STATE RENEWABLE PORTFOLIO STANDARDS

Policy Research Shop

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March 18, 2005

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BACKGROUND

Many states have established standards for renewable energy production and sales in the form of a Renewable Portfolio Standard (RPS). An RPS specifies that a minimum percentage of the total energy a utility company sells must come from renewable sources such as solar power, wind power, or biomass. While there is no federal RPS, many states and several municipalities throughout the country (as well as many countries)[1] have enacted voluntary or mandatory standards.

Benefits of Renewable Portfolio Standards

Instituting an RPS is intended to diversify the state's fuel mix and to increase the amount of green energy within the state.[2] In the face of increasing energy demands in the United States, many consumers are interested in a diverse fuel mix that will decrease reliance on fossil fuels, particularly foreign oil, and stabilize volatile energy prices.[3] Increasing alternative fuels in the U.S. market is one way to diversify our energy sources. Another incentive for pursuing alternative sources of energy is to reduce greenhouse gas emissions. Energy from renewable sources emits significantly fewer greenhouse gases than does energy from fossil fuels.[3]

Drawbacks of Renewable Portfolio Standards

Instituting an RPS may lead to higher costs for consumers, provide a market advantage to renewable energy companies, and create environmental benefits that accrue outside the state (for which the state receives no compensation).[2] There are costs associated with transitioning to alternative energy sources, and some states have addressed the issue of higher consumer costs by limiting the rate increase that consumers must pay. An RPS may provide a temporary market advantage to renewable energy companies, although proponents of RPS's point out that they apply equally to all companies in the market.

Existing Renewable Portfolio Standards and Eligible Sources

Eighteen states (AZ, CA, CO, CT, HI, IL, MA, MD, ME, MN, NJ, NM, NV, NY, PA, RI, TX, WI), plus the District of Columbia, Jacksonville, FL and Columbia, MO have some type of RPS[4] (Table 1). In almost all of these areas, the RPS applies to all utility companies. Specific characteristics of an RPS may vary across states (Figure 1), such as which resources are eligible for the "renewable" designation and the target for the percentage of renewable energy. Solar, biomass, and wind are the most common energy sources recognized as renewables under RPS statutes across the nation. Other common eligible renewable sources include methane gas from

State	Mandated by Law	Date Enacted	Goal Percentage	Years to Goal	Schedule/ Interim goals	Penalties/ ACP[1]	Tradable Credits	Multiple Tiers	Out-of-State Power[2]	Eligible Power Sources								
										solar	biomass	landfill[3]	ocean[4]	wind	hydro	geo-thermal	fuel cells	others[5]
AZ	✓	2001	1.1	6	✓					✦	✓	✓		✓		✓	◇	
CA	✓	2002	20	15	✓					✓	✓	✓	✓	✓	#	✓		✓
CO[6]	✓	2002	10	13	✓				○	✦	◇	✓		✓	#	✓	✓	✓
CT	✓	1998	10	8	✓	$55	✓	✓	✓	✓	◇	✓		✓	#		✓	
DC	✓	2004	11	18	✓	$25, $10 ($300)	✓	✓	✓	✦	✓	✦	✓	✦	#	✓	◇	✓
FL[7]		1999	7.5	16	✓					✓	✓	✓		✓				✓
HI	✓	2004	20	16	✓					✓	✓	✓	✓	✓	✓	✓	◇	✓
IL		2001	15	19	✓													
MA	✓	2002	4	7	✓	$53.19				✓	✓	✓	✓	✓	✓		◇	✓
MD	✓	2004	7.5	15	✓		✓	✓	✓	✦	◇	✓	✓	✓	#	✓	◇	✓
ME	✓	1999	30	1		✓	✓			✓	✓	✓	✓	#	#	✓	✓	✓
MN	✓*	2001	10	14	✓		✓			✓	✦			✓	#			✓
MO[8]	✓	2004	15	18	✓				○	✓	✓			✓				
NJ	✓	2001	6.5	7		($300)		✓	✓	✦	◇	✓	✓	✓	#	✓	◇	
NM	✓	2002	10	9	✓		✓			✦	✦	✦		✓	✓	✦	✦	
NV	✓	1997	15	16	✓		✓			✦	✓			✓	#	✓		
NY	✓	2004	25	9						✓	✓	✓	✓	✓	✓		✓	
PA	✓	2004	18	16	✓	$45		✓	✓	✦	✓	✓		✓	#	✓	✓	✓
RI	✓	2004	16	15	✓	✓	✓			✓	✓		✓	✓	#	✓	◇	
TX[9]	✓	1999	3	10			✓		✓	✓	✓	✓	✓	✓	✓	✓		
WI	✓	1999	2.2	12	✓		✓			✓	✓		✓	✓	#	✓	◇	

