STATE RENEWABLE PORTFOLIO STANDARDS

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The U.S. Department of Energy estimates that, despite historically playing a small role in domestic electricity generation, renewable energy could account for as much as 41 percent of the growth in total electricity generation through 2035.[1] At this rate of growth, renewable energy would supply as much as 10 percent of total domestic electricity demand by 2035.[2] State renewable portfolio standards (RPS) have made an important contribution to the growth of renewable electricity generation over the past few years, and they will continue to contribute significantly to this growth.[3] Understanding these "requirements for renewable electricity generation"[4] can help inform decisions about the additional measures needed to accommodate this growth.

Currently, 30 states and the District of Columbia have some version of an RPS.[5] Additionally, five states have enacted voluntary portfolio standards, and several community-based or utility-specific programs also mandate electricity generation from renewable energy resources. States establish renewable energy targets as part of their efforts to achieve environmental, social and economic goals,[6] but a primary purpose of an RPS "is to replace fossil fuel generation with generation obtained from renewable resources."[7] Texas, for example, credits its RPS as "one of the greatest influences on the rapid growth of the Texas wind energy industry."[8] This paper provides an overview of the mandatory statewide renewable portfolio standards.

An RPS requires electricity providers to generate a minimum amount of electricity from renewable resources by a specified date.[9] A few states—Iowa, Ohio and Pennsylvania—have an "alternative energy portfolio standard" that extends eligibility to "alternative" resources that might not be renewable. States usually structure the RPS to apply to investor owned utilities or other retail providers. Some states include electric cooperatives and municipalities, while other states exempt or establish lower targets for these providers. Portfolio standards express targets for renewable energy as: 1) a percentage of a utility's total retail electricity sales, 2) an increase in generating capacity (i.e. 500 MW by 2015) or 3) a specific percentage of the growth in retail electricity

[1] ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2010 WITH PROJECTIONS TO 2035, (2010), http://www.eia.doe.gov/oiaf/aeo/electricity.html [hereinafter AEO 2010].
[2] *See Id.*
[3] *Id.* (crediting "State requirements for renewable electricity generation" as a factor contributing to the growth of renewable energy).
[4] THOMAS PETERSIK, ENERGY INFO. ADMIN., STATE RENEWABLE ENERGY REQUIREMENTS AND GOALS: STATUS THROUGH 2003 (2003), http://www.eia.doe.gov/oiaf/aeo/electricity.html.
[5] These policies are also known as "renewable energy standards" or "renewable electricity standards."
[6] *See, e.g.,* Electric Renewable Portfolio Standard, N.H. REV. STAT. ANN. § 362-F:1 (2007).
[7] DAVID HURLBUT, NAT'L RENEWABLE ENERGY LAB., STATE CLEAN ENERGY PRACTICES: RENEWABLE PORTFOLIO STANDARDS, NREL/TP-670-43512, at 6 (2008).
[8] TEXAS STATE ENERGY CONSERVATION OFFICE, TEXAS RENEWABLE PORTFOLIO STANDARD, http://www.seco.cpa.state.tx.us/re_rps-portfolio.htm (last visited Sept. 14, 2010).
[9] *See* U.S. DEP'T. OF ENERGY, ENERGY EFFICIENCY AND RENEWABLE ENERGY, STATES WITH RENEWABLE PORTFOLIO STANDARDS, http://apps1.eere.energy.gov/states/maps/renewable_portfolio_states.cfm (last visited Sept. 14, 2010) *and* PETERSIK, *supra* note 3.

sales.[10] Utilities or other providers subject to the RPS must comply with a schedule for steadily increasing percentages of renewable energy. Each utility must meet new targets annually or every few years.[11]

Most state standards operate through a renewable energy certificate (REC) trading system. Each kilowatt-hour or megawatt-hour produced by a qualifying renewable energy facility receives one REC. In order to comply with the RPS, a utility must acquire RECs equal to the specified requirement. Integrating a REC trading system into the RPS increases economic efficiency because it allows utilities to compare the cost of directly investing in new renewable electricity generating capacity to purchasing RECs on the market.[12] Additionally, it can provide a reliable method for tracking RPS compliance.[13] States often limit REC trading to a particular transmission system or geographic region in order to ensure that investments occur nearby. Limiting REC trading concentrates investments in a particular area and localizes benefits, but it can also reduce the economic efficiency of developing renewables in geographically appropriate areas.[14]

In most states, an electricity provider subject to the RPS may also comply with the RPS through an "alternative compliance payment." States set the alternative compliance payment as a fixed dollar amount per additional REC required for compliance, the market price for RECs or a percentage of the REC market price. Whether the payment is intended to be no-fault or punitive, a development fund usually receives the payments in order to invest in additional renewable electricity generation. Some states, however, limit the extent to which a utility may satisfy its obligation through the ACP. In some cases, overuse of the alternative compliance payment is a sign of a problem with other elements of the RPS. In at least a few states, overuse of the payment will trigger a delay in the RPS schedule.

Three factors play a key role in an RPS: the *target*, the *resources that are eligible for compliance* and *preferences for a particular resource or location.*

RPS Target

The RPS target defines the electricity providers' obligation to provide electricity generated from renewable resources. However, because the targets are usually expressed as a percentage, ranging from 10 percent by 2015 to 40 percent by 2030,[15] they do not

[10] When the target is expressed as a statewide goal, the legislature or a public service commission must distribute the requirement to acquire additional generating capacity to each state utilities. Because these specific requirements would be set by rule by the state public service commission, utilities might have more input into how to divide the obligation. *See* TEX. ADMIN. CODE § 25.173(g)(10) (The REC trading administrator "shall . . . [a]llocate the RPS requirements to each retail entity . . . .").

[11] Some portfolio standards allow providers to "bank" RECs acquired in one year and apply them to the requirement in a future year.

[12] HURLBUT, *supra* note 7, at 4 ("If neighboring states have more cost-effective resources . . . maximizing RPS results may depend on regional coordination.").

[13] *Id*.

[14] *Renewable Energy: Complementary Policies for Climate Legislation, Hearing Before the H. Comm. on Energy and Commerce, Subcomm. on Energy and the Env't*, 111th Cong. 5 (2009) (statement of Ralph Izzo, President, Public Service Enterprise Group, Inc.) (describing that under New Jersey's RPS, a REC from a facility in Illinois might be eligible for compliance but a REC from a similar facility in Nebraska would not count, "even though it may be a more affordable compliance option.").

[15] *See* Appendix I and II.

describe the specific number of megawatt-hours from renewable energy resources. Additional factors such as extending compliance to alternative resources or allowing energy efficiency to comply with the RPS further camouflage the anticipated increase in generation from renewable resources.

The states with "alternative energy portfolio standards" still set targets for electricity generation from renewable resources. For example, Ohio and Pennsylvania each have an alternative energy portfolio standard. Ohio specifies that 13 percent of the total 25 percent requirement must come from renewable resources. Similarly, Pennsylvania requires that 8 percent of the total 18 percent target must come from a list of eligible resources that includes mostly renewable resources.[16] The list, however, also includes fossil fuel-based resources such as coal-bed methane.[17] As a result, the standard could result in an amount of renewable energy that is substantially less than the total target for alternative energy.

