

# **Green Power Marketing in the United States: A Status Report**

**Fifth Edition**

Blair Swezey and Lori Bird



**NREL**

**able Energy Laboratory**

1617 Cole Boulevard  
Golden, Colorado 80401-3393

NREL is a U.S. Department of Energy Laboratory  
Operated by Midwest Research Institute • Battelle • Bechtel

Contract No. DE-AC36-99-GO10337

# **Green Power Marketing in the United States: A Status Report**

**Fifth Edition**

Blair Swezey and Lori Bird

Prepared under Task No. AS65.3010



**able Energy Laboratory**

1617 Cole Boulevard  
Golden, Colorado 80401-3393

NREL is a U.S. Department of Energy Laboratory  
Operated by Midwest Research Institute • Battelle • Bechtel

Contract No. DE-AC36-99-GO10337

## NOTICE

This report was prepared as an account of work sponsored by an agency of the United States government. Neither the United States government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States government or any agency thereof.

Available electronically at <http://www.doe.gov/bridge>

Available for a processing fee to U.S. Department of Energy and its contractors, in paper, from:

U.S. Department of Energy  
Office of Scientific and Technical Information  
P.O. Box 62  
Oak Ridge, TN 37831-0062  
phone: 865.576.8401  
fax: 865.576.5728  
email: [reports@adonis.osti.gov](mailto:reports@adonis.osti.gov)

Available for sale to the public, in paper, from:

U.S. Department of Commerce  
National Technical Information Service  
5285 Port Royal Road  
Springfield, VA 22161  
phone: 800.553.6847  
fax: 703.605.6900  
email: [orders@ntis.fedworld.gov](mailto:orders@ntis.fedworld.gov)  
online ordering: <http://www.ntis.gov/ordering.htm>



## Table of Contents

Executive Summary .....	1
Overview .....	1
Competitive Markets .....	1
Utility Green Pricing Programs .....	3
Comparing Markets .....	5
Competitive Green Power Marketing .....	9
California .....	9
Pennsylvania .....	9
New England .....	11
New Jersey .....	11
Green Power Marketers .....	12
Organizations .....	17
Utility Green Pricing Programs .....	19
Types of Green Pricing Programs .....	19
Green Pricing Program Summaries .....	26
Selected Green Power Customers .....	41
Businesses .....	41
Municipalities .....	42
Federal and State Governments .....	43
Other Organizations .....	44
Table 1 New renewables capacity added from green power marketing .....	2
Table 2 New renewables capacity added from green pricing programs .....	5
Table 3 Residential green power product offerings .....	10
Table 4 Utilities offering or planning green pricing programs .....	20
Table 5 Green pricing contribution programs .....	21
Table 6 Capacity-based green pricing programs .....	22
Table 7 Energy-based green pricing programs .....	22
Figure 1 States with competitive green power offerings .....	2
Figure 2 Utility green pricing activities .....	3
Figure 3 Growth trend in utility green pricing programs .....	4
Figure 4 Growth trend in new capacity installed from utility green pricing programs .....	4
Figure 5 New renewables developed from utility programs .....	6
Figure 6 Premiums charged for energy-based utility green pricing products .....	7

## Acknowledgements

This work was funded by the Office of Power Technologies of the U.S. Department of Energy (DOE). The authors wish to thank Joe Galdo and Tina Kaarsberg of DOE for their support. They also wish to thank Stuart Smoller of NREL for his editorial review. Lastly, the authors thank the many industry contacts that provided much of the information summarized in this report. Up-to-date information on green power market trends and activities can be found on DOE's Green Power Network Internet site (<http://www.eren.doe.gov/greenpower>).

## Executive Summary

For the first time in many decades, consumers are being given a choice of who supplies their electric power and how that power is generated. One of these choices is to support electricity generation from more environmentally beneficial energy sources. The term “green power” generally refers to electricity supplied in whole or in part from renewable energy sources. More than one-third of all U.S. consumers now have an option to purchase some type of green power product, from either their regulated utility provider or in competitive markets. As competition spreads in the electric power industry, more consumers will have this choice.

Green power marketing has the potential to expand domestic markets for renewable energy technologies by making renewable electric service available directly to retail consumers. Traditionally, renewable energy development has been limited by the willingness of regulated utilities to invest in these resources on behalf of all customers. Customer choice allows consumers to effect resource decisions in the retail marketplace. In survey after survey, consumers have expressed a preference for cleaner energy and a willingness to pay more, if necessary, for these sources.<sup>1</sup>

Twenty-four states and the District of Columbia have enacted legislation or adopted rulemakings to open their power markets to competition.<sup>2</sup> As of July 2000, green power was being competitively marketed to retail customers in five states: California, Connecticut, Maine, New Jersey, and Pennsylvania. The number of utilities with green pricing programs continues to grow and now totals more than 80.

The purpose of this report is to provide descriptive information on green power market trends and programs in both competitive and regulated markets.

## Overview

### Competitive Markets

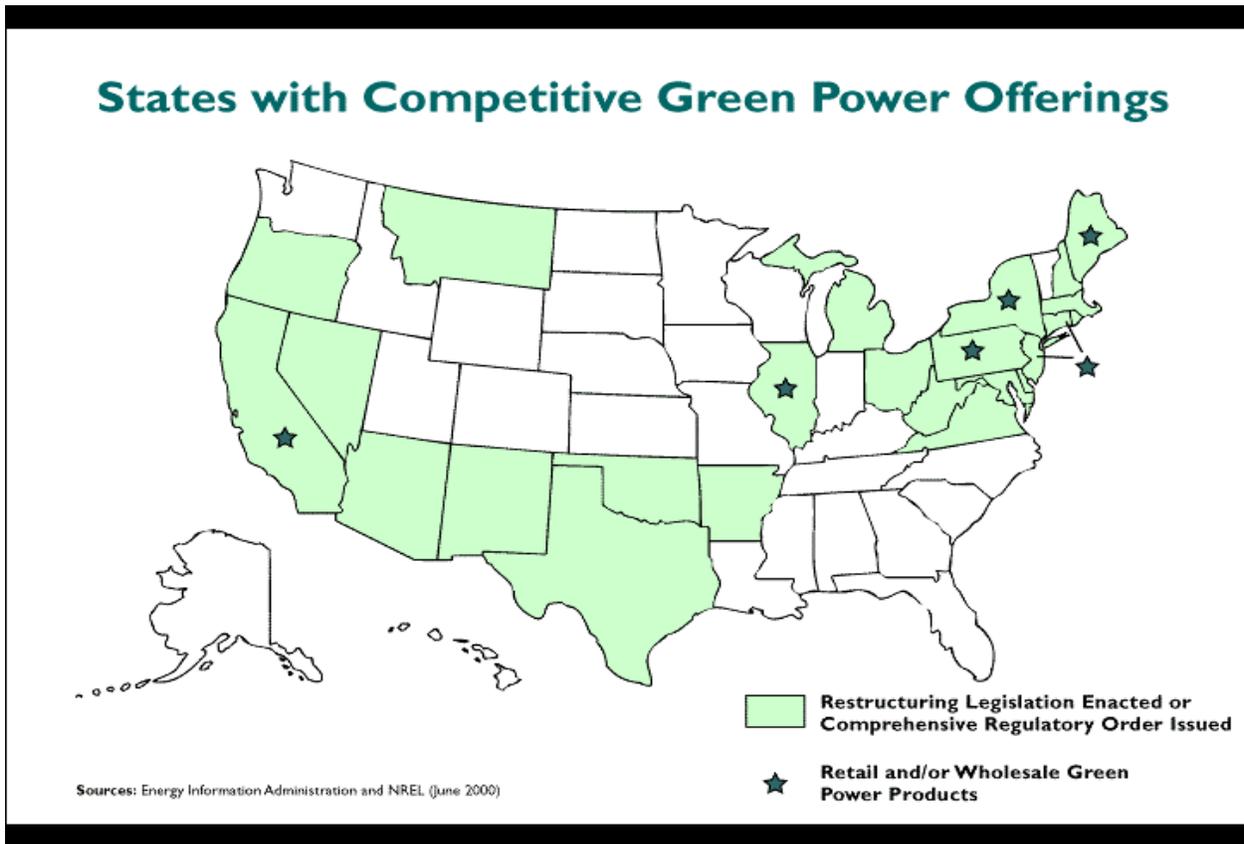
*Green power marketing* refers to the sale of green power in competitive markets, where multiple suppliers and service offerings generally exist. As of July 2000, retail consumers can purchase competitively marketed green power in California, New Jersey, and Pennsylvania, and to a lesser extent in some New England states. Green power is also being sold competitively in wholesale power markets in Illinois and New York (Figure 1).

California and Pennsylvania have been the most active competitive markets for green power. In Pennsylvania, market rules were established that have encouraged customer switching—as of July 2000, 10% of eligible customers had switched to an alternative supplier. Of these customers, it is estimated that about 15% have switched to a green power marketer. And while the market rules established in California do not encourage customer switching, readily accessible renewable power sources and state-based market incentives have encouraged a large number of companies to sell green power in the market. Because of these incentives, virtually all residential customers that have switched suppliers, and many commercial customers, are receiving green power.

---

<sup>1</sup>B. Farhar, *Willingness to Pay for Electricity from Renewable Resources: A Review of Utility Market Research*, National Renewable Energy Laboratory, NREL/TP.550.26148, July 1999.

<sup>2</sup>U.S. Energy Information Administration.



**Figure 1. States with competitive green power offerings**

In New England, where the Massachusetts and Rhode Island markets have been open for two years, low-priced “default” service and the absence of incentives has limited the ability of alternative providers to offer competitively priced products; thus, there is little green power marketing activity. Two marketers recently announced green power products for the New Jersey market, which opened to competition in the fall of 1999, and green power marketing activity is just beginning in Connecticut and Maine. Finally, two new wind projects are being built in New York with the power to be competitively marketed.

Thus far, green power marketing has fostered the development of about 53 megawatts (MW) of new renewable energy capacity and marketers have announced firm plans to install another 60 MW of renewables in the near future (Table 1).

**Table 1. New renewables capacity added from green power marketing (in kW)**

Source	Added	%	Planned	%
Wind	45,930	87.0	58,180	99.8
Photovoltaics	268	0.5	87	0.2
Landfill Gas	1,600	3.0	0	0.0
Geothermal	5,000	9.5	0	0.0
<b>Total</b>	<b>52,798</b>	<b>100.0</b>	<b>58,267</b>	<b>100.0</b>

## Utility Green Pricing Programs

*Green pricing* refers to an optional utility service that gives customers an opportunity to support a greater level of utility company investment in renewable energy technologies. Many utilities are offering green pricing to build customer loyalty and expand business lines and expertise in advance of electric market competition.

To date, more than 80 utilities in some 28 states have either developed or announced intentions to develop green pricing programs for their customers (Figure 2).<sup>3</sup> In 1999, there was significant growth in the number of utility offerings—24 new green pricing programs were launched, compared to a total of 28 programs combined in all previous years (Figure 3). Many of these programs have resulted in new renewable energy project development. A total of nearly 73 MW of new renewable energy capacity has been installed by utilities as a result of green pricing programs, with about three-quarters of this capacity installed in 1999 (Figure 4). Utilities have announced plans to install 120 MW of additional renewable capacity from green pricing in the coming year (Table 2).

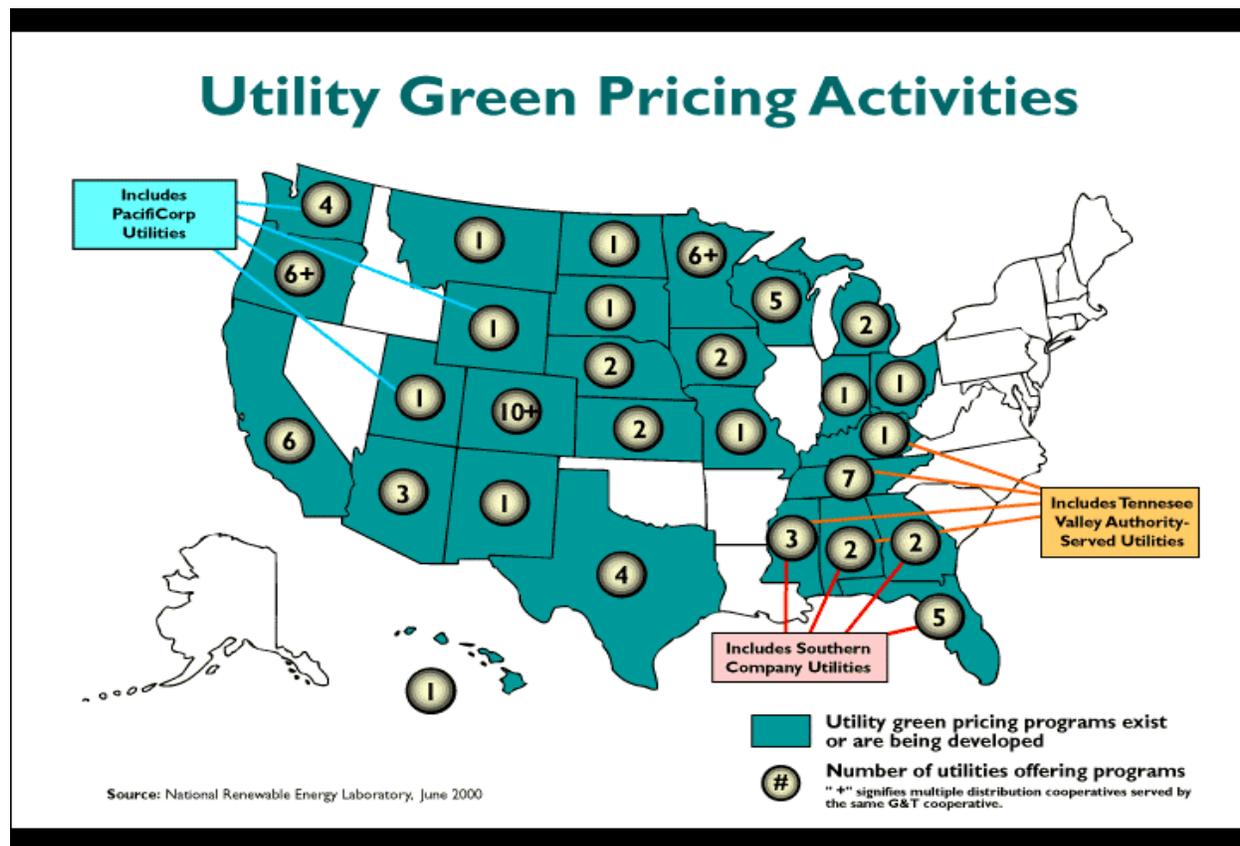


Figure 2. Utility green pricing activities

<sup>3</sup>The number of utilities is higher if distribution cooperatives marketing power from a single generation and transmission cooperative are counted individually.

