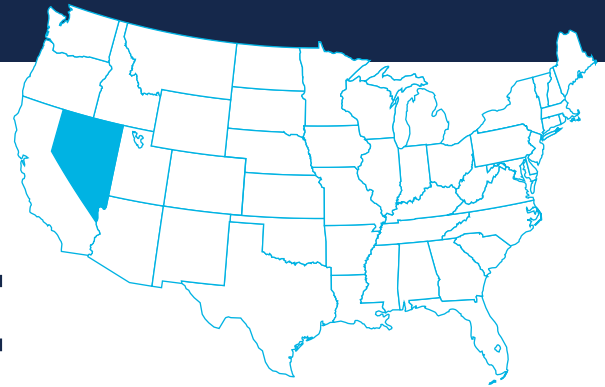




ISSUE BRIEF

NEVADA'S CLEAN ENERGY FUTURE



Opportunities to Cut Carbon Pollution Under the Clean Power Plan

Nevada has an opportunity to tap a well of economic growth that could provide new jobs, expand the economy, and help protect future generations from the worst impacts of a changing climate. That opportunity is clean energy, and one way for Nevada to realize more clean energy growth in the coming years is through implementation of the U.S. Environmental Protection Agency's Clean Power Plan. Nevada can cut a significant amount of carbon pollution by improving energy efficiency in homes and buildings and by continuing to increase the amount of power it gets from renewable sources like solar and geothermal. These investments will create new clean energy jobs, protect people from the harmful health effects of air pollution, and save them money on their electric bills.

Climate change is a clear and present danger to Nevadans' health and communities, bringing stronger storms, harsher droughts, and rising temperatures—most recently highlighted by findings that 2014 was the hottest year on record.¹ The National Climate Assessment, a recent report from 13 federal agencies, warned that human-induced climate change impacts are happening today, and worsening in every region of the United States.

Nevadans have already experienced economic and public health hardships due to changing weather patterns. In 2012, Nevada experienced 36 broken heat records, 14 broken precipitation records, and 86 large wildfires. Higher temperatures have significant impacts on public health and safety, as well as on the state's economy. Increased summer temperatures coupled with decreased summer precipitation are predicted to lead to severe and sustained droughts throughout the Southwest. Water scarcity will greatly impact Nevada's urban centers, agriculture, energy producers, and ecosystems.² For example, Lake Mead, the main source of freshwater for Las Vegas, was at its lowest recorded level in 2014.³ The federal government has warned

that water delivery cuts could occur as early as 2016, and scientists have predicted that as early as the 2020s, Lake Mead could reach a level so low that it could no longer be used as a water resource.^{4,5} By midcentury, 94 percent of the state's counties will face higher risks of water shortages.⁶ The costs of climate change are rising as well. Climate-related disasters in 2012 cost American taxpayers more than \$100 billion, or \$1,110 per taxpayer.⁷

OVERVIEW OF THE EPA'S CLEAN POWER PLAN

For the sake of our children and generations to come, we have an obligation to reduce the dangerous carbon pollution that traps heat and is fueling climate change. The nation's fossil-fuel power plants are the single biggest source of carbon pollution in the United States, accounting for nearly 40 percent of the total. Today we limit mercury, lead, and soot from these power plants, but not carbon pollution. That is changing now. On June 2, 2014, the EPA proposed the Clean Power Plan, which sets the first-ever standards limiting carbon pollution. The plan, when in place, would prevent about 550 million metric tons of carbon dioxide from entering the atmosphere by 2030, and would cut power sector pollution 30 percent below 2005 levels.⁸

Nationwide, the Clean Power Plan can usher in climate and health benefits worth an estimated \$55 billion to \$93 billion annually in 2030, according to an EPA analysis; that includes preventing 2,700 to 6,600 premature deaths. These benefits far outweigh the estimated national costs of \$7.3 billion to \$8.8 billion annually in 2030.⁹ Additionally, the EPA's proposed carbon pollution standards will stimulate investment that puts Americans to work making our homes and businesses more energy efficient. The EPA estimates this projected increase in smarter energy use will shrink consumers' electricity bills by a national average of roughly 8 percent in 2030.¹⁰

Energy efficiency investments reduce energy waste in homes and buildings, leading to smaller monthly electric bills while also cutting pollution. These investments create good-paying jobs as demand increases for manufacturers of efficient appliances, construction workers to build efficient homes and weatherize existing ones, and skilled technicians to do energy audits and install efficient technologies. In addition, as energy bill savings put more money into consumers' pocketbooks, there is increased spending on other goods and services—and associated job creation—across the economy.