[1] Per MWh, two values listed if separate ACP for Tier I and Tier II sources (parentheses indicate solar ACP)
[2] Power generated outside the state is explicitly eligible for meeting RPS
[3] Including municipal solid waste
[4] Including thermal and mechanical
[5] Including digester gas, animal waste, wastewater treatment gas, waste-to-energy, hydrogen fuels, cogeneration facilities, liquid biofuel, methane from coal mines, waste coal, distributed generation systems, wood manufacturing byproducts
[6] Fort Collins city standards in addition to Colorado state RPS
[7] no state RPS; Jacksonville city standards only
[8] no state RPS; Columbia city standards only
[9] Austin city standards in addition to Texas state RPS; information listed is for state RPS

* Minnesota's law mandates a "good faith effort"
# restrictions on size/environmental impact of generation facilities
◇ restrictions on type of fuel
✦ extra credit, incentives, or requirements for this type of power
○ power generated within state is favored

Table 1. Detailed Summary of Renewable Portfolio Standards by State.

landfills, ocean power (including thermal energy and mechanical energy from tides and waves), hydropower, geothermal energy, and fuel cells. Many states only consider a dam to be a renewable energy source if it is smaller than a specific size (energy output, measured in megawatts) because while hydropower is often considered a renewable resource, dams can have adverse environmental impacts such as restricting fish movement, altering habitats, and displacing communities. Smaller dams tend to have fewer impacts while still providing the benefits of a renewable energy source. Likewise, for fuel cells to be considered a renewable source of energy, many states require that the hydrogen be generated using renewable sources. Other less widespread energy sources that qualify as renewable include municipal solid waste, hydrogen fuel, and methane gas from wastewater treatment systems.

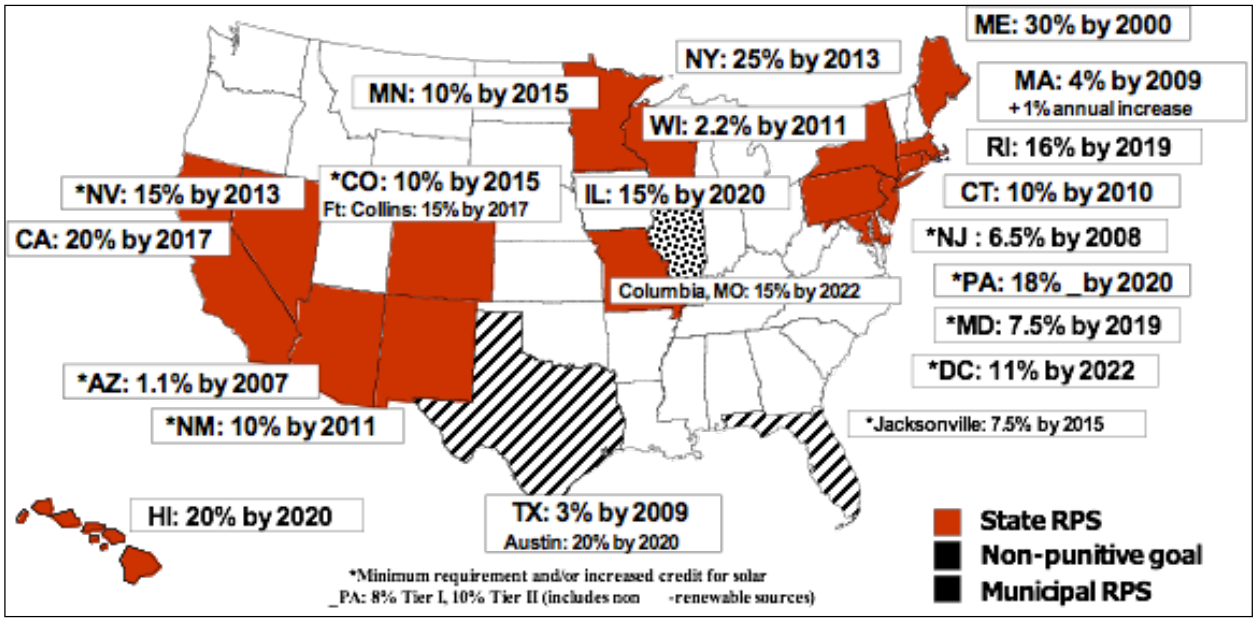

Figure 1. Summary of Renewable Portfolio Standards Across the Country. Sources: North Carolina State University, North Carolina Solar Center, Interstate Renewable Energy Council (IREC), Database of State Incentives for Renewable Energy (DSIRE).

