

Green Power Marketing in the United States: A Status Report (Eighth Edition)

Lori Bird and Blair Swezey

Technical Report
NREL/TP-620-38994
October 2005

NREL is operated by Midwest Research Institute • Battelle Contract No. DE-AC36-99-GO10337



Green Power Marketing in the United States: A Status Report (Eighth Edition)

Lori Bird and Blair Swezey

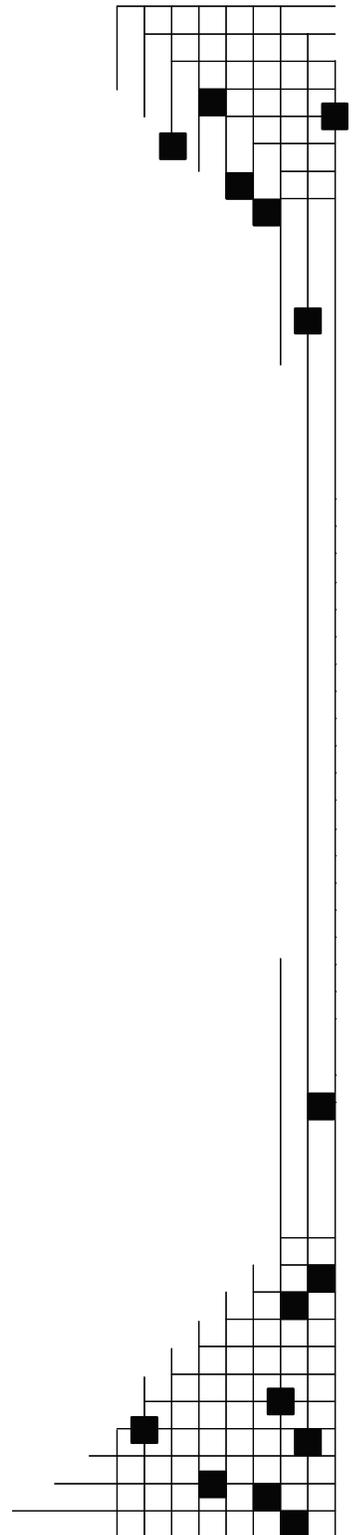
Prepared under Task No. ASG5.1003

Technical Report
NREL/TP-620-38994
October 2005

National Renewable Energy Laboratory
1617 Cole Boulevard, Golden, Colorado 80401-3393
303-275-3000 • www.nrel.gov

Operated for the U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
by Midwest Research Institute • Battelle

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.osti.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: <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
online ordering: <http://www.ntis.gov/ordering.htm>



TABLE OF CONTENTS

Overview of Green Power Marketing in the United States	1
Introduction.....	1
Utility Green Pricing Programs	2
Competitive Green Power and REC Markets	7
Green Power Market Summary and Trends	14
Conclusions and Observations	17
Utility Green Pricing Programs	19
Competitive Green Power and Renewable Energy Certificate Marketing	45
Retail Green Power and REC Marketers	45
Utility/Marketer Partnerships.....	53
Selected Wholesale Marketers.....	55
Certificate Brokers.....	56
Selected Green Power Customers.....	58
Businesses.....	58
Universities	62
Local Government	66
State Government.....	68
Federal Government.....	69
Programs Supporting Large Green Power Purchasers.....	71
References.....	73
Appendix A – Tables of Green Power Product Offerings	75
Appendix B – EPA Green Power Partnership Top 25 Partners.....	91
Appendix C – Estimated U.S. Green Power Customers by State.....	92

LIST OF TABLES

Table 1. Price Premiums Charged for Utility Green Pricing Products	3
Table 2. Estimated Cumulative Number of Customers Participating in Utility Green Pricing Programs.....	5
Table 3. Customer Participation Rates in Utility Green Pricing Programs by Year.....	5

Table 4.	Annual Sales of Green Energy through Utility Green Pricing Programs	6
Table 5.	New Renewable Energy Capacity Supplying Green Pricing Programs in 2004	7
Table 6.	Estimated Cumulative Number of Customers Purchasing RECs or Green Power from Competitive Marketers, 2002-2004	10
Table 7.	Retail Sales of Renewable Energy in Competitive Markets and RECs.....	11
Table 8.	New Renewable Capacity Supplying Competitive Markets and RECs, 2004.....	12
Table 9.	Estimated Green Power Customers by Market Segment.....	15
Table 10.	Estimated Green Power Sales by Market Segment.....	15
Table 11.	Estimated Green Power Sales by Customer Segment, 2004.....	16
Table 12.	Estimated New Renewables Capacity Supplying Green Power Markets	17
Table A-1.	Utilities Offering Green Pricing Programs in 2004	75
Table A-2.	Utility Green Pricing Programs by State, October 2005.....	76
Table A-3.	Retail Green Power Product Offerings in Competitive Electricity Markets, October 2005.....	85
Table A-4.	Renewable Energy Certificate (REC) Retail Products, October 2005	89
Table B-1.	EPA Green Power Partnership Top 25 Partners by Size of Purchase, October 2005.....	91
Table C-1.	Estimated U.S. Green Power Customers by State and Customer Class	92

LIST OF FIGURES

Figure 1.	U.S. Map of Green Pricing Activities	2
Figure 2.	Trend in Green Pricing Premiums, 2000-2004	4
Figure 3.	Utility Green Pricing Sales, 2000-2004	6
Figure 4.	States with Competitive Green Power Offerings	8
Figure 5.	New Renewable Energy Capacity Serving Green Power Markets, 1999-2004.....	16

Acknowledgments

This work was funded by the U.S. Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE). The authors wish to thank Linda Silverman and the EERE renewable energy technology programs for their support of this work. The authors also wish to thank Adam Capage of Platts; John Halley and Cheryl Camuso of Community Energy Inc.; Anthony Amato, Sarah Margaret Gilbert, and Kurt Johnson of the U.S. Environmental Protection Agency's Green Power Partnership; Lars Kvale of the Center for Resource Solutions; and Elizabeth Brown of NREL for their thoughtful review of the document; as well as Michelle Kubik of NREL for her editorial support. Finally, the authors thank the many green power marketers and utility contacts that provided the information summarized in this report. Additional information on green power market trends and activities can be found on the U.S. DOE's Green Power Network Web site (<http://www.eere.energy.gov/greenpower/>).

An Overview of Green Power Marketing in the United States

Introduction

Voluntary consumer decisions to purchase electricity supplied by renewable energy sources represent a powerful market support mechanism for renewable energy development. Beginning in the early 1990s, a small number of U.S. utilities began offering “green power” options to their customers. Since then, these products have become more prevalent, both from utilities and in states that have introduced competition into their retail electricity markets. Today, more than 50% of all U.S. consumers have an option to purchase some type of green power product from a retail electricity provider.

Currently, about 600 utilities offer green power programs to customers in 34 states. These programs allow customers to purchase some portion of their power supply as renewable energy—almost always at a higher price—or to contribute funds for the utility to invest in renewable energy development. The term “green pricing” is typically used to refer to these utility programs offered in regulated or noncompetitive electricity markets.

In some competitive (or restructured) retail electricity markets, electricity customers can purchase electricity generated from renewable sources by switching to an alternative electricity supplier that offers green power. In addition, in some states, default suppliers offer green power options to their customers in conjunction with competitive green power marketers. To date, nearly a dozen states that have opened their markets to retail competition have experienced some degree of green power marketing activity.

Finally, any consumer can purchase green power using renewable energy certificates (RECs), which represent the unique or “green” attributes of electricity generated from renewable energy-based projects. Residential and nonresidential consumers can support renewable energy development through REC purchases regardless of whether they have access to a green power product from their retail power provider and without having to switch to an alternative electricity supplier. Today, a few dozen companies actively market RECs to residential or business customers throughout the United States.

This report documents green power marketing activities and trends in the United States. The first section of the report provides an overview of green power markets, including product pricing, sales, and consumer response. The second section provides brief descriptions of utility green pricing programs. The third section describes companies that actively market green power in competitive markets and those that market RECs nationally or regionally. The final section provides information on a select number of large, nonresidential green power purchasers, including businesses, universities, and government agencies.

Utility Green Pricing Programs

The number of utilities offering green pricing has grown steadily in recent years—today, more than 600 investor-owned, public, and cooperative utilities in 34 states offer green pricing programs (**Figure 1** and **Tables A-1, A-2**).¹ Because a number of small municipal or cooperative utilities offer programs developed by their power suppliers, the number of distinct green pricing programs is about 125. Since 1999, between about 15 and 25 new programs have been added each year. Initially, part of the growth in utility green power offerings was attributable to the threat of retail market competition, while more recent growth has been spurred by state laws requiring utilities to offer green pricing.² In addition, utilities are becoming increasingly comfortable with the operational reliability and improved economics of renewable energy technologies, leading to a growing willingness to undertake projects. And a number of utilities have expanded their programs as customer demand has grown.

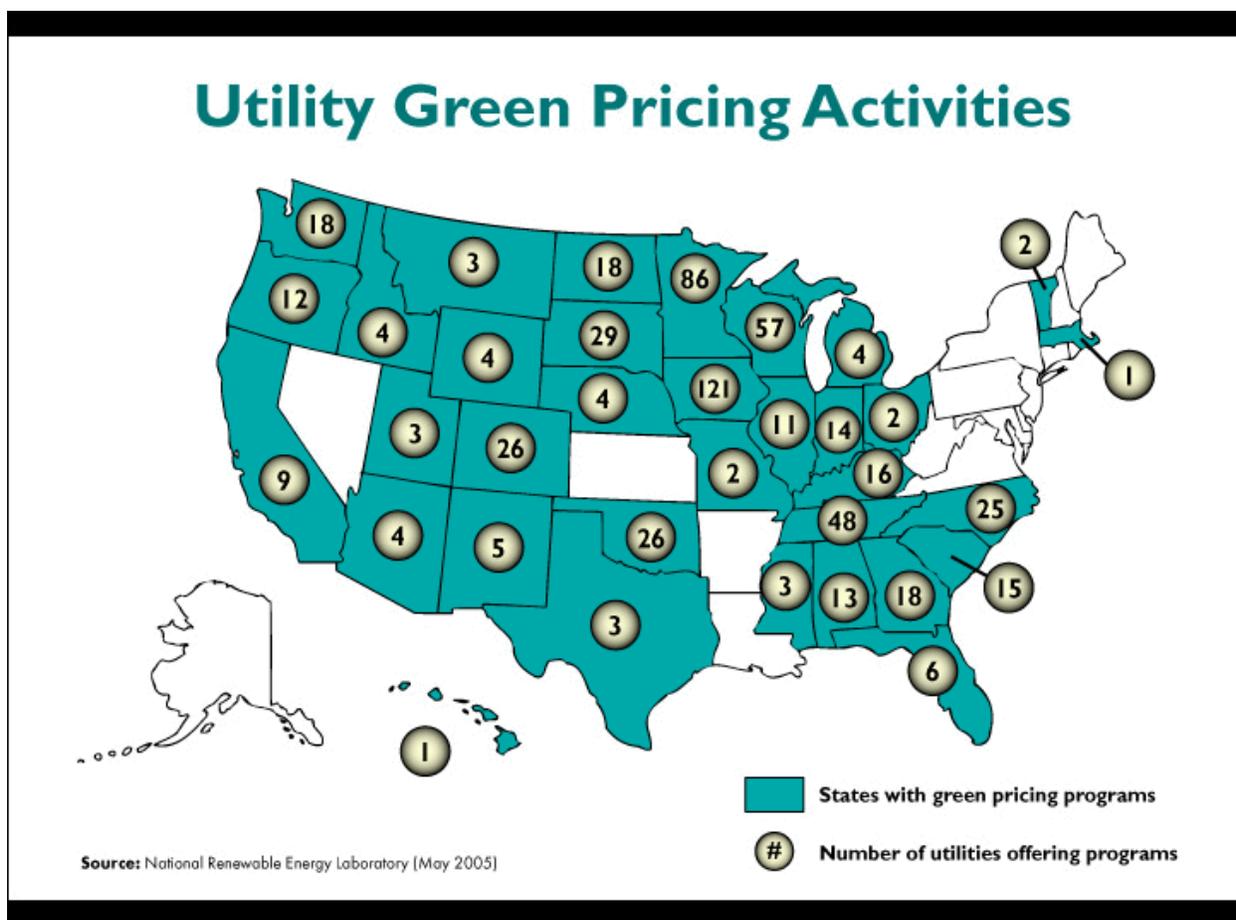


Figure 1: U.S. Map of Green Pricing Activities

¹ For an up-to-date list of utilities with green pricing programs, see the table of utility green pricing programs on the U.S. Department of Energy’s Green Power Network Web site at <http://www.eere.energy.gov/greenpower/markets/pricing.shtml?page=1>.

