INSTITUTE FOR ENERGY RESEARCH

The Status of Renewable Electricity Mandates in the States

Executive Summary

Renewable electricity mandates are laws that require utilities to sell or produce a certain percentage of electricity from renewable sources. Usually the required percentage of renewable electricity increases over time until reaching a target percentage, such as 20 or 25 percent, at a target year, such as 2020 or 2025. Twenty-nine states have renewable electricity mandates, an additional six states have renewable electricity goals, and West Virginia has an alternative energy mandate.[1] There is no a federal mandate at present, although some members of Congress (both Republicans and Democrats) have supported one.

Renewable Mandates Are Customized

The State mandates differ significantly from each other as well as from federal mandate proposals with respect to sources that count as " renewable" (for example, Pennsylvania's mandate counts coalbed methane, New York's counts automobile tires), timetables, and enforcement mechanisms (or lack thereof). The percentages and timetables range from 1 percent by 2010 (for customers of cooperative and municipal suppliers in Colorado) to 33 percent by 2020 (for all ratepayers in California). The enforcement mechanisms range from none (in most places) to $600/MWh for missing the solar component of the mandate (in sunny Massachusetts). In short, those States that have mandates have tailored them very specifically to the resources, needs, and tolerances of the particular State.

Renewable Mandates Cost Consumers Money

Electricity prices are already nearly 40 percent higher in States with renewable electricity mandates.[2] While the renewable mandates may not be the only reason electricity prices are higher in those States, these mandates likely contribute to higher prices and certainly are not helping to decrease the price. After all, renewable electricity mandates require the generation of electricity from more expensive sources. Typically, too, they require backup generation, as well as backup capacity, and they typically place stress on transmission-grid operations (owing to

[1] West Virginia allows renewables and alternative energy resources to count toward their mandate. Alternative energy includes, "coal technology, coal bed methane, natural gas, fuel produced by a coal gasification or liquefaction facility, synthetic gas, integrated gasification combined cycle technologies, waste coal, tire-derived fuel, and pumped storage hydroelectric projects." *See* Database of State Incentives for Renewables & Efficiency, *West Virginia*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=WV05R&re=1&ee=1.

[2] *See* Appendix 1 in this report and Institute for Energy Research, *Energy Regulations in the States: A Wake-up Call*, http://www.instituteforenergyresearch.org/pdf/statereport.pdf.

their stochastic nature). As states increase their use of renewable sources, it is therefore likely that the price of electricity in states with mandates will increase even more.

Renewable Electricity Mandates Are an Expensive Way to Reduce Carbon Dioxide Emissions

Some argue that renewable electricity mandates are a good way to reduce carbon dioxide emissions,[3] but renewable electricity mandates are a very expensive way to reduce carbon dioxide emissions. According to the California Air Resources Board, it costs $133 per ton to reduce carbon emissions through the mechanism of a renewable electricity mandate.[4] An internal Obama administration memorandum on subsidies for renewables recently noted that carbon dioxide emissions "would have to be valued at nearly $130 per ton for CO_2 for the climate benefits to equal the subsidies."[5] To put these numbers in perspective, it currently costs about $15 a ton to purchase a certified carbon dioxide allowance traded on the European Climate Exchange.[6]

A Federal Renewable Electricity Mandate Would Be Costly

The Heritage Foundation recently calculated the economic impact of a federal renewable electricity mandate.[7] Its researchers found that a mandate starting at 3 percent for 2012, and increasing by 1.5 percent per year until 2035, would:[8]

- Raise electricity prices by 36 percent for households and 60 percent for industry;
- Cut national income (GDP) by $5.2 trillion between 2012 and 2035;
- Cut national income by $2,400 per year for a family of four;
- Reduce employment by more than 1,000,000 jobs; and
- Add more than $10,000 to a family of four's share of the national debt by 2035.

Similarly, Credit Suisse estimated the capital expenditures necessary to achieve different levels of renewable generation by 2020. The bank noted that a nationwide 10 percent renewable electricity mandate would require capital expenditures of $350 billion, a 15 percent mandate

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[3] *See, e.g.* Kara Rowland, *Chilly wind blows against global climate pact*, WASHINGTON TIMES, Nov. 7, 2010, http://www.washingtontimes.com/news/2010/nov/7/after-vote-obama-faces-chilly-road-on-climate (see Robert Gibbs comment).

[4] California Air Resources Board, *Climate Change Scoping Plan,* p. 84, http://climatechange.ca.gov/eaac/documents/state_reports/Adopted_Scoping_Plan.pdf.

[5] Stephen Power, *U.S. Weighs Funding for Renewable Energy Projects*, WALL STREET JOURNAL, Nov. 3, 2010, http://online.wsj.com/article/SB10001424052748703506904575592843603174132.html.

[6] IntercontinentalExchange Inc., *Emissions*, Nov. 22, 2010, https://www.theice.com/productguide/ProductGroupHierarchy.shtml?groupDetail=&group.groupId=19.

[7] David W. Kreutzer et al., *A Renewable Electricity Standard: What It Will Really Cost Americans*, May 5, 2010, http://s3.amazonaws.com/thf_media/2010/pdf/CDA_10-03.pdf.

[8] The mandate that the Heritage Institute modeled starts at 3 percent at 2012, increasing by 1.5 percent per year, until 2035. This requires a minimum of 15 percent renewable electricity by 2020, a minimum of 22.5 percent by 2025, and a minimum of 37.5 percent by 2035.

would require $500 billion, and a 20 percent requirement would require $750 billion.[9] The California Air Resources Board has estimated that it will cost $115 billion in new infrastructure to meet California's renewable electricity mandate in 2020 (33 percent).[10]

Renewable Mandates Are Not Being Met

Some states have been able to meet the early and very modest requirements embedded in their renewable electricity mandates. For example, Michigan (which is fairly typical of the States with respect to renewable mandates) currently generates almost 4 percent of its electricity from renewables, which places it on track to meet its modest 2015 goal of 10 percent. Keep in mind, however, that Michigan's renewable mandate includes municipal solid waste, landfill gas, and existing, traditional hydroelectric (all of which would be disallowed under a proposed federal renewable electricity mandate).

To assess how States were doing at meeting these goals, we contacted (through telephone calls or email) all of the public utility commissions in the states with mandates or goals. The public utility commissions in the various states reported:

- Only 14 of 36 states are meeting or are on track to meet their renewable electricity mandates or goals;
- 18 states are not on track to meet their mandates or goals;
- 4 states have not implemented their mandate or do not yet have data.

Renewable Subsidies Kill Jobs

One argument people use to promote renewable electricity mandates is that the mandates can create green jobs. But trying to create jobs through renewable subsidies has proved to be a failure. In Spain, for example, it is estimated that 2.2 jobs were lost as an opportunity cost of creating one expensive, subsidy- and set-aside-dependent job in the renewable sector.[11] In Germany, per worker subsidies in the solar industry are as high as $240,000 per worker.[12] The situation in Denmark is similar. Danes have to pay the highest electricity prices in the European Union, and they pay subsidies of nearly $400 million a year to wind producers (in a country with less than 2 percent of the population of the United States).[13]

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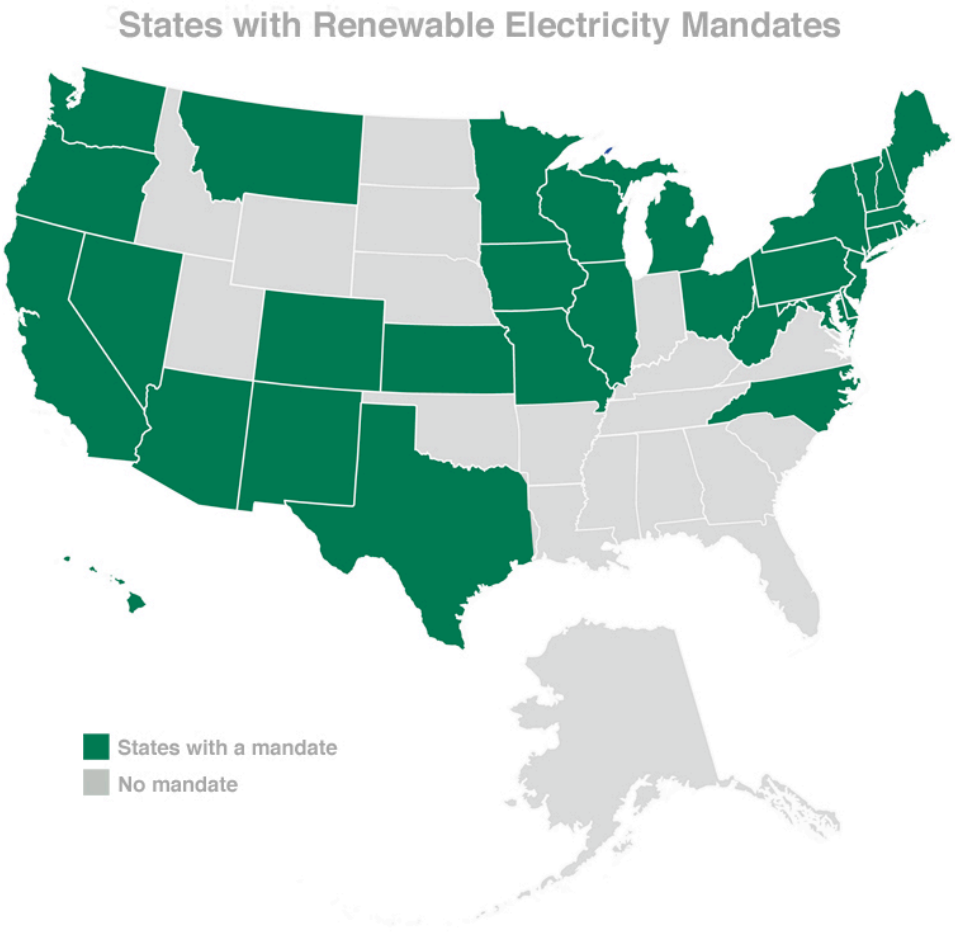
[9] Dan Eggers, Credit Suisse, *Aspen Institute Energy Policy Forum*, July 3, 2010.
[10] California Public Utilities Commission, *33% Renewables Portfolio Standard: Implementation Analysis: Preliminary Results* at 4, June 2009, http://docs.cpuc.ca.gov/PUBLISHED/GRAPHICS/102354.PDF.
[11] Gabriel Calzada Álvarez*, Study of the Effects on Employment of Public Aid to Renewable Energy Sources*, Mar. 2009*,* http://www.juandemariana.org/pdf/090327-employment-public-aid-renewable.pdf.
[12] Manuel Frondel, Nolan Ritter, & Colin Vance, *Economic impacts from the promotion of renewable energies: The German experience*, Oct. 2009, http://www.instituteforenergyresearch.org/germany/Germany_Study_-_FINAL.pdf
[13] Hugh Sharman & Henrik Meyer, *Wind Energy: The Case of Denmark*, Sept. 2009, http://www.cepos.dk/fileadmin/user_upload/Arkiv/PDF/Wind_energy_-_the_case_of_Denmark.pdf.

Introduction

For the past few years, Congress has considered a nationwide renewable electricity mandate, and renewable energy lobbyists have recently been increasing pressure on Capitol Hill to consider a renewable electricity mandate in the 112th Congress. One missing and important piece of this discussion is the experience of the States that have tried renewable electricity mandates.



Currently, 29 States have a renewable electricity mandate, 7 states have passed renewable electricity goals, and a number of other states have considered and rejected renewable electricity mandates. This raises an important question for Congressional action: If 36 states have passed some form of renewable electricity mandate or goal, what can be learned from these experiments? Are the states meeting their targets for renewable electricity production? Are these mandates increasing the prices of electricity? Are these laws uniform, or are there significant divergences suggesting that customization rather than standardization is the proper approach?

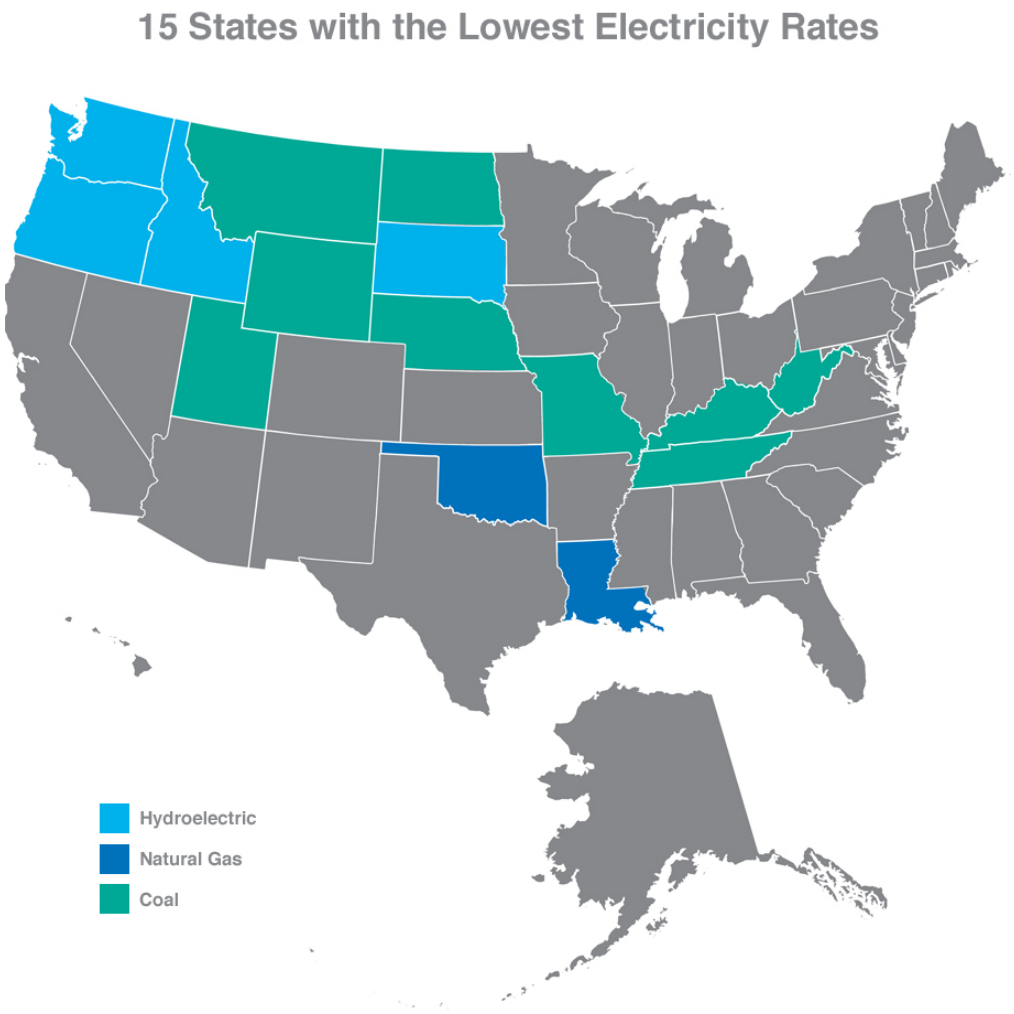
To investigate whether states are meeting their renewable targets, we emailed or called all of the public utility commissions in the states with mandates or goals. The public utility commissions in the various states reported that only 14 of 36 states are meeting or are on track to meet their renewable electricity mandates or goals, 18 states are not on track to meet their mandates or goals, 4 states have not implemented their mandate or do not yet have data yet.

It is troubling that so few states (14) are in compliance with their mandates and goals. If states are not meeting the requirements of their mandates now, it will only become more difficult in the future. Most of the State renewable electricity mandates are relatively new, and in general the requirements are relatively modest at first but increase in the out-years.

Electricity Prices Are Much Higher in States with Renewable Electricity Mandates

Electricity prices are 38 percent higher in states that have renewable electricity mandates.[14] It is not clear how much this price differential is the result of the renewable electricity mandates, how much is a function of the sources of electricity generation in states that have chosen to impose these mandates, and how much is a function of other regulations and legislation within the state caused the increased cost. What is clear is that states that generate a majority of their electricity from coal or hydropower have the lowest electricity prices.

[14] *See* Appendix 1.



In fact, of the 15 states with the lowest electricity prices only two, Oklahoma and Louisiana, do not generate a majority of their electricity from coal or hydropower.[15] Renewable electricity mandates (obviously) work against coal-powered generation, and electricity mandates proposed at the federal level generally do not count large hydroelectric generation as a renewable source. By shifting electricity generation away from coal and conventional hydroelectricity toward more expensive technologies, electricity prices will necessarily increase.

Estimates of the Cost of a Nationwide Renewable Electricity Mandate

Although electricity prices are currently higher in states with renewable electricity mandates, that does not tell us how much electricity prices would rise under a national renewable electricity

[15] *See* Energy IIA, Electric Power Monthly, Table 5.6.B., Average Retail Price of Electricity, Dec. 2009, Released Mar. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

mandate. To investigate that question, the Heritage Foundation recently calculated the effects of a federal renewable electricity mandate.[16] Its researchers found that a mandate starting at 3 percent for 2012, and increasing by 1.5 percent until 2035, would:[17]

- Raise electricity prices by 36 percent for households and 60 percent for industry;
- Cut national income (GDP) by $5.2 trillion between 2012 and 2035;
- Cut national income by $2,400 per year for a family of four;
- Reduce employment by more than 1,000,000 jobs; and
- Add more than $10,000 to a family of four's share of the national debt by 2035.

