INVENTORY OF STATE INCENTIVES FOR WIND ENERGY IN THE U.S.

A State by State Survey

An Inventory of State Incentives for the U.S.: A State by State Survey was produced by the American Wind Energy Association in cooperation with the U.S. Department of Energy.

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Introduction

An Inventory of State Incentives for Wind Energy in the U.S: A State by State Survey is intended to serve as a research tool for those seeking information about incentives for wind energy in their area. The inventory is organized on a state-by-state basis. It includes information about the local wind resource and about financial, economic, and regulatory incentives for wind energy in each state.

The information provided in this survey should be of use to individuals and businesses interested in installing a wind energy system and seeking to identify existing incentives. The information can also be of interest to state regulators and policy makers, utilities, wind energy companies, and the general public.

How to Use this Document:

This survey provides a starting point for research. However, legislation and rules change over time, and the pace of change is expected to accelerate due to changes in the electric industry**. It is recommended that the reader consult the Web sites listed at the end of this section and contact the sources listed at the end of each state summary to determine whether a particular incentive is still in place and whether new ones have been introduced.**

Methodology:

The incentives listed in this document are of three types:

(1) economic and financial incentives for wind energy. Such incentives include tax rebates and credits, low-interest loans, and net metering.

(2) legislative and regulatory incentives. These include Renewables Portfolio Standards, which require that a certain percentage of electricity be produced from renewable energy sources, and other measures requiring a utility to install a certain amount of renewable or wind energy generating capacity (as in Minnesota, for example, in return for the utility's right to store nuclear waste within the state).

(3) research and outreach programs. These can be implemented by private groups, utilities, state organizations, and other entities. Such programs are often funded by system benefit charges collected from ratepayers.

Green power pricing programs are not considered an incentive in this survey. For information on green power, visit AWEA's Web site at http://www.awea.org/greenpower/index.html, or go to the following Department of Energy Web site: http://www.eren.doe.gov/greenpower/home.shtml.

Not included in this document are economic and regulatory incentives that indirectly benefit wind energy, such as fees for emission of greenhouse gases and pollutants.

Not included in this document are federal wind and renewable energy incentives, such as the Production Tax Credit (PTC), as these are applicable to all states.

Finally, this document does not systematically assess the effectiveness of the incentives. It is clear, however, that state policies play a paramount role in promoting—or failing to provide a fertile ground for—wind energy projects. A correlation can be drawn between a state's policies (for example, the Renewables Portfolio Standard in Texas) and the amount of installed wind energy generating capacity in that state. For up-to-date figures on utility-scale wind energy installations by state, see http://www.awea.org/projects/index.html, on AWEA's Web site. For a systematic categorization of incentives, see *Strategies for Supporting Wind Energy, A Review and Analysis of State Policy Options,* a publication of the National Wind Coordinating Committee (NWCC), by Nancy Rader and Ryan Wiser. The NWCC's Web site is http://www.nationalwind.org. For a detailed analysis of state Clean Energy Funds supported by a system benefit charge, see *Clean Energy Funds: An Overview of State Support for Renewable Energy*, a publication of the Ernest Orlando Lawrence Berkeley National Laboratory, by Mark Bolinger and Ryan Wiser, April 2001 (http://eetd.lbl.gov/ea/EMS/EMS_pubs.html#RE).

Wind Resource Classification and Potential

Winds are classified using a numerical system from 1 (lowest) to 7 (highest). Wind power class is determined by wind speed and density. Most turbine applications need a class 3 or higher wind resource in order to be operational and economical. In regions with lower winds, a local topographical feature (such as an exposed hilltop) can provide a location with a wind resource suitable for a small wind energy system. Generally, annual average wind speeds greater than 4 meters per second (m/s) or 9 miles per hour (mph) are required for small wind turbines. Utility-scale wind power plants require minimum average wind speeds of 6 m/s (13 mph).

Wind energy potential figures cited for each state are from *An Assessment of the Available Windy Land Area and Wind Energy Potential in the Contiguous United States,* Pacific Northwest Laboratory, 1991.

THE TOP TWENTY STATES for wind energy potential, as measured by annual potential in billions of kWhs, factoring in environmental and land use exclusions for wind class of 3 and higher:

1	North Dakota	1,210	11	Colorado	481
2	Texas	1,190	12	New Mexico	435
3	Kansas	1,070	13	Idaho	73
4	South Dakota	1,030	14	Michigan	65
5	Montana	1,020	15	New York	62
6	Nebraska	868	16	Illinois	61
7	Wyoming	747	17	California	59
8	Oklahoma	725	18	Wisconsin	58
9	Minnesota	657	19	Maine	56
10	Iowa	551	20	Missouri	52

Source: An Assessment of the Available Windy Land Area and Wind Energy Potential in the Contiguous United States, Pacific Northwest Laboratory, 1991.

Definition of Key Terms

Avoided cost: Avoided cost is the cost a utility or power provider would have incurred to generate the same amount of electricity as is produced by a nonutility source, for example a renewable or other small generating system that feeds into the grid when it is generating more than the household or business where it is installed is consuming (in the case of net metering) or a qualifying facility that sells its electricity to the utility (in the case of a Qualifying Facility under the Public Utility Regulatory Policies Act, described below).

Externalities: Externalities are environmental and social costs and benefits caused by an economic activity, in this case electricity generation, that are not included in economic calculations and are instead borne by society and the environment at large. Some states recommend or require that utilities consider a number of externalities when making resource decisions.

Green power program: In this document, green power program refers to a marketing program under which electricity from renewable energy sources is marketed as such and sold at a special price (usually a premium) to electricity consumers.

Net metering and net billing. "Net-metering" is a simplified method of metering the energy consumed and produced at a home or business that has its own renewable energy generator, such as a wind turbine. Under net metering, excess electricity produced by the wind turbine will spin the existing home or business electricity meter backwards, effectively banking the electricity until it is needed by the customer. This provides the customer with full retail value for all the electricity produced.

Under existing federal law (PURPA, Section 210) utility customers can use the electricity they generate with a wind turbine to supply their own lights and appliances, offsetting electricity they would otherwise have to purchase from the utility at the retail price. But if the customer produces any excess electricity (beyond what is needed to meet the customer's own needs) and net metering is not allowed, the utility purchases that excess electricity at the wholesale or "avoided cost" price, which is much lower than the retail price. The excess energy is metered using an additional meter that must be installed at the customer's expense. Net metering simplifies this arrangement by allowing the customer to use any excess electricity to offset electricity used at other times during the billing period. In other words, the customer is billed only for the net energy consumed during the billing period. Further information about net metering is available on AWEA's Web site at http://www.awea.org/faq/netbdef.html.

Federal net metering legislation has not been passed, so net metering rules vary from state to state. In some areas net metering may not be available or may be prohibitively difficult and costly to obtain from the local utility.

Public Utility Regulatory Policies Act (PURPA): Enacted as part of the National Energy Act of 1978, PURPA was developed in response to the unprecedented instability of the U.S. energy supply at the time. The law requires utilities to purchase power from non-utility generators or small renewable energy producers under 80 MW capacity (Qualifying Facilities) at avoided cost.

Renewable Energy: Definitions of renewable energy vary from state to state and local legislation should be checked to see what is included under that term. AWEA and other renewable energy groups generally consider renewable energy to include energy derived directly from the sun, wind, geothermal, small/low-impact hydroelectric, wave and tidal energy, biomass products, and landfill gas.

Renewables Portfolio Standard (RPS): An RPS requires electricity generators or suppliers to generate or supply a set amount or percentage of their electricity from renewable energy sources. Percentage requirements, definition of renewable energy, and other specifications may vary. When properly designed and implemented, the RPS functions as a least-cost, market-based credit trading system, whereby utilities and other sellers or generators of electricity earn credits for the amount of renewable energy sold. These credits can be traded among utilities and electric sellers, enabling those that have not met the standard to meet the requirement by purchasing credits from others exceeding the standard.

Helpful Web sites

AWEA's Web site**,** http://www.awea.org/, provides information on incentives for small wind systems, installed wind farms, net metering, green power, and more. For a clickable map with state-by-state information on wind energy projects, see http://www.awea.org/projects/index.html.

For regularly up-dated information on the status of electric industry restructuring legislation on a state-by-state basis, the reader should consult the following Department of Energy Web site:
http://www.eia.doe.gov/cneaf/electricity/chg_str/regmap.html
This site also provides very helpful direct links to the Web sites of the Public Utility Commissions and largest utilities in each state.

For detailed information on incentives for renewable energy on a state-by-state basis, the reader should consult the following Web site maintained by the North Carolina State University:
http://www.dsireusa.org/

Information on net metering is available on:
http://www.eren.doe.gov/greenpower/netmetering/#state

Wind maps and information on wind resources in the United States is available from the following Department of Energy Web site:
http://www.nrel.gov/wind/database.html

Additional information for states is available through
http://www.serve.com/commonpurpose/yourstate.html or the following sites:

"Your State's Energy Profile": http://www.eia.doe.gov/cneaf/electricity/st_profiles/toc.html

"Environmental Benefits of Purchasing Green Energy In Your State":
http://199.223.29.233/epa/rew/rew.nsf/greenpower/index.html?Open

"How Much Do Your Electricity Purchases Pollute in Your State":
http://www.edf.org/programs/energy/green_power/x_calculator.html

"Pollution in Your State": http://www.scorecard.org

"Acid Rain Emissions Data for Power Plants":
http://www.epa.gov/acidrain/emission/index1.htm : NA

Greenhouse Gas Emissions by State:
http://yosemite.epa.gov/globalwarming/ghg.nsf/emissions/StateAuthoredInventories?Open

For further general information on wind and renewable energy, please search AWEA's Web site for the *Wind Energy Information Guide*, posted in PDF format at http://www.awea.org/pubs/documents/INFOGUIDE2002.pdf. This publication provides an extensive list of contacts, addresses, and Web sites.

ALABAMA

Total state land area (km^2): 131,487
Class 3 + available windy land area (km^2): 0
Wind energy potential, in billions of kWh: 0
Wind energy potential, average power, in MW: 0
Installed utility-scale wind energy capacity: 0

Alabama's poor wind resource does not provide an attractive form of renewable energy for this state.

State tax incentives:

None. Note: While tax credits have never existed for wind energy in Alabama, some did exist for solar energy. These have expired and have not been renewed.

Other economic and financial incentives:

None

Legislative and regulatory incentives:

None

Research and outreach programs:

None

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ALASKA

Total state land area (km^2): 1,477,269
Class 3+ available windy land area (km^2): Not fully known.
Wind energy potential, in billions of kWh per year: Not fully known.
Wind energy potential, average power, in MW: NA
Installed wind energy capacity (01/2002): 0.825 MW

The largest areas of class 7 wind power in the United States are located in Alaska. Moreover, winds there are most powerful in the winter when demand for electricity peaks, making Alaska a ready candidate for wind energy development.

Wind turbines with a total generating capacity of 600 kW help power the community of Kotzebue, through the Kotzebue Electric Association. A 225-kW system was installed on St. Paul Island in 1999 and a 100-kW project was completed in Wales in 2000.

Alaska has not passed electric restructuring legislation.

State tax incentives:

None

Other economic and financial incentives:

Loans: The Alaska Power Project Revolving Loan Fund administered by the Division of Energy under the Department of Community and Regional Affairs provides loans to local utilities, local governments, or independent power producers for the development or upgrade of electric power facilities. Some wind energy projects may be eligible. Interest rate is tied to that of municipal bonds for the 12 months preceding the date of loan, or determined by the Division.

Alaska does not have net metering legislation.

Legislative and regulatory incentives:

None

Research and outreach programs:

None

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ARIZONA

Total state land area (km^2): 293,986
Class 3+ available windy land area (km^2): 776
Wind energy potential in billions of kWh per year: 10
Wind energy potential, average power, in MW: 1,090
Installed utility-scale wind energy capacity (MW): 0

Arizona's wind resource is located on windy crests and peaks. Several areas are suitable for small wind systems.

In 1998, HB 2663 was enacted, affirming the Arizona Corporation Commission's (ACC) authority to require utilities to open territories to retail competition. Competition has been introduced gradually. In 2001, all residential customers were eligible to choose their electricity service provider.

State tax incentives:

Sales tax incentive: A retail sales tax exemption applies to solar and wind energy equipment, up to $5,000. Wind energy equipment includes wind electric generators and wind-powered water pumps.

Personal tax credit: Arizona provides a credit against the personal income tax in the amount of 25% of the cost of a solar or wind energy device. The credit can be claimed in the year of installation and has a maximum allowable limit of $1,000. If the amount of the credit exceeds a taxpayer's liability in a certain year, the unused portion of the credit may be carried forward for up to five years. Qualifying technologies include passive solar heating, active solar space heating, solar water heating, photovoltaics, and wind systems.

Other economic and financial incentives:

Commercial loans: The Revolving Energy Loans for Arizona (RELA) are offered by the Department of Commerce for companies which either 1) manufacture renewable energy, alternative energy, or energy conserving equipment or 2) acquire such equipment for use in their own processes. Manufacturers can qualify for the loan only if they have at least two years operating experience in Arizona. Loan requests may range from $10,000 to $500,000, up to a maximum of 60% of total project costs.

Net metering: Net metering is allowed for all renewable energy generators under 100 kW. Monthly net excess generation is purchased at avoided cost.

Legislative and regulatory incentives:

In May, 2000, the ACC issued an order (ACC Rules R14-2-1618; Decision 62506) requiring electricity providers to derive 1.1% of their total product from renewable energy sources by 2007. Implementation began with 0.2% from renewables in 2001, increases to 0.4%

in 2002, and builds up to 1.1% by 2007. Fifty percent of the renewable power required in 2002 must be generated from solar energy facilities.

