Center for American Progress

Renewable Energy Standards Deliver Affordable, Clean Power

Right-Wing Attacks on These Standards Are Misguided

Richard W. Caperton April 11, 2012

Introduction

New Jersey, Texas, and California have very different energy profiles. They use different types of energy to power their economy. They have different types of utility systems. And they have different expectations of their energy system.

But these states share one important trait: They're reaping the benefits of renewable energy. New Jerseyans are first-hand witnesses of how solar power creates new businesses and new jobs.[1] Texans can thank wind power for keeping the lights on during extreme weather that struck the state in early 2011.[2] And Californians are using renewable energy to meet their state's new greenhouse gas pollution reduction standards.[3]

Twenty-six other states also have renewable energy standards, which require a certain amount of the electricity sold within a state to come from renewable energy. These policies lead to cleaner air, economic development, and a more resilient electrical grid.

Despite these facts, though, renewable energy standards have come under attack. A small but vocal group of right-wing activists and fossil-fuel advocates claim that these policies are raising electricity prices for consumers, which in turn is holding back state economies.[4] As conservative lobbyist Grover Norquist wrote in a recent *Politico* op-ed:

> *Renewable energy standards, by design, are intended to drive up energy costs—requiring utilities to use more expensive and often less reliable sources of energy. Not surprisingly, such laws have hit ratepayers hard. States that have a binding [renewable energy standard] now have electricity costs that are 39 percent higher than states that don't have a binding [standard].*[5]

And Robert Bryce of the conservative Manhattan Institute adds:

> *There is growing evidence that the costs may be too high—that the price tag for purchasing renewable energy, and for building new transmission lines to deliver it, may not only outweigh any environmental benefits but may also be detrimental to the economy, costing jobs rather than adding them.*[6]

Fortunately for consumers in the 29 states with renewable energy standards, these critics are wrong. There are no data showing that these standards cause electricity rates to skyrocket.

This issue brief will describe the history of renewable energy standards, explain how electricity rates are determined, and present evidence showing that these standards have not caused electricity prices to rise. This information sets the stage for moving forward in two critical ways: strengthening state-level renewable energy standards so consumers can see even greater benefits from renewable energy, and passing a similar policy at the federal level.

Renewable energy standards are commonsense policies with bipartisan support and economic benefits

At the most basic level, every renewable energy standard is the same: They require utilities to sell a certain amount of energy generated from renewable sources like wind, solar, geothermal, and biomass, among others. Beyond that, the details can vary: States can allow different technologies, such as hydropower or landfill gas; they can either allow electricity generation from out of state or restrict it to only in-state generation; and they can either cover all utilities or exempt certain utilities from the policy.

When state policymakers implemented these standards they crafted them to meet the needs of their state in a commonsense way. Contrary to naysayers' claims, these are not radical policies. In fact, there's a long history of bipartisan support for renewable energy standards. These policies were signed into law by former Republican governors like George W. Bush (Texas), Christie Todd Whitman (New Jersey), and Tim Pawlenty (Minnesota), as well as former Democratic governors like Jennifer Granholm (Michigan), Janet Napolitano (Arizona), and Gray Davis (California).

There are many reasons why a state would want a renewable energy standard:

- Using renewable energy instead of fossil fuels has many public health benefits, such as reducing the harmful air pollution that causes asthma.
- These standards create opportunities for new businesses, which can build renewable energy projects.

- These standards can drive down the cost of specific technologies through the "learning by doing" process, in which technologies like solar panels get cheaper as we gain more experience making them.

There are also some very important—and often ignored—reasons why these standards can positively impact electricity rates. The Union of Concerned Scientists has documented how shifting electricity generation from natural gas to renewables causes natural gas prices to go down, making the remaining natural gas generation cheaper than it was before.[7]

Renewable energy standards also ensure resource diversity. In fact, some states call their renewable energy standard a "renewable portfolio standard" to emphasize that renewables are a valuable part of a diverse portfolio of energy resources. Such a diverse portfolio reduces exposure to any single energy source, reducing risk to consumers.

Finally, renewable energy standards play especially important roles in states that restructured their electricity markets. Starting in the 1990s some states moved away from traditional monopoly utilities and toward so-called "deregulated" markets.