Credit Suisse researched a related question—how much capital investment would be required to achieve a national renewable electricity mandate? The bank found that meeting a nationwide 10 percent renewable electricity mandate would require capital expenditures of $350 billion, a 15 percent mandate would require $500 billion, and a 20 percent requirement would require $750 billion (the target year for meeting these mandates is 2020).[18] These estimates by Credit Suisse may be on the low end. According to the California Air Resources Board, meeting California's 33 percent renewable electricity mandate by 2020 will cost $115 billion in new infrastructure—and that is only for California.[19]

Renewable Subsidies Kill Jobs

One reason given for promoting a renewable electricity mandate is to create jobs. For example, a letter from Iowa Gov. Chet Culver (D) and Rhode Island Gov. Don Carcieri (R) recently stated that "a strong RES is the most economically efficient way to advance clean domestic energy and immediately create jobs in renewable energy manufacturing, construction of new projects and associated transmission."[20] This statement however is in direct contradiction to multiple studies that looked at the real-world implementation of programs to subsidize renewables.

[16] David W. Kreutzer et al., *A Renewable Electricity Standard: What It Will Really Cost Americans*, May 5, 2010, http://s3.amazonaws.com/thf_media/2010/pdf/CDA_10-03.pdf.
[17] The mandate the Heritage Institute modeled starts at 3 percent at 2012, increasing by 1.5 percent per year, until 2035. This requires a minimum of 15 percent renewable electricity by 2020, a minimum of 22.5 percent by 2025, and a minimum of 37.5 percent by 2035.
[18] Dan Eggers, Credit Suisse, *Aspen Institute Energy Policy Forum*, July 3, 2010.
[19] California Public Utilities Commission, *33% Renewables Portfolio Standard: Implementation Analysis: Preliminary Results* at 4, June 2009, http://docs.cpuc.ca.gov/PUBLISHED/GRAPHICS/102354.PDF.
[20] Letter from Gov. Chet Culver & Gov. Donald Carcieri to Sen. Harry Reid et al. (Sept. 13, 2010), http://www.governorswindenergycoalition.org/assets/files/GWCRESLetter%28Corr_Final9-12-10%29.pdf.

Spanish Study

The paper *Study of the Effects on Employment of Public Aid to Renewable Energy Sources*[21] marks the very first time a critical analysis of the actual performance and impact of "green job" policies has been made. In it, the authors examine Spain's efforts to create "green jobs" through subsidies for renewable energy. They find that these subsidies have actually harmed Spain's economy, leading to the loss of 2.2 jobs for every 1 job created. This study demonstrates how a "green jobs" policy clearly hinders Spain's way out of the current economic crisis, even while U.S. politicians insist that rushing into such a scheme will ease this country's emergence from the turmoil. The paper

Key Findings:

- For every 1 green job financed by Spanish taxpayers, 2.2 jobs were lost as an opportunity cost.
- Only 1 out of 10 green job contracts were in maintenance and operation of already installed plants, the other 9 were construction jobs which end as soon as the facilities are completed.
- Since 2000, Spain committed €571,138 ($753,778) per "green job."
- These programs resulted in the destruction of nearly 110,500 jobs elsewhere in the economy.
- Each "green" megawatt installed destroyed 5.39 jobs elsewhere in the economy.

German Study

According to the study *Economic Impacts from the Promotion of Renewable Energies: The German Experience,*[22] "Germany's experience with renewable energy promotion is often cited as a model to be replicated elsewhere, being based on a combination of far-reaching energy and environmental laws that stretch back nearly two decades." But, the researchers say: "German renewable energy policy … has failed to harness the market incentives needed to ensure a viable and cost-effective introduction of renewable energies into the country's energy portfolio."

Key findings:

[21] Gabriel Calzada Álvarez*, Study of the Effects on Employment of Public Aid to Renewable Energy Sources*, Mar. 2009*,* http://www.juandemariana.org/pdf/090327-employment-public-aid-renewable.pdf.
[22] Manuel Frondel, Nolan Ritter, & Colin Vance, *Economic impacts from the promotion of renewable energies: The German experience*, Oct. 2009, http://www.instituteforenergyresearch.org/germany/Germany_Study_-_FINAL.pdf

- Financial aid to Germany's solar industry has now reached a level that far exceeds average wages, with per worker subsidies as high as $240,000.
- In 2008, the price mark-up attributable to the government's support for "green" electricity was about 2.2 cents per kWh. For perspective, a 2.2 cent per kWh increase here in the United States would amount to an average 19.4 percent increase in consumers' electricity bills.
- Government support for solar energy between 2000 and 2010 is estimated to have had a total net cost of $73.2 billion, and for wind, the cost was $28.1 billion. A similar expenditure in the United States would amount to about half a trillion dollars.
- Green jobs created by government actions disappear as soon as government support is terminated, a lesson the German government and the green companies it supports are beginning to learn.
- Government aid for wind power is three times the cost of conventional electricity.

Danish Study

President Obama has frequently cited Denmark as an example to be followed in the field of wind power generation, stating on several occasions that the Danes satisfy "20 percent of their electricity through wind power."[23] The study *Wind Energy: The Case of Denmark*[24] casts serious doubt on the accuracy of that statement. The report finds that in 2006 scarcely 5 percent of the nation's electricity demand was met by wind, and during the past five years, the average has been less than 10 percent. Nearly 20 percent of the electricity Denmark produces is from wind, but much of it is unable to be used by Denmark and is exported, primarily to Norway and other Scandinavian countries whose power comes largely from hydroelectricity:

Key Findings:

- **Subsidies**. Government subsidy of wind producers over the past decade amounts to roughly $376 million per year. As the decade has advanced, the rate of new building in Denmark has declined sharply — and, just as in Spain, in order to maintain their sales manufacturers have been forced to concentrate on exporting their technology to foreign markets (mostly the United States) where the subsidy potential is higher.
- **Employment**. The public subsidy in Denmark per wind-related job created is 600,000–900,000 DKK per year ($90,000–$140,000). This subsidy constitutes 175–250 percent of the average pay per worker in the Danish manufacturing industry.

[23] *See, e.g.* President Obama, *Transcript: Obama's Earth Day Speech*, CBSNEWS, Apr. 22, 2009, http://www.cbsnews.com/8301-503544_162-4962412-503544.html.
[24] Hugh Sharman & Henrik Meyer, *Wind Energy: The Case of Denmark*, Sept. 2009, http://www.cepos.dk/fileadmin/user_upload/Arkiv/PDF/Wind_energy_-_the_case_of_Denmark.pdf.

- **Electricity rates**. Thanks to a combination of expensive base power, taxes, and additional charges, Danes pay more for their electricity than anyone else in the European Union.
- **CO_2 Emissions**. The wind power exported from Denmark saves neither fossil fuel consumption nor CO_2 emissions in Denmark, where it is all paid for. By necessity, wind power exported to Norway and Sweden supplants largely carbon-neutral hydroelectric electricity in the Nordic countries.
- **Exports**. On average, during the last eight years, West Denmark has exported (because it could not use) 57 percent of the wind power it generated, and East Denmark has exported 45 percent. Denmark sells this taxpayer-subsidized power to its neighbors at almost no cost, asking only that its neighbors sell some of their base load power back to Denmark on the frequent occasions when the wind does not blow there.

State-by-State Overview of Compliance with Renewable Electricity Mandates and Goals

The following is a list of states with renewable electricity goals or mandates. The list describes whether States are "on track" to meet their renewable targets, "not on track," or whether the State's status is "Unknown." To ascertain whether the states are on track or not, we contacted the public utility commissions of the various states. In some cases we were not able to contact the public utility commission after multiple attempts. In these cases we made a judgment call whether the state was on track on not.

It is important to note that a State may be in compliance with its renewable electricity law but listed here as "not on track." That is because a number of States have alternative compliance mechanisms, such as alternative compliance payments, which allow utilities to pay a fee instead of producing enough renewable energy to satisfy the State's renewable electricity mandate. The terms, "on track" and "not on track" refer to whether the State is able to produce enough renewable electricity to meet the requirements of the law, not whether the utilities are in technical compliance with state law. States are listed as "not known" either because their mandates have yet to be enacted or because they do not have or do not publish data on their renewable generation.[25]

The summaries below also list the amount of qualified renewable generation in each state with a renewable mandate or goal. Because the definitions of what are "renewable" sources of electricity generation vary from state to state, we relied on the state public utility commissions as much as possible to provide this information. This is the reason we used either 2008 or 2009 generation data—we used the most recent year the public utility commissions could provide us. When the public utility commissions were not forthcoming, we estimated the amount of "qualified renewable generation" in 2009 using data from EIA.

Also indicated below is whether the State's utilities can participate in a credit-trading program as a means of compliance by purchasing credits from other generators, what the penalty is for noncompliance with the RPS mandate.

[25] IER attempted to contact every state's utility office, but, in several cases, received no reply after repeated attempts.

Arizona: Not on Track

- Mandate: 15% renewable by 2025
- 2009 Qualified Renewable Generation: 0.3%[26]
- Electricity Price Ranking: 20th Highest[27]
- Noncompliance penalty: The inability to recover costs that are due to the act's enforcement. The Corporation Commission, however, can waive compliance for "good cause."[28]

California: Not on Track

- Mandate: 20% renewable by 2010, 33% renewable by 2020
- 2009 Qualified Renewable Generation: 13%[29]
- Electricity Price Ranking: 9th Highest[30]
- Noncompliance penalty: 5 cents/kWh with a maximum penalty cap of $25 million per utility per year.[31]

Colorado: On Track

- Mandate: 30% renewable by 2020 for investor owned utilities and 10% renewable for cooperatives and municipal utilities
- 2009 Qualified Renewable Generation: 5.7% (2009 compliance mandate: 5%)
- Electricity Price Ranking: 21st Highest[32]
- Noncompliance penalty: The PUC determines how much compliance would have cost and requires the utility to pay that amount, but the utility may not recover the cost from customers. [33]

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[26] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls. Arizona law limits eligible hydroelectric, but includes hydroelectric used to "firm or regulate intermittent renewable sources" like wind and solar, but they have not published any reports on the amount of hydroelectric produced that is used under this standard. Arizona did not respond to repeated attempts to clarify their standard.

[27] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[28] Ariz. Rev. Stat. 34-471, Public Service Corporations; Corporations and Associations; Securities Regulation, http://www.azsos.gov/PUBLIC_SERVICES/Title_14/14-02.htm.

[29] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls. This amount is renewables excluding hydroelectric.

[30] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[31] California Public Utilities Commission, *Order Instituting Rulemaking to Establish Policies and Cost Recovery Mechanisms for Generation Procurement and Renewable Resource Development*, http://162.15.7.24/PUBLISHED/FINAL_DECISION/79039.htm.

[32] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[33] *4 Code of Colorado Regulations 723:3: Rules Regulating Electric Utilities*, http://www.dora.state.co.us/puc/rules/723-3.pdf.

Connecticut: Not on Track

- Mandate: 27% renewable by 2020
- 2009 Qualified Renewable Generation: 4.7%[34]
- Electricity Price Ranking: 2nd Highest (Highest in the Continental U.S.)[35]
- Noncompliance penalty: 5.5 cents/KWh ($55 per MWh)[36]

Delaware: On Track [37]

- Mandate: 25% renewable by 2025 with 3.5% photovoltaic
- 2009 Qualified Renewable Generation: 12% (2009 compliance mandate: 6.014%)
- Electricity Price Ranking: 13th Highest[38]
- Noncompliance penalty: Penalties begin at $25/MWh, but failure to comply in the following year increases the penalty to $50, and then to $80 in the third year.[39] There is an additional solar alternative compliance payment for the solar carve out of $250 per MWh deficiency. [40]

Hawaii: On Track

- Mandate: 40% renewable by 2030
- 2009 Qualified Renewable Generation: 18.8% (2010 compliance mandate: 10%)
- Electricity Price Ranking: Highest in the United States[41]
- Noncompliance penalty: The penalty is at the discretion of the PUC which can assess penalties for noncompliance. [42]

Illinois: Not on Track

- Mandate: 25% renewable by 2025
- 2009 Qualified Renewable Generation: 1.4% (2009 compliance mandate: 4%)

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[34] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.This total reflects EIA's data excluding hydroelectric. Connecticut law limits eligible hydroelectric sources, but has not published any reports have not published any reports on the amount of hydroelectric produced that is included under this standard, but IER estimates that the majority of hydroelectric would be excluded under the standard. With hydroelectric, Connecticut's renewable total is 6.7%.

[35] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[36] David Goldberg, *CT's Renewable Portfolio Standard and Its Implementation*, http://www.ct.gov/dep/lib/dep/air/SIPRAC/2006/ctrenportfolio09feb06.pdf.

[37] Ninety-nine percent of the required energy was produced. Alternative compliance payments were made.

[38]Energy Information Administration, Electric Power Monthly, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[39] Delaware Public Service Commission, 26 Delaware Code 348: *Issuance of renewable energy credits; reporting requirement; alternative compliance payment.* http://delcode.delaware.gov/title26/c001/sc03a/index.shtml#358

[40] Senate Bill 19, http://legis.delaware.gov/LIS/lis144.nsf/vwLegislation/SB+19/$file/legis.html?open

[41] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[42] *Hawaii Revised Statutes 269-91*, http://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/HRS_0269-0094.htm

- Electricity Price Ranking: 22nd Highest[43]
- Noncompliance penalty: Illinois created the Illinois Power Agency to develop procurement plans for utilities. All procurement plans are required to include sufficient renewable energy resources sufficient to achieve renewable targets.[44]

Iowa: On Track

- Mandate: 105 MW renewable from two major utilities (MidAmerican and Alliant Energy) and a voluntary goal of 1,000 MW of wind generating capacity by 2010
- 2009 renewable generation: 14.5%
- Electricity Price Ranking: 9th Lowest[45]
- Noncompliance penalty: None

Kansas: Not on Track

- Mandate 20% by 2020
- 2009 Estimated Qualified Renewable Generation: 5.1%[46]
- Electricity Price Ranking: 19th Lowest[47]
- Noncompliance penalty: The Kansas Corporation Commission will establish rules for compliance, but is not required to establish compliance penalties for 2011 and 2012. [48]

Maine: Not on Track [49]

- Mandate: 10% (of new resources) by 2017
- 2008 Estimated New Qualified Renewable Generation: Less than 0.5%[50]
- Electricity Price Ranking: 12th Highest[51]

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[43] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[44] Illinois Compiled States, 20 ILCS § 2855, http://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=2934&ChapAct=20%26nbsp%3BILCS%26nbsp%3B3855%2F&ChapterID=5&ChapterName=EXECUTIVE+BRANCH&ActName=Illinois+Power+Agency+Act%2E.

[45] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.

[46] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls

[47] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[48] *Kansas Statutes 66-1256, et seq.* http://www.kslegislature.org/legsrv-statutes/getStatute.do?number=28025

[49] Fifty eight percent of electricity generation was exempt under the "grandfathering provision" of the bill. Of the remaining 42%, 25% was satisfied through alternative compliance payments. "Maine Report on New Renewable Resources," document obtained from Mitch Tannenbaum of the MPUC, numbers reflect the most recent year available, 2008.

[50] Maine only counts renewable generation from sources created after the creation of their RPS. 58% of generation was exempted in 2008; 25% of the rest was satisfied in 2008 with alternative compliance payments: From: "Maine Portfolio on New Renewable Resources," January 19, 2008

[51] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

- Noncompliance penalty: The PUC allows utilities to pay an alternative compliance payment of $57.12 per MWh for Class I renewables. This amount will be adjusted for inflation. [52]

Maryland: Not on Track [53]

- Mandate: 20% by 2022
- 2008 Qualified Renewable Generation: 4.19%[54]
- Electricity Price Ranking: 11th Highest[55]
- Noncompliance penalty: Maryland law creates an alternative compliance fee schedule of 2.0¢/kWh for non-solar Tier 1 shortfalls, 1.5¢/kWh for Tier 2 shortfalls, and 40¢/kWh for solar energy shortfalls (decreasing to 5¢/kWh in 2023 and thereafter).[56]

Massachusetts: Not on Track

- Mandate: 22.1% renewable by 2020
- 2008 Qualified Renewable Generation: 3%[57]
- Electricity Price Ranking: 6th Highest[58]
- Noncompliance penalty: Retail suppliers can pay an alternative compliance payment of $60.93 per MWh for Class I renewables, $25 per MWh for Class II renewables, $10 per MWh for Class II Waste Energy, and $600 per MWh for the solar carve out.[59]

Michigan: On Track

- Mandate: 10% renewable by 2015
- 2009 Estimated Qualified Renewable Generation: 3.2%[60]
- Electricity Price Ranking: 16th Highest[61]

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[52] Maine Public Service Commission, *Renewable Portfolio Standard: Alternative Compliance Payments*: http://www.maine.gov/mpuc/electricity/electric_supply/documents/2010AlternativeComplaincePayment.pdf

[53] Above compliance contingent on Maryland electricity exemptions. If renewable generation is compared with total state output, Maryland misses its target with 4.19% renewable generation.

[54] Public Service Commission of Maryland, *Renewable Energy Portfolio Standard Report of 2010*, Feb. 2010, http://webapp.psc.state.md.us/Intranet/Reports/MD%20RPS%202010%20Annual%20Report.pdf.The report finds that 4.53% of Maryland electricity considered renewable (4.19% if not including state exemptions).

[55] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[56] *Maryland S.B. 277*. http://mlis.state.md.us/2008rs/chapters_noln/Ch_126_hb0375E.pdf

[57] Department of Energy Resources, Commonwealth of Massachusetts, *Annual RPS Compliance Report for 2007*, Nov. 24, 2008, http://www.mass.gov/Eoeea/docs/doer/rps/rps-2007annual-rpt.pdf.