Research and outreach programs:

None

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ARKANSAS

Total state land area (km^2): 134,883
Class 3+ available windy land area (km^2): 1,430
Wind energy potential, in billions of kWh per year: 22
Wind energy potential, average power, in MW: 2,460
Installed utility-scale wind energy capacity: 0

Arkansas has approved legislation delayed the restructuring of its electricity sector until 2003.

The state has not sought to develop its wind resource, which is located in the western-lying Boston and Ouachita mountain area.

State tax incentives:

None

Other economic and financial incentives:

Net metering legislation was passed in 2001. Wind, solar, hydro, geothermal and biomass systems under 25 kW (residential) or 100 kW (commercial or agricultural) qualify. Treatment of net excess generation is to be determined in rules to be issued by the Arkansas Public Service Commission.

Legislative and regulatory incentives:

None

Research and outreach programs:

None

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CALIFORNIA

Total state land area (km^2): 404,815
Class 3+ available windy land area (km^2): 6,570
Wind energy potential, in billions of kWh per year: 59
Wind energy potential, average power, in MW: 6,770
Installed utility-scale wind energy capacity (01/2002): 1,671 MW

California remains the state with the most installed wind power generating capacity. However, while in early 1998 California still accounted for almost all of U.S. wind energy capacity (about 1,600 out of 1,800 MW), it made up less than half by the end of 2001, when wind capacity in the U.S. totaled 4,263 MW. The proportion of electricity that California draws from wind and other renewable sources has also declined since 1993, when high contract prices mandated for wind during the 1980s began expiring.

California was one of the first states to restructure its electricity market, with legislation passed in 1997. Soaring electricity prices and power shortages in 2000 and early 2001 caused the state to suspend or abandon many features of that legislation. Retail power choice was suspended. A Consumer Power and Conservation Financing Authority was set up to ensure that the state get a reasonable supply of power. However, the Authority has not included wind energy in the long-term power contracts it has signed. As a result, in spite of the incentives for wind power offered by the California Energy Commission, few wind projects were moving forward in the state as of 2002.

State tax incentives:

California adopted a Solar and Wind Energy System Credit (SB17x2 Tax Credit) in 2001 which provides a personal and corporate income tax credit for the purchase and installation of solar or wind energy systems with a generating capacity of up to 200 kW. After January 1, 2001, and before January 1, 2004, the credit is equal to the lesser of 15% of the cost paid for the purchase and installation of a solar or wind energy system after deducting the value of any municipal, state, or federal sponsored financial incentives, or $4.50 per rated watt of the system. After January 1, 2004, and before January 1, 2006, the credit drops to 7.5% of the cost of the system. More information about the credit is available at http://www.consumerenergycenter.org/renewable/tax_credit.html.

Other economic and financial incentives:

Rebate on home and small business wind energy systems: California offers a rebate (or "buy-down") of up to 50% on wind systems of 10 kW or less to customers of Pacific Gas and Electric, San Diego Gas and Electric, Southern California Edison, and Bear Valley Electric Company. Purchasers of the qualifying systems must apply to the California Energy Commission, and rebates are issued on a first-come first-served basis. This rebate, funded by a public benefit charge on ratepayers of the participating utilities, is one of only two such rebates

existing nationwide. For more information on this key incentive see http://www.awea.org/smallwind/california.html, call 1-(800) 555-7794 (in Calif.) or (916) 654-4058 (outside Calif.), or email: renewable@energy.state.ca.us.

Zoning: The California legislature has passed a new law to facilitate the permitting of small wind turbine installations throughout "non-urbanized" California. The law (AB 1207) enunciates new, statewide limits on tower height (65 ft on one to five acres, and 80 ft on five acres or more), setback requirements, noise level, and other issues. The law will provide relief from 35-ft height restrictions and other barriers that exist in many counties to the local permitting of small wind turbines.

Net metering: California has a net metering law and has extended the limit on the size of eligible wind energy systems to 1,000 kW (1 MW). The Los Angeles Department of Water and Power is exempt from the statewide net metering program. Municipal utilities are authorized to request the use of two meters, one to measure generation and the other to measure production, under a system called "co-metering." The customer is credited for all production, but all electricity purchased from the grid is billed at the full retail rate. "Co-metering" is also applied statewide to any wind system above 50 kW in size. Overall enrollment is capped at 0.5% of peak generation for each utility. Net metering customers are billed annually, but may request monthly billing. Net excess generation at the end of the billing period is usually granted to the utility. For more information see http://www.awea.org/smallwind/california.html, http://www.energy.ca.gov/greengrid/net_metering.html.

Commercial loans: A Small Business Energy Loan Program of the California Energy Commission (CEC) offers low interest (5%) loans to qualified small businesses for the demonstration of alternative energy and efficiency technologies, including wind. This program does not fund energy research and development projects.

Green Power product support: The CEC started offering a Customer Credit for the purchase of green power in 1998, but the credit was in effect discontinued in 2001 with suspension of customer choice in the state. For more information on customer credits see the California Energy Commission's Web site at http://www.energy.ca.gov/greenpower/index.html.

Legislative and regulatory incentives:

General support from system benefits charges: As part of California's electric industry restructuring legislation, renewable electricity generation technologies are supported through a system benefit charge. Funding for energy efficiency, renewables and research and development was extended (AB 995) through 2012. Forty-five percent of these funds support existing renewables including utility-scale wind projects, 30% support new renewables including utility-sale wind, 10% support emerging renewables such as photovoltaics and small wind turbines (among others through the customer buy-down incentives mentioned above), and 15% support the green power market. In late 2000, to help alleviate part of the state's power generation shortfalls, the CEC reallocated some funding from the existing technologies account to the new technologies account. For details on each program, see the California Energy Commission's Web site at http://www.energy.ca.gov/renewables/renewables_fact_sheet.html.

Renewables Portfolio Standard (RPS): The California Legislature passed a renewables portfolio standard for the state requiring utilities to acquire 20% of their electricity from renewable sources by 2017, effectively doubling the contribution of renewables to California electricity supply. The new law, adopted in August 2002, mandates that California's utilities and other sellers of electricity increase by at least 1% per year the share of their electricity that comes from renewable sources including wind, solar, geothermal, and biomass.

Research and outreach programs:

Public Interest Energy Research (PIER): The CEC has a research and development budget of approximately $62.5 million a year, ending in 2012. This includes funding for an Energy Innovations Small Grant (EISG) program.

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COLORADO

Total state land area (km^2): 268,311
Class 3 + available windy land area (km^2): 43,200
Wind energy potential, in billions of kWh per year: 481
Wind energy potential, average power, in MW: 54,900
Installed utility-scale wind energy capacity (01/2002): 61.2 MW

The Department of Energy's National Renewable Energy Laboratory (NREL) and National Wind Technology Center (NWTC), where engineers, designers, and manufacturers collaborate to improve wind technology, are located near Golden, Colo.

The state is also notable for the WindSource green pricing program, one of the nation's first, launched jointly by the state's largest utility, Public Service Company of Colorado (PSCo), and a regional conservation group, the Land and Water Fund of the Rockies (LAWFund). The program was developed after several attempts by conservation groups to persuade the legislature to mandate the development of wind energy by PSCo ended in stalemate. WindSource, a similar program initiated by the municipal utility Fort Collins Light & Power, and other local programs provide examples of green power product marketing in a state that has not restructured its electric industry.

The Colorado Electric Advisory Panel in 1999 rejected an electricity restructuring bill and prevented it from passing the state legislature. The panel found that the Public Service Company of Colorado, with a 70% market share, would be capable of raising prices throughout the state in a deregulated environment. The Colorado PUC nonetheless requires utilities to itemize the fuel sources used for generated and purchased electricity. The unbundling of costs is intended to educate consumers on the costs and sources of generation and the separate costs of power generation and delivery.

State tax incentives:

None

Other economic and financial incentives:

Net metering: Net metering is available for qualifying facilities with a total capacity of 10 kW or less. There is no statewide limit to the amount of net metering generating capacity. Monthly net excess generation is carried over to the following month, and customers are billed annually.

Legislative and regulatory policies:

None. A Renewables Portfolio Standard (RPS), which requires investor-owned utilities to acquire a growing proportion of their power from renewable sources, is under discussion in Colorado. In April, 2002, the State Senate passed a 10%-by-2010 RPS.

Research and outreach programs:

None

Contact:

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CONNECTICUT

Total state land area (km^2): 12,618
Class 3+ available windy land area (km^2): 669
Wind energy potential, in billions of kWh per year: 5
Wind energy potential, average power, in MW: 571
Installed utility-scale wind energy capacity: 0

Connecticut has passed electric industry restructuring legislation that includes some renewable energy provisions. Retail competition was introduced in 2000.

State tax incentives:

Property tax incentive: The state of Connecticut allows municipalities the option of offering industrial, commercial, and residential property tax exemptions for certain renewable energy systems. Such systems include solar space and water heating, photovoltaics, wind systems, and micro-hydro. Contact your town clerk to determine whether your municipality has adopted such an exemption.

A corporate business tax exemption for companies engaging in research, design, manufacture, sale, or installation of alternative energy devices has been discontinued.

Other economic and financial incentives:

Net metering: Connecticut's Department of Public Utility Control established net metering in 1990 for residential renewable energy systems up to 100 kW in capacity. The state's restructuring legislation (1998) updated the law and lifted the limit on system size. Utilities are required to credit customers for net excess generation, but by how much is not specified.

Legislative and regulatory policies:

Renewables Portfolio Standard (RPS): The state's electric restructuring legislation includes an RPS of 0.5% in 2000, increasing to 1% by July, 2002, and to 6% by July, 2009, for class I renewables including wind. Electric service providers may meet the RPS requirements by participating in a renewable energy credit (REC) trading program. The RPS has been stymied by poor implementation by the state commission.

Research and outreach programs:

Renewable Energy Investment Fund: Created as part of Connecticut's restructuring legislation, the fund is capitalized by a system benefits charge, expected to collect about $10 million from 2000 to 2005. The Connecticut Clean Energy Fund (CCEF), which has been set up to manage the funding, actively seeks investment opportunities to establish competitive clean energy companies in the state.

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DELAWARE

Total state land area (km^2): 5,005
Class 3+ available windy land area (km^2): 480
Wind energy potential, in billions of kWh per year: 2
Wind energy potential, average power, in MW: 197
Installed utility-scale wind energy capacity: 0

Delaware's small wind resource is located mainly along the shore, where resort development and concerns about migratory birds have largely precluded utility-scale wind projects. Certain areas of the state are suitable for small wind applications.

Delaware restructured its electricity industry and introduced retail competition in 1999 (HB 10).

State tax incentives:

None

Other economic and financial incentives:

Net metering: Net metering is available for qualifying renewable energy systems under 25 kW under legislation enacted in 1999 as an amendment to the state's electricity restructuring act, HB 10. No statewide limit on overall enrollment is specified. The treatment of any excess generation is not specified.

Legislative and regulatory policies:

None. A public benefits fund supports efficiency, conservation, low-income fuel assistance, and solar energy programs, but does not specifically include wind energy projects.

Research and outreach programs:

None

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FLORIDA

Total state land area (km^2): 140,363
Class 3+ available windy land area (km^2): 0
Wind energy potential, in billions of kWh per year: 0
Wind energy potential, average power, in MW: 0
Installed utility-scale wind energy capacity: 0

The absence of a good wind resource rules out utility-scale wind projects in the state. Certain areas of the state may be suitable for small wind systems.

Electric restructuring legislation has not been passed in Florida. In 2002, the Florida legislature passed a bill directing the state's Public Service Commission to undertake a study of renewable energy resources in the state.

State tax incentives:

None

Other economic and financial incentives:

There is no state net metering legislation. Two utilities make it available, with differing requirements.

Legislative and regulatory policies:

Disclosure: The Florida Public Service Commission ruled in 1999 that investor-owned utilities must disclose to consumers the sources of generated and purchased electricity by fuel type.

Research and outreach programs:

None

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GEORGIA

Total State land area (km^2): 150,365
Class 3+ available windy land area (km^2): 90
Wind energy potential, in billions of kWh per year: 1
Wind energy potential, average power, in MW: 171
Installed utility-scale wind energy capacity: 0

The near-absence of a good wind resource makes utility-scale wind projects feasible only in the northernmost fraction of the state. Certain areas may be suitable for small wind systems.

State tax incentives:

None

Other economic and financial incentives:

None

Legislative and regulatory policies:

Net metering legislation (SB 93) was passed in 2001. Net metering is available to residential and commercial customers installing solar, wind, or fuel cell systems up to 10 kW (residential) or 100 kW (commercial) in size. Net excess generation is carried over to the following month, and, at the end of an annual period, granted to the utility.

Research and outreach programs:

None

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HAWAII

Total State land Area (km^2): 16,636
Class 3+ Available Windy Land Area (km^2): NA
Wind energy potential, in billions of kWh per year: NA
Wind energy potential, average power, in MW: NA
Installed utility-scale wind energy capacity (01/2002): 1.56 MW

Experimental wind turbines were installed in Hawaii in the early 1980s, including the MOD-OA, a 200-kW machine, and the MOD-5B, a 3.2-MW turbine developed by the Department of Energy and the National Aeronautical and Space Administration. Fifteen 600-kW Westinghouse turbines were also installed at that site, Kahuku on Oahu.

An off-grid, "village power" project on Kahua Ranch uses three 10-kW Bergey wind turbines, a 10-kW PV array, and a 30-kW diesel generator, in conjunction with a battery bank and pumped hydro system, to supply power to a greenhouse and 11 homes and shops on the ranch.