In the traditional structure, utilities submit plans to state regulators about their generation mix. Regulators have the ability to make utilities account for things like how a future price on carbon will impact consumers if a utility builds a coal-fired power plant, or how natural gas price spikes could impact consumers if a utility builds a natural gas power plant.

But in a restructured market regulated utilities no longer own power plants and regulators don't approve their resource plans. Instead, utilities buy power from independently owned and operated power plants. These power-plant owners (commonly called "merchant generators") have no obligation to provide a diverse mix of electricity. In these states a renewable energy standard is the only way to ensure resource diversity. This is no small issue: Every single state with a restructured utility industry has a renewable energy standard.

Electricity prices are influenced by dozens of factors

Before explaining how renewable energy standards impact electricity rates, it's worth giving a little bit of background on how the rates are determined.

Typically, a state public utility commission approves a utility's rates. Through a months-long process, the commission looks at utility data and determines how much it should cost the utility to provide reliable service to all of its customers. This includes a reasonable profit, so that the utility is incentivized to deliver quality electrical service. Then the commission projects how much electricity the utility will sell and divides the amount of money required to provide service by the amount of energy sold to come up with a rate, typically expressed as cents per kilowatt-hour.

Obviously, this is a highly simplified version of a complicated process. Even within this simplified model, though, there are countless factors that influence rates. What is a reasonable profit, for example?[8] Is it 8 percent, 10 percent, or higher? How often should a utility replace electric meters? Should a utility install new pollution-control equipment at an existing power plant, or build a new power plant?

In an analysis of utility rates, economists Ernst Berndt, Roy Epstein, and Michael Doane identified 13 reasons why a utility's rates may be higher or lower than the average.[9] They include things like the average use per customer, the age of the distribution system, the generation resource mix, and local taxes.

If anything is clear from this, it's that determining the impact of any particular policy on electricity rates is a challenge, given all the moving parts involved. This is where many people who claim that renewable energy standards are leading to dramatic rate increases go down the wrong path.

Data show no pattern of electric rate increases

Several recent studies claim to look at electricity rates from each state and find that renewable energy standards drive up rates. But these studies tend to have significant methodological shortcomings. For instance, conservative lobbyist Grover Norquist claims that states with renewable energy standards have higher rates.[10] While this may very well be true, it's irrelevant.

As mentioned above, there are at least 13—and probably many more—reasons why one state could have higher rates than another one, and this doesn't tell us anything about the impact of renewable energy standards. Instead it just tells us that states with higher initial rates adopted these standards.

Robert Bryce of the conservative Manhattan Institute takes a more sophisticated approach by finding that states with these standards have seen higher rate increases since 1990.[11] This is a better approach but it is still flawed. Again, there are plenty of reasons why one state's electricity rates could increase faster than another state's and this doesn't tell us anything about how a renewable energy standard impacts rates.

What we need to do is find a way to isolate the impact of these standards on rates. To do this, I adapted a methodology Emily A. Hickey and J. Lon Carlson developed in a paper about the rate impacts of electricity restructuring.[12] Their system looks at how a state's rates were changing compared to the national average before restructuring, and then does the same comparison for the post-restructuring period.

If the state's rates were increasing 1 percent per year faster than the national average before restructuring and were then increasing at 0.5 percent per year faster than the average after restructuring, then Hickey and Carlson judge restructuring a success. Note that Bryce would wrongly conclude that restructuring had failed, because the state's rates increased more than the national average, even though the actual impact of restructuring was positive.

We can do the exact same analysis for renewable energy standards. I built a collection of average residential electricity rates for all 50 states and the District of Columbia from 1990 to 2010, using Energy Information Administration data. I also used data from the Database of State Incentives for Renewable Energy, or DSIRE, to identify the 29 states and the District of Columbia with these standards in place.

For each state with a renewable energy standard, I calculated the average annual rate increase before the first year that the standard was in effect and compared it to the average for states without these standards for those same years. Then I did the same comparison for the years after the renewable energy standard went into effect. (For states with renewable energy standards that went into effect in 2010 or 2011, this methodology won't work because we don't have data for any years after the standards went into effect.)

The results of this exercise are in the table at right. If Bryce and Norquist are correct that renewable energy standards are bad for ratepayers, rates would increase faster after the standard went into effect, compared to the national average. That is, the number in the "post-standard" column would be larger than in the "pre-standard" column. This is clearly not the trend.