[58] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[59]Massachusetts Energy and Environmental Affairs, *Alternative Compliance Payment Rates*, http://www.mass.gov/?pageID=eoeeaterminal&L=5&L0=Home&L1=Energy%2C+Utilities+%26+Clean+Technologies&L2=Renewable+Energy&L3=Renewable+Energy+Portfolio+Standard+%26+Alternative+Energy+Portfolio+Standard+Programs&L4=Compliance+Information+for+Retail+Electric+Suppliers&sid=Eoeea&b=terminalcontent&f=doer_rps_aps_alt_comp_pay_rates&csid=Eoeea.

[60] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.

- Noncompliance penalty: "Electric providers demonstrate compliance with renewable energy requirements through the purchase and/or production of Renewable Energy Credits."[62]

Minnesota: On Track

- Mandate: 25% renewable by 2025 (Xcel Energy: 30% by 2020)
- 2009 Estimated Qualified Renewable Generation: 13%[63]
- Electricity Price Ranking: 18th Lowest[64]
- Noncompliance penalty: The Minnesota Public Utility Commission "may order the electric utility to construct facilities, purchase energy generated by eligible energy technology, purchase renewable energy credits, or engage in other activities to achieve compliance."[65]

Missouri: Unknown

- Mandate: 15% renewable by 2021
- 2009 Estimated Qualified Renewable Generation: 1.3%[66]
- Electricity Price Ranking: 7th Lowest [67]
- Noncompliance penalty: A penalty of at least twice the average market value of renewable energy credits, unless the failure was beyond the reasonable control of the utility.[68]

Montana: On Track [69]

- Mandate: 15% renewable by 2015
- 2009 Qualified Renewable Generation: 8.5% (2009 mandate: 5%)[70]
- Electricity Price Ranking: 14th Lowest[71]

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[61] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[62] Michigan Public Service Commission, *RPS Compliance*, http://www.michigan.gov/mpsc/0,1607,7-159-16393_53570---,00.html.
[63] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls
[64] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[65] Minn. Stat. 216B.1691, https://www.revisor.mn.gov/statutes/?id=216b.1691.
[66] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls
[67] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[68] S.B. 795 (Mo. 2010), http://www.senate.mo.gov/10info/pdf-bill/tat/SB795.pdf.
[69] One energy supplier paid an alternative compliance payment
[70] According to Will Rosquist from the Montana Public Service Commission.
[71] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

- Noncompliance penalty: A penalty of $10 per MWh for renewable credits the utility failed to procure, but penalty is waivable if the utility has taken reasonable steps to comply.[72]

Nevada: Not on Track

- Mandate: 25% of supply by 2025
- 2009 Estimated Qualified Renewable Generation: 11.2%[73] (2009 mandate: 12%)
- Electricity Price Ranking: 18th Highest[74]
- Noncompliance penalty: The Public Utilities Commission of Nevada will assess a fine of an amount greater than the price of generating renewable electricity or taking energy efficiency measures.[75]

New Hampshire: Not on Track

- Mandate: 23.8% renewable by 2025
- 2009 Qualified Renewable Generation: 2.54% (2009 Mandate: 6%)[76]
- Electricity Price Ranking: 5th Highest[77]
- Noncompliance penalty: If the electricity providers do not meet their renewable requirements, they must pay an alternative compliance payment of $60.93 per MWh (for Class I renewables).[78]

New Jersey: Not on Track

- Mandate: 22.5% by 2021.
- 2009 Qualified Renewable Generation: 1.53%[79] (2009 compliance mandate: 6.5%)
- Electricity Price Ranking: 7th Highest[80]
- Noncompliance penalty: The alternative compliance payment is $50 per MWh,[81] with a separate solar alternative compliance payment for the solar carve out of $711 per MWh in 2009, declining to $594 per year MWh in 2016.[82]

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[72] Montana Code Annotated, 69-3-2004, http://data.opi.mt.gov/bills/mca/69/3/69-3-2004.htm.
[73] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[74] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[75] Revised Adopted Regulation of the Public Utilities Commission of Nevada, LCB File No. R167-05, http://www.leg.state.nv.us/register/2005Register/R167-05RA.pdf.
[76] Annual Compliance Report (Oct. 1, 2009), http://www.puc.nh.gov/Sustainable%20Energy/Electric%20Renewable%20Portfolio%20Standard%20Program/RPS%202008%20Compliance%20Report%20101309.pdf.
[77] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[78] New Hampshire Public Utilities Commission, *Electric Renewable Portfolio Standard (RPS)*, http://www.puc.nh.gov/Sustainable%20Energy/Renewable_Portfolio_Standard_Program.htm.
[79] N.J. Admin. C. 14:8-2.3 (Sept. 1, 2001), http://www.dsireusa.org/documents/Incentives/NJ05Rb.htm
[80] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

New Mexico: Not on Track

- Mandate: 20% by 2020
- 2009 Estimated Qualified Renewable Generation: 4.7%[83] (2009 mandate: 6%)
- Electricity Price Ranking: 22nd Lowest[84]
- Noncompliance penalty: None

New York: On Track

- Mandate: 30% of consumption by 2015
- 2009 Estimated Qualified Renewable Generation: 23%[85]
- Electricity Price Ranking: 3rd Highest[86]
- Noncompliance penalty: The New York Public Service Commission collects all funds from electric customers and contracts directly with the renewable electricity generators. There is, therefore, no compliance penalty.

North Carolina: Unknown

- Mandate: Investor-owned utilities: 12.5% by 2021
  Electric cooperatives, municipal utilities: 10% by 2018
- 2009 Estimated Qualified Renewable Generation: 1.5%[87]
- Electricity Price Ranking: 24th Lowest[88]
- Noncompliance penalty: There are no specified penalties or alterative payments for noncompliance, but the North Carolina Utilities Commission may enforce compliance through its general authorities.[89]

North Dakota: On Track

- Goal: 10% sold by 2015
- 2009 Estimated Qualified Renewable Generation: 8.1%[90]

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[81] New Jersey Board of Public Utilities, *Clean Energy Order Docket No. EX03080616,* http://www.njcleanenergy.com/files/file/1A_ACP_order.pdf.
[82] New Jersey Board of Public Utilities, *New Jersey Approves Solar REC-Based Financing Program*, http://www.njcleanenergy.com/files/file/SOLARTransitionFAQs121707%20fnl2%282%29.pdf.
[83] Electricity Generation Data: Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[84] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[85] New York State Energy Research and Development Authority, New York State Renewable Portfolio Standard Performance Report (March 2009) http://www.nyserda.org/rps/RPSPerformanceReportwebnew.pdf.
[86] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[87] Electricity Generation Data: Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[88] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[89] *See* North Carolina General Statutes § 62-2, http://www.ncleg.net/enactedlegislation/statutes/html/bychapter/chapter_62.html.

- Electricity Price Ranking: 6th Lowest[91]

Ohio: On Track

- Mandate: 12.5% by 2025
- 2009 Estimated Qualified Renewable Generation: 0.36%[92]
- Electricity Price Ranking: 23rd Highest[93]
- Noncompliance penalty: There is an alternative compliance payment of $45 per MWh that will be adjusted annually by the Public Utility Commission of Ohio.[94] The Solar Alternative Compliance payment is $400 per MWh in 2010, declining by $50 every 2 years.

Oklahoma: Unknown

- Goal: 15% by 2015
- 2009 Qualified Renewable Percentage: not known according George Kiser of the Oklahoma Corporation Commission (Estimated: 3.1%[95]).
- Electricity Price Ranking: 11th Lowest[96]

Oregon: On Track

- Mandate: Large utilities: 25% by 2025
  Small utilities: 10% by 2025
  Smallest utilities: 5% by 2025
- 2009 Qualified Renewable Generation: 10%[97]
- Electricity Price Ranking: 16th Lowest[98]
- Noncompliance penalty: The Oregon Public Utility Commission establishes an alternative compliance rate.[99] Currently the alternative compliance payment is $50 per MWh.

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[90] Electricity Generation Data: Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[91] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[92] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[93] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[94] Public Utility Commission of Ohio, *Annual Adjustment of the Non-Solar Alternative Compliance Payment Pursuant to Section 4928.64(C)(2)(b), Revised Code*, http://www.puco.ohio.gov/PUCO/IndustryTopics/Topic.cfm?id=10009.
[95] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[96] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[97] According to Kip Pheil from the Oregon Department of Energy.
[98] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[99] Oregon Revised Statutes, 469A.180, http://www.leg.state.or.us/ors/469a.html.

Pennsylvania: Not on Track

- Mandate: 18% by 2020
- 2009 Estimated Qualified Renewable Generation: 2.4% in 2009[100] (2009 mandate: 6.8%)
- Electricity Price Ranking: 15th Highest[101]
- Noncompliance penalty: $45 per MWh for shortfalls in Tier I and Tier II resources. Separate penalty for noncompliance with the solar requirements. [102]

Rhode Island: Not on Track[103]

- Mandate: 16% of sales by 2019
- 2009 Estimated Qualified Renewable Generation: 2.1%[104] (2009 mandate: 4%)
- Electricity Price Ranking: 8th Highest [105]
- Noncompliance penalty: $60.93 per MWh of renewable generation shortfall.[106]

South Dakota: Not on Track

- Goal: 10% by 2015
- 2009 Qualified Renewable Generation: Effectively 0%[107]
- Electricity Price Ranking: 15th Lowest[108]
- Noncompliance penalty: None

Texas: On Track

- Mandate: 5,880 MW by 2015

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[100] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.

[101] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[102] H.B. 1203 (Penn. 2007), *Act for the sale of electric energy generated from renewable and environmentally beneficial sources*, http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=HTM&sessYr=2007&sessInd=0&billBody=H&billTyp=B&billNbr=1203&pn=2343.

[103] *See* Rhode Island Public Utilities Commission, *Rhode Island Renewable Energy Standard Annual Compliance Report*, Feb. 2010, http://www.ripuc.org/utilityinfo/PUC-RES-AnnualReport2008(2-11-10).pdf.

[104] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.

[105] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

[106] Rhode Island Public Utility Commission, *Alternative Compliance Payment Rate*, http://www.ripuc.org/utilityinfo/RES-ACPRate(1-19-10).pdf.

[107] *See* South Dakota Public Utilities Commission, *South Dakota's Renewable, Recycled and Conserved Energy Objective*, Dec. 29, 2010, Appendix C, http://puc.sd.gov/commission/Energy/REO/20101223RRCEOReport.pdf. According to EIA data, in 2009 South Dakota generated 5.2% of its electricity from renewable sources. However, because of how the South Dakota law works, a very small percentage of renewable energy credits were retired in South Dakota (7,570 MWh out of 8,580,013 MWh) which is why the percentage is listed as effectively zero. According to Brian Rounds of the South Dakota Public Utilities Commission, however, most utilities are "banking their credits for further use."

[108] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

- 2009 Estimated Renewable Generation: 5.4%
- Electricity Price Ranking: 17th Highest[109]
- Noncompliance penalty: Texas has established an administrative penalty of $50 per MWh of renewable generation shortfall.[110]

Utah: Not Known

- Goal: 20% of adjusted retail sales by 2025 if cost effective
- 2009 Estimated Qualified Renewable Generation: 1.2%[111]
- Electricity Price Ranking: 5th Lowest[112]
- Noncompliance penalty: None

Vermont: Not on Track

- Goal: 20% sold by 2017
- 2009 Qualified Renewable Generation: effectively 0%[113]
- Electricity Price Ranking: 10th Highest[114]
- Noncompliance penalty: None

Virginia: On Track

- Goal: 15% of 2007 sales (9,693,239 MWh) by 2025
- 2009 Estimated Qualified Renewable Generation: 4%[115]
- Electricity Price Ranking: 24th Highest[116]
- Noncompliance penalty: None

Washington: On Track

- Mandate: 15% renewables by 2020 (3% by 2012)
- 2009 Estimated Qualified Renewable Generation: 4.8%[117]
- Electricity Price Ranking: 4th Lowest[118]

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[109] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[110] Public Utility Commission of Texas, *Rules §25.173. Goal for Renewable Energy*, http://www.puc.state.tx.us/rules/subrules/electric/25.173/25.173.pdf.
[111] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls
[112] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[113]Vermont Public Service Board, *Biennial Report to Vermont Legislature* (Feb. 2010), http://psb.vermont.gov/sites/psb/files/publications/Reports%20to%20legislature/SPEED_biennial__report_2009_and_appendix.pdf.
[114] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[115] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls
[116] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[117] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.

- Noncompliance penalty: $50 per MWh of renewable shortfall[119]

West Virginia: Not on Track

- Mandate: 25% by 2025 (no minimum renewable contribution
- 2009 Renewable Generation: effectively 0%
- Electricity Price Ranking: 10th Lowest[120]
- Noncompliance penalty: None

Wisconsin: Not on Track

- Mandate: 10% sold by 2015
- 2009 Estimated Qualified Renewable Generation: 2.1%[121]
- Electricity Price Ranking: 19th Highest[122]
- Noncompliance penalty: The law has no penalty for noncompliance. However, anyone who provides "false or misleading certification information regarding the sources or amounts of renewable energy supplied at wholesale to the electric provider shall forfeit not less than $5,000 nor more than $500,000."[123]

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[118] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[119] Washington Administrative Code 480-109-050: *Administrative Penalties*: http://apps.leg.wa.gov/WAC/default.aspx?cite=480-109-050.
[120] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[121] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[122] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[123] Wis. Stat. 196.378(5), Renewable Portfolio Standard, http://www.wiseye.org/uploads/Renewable%20Portfolio%20Standard.pdf.

Renewable Electricity Mandate and Goal Compliance With Explanations

Arizona

Renewable Mandate Status: Not on Track

- 2009 Estimated Qualified Renewable Generation: 0.3%[124]
- 2009 Mandate: 2%
- 2025 Mandate: 15%

Current Renewable Electricity Mandate: 15% of electricity generated by 2025[125]

Eligible Resources: biogas, biomass, distributed renewables, renewable fuel cells, geothermal, hybrid wind and solar, landfill gas generator, new hydropower less than 10 MW, solar, and wind.[126]

- 30% of this must come from distributed renewable (DR) sources by 2012 and thereafter (4.5% of total retail sales). One-half of this distributed renewable energy requirement must come from residential applications, the other half from nonresidential, non-utility applications.[127]

Annual compliance schedule[128]:

2006: 1.25%	**2009**: 2%	**2012**: 3.5%	**2015**: 5%	**2018**: 8%	**2021**: 11%	**2024**: 14%
2007: 1.5%	**2010**: 2.5%	**2013**: 4%	**2016**: 6%	**2019**: 9%	**2022**: 12%	**2025+**: 15%
2008: 1.75%	**2011**: 3%	**2014**: 4.5%	**2017**: 7%	**2020**: 10%	**2023**: 13%	

Renewable Portfolio history: Current "Renewable Energy Standard" was preceded by a "Environmental Portfolio Standard" (EPS) which required regulated utilities to generate 0.4% from renewables in 2001 increasing to 1.1% in 2007–2012 (60% of which was to be solar). This replaced a repealed 1996 solar portfolio standard which set a goal of 0.2% by 1999 and 1% by 2003.[129]

Credit Trading: Yes

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[124] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls. Arizona law limits eligible hydroelectric, but includes hydroelectric used to "firm or regulate intermittent renewable sources" like wind and solar, but they have not published any reports on the amount of hydroelectric produced that is used under this standard. Arizona did not respond to repeated attempts to clarify their standard.

[125] Arizona Administration Code R14-2-1801 et seq. (Nov. 14, 2006), http://www.azsos.gov/PUBLIC_SERVICES/Title_14/14-02.htm..

[126] Arizona Administration Code R14-2-1802 (Nov. 14, 2006), http://www.azsos.gov/PUBLIC_SERVICES/Title_14/14-02.htm.

[127] Arizona Administration Code R14-2-1805 (Nov. 14, 2006), http://www.azsos.gov/PUBLIC_SERVICES/Title_14/14-02.htm.

[128] Arizona Administration Code R14-2-1804 (Nov. 14, 2006), http://www.azsos.gov/PUBLIC_SERVICES/Title_14/14-02.htm.

[129] Database of state Incentives for Renewables and Efficiency, *Arizona*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=AZ03R&re=1&ee=1.

Noncompliance penalty: The inability to recover costs due to the act's enforcement. The Corporation Commission, however, can waive compliance for "good cause."[130]

Electricity Price Ranking: 20th Highest[131]

- 9.36 cents/KWh for Arizona
- 7.67 cents/KWh for non-mandated states

[130] Ariz. Rev. Stat. 34-471, Public Service Corporations; Corporations And Associations; Securities Regulation, http://www.azsos.gov/PUBLIC_SERVICES/Title_14/14-02.htm.