Several utility-scale wind projects are under consideration. GE Wind is no longer planning to develop its Hawaii projects at Kahua Ranch on the Big Island (9.75MW) and on Maui (20MW). Both projects are at an advanced stage of development and GE Wind is in final negotiations to sell these pre-development assets. Other proposed projects include a 3-MW project at Hawi and the repowering of a 9.75-MW project at South Point on the Big Island coupled with expansion to 20 MW.

State tax incentives:

A corporate and personal income tax credit equal to 20% of the cost of a wind energy system has been extended until 2003. Tax credits that exceed the taxpayer's income tax liability may be used as credit against the taxpayer's income tax liability in subsequent years until exhausted.

A bill (S.B.#2166) was passed in 2000 allowing wind farms to qualify for the state's enterprise zone program.

Other economic and financial incentives:

Net metering legislation was enacted in June, 2001, limiting eligibility to solar, wind, biomass, and hydroelectric systems up to 10 kW in size, and to residential and small commercial customers. Net metering capacity is capped at 0.5% of each utility's peak demand or a total net metering capacity of around 10 MW. Customers whose system produces more electricity than is needed can net their energy bill to zero, but will not receive credit for net excess generation. Utilities cannot require that additional controls, tests, or liability insurance be installed or purchased for standardized interconnection agreements.

Funds once available for wind energy development from Hawaii's Division of Energy, of the Department of Business, Economic Development and Tourism, have expired.

Legislative and regulatory policies:

Renewable energy goal: Legislation setting a renewable energy goal was enacted in 2001. The goal starts with the existing amount of renewables (7%), increasing to 8% by 2005 and 9% by 2010. There is no penalty for non-compliance.

A bill (H.B. 1893) was passed in 2000 calling for actions that "reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications." No specific actions have been identified or approved.

Research and outreach programs:

None

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IDAHO

Total state land area (km^2): 213,499
Class 3+ available windy land area (km^2): 7,370
Wind energy potential, in billions of kWh per year: 73
Wind energy potential, average power, in MW: 8,290
Installed utility-scale wind energy capacity: 0

Idaho has the 13th largest wind energy potential of the contiguous states. Yet the state's policies do not promote the development of this form of energy. The state has decided against electric restructuring at this time.

State tax incentives:

Personal income tax credit: Residential taxpayers can claim an income tax deduction of 40% of the cost of installation of a solar, wind, or geothermal electric or heating system in the year of installation (capped at $5,000) and 20% of the cost for three years thereafter. The deduction may not exceed $5,000 in any one taxable year

Other economic and financial incentives

Net metering: Net metering is available for systems under 100 kW. Net excess generation at the end of the monthly billing period is purchased at avoided cost.

Loans: A program of the Energy Division of the Idaho Department of Water Resources (IDWR) makes 5-year loans available at a 4% interest rate for wind and other renewable energy. Residential loans ranging from $1,000 to $10,000 are available. Commercial and industrial loans are capped at $100,000. Certain restrictions apply. For more information see the IDWR Energy Division Web page on the loan program at http://www.idwr.state.id.us/energy/Financial/.

Legislative and regulatory policies:

None.

Research and outreach programs:

None.

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ILLINOIS

Total state land area (km^2): 144,120
Class 3+ available windy land area (km^2): 6,790
Wind energy potential, in billions of kWh per year: 61
Wind energy potential, average power, in MW: 6,980
Installed utility-scale wind energy capacity (01/2002): 0

Illinois is ranked 16th of the contiguous states in wind energy potential. The state passed electric restructuring legislation in 1997. The legislation is being implemented gradually. Customer choice is being phased in for commercial and industrial consumers beginning in 1999, and for residential customers in 2002.

State tax incentives:

Property tax: Illinois has a property tax provision for renewable energy systems including wind which allows such a system to be valued at no more than a conventional energy system. This special assessment provision applies to industrial, commercial, and residential sectors.

Other economic and financial incentives:

Net metering: Commonwealth Edison established in 2000 a special billing experiment which allows for net metering of solar and wind energy electrical generating systems of 40 kW or less. The program is available to all customer classes with the total enrollment limited by an installed generating capacity not to exceed 0.1% of the utility's annual peak demand. Net excess generation will be purchased at the utility's avoided cost. For more information on net metering and incentives for small wind systems in Illinois, see AWEA's Web site at http://www.awea.org/smallwind/illinois.html.

Rebates/ buy-down: Funds can be granted for a wind project 10 kW or more in size, up to 60% of the project cost with a maximum of $300,000 per project. Eligible applicants include associations, individuals, private businesses, public and private schools, colleges and universities, not-for-profit organizations, and units of state and local government. Potential recipients for program funding must be located within the service area of an investor-owned or a municipal gas or electric utility or an electric cooperative that imposes the Renewable Energy Resources and Coal Technology Development Assistance Charge.

State grants: A Renewable Energy Resources Program administered by the Bureau of Energy and Recycling under the Department of Commerce and Community Affairs funds capital projects of renewable energy technology including wind. Grants roughly range from $60,000 to $1 million, and current appropriations per year for the program are approximately $5 million.

This funding is not available for residential projects. The program has awarded a $2.75 million renewable energy grant to Navitas Energy, Inc., to develop a 50-MW wind power project in Lee County near Mendota in northern Illinois.

Illinois Clean Energy Community Trust: This is a one-time $250 million non-replenishable trust set up in 1999 in negotiations with ComEd over the windfall profits the utility made from selling off its coal power plants. A portion of the funds ($50 million) goes to clean coal technology and development, and a portion to efficiency, renewable energy, and environmental projects.

The City of Chicago has a $100 million fund, based on a city franchise agreement with ComEd, for environmentally beneficial projects. Although no wind projects have been submitted, the fund could support such projects. The City also included preference for renewable energy in an RFP for electric power issued with 47 neighboring municipalities in 2000 and has begun to buy some renewable power. ComEd is planning on purchasing power from a wind farm to be built in Illinois to supplement landfill gas and solar power sources.

Legislative and regulatory policies:

System benefits charge: The 1997 electric utility restructuring law includes a system benefits charge expected to generate about $100 million over 10 years. A portion of these funds support the grant and rebates programs described above.

Disclosure: The state's electricity restructuring legislation requires disclosure by electricity retailers to consumers of the sources of the electricity they provide, in pie chart form, inserted in their bills. Emissions information (including nuclear waste) must also be provided by electric suppliers on a quarterly basis.

The Illinois Resource Development and Energy Security Act, signed into law in 2001, . includes a call for 5% of the State's energy production and use to come from renewable energy by 2010 and 15% from renewable energy by 2020. However, the goal is not supported by an implementation schedule, compliance verification, non-compliance penalties, or credit trading provisions.

Research and outreach programs:

Some research and outreach programs may be funded by the Renewable Energy Resources and Efficiency Programs and the Illinois Clean Energy Community Trust.

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INDIANA

Total State Land Area (km^2): 93,064
Class 3+ Available Windy Land Area (km^2): 36
Wind energy potential, in billions of kWh per year: 0
Wind energy potential, average power, in MW: 30
Installed utility-scale wind energy capacity: 0

Indiana's wind resource is very small.

Electricity restructuring bills have repeatedly been proposed without coming close to adoption by the legislature.

State tax incentives:

Residential property tax incentive: Indiana's property tax code exempts from property taxes a renewable energy device and affiliated equipment including equipment for storage and distribution installed on residential property. This differs from the property tax exemptions for renewable energy systems provided in most other states, which typically allow for the renewable energy system to be valued at no more than the value of a conventional system. Indiana's code includes renewable energy systems attached to mobile homes.

Other economic and financial incentives:

Small grants: Small-scale grants to businesses, universities, and other institutions for alternative energy projects including wind are available through the Department of Commerce. Grants range in size from $2,000 to $10,000. Applications are evaluated on economic development goals, practical and technical feasibility, project economics, and energy savings. For more information see the Indianan Department of Commerce Web site at http://www.state.in.us/doc/energy/transportation.html Grants may also be available from the Department for renewable energy demonstration projects.

Net metering: Net metering is available for renewable energy, including wind, for qualifying systems producing up to 1,000 kWh/month. Excess generation at the end of the monthly billing period is granted to the utility.

Legislative and regulatory policies:

Integrated resource planning requirements by the Indiana Utility Regulatory Commission allow renewable energy to be included in demand-side management programs.

Research and outreach programs:

None

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IOWA

Total state land area (km^2): 144,950
Class 3+ available windy land area (km^2): 56,900
Wind energy potential, in billions of kWh per year: 551
Wind energy potential, average power, in MW: 62,900
Installed utility-scale wind energy capacity (01/2002): 324 MW

Iowa is the state with the nation's 10th largest wind energy potential. As a result of 1983 and 1991 state laws requiring utilities to obtain 2% of their electricity from renewable energy, Iowa installed 240 MW of new wind capacity in 1998 and 1999. New wind farms continue to be built in Iowa, bringing the total installed capacity at the beginning of 2002 to 324 MW.

An effort in 2000 to pass restructuring legislation in Iowa ended in a stalemate. AWEA and other groups have called for an RPS of 10% by 2015 to be included in any such legislation. Information on wind energy in Iowa and policies advocated by AWEA and allied groups can be found on the Web at http://www.iowawind.org/.

In addition to large utility-scale wind farms located in the northwestern portion of the state, Iowa has more than 40 small-scale, grid-connected wind systems, referred to as distributed generation.

State tax incentives:

Property tax incentive: Iowa allows any city or county to assess wind energy systems at a special valuation for property tax purposes. Eligible sectors include residential, commercial, and industrial. Those local governments offering this special assessment must follow state guidelines on assessment of valuation, initially assessing the value at 0 and increasing to 30% of its cost in the seventh and succeeding years.

Sales tax incentive: Iowa exempts from the state sales tax the total cost of wind energy equipment and materials used to manufacture, install, or construct wind energy systems. The exemption applies to the commercial and residential sectors, but does not cover the sales taxes paid by a company in purchasing equipment to construct a plant to manufacture wind systems.

Other economic and financial incentives:

Loans: The Iowa Energy Center (IEC) administers the Alternate Energy Revolving Loan Program, a competitive loan program available to residential, commercial, and industrial applicants which offers zero-interest loans for up to half of the project cost up to a maximum of $250,000. Ten percent of the funds are available for small wind (<10 kW) and 20% for large wind (>10 kW). Funding for this program has decreased.

Loans: Iowa's Energy Bank Program provides financing for public and non-profit agencies for energy conservation programs, which can include renewable energy. Eligible organizations include public and private K-12 schools, community colleges, area education

agencies, hospitals, local government, private colleges, and state agencies. The goal is to make loans that can be repaid by the energy savings resulting from the project.

Net metering: Iowa's net metering rule specifies that if electricity generated by the customer exceeds the electricity supplied by the electric utility, the customer shall be credited for the excess kilowatt-hours generated during the month at the utility's avoided cost. At the end of the calendar year, the electric utility shall compensate the customer-generator for any remaining net excess generation at avoided cost. All customer classes are eligible. Iowa's net metering rule was suspended by a District Court Order in 1999 upon petition by MidAmerican Energy, one of the state's large utilities. In 2001, however, the Federal Energy Regulatory Commission upheld Iowa's net metering rule when it rejected the MidAmerican Energy petition to overturn the rule's requirements.

Grants: Renewable energy is one of three categories under which the Iowa Energy Center awards research grants.

Legislative and regulatory policies:

Mandatory set-asides: Iowa's 1983 Alternate Energy Production legislation required the state's investor-owned utilities to purchase a minimum combined total of 105 MW of their generation from renewable sources. Implementation was fought and successfully delayed by utilities, which were ultimately mandated in clarifying legislation passed in 1990 and 1992 to enter into their contracts for their share of the requirement, totaling approximately 2% of the state demand for 1990. Utilities then filed an appeal with the Federal Energy Regulatory Commission (FERC), which issued an order in 1997 that did not overturn the legislation. The requirement was finally implemented in 1998 and 1999.

Although this inventory does not cover green pricing programs, it should be noted that in 2001 Iowa required all electric utilities operating in the state to offer green power options to their customers beginning January 1, 2004.

Research and outreach programs:

The Iowa Energy Center at Iowa State University runs research programs on alternative energy (biomass and wind), energy efficiency, and energy information technologies. The Center is involved in assessing wind resources and developing a model for siting of wind turbines. IEC also administers a research grant program for renewable energy and energy efficiency. IEC's semi-monthly newsletter, *Perspectives*, covers the Center's research, demonstration and education initiatives.

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KANSAS

Total state land area (km^2): 211,814
Class 3+ available windy land area (km^2): 108,600
Wind energy potential, in billions of kWh per year: 1,070
Wind energy potential, average power, in MW: 121,900
Installed utility-scale wind energy capacity (01/2002): 113.7 MW

Kansas is the state with the nation's third largest wind energy potential. According to the U.S. Energy Information Administration, it is also one of the four states with the most land near existing transmission lines which is suitable for wind energy development, making the state a leading candidate for utility-scale wind energy development. Small, off-grid, and grid-connected wind energy systems are numerous in Kansas. In 2001, the first utility-scale wind farm, totalling 109 MW in generating capacity, was installed in Montezuma.

Discussions regarding electricity restructuring are under way in the state.

State tax incentives:

Renewable energy property tax incentive: Renewable energy property (not defined in the statute, but understood to include generating equipment although probably not land) is exempted from the state property tax under Kansas statute 79-201 (http://www.accesskansas.org/legislative/statutes/index.cgi/79-201.html). The statute does not limit eligibility, so commercial as well as residential or farm turbines could be included.