² These states include Iowa, Minnesota, Montana, New Mexico, Oregon, and Washington.

Products and Pricing

Typically, green pricing programs are structured so that customers can either purchase green power for a certain percentage of their electricity use (often called percent-of-use products) or in discrete amounts or blocks at a fixed price (block products), such as a 100-kilowatt-hour (kWh) block. Most utilities offer block products but may also allow customers to purchase green power for their entire monthly electricity use. Utilities that offer percent-of-use products generally allow residential customers to elect to purchase 25%, 50%, or 100% of their electricity use as renewable energy, while a few offer fractions as small as 10%. Larger purchasers, such as businesses, can often purchase green power for a smaller fraction of their electricity use.

The price premiums charged in green pricing programs range from 0.33¢/kWh to as much as 17.6¢/kWh, with a median of 2.0¢/kWh and a mean of 2.45¢/kWh (**Table 1**). Programs that feature solar-based products represent the high end of the range. A handful of utilities offer volume discounts or lower premiums to nonresidential green power customers.

Table 1: Price Premiums Charged for Utility Green Pricing Products (¢/kWh)

	1999	2000	2001	2002	2003	2004
Average	2.15	3.48	2.93	2.82	2.62	2.45
Median	2.00	2.50	2.50	2.50	2.00	2.00
Range	0.4–5.0	(0.5)–20.0	0.9–17.6	0.7–17.6	0.6–17.6	0.33–17.6
10 Programs with Lowest Premiums*	0.4–2.5**	(0.5)–2.5	1.0–1.5	0.7–1.5	0.6–1.3	0.33–1.0
Number of Programs Represented	24	50	60	80	91	101

*Represents the 10 utility programs with the lowest price premiums for new customer-driven renewable energy. This includes only programs that have installed—or announced firm plans to install or purchase power from—new renewable energy sources. In 2001, the discrepancy between the low end of the range for all programs and the Top 10 programs was because the program with the lowest premium (0.9¢/kWh) was not eligible for the Top 10 because it was either selling existing renewables or had not installed any new renewable capacity for its program.

**Data for April 2000.

Source: Bird and Brown (2005)

The average price premium has dropped at an annual average rate of 8% since 2000 (**Figure 2**). Some of this reduction can be attributed to lower market costs for renewable energy supplies. Also, increases in the price of natural gas have narrowed the price gap between renewables and gas-fired generation alternatives. This has led to lower starting premiums for many new

programs as well as reduced the effective premiums in programs that exempt participating customers from fuel-related price increases.³

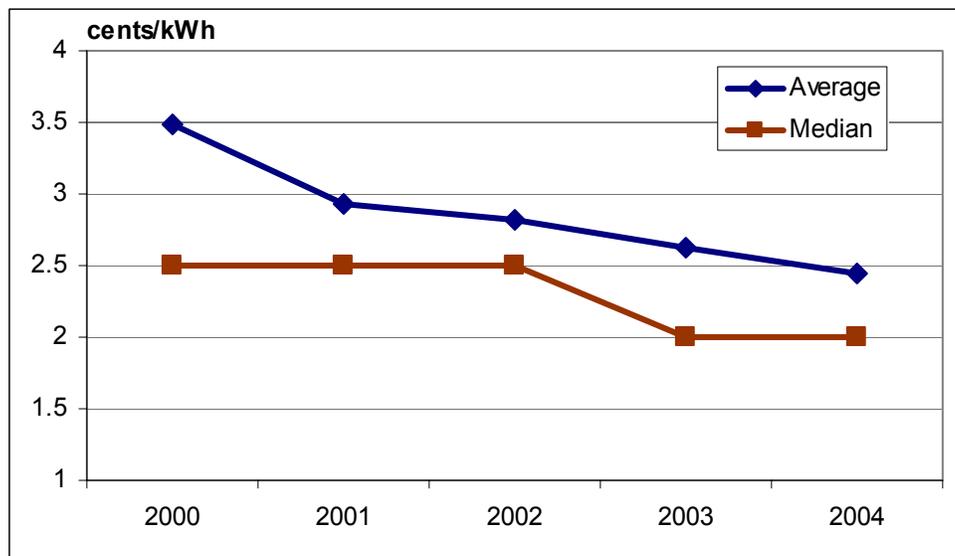


Figure 2: Trend in Green Pricing Premiums, 2000-2004

Customer Participation

At the end of 2004, more than 330,000 customers were participating in utility green pricing programs nationwide, including about 8,100 nonresidential customers.⁴ Between 1999 and 2004, the number of participating customers increased nearly fivefold, with an average annual growth rate of 38%. **Table 2** shows the increase in customers delineated by residential and nonresidential customer segments. During 2004, the number of residential and nonresidential customers grew at approximately the same rate of 25%. In previous years, the number of commercial and industrial-sector participants increased more rapidly than residential participants, at least partly because of increased targeting of nonresidential customers. The equivalent growth rates among customer segments in 2004 may indicate a shift back toward a residential focus, or reflect the impact of increased competition from competitive REC marketers.

³ It should be noted that some utilities periodically adjust the green power premium to reflect changes in the cost of fossil fuels used for electricity generation. Thus, when fuel prices rise, the effective green power premium falls. Utilities offering fuel-price exemptions or fixed-rate green power options include: Austin Energy, Edmond Electric, Eugene Water & Electric Board, Madison Gas and Electric, OG&E Electric, We Energies, and Xcel Energy.

⁴ NREL received participant and sales data for about 70% of utility green pricing programs in 2004, including all of the major programs. The remaining programs, which are smaller in size, do not have a large impact on overall participant numbers. Annual program participant numbers have been adjusted downward from those previously reported in Bird and Swezey (2003) because of program participation revisions made by the Los Angeles Department of Water and Power.

Table 2: Estimated Cumulative Number of Customers Participating in Utility Green Pricing Programs

Customer Segment	1999	2000	2001	2002	2003	2004
Residential	n/a*	131,000	166,300	224,500	258,700	323,700
Nonresidential	n/a*	1,700	2,500	3,900	6,500	8,100
Total	66,900	132,700	168,800	228,400	265,000	331,800
% Annual Growth	n/a	98%	27%	35%	16%	25%
% Nonresidential	n/a	1.3%	1.5%	1.7%	2.4%	2.5%

*Information on residential and nonresidential participants is not available for 1999.

Source: Bird and Brown (2005)

In 2004, customer participation rates in utility green pricing programs remained steady, with an average of 1.3% and a median of 1.0% across all programs (**Table 3**). The overall lack of improvement in participation rates may result from a number of factors, including a lack of customer awareness of the green power program;⁵ customer unwillingness to pay a premium for green power; customer uncertainty regarding the actual benefits of the program; and varied levels of interest among utilities in marketing and promoting the program (Holt and Holt, 2004; Swezey and Bird, 2001). The top 10 programs with respect to participation rates did show improvement, with the average rate among these programs increasing to 6.3% in 2004 from 5.5% in 2003.⁶

Table 3: Customer Participation Rates in Utility Green Pricing Programs by Year

	1999	2000	2001	2002	2003	2004
Average	0.9%	1.2%	1.3%	1.2%	1.2%	1.3%
Median	0.8%	0.7%	0.7%	0.8%	0.9%	1.0%
Top 10 programs for participation*	2.1%–4.7% [#]	2.6%–7.3%	3.0%–7.0%	3.0%–5.8%	3.9%–1.1%	3.8%–4.5%

*The high end of the range declined from 2000 to 2002 because the utility with the highest participation rate (Moorhead Public Service) experienced an increase in its overall customer base, while the number of participants in its green pricing program remained steady. The program was fully subscribed in 2000, and the utility has not attempted to expand it.

[#]Data for April 2000

Source: Bird and Brown (2005)

⁵ A number of utilities have reported that only 20% to 30% of their customers are aware that a green power option is offered.

⁶ “Top 10” rankings of utility green pricing programs are posted on the U.S. Department of Energy’s Green Power Network Web site at <http://www.eere.energy.gov/greenpower/resources/tables/topten.shtml>.

For the past three years, the average rate of attrition has been increasing. Utilities reported that an average of 10% of customers dropped out of green pricing programs in 2004, up from 7% in 2003 and 4% in 2002. While retention of participants is still high, the trend indicates that customer retention may require attention from program managers.

Green Pricing Sales

Collectively, utilities sold more than 1.8 billion kWh of green power to retail customers through green pricing programs in 2004 (**Table 4**). Green power sales to all customer classes increased by 43% in 2004, compared to 44% in 2003 and 56% in 2002 (**Figure 3**). The growth in sales can be attributed to a larger number of customers purchasing green power, as well as larger purchases by nonresidential customers.

Table 4: Annual Sales of Green Energy through Utility Green Pricing Programs (million kWh)

	2000	2001	2002	2003	2004
Residential customers	---	399.7	661.3	874.1	1,295.0
Nonresidential customers	---	172.8	233.7	410.3	544.2
Total All customers	453.7	572.5	895.0	1,284.4	1,839.2
% Annual Growth		26%	56%	44%	43%
% Nonresidential Customers	---	30%	26%	32%	30%

*Sales information for customer segments not available for 2000.

Source: Bird and Brown (2005)

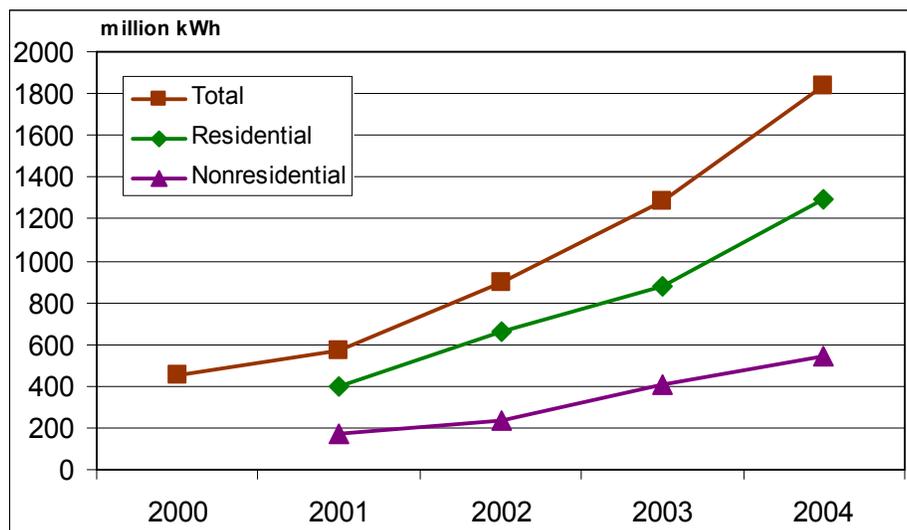


Figure 3: Utility Green Pricing Sales, 2000-2004

At the end of 2004, more than 700 MW of new renewables capacity was supplying utility green pricing programs, with nearly 230 MW planned (**Table 5**). Wind, solar, and landfill gas are the renewable resources most commonly used for utility programs, with wind energy representing the largest portion of the total capacity.