[131] Energy Information Administration, Electric Power Monthly, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

California

Renewable Mandate Status: Not on Track

- 2009 Estimated Qualified Renewables: 13%[132]
- 2010 Mandate: 20%
- 2020 Mandate: 33%

Current Renewable Electricity Mandate: 20% of electricity generated by 2010[133] and 33% of electricity generated by 2020.[134]

Eligible Resources: solar thermal, wind, certain biomass, geothermal, certain hydroelectric, ocean wave, thermal and tidal, fuel cells using renewable fuels, landfill gas, and municipal solid waste conversion.[135]

Renewable Portfolio History: RPS originally established in 2002 requiring investor-owned electric utilities to reach 20% renewable retail sales by 2010. On September 15, 2009, the Governor signed Executive Order S-21-09 increasing the requirement to 33% by 2020 (applicable to all utilities). This order also shifted responsibility from the California Public Utilities Commission and California Energy Commission to the California Air Resources Board. The Public Utilities Commission decided in March 2010 to authorize tradable renewable energy credits but placed a moratorium on tradable renewable energy certificate transactions in May 2010.[136]

Credit Trading: Under consideration

Noncompliance penalty: 5 cents/kWh with a maximum penalty cap of $25 million per utility per year.[137]

Electricity Price Ranking: 9th Highest[138]

- 13.22 cents/KWh for California
- 7.67 cents/KWh for non-mandated states

[132] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls. This amount is renewable generation excluding hydroelectric.
[133] Cal. Public Utilities Code §399.11 (Jan., 1 2003), http://www.leginfo.ca.gov/cgi-bin/displaycode?section=puc&group=00001-01000&file=399.11-399.20.
[134] Cal. Exec. Order No. S-21-09 (Sept. 15, 2009), http://gov.ca.gov/executive-order/13269
[135] Cal. Public Resources Code §25740-25751, http://www.leginfo.ca.gov/cgi-bin/displaycode?section=prc&group=25001-26000&file=25740-25751.
[136] Database of state Incentive for Renewables and Efficiency, *California*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CA25R&re=1&ee=1.
[137] California Public Utilities Commission, *Order Instituting Rulemaking to Establish Policies and Cost Recovery Mechanisms for Generation Procurement and Renewable Resource Development*, http://162.15.7.24/PUBLISHED/FINAL_DECISION/79039.htm.
[138] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Colorado

Renewable Mandate Status: On Track

- 2009 Estimated Qualified Renewable Percentage: 5.7%[139]
- 2009 Mandate*:* 5%
- 2020 Mandate: 10%

Eligible Resources: solar, wind, geothermal, biomass, new hydroelectricity with a nameplate rating of ten megawatts or less, and hydroelectricity in existence on January 1, 2005 with a nameplate rating of thirty megawatts or less.

Compliance schedule:[140]

Investor Owned Utilities	Cooperatives and Large Municipal Utilities
2008-2010: 5%	**2008-2010**: 1%
2011-2014: 12%	**2011-2014**: 3%
2015-2019: 20%	**2015-2019**: 6%
2020+: 30%	**2020**+: 10%

Renewable Portfolio History: Colorado was the first US state to create a RPS by ballot initiative in November 2004. This initiative originally required utilities serving 40,000 or more to generate or purchase renewable-energy for 10% of sales. HB 1281 in March 2007 increased the RPS and extended requirements to cooperatives. HB1001 in March 2010 increased RPS for investor-owned utilities to 30% by 2020.[141]

- Each KWh of eligible renewable energy generated in-state, other than retail distributed generation, receives 125% credit for compliance purposes. Every KWh of eligible renewable energy generated from a community-based project receives 150% compliance credit.[142]

Credit Trading: Yes

Noncompliance penalty: The PUC determines how much compliance would have cost and requires to the utility to pay that amount, but the utility may not recover the cost from customers.[143]

Electricity Price Ranking: 21st Highest[144]

- 9.14 cents/KWh in Colorado

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[139] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[140] Code of Col. Regulations 723-3-3654 (July 2, 2006), http://www.dora.state.co.us/puc/rules/723-3.pdf
[141] Database of state Incentives for Renewables and Efficiency, Colorado, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CO24R&re=1&ee=1.
[142] Code of Col. Regulations 723-3-3654 (July 2, 2006), http://www.dora.state.co.us/puc/rules/723-3.pdf.
[143] *4 Code of Colorado Regulations 723:3: Rules Regulating Electric Utilities*, http://www.dora.state.co.us/puc/rules/723-3.pdf.
[144] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

- 7.67 cents/KWh in non-mandated states

Connecticut

Renewable Mandate Status: **Not on Track**

- 2009 Estimated Qualified Renewable Generation: 4.7%[145]
- 2009 Renewable Mandate: 6%
- 2020 Mandate: 27%[146]

Eligible Resources: three separate classes

- Class I: 20% by 2020; solar, wind, fuel cells, methane gas from landfills, ocean thermal, wave/tidal, low-emission renewable conversion tech., certain run-of-river hydropower not exceeding 5 MW, sustainable biomass (end-user distributed generation using Class I resources also qualify).[147]
- Class II: 3% by 2010 (can include Class I as well to meet requirement); eligible resources include: trash-to-energy facilities, certain biomass facilities, older run-of-river hydropower facilities.[148]
- Class III: 4% by 2010; eligible resources include: customer-sited combined heat and power systems, electricity savings from conservation and load management programs, recovered waste heat or pressure from commercial/industrial processes.[149]

Renewable portfolio history:

- Established in 1998 (allows for purchasing Class I or II generated electricity within ISO New England as well as REC's from NY, PA, NJ, MD, and DE to satisfy RPS)[150]

Credit Trading: Yes

Noncompliance penalty: 5.5 cents/KWh ($55 per MWh).[151]

Electricity Price Ranking: 2nd Highest (Highest in the Continental U.S.)[152]

- 17.54 cents/KWh in Connecticut
- 7.67 cents/KWh in non-mandated states

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[145] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.This total reflects EIA's data excluding hydroelectric. Connecticut law limits eligible hydroelectric sources, but has not published any reports have not published any reports on the amount of hydroelectric produced that is included under this standard, but IER estimates that the majority of hydroelectric would be excluded under the standard. With hydroelectric, Connecticut's renewable total is 6.7%.

[146] Conn. Gen. Stat. §16-245a, http://www.cga.ct.gov/2009/pub/Chap283.htm#Sec16-245a.htm.

[147] Conn. Gen. Stat. §16-1a, http://www.cga.ct.gov/lco/Statute_Web_Site_LCO.htm.

[148] Conn. Gen. Stat. §16-1a, http://www.cga.ct.gov/lco/Statute_Web_Site_LCO.htm.

[149] Conn. Gen. Stat. §16-1a, http://www.cga.ct.gov/lco/Statute_Web_Site_LCO.htm.

[150] Database of state Incentives for Renewables and Efficiency, *Connecticut*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CT04R&re=1&ee=1.

[151] David Goldberg, *CT's Renewable Portfolio Standard and Its Implementation*, http://www.ct.gov/dep/lib/dep/air/SIPRAC/2006/ctrenportfolio09feb06.pdf.

[152] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Delaware

Renewable Mandate Status: On Track

- 2010 Qualified Renewable Generation: 5.5%[153]
- 2010 Mandate: 5.5%
- 2025 Mandate: 25%[154]

Eligible resources: solar photovoltaic, solar thermal, wind, ocean or tidal, geothermal, fuel cell powered by renewable fuels, combustion of gas from organic material, hydroelectric below 30MW, biomass, methane gas from landfill[155]

Compliance schedule:[156]

Compliance Year (beginning June 1st)	Minimum Cumulative Percentage from Eligible Energy Resources	Minimum Cumulative Percentage from Solar Photovoltaics*
2010	5.00%	0.02%
2011	7.00%	0.20%
2012	8.50%	0.40%
2013	10.00%	0.60%
2014	11.50%	0.80%
2015	13.00%	1.00%
2016	14.50%	1.25%
2017	16.00%	1.50%
2018	17.50%	1.75%
2019	19.00%	2.00%
2020	20.00%	2.25%
2021	21.00%	2.50%
2022	22.00%	2.75%
2023	23.00%	3.00%
2024	24.00%	3.25%
2025	25.00%	3.50%
* Minimum Percentage from Eligible Energy Resources Includes the Minimum Percentage from solar photovoltaics.		

[153] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[154] 26 Del. C. §354 (July 21, 2005), http://delcode.delaware.gov/title26/c001/sc03a/index.shtml#P11_150.
[155] 26 Del. C. §352 (July 21, 2005), http://delcode.delaware.gov/title26/c001/sc03a/index.shtml#P11_150.
[156] Delaware Administrative Code §26-3008, 3.2 (Aug. 23, 2005), http://regulations.delaware.gov/AdminCode/title26/3000/3008.pdf.

Renewable Portfolio History: S.B. 74 established original RPS in 2005 requiring retail electricity suppliers to purchase 10% of load sold in the state from renewable sources by 2019. S.B. 17 in 2007 increased RPS target to 20% by 2019–20 of which 2.005% must come from solar photovoltaics.[157] Municipal utilities and rural electric cooperatives allowed to opt-out if they establish a voluntary green power program as well as a green energy fund[158].

- Suppliers receive 300% credit for in-state customer-sited PV generation and fuel cells installed on or before Dec. 31, 2014.[159]
- 150% credit for wind turbines sited in Delaware on or before Dec. 31, 2012[160].
- 350% credit for offshore wind facilities sited before May 31, 2017[161].

Credit Trading: Yes

Noncompliance penalty: Penalties begin at $25/MWh, but failure to comply in consecutive years increases it to $50, and then $80 on the third year. [162] There is an additional solar alternative compliance payment for the solar carve out of $250 per MWh deficiency.[163]

Electricity Price Ranking: 13th Highest[164]

- 11.88 cents/KWh in Delaware
- 7.67 cents/KWh in non-mandated states

[157] Database of state Incentives for Renewables and Efficiency, *Delaware*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=DE06R&re=1&ee=1.
[158] Del. S.B. 74 §363 (2005), http://depsc.delaware.gov/electric/rpsact.pdf.
[159] Del. Public Notice (Jan. 12, 2009), http://depsc.delaware.gov/electric/Delaware%20Multiplier.pdf.
[160] Database of state Incentives for Renewables and Efficiency, *Delaware*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=DE06R&re=1&ee=1.
[161] Del. S.B. 328 (2008), http://legis.delaware.gov/LIS/lis144.nsf/vwLegislation/SB+328/$file/legis.html?open.
[162] Delaware Public Service Commission, 26 Delaware Code 348: *Issuance of renewable energy credits; reporting requirement; alternative compliance payment*, http://delcode.delaware.gov/title26/c001/sc03a/index.shtml#358.
[163] Senate Bill 19, http://legis.delaware.gov/LIS/lis144.nsf/vwLegislation/SB+19/$file/legis.html?open.
[164]Energy Information Administration, Electric Power Monthly, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Hawaii

Renewable Mandate Status: On Track

- 2009 Renewable Generation: 18.8%[165]
- 2010 Mandate: 10%
- 2030 Mandate: 40%[166]

Eligible resources: wind, solar, hydroelectricity, biogas, geothermal, wave/tidal, biomass, biofuels, and hydrogen produced from renewable sources.[167]

Compliance schedule:[168]

2010: 10%	**2015**: 15%	**2020**: 25%	**2030**: 40%

Renewable Portfolio History: Established renewable portfolio goal in 2001 (9% by end of 2010). This was replaced with an enforceable RPS mandate through DC 2474 which required 20% by 2020. S.B. 3185 in 2006 made additional modifications allowing for solar water heating, seawater air-condition district cooling systems, and electrical conservation savings to qualify for the RPS. H.B. 1464 in 2009 increased mandate to current level of 40% by 2030[169].

Credit Trading: No

Noncompliance penalty: The penalty is at the discretion of the PUC which can assess penalties for noncompliance.[170]

Electricity Price Ranking: Highest in the United States[171]

- 24.71 cents/KWh in Hawaii
- 7.67 cents/KWh in non-mandated states

[165] http://dms.puc.hawaii.gov/dms/DocketDetails?docket_id=84+3+ICM4+LSDB9+PC_Docket59+26+A1001001A08D04B10036E8368818+A08D04B10036E836881+84+1873&docket_page=4.
[166] Haw. RS §269-92 (Dec. 31, 2003), http://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/HRS_0269-0091.HTM.
[167] Haw. RS §269-91 (Dec. 31, 2003), http://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/HRS_0269-0091.HTM
[168] Haw. RS §269-92 (Dec. 31, 2003), http://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/HRS_0269-0091.HTM.
[169] Database of state Incentives for Renewables and Efficiency, Hawaii, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=HI06R&re=1&ee=1.
[170] *Hawaii Revised Statutes 269-91*, http://www.capitol.hawaii.gov/hrscurrent/Vol05_Ch0261-0319/HRS0269/HRS_0269-0094.htm.
[171] Energy Information Administration, Electric Power Monthly, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Illinois

Renewable Mandate Status: Not on Track

- 2010 Estimated Qualified Renewable Generation: 1.4%[172]
- 2010 Mandate: 5%
- 2025 Mandate: 25%[173]

Eligible Resources: wind, solar thermal energy, photovoltaic cells and panels, biodiesel, crops and untreated and unadulterated organic waste biomass, tree waste, hydropower that does not involve new construction or significant expansion of hydropower dams, and other alternative sources of environmentally preferable energy.[174]

Investor owned utilities must meet 75% of annual requirement with wind. Alternative electric retail suppliers are required to meet 60% of annual requirement with wind. All utilities are required to meet 6% of annual requirement with photovoltaics in compliance year 2015-2016 and thereafter.[175]

Compliance Schedule (Solar PV in Parenthesis):[176]

2008: 2%	**2013**: 8%	**2018**: 14.5% (0.87%)	**2023**: 22% (1.32%)
2009: 4%	**2014**: 9%	**2019**: 16% (0.96%)	**2024**: 23.5% (1.41%)
2010: 5%	**2015**: 10% (0.6%)	**2020**: 17.5% (1.05%)	**2025+**: 25% (1.5%)
2011: 6%	**2016**: 11.5% (0.69%)	**2021**: 19% (1.14%)	
2012: 7%	**2017**:13% (0.78%)	**2022**: 20.5% (1.23%)	

Renewable Portfolio History: Passed an act in 2001 creating a voluntary renewable-energy goal of 5% by 2010 and 15% by 2020. In 2005, the Illinois Commerce Commission adopted a resolution for an additional interim goal of 8% by 2013. Public Act 095-0481 enacted in 2007 to create the Illinois Power Agency (IPA) which oversaw only investor-owned electric utilities (EUs). Public Act 096-0159 extended IPA scope over alternative retail suppliers and EUs that sell outside of their service[177].

Credit Trading: Yes

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[172] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[173] Illinois Compiled Statutes §20 3855/1-75, c-1 (Aug. 28, 2007), http://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=2934&ChapAct=20%26nbsp;ILCS%26nbsp;3855/&ChapterID=5&ChapterName=EXECUTIVE+BRANCH&ActName=Illinois+Power+Agency+Act.
[174]http://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=2934&ChapAct=20%26nbsp;ILCS%26nbsp;3855/&ChapterID=5&ChapterName=EXECUTIVE+BRANCH&ActName=Illinois+Power+Agency+Act.
[175] Public Act 96-0159, 1-56 (Aug. 10, 2009), http://www.ilga.gov/legislation/publicacts/96/096-0159.htm
[176]Illinois Compiled Statutes §20 3855/1-75, c-1 (Aug. 28, 2007), http://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=2934&ChapAct=20%26nbsp;ILCS%26nbsp;3855/&ChapterID=5&ChapterName=EXECUTIVE+BRANCH&ActName=Illinois+Power+Agency+Act.
[177] Database of Incentives for Renewables and Efficiency, Illinois, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=IL04R&re=1&ee=1.

Noncompliance penalty: procurement plans are required to include sufficient renewable energy resources sufficient to achieve renewable targets.[178]

Electricity Price Ranking: 22nd Highest[179]

- 9.14 cents/KWh in Illinois
- 7.67 cents/KWh in non-mandated states

[178] Illinois Compiled States, 20 ILCS § 2855, http://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=2934&ChapAct=20%26nbsp%3BILCS%26nbsp%3B3855%2F&ChapterID=5&ChapterName=EXECUTIVE+BRANCH&ActName=Illinois+Power+Agency+Act%2E.

[179] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Iowa

Renewable Mandate Status: On Track

- 2009 Renewable Generation: 14.5%[180]
- Permanent Mandate: 105 MW of renewable generating capacity (0.66%)[181]

Eligible resources: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Municipal Solid Waste, and Anaerobic Digestion.[182]

Renewable Portfolio History: Original law established in 1983 and has since been amended in 1991 and 2003. The Iowa Utilities Board (IUB) interpreted the statute's 105 MW figure to mean "average capacity" based on kilowatt-hour output leading them to mandate the payment of incentive rates for 260 MW. In 2007, the IUB allowed for participation in REC trading. In 2001 the governor set a voluntary goal of 1,000 MW of wind generating capacity by 2001.[183]

Credit Trading: Yes

Noncompliance penalty: None

Electricity Price Ranking: 9th Lowest[184]

- 7.16 cents/KWh in Iowa
- 10.7 cents/KWh in states with RPS penalties[185]

[180] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[181] Iowa Code 199-15.11(1), http://www.legis.state.ia.us/aspx/ACODocs/DOCS/2-24-2010.199.15.11.pdf.
[182] Iowa Code 199-15.11(1), http://www.legis.state.ia.us/aspx/ACODocs/DOCS/2-24-2010.199.15.11.pdf.
[183] Database of state Incentives for Renewables and Efficiency, *Iowa*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=IA01R&re=1&ee=1.
[184] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[185] This includes every state with a mandate except Iowa.

Kansas

Renewable Mandate Status: **Not on Track**

- 2009 Estimated Renewable Generation: 5.1%[186]
- 2011 Mandate: 10%
- 2020 Mandate: 20%

Eligible resources: wind, solar thermal, photovoltaics, dedicated crops grown for energy production, cellulosic agricultural residues, plant residues, methane from landfills or wastewater treatment, clean and untreated wood products, existing hydropower, new hydropower under 10 MW, hydrogen fuel cells[187]

Compliance schedule[188]:

2011-2015: 10%	**2016-2019:** 15%	**2020+:** 20%

Renewable Portfolio History: House Bill 2369 established a RPS for Kansas in May 2009[189].

