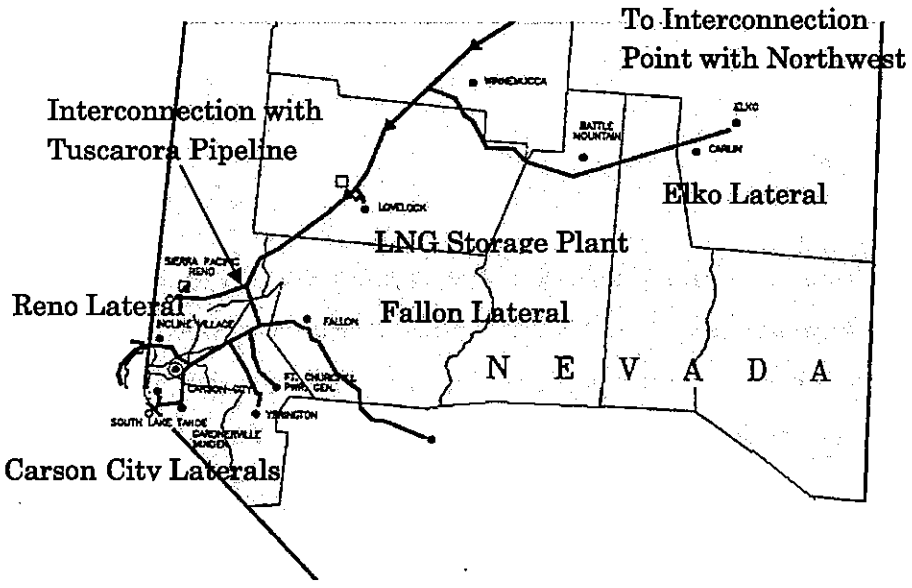
Southwest's northern Nevada service territory receives natural gas by way of the Northwest and Tuscarora interstate pipelines that draw gas from the two production basin areas noted above. Northwest delivers that gas to the Idaho-Nevada border where the Southwest owned Paiute Pipeline receives the gas and delivers it to northern Nevada customers through pipelines and "laterals." Figure 2-3 shows the five major laterals that deliver natural gas to Elko, Reno, Carson City (2), and Fallon as well as a number of other communities along the various routes. Strategically located compressor stations along each major pipeline establish the flow of gas in these pipelines. A portion of the natural gas being transported provides fuel for the engines that supply power to these compressors.

Paiute and Tuscarora are physically interconnected, near Wadsworth, Nevada in Washoe County. This interconnection allows Southwest and Sierra operational flexibility in times of unusual demand, supply interruptions, or pipeline transport unavailability. It also allows Sierra and

Southwest to avoid, at least in part, the use of LNG processing facilities near Lovelock during mild weather or during routine operations. The LNG plant is designed to provide peaking service during times of extremely cold weather.

Southwest's southern Nevada service territory receives natural gas by way of four interstate pipelines, including the Kern River (actually, two roughly side-by-side pipelines, except in the Las Vegas Valley, one added in 2003), El Paso and Transwestern pipelines. The combined Kern River Pipeline passes through Las Vegas, where it interconnects with Southwest's system. They then move on into California and merge with the Mojave Pipeline to form the Kern-Mojave Pipeline, which serves southern California customers. The El Paso and Transwestern pipelines both pass south of Las Vegas, but provide natural gas to the Las Vegas area with laterals owned by Southwest. (Southwest does not currently have a firm transportation agreement with El Paso to serve Southwest's sales customers in Southern Nevada). Both of these pipelines terminate near Topock, Arizona from which natural gas is delivered into California. For the most part, these pipelines draw from the Permian, Anadarko and San Juan basins, while the Kern River pipelines draw primarily from the Rocky Mountain basins. This provides some degree of fuel diversity for the Las Vegas area and likely contributes to a relatively small basis differential (the difference in commodity price between the two basins).

Figure 2-3 Southwest Gas Paiute Laterals



Special System Constraints

During the last biennium, the two most important constraints in the Southwest system were addressed. New Kern River capacity to the valley has provided the physical ability needed to keep up with customer demands, largely residential, in Southwest's LDC in southern Nevada, and also meet the demands for industrial growth and the new natural gas electric generating stations in the south. The other constraint faced by Southwest in the north was the inability to substantially increase supplies down the Paiute Pipeline without very significant investments on both Paiute and Northwest pipeline facilities. The interconnection with the Tuscarora Pipeline provides an additional source of supply.

Southwest has no other significant physical barriers to meeting demands in northern or southern Nevada. Like many gas companies, however, it has continued to experience declining average gas usage by customers.

Planned Additions and Retirements

There are no major additions to or retirements from the Southwest systems in northern or southern Nevada over the next three years.

Sierra Pacific LDC

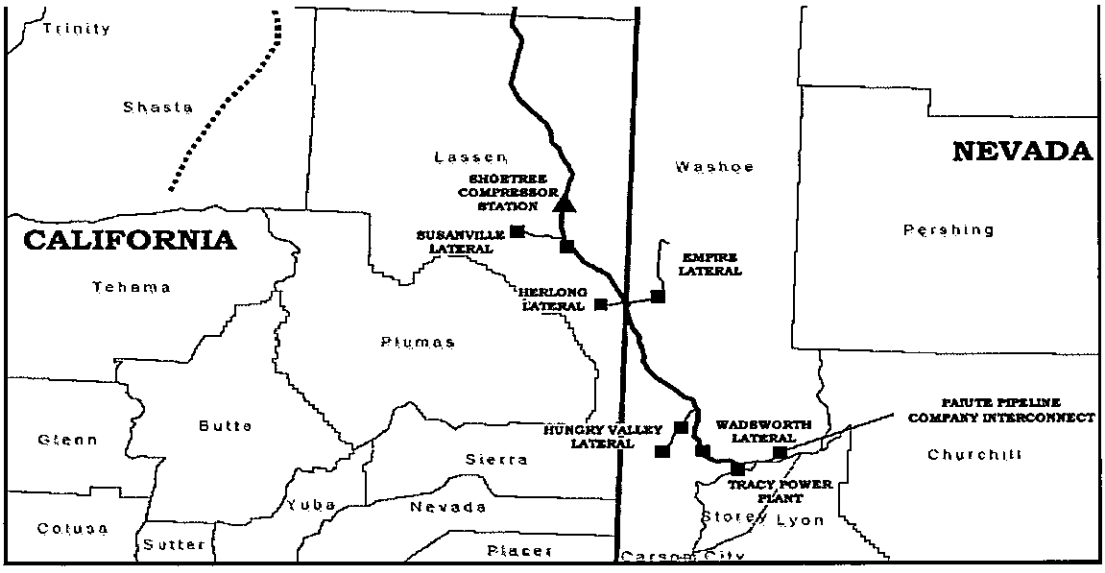
Sierra is the Local Distribution Company (LDC) in the Reno area, as well as nearby portions of Washoe and Storey County.