Extra Credit or Requirements for Certain Energy Sources

Many states and municipalities encourage power generation from particular sources by awarding extra credit (e.g., 1 MW of energy produced = 1.5 MW of credit towards meeting the RPS) for power generated from these sources. For example, Maryland awards double credit for power generated from solar energy.[5] New Mexico awards double credit for power generated from biomass, landfill gas, fuel cells, and geothermal sources and triple credit for solar power.[6] Many states also have additional standards for certain types of power, most often for solar power. For example, the Colorado RPS stipulates that by 2015, 10% of energy sold within the state must come from renewable sources and 4% of this must come from solar power (0.004% of total energy).[7] The Minnesota RPS has a goal of 10% of energy from renewable sources by 2015, of which at least 1% must be from biomass (0.001% of total energy).[8]

Range of Goal Percentages and Timelines
The goal of an RPS is to have a minimum percentage of energy in a state originate in renewable sources. This percentage varies widely among states, from 1.1% in Arizona[9] to 25% in New York.[10] Likewise, the timeline for achieving an RPS goal varies from six years from passage of the initial statue (Arizona)[9] to nineteen years (Illinois).[11] In 1999, Maine enacted an RPS with a goal of 30% renewable energy by 2000,[12] the highest percentage in the country. At that time more than 30% of the state power already came from renewable sources[13] (low-impact hydropower and wind).[14] The RPS prevents slippage and allows Maine utility companies to generate revenue by selling renewable energy credits to other states.[12] To ensure progress towards the goal, many states include interim goals as part of their RPS.

Tradable Credits and Multi-state Systems
Many states include tradable credits as part of their RPS. For example, an energy company that produces renewable energy that exceeds the required amount can sell the resulting 'excess' in the form of credits to another energy company. In several regions, the credit-trading system crosses state lines, and an energy company in one state may buy renewable energy from a company located in another state. However, under some RPS systems, power produced in-state counts for extra credit or is otherwise given preferential consideration (e.g., Missouri's statutory language).[32]

Penalties for Non-Compliance
One third of the states with an RPS (DC, MA, ME, NJ, PA, RI) include penalties for companies that do not comply with the RPS. One common a penalty is an Alternative Compliance Payment (ACP), a charge per unit of energy that the utility falls short of meeting the RPS. Washington D.C., for example, sets different ACP's for solar ($300 per MWh) and other resources ($10-25 per MWh). In Rhode Island the ACP is paid to the Renewable Energy Development Fund. In 2003, the average national price for electricity was approximately $70 per MWh.[15]

RENEWABLE PORTFOLIO STANDARDS IN SPECIFIC STATES

(Unless otherwise noted, all percentages are expressed as a percent of total energy in a state.)

Arizona[9]
Enacted: 2001 *Goal*: 1.1% *Deadline*: 2007
Schedule: 0.2% by 2001; 0.4% by 2002; 0.6% by 2003; 0.8% by 2004; 1.0% by 2005; 1.05% by 2006; 1.1% by 2007 and continuing through 2012
Additional requirements: At least 50% of this required percentage of renewable energy must be from solar power in 2001 and 60% thereafter.
Eligible sources: solar, biomass, landfill gas, and wind. The Arizona Public Service Co. received a waiver allowing it use geothermal sources, in addition to the standard eligible sources, to meet some of the requirements.
Notes: The RPS is overseen by the Arizona Corporation Commission (ACC) (a body analogous to a public service commission[16]) and is funded by a surcharge for electric ratepayers. This surcharge is capped at $0.35 per month for residential consumers, $13 per month for non-residential consumers, and $39 per month for large non-residential consumers (whose annual load is greater than 3 MW). These surcharges are expected to generate $15-20 million annually. Arizona's original EPS included a stipulation that the percentage from renewable

sources would continue to increase past 2004 only if the EPS met a cost-benefit standard established by the ACC. The EPS did meet this standard and the percentage continues to increase toward the goal.

California[17]
Enacted: 2002 *Goal:* 20% *Deadline:* 2017
Schedule: 5% in 2002, increasing 1% per year to meet the goal (15% over 15 years).
Eligible sources: solar, biomass, landfill gas, ocean (wave, thermal, and tidal current), wind, small hydropower (facilities that produce less than 30 MW), geothermal, fuel cells (using renewable fuels), digester gas, and municipal solid waste (using a non-combustion thermal process)

Colorado
Colorado has a statewide RPS and the city of Fort Collins has an additional citywide RPS.
State RPS[7]
Enacted: 2002 *Goal:* 10% *Deadline:* 2010
Schedule: 3% by 2007 through 2010, 6% by 2011-14, and 10% by 2015 and thereafter.[7]
Additional requirements: At least 4% of the renewable energy must be from solar power and half of this 4% must be from solar power systems located on-site.[7] Electricity generated within the state is favored and counted as 1.25 MWh per MWh for the purposes of meeting the RPS.[7]
Eligible sources: solar, biomass (only facilities that burn nontoxic plants), landfill gas, wind, small hydropower (facilities that produce 10 MW or less[18]), geothermal, hydrogen fuel cells, and animal waste[7]
Notes: The state RPS was the first RPS in the nation to be approved by voter referendum.[19] It applies to all utilities with more than 40,000 customers.