Credit Trading: Yes

Noncompliance penalty: The Kansas Corporation Commission will establish rules for compliance, but is not required to establish compliance penalties for 2011 and 2012. [190]

Electricity Price Ranking: 19th Lowest[191]

- 8.07 cents/KWh in Kansas
- 7.67 cents/KWh in non-mandated states

[186] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[187] Kansas Stat. 66-1257 (May 22, 2009), http://www.kslegislature.org/legsrv-statutes/getStatute.do?number=28021
[188] Kansas Stat. 66-1258 (May 22, 2009), http://www.kslegislature.org/legsrv-statutes/getStatute.do?number=28022
[189] Database of state Incentives for Renewables and Efficiency, *Kansas*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=KS07R&re=1&ee=1.
[190] *Kansas Statutes 66-1256, et seq.* http://www.kslegislature.org/legsrv-statutes/getStatute.do?number=28025.
[191] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Maine

Renewable Mandate Status: Not on Track

- 2008 Estimated New Qualified Renewable Generation: Less than 0.5%[192]
- 2008 Mandate*:* 1%
- 2017 Mandate: 10% (of new resources)

Eligible Resources: fuel cells, tidal power, solar arrays and instillations, wind power, geothermal power, hydropower, biomass power or generators fuel by municipal solid waste in conjunction with recycling[193]

- Class I: new resources (10% mandate)[194]
- Class II: all other (30% mandate)[195]

Class I compliance schedule:[196]

2008: 1%	**2010**: 3%	**2012**: 5%	**2014**: 7%	**2016**: 9%
2009: 2%	**2011**: 4%	**2013**: 6%	**2015**: 8%	**2017**+: 10%

Renewable Portfolio History: Adopted RPS in September of 1999 requiring 30% renewable retail electric sales. Enacted L.D. 2041 in June 2006 creating an RPS goal to increase new renewable energy capacity to 10% by 2017 (placed in after Sept. 1, 2005). Public Law 403 in 2007 converted the goal into a mandatory standard (Class I)[197].

- Wind energy development goals:[198]
    - At least 2,000 MW of installed capacity by 2015
    - At least 3,000 MW of installed capacity by 2020 (of which 300 MW potential from coastal or offshore water facilities)
    - At least 8,000 MW of installed capacity by 2030

Credit Trading: Yes

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[192] Maine only counts renewable generation from sources created after the creation of their RPS. 58% of generation was exempted in 2008; 25% of the rest was satisfied in 2008 with alternative compliance payments: From: "Maine Portfolio on New Renewable Resources," January 19, 2008.
[193] 35-A Maine Rev. Stat. §3210-3-A (1999), http://www.mainelegislature.org/legis/statutes/35-A/title35-Asec3210.html.
[194] 35-A Maine Rev. Stat. §3210-3-A (1999), http://www.mainelegislature.org/legis/statutes/35-A/title35-Asec3210.html.
[195] 35-A Maine Rev. Stat. §3210-2-C (1999), http://www.mainelegislature.org/legis/statutes/35-A/title35-Asec3210.html.
[196] 35-A Maine Rev. Stat. §3210-3-A (1999), http://www.mainelegislature.org/legis/statutes/35-A/title35-Asec3210.html.
[197] Database of state Incentives for Renewables and Efficiency, *Maine*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=ME01R&re=1&ee=1
[198] Maine L.D. 2283 (April 11, 2008), http://www.mainelegislature.org/legis/bills/bills_123rd/billtexts/SP090801.asp.

Noncompliance penalty: The PUC allows utilities to pay an alternative compliance payment of $57.12 per megawatt-hour (MWh) for Class I renewables (inflation adjusted).[199]

Electricity Price Ranking: 12th Highest[200]

- 12.62 cents/KWh in Maine
- 7.67 cents/KWh in non-mandated states

[199] Maine Public Service Commission, *Renewable Portfolio Standard: Alternative Compliance Payments*: http://www.maine.gov/mpuc/electricity/electric_supply/documents/2010AlternativeComplaincePayment.pdf.
[200] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Maryland

Renewable Mandate Status: Not on Track

- 2009 Qualified Renewable Generation: 4.19%[201]
- 2009 Renewable Mandate: 4.51%
- 2022 Renewable Mandate: 20%

Eligible Resources: Two tiered system:

- Tier 1: Solar, wind, qualifying biomass), methane from the anaerobic decomposition of organic materials in a landfill or a waste water treatment plant, geothermal, wave/tidal, fuel cells powered by methane or biomass, poultry-litter incineration facilities, and small hydroelectric plants (systems less than 30 megawatts in capacity).[202]
- Tier 2: Hydroelectric other than pump-storage generation and waste-to-energy facilities.[203]

Compliance schedule[204]:

Year	Solar	Tier I	Tier II	Year	Solar	Tier I	Tier II
2009	0.01%	2.00%	2.50%	**2016**	0.50%	12.20%	2.50%
2010	0.025%	3.00%	2.50%	**2017**	0.55%	12.55%	2.50%
2011	0.05%	4.95%	2.50%	**2018**	0.90%	14.90%	2.50%
2012	0.10%	6.40%	2.50%	**2019**	1.20%	16.20%	0.00%
2013	0.20%	8.00%	2.50%	**2020**	1.50%	16.50%	0.00%
2014	0.30%	10.00%	2.50%	**2021**	1.85%	16.85%	0.00%
2015	0.40%	10.10%	2.50%	**2022+**	2.00%	18.00%	0.00%

Renewable portfolio history: RPS enacted in May 2004. S.B. 595 in April 2007 required 2% of energy to come from solar (in addition to the 7.5% requirement of Tier I materials). H.B. 375 in April 2008 more than doubled Tier I requirement and accelerated compliance schedule. S.B. 277 in May 2010 accelerated solar compliance schedule.[205]

Credit Trading: Yes

Noncompliance penalty: Maryland law creates an alternative compliance fee schedule of 2.0¢/kWh for non-solar Tier 1 shortfalls (increasing to 4.0¢/kWh in 2011; 1.5¢/kWh for Tier 2 shortfalls; 40¢/kWh in 2009 through 2014, 35¢/kWh in 2015 and 2016, 20¢/kWh in 2017 and 2018 and continuing to decline by 5¢ bi-annually until it reaches 5¢/kWh in 2023. [206]

[201] Public Service Commission of Maryland, *Renewable Energy Portfolio Standard Report of 2010*, Feb. 2010, http://webapp.psc.state.md.us/Intranet/Reports/MD%20RPS%202010%20Annual%20Report.pdf.The report finds that 4.53% of Maryland electricity considered renewable (4.19% if not including state exemptions).
[202] Maryland PUC C. §7-701 (l) (May 26, 2004), http://mlis.state.md.us/asp/web_statutes.asp?gpu&7-701.
[203] Maryland PUC C. §7-701 (m) (May 26, 2004), http://mlis.state.md.us/asp/web_statutes.asp?gpu&7-701.
[204] Maryland PUC C. §7-703 (b) (May 26, 2004), http://mlis.state.md.us/asp/web_statutes.asp?gpu&7-701.
[205] Database of state Incentives for Renewables and Efficiency, *Maryland*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MD05R&re=1&ee=1.
[206] *Maryland S.B. 277*. http://mlis.state.md.us/2008rs/chapters_noln/Ch_126_hb0375E.pdf.

Electricity Price Ranking: 11th Highest[207]

- 12.78 cents/KWh in Maryland
- 7.67 cents/KWh in non-mandated states

[207] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Massachusetts

Renewable Mandate Status: Not on Track

- 2008 Qualified Renewable Generation: 3%[208]
- 2008 Renewable Mandate: 3.5%
- 2020 Renewable Mandate: 22.1% (15% for Class I renewables plus 7.1% from other renewables)

Eligible Resources: two classes

- Class I (New Resources): 15% by 2020 plus 1% each year thereafter. Eligible Class I resources: photovoltaics, solar, wind, wave/tidal, fuel cells utilizing renewable fuels, landfill gas, certain new hydroelectric facilities or incremental energy from efficiency improvements at existing hydroelectric facilities, low-emission biomass, marine or hydrokinetic energy, and geothermal[209]
- Class II (Existing Resources): 7.1% in 2009 and thereafter (3.6% renewables and 3.5% waste-to-energy)

Class I compliance schedule:[210]

2006: 2.5%	**2009**: 4%	**2012**: 7%	2015: 10%	**2018**: 13%
2007: 3%	**2010**: 5%	**2013**: 8%	**2016**: 11%	**2019**: 14%
2008: 3.5%	**2011**: 6%	**2014**: 9%	**2017**: 12%	**2020**: 15%

Renewable Portfolio History: Original legislation in 1997 created framework for RPS. Massachusetts Dept. of Energy Resources (DOER) adopted RPS regulations in April 2002, requiring all retail electricity providers to reach 1% by 2003 and 4% by 2009. These regulations were expanded in July 2008 (S.B. 2768) to create separate renewable standards (Class I and Class II). S.B. 2768 in June 2008 required the DOER to establish an alternative energy portfolio standard (APS) requiring all retail electricity suppliers to provide a minimum percentage of kWh sales to end-use customers in Massachusetts from alternative generating sources (1% in 2009 increasing to 5% by 2020). S.B. 2768 also set up two state-wide goals: (1) meeting 25% of the state's 2020 electric load (capacity and energy generation) with demand-side resources and (2) meeting 20% of the state's 2020 electric load with new renewable and alternative energy generation.[211]

Credit Trading: Yes

[208] Department of Energy Resources, Commonwealth of Massachusetts, *Annual RPS Compliance Report for 2007*, Nov. 24, 2008, http://www.mass.gov/Eoeea/docs/doer/rps/rps-2007annual-rpt.pdf.
[209] 225 Code of Mass. Reg. 14.05-07 (Jan. 8, 2010), http://www.mass.gov/Eoeea/docs/doer/renewables/solar/225CMR1400Jan8-2010.pdf.
[210] 225 Code of Mass. Reg. 14.07 (Jan. 8, 2010), http://www.mass.gov/Eoeea/docs/doer/renewables/solar/225CMR1400Jan8-2010.pdf.
[211] Database of state Incentives for Renewables and Efficiency, *Massachusetts*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MA05R&re=1&ee=1

Noncompliance penalty: Retail suppliers can pay an alternative compliance payment of $60.93 per MWh for Class I renewables, $25 per MWh for Class II renewables, $10 per MWh for Class II Waste Energy, and $600 per MWh for the solar carve out.[212]

Electricity Price Ranking: 6th Highest[213]

- 14.52 cents/KWh in Massachusetts
- 7.67 cents/KWh in non-mandated states

[212]Massachusetts Energy and Environmental Affairs, Alternative Compliance Payment Rates, http://www.mass.gov/?pageID=eoeeaterminal&L=5&L0=Home&L1=Energy%2C+Utilities+%26+Clean+Technologies&L2=Renewable+Energy&L3=Renewable+Energy+Portfolio+Standard+%26+Alternative+Energy+Portfolio+Standard+Programs&L4=Compliance+Information+for+Retail+Electric+Suppliers&sid=Eoeea&b=terminalcontent&f=doer_rps_aps_alt_comp_pay_rates&csid=Eoeea.

[213] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Michigan

Renewable Mandate Status: On Track

- 2009 Estimated Qualified Renewable Generation: 3.2%[214]
- 2009 Renewable Mandate: None
- 2015 Renewable Mandate: 10%

Eligible resources: biomass, solar and solar thermal, wind, geothermal, municipal solid waste, landfill gas, existing traditional hydroelectric, tidal, wave, water current[215]

Compliance schedule:[216]

2012: baseline plus 20% of 2015 mandate	**2013:** baseline plus 33% of 2015 mandate	**2014:** baseline plus 50% of 2015 mandate	**2015:** baseline plus 100% of 2015 mandate

Renewable Portfolio History: Enacted Public Act 295 in October 2008 requiring state investor-owned utilities, alternative retail suppliers, electric cooperatives, and municipal electric utilities to generate 10% renewable by 2015.[217]

- Michigan has a series of incentive bonus credits:[218]
    - Solar power receives an additional 2 credits per MWh
    - Renewable energy produced during peak demand times (6am-10pm weekdays) other than wind receives an additional 1/5 credit per MWh
    - Off-peak renewable generation stored using electric technology or hydroelectric pumped storage and then used during peak demand times receives an additional 1/5 credit per MWh
    - Renewable electricity produced with Michigan manufactured equipment receives an additional 1/10 credit per MWh (only for 3 since in-service date of facility)
    - Renewable electricity produced with a system constructed by a Michigan workforce receives an additional 1/10 credit per MWh

Credit Trading: Yes

Noncompliance penalty: "Electric providers demonstrate compliance with renewable energy requirements through the purchase and/or production of Renewable Energy Credits."[219]

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[214] Energy Information Administration*, Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[215] Mich. S.B. 213 §9-i (Oct. 6, 2008), http://www.legislature.mi.gov/documents/2007-2008/publicact/pdf/2008-PA-0295.pdf.
[216] Mich. S.B. 213 §27-3 (Oct. 6, 2008), http://www.legislature.mi.gov/documents/2007-2008/publicact/pdf/2008-PA-0295.pdf.
[217] Database of state Incentives for Renewables and Efficiency, *Michigan*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MI16R&re=1&ee=1.
[218] Mich. S.B. 213 §39-2 (Oct. 6, 2008), http://www.legislature.mi.gov/documents/2007-2008/publicact/pdf/2008-PA-0295.pdf.

Electricity Price Ranking: 16th highest [220]

- 9.84 cents/KWh in Michigan
- 7.67 cents/KWh in non-mandated states

[219] Michigan Public Service Commission, RPS Compliance, http://www.michigan.gov/mpsc/0,1607,7-159-16393_53570---,00.html.

[220] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Minnesota

Renewable Mandate Status: On Track

- 2009 Estimated Qualified Renewable Generation: 13%[221]
- 2010 Renewable Mandate: 15%
- 2025 Renewable Mandate: 25%, 30% (Xcel Energy)

Eligible resources: solar, wind, hydroelectric facilities less than 100 MW, hydrogen, biomass, and municipal solid waste[222]

- Xcel Energy must meet 25% of its standard from wind or solar by 2020 with a maximum of 1% from solar.[223]

Compliance Schedules:

Xcel Energy	**2010:** 15%	**2012:** 18%	**2016:** 25%	**2020:** 30%
MN Utilities	**2012:** 12%	**2016:** 17%	**2020:** 20%	**2025:** 25%

Renewable Portfolio History: Originally had a non-mandated renewable energy objective. Enacted RPS in February 2007 (a standard for Xcel and a separate standard for all other electric utilities); this legislation also set another non-mandated "good faith" goal of 1% by 2005 and 7% by 2010[224].

Credit Trading: Yes (with limitations)

Noncompliance penalty: The Minnesota Public Utility Commission "may order the electric utility to construct facilities, purchase energy generated by eligible energy technology, purchase renewable energy credits, or engage in other activities to achieve compliance."[225]

Electricity Price Ranking: 18th lowest[226]

- 8.06 cents/KWh in Minnesota
- 7.67 cents/KWh in non-mandated states

[221] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[222] Minn. Stat. §216B.1691-1 (Feb. 22, 2007), https://www.revisor.mn.gov/statutes/?id=216B.1691.
[223] Minn. Stat. §216B.1691-2a-b (Feb. 22, 2007), https://www.revisor.mn.gov/statutes/?id=216B.1691.
[224] Database of state Incentives for Renewables and Efficiency, *Minnesota*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MN14R&re=1&ee=1.
[225] Minn. Stat. 216B.1691, https://www.revisor.mn.gov/statutes/?id=216b.1691.
[226] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Missouri

Renewable Mandate Status: Unknown (unimplemented)

- 2009 Estimated Qualified Renewable Generation: 1.3%[227]
- 2011 Renewable Mandate: 2%
- 2021 Renewable Mandate: 15%

Eligible resources: solar photovoltaics, solar thermal, wind, small hydropower, biogas from landfills and wastewater treatment plants, various forms of biomass, fuel cells using hydrogen from renewable resources[228]

Compliance schedule:[229]

2011-2013: 2%	**2014-2017:** 5%	**2018-2020:** 10%	**2021+:** 15%

Renewable Portfolio History: S.B. 54 in June 2007 created a voluntary renewable energy and energy efficiency objective to generate or procure 4%of total retail electric sales by 2012, 8% by 2015, and 11% by 2020. Missouri voters enacted Proposition C in November 2008 which repealed the state's existing voluntary renewable energy objective and replaced it with a mandatory RPS (applying only to the state's investor-owned utilities). On June 2, 2010 the Missouri Public Service Commission adopted final administrative rules for the RPS to take effect August 30, 2010[230].

- In-state renewable energy generation receives a multiplier of 1.25 for each credit[231].

