

# The \$20 Billion Bonanza:

*Best Practice Utility Energy Efficiency Programs and Their Benefits in the Southwest*

Howard Geller



Nevada Presentation

# Southwest Energy Efficiency Project

- Public interest organization founded in 2001
- SWEEP's primary focus is expanding and improving utility energy efficiency programs in AZ, CO, NV, NM, UT, and WY
- We also work on state legislation, building codes, state/local programs, industrial energy efficiency, and transportation issues
- SWEEP is funded by charitable foundations and government entities



# Summary: Implementing Best Practice utility energy efficiency programs in Nevada would:

- Cut electricity use in 2020 by 22%
- Save households & businesses \$3.4 billion
- Avoid 4 large (400 MW) power plants
- Support 4,680 new jobs in the state
- Cut air pollution and improve public health
- Reduce CO<sub>2</sub> emissions equivalent to taking 870,000 passenger vehicles off the road
- Reduce water use 2.4 billion gallons per year by 2020



# Questions Addressed in the Study

- What comprises a comprehensive set of Best Practice utility energy efficiency programs?
- What are the costs and benefits of implementing Best Practice utility energy efficiency programs in each state and the region?
- Is it possible to achieve 20% electricity savings by 2020 in each state, from programs 2010-2020?
- What policies are needed to realize the benefits offered by Best Practice energy efficiency programs?

# Study Methodology

- Program characteristics taken from leading programs nationwide
- Programs ramped up through 2020 in each state
- High Efficiency Scenario compared to a Reference Scenario without energy efficiency programs
- Study projects energy savings, peak demand reduction, and cost to utilities, households and businesses from implementing Best Practice programs
- Analyzes avoided investment in new power plants, pollution controls, fuel purchases, and O&M costs
- Analyzes avoided pollutant emissions, water savings, and impact on jobs and personal income

# Best Practice Utility Programs

Residential	Commercial and Industrial
New Construction and Code Support	New Construction and Code Support
Low-income Weatherization	Small Business Direct Install
Single Family Home Retrofit	Prescriptive Rebates
Multi-family Retrofit	Custom Rebates, Process Efficiency and Self-Direct
Retail Products	Lighting Redesign
Lighting	Retrocommissioning
Refrigerator/Freezer Recycling	Computer Efficiency & Plug Loads
Cooling	Combined Heat & Power
Water Heating	
Home Energy Reports and Information Feedback	



# Program Portfolio Is Highly Cost Effective

- Investing in energy efficiency and helping consumers save energy continues to be the lowest cost utility resource, by far
- Commercial and industrial programs have an average cost of saved energy of 2.2 cents per kWh
- Residential programs have an average cost of saved energy of 3.6 cents per kWh

# Electricity Savings in the High Efficiency Scenario (GWh)

State	Electricity Savings in 2010	Electricity Savings in 2015	Electricity Savings in 2020	Savings in 2020 as % of Sales in 2020
Arizona	695	6,059	16,713	21%
Colorado	285	4,373	11,495	22%
<b>Nevada</b>	<b>304</b>	<b>2,722</b>	<b>7,040</b>	<b>22%</b>
New Mexico	87	1,863	5,110	24%
Utah	194	2,455	6,234	20%
Wyoming	17	1,143	3,238	15%
Region	1,582	18,615	49,828	21%