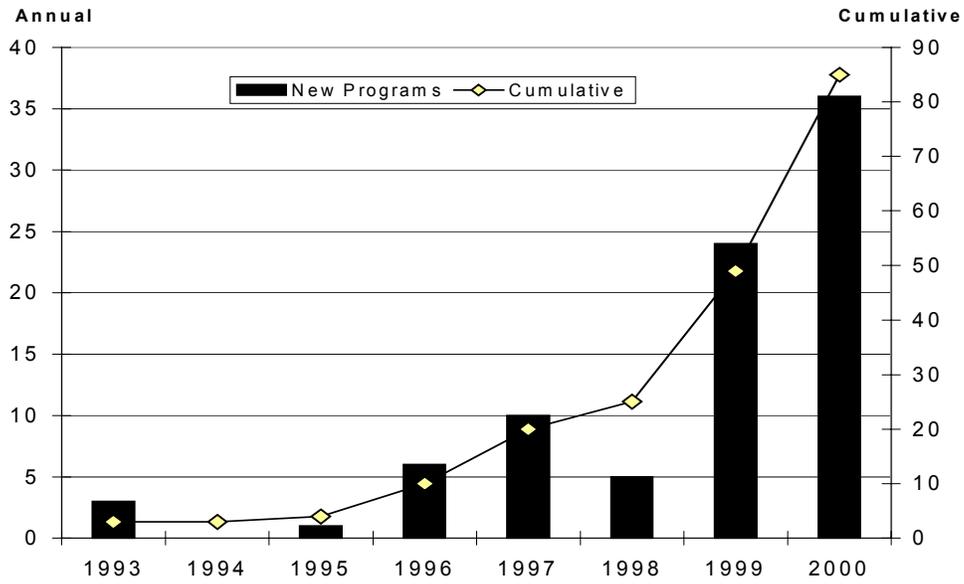


Figure 3. Growth trend in utility green pricing programs

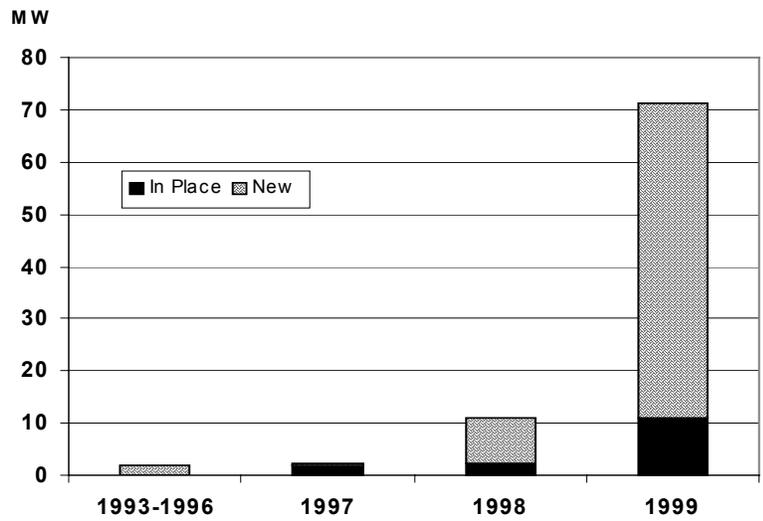


Figure 4. Growth trend in new capacity installed from utility green pricing programs

**Table 2. New renewables capacity added from green pricing programs (in kW)**

<b>Source</b>	<b>Added</b>	<b>%</b>	<b>Planned</b>	<b>%</b>
Wind	54,015	74.6	90,560	74.8
Solar	3,029	4.2	2,034	1.7
Biomass	14,890	20.6	28,500	23.5
Small Hydro	500	0.7	0	0.0
<b>Total</b>	<b>72,434</b>	<b>100.0</b>	<b>121,094</b>	<b>100.0</b>

## Comparing Markets

Although green power market development is still in its infancy, sufficient experience exists to offer some initial characterizations and comparisons of the two different types of markets in several categories.

### *Resource Selection*

Wind energy is the most prominent renewable energy source utilized in both competitive markets and green pricing programs. Small amounts of new landfill gas development also figure in both markets. The use of wind energy is consistent with public preference findings<sup>4</sup> and wind and landfill methane tend to be the most economic renewable resources to develop in today's market.

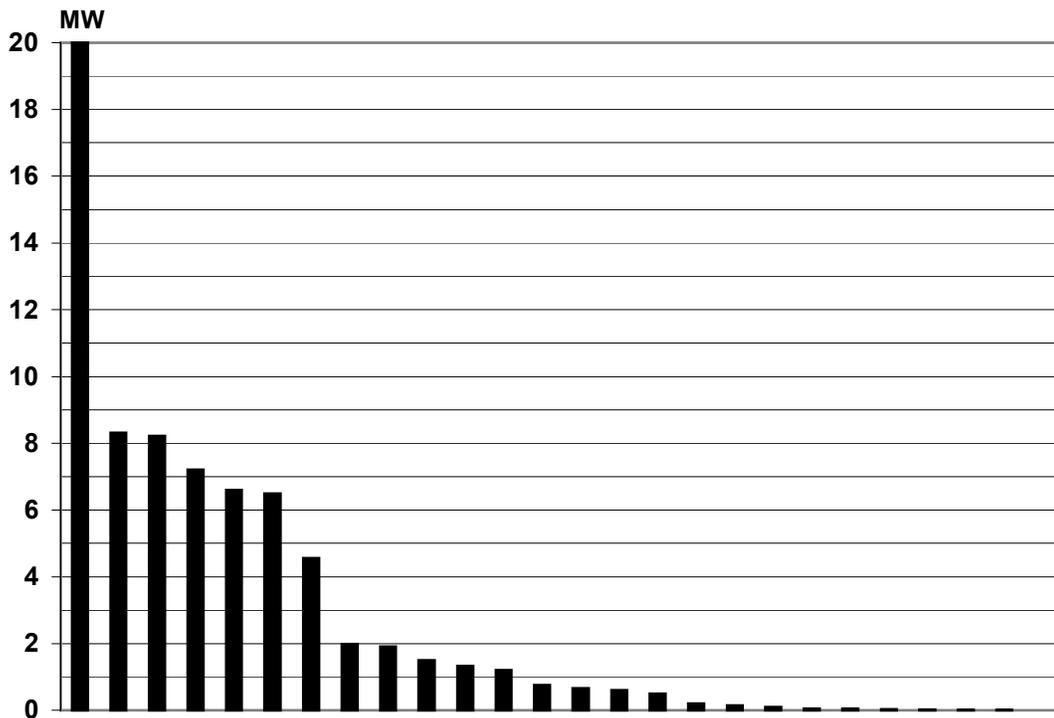
Although solar energy is a highly preferred resource, photovoltaics (PV) remains a very expensive option for bulk power generation, as evidenced by the high premiums that are often charged for PV output in green pricing programs. Instead, several utilities are pursuing PV systems sales in customer rooftop applications, which usually involve outright systems sales rather than the application of green pricing premiums. Some competitive marketers also offer rooftop PV systems for sale and two competitive marketers blend small amounts of PV generation into their green power products. To date, very little, if any, new biomass (exclusive of landfill methane), geothermal, or hydro development has been pursued for the green power market.

### *New Renewables Developed*

A primary objective of green power marketing should be the development of new renewable resources. Indeed, a very high percentage of utility programs utilize new resources, although only a handful of utility programs have resulted in truly meaningful quantities of new renewables development (Figure 5). And more than 80% of the 120 MW of new renewables development planned to serve utility programs will be installed by just three utilities.

Whereas utilities have a captive market base from which to attract program subscribers, competitive marketers are more constrained by market uncertainty in committing to new renewables projects. Competitive marketers initially seek out renewable resources that already exist in the marketplace while they build a customer base. Marketers may also use natural gas and hydropower along with some new renewables to create "cleaner" power blends.

<sup>4</sup> B. Farhar, op cit.



**Figure 5. New renewables developed from utility programs**

However, there is a trend for marketers to add a growing percentage of new renewable resources into the product content over time. In fact, the *Green-e* certification standard for competitively marketed green power requires products to contain an increasing percentage of new renewable resources over time.

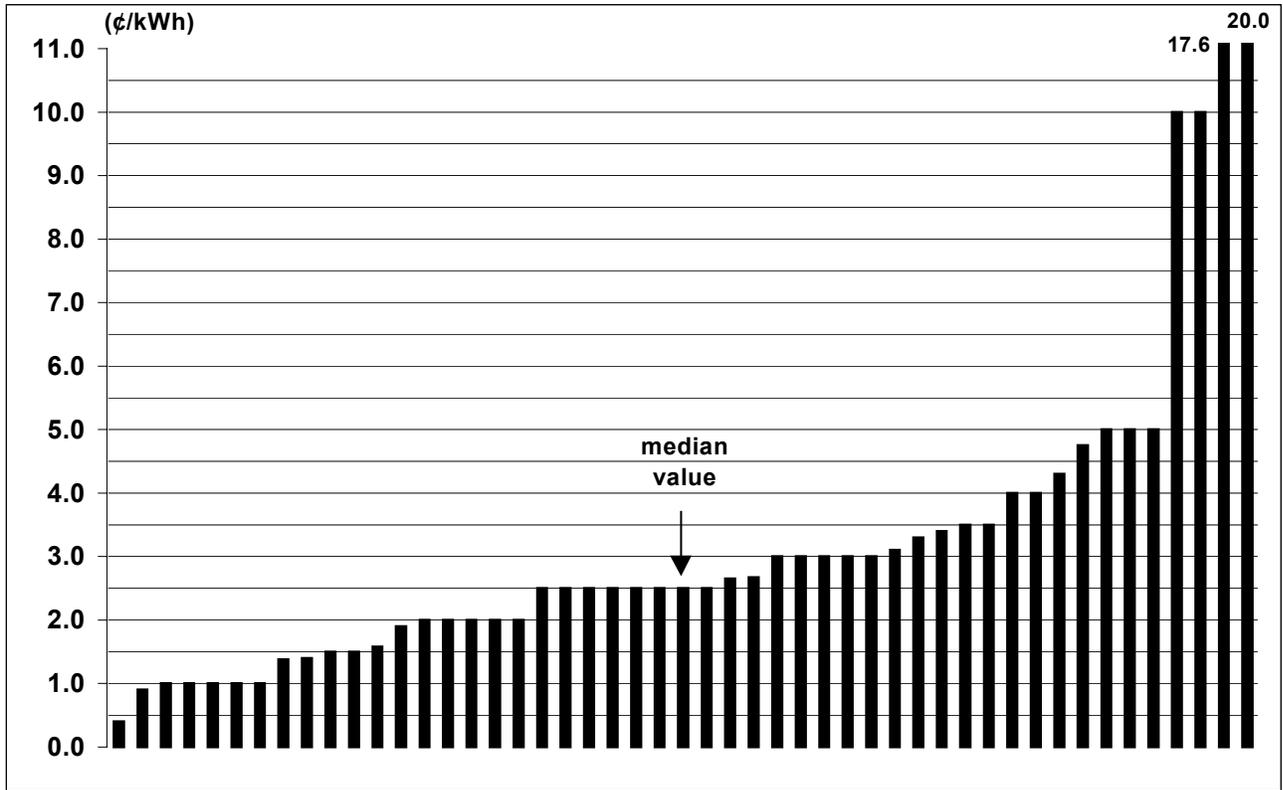
*Pricing*

Price premiums for energy-based, green pricing offerings range from 0.4¢/kilowatt-hour (kWh) to as much as 20.0¢/kWh for 100% new renewable energy content, with a median of 2.5¢/kWh (Figure 6).<sup>5</sup> More utilities are designing programs to better reflect the types of services and pricing that might be offered to customers in a competitive market, such as allowing customers to purchase blocks or percentages of renewable energy, or meet as much as 100% of their electricity needs from green power.

Although the price premium charged in competitive markets depends on many of the same factors that drive utility premiums, they also depend on the nature of the competitive savings and incentives available in the market. In some service areas of Pennsylvania, for example, the customer “shopping credit” is high enough to provide a competitive pricing margin. And although there is no competitive price margin available in the California market, a state-funded credit for renewable energy purchases has allowed some marketers to price their green power products below the default market price.

---

<sup>5</sup> The premium charged in a green pricing program can be a function of any number of variables, including but not limited to the renewable energy technology used, the quality of the renewable energy resource, the scale of the project(s), the project and company financials, the availability of subsidies or incentives, inclusion of administrative and marketing costs, the utility's avoided cost of energy, the amount of renewables already in the utility mix, and whether participating customers shoulder the full cost of the program.



Customer participation in a handful of utility green pricing programs has been as high as 4%, but is generally around 1% or less. The lower range of participation rates can often be attributed to the experimental nature of many programs for which capacity and subscription limits are imposed, the narrow scope of most green pricing offerings, and uneven corporate and marketing commitments to the product. Nevertheless, several utilities are expanding or plan to expand the size of their programs because of continued positive customer response.

The experience in competitive markets is also varied and is highly dependent on the market rules established in any particular state. That is, a core base of potential green power customers exists in every state but actual market participation is a function of whether the market rules established encourage alternative suppliers to be active in the market and customers to switch. To date, the most successful states for green power have been Pennsylvania and California, where as many as 2% of customers have actively switched to a green power provider.

## Competitive Green Power Marketing

Green power marketing refers to the sale of green power in competitive markets, where multiple suppliers and service offerings generally exist. Twenty-four states have enacted legislation or adopted rulemakings to open their power markets to competition. As of July 2000, retail consumers can purchase competitively marketed green power in California, New Jersey, and Pennsylvania, and to a lesser extent in some New England states (Table 3). Green power is also being sold competitively in wholesale power markets in Illinois and New York. This section summarizes retail marketing activity in several states and presents information on green power marketers and other market participants.

### California

The California electricity market was opened to competition on March 31, 1998. After more than two years of competition, just 2.2% of all eligible utility customers have actually switched suppliers: 1.8% residential, 4.1% commercial, and about 20% of industrial customers. Virtually all of the 160,000 residential customers that have switched are receiving green power.

Twenty-three companies have registered with the California Energy Commission as renewable electric service providers. Seven of these companies are certified to use the *Green-e* logo, offering a total of 11 products that meet the program's minimum criteria of 50% renewable energy content. Some companies offer multiple products containing anywhere from 50% to 100% "eligible"<sup>6</sup> renewable energy content, with the remaining power coming from large hydro, natural gas, or system power. Most green power marketers are selling power from existing renewable energy projects, primarily geothermal, biomass, and small hydro, but have been gradually upgrading their products to increase the amount of power that is derived from new renewable resources—5 of the 13 *Green-e* certified products now contain 5% to 25% new renewables content.<sup>7</sup>

During the first year of competition, most green power marketers charged price premiums ranging from 1.1¢ per kilowatt-hour (kWh) to 2.5¢/kWh. However, in early 1999, three marketers announced price reductions to as low as 5% below the default market price. These price cuts were made possible by a state credit for qualifying retail renewable energy purchases—the initial level of the credit was 1.5¢/kWh but it has since been reduced to 1.0¢/kWh. Several marketers have recently instituted a monthly fee for their green power services, with the actual energy priced at the default market rate.

### Pennsylvania

Beginning January 1, 1999, all electricity customers in Pennsylvania became eligible to choose an alternative supplier. By the end of July of this year, nearly 530,000 customers (or about 10%) were being served by alternative suppliers. A higher percentage of customers are participating in the market because of market rules that were designed to encourage customer switching. Under the

---

<sup>6</sup>Under the definition established in California's electric industry restructuring law (AB 1890), eligible renewables may include solar, wind, geothermal, solid fuel biomass, whole waste tire combustion, municipal solid waste, landfill gas, and hydropower with a generating capacity of 30 MW or less.

<sup>7</sup>*Green-e* certification also requires that one year after deregulation, the green power product must contain at least 5% new renewable electricity, increasing to 10% in the following year.