If the goal of an RPS is to increase electricity generation from renewable energy resources, then allowing energy efficiency or fossil fuel-derived resources to meet the target undermines the goal. On the other hand, if the goal of an RPS is to reduce greenhouse gas emissions, then allowing for energy efficiency and alternative energy resources to qualify in state portfolio standards could be further that goal and provide additional environmental benefits, such as air and water quality enhancements.[18]

For example, Connecticut's portfolio standard calls for a total of 27 percent of each provider's electricity sales to come from renewable energy resources by 2020.[19] However, 4 percent of that *must* come from waste heat recovery or electricity savings from conservation and load management.[20] Nevada's RPS requires 25 percent of a utility's electricity to come from renewable energy by 2025, but a utility may use energy efficiency to comply with up to 25 percent of the standard each year. North Carolina has fully integrated renewable energy and energy efficiency into its RPS.[21] States might see this approach as a means of easing the requirement for additional generation from renewable resources, but states could just as easily accomplish this goal by setting a lower target and limiting eligibility to renewable energy specifically. A state can also adopt a separate target that parallels the RPS in order to support efficiency or alternative energy resources.[22]

Energy efficiency and non-renewable energy alternatives can address some of the policy considerations that motivate states to enact renewable portfolio standards, but including these resources in an RPS can make the target value misleading and reduce its predictive value. The alternative compliance payment can have a similar effect, "[satisfying] the legal requirements . . . even if the statutory goal is not achieved

[16] OHIO REV. CODE ANN. § 4928.64(B) (2010); 73 PENN. STAT. ANN. §1648.3 (b)-(c) (2010).
[17] 73 PENN. STAT. ANN. § 1648.2 (defining "Tier I Alternative Energy Source").
[18] United States Environmental Protection Agency, *Renewable Portfolio Standards Fact Sheet,* April 2009, *available at:* http://www.epa.gov/chp/state-policy/renewable_fs.html (last visited: September 2010).
[19] CONN. GEN. STAT. § 16-245(a)(1)-(15) (2010).
[20] CONN. GEN. STAT. § 16-1(A)(44) (defining Class III sources) (emphasis added).
[21] *See* NORTH CAROLINA UTILITIES COMMISSION, RENEWABLE ENERGY AND ENERGY EFFICIENCY PORTFOLIO STANDARD, http://www.ncuc.commerce.state.nc.us/reps/reps.htm (last visited on Sept. 14, 2010).
[22] *See, e.g.,* 20 ILL. COMP. STAT. 3855/1-75(d) (2010) (establishing a separate "clean coal portfolio standard" of 5 percent beginning in 2015).

physically."[23] One National Renewable Energy Laboratory study concluded, "[S]imply having an RPS is no guarantee of more renewable capacity."[24] While an individual RPS might not "guarantee" new electricity generation from renewable resources, several studies have found that, cumulatively, state portfolio standards are a "primary driver of new renewable energy generation in the United States."[25] However, this information demonstrates that a standard with a higher target will not necessarily yield more renewable energy than an RPS with a lower target. As a result, the target value provides only limited information to help plan for this growth.

Eligible Resources

Eligibility under an RPS varies from state to state. First, the particular types of renewable energy resources (or alternative energy resources) that will qualify vary. The standards also vary in the specificity with which they define these resources. Despite important differences, significant consistency exists across state standards. For example, each state standard allows electricity produced from solar[26] and wind resources. Most standards also allow hydroelectricity (often subject to capacity limitations and excluding pumped storage) as well as electricity from biomass, geothermal and landfill gas resources. Several coastal states with portfolio standards allow tidal or wave energy. Roughly a third of RPS states will allow electricity produced from wastewater resources or municipal solid waste.

Although a list of eligible resources might be enumerated in the legislation establishing the RPS, state regulatory agencies also play a role in defining resource eligibility. Specifically enumerating resources eligible under an RPS illustrates the legislature's interest in certain types of resources. Legislative control over the list of eligible resources increases with specificity. A few states define eligible resources generally and provide specific examples without limiting eligibility to an enumerated list. Texas, for example, defines "renewable energy" as "[a]ny technology that exclusively relies on an energy source that is naturally regenerated over a short time and derived directly from the sun, indirectly from the sun, or from moving water or other natural movements and mechanisms of the environment."[27] Similarly, Kansas' definition includes a catchall provision: "other sources of energy . . . certified as renewable by rules and regulations."[28] These provisions provide a role for state regulatory agencies to amend resource definitions or make new resources eligible for compliance as technologies mature or become more cost effective.[29]

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[23] HURLBUT, *supra* note 7, at 6.
[24] *Id*. at 14.
[25] UNION OF CONCERNED SCIENTISTS, RENEWABLE ELECTRICITY STANDARD TOOLKIT, http://www.ucsusa.org/clean_energy/res/abouthow.html (last visited Sept. 14, 2010).
[26] More than half of the standards distinguish between solar photovoltaics and solar thermal electric, while others refer simply to "solar" or "solar energy." *See* Appendix II.
[27] TEX. ADMIN. CODE § 25.173(c)(17).
[28] KAN. STAT. ANN. § 66-1257(e)(11) (2009); *see also* MO. REV. STAT. § 393.1025(5) ("and other sources of energy . . . that become available . . . and are certified as renewable by rule by the department") *and* NM STAT. ANN. § 62-15-37 ("energy generated by use of low- or zero-emissions generation technology with substantial long-term production potential and generated by renewable resources that *may include* . . .").
[29] One way in which legislatures have been able to provide flexibility without enabling utilities to use resources that the legislature did not intend is to specifically exclude certain resources or categories of

Acute differences in eligibility emerge with regard to large hydroelectric facilities and in the definitions applied to biomass resources. For example, the Bonneville Power Authority, the Tennessee Valley Authority and Hydro Quebec own large hydroelectric facilities. Electricity from these resources are eligible for compliance under some state portfolio standards but not others. Perhaps because biomass resources are expected to provide a large share of the growth of renewable electricity generation over the next 25 years,[30] nearly half of the RPS states have paid particular attention to how they define "biomass." Generally, states do not permit biomass co-firing as an eligible technology to meet their RPS.[31] While some states simply refer to "biomass," others qualify the term or specify exactly which biomass resources are eligible.[32] Connecticut, for example, refers to "sustainable biomass" which means "biomass that is cultivated and harvested in a sustainable manner."[33] Other states are careful to specify, for example, that only cellulosic materials, untreated wood, timber products not harvested from old-growth or first-growth forests, low-emission conversion technologies or resources with other characteristics qualify. In addition to providing clear definitions, states can apply certain conditions to a resource's eligibility to achieve other social or environmental goals.[34]

The specific resources eligible for compliance will play a crucial role in determining how a utility decides to comply with the RPS. The choices available to the utility will contribute to whether it invests in new generating capacity directly, purchases RECs or pays the alternative compliance payment.[35] Additionally, the eligible resources can affect the co-benefits that an RPS creates in areas such as job growth and emissions reduction. As they define eligibility under the state RPS, state legislatures can balance flexibility with certainty through measures that limit overuse of a particular resource or set mandatory targets within the RPS for a particular resource. Although state portfolio standards understandably focus on resources within the state or a particular transmission system, an RPS can benefit emerging renewable energy technologies or resources that require high capital investments by creating a market for development. The RPS,

resources from eligibility. States such as Kansas, Missouri, New Mexico, Nevada and Texas exclude nuclear, coal, natural gas, oil propane and other fossil fuels from the definition of renewable energy or resources that will satisfy the RPS. *See, e.g.,* NM STAT. ANN. § 62-15-37 (The definition of "renewable energy" "does not include electric energy generated by use of fossil fuel or nuclear energy").

[30] AEO 2010, *supra* note 1.

[31] Most states do not explicitly reference biomass co-firing technologies in the statutory provisions establishing the state RPS. This exclusion suggests that the biomass co-firing is not a permitted use under the definition of "biomass" in RPS.

[32] *See* Appendix I and II.

[33] CONN. GEN. STAT. §16-1(a)(45).

[34] *See* MAINE DEPT. OF ENVT'L PROT., Order Amending Part 70 Air Emission License for Boralex Fort Fairfield, Inc. Electric Generating Station (2005) ("Boralex is seeking to certify BFF as a renewable energy generator by the State of Massachusetts through the Division of Energy Resources . . . . Massachusetts has a Renewable Portfolio Standard (RPS) that by the regulation details the criteria that must be met in order to obtain certification.").