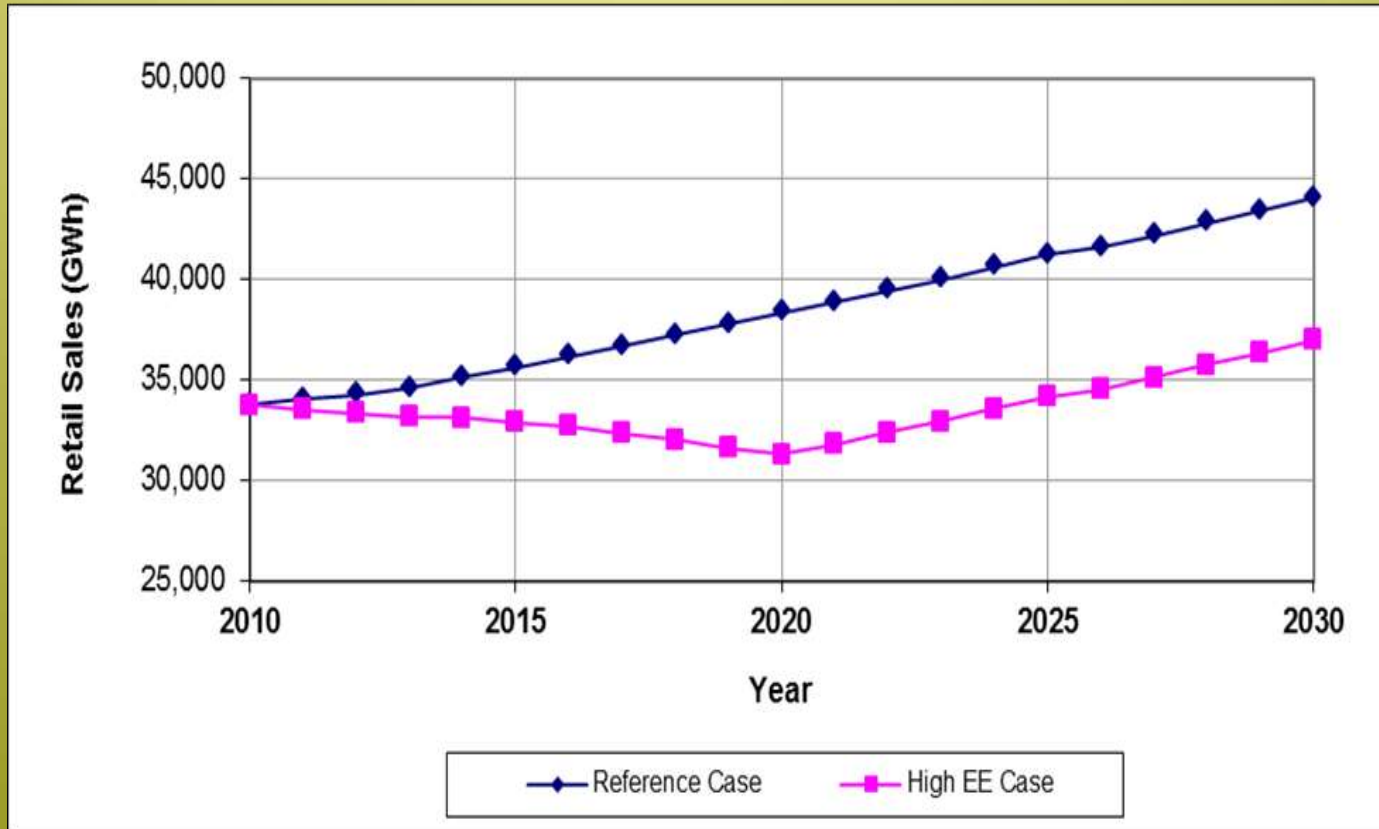


# Utility Program Costs in the High Efficiency Scenario (Million dollars)

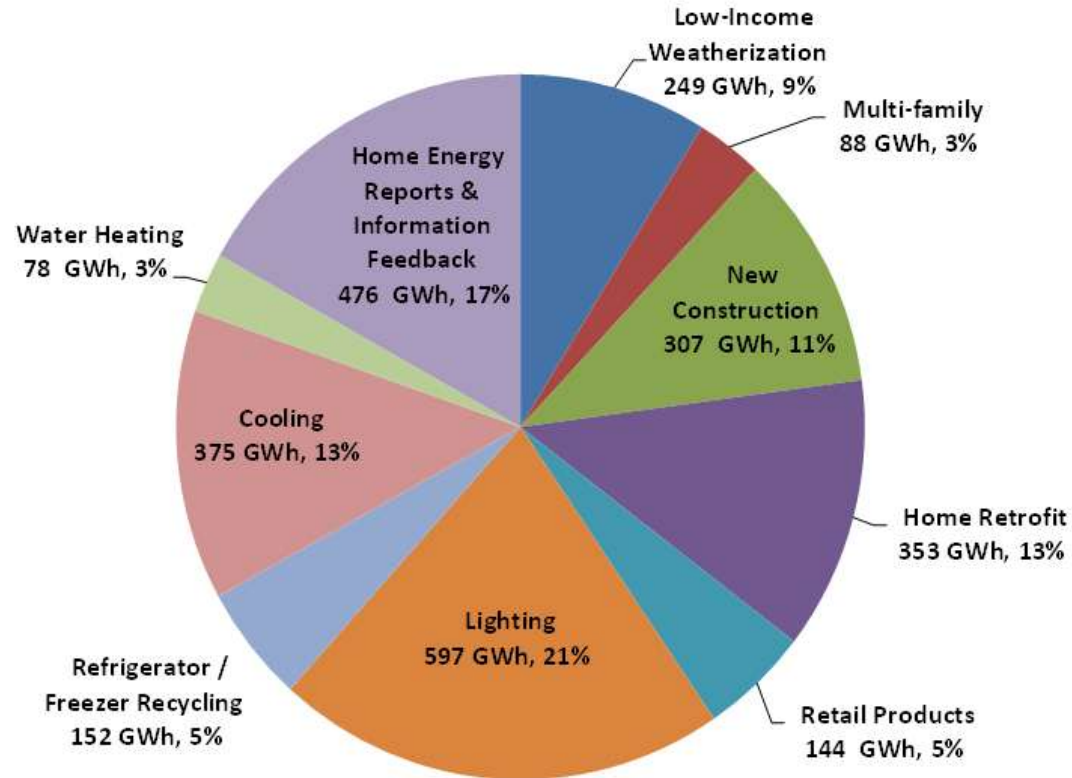
State	Cost in 2010	Cost in 2015	Cost in 2020	Net Present Value Through 2020
Arizona	54	377	623	2,767