**Table 3. Residential green power product offerings**

Company	Product Name	Price Premium ¢/kWh	Monthly Fee	Resource Mix	Green-e Certified?
---------	--------------	------------------------	-------------	--------------	--------------------

**California<sup>1</sup>**

Go-Green.com	Eco-Save	0.00	\$3.89/mo	100% renewable, 5% new	<input type="checkbox"/>
Commonwealth Energy	Green Smart	-0.15		60% geothermal, 40% biomass and waste, 5% new	<input type="checkbox"/>
GreenMountain.com	100% Renewable	0.00	\$4.95/mo	1% new renewables, 99% existing	<input type="checkbox"/>
	Solar for Future	0.00	\$6.95/mo	5% new renewables, 95% existing	<input type="checkbox"/>
	Wind for Future	1.50	\$6.95/mo	25% new wind, 75% existing renew.	<input type="checkbox"/>
PG&E Energy Services	Clean Choice	0.17		5% new, 15% existing, 80% large hydro	<input type="checkbox"/>
	Clean Choice 50	1.09		12% new, 38% existing, 50% lrg hydro	<input type="checkbox"/>
	Clean Choice 100	1.75		25% new, 75% existing renewables	<input type="checkbox"/>
Utility.com	Green Planet	-0.60		100% renewable, 5% new	<input type="checkbox"/>

**Connecticut<sup>2</sup>**

CT Energy Coop	EcoWatt	1.00	Initial \$30	100% renewable	<input type="checkbox"/>
----------------	---------	------	--------------	----------------	--------------------------

**Maine<sup>3</sup>**

Energy Atlantic	PureGreen Energy	1.00		100% renewable	
-----------------	------------------	------	--	----------------	--

**New Jersey<sup>4</sup>**

Conectiv	Nature's Power 50	-0.01		25% small hydro, 25% biomass	* <sup>5</sup>
	Nature's Power 100	0.79		50% biomass, 50% small hydro	* <sup>5</sup>
GreenMountain.com	Ecosmart Enviroblend	-0.05 0.85	\$3.95/mo \$3.95/mo.	1% new renewables, 99% nat. gas/hydro 45% small hydro/landfill gas, 5% new	<input type="checkbox"/>

**Pennsylvania<sup>6</sup>**

ElectricAmerica	100% Hydro	-0.85		100% large hydro	
Energy Cooperative of Pennsylvania <sup>7</sup>	Eco Choice 100	0.00	\$5/year	100% renewable, biomass and geothermal, 5% new	<input type="checkbox"/>
GreenMountain.com	Eco Smart	-0.13	\$3.95	1% new renewables, 99% nat. gas/hydro	<input type="checkbox"/>
	Enviro Blend	0.81	\$3.95	45% small hydro/landfill gas, 5% new	<input type="checkbox"/>
	Nature's Choice	1.44	\$3.95	95% small hydro/landfill gas, 5% new	<input type="checkbox"/>
Mack Services Group	100% Renewable	-0.28		100% renewable, 5% new	<input type="checkbox"/>
Power Direct	Clear Choice	0.35		Retires emissions credits	

*Notes:*

<sup>1</sup> Product prices are for all service territories.

<sup>2</sup> Product prices are for Connecticut Light & Power service territory.

<sup>3</sup> Product prices are for Central Maine Power service territory.

<sup>4</sup> Product prices are for Conectiv Power Delivery service territory.

<sup>5</sup> As of July 2000, Conectiv had not met all requirements for *Green-e* certification.

<sup>6</sup> Product prices are for PECO service territory.

<sup>7</sup> As of July 20, 2000, ECAP was not signing up new customers because of market price volatility.

*Sources:* California Public Utility Commission's Guide to Residential Electric Service Options, Pennsylvania Office of Consumer Advocates' Residential Shopping Guide, New Jersey Ratepayer Advocate's Energy Rate Chart for Residential Customers. Other information provided by marketers.

state's restructuring rules, customers receive a "shopping credit," which is the default energy rate against which to compare competing offers. Customers who do not switch to an alternative supplier are guaranteed only a small rate reduction. In addition, a state-run education campaign has actively promoted customer choice.

Six green power suppliers are active in Pennsylvania. However, one green power marketer recently returned its residential customers to their default service providers because of unpredictable wholesale price fluctuations. The company continues to supply green power to commercial and industrial customers.

Six green power products are *Green-e* certified and generally contain some mix of small hydro, biomass, and landfill gas resources. As in California, *Green-e* certification requires that an increasing percentage of product content come from new renewables, starting at 5%. One marketer recently completed a 10.4-megawatt (MW) wind power facility, which is the first large wind project constructed in the state. And another provider has installed two 65-kW wind turbines to serve business customers.

## **New England**

Electricity competition began on January 1, and March 1, 1998, in Rhode Island and Massachusetts, respectively. However, very little competitive marketing has developed in these states because the initial default market prices were set below the prevailing wholesale price of electricity. The default electricity price is scheduled to rise over time. One marketer has been selling a renewable power service that "upgrades" the environmental quality of a customer's electricity supply without requiring the customer to switch electricity providers.

Retail electricity markets in Maine and Connecticut opened to competition on March 1, and July 1, 2000, respectively. In Maine, one electricity supplier is offering a 100% green power option. And in Connecticut, an energy cooperative recently announced the first green power product in New England to be *Green-e* certified. Both products are comprised of power generated from biomass, small hydro, and wind resources and are priced at a premium of about 1¢/kWh.

## **New Jersey**

New Jersey officially opened its market to competition in November 1999. About 2.3% of the state's more than three million customers switched to an alternative supplier during the first nine months of retail competition. Two companies are offering a total of four green power products consisting primarily of biomass and small hydro resources—three of the four products are *Green-e* certified and one of the products will include power generated from a wind project recently constructed in Pennsylvania. One other electricity provider offers an "environmentally friendly" power option through which the company retires air emissions credits to "offset" the pollution associated with a customer's electricity consumption.

## Green Power Marketers

### Retail Suppliers

**AllEnergy Marketing Company**—In May 1997, AllEnergy, a joint venture formed by *New England Electric System* and *Eastern Enterprises*, announced the formation of *ReGen<sup>SM</sup> Technologies* to offer environmentally preferable electricity services in New England. *ReGen* is a renewable power service that “upgrades” the environmental quality of electricity supply, without requiring the customer to switch electricity providers. Residential and small commercial customers can purchase 2,000-kWh annual blocks of the service at a premium of \$8 per month for the first block and \$6 per month for all subsequent blocks—one block equals approximately 30% of the annual power use for an average New England household. Large commercial and industrial customers can purchase the service on a per kWh basis. AllEnergy is supplying the renewable power from a combination of new renewable resources, including landfill gas, photovoltaics, and wind energy. More recently, AllEnergy has partnered with a Web-based power marketer, *Essential.com*, to market the *ReGen* green power product.

**ABAG POWER**—The Association of Bay Area Governments (ABAG), an organization comprised of 59 cities, counties, and public agencies located throughout Northern California, formed a power purchasing pool, ABAG POWER, to serve its members. ABAG POWER purchases geothermal energy from *Calpine Corporation*, which allows the group to take advantage of state incentives for renewable energy purchases. ABAG POWER expects to save a total of \$1 million annually for its members, which have a collective peak load of about 63 MW.

**Boston Oil Consumers Alliance**—BOCA, a heating oil cooperative serving eastern and central Massachusetts, is purchasing green power for its members. In December 1998, the group established a “Green Electric Co-op” to obtain renewable electricity at discounted prices. The co-op is purchasing renewable energy from AllEnergy at a 25% discount. With the discount, co-op members can purchase 2,000-kWh annual blocks of green power for \$6 per month, which equates to a price premium of 3.6¢/kWh. About 2% of BOCA’s 6,000 members have signed up for the renewable upgrade service.

**Commonwealth Energy Corporation**—Commonwealth claimed to be serving more than 80,000 residential and small business customers throughout California as of November 1999, which would make it the leading competitive power supplier in the state in terms of customer base. Commonwealth began operations as a discount power seller but switched to selling green power in early 1999 when the state’s green power purchase rebate became effective. Commonwealth purchases much of its green power from *Calpine Corporation* and sells its retail product at a discount to the Power Exchange (PX) price. Commonwealth has also struck some high-profile green power deals, including supplying the cities of *Santa Monica* and *Palmdale*, the *San Diego Association of Governments* (SANDAG), the *North American Coalition on Religion and Ecology*, *Time Warner Communications*, and the *Pick Up Stix* and *Panda Express* restaurant chains.

**Community Energy**—Community Energy, Inc. was conceived by two environmental organizations, the Clean Air Council and the Land and Water Fund of the Rockies, to bring a 100% new wind product into the market. The resulting for-profit company is marketing a wind power product, *Pennsylvania Wind Energy*, to small and mid-sized businesses in the Philadelphia area. *Energy Unlimited, Inc.* of West Conshohocken, PA, constructed two, 65-kW wind turbines

at the Humboldt Industrial Park, southwest of Hazleton, PA, to supply power for the program. *Conectiv Energy* is managing the power delivery and providing customer support. The wind power is sold to business customers in blocks of 400 kWh per month. Community Energy claims that, depending on the amount purchased, “most businesses can pay less than they do now and apply the savings to new Pennsylvania wind energy.” Community Energy plans to add additional wind capacity to the program during 2000.

**Conectiv Energy**—Until recently, Conectiv offered two *Green-e* certified power products in Pennsylvania: *Nature’s Power 100*, which contains 100% renewable electricity resources, and *Nature’s Power 50*, which contains 50% renewable and 50% nonrenewable sources. However, as a result of hot summer weather that has strained power supplies and driven up prices in the wholesale market, Conectiv announced that it would no longer offer residential electricity service in Pennsylvania and that it was returning its 35,000 residential customers, including more than 5,000 green power customers, to their default utility providers. Conectiv continues to offer electricity service, including the *Nature’s Power* products, to business customers in PECO’s service territory. The company also plans to continue offering green power to New Jersey customers in Conectiv Power Delivery’s service territory.

**Connecticut Energy Cooperative**—The Connecticut Energy Cooperative, a Hartford-based group serving 400-plus members, is offering a 100% renewable energy product certified by *Green-e*. The new product, marketed as *EcoWatt*, is comprised of renewable power generated from landfill gas, small hydro, and wind resources. The co-op estimates that about 6% of the power will come from new or repowered wind resources. Residential customers can purchase the product for 6.5¢/kWh, which is a premium of 1¢/kWh over the standard offer in most parts of the state.

**Edison Source**—In late 1999, Edison Source stopped selling its *EarthSource* green power product in California and switched its estimated 7,500 green power customers back to the default utility provider. The company’s biggest customer was *Toyota Motor Sales, USA*, which has since signed an agreement to be served by *GreenMountain.com*.

**ElectricAMERICA**—The company offers a “clean hydro power” product to customers in PECO’s service territory in Pennsylvania. The product is offered to residential customers at 4.8¢/kWh, which is a 15% discount to the PECO shopping credit. ElectricAMERICA launched an aggressive marketing campaign in Pennsylvania that included telemarketing and radio ads, and, as of January 2000, claimed to have signed up about 5,000 customers.

**Energy Cooperative Association of Pennsylvania**—ECAP, a 20-year-old, Philadelphia-based fuel oil cooperative, is offering green power to its members, with the energy supplied by *Mack Services Group*. In January 2000, ECAP received *Green-e* certification for its *EcoChoice 100* renewable energy product, which consists of 80% biomass power and 20% small hydro power. The product is available only in the PECO service territory and is sold at the “price to compare.” As of January 2000, ECAP was providing green power to about 10% of its 8,000 members.

**Enron**—After conducting an aggressive marketing campaign in late 1997, prior to the opening of the California market, Enron suspended its efforts to market alternative electricity services to residential customers. An Enron spokesperson cited an inability to provide significant discounts to customers as the primary reason for withdrawal from the California market. Enron was marketing *Earth Smart Power*, an electricity product containing 50% renewables, with the

balance guaranteed not to come from coal, nuclear, or petroleum sources. Enron is still supplying green power to customers who signed up before the program was suspended.

In July 1998, *Patagonia*, a Ventura-based outdoor clothing manufacturer, announced that it would purchase 100% renewable energy from Enron to power its 14 California facilities. Enron is supplying the power from a new, 16-MW wind power facility located near Palm Springs, California, which began operating in June 1999. In May 2000, Enron, along with *IBM* and *America Online*, announced the formation of *The New Power Company*, which plans to begin retail marketing in New Jersey and Pennsylvania in the latter half of 2000, with plans to eventually expand to all 24 states that have opened their electric markets to competition. A company spokesperson said that it is likely the company will include green power in its portfolio of product offerings.

**Essential.com**— Essential.com is a Web-based power marketer offering electricity at discounted prices for a limited number of residential customers in the service areas of Massachusetts Electric Company and Boston Edison Company. The company bundles electricity with telecommunications services to achieve savings. As of January 2000, the company claimed to be serving 20,000 customers in the Massachusetts market. Essential.com is a licensed broker of *AllEnergy* products and is marketing *AllEnergy's* ReGen green power product. Essential.com is expanding its business to offer telecommunications services nationwide and, pending regulatory licensing, will offer electricity services, including green power, in most states that have opened their markets to competition.

**Go Green.com**—Formerly known as *cleen 'n green*, Go Green.com sells a 100% renewable energy product in California with “at least 10%” coming from “new” renewable sources. The company purchases its green power from independent California generators through the *Automated Power Exchange* (APX) Green Power Market and sells its *Ecosave* product to residential customers at the default utility price plus a monthly customer charge of \$3.89. Among its largest commercial customers are the *City of Santa Barbara* and the *U.S. Postal Service*.

**GreenMountain.com**—GreenMountain.com serves customers in California, New Jersey, and Pennsylvania with its Green Mountain Energy brand of products, which it claims feature renewable and other generation sources “that are dramatically cleaner than typical regional system power.” GreenMountain.com offers two products in the California market: *100% Renewable Power*, which is a 100% renewable energy content product with 5% new renewables, and *Wind for the Future*, for which 25% of the power content comes from new wind turbines, with the remainder supplied by small-scale hydro, biomass, geothermal, and landfill gas. Both California products are *Green-e* certified. The company also offers a rooftop solar product for California homeowners. Greenmountain.com offers three green power products in the Pennsylvania market: *Eco Smart*, *Enviro Blend*, and *Nature's Choice*. Two of the three products have been certified by the *Green-e* program as containing at least 50% renewable energy. Green Mountain also offers a rooftop PV option for residential customers.

GreenMountain.com claims to be serving more than 100,000 retail customers in California, New Jersey, and Pennsylvania, and plans to expand operations into Connecticut, Massachusetts, Ohio, and Texas. Green Mountain is providing green power to a number of commercial customers in California and Pennsylvania, including *Kinko's*, *Birkenstock*, the *Pennsylvania Department of General Services*, and *Toyota Motor Sales, USA*. The company's market activities have resulted in the development of several new renewables projects, including commercial-scale PV and wind projects in California and Pennsylvania.

**Mack Services Group**—Mack Services Group is the latest marketer to offer a *Green-e* certified product in Pennsylvania. Mack Services, which has provided residential heating services in Pennsylvania for nearly 70 years, is offering residential and business customers in PECO's service territory a 100% renewable energy product comprised of 80% landfill gas and 20% small hydropower purchased from Virginia Power. The green power product is being offered for approximately 5% below PECO's standard rate. Mack is also the renewable energy supplier for the *Energy Cooperative Association of Pennsylvania*.

**PG&E Energy Services**—PG&E Energy Services offers three green power products: *Clean Choice*, *Clean Choice 50*, and *Clean Choice 100*, the latter two of which contain 50% and 100% renewables, respectively, and which are *Green-e* certified. Among the company's commercial customers is *Fetzer Vineyards*, which has entered into a long-term contract to purchase more than 5 million kWh annually of the *Clean Choice 100* product to power its Hopland, California, winery operations.

**Power Direct**—Power Direct, a fully owned subsidiary of *AES*, offers an environmentally friendly power option, *Clear Choice*, to customers in Pennsylvania and New Jersey. Under the *Clear Choice* program, Power Direct offsets the emissions created by a customer's energy use by purchasing and retiring sulfur dioxide and nitrogen oxide emissions credits. The company also offsets customers' carbon dioxide emissions by planting trees and supporting other carbon sequestration programs. Power Direct offers *Clear Choice* at a premium of 0.8¢/kWh over its base electricity rate. Given that customers of Power Direct's basic power product save 8%-10% off the default utility rates (on a total bill basis), customers can switch from default service to *Clear Choice* and see little change in their electricity bill or even receive a slight discount. As of December 1999, 6% of Power Direct's customers had selected the *Clear Choice* option.

**Sacramento Municipal Utility District**—In June 1999, SMUD announced a deal to supply the *U.S. Environmental Protection Agency's* (EPA) Richmond, California, research laboratory with 100% renewable electricity. Under a three-year agreement reached with the *General Services Administration*, SMUD will provide the facility with *Green-e* certified power from its *Greenergy<sup>SM</sup>* product, which consists of 60% geothermal energy from plants located at The Geysers and 40% landfill gas from a new facility being constructed in Sacramento. The EPA laboratory uses about 1.8 million kWh of electricity annually.