[35] *Renewable Energy: Complementary Policies for Climate Legislation, Hearing Before the H. Comm. on Energy and Commerce, Subcomm. on Energy and the Env't*, 111th Cong. 5 (2009) (statement of Stan Wise, Commissioner, Georgia Public Service Commission) ("If renewable resources are not available at adequate levels . . . where the utility operates they can either purchase [RECs] or pay an [ACP] . . . .").

therefore, should consider renewable resources that utilities might be less inclined to develop without a portfolio standard.

Key Preferences

An RPS reflects a state legislature's clear preference or conscious decision about the program's components and structure. However, two important policy choices that legislatures often make include preferences for specific resources, beyond those included in the list of eligible resources, and for in-state generation.[36] A state can express these goals through a carveout or a REC multiplier. A "carveout" specifies that a minimum percentage of a utility's obligation under the RPS must come from a particular resource. For example, Illinois' RPS requires that 25 percent of a utility's electricity generation comes from renewable resources by 2025. Within the overall target, 75 percent must come from wind energy and 6 percent must come from solar photovoltaics beginning in 2015. This standard "carves out" particular targets for wind and solar within the overall requirement. Solar is often selected for carveouts because, due to its higher cost compared to other renewable resources, more support is necessary to encourage its development.

Whereas a carveout mandates an amount of electricity from a specific resource within the list of eligible resources, a REC multiplier provides an incentive for a utility to develop a certain resource. Typically each unit of electricity produced from a renewable resource receives one REC. A multiplier increases the RECs a utility will receive for each unit of generation from authorized sources. For example, Michigan provides two RECs for each unit of electricity generated from solar. The credit multiplier is more frequently used to provide an incentive for the utility to generate or procure the required electricity in-state. Missouri and Colorado, for example, provide 1.25 RECs for each kWh generated in the state. Some states, such as Delaware, have combined these conditions, providing 300 percent credit for in-state solar photovoltaics and 350 percent credit for off-shore wind.[37]

The RPS target, eligible resources and incentives for particular resources create numerous paths toward compliance. Taken together, these factors also help understand the extent to which these standards will increase electricity generation from renewable resources. In the absence of a federal RPS, states will continue to serve as laboratories for renewable energy development. Despite some uncertainty about what mix of renewable resources will be used to satisfy the RPS, state portfolio standards have proven to be effective options for stimulating growth in renewable energy. Understanding how these mechanisms work will assist in determining how to incorporate renewable electricity into the electric grid and transmission systems in a cost-effective, reliable and environmentally responsible manner. The following Appendices provide additional detail about these renewable portfolio standards.

[36] Although not explored in this paper, preferential treatment for in-state renewable energy resources could potentially conflict with U.S. Supreme Court precedent related to the Commerce Clause. *See* U.S. CONST. art. I, § 8, cl. 3.
[37] DEL. CODE ANN. tit. 26, § 356 (a)-(e) (2010).

Appendix I: State Renewable Portfolio Standard Chart

STATE	TITLE	RPS TARGET	ELIGIBLE TECHNOLOGIES									LEGISLATION	NOTES
			Wind	Hydro	Solar	Geo-thermal	Biomass	Wave/ Tidal	Landfill Gas	Solid Waste	Efficiency		
Arizona	Renewable Energy Standard and Tariff	15% by 2025 (30% from distributed generation)	✓	✓	✓	✓	✓				✓	AAC R14-2-1801 through -1816	Replaced "Environmental Portfolio Standard"; extra credit multiplier for in-state installation or acquisition of in-state REC.
California	Renewable Portfolio Standard	20% by 2010; 33% by 2020	✓	✓	✓	✓	✓	✓	✓	✓		CA Public Utilities Code §399.11 et seq.; Public Resources Code §25740 et seq.; E.O. S-21-09; E.O. S-14-08.	33% target established by Executive Order; implementing legislation underway
Colorado	Renewable Energy Standard	IOU - 30% by 2020 COOP - 10% by 2020 MUNI - 10% by 2020	✓	✓	✓	✓	✓		✓			CRS 40-2-124; 4 CCR 723-3-3650 et seq.; HB 1001; HB 1418	1.25 REC for each in-state kWh
Connecticut	Renewable Portfolio Standard	Class I: 20% by 2020	✓	✓	✓	✓	✓	✓	✓			Conn. Gen. Stat. § 16-245a et seq.	Only "sustainble biomass" eligible.
		Class II 3% by 2020		✓			✓			✓			
		Class III 4% by 2020									✓		
Delaware	Renewbles Portfolio Standard	20% by 2020 (2% solar)	✓	✓	✓	✓	✓	✓	✓			26 Del. C. § 351 et seq.; CDR 26-3000-3008; S.S. 1 for S.B. 119	PSC has the authority to accelerate/slow the pace of the RPS if more than 30% ACP after 2014; 300% credit for in-state solar PV or renewable-powered fuel cell installed by 2014; 150% credit for in-state wind installed before 2012; 350% credit for off-shore wind installed before 2017.

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DC	Renewable Energy Portfolio Standard	Tier I: 20% by 2020	✓		✓	✓	✓	✓	✓			D.C. Code § 34-1431 et seq.	Only "qualifying biomass" eligible
		Tier II: declining from 2.5%		✓						✓			
Florida	Renewable Portfolio Standard	JEA: 7.5% by 2015	✓		✓		✓		✓			Fla Stat. § 366.92	Legislative authority for an RPS exists. The legislation requires the PSC to recommend an RPS to the legislature, which the legislature must ratify before the RPS will take effect. In 2009, the PSC recommended an RPS of 20% by 2020, but the legislature rejected the proposal.
Hawaii	Renewable Portfolio Standard	40% by 2030	✓	✓	✓	✓	✓	✓	✓	✓	✓	HRS § 269-91 et seq.	Hawaii also has an energy efficiency portfolio standard that requries 4,300 GWh of electricity reductions by 2030 for a total stated goal of 70% clean energy by 2030.
Illinois	Renewable Portfolio Standard	25% by 2025 (75% from wind; 6% from solar PV beginning 2015)	✓	✓	✓		✓		✓			§ 20 ILCS 3855/1-75; Public Act 96-0159; ICC Order 09-0324; 83 Ill. Adm. Code, Part 467; H.B. 6202	Renewables must be generated in-state or in adjoining states; requirement for cost-effective. "Clean coal portfolio standard" of 5% beginning in 2015.
Iowa*	Obligation to purchase from alternative energy production facility	2 IOUs combined total of 105 MW	✓		✓		✓		✓	✓	✓	Iowa Code § 476.41 et seq.; IAC 199-15.11(1)	Iowa's legilsation established a procurement mandate, but not a traditional RPS. Eligible resources also include: land; systems; buildings; improvements that are located at the project site and are necessary or convenient to the construction, completion, or operation of the facility; or transmission or distribution facilities necessary to conduct the energy produced by the facility to users located at or near the project site.