Colorado	43	257	404	1,918
<b>Nevada</b>	<b>29</b>	<b>152</b>	<b>248</b>	<b>1,137</b>
New Mexico	15	121	191	877
Utah	40	138	214	1,052
Wyoming	4	71	101	480
Region	185	1,116	1,780	8,230



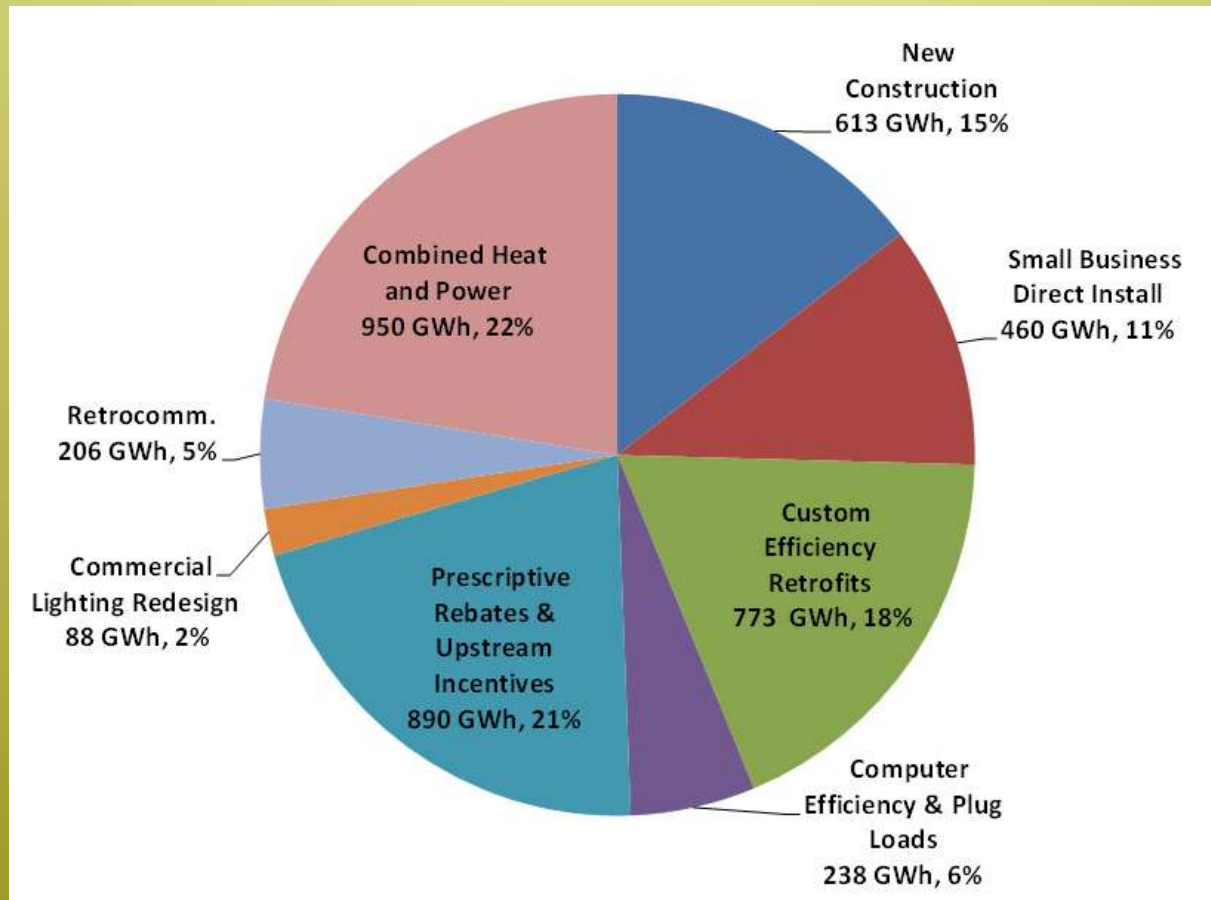
# Electricity Sales in Nevada by Scenario