Other economic and financial incentives:

Grants: The Kansas Corporation Commission administers as part of the State Energy Program (SEP) a program for renewable energy systems in the industrial, commercial, and public. The program is funded with petroleum violation escrow funds in the amount of approximately $400,000-$500,000 per year, and awards grants up to $50,000. Projects with commercial applications are favored. Grants from this program may not go toward research and development. Applications are accepted on an ongoing basis; decisions on awards are made once a year.

Legislative and regulatory policies:

None

Research and outreach programs:

The Kansas Electric Utilities Research Program (KEURP) is a cooperative venture of seven electric utilities: Kansas Gas and Electric, Kansas Power and Light, Kansas City Power & Light Company, Midwest Energy, Inc., Sunflower Electric Power Corporation, The Empire District Electric Company, and WestPlains Energy, Inc. The partners' voluntary contributions total approximately $1 million per year and often leverage grants from the federal government

and Kansas universities. Projects have included assessment of Kansas' renewable energy resources including wind and a wind siting study with DOE funding.

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KENTUCKY

Total state land area (km^2): 102,743
Class 3+ available windy land area (km^2): 49
Wind energy potential, in billions of kWh per year: 0
Wind energy potential, average power, in MW: 34
Installed utility-scale wind energy capacity: 0

The lack of a good wind resource rules out large utility-scale wind development in the state. Certain areas of the state may be suitable for small wind systems.

Kentucky has not restructured its electricity market. The state already has the third lowest retail rates in the nation. In 2000, Bowling Green Municipal Utilities and eleven other distributors of Tennessee Valley Authority (TVA) power began offering their customers the option of participating in a green pricing market program including wind.

State tax incentives:

None

Other economic and financial incentives:

None.

Legislative and regulatory policies:

None

Research and outreach programs:

None

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LOUISIANA

Total State land Area (km2): 115,310
Class 3+ Available Windy Land Area (km2): 0
Wind energy potential, in billions of kWh per year: 0
Wind energy potential, average power, in MW: 0
Installed utility-scale wind energy capacity: 0

The absence of a good wind resource rules out utility-scale wind projects in the state.

The state has not restructured its electricity markets.

State tax incentives:

None

Other economic and financial incentives:

None. State funds for alternative energy demonstration projects are available and have funded solar and fuel cell projects. Anemometers on two building sites included in one project measured over 18 months a wind resource of less than 6 mph.

Legislative and regulatory policies:

None

Research and outreach programs:

None

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MAINE

Total state land area (km^2): 80,277
Class 3+ available windy land area (km^2): 5,420
Wind energy potential, in billions of kWh per year: 56
Wind energy potential, average power, in MW: 6,390
Installed utility-scale wind energy capacity: 0.1 MW

Maine's is ranked 19th of the contiguous states for wind energy potential, making it suitable for both utility-scale projects and small wind energy systems.

Maine passed an electricity restructuring legislation in 1997 allowing retail competition in 2000.

State tax incentives:

None

Other economic and financial incentives:

Net metering: A revised net metering rule has been issued in 1998 to facilitate net metering in the state's restructured electricity market. Net metering is allowed for the state's qualifying technologies, including wind, with a maximum capacity of 100 kW. Net excess generation at the end of the monthly billing period is credited to the next. Unused credit at the end of the year is granted to the utility.

Legislative and regulatory policies:

Renewables Portfolio Standard: A 30% RPS is included in the state's electric industry restructuring legislation. While this percentage appears high, an even higher proportion of the state's energy is already supplied by hydropower plants, which qualify under the RPS if they are under 70 MW in capacity. The 30% RPS and 70-MW cut-off level were selected in order to try to preserve the state's dams while preventing Canada's HydroQuebec from penetrating the market and filling the RPS requirement with energy from its own massive dams. Moreover, should electricity production from dams and other renewables exceed the 30% RPS, Maine would hope to sell some of its own production as green power in regional trading with neighboring states seeking to meet their own RPS requirements. (Note: California's CEC has selected 30 MW as the cut-off size for hydro facilities qualifying as "green power" generating facilities). The RPS is therefore unlikely to trigger development of additional renewable energy in the state.

Maine's restructuring legislation required that the state's Public Utility Commission (PUC) disclosure rules cover information on rates, terms, and conditions, but did not explicitly call for rules on the disclosure of resource or fuel mixes. The PUC has nonetheless called for

disclosure on emissions, and Maine utilities started disclosing information on fuel source and emissions in 2000.

Research and outreach programs:

A research and development fund, funded by voluntary check-off by customers rather than a systems benefit charge, can award grants to renewable R&D programs.

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MARYLAND

Total state land area (km^2): 25,477
Class 3+ available windy land area (km^2): 605
Wind energy potential, in billions of kWh per year: 3
Wind energy potential, average power, in MW: 338
Installed utility-scale wind energy capacity (01/2002): 0

Maryland's wind resource is limited, with the best wind resource located in the northwestern part of the state. Certain areas of the state are suitable for small wind systems.

Maryland passed electricity restructuring legislation in 1999.

State tax incentives:

The Maryland Clean Energy Incentive Act of 2000 includes a sales tax exemption and tax credit for some forms of renewable energy generation, but not for wind energy systems.

Other financial incentives:

None. Net metering and other existing incentives apply only for solar energy.

Legislative and regulatory policies:

Disclosure: The state's electricity restructuring law requires disclosure of fuel sources.

Research and outreach programs:

None

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MASSACHUSETTS

Total state land area (km^2): 20,625
Class 3+ available windy land area (km^2): 3,250
Wind energy potential, in billions of kWh per year: 25
Wind energy potential, average power, in MW: 2,880
Installed utility-scale wind energy capacity (01/2002): 1 MW

Massachusetts has a good utility-scale wind resource along the coast and islands and in some northwestern parts of the state. Certain areas are also suitable for small wind systems.

Massachusetts passed electricity restructuring legislation in 1997. A referendum to repeal the law was held in 1998 and failed. As in other states that are restructuring the electricity market, existing incentives are being phased out as the state makes the transition to programs to be established under the Renewable Energy Trust Fund funded by the System Benefits Charge (SBC) included in the electricity restructuring legislation.

State tax incentives:

Sales tax incentive: Purchases of solar, wind, and heat pump systems and all related equipment are exempt from the state's 5% sales tax. This exemption is limited to systems used in an individual's principal residence.

Local property tax incentive: A local property tax exemption can be claimed for solar, wind, and hydro power facilities that serve as the primary or auxiliary power source for any residential, commercial, or utility building from local property taxes. The exemption is limited to 20 years.

Corporate income tax incentives: Corporations can deduct from their taxable income the cost of purchasing and installing a solar or wind system for space or water heating purposes. Solar or wind powered systems are also exempt from the corporate excise tax for the length of their depreciation period.

Personal income tax credit: Individuals can deduct from the state personal income tax 15% of the cost of a renewable energy system installed on their primary residence. The maximum limit to the credit is $1,000 and can be carried over if the credit is greater than one's income tax liability in one year.

Alternative energy patent exemption: Massachusetts offers a five-year corporate or personal income tax exemption for income received from the sale of or royalties generated from a patent deemed beneficial for energy conservation or alternative energy development. The Commissioner of Energy Resources determines whether a patent is eligible.

Other economic and financial incentives:

Funding from System Benefits Charge (SBC): Massachusetts' restructuring legislation includes a universal SBC that supports the Massachusetts Renewable Energy Trust Fund. Funding is expected to total roughly $150 million for renewable energy technologies over a five-year period, with approximately $20 million per year for an undefined period beyond 2002 pending legislative approval. The Fund, through the Massachusetts Renewable Energy Collaborative (MREC) of the Massachusetts Technology Park Corporation (MTPC), supports, among others, the development of wind energy and has issued a solicitation for green power predevelopment financing proposals.

Net metering: Qualifying facilities with generation capacity of 60 kW or less can qualify for net metering in Massachusetts. Net excess generation at the end of the monthly billing period is credited at avoided cost to the following month. Distribution companies are prohibited from imposing special fees on net metering customers, such as additional controls, or liability insurance, as long as the generator meets the interconnection standards and all relevant safety and power quality standards. Net metering customers must still pay the minimum charge for distribution service and all other usual charges.

Legislative and regulatory policies:

Renewables Portfolio Standard (RPS): As part of its restructuring legislation, Massachusetts established an RPS at existing levels in 2000 and increasing by 1% in 2003 and 1.5% per year thereafter until 2009, to be supplied by new generating capacity from renewable resources including wind. The Massachusetts Department of Energy Resources (DOER) released the rule to implement the RPS in February, 2002. Copies of the rule and of public and agency comments are available on DOER's Web site at http://www.state.ma.us/doer. The rule allows imports of electricity from neighboring states to qualify as the basis for RPS credits, although it requires the power to be "delivered" into the New England Independent System Operator (ISO NE) system. The rule also allows the use of a tradable certificate mechanism, annual settlement, and a limited degree of banking (but only by retail suppliers, not generators or intermediaries). Small wind (off-grid or behind the retail meter) located in Massachusetts may be used for compliance. There is a 5 cents/kWh alternative compliance mechanism which will serve as an effective price cap.

Disclosure: As part of its electric utility restructuring legislation, Massachusetts requires the disclosure of fuel sources and emissions to end-use customers.

Research and outreach:

Massachusetts's Division of Energy Resources supports the development of environmentally sound energy production technologies, including wind, through demonstration and testing in partnership with the private sector and cities and towns.

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MICHIGAN

Total state land area (km^2): 147,511
Class 3+ available windy land area (km^2): 7,440
Wind energy potential, in billions of kWh per year: 65
Wind energy potential, average power, in MW: 7,460
Installed utility-scale wind energy capacity (01/2002): 2.4 MW

Michigan's wind energy potential is ranked the 14th largest among the contiguous states.

Electricity restructuring legislation was signed into law in 2000, and the state's Public Service Commission has since issued orders to implement the restructuring. Retail competition opened in January 2002.

State tax incentives:

None

Other economic and financial incentives:

Wind turbine and solar photovoltaic (PV) incentive program. Michigan started offering in 2001 a $3-per-watt payment to install a wind turbine or PV system, up to a maximum payment of $5,000 per applicant. The funds were exhausted within four months. The incentive has not been extended.

Legislative and regulatory policies:

Disclosure: The state's restructuring law (Section 10r(6) of Michigan's restructuring legislation (Public Act 141, 2000)) and implementing regulations require electric suppliers to disclose no more than twice a year the fuel mix and associated emissions.

Research and outreach programs:

None

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MINNESOTA

Total State Land Area (km^2): 206,030
Class 3+ Available Windy Land Area (km^2): 61,900
Wind energy potential, in billions of kWh per year: 657
Wind energy potential, average power, in MW: 75,000
Installed utility-scale wind energy capacity (01/2002): 319 MW

Minnesota's wind energy potential is ranked the 9th largest of the contiguous states. Minnesota, along with Iowa, led the nation in installation of utility-scale wind generators in 1998 and 1999. The state is also home to a large number of small off-grid and grid-connected wind energy systems.

Minnesota has not restructured its electricity industry. It adopted in 2001 an energy bill that includes some renewable energy provisions (a non-mandatory renewables portfolio "target" and requirement that utilities offer green pricing programs).

Tax incentives:

Sales tax incentive: Minnesota's Wind Energy Equipment Exemption exempts from the state sales tax the total cost of wind energy devices. The exemption includes equipment and all materials used to manufacture, install, construct, or repair such systems.

Property and production tax provisions: Minnesota adopted in 2002 a tax on the production of electricity from wind turbines, rather than the property value of the equipment. The law (HF2498, Sec. 12.) sets a sliding rate based on the scale of the project or turbine:
-- for a large scale wind energy conversion system, .12 cent/kWh of electricity produced by the system;
-- for a medium scale wind energy conversion system, .036 cent/kWh of electricity produced by the system;
-- for a small scale wind energy conversion system of 2 MW or less, but greater than 250 kW, .012 cent/kWh of electricity produced by the system.
-- Small scale wind energy conversion systems with the capacity of 250 kW or less, and small scale wind energy conversion systems with a capacity of 2 MW or less that are owned by a political subdivision, are exempt from the wind energy production tax.

The wind energy production tax is paid to the county. The tax was welcomed by counties and industry alike because it provides a steady level of revenue to the county (as opposed to property taxes on depreciating equipment) and because, from the industry point of view, a tax on production is proportional to variable annual revenue.

Wind energy systems, whether used in commercial, utility-scale wind farms or for home and small business use, are exempt from local property tax.
http://www.revisor.leg.state.mn.us/slaws/2002/c377.html

Accelerated depreciation: Minnesota's Renewable Energy Equipment Accelerated Depreciation, applicable to the industrial and commercial sectors, allows qualifying renewable energy systems including wind to be depreciated using a five year/200% declining balance accounting method.

Production incentive: Minnesota's Renewable Energy Production Incentive offers payments for actual energy output of 1.5 cents per kWh of electricity generated from new wind energy projects "of 2 MW or less that begins generating electricity after June 30, 1997 and before July 1, 1999; or 2) wind generation of 2 MW or less that begins generating electricity after June 30, 1999 and is: i) owned by a natural person (i.e., not a business) and on owners' land in one county, (ii) owned by a Minnesotan small business as defined in section 645.445, (iii) owned by a non-profit entity, or (iv) owned by a tribal council and located on a reservation. (Minn. Stat. § 216C.41, subd. 1c (1998)). This incentive is intended to promote dispersed wind energy generation.