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Kansas	Renewable Energy Portfolio Standard	20% of peak demand by 2020	✓	✓	✓		✓		✓			K.S.A. § 66-1256 et seq	RPS includes a catchall provision for eligible resources. The list of eligible sources specifically excludes nuclear power. The legislaure limited biomass to dedicated energy crops, cellulosic agricultural residues and plant residues.
Maine	Eligible Resource and Renewable Resource Portfolio Requirement	10% Class I (new) by 2017	✓	✓	✓	✓	✓	✓	✓			35 A.M.R.S. § 3210; 35 A.M.R.S. § 3210-C; CMR 65-407-311	Hydro must meet state/federal fish passage requirements. "POLICY. In order to ensure an adequate and reliable supply of electricity for Maine residents and to encourage the use of renewable, efficient and indigenous resources, it is the policy of this State to encourage the generation of electricity from renewable and efficient sources and to diversify electricity production on which residents of this State rely in a manner consistent with this section." facilities must be < 100 MW
		30% Class II by 2017	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Maryland	Renewable Energy Portfolio Standard	20% Tier I by 2022 (2% solar carveout)	✓	✓	✓	✓	✓	✓	✓			Md. Public Utility Companies Code § 7-701 et seq.; COMAR 20.61.01 et seq.; S.B. 277	Only "qualifying biomass" is eligible under the RPS. RECs must be certified.
		2.5% Tier 2 required through 2018		✓						✓			

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Massachusetts	Renewable Energy Portfolio Standard	Class I (new resources): 15% by 2020 and an additional 1% each year thereafter Class II (existing resources): 7.1% in 2009 and thereafter (3.6% renewables and 3.5% waste-to-energy)	✓	✓	✓	✓	✓	✓	✓	✓		ALM GL ch. 25A, § 11F; 225 CMR 14.00, 15.00; S.B. 2582	NEPOOL GIS RECs OK
Michigan	Renewable Energy Capacity Portfolio	All: 10% by 2015 Between 1-2 million customers: 500 MW by 2015 More than 2 million customers: 600 MW by 2015	✓	✓	✓	✓	✓	✓	✓	✓	✓	MCL § 460.1021 et seq; PSC Temp. Order, Docket U-15800	Eligible resources also include coal with carbon capture and sequestration. 2 RECs for solar; 1/10 REC for in-state and domestic labor.
Minnesota	Renewable Energy Objectives	25% by 2025 (Xcel Energy 30% by 2025) (24% from wind and 1% solar)	✓	✓	✓		✓			✓	✓	Minn. Stat. § 216B.1691; PUC Order, Docket E-999/Cl-04-1616	Statute requires utilities to show a good faith effort to comply. The state commission can mandate facility construction or purchase.
Missouri	Renewable Energy Standard	15 % by 2021 (2% solar)	✓	✓	✓		✓		✓			R.S.Mo § 393.1020 et seq.; 4 CSR 240-20.100	1.25 RECs for in-state generation
Montana	Renewable Resource Standard	15% by 2015	✓	✓	✓	✓	✓		✓			MCA 69-3-2001 et seq; Mont. Admin. R. 38.5.8301	RPS includes specific biomass standards. GIS/verification required for RECs.
Nevada	Renewable Portfolio Standard	25% by 2025 (5% from solar between 2009-2015; 6% from solar between 2016-2025.	✓	✓	✓	✓	✓					NRS § 704.7801 et seq.; NRS § 704.8831 et seq.; LCB File R167-05	Can meet using EE, but not more than 25% of target in any given year.

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New Hampshire	Electric Renewable Portfolio Standard	Class I: 16% by 2025	✓		✓	✓	✓	✓	✓			NH RSA 362-F; NH Admin. Rules, PUC 2500	Eligible resources include "eligible biomass" and the "displacement of electricity by end-use customers from solar hot water heating."
		Class II: 0.3% by 2025			✓								
		Class III: 6.5% by 2025					✓		✓				
		Class IV: 1% by 2025		✓									
New Jersey	Renewable Portfolio Standard	22.5% by 2020 (5,316 GWh solar purchased by 2026)	✓	✓	✓	✓	✓	✓	✓			N.J. Stat. § 48:3-49 et seq; N.J.A.C. 14:8-1.1 et seq.	The RPS authorizes establishment of a requirement for 1,100 MW of offshore wind.
New Mexico	Renewable Portfolio Standard	IOU: 20% by 2020 COOP: 10% by 2020	✓	✓	✓	✓	✓		✓			NM Stat. § 62-15-34 et seq; NM Stat. § 62-16-1 et seq	IOU target carveouts: 20% solar; 20% wind; 10% other renewables; 3% distributed generation by 2015). Defnition of "renewable energy" includes a requirement for low- or zero-emissions.
New York	Renewable Portfolio Standard	29% by 2015	✓	✓	✓		✓	✓	✓			NY PSC Order, Case 03-E-0188	No specific authorizing legislation exists.
North Carolina	Renewable Energy and Energy Efficiency Portfolio Standard	IOUs 12.5% by 2021 (25% max from efficiency until 2021, then 40% max); COOPs 10% by 2021	✓	✓	✓	✓	✓	✓	✓		✓	N.C. Gen. Stat. § 62-133.8; NCUS Order, Docket No. E-100, Sub. 113	This RPS fully integrates renewable energy and energy efficiency. Out of state RECs can only be used for 25% of the standard. The RPS includes specific requirements for solar (0.2% by 2018), swine waste (0.2% by 2018) and poultry waste (900,000 MWh by 2014).
North Dakota	Energy and Recycled Energy Objective	10% by 2015	✓	✓	✓	✓	✓		✓		✓	N.D. Cent. Code § 49-02-24 through 49-02-34.	Completely voluntary

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Ohio	Alternative Energy Resource Standard	25% by 2025 alternative (12.5% renewable energy, 0.5% solar)	✓	✓	✓	✓	✓		✓			Case No. 08-888-EL-ORD	from "advanced energy resources"; 50% must come from renewable resources, including 0.5% from solar; 50% must come from in-state renewable energy.
Oregon	Renewable Portfolio Standards	Large: 25% by 2025 Small: 10% by 2025 Smallest: 5% by 2025 "Renewable" >	✓	✓	✓	✓	✓		✓			ORS § 469A; OAR 330-160-0005 to 330-160-0030; OR PUC Order No. 10-200	
Pennsylvania	Alternative Energy Portfolio Standard	Tier I: 8% by 2020	✓	✓	✓		✓		✓			73 P.S. § 1648.1 et seq.; 66 Pa.C.S. § 2814; PUC Order Docket No. L-00060180, M-2009-2093383, M-0051865	
		Tier II: 10% by 2020 (0.5% solar by 2020)		✓						✓	✓		Resources include coal mine methane, waste coal, DSM.
Rhode Island	Renewable Energy Standard	16% by 2019 (14% from new renewable energy by 2020)	✓	✓	✓	✓	✓					R.I. Gen. Laws § 39-26-1 et seq.	NEPOOL geographic area req.
South Dakota	Renewable, Recycled, and Conserved Energy	10% by 2015	✓	✓	✓	✓	✓		✓	✓	✓	SDCL § 49-34A-101 et seq.	Voluntary
Texas	Goal for Renewable Energy	10,000 MW by 2025 (500MW non-wind)	✓	✓	✓	✓	✓	✓	✓			Tex. Utilities Code § 39.904; PUCT § 25.173	The PUC establishes the specific requirement for each provider
Utah	Renewable Portfolio Goal	20% by 2025	✓	✓	✓	✓	✓	✓	✓				Coal mine methane allowed; 2.4 REC for solar
Vermont	Renewable Energy Goal	20% by 2017	✓	✓	✓	✓	✓		✓		✓	30 V.S.A. § 8001 et seq.; CVR 30 000 054. 4.300	

Appendix I: State Renewable Portfolio Standard Chart

Virginia	Renewable Energy Portfolio Standard - RPS Goals	15% of 2007 baseline by 2025	✓	✓	✓	✓	✓	✓	✓	✓		Va. Code § 56-585.2	"A utility shall receive double credit toward meeting the renewable energy portfolio standard for energy derived from sunlight or from onshore wind, and triple credit toward meeting the renewable energy portfolio standard for energy derived from offshore wind."
Washington	Renewable Energy Targets	15% by 2020	✓	✓	✓	✓	✓	✓	✓			WAC 194-37-10 et seq.	The RPS applied to consumer-owned utilities with more than 25,000 retail customers
West Virginia	Alternative and Renewable Energy Portfolio Standard	25% by 2025	✓	✓	✓	✓	✓		✓	✓	✓	WV Code § 24-2F-1 et seq.	Numerous "alternative energy resources" also eligible, including: advanced coal technology, coal bed methane, natural gas, fuel from coal gasification or liquification, synthetic gas, IGCC, waste coal, tirederived fuel, pumped storage hydro or recycled energy. PSC can exempt utility if it deems insufficient resources exist.
Wisconsin	Renewable Portfolio Standard	Statewide target of 10% by 2015; varies by utility	✓		✓	✓	✓		✓	✓		Wis. Stat. § 196.378	