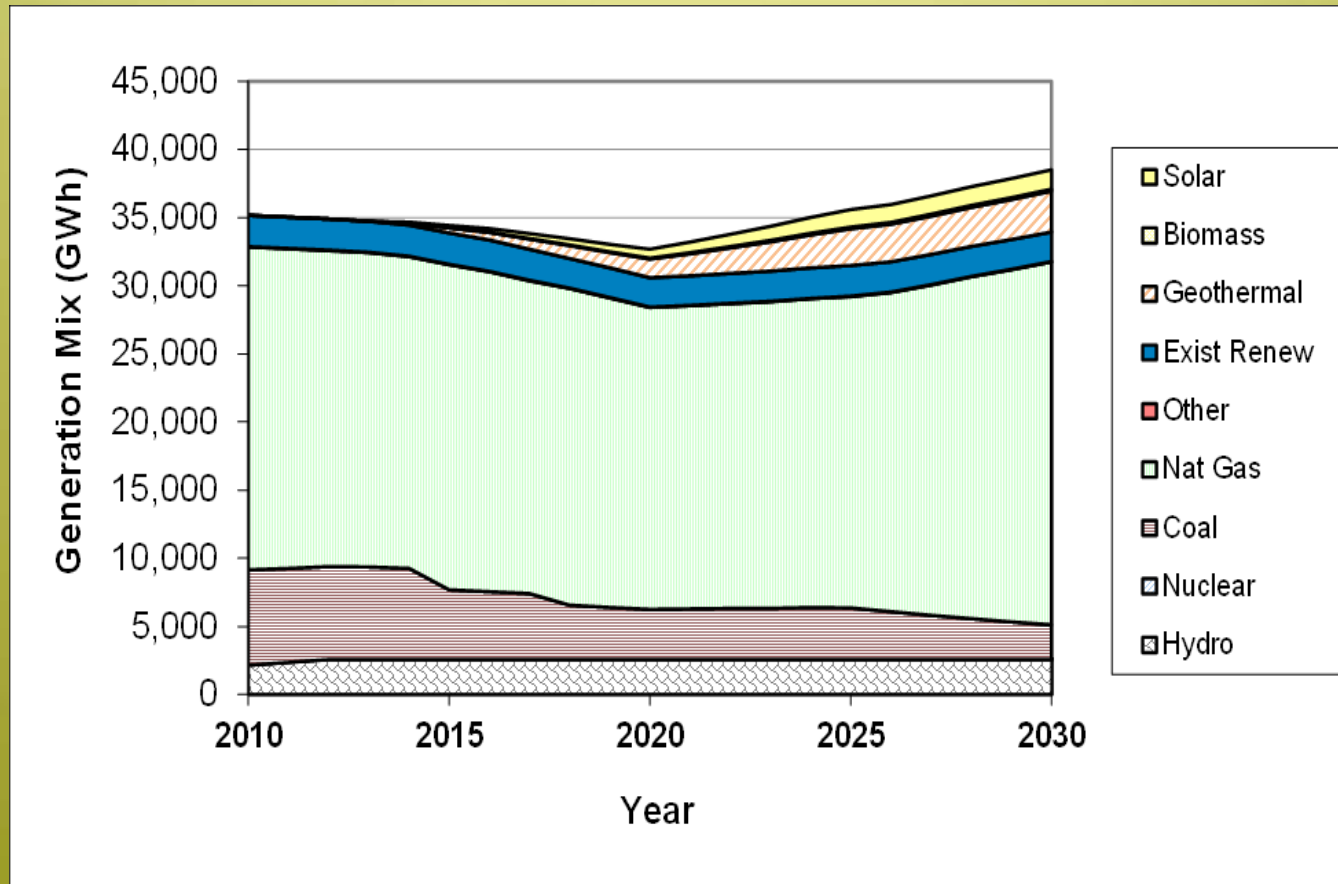
# Residential Electricity Savings in 2020 in Nevada by Program (GWh/yr)