**Utility.com**—Utility.com, a Web-based marketer of utility services, offers *GreenPlanet*, a 100% renewable energy product, to residential customers in California at a price 20% below the default utility electricity rate. The company is also registered to provide energy services in seven other states but at this time is only offering a green power product in California. The California product is *Green-e* certified.

### **Wholesale Suppliers**

**Atlantic Renewable Energy Corporation**—Atlantic Renewable, along with partner International Wind Company, plans to develop a 15.6-MW wind project in Pennsylvania. Construction is scheduled to be completed by the end of 2000. The developers are looking for entities interested in purchasing green power, green certificates, and/or emission reduction credits that would be generated from the project, which is projected to produce 43 gigawatt-hours annually.

**Bonneville Power Administration**—BPA markets a green power blend to its wholesale customers in the Pacific Northwest. One of the products consists of 90% small hydro and 10% wind energy. For the wind energy supply, BPA has contracted to purchase 1.8 MW from three new turbines built in Arlington, Wyoming. As of October 1999, BPA was selling a total of about 15 average megawatts (aMW) of the power blend to six utility customers: *City of Idaho Falls*, *Emerald People's Utility District*, *Flathead Electric Cooperative*, *Midstate Electric Cooperative*, *Orcas Power & Light*, and *Snohomish County Public Utility District #1*. BPA also provides seven aMW of a 100% wind power product to *Salem Electric Cooperative*. BPA purchases 15.34 MW of the 41.4-MW output of the Arlington, Wyoming wind project, which is jointly owned by the *Eugene Water & Electric Board* and *PacifiCorp*, in order to supply Salem Electric.

In May 2000, BPA announced a 20-year agreement to purchase the power output from 16.8 MW of newly developed wind that will be used to increase the percentage of wind energy in the green power blend. BPA also announced two new green power offerings—a 100% new renewables product, which will be a mix of geothermal, solar, and wind resources, and a 100% wind energy product.

**Calpine Corporation**—Calpine owns and operates nearly 900 MW of geothermal power plants at The Geysers resource area in Northern California, making the company a leading producer of green power for the California market. Much of this capacity was purchased from *Pacific Gas and Electric Company* in 1999. Calpine has agreements to sell geothermal power to *Commonwealth Energy*, the *Sacramento Municipal Utility District* (SMUD), and the *Association of Bay Area Governments* (ABAG).

**ComEd**—ComEd and the *Environmental Resources Trust* (ERT), a nonprofit, environmental organization, have teamed up to offer the first wholesale renewable power product in Illinois. ComEd is selling the product, called *EcoPower*, through the *APX Midwest Market*. Electricity suppliers purchasing "green tickets" through the APX Market can use the *EcoPower* label in their retail marketing. Currently, the *EcoPower* product consists entirely of power generated from landfill gas facilities. However, ComEd plans to add other renewable resources, such as small hydro, wind and solar, to the product portfolio in the future. Profits from the sale of *EcoPower* will be used to finance the development of new renewable resources in Illinois through a fund to be administered by ERT.

**PacifiCorp**—PacifiCorp provides green power in the wholesale market. The utility holds an 80% ownership interest in the 41.4-MW Wyoming Wind Project, from which the *Bonneville Power Administration* purchases power to supply several Northwest utilities. And in 1999, PacifiCorp completed construction of two, 700-kW wind turbines in California's San Geronio Pass to provide wind power to *GreenMountain.com* for its California-based green power products.

**PG&E Corporation**—PG&E Corp. is building a seven-turbine, 11.5-MW wind project in Madison County, New York, from which the company plans to offer businesses and companies the opportunity to purchase "certificates" that represent the air emissions avoided with each megawatt-hour of wind-generated power. The project is being partially funded with monies from a statewide system benefits charge that was established in June 1998.

**Sun Power Electric**—Sun Power Electric, a Boston-based, nonprofit organization, has constructed three solar facilities to serve competitive green power markets in the Northeast. The systems are located on the roofs of BJ's Wholesale Clubs in Middletown, Rhode Island (a 43-kW

system), Dartmouth, Massachusetts (50 kW), and Conshohocken, Pennsylvania (43 kW). The output of the two New England-based systems is sold to *AllEnergy* for its *ReGen* renewable power upgrade service, while the output of the Pennsylvania system is sold to *GreenMountain*

## Organizations

**Automated Power Exchange**—APX is a fully automated electricity exchange through which sellers and buyers can make power transactions in the California electricity market. The company also operates a green power exchange, the *APX Green Power Market*. The green power exchange includes only those renewable resources that meet state eligibility criteria. APX also participates in the *Green-e* program. During 1999, APX introduced a “green ticket trading” system that allows the particular attributes of a power product, such as resource and technology type or whether the electricity comes from a new or pre-existing facility, to be traded separately from the electricity commodity. The price of the green tickets represents the wholesale premium that electricity suppliers are willing to pay for green power. The forward market allows both suppliers and buyers to lock in the green premium anywhere from 3 to 15 months in advance. For calendar year 1999, the average monthly trading price of green tickets ranged from \$2.64 to \$4.95 per MWh. In March 2000, the company opened the APX Midwest Green Power Market.

**American Rivers, Inc.**—A nonprofit organization specializing in protecting and restoring rivers, American Rivers has developed criteria to define low-impact hydropower resources. The criteria form the basis for a voluntary, low-impact hydro certification program, which will be administered by a new nonprofit organization, the *Low Impact Hydropower Institute*. The certification program, which was officially launched in January 2000, is designed to evaluate the environmental impacts of hydro resources using objective environmental criteria and to provide customers with a basis for choosing environmentally preferable hydro resources. The certification criteria address hydro facility impacts on flows, water quality, fish passage, threatened and endangered species, cultural resources, recreation, and watersheds. The certification criteria were developed by American Rivers, Inc., and *GreenMountain.com*, in collaboration with a task force representing the environmental community, hydropower industry, resource agencies, and power marketers.

**California Energy Commission**—The CEC manages the four-year, \$540 million renewables fund that was established in the state’s restructuring legislation. A portion of the fund is being used to provide credits to customers who purchase renewable power meeting certain eligibility criteria. The credit, which started at 1.5¢/kWh but since has been lowered to 1.0¢/kWh, has provided an important offset to the higher cost of green power in the California market. The change was instituted to ensure that there are sufficient funds to last until 2002, when the credits are scheduled to expire. The CEC also created a “power content label” that all Electric Service Providers must use to disclose information to customers about the energy resources used to generate the electricity they sell.

**Center for Resource Solutions**—In concert with green power marketers and consumer and environmental stakeholders, CRS launched the country’s first voluntary certification and verification program for environmentally preferred electricity products. The program’s centerpiece—the *Green-e* logo—identifies electricity products that contain at least 50% renewable electricity content. The *Green-e* program is active in California and Pennsylvania; CRS has developed standards for New England and the mid-Atlantic region as well.

Participating green power companies pledge to authenticate the renewable content of their electricity products, abide by a code of conduct governing their business practices, and provide customers with regular information about the sources of the electricity that they purchase. In addition to power marketers, companies that purchase significant amounts of *Green-e* certified power are eligible to use the logo in marketing and advertising materials. Both Toyota Motor Sales USA and Patagonia are approved to use the *Green-e* logo.

CRS also administers an independent accreditation program for utility green pricing programs. The program is designed to recognize and accredit utility programs that use “best practices” in offering green electricity options to customers in noncompetitive markets. To receive accreditation, utilities must meet stringent standards regarding renewable resource content, product pricing, marketing activities, and information disclosure. Accredited utilities are required to undergo an annual, independent verification process to document their green power deliveries. The program also involves input from local stakeholder groups consisting of consumer advocates, environmental groups, utilities, and renewable energy advocates.

**Environmental Resources Trust**—ERT is an independent, nonprofit organization that brokers “electric power sources that offer clear and demonstrable environmental benefits.” In 1997, ERT signed an agreement with *BPA* to broker environmentally beneficial power products, including unscheduled power generated from federal hydro facilities as a result of fish recovery operations, power generated from renewable projects, and power from in-stream flow improvements enabled by ERT water purchases. Proceeds from the sales are to be invested in fish and wildlife and other on-the-ground environmental projects. ERT is also working with ComEd to market green power in the Midwest. Profits from the sale of the *EcoPower* product will be used to finance the development of new renewable resources in Illinois through a fund to be administered by ERT.

**National Association of Attorneys General**—In December 1999, the National Association of Attorneys General (NAAG) adopted a resolution finalizing its *Environmental Marketing Guidelines for Electricity*. The guidelines, which apply to all marketing claims concerning the environmental attributes of electricity products offered by electric power providers, establish general principles for determining whether advertising claims are misleading or deceptive. In the resolution, NAAG “urges the electric power industry to conform its advertising of electricity products and companies to the Guidelines” and “encourages each Attorney General, in the absence of relevant state law, to promote use of the Guidelines as a model for legislation and rulemaking.” NAAG issued the guidelines after nearly two years of deliberation, which included public workshops and comment periods. Any further issues of interpretation and enforcement of the Guidelines will be handled at the state level by the various Offices of Attorney General.

**Renewable Energy Alliance**—The REA is a national trade association of companies directly engaged in the production or sale of renewable energy in competitive markets. The Alliance was formed to pursue a common agenda to address regulatory issues and undertake market-building activities in support of renewable energy market development. Current members include GreenMountain.com, PacifiCorp, and PG&E Corporation. The group is working to support policies and regulations that establish fair market structures for environmentally preferable power sources and that foster the use of accurate environmental claims in the promotion of differentiated power products.

## Utility Green Pricing Programs

Green pricing is an optional utility service that gives customers an opportunity to support a greater level of utility company investment in renewable energy technologies. Participating customers pay a premium on their electric bill to cover the incremental cost of the additional renewable energy. To date, more than 80 utilities have developed or have announced intentions to develop green pricing programs for their customers—a partial listing is provided in Table 4.<sup>8</sup> Customer participation in these programs has resulted in installation of nearly 73 MW of new renewable resources and plans for installing another 120 MW.

### Types of Green Pricing Programs

There are three basic types of green pricing programs, which are described further below. One key difference among program types is the ability of customers to substitute some amount of green power for the utility's standard resource mix.

**Contribution program**—Customers can contribute to a utility-managed fund for renewable project development. In general, these projects are not developed to offset any part of the customer's electricity usage. Nearly all of the projects developed under contribution programs have used PV and have been relatively small, with the exception of the Sacramento Municipal Utility District, which has developed more than 1.5 MW of PV since 1993 through its PV Pioneers green pricing program.

**Capacity-based program**—Customers can choose to purchase a fixed block of electric capacity to be generated from renewables. Capacity-based programs have offered PV exclusively, in rooftop or localized applications. Monthly premiums range from \$3.00 to \$6.59 per 100 watts of capacity. Generally, the capacity blocks subscribed are well below the capacity necessary to serve the customer's total electricity requirements.

**Energy-based program**—Customers can choose to purchase a fixed block or percentage of their electric energy requirements from renewables. In many of these programs, a customer can choose to purchase 100% of their electricity usage as green power. This type of program generally offers renewable energy sources that are most competitive with bulk power generation—most of the energy-based programs that are either already in place or planned will use wind power. Recently, two utilities offering PV through capacity-based programs recently changed their pricing to reflect a cost per kWh. The green power price premiums charged in energy-based programs vary from 0.4¢/kWh to 20.0¢/kWh.

Summary information on the three different program types is provided in Tables 5-7.

---

<sup>8</sup> In some cases, several distribution cooperatives may be marketing green power supplied by a generation and transmission cooperative. For example, about half of Tri-State G&T's 32 member systems are marketing the cooperative's green power product. However, only the supplier organization is listed here.

**Table 4. Utilities offering or planning green pricing programs**

<b>Investor-Owned Utilities</b>	<b>Municipal/Public Utilities</b>
<p>Alliant Energy  Arizona Public Service  Detroit Edison  Florida Power &amp; Light  Gulf Power  Hawaiian Electric  Indianapolis Power &amp; Light  Madison Gas &amp; Electric  Minnesota Power  PacifiCorp  Portland General Electric  Public Service Company of Colorado  Southern Company  Southwestern Public Service  Tampa Electric  Texas-New Mexico Power Company  Tucson Electric Power Company  TXU Electric  UtiliCorp United  Western Resources  Wisconsin Electric  Wisconsin Public Service</p>	<p>City of Alameda  City of Ashland  Austin Energy  Benton County Public Utility District  City of Bowling Green  Cedar Falls Utilities  City Public Service (San Antonio)  Colorado Springs Utilities  Estes Park Power &amp; Light  Eugene Water &amp; Electric Board  Fort Collins Utilities  Gainesville Regional Utilities  Lansing Board of Water and Light  Lincoln Electric System  Longmont Power &amp; Communications  Los Angeles Department of Water &amp; Power  City of Loveland Water &amp; Light  Moorhead Public Service  Nebraska Public Power District  City of New Smyrna Beach  City of Palo Alto  Platte River Power Authority  Roseville Electric  Sacramento Municipal Utility District  Salt River Project  Tacoma Power  City of Tallahassee  Traverse City Light &amp; Power  Turlock Irrigation District</p>
<p><b>Electric Cooperatives</b></p> <p>Dairyland Power Cooperative  Dakota Electric Association  East River Electric Power Cooperative  Flathead Electric Cooperative  Great River Energy  Holy Cross Energy  Midstate Electric Cooperative  Minnkota Power Cooperative  Orcas Power &amp; Light  Pacific Northwest Generating Cooperative  Tri-State Generation &amp; Transmission Association  Yampa Valley Electric Association</p>	<p><b>Federal</b></p> <p>Tennessee Valley Authority</p>

**Table 5. Green pricing contribution programs**

Utility	Technology	Size	Start	Notes
City of Ashland	PV	25 kW	1999	Customer contributions support public PV projects
Benton County Public Utility District	Landfill Gas	1 MW	1999	Taking donations to cover cost of recently constructed landfill gas facility
Cedar Falls Utilities	Wind	1.5 MW	1999	Customer donations support wind project
Florida Power and Light	PV	10 kW	1997	Utility site; considering new solar program
Gainesville Regional Utilities	PV	10 kW	1993	Demonstration project at utility site
Gulf Power	Solar	10 kW	1996	School project; launching new capacity-based program (see Southern Company)
Hawaiian Electric	PV	30 kW	1996	School projects
Nebraska Public Power District	Unspecified	--	1999	Will build new facilities
City of New Smyrna Beach	PV	4 kW	1999	Plans to install 150 kW of PV with green pricing and buy-downs
Public Service Company of Colorado	PV PV	40 kW 52.8 kW	1993 1998	Several small off-grid Solar schools
Sacramento Municipal Utility District	PV	1,850 kW 7 kW	1993 1997	<i>PV Pioneers</i> program Community-based systems
Tacoma Power	Small hydro/wind	1 MW	2000	Customers pay monthly amount to support power purchase from BPA
City of Tallahassee	PV	10 kW	Planned	Public building; considering new program
Wisconsin Public Service	PV PV	48 kW small	1996 1998	School projects Small systems for public areas

**Table 6. Capacity-based green pricing programs**

Utility	Size	Premium	Start	Notes
Detroit Edison	55 kW	\$6.59/100 watts	1996	2 central PV projects
Gainesville Regional Utilities	32 kW	\$3.00/50 watts	2000	Plans to install 4-kW PV systems on up to 8 schools
Southern Company	1 MW	\$6.00/100 watts	2000	Joint project to be offered through retail utility subsidiaries*

\* Only Gulf Power and Alabama Power have filed for and received regulatory approval to offer the green pricing tariff.