Natural Gas Supply and Pipelines

Sierra's supplies typically come from five basins: the Rocky Mountain, San Juan Basin, British Columbia, Western Canadian Sedimentary, and Saskatchewan Basins. These basins and their nominal basin delivery points; Opal, Sumas, and Kingsgate (Alberta and Saskatchewan), respectively; are shown in Figure 2-2, above. In general the production of natural gas from Rocky Mountain basin is increasing significantly. Supply from the other basins is considered to be holding steady or slightly declining.

Sierra receives natural gas by way of the Northwest Gas Pipeline, an interstate pipeline that draws gas from three of the four basins noted above. Northwest delivers that gas to Idaho-Nevada border where the Paiute Pipeline receives the gas and delivers it to northern Nevada customers through a mainline and several laterals. The Western Canadian Gas supplies can flow to Sierra through several paths; however, but since Tuscarora was built they have generally flowed south through Washington and Oregon and to the California-Oregon border where the gas supplies flow into Tuscarora for delivery to the Reno-Sparks area. Figure 2-4 shows the three laterals that deliver natural gas to Empire, Hungry Valley and Wadsworth. Mainline gas goes to Reno and the Tracy Power Plant. Strategically located compressor stations along the Tuscarora pipeline establish the flow of gas in the pipeline. A portion of the gas being transported provides fuel supply to the engines providing power to these compressors.

Figure 2-4 Sierra Pacific LDC, Tuscarora Laterals



Paiute and Tuscarora are physically interconnected, near Wadsworth, Nevada in Washoe County. This interconnection coupled with the accompanying capacity expansion of the Tuscarora Pipeline, allows both Southwest and Sierra operational flexibility in times of unusual demand or supply interruptions.

Special System Constraints

With the completion of the interconnection with Paiute and the low variability in gas demand, compared with Southwest's southern territory, the Sierra system is adequate to meet customer demands for the next several years. In support of the new 541 MW Tracy Combined Cycle Generating plant, Sierra caused Tuscarora to expand its pipeline capacity by 40,000 mmBTUs daily up to a total of nearly 225,000 mmBTUs daily. Also Sierra continues to make operating adjustments, including the use of storage, swing contracts and the Paiute Lovelock LNG processing facility that will allow it to respond to changes in customer demands, according to normal and reasonably expected extreme weather conditions.

Planned Additions and Retirements

There are no major additions to or retirements from the Sierra Pacific LDC system over the next three years.

Natural Gas Adequacy

Natural Gas Prices

The concept of "adequacy" necessarily includes both the idea of availability of supply and the idea of price. It is not adequate, for example, to have all the natural gas you can possibly use if it will cost $10.00 per dekatherm, or if the price is so highly variable that a customer has no way of predicting what the gas will cost. High and/or uncertain costs are major concerns for customers. Importantly, it is just as difficult for businesses because price volatility often discourages businesses from making investments that could provide more jobs, greater economic vitality and a more diverse base for Nevada's state and local governments.

Moreover, a critical strategic element of the Governor's Comprehensive Energy Plan is to ensure that energy is available to Nevadans at reasonable and *affordable* prices. And, as with electricity and petroleum products, the alternatives for putting downward pressure on prices are (1) increase the supply, (2) decrease the demand, or (3) impose a regulatory structure that results in decreasing prices.

Before going through these alternatives, it is important to ask whether the existing supply-price condition results in natural gas "adequacy." This begins by asking whether North American exploration and development companies are finding new supplies of natural gas. The basic answer to this first question is, "yes" – exploration companies continue to drill wells. It is encouraging that new supplies are being located and developed, notably in North American shale formations. Several significant discoveries such as the Marcellus shale formation in the eastern US, the Haynesville shale formation in Louisiana, and the Barnett shale formation in central Texas have added much to the North American gas supply portfolio. It should be noted that cost effective development of these formations is largely due to technological improvements in horizontal drilling techniques. These are new gas supply fields. With respect to mature gas supply basins, it is somewhat discouraging that the drilling programs are at best only able to offset the decline in these existing natural gas fields – at least in North America. This means that indigenous supplies of natural gas from existing gas supply basins are generally unable to keep up with demand increases, hence the need for continued, at significant capital cost, development in gas transportation infrastructure.

Does that mean that natural gas prices will go up? The answer to this question also is, "yes," and indeed, the average price has gone up by more than 50% in the last two years. Importantly, while volatility remains a problem, it is the average price increase that will be a heavy burden for Nevada consumers. There are several reasons for the price increase; certainly the expectation that North American supplies will be unable to keep up with demand increases is a factor. It is also true that there is a link, economists call it a "cross-elasticity," between crude oil prices and natural gas prices – higher crude oil prices tend to increase the price of natural gas, a partial substitute fuel and feedstock – and that too has had an effect on natural gas prices. Finally, the dramatic increase in demand by natural gas fired electric generation has affected prices, especially in the western United States.