Look at Maine, for example. Before its renewable energy standard went into effect, Maine's rates were rising 3.42 percent faster than in states without a standard. After the standard went into effect, however, Maine's rates were actually rising 0.82 percent *slower* than in states without a renewable energy standard. (For more on the methodology, see the appendix.)

This shows that state renewable energy standards have no predictable impact on electricity rates. Even using an approach that attempts to isolate these standards from other factors driving rate changes, there's simply too many other factors. Maryland, for example—where the standard appears to have had the worst impact—has seen dra-

FIGURE 1

No pattern to how renewable energy standards affect electricity rates

Average annual electricity rate change in states with these standards, compared to the average for states without these standards

	Pre-standard, compared to average	Post-standard, compared to average
Texas	1.64%	-5.59%
Maine	3.42%	-0.82%
Delaware	1.13%	-2.05%
Nevada	2.93%	0.17%
Montana	1.29%	-1.42%
California	0.81%	-0.71%
Iowa	0.31%	-0.92%
Massachusetts	0.65%	-0.25%
New York	0.78%	0.13%
Connecticut	0.90%	0.33%
Rhode Island	1.21%	0.90%
New Hampshire	0.62%	0.43%
Wisconsin	1.36%	1.70%
New Mexico	-1.04%	0.76%
Illinois	-1.43%	0.42%
Arizona	-1.32%	0.90%
Pennsylvania	-0.79%	1.72%
Colorado	0.07%	2.72%
District of Columbia	1.55%	4.46%
New Jersey	-0.35%	3.39%
Ohio	-0.60%	5.21%
Maryland	-0.12%	7.16%
Hawaii	2.75%	N/A
Kansas	-0.57%	N/A
Michigan	N/A	N/A
Minnesota	0.21%	N/A
Missouri	-0.76%	N/A
North Carolina	-0.58%	N/A
Oregon	1.38%	N/A
Washington	N/A	N/A

Author's calculations based on U.S. Energy Information Administration data

matic changes due to how their restructuring program has been implemented: In the Baltimore area, restructuring caused rates to go up by 50 percent in 2007 alone.[13]

The conclusion is clear: Anyone who says they've looked at all of the states and found that renewable energy standards drive up rates is wrong. There are no data showing a nationwide pattern of these standards leading to rate increases for consumers. Instead, the data show that these standards do not cause electricity rates to go up faster than they otherwise would have, and that the standards are not responsible for electricity rates increasing faster than average.

State studies also show very low rate impacts, if any

State studies back this up. State governments in Maine and Michigan, for example, have looked at the relationship of their renewable energy standards and electricity rates and found that the standards have a minimal impact on rates, if any.

In Maine a report prepared for the state public utility commission found that "Maine's RES requirements translate into a 0.57% increase of a typical customers' monthly electric utility bill in 2010."[14] A similar study in Michigan concluded that electricity-rate increases were very small and were potentially outweighed by the economic benefits of renewable energy, and that renewable energy is cheaper than many other sources of new generation.[15]

Some states even find savings. Xcel, the largest utility in Colorado, says that the state's renewable energy standard will ultimately save their consumers as much as $100 million over 25 years.[16] And in California solar power is cheaper than building a new natural gas power plant: Solar developers have committed to selling power for 8.923 cents per kilowatt-hour, while natural gas is expected to cost at least 8.956 cents per kilowatt-hour for the same type of contract.[17]

In Minnesota different utilities have responded in different ways to the state's renewable energy standard.[18] Xcel Power estimates that meeting the state's standard will cause rates to be 0.3 cents per kilowatt-hour higher in 2025 than they would otherwise be. But to date Xcel claims that the rate impacts have been "insignificant."

Otter Tail Power, also in Minnesota, has had a very similar experience. As Todd Wahlund, Otter Tail's vice president for renewable energy development, explained, "Absent these wind resource additions, [due to the standard] an alternative resource would have been needed, and from our analysis, other options would have been higher cost." This means that Otter Tail needed new power, and the wind power they bought to comply with Minnesota's standard was cheaper than anything else, including fossil fuels.

While some utilities had to charge higher rates, there's some evidence that this is due to these utilities making long-term investments that are having short-term negative impacts. Great River Energy, for example, has seen relatively large-rate impacts because they locked themselves into contracts for wind power that they haven't needed in the short term.