Putting carbon pollution limits on power plants also will give the United States leverage in the international community to elicit strong commitments to reduce pollution from countries around the world. Already, the Clean Power Plan proposal helped the United States reach a landmark agreement in November 2014 with China to reduce carbon pollution in both countries.

NEVADA'S CARBON POLLUTION TARGET

Nevada, like every state, has the opportunity to craft its own best strategy to reduce pollution and protect our climate. The EPA is expected to finalize the Clean Power Plan in the summer of 2015, and the following year each state must submit an initial plan to meet its pollution target. Investing in energy efficiency and renewable solar and geothermal power should be a fundamental part of Nevada's strategy.

The Clean Power Plan proposal sets state pollution reduction targets by assessing four readily available methods (or "building blocks") for cutting pollution in each state. The target is expressed in intensity—pounds of carbon dioxide per megawatt-hour (MWh) of electricity produced—and Nevada is being asked to reduce its pollution intensity 35 percent by 2030. The four building blocks the EPA used to establish state targets are: 1) making coal-fired power plants more efficient by increasing the amount of electricity they create from each ton of coal burned; 2) using natural gas power plants more effectively by dispatching them before coal plants; 3) increasing renewable energy growth; and 4) increasing energy efficiency (cutting energy waste) in homes and buildings.

While the carbon pollution targets are based on these building blocks, states can meet the standards using any variety of policies and resource choices. The Clean Power Plan puts Nevada in the driver's seat, with flexibility to design a plan based on its energy mix and costs, to chart a low-carbon path forward.

LESS POLLUTION, MORE JOBS, LOWER ELECTRIC BILLS

According to a Natural Resources Defense Council (NRDC) analysis, setting a standard to reduce more carbon pollution than the EPA's current proposal would still create jobs and reduce customer energy bills. With a stronger standard than EPA's initial proposal, made possible by ramping up energy efficiency and renewable power, the NRDC analysis found that **Nevada would see the creation of 1,217 new jobs** and

that the state's households and businesses would **save \$7 million on their electric bills** in 2020.^{11,12} Because of the benefits to customer electric bills and to the state's job growth, NRDC recommended that the EPA require more pollution reductions nationally than currently in the Clean Power Plan proposal.

GRID RELIABILITY IN NEVADA

In the 40 years since the passage of the Clean Air Act, our country has been able to reduce pollution while keeping the lights on and costs low. Grid operators plan ahead to meet changing electricity needs. Smart grid planning, coupled with supply- and demand-side investments, will position grid operators to be able to fulfill electricity demand while states implement the Clean Power Plan. In recent years, billions of dollars have been invested in new transmission infrastructure to make sure electricity can be distributed wherever and whenever it is needed. Energy efficiency savings continue to temper demand, which makes it easier for utilities and grid operators to ensure adequate electricity supplies.

Moreover, since 2005, changes in the nation's power supply and state policies have already resulted in a 15 percent reduction in carbon pollution from power plants.¹³ Increases in energy efficiency and renewable energy have displaced fossil generation, and lower-cost natural gas generation increasingly has displaced coal-fired power plants. The grid has easily accommodated these changes through management and planning. These examples bode well for maintaining electricity reliability while cutting carbon pollution under the Clean Power Plan.