Appendix II: Summary List of State Renewable Portfolio Standards

Arizona

Title: Renewable Energy Standard and Tariff
Standard: 15% by 2025 (of the 15% total, 30% must come from distributed generation)
Eligible Technologies: Biogas, biomass, geothermal, solar, wind (distributed generation: electric/thermal biogas or biomass, geothermal, solar, renewable energy-powered fuel cells, new hydro, commercial solar pool heaters, geothermal space heating and process heating, renewable CHP, solar daylighting, solar HVAC, solar industrial process heating and cooling, solar space cooling, solar space heating, solar water heater, wind < 1MW)
Trading/RECs: Yes
Authority: AAC R14-2-1801 et seq.
Sources: http://www.azcc.gov/divisions/utilities/electric/environmental.asp

California

Title: Renewable Portfolio Standard
Standard: 20% by 2010/33% by 2020
Eligible Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Municipal Solid Waste, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal, Biodiesel, Fuel Cells using Renewable Fuels
Trading/RECs: Yes
Authority: CA Public Utilities Code §399.11 et seq., Public Resources Code §25740 et seq., EO S-21-09
Sources: http://www.energy.ca.gov/portfolio/index.html

Colorado

Title: Renewable Energy Standard
Standard: IOUs—30% by 2020; Electric Coops—10% by 2020; municipal utilities serving more than 40,000 customers—10% by 2020
Eligible Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, "Recycled Energy", Anaerobic Digestion, Fuel Cells using Renewable Fuels
Trading/RECs: Yes
Authority: CRS 40-2-124; 4 CCR 723-3-3650 et seq.; HB 1001
Sources:
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CO24R&re=1&ee=0
http://www.dora.state.co.us/PUC/rulemaking/RenewableEnergyStandard.htm

Connecticut

Title: Renewable Portfolio Standard
Standard: 20% Class I, 3 % Class I or II, 4% Class III by 2020

Eligible Technologies:
Class I: solar; wind; fuel cell; landfill methane; ocean thermal, wave or tidal power; advanced renewable energy conversion; run-of-the-river hydro < 5 MW; sustainable biomass
Class II: trash-to-energy; pre-1998 biomass; pre-2003 run-of-the-river hydro
Class III: Combined heat and power with > 50% efficiency; waste heat recovery system; electricity savings from conservation or load management after 2006.
"Sustainable biomass" means biomass that is cultivated and harvested in a sustainable manner, excluding construction and demolition waste, finished biomass products from sawmills, paper mills or stud mills, organic refuse fuel derived separately from municipal solid waste, or biomass from old growth timber stands (certain exceptions apply).
Trading/RECs: Yes
Authority: Conn. Gen. Stat. § 16-245a et seq.
Sources:
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=CT04R&re=1&ee=0
http://www.ct.gov/dpuc/cwp/view.asp?a=3354&q=415186

Delaware

Title: Renewables Portfolio Standard
Standard: 20% by 2020 (minimum 2.005% solar PV by 2020); some wholesale renewable electricity purchases subject to 25% by 2025 under Schedule 2.
Eligible Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Fuel Cells using Renewable Fuels
Trading/RECs: Yes
Authority: 26 Del. C. § 351 et seq.; CDR § 26-3000-3008
Sources:
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=DE06R&re=1&ee=0
http://depsc.delaware.gov/electric/delrps.shtml

District of Columbia

Title: Renewable Energy Portfolio Standard
Standard:
Eligible Technologies:
Tier I: Solar energy; Wind; Qualifying biomass; Methane from the anaerobic decomposition of organic materials in a landfill or wastewater treatment plant; Geothermal; Ocean, including energy from waves, tides, currents, and thermal differences; and Fuel cells producing electricity from a tier one renewable source
Tier II: Hydroelectric power other than pumped storage generation; or Waste-to-energy.
"Qualifying biomass" is solid, nonhazardous, cellulosic waste material that is segregated from other waste materials, and is derived from any of the following forest-related resources, with the exception of old growth timber, unsegregated solid waste, or post-consumer wastepaper: Mill residue; Precommercial soft wood thinning; Slash; Brush; Yard waste; waste pallet, crate, or dunnage; Agricultural sources, including tree crops,

vineyard materials, grain, legumes, sugar, and other crop by-products or residues; or cofired biomass.
Trading/RECs: Yes
Authority: D.C. Code § 34-1431 et seq.; D.C. PSC Order Nos. 14697 and 15561
Sources: http://www.dcpsc.org/customerchoice/whatis/electric/elec_restruc.shtm#Link24

Florida

Title: MOU between JEA, Sierra Club and American Lung Association
Standard: 7.5% by 2015
Eligible Technologies: Solar, wind, biomass, landfill gas
Trading/RECs:
Authority: Fla. Stat. § 366.92 requires the PSC to adopt an RPS rule subject to legislative ratification. In 2009, the PSC recommended a standard of 20% by 2020, but the legislature rejected the proposal.
Sources: http://www.psc.state.fl.us/utilities/electricgas/RenewableEnergy/
http://www.jea.com/community/education/electric/renewable.asp

Hawaii

Title: Renewable Portfolio Standard
Standard: 40% by 2030
Eligible Technologies: 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, CHP/Cogeneration, Hydrogen, Seawater AC, Solar AC, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Ethanol, Methanol, Biodiesel, Fuel Cells using Renewable Fuels
Trading/RECs: No
Authority: HRS § 269-91 et seq.
Sources: http://hawaii.gov/dbedt/info/energy/Document.2010-03-01.1302

Illinois

Title: Renewable Portfolio Standard
Standard: 25% by 2025 (75% from wind; 6% from solar PV beginning in 2015)
Eligible Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Biodiesel
Trading/RECs: Yes
Authority: § 20 ILCS 3855/1-75(c) et seq.; Public Act 96-0159; ICC Order 09-0324; 83 Ill. Adm. Code, Part 467; H.B. 6202
Sources: http://www.icc.illinois.gov/electricity/procurementprocess2010.aspx
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=IL04R&re=1&ee=0

Iowa

Title: Obligation to purchase from alternative energy production facilities
Standard: 105 MW
Eligible Technologies: Solar, wind, waste management, resource recovery, refuse-derived fuel, agricultural crop or residues, woodburning facilities.
Trading/RECs: Yes
Authority: Iowa Code § 476.41 et seq.; IAC 199-15.11(1)
Sources:
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=IA01R&re=1&ee=0

Kansas

Title: Renewable Energy Portfolio Standard
Standard: 20% by 2020
Eligible Technologies: Wind; solar thermal sources;
photovoltaic cells and panels; dedicated crops grown for energy production; cellulosic agricultural residues; plant residues; methane from landfills or from wastewater treatment; clean and untreated wood products such as pallets; existing hydropower; new hydropower, not including pumped storage, that has a nameplate rating of 10 megawatts or less; fuel cells using hydrogen produced by one of the above-named renewable energy resources; and other sources of energy, excluding nuclear power, certified as renewable by rules and regulations.
Trading/RECs: Yes
Authority: K.S.A. § 66-1256 et seq
Sources: http://www.kcc.state.ks.us/energy/index.htm
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=KS07R&re=1&ee=0