Fort Collins RPS[20]
Enacted: 2003 *Goal:* 15% *Deadline:* 2017
Notes: The Fort Collins RPS is a part of the city's 2003 Electric Energy Supply Policy and includes measures to increase energy efficiency in the city, with goals of maintaining a reliable energy system, maintaining competitive electricity rates, and reducing the environmental impacts of energy production.[20] It includes an interim goal for 2004 of 2% renewable energy, supplied by wind power from the Plate River Power Authority in Wyoming.[21]

Connecticut[22]
Enacted: 1998 *Goal:* 10% *Deadline:* 2010
Schedule: See Table 2.

Table 2: Schedule for Connecticut's Renewable Portfolio Standard.

Year	% Energy from Class I	% Energy from Class II
2004	1.0	3.0
2005	1.5	3.0

2006	2.0	3.0
2007	3.5	3.0
2008	5.0	3.0
2009	6.0	3.0
2010	7.0	3.0

Source: Database of State Incentives for Renewable Energy.

Additional requirements: separate standard for Class I sources

Eligible sources: There are two groups of eligible sources. Class includes solar, sustainable biomass, landfill gas, ocean (thermal wave or tidal power), wind, run-of-the-river hydropower (less than 5 MW), fuel cells, low-emission advanced renewable-energy conversion technologies. Class II includes trash-to-energy, biomass facilities not included in Class I and certain hydro.

Notes: The RPS allows credit-trading with companies in New York, New Jersey, Pennsylvania, Maryland, and Delaware. The penalty for non-compliance is a payment of $55 per MWh to the Renewable Energy Investment Fund.

Washington, D.C.[23]

Enacted: 2004 *Goal:* 11% *Deadline*: 2022

Schedule: See Table 3.

Table 3: Schedule for Washington, D.C.'s Renewable Portfolio Standard

Year	% from Tier I (% from solar*)	% from Tier II	Total % from Renewables
2007	1.5 (0.005)	2.5	**4**
2012	4.0 (0.066)	2.5	**6.5**
2017	6.5 (0.192)	1.5	**8**
2022	11 (0.386)	0.0	**11**

Source: Database of State Incentives for Renewable Energy.
* % of total energy

Eligible sources: There are two tiers of eligible resources. Tier I includes solar, biomass, landfill gas, ocean (both mechanical and thermal), wind, geothermal, wastewater-treatment gas, and fuel cells fueled by Tier I resources. Tier II includes hydropower and municipal solid waste.

Notes: The RPS is overseen by the D.C. Public Service Commission and includes tradable credits among utility companies. Through 2010, extra credit is awarded for power from certain sources: 120% for solar or wind; 110% for methane from landfills or wastewater treatment plants. The penalty for non-compliance with the RPS is a mandatory Alternative Compliance Payment (ACP). The ACP is set at $25 per MWh for Tier I; $10 per MWh for Tier II; and $300 per MWh for solar.

Florida (Jacksonville only)[24]

Enacted: 1999 *Goal*: 7.5% *Deadline:* 2015

Schedule: 4% by 2007

Eligible sources: solar, biomass, methane from landfills and sewage treatment plants, and wind

Notes: Although Florida does not have a statewide RPS, in 1999 JEA (the Jacksonville metropolitan area utilities company) signed a memorandum of understanding[25] with the Sierra Club and the American Lung Association regarding renewable energy generation.

Hawaii[26]
Enacted: 2004 *Goal:* 20% *Deadline:* 2020
Schedule: 7% by 2003, 8% by 2005, 10% by 2010, 15% by 2015, and 20% by 2020.
Eligible sources: solar, biomass, landfill gas, ocean (both thermal and wave energy), wind, hydropower, geothermal, fuel cells (fuel from renewable sources), waste to energy, municipal solid waste, biofuels, and hydrogen fuels derived from renewable energy
Notes: Currently, 8.2% of energy sold in the state is from renewable sources and this amount counts towards meeting the RPS. The RPS is overseen by the Hawaii Public Utilities Commission (PUC). Every five years, the PUC must conduct a study with University of Hawaii Natural Energy Institute to recommend revisions to the RPS.