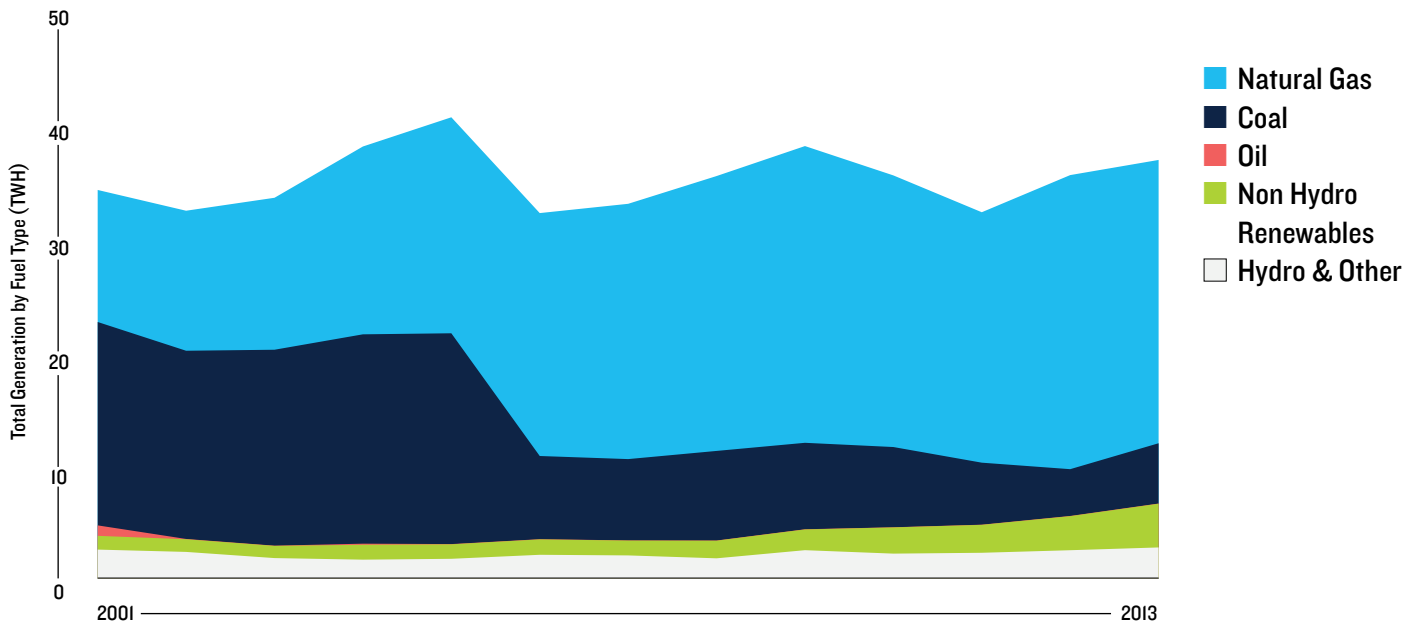
In addition, renewable energy can actually *increase* reliability of the electric grid. Thanks to more precise weather forecasts and improved technologies, grid operators are increasingly able to predict renewable energy power output while maintaining reliability. Unlike fossil fuel and nuclear sources, which can have large, abrupt, and unpredictable changes in electricity output, changes in wind and solar generation tend to be gradual and predictable.¹⁴ This means that wind and solar need less backup generation than fossil fuels or nuclear sources. Thanks to management, planning, and improved grid technologies, Nevada can cut pollution, increase energy efficiency, and add renewable energy capacity while maintaining a strong and reliable electric grid.

THE ELECTRICITY SECTOR IN NEVADA TODAY

Figure 1, below, shows that in 2013 a significant majority—67.7 percent—of Nevada’s electric power came from natural gas.¹⁵ Nearly all of the rest was generated from coal (14.4 percent), hydro (7.4 percent), and non-hydro renewable sources (10.5 percent).¹⁶ Geothermal and solar resources provide most of the non-hydro renewable power in the state.

Nevada is ranked third in the nation for geothermal potential and boasts one of the largest solar potentials as well.¹⁷ The state has capitalized on this renewable energy potential and has become a leader in clean energy and clean energy jobs. The state first passed a Renewable Portfolio Standard (RPS) in 1997; it is set at 25 percent by 2025 with a minimum of 6 percent to be met with solar.¹⁸ In 2013 the legislature passed a new bill providing for coal retirements and the acquisition of new renewable and non-coal