Table 5: New Renewable Energy Capacity Supplying Green Pricing Programs in 2004 (megawatts)

Source	Installed		Planned	
	MW	%	MW	%
Wind	584.0	82.8%	139.7	61.1%
Biomass	76.3	10.8%	57.5	25.1%
Solar	6.1	0.9%	0.2	0.1%
Geothermal	30.5	4.3%	0.0	0.0%
Small Hydro	8.5	1.2%	31.3	13.7%
Total	705.5	100.0%	228.7	100.0%

Source: Bird and Brown (2005)

Competitive Green Power and REC Markets

About one-third of states have restructured their electricity markets to introduce retail service competition. Currently, electricity consumers in the following states can purchase competitively marketed green power: Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, Texas, and Virginia, as well as the District of Columbia (**Figure 4 and Table A-3**).^{7,8}

Initially, buying green power in competitive retail markets entailed switching service from the incumbent utility to a green power supplier. However, with few exceptions, green power marketers have found it difficult to compete or to persuade customers to switch suppliers (Wiser, et al, 2001). As a remedy, a number of states now require default suppliers (which are often the incumbent distribution utilities) to offer green power options to their customers. These suppliers typically provide customers with a choice of several products offered by competing green power marketers. In addition, several utility suppliers have voluntarily teamed with a single green power marketer to offer a green power option to their customers. Utility/marketer partnership

⁷ For an up-to-date list of products offered by competitive green power marketers, see the U.S. Department of Energy's Green Power Network Web site at

<http://www.eere.energy.gov/greenpower/markets/marketing.shtml?page=1>

⁸ We do not include Oregon and Ohio in this list. In Oregon, only large commercial and industrial customers are able to switch to competitive green power providers; residential and small commercial customers have access to green power options offered by the incumbent utilities, which we categorize as green pricing (see the green pricing section). In Ohio, at least one green power marketer supplies customers of municipal aggregation groups with a "cleaner energy" product, but the renewable energy content is very low. Green power is not offered more broadly in the market.

programs are now available in Massachusetts, New York, Pennsylvania, Rhode Island; and, most recently, Connecticut and New Jersey—both launched statewide programs in 2005.

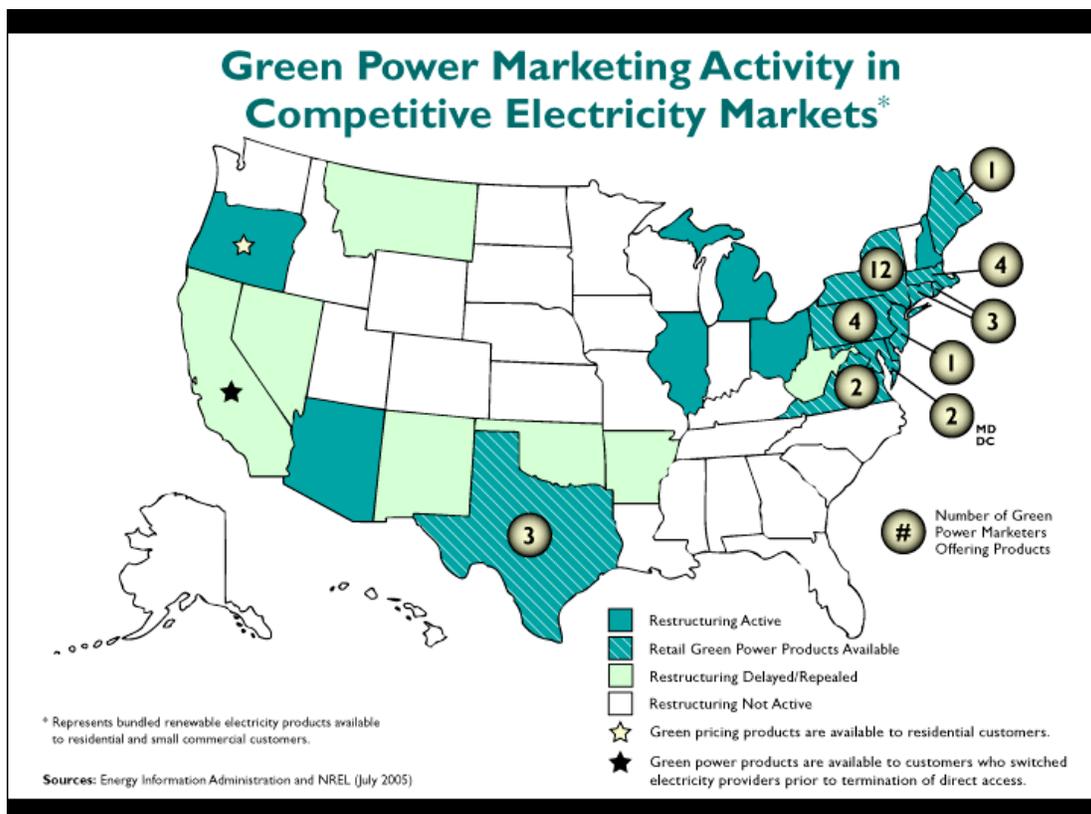


Figure 4: States with Competitive Green Power Offerings

RECs provide another alternative to switching electricity suppliers. Also known as “green tags” or tradable renewable certificates (TRCs), RECs represent the unique or “green” attributes of renewable energy generation and can be sold separately from the commodity electricity. REC-based products may be supplied from a variety of renewable energy sources throughout the country and sold to customers nationally; or they may be supplied from renewable energy sources in a particular region or locality and marketed as such to local customers. More than 20 companies offer certificate-based green power products to retail customers via the Internet, and a number of other companies market RECs solely to commercial and industrial customers.⁹

RECs are also sold in the wholesale market and are frequently used by utilities and marketers who bundle the RECs with commodity electricity to sell green power to retail customers. In fact, RECs are used to supply most of the programs in which default suppliers have teamed with marketers. Thus, it can be difficult to distinguish REC products from other green power

⁹ For an up-to-date list of companies offering certificate-based green power products, see the U.S. Department of Energy’s Green Power Network Web site at: <http://www.eere.energy.gov/greenpower/markets/certificates.shtml?page=1>

offerings. This is particularly true when REC products are supplied from renewable sources located in the same region in which they are marketed.

Products and Pricing

The green power products offered in competitive markets tend to differ from those offered by utilities in regulated markets, in that they may contain a mix of electricity generated from new and preexisting renewable energy projects; whereas utility green pricing programs generally utilize only new renewable energy supplies. One reason for this is that competitive suppliers are more concerned about price competition, and existing resources are typically available at lower costs. Also, when markets initially opened to competition, green power marketers often were forced to offer existing renewables because of a lack of new renewable energy supplies. However, as new renewable energy facilities have come online, the fraction of new renewables in retail products has increased. In addition, certification programs have required increasing amounts of new renewables. Going forward, the *Green-e* certification program has proposed changes to its certification standards that would require all certified products to be supplied exclusively from new renewable energy projects.¹⁰ The U.S. Environmental Protection Agency's Green Power Partnership has proposed a similar change to its program requirements for green power purchasers.¹¹

Competitively marketed green power products generally carry a price premium of between 1¢/kWh and 2.5¢/kWh, although offerings range from no premium to 5¢/kWh. The price premium charged depends on several factors such as the price of “standard offer” or default service, the availability of incentives to green power marketers or suppliers, and the cost of renewable energy generation available in the regional market. Some marketers charge prices very close to or even below to the default market price but may also charge a monthly service fee; others offer fixed-price products at a premium, which provide customers with protection against increasing prices for a specified period of time, usually only one year. The renewable energy sources most commonly used to supply competitive green power offerings are wind, landfill gas, and small or low-impact hydropower, while a number of products also contain a small amount of solar energy. Higher-priced products often contain a larger fraction of new renewable energy content or more desirable resources, such as new wind and solar.

Similar to competitively marketed products, retail prices charged for REC products typically range from about 1¢/kWh to 2.5¢/kWh for residential and small commercial customers (**Table A-4**). In most cases, larger customers are able to negotiate lower prices. Nearly all REC products are sourced from new renewable energy generation projects (a requirement of *Green-e* certification)¹² and about half are certified, which is a higher fraction than in the competitive retail markets. The greater interest in certification among REC suppliers may stem from concerns over “double counting” or that RECs are generally not subject to regulatory scrutiny. Wind energy is the most commonly used renewable energy source, although some REC products blend

¹⁰ Administered by the San Francisco-based Center for Resource Solutions, the *Green-e* program certifies retail and wholesale green power products that meet its environmental and product content standards. For details on the proposed revised standard, see <http://www.green-e.org/>.

¹¹ See <http://www.epa.gov/greenpower>.

¹² REC products are subject to a different *Green-e* standard than other competitively marketed products. See the full REC Standard at <http://www.green-e.org/>.

other renewable energy sources, such as biomass (typically from bio-methane sources) and solar. Also, one marketer offers RECs that are exclusively derived from solar photovoltaic (PV) systems, while another offers a 100% small-hydro REC product.

Customer Participation

Based on data received from green power marketers, we estimate that as many as 200,000 retail customers were purchasing green power from competitive suppliers—or in the form of RECs—at the end of 2004.¹³ Most of these customers are purchasing green power from competitive suppliers in states with retail competition, primarily in the Northeast and Texas, including about 30,000 participants in utility/marketer programs. Of the total, less than 10,000 retail customers purchase REC products, with most customers concentrated in the Mid-Atlantic and Northeast states where REC marketers tend to be most active. In competitive markets, the vast majority of customers purchasing green power are residential customers, while the fraction of nonresidential customers purchasing RECs is higher—on the order of one-fifth.

Table 6 presents trend data on customers purchasing RECs or green power from competitive marketers. In 2004, the number of customers increased modestly following a year of essentially no growth in which losses of customers in California offset gains in Texas and the Northeast. Much of the growth can be attributed to participation in relatively new utility/marketer partnership programs in the Northeast—most of which were introduced in late 2003 or during 2004.¹⁴ One of these programs ranked among the top 10 utility green power programs nationally in terms of number of customer participants, with nearly 15,000 customers.

Table 6: Estimated Cumulative Number of Customers Purchasing RECs or Green Power from Competitive Marketers, 2002-2004

	2002	2003	2004
Competitive Markets	~150,000	>150,000	>180,000
RECs	<10,000	<10,000	<10,000
Total	<160,000	~160,000	~190,000

Green Power Sales

An estimated 4.4 billion kWh of renewable energy was sold to retail customers by competitive and REC marketers (**Table 7**). About 2.7 billion kWh of this total was sold to retail customers

¹³ These figures do not include customers purchasing products containing only a small fraction of renewable energy content. For example, Green Mountain Energy Company serves an estimated 420,000 customers in Ohio with a product blend that contains only 1% to 2% of renewable energy content.