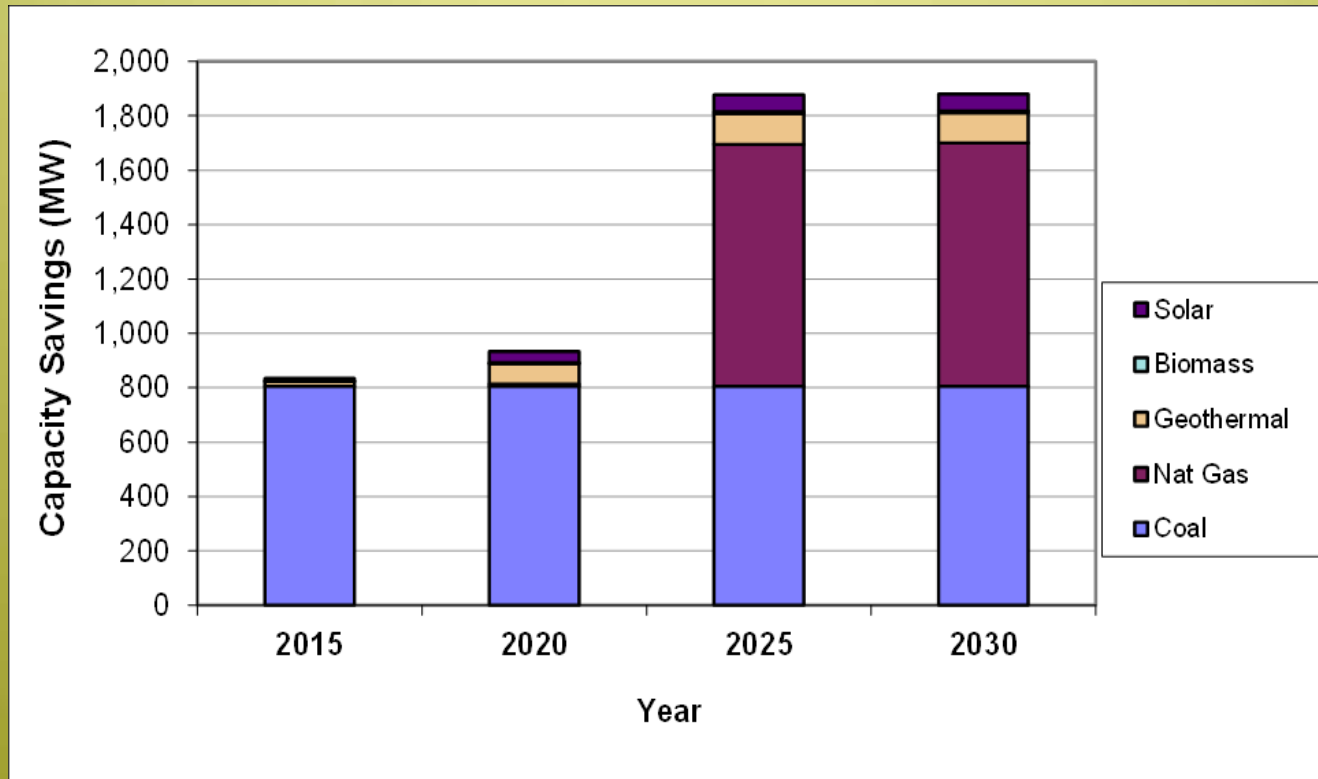
# Business Electricity Savings in 2020 in Nevada by Program (GWh/yr)