**Table 7. Energy-based green pricing programs**

Utility	Technology	Size	Premium	Start	Notes
City of Alameda	Unspecified	Unspecified	1.0¢/kWh	1999	Unspecified investment in renewables
Alliant Energy	Landfill gas, wind	TBD	2.0¢/kWh	2000	Plans to launch in August 2000 in IA and WI, pending PUC approval
Arizona Public Service	PV	500 kW	17.6¢/kWh	1996	Plans to add 500 kW in 2000
Austin Energy	Wind/landfill gas	40 MW planned	0.4¢/kWh	1999	Negotiating 10-year purchase contracts for up to 40 MW
City of Bowling Green	Small hydro	6.0 MW	1.38¢/kWh	1999	Selling power from new small hydro facility; funds to be used to develop new wind/solar
City Public Service	Wind	25 MW planned	4.0¢/kWh	2000	Initially purchasing power from existing Texas wind project; plans to construct new 25-MW project
Colorado Springs Utilities	Wind	1.0 MW	3.0¢/kWh	1997	Wholesale purchase from Public Service Company of Colorado

**Table 7. Energy-based green pricing programs (continued)**

Utility	Technology	Size	Premium	Start	Notes
Dairyland Power Cooperative	Wind	660 kW	3.0¢/kWh	1997	Wholesale purchase from Great River Energy
Dakota Electric Association	Wind	660 kW	1.22¢/kWh	2000	Wind energy supplied by Great River Energy
East River Electric Power Cooperative	Wind	1 MW planned	3.5¢/kWh	2000	Serves 22 distribution coops; plans to develop wind project with Basin Electric
Estes Park Power & Light	Wind	165 kW	2.5¢/kWh	2000	Purchases ¼ output of 660-kW turbine from Platte River
Eugene Water & Electric Board	Wind	6.5 MW	2.65¢/kWh	1999	Ownership share of Wyoming wind project; lowered price premium
Flathead Electric Cooperative	Wind/small hydro	1.0 MW	2.0¢/kWh	1999	Purchase from BPA
Fort Collins Utilities	Wind	3.51 MW	2.5¢/kWh	1996	Purchase from Platte River Power Authority; 2.85 MW operational; additional 660-kW turbine planned for summer 2000
Great River Energy	Wind	1.98 MW	1.5¢/kWh*	1997	Power supplied to distribution co-ops
Holy Cross Energy	Wind	3 MW	2.5¢/kWh	1997	Wholesale purchase from Public Service Company of Colorado
Indianapolis Power & Light	Geothermal	N/A	0.9¢/kWh	1998	Offering green power through retail access pilot; geothermal purchase from California
Lincoln Electric System	Wind	1.32 MW	4.3¢/kWh	1998	Two 660-kW turbines
Longmont Power & Communications	Wind	330 kW	2.5¢/kWh	1999	Purchases ¼ output of 660-kW turbine from Platte River Power Authority; additional ¼ purchase from turbine planned for summer 2000

**Table 7. Energy-based green pricing programs (continued)**

<b>Utility</b>	<b>Technology</b>	<b>Size</b>	<b>Premium</b>	<b>Start</b>	<b>Notes</b>
Los Angeles Department of Water and Power	Wind, landfill gas and other renewables	7.2 MW	3¢/kWh	1999	Power purchase contracts for landfill gas and wind, and power purchased through APX
City of Loveland	Wind	165 kW	2.5¢/kWh	1999	Wholesale purchase from Platte River Power Authority; may expand purchase in summer 2000
Madison Gas and Electric	Wind	8.22 MW	3.3¢/kWh	1997	Majority of 11.22-MW project being marketed; fully subscribed.
Midstate Electric Cooperative	Wind/small hydro	N/A	2.5¢/kWh	1999	Power purchase from BPA
Minnesota Power	Wind	1 MW	2¢/kWh	2000	Awaiting PUC approval; plans to purchase power from Great River Energy
Minnkota Power Cooperative	Wind	N/A	3.1-4.6¢/kWh	1999	Nine of 12 coops participating. Will construct turbines if demand warrants. Premium varies by state.
Moorhead Public Service	Wind	750 kW	1.5¢/kWh	1998	New wind turbine; customers can purchase 1/3 of their power from wind
Orcas Power & Light	Wind/small hydro	0.5 MW	2.5¢/kWh	1999	Purchase from BPA
Pacific Northwest Generating Cooperative	Landfill gas	1.05 MW	1.8-2.0¢/ kWh	1999	Portion of 2.5-MW project being marketed
PacifiCorp**	Wind	Wind	4.75¢/kWh	2000	Offered in four western states
City of Palo Alto	Various	TBD	1.2-3.4¢/ kWh	2000	Approved by City Council in March 2000; offering "future" green resources
Portland General Electric	Hydro/Wind	6-14 MW planned	5.0¢/kWh	2000	Portion of premium is used to support habitat restoration or new renewables development

**Table 7. Energy-based green pricing programs (continued)**

<b>Utility</b>	<b>Technology</b>	<b>Size</b>	<b>Premium</b>	<b>Start</b>	<b>Notes</b>
Public Service Company of Colorado	Wind	20 MW	2.5¢/kWh	1997	Project fully subscribed; portion supplied at wholesale to other utilities; planning an additional 35 MW
Roseville Electric	Existing geothermal/ hydro	--	1.0¢/kWh	1999	Existing utility-owned hydro and geothermal resources
Sacramento Municipal Utility District	Landfill gas	8.3 MW	1.0¢/kWh	1997	Power purchase from new project
Salt River Project	PV	200 kW	20.0¢/kWh	1998	Projects built at utility power plant
Southwestern Public Service	Wind	660 kW	3.0¢/kWh	1999	Second turbine will be added if warranted by customer demand
Tampa Electric	Biomass and PV	50 kW planned	10.0¢/kWh	2000	Biomass waste to be co-fired in existing coal plant.
Tennessee Valley Authority***	Wind, biomass, solar	8.7 MW planned	2.66¢/kWh	2000	Contracting to purchase new renewables for pilot program.
Texas-New Mexico Power	Wind	2.0 MW planned	N/A	2000	Awaiting rate approval by PUC. Entered into contract for 2 MW of wind.
Traverse City Light and Power	Wind	600 kW	1.58¢/kWh	1996	Built dedicated wind turbine
Tri-State G&T	Wind	1.66 MW	2.5¢/kWh	1999	Purchasing output from one 660-kW turbine from Platte River Power Authority and 4 new 250-kW turbines from Terra Moya; new turbines scheduled for summer 2000
Turlock Irrigation District	Small hydro	--	~1.0¢/kWh	1999	Existing utility-owned small hydro plants
Tucson Electric	Central PV	TBD	7.5-10¢/kWh	2000	Selling power from landfill gas facility. Funds to be used to develop new solar

**Table 7. Energy-based green pricing programs (continued)**

Utility	Technology	Size	Premium	Start	Notes
TXU Electric	Wind	6.6 MW	4.0¢/kWh	1999	Wind purchase from new addition to Big Spring project
UtiliCorp United	Wind	225 kW	5.0¢/kWh	1999	Power purchase from Western Resources
Western Resources	Wind	1.5 MW	5.0¢/kWh	1998	Two 750-kW turbines operating
Wisconsin Electric Power	Wood, hydro, wind, landfill gas	9.8 MW	2.0¢/kWh	1996	Two new wind turbines operational June 1999. Contract to develop new landfill gas facility.
Yampa Valley Electric Association	Wind	300 kW	3.0¢/kWh	1999	Purchase from Public Service Company of Colorado

\*Suggested retail price for member distribution cooperatives.

\*\*PacifiCorp offers the program through its two retail electric distribution companies, Pacific Power and Utah Power, in Oregon, Utah, Washington, and Wyoming.

\*\*\*TVA's pilot program is being offered in four states (Alabama, Kentucky, Mississippi, and Tennessee) through the following public utilities: Huntsville Utilities, Bowling Green Municipal Utilities, North East Mississippi Electric Power Association, City of Oxford Electric Department, Chattanooga Electric Power Board, Gibson Electric Membership Corporation, Knoxville Utilities Board, Nashville Electric Service, Newport Utilities Board, Oak Ridge Electric Department, Powell Valley Electric Cooperative, and Sevier County Electric System.

## Green Pricing Program Summaries

**Alliant Energy**—In June 2000, Alliant Energy announced plans to offer a green power option to its 740,000 residential customers in Iowa and Wisconsin. Under the *Second Nature* program, customers will be able to purchase renewable power generated from a mix of new landfill gas and wind energy projects to meet 25%, 50% or 100% of their electricity needs. The 100% renewable energy option will be offered for an extra 2¢/kWh or about \$13 a month for an average household; the 50% and 25% options will be priced proportionally. Initially, the program will be offered only to residential customers, but Alliant plans to extend the option to business customers in the future.

**Arizona Public Service**—In 1996, APS established a voluntary solar tariff to help develop as much as 400 kW of “centralized photovoltaic systems.” Program costs are also partially subsidized by shareholders and the *U.S. Department of Energy* (DOE) through the *Utility PhotoVoltaic Group* (UPVG). The program is open to all APS customers. Through the *SolarPartners* program, customers can purchase 15-kilowatt-hour (kWh) blocks of solar energy for \$2.64 a month (or 17.6¢/kWh). Initially, participants paid \$3.00 a month for 100 watts of PV capacity. According to the utility, the change represents a savings for most participants and allows customers to more easily calculate the amount of solar energy they receive.

Customer response has far exceeded the utility's initial targets and the program has been continually expanded. A total of more than 500 kW of solar projects have been built in various cities, including Flagstaff, Tempe, Scottsdale, Glendale, and San Luis. Many of the projects have been built in partnership with the host cities. In April 2000, APS announced plans to add 388 kilowatts (kW) at other sites around its service territory. APS reports that 1,300 customers are participating in the program, with several hundred others on a waiting list. APS plans to begin another marketing push once the new capacity comes on line.

**City of Alameda**—The City of Alameda (California) Bureau of Electricity began offering a green pricing option to its electricity customers in January 1999. Alameda, which already obtains more than 75% of its power resources from renewable energy sources, rolled out the *Clean Future Fund*, through which customers can support investment in “future renewables or new investments for upgrades and retrofits for existing renewable sources” or research and development of electric vehicle technology. Participants pay a premium of 1.0¢/kWh to 1.5¢/kWh depending on which option they choose. The bureau also offers a net-metering program to customers with rooftop solar systems. The utility will decide what types of projects to pursue in early 2000.

**City of Ashland**—The City of Ashland, Oregon, has launched a pilot program, *Solar Ashland*, to deploy up to 20 kW of photovoltaics on public buildings within the city. The installations will be funded through a combination of grant monies supplied by the *Bonneville Environmental Foundation*, state subsidies, and customer contributions. Customers can choose to contribute \$4 per month to support the solar projects. The city will partner with “host” institutions to install 5-kW systems and display solar energy educational materials for the public. The *Bonneville Power Administration* (BPA) will purchase a portion of the PV generation for resale through its *Environmentally Preferred Power* portfolio. In a second phase, the city, which operates its own electric department, hopes to market solar power and systems directly to the Ashland public.

**Austin Energy**—In January 2000, Austin Energy, the City of Austin's (Texas) municipally owned electric utility, launched a program that will supply its customers with 40 MW from new renewable resources. Under the *GreenChoice* program, residential and business customers can choose to receive 100% renewable energy for a premium of 0.4¢/kWh and will not be subject to future energy-related rate increases. The Austin premium is the lowest green pricing premium offered by any U.S. utility. Austin Energy will match customer subscriptions dollar-for-dollar to pay for the renewables investments.

The Austin program will result in the construction of 12 large wind turbines and six landfill gas projects. The city also plans to add to its current stock of 28 solar installations. In 1999, the Austin City Council adopted a resolution calling for 5% of Austin's electricity to come from renewable sources by 2005. The *GreenChoice* program will raise the amount of renewable energy in the city's portfolio from 0.5% to about 2.5%.

Previously, Austin Energy had offered customers the opportunity to purchase 50-watt blocks of power from PV systems installed in various municipal applications. The monthly premium was \$3.50 per block. As of February 1999, approximately 1,000 customers had subscribed to purchase 1,400 blocks. The *Solar Explorers* program has been folded into the new *GreenChoice* program.

**Benton County Public Utilities District**—In December 1999, Benton County PUD, which serves about 37,000 customers in Benton County, Washington, began offering its customers the opportunity to support power purchases from a new landfill-gas facility. Benton customers can voluntarily pay more on their electricity bill to support a 1-MW purchase from *Klickitat PUD's* Roosevelt Regional Landfill Gas Facility. Benton pays about 3.5¢/kWh for the landfill power, approximately 1¢/kWh more than it pays for its other power sources. The utility needs \$100,000 in annual green power revenues to cover the higher costs of the landfill-gas purchase and will rate-base any shortfall. To date, about 365 customers are contributing an average of \$2.50 per month.

**City of Bowling Green**—The City of Bowling Green, Ohio electric utility is offering its customers the opportunity to purchase “green power” from a newly constructed, run-of-the-river hydro facility. Customers can purchase as much as 100% of their electricity needs, in 25% increments, through the program at a price premium of 1.38¢ per kWh of green power purchased. The power is supplied from a 42-MW, municipally constructed project of which Bowling Green owns a 6-MW share. The city will use the additional funds collected to construct new solar or wind resources. As of February 2000, the utility had nearly 2.5% of its customer base, or about 325 customers, participating.

**Cedar Falls Utilities**—Since February 1999, CFU has offered its customers the option of contributing \$2.50 each month to support the operation and maintenance of three 750-kW wind turbines that were installed in November 1998 by a consortium of seven Iowa municipal electric utilities. CFU owns two-thirds of the wind project. To date, more than 600 of CFU's 16,000 residential customers, or about 3.8%, are participating in the program. The project, located near Algona, Iowa, received \$2.8 million of funding from the U.S. Department of Energy and the Electric Power Research Institute (EPRI) through the Utility Wind Turbine Verification Program.

**City Public Service**—CPS, the municipal electric utility serving more than 550,000 customers in San Antonio, Texas, offers a wind power option to all of the city's retail customers. The wind energy is available in 100-kWh blocks for an additional \$4.00 per month, or a premium of 4.0¢/kWh. Power for the *Windtricity* program will eventually be supplied from a 25-MW wind project planned for West Texas. In the meantime, CPS is purchasing 600,000 kWh of wind power each month from an existing wind project.

**Colorado Springs Utilities**—Colorado Springs Utilities has a contract with *Public Service Company of Colorado* (PSCo) to purchase 1 MW of wind power, which it sells to its residential and commercial customers at a premium of \$3.00 per 100-kWh block, or 3¢/kWh. As of January 2000, more than 1,200 customers, or 0.7% of the total customer base, had signed up to purchase the wind power.

**Dairyland Power Cooperative**—Under its *Evergreen* program, Dairyland Power Cooperative of Wisconsin offers wind power to its 27 member distribution cooperatives for a price of \$3.00 per 100-kWh block, or 3¢/kWh. Dairyland has contracted to purchase one-third of the output from *Great River Energy's* 2.0-MW project. As of February 1999, the program was fully subscribed with about 925 subscribers purchasing 1,850 blocks; additional customers were placed on a waiting list. Dairyland plans to expand the program under the current power purchase agreement or using alternative resources.

**Dakota Electric Association**—Dakota Electric, a Minnesota-based distribution customer of *Great River Energy*, purchases one-third of the output from the 2.0-MW Chandler wind project. Initially, Dakota estimated that it would sell the wind power to its customers at a premium of \$4.00 per block per 100-kWh block, or 4.0¢/kWh, but was able to lower the wind price premium to 1.4¢/kWh because of “efficiencies in wind technology and state incentives.” Since this time, Dakota has further reduced the wind premium to 1.22¢/kWh because of an increase in its wholesale power costs. A 12-month subscription commitment is required. The program is currently oversubscribed with about 1,000 customer participants, representing 1.3% of the utility’s customer base.