¹⁴ The first such program was launched in National Grid’s Niagara Mohawk service territory in September 2002, followed by a partnership between NYSEG and Community Energy in October 2002. In the fall of 2003, the National Grid program was expanded to Massachusetts Electric and Nantucket Electric. During 2004, Narragansett Electric, Rochester Gas & Electric, PECO Energy, and Long Island Power Authority introduced programs. And in 2005, Connecticut and New Jersey launched default supplier green power programs.

bundled with electricity in competitive electricity markets—a 40% increase from 2003.¹⁵ This figure includes renewable energy from both existing and new sources as well as that sold to customers in products that contain only a small percentage of renewable energy. It also includes sales of renewable energy through default utility-supplier programs or utility/marketer partnership in states with retail competition, which totaled 136 million kWh. Retail sales of RECs, which are sold separate from electricity and largely derived from new renewable energy sources, grew nearly threefold, reaching 1.7 billion kWh in 2004.

Table 7: Retail Sales of Renewable Energy in Competitive Markets and RECs (million kWh)

	2003	2004
Competitive Markets		
Residential	n/a	2,140
Nonresidential	n/a	510
Subtotal	1,900	2,650
RECs		
Residential	n/a	40
Nonresidential	n/a	1,690
Subtotal	660	1,720
Total Sales	2,560	4,370

n/a = not available

Table 7 also delineates green power sales by customer segment. In 2004, about 80% of green power sales in competitive markets (which involve the sale of electricity) were to residential customers, while about 60% of sales through default supplier programs were to residential customers. In contrast, nearly all of the REC sales (which are separate from electricity) were to nonresidential customers. Nonresidential customers may have greater interest in REC products because of their flexibility, the potential for cost savings,¹⁶ and because they are generally more knowledgeable about electricity markets and understand the concept; whereas residential customers may be more comfortable with a delivered electricity product and may be confused by the REC concept. Business customers are also more amenable to purchasing RECs that might be generated nationwide, if they operate facilities in multiple locations across the country.¹⁷

An estimated 1,530 MW of new renewables capacity is used to supply competitive green power markets or is being sold as RECs in both retail and wholesale markets; wind energy is the predominant resource type (**Table 8**). More than 225 MW of additional renewables capacity is planned, again dominated by wind.

¹⁵ This includes green power sold to customers through default utility-supplier programs.

¹⁶ RECs can provide cost savings when they are sourced from renewable energy projects in more favorable resource locations and because the electricity need not be delivered directly to the customer, which lowers transaction costs.

¹⁷ For example, the EPA Green Power Partnership reports that the majority of its top 25 partners purchase RECs (see **Appendix B**). In addition, the Green Power Market Development Group promotes the purchase of RECs among its members. See <http://www.thegreenpowergroup.org/>.

Table 8: New Renewables Capacity Supplying Competitive Markets and Renewable Energy Certificates, 2004 (megawatts)

Source	Installed		Planned	
	MW	%	MW	%
Wind	1,461.6	95.7%	224.8	99.3%
Biomass	59.3	3.9%	1.3	0.6%
Solar	2.0	0.1%	0.2	0.1%
Geothermal	5.0	0.3%	0.0	0.0%
Small Hydro	0.0	0.0%	0.0	0.0%
Total	1,527.9	100.0%	226.3	100.0%

Source: Bird and Swezey (2005)

Regional Market Summaries

Overall, the experience in competitive markets has been varied and highly dependent on state-specific market rules, standard offer prices, state policy support for renewable energy, and the cost of renewable generation sources available in the region. As early as 1998 and 1999, green power marketers garnered 1% to 2% of customers in California and Pennsylvania.¹⁸ More recently, significant marketing activity has been concentrated in Texas, as well as the Mid-Atlantic and New England states—including Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, Virginia, and the District of Columbia. With the exception of Texas and Pennsylvania, these markets have not engendered significant customer switching to green power products; therefore, green power marketers have turned to strategies that do not require customers to switch from their current electricity providers, such as teaming with default suppliers or selling RECs separate from electricity. Competitive marketers have also suffered from the same lack of consumer awareness that has plagued green pricing programs. In recent years, some states and nongovernmental organizations have undertaken public education campaigns to try to remedy this problem.

Texas. Texas is arguably the most viable competitive retail electricity market in the United States today, with a significant and sustained level of switching by both residential and nonresidential customers. As of August 2005, more than 2 million electricity customers had switched suppliers in the state, representing 24% of residential customers and 34% of commercial and small industrial customers (Public Utility Commission of Texas, 2005).

Renewable energy products are available in every service territory in Texas. For several years, Green Mountain Energy Company and Reliant Energy have offered green power options to retail customers and, in 2005, two new companies entered the market—Direct Energy and Gexa Energy. The number of customers purchasing renewable energy from competitive suppliers has grown substantially in recent years, with the U.S. Energy Information Administration (EIA) reporting about 60,000 customers served by competitive green power suppliers in 2003, up from about 40,000 in 2002 (**Appendix C**) (EIA, 2004). The number of nonresidential green power

¹⁸ In California, the electricity crisis of 2000 and 2001 forced most green power marketers to exit the market.

customers increased nearly sevenfold during this same period from 400 to 2,700.¹⁹ The 60,000 green power customers represented about 5% of the approximately 1.2 million customers who had switched suppliers by the end of 2003, or about 1% of all electric customers eligible to switch suppliers in the state.

Green power marketers in Texas are offering a variety of options to customers including products sourced from renewable energy blends, such as wind, solar, and hydro; products sourced exclusively from wind; and products that include only 50% renewable energy content. Some marketers are offering green power products below the “price to beat” in certain service territories. One marketer also offers a fixed-rate renewable energy product. Several other suppliers serve large, nonresidential customers with wind energy.

Mid-Atlantic and New England. In the Mid-Atlantic and New England regions, most states have experienced limited customer switching. Early on, Pennsylvania experienced relatively heavy switching, but activity has since decreased. Customer switching peaked in the spring of 2001, when nearly 800,000 customers had switched suppliers, but only about one-fourth that many are served by competitive suppliers today (Pennsylvania Office of Consumer Advocate, 2005). Most switching activity has been in the Duquesne Light and PECO Energy service territories. Consistent with the overall market trend, the number of green power customers in Pennsylvania has also declined in recent years, with the EIA reporting about 75,000 green power customers in 2003, down from about 92,000 in 2002 (EIA, 2004).²⁰

Offsetting some of these losses, PECO Energy launched a wind energy offering in conjunction with competitive marketer Community Energy in May 2004; and, by the end of the year, the utility had enrolled more than 9,000 customers in the program. However, in October 2005, Green Mountain Energy Company announced that it will stop providing electric generation service to about 30,000 customers in the state and will instead offer a REC-based product.

A smaller but growing number of customers are purchasing green power in other Mid-Atlantic states such as Maryland and Virginia, as well as the District of Columbia. According to figures from the EIA, the number of customers purchasing green power in Maryland increased from about 2,500 in 2002 to more than 14,000 in 2003. In addition, Virginia and D.C. combined experienced more than a doubling of green power customers from 4,100 in 2002 to 9,400 in 2003 (EIA, 2004). However, the number of customers purchasing green power in New Jersey declined slightly from about 2,200 to 1,800 during the same period, according to EIA figures. New Jersey launched a statewide default-supplier program in October 2005, which may stimulate the market.

Most of the recent market activity in New York and New England has involved programs in which competitive marketers have teamed with default providers. In some cases, the default suppliers have been required by state law or regulation to offer green power programs to their

¹⁹ EIA reported 68,611 green power customers in Texas in 2003 and 47,638 in 2002, including 2,993 and 539 nonresidential customers, respectively. Adjusting these figures for customers participating in utility green pricing programs, we estimate that about 60,000 customers were purchasing green power through competitive suppliers in 2003 and 40,000 in 2002. The figures for nonresidential customers were adjusted similarly.

²⁰ This figure likely includes some customers who are purchasing only a small amount of renewable energy through a state-mandated program. In an effort to encourage competition in the state, Green Mountain Energy Company won the right to serve 50,000 randomly selected PECO customers in 2001.

standard-offer service customers. Most of the programs are structured so that consumers can choose among products offered by several marketers, while a few incumbent utilities have teamed with a single marketer. Generally, a surcharge is applied to the customer's regular utility bill. Most of these programs are supplied with RECs, but customers essentially receive a bundled green power product, because they also purchase electricity from the default supplier.

The first such program was launched in the fall of 2002 in the Niagara Mohawk service territory in upstate New York, and later was expanded to other distribution utilities owned by National Grid in Massachusetts and Rhode Island. Under the program, customers can choose among wind-only options or renewable energy blends offered by several green power marketers. As of the end of 2004, about 15,000 customers participated in the National Grid program across all of the utilities, making it one of the top utility green power programs nationally. Elsewhere in New York, NYSEG launched a program to market wind energy to its customers in partnership with Community Energy in the fall of 2002, and Rochester Gas & Electric followed suit in spring 2004. And, in August 2004, the Long Island Power Authority launched a program through which customers could choose among products offered by several competing marketers.

In Connecticut, the state's two default suppliers initiated green power programs in April 2005, which may help to reinvigorate the market. In 2003, the Connecticut green power market dissolved completely when the state's only two green power marketers ceased operations, with one citing burdensome state market rules. According to EIA, about 1,000 customers were purchasing green power in 2002, but all of those were returned to standard-offer service.

While overall customer purchaser numbers are still relatively modest in these states, total sales of renewable energy are more significant than the customer figures suggest, resulting from large green power purchases by businesses, colleges and universities, government agencies, and other nonresidential customers. More than 200 MW of new wind energy capacity in New York, Pennsylvania, and West Virginia is being used to serve green power customers in the region, in the form of both RECs and bundled electricity products, primarily through deals negotiated by Community Energy and its partners.

Green Power Market Summary and Trends

Customers

In summary, more than 500,000 electricity customers nationally are purchasing green power products through regulated utility companies, from green power marketers in a competitive market setting, or in the form of RECs (**Table 9**). In aggregate, utility green pricing programs have shown steady growth in customers over time as the number of utility programs has increased and as existing programs have grown. On the other hand, competitive markets have been less consistent. While green power sales have grown in Texas and some Northeast states, other markets have failed altogether—most notably in California and Connecticut. While REC customers represent a small fraction of the total customer base, REC sales have increased dramatically because of a number of very large purchases. It is important to note that there is greater uncertainty in our customer estimates for competitive and REC markets because of data limitations.

Table 9: Estimated Green Power Customers by Market Segment

	2000	2001	2002	2003	2004
Utility Green Pricing	130,000*	170,000*	230,000*	270,000	330,000
Competitive Markets	>160,000**	>110,000**	~150,000	>150,000	>180,000
REC Markets	--	--	< 10,000	< 10,000	< 10,000
Retail Total	>290,000	>280,000	~390,000	~430,000	~520,000

* Annual program participant numbers have been adjusted downward from those originally reported in Bird and Swezey (2003) because of program participation revisions made by the Los Angeles Department of Water and Power.

** Includes only customers purchasing *Green-e* certified green power products, as reported by the Center for Resource Solutions (2001; 2002).

In comparison, the EIA has reported the number of U.S. customers purchasing green power by state (**Appendix C**), including those that purchase products with very low (1% to 2%) renewable energy content. According to the EIA, about 880,000 customers purchased renewable energy through utilities or competitive suppliers in 2003, up from 710,000 in 2002 (EIA, 2004). These figures are generally consistent with our estimates when adjusted for customers purchasing products with low renewable energy content.