Maine

Title: Eligible Resource and Renewable Resource Portfolio Requirement
Standard: 10% Class I by 2017; 30% Class II Ongoing
Eligible Technologies: Class I: fuel cells; tidal power; solar arrays and installations; wind power installations; geothermal installations; hydroelectric generators that meet all state and federal fish passage requirement; biomass generators, including generators fueled by landfill gas.
Class II: fuel cells; tidal power; solar arrays and installations; wind power installations; geothermal installations; hydroelectric generators; biomass generators, including generators fueled by landfill gas; generators fueled by municipal solid waste in conjunction with recycling; cogeneration facility with thermal output of 60% total energy input.
Trading/RECs: Yes
Authority: 35 A.M.R.S. § 3210; 35 A.M.R.S. § 3210-C; CMR 65-407-311
Sources:
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=ME01R&re=1&ee=0

Maryland

Title: Renewable Energy Portfolio Standard
Standard: 20% by 2022 (2% solar)
Eligible Technologies:
Tier I: solar; wind; qualifying biomass; methane from the anaerobic decomposition of organic materials in a landfill or wastewater treatment plant; geothermal; ocean, including energy from waves, tides, currents, and thermal differences; a fuel cell that produces electricity from a Tier 1 renewable source; small hydro; and poultry litter-to-energy.
Tier II: hydroelectric power other than pumped storage generation; waste-to-energy.
"Qualifying biomass": nonhazardous, organic material that is available on a renewable or recurring basis, and is: waste material that is segregated from inorganic waste material and is derived from sources including mill residues, except sawdust and wood shavings, precommercial soft wood thinning, slash, brush, or yardwaste (not including any old growth timber); pallet crate or dunnage; agricultural and silvicultural sources, including tree crops, vineyard materials, grain, legumes, sugar, and other crop by-products or residues; or gas produced from the anaerobic decomposition of animal waste or poultry waste; or dedicated energy crops. Does not include: unsegregated solid waste or postconsumer wastepaper; or an invasive exotic plant species.
Trading/RECs: Yes (authorized RECs required)
Authority: Md. Public Utility Companies Code § 7-701 et seq.; COMAR 20.61.01 et seq.; S.B. 277
Sources: http://webapp.psc.state.md.us/intranet/ElectricInfo/home_new.cfm

Massachusetts

Title: Renewable Energy Portfolio Standard
Standard: Class I (New Resources): 15% of by 2020 and an additional 1% each year thereafter; Class II (Existing Resources): 7.1% in 2009 and thereafter (3.6% renewables and 3.5% waste-to-energy)
Eligible Technologies: Solar photovoltaic, Solar thermal electric, Wind energy, Small hydropower, Landfill methane and anaerobic digester gas, Marine or hydrokinetic energy, Geothermal energy, Eligible biomass fuel (undergoing amendment)
Trading/RECs: Yes (NEPOOL GIS RECs)
Authority: ALM GL ch. 25A, § 11F; 225 CMR 14.00, 15.00; S.B. 2582
Sources: http://webapp.psc.state.md.us/intranet/ElectricInfo/home_new.cfm
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MA05R&re=1&ee=0
http://www.mass.gov/?pageID=eoeeasubtopic&L=4&L0=Home&L1=Energy%2c+Utilities+%26+Clean+Technologies&L2=Renewable+Energy&L3=Renewable+Energy+Portfolio+Standard+%26+Alternative+Energy+Portfolio+Standard+Programs&sid=Eoeea

Michigan

Title: Renewable Energy Capacity Portfolio

Standard: All: 10% by 2015; > 1 million < 2 million customers 500 MW by 2015; > 2 million customers 600 MW by 2015
Eligible Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, CHP/Cogeneration, Coal-Fired w/CCS, Gasification, Anaerobic Digestion, Tidal Energy, Wave Energy
Trading/RECs: Yes (incentive for solar, in-state RECs)
Authority: MCL § 460.1021 et seq; PSC Temp. Order, Docket U-15800
Sources: http://www.michigan.gov/mpsc/0,1607,7-159-16393_53570---,00.html
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MI16R&re=1&ee=0

Minnesota

Title: Renewable Energy Objectives
Standard: 25% by 2025 (Xcel Energy: 30% by 2025)
Eligible Technologies: (1) solar; (2) wind; (3) hydroelectric with a capacity of less than 100 megawatts; (4) hydrogen, provided that after January 1, 2010, the hydrogen must be generated from the resources listed in this clause; or (5) biomass, which includes, without limitation, landfill gas; an anaerobic digester system; the predominantly organic components of wastewater effluent, sludge, or related byproducts from publicly owned treatment works, but not including incineration of wastewater sludge to produce electricity; and an energy recovery facility used to capture the heat value of mixed municipal solid waste or refuse-derived fuel from mixed municipal solid waste as a primary fuel.
Trading/RECs: Yes
Authority: Minn. Stat. § 216B.1691; PUC Order, Docket E-999/Cl-04-1616
Sources:
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MN14R&re=1&ee=0

Missouri

Title: Renewable Energy Standard
Standard: 15% by 2021 (2% solar)
Eligible Technologies: Wind, solar thermal sources, photovoltaic cells and panels, dedicated crops grown for energy production, cellulosic agricultural residues, plant residues, methane from landfills or from wastewater treatment, clean and untreated wood such as pallets, hydropower (not including pumped storage) that does not require a new diversion or impoundment of water and that has a nameplate rating of ten megawatts of water and that has a nameplate rating of ten megawatts or less, fuel cells using hydrogen produced by one of the above-named renewable energy resources, and other sources of energy not including nuclear that are certified as renewable by rule by the department.
Trading/RECs: Yes
Authority: R.S. Mo. § 393.1020 et seq; 4 CSR 240-20.100
Sources:
http://www.gocolumbiamo.com/WaterandLight/Electric/ElectricSupplyInformation.php

Montana

Title: Renewable Resource Standard
Standard: 15% by 2015
Eligible Technologies: Wind; solar; geothermal; water power, in the case of a hydroelectric project that does not require a new appropriation, diversion, or impoundment of water and that has a nameplate rating of 10 MW or less; landfill or farm-based methane gas; gas produced from the treatment of wastewater; low-emission, nontoxic biomass based on dedicated energy crops, animal wastes, or solid organic fuels from wood, forest, or field residues, except that the term does not include wood pieces that have been treated with chemical preservatives such as creosote, pentachlorophenol, or copper-chorma-arsenic; hydrogen derived from any of the sources in this section.
Trading/RECs: Yes
Authority: MCA 69-3-2001 et seq.; Mont. Admin. R. 38.5.8301
Sources:
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=MT11R&re=1&ee=0

Nevada

Title: Renewable Portfolio Standard
Standard: 25% by 2025 (5% solar between 2009-2015; 6% solar between 2015-2025) ("The portfolio standard must require each provider to generate, acquire or save electricity from portfolio energy systems or efficiency measures.") Can satisfy up to 25% of the standard in each year with energy efficiency.
Eligible Technologies: "Renewable Energy" includes: biomass; geothermal energy; solar energy; waterpower; and wind. The term does not include coal, natural gas, oil, propane or any other fossil fuel, or nuclear energy.
Trading/RECs: Yes
Authority: NRS § 704.7801 et seq.; NRS § 704.8831 et seq.; LCB File R167-05
Sources:
http://pucweb1.state.nv.us/PUCN/RenewableEnergy.aspx?AspxAutoDetectCookieSupport=1