These conclusions are similar to those that the Lawrence Berkeley National Laboratory reached.[19] In a 2008 report they examined states' experiences with renewable energy standards to that point and found:

> *The electricity rate increases associated with existing state RES policies, for those states in which such impacts are readily calculable, generally equal 1% or less so far; in several states, the renewable electricity required by these policies appears to be priced competitively with fossil generation.*

Next steps for renewable energy standards

Now that we know renewable energy standards are an affordable, effective way to bring the benefits of clean energy to consumers, we should broaden their reach. There are two ways to do this: create a federal standard and strengthen state standards.

At the federal level Sen. Jeff Bingaman (D-NM) introduced a bill last month called the Clean Energy Standard Act of 2012.[20] This national standard would include all low-carbon electricity sources—including nuclear and natural gas—in addition to renewables. While this is different from many state standards, Department of Energy analysis shows that this proposed standard would lead to new wind, solar, and biomass power, just like the state standards.[21]

Some states that have renewable energy standards have found meeting the standards easier than expected and have amended them to include more ambitious targets. California, for example, now has a target of 33 percent renewables by 2020.[22] Colorado's standard now has a target of 30 percent by 2020.[23] Other states can follow their lead and increase targets to reap more benefits of renewable energy.

Conclusion

Consumers in 29 states are seeing the benefits of renewable energy today thanks to renewable energy standards. They have access to cleaner air, reliable power, and growing economies—all of which are benefits of a simple, commonsense policy.

Despite these benefits, however, some right-wing commentators and fossil-fuel advocates have launched an effort to discredit these standards. In particular, they claim that

renewable energy standards are hurting consumers by driving up rates. While these claims are certainly scary, there simply is no evidence that they're accurate. In fact, the evidence suggests that renewable energy is affordable.

Knowing this, we should all have access to these new energy resources. And since it is unlikely that every state will adopt a renewable energy standard in the near future, the only way to provide this access is through a similar federal policy. By passing a federal renewable energy standard, or a clean energy standard that would also encourage renewables growth, Congress can put our country on a safer, cleaner, more reliable, and more affordable path to the future.

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Appendix: Methodology

The table below lists every state with a renewable energy standard. Column 1 is the annual rate of change in that state's average residential electricity rate from 1990 until the year before the standard went into effect, and Column 2 is the average rate for all states without these standards over the same years. Columns 3 and 4 are the same rates, only starting in the year the standard went into effect through 2010. Columns 5 and 6 show how that state's changing rates compared to the states without renewable energy standards for each time period (before and after the standard went into effect).

Finally, Column 7 shows how the state's electricity rates were changing before and after the renewable electricity standard, compared to the national average. In Maine, for example, rates were going up 3.42 percent faster than states without renewable energy standards before 2000, when the state's standard went into effect. Since then, though, Maine's rates have increased 0.82 percent slower than states without these standards.

FIGURE 2

Electricity rate changes before and after renewable energy standards

Average annual electricity rate change in states with these standards, compared to the averages for states without these standards

	Before standard went into effect		After standard went into effect		Differences			Year standard went into effect
State	Annual electric rate change (1990 until standard year)	Annual electric rate change in states without standards (1990 until standard year)	Annual electric rate change (standard year until 2010)	Annual electric rate change in states without standards (standard year until 2010)	Pre-standard rate change (compared to average)	Post-standard rate change (compared to average)	Pre- and post-standard rate change (compared to average)	
Texas	2.82%	1.18%	-2.54%	3.04%	1.64%	-5.59%	7.23%	2006
Maine	3.85%	0.43%	2.32%	3.14%	3.42%	-0.82%	4.24%	2000
Delaware	2.68%	1.55%	-0.47%	1.59%	1.13%	-2.05%	3.19%	2008
Nevada	3.86%	0.93%	3.92%	3.75%	2.93%	0.17%	2.77%	2005
Montana	2.84%	1.55%	0.16%	1.59%	1.29%	-1.42%	2.71%	2008
California	1.58%	0.77%	3.21%	3.92%	0.81%	-0.71%	1.52%	2004
Iowa	0.75%	0.43%	2.21%	3.14%	0.31%	-0.92%	1.23%	2000
Massachusetts	1.42%	0.77%	3.67%	3.92%	0.65%	-0.25%	0.90%	2004
New York	1.42%	0.64%	3.93%	3.80%	0.78%	0.13%	0.65%	2003
Connecticut	2.08%	1.18%	3.37%	3.04%	0.90%	0.33%	0.57%	2006
Rhode Island	2.72%	1.51%	4.25%	3.35%	1.21%	0.90%	0.30%	2007
New Hampshire	2.16%	1.55%	2.02%	1.59%	0.62%	0.43%	0.18%	2008
Wisconsin	2.54%	1.18%	4.74%	3.04%	1.36%	1.70%	-0.34%	2006
New Mexico	0.14%	1.18%	3.81%	3.04%	-1.04%	0.76%	-1.81%	2006
Illinois	0.12%	1.55%	2.01%	1.59%	-1.43%	0.42%	-1.86%	2008