Illinois[27]
Enacted: 2001 *Goal:* 15% *Deadline:* 2020
Schedule: 5% by 2010
Eligible resources: not specified
Notes: The Illinois RPS does not include penalties or credit trading program and is not a legal mandate.

Massachusetts[28]
Enacted: 2002 *Goal:* 4% *Deadline:* 2009
Schedule: 1% in 2003, increasing 0.5% per year to 4% in 2009, and increasing 1% per year thereafter until capped.
Eligible sources: solar, biomass, landfill gas, ocean (thermal, wave, or tidal), wind, hydropower, fuel cells (using renewable fuels), and waste-to-energy
Notes: The RPS is overseen by the Massachusetts Division of Energy Resources (DOER). Utility companies that are unable to meet the RPS can pay an Alternative Compliance Payment (ACP) to the Massachusetts Technology Park Corporation (the agency in charge of the renewable energy program). In 2005, the ACP was $53.19 per MWh.

Maryland[29]
Enacted: 2004 *Goal:* 7.5% *Deadline:* 2019
Schedule: 1% from Tier I by 2006, increasing 1% every other year through 2018; constant 2.5% from Tier II. By 2019, the RPS requires 7.5% energy from Tier I resources and the Tier II requirement drops to zero.
Eligible sources: There are two tiers of eligible resources. Tier I includes solar, biomass (excluding sawdust), landfill gas, ocean (thermal, wave, tidal, or currents), wind, hydro (facilities that produce less than 30 MW), geothermal, fuel cells (powered by methane or biomass), and wastewater treatment gas. Tier II includes large hydropower, waste-to-energy, and poultry litter incineration.
Notes: The RPS is overseen by the Maryland Public Service Commission and includes tradable credits for renewable power. Double credit is awarded for solar power, and customer-sited

generation (e.g. small-scale solar power that households sell back to the power grid) counts towards the RPS.

Maine[30]

Enacted: 1999 *Goal:* 30% *Deadline:* 2000

Eligible sources: solar, biomass, landfill gas, ocean (tidal), wind (facilities that produce less than 100 MW), hydropower (facilities that produce less than 100 MW), geothermal, fuel cells, municipal solid waste (combined with recycling), and certain cogeneration facilities

Notes: The RPS is overseen by the Maine Public Utilities Commission. The RPS includes tradable credits and gives energy companies a two-year period in which to meet the standard, provided that the level of renewable energy sold in the first year is at least 20%. For example, sales of 20% renewables in one year and 40% in the following year averages to 30% and meets the RPS. Penalties for non-compliance include revocation of license and payment into a fund for renewable energy research and development.

Minnesota[8]

Enacted: 2001 *Goal:* 10% *Deadline:* 2015

Schedule: 1% in 2005, increasing 1% annually to 10% in 2015

Additional requirements: 0.5% of total energy from biomass by 2010, 1% by 2015

Eligible sources: solar, biomass, wind, hydropower (facilities that produce less than 60 MW), hydrogen (beginning in 2010, must be generated from renewable sources), and municipal solid waste

Notes: The Renewable Energy Objectives Law requires utilities to "make a good faith effort" to meet the standard. The RPS is overseen by the Minnesota Public Utilities Commission.

Missouri (Columbia only)[31]

Enacted: 2004 *Goal*: 15% *Deadline:* 2022

Schedule: 2% by 2007, 5% by 2012, 10% by 2017, and 15% by 2022

Eligible sources: solar, biomass, and wind

Notes: Although Missouri does not have a statewide RPS, voters in Columbia approved (with 78% of the vote) a Renewable Portfolio Standard for the city. The RPS is overseen by the Columbia Environment and Energy Commission, the Columbia Water and Light Advisory Board, and the Columbia City Council. The RPS applies only if customer rates are increased by less than 3%. Energy generated within Missouri receives "preferential consideration."[32]

New Jersey[33]

Enacted: 2001 *Goal*: 6.5% *Deadline*: 2008

Additional requirements: 0.16% of total energy from solar power by 2008

Eligible sources: Class I includes solar, biomass (fuel that is grown in a sustainable manner), landfill gas, ocean (wave or tidal), wind, geothermal, and fuel cells (using fuel that is renewable). Class II resources include hydropower (facilities that produce less than 30 MW).

Notes: Power generated within the PJM company (mid-Atlantic) region and in New York is explicitly eligible. The standard for solar power can be met by purchasing Solar Renewable Energy Certificates or Solar Alternative Compliance Payments (SACP). The SACP is $300 per MWh.