Will natural gas prices continue to escalate in the coming years? The answer to this question is, "probably not," at least not when compared to inflation. There will, of course, be peaks and valleys, but a steady increase in price is unlikely for two reasons. First, as natural gas prices rise, customers will simply use less. Residential customers will pay more attention to insulation and appliance efficiencies when they buy a new house, will be more willing to invest in appliance upgrades or heating system repairs in their existing homes, or simply turn their thermostats down. Business customers will seek more efficient use of natural gas, and when they see that prices are likely to remain at current levels for some number of years, they will make business decisions about new investments that will improve their overall profitability.

Second, the upper limit to natural gas price increases is practically set by the cost of imported liquefied natural gas (LNG). This, of course, assumes that it will be possible to establish ports that can off-load a sufficient number of LNG tankers to have an effect on domestic prices. There will be substantial controversy on this subject, not only in Nevada, because some – those persuaded by safety or environmental issues – will argue that we can accomplish the same end by simply reducing demand for natural gas. Others – those persuaded by the link between low-cost energy and business vitality (and jobs) – will argue that LNG ports are a necessary risk if we are to maintain...well, adequacy.

In any case it is also important to point out that a growing reliance on imported LNG is similar in some respects to a growing reliance on imported crude oil. Both trends violate the President's call for decreased reliance on imported fuels; both trends result in Nevadans sending more money out of state (and country); and both trends result in a greater need to become involved in efforts to protect our supply of foreign fuels.

Returning to the original question, "Can we increase the supply of natural gas?" The basic answer is probably, "no." Nevada has no known reserves of natural gas and has no ports that could be used to import LNG. Any action we would take to increase supplies would need to be related to the actions of other western states, or of the federal government. We simply have no direct control over the supply of natural gas.

"Can we then force a reduction in the demand for natural gas?" The answer is probably unimportant because to accomplish this, it would be necessary for the state to either increase the cost of gas artificially, for example with an energy tax, or to impose a system of intrusive rules that would cause Nevadans to use less natural gas than they otherwise would. Neither of these options is under consideration by the Governor or being studied by NSOE.

Besides, the most effective mechanism to reduce demand for natural gas is an increase in the price and that has already been taken care of. Without this increase in price, many consumers have been quite willing to buy new homes that are energy inefficient, or to allow energy wasting behaviors to continue. It is possible that with the increase, consumers will act differently and that demand will come down. It will be important over the next biennium to measure how consumers respond to the price increases.

There is a relevant footnote to this section. Interestingly, Nevada's two LDCs take very different views about natural gas purchasing practices. Southwest Gas points out that buying gas at the market price, whatever that might be, assures customers of the least gas cost. Further, attempts to "beat the market" price are inherently risky, where the chances of losing are just as great as the chances of winning. The consequence of this approach is gas costs that tend to be more volatile for the utility and its customers. In response to these concerns, Southwest's practices call for the purchase of about half of its expected gas requirement through fixed price purchases and fixed-for-floating swaps; this has the effect of smoothing market volatility and reducing customer exposure to short-term dramatic market price movements.

In the past, Sierra Pacific has taken the view that providing more certainty about the cost of gas has value to customers and the utility. Therefore, it purchases call options and other financial hedging tools to be able to cap and somewhat set the price of gas supplies. The physical gas supplies are then procured at the current market conditions. Both approaches have been found to be just and reasonable by the Public Utilities Commission of Nevada.

Energy Efficiency/Conservation Opportunities

Opportunities for energy efficiency and energy conservation with natural gas generally come in three areas. One of the most interesting technically is the recovery of the potential energy of high pressure gas through a pressure letdown system. The stored energy in high pressure gas is often wasted by throttling or bleeding pressure down to the lower operating pressure most home and small commercial systems use. Several manufacturers now offer letdown turbines that capture this energy as electrical energy.

Another highly effective conservation measure comes from simply upgrading home heating systems. In the northern part of the state, two of the most effective actions that can be taken are to replace a home furnace with a new 90 percent efficient (or better) unit and to have heating ducts sealed to prevent warm air from spilling into areas that do not need the heat. Insulation, helpful in hot and cold climates and automatic thermostats are also effective in reducing the amount of natural gas expended for home heating.

Finally, larger commercial customers who need both heat and electricity in the right proportions can use combined heat and power (CHP), or what was once called "co-generation." When the timing, the heat and the electrical demand are aligned, even small CHP units can rival the thermal efficiency of some large utility turbine-generators because most of the energy in steam power plants is rejected – thrown away – when the steam is condensed. CHP units use that heat for process or space heating and save both energy and water.

Propane, Fuel Oil and Other Heating Fuels expand

Nevadans use a number of different fuels for home heating. Natural gas and electricity are by far the most widely used, but other common alternative fuels include propane, coal, wood in various forms (chips, pellets, logs) and distillates, such as kerosene. When these fuels are purchased, rather than harvested, they are usually bought and sold in unregulated markets. Of the alternative fuels, only propane is, in some instances, regulated by the Public Utilities Commission of Nevada. Propane, coal and ethanol are moved by rail and deliveries and

schedules are difficult to guarantee by the railroads. This has proven to be a problem with ethanol deliveries.

It is hard to know the extent to which these alternative fuels affect Nevadans. In most cases they are used because the expense of obtaining natural gas or electricity is very high – a common occurrence in rural locations.

Regional Considerations

Nevada is fully engaged in cooperative discussions with other western states on issues related to natural gas. For the most part these discussions concentrate on the adequacy of natural gas supplies for electricity generation. The Nevada participants are from NSOE, the Public Utilities Commission of Nevada and the utilities. Natural gas used by local distribution company service providers – Southwest and Sierra in Nevada – has been the subject of successful state regulation for many years and is, therefore, not a significant part of these discussions.
The issue of adequacy of natural gas is closely related to the issue of electricity adequacy because natural gas is a significant fuel used in the generation of electricity. If natural gas supplies were inadequate for essential electricity generation, then the consequences would be felt well beyond any one state's borders; hence, the need for a regional approach.