# Generation Mix in Nevada in the High Efficiency Scenario



# Avoided Capacity in Nevada in the High Efficiency Scenario

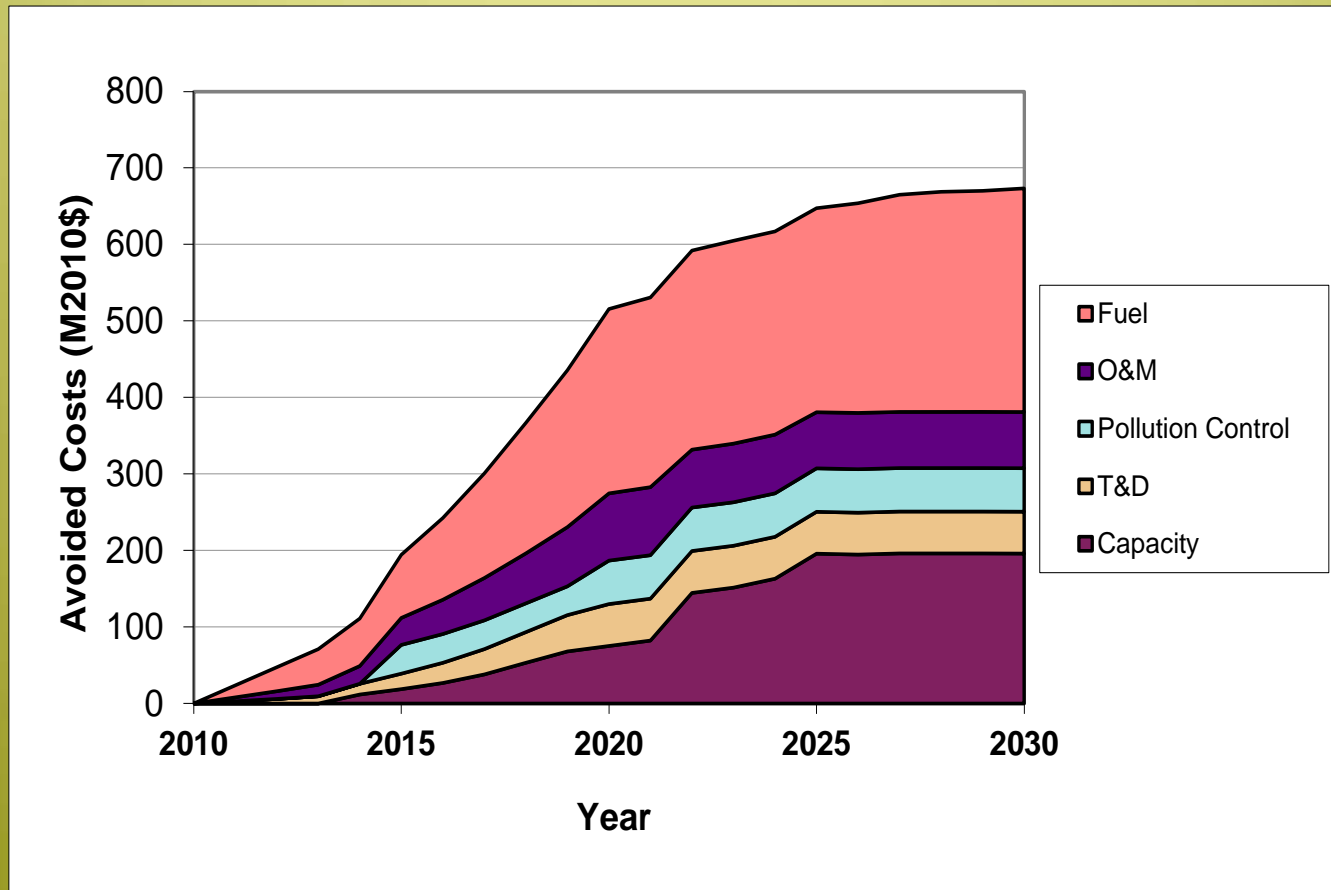


**Enables closing or avoiding 4 large (400 MW) power plants or their equivalent!**

# Additional Coal Plant Retirements in the High Efficiency Scenario

State	Plant	Unit	Year Built	Capacity (MW)
AZ	Apache Station	2 & 3	1979	408
AZ	Cholla	3	1980	312
AZ	H. Wilson Sundt	4	1967	173
CO	Martin Drake	5, 6 & 7	1962-74	257
CO	Nucla	1 - 4	1959-91	114
NM	San Juan	3 & 4	1979-82	1,110
<b>NV</b>	<b>North Valmy</b>	<b>1</b>	<b>1981</b>	<b>277</b>
<b>NV</b>	<b>Reid Gardner</b>	<b>1 - 3</b>	<b>1965-76</b>	<b>342</b>
UT	Bonanza	1	1986	500
UT	Carbon	1 & 2	1954-57	189
WY	Dave Johnston	1 & 2	1959-61	228
WY	Naughton	1 & 2	1963-68	381
--	Other	--	--	116