New Mexico[6]
Enacted: 2002 *Goal:* 10% *Deadline:* 2011
Schedule: 5% by 2006, increasing 1% per year to 10% in 2011
Eligible sources: solar, biomass, landfill gas, wind, hydropower, geothermal, and fuel cells
Notes: The RPS is overseen by the New Mexico Public Regulation Commission (PRC) and includes tradable credits. The PRC assigns double credit for energy generated from biomass, landfill gas, geothermal, or fuel cells and triple credit for solar energy. Additionally, if the RPS costs more than a "reasonable cost threshold"[34] established by the PRC, utility companies do not have to comply with the standard.

Nevada[35]
Enacted: 1997 *Goal:* 15% *Deadline:* 2013
Schedule: 5% by 2003, increasing 2% every two years to 15% in 2013
Additional requirements: 5% of the renewable energy must be from solar power
Eligible sources: solar, biomass, wind, hydropower (less than 30 MW[36]), and geothermal
Notes: The RPS is overseen by the Public Utilities Commission of Nevada (PUCN) and includes tradable credits. PUCN assigns 240% credit for solar power (1 MWh generated from solar energy = 2.4 MWh of credit).

New York[10]
Enacted: 2004 *Goal:* 25% *Deadline:* 2013
Eligible sources: solar, biomass, landfill gas, ocean (wave and tidal), wind, hydropower, and fuel cells
Notes: Currently, 19% of power in New York is from renewable sources (primarily large-scale hydropower) and this counts toward meeting the standard. The State Public Service Commission oversees the RPS. Public utilities (NY Power Authority and Long Island Power Authority) are exempt from the standard but are "encouraged" to participate. The RPS is funded by a volumetric charge on customer bills, beginning in 2005.

Pennsylvania[37]
Enacted: 2004 *Goal*: 18% *Deadline*: 2020
Schedule: in 2007, 5.7% renewable energy (1.5% from Tier I sources, 4.2% from Tier II sources). The Tier I requirement increases 0.5% annually and the Tier II requirement increases 2% every five years). By 2020, 8% from Tier I and 10% from Tier II sources.
Additional requirements: specific schedule for solar power (Table 4)

Table 4: Schedule for Solar Power in Pennsylvania's RPS.

Year of RPS	% Solar Power*
2005 – 8	0.0013
2009 – 14	0.0203
2015 – 19	0.2500
2020+	0.5000

Source: Database of State Incentives for Renewable Energy.
* % of total energy, included in Tier I requirement.

Eligible sources: Tier I includes solar, biomass, gas from landfills or coal mines, wind, low-impact hydropower (must have low environmental impact and be certified by the Low Impact Hydropower Institute[38]), geothermal, and fuel cells. Tier II includes waste coal, demand-side management, large-scale hydropower (any hydropower facility that does not meet the requirements for low-impact), municipal solid waste, and wood manufacturing byproducts.

Notes: Energy must be generated within the PJM region (mid-Atlantic) to be eligible for Pennsylvania's Alternative Energy Portfolio Standard. The standard includes tradable credits that are calculated on a two-year period. Penalties include alternative compliance payments (ACP) of $45 per MWh. The ACP for solar power is set at 200% of the average market value. Rural energy cooperatives must offer customers a voluntary program of energy efficiency and demand-side management.

Rhode Island[39]

Enacted: 2004 *Goal:* 16% *Deadline:* 2019

Schedule: 3% by 2007, increasing 0.5% per year through 2010, increasing 1% per year through 2014, and increasing 1.5% per year through 2019 to 16%

Eligible sources: solar, biomass, ocean (tidal, wave, or thermal), wind, hydropower (less than 30 MW[40]), geothermal, and fuel cells (using renewable fuel)

Notes: Utilities can comply with the Renewable Energy Standard by purchasing credits through the New England Generation Information System or alternative compliance payments to the Renewable Energy Development Fund.

Texas

Texas has a statewide RPS and Austin has an additional citywide RPS.

State RPS[41]

Enacted: 1999 *Goal:* 2000 MW (approx. 3%[42]) *Deadline:* 2009

Eligible sources: solar, biomass, landfill gas, ocean (wave or tidal), wind, hydropower, and geothermal

Notes: The state RPS is part of Texas's Renewable Energy Mandate Rule. The RPS is overseen by the Texas Public Utility Commission and includes a credit trading program for energy that is generated within the state.