Regional Organizations

NSOE and the Public Utilities Commission of Nevada, along with colleagues from the Consumer Advocate's office and the natural gas utilities are called upon to engage their counterparts in other western states on electricity and natural gas issues. Much of the interaction among the states is directly in response to a greater willingness of the Western Governors Association to assert the interests of the western states in response to federal intentions to compromise those interests by proposing to exercise greater direct authority in western markets. In responding to the governors' directions, a fairly large number of organizations have emerged to perform analyses, communicate with Congressional Delegations, and basically formulate a cogent position for the western states. These organizations are identified in the following paragraphs.

Western Governors Association (WGA)

The WGA is a forum established by the governors to explore and act jointly on issues of mutual interest or concern. Recent WGA activities include environmental issues (for example, joint action on the status of listing the sage grouse as an endangered species) and several energy issues. Energy issues are generally addressed by the WGA directly or through the Western Interstate Energy Board. The WGA has chosen to deal with the Clean and Diversified Energy resolution directly (this is the resolution that calls for the building of 30,000 MW of "clean and diversified energy" and the 20 percent improvement of energy efficiency by 2020). In particular, it is not clear whether natural gas is part of the 20 percent improvement in energy efficiency, or whether it will apply only to electric utilities.

Western Interstate Energy Board (WIEB)

The WIEB is a non-profit organization established to implement some of the energy initiatives of the WGA. Issues that fall within the purview of WIEB include activities related to (1) the Western Interstate Nuclear Compact, (2) the WGA protocol on electric transmission siting in the west, and (3) a series of activities related to operational electric transmission issues and regional transmission organizations.

Discovery Efforts

There are no known discovery efforts ongoing in Nevada; however, the level of prices and the apparent establishment of an unusually high average price of natural gas have spurred investment in new and existing resource development all around the world. Alaskan and Canadian developers are expanding and it appears likely that there will be a new pipeline from Alaska to the lower 48 states, perhaps shortly after the beginning of the next decade. Moreover, the high prices also provide the incentive to develop offshore fields even in areas where drilling and development have not, heretofore, been contemplated.

Elevated price levels are also spurring an expansion of LNG markets. Sustained prices above four dollars per mmBTU are likely high enough that foreign gas resources can be exploited, compression facilities built, port facilities built in North America, LNG tankers built and used for transportation, legal issues confronted, and reasonable profits earned. Current natural gas prices are in the five to seven dollar per mmBTU range.

Chapter 3 - Transportation Fuels Assessment

Transportation fuels – gasoline, diesel, jet fuel and a group of versatile fuels called "distillates" – have been effectively deregulated for many years. This means that states and the federal government do not try – are not permitted to – (1) limit profits to a fixed percentage of company investments or sales, (2) require production of specific amounts of fuels at the refinery, (3) require distribution and storage of fuels at locations that seem appropriate to government regulators, or (4) demand access to a company's books and records without due cause. Consequently, the United States relies on market forces to allocate transportation fuels and provide incentives for new facilities.

The NSOE monitors the supply and demand for transportation fuels to determine that they are reasonably balanced and sustainable, but has no ability to require actions that might be viewed as helpful. NSOE also actively engages refiners and distributors in voluntary actions that improve coordination and the flow of information, of course, without violating anti-trust laws. Finally, NSOE maintains effective communications with the owner of the three petroleum pipelines, Kinder-Morgan that deliver refined products to our major population centers. This is because many of the supply interruptions that have occurred are as a result of pipeline problems.
It is clear that a long-term adequacy challenge exists in the supply of transportation fuels. Just as with natural gas, this challenge can be addressed by increasing supply or by decreasing demand – there are no regulatory solutions under existing laws. Unlike the situation with natural gas, Nevada has no ability to directly affect the supply of transportation fuels except in very limited circumstances, and the Governor does not intend to artificially reduce demand, nor is NSOE studying such options. This assures that gasoline and other transportation products will be allocated by price.

Present System Description

Nevada's transportation fuel distribution system consists of the pipelines that move fuel from the refineries and the regional and local storage facilities to the bulk storage tank farms and retail outlets in Nevada.

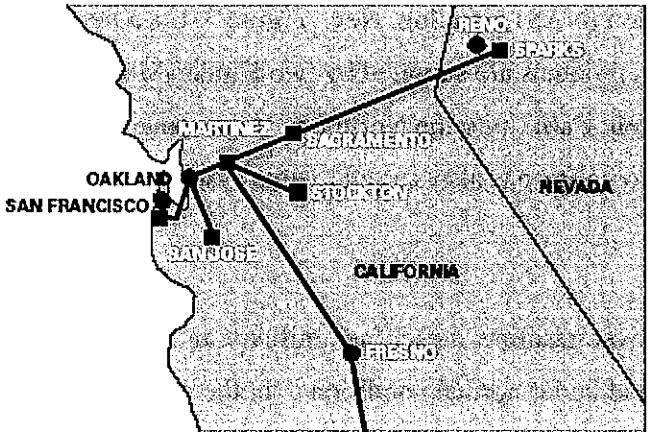
For northern Nevada, products are supplied by a Kinder-Morgan pipeline that extends from Concord, Calif., through Sacramento, Calif., into the tank farm in Sparks, Nev. It then continues to the Naval Air Station (NAS) in Fallon, Nev. Figure 3-1 is a map of the northern system. For southern Nevada, products are supplied by two Kinder-Morgan pipelines that extend collinearly from Colton, Calif., into the North Las Vegas tank farm and McCarran International Airport. Nellis Air Force Base is also served by this system. Figure 3-2 is a map of the southern system.

Both systems can deliver gasoline, diesel fuel, military and commercial jet fuels to the areas to meet consumer demand under normal conditions. In the north, the system has the capacity to meet the area needs without modification. In the south, the delivery system is reaching the maximum capacity and modifications are proposed to meet the immediate needs of the area but this area is in critical need of alternative means of meeting southern Nevada needs in the future. Since the northern Nevada system is sufficient for the near future, this discussion will concentrate on southern Nevada.