Credit Trading: Yes

Noncompliance penalty: A penalty of at least twice the average market value of renewable energy credits, unless the failure was reasonable control of the utility.[232]

Electricity Price Ranking: 7th Lowest[233]

- 7.14 cents/KWh in Missouri
- 7.67 cents/KWh in non-mandated states

[227] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[228] Missouri Rev. Stat. §393.1025-5 (Nov. 4, 2008), http://www.moga.mo.gov/statutes/chapters/chap393.htm.
[229] Missouri Rev. Stat. §393.1030-1 (Nov. 4, 2008), http://www.moga.mo.gov/statutes/chapters/chap393.htm.
[230] Database of state Incentives for Renewables and Efficiency, *Missouri*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MO08R&re=1&ee=1.
[231] Missouri Rev. Stat. §393.1030-1 (Nov. 4, 2008), http://www.moga.mo.gov/statutes/chapters/chap393.htm.
[232] S.B. 795 (Mo. 2010), http://www.senate.mo.gov/10info/pdf-bill/tat/SB795.pdf.
[233] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Montana

Renewable Mandate Status: On Track

- 2009 Qualified Renewable Generation: 8.5%[234]
- 2009 Renewable Mandate: 5%
- 2015 Renewable Mandate: 15%

Eligible resources: wind, solar, geothermal, existing hydroelectric projects (10 Mw or less) and certain new ones (up to 15 MW; installed at existing reservoir that did not have hydro as of 4/16/2009), landfill or farm-based methane gas, wastewater-treatment gas, low-emission and non-toxic biomass, and fuel cells with hydrogen produced by renewable fuels[235]

Compliance schedule:[236]

2008-2009: 5%	**2010-2014:** 10%	**2015+:** 15%

Renewable Portfolio History: RPS enacted in April 2005 as part of the Montana Renewable Power Production and Rural Economic Development Act. H.B. 681 in April 2007 made competitive electricity suppliers subject to RPS (originally applied only to public utilities)[237].

Credit Trading: Yes

Noncompliance penalty: A penalty of $10 per MWh for renewable credits the utility failed to procure, but penalty can be waived if the utility has taken reasonable steps to comply.[238]

Electricity Price Ranking: 14th Lowest[239]

- 7.48 cents/KWh in Montana
- 7.67 cents/KWh in non-mandated states

[234] According to Will Rosquist from the Montana Public Service Commission.
[235] Mont. Code Annotated 69-3-2003-10 (Apr. 2005), http://data.opi.mt.gov/bills/mca_toc/69_3_20.htm.
[236] Mont. Code Annotated 69-3-2004 (Apr. 2005), http://data.opi.mt.gov/bills/mca_toc/69_3_20.htm.
[237] Database of state Incentives for Renewables and Efficiency, *Montana*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MT11R&re=1&ee=1.
[238] Montana Code Annotated, 69-3-2004, http://data.opi.mt.gov/bills/mca/69/3/69-3-2004.htm.
[239] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Nevada

Renewable Mandate Status: Not on Track[240]

- 2009 Estimated Qualified Renewable Generation: 11.2%[241]
- 2009 Renewable Mandate: 12% [242]
- 2025 Renewable Mandate: 25%

Eligible Resources: Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Waste Tires (using microwave reduction), Energy Recovery Processes, Solar Pool Heating, Anaerobic Digestion, Biodiesel, Geothermal Direct-Use[243]

- Solar: 5% of annual requirement through 2015 (1.2% of sales in 2015); 6% for 2016-2025 (1.5% of sales in 2025)[244]

Compliance schedule:

2005-2006: 6%	**2009-2010**: 12%	**2013-2014**: 18%	**2020-2024**: 24%
2007-2008: 9%	**2011-2012**: 15%	**2015-2019**: 20%	**2025+**: 25%

To qualify as portfolio energy credits, efficiency measures must be:

1. Implemented after January 1, 2005;
2. Sited or implemented at a retail customer's location; and
3. Partially or fully subsidized by the electric utility. The measure must also reduce the customer's energy demand (as opposed to shifting demand to off-peak hours).[245]

Renewable Portfolio History:

- The original RPS law was enacted in November 1997 and forced Nevada producers to supply a minimum of renewables, but in 2001, the state increased this minimum by 2% every two years, culminating in a 15% requirement by 2013.[246]

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[240] According to Mark Harris of Nevada's Public Utilities Commission, Nevada Power missed their mandate by 431,402 MWhs.
[241] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[242] Database of State Incentives for Renewables and Electricity, *Nevada*; http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NV01R&re=1&ee=1
[243] Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Waste Tires (using microwave reduction), Energy Recovery Processes, Solar Pool Heating, Anaerobic Digestion, Biodiesel, Geothermal Direct-Use
[244] Nevada Public Utilities Commission, Revised Adopted Regulation of the Public Utilities Commission of Nevada, February 23, 2006, http://www.leg.state.nv.us/register/2005Register/R167-05RA.pdf.
[245] Nevada Public Utilities Commission, Revised Adopted Regulation of the Public Utilities Commission of Nevada, February 23, 2006, http://www.leg.state.nv.us/register/2005Register/R167-05RA.pdf.
[246] Database of State Incentives for Renewables and Electricity, *Nevada*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NV01R&re=1&ee=1.

Credit Trading: Yes

Noncompliance penalty: The Public Utilities Commission of Nevada will assess a fine of an amount greater than the price of generating renewable electricity or taking energy efficiency measures.[247]

Electricity Price Ranking: 18th Highest[248]

- 9.58 cents/KWh in Nevada
- 7.67 cents/KWh in non-mandated states

[247] Revised Adopted Regulation of the Public Utilities Commission of Nevada, LCB File No. R167-05, http://www.leg.state.nv.us/register/2005Register/R167-05RA.pdf.

[248] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

New Hampshire

Renewable Mandate Status: Not on Track

- 2009 Qualified Renewable Generation: 2.54%[249]
- 2009 Renewable Mandate: 6%
- 2025 Renewable Mandate: 23.8%

Eligible resources per class:

- Class I (new resources): wind, geothermal, hydrogen derived from biomass fuels or methane, wave/tidal, methane, biomass, solar hot water heating systems, Class II and Class III sources not used to satisfy mandate for those classes, incremental new electricity production from biomass source or methane source or hydroelectric generating facilities[250]
- Class II: new solar resources in operation after January 1, 2006[251]
- Class III (existing biomass/methane): production of electricity from biomass or methane facilities operating prior to January 1, 2006[252]
- Class IV (existing small hydroelectric): production of electricity from hydroelectric facilities with capacity of 5 MW or below and in operation prior to January 1, 2006[253]

Compliance schedule for each class:

Resource	2009	2010	2011	2012	2013	2014	2015	2025
Class I	0.5%	1.0%	2.0%	3.0%	4.0%	5.0%	6.0%	16.0%
Class II	0.0%	0.04%	0.08%	0.15%	0.2%	0.3%	0.3%	0.3%
Class III	4.5%	5.5%	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Class IV	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%

Renewable portfolio history: RPS enacted in May 2007 under H.B. 873.[254]

Credit Trading: Yes

Noncompliance penalty: If the electricity providers do not meet their renewable requirements, they must pay an alternative compliance payment of $60.93 per MWh (for Class I renewables).[255]

Electricity Price Ranking: 5th Highest[256]

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[249] Annual Compliance Report (Oct. 1, 2009), https://www.puc.nh.gov/Sustainable%20Energy/Electric%20Renewable%20Portfolio%20Standard%20Program/2008%20Renewable%20Energy%20Fund%20summary%20for%20website.pdf.
[250] N.H. Stat. 362-F:4-I (May 11, 2003), http://www.gencourt.state.nh.us/rsa/html/XXXIV/362-F/362-F-4.htm.
[251] N.H. Stat. 362-F:4-II (May 11, 2003), http://www.gencourt.state.nh.us/rsa/html/XXXIV/362-F/362-F-4.htm.
[252] N.H. Stat. 362-F:4-III (May 11, 2003), http://www.gencourt.state.nh.us/rsa/html/XXXIV/362-F/362-F-4.htm.
[253] N.H. Stat. 362-F:4:IV (May 11, 2003), http://www.gencourt.state.nh.us/rsa/html/XXXIV/362-F/362-F-4.htm.
[254] Database of state Incentives for Renewables and Efficiency, *New Hampshire*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NH09R&re=1&ee=1
[255] New Hampshire Public Utilities Commission, *Electric Renewable Portfolio Standard (RPS)*, http://www.puc.nh.gov/Sustainable%20Energy/Renewable_Portfolio_Standard_Program.htm.

- 14.58 cents/KWh in New Hampshire
- 7.67 cents/KWh in non-mandated States

[256] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

New Jersey

Renewable Mandate Status: Not on Track

- 2009 Estimated Qualified Renewable Generation: 1.53%[257]
- 2009 Renewable Mandate: 6.5%
- 2021 Renewable Mandate: 22.5%

Eligible Resources: Class I: solar, wind, wave or tidal, geothermal, landfill gas, anaerobic digestion, fuel cells using renewable fuels, and certain forms of biomass (requires Dept. of Environmental Protection approval).[258] Class II: hydropower facilities 30 MW or less and resource-recovery facilities approved by DEP and located in NJ[259]. An additional solar carve-out mandate exists on top of this two-class structure.[260]

Compliance schedule:[261]

Year	Solar	Class I	Class II	Total	Year	Solar	Class I	Class II	Total
2008	0.0817%	2.924%	2.5%	5.5057%	**2018**	1,591 GWh	12.325%	2.5%	16.15%
2009	0.1600%	3.840%	2.5%	6.500%	**2019**	1,858 GWh	14.175%	2.5%	18.24%
2010	0.2210%	4.685%	2.5%	7.406%	**2020**	2,164 GWh	16.029%	2.5%	20.36%
2011	306 GWh	5.492%	2.5%	8.297%	**2021**	2,518 GWh	17.880%	2.5%	22.50%
2012	442 GWh	6.320%	2.5%	9.214%	**2022**	2,928 GWh	--	--	--
2013	596 GWh	7.143%	2.5%	10.14%	**2023**	3,433 GWh	--	--	--
2014	772 GWh	7.977%	2.5%	11.098%	**2024**	3,989 GWh	--	--	--
2015	965 GWh	8.807%	2.5%	12.072%	**2025**	4,610 GWh	--	--	--
2016	1,150 GWh	9.649%	2.5%	13.077%	**2026**	5,316 GWh	--	--	--
2017	1,357 GWh	10.485%	2.5%	14.103%					

Renewable Portfolio History: Original RPS adopted in 1999 with a target of 4% Class I and 2.5% Class II by 2012;amended in 2004 requiring targets to be met by May 2008 and specifying that 0.16% of sales come from solar. Board of Public Utilities revised RPS again in April 2006 increasing required percentages of Class I, Class II, and solar to a total of 22.5% (2.12% solar) by May 2021[262].Board of Public Utilities required to freeze the solar carve-out requirement if determined that its cost will exceed 2% of total retail price of electricity that year (annual increases remain in effect despite a freeze)[263].

Credit Trading: Yes

Noncompliance penalty: The alternative compliance payment is $50 per MWh[264] with a separate solar alternative compliance payment for the solar carve out of $711 per MWh in 2009 declining to $594 per year MWh in 2016.[265]

[257] N.J. Admin. C. 14:8-2.3 (Sept. 1, 2001), http://www.dsireusa.org/documents/Incentives/NJ05Rb.htm.
[258] N.J. Admin. C. 14:8-2.5 (Sept. 1, 2001), http://www.dsireusa.org/documents/Incentives/NJ05Rb.htm.
[259] N.J. Admin. C. 14:8-2.6 (Sept. 1, 2001), http://www.dsireusa.org/documents/Incentives/NJ05Rb.htm.
[260] N.J. A.B. 3520 (Jan. 17, 2010), http://www.njleg.state.nj.us/2008/Bills/PL09/289_.PDF.
[261] N.J. A.B. 3520 (Jan. 17, 2010), http://www.njleg.state.nj.us/2008/Bills/PL09/289_.PDF.
[262] Database of state Incentives for Renewables and Efficiency, *New Jersey*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NJ05R&re=1&ee=1
[263] N.J. A.B. 3520 (Jan. 17, 2010), http://www.njleg.state.nj.us/2008/Bills/PL09/289_.PDF.
[264] New Jersey Board of Public Utilities, *Clean Energy Order Docket No. EX03080616,* http://www.njcleanenergy.com/files/file/1A_ACP_order.pdf.

Electricity Price Ranking: 7th Highest[266]

- 14.37 cents/KWh in New Jersey
- 7.67 cents/KWh in non-mandated states

[265] New Jersey Board of Public Utilities, *New Jersey Approves Solar REC-Based Financing Program*, http://www.njcleanenergy.com/files/file/SOLARTransitionFAQs121707%20fnl2%282%29.pdf.
[266] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

New Mexico

Renewable Mandate Status: Not on Track

- 2009 Estimated Qualified Renewable Generation: 4.7%[267]
- 2009 Renewable Mandate: 6%
- 2020 Renewable Mandate: 20% for IOU's (or 10% for rural cooperatives)

Eligible Resources: solar, wind, geothermal, hydropower facilities after July 1, 2007, fuel cells not fossil fueled, biomass from agriculture or animal waste[268]

- Solar: 20% of RPS (4% of sales)
- Wind: 20% of RPS (4% of sales)
- Geothermal, biomass, certain hydro, and other renewable: 10% of RPS (2% of sales)
- Distributed renewable: 3% of RPS (0.6% of sales)

Compliance schedule:[269]

	2006	2007-10	2011-14	2015	2016	2017	2018	2019	2020
Investor Owned Utilities	5%	6%	10%	15%	15%	15%	15%	15%	20%
Rural Cooperatives	-	-		5%	6%	7%	8%	9%	10%

Renewable Portfolio History: Original RPS approved by New Mexico's Public Regulation Commission in December 2002 requiring 5% by 2006 and 10% by 2011. S.B. 43 in March 2004 codified PRC rules. S.B. 418 in March 2007 created separate standard for rural electric cooperatives and doubled the RPS for investor-owned utilities (current RPS).[270]

Credit Trading: Yes

Noncompliance penalty: None

Electricity Price Ranking: 22nd Lowest [271]

- 8.37 cents/KWh in New Mexico
- 10.7 cents/KWh in states with RPS penalties

[267] Electricity Generation Data: Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[268] N.M. Admin. C. 17.9.572.7-D (Aug. 7, 2007), http://www.nmcpr.state.nm.us/NMAC/parts/title17/17.009.0572.htm.
[269] N.M. Admin. C. 17.9.572.10-B (Aug. 7, 2007), http://www.nmcpr.state.nm.us/NMAC/parts/title17/17.009.0572.htm.
[270] Database of state Incentives for Renewables and Efficiency, New Mexico, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NM05R&re=1&ee=1
[271] Energy Information Administration, Electric Power Monthly, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

New York

Renewable Mandate Status: On Track

- 2009 Estimated Qualified Renewable Generation: 23%[272]
- 2015 Renewable Mandate: 30% of consumption[273]

Eligible Resources: Solar Water Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Fuel Cells, CHP/Cogeneration, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Ethanol, Methanol, Biodiesel[274]

- Eligible new renewable resources fall into two tiers—a Main Tier (roughly 93% of incremental renewables generation) and a Customer-Sited Tier (roughly 7%). [275]

Renewable portfolio history: The New York renewable portfolio standard (RPS) was established in September 2004. Originally, New York's RPS had a renewables target of 25% of electricity consumption by 2013, but was expanded to 30% by 2015 by the PSC in 2010.[276]

- Under the original standard, the CST was set at 2% of the incremental renewable generation required to meet the standard, but was expanded in April 2010 as part of the expansion of the RPS from 25% by 2013 to 30% by 2015.[277] According to the Database of State Incentives for Renewables and Efficiency, "Of this 30%, approximately 20.7% of the target will be derived from existing renewable energy facilities and one percent (1%) of the target is expected to be met through voluntary green power sales in 2015."[278]
- Municipal utilities, the New York Power Authority (NYPA) and the Long Island Power Authority (LIPA) are not subject to RPS program[279]
- Renewable generators must demonstrate that at least 5% of their output is available for voluntary green market sales outside the RPS program[280]

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[272] NYSERDA (March 2009) http://www.nyserda.org/rps/RPSPerformanceReportwebnew.pdf.
[273] State of New York Public Services Commission (March 25, 2010); http://documents.dps.state.ny.us/public/Common/ViewDoc.aspx?DocRefId={C05CD0D6-8EA5-4CB9-A9FA-6ADD3AECB739}.
[274] Database of State Incentives for Renewables and Electricity, *New* York, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY03R&re=1&ee=1.
[275] Database of State Incentives for Renewables and Electricity, *New York*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY03R&re=1&ee=1.
[276] State of New York Public Services Commission (March 25, 2010); http://documents.dps.state.ny.us/public/Common/ViewDoc.aspx?DocRefId={C05CD0D6-8EA5-4CB9-A9FA-6ADD3AECB739}.
[277] New York Public Service Commission, Code 03-E-0188; http://www3.dps.state.ny.us/W/PSCWeb.nsf/All/1008ED2F934294AE85257687006F38BD?OpenDocument (2010).
[278] Database of State Incentives for Renewables and Electricity, *New York*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY03R&re=1&ee=1.
[279] Database of State Incentives for Renewables and Electricity, *New York*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY03R&re=1&ee=1.
[280] Database of State Incentives for Renewables and Electricity, *New York*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY03R&re=1&ee=1.

Credit Trading: No

Noncompliance penalty: The New York Public Service Commission collects all funds from electric customers and contracts directly with the renewable electricity generators. There is, therefore, no compliance penalty.