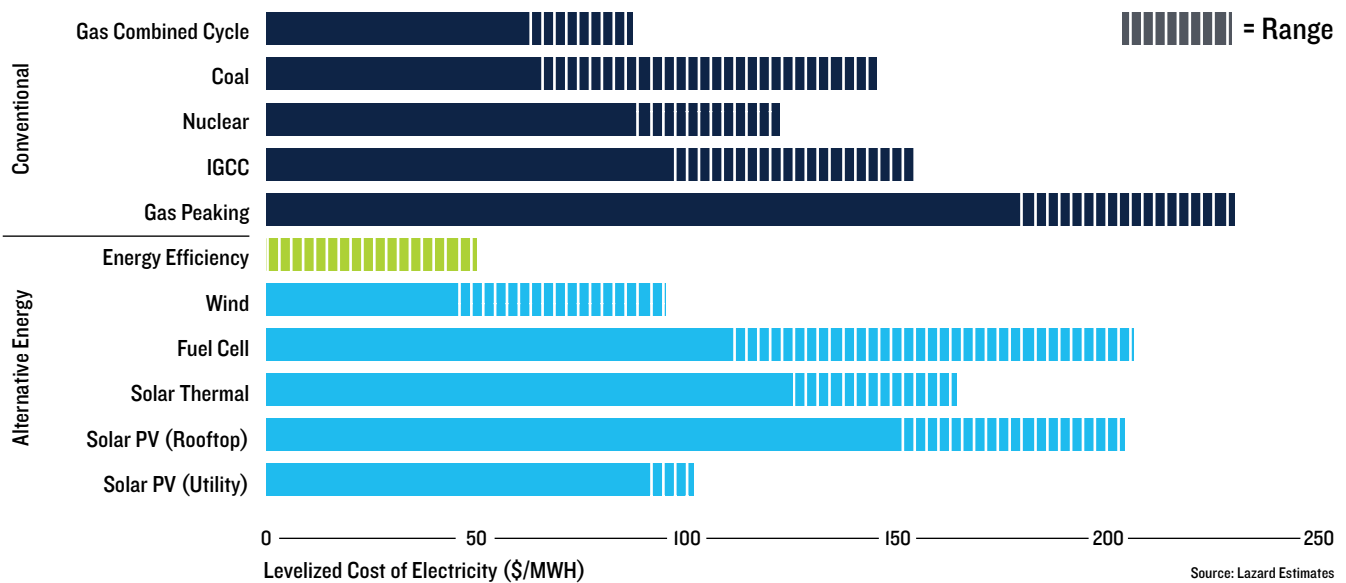
FIGURE 1: NEVADA'S ELECTRICITY GENERATION SOURCES (2001–2013)



Source: Energy Information Administration

FIGURE 2: COSTS OF ELECTRICITY GENERATION BY SOURCE (\$/MWH)

Energy efficiency is the cheapest of all energy resources. Utility solar PV and wind are competitive with new natural gas combined cycle plants.



Source: Lazard Estimates

resources to replace these coal plants.¹⁹ In 2014 the Nevada Public Utilities Commission approved NV Energy’s plan under the bill for the phased retirement of 800 MW of coal generation and the acquisition of 315 MW of new renewable resources.

Clean energy projects have led to the creation of more than 5,400 jobs in the past two years.²⁰ Solar jobs in particular have been growing at a remarkable rate in the state. In 2014 alone, solar brought 3,500 new jobs to Nevada—a 146 percent increase from 2013—the most impressive solar jobs growth in the country.²¹ Nevada now ranks first in the nation for solar jobs per capita.²² As of the end of 2014, more than 161 solar companies had locations in Nevada and employed more than 5,900 people in-state.²³

As shown in Figure 2, energy efficiency and renewable energy technologies are zero-carbon, low-cost options that can help meet the goals of the Clean Power Plan. Energy efficiency is the lowest-cost resource, as electricity savings can be achieved at costs well below the expense of new generation, resulting in lower retail electricity bills for homes and businesses. Further, with technological advances and taller wind turbines that improve performance, wind power has become competitive with new natural gas plants in many parts of the country.^{24,25} Solar power also is becoming increasingly competitive, as a result of

rapidly declining costs for solar panels, and most analysts expect that these costs will continue to decline over the next decade.²⁶ Additionally, a recent Deutsche Bank report predicts that solar power will be cheaper than average retail electricity prices in Nevada by 2016, even without the 30 percent federal Investment Tax Credit.²⁷