Austin RPS[43]

Enacted: 1999 *Goal:* 20% *Deadline:* 2020

Eligible sources: solar, biomass, landfill gas, ocean (wave or tidal), wind, hydropower, and geothermal

Notes: The Austin RPS is funded by an optional program in which customers pay the GreenChoice electricity rate instead of the standard fossil fuel rate. The GreenChoice rate is fixed for 10 years and currently costs an average residential customer approximately $5 per month extra.[44]

Wisconsin[45]

Enacted: 1999 *Goal:* 2.2% *Deadline:* 2011

Schedule: 0.50% by 2001, 0.85% by 2003, 1.2% by 2005, 1.55% by 2007, 1.9% by 2009, 2.2% by 2011.

Eligible sources: solar, biomass, ocean (tidal or wave), wind, hydropower (facilities that produce less than 60 MW), geothermal, and fuel cells (with renewable fuel)
Notes: The RPS is overseen by the Wisconsin Public Service Commission and includes tradable credits.

Summary

Most of the eighteen states and three cities with a Renewable Portfolio Standard set interim goals and allow tradable credits and many include penalties for non-compliance. All states include solar, wind, and biomass as eligible resources (with the exception of Illinois, which does not specify which resources are eligible under the RPS). Hydropower is also a common renewable resource eligible for RPS credit, although most states limit the size of eligible hydropower generators.

Prepared by Jill Harris under the supervision of Professor Andrew Samwick and Dr. Patrick Hurley for the Vermont Legislative Council and Joint Fiscal Office on 18 March 2005.

REFERENCES

[1] JREC Member Countries with Renewable Energy Targets. Johannesburg Renewable Energy Coalition. http://www.iea.org/textbase/pamsdb/jrlist.aspx?target=true. Last accessed: 4 March 2005.
[2] Renewable Portfolio Standard. U.S. Dept. of Energy, Energy Efficiency and Renewable Energy. http://www.eere.energy.gov/state_energy/policy_content.cfm?policyid=27. Last accessed: 28 February 2005.
[3] Why is renewable energy important? National Renewable Energy Laboratory. http://www.nrel.gov/clean_energy/reimportant.html. Last accessed: 4 March 2005.
[4] Database of State Incentives for Renewable Energy (DSIRE). http://www.dsireusa.org/. Last accessed: 21 February 2005.
[5] Maryland Incentives for Renewable Energy, Renewable Energy Portfolio Standard and Credit Trading. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=MD05R&state=MD&CurrentPageID=1. Last accessed: 22 February 2005.
[6] New Mexico Incentives for Renewable Energy, Renewables Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=NM05R&state=NM&CurrentPageID=1. Last accessed: 22 February 2005.
[7] Colorado Incentives for Renewable Energy, Renewable Energy Requirement. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=CO24R&state=CO&CurrentPageID=1. Last accessed: 22 February 2005.
[8] Minnesota Incentives for Renewable Energy, Non-mandated Renewable Energy Objective. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=MN07R&state=MN&CurrentPageID=1. Last accessed: 22 February 2005.
[9] Arizona Incentives for Renewable Energy, Environmental Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=AZ03R&state=AZ&CurrentPageID=1. Last accessed: 22 February 2005.
[10] New York Incentives for Renewable Energy, Renewable Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=NY03R&state=NY&CurrentPageID=1. Last accessed: 22 February 2005.

[11] Illinois Incentives for Renewable Energy, Renewable Portfolio Goal. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=IL04R&state=IL&CurrentPageID=1. Last accessed: 22 February 2005.

[12] Maine Incentives for Renewable Energy, Renewables Portfolio Goal. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=ME01R&state=ME&CurrentPageID=1. Last accessed: 22 February 2005.

[13] Renewables Policy: Renewable Energy Portfolio Standard. Union of Concerned Scientists. http://www.ucsusa.org/clean_energy/renewable_energy/page.cfm?pageID=102. Last accessed: 4 March 2005.

[14] Where Do We Get Our Electricity? Maine Renewable Energy. http://www.energymaine.com/pmresources/. Last accessed: 4 March 2005.

[15] Average Retail Prices of Electricity, 1960-2003, Annual Energy Review. Energy Information Administration. Available: http://www.eia.doe.gov/emeu/aer/pdf/pages/sec8_39.pdf

[16] Arizona Corporation Commission, Background and Organization. http://www.cc.state.az.us/about/index.htm. Last accessed: 22 February 2005.

[17] California Incentives for Renewable Energy, Renewables Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=CA25R&state=CA&CurrentPageID=1. Last accessed: 22 February 2005.

[18] Full Text of the Colorado Renewable Energy Initiative. http://www.renewableenergyyes.com/learnmore/Initiativetextfull.html. Last accessed: 23 February 2005.

[19] Colorado's Renewable Energy Initiative. http://www.renewableenergyyes.com/. Last accessed: 23 February 2005.