Changes made or suggested for southern Nevada should apply to the north when that system nears maximum capacity. Kinder-Morgan owns and maintains storage facilities at both ends of the pipeline (California and Nevada). Table 3-1 shows the storage capacity in Sparks and in North Las Vegas. While Kinder-Morgan owns the pipeline and some storage facilities, it typically does not own any of the products it carries and stores. Product is owned by distributors, who may hold and sell the product themselves, or may store and deliver product to retail chains or independent gasoline stations.

UNEV Pipeline

Figure 3-1 Kinder-Morgan, Inc. Concord to Reno Pipeline System



The map does not show exact locations or terminal names, but it correctly represents the general pipeline structure in Northern California and Nevada.

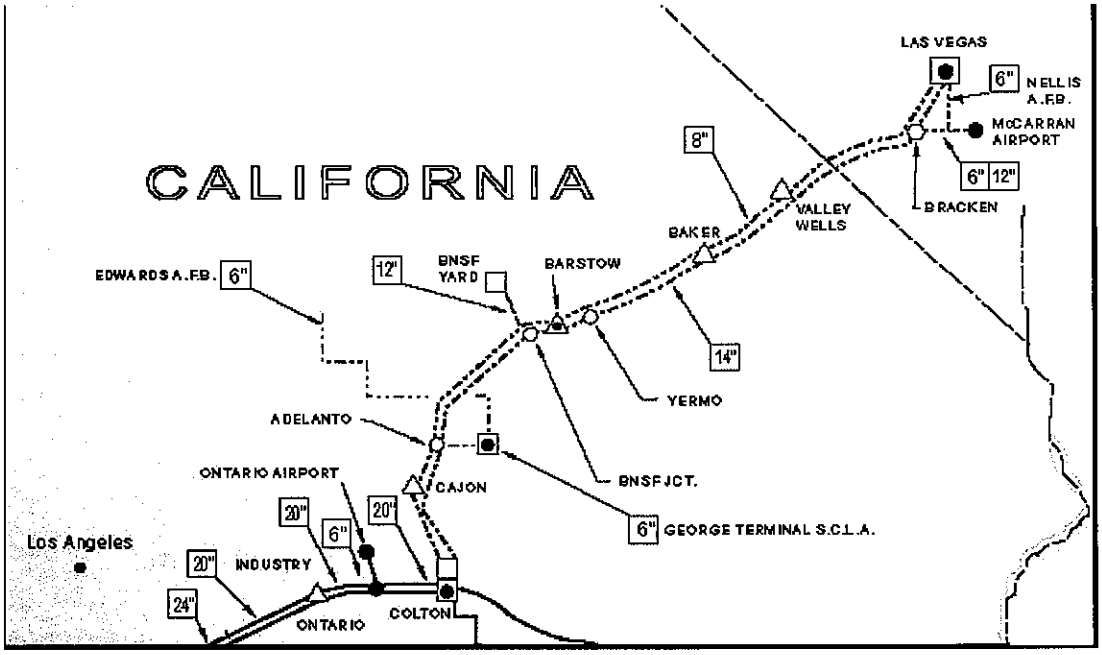
When the Kinder-Morgan pipelines are not able to supply products or when supplemental supplies are needed, it is possible to carry fuels into the Reno and Las Vegas markets using trucks and rail cars. Transporting products in this way is only a stopgap measure. It is very difficult to deliver enough fuel in this manner for the following reasons:

- There are not enough trucks that can be committed to this purpose for long periods of time,
- The number of available drivers is limited,
- Rail cars are not easily obtained and converted to this purpose in the short run, and
- Railroads are already unable to fulfill some of their customer demand with existing engines and crews

To the extent that these problems are overcome, two new challenges emerge:

- Gasoline requires different formulas in California, Las Vegas and Phoenix and are not interchangeable, and
- Truck drivers are limited in the number of consecutive hours they may drive

Figure 3-2 Kinder-Morgan,
Inc. Colton to Las Vegas Pipeline System



It is possible for the State Implementation Plan (SIP) administrator to request "enforcement discretion" from the US Environmental Protection Agency to allow the use of non-conforming gasoline under very unusual circumstances. Such authority, when granted, is limited in duration. Enforcement discretion has been requested in Nevada during a small number of events.

It is also possible to request a waiver of driver time limits from the US Motor Carrier Safety Administration in the US Department of Transportation. Doing so requires a declaration of emergency and presents a safety issue – driver fatigue – that is not easy to quantify. Nevada has not requested this type of waiver in the past.

Table 3-1 Kinder-Morgan, Inc. Tank Storage & Delivery Capacity at Sparks and Las Vegas

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Sparks Services

Pipeline:	Concord, CA (10") to Rocklin, CA (Sacramento)
	Rocklin CA (8") to Sparks, NV (45,200 barrels/day)(bbl/d)
	Sparks, NV (6") to NAS Fallon, NV (10,000 bbl/d)
Storage:	19 Tanks holding 360,300 barrels owned by K-M
	1 tank with 9,050 barrels of ethanol owned by K-M
	2 tanks leased to BP/Arco, with 45,100 barrels
	6 tanks leased to Nella Oil with 120,700 barrels
	1 tank of ethanol with 3,806 barrels
	4 tanks with 52,000 barrels (Shore terminal)
	4 tanks with 46,134 barrels (Reno-Tahoe International Airport)
Facilities:	3 Truck Racks
	Mix-grade Blending & Splash Blending (Ethanol)
	Additive Injection Systems, including Red Dye
Fuel types shipped:	
	Premium & Regular Clear, EPA Diesel, Diesel #1,
	Commercial Aircraft fuel (Jet A), and Military Aircraft fuel (JP-8)
Cycle:	Diesel – 3 days, military when required cuts into diesel cycle for 14 hours.
	Gasoline – 4 days
	Jet A – 10 hours