# Avoided Costs in Nevada in the High Efficiency Scenario





# Benefit-Cost Comparison in Nevada in the High Efficiency Scenario

	Net Present Value 2010-2030 (Million \$)
<b>Utility Avoided Costs</b>	
<b>Capacity</b>	<b>944</b>
<b>Fuel</b>	<b>1,960</b>
<b>Other</b>	<b>1,459</b>
<b>Total</b>	<b>4,363</b>
<b>Customer Benefits</b>	
<b>Utility Bill Savings</b>	<b>5,957</b>
<b>Public Health Benefits</b>	<b>54</b>
<b>Total</b>	<b>6,011</b>
<b>Energy Efficiency Costs</b>	
<b>Program Costs</b>	<b>1,137</b>
<b>Participant Costs</b>	<b>1,452</b>
<b>Total</b>	<b>2,590</b>
<b>Net Economic Benefits</b>	<b>3,421</b>
<b>Benefit-Cost Ratio</b>	<b>2.32</b>



# Avoided Pollutant Emissions and Water Savings in the High Efficiency Scenario

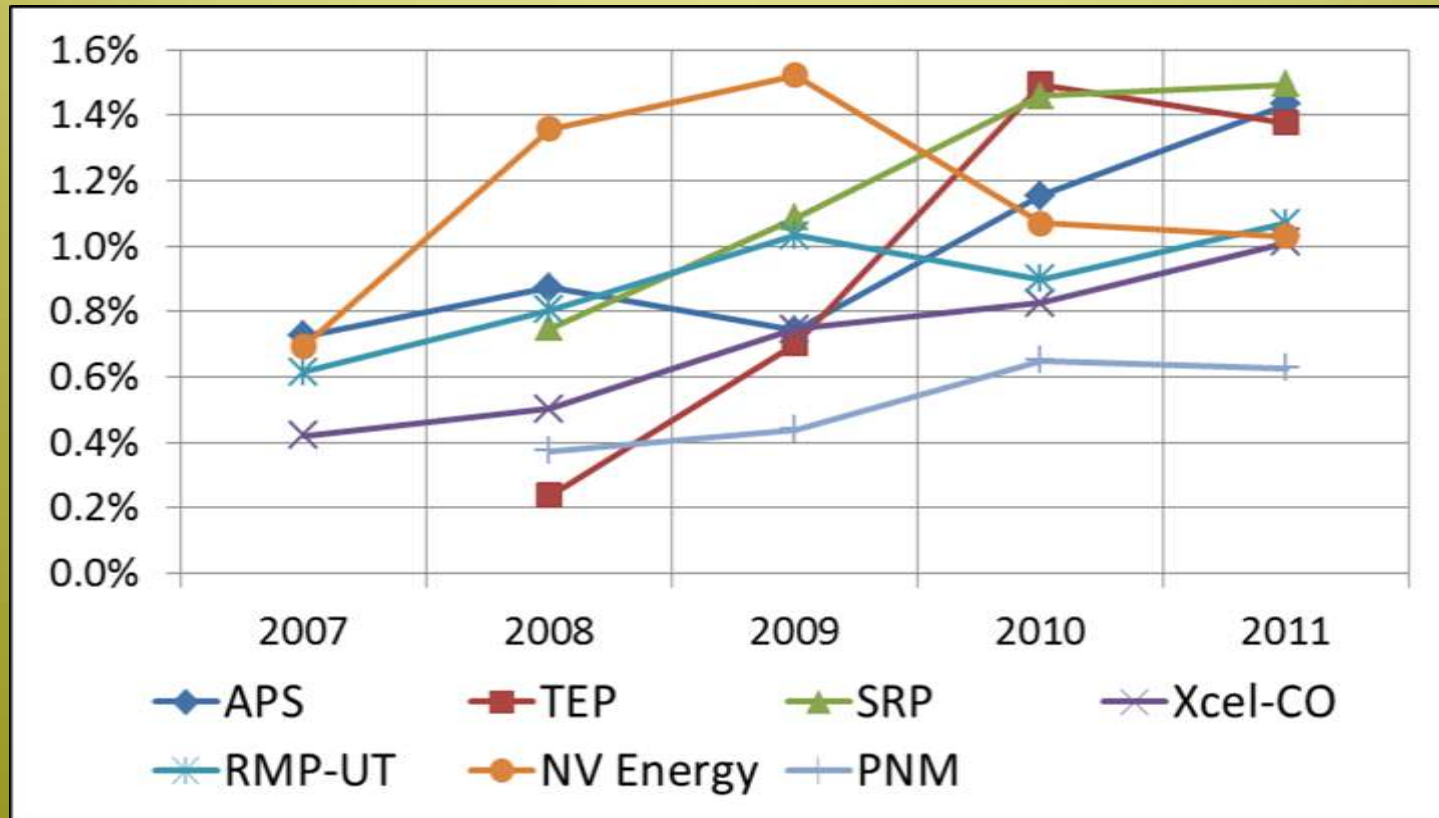
Category	Units	2015		2020	
		Reduction Amount	%	Reduction Amount	%
<b>CO<sub>2</sub> Emissions</b>	<b>1000 metric tons</b>	<b>2,437</b>	<b>13.9</b>	<b>4,425</b>	<b>25.7</b>
<b>NO<sub>x</sub> Emissions</b>	<b>Metric tons</b>	<b>1,053</b>	<b>10.3</b>	<b>1,759</b>	<b>14.7</b>
<b>SO<sub>2</sub> Emissions</b>	<b>Metric tons</b>	<b>881</b>	<b>29.7</b>	<b>1,085</b>	<b>43.3</b>
<b>Water Savings</b>	<b>Million gallons</b>	<b>1,382</b>	<b>15.1</b>	<b>2,378</b>	<b>27.5</b>