New Hampshire

Title: Electric Renewable Portfolio Standard
Standard: 16% Class I, 0.3% Class II, 6.5% Class III, 1% Class IV by 2025
Eligible Technologies: Class I (New): Wind energy; Geothermal energy; Hydrogen derived from biomass fuels or methane gas; Ocean thermal, wave, current, or tidal energy; Methane gas; Eligible biomass technologies; The equivalent displacement of electricity, as determined by the commission, by end-use customers, from solar hot water heating systems used instead of electric hot water heating. Class II: New solar. Class III (Existing): Eligible biomass and methane gas. Class IV: Existing small hydroelectric.
Trading/RECs: Yes
Authorites: NH RSA 362-F; NH Admin. Rules, PUC 2500

Sources:
http://www.puc.state.nh.us/Sustainable%20Energy/Renewable_Portfolio_Standard_Program.htm
http://des.nh.gov/organization/divisions/air/tsb/tps/climate/rps.htm

New Jersey

Title: Renewable Portfolio Standard
Standard: 22.5% by 2020 (5,316 GWh solar purchased by 2026; Authorizes the establishment of a requirement for 1,100 MW of offshore wind)
Eligible Technologies: Solar thermal electric, photovoltaics, landfill gas, wind, biomass, hydroelectric, geothermal electric, resource-recovery facilities approved by the state, anaerobic digestion, tidal energy, wave energy, fuel cells using renewable fuels.
Trading/RECs: Yes
Authority: N.J. Stat. § 48.3-49 et seq; N.J.A.C. § 14:8-1.1 et seq.
Sources: http://www.njcleanenergy.com/renewable-energy/program-activity-and-background-information/rps-background-info

New Mexico

Title: Renewable Portfolio Standard
Standard: IOUs: 20% by 2020 (20% solar, 20% wind, 10% other renewable resources, 3% distributed generation)
Rural Electric Cooperatives: 10% by 2020
Eligible Technologies: "Renewable Energy": Energy generated by use of low- or zero-emissions generation technology with substantial long-term production potential; and generated by use of renewable energy resources that may include: solar, wind and geothermal resources; hydropower facilities brought in service after July 1, 2007; fuel cells that are not fossil fueled; and biomass resources, such as agriculture or animal waste, small diameter timber, salt cedar and other phreatophyte or woody vegetation removed from river basins or watersheds in New Mexico, landfill gas and anaerobically digested waste biomass; but does not include electric energy generated by use of fossil fuel or nuclear energy.
Trading/RECs: Yes
Authority: NMAC 17.9.572, N.M. Stat. § 62-15-34 et seq.; N.M. Stat. § 62-16-1 et seq.
Sources: http://www.nmprc.state.nm.us/renewable.htm

New York

Title: Renewable Portfolio Standard
Standard: 29% by 2015
Eligible Technologies: Solar Water Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Fuel Cells, Combined Heat and Power/Cogeneration, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Ethanol, Methanol, Biodiesel
Trading/RECs: No
Authority: NY PSC Order, Case 03-E-0188

Sources:
http://www3.dps.state.ny.us/W/PSCWeb.nsf/All/1008ED2F934294AE85257687006F38BD?OpenDocument#about

North Carolina

Title: Renewable Energy and Energy Efficiency Portfolio Standard
Standard: IOUs: 12.5% by 2021 (25% max from energy efficiency until 2021, then 40% max)
Cooperatives: 10% by 2020
Eligible Technologies: combined heat and power, solar electric, solar thermal, wind, hydropower, geothermal, or ocean current or wave energy resource; a biomass resource, including agricultural waste, animal waste, wood waste, spent pulping liquors, combustible residues, combustible liquids, combustible gases, energy crops, or landfill methane; waste heat derived from a renewable energy resource and used to produce electricity or useful, measurable thermal energy at a retail electric customer's facility; or hydrogen derived from a renewable energy resource.
Trading/RECs: Yes
Authority: N.C. Gen. Stat. § 62-133.8; 04 NCAC 11 R-08-64 et seq.
Sources: http://www.ncuc.commerce.state.nc.us/reps/reps.htm

North Dakota

Title: Renewable Energy and Recycled Energy Objective
Standard: 10% by 2015
Eligible Technologies: Solar, using the sun as the source of energy for producing electricity; Wind, using the wind as the source of energy for producing electricity; Hydroelectric, using water as the source of energy for producing electricity; Biomass, using agricultural crops and agricultural wastes and residues, wood and wood wastes and residues, animal wastes, and landfill gas as the fuel to produce electricity; Geothermal, using energy contained in heat that continuously flows outward from the earth as the source of energy to produce electricity; Hydrogen, provided that the hydrogen is generated from a source listed in this section; Recycled energy systems producing electricity from currently unused waste heat resulting from combustion or other processes into electricity and which do not use an additional combustion process (The term does not include any system whose primary purpose is the generation of electricity unless the generation system consumes wellhead gas that would otherwise be flared, vented, or wasted.)
Trading/RECs: Yes
Authority: N.D. Cent. Code § 49-02-24 through 49-02-34.
Sources:
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=ND04R&re=1&ee=0

Ohio

Title: Alternative Energy Resource Standard

Standard: 25% by 2025 (12.5% renewable energy by 2024)
Eligible Technologies: "Renewable energy resource": solar photovoltaic or solar thermal energy, wind energy, power produced by a hydroelectric facility, geothermal energy, fuel derived from solid wastes through fractionation, biological decomposition, or other process that does not principally involve combustion, biomass energy, biologically derived methane gas, or energy derived from nontreated by-products of the pulping process or wood manufacturing process, including bark, wood chips, sawdust, and lignin in spent pulping liquors; Any method or any modification or replacement of any property, process, device, structure, or equipment that increases the generation output of an electric generating facility to the extent such efficiency is achieved without additional carbon dioxide emissions by that facility.
"Advanced": Any distributed generation system consisting of customer cogeneration of electricity and thermal output simultaneously; Clean coal technology that includes a carbon-based product that is chemically altered before combustion to demonstrate a reduction, as expressed as ash, in emissions of nitrous oxide, mercury, arsenic, chlorine, sulfur dioxide, or sulfur trioxide or clean coal technology that includes the design capability to control or prevent the emission of carbon dioxide; Advanced nuclear energy technology; other, later technology; or significant improvements to existing facilities; Any fuel cell used in the generation of electricity; Advanced solid waste or construction and demolition debris conversion technology, including, but not limited to, advanced stoker technology, and advanced fluidized bed gasification technology, that results in measurable greenhouse gas emissions reductions as calculated pursuant to the United States environmental protection agency's waste reduction model; Demand-side management and any energy efficiency improvement; Methane gas emitted from an operating or abandoned coal mine.
Trading/RECs: Yes
Authority: PUC Case No. 08-888-EL-ORD
Sources: http://www.puco.ohio.gov/PUCO/Rules/Rule.cfm?id=8724

Oregon

Title: Renewable Portfolio Standard
Standard:
Eligible Technologies: wind, solar (PV and thermal); geothermal; biomass and biomass byproducts (subject to exceptions) from organic human or animal waste, spent pulping liquor, forest or rangeland woody debris from harvesting or thinning conducted to improve forest or rangeland ecological health and to reduce uncharacteristic stand replacing wildfire risk, wood materials from hardwood timber grown on certain lands, agricultural residues, dedicated energy crops, landfill gas or biogas produced from organic matter, wastewater, anaerobic digesters or municipal solid waste; hydro
Trading/RECs: Yes
Authority: ORS § 469A, OAR 330-160-0005 through 330-160-0030.
Sources: http://www.oregon-rps.org/