Other economic and financial incentives:

Agricultural Improvement Loan Program: Low-interest loans up to 45% of loan principal and not exceeding $125,000 are available for farmers from the state's Department of Agriculture for improvements to or additions to permanent facilities, including wind energy conversion equipment. The loans are issued by individual financial institutions working with the Rural Finance Authority of the Department of Agriculture. For more information on this program see the Web site of the Rural Finance Authority at http://www.mda.state.mn.us/AgFinance/improvement.html

Minnesota's Value-Added Stock Loan Participation Program, another low-interest loan program of the Department of Agriculture, assists farmers wishing to buy into wind generation cooperatives. The maximum size of a qualifying wind energy cooperative is 1 MW. Loans are issued by individual financial institutions working with the Rural Finance Authority. Rates under this program average 4%. For more information on this program see the Web site of the Rural Finance Authority at http://www.mda.state.mn.us/AgFinance/stockloan.html.

Note: There has been little activity in these programs, according to the Department of Agriculture, although they were in extended in 1997.

Net metering: Net metering is available for wind and other renewable energy systems and cogeneration systems up to 40 kW in capacity. There is no limit set on statewide capacity allowed under net metering. Net excess generation is purchased at "average retail utility energy rate."

Easements: Voluntary easements for solar and wind energy systems can be created in the commercial, industrial and residential sectors. For tax purposes, an easement imposed on a property may decrease, but not increase, the property value.

Renewable Development Fund: The public utility that operates the Prairie Island nuclear generating plant (currently Xcel Energy) is required transfer to a renewable development fund $500,000 per year for each spent fuel container stored at Prairie Island. The requirement became effective in January 1999. Funds will be preferably allocated to development of renewable energy source projects within the state.

Legislative and regulatory incentives:

Mandate: Minnesota mandated in 1994 that Northern States Power (NSP), now Xcel Energy, install or contract for 425 MW of wind power by 2002 and additional amounts from other renewable energy sources, in return for the right to store nuclear waste in above-ground casks at its Prairie Island nuclear power plant. This mandate has resulted in the construction of over 300 MW of wind generating capacity in the state so far. In addition, the 1994 law directed the Public Utilities Commission to order Xcel to acquire electricity from an additional 400 MW of wind energy capacity if wind energy is "in the public interest under least-cost planning and resource planning analysis." The PUC issued such an order in 1999, requiring Xcel to meet the requirement by 2012.

Renewables portfolio target: A 2001 law (216B.1691) requires utilities to make a "good faith effort" to provide their customers with 10% of their electricity from renewable energy sources by 2015, starting with 1% in 2005 and increasing by 1% each year until 2015. Electricity from renewable energy sources acquired by Xcel in compliance with the state mandate or order cannot be counted toward that target.

Green pricing programs: Minnesota requires utilities in the state to offer green pricing programs. The requirement stipulates that rates charged to customers should "reflect the difference between the cost of generating or purchasing the renewable energy and the cost of generating or purchasing the same amount of nonrenewable energy."

Disclosure: The Minnesota Public Utilities Commission requires utilities to disclose information on fuel mix and emissions to customers semi-annually.

Accounting for externalities: An order of the Public Utilities Commission requires utilities to assign a monetary value to health and environmental damage from emissions of sulfur dioxide, carbon dioxide, nitrogen oxide, particulate matter, and lead in their evaluation of resource options (no consensus was reached on values for damages from mercury).

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General information site for renewable energy incentives in Minnesota:
http://www.commerce.state.mn.us/pages/Energy/ModTech/taxincentives.htm

MISSISSIPPI

Total state land area (km^2): 122,333
Class 3+ available windy land area (km^2): 0
Wind energy potential, in billions of kWh per year: 0
Wind energy potential, average power, in MW: 0
Installed utility-scale wind energy capacity: 0

The absence of a good wind resource rules out utility-scale wind energy development in the state.

The state has decided to suspend deliberations on restructuring its electric power industry.

State tax incentives:

None

Other economic and financial incentives:

None

Legislative and regulatory policies:

None

Research and outreach programs:

None

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MISSOURI

Total state land area (km^2): 78,568
Class 3+ available windy land area (km^2): 5,360
Wind energy potential, in billions of kWh per year: 52
Wind energy potential, average power, in MW: 5,960
Installed utility-scale wind energy capacity: 0

Missouri has a fair wind resource in the Ozark Plateau. Certain other areas of the state may also be suitable for small wind systems.

The state has not proceeded with electricity restructuring legislation. The Public Service Commission has reorganized one of the state's several regulated utilities, Kansas City Power & Light (KCPL), into three separate entities.

State tax incentives:

None.

Other economic and financial incentives:

Loans: Low-cost loans are available for energy efficiency and renewable energy projects, including wind energy, to public schools (K-12), local governments, small businesses, private schools and hospitals. This loan program was approved in 1991 and is administered by the Missouri Division of Energy under the Department of Natural Resources. The loans are provided at a fixed interest rate below the market rate and repayment schedules are determined on an individual project basis.

Missouri does not have net metering legislation.

Legislative and regulatory policies:

There are rules on the books requiring utilities to develop integrated resource plans and consider externalities in the process, but their implementation has been scaled down. Utilities now provide updates on their activities to the Missouri Public Service Commission on a voluntary basis.

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MONTANA

Total state land area (km^2): 376,564
Class 3+ available windy land area (km^2): 99,500
Wind energy potential, in billions of kWh per year: 1,020
Wind energy potential, average power, in MW: 116,000
Installed utility-scale wind energy capacity (01/2002): 0.1 MW

Montana is the state with the fifth largest wind energy potential in the nation, but that resource is not yet tapped.

Restructuring legislation was passed in 1997. Retail competition became available in 1998 for large consumers, and in 2000 for all customers of Montana Power Company, the state's largest utility, two years earlier than the law required. The market is not very active, however, and few customers have opted for competitive retail suppliers.

State tax incentives:

Corporate and personal income tax credit: The Wind Energy System Credit allows a 35% tax credit for an individual, partnership, or corporation which makes an investment of $5,000 or more in a wind electricity generating system or facilities to manufacture wind energy equipment. Eligible property includes wind energy system equipment, transmission lines, as well as equipment used in the manufacture of wind energy devices.

Property tax exemption for residential and commercial entities: The Renewable Energy Systems Exemption exempts from property taxation the value added by a qualified renewable energy source, including wind, for a period of 10 years following installation. The exemption applies to systems with up to $20,000 in value in the case of a single-family residential dwelling and $100,000 in the case of a multifamily residential dwelling or a nonresidential structure.

Montana has eliminated the Wholesale Energy Transmission Tax for wind farms on state lands. The tax is 0.015 cent/kWh.

Other economic and financial incentives:

Net metering: Montana allows net metering for qualifying facilities, including wind, with a capacity of 50 kW or less. Net excess generation is credited to the following month, with unused credit granted to the utility at the end of a 12-month period.

Use of System Benefits Charge (SBC): An SBC is being levied from 1999 to 2003 and used for a variety of programs designed by the levying utility or the state. Some of the funding supports wind energy promotion, including education and outreach, research and development, and help to buy down the cost large and small wind installations. Information about currently available incentives is available at http://www.montanagreenpower.com/index.html

Legislative and regulatory policies:

Montana's restructuring legislation does not explicitly state that resource fuel mixes must be disclosed, but the Montana Public Service Commission is considering requiring some form of disclosure and harmonizing such requirements with those of other public utility commissions in the region.

Easements: Montana's Solar & Wind Access laws allow property owners to establish solar and wind easements for the purpose of protecting and maintaining proper access to sunlight and wind. While 32 other states have solar easement provisions, only a few have specific provisions for the creation of wind easements. Montana's solar easement law was enacted in 1979 and the wind easement was enacted in 1983.

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NEBRASKA

Total state land area (km^2): 200,017
Class 3+ available windy land area (km^2): 90,300
Wind energy potential, in billions of kWh per year: 868
Wind energy potential, average power, in MW: 99,100
Installed utility-scale wind energy capacity (01/2002): 2.82 MW

Nebraska is the state with the sixth largest wind energy potential, and a joint state and federal study refining that assessment was completed in 1999. According to a U.S. Energy Information Administration study, Nebraska is also one of the four states with the most land suitable for wind energy development lying near existing (if sometimes aging) transmission lines.

Governor Mike Johanns called in 2000 for a Wind Energy Task Force and a report by the Nebraska Power Association looking into the feasibility of developing wind power in the state. The Nebraska Power Association report was released in 2002, but criticized by members of the Task Force itself as incorrectly assessing the costs of wind energy, overlooking economic benefits to Nebraska's farming community, and lacking comparison to conventional energy sources.

State tax incentives:

None

Other economic and financial incentives:

Loans: The Nebraska Energy Office makes available low-interest loans for residential and commercial energy efficiency and renewable energy projects. A renewable energy project is eligible if it is included in a list of "prequalified improvements" or if the project demonstrates that it will create a net energy savings. Those seeking a loan under this program should approach their own financial institution, which first approves the project before contacting the State Energy Office. The State Energy Office then buys half of the loan at 0% interest so that the total interest on the loan—from the borrower's perspective—will be half the market rate. Only a few renewable energy projects have been funded to date under this program.

Nebraska has not passed net metering legislation.

Legislative and regulatory policies:

Easements: Nebraska's solar and wind access law allows commercial and residential property owners to set up binding easements to protect access to sunlight and wind. While over 30 states have solar easement provisions, only three other states have created specific provisions for wind easements.

Research and outreach programs:

None

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NEVADA

Total state land area (km^2): 284,624
Class 3+ available windy land area (km^2): 5,040
Wind energy potential, in billions of kWh per year: 50
Wind energy potential, average power, in MW: 5,740
Installed utility-scale wind energy capacity: 0

Nevada's wind resource is not yet tapped. Certain areas of the state may be suitable for small wind systems.

Nevada passed electricity industry restructuring legislation in 1997, but its full implementation has been delayed indefinitely following amending legislation adopted in 2001.

State tax incentives:

Property tax incentive for industrial, commercial, and residential property: Value added by a qualified renewable energy source can be exempted from the assessed value of any residential, commercial or industrial building for property tax purposes. Qualified equipment includes solar, wind, geothermal, solid waste converters, and hydro power systems. This exemption applies for an unlimited number of years following installation.

Business property tax incentive: Businesses that recycle at least 50% of their material or product, or generate most of their electricity from renewable or recycled sources, including wind facilities with a rated capacity of 10 kW and more, are eligible for a tax exemption applying to 50% of the business property for up to 10 years.

Other economic and financial incentives:

Net metering: Nevada's metering legislation limits enrollment in a net metering program at 100 customers per utility. Qualifying facilities are solar and wind systems of 10 kW or less. Utilities are prohibited from adding any additional charges for the net metering service, and from requiring any additional standards on customer-generators beyond those established by the National Electric Code and Underwriters Laboratories. The billing period for net metering may be either a monthly period or, with the written consent of the customer-generator, an annual period. Customers are not entitled to compensation from the utility for net excess generation at the end of the chosen billing period.

Legislative and regulatory policies:

Renewables Portfolio Standard (RPS): The 1997 restructuring legislation included an RPS requiring that 0.2% of the electricity sold by utilities and other distributors come from renewable energy by January 1, 2001, rising to 1% by 2009. That RPS was augmented in 2001 to require the two investor-owned utilities in Nevada to provide 5% of their power from renewable resources by 2003, and increase that amount by 2% every two years until they reach 15% from renewables by 2013. Nevada currently generates about 3% of electricity from renewable energy sources. Five percent of Nevada's investor-owned utilities' load is equal to

more than 1.3 billion kWh of electricity, equivalent to the output from approximately 450 MW of wind power. Nevada utilities have received proposals for 3,000 MW of wind power and for a total of 4,300 MW of renewables in response to a request for proposals (RFP) issued in mid-October, following the new RPS.

Disclosure: The 1997 restructuring legislation calls for disclosure of information to retail electricity customers. The Public Service Commission has issued rules requiring disclosure of generation and emissions information twice yearly starting in 2002.

Research and outreach programs

None

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NEW HAMPSHIRE

Total state land area (km^2): 23,292
Class 3+ available windy land area (km^2): 480
Wind energy potential, in billions of kWh per year: 4
Wind energy potential, average power, in MW: 502
Installed utility-scale wind energy capacity (01/2002): 0.1 MW

New Hampshire has a number of elevated sites that may be suitable for limited utility-scale projects and has previously hosted a project of several 65-kW turbines (Mt. Tug, Canaan). Certain areas of the state may be suitable for small wind systems.

Delays in industry restructuring legislation passed in 1998, caused by a lawsuit by the Public Service Company of New Hampshire (PSNH), the state's largest utility, have given way to the introduction of retail competition in 2001.

State tax incentives:

New Hampshire allows local cities and towns to offer an exemption on residential property taxes equal to the amount of the value added to the property by the installed renewable energy system. Wind is one of several eligible renewable energy technologies.

Other economic and financial incentives:

Net metering: New Hampshire allows net metering for residential customers with wind energy generating facilities of up to 25 kW, but has set a statewide limit of 500 kW, or 0.05% of annual peak, on total capacity enrolled in net metering. An additional meter or meters to monitor the flow of electricity in each direction, although not necessary, may be installed at the utility's expense, unless such meters are requested by the customer-generator. Net excess generation is carried over to the following billing period.

Use of system benefit charges for renewables: In 2002, a bill was passed to allow renewable energy sources to be promoted and supported through the systems benefit charge for energy efficiency.

Legislative and regulatory policies:

Disclosure: Under New Hampshire electric utility restructuring legislation and a Public Utilities Commission order, electricity suppliers will be required to disclose their resource mix. The PUC has yet to specify the standards and starting date, however. The PUC order also states that portfolio standards are not the state's preferred method of supporting renewables; rather, disclosure provisions are considered more consistent with the goals of supporting renewables in an open power market.