Average participation rates among utility green pricing programs have remained steady at just more than 1%, although the top performing utility green pricing programs have achieved rates ranging from 4% to 15%. Competitive markets have experienced penetration rates of from 1% to 2% in states where the market has been conducive to retail competition.

Sales

Retail sales of renewable energy in voluntary purchase markets experienced strong growth in 2004, increasing more than 60% to 6.2 billion kWh annually (**Table 10**). This includes sales of renewable energy derived from both new and preexisting renewable energy sources. REC sales nearly tripled, while sales through utility green pricing programs and competitive marketers also exhibited strong annual growth of about 40%.

**Table 10: Estimated Green Power Sales by Market Segment
(million kWh)**

	2003	2004	Increase
Utility Green Pricing	1,280	1,840	43%
Competitive Markets	1,900	2,650	40%
REC Markets	660	1,720	162%
Retail Total	3,840	6,210	62%

*Includes sales of new and existing renewable energy.

Purchases by residential customers represent slightly more than half of total renewable energy sales in voluntary markets (**Table 11**). In 2004, nonresidential customers accounted for 30% and 20% of total renewable energy sales in green pricing programs and competitive markets, respectively, and nearly all REC sales. The U.S. Environmental Protection Agency's (EPA) Green Power Partnership reported having about 530 nonresidential partners with collective annual purchases of 2.06 billion kWh at the end of 2004 (Amato 2005). Given that the Green Power Partnership represents a subset of the market, our estimate of 2.74 billion kWh of nonresidential sales at the end of 2004 is generally consistent but likely represents an underestimate of the total market.

Table 11: Estimated Green Power Sales by Customer Segment, 2004
(million kWh)

	Green Pricing	Competitive Markets	REC Markets	Total	Share
Residential	1,300	2,140	40	3,480	56%
Nonresidential	540	510	1,690	2,740	44%
Total	1,840	2,650	1,720	6,210	100%

Totals may not add due to rounding.

Since 2000, the amount of renewable energy capacity serving green power markets has increased more than tenfold (**Figure 5, Table 12**). At the end of 2004, more than 2,200 MW of new renewable energy generation capacity was being used to supply green power markets, with another 450 MW planned (Bird and Swezey, 2005).

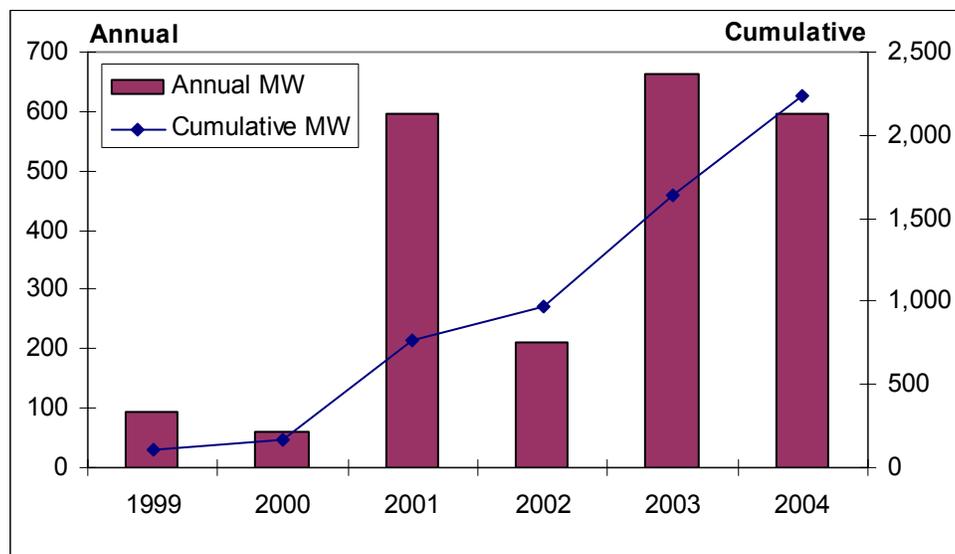


Figure 5: New Renewable Energy Capacity Serving Green Power Markets, 1999-2004 (megawatts)

Table 12: Estimated New Renewables Capacity Supplying Green Power Markets (megawatts)

Market	2000	2001	2002	2003	2004
Utility Green Pricing	77	221	279	510	706
Competitive Markets/RECs	90	542	695	1,126	1,528
Total	167	764	974	1,636	2,233

Totals may not add due to rounding.

Conclusions and Observations

The green power market continues to exhibit strong growth and provide an important stimulus for renewable energy development. Green power marketing provides an additional revenue stream for renewable energy projects, and raises consumer awareness of the benefits of renewable energy. More than 50% of U.S. electricity customers now have the option to purchase green power directly from a retail electricity supplier, while RECs are available to consumers nationwide—although many consumers may not be aware of REC purchase options. Based on this review, we have identified a number of industry trends and market challenges:

- Retail sales of green power continue to grow significantly, led by REC purchases by nonresidential customers, although residential sales also continue to grow. In addition, customers have increased the size of their purchases, in some cases because of declining prices. Thus, the nonresidential market, once considered to be too price-sensitive to buy green power, has emerged in recent years as the primary driver of market growth. This trend appears likely to persist at least in the short term as renewable resources improve in cost-effectiveness and government agencies, businesses, and universities continue to purchase green power to meet environmental goals and enhance their public image.
- Nationwide, the number of customers purchasing green power grew moderately in 2004 as a result of new utility/marketer partnerships in the Northeast, customer switching in Texas, and continued growth in both existing and new green pricing programs. However, consumer awareness of green power options remains low and continues to pose a barrier to achieving greater market penetration rates. Regional marketing efforts recently initiated by a number of states, nonprofits, and utility groups may help to raise awareness among consumers.
- While a relatively small number of utilities continue to dominate participation and sales figures among green pricing programs, growth is occurring in a greater number of utility programs. Going forward, sustained growth will depend on the ability of utilities to translate the success of the top-performing programs to the rest of the industry and to address customer attrition, which has increased in recent years.
- Utility green pricing premiums have continued to fall, owing to a combination of higher prices of conventional generation fuels and lower renewable resource costs. Wholesale REC prices have also fallen in some markets, contributing to REC sales growth. A key challenge to the industry is to enhance the value of green power purchases by providing customers with

the price stability benefits of renewable energy. Price stability is especially important in an environment of rising and volatile prices for traditional fuels. Very few utilities or marketers offer such benefits to their customers.

- The continuing growth in the use of RECs is expected to put downward pressure on green power prices in all voluntary purchase markets. Only a handful of utilities offer lower green power rates or volume discounts for large nonresidential customers. The slower growth of nonresidential customers in green pricing programs may be partly a result of increased competition from REC marketers.
- Although the utility sector continues to add green pricing programs at a steady rate, only about 20% of the nation's utilities offer a green pricing product. The greatest impetus for the introduction of new programs has come from state mandates, indicating that growth in programs may plateau unless more states require green power tariff offerings.
- Low customer switching rates continue to be a barrier to green power sales in most competitive retail markets and there are no new competitive retail market opportunities on the horizon. Thus, future growth opportunities lie in default-supplier programs that do not require customers to switch suppliers, or in the few remaining viable competitive electricity markets, such as Texas. RECs will likely become an increasingly important sales vehicle for green power in competitive markets, particularly with large nonresidential customers.

Utility Green Pricing Programs

Green pricing is an optional utility service that allows customers 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. This section presents information on utilities that offer green pricing programs to their customers (see **Tables A-1** and **A-2** for a list of utilities and a summary of green pricing programs by state, respectively).²¹

Alabama Power Company—Alabama Power Company offers its residential customers a *Renewable Energy Rate* under which they can purchase 100-kWh blocks of power generated from renewable energy sources for an additional \$6 a month, or a premium of 6¢/kWh above the standard rate. The initial source of the green power is Alabama-grown switchgrass, co-fired in a utility-owned coal-fired power plant. Participating customers must agree to purchase their subscribed number of blocks for a minimum of 12 months.

City of Alameda—Since 1999, Alameda Power and Telecom has offered its customers the ability to voluntarily contribute to utility investments in clean power programs. Although the California-based municipal utility already obtains more than 80% of its power resources from renewable energy sources, it offers the *Clean Future Fund*, through which customers can affect the way the utility “will make future investments in generation sources.” Participating customers pay an additional 1.0¢/kWh on their bills or about \$3.75 per month for the typical household. Fully 100% of the contributions go to fund new renewable resources.

Alliant Energy—Alliant offers the *Second Nature* program under which residential and business customers in Iowa, Minnesota, and Wisconsin can support increased renewable energy production. Residential customers can choose to replace 25%, 50%, or 100% of their electric usage as renewable energy at a rate premium of 2.0¢/kWh. Farm, small business, and commercial/industrial customers can make a monthly contribution through the program. The power to supply the program comes from a mix of new landfill gas and wind energy projects. The *Second Nature* product is *Green-e* certified by the Center for Resource Solutions (CRS).

American Municipal Power–Ohio—AMP-Ohio, an Ohio-based nonprofit wholesale power supplier for municipal utilities, partners with Green Mountain Energy Company to offer a new renewable energy option to its 86 member communities, representing more than 380,000 customers in Ohio, Pennsylvania, West Virginia, and Michigan. Under the *Nature's Energy* program, residential and small-business customers with participating utilities can purchase electricity generated from small hydro and wind facilities for 1.3¢/kWh above standard electric rates or an extra \$8 to \$10 per month for the average customer. Commercial customers can buy green power in 1-MWh increments at the same 1.3¢/kWh premium. The power for the program is supplied from a combination of wind, landfill gas and hydroelectric generation, including a

²¹ In some cases, several distribution cooperatives or other publicly owned utilities might market green power supplied by a single utility entity, such as a generation and transmission (G&T) cooperative. For example, the Tennessee Valley Authority supplies green power to 67 local public power companies that market the power to their customers. Only the supplier utility organization is described here.

7.2-MW wind energy project in Bowling Green, OH. Only three AMP-Ohio utilities currently offer the program.

Anaheim Public Utilities—Anaheim Public Utilities, the municipal utility of Anaheim, California, offers its roughly 100,000 residential and business customers two green power options. Under the utility's *Green Power For The Grid* program, customers can purchase 100-kWh blocks of green power for an additional \$1.50 per month, or 1.5¢/kWh. Residential customers can sign up to purchase up to three blocks of green power each month. Business customers must purchase a minimum of 10 blocks, with a maximum of 30 blocks. To supply the program, Anaheim purchases wind energy from projects located in California and Wyoming.

Under its *Sun Power For the Schools* program, Anaheim customers can make monthly contributions toward the purchase, installation, and maintenance of solar photovoltaic (PV) power systems at city schools. Residential customers can contribute in increments of \$1.50, while the minimum contribution for business customers is \$15 per month. Monies collected through the program pay 60% of the PV system costs, while the utility and participating schools split the remaining cost. The schools are responsible for the design, purchase, and installation of the solar systems. Customers participating in one or both programs must agree to enroll for a minimum of six months.