[20] Fort Collins Electric Energy supply Policy. http://www.ci.fort-collins.co.us/utilities/energypolicy.php. Last accessed: 23 February 2005.

[21] Electric Energy Supply Policy. 2003. City of Fort Collins. Available: http://www.ci.fort-collins.co.us/utilities/pdf/eesupplypolicy.pdf. Last accessed: 23 February 2005.

[22] Connecticut Incentives for Renewable Energy, Renewables Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=CT04R&state=CT&CurrentPageID=1. Last accessed: 8 March 2005.

[23] District of Columbia Incentives for Renewable Energy, Renewables Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=DC04R&state=DC&CurrentPageID=1. Last accessed: 23 February 2005.

[24] Florida Incentives for Renewable Energy, JEA – Clean Power Program. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=FL10R&state=FL&CurrentPageID=1. Last accessed: 23 February 2005.

[25] What JEA is Doing to Increase Green Energy Usage. http://www.jea.com/community/education/electric/renewable.asp. Last accessed: 23 February 2005.

[26] Hawaii Incentives for Renewable Energy, Renewable Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=HI06R&state=HI&CurrentPageID=1. Last accessed: 23 February 2005.

[27] Illinois Incentives for Renewable Energy, Renewables Portfolio Goal. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=IL04R&state=IL&CurrentPageID=1. Last accessed: 23 February 2005.

[28] Massachusetts Incentives for Renewable Energy, Renewable Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=MA05R&state=MA&CurrentPageID=1. Last accessed: 23 February 2005.

[29] Maryland Incentives for Renewable Energy, Renewable Energy Portfolio Standard and Credit Trading. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=MD05R&state=MD&CurrentPageID=1. Last accessed: 27 February 2005.

[30] Maine Incentives for Renewable Energy, Renewables Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=ME01R&state=ME&CurrentPageID=1. Last accessed: 27 February 2005.

[31] Missouri Incentives for Renewable Energy, Columbia – Renewables Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=MO04R&state=MO&CurrentPageID=1. Last accessed: 27 February 2005.

[32] Proposition 3. Proposal for a Columbia, Missouri Ordinance. http://www.columbiansforcleanenergy.com/Final_CCE_proposal.htm. Last accessed: 4 March 2005.

[33] New Jersey Incentives for Renewable Energy, Renewables Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=NJ05R&state=NJ&CurrentPageID=1. Last accessed: 27 February 2005.

[34] Senate Bill 43, Second Session, 2004. State of New Mexico. Available: http://www.dsireusa.org/library/docs/incentives/NM05Rb.pdf.

[35] Nevada Incentives for Renewable Energy, Renewable Energy Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=NV01R&state=NV&CurrentPageID=1. Last accessed: 27 February 2005.

[36] Renewable Energy Portfolio Standard. Public Utilities Commission of Nevada. http://www.puc.state.nv.us/Renewable/REPSNevada_files/v3_document.htm. Last accessed: 27 February 2005.

[37] Pennsylvania Incentives for Renewable Energy, Alternative Energy Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=PA06R&state=PA&CurrentPageID=1. Last accessed: 27 February 2005.

[38] Senate Bill No. 1030, Session of 2004. The General Assembly of Pennsylvania. Available: http://www.dsireusa.org/library/docs/incentives/PA06R.pdf.

[39] Rhode Island Incentives for Renewable Energy, Renewable Energy Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=RI08R&state=RI&CurrentPageID=1. Last accessed: 27 February 2005.

[40] Senate Bill 2082, January Session 2004. State of Rhode Island in General Assembly. Available: http://www.rilin.state.ri.us/BillText/BillText04/SenateText04/S2082.pdf.

[41] Texas Incentives for Renewable Energy, Renewable Generation Requirement. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=TX03R&state=TX&CurrentPageID=1. Last accessed: 27 February 2005.

[42] Lehr, R.L, W. Guild, D.L. Thomas, and B.G. Swezey. 2003. Listening to Customers: How Deliberative Polling Helped Build 1000 MW of New Renewable Energy Projects in Texas. National Renewable Energy Laboratory. Available: http://www.nrel.gov/docs/fy03osti/33177.pdf.

[43] Texas Incentives for Renewable Energy, Austin - Renewable Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=TX08R&state=TX&CurrentPageID=1. Last accessed: 27 February 2005.

[44] GreenChoice Program Details. Austin Energy. http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Choice/programDetails.htm. Last accessed: 27 February 2005.

[45] Wisconsin Incentives for Renewable Energy, Renewable Portfolio Standard. Database of State Incentives for Renewable Energy. http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=WI05R&state=WI&CurrentPageID=1. Last accessed: 27 February 2005.