	Before standard went into effect		After standard went into effect		Differences			Year standard went into effect
State	Annual electric rate change (1990 until standard year)	Annual electric rate change in states without standards (1990 until standard year)	Annual electric rate change (standard year until 2010)	Annual electric rate change in states without standards (standard year until 2010)	Pre-standard rate change (compared to average)	Post-standard rate change (compared to average)	Pre- and post-standard rate change (compared to average)	
Arizona	-0.13%	1.18%	3.94%	3.04%	-1.32%	0.90%	-2.21%	2006
Pennsylvania	0.73%	1.51%	5.07%	3.35%	-0.79%	1.72%	-2.51%	2007
Colorado	1.58%	1.51%	6.07%	3.35%	0.07%	2.72%	-2.66%	2007
District of Columbia	3.06%	1.51%	7.81%	3.35%	1.55%	4.46%	-2.92%	2007
New Jersey	0.58%	0.93%	7.13%	3.75%	-0.35%	3.39%	-3.74%	2005
Ohio	1.25%	1.84%	6.09%	0.88%	-0.60%	5.21%	-5.81%	2009
Maryland	1.06%	1.18%	10.20%	3.04%	-0.12%	7.16%	-7.28%	2006
Hawaii	4.62%	1.87%	5.17%	N/A	2.75%	N/A	N/A	2010
Kansas	1.25%	1.82%	1.25%	N/A	-0.57%	N/A	N/A	2011
Michigan	2.35%	N/A	2.35%	N/A	N/A	N/A	N/A	2012
Minnesota	2.07%	1.87%	2.24%	N/A	0.21%	N/A	N/A	2010
Missouri	1.06%	1.82%	1.06%	N/A	-0.76%	N/A	N/A	2011
North Carolina	1.28%	1.87%	1.28%	N/A	-0.58%	N/A	N/A	2010
Oregon	3.19%	1.82%	3.19%	N/A	1.38%	N/A	N/A	2011
Washington	3.07%	N/A	3.07%	N/A	N/A	N/A	N/A	2012

Author's calculations based on U.S. Energy Information Administration data

Endnotes

1 Paul McGill, "New Jersey Needs to Keep Its Solar Leadership," Renewable Energy World, March 27, 2011, available at http://www.renewableenergyworld.com/rea/news/article/2011/03/new-jersey-needs-to-keep-its-solar-leadership.

2 Kate Galbraith, "An Interview with the CEO of the Texas Grid," *Texas Tribune*, February 4, 2011, available at http://www.texastribune.org/texas-energy/energy/an-interview-with-the-ceo-of-the-texas-grid/.

3 California Public Utilities Commission, "33% Renewables Portfolio Standard: Implementation Analysis Preliminary Results" (2009), available at http://www.cpuc.ca.gov/NR/rdonlyres/1865C207-FEB5-43CF-99EB-A212B78467F6/0/33PercentRPSImplementationAnalysisInterimReport.pdf.

4 David G. Tuerck, Michael Head, and Paul Bachman, "Economic Impact of Oregon's Renewable Portfolio Standard" (Boston, MA, and Portland, OR: Beacon Hill Institute and Cascade Policy Institute, 2011), available at http://cascadepolicy.org/pdf/2011-3-9-RPSreport.pdf; Clint Bolick, "Put energy policymaking decisions back where they belong," Goldwater Institute, March 2, 2012, available at http://goldwaterinstitute.org/blog/put-energy-policymaking-decisions-back-where-they-belong; American Tradition Institute, "The Effects of Federal Renewable Portfolio Standard Legislation on the U.S. Economy" (2011), available at http://www.atinstitute.org/the-effects-of-federal-renewable-portfolio-standard-legislation-on-the-u-s-economy/.