Arizona Public Service—In 1996, Arizona Public Service (APS) established a voluntary solar tariff to give residents, businesses, and communities the opportunity to purchase solar energy and help develop the technology. Through the utility's *SolarPartners* program, customers can purchase 15-kilowatt-hour (kWh) blocks of solar energy for \$2.64 a month (17.6¢/kWh). Program costs have been partly subsidized by shareholders and the U.S. Department of Energy (DOE) through the Utility PhotoVoltaic Group (UPVG) (now the Solar Electric Power Association). Customer response far exceeded the utility's initial targets, and the program has been continually expanded. More than 1 MW of solar projects have been built in various Arizona cities, including Flagstaff, Tempe, Scottsdale, Gilbert, Glendale, Prescott, and Yuma, with many of the projects built in partnership with the host cities.

City of Ashland—The City of Ashland (Oregon) and the nonprofit Bonneville Environmental Foundation (BEF) have teamed to offer the city's electricity customers a green power option. Under the *Renewable Pioneers* program, residents and businesses can support local and regional renewable energy development by purchasing “green tags” directly from BEF. BEF offers two *Green-e* certified products from new renewable resources: *Cooler Future* Green Tags, consisting of 99% wind and 1% solar priced at 2¢/kWh, and *Brighter Future* Green Tags, which are a blend 90% wind and 10% solar priced at 2.4¢/kWh. A portion of the revenues from green tags sales to Ashland residents and businesses are used to fund solar projects within the city. Program participants see no change in their utility bills because the green tags purchase is a separate transaction with BEF. The *Renewable Pioneers* program replaced Ashland's *Solar Pioneers* program.

Austin Energy—In January 2000, Austin Energy, the municipally owned utility of the City of Austin, Texas, launched *GreenChoice*, a program through which residential and business customers can choose to receive 100% renewable energy generated primarily from wind and

landfill gas resources. In just 10 months, the utility had fully subscribed the initial 40 MW of renewable energy supply planned for the program. Austin Energy now contracts for 215 MW of wind energy from West Texas, as well as 11 MW of output from landfill gas generation facilities located near Austin and San Antonio.

A key feature of the program is that subscribers pay a “green rate,” which remains fixed for the term of the utility’s renewable energy contracts, which is generally 10 years. The green rate replaces the utility’s standard fuel charge and, thus, *GreenChoice* customers are protected from fuel price fluctuations. The utility is now in the third phase of renewable energy supply procurement for which the green rate charge is 3.3¢/kWh. At the current fuel charge of 2.796¢/kWh, the effective green power premium is about 0.5¢/kWh for new *GreenChoice* subscribers.

Avista Utilities—Avista, an investor-owned utility serving 320,000 electricity customers in Washington and Idaho, began offering a wind power option to its residential and business customers in early 2002. When the *Buck-a-Block* program was launched, Avista offered 55-kWh blocks of wind energy for \$1.00, or a price premium of 1.8¢/kWh. Now customers can purchase 300-kWh blocks of wind energy for the same \$1.00 price, reducing the effective price premium for wind energy to 0.33¢/kWh, which is among the lowest utility green pricing premiums in the nation. Avista was able to lower the price after signing a new power purchase agreement with PPM Energy for wind energy from the Stateline Wind Energy Center located along the Oregon/Washington border.

Basin Electric Power Cooperative—Basin Electric, a regional power cooperative that generates and transmits electricity to 121 member rural electric systems in nine states, offers wind energy to its member systems under the *Prairie Winds* brand. Initially, the wind energy was supplied from two, 1.3-MW wind projects in North Dakota and South Dakota, and priced at \$2.50 per 100-kWh block, or 2.5¢/kWh. Basin has since added more than 80 MW of wind energy to its resource portfolio through joint projects and purchase agreements, which has expanded the amount of “green tags” available for sale. Basin is now offering green tags through the *Prairie Winds* program at a price of \$5 per 1,000-kWh block, or 0.5¢/kWh.

Benton County PUD—In 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 Klickitat PUD’s Roosevelt Regional Landfill Gas Facility. Benton pays about 3.5¢/kWh for the landfill power, which at the time was approximately 1¢/kWh more than it pays for its other power sources. In late 2002, the utility added 3 MW to its green power supply with purchases from the 48-MW Nine Canyon Wind Project in eastern Washington. Customers choose their level of program participation with minimum contributions of \$1 per month required for residential customers and \$10 per month for commercial customers. The contributions are not tied directly to the customer’s electricity use.

Boone Electric Cooperative—Boone Electric Cooperative (BEC), which serves about 25,000 customers in Boone County and portions of five other mid-Missouri counties, announced in 2003 that it would begin offering its customers a wind energy purchase option. The green power

would be sold in 100-kWh blocks at a price of about \$3 per month, or a rate premium of 3¢/kWh, and sourced from Aquila's 110-MW Gray County Wind Farm in southeastern Kansas.

In February 2004, BEC announced a decrease in the premium charged for its *Renewable Choice* green power product from 3¢/kWh to 2¢/kWh. The premium reduction stemmed from the utility's use of walnut shells that were ruined when tornadoes struck a storage building in Stockton, Missouri. The damaged shells were transported about 150 miles and co-fired in a coal plant, generating nearly four million kWh that are now used to supply the green pricing program.

Burbank Water and Power—Burbank Water and Power (BWP), a municipal utility serving about 50,000 electricity customers in the Los Angeles suburb of Burbank, offers the *Clean Green Support* program, under which residential customers can purchase green power in the form of “green tickets” for 50% or 100% of their monthly electricity needs. The cost for the 50% green power option is an additional \$3 per month (about 1.2¢/kWh for the average residential consumer), while the cost for the 100% option is \$5 (about 1¢/kWh, on average). There is no minimum enrollment period. The green tickets (or RECs) represent the environmental attributes of electricity generation from renewable energy sources, such as wind, solar, hydro, geothermal, and biomass energy. BWP shops the open market for the best green power prices.

Cedar Falls Utilities—Since 1999, Cedar Falls Utilities (CFU) has offered its customers the option of contributing 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. The project, (near Algona, Iowa) received \$2.8 million of funding from the U.S. DOE and the Electric Power Research Institute (EPRI) through the Utility Wind Turbine Verification Program. Customers can participate by purchasing 100-kWh blocks of wind energy at a cost of \$2.50 per month, or 2.5¢/kWh.

Central Minnesota Municipal Power Agency—Fourteen municipal utilities served by Central Minnesota Municipal Power Agency (CMMPA) offer their customers a renewable energy option. The product offerings differ by utility with the premiums charged ranging from 1.5¢/kWh to 2.5¢/kWh. CMMPA supplies the renewable energy for the programs from its 6-MW share of the 98-MW Hancock County Wind Energy Center in Iowa. In addition, CMMPA plans to add a 2.5-MW wind project in Blue Earth, MN and a 6.25-MW wind project on a family farm in southwestern Minnesota, as well as a 10-MW wind project and a landfill gas project. A portion of the output from these projects will be used to supply the utility green power product offerings while the remainder will be used to satisfy the state's renewable energy objective. Minnesota utilities are also required by state law to offer their customers voluntary options to purchase power generated from renewable sources or high-efficiency, low-emission distributed generation.

Central Vermont Public Service—Central Vermont Public Service (CVPS) offers a green pricing program supplied from farm-based methane systems. The *CVPS Cow Power* program offers customers the option of receiving 25%, 50%, or 100% of their electricity as green power, at an extra cost of 4¢/kWh. If farm-based generation proves insufficient to supply the program, the utility will first attempt to acquire and retire renewable energy certificates from other regionally based renewable generation sources or, as a last resort, deposit customer payments

into the CVPS Renewable Development Fund that will provide incentives for farm-based generation projects. CVPS serves more than 150,000 customers in nearly three-quarters of the towns, villages, and cities in Vermont.

Chelan County PUD—Chelan County PUD, with more than 38,000 customers in north-central Washington state, offers the *Sustainable Natural Alternative Power* (SNAP) program, which gives customers an opportunity to support local producers of solar and wind power. Customers donate a fixed amount each month, and the funds are distributed annually to local producers, who supply power into the PUD's electrical grid for use by local customers. The contributions are not tied directly to the customer's electricity use.

Clallum County PUD—Clallum County PUD, a public utility serving about 25,000 customers in northwestern Washington, offers its customers a fixed-rate green power option. Under the program, customers can opt to purchase green power for 100% of their electricity needs at a fixed rate of 6.9¢/kWh, which represents a premium of 0.7¢/kWh above the utility's standard rate. To supply the program, Clallum purchases one average megawatt of power from the 8-MW Klickitat landfill-gas facility located in Roosevelt, Washington.

Clark Public Utilities—Clark Public Utilities, a public utility district that provides electric service to more than 155,000 customers throughout Clark County, Washington, offers its customers an option to purchase 100-kWh blocks of green power for an additional \$1.50 each month, or 1.5¢/kWh. The power for the *Green Lights* program is sourced from the Bonneville Environmental Foundation (BEF) in the form of RECs representing the environmental attributes of power generated from new wind and solar projects in the Pacific Northwest region. BEF is also assisting with product marketing. A portion of the customer premiums is used to develop new renewable energy projects in Clark County.

Colorado Springs Utilities—Colorado Springs Utilities, which serves more than 569,000 customers in the Pikes Peak region of Colorado, offers its residential and commercial customers a wind power option at a cost of \$3 per 100-kWh block, or a premium of 3¢/kWh above the standard rate. The utility purchases power from Xcel Energy's Ponnequin wind project to supply the program.

Columbia River PUD—Columbia River PUD offers a wind energy option to its 17,500 Oregon-based customers. Under the *Choice Energy* program, customers can purchase wind energy in 100-kWh increments each month for an extra \$2 above standard rates, or a premium of 2¢/kWh. Alternatively, customers can purchase wind energy for 100% of their electricity needs at a lower premium of 1.5¢/kWh. Power for the program is supplied by the Bonneville Power Administration from the Condon, Klondike and Stateline wind projects located in Eastern Oregon.

Concord Municipal Light Plant—In December 2003, Concord Municipal Light Plant (CMLP), which supplies electricity to approximately 7,200 residents and businesses in Concord, Massachusetts, announced a green pricing program offering its residential and business customers the option to purchase 100-kWh blocks of hydropower for an extra \$3 each month, or a premium of 3¢/kWh. Customers can sign up for an unlimited number of blocks. Electricity for

the program is to be supplied from a repowered 160-kW, run-of-the-river hydro facility at the Powdermill Dam in West Concord that will generate approximately 500,000 kWh per year. Damage to the dam spillway has delayed implementation of the green power program.

Consumers Energy—From 2001 to 2004, Consumers Energy, a combination electric and natural gas utility serving more than 1.7 million homes and businesses throughout Michigan's Lower Peninsula, operated a green pricing pilot program under which residential and business customers could purchase green power to meet 10%, 50%, or 100% of their electricity needs at a price premium of 3.2¢/kWh. The initial 1.8 MW of wind energy supply, sourced from Bay Windpower's 5.25-MW Mackinaw City Wind Power Project, was quickly subscribed.

In May 2004, the Michigan Public Service Commission (MPSC) issued an order requiring Consumers Energy to implement a new renewable resources program to include a “phased-in approach” to adding renewable energy capacity to more closely match customer subscriptions. The MPSC also ordered the utility to implement a non-bypassable charge of 5 cents per meter per month on all customers as a “funding mechanism to recover green power program costs not covered by contributions of customers who agree to pay a premium for green power.”

Under the utility's new *Green Generation* program, customers can purchase 150-kWh monthly blocks of renewable energy for \$2.50—a rate premium of 1.67¢/kWh—or can choose to meet 100% of their monthly electricity use with renewable energy at the same price. The utility has reached agreements with five independent developers to supply approximately 238,000 MWh (~27 average megawatts) of renewable energy annually from new wind (75%) and landfill gas (25%) facilities to be located in Michigan's Lower Peninsula.