Expansion Plans: none

Las Vegas Services

Pipeline:	Colton, CA (14") to Las Vegas, NV – 126,000 bbl/d
	Colton, CA (8") to Las Vegas/McCarran Airport - 30,000 bbl/d
	Las Vegas to Nellis AFB - 33,600 bbl/d (military fuel only)
Storage:	30 tanks with 803,700 barrels of fuel storage
	5 tanks with 42,700 barrels of storage (ethanol)

3 tanks with 84,800 barrels of storage (Rebel)
9 tanks with 288,000 barrels of Jet A (McCarran)
2 tanks with 152,000 barrels of gasoline & diesel added in '07

Facilities: 3 Truck Racks
Automated Truck Rack
Tank Car & Truck Loading/Unloading
Laboratory Testing
Vapor Recovery & Incineration
Mix-grade Blending & Splash Blending (Ethanol)
Additive Injection Systems

Fuel types: 14 inch line: CBG premium & regular, Clear premium & regular, Clear Diesel, Jet A and JP-8. During the summer, the CBG and Clear gasoline storage is combined.
8 inch line: used only for Jet-A.

Cycle: The 7 ½ day cycle in the south is similar to that in the north.

Expansion Plans: proposed new line.

About 10 percent of the volume of storage tanks is generally not available for distribution. This is the product located in the bottom (also referred to as "the heels") of the tank that usually contains a higher concentration of impurities. The appropriate SIP administrator has the authority to allow release of gasoline in the heels of tanks for distribution. This option requires a demonstration of need and has been exercised in Nevada.

Operation of the distribution market is functionally quite simple, but market economics can be complex. The reason is that storing product – maintaining inventory – costs money. The actual fee for storage, like the actual fee for transporting fuels, is relatively small per gallon of product delivered to a retail customer. What can become expensive is related more to the value of the product in the tank. In periods of rising retail prices, product in storage appreciates in value, but when prices are falling, the value of a distributor's inventory decreases. This means that successful distributors must be able to predict general price swings and take advantage of them to the extent possible. If prices are expected to fall, for example, a distributor might want to keep a small inventory. But this, too, represents some level of risk. A refinery or pipeline

problem could quickly lead to fuel outages if, for example, only two days of inventory are maintained.

The distribution market, like other petroleum markets, is not regulated economically. This means that decisions about how much inventory to maintain are wholly within the discretion of the distributor and his retailers. Clearly, if the goal is to avoid fuel outages, large inventories are desirable. But there is no way for the state to require distributors to maintain a given quantity of fuel on hand.

How much inventory is available when a problem occurs is an all-too-frequent question. Some low-cost retail competitors may choose to hold small inventories as a way to give them a cost advantage over major company retail outlets. It seems simple enough to allow them to take the supply risk, but it is also important to recognize that when gas stations start placing signs on their pumps that they are out of gas, a different market mentality ensues. People begin to "top-off" their gas tanks and the demand for gasoline far exceeds normal draw down rates. This occurred in Phoenix in 2003. The consequence is a general supply crisis – panic-buying leads to excessive demand and outages at nearly all gasoline stations. What is not widely understood is that the largest amount of gasoline (and to a lesser extent, diesel) storage capacity in Nevada is in the tanks of automobiles. If customers top-off their tanks, there is not enough supply to keep up with demand in normal times, let alone during a pipeline shutdown.

It should be noted that jet fuel markets operate a little differently. Because airlines and airports work together to ensure adequate supplies of jet fuel, most airports, including McCarran and Reno-Tahoe, have more storage as a fraction of their daily draw down than gasoline markets do. It is not uncommon for airports to maintain an inventory of a week or more at normal usage rates. Airlines also have the ability to truck in product and to change their fuel loading practices to minimize the loading of fuel at an airport where supplies have been curtailed.

Retail Market

There are retail markets for gasoline and diesel, but the jet fuel market operates, for the most part, as a wholesale market except for the relatively small amount dispensed to general aviation

customers. The inputs and outputs of these markets are the same as in the distribution market – refined products. The retail gasoline and diesel markets take product from distributors and sell it to customers in gasoline stations. These are perhaps the most competitive of all the petroleum markets.

Retailers typically have a great deal of discretion in their pricing policies and often combine gasoline and diesel products with convenience stores. Prices are known to change rapidly and to vary quite significantly among the various brands of gasoline sold in Nevada. Price differentials at competing stations within two or three blocks of each other are often as large as five, or even ten, cents per gallon.

Retailers also have a large amount of storage in their tanks. This storage is typically not tracked, but it can provide as much as an extra day or two of capacity under normal usage conditions. The economics of retail gasoline stations are again deceptively complex. Individual retailers, for example, may choose to keep their prices high – even in the face of a competitor reducing his prices – if their inventories are running low and it is some time before trucks will provide a new delivery of product. Running a retail gasoline station is quite an entrepreneurial task.

It is important to note that the practice of artificially raising the price of gasoline using taxes is not widely used in the U. S. or Nevada. This is, however, normal practice in many other countries in Europe and Asia. Nevada does have a high gasoline tax, but it is due to geography – big state, long roads, and few people – rather than to energy policy. Taxes do account for about 20 percent of the price of gasoline at the pump.

Energy Efficiency/Conservation Opportunities

Market forces drive the price of transportation fuels, which means that they are allocated to customers using price signals. Plenty of fuel generally means that prices at the pump will be relatively low, whereas a fuel shortage usually means that prices will be high.
The most effective conservation tool for transportation fuels is what we want the least – high gasoline prices. As noted above, the price of gasoline is a relatively complicated mix of what is

occurring in four semi-independent markets, markets in which the State of Nevada has very little direct influence. The roles for the NSOE in these markets are to assist in the management of supply interruptions and to provide consumers with information that may help them conserve fuel.