5 Grover G. Norquist and Patrick Gleason, "Rethink renewable energy mandates," Politico, December 18, 2011, available at http://www.politico.com/news/stories/1211/70610.html

6 Robert Bryce, "The High Cost of Renewable-Electricity Mandates" (New York: The Manhattan Institute, 2012), available at http://www.manhattan-institute.org/pdf/eper_10.pdf.

7 Union of Concerned Scientists, "Clean Energy, Green Jobs," March 23, 2009, available at http://www.ucsusa.org/clean_energy/solutions/renewable_energy_solutions/clean-energy-green-jobs.html.

8 Independent Pricing and Regulatory Tribunal of New South Wales, "The Rate of Return for Electricity Distribution Networks" (1998), available at http://www.regulationbodyofknowledge.org/documents/091.pdf.

9 Ernst R. Berndt, Roy Epstein, and Michael Doane, "System Average Rates of U.S. Investor-Owned Electric Utilities: A Statistical Benchmark Study." Working Paper 95-005 (Cambridge, MA: MIT Center for Energy and Environmental Policy Research, 1995), available at http://dspace.mit.edu/bitstream/handle/1721.1/50183/35719406.pdf?sequence=1.

10 Norquist and Gleason, "Rethink renewable energy mandates."

11 Bryce, "The High Cost of Renewable-Electricity Mandates."

12 Emily A. Hickey and J. Lon Carlson, "An Analysis of Trends in Restructuring of Electricity Markets," The Electricity Journal (June 2010).

13 Paul Davidson, "Shocking Electricity Prices Follow Deregulation," USA Today, August 10, 2007, available at http://www.usatoday.com/money/industries/energy/2007-08-09-power-prices_n.htm

14 London Economics International LLC, "Review of RPS Requirements and Compliance in Maine" (2012), available at http://www.maine.gov/tools/whatsnew/attach.php?id=349454&an=1.

15 John D. Quackenbush, Orjiakor N. Isiogu, and Greg R. White, "Report on the Implementation of the P.A. 295 Renewable Energy Standard and the Cost-Effectiveness of the Energy Standards" (Lansing, MI: Michigan Public Service Commission, 2012), available at http://www.michigan.gov/documents/mpsc/implementation_PA295_renewable_energy2-15-2012_376924_7.pdf.

16 Vote Solar, "Colorado to achieve 30% renewables 8 years early, saves ratepayers big bucks," November 13, 2011, available at http://votesolar.org/2011/11/colorado-to-achieve-30-renewables-8-years-early-ratepayer-savings-of-409-million/

17 Letter from Karen V. Clopton to parties of record in Rulemaking 11-05-005, available at http://docs.cpuc.ca.gov/EFILE/PD/162134.PDF; Public Utilities Commission of the State of California, "Resolution E-4442," December 1, 2011, available at http://docs.cpuc.ca.gov/WORD_PDF/FINAL_RESOLUTION/154753.PDF.

18 Dan Haugen, "Are renewable standards driving up utility rates?" Midwest Energy News, May 17, 2011, available at http://www.midwestenergynews.com/2011/05/17/are-renewable-standards-driving-up-utility-rates/.

19 Ryan Wiser and Galen Barbose, "Renewables Portfolio Standards in the United States" (Washington: Lawrence Berkeley National Laboratory, 2008), available at http://eetd.lbl.gov/ea/emp/reports/lbnl-154e.pdf

20 U.S. Senate Committee on Energy and Natural Resources, "Clean Energy Standard Act of 2012," available at http://www.energy.senate.gov/public/index.cfm/democratic-news?ID=67e21415-e501-42c3-a1fb-c0768242a2aa

21 U.S. Energy Information Administration, "Analysis of Impacts of a Clean Energy Standard," November 2011, available at: http://www.eia.gov/analysis/requests/ces_bingaman/pdf/ces_bingaman.pdf

22 California Public Utilities Commission, "California Renewables Portfolio Standard," available at http://www.cpuc.ca.gov/PUC/energy/Renewables/index.htm

23 Database of State Incentives for Renewables and Efficiency, "Colorado: Renewable Energy Standard," available at http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CO24R