**Detroit Edison**—Detroit Edison was one of the first utilities in the United States to develop a green pricing program. In 1996, the utility established its *SolarCurrents* program to support the development of centrally located PV projects. Customers pay \$6.59 for 100-watt blocks of solar generating capacity. Two facilities, totaling 54.8 kW, were developed through the program, which was cost-shared by UPVG. Less than 300 customers (0.3%) are participating in the program, purchasing an average 140 watts of PV capacity with an average monthly bill increase of \$9.23, or 15%. In 1997, the utility introduced a *SolarSchools* program, through which commercial businesses could sponsor solar energy service and educational curriculums at local elementary schools.

**East River Electric Power Cooperative**—East River, a wholesale power supply cooperative serving 22 member distribution systems in South Dakota and western Minnesota, is offering customers the option to purchase wind power. Under its *Prairie Winds* program, residential and business customers of participating distribution cooperatives can sign up to purchase 100-kWh blocks of wind energy for an extra \$3.50 each month, or 3.5¢/kWh. Customers must commit to the wind purchases for a minimum of one year. East River plans to construct a 1-MW wind project, in collaboration with Basin Electric, if it receives commitments for 2,000 blocks. Participating customers will not be charged for the wind energy until the project is operational in 2001.

**Estes Park Power & Light**—Estes Park Power & Light, the electric utility serving about 8,500 accounts in the city of Estes Park, Colorado, offers its customers a wind power purchase option. Under the program, residential customers can sign up to purchase 100-kWh blocks of wind energy for an extra \$2.50 each month, or 2.5¢/kWh. Business customers can participate by purchasing a minimum of five, 100-kWh blocks for \$12.50 per month. The wind power will be supplied by *Platte River Power Authority* from an expansion of its Medicine Bow, Wyoming, wind site. Estes Park began signing up customers in December 1999 and will begin providing the power in September 2000.

**Eugene Water and Electric Board**—In March 1999, the Eugene, Oregon Water and Electric Board (EWEB) began marketing wind power to its residential customers from its share of the newly constructed Arlington, Wyoming wind project. The 41.4-MW project is jointly owned by EWEB (8.8 MW) and PacifiCorp (32.6 MW). EWEB is selling 2.28 MW of power to the *Bonneville Power Administration* (BPA) and intends to sell the remaining 6.5 MW to its retail customers during a three-year period. Customers can purchase wind energy to provide from 10% to 100% of their electricity needs at a price premium of 2.65¢/kWh.<sup>9</sup> As of the end of 1999, 2,700 customers (3.7%) had signed up, making the program more than 40% subscribed.

---

<sup>9</sup> Initially set at 3.09¢/kWh, the wind power premium was lowered because of increased purchased power costs that reduced the price differential between wind energy and the utility’s avoided cost.

**Flathead Electric Cooperative**—Flathead, which serves 47,000 customer accounts throughout northwest Montana, offers its customers the option of purchasing 100-kWh blocks of green power at a premium of 2¢/kWh. The power is supplied by BPA under a two-year agreement to purchase 1 MW of BPA’s “environmentally preferred” power mix, which is a blend of new wind power from the Arlington, Wyoming wind project and low-impact hydro resources. Since Flathead began marketing the program in August 1999, 126 customers have subscribed.

**Florida Power and Light**—Pursuant to a settlement agreement with the Legal Environmental Assistance Foundation, FP&L developed a green pricing program to support construction of PV systems. In 1997, FP&L established the “Solar Research Partnership” and installed a 10-kW PV project at one of its power plants with \$90,000 in customer donations. In a more recent settlement agreement, FP&L agreed to expand its green power offering if a feasibility study shows sufficient consumer interest. The new agreement sets a goal of installing 150 kW of PV by 2003.

**Fort Collins Utilities**—In September 1996, Fort Collins (Colorado) Utilities announced a pilot program to supply wind power to its customers at a rate premium of 2.0¢/kWh. Residential customers were required to purchase all of their power from wind, whereas commercial customers could purchase wind power in 1,000-kWh blocks. Approximately 450 residential and small-business customers subscribed, selling out the power available from two 600-kW wind turbines owned and operated by the *Platte River Power Authority*.

In June 1999, Fort Collins decided to expand the program and committed to purchase the equivalent output of two and one-half additional wind turbines. One of the turbines will serve the entire annual load of *New Belgium Brewing Company, Inc.*, a Fort Collins-based brewer of premium beer. The utility has raised the wind power premium from 2.0¢/kWh to 2.5¢/kWh because the lower premium did not fully cover the costs of the pilot program. Residential customers are also being given an additional option of purchasing the wind power in 400-kWh blocks for an extra \$10.00 per month, although customers can still choose to service all of their electricity needs with wind power. As of February 2000, 300 additional customers had subscribed to the expanded program, bringing total participation to 750, or about 1.7% of the total customer base.

**Gainesville Regional Utilities**—In January 1997, GRU completed a 10-kW PV demonstration project at the utility’s Electric System Control Center in Gainesville, Florida. The project was funded by community donations and with grants from the Florida Energy Office and UPVG. GRU garnered community support for the project through its monthly customer bulletin and inserts in the local newspaper. More than 600 customers contributed to the project over a three-year period.

GRU has launched a second program that will use customer contributions to partially fund the installation of eight, 4-kW PV systems at local area schools and two, 4-kW PV systems on local government buildings. GRU is now accepting customer contributions and plans to install the first system in August 2000. Additional funding will be provided through a grant from the Florida Energy Office. A donation of \$3.00 will support the development of 50 watts of PV. The systems will also be net metered.

**Great River Energy**—GRE, formed in December 1998 through the merger of *Cooperative Power Association* and *United Power Association*, offers the *Wellspring* renewable energy program to its 29 member distribution cooperatives in Minnesota. Currently, 27 cooperatives are participating in the program. GRE offers the power to its distribution cooperatives in 100-kWh blocks at a 1.5¢/kWh price premium. The wind power is provided from three, 660-kW turbines that were installed by GRE in Chandler, Minnesota, in early 1999. GRE is adding three turbines to the Chandler site with half of the output dedicated to supply *Minnesota Power's* green pricing program.

**Gulf Power**—In 1996, Gulf Power, which serves more than 300,000 customers in northwest Florida, undertook a program to install a variety of solar energy technologies at public schools using customer contributions leveraged with utility funds. The program was designed to offset conventionally generated electricity and to increase community awareness of renewable energy technologies. Under this program, Gulf Power collected approximately \$16,000 from 9,000 customers—more than 4% of eligible customers—which resulted in the installation of one, 10-kW solar desiccant cooling and dehumidification system at a local school.

During 1999, as part of a settlement agreement with the *Legal Environmental Assistance Foundation*, Gulf Power agreed to explore the feasibility of a new green pricing program with a goal of installing 500 kW of PV by 2004. In December, the *Southern Company* announced plans for its retail utility subsidiaries, which include Gulf Power, to offer a joint program that will install a 1-MW PV facility at a Southeast location if the companies meet a collective goal of obtaining 10,000 customer participants. The Florida Public Service Commission approved a rate tariff to sell the solar power in 100-watt capacity blocks at a monthly premium of \$6.00 per block. Gulf is requiring a five-year customer commitment to the program.

**Hawaiian Electric**—In 1996, HECO initiated a program with a minimum goal of installing 20 kW of PV systems on public school facilities to be funded in part with customer contributions. Customers can make voluntary, monthly fixed-dollar contributions or lump-sum contributions at any time. As of December 1999, more than 2,600 customers had contributed \$90,000 to the program and HECO has contributed \$140,000 of utility funds. A total of 30 kW of PV have been installed at 17 schools. The original two-year program has been extended for a second two-year period. HECO is planning additional marketing and hopes to increase program participation from the current level of 0.7% to more than 1% of its customers.

**Holy Cross Energy**—Holy Cross, which serves Colorado's Roaring Fork Valley, offers its customers an option of purchasing 100-kWh blocks of wind energy at a rate premium of 2.5¢/kWh. Holy Cross is purchasing the wind power from PSCo.

As of February 2000, the utility had garnered subscriptions for about 5,200 blocks of wind power from 1,570 residential, commercial, and municipal customers, representing about 4% of its customer base. The City of Aspen is purchasing 500 blocks per month, which is equivalent to about one-third of the town's municipal electricity use. The Community Office for Resource Efficiency is assisting the utility with customer recruitment. The Holy Cross program is fully subscribed and the utility has a waiting list of about 45 customers. Holy Cross plans to purchase additional power from PSCo if it becomes available.

Holy Cross also offers a *Sun Power Pioneers* program through which customers can receive cash incentives of as much as \$3,000 for PV installations. The incentive is in the form of a three-year energy payment of 25¢/kWh for power generated from systems installed under the program. The funding is being provided by the Turner Foundation, the Cities for Climate Protection Campaign,

and Aspen Skiing Company. As of December 1999, 10 PV systems with a total capacity of 14 kW had been installed.

**Indianapolis Power and Light**—IPL allows its customers to direct the utility to purchase green power “from other regions of the country.” The Elect Plan *Green Power Option* is open to all residential customers and to business customers with less than 2,000 kW of monthly demand, and offers the option of purchasing 25%, 50%, or 100% of monthly electricity requirements from renewables. The green power is being supplied with purchases of California-based geothermal power, but IPL has been evaluating other options. Program participants pay a cost-based premium of 0.9¢/kWh; however, this premium may change based on the future mix of resources. IPL is working with local environmental groups to market the program.

**Lansing Board of Water and Light**—The municipal utility serving more than 95,000 customers in and around Lansing, Michigan, is considering development of a green pricing program and, in July 1999, issued a request for proposals (RFP) for power generated from renewable resources. Lansing is considering purchasing between 1 and 5 megawatts of capacity to supply the program. No formal program announcement has been made.

**Lincoln Electric System**—LES has constructed two, 660-kW wind turbines on the edge of town to supply its customers with a green power option. The utility offers the power in 100-kWh “units” at a rate premium of 4.3¢/kWh. Nearly 2,000 of the utility’s 108,000 customers (1.8%) have signed up for the *Renewable Energy Program* and are purchasing an average of about 150 kWh of wind energy per month. Initially priced at 6.0¢/kWh, LES was able to reduce the wind price premium to 4.3¢/kWh because of the Renewable Energy Production Incentive available from the U.S. Department of Energy.

**Longmont Power & Communications**—LPC, the electric utility serving 30,000 accounts in the City of Longmont, Colorado, offers customers the option to purchase wind power. Residential customers can sign up to purchase 100-kWh blocks of wind energy for an extra \$2.50 each month, or 2.5¢/kWh, and business customers can participate by purchasing 500-kWh blocks for \$12.50 per month. Customers must commit to the wind purchases for a minimum of one year. About 325 customers expressed interest through an initial marketing effort and, as of January 2000, about 210 residential customers and 2 small commercial customers had subscribed. LPC is purchasing about one-quarter of the output of one of *Platte River Power Authority’s* 660-kW turbines and will double its purchase when Platte River’s new turbines come on-line this summer.

**Los Angeles Department of Water and Power**—In May 1999, LADWP launched its *Green Power for a Green L.A.* program, through which customers can purchase green power to supply 20% of their electricity needs (approximately 100 kWh per month) for an extra \$3.00 per month (a premium of 3¢/kWh). The utility is purchasing four to five million kWh of renewable energy per month through the *Automated Power Exchange* as well as 1.2 MW from a new landfill-gas project. LADWP also has a wind energy purchase contract with *Enron Power Marketing*. A novel twist to the program is that participating customers are given free energy efficiency products and services to help reduce their bills and offset the increased cost of the green power. Commercial and industrial customers can also participate “by adding a minimum to their total energy bill for green resources.”

As of April 2000, 31,000 customers had signed up for the program, the most of any utility program in the country. With a customer base of 1.37 million, about 2.3% of the utility’s

customers are participating in the program. The utility hopes to obtain upwards of 200,000 customer participants in the next two to three years. LADWP has also secured a number of high-profile business customers for the program, including the Los Angeles Dodgers, Los Angeles International Airport, and Robinson May Department Stores.

**City of Loveland Water & Light**—The City of Loveland (Colorado) Water & Light, which serves about 23,000 accounts, offers both residential and business customers the option to purchase 100-kWh blocks of wind power for \$2.50/month or 2.5¢/kWh. The utility began signing up customers in early 1999. As of April, about 215 customers, including 3 businesses, had signed up to purchase 416 blocks, fully subscribing the program and a waiting list has been established for other customers. *Platte River Power Authority* is supplying the power from its Medicine Bow, Wyoming, wind site.

**Madison Gas and Electric**—In October 1997, MGE, which serves 120,000 customers in and around Madison, Wisconsin, announced plans to construct, own, and operate an 11.22-MW wind farm in northeastern Wisconsin. Construction of the 17-turbine project was completed in June 1999. A portion of the project (3 MW) was installed to meet a state renewables mandate and the remaining capacity is being marketed to customers as a green power option. The utility is selling the power in 150-kWh blocks for \$5.00 per month—a premium of 3.3¢/kWh over the standard electricity rate. Less than three months after the project came on-line, more than 5,100 residential customers and about 100 business had signed up, fully subscribing the program. MGE has established a waiting list for other customers. Subscriptions average about 1½ blocks per customer, or an additional \$7.50 monthly payment. MGE is considering options for expanding the program or developing a new green power option. The program has also been accredited by the *Center for Resource Solutions*.

**Midstate Electric Cooperative**—Midstate Electric Cooperative, which serves about 12,000 member customers in central Oregon, is offering its customers an *Environmentally Preferred Power* product derived from a mix of low-impact hydroelectric resources and wind energy. The power is purchased from the *Bonneville Power Administration*. Midstate sells the green power to residential and business customers in 100-kWh blocks for \$2.50 per month (2.5¢/kWh) and requires a two-block minimum purchase. Since the cooperative began marketing the program last fall, about 170 customers have subscribed—a participation rate of 1.4%.

**Minnesota Power**—Minnesota Power, an investor-owned utility serving approximately 140,000 customers in Minnesota and Wisconsin, announced plans to offer customers a wind power purchase option beginning this fall. If approved by the Minnesota Public Utilities Commission, customers will be able to purchase 100-kWh blocks of wind energy for an additional \$2.00 per month or 2.0¢/kWh. The utility plans to purchase half of the output from three new wind turbines being installed by *Great River Energy* in southwestern Minnesota.

**Minnkota Power Cooperative**—Minnkota Power Cooperative, a generation and transmission cooperative operating in eastern North Dakota and northwestern Minnesota, is offering its member distribution cooperatives and municipalities the option to purchase wind-generated power through a program called *Infinity Wind Energy*. Nine of 12 member distribution cooperatives are participating in the program, through which customers can choose to purchase 100-kWh blocks of wind energy. Minnkota originally began marketing the power at a premium of \$6.00 per month, or 6.0¢/kWh, but recently lowered the premium because of the availability of federal and state tax incentives. In Minnesota, where state tax incentives are available, the power will be sold at a premium of 3.1¢/kWh. In North Dakota, the premium will be 4.6¢/kWh.

The ultimate size of the project will depend on the level of customer commitments. Minnkota plans to construct the first wind turbine when it receives commitments for 1,200 to 1,500 blocks of power (for a 600-kW or 750-kW turbine, respectively). As of March 2000, about 500 of the 90,000 eligible customers, or 0.6%, had signed up for the program.

**Moorhead Public Service**—Moorhead Public Service (Minnesota) announced that it had signed up more than 400 residential and commercial customers (out of a total of 13,000) to participate in its *Capture the Wind* green pricing program. Based on this response, the utility constructed a 750-kW wind turbine that became operational in May 1999. The utility charges a premium of 0.5¢/kWh for 100% renewable energy. One-third of the energy is provided from the new wind project and the remainder from hydro facilities already in the utility's resource mix. Thus, the effective premium for the wind power is 1.5¢/kWh. Residential customers must make a three-year purchase commitment and can choose to serve 100% of their electricity needs with the renewable energy blend or purchase monthly blocks of 1,000 kWh. Commercial customers pay the same premium and can purchase monthly blocks of 1,500 kWh. Moorhead State University committed to purchase 83,000 kWh each month, representing more than half of the turbine's average output. More than 100 other customers have been placed on a waiting list.