Electricity Price Ranking: 3rd Highest[281]

- 16.02 cents/KWh in New York
- 7.67 cents/KWh in non-mandated states

[281] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

North Carolina

Renewable Mandate Status: Unknown (unimplemented)

- 2009 Estimated Qualified Renewable Generation: 1.5%[282]
- 2009 Renewable Mandate: None
- 2021 Renewable Mandate: 12.5% for IOU's (10% for municipal utilities and cooperatives by 2018) [283]

Eligible Resources: Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, CHP/Cogeneration, Hydrogen, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy[284]

- Hydroelectric can meet up to 30% of requirement
- Solar: 0.2% in 2018 , Swine Waste: 0.2% in 2018 Poultry Waste: 900 GWh in 2014[285]

Compliance schedule[286] for investor-owned utilities:[287]

Year	Solar	Swine Waste	Poultry Waste	Total
2010	0.02%	-	-	-
2012	0.02%	0.07%	170 GWh	3%
2013	0.07%	0.07%	700 GWh	3%
2014	0.07%	0.07%	900 GWh	6%
2015	0.14%	0.14%	900 GWh	10%
2021	0.2%	0.2%	900 GWh	12.5%

Renewable portfolio history: In Aug 2007, NC Legislature passed Senate Bill 3, establishing RPS and in February 2008, the North Carolina Utilities Commission (NCUC) issued an order adopting final rules to implement the REPS. [288]

- Utilities may recover the incremental cost of renewable resources and up to $1 million in alternative energy research expenditures annually from customers. The cost per customer account is capped according to the schedule below:

[282] Electricity Generation Data: Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[283] General Assembly of North Carolina (2009), http://www.ncleg.net/Sessions/2009/Bills/Senate/PDF/S960v6.pdf.
[284] Database of State Incentives for Renewables and Electricity, *North Carolina*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NC09R&re=1&ee=1.
[285] General Assembly of North Carolina (2009), http://www.ncleg.net/Sessions/2009/Bills/Senate/PDF/S960v6.pdf.
[286] Database of State Incentives for Renewables and Electricity, *North Carolina*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NC09R&re=1&ee=1.
[287] Note that each year's percentage requirement refers to the previous year's electricity sales (i.e. the 2021 goal is 12.5% of 2020 retail sales).
[288] Database of State Incentives for Renewables and Electricity, *North Carolina*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NC09R&re=1&ee=1.

Sector	2008	2012	2015
Residential	$10	$12	$34
Commercial	$50	$150	$150
Industrial	$500	$1000	$1000

Credit Trading: Yes

Noncompliance penalty: There are no specified penalties or alterative payments for noncompliance, however, the North Carolina Utilities Commission may enforce compliance through its general authorities.[289]

Electricity Price Ranking: 24th Lowest[290]

- 8.53 cents/KWh in North Carolina
- 7.67 cents/KWh in non-mandated states

[289] *See* North Carolina General Statutes § 62-2, http://www.ncleg.net/enactedlegislation/statutes/html/bychapter/chapter_62.html.

[290] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

North Dakota

Renewable Goal Status: On Track

- 2009 Estimated Qualified Renewable Generation: 8.1%[291]
- 2015 Renewable Goal: 10% of sales[292]

Eligible Resources: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Hydrogen, Electricity from Waste Heat, Anaerobic Digestion

Renewable portfolio history: on 2007, North Dakota passed (H.B. 1506) that established a non-binding, voluntary target that by 2015, 10% of all retail electricity sold in the state would be obtained from renewable energy and recycled energy.[293] The objective must be measured by qualifying megawatt-hours (MWh) delivered at retail or by credits purchased and retired to offset non-qualifying retail sales.(2)

- Before using new renewable and recycled energy after August 1, 2007, each retail provider required to make an "economic evaluation" to see if new renewable and recycled energy was "cost-effective" compared to other electricity standards[294]

Credit Trading: Yes

Noncompliance Penalty: None

Electricity Price Ranking: 6th Lowest[295]

- 6.9 cents/KWh in North Dakota
- 10.58 cents/KWh in states with RPS penalties

[291] Electricity Generation Data: Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[292] North Dakota Powers Commission; Chapter 49-02-28. http://www.legis.nd.gov/cencode/t49c02.pdf
[293] Database of State Incentives for Renewables and Electricity, North Dakota. http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=ND04R&re=1&ee=1.
[294] Database of State Incentives for Renewables and Electricity, North Dakota. http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=ND04R&re=1&ee=1.
[295] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Ohio

Renewable Mandate Status: On Track

- 2009 Estimated Qualified Renewable Generation: 0.36%[296]
- 2009 Renewable Mandate: 0.25%
- 2024 Renewable Mandate: 12.5%

Eligible Resources: solar photovoltaics, solar thermal, wind, geothermal, biomass, biologically derived methane gas, landfill gas, non-treated waste biomass, solid waste, fuel cells generating electricity, and certain hydropower facilities[297]

Compliance schedule:[298]

Year	Total	Solar	Year	Total	Solar
2009	0.25	0.004	**2017**	5.5	0.22
2010	0.5	0.010	**2018**	6.5	0.26
2011	1.0	0.030	**2019**	7.5	0.30
2012	1.5	0.060	**2020**	8.5	0.34
2013	2.0	0.090	**2021**	9.5	0.38
2014	2.5	0.12	**2022**	10.5	0.42
2015	3.5	0.15	**2023**	11.5	0.46
2016	4.5	0.18	**2024+**	12.5	0.50

Renewable Portfolio History: S.B. 221 established alternative and renewable mandates for Ohio in May 2008[299].

Credit Trading: Yes

Noncompliance penalty: There is an alternative compliance payment of $45 per MWh that will be annual adjusted by the Public Utility Commission of Ohio.[300] The Solar Alternative Compliance payment is $400 per MWh in 2010, declining by $50 every 2 years.

Electricity Price Ranking: 23rd Highest[301]

- 8.88 cents/KWh in Ohio
- 7.67 cents/KWh in non-mandated states

[296] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[297] Ohio AC 4901:1-40-1 (Jan. 1, 2009).
[298] Ohio Rev. C. 4928:64-B-2 (Dec. 10, 2009), http://codes.ohio.gov/orc/4928.64
[299] Datebase of state Incentives for Renewables and Efficiency, *Ohio*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=OH14R&re=1&ee=1.
[300] Public Utility Commission of Ohio, *Annual Adjustment of the Non-Solar Alternative Compliance Payment Pursuant to Section 4928.64(C)(2)(b), Revised Code*, http://www.puco.ohio.gov/PUCO/IndustryTopics/Topic.cfm?id=10009.
[301] Energy Information Administration, Electric Power Monthly, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Oklahoma

Renewable Goal Status: **Unknown**

- 2009 Qualified Renewable Percentage: not known according George Kiser of the Oklahoma Corporation Commission (Estimated: 3.1%[302]).
- 2015 Renewable Goal: 15% of generation

Eligible Resources: wind, solar, hydropower, hydrogen, geothermal, biomass, and other resources approved by the Oklahoma Corporation Commission[303]

- Energy efficiency may be used to meet up to 25% of the goal[304].
- Unlike other states, Oklahoma law does not require utilities to demonstrate compliance using REC's. Instead, utilities must file reports showing total KWh's generated and the respective sources[305].

Renewable Portfolio History: Adopted May, 27 2010[306].

Credit Trading: No

Noncompliance Penalty: None

Electricity Price Ranking: 11th Lowest[307]

- 7.28 cents/KWh in Oklahoma
- 10.58 cents/KWh in mandated states

[302] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[303] Oklahoma HB 3028 4-D (May 27, 2010), http://www.ecapitol.net/viewtext.wcs?HB3028_ENR~52nd.
[304] Oklahoma HB 3028 6 (May 27, 2010), http://www.ecapitol.net/viewtext.wcs?HB3028_ENR~52nd.
[305] Oklahoma HB 3028 7-B (May 27, 2010), http://www.ecapitol.net/viewtext.wcs?HB3028_ENR~52nd.
[306] Database of State Incentives for Renewables and Efficiency, *Oklahoma*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=OK05R&re=1&ee=1
[307] Energy Information Administration, Electric Power Monthly, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Oregon

Renewable Mandate Status: On Track

- 2009 Renewable Generation: 10%[308]
- 2011 Renewable Mandate: 5%
- 2025 Renewable Mandate: 25% (large utilities),[309] 10% (small utilities), 5% (smallest)[310]

Eligible Resources: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrogen, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal

Compliance Schedule (large utilities):

2011: 5%	**2015:** 15%	**2020:** 20%	**2025:** 25%

Renewable portfolio history: Senate Bill 838 of 2007 established the RPS in Oregon.[311] The legislation also established a *goal* that by 2025 at least 8% of Oregon's retail electrical load comes from small-scale, community renewable energy projects with a capacity of 20 megawatts (MW) or less. In fact, the legislation modified Oregon's public purpose charge for renewable resources to focus on smaller projects of 20 MW or less and extended the sunset date on the public purpose charge through 2025.[312]

Credit Trading: Yes

Noncompliance penalty: The Oregon Public Utility Commission establishes an alternative compliance rate.[313] Currently the alternative compliance payment is $50 per MWh.

Electricity Price Ranking: 16th Lowest[314]

- 7.72 cents/KWh in Oregon
- 7.76 cents/KWh in non-mandated states

[308] According to Kip Pheil from the Oregon Department of Energy.
[309] Large: More than 3 percent of load, Small: Less than 3% more than 1.5%, Smallest: less than 1.5%.
[310] Oregon Senate Bill 838 (2007). http://www.leg.state.or.us/07reg/measpdf/sb0800.dir/sb0838.en.pdf.
[311] Oregon Senate Bill 838 (2007). http://www.leg.state.or.us/07reg/measpdf/sb0800.dir/sb0838.en.pdf.
[312] Oregon Renewable Portfolio Standard; http://www.oregon-rps.org.
[313] Oregon Revised Statutes, 496A.180, http://www.leg.state.or.us/ors/469a.html.
[314] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Pennsylvania

Renewable Mandate Status: Not on Track

- 2009 Estimated Qualified Renewable Generation*:* 2.4%[315]
- 2009 Renewable Mandate: 6.2%
- 2020 Renewable Mandate: 18%[316]

Eligible Resources: two tiers

- Tier I: photovoltaic energy, solar-thermal energy, wind, low-impact hydro, geothermal, biomass, biologically-derived methane gas, coal-mine methane and fuel cells
- Tier II: waste coal, distributed generation systems, demand-side management, large-scale hydro, municipal solid waste, wood pulping and manufacturing byproducts, and integrated gasification combined cycle coal technology

Compliance Schedule:[317]

Year	Tier I	Tier II	Solar PV	Year	Tier I	Tier II	Solar PV
2006-07	**1.5%**	**4.2%**	0.0013%	**2014-15**	**5%**	**6.2%**	0.1440%
2007-08	**1.5%**	**4.2%**	0.0030%	**2015-16**	**5.5%**	**8.2%**	0.2500%
2008-09	**2%**	**4.2%**	0.0063%	**2016-17**	**6%**	**8.2%**	0.2933%
2009-10	**2.5%**	**4.2%**	0.0120%	**2017-18**	**6.5%**	**8.2%**	0.3400%
2010-11	**3%**	**6.2%**	0.0203%	**2018-19**	**7%**	**8.2%**	0.3900%
2011-12	**3.5%**	**6.2%**	0.0325%	**2019-20**	**7.5%**	**8.2%**	0.4433%
2012-13	**4%**	**6.2%**	0.0510%	**2020-21**	**8%**	**10%**	0.5000%
2013-14	**4.5%**	**6.2%**	0.0840%				

Renewable portfolio history: In 2004, Pennsylvania created the Pennsylvania's Alternative Energy Portfolio Standard (AEPS), which, requires each electric distribution company (EDC) and electric generation supplier (EGS) to retail electric customers in Pennsylvania to supply 18% of its electricity using alternative-energy resources by 2020. [318]

- Utilities must meet a portion of electricity demand with energy efficiency. House Bill 2200, passed in 2008, requires utilities to implement programs to reduce consumer electricity demand. By May 2013, consumption must have decreased by at least 3 percent from levels projected by

[315] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[316] Pennsylvania Public Utility Commission, http://www.puc.state.pa.us/electric/electric_alt_energy.aspx.
[317] Database of State Incentives for Renewables and Electricity, Pennsylvania, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=PA06R&re=1&ee=1.
[318] Database of State Incentives for Renewables and Electricity, *Pennsylvania*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=PA06R&re=1&ee=1.

the Commission for the June 2009–May 2010 period, and peak demand must have decreased by at least 4.5 percent [319]

- "PA grants compliance exemptions to EDCs that are still under rate freezes or in restructuring cost recovery periods. The exemptions also apply to EGSs that operate within the service territory of an exempted EDC. As of the beginning of 2008, only six EDCs had reached the end of their exemptions"[320]

Credit Trading: Yes

Noncompliance penalty: $45 per megawatt-hour for shortfalls in Tier I and Tier II resources. Separate penalty for noncompliance with the solar requirements.[321]

Electricity Price Ranking: 15th Highest[322]

- 10.21 cents/KWh in Pennsylvania
- 7.67 cents/KWh in non-mandated states

[319] Pennsylvania House Bill 2200. (2008). http://www.legis.state.pa.us/cfdocs/billinfo/billinfo.cfm?syear=2007&sind=0&body=H&type=B&bn=2200.
[320] Database of State Incentives for Renewables and Electricity, *Pennsylvania*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=PA06R&re=1&ee=1.
[321] H.B. 1203 (Penn. 2007), *Act for the sale of electric energy generated from renewable and environmentally beneficial sources*, http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=HTM&sessYr=2007&sessInd=0&billBody=H&billTyp=B&billNbr=1203&pn=2343.
[322] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Rhode Island

Renewable Mandate Status: Not on Track[323]

- 2009 Estimated Qualified Renewable Generation: 2.1%[324]
- 2009 Renewable Mandate: 4%
- 2020 Renewable Mandate: 16%

Eligible Resources: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Biodiesel, Fuel Cells using Renewable Fuels[325]

Compliance Schedule:

2008: 3.5%	**2010**: 4.5%	**2012**: 7%	**2014**: 9%	**2016**: 11.5%	**2018**: 14.5%
2009: 4%	**2011**: 6%	**2013**: 8%	**2015**: 10%	**2017**: 13%	**2019**: 16%

Renewable portfolio history: RES enacted in June 2004. In 2020, and in each year thereafter, the minimum RES established in 2019 must be maintained unless the Rhode Island Public Utilities Commission (PUC) determines that the standard is no longer necessary.[326] In June 2009, RI passed the Long Term Contracting Standard for Renewable Energy that required electric distribution companies to solicit proposals and enter into long-term contracts for capacity, energy, and attributes from new (not yet operational) renewable energy facilities.[327]

Credit Trading: Yes

Noncompliance penalty: $60.93 per MWh of renewable generation shortfall.[328]

Electricity Price Ranking: 8th Highest [329]

- 14.34 cents/KWh in Rhode Island
- 7.67 cents/KWh in non-mandated states

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[323] *See* Rhode Island Public Utilities Commission, *Rhode Island Renewable Energy Standard Annual Compliance Report*, Feb. 2010, http://www.ripuc.org/utilityinfo/PUC-RES-AnnualReport2008(2-11-10).pdf.
[324] Energy Information Administration, Electricity Generation 2009, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[325] Database of State Incentives for Renewables and Electricity, *Rhode Island*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=RI08R&re=1&ee=1.
[326] Rhode Island Public Utility Commission, (June 2007) Rules and Regulations Governing the Implementation of a Renewable Energy Standard. http://www.ripuc.org/utilityinfo/RESRules%287-25-07%29.pdf.
[327] Rhode Island Public Utilities and Carriers (June 2009) § 39-26.1-3**;** http://www.rilin.state.ri.us/Statutes/TITLE39/39-26.1/39-26.1-3.HTM.
[328] Rhode Island Public Utility Commission, *Alternative Compliance Payment Rate*, http://www.ripuc.org/utilityinfo/RES-ACPRate(1-19-10).pdf.
[329] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

South Dakota

Renewable Goal Status: Not on Track

- 2009 Qualified Renewable Percentage: Effectively 0% (7,570 MWh RECs retired / 8,580,013 MWh)[330]
- 2015 Renewable Goal: 10% of retail sales

Renewable portfolio history: In 2008, South Dakota passed HB 1123 that established a voluntary objective of 10% by 2015. However, Utilities must give annual reports on their progress.[331] For renewable and recycled energy, the objective is measured by qualifying megawatt-hours (MWh) delivered at retail or by certificates representing credits purchased and retired to offset non-qualifying retail sales. With conserved energy, the objective will be measured by methods established by the South Dakota Public Utilities Commission (PUC).[332]

Credit Trading: Yes

Noncompliance penalty: None

Electricity Price Ranking: 15th Lowest[333]

- 7.5 cents/KWh
- 10.58 cents/KWh in mandated states

[330] *See* South Dakota Public Utilities Commission, *South Dakota's Renewable, Recycled and Conserved Energy Objective*, Dec. 29, 2010, Appendix C, http://puc.sd.gov/commission/Energy/REO/20101223RRCEOReport.pdf. According to EIA data, in 2009 South Dakota generated 5.2% of its electricity from renewable sources. However, because of how the South Dakota law works, a very small percentage of renewable energy credits were retired in South Dakota (7,570 MWh out of 8,580,013 MWh) which is why the percentage is listed as effectively zero. According to Brian Rounds of the South Dakota Public Utilities Commission, however, most utilities are "banking their credits for further use."

[331] South Dakota Legislature, 2009; Chapter 49-34A-104; http://legis.state.sd.us/statutes/DisplayStatute.aspx?Type=Statute&Statute=49-34A-104

[332] Database of State Incentives for Renewables and Electricity, *South Dakota*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=SD02R&re=1&ee=1.