Note: Although this survey does not look at indirect incentives such as emissions controls, it is worthwhile noting that New Hampshire passed in 2002 legislation that addresses

emissions of carbon dioxide, the leading greenhouse gas linked to global warming, as well as sulfur dioxide, nitrogen oxide, and mercury.

Research and outreach programs:

None.

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NEW JERSEY

Total state land area (km^2): 19,342
Class 3+ available windy land area (km^2): 1,480
Wind energy potential, in billions of kWh per year: 10
Wind energy potential, average power, in MW: 1,200
Installed utility-scale wind energy capacity: 0

The best of the state's limited wind resource is located along the shore, where resort development and concerns about migratory birds have largely precluded utility-scale wind projects. Some class 3 and one class 4 wind areas are located along the border with Pennsylvania and New York.

New Jersey passed electric power industry restructuring legislation in February, 1999.

State tax incentives:

Sales tax incentive: New Jersey offers a full exemption to industrial, commercial, residential, and utility taxpayers from the state 6% sales tax for solar and wind equipment. The regulations defining eligible systems expired in 2000, but the exemption remains in place.

Other economic and financial incentives:

Net metering. The 1999 restructuring law allows net metering for residential and small commercial electricity customers installing wind or photovoltaic systems, without limit on their generating capacity. However, in 2000, the NJ Board of Public Utilities (BPU) issued a draft rule to implement the requirement that would establish a 100-kW cap on the system size for systems eligible for net metering. The state has also set for the program a cumulative statewide limit of 0.1% of peak use or $2,000,000 annual financial impact. Net excess generation is credited to the following month, and unused credit at the end of the year is purchased at avoided cost.

Use of System Benefit Charges: New Jersey's electricity restructuring legislation provides for a system benefit charge (SBC) of about 0.003 cent/kWh. In 2001, the New Jersey Board of Public Utilities approved spending from SBC funds of $119 million for 2002 and approximately $124 million for 2003, 25% of which will support renewables. Residential customers can now request from their utility a direct payment, or buy-down, to reduce the initial cost of a clean generation system. The amount of the buy-down varies with the size of the system installed, and funding is available on a first-come, first-served basis. More information about this and other SBC-funded programs is available at www.njcleanenergy.com.

Legislative and regulatory policies:

Renewables Portfolio Standard (RPS): The state's RPS law (A16/F7) calls for Class 1 technologies (wind, solar, fuel cells, geothermal, wave/tidal, methane gas from landfills or biomass) to provide 0.5% of the state's electricity in 2001, rising to 1% by 2006 and 4% by 2012. The requirements can be met through a credits trading program.

Disclosure: New Jersey requires electricity providers to disclose to customers information about electricity sources, emissions, and energy efficiency.

Research and outreach programs:

None

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NEW MEXICO

Total state land area (km^2): 314,258
Class 3+ available windy land area (km^2): 46,100
Wind energy potential, in billions of kWh per year: 435
Wind energy potential, average power, in MW: 49,700
Installed utility-scale wind energy capacity (01/2002): 1.3 MW

Good wind resources are concentrated in a few mountainous areas of the state. Several areas in the state may be suitable for small wind systems. New Mexico was selected for installation of a 200-kW research wind turbine, the MOD-0A, by the U.S. Department of Energy in the early 1980s. The Clayton, N.M., unit was the most successful of the four MOD-0A experimental machines.

The state passed electric utility restructuring legislation in 1999, but new legislation adopted in 2001 following the energy crisis in California has delayed restructuring until 2007.

State tax incentives:

Production tax credit: In 2002 New Mexico established a 1 cent/kWh state tax credit (S.B. 187) for companies that generate electricity from wind and solar energy facilities of 20 MW or more. The credit applies to the first 400 million kWh of electricity produced by the qualified energy generator in the taxable year.

Other economic and financial incentives:

Net metering: New Mexico allows net metering for wind, other renewables, fuel cells, and microturbine generators under 10 kW for industrial, residential, and governmental customers. At the utility's option, net excess generation can be credited to the following month's bill and unused credit purchased at avoided cost at the end of the year; or net energy generation credit is paid to the customer at the utility's avoided cost at the end of each billing period.

Legislative and regulatory policies:

New Mexico has adopted a Renewables Portfolio Standard of 10% by 2007, and in spring 2002 the New Mexico Public Utilities Commission was drafting rules for its implementation.

Research and outreach programs:

None

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NEW YORK

Total state land area (km^2): 122,707
Class 3+ available windy land area (km^2): 8,240
Wind energy potential, in billions of kWh per year: 62
Wind energy potential, average power, in MW: 7,080
Installed utility-scale wind energy capacity (01/2002): 48.2 MW

New York's wind energy potential is the 15th largest of the states. Many areas are suitable for small wind systems.

The state is in the process of restructuring its electricity market. The state's Public Service Commission has approved restructuring orders for several utilities in the state.

State tax incentives:

None.

Other economic and financial incentives:

The PUC has allocated $47.5 million over five years for development of large-scale wind farms and to encourage the use of small wind turbines. The funds, generated by a System Benefit Charge, are administered by the State Energy Research and Development Authority (NYSERDA).

Net metering is available for solar systems only. For information on bills introduced to extend eligibility to wind energy, see AWEA's Web site at http://www.awea.org/smallwind/newyork.html.

Legislative and regulatory policies:

The Public Service Commission has ordered utilities to disclose to consumers the sources of their electricity, starting in 2000.

In 2001, Gov. George Pataki issued an executive order requiring that the state's agencies purchase 10% of their electricity from renewable sources by 2005, and continue augmenting such purchases, to 20% by 2010.

Research and outreach programs:

A portion of New York's System Benefit Charge (SBC) helps fund research and development of renewable energy. New York's Renewables Research and Development Program, run by NYSERDA, offers grants for wind energy research projects and other renewable energy projects on an annual basis. Funds are available to the commercial, industrial, residential, and utility sectors. The program funds up to 50% of a project's costs, with expenditures running between $10,000 and $200,000 per project. Consult the NYSERDA Web site for program opportunity notices.

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NORTH CAROLINA

Total state land area (km^2): 126,504
Class 3+ available windy land area (km^2): 778
Wind energy potential, in billions of kWh per year: 7
Wind energy potential, average power, in MW: 836
Installed utility-scale wind energy capacity: 0

The state's wind resource is concentrated in the mountains to the west, and along the shore. Certain areas of the state may be suitable for small wind systems.

The state has not yet adopted electric utility restructuring legislation.

State tax incentives:

Income tax credit: The state provides a corporate and personal income tax credit in the amount of 35% of the cost of equipment and associated design, construction costs, and installation costs of a wind energy system. The credit may not exceed $10,500 for residential and $250,000 for business installations. For information on small wind systems in North Carolina see AWEA's Web site at http://www.awea.org/smallwind/northcarolina.html.

Renewable Energy Equipment Manufacturer Incentive: North Carolina offers a corporate income tax credit for manufacturers of renewable energy products and equipment. The credit is equal to 25% of the installation and equipment costs of construction with no maximum limit except that it cannot exceed the taxpayer's tax liability in one year. If the credit does exceed the manufacturer's tax liability, the credit may be carried forward for up to 10 years. The credit is effective for tax years beginning on or after January, 2000.

Other economic and financial incentives:

Energy Improvement Loan Program: Through the EILP, North Carolina offers 10-year maximum term, low-interest (1%) loans to businesses, local governments and non-profit organizations. The loans can be used for projects that demonstrate energy efficiency, use of renewable energy, energy cost savings or reduced energy demand. Eligible technologies are solar, wind, small hydro (less than 20 MW) and biomass.

Legislative and regulatory policies:

None

Research and outreach programs:

None

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NORTH DAKOTA

Total state land area (km^2): 183,113
Class 3+ available windy land area (km^2): 98,300
Wind energy potential, in billions of kWh per year: 1,210
Wind energy potential, average power, in MW: 138,400
Installed wind energy capacity (01/2002): 0.49 MW

The state is not yet tapping its enormous wind energy potential, the U.S.'s largest.

No restructuring legislation is being considered at this point.

State tax incentives:

Property tax incentive: North Dakota exempts from local property taxes solar, wind, or geothermal energy devices, whether stand-alone or part of a conventional system. This exemption is available to commercial and residential owners of such systems for a period of five years following installation.

Large wind property tax incentive: Wind facilities of 100 kW or greater capacity are eligible for a new tax program that reduces property taxes by 70%. Projects where construction begins before January, 2011, are eligible.

Income tax incentive: The state also allows commercial and residential taxpayers to deduct from their income tax 3% of the cost of equipment and installation of a geothermal, solar or wind energy device for a period of five years following installation.

Large wind sales tax exemption: North Dakota offers a sales tax exemption for wind systems with generating capacities of 100 kW or more. To be eligible, systems must begin construction by January, 2011.

Sales tax exemption: All wind turbine components sold and constructed in North Dakota are exempted from the state's sales and use tax.

Other economic and financial incentives:

Net metering: Net metering ruling applies to both renewable energy generators and cogenerators of 100 kW or less in capacity. Net metering is available to all customer classes and there is no statewide limit to the capacity signed up for net metering. Utilities must purchase net excess generation at the avoided cost.

Legislative and regulatory policies:

None

Research and outreach programs:

None

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OHIO

Total state land area (km^2): 106,210
Class 3+ available windy land area (km^2): 711
Wind energy potential, in billions of kWh per year: 4
Wind energy potential, average power, in MW: 410
Installed utility-scale wind energy capacity: 0

Ohio's wind resources are concentrated along the shore of Lake Erie. The state has not pursued wind energy development.

Ohio passed restructuring legislation in 1999 which introduces retail competition gradually, starting in 2001 and continuing over a period of five years. Settlements with the state's various utilities are allowing the plan to move forward.

State tax incentives:

Corporate tax exemption: Ohio's "conversion facilitie tax exemption" exempts certain equipment, including wind energy systems, from the state corporate income, property, and sales tax. Eligible "conversion" technologies are wind, solar thermal, photovoltaics, biomass and waste recovery systems. Such equipment conversion cannot be considered an improvement on land for purposes of property taxation or in the assessment of the state franchise tax.

Other economic and financial incentives:

Renewable energy loans: Ohio's electric restructuring law includes an incentive for purchasing and implementing energy efficiency and renewable energy projects. It reduces the loan interest rate by approximately half for qualified borrowers (individuals and businesses). Eligible technologies include photovoltaics, wind, biomass, hydro and fuel cells. For residential owners, loan fund participation is limited to a minimum of $500 and a maximum of $25,000, with a maximum term of five years. For businesses and other institutional renewable energy projects, the loan fund can offer a minimum of $5,000 and a maximum of $500,000.

Net metering: Ohio's net metering rule requires utilities to offer a net metering option to customer-generators who own qualifying systems. Qualifying systems include wind, solar, biomass, landfill gas, hydropower, fuel cells, and microturbines and must be intended primarily to offset part or all of the customer-generator's requirements for electricity. There is no cap on system size, but the total installed capacity is limited to 0.1% of each utility's in-state customer peak demand. Net excess generation will be purchased at the unbundled generation rate and credited to the following bill.

Legislative and regulatory policies:

None

Research and outreach programs:

None

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OKLAHOMA

Total state land area (km^2): 177,817
Class 3+ available windy land area (km^2): 73,300
Wind energy potential, in billions of kWh per year: 725
Wind energy potential, average power, in MW: 82,700
Installed utility-scale wind energy capacity: 0

Oklahoma, the nation's eighth windiest state, may soon begin to tap its wind energy potential. Chermac Energy Corp. of Edmond, Okla., has announced a plan to build a wind farm in the western part of the state.

The state has not yet passed electric utility restructuring legislation.

State tax incentives:

Tax credit: A production tax credit is available to electric power producers using zero-emissions renewable energy resources located in Oklahoma. Eligible systems are wind, hydro, solar, and geothermal facilities with capacity of 50 MW or more. For electricity generated prior to January 1, 2004, the amount of the credit is 0.75 cents ($0.0075) per kWh of electricity generated by zero-emission facilities. The credit drops to 0.50 cents per kWh from 2004 to 2006, and to 0.25 cents per kWh from 2006 to 2011. Credits may be claimed over a 10-year period and non-taxable entities may transfer the credit to taxable entities.

Other economic and financial incentives:

Net metering: Net metering is available for renewable energy and cogeneration facilities of 100 kW or less with annual output of no greater than 25,000 kWh. Utilities are not required to purchase net excess generation, but customers can request that utilities purchase the net generation at the utility's avoided cost. Utilities are not allowed to impose extra charges for customers signed up for net metering. Although all renewable energy sources are eligible, only wind generating systems have used net metering in Oklahoma to date. In most cases, customer generation does not exceed demand.

Legislative and regulatory policies:

None. A bill that would have created a renewable portfolio standard in Oklahoma came close to being adopted but died in committee in February, 2002. Utilities claimed that the bill would have imposed too heavy a cost burden on the state's electricity consumers. Wind power advocates asserted that utility lobbyists were able to scare legislators with talk of higher costs without acknowledging that, based on the evidence from surrounding states, the additional costs to achieve 5% renewable power in the state would be small, even in the short term. In the longer term, advocates assert that wind power would probably be less expensive than electricity generated from fossil fuels because there is no fuel price fluctuation.

Research and outreach programs:

Solar and wind equipment certification: Wind turbines and PV modules must be certified by the Solar Rating and Certification Corp., the American Wind Energy Association, the Oklahoma Solar Energy Industries Association, or another nationally recognized certification agency. Oklahoma law mandates that purchasers of wind or solar equipment be provided with appropriate resource information as well as product performance specifications. Renewable energy equipment must carry a three-year warranty against defects in design, manufacture, or installation.