**Nebraska Public Power District**—In February 1999, NPPD announced that it would offer its customers a voluntary program through which they can contribute to a utility-managed fund for new renewables development. Participation in the program requires a minimum contribution of \$6.00 per month. Less than 0.5% of the utility's 320,00 customers have signed up for the program and no projects have been installed to date.

**City of New Smyrna Beach**—In June 1999, the City of New Smyrna Beach (Florida) Utilities Commission launched a green power contribution program to fund local renewable energy projects. Customers can sign up to donate \$5 or \$10 per month to support the installation of solar electric systems on local public buildings. The city has established a goal of installing 150 kW of photovoltaics over the next four years through the green pricing program and other solar energy programs. To date, one 4-kW system has been installed on a local elementary school.

**Orcas Power and Light**—Orcas, an electric cooperative serving Washington's San Juan Islands, is purchasing 0.5 MW of green power from the *Bonneville Power Administration* for its customers. The green power product is a mix of low-impact hydro and wind energy. Participating customers can choose to purchase the green power in blocks of 100, 200, 400, 800, and 1,000 kWh at a price premium of 3.5¢/kWh above the standard residential rate of 5.1¢/kWh. As of April 2000, 380 of the utility's 10,000 customers were participating—a participation rate of 3.8%. When the program is fully subscribed, Orcas will consider purchasing additional renewable resources.

**Pacific Northwest Generating Cooperative**—PNGC is a not-for-profit, private energy services cooperative owned by 11 electric cooperatives in the Pacific Northwest. PNGC owns and operates the Coffin-Butte landfill gas generation facility, which became operational in 1995. While the output of the 2.5-MW plant is shared proportionally among the member cooperatives, four Oregon-based members are test-marketing the landfill-derived power to their customers as a premium green power service. The four utilities are *Central Electric Cooperative*, *Consumers Power*, *Douglas Electric Cooperative*, and *Umatilla Electric Cooperative*. The green premiums being charged range from 1.8¢/kWh to 2.0¢/kWh. To date, Central Electric has had the greatest

success, with more than 3% of the utility's customers subscribing to purchase one or more 100-kWh blocks. PNGC hopes to expand the size of the landfill methane project in the near future.

**PacifiCorp**—PacifiCorp offers a “green resource” tariff in four of the six western states in which it sells retail electricity as either Pacific Power or Utah Power. Under the *Blue Sky* program, PacifiCorp customers in Oregon, Utah, Washington, and Wyoming can purchase 100-kWh blocks of electricity from new wind projects for a monthly premium of \$4.75 per block or 4.75¢/kWh. The premium was designed to cover the “above-market” costs of acquiring the renewable resources as well as costs that will be incurred in marketing the green product.

**City of Palo Alto Utilities**—Palo Alto (California) offers its customers three green power purchase options. Customers can receive 25%, 50%, or 100% of their electricity from “future” green resources with the remainder of the product supplied with “existing” green resources. Resources used to supply the program may include small hydroelectric, geothermal, wind, and landfill gas. The price premiums range from 1.2¢/kWh for the 25% future renewables product to 2.0¢/kWh for the 50% product and 3.4¢/kWh for the 100% product. The utility is using public benefits funds to lower the price of each product by 0.4¢/kWh. An average residential customer choosing the 100% option would pay about \$15.00 more per month.

**Platte River Power Authority**—Platte River Power Authority (PRPA) supplies wind power for the green pricing programs of its four municipal utility members in *Estes Park*, *Fort Collins*, *Longmont*, and *Loveland*, Colorado, as well as to *Tri-State G&T* and the city of Aspen. PRPA currently has 5.1 MW of wind energy installed at its site in Medicine Bow, Wyoming, and is adding another 1.32 MW this year. The Medicine Bow development has been expanded three times to meet growing customer demand for green power.

**Portland General Electric (PGE)**—PGE offers its customers the option to purchase as many as two 100-kWh blocks of “salmon friendly” power or wind power, or a combination of the two, at a premium of \$5 per block per month (5¢/kWh). The two-block option would supply about 20% of an average residential customer's load. Commercial and industrial customers will be able to purchase a limited amount of green power, depending on their size, at the same rate as residential customers.

The salmon-friendly power is a blend of existing, low-impact hydro and wind power. The revenue from the power sales will be divided between paying the cost of the power and supporting local salmon habitat recovery projects. The wind power option consists of power generated from the Vansycle Ridge wind farm in northeastern Oregon, with half of the revenues to be used for the development of new wind resources. Nearly 2,500 customers (0.4%) have signed up for one of the two options since the program was announced in November 1999.

**Public Service Company of Colorado**—PSCo established one of the first green pricing contribution programs in 1993. Approximately 13,000 customers, representing more than 1% of residential customers, contribute to the *Renewable Energy Trust*, either through fixed contributions or using a bill “round-up” option. Through the Trust, PSCo deployed about 40 kW of off-grid PV systems and is now installing PV systems on schools under the *Solar Schools* program. Twenty-eight school systems have been installed to date with another two systems still planned for 2000.

In 1997, PSCo introduced the *Windsource* program, which offers customers an option to purchase 100-kWh blocks of wind energy for \$2.50 per month or a rate premium of 2.5¢/kWh. Customers can also choose to receive their entire monthly electricity consumption from wind energy. The wind energy is supplied from a new 20-MW wind project in northeastern Colorado. The program is fully subscribed with about 15,000 residential and 350 businesses customers. The program has received marketing support from a local environmental group, the *Land and Water Fund of the Rockies*. PSCo also supplies a total of 4.3 MW of wholesale wind capacity to *Holy Cross Energy*, *Colorado Springs Utilities*, and *Yampa Valley Electric Association*. In May 2000, 30 federal agencies located along the Colorado Front Range committed to purchase more than 10 MW of wind energy from their local electric utility companies. Current plans call for PSCo to expand its *Windsource* supply by 35 MW over the coming years.

**Roseville Electric**—Roseville Electric, a municipal utility in northern California, offers its customers a green power option, which was approved by the Roseville City Council in conjunction with a decision to phase in retail competition for all of its electricity customers by 2005. Residential and business customers can choose to purchase renewable power to serve 50% or 100% of their electricity demand at an additional cost of 1.0¢/kWh. The green power will be a blend of geothermal and hydroelectric energy generated from existing utility-owned resources. As a member of the Northern California Power Agency (NCPA), Roseville owns a 3.6% share of a 200-MW geothermal facility at The Geysers and a 12% share of NCPA's 249 MW of hydro facilities. On average, a typical resident would pay an additional five or ten dollars per month for the green power option, depending on the amount selected. Customers can also contribute funds separately to support new renewable resource development.

**Sacramento Municipal Utility District**—Since 1993, SMUD has operated the *PV Pioneers I* program, under which customers pay a \$4.00 flat monthly fee (for 10 years) to have a 2-kW to 4-kW, grid-connected PV system installed on their rooftops. SMUD installs, operates, maintains, and owns the systems, which feed electricity directly into the grid. More than 450 residential and 30 commercial systems have been installed under the program. Total installations have been limited to around 100 systems per year. SMUD receives about 1,000 program applications annually and maintains a waiting list.

In late 1998, SMUD launched its *PV Pioneers II* program, under which customers can purchase PV systems to meet their household electricity use under a net-metering arrangement. The utility “buys down” more than half of the \$10,000-plus system cost. SMUD expects to install approximately 400 systems (about 1,200 kW) per year under the new program, which will eventually replace the *PV Pioneers I* program.

Looking toward the competitive retail market in California, SMUD also developed the *Greenergy* program, which allows its customers to obtain 100% of their electricity needs from renewable sources for an additional 1.0¢/kWh; SMUD already obtains nearly half of its power supply from renewables. SMUD is purchasing power from a new 8.3-MW landfill-gas plant to supply the program. As of March 2000, about 1.4% of SMUD's customers subscribed to the *Greenergy* program.

**Salt River Project**—SRP provides a solar energy purchase option, which is supplied from two, 100-kW, single-axis tracking photovoltaic plants located at the company's Santan Power Plant in Gilbert, Arizona. Dubbed the *Solar Choice* Program, SRP customers can purchase 15-kWh blocks of solar electricity for \$3.00 per month. The customer funds are supplemented with a UPVG grant.

In the first month of marketing (August 1998), 1,900 customers requested about 2,900 power blocks, easily meeting the 1,000-block commitment necessary to fully subscribe the first project, leading SRP to construct the second project. Approximately 1,300 SRP customers have fully subscribed both systems and there is a waiting list of more than 800 customers. The utility is currently maintaining the program without actively marketing it.

**Southern Company**—The Southern Company announced plans to offer its customers in four southern states the opportunity to support the development of solar resources. Southern's retail utility subsidiaries, which include *Gulf Power*, *Alabama Power*, *Georgia Power*, *Mississippi Power*, and *Savannah Electric*, have launched a joint program to install a 1-MW PV facility if the companies meet a collective goal of obtaining 10,000 customer participants. All customer classes will be eligible to participate in the voluntary program.

**Southwestern Public Service**—SPS has installed one, 660-kW turbine near Clovis, New Mexico, to serve its New Mexico-based customers. The wind power is being sold as an optional service at a premium of \$3.00 per 100-kWh block, or 3¢/kWh. Customers can choose to purchase as few or as many blocks of wind energy as they want, up to their total monthly consumption—the average customer uses 700 kWh to 800 kWh of electricity per month. The turbine will produce the equivalent of 1,540 blocks per month. SPS has committed to build a second turbine if warranted by customer demand although, as of December 1999, only 45 customers had enrolled in the program.

**Tacoma Power**—Tacoma Power, which serves more than 140,000 customers in Washington, operates a green pricing pilot program, *EverGreen Options*, under which its customers can purchase a blend of low-impact hydro and wind power program supplied by the *Bonneville Power Administration* (BPA). Residential customers can participate by paying an extra \$3, \$6, or \$10 each month, while business customers can participate by paying an extra \$6 to \$100 each month, depending on the size of the business and the level of commitment. A portion of the revenue collected from the program is used to cover the additional cost of the green power. The remainder of the funds are given to the *Bonneville Environmental Foundation* to support the development of new renewable resources and improve watersheds and fish and wildlife habitats in Washington and Oregon. Tacoma has agreed to purchase 1 MW of power from BPA for the program, enough to serve the average electricity needs of about 600 homes.

**City of Tallahassee**—Pursuant to a settlement agreement with the *Legal Environmental Assistance Foundation*, the City of Tallahassee is developing a green pricing program that will utilize PV technology. Tallahassee plans to match customer contributions to install a 10-kW PV system on or near a city building.

**Tampa Electric**—Pending regulatory approval, Tampa Electric will offer a green power purchase option to a limited number of residential customers. Participating customers can purchase up to 250 kilowatt-hours (kWh) of power per month, about 25% of their average electricity consumption, from a combination of photovoltaic systems and biomass co-fired in an existing coal plant. Program participants will pay an additional 10¢/kWh for the green power.

**Tennessee Valley Authority**—In April 2000, TVA announced a pilot green pricing program through which customers can purchase 150-kWh blocks of renewable energy for a premium of \$4 per month, or about 2.67¢/kWh. An average customer using 1,200 kWh per month would pay an extra \$32 per month to receive all of their power from renewable energy. TVA will contract

for a total of 8.7 MW from a combination of landfill methane and wind energy projects, and will install solar systems at public facilities. By the utility's estimate, this is enough power to supply 30,000 homes purchasing one, 150-kWh block.

Twelve of TVA's 159 distributors, representing more than one-fourth of residential customers served with TVA power, signed up to test-market the green power to their customers during the first year. TVA hopes to expand the program to its entire seven-state region by 2003. The program has also been accredited by the *Center for Resource Solutions*.

**Texas-New Mexico Power Company**—TNMP, an electric utility serving about 225,000 customers in Texas and New Mexico, announced that it has entered into a contract to purchase about 2 MW of wind power from a project to be developed near Fort Stockton, Texas. The company plans to offer a wind power option to its customers pending rate approval from the *Texas Public Utility Commission*, which in 1998 established formal rules governing the development of green pricing programs by the state's utilities. TNMP agreed to develop a green pricing tariff in its "transition-to-competition" plan that was approved by the PUC in July 1998. Under the state's recently enacted electricity restructuring law, TNMP is required to provide about 7 MW of its power supplies from renewables to meet its share of a statewide renewable portfolio standard. The utility plans to market this power to its customers as a differentiated green power product.

**Traverse City Light & Power**—Since 1996, Traverse City (Michigan) has operated a green pricing program for its residential and small commercial customers, selling the output from a 600-kW wind turbine that was built on the edge of town. Residential and commercial customers pay a 1.58¢/kWh premium to purchase 100% of their power from wind energy; the premium represents a 17%–25% increase in the average monthly bill. Currently, there are 140 residential and 20 commercial customers participating in the program, representing nearly 2.0% of the total customer base. Another 40 customers are on a waiting list.

**Tri-State G&T**—Tri-State, a wholesale supplier of electric power to 32 rural electric systems in Colorado, Wyoming, and Nebraska, provides a green power product to its member distribution systems—about half of the member systems are participating in the program. Tri-state is currently purchasing power for the program from one of the 660-kW wind turbines installed by *Platte River Power Authority* in Medicine Bow, Wyoming. Tri-State has also contracted for power from a Wyoming-based, 1-MW vertical-axis wind project development that is expected to be operational in 2000. Tri-State offers the power to its member systems in 100-kWh blocks at a rate premium of 2.5¢/kWh. Taken together, the 14 distribution coops participating in the program have customer commitments to purchase about 2,200 blocks.

**Tucson Electric Power Company**—TEP runs the *GreenWatts* program through which the utility invests voluntary customer contributions in the construction and operation of solar electric generating facilities. TEP offers its customers the opportunity to purchase 20-kWh blocks of energy tied to the use of landfill methane at the company's Irvington Generating Station. The gas is collected from Tucson's Los Reales Landfill and transported to the power plant, where it is co-fired with coal. Customers pay \$2.00 (10¢/kWh) per month for the first block and \$1.50 (7.5¢/kWh) for all subsequent blocks. More than 180,000 monthly blocks of renewable energy are available from the project. The program is open to all TEP customers and any other electricity users connected to the TEP distribution system.

**Turlock Irrigation District**—Billing itself as “the first municipal utility in the United States to offer a 100% small hydro green product,” the utility offers its customers 100% green power for an additional monthly fee of \$3.50 to \$8.50, depending on the type of customer subscribing. The power comes from small hydro plants that Turlock already owns and operates on its irrigation canal system.

**TXU Electric**—TXU Electric, formerly TU Electric, is test-marketing a voluntary green pricing program in Waco, Texas, and six surrounding communities. The power supply for the *TU Renew* program comes from four new, 1.65-MW Vestas wind turbines that were added to an existing wind power project at Big Spring, Texas. The four wind turbines are the largest ever installed in the United States for commercial production and, collectively, will produce enough power for the annual needs of 1,300 Waco homes. The wind power is offered to customers at a premium of 4.0¢/kWh and can be purchased in 100-kWh blocks or as a percentage of monthly electricity use.

**UtiliCorp United**—In August 1999, customers of UtiliCorp United’s *WestPlains Energy* subsidiary became “eligible to enter a random drawing to become among the first in Kansas to purchase wind-generated electric power.” Customers selected were given the opportunity to purchase one, 100-kWh block of wind energy to supplement their normal usage, for which they would pay an additional \$5.00 per month or 5¢/kWh. The average household uses 600 to 700 kWh per month. Participation was limited to 320 out of about 66,000 Kansas customers served by *WestPlains*. The wind energy is supplied from the two-turbine project constructed by *Western Resources* in northeastern Kansas; UtiliCorp has contracted for about 15% of the project’s power output, or 600,000 kWh annually. UtiliCorp also extended the wind energy offer to customers of its *Missouri Public Service* subsidiary, which provides electric service to 200,000 customers in Missouri.