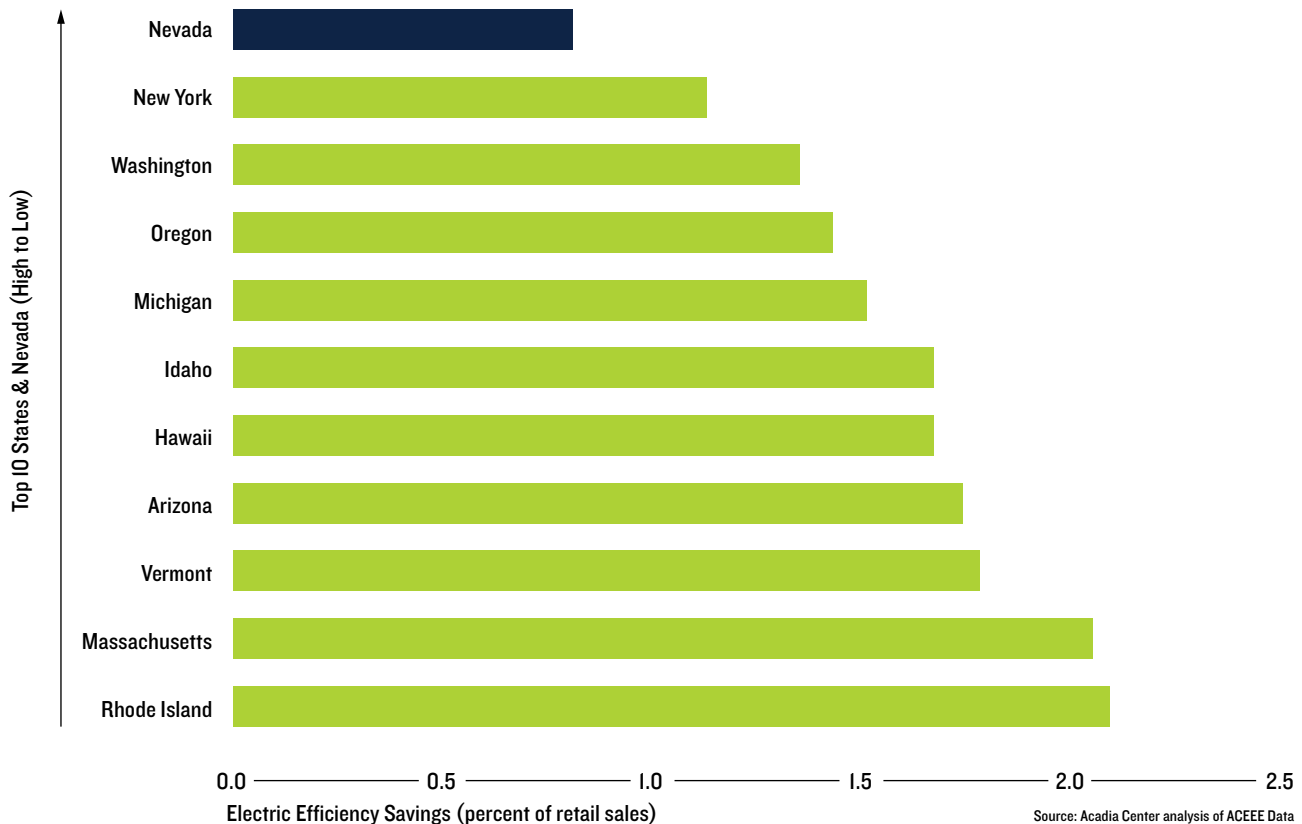
Part of Nevada’s RPS interim targets can be met with energy efficiency up until 2025. In 2012, energy efficiency programs resulted in annual energy savings of 0.81 percent of retail sales, as shown in Figure 3, placing the state 21st in energy savings achievements.²⁸ While this puts Nevada in the upper half of the states, it can do more to capitalize on energy efficiency benefits.

A CLEAN ENERGY FUTURE FOR NEVADA

With the state’s energy standards and NV Energy’s planned coal retirements, Nevada is in a good position to meet the targets of the EPA’s Clean Power Plan. The state is already in the process of moving away from coal and investing in more renewable energy as result of recent legislation. The state leadership’s continued recognition of the importance of clean energy for the economy puts Nevada ahead of the game for meeting its targets while saving consumers money on their bills, creating jobs, and spurring the local economy.