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OREGON

Total state land area (km^2): 249,117
Class 3+ available windy land area (km^2): 4,390
Wind energy potential, in billions of kWh per year: 43
Wind energy potential, average power, in MW: 4,870
Installed utility-scale wind energy capacity (01/2002): 157.5 MW

The 263-MW Stateline project straddling the Oregon-Washington border and other local projects have turned the Pacific Northwest into one of the nation's wind power "hot spots."

Oregon has passed electric utility restructuring legislation, but its implementation is gradual and has been somewhat delayed. Beginning October 1, 2001, large commercial and industrial customers will have the opportunity to choose alternative suppliers. Small commercial and residential customers will continue to be regulated, but are required to have the option to purchase green power from renewable sources.

State tax incentives:

Business Energy Tax Credit (BETC or "Betsy"): Oregon's "Betsy" allows a 35% credit up to $100,000 for the construction of systems that produce energy from renewable resources, conserve energy, or recycle waste in business facilities, including office buildings, stores, restaurants, apartment complex, manufacturing plants, automotive service shops, or farms. Qualifying systems must replace 10% or more of electricity, gas, or oil used in the facility where the system is installed. The energy produced from renewables may also be sold. The total credit of 35% is taken over five years: 10% in each of the first two years and 5% in the third, fourth, and fifth years.

Personal income tax credit: Oregon offers a personal income tax credit based on the amount of energy a wind or other qualifying system saves in its first year of operation. Wind systems are eligible for a credit of 60 cents/kWh saved during the first year, up to $1,500.

Property tax incentive: Oregon's property tax exemption for renewable energy devices states that the added value to any property (residential, commercial, or industrial) derived from the installation of a qualifying renewable energy device shall not be included in the assessment of the property's value for property tax purposes. This exemption does not apply to property owned or leased by anyone directly or indirectly involved in "the production, transportation or distribution of energy." There has been so far little interest in claiming the exemption, according to state officials.

Other economic and financial incentives:

Loans: Long-term, low-interest loans are made available through the Small Scale Energy Loan Program (SELP) to private developers of renewable resources. The program is funded by the sale of bonds, unlike most other state renewable energy loan programs, which are funded by revolving funds. The largest projects funded have been in the range of $15 million. One of the primary requirements for the overall program is that energy savings be great enough to provide for the majority--and in some cases all--of the loan repayment. If it is deemed that the project will have benefits beyond energy savings, energy savings requirements are lowered. Businesses that qualify for SELP often also qualify for the Business Energy Tax Credit ("Betsy").

Net metering: Net metering is available for solar, wind, fuel cell, and hydro facilities under 25 kW in capacity. Net excess generation is credited to the following month or purchased at avoided cost. At the end of an annual period, any unused credit is granted to the utility for distribution to customers enrolled in the utility's low-income assistance programs, without any compensation to the customer-generator. The enrollment is limited to a total installed capacity of 0.5% of the utility's historical single-hour peak load. Above this capacity, net metering eligibility can be limited by regulatory authority.

Legislative and regulatory policies:

Public benefits fund: A public benefits fund supports renewable energy development, energy efficiency, and conservation measures in the state. The fund is generated through a charge equal to 3% of a utility's revenues over 10 years. It is expected to raise hundreds of millions of dollars over its lifetime. Funds are administered by the non-profit Energy Trust of Oregon and are allocated among four program areas: 63% goes to conservation and market transformation; 19% to above-market costs of new renewables; 13% to low-income weatherization programs; and 5% to low-income bill payment assistance. On July 16, 2002, the Energy Trust issued a request for proposals for up to 100 MW of new wind capacity, to be partially financed with money from the fund.

Disclosure: Beginning in March, 2002, electricity suppliers must disclose their fuel mix and emissions data. Power source and environmental impact information must be provided to all residential consumers at least quarterly. Disclosure statements must provide percentages for all sources contributing more than 1.5% of supply. Renewable resources are reported as "other fuels."

Research and outreach programs:

None.

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PENNSYLVANIA

Total state land area (km^2): 116,260
Class 3+ available windy land area (km^2): 4,250
Wind energy potential, in billions of kWh per year: 45
Wind energy potential, average power, in MW: 5,120
Installed utility-scale wind energy capacity (01/2002): 34.6 MW

Pennsylvania's wind resource is beginning to be tapped. A 15–turbine, 10.4-MW project in Somerset County went online in 2000, and is producing electricity for Greenmountain.com, a retail green power provider. Other utility-scale projects have followed.

The state passed electric restructuring legislation in 1996, calling for retail competition in successive stages starting in 1999 and reaching all consumers by 2001. The state's Public Utilities Commission launched a consumer education program and offers a "shopping credit" to consumers who switch providers. A number of customers are selecting green power providers.

State tax incentives:

None

Other economic and financial incentives:

Net metering: Net Metering is available for renewable energy generating systems under 10 kW. Net excess generation is granted to the utility at the end of the month.

Green Energy Fund: A $21 million Green Energy Fund was created by the Public Utilities Commission (PUC) to be used for investment in green energy projects such as wind, solar, and biomass. The fund is expected to grow to more than $20 million over the next six years. The fund was created as part of a negotiated settlement between the PUC and Pennsylvania Power & Light (PPL) in the utility's restructuring case two years ago. Businesses and non-profit organizations that wish to invest in green energy within PPL's territory may apply (see Legislative and regulatory policies, below).

Commercial energy loans: Low-interest loans are available to finance the start-up and expansion of manufacturers, distributors and installers of advanced clean energy technologies. Loans range from $25,000 to $250,000.

Sustainable energy grant program: The Sustainable Energy Fund of Central Eastern Pennsylvania (SEF) distributes grants to organizations seeking funding for projects consistent with its mission. A limited number of grants are available for $25,000 or less (see Legislative and regulatory policies, below).

Legislative and regulatory policies:

Renewables Portfolio Standard: An RPS is imposed on a service-territory basis. For PECO, West Penn and PP&L, an RPS of 2% in 2001, increasing 0.5% per year, is applied to 20% of the residential customers served by competitive default provider; for GPU, an RPS of 0.2% for 20% of customers in 2001 and for 80% of customers in 2004.

Generation Disclosure: As part of Pennsylvania's electric utility restructuring legislation, the state has included consumer information provisions. Though the legislation does not explicitly say that resource mixes must be disclosed to end-use consumers, all retail suppliers are required to "provide adequate and accurate customer information to enable customers to make informed choices regarding the purchase of all electricity services offered by that provider." Suppliers must verify fuel mix data through an independent auditor and must substantiate claims about green or environmentally friendly products.

Public benefits fund: Renewables funding programs were established through settlement agreements with the state's major distribution utilities. The funds total about $76 million. They are collected by the utilities, which manage them through oversight boards and administrators.

Research and outreach programs:

None

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RHODE ISLAND

Total state land area (km^2): 2,732
Class 3+ available windy land area (km^2): 210
Wind energy potential, in billions of kWh per year: 1
Wind energy potential, average power, in MW: 109
Installed utility-scale wind energy capacity: 0

The state passed electricity restructuring legislation allowing retail competition to begin in 1997.

State tax incentives:

Renewable energy personal tax credit: Wind systems, solar hot water, solar heating and photolvotaics systems are eligible for Rhode Island's personal tax credit. The tax credit declines over time: 25% for systems claimed in the year 2000; 20% in 2001; 15% in 2002; 10% in 2003; and 5% in 2004.

Renewable energy property tax credit: Renewable energy systems cannot be assessed more than the value of a conventional heating, hot water, or other energy production system.

Renewable energy sales tax credit: The Rhode Island division of taxation offers a sales tax refund for qualifying energy systems.

Other economic and financial incentives:

Renewable energy rebate: The Rhode Island Renewable Energy Collaborative, a multi-stakeholder group created by the state PUC, and approved vendors offer a $1.50/watt buy-down for wind energy systems with less than 10 kW of capacity. The buy-down is good for up to 50% of system cost.

Net metering: Rhode Island allows net metering for renewable energy generators, including wind systems, under 25 kW. For Narragansett Electric, the total net-metered capacity is capped at 1 MW. Net excess generation from one month is credited to the following month, and any remaining unused credit is granted to the utility at the end of each year.

Legislative and regulatory policies:

System Benefits Charge: Rhode Island's restructuring legislation established a non-bypassable System Benefits Charge to support the development of renewable energy and demand-side management programs. The charge is $0.0023/kWh and it will end in 2006. The program has funded a wind prospecting study (which did not find a suitable wind site in Rhode Island) and a $150,000 grant to a wind developer for a project proposed in western Massachusetts (the grant will be refundable if the project comes on line but does not sell its output to Rhode Island).

No disclosure or Renewables Portfolio Standard provisions were included in the restructuring law.

Research and outreach programs:

None

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SOUTH CAROLINA

Total state land area (km^2): 78,227
Class 3+ available windy land area (km^2): 56
Wind energy potential, in billions of kWh per year: 1
Wind energy potential, average power, in MW: 59
Installed utility-scale wind energy capacity: 0

The absence of a good wind resource rules out large utility-scale wind projects in the state. Certain areas of the state may be suitable for small wind systems.

The state has not yet passed electric utility restructuring legislation.

State tax incentives:

None

Other economic and financial incentives:

None

Legislative and regulatory policies:

None

Research and outreach programs:

None

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SOUTH DAKOTA

Total state land area (km^2): 196,715
Class 3+ available windy land area (km^2): 91,800
Wind energy potential, in billions of kWh per year: 1,030
Wind energy potential, average power, in MW: 117,200
Installed utility-scale wind energy capacity (01/2002): 2.6 MW

South Dakota has just begun to tap its outstanding wind resource.

The state is not contemplating electric restructuring legislation. Black Hills Power & Light, one of the state's utilities, has agreed to freeze its rates until 2005. Rates in the state are among the lowest in the nation, providing little incentive to introduce retail competition.

State tax incentives:

Local property tax exemption for renewable energy systems on residential and commercial property: The exemption applies to the entire assessed value of residential systems and 50% of the cost of installation of commercial systems; it may be taken for three years after installation and depreciates thereafter. This exemption does not apply to systems that produce energy for resale.

Reduced contractor's excise tax: In 2002 South Dakota adopted a bill to cut payment of the contractor's excise tax --a tax on contractors and subcontractors based on gross receipts for materials and services provided--in half to just 1% and to allow payment to be spread over the four years after the project is installed. South Dakota relies heavily on excise taxes instead of income taxes to fund the state's budget. The reduced tax applies to renewable energy facilities with more than 10 MW of capacity that are brought online after June 30, 2002.

Other economic and financial incentives:

None

Legislative and regulatory policies:

None

Research and outreach programs:

None

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TENNESSEE

Total state land area (km^2): 106,591
Class 3+ available windy land area (km^2): 155
Wind energy potential, in billions of kWh per year: 2
Wind energy potential, average power, in MW: 186
Installed utility-scale wind energy capacity (01/2002): 2 MW

Although Tennessee does not have extensive wind resources, certain areas of the state are suitable for wind systems, both utility-scale and small.

State tax incentives:

None

Other economic and financial incentives:

Small Business Energy Loan Program: Loans up to $100,000 with terms up to seven years are available from a loan fund administered by the Energy Division of the Department of Economic and Community Development. Renewable energy technologies and conservation projects are eligible, but loans cannot be used for new construction or business start-ups.

Legislative and regulatory policies:

None

Research and outreach programs:

None

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TEXAS

Total state land area (km^2): 678,623
Class 3+ available windy land area (km^2): 122,000
Wind energy potential, in billions of kWh per year: 1,190
Wind energy potential, average power, in MW: 136,100
Installed utility-scale wind energy capacity (01/2002): 1,095.5 MW

Texas is beginning to tap its outstanding wind resource, the second largest after North Dakota.

The state passed electricity deregulation legislation in 1999, requiring retail competition to begin by 2002 and including a model Renewables Portfolio Standard, which, along with non-discriminatory transmission policies, created a booming wind energy market. In 2001, Texas installed more new wind energy generation (915 MW) than has ever been installed before in the entire country in a single year.

State tax incentives:

Exemption from value added to property: Taxpayers may claim exemption from any value added by a wind or solar energy generating device for property tax purposes.

Franchise tax exemption: A company may deduct the total cost of a wind, solar, or other qualifying system from its taxable capital or deduct 10% of the system's cost from its income. Texas also offers a franchise tax exemption for manufacturers and installers of wind and photovoltaic systems.

Other economic and financial incentives:

Line-extension alternative provision: The Texas Public Utility Commission requires that, in cases where the utility requires a customer to pay a contribution toward the construction of extending utility power lines to a remote location, the utility provide information about on-site renewable energy technology options. This line extension rule is part of Texas's integrated resource planning requirements. The Renewables for Utilities Texas Cooperative has published "Line Extension Alternatives," a brochure that discusses the use of renewables to meet the needs of remote customers. The brochure also includes a list of renewable energy system providers in Texas and may be used by utilities to meet the Commission's information requirement.

Net metering: Texas's net metering rule requires utilities to offer the service to both residential and business customers with renewable energy systems of 50 kW or less capacity. At the end of each billing period, the customer is paid for any net excess generation at the avoided cost rate. For more information on small wind systems in Texas, see AWEA's Web site at http://www.awea.org/smallwind/texas.html.