[333] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Texas

Renewable Mandate Status: On Track

- 2009 Estimated Renewable Generation: 5.4%[334]
- 2009 Renewable Mandate: 2,392 MW (about 2.5%)
- 2015 Renewable Mandate: 5,880 MW (about 5%)

Eligible Resources: Solar Water Heat, Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Geothermal Heat Pumps, Tidal Energy, Wave Energy, Ocean Thermal

Compliance Schedule:

2006: 1,400 MW	**2008**: 2,392 MW	**2010**: 3,384 MW	**2012**: 4,376 MW	**2014**: 5,000 MW
2007: 1,400 MW	**2009**: 2,392 MW	**2011**: 3,384 MW	**2013**: 4,376 MW	**2015**: 5,880 MW[335]

Renewable portfolio history: In 1999, Texas Public Utilities Commission adopted rules for a renewable electricity mandate. The 1999 standard called for 2,000 megawatts (MW) of new renewables to be installed in Texas by 2009, in addition to the 880 MW of existing renewables generation at the time.[336] Wind accounts for nearly all of the current renewable-energy generation in Texas and 4.9% of total electricity generation. Accepts out of state supply (but limited) and engages in credit trading but does not accept existing capacity. In 2004, the Texas Renewable Portfolio Bill (SB No. 20) included a requirement that the state must meet 500 MW of the 2025 target with non-wind renewable generation. Texas law now mandates at least 500 MW from renewables other than wind[337]

Credit Trading: Yes

Noncompliance penalty: An administrative penalty of $50 per MWh renewable generation shortfall.[338]

Electricity Price Ranking: 17th Highest[339]

- 9.65 cents/KWh in Texas
- 7.67 cents/KWh in non-mandated states

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[334] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[335] Texas Public Utility Commission, (January 10, 2000), §25.173(h)(1). http://www.puc.state.tx.us/rules/subrules/electric/25.173/25.173.pdf.
[336] Texas Utilities Code, (June 18, 1999), § 39.904, http://www.statutes.legis.state.tx.us/Docs/UT/htm/UT.39.htm#39.904.
[337] Texas State Legislature, (August 2005), SB No. 20a; http://www.capitol.state.tx.us/tlodocs/791/billtext/pdf/SB00020F.pdf.
[338] Public Utility Commission of Texas, *Rules §25.173. Goal for Renewable Energy*, http://www.puc.state.tx.us/rules/subrules/electric/25.173/25.173.pdf.
[339] Energy Information Administration, Electric Power Monthly, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Utah

Renewable Goal Status: Not Known

- 2009 Estimated Qualified Renewable Generation: 1.2%[340]
- 2025 Renewable Goal: 20%

Renewable portfolio history: Legislature enacted The Energy Resource and Carbon Emission Reduction Initiative (SB 202) to establish the Renewable Portfolio Goal, which is voluntary, in March 2008. Utilities only need to pursue renewable energy to the extent that it is "cost-effective" to do so.[341] Unlike most states, Utah's goal has no interim targets. The first compliance year is 2025[342]

Credit Trading: Yes

Noncompliance penalty: None

Electricity Price Ranking: 5th Lowest[343]

- 6.81 cents/KWh in Utah
- 10.58 cents/KWh in mandated states

[340] Energy Information Administration, Electricity Generation 2009, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls

[341] Database of State Incentives for Renewables Electricity, *Utah*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=UT13R&re=1&ee=1.

[342] Database of State Incentives for Renewables Electricity, *Utah*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=UT13R&re=1&ee=1.

[343] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.

Vermont

Renewable Mandate Status: Not on Track

- 2009 Qualified Renewable Generation: Effectively 0% (202,620 MW generating; 574,141 generating and capacity; 5,743,863,352 total sales)[344]
- 2017 Renewable Goal: 20%

Eligible Resources: Solar Water Heat, Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Anaerobic Digestion, Fuel cells using renewable fuels.[345] To qualify as a SPEED project, the facility must:

- Be located in Vermont,
- Produce energy using renewables or qualifying CHP
- Come into service after December 31, 2004.
- Apply for and be granted a "Certificate of Public Good."[346]

Renewable portfolio history: Vermont's Sustainably Priced Energy Enterprise Development (SPEED) Program was created by the Vermont Legislature in 2005.[347] It is not an RPS or goal, which promotes renewable energy development by encouraging long-term contracts for electricity from renewable sources.[348] Legislation made by Vermont in 2008 established the goal of 20% of total statewide electric sales be made of renewable sources by June of 1017.[349] Minimum obligation: (1) any increase in retail electric sales between 2005-2012 that is also at least 5% of 2005 sales; OR (2) 10% of retail sales in 2005.

Credit Trading: Yes

Noncompliance penalty: None

Electricity Price Ranking: 10th Highest[350]

- 13.08 cents/KWh in Vermont
- 7.67 cents/KWh in non-mandated states

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[344]Biennial Report to Vermont Legislature (Feb. 2010), http://psb.vermont.gov/sites/psb/files/publications/Reports%20to%20legislature/SPEED_biennial__report_2009_and_appendix.pdf.

[345] Database of State Incentives for Renewables Electricity, *Vermont*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=VT04R&re=1&ee=0.

[346] Database of State Incentives for Renewables Electricity, *Vermont*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=VT04R&re=1&ee=1.

[347] Vermont Statues, (June 14, 2005); 30 V.S.A. § 8001, http://www.leg.state.vt.us/statutes/fullsection.cfm?Title=30&Chapter=089&Section=08001.

[348] Vermont Statues, (June 14, 2005); 30 V.S.A. § 8001, http://www.leg.state.vt.us/statutes/fullsection.cfm?Title=30&Chapter=089&Section=08001.

[349]Vermont Legislature, (March 2008); S.B. 209, http://www.leg.state.vt.us/docs/legdoc.cfm?URL=/docs/2008/bills/passed/S-209.HTM

[350] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Virginia

Renewable Goal Status: On Track

- 2009 Estimated Qualified Renewable Generation: 4%[351]
- 2010 Renewable Goal: 4%
- 2025 Renewable Goal: 15%[352]

Eligible Resources: Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Geothermal Heat Pumps, Municipal Solid Waste, Solar Light Pipes, Solar Pool Heating, Anaerobic Digestion, Tidal Energy, Wave Energy, Fuel Cells using Renewable Fuels, Geothermal Direct-Use[353]

Goal Schedule:

2010: 4%	**2011-15:** 4% (average)	**2016:** 7%	**2017-2021:** 7% (average)
2022: 12%	**2023-25:** 12% (average)	**2025:** 15%[354]	

Renewable portfolio history: In 2007, VA enacted a *voluntary* renewable portfolio standard. HB1994 in 2009 expanded this goal. To incentivize utilities to comply with the voluntary RPS in VA, the Virginia state Corporation Commission (SCC) will provide a performance incentive in the form of an increased rate of return (profit) for each "RPS Goal" attained to participating utilities.[355]

Credit Trading: Yes

Noncompliance penalty: None

Electricity Price Ranking: 24th Highest[356]

- 8.73 cents/KWh in Virginia
- 10.58 cents/KWh in mandated states

[351] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls

[352] Virginia Acts of Assembly, (2010); S. B. 56-585; http://leg6.state.va.us/cgi-bin/legp604.exe?101+ful+HB1022ER+hil

[353] Database of State Incentives for Renewables Electricity, *Virginia*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=VA10R&re=1&ee=1.

[354] Targets are defined as percentages of the amount of electricity sold in 2007 (the "base year"), minus the average annual percentage of power supplied from nuclear generators between 2004 and 2006. Virginia Acts of Assembly, (2010); S. B. 56-585; http://leg6.state.va.us/cgi-bin/legp604.exe?101+ful+HB1022ER+hil .

[355] Database of State Incentives for Renewables Electricity, *Virginia*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=VA10R&re=1&ee=1.

[356] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Washington

Renewable Mandate Status: On Track

- 2009 Estimated Qualified Renewable Generation: 4.8%[357]
- 2012 Renewable Mandate: 3%
- 2020 Renewable Mandate: 15% for large utilities[358] (84% of Washington's load)[359]

Eligible Resources: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Biodiesel[360]

Compliance Schedule: Each utility is required to submit a renewable resource energy report to the department by June 1 of each year, but only beginning in 2012[361] Utilities subject to the standard must use eligible renewable resources or acquire equivalent renewable energy credits (RECs), or a combination of both, to meet the following annual targets:

2012: 3%	**2016**: 9%	**2020**: 15%

Renewable portfolio history: In 2006, voters approved ballot Initiative 937, which requires utilities to implement all cost-effective energy efficiency measures along with producing 15% of renewable from its load[362]

Credit Trading: Yes

Noncompliance penalty: $50 per MWh of renewable shortfall[363]

Electricity Price Ranking: 4th Lowest[364]

- 6.63 cents/KWh in Washington (the only state with a renewable energy mandate where electricity prices are more than a cent cheaper than states without a mandate)
- 7.67 cents/KWh in non-mandated states

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[357] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[358] 25,000 customers in the state of Washington: Washington state Legislature, (November 7 2006); WAC 480-109-020; http://apps.leg.wa.gov/WAC/default.aspx?cite=480-109-020.
[359] Database of State Incentives for Renewables Electricity, *Washington*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=WA15R&re=1&ee=1.
[360] Database of State Incentives for Renewables Electricity, *Washington*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=WA15R&re=1&ee=1.
[361] Washington State Legislature, (March 18, 2008); WAC 194-37-110; http://apps.leg.wa.gov/WAC/default.aspx?cite=194-37-110
[362] Database of State Incentives for Renewables Electricity, *Washington*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=WA15R&re=1&ee=1.
[363] WAC 480-109-050: *Administrative Penalties*: http://apps.leg.wa.gov/WAC/default.aspx?cite=480-109-050
[364] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

West Virginia

Alternative Electricity[365] Mandate Status: Not on Track

- 2009 Renewable Generation: Effectively 0% (323 MW wind)[366]
- 2025 Alternative Electricity Mandate: 25%[367]

Eligible Resources: "Advanced coal technology, Coal bed methane, Natural gas, Fuel produced by a coal gasification or liquefaction facility, Synthetic gas, Integrated gasification combined cycle technologies, Waste coal, Tire derived fuel, Pumped storage hydroelectric projects, and any other resource, method, project or technology certified as an alternative energy resource by the Public Service Commission."[368]

Compliance Schedule:

2015-2019: 10%	**2020-2024:** 15%	**2025:** 25%

Renewable Portfolio History: Alternative Energy Standard originally enacted June 2, 2009. Additional specification labeling "recycled energy" as renewable was added on June 11, 2010[369]. Standard does not require a minimum contribution of renewable resources making the standard effectively a goal with respect to renewable.[370]

Credit Trading: Yes

Noncompliance penalty: None

Electricity Price Ranking: 10th Lowest[371]

- 7.25 cents/KWh in West Virginia
- 10.58 cents/KWh in states with renewable mandates[372]

[365] West Virginia's alternative energy mandate has no penalties and includes non-renewable resources, which makes it effectively a goal.
[366] According to Jeff Herholdt of the West Virginia Division of Energy.
[367] W. VA. Code §24-2F-5 (June 6, 2009), http://www.legis.state.wv.us/WVCODE/ChapterEntire.cfm?chap=24&art=2F.
[368] W. VA. Code §24-2F-5 (June 6, 2009), http://www.legis.state.wv.us/WVCODE/ChapterEntire.cfm?chap=24&art=2F.
[369] Database of state Incentives for Renewables and Efficiency, *West Virginia*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=WV05R&re=1&ee=1.
[370] W. VA. Code §24-2F-5 (June 6, 2009), http://www.legis.state.wv.us/WVCODE/ChapterEntire.cfm?chap=24&art=2F.
[371] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.
[372] This includes all states with minimum renewable requirements.

Wisconsin

Renewable Mandate Status: Not on track

- 2009 Estimated Qualified Renewable Generation: 2.1%[373]
- 2015 Renewable Mandate: 10%[374]

Eligible Resources: tidal and wave action, fuel cells using renewable fuels, solar thermal electric and photovoltaics (PV), wind power, geothermal, hydropower less than 60 megawatts, and biomass (including landfill gas),solar, geothermal, biomass and biogas resources.[375]

Renewable portfolio history: Wisconsin Legislature passed Act 9 in 1999, becoming the first state to put in place a renewable portfolio standard (RPS) without having restructured its electric-utility industry.[376] 1999 Wisconsin Act 9 created RPS and was designed to sell a certain minimum amount of renewable electricity as a percentage of total electricity a utility or cooperative sells. The RPS established by Act 9 would reach its maximum at 2.2% (of total electricity a cooperative or utility sells) in 2011.[377] The 2005 Wisconsin Act 141 builds upon the 1999 Act and set the standard of 10% state wide USE of electricity being from renewable sources.[378] In 2010, Wisconsin legislature broadened the definition of renewable energy to include energy-from-waste projects as eligible for renewable energy credits[379]

Credit Trading: Yes with limits

Noncompliance penalty: The law states, anyone who provides "false or misleading certification information regarding the sources or amounts of renewable energy supplied at wholesale to the electric provider shall forfeit not less than $5,000 nor more than $500,000."[380]

Electricity Price Ranking: 19th Highest[381]

- 9.49 cents/KWh in Wisconsin
- 7.67 cents/KWh in non-mandated states

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[373] Energy Information Administration, *Electricity Generation 2009*, http://www.eia.doe.gov/cneaf/electricity/epa/generation_state_mon.xls.
[374] Wisconsin State Legislature (March 17, 2006); S.B. 459 Sec. 1. http://www.legis.state.wi.us/2005/data/acts/05Act141.pdf.
[375] Database of State Incentives for Renewables Electricity, *Wisconsin*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=WI05R&re=1&ee=1.
[376] Database of State Incentives for Renewables Electricity, *Wisconsin*, http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=WI05R&re=1&ee=1.
[377] Wisconsin State Legislature (October 27, 1999); Chapter 196.374-196.378; http://nxt.legis.state.wi.us/nxt/gateway.dll?f=templates&fn=default.htm&vid=WI:Default&d=stats&jd=ch.%20196
[378] Washington State Legislature (March 17, 2006), S.B. 459 Sec. 1. http://www.legis.state.wi.us/2005/data/acts/05Act141.pdf
[379] James Cartledge, *Brighter Energy*, (May 20, 2010), http://www.brighterenergy.org/10682/news/wind/wisconsin-broadens-its-definition-of-renewable-energy.
[380] Wis. Stat. 196.378(5), Renewable Portfolio Standard, http://www.wiseye.org/uploads/Renewable%20Portfolio%20Standard.pdf.
[381] Energy Information Administration, *Electric Power Monthly*, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html.

Appendix 1

Average Price of Electricity in states With Renewable Electricity Mandates June 2010 (Prices in cents per kilowatt hour)				
state	**Residential**	**Commercial**	**Industrial**	**All Sectors**
Arizona	10.65	9.2	6.45	9.36
California	15.16	13	10.22	13.22
Colorado	11.01	9.09	6.67	9.14
Connecticut	19.42	16.54	14.82	17.54
Delaware	13.59	11.46	9.3	11.88
Illinois	11.16	8.01	7.38	8.94
Iowa	9.67	7.49	4.97	7.16
Kansas	9.66	8.05	6.01	8.07
Maine	15.44	12.42	9.19	12.62
Maryland	14.57	11.71	9.4	12.78
Massachusetts	15.39	15.01	13.14	14.52
Michigan	12.15	10.1	7.03	9.84
Minnesota	9.93	8.02	6.12	8.06
Missouri	8.24	6.96	5.08	7.15
Montana	8.78	8.2	5.61	7.48
Nevada	12.64	10.23	6.87	9.58
New Hampshire	15.96	13.97	12.57	14.54
New Jersey	16.11	13.74	11.4	14.37
New Mexico	10.29	8.66	5.99	8.37
North Carolina	10	8.04	5.92	8.53
Ohio	10.95	9.83	5.96	8.88
Oregon	8.79	7.73	5.84	7.72
Pennsylvania	12.58	10.11	7.59	10.25
Texas	11.95	9.52	6.55	9.65
Washington	7.89	7.31	3.96	6.63
Wisconsin	12.29	9.75	6.6	9.49
New York	18.31	15.75	9.61	16.02
Rhode Island	16	13.3	13.14	14.34
Average Price	**12.45**	**10.47**	**7.98**	**10.58**
Difference in Electricity Prices in states with Binding RPS Compared to states Without Binding RPS				
Percent Higher	**38%**	**30%**	**38%**	**38%**

Average Price of Electricity in States Without a Renewable Portfolio Mandate June 2010 (Prices in cents per kilowatt hour)				
state	**Residential**	**Commercial**	**Industrial**	**All Sectors**
Alabama	10.43	10.12	5.75	8.64
Arkansas	9.02	7.61	5.54	7.45
Florida	11.14	9.6	8.31	10.31
Georgia	9.8	9.01	6.04	8.68
Idaho	7.89	6.76	5.04	6.57
Indiana	8.99	8.05	5.66	7.32
Kentucky	8.07	7.46	4.84	6.38
Louisiana	8.87	8.68	5.93	7.82
Mississippi	9.65	9.34	6.09	8.41
Nebraska	8.3	7.42	5.68	7.15
North Dakota	7.58	6.8	6.22	6.9
Oklahoma	8.8	7.21	5.01	7.28
South Carolina	10.07	8.63	5.45	8.14
South Dakota	8.47	7.25	5.84	7.5
Tennessee	8.72	9.16	6.23	8.16
Utah	8.51	7.11	4.82	6.81
Virginia	10.42	7.72	6.66	8.73
West Virginia	8.48	7.47	5.7	7.25
Wyoming	8.44	7.4	4.92	6.14
Average Price	**9.03**	**8.04**	**5.78**	**7.67**

States with Special Circumstances				
Alaska	16.45	14.18	14.5	15.02
Hawaii	27.61	25.55	21.57	24.71
Vermont	15.35	13.34	9.39	13.08
*Vermont has a unique hybrid RPS, so it is not included in either other group.				

Source: EIA, Electric Power Monthly, Table 5.6.B., Average Retail Price of Electricity, June 2010, Released Sept. 15, 2010, http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_b.html