Pennsylvania

Title: Alternative Energy Portfolio Standard
Standard: Tier I: 8% by 2020; Tier II: 10% by 2020 (0.5% solar by 2020)
Eligible Technologies:
"Alternative Energy": Solar PV, solar thermal, wind, hydropower; geothermal; biomass; biologically derived methane gas; waste coal; coal mine methane; demand-side management.
Tier I: Solar PV/thermal; wind; low-impact hydropower; geothermal, methane gas; fuel cells; biomass energy; coal mine methane.
Tier II: waste coal; distributed generation, demand-side management; large-scale hydro; municipal solid waste.
"Biomass": organic material from a plant that is grown for the purpose of being used to produce electricity or is protected by the Federal Conservation Reserve Program (CRP) and provided further that crop production on CRP lands does not prevent achievement of the water quality protection, soil erosion prevention or wildlife enhancement purposes for which the land was primarily set aside; or any solid nonhazardous, cellulosic waste material that is segregated from other waste materials, such as waste pallets, crates and landscape or right-of-way tree trimmings or agricultural sources, including orchard tree crops, vineyards, grain, legumes, sugar and other crop by-products or residues.
Trading/RECs: Yes
Authority: 73 P.S. § 1648.1 et seq.; 66 Pa.C.S. § 2814; PUC Rulemaking Order Docket No. L-00060180 and M-2009-2093383
Sources: http://www.puc.state.pa.us/electric/electric_alt_energy.aspx

Rhode Island

Title: Renewable Energy Standard
Standard: 16% by 2019 (14% from renewable energy)
Eligible Technologies: Direct solar radiation; wind; movement of or the latent heat of the ocean; the heat of the earth; small hydro; biomass; fuel cells.
Trading/RECs: Yes
Authority: R.I. Gen. Laws § 39-26-1 et seq.
Sources: http://www.ripuc.org/utilityinfo/res.html

South Dakota

Title: State Renewable, Recycled and Conserved Energy Objective
Standard: 10% by 2015
Eligible Technologies: Wind, solar electric, hydroelectric, hydrogen, biomass (agricultural crops, wastes and residues; animal or other organic wastes; municipal solid waste; or landfill gas; geothermal; unused waste heat.
Trading/RECs: Yes
Authority: SDCL §§ 49-34A-94 et seq, 49-34A-101 et seq.
Sources:

Texas

Title: Goal for Renewable Energy
Standard: 10,000 MW by 2025 (500 MW non-wind)
Eligible Technologies: Any technology that exclusively relies on an energy source that is naturally regenerated over a short time and derived directly from the sun, indirectly from the sun, or from moving water or other natural movements and mechanisms of the environment. Renewable energy technologies include those that rely on energy derived directly from the sun, on wind, geothermal, hydroelectric, wave, or tidal energy, or on biomass or biomass-based waste products, including landfill gas. A renewable energy technology does not rely on energy resources derived from fossil fuels, waste products from fossil fuels, or waste products from inorganic sources.
Trading/RECs: Yes
Authority: Texas Utilities Code § 39.904; PUCT Substantive Rule 25.173
Sources: http://www.puc.state.tx.us/rules/subrules/electric/25.173/25.173ei.cfm

Utah

Title: Renewable Portfolio Goal
Standard: 20% by 2025
Eligible Technologies: wind energy; solar photovoltaic and solar thermal energy; wave, tidal, and ocean thermal energy; except for combustion of wood that has been treated with chemical preservatives such as creosote, pentachlorophenol or chromated copper arsenate, biomass and biomass byproducts (including organic waste; forest or rangeland woody debris from harvesting or thinning conducted to improve forest or rangeland ecological health and to reduce wildfire risk; agricultural residues; dedicated energy crops; and landfill gas or biogas produced from organic matter, wastewater, anaerobic digesters, or municipal solid waste); geothermal energy located outside the state; waste gas and waste heat capture or recovery whether or not it is renewable, including methane gas from: an abandoned coal mine, or a coal degassing operation associated with a state-approved mine permit.
Trading/RECs: Yes
Authority: Utah Code 54-17-101 et seq; Utah Code 54-19-101
Sources:
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=UT13R&re=1&ee=0

Vermont

Title: Renewable Energy Goal
Standard: 20% by 2017
Eligible Technologies: Solar Water Heat, Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Anaerobic Digestion, Fuel Cells using Renewable Fuels
"Renewable energy" means energy produced using a technology that relies on a resource that is being consumed at a harvest rate at or below its natural regeneration rate.
Trading/RECs: N/A

Authority: 30 V.S.A. § 8001 et seq.
Sources: http://vermontspeed.com
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=VT04R&re=1&ee=0

Virginia

Title: Renewable Energy Portfolio Standard
Standard: 15% of 2007 baseline by 2025
Eligible Technologies: "Renewable energy" means energy derived from sunlight, wind, falling water, biomass, sustainable or otherwise, (the definitions of which shall be liberally construed), energy from waste, municipal solid waste, wave motion, tides, and geothermal power, and does not include energy derived from coal, oil, natural gas or nuclear power. Renewable energy shall also include the proportion of the thermal or electric energy from a facility that results from the co-firing of biomass.
Trading/RECs: Yes
Authority: Va. Code § 56-585.2
Sources:
http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=VA10R&re=1&ee=0

Washington

Title: Renewable Energy Targets
Standard: 15% by 2020
Eligible Technologies: Water; wind; solar energy; geothermal energy; landfill gas; wave, ocean or tidal power; gas from sewage treatment facilities; biodiesel fuel not from crops grown on land cleared from old growth or first-generation timber; Biomass energy based on animal waste or solid organic fuels from wood, forest, or field residues, or dedicated energy crops (that do not include: Wood pieces that have been treated with chemical preservatives such as creosote, pentachlorophenol, or copper chrome arsenic; Black liquor by-product from paper production; Wood from old growth forests; or Municipal solid waste).
Trading/RECs: Yes
Authority: WAC 194-37-10 et seq.
Sources: http://apps.leg.wa.gov/RCW/default.aspx?cite=19.285

West Virginia

Title: Alternative and Renewable Portfolio Standard
Standard: 25% by 2025
Eligible Technologies:
"Alternative energy": 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; Tirederived fuel; Pumped storage hydroelectric projects; Recycled energy; and Any other resource, method, project or technology certified as an alternative energy resource by the Public Service Commission.

"Renewable energy": Solar photovoltaic or other solar electric energy; Solar thermal energy; Wind power; Run of river hydropower; Geothermal energy, Biomass energy, which means a technology by which electricity is produced from a nonhazardous organic material that is available on a renewable or recurring basis, including pulp mill sludge; Biologically derived fuel including methane gas, ethanol not produced from corn, or biodiesel fuel; Fuel cell technology, which means any electrochemical device that converts chemical energy in a hydrogen-rich fuel directly into electricity, heat and water without combustion; and Any other resource, method, project or technology certified by the commission as a renewable energy resource.
Trading/RECs: Yes
Authority: W.V. Code § 24-2F-1 et seq.
Sources: http://www.legis.state.wv.us/WVCODE/ChapterEntire.cfm?chap=24&art=2F

Wisconsin

Title: Renewable Portfolio Standard
Standard: Statewide target of 10% by 2015
Eligible Technologies: A fuel cell that uses, as determined by the commission, a renewable fuel; Tidal or wave action; Solar thermal electric or photovoltaic energy; Wind power; Geothermal technology; Biomass; Synthetic gas created by the plasma gasification of waste; Densified fuel pellets made from waste material that does not include garbage, as defined in s. 289.01 (9), and that contains no more than 30 percent fixed carbon; Fuel produced by pyrolysis of organic or waste material.
"Biomass" means a resource that derives energy from wood or plant material or residue, biological waste, crops grown for use as a resource or landfill gases. "Biomass" does not include garbage, as defined in s. 289.01 (9), or nonvegetation-based industrial, commercial or household waste, except that "biomass" includes refuse-derived fuel used for a renewable facility that was in service before January 1, 1998.
Trading/RECs: Yes
Authority: Wis. Stat. § 196.378
Sources: http://psc.wi.gov/utilityInfo/electric/renewableResource.htm

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Italics indicates voluntary standard.