FIGURE 3: NEVADA’S ENERGY EFFICIENCY

Comparison with the 10 states with the highest energy efficiency rates. Nevada ranked 21st as of 2013.



Retiring the remaining coal plants (as Nevada utilities are currently planning) and adding efficiency, geothermal, and solar would provide additional environmental benefits and provide a buffer against potential fuel price volatility. Additionally, Nevada could produce even more power from its abundant renewable resources, helping neighboring states cost-effectively cut carbon pollution while driving investment at home in Nevada.

Investment in energy efficiency and renewable energy is the key to Nevada’s pollution reductions and clean energy future.

States can choose from a range of policy approaches

A smart, effective, and forward-looking Nevada plan can reduce market barriers that may hinder the development of clean energy. Table 1 shows the policy options available to states under the flexibility provided by the EPA’s Clean Power Plan and offers recommendations for how states can achieve economic and environmental benefits as they cut carbon pollution. Furthermore, Nevada has the chance to create market opportunities by ensuring its compliance plan is compatible with those of neighboring states.

CONCLUSION

Nevada’s leaders have an opportunity to chart a clean energy future. Under the proposed Clean Power Plan, states have incredible flexibility to design their own best, most cost-effective plan to cut carbon pollution. Nevada will be required to submit an initial state plan to the EPA in 2016 to demonstrate how it will reduce carbon emissions from its power plant fleet. Energy efficiency is the lowest-cost resource Nevada can use to cut carbon pollution and create thousands of new, homegrown jobs.

The Clean Power Plan also provides states the option to pursue partnerships with other states to reduce carbon pollution. Regional approaches present a number of potential advantages over a single-state plan, such as consumer savings, reduced compliance costs, increased flexibility, and avoided electricity market distortions.

Nevada’s energy future rests in its hands. The Clean Power Plan presents Nevada with the opportunity to improve public health, foster new economic development, and help stabilize our climate.

TABLE 1. STATE POLICY OPTIONS FOR CLEAN POWER PLAN COMPLIANCE.
States have ample flexibility under the Clean Power Plan to choose the best method to reduce pollution.

	Flexible Intensity-based	Mass-based with Trading	Carbon Fee	Portfolio/Resource Standards
Environmental Goal, Units, & Outcome	State has emissions intensity goal in pollution per unit of electricity generated (lbs/MWh)	State has emissions limit in total, fixed amount (tons), regardless of amount of electricity generation	State establishes a carbon fee (\$/ton) at price estimated to deliver the emissions goal; price is fixed but emissions outcome is uncertain	State sets minimum requirements for efficiency and renewable resources at levels estimated to deliver the emissions goal
Market Structure & Trading	Fossil power plants that pollute above the intensity standard must buy credits from others that operate below the standard	State agency issues allowances (tons) equal to the emissions limit; allowances can be auctioned or allocated; fossil power plants have to hold an allowance for every ton of emissions	State agency estimates the carbon fee (\$/ton) needed to achieve the emissions goal; revenue could be returned to utility customers through rebates, energy efficiency investments, or other state goals	Eligible resources are identified (i.e., efficiency and renewables) and energy (MWh) is tracked using generator certificate tracking systems; the distribution utilities need enough certificates to show they are meeting the required standard
Electric System Reliability	All of these market-based approaches provide significant flexibility for plant operators, grid operators, and regulators to ensure that reliability requirements are met. If a plant is needed in the short term it can keep operating by buying allowances or credits or by paying a fee. A unit could be designated as “must-run” for reliability reasons until the reliability constraint is addressed, and other facilities would adjust their performance to accommodate the output from that plant.			
Regional Approaches	There are significant benefits associated with states pursuing consistent regional approaches to compliance. The primary benefits are: <ol style="list-style-type: none"> 1) LOWER COST—A larger market should be more efficient and reduce costs 2) EQUAL TREATMENT—Generators, market participants, and consumers should face consistent market signals, costs and benefits 3) IMPROVED ENVIRONMENTAL OUTCOME—Regional approaches avoid different price signals across a market region and on either side of state boundaries. This would help avoid emissions leakage and higher national emissions than anticipated 4) REMOVE OR REDUCE RELIABILITY CONCERNS—A larger market and additional flexibility further reduces reliability concerns 			

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