Continental Cooperative Services—Eight Illinois-based distribution cooperatives served by CCS/Soyland generation and transmission cooperative offer their customers a wind energy purchase option in partnership with Community Energy Inc., a national retail marketer of wind-generated power. Through the *EcoEnergy* program, customers can purchase RECs supplied from the 54.5-MW Crescent Ridge Windpower Project located near Princeton, Illinois, in increments of 200 kWh, 300 kWh, or 400 kWh at a rate premium of 3¢/kWh. The charge appears on the monthly bill of participating customers, who must agree to enroll for a minimum of one year.

Corn Belt Power Cooperative—Corn Belt Power Cooperative, an Iowa-based generation and transmission entity serving 11 distribution cooperatives and one municipal electric cooperative, is providing wind energy to its member systems. The majority of the distribution co-ops have established programs under which customers can contribute funds to support Corn Belt's 7-MW purchase from the 98-MW Hancock County Wind Energy Center in Iowa. The contributions are used to pay the above-market cost of the wind energy purchase. Any excess revenues collected will be used to support additional development of Iowa-based renewable energy resources.

Two Corn Belt distribution utilities—Butler County REC and Sac County REC—offer a different program through which customers can support the development of local, small wind energy projects by contributing \$1.50 each month for 100 kWh of wind energy production. The utilities pay 1.5¢/kWh above avoided cost for wind energy generated from new, customer-owned systems of less than 100 kW in size.

Cowlitz PUD—Cowlitz PUD, which supplies electricity to customers in southwestern Washington, offers a *Renewable Resource Energy* program, through which its residential and business customers can support the development of new renewable energy sources in the Pacific Northwest. Customers can purchase 100-kWh blocks of green power for an additional \$2 per month, or a premium of 2¢/kWh. Cowlitz purchases “green tags” from the Bonneville Environmental Foundation generated from the Stateline and Condon wind projects in Washington and Oregon and the Hanford/White Bluffs solar project near Richland, Washington.

Dairyland Power Cooperative—Dairyland Power Cooperative, a Wisconsin-based generation and transmission (G&T) cooperative that provides wholesale electric requirements and other services for 25 electric distribution cooperatives and 20 municipal utilities in the Upper Midwest, has operated the *Evergreen* renewable energy program since 1998. Under the program, member customers can purchase green power at a price of \$1.50 per 100-kWh block, or 1.5¢/kWh, sourced from wind energy projects and bio-methane systems at landfills and dairy farms. The current premium represents a price reduction of 50% from the original product premium of 3¢/kWh.

Deseret Power—Deseret Power, a Utah-based G&T cooperative, provides a green power option to the six member distribution cooperatives that it serves, covering 47,000 customers in Utah, Nevada, Wyoming, Colorado, and Arizona. The product is supplied with RECs obtained from projects located in the western states and is priced at \$1.95 per 100-kWh block, or a rate premium of 1.95¢/kWh.

Dominion North Carolina Power—In 2003, the North Carolina Utilities Commission approved a stakeholder-developed plan to offer two green power products to utility customers statewide. The first product is a "mass-market" product consisting of a resource mix of new solar, wind, and methane from biomass that is offered to residential and small business customers at a cost of \$4.00 per 100-kWh block or 4.0¢/kWh. The contribution is tax deductible. The second product includes a resource mix of new and existing solar, wind, small hydro, and biomass and is offered to larger-volume customers at a price of \$3.00 to \$4.00 per 100-kWh block, depending on the purchase size. The green power products are offered by most of the state's electric utilities, including Dominion North Carolina Power, Duke Power, Progress Energy Carolinas, and many North Carolina electric cooperatives and municipalities. The program is administered by Advanced Energy, a Raleigh-based nonprofit research organization.

DTE Energy—At the direction of the Michigan Public Service Commission, Detroit Edison, which serves 2.1 million electricity customers in Southeastern Michigan, has proposed a new renewable energy program under which the utility's residential customers could purchase renewable energy equivalent to 50% or 100% of their electricity needs at a rate premium of 2¢/kWh. Nonresidential customers would have an additional option of purchasing renewable energy in 1,000 kWh increments (blocks) each month at a premium of 2¢/kWh for the first 3,000 blocks and 1.8¢/kWh for all additional blocks. Initially, the utility would purchase RECs from projects located in the Great Lakes region to supply the program.

Detroit Edison was one of the first utilities in the United States to offer a green pricing program

when it established the *SolarCurrents* program, supporting the development of centrally located PV projects. The utility also introduced a *SolarSchools* program, through which commercial businesses could sponsor solar energy service at local elementary schools as well as development of a solar energy curriculum for students.

Duke Power—In 2003, the North Carolina Utilities Commission approved a stakeholder-developed plan to offer two green power products to utility customers statewide. The first product is a "mass-market" product consisting of a resource mix of new solar, wind, and methane from biomass that is offered to residential and small business customers at a cost of \$4.00 per 100-kWh block or 4.0¢/kWh. The contribution is tax-deductible. The second product includes a resource mix of new and existing solar, wind, small hydro, and biomass and is offered to larger-volume customers at a price of \$3 to \$4 per 100-kWh block, depending on the purchase size. The green power products are offered by most of the state's electric utilities, including Dominion North Carolina Power, Duke Power, Progress Energy Carolinas, and many North Carolina electric cooperatives and municipalities. The program is administered by Advanced Energy, a Raleigh-based nonprofit research organization.

East Kentucky Power Cooperative—East Kentucky Power Cooperative, a G&T cooperative serving 16 distribution utilities in Kentucky, provides a green power option, *EnviroWatts*, to its member cooperatives. The green power is offered to residential and business customers in 100-kWh blocks for \$2.75, or 2.75¢/kWh, and supplied from new Kentucky-based landfill-gas facilities. Customers must commit to the green power purchase for one year.

El Paso Electric—El Paso Electric, which serves customers in southern New Mexico and west Texas, offers its customers a wind energy purchase option through the *Renewable Energy Tariff Program*. Residential and commercial customers can purchase 100-kWh blocks of wind power at costs ranging from \$1.92 to \$3.19 per month, or 1.92¢/kWh to 3.19¢/kWh, depending on the state and customer classification. The wind power is supplied from two, 660-kW turbines at Hueco Mountain Wind Ranch near Horizon City, Texas. Customers must agree to participate for a minimum of one year.

ElectriCities—In 2003, the North Carolina Utilities Commission approved a stakeholder-developed plan to offer two green power products to utility customers statewide. The first product is a "mass-market" product consisting of a resource mix of new solar, wind, and methane from biomass that is offered to residential and small business customers at a cost of \$4.00 per 100-kWh block or 4.0¢/kWh. The contribution is tax deductible. The second product includes a resource mix of new and existing solar, wind, small hydro, and biomass and is offered to larger-volume customers at a price of \$3.00 to \$4.00 per 100-kWh block, depending on the purchase size. The green power products are offered by most of the state's electric utilities, including Dominion North Carolina Power, Duke Power, Progress Energy Carolinas, and many North Carolina electric cooperatives and municipalities. The program is administered by Advanced Energy, a Raleigh-based nonprofit research organization.

Emerald People's Utility District—Emerald PUD, a public utility near Eugene, Oregon, serving 17,000 customers, offers its electric customers three renewable power options: *50% Renewable*, *100% Renewable* and *100% Wind*. All three products are offered in partnership with

Green Mountain Energy Company. The two renewable energy products consist of a blend of 80% geothermal and 20% wind and are priced at 0.78¢/kWh. The 100% wind product is priced at 1.2¢/kWh.

Eugene Water and Electric Board—Since 1999, EWEB has marketed wind power to customers from its 20% share of the Foote Creek Rim I wind project located in southeastern Wyoming. Customers can purchase wind energy to provide from 10% to 100% of their electricity needs for which the utility charges a fixed wind power rate of 5.274¢/kWh. Since the program was established, the effective premium for the *EWEB Windpower* product has fallen from 3.09¢/kWh to about 0.74¢/kWh for the average wind power customer because of cost increases experienced for traditional generation sources. In 2002, EWEB signed a contract with PacifiCorp Power Marketing (now PPM Energy) to purchase a share of the output from the Stateline Wind Project located on the Oregon/Washington border.

Farmers Electric Cooperative—Farmers Electric Cooperative, which serves 650 electric meters in eastern Iowa, began offering a green power option to its electricity customers in January 2004. Under its *Green Power Project*, customers can sign up via their utility bills to contribute a minimum of \$2.50 per month to support the development of renewable energy sources. The funds will be used to support the use of biodiesel in diesel-fired peaking generators or the development of Iowa-based wind resources. All utilities in Iowa are required by state law to offer a green power option to their electricity customers.

Florida Power & Light—Florida Power & Light (FPL) is operating a three-year pilot program through which residential customers can purchase renewable energy certificates from wind, solar and biomass generation sources located in Florida and other states. The RECs are sold in 1,000-kWh blocks for \$9.75, or 0.975¢/kWh. For every 10,000 customers who sign up for the *Sunshine Energy* program, FPL will add 150 kW of solar capacity in Florida. FPL partners with Green Mountain Energy Company to market the program to its customers.

Fort Collins Utilities—Fort Collins Utilities has offered a wind energy product to its customers since 1996. In June 2004, the Colorado-based municipality recently lowered the premium charged for its *Wind Power Program* to 1.0¢/kWh from 2.5¢/kWh. The lower premium, guaranteed for 2004 and 2005, resulted from a decision to purchase wind energy certificates from the new, 144-MW Pleasant Valley Wind Energy Facility in southwest Wyoming—the utility is purchasing about 5% of the project output. In addition, Fort Collins continues to purchase power from Platte River Power Authority's Medicine Bow, Wyoming wind project. Residential customers can choose to buy \$5 or \$10 blocks of wind energy, or have their total energy use supplied with wind. Business customers can either purchase wind energy to meet their entire monthly electricity use or in 2,500-kWh blocks for \$25 per month.

Gainesville Regional Utilities—Gainesville Regional Utilities (GRU) offers a green power option to its approximately 82,000 residential and business customers in Florida. Under the *GRUgreen Energy* program, customers can purchase renewable energy for any portion of their electricity usage for an additional 2¢/kWh. Most of the power for the program (95%) is from a new 2.3-MW landfill gas facility in Alachua County. The remainder of the power is supplied from wind energy certificates and local solar systems.

Georgia Electric Membership Corporation—Twenty-eight member utilities of the Georgia EMC, which collectively serve about 1.2 million retail customers, offer a green power option to their residential and business customers. Under the *Green Power* program, residential customers of the electric cooperatives can sign up to purchase 150-kWh blocks of green power for an additional \$3 to \$5 each month (2¢/kWh to 3.33¢/kWh), depending on the participating EMC. Business customers can sign up for a percentage of their power use in proportion to their annual electricity use. Power for the program is supplied from two in-state landfill gas projects with a combined capacity of 5 MW, and a 2.3-MW, certified low-impact hydropower project located in Athens, GA. A portion of the program revenues goes toward research and development.

Georgia Power—In July 2003, the Georgia Public Service Commission approved a program through which Georgia Power would offer its 2 million residential and business customers an option to purchase 100-kWh blocks of green power for an additional \$5.50 per month or a premium of 5.5¢/kWh above the standard electricity rate. After several unsuccessful attempts to secure green power supplies at an acceptable price, the utility announced in July 2005 that it entered into a 10-year contract to purchase the output of a 3.2-MW landfill gas generating facility located in DeKalb County that is expected to be operational by the fall of 2006. The *Green Energy* product is available to residential customers in 100-kilowatt-hour blocks. Business customers must purchase a minimum of two blocks, 25 blocks, or 400 blocks, depending on their tariff category. Participating customers are required to subscribe for a minimum of one year. Billing will not begin until the green power supply becomes available.