# Macroeconomic Impacts in Nevada in the High Efficiency Scenario

Year	Change in Jobs		Change in Wages (Million \$)		Change in GSP (Million \$)	
	Amount	%	Amount	%	Amount	%
<b>2015</b>	<b>1,820</b>	<b>0.1</b>	<b>92</b>	<b>0.8</b>	<b>91</b>	<b>--</b>
<b>2020</b>	<b>4,680</b>	<b>0.3</b>	<b>246</b>	<b>2.0</b>	<b>284</b>	<b>--</b>

# How Are Major Utilities in the Region Doing?

First Year Energy Savings as a Fraction of Retail Electricity Sales



**NV Energy is headed in the wrong direction!**



# How Much Energy Savings Would There Be in 2020 if Current Utility Efforts Continue?

	AZ	CO	NV	NM	UT	WY	Region
<b>Energy Savings in 2020</b>	<b>15%</b>	<b>10%</b>	<b>9%</b>	<b>7%</b>	<b>9%</b>	<b>2%</b>	<b>10.5%</b>

For Nevada, implementing Best Practice programs would more than double the energy savings (and benefits!) compared to a continuation of current efforts

# Policy Recommendations for Nevada

- **Adopt energy efficiency standards** – stand-alone energy savings requirements for NV Energy
- **Remove disincentives** – decouple utility fixed cost recovery and electricity sales
- **Reward performance** – allow utility shareholders to earn a profit when they help their customers save energy
- **Maximize participation and savings** – fully fund all cost-effective efficiency programs
- **Involve all utilities** – adopt energy savings goals or requirements for all utilities in the state

**ENERGY EFFICIENCY  
IN NEVADA:**

**THE ROAD TO  
ENORMOUS  
BENEFITS**



**HOUSEHOLDS &  
BUSINESSES**  
Save \$3.4 Billion Net



**ELECTRICITY SAVED**  
Enough to Power  
550,000 Homes



**WATER SAVED**  
2.4 Billion Gallons  
per Year by 2020



**POWER PLANTS**  
4 Plants Closed  
or Avoided



**JOBS CREATED**  
4,700 in NV



**CO<sub>2</sub> NOT EMITTED**  
Same As 870,000  
Cars Off the Road



**FEWER AIR EMISSIONS**  
Improved  
Public Health

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For more information or full report:

**[www.20BillionBonanza.com](http://www.20BillionBonanza.com)**

Other resources available online at:

**[www.swenergy.org](http://www.swenergy.org)**

Howard Geller, Executive Director

303-447-0078 x1

**[hgeller@swenergy.org](mailto:hgeller@swenergy.org)**