Energy efficiency, as applied to transportation fuels, deals primarily with the fuel efficiency of the automotive fleet. Here the state has very few direct responsibilities because the federal government is responsible for fuel efficiency through the US Department of Transportation's Corporate Average Fuel Economy (CAFE) standards.

Short-term Actions to Minimize Fuel costs

Short-term conservation opportunities can be divided into actions drivers may take and actions the state and local jurisdictions may take. For the most part, actions taken by drivers will be the most effective, because actions taken by law enforcement authorities are directed first to public safety.

- Tune your engine according to manufacturer's recommendations,
- Ensure that tire pressure is at least the minimum recommended by the tire manufacturer,
- When possible, avoid long idling times such as early morning warm-up (gasoline engines) or traffic delays,
- Check brakes as recommended by the manufacturer or whenever there are signs or sounds of the brakes rubbing during normal driving,
- Minimize unnecessary travel by carpooling and combining or eliminating trips,
- When accelerating, ensure that speed increases are gradual, except where safety requires a more rapid increase in speed,
- Take public transportation, when possible.

Long-term Actions to Minimize Fuel Costs

Long-term conservation opportunities are directed at significant changes in life-style or major purchases. They represent the best opportunity for families to minimize the transportation fuel costs.

- Purchase a fuel-efficient automobile,
- Live near your place of work, and
- Choose a life-style and home location so that you can use public transportation.

The list of long-term actions is quite short and obvious. That said, these are fundamental life choices that are not made lightly. The consequence of making these changes, however, is dramatic. Shown below is a simple table that illustrates the number of gallons consumed and the cost of gasoline only for an individual who lives originally 35 miles from work and drives a large sport utility vehicle (the calculations assume that gasoline costs $2.50 per gallon, that the SUV gets 15 miles per gallon and the hybrid/diesel gets 45 miles per gallon).
These long-term changes are roughly ten times as effective as the short-term actions in saving fuel and money.

Some states have attempted to encourage conservation with Public Service Advertising (PSA) campaigns. There have been circumstances when PSAs have been very effective, for example, Ad Council sponsored, anti-drunk driving campaign in the middle 1980s. The effectiveness of that campaign, however, was linked to comprehensive and nearly uniform public support from state governments, activist groups and law enforcement agencies. It seems unlikely that a similar coalition can be formed in the near term for conservation of transportation fuels. For this reason, there is no recommendation for a program of PSAs.

Table 3-2 Annual Fuel Savings by Making Life-style Choices

Life-style Change	Gallons Consumed	Cost
Old Commute: 35 miles to work, large SUV	1,213	$3,032.50
Purchase a hybrid or diesel automobile	404	$1,010
Move to within 5 miles of work	173	$432.50
Move to within 5 miles of work & purchase a hybrid or diesel automobile	58	$145

No maintenance penalty was assigned to the original, high-mileage vehicle, which would further increase the cost of the long commute.

CAFE Standard

After the oil embargo and price-supply shocks of the middle 1970s, the National Highway Traffic Safety Administration (NHTSA) (an agency in the US Department of Transportation) began to systematically increase the CAFE standard. That effort had a significant impact on transportation fuel consumption. It is important to note two things about that sequence of events. First, the impact of the increases was not really seen until many years after the standard was changed. This is because there is a delay in when the standard changes and when compliance must be achieved, and even then, the average fraction of vehicles replaced each year is relatively low.

Second, light trucks – the basic chassis for sport utility vehicles (SUV) – are not counted as part of the automobile fleet. This means that as SUVs became a larger and larger part of the vehicles in the fleet, the actual average fuel economy decreased. But the decrease was not measured because only automobiles were counted as part of the standard.

This does not mean that the CAFE standard is ineffective. In fact the new hybrid technologies and the growing efficiency of European diesels would offer very practical ways to comply with a more aggressive standard. The State of Nevada is not able to affect this process directly, but can seek higher standards through the Congressional Delegation and through direct requests to the US Department of Transportation.

Transportation Fuels Adequacy

Refined Products Prices

The adequacy of transportation fuels is challenged by the prices of refined products. In general Nevada prices are among the highest in the nation, at least among the continental states. Even so, Nevada faces the prospect of occasional price spikes due to the vulnerability of the supply chain and the likelihood of long-term price increases due to the small and declining number of refineries serving the Nevada market and the concomitant need to import refined products from foreign countries.

These problems are expected to persist for some time because all of the potential fixes are very expensive and require a long period of time to implement. Moreover, the quantity of money removed from the Nevada economy to pay for transportation fuel price increases is quite substantial, especially when added to the price increases for natural gas and electricity. During the last biennium, calculations showed that more than $9 billion went to pay for imported (from outside Nevada) energy, more than two-thirds of which was for transportation fuels. This is money that would otherwise be available to build the strength and diversity of the Nevada economy.

Table 3-3 Nevada Transportation fuel use in 2008

Commodity	Quantity
Gasoline	975 million gallons
Diesel	1.18 billion gallons
Jet fuel	516 million gallons
Propane	6.98 million gallons
Compressed Natural Gas	837 thousand gallons (gge)
Hydrogen	Over 2000 gallons (gge)
Bio-diesel	575 thousand gallons
Ethanol	52 million gallons

In 2007, according to the Department of Energy, Energy Information Administration, Nevada spent the following for energy used in the state (Table 3-4).