Legislative and regulatory policies:

Renewables Portfolio Standard: Texas' restructuring legislation includes a Renewables Portfolio Standard requirement for 2,000 MW of renewable energy capacity by 2009. That is equivalent to approximately 3% of the state's electricity. Much of that amount is expected to be generated from wind energy, given the state's excellent resource. The PUC expects the state will meet its RPS requirement well ahead of schedule. The Texas RPS, which is proving to be so successful, includes the essential elements of an RPS. It applies equally to all retail providers, and features a tradable renewable energy credit (REC) provision and effective penalties for non-compliance. Non-renewables do not qualify for credit. Utilities were required to undertake "deliberative polls" regarding renewable energy prior to the design of the legislation. These polls revealed a statewide high level of support for renewable energy and were instrumental in ensuring a more positive attitude on the part of the utilities.

Renewable Energy Credits Trading Program: The PUC established this program to track the production, sale, transfer, purchase and retirement of RECs under the RPS. Credits can be banked for three years. All new renewables have a minimum of 10 years of credits to recover market costs.

Research and outreach programs

Fuel mix and emission disclosure: State regulators provide guidelines and requirements to protect the integrity of power marketing campaigns. Also, the following disclosure information must be contained on an Electricity Facts label: 1) pricing; 2) contract terms; 3) fuel mix – showing percentages of coal and lignite, natural gas, nuclear, renewable energy, and 4) air emissions and waste records. The label is adjusted to include all promotions, discounts, or incentives offered by the electricity provider.

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UTAH

Total State land Area (km2): 212,569
Class 3+ Available Windy Land Area (km2): 1,960
Wind energy potential, in billions of kWh per year: 24
Wind energy potential, average power, in MW: 2,770
Installed utility-scale wind energy capacity (01/2002): 0.225 MW

Utah's wind resource is concentrated in its mountains. Certain other areas of the state may also be suitable for small wind systems.

The state legislature has appointed a task force to study the question of restructuring and energy policy generally.

State tax incentives:

Corporate income tax credit: A business that owns residential buildings can claim a credit of 25% of the cost of installation of a renewable energy system up to a maximum credit of $2,000 per system. For commercial systems, the credit is 10% of the cost of installation up to $50,000. This tax credit expires on December 31, 2006.

Personal income tax credit: This individual income tax credit for renewable energy systems on residential buildings applies to systems installed through December 31, 2006. Eligible technologies include active and passive solar systems, photovoltaics, biomass, hydropower, and wind. Like the corporate tax credit, the credit is 25% of the cost of installation of a system up to a maximum credit of $2,000 per system.

Other economic and financial incentives:

None

Legislative and regulatory policies:

Net metering: A net metering law was enacted in March, 2002. The law requires utilities to offer net metering to customers with fuel cells, solar, wind, or small hydro facilities with capacity of 25 kW or less. The utility must credit customers for excess generation at a value that is at least equal to avoided cost. Total participation is capped at 0.1% of the cumulative generating capacity of the electrical corporation’s peak demand in 2001.

Research and outreach programs:

None

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VERMONT

Total state land area (km^2): 24,017
Class 3+ available windy land area (km^2): 511
Wind energy potential, in billions of kWh per year: 5
Wind energy potential, average power, in MW: 537
Installed utility-scale wind energy capacity (01/2002): 6 MW

Vermont's wind resource is located on its mountains. A 6-MW wind farm near Searsburg generates electricity for the local utility, Green Mountain Power Corp. (GMP). GMP has an agreement with the U. S. Environmental Protection Agency (EPA) to sell to EPA the value of the environmental benefits, called Renewable Energy Certificates (RECs), associated with 2 million kilowatt-hours of annual electricity production from the Searsburg plant.

The state is studying the issue of electric industry restructuring. One of the issues under consideration is the impact in a restructured market of neighboring Canada's massive Hydro-Quebec utility, from which Vermont utilities purchase power.

State tax incentives:

Sales tax exemption: All equipment purchased to construct and install any renewable energy system with less than 15 kW of capacity are exempt from the state's 5% sales tax, since 1999. Farm systems can exceed this capacity limit, but cannot be larger than 150 kW.

Property tax exemption: Municipalities have the option of offering property tax exemptions for certain renewable energy systems, including wind.

Other economic and financial incentives:

Net metering: Net metering is available for residential and commercial customers with wind and/or other renewable energy systems (15 kW or less capacity). Overall enrollment in net metering is capped at 1% of 1996 peak load. Net excess generation from one month is credited to the following month, and any remainder at the end of a year is granted back to the utility. Purchase of net metering equipment is exempt from the state sales tax. Farm systems constitute a unique class of net metering system, and can qualify as long as they are 150 kW or smaller. Farms also can utilize "group net metering," which allows them to credit on-site generation against all meters designated to the farm system.

Legislative and regulatory policies:

None.

Research and outreach programs:

A study on the issues associated with possible high penetration levels of biomass and wind power on the Vermont electric system is being undertaken with financial support from the U.S. DOE, Green Mountain Power Corporation, the Vermont Department of Public Service, Hydro Quebec, and others.

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VIRGINIA

Total state land area (km^2): 102,832
Class 3+ available windy land area (km^2): 1,880
Wind energy potential, in billions of kWh per year: 12
Wind energy potential, average power, in MW: 1,380
Installed utility-scale wind energy capacity: 0

Virginia's wind resource is limited to its mountain range area. Certain other areas of the state may be suitable for small wind systems.

Virginia passed electric utility restructuring legislation in 1999 calling for creation of a regional transmission organization and phasing in retail competition and customer choice between 2002 and 2004.

State tax incentives:

None

Other economic and financial incentives:

Loans: A low-interest loan program created under HUD Title I in 1978 is administered by the Virginia Housing Development Authority. The program makes low-interest loans available for low- and moderate-income homeowners for repairs that reduce energy consumption or reduce dependence on conventional energy sources. All renewable energy technologies are eligible. The interest rate is 6.75% and there is an annual Federal Housing Association insurance charge of 1% of the loan amount. Loan amounts range from $1,000 to $25,000 for terms from six months up to 20 years (a lien on the property is required for all loan amounts.) Borrowers can borrow up to 100% of the equity in their home. About 100 loans are made per year.

Net metering: Net metering is available for wind and other renewable energy systems under 10 kW for residential and under 25 kW for commercial customers. Overall enrollment is capped at 0.1% of annual peak load. Net metering customers are billed annually. Any excess generation at the end of the year is granted back to the utility.

Legislative and regulatory policies:

Fuel mix and emissions disclosure: On June 19, 2001, the Virginia State Corporation Commission (SCC) ruled that electric service providers must report to their customers and file a report wit the SCC disclosing fuel mix and emissions data for the previous year. Reports must be filed by March 31 every year. If data isn't available, providers must file an explanation with the SCC. Providers also must maintain documentation to verify their claims.

Consumer aggregation: A provision in the restructuring legislation allows consumers to aggregate their purchases. Such aggregation could be used for green power purchases.

Research and outreach programs:

None

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WASHINGTON

Total state land area (km^2): 172, 264
Class 3+ available windy land area (km^2): 3,360
Wind energy potential, in billions of kWh per year: 33
Wind energy potential, average power, in MW: 3,740
Installed utility-scale wind energy capacity (01/2002): 178.2 MW

Washington's wind resource is located mainly in the higher mountain ranges, and in the southeastern part of the state where the 263-MW Stateline project straddling the Oregon-Washington border is located.

The state is adopting a gradual approach toward electric industry restructuring: it has so far passed legislation requiring utilities to unbundle generation, distribution, and other services and itemize them in customer bills.

State tax incentives:

Corporate tax incentive: Qualifying high technology manufacturers (including developers of alternative energy sources) are exempt from the state corporate excise tax. This exemption (legislative code 82.63) is 100% with no limit and sunsets on January 1, 2004.

Sales tax exemption: In May, 2001, the sales and use tax exemption for solar, wind, landfill gas and fuel cell facilities was expanded to include systems with at least 200 watts of capacity. The expanded exemption took effect on July 1, 2001.

Other economic and financial incentives:

Net metering: Net metering is available for wind and other renewable energy systems with capacity of 25 kW or less. Overall enrollment is capped at 0.1% of 1996 peak demand. Net excess generation is credited to the following month. At the beginning of each calendar year, unused credit accumulated during the previous year is granted to the utility.

Legislative and regulatory policies:

Disclosure requirements: Beginning in May 2001, retail electricity supplies in Washington must provide a disclosure label in standard format to their retail customers at least semi-annually. The disclosure label must be provided to new customers at the time service is established. Smaller utilities and mutual light and power companies must provide disclosure annually. The label must show percentages of each category of fuel used by category – coal, hydro, natural gas, nuclear, and other. The percentages must add to 100%.

Research and outreach programs:

The Washington State University (WSU) Cooperative Extension Service's Energy Program has taken over many of the activities of the State Energy Office, which was dissolved in 1996. WSU's renewable energy program provides technical assistance, education, workshops, and field assistance, mainly through a renewable energy hotline. The program is currently financed through federal funding and contributions from the Bonneville Power Administration. Due to restructuring, BPA's contribution will likely by reduced. It is anticipated that the BPA funding will be replaced by project-specific funding from the Northwest Energy Efficiency Alliance, a group of public and private utilities, public agencies, and public interest groups. Other sources of funding include the Western Area Power Administration and other grant-making organizations.

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WEST VIRGINIA

Total state land area (km^2): 62,468
Class 3+ available windy land area (km^2): 612
Wind energy potential, in billions of kWh per year: 5
Wind energy potential, average power, in MW: 594
Installed utility-scale wind energy capacity (01/2002): 0

The state's wind resource is concentrated in the central portion of the Allegheny mountain range, where a 66-MW utility-scale project has been approved for development. Certain other areas of the state may be also suitable for small wind systems.

The state's Public Service Commission has submitted an electricity restructuring plan for approval by the legislature. The plan allows retail choice by 2001, unbundles and caps rates until 2004, and provides commercial and industrial rate reductions through 2005.

State tax incentives:

Corporate wind tax exemption: A law established in May, 2001, lowered the business and operation tax affecting utilities that use wind power as part of their generation mix. The tax is based on 5% of a project's capacity (down from 40%).

Property tax exemption: A law passed in 2001 lowered the property tax for utilities using wind power. Property tax is lowered from 100% to 5% of a project's assessed value.

Other economic and financial incentives:

None

Legislative and regulatory policies:

None

Research and outreach programs:

None

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WISCONSIN

Total state land area (km^2): 140,964
Class 3+ available windy land area (km^2): 7,560
Wind energy potential, in billions of kWh per year: 56
Wind energy potential, average power, in MW: 6,440
Installed utility-scale wind energy capacity (01/2002): 53 MW

The state's wind resource is located along the shores of lakes Michigan and Superior, and in the southwest portion of the state.

Wisconsin has passed legislation ("Reliability 2000") to improve reliability of the state's electric system. "Reliability 2000" also established an energy efficiency fund and a renewable energy requirement. The legislation also restricts non-utility investments by investor-owned utilities and establishes the first non-profit transmission company in the nation. No legislation on retail competition has been passed.

State tax incentives:

Property tax incentive: Industrial, commercial and residential taxpayers can claim exemption for any value added by a qualified wind or solar renewable energy system for property tax purposes (legislative code 70.111(18)).

Other economic and financial incentives:

Grants: Limited funding is available under the state's Renewable Energy Assistance Program (REAP), which provides technical grants of 50% of a project up to $15,000 and construction grants of 10-20% of a project up to $75,000. These grants are available to businesses, municipalities, and non-profit organizations. No applications have been made for wind systems, perhaps in part because electricity rates in Wisconsin are low.

Low-interest loans: A low-interest loan is available to homeowners to finance a wide variety of eligible renewable energy measures on existing one- or two-family, owner-occupied homes.

Cash-back reward/state rebate: A $500,000 fund exists to offset the costs of installing renewable energy systems. Payments range from $200 to $50,000 with a maximum of 25% of the system's installed cost. The rebate is calculated based on a technology- and system-specific formula. Wind energy payments are based on the size of the turbine installed and the estimated generation during an average year of operation. Individuals, businesses, institutions, state, tribal and municipal governments and non-profit organizations are eligible to participate. Funds are distributed after the renewable energy system is installed. Low-interest rate loan program participants are not eligible for the rebates.

Net metering: Net metering is available for any generation system under 20 kW. Net excess generation at the end of each monthly billing period is credited to the customer at retail rate for renewable energy including wind, and at avoided cost for non-renewables.

Legislative and regulatory policies:

Renewables Portfolio Standard (RPS): The "Reliability 2000" bill includes a Renewable Portfolio Standard of 2.2% by 2011.

Research and outreach programs:

System Benefit Charge: Reliability 2000 created an $80-million-per-year "public benefits" fund for environmental research, energy efficiency programs, and renewable energy. The bulk of the funding is going to demand-side management. Funding for renewables is targeted to demand-side, customer-sided renewable energy applications, such as the rebate described above.

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WYOMING

Total state land area (km2): 251,201
Class 3+ available windy land area (km2): 68,600
Wind energy potential, in billions of kWh per year: 747
Wind energy potential, average power, in MW: 85,200
Installed utility-scale wind energy capacity (01/2002): 140.6 MW

The state's wind resource is ranked seventh among the contiguous states. This excellent resource is beginning to be tapped. Several projects in Foote Creek Rim and Medicine Bow generate electricity for green power programs in the area, including neighboring Colorado.

Wyoming has not passed electric industry restructuring legislation.

State tax incentives:

None

Other economic and financial incentives:

None

Legislative and regulatory policies:

Net metering: Net metering is available for residential and commercial customers who operate photovoltaics, wind, and small hydro systems with up to 25 kW of generating capacity. Systems must meet IEEE and UL standards and cannot be subject to additional interconnection requirements, except that system owners must install a manual, lockable external disconnect.

Research and outreach programs

None

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