**Western Resources**—Western Resources was the first Kansas-based utility to offer a green pricing option to its customers. The power is supplied from two new, 750-kW wind turbines. The *Westar Wind* program is available to all 620,000 customers served by Western’s retail operating companies: *KPL* and *KGE*. The wind power is being sold in 100-kWh blocks at a price premium of \$5.00 per month, or 5¢/kWh. Participants must enroll in the program for at least one year. The two turbines will generate 3.6 million kWh of electricity per year, enough to supply the annual electricity needs of about 400 households.

**Wisconsin Electric Power**—In January 1997, Wisconsin Electric began offering an optional renewable electricity service to residential, farm, and small commercial customers from sources procured by the utility in the wholesale power market. Customers can choose to receive 25%, 50%, or 100% of their power from renewables at a premium of 2.0¢ for each renewable kWh purchased. The renewable power provided for the first two years of the program came from existing hydro and biomass projects, totaling 5 MW.

In 1998, Wisconsin Electric issued two Requests for Proposals for additional green resources focusing on in-state suppliers and also announced that it would build two, 660-kW wind turbines; the wind turbines became operational in June 1999. In November 1999, Wisconsin Electric signed a deal to purchase more than 23 MW of power from new and existing landfill-gas facilities, some of which will be used to supply the *Energy for Tomorrow* program. With the landfill-gas purchase, 75% of the power for the program now comes from new renewable resources. The program has also been accredited by the *Center for Resource Solutions*.

About 12,000 customers (approximately 1.0% of those eligible) are participating in the *Energy for Tomorrow* program. The utility also expanded the program to allow large business customers, as well as residential and small commercial customers on time-of-use rates, to participate. In November 1999, Wisconsin Electric received regulatory approval to extend its green power option to its 25,000 Michigan-based customers.

**Wisconsin Public Service**—Under the *SolarWise for Schools* program, WPS customers can make tax-deductible donations that, along with grants from DOE and *Wisconsin Energy Bureau*, are used to purchase and install solar-electric systems on local high schools. The schools receive the solar-electric systems and save money on their electric bills. The schools also receive a renewable energy curriculum.

Since the program was started in 1996, nine schools have received solar systems through contributions from about 3,100 customer participants. An additional three systems are planned. The average customer contribution is \$1.70 per month. WPS also implemented a *RoundUp for Renewable Energy* option, through which customers can round up their electric bill to the nearest dollar to support the installation of small PV lighting or water-pumping systems for parks, zoos, nature centers, and other public areas. Approximately 200 customers are participating in this program. The *WPS Community Foundation*, a nonprofit educational foundation, administers both programs. WPS is also exploring the possibility of offering a tariff-based program.

**Yampa Valley Electric Association**—Yampa Valley, which serves Steamboat Springs and several other cities in northwestern Colorado, is offering its customers the opportunity to purchase 100-kWh blocks of wind power for 3¢/kWh. Yampa Valley has entered into an agreement with PSCo to purchase about half of the output from one of the turbines installed at the Ponnequin wind site in northern Colorado. To date, 120 of Yampa Valley's 15,500 customers (0.8%) are participating in the program, purchasing about 300 of the nearly 700 blocks available.

## Selected Green Power Customers

Early green power marketing efforts focused on residential customers because polls and surveys show that individual consumers place a high value on environmental protection and the use of cleaner energy sources. More recently, green power providers have started marketing to nonresidential customers. Once thought to be too price sensitive to be willing to pay more for green power, businesses recognize that green power purchasing can help meet corporate goals related to environmental improvement and sustainable business practices. Large customers are also more economical for marketers to serve than many small customers.

This section provides information on green power purchasing by selected nonresidential customers. In addition to business customers, municipalities, government agencies, and other organizations are purchasing green power. In the federal sector, green power purchases are being encouraged by a 1999 Presidential Executive Order, which calls for federal agencies to expand the use of renewable energy within facilities, and an April 2000 directive from U.S. Department of Energy (DOE) Secretary Bill Richardson, which sets minimum green power purchasing goals for DOE operations.

### Businesses

**Birkenstock Footprint Sandals**—In July 1999, Birkenstock Footprint Sandals, the U.S. importer and distributor of German-made Birkenstock products, became the first large commercial customer to sign up for *GreenMountain.com's Wind for the Future* product, for which 25% of the power comes from new wind turbines. Birkenstock is using the energy to power its U.S. corporate headquarters and distribution center in Marin County, California, and its San Francisco-based retail store.

**Fetzer Vineyards**—In the fall of 1999, Fetzer Vineyards began purchasing renewable energy to power the winery's Hopland, California, operations. Fetzer entered into a long-term contract with *PG&E Energy Services* to purchase more than 5 million kilowatt-hours (kWh) annually of the company's *Clean Choice 100* product. A portion of the 100% renewable energy product is supplied from new renewable resources.

**Kinko's**—In late 1999, Kinko's, a leading retail provider of document copying and business services, selected *GreenMountain.com* to be its energy service provider in California and Pennsylvania. Green Mountain is supplying a green power blend to more than 75 Kinko's stores in California and several Pennsylvania-based branches. Kinko's corporate Environmental Vision Statement explicitly states that the company will use energy-efficient technologies and renewable energy sources in its operations and the company has already retrofitted more than 800 branches with energy-efficient lighting.

**New Belgium Brewing Company, Inc.**—The New Belgium Brewing Company, Inc., of Fort Collins, Colorado, purchases 100% wind energy to power the brewery's operations. A brewer of specialty beers, New Belgium entered into an agreement in March 1999 with *Fort Collins Utilities* to purchase the wind energy at a premium price for 10 years. The entire 70-person staff of New Belgium voted to purchase the wind power even though the additional cost will diminish the size of their annual bonuses. To supply the New Belgium contract, a new 660-kW wind turbine was added at the *Platte River Power Authority* wind site near Medicine Bow, Wyoming.

**Patagonia**—In July 1998, Patagonia, a Ventura, California-based manufacturer and retailer of outdoor clothing, announced that it would purchase 100% renewable energy from *Enron Energy Services*. Enron supplies roughly 1 million kWh per year to power Patagonia's 14 California-based facilities from a 16-megawatt (MW) wind power facility constructed near Palm Springs, California. Patagonia chose Enron because of its commitment to build new renewables capacity for the market.

**Toyota Motor Sales USA**—In May 2000, Toyota Motor Sales USA reaffirmed an earlier commitment to green power by signing a contract with *GreenMountain.com* to purchase 100% renewable energy to power several of its California-based operations. Toyota is purchasing approximately 40 million kWh of renewable energy, with 5% of the power from new wind resources. Toyota became one of the first large companies to commit to green power shortly after the California market opened to competition. The GreenMountain.com deal replaces an earlier green power purchase agreement with Edison Source, which stopped marketing green power in November 1999.

## **Municipalities**

**City of Chicago**—The City of Chicago recently joined with 47 other local government bodies in a load aggregation effort that will include green power. A specific requirement of the group is that 20% of the power provided—80 MW out of 400 MW—come from renewable energy sources by 2005. The green power requirement will start at 3% in 2001 and increase over time. A request-for-services has been issued to the 13 power providers that have been licensed to sell power in Illinois' deregulated power market.

**Los Angeles World Airports**—In October 1999, LAWA, the municipal organization that governs the city's four airports, including Los Angeles International (LAX), announced its participation in the *Los Angeles Department of Water and Power's* (LADWP) *Green Power for a Green LA* program. Under a 10-year agreement, LAWA will gradually increase the percentage of green power it purchases from LADWP from 10% of total electricity use initially to 50% in 2010. LAWA hopes to purchase 100% green power by 2015. Although, initially, LAWA will use discounted rate savings to pay the higher cost of the green energy, the organization is prepared to spend an additional \$250,000 annually to meet the longer-term commitment. LAWA currently purchases about one million kWh annually to power the LAX and Van Nuys airports.

**City of Oakland**—In June 2000, the Oakland City Council unanimously approved a contract to purchase green power to meet 100% of the city's municipal electricity needs, making it the largest municipal green power purchaser in the country. The city is contracting with *ABAG POWER*, a power-pooling agency formed by the *Association of Bay Area Governments* (ABAG), to purchase approximately 9 MW of green power, including 5% from new renewable resources. Under the agreement, the amount of power supplied from new renewable resources will increase to 20% by 2004 if the city extends the initial 18-month contract with ABAG POWER. Initially, the green power purchase will add about \$70,000, or 1.8%, to Oakland's \$4 million annual electricity bill. After the first year, the price premium will rise to 2.5% to 3% of the total bill because of expected reductions in a state credit for customer purchases of renewable energy.

**City of Santa Barbara**—The Santa Barbara City Council voted in April 2000 to authorize its staff to complete a contract with San Jose-based green power marketer *Go-Green.com* to meet up to 90% of the city's total municipal electricity demand with renewable energy. The value of the purchase is \$1.6 to \$1.8 million.

**City of Santa Monica**—In March 1999, Santa Monica became the first city to switch all municipal facilities to 100% green power when the City Council directed city staff to sign a one-year contract with *Commonwealth Energy* to purchase 5 MW of geothermal power. The city will pay a 5% premium, or about \$140,000 more annually, for the electricity.

**City of Seattle**—Seattle City Light, Seattle's city-owned utility, recently announced that it is seeking proposals for up to 100 average megawatts of power from renewable energy sources. The solicitation follows on the heels of a mayoral and city council resolution to meet Seattle's future electricity needs with no net emissions of greenhouse gases, using a combination of energy efficiency and renewables.

## **Federal and State Governments**

**Denver-Area Federal Agencies**—In April 2000, 30 federal agencies located along the Colorado Front Range announced commitments to purchase more than 10 MW of wind energy from their local electric utility companies in an aggregated purchase. Two facilities, *Fort Carson* in Colorado Springs and the *Rocky Flats Environmental Test Site*, will account for 30% of the federal purchase. The agencies will pay a "small premium" for the wind energy and will work with DOE and their utilities to offset the higher cost with energy efficiency improvements.

**General Services Administration**—The Liberty Bell and seven other federal government accounts in Pennsylvania are being powered with renewable energy under an agreement signed in March 2000 between GSA and the *Energy Cooperative Association of Pennsylvania* (ECAP). The agreement was the first competitive purchase of renewable energy by federal agencies in the Eastern United States. GSA is purchasing 2.7 million kWh annually of ECAP's 100% renewable energy product, *EcoChoice*, to serve the accounts, which include the Liberty Bell Pavilion, operated by the *National Park Service*, and a *U.S. Environmental Protection Agency* facility. The green product is comprised of power generated from landfill gas and small hydro resources. The green power purchase was negotiated as part of a larger GSA electricity procurement and represents less than 1% of the total contracted power.

**Oak Ridge National Laboratory**—In June 2000, the *U.S. Department of Energy's* Oak Ridge National Laboratory (ORNL) announced plans to purchase green power from the *Tennessee Valley Authority* (TVA) to meet a portion of its electricity needs. Under the agreement, the laboratory will become one of the first industrial participants in TVA's *Green Power Switch* program. Under the program, customers can choose to purchase power generated from a mix of new wind, biomass, and solar resources in 150-kWh blocks for an extra \$4 per month (about 2.7¢/kWh). ORNL will purchase 375 blocks, or 675,000 kWh annually, at an extra cost of \$18,000 per year.

**Pennsylvania Department of General Services**—The Pennsylvania Department of General Services (DGS) entered into a contract with *GreenMountain.com* in January 2000 to purchase green power for more than half a dozen state government accounts, representing about 5% of the DGS aggregated power purchase for 2000. A portion of the 37.5 million kWh annual purchase will be supplied from Green Mountain's new 10-MW Pennsylvania wind farm.

**U.S. Environmental Protection Agency**—In June 1999, the EPA became the first federal agency to purchase green power in California's competitive electricity market, when it announced that the agency's Richmond research laboratory will be powered with 100%

renewable electricity. Under a three-year agreement reached between the *General Services Administration* and the *Sacramento Municipal Utility District* (SMUD), SMUD is providing the facility with *Green-e* certified power from its *Greenergy* product, which consists of power generated from a new landfill gas facility. The EPA facility uses about 1.8 million kWh of electricity annually, which is the equivalent of 200 average Sacramento homes. The green power purchase is costing EPA about \$19,000 per year more than purchasing system power, a premium of about 1.0¢/kWh.

**U.S. Postal Service**—In April 2000, the Postal Service entered into a contract with *Go-Green.com* to purchase renewable power for more than 1,000 facilities in California. Under the agreement, the Postal Service will purchase about 30 million kWh of renewable power for each of the next three years. The deal stems from a competitive solicitation issued by the agency last September. With 40,000 postal facilities nationwide, the Postal Service is the largest federal consumer of electricity other than the military.

### **Other Organizations**

**Association of California Water Agencies**—In April 1999, the Association of California Water Agencies (ACWA) entered into an agreement with *cleen 'n green* (now *Go-Green.com*) to purchase green power for its more than 400 members at prices below the default electricity price. *cleen 'n green* is making 100% renewable power available to water agency accounts using less than 50 kW. Collectively, ACWA members deliver about 90% of the water in California.

**Bay Area Episcopal Churches**—As of April 1999, nine Bay Area Episcopal churches had chosen to purchase green power for their electricity needs. The purchase commitments follow the California Episcopal Diocesan Convention's adoption of a resolution instructing the state's 87 churches to buy renewable power as a way to cut greenhouse gas emissions. The Diocese negotiated an arrangement with *Green Mountain Energy Resources* (now *GreenMountain.com*) whereby each church that signs up with Green Mountain receives a \$250 donation and another \$20 for each parishioner that switches to the company's product. Green Mountain is committed to build a new wind turbine for every 3,800 parishioners that sign up for its *Wind for the Future* product.

**University of Colorado**—By a margin of nearly 5 to 1, students at the University of Colorado voted in April 2000 to increase student fees by \$1.00 per semester so that several campus buildings can be powered with wind energy. The wind purchase measure was placed on the ballot following a petition drive that garnered 1,300 student signatures. The affirmative vote for wind energy represented the largest margin of victory of any measure on the ballot. According to college officials, the record turnout was directly attributable to student campaigning in support of the wind energy measure. The amount of wind energy that will be purchased is roughly equivalent to the entire annual output of one large, 750-kW wind turbine. The wind energy will be purchased from *Public Service Company of Colorado*, which operates the *WindSource* green pricing program.

REPORT DOCUMENTATION PAGE			Form Approved OMB NO. 0704-0188
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.			
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE August 2000	3. REPORT TYPE AND DATES COVERED Technical Report	
4. TITLE AND SUBTITLE Green Power Marketing in the United States: A Status Report—Fifth Edition		5. FUNDING NUMBERS	
6. AUTHOR(S) Blair Swezey and Lori Bird			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)		8. PERFORMING ORGANIZATION REPORT NUMBER NREL/TP-620-28738	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) National Renewable Energy Laboratory 1617 Cole Blvd. Golden, CO 80401-3393		10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES  NREL Technical Monitor:			
12a. DISTRIBUTION/AVAILABILITY STATEMENT National Technical Information Service U.S. Department of Commerce 5285 Port Royal Road Springfield, VA 22161		12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) For the first time in many decades, consumers are being given a choice of who supplies their electric power and how that power is generated. One of these choices is to support electricity generation from more environmentally beneficial energy sources. The term "green power" generally refers to electricity supplied from renewable energy sources. By some estimates, nearly one—quarter of all U.S. consumers will have the option to purchase green power by the year 2000, either from their regulated utility provider or in competitive markets. As competition spreads in the electric power industry, more consumers will have this choice. The purpose of this brief is to provide electric industry analysts with information on green power market trends. Descriptive information on green power marketing activities in competitive and regulated market settings is included.			
14. SUBJECT TERMS Green power, utility restructuring, electricity, renewables, competition, green energy, customer choice, utility green pricing, green power marketing		15. NUMBER OF PAGES	
		16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT  UL