Table 3-4 Energy Costs for Nevada

Commodity	Data Year	Quantity	Avg Cost	Cost of Commodity
Natural Gas	2007	250 bcf	$7.01 mcf	$1.75 billion
Coal	2007	3.7 million short tons	$26.20/t	$96.9million
Propane	2006	40.3 million gallons	$1.58/gal	$63.6 million
Gasoline	2008	974.6 million gallons	$2.667/gal	$2.6 billion
Diesel	2008	1.18 billion gallons	$3.021/gal	$3.56 billion
Jet Fuel	2008	516.5 million gallons	$2.50/gal	$1.3 billion
Total				$9.37 billion

Special System Constraints

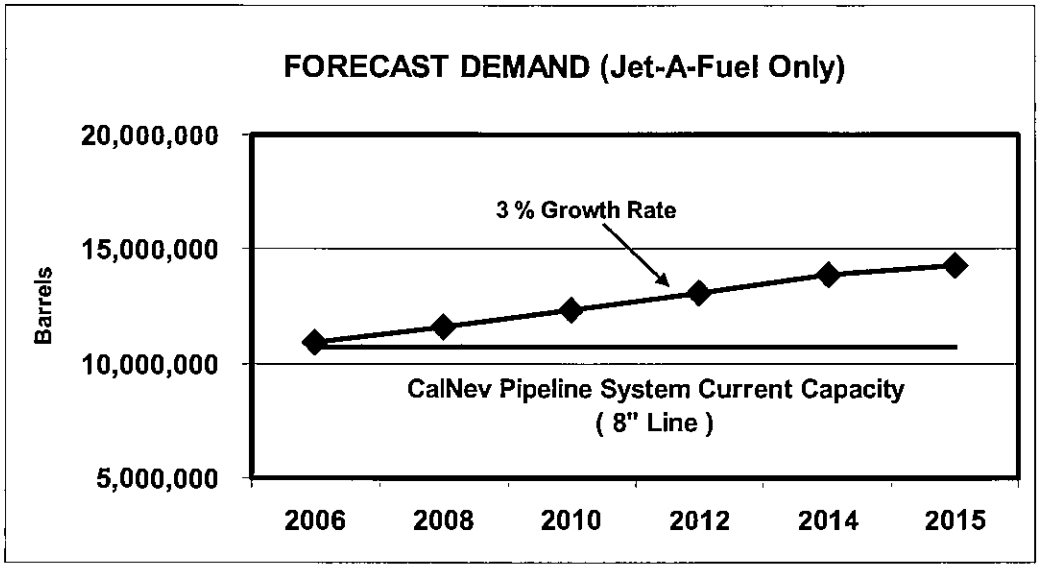
The transportation fuel system has sufficient capacity to meet normal Nevada demands. But the isolation of Nevada cities, especially Las Vegas, and the limited number of pipelines providing service to the state – three – makes the system marginally reliable.

The easiest and most direct way to improve reliability is to store more refined products in Nevada. Generally this has been accomplished for jet fuel, by the military and the commercial airports in Reno and Las Vegas. Supplies of diesel fuel are generally sufficient because the supply lines to refueling stations for commercial trucks are relatively dispersed. This means that trucks unable to refuel completely in Las Vegas have the opportunity to do so within a relatively short driving distance in nearly all directions; for example, Barstow, Calif., and Kingman, Ariz. Supplies of Clean Burning Gasoline (CBG) regular and premium are more problematic.

Inventories of these fuels tend to be somewhat lower, and therefore, more susceptible to supply interruption. Strong consumer pressure to keep prices low exacerbates this condition; attempts to increase storage of these fuels have not always been successful for the reasons mentioned above. The following analysis of fuel issues will concentrate on the Southern Nevada issues more than the North in that the sources and supply in the South is more critical to the state.

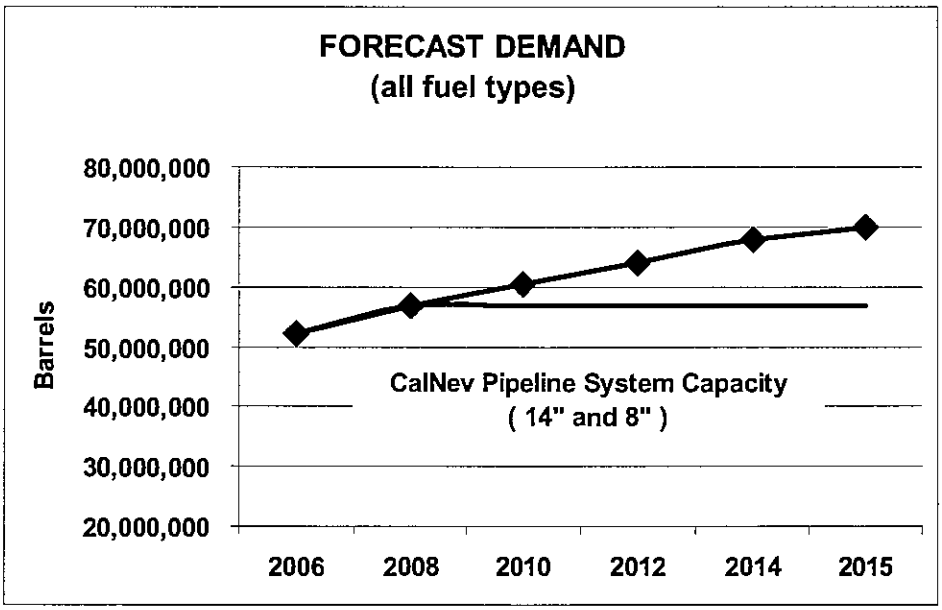
Capacity/Demand

The forecast demand for Jet-A fuel indicates that the present 8-inch delivery system is at the maximum. With a three percent projected growth of the McCarran International Airport it is evident that the additional Jet-A needs will have to be transported on the 14-inch line. The next graph shows the demand on both the 8-inch and 14-inch lines with a projected three percent growth line. This shows the critical nature of the pipelines serving southern Nevada.



This information is from the fuel study conducted by the Blue Ribbon Commission to Improve the Reliability of Southern Nevada's Fuel Supply.

CalNev Pipeline System Current Capacity14" and 8" Pipelines (all fuel types)



Extra-Market Factors

Some of the market factors that have entered into the supply and pricing fluctuations in southern Nevada have been fuel cost differences between Utah and Nevada. A few times there have been price abnormalities when Utah refineries have been closed for maintenance that depleted the southern Nevada diesel supply. On other occasions, the railroad has not placed ethanol cars in locations to be unloaded (especially during holiday weekends) that threatened a fuel shortage during the winter.