Golden Valley Electric Association—Golden Valley Electric Association (GVEA), a rural electric cooperative which serves about 90,000 residents in the Fairbanks, Delta, Nenana, Healy, and Cantwell areas of Alaska, offers a green power option that allows its member customers to support the development of small, local renewable energy projects by paying an extra amount on their monthly electric bills. Under the *Sustainable Natural Alternative Power (SNAP)* program, customers can pick the amount of their monthly contribution, with a minimum two-dollar contribution required. The funds collected will be used to purchase the output of local renewable energy systems of 25 kW or less in size. Local producers can earn up to \$1.50/kWh for their power, depending on the level of contributions and the number of operating projects. The program is modeled after the *SNAP* program developed by Chelan County Public Utility District in Washington.

Grant County PUD—Grant County PUD, a public utility serving about 35,000 retail customers in central Washington, offers its customers a wind power purchase option. Under its *Alternative Energy Resources* program, customers can purchase 100-kWh blocks of wind power for an extra \$2 per month or 2.0¢/kWh. The power is supplied from the utility's 25% share of the 50-MW Nine Canyon Wind Project located in eastern Washington. Alternatively, customers may make a voluntary contribution in the form of a lump sum payment, which will be used to support development of alternative energy resources, such as solar and biomass.

Grays Harbor PUD—Grays Harbor PUD, which supplies electricity to about 32,000 residents of Grays Harbor County in western Washington, offers a renewable resource option through which its customers can purchase 100-kWh blocks of renewable energy for \$3, or a premium of

3¢/kWh. The power is supplied from the utility's 6-MW share of the 50-MW Nine Canyon Wind Project located in eastern Washington.

Great River Energy—Great River, formed in 1998 through the merger of Cooperative Power Association and United Power Association, offers the *Wellspring* renewable energy program to its 28 member distribution cooperatives in Minnesota and Wisconsin. The wind power is supplied from the 6-MW Chandler Hills and a second 6-MW wind farm located near Dodge Center, Minnesota. Great River makes the power available to its members with a suggested retail price premium of 1.5¢/kWh, but each distribution utility sets the wind energy premium for its customers.

Green Mountain Power—GMP, an investor-owned utility that serves one-quarter of the retail customers in Vermont, offers a monthly renewable energy service that enables customers to reduce greenhouse gas emissions by supporting the development of new renewable energy projects. Under the *CoolHome* program, customers can make tax-deductible donations of \$6 per month to Clean Air-Cool Planet (a nonprofit organization dedicated to finding solutions to global climate change), which, in turn, uses the donations to support development of new renewable energy projects through Vermont-based NativeEnergy. Program revenues are being used to support two 30-kW turbines fueled by methane gas from a wastewater facility in Vermont, a 750-kW wind turbine on the Rosebud Sioux reservation in South Dakota, and several farm methane projects in Vermont.

Hawaiian Electric—In 1996, HECO initiated a program to be funded in part with customer contributions with a minimum goal of installing 20 kW of PV systems on public school facilities. Customers can make voluntary, monthly fixed-dollar contributions or lump-sum contributions at any time. During its entire period of operation, the *Sun Power for Schools* program has supported the installation of 23.6 kW of PV at 20 schools.

Holy Cross Energy—Holy Cross, which serves more than 43,000 customers in Colorado's Roaring Fork Valley, offers its customers two different green power options. Under the *Wind Power Pioneers* program, customers can purchase 100-kWh blocks of Colorado-based wind energy at a rate premium of 2.5¢/kWh with the wind energy sourced from Xcel Energy. Under the *Local Renewable Energy Pool* program, customers can purchase green power generated locally by Holy Cross members operating small-scale hydroelectric facilities or photovoltaic systems in blocks of 75 kWh for \$2.50 per month, or a premium of 3.3¢/kWh.

Hoosier Energy—Hoosier Energy, a generation and transmission cooperative serving 17 distribution utilities in southern Indiana with nearly 700,000 customers, provides a green power option to its member cooperatives. Participating utilities offer the green option, *EnviroWatts*, to their retail customers at premiums ranging from \$2 to \$4 per 100-kWh block, or 2.0¢/kWh to 4.0¢/kWh. The green power is being supplied from an Indiana-based landfill gas project owned by Wabash Valley Power Association.

Idaho Power Company—Idaho Power Company, which serves 700,000 customers in southern Idaho, eastern Oregon, and northern Nevada, offers a green power program through which residential and business customers in Idaho can contribute a fixed dollar amount each month to

support the development of renewable resources in the Pacific Northwest through the purchase of RECs supplied by the Bonneville Environmental Foundation. Customer contributions are used exclusively to purchase renewable energy, with program overhead and marketing expenses funded from other sources. Although the green power contributions are not tied directly to the customer's electricity use, each \$3 contribution purchases the equivalent of 308 kWh of green power, which represents a renewable energy price of 0.97¢/kWh.

Indianapolis Power and Light Company—Indianapolis Power and Light Company (IPL) offers its residential customers, as well as commercial and industrial customers whose demand does not exceed 2,000 kilowatts, an option of purchasing 10%, 25%, 50%, or 100% of their monthly electricity use from renewable energy sources. The power to supply the program is sourced from outside the IPL service territory with the rate premium capped at 3.0¢/kWh.

Iowa Association of Municipal Utilities—About 80 municipally owned electric utilities in Iowa are participating in the Iowa Association of Municipal Utilities' (IAMU) umbrella green pricing program, *Green City Energy*, which gives customers the ability to support renewable energy development from sources such as wind, solar, and biodiesel. Some utilities allow customers to make one-time or monthly contributions, while other utilities offer customers the option of purchasing green power or renewable energy certificates. All electric utilities in Iowa are required by state law to offer a green pricing program to their customers.

Keys Energy Services—KEYS, a municipal utility serving 27,000 customers in the Florida Keys, offers green power to its residential and business customers. Under the GO GREEN program, customers can choose from two green power options. The first, called *Florida Ever Green*, is supplied from solar hot water heating systems (20%), photovoltaic systems (5%), and biomass facilities (75%) located in Florida. The utility offers \$10, \$25, and \$50 monthly purchase options for this product, which carries a 2.75¢/kWh premium price. The second option, called *USA Green*, is supplied from wind farms (50%), biomass facilities (45%), and photovoltaic systems (5%) sourced nationwide and is offered as \$10, \$15, and \$20 monthly purchase options, with a lower rate premium of 1.6¢/kWh. Both products are supplied by Sterling Planet and certified by Environmental Resources Trust. There is no minimum enrollment period for either product.

Lansing Board of Water and Light—Lansing Board of Water and Light, the municipally owned utility of Lansing, Michigan, offers its 97,000 residential and business customers an option to purchase 250-kWh blocks of green power for an extra \$7.50 per month, or a premium of 3.0¢/kWh. The power for the *GreenWise Electric Power* program comes from existing renewable energy projects: a landfill-gas facility in Lansing and two small-hydro facilities in Cheboygan County. Customers must subscribe for a minimum of three years.

Lewis County PUD—Lewis County PUD, a public utility serving about 27,000 customers in western Washington, offers its customers an optional *Green Power Rate*. Under the program, residential and business customers can purchase 100-kWh blocks of wind power for an additional \$2 each month, or 2¢/kWh. To supply the program, the utility is purchasing 1 MW of power from the 50-MW Nine Canyon Wind Project located near Kennewick, Washington.

Lincoln Electric System—In 1998 and 1999, Lincoln Electric System (LES) constructed two, 660-kW wind turbines on the northeast side of Lincoln, Nebraska, to supply its customers with a green power option. The utility accepts monthly donations of any whole dollar amount of \$5 or greater, with a minimum monthly contribution of \$4.30 to purchase the equivalent of about 100 kWh. Initially priced at 6.0¢/kWh, LES was able to reduce the wind energy premium to 4.3¢/kWh because of its eligibility for the Renewable Energy Production Incentive, available through the U.S. Department of Energy.

Los Alamos Department of Public Utilities—The City of Los Alamos (NM) Department of Public Utilities offers the *L.A. Green* through which customers can subscribe to purchase 100-kWh blocks of green power at a rate of \$1.80 per block (1.8¢/kWh) in addition to the regular electricity rate. Customers may also choose to subscribe to green power for 90% of their monthly electric consumption at the same premium rate of 1.8¢/kWh. Large Commercial Customers have several participation choices of 1%, 2%, 3%, 5%, 10%, 50% or 90% of monthly usage at the same 1.8¢/kWh rate. The initial green power supply will be sourced from the 204-MW New Mexico Wind Energy Center located in eastern New Mexico but the utility plans to purchase RECs from other qualified producers of renewable energy in New Mexico and elsewhere in the nation.

Los Angeles Department of Water and Power—Since 1999, the Los Angeles Department of Water and Power (LADWP) has offered the *Green Power for a Green L.A.* program, which gives customers the option to purchase green power for 100% of their electricity needs for 3¢/kWh. The minimum participation for residential and small nonresidential customers is 20% of their metered energy use; for medium or large nonresidential customers, the minimums are 500 and 1000 kWh per month, respectively. For residential customers, the extra cost is partially offset by free energy efficiency products and services provided by the utility—for example, LADWP currently gives two complimentary compact fluorescent bulbs to new green power customers. In 2003, program demand was met by existing small hydroelectric (52%), solar (0.1%), and biogas energy (38%), as well as a purchase of wind energy (10%). In 2004, program demand was met entirely by purchases of wind power, consistent with a stated goal that all future program supply come from newly developed local renewable resources and/or from open market renewable energy purchases.

Lower Valley Energy—Lower Valley Energy (LVE), an electric cooperative serving about 13,500 members in western Wyoming and southeastern Idaho, offers its residential and business customers a green power product supplied under an agreement with the Bonneville Power Administration. The renewable power comes from the Foote Creek Rim Wind Project in Wyoming and from other regional projects. Residential customers can purchase 300-kWh blocks of green power for \$3.50 each month, which represents a rate premium of 1.17¢/kWh, while commercial customers can purchase 1,500-kWh for \$17.50 per month (Partner Level) or 3,000-kWh blocks for \$35.00 per month (Champion Level). The utility lowered the premium by 30% from the initial level of 1.67¢/kWh by eliminating the administrative margin between what it pays for wind power and what it charges its members. Customers can sign up for as many blocks as they desire.

Madison Gas and Electric—Madison Gas and Electric (MGE), which serves 120,000 customers in and around Madison, Wisconsin, constructed an 11.22-MW wind farm in 1999 in northeastern Wisconsin with most of the output being marketed to customers as a green power option—a 3-MW portion of the project is being used to meet a state renewable energy mandate. The utility sells the power in 150-kWh blocks for \$5 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 businesses had enrolled, fully subscribing the program.

Mason County PUD No. 3—Mason County PUD No. 3, which serves 28,000 customers in western Washington, offers a wind energy option to its residential and commercial customers. Under the *Mason Evergreen Power* program, customers can purchase 100-kWh blocks of wind power for \$2 per month, or a premium of 2¢/kWh. Each block represents about 10% of an average residential customer's monthly electricity use. There is no limit on the number of blocks that can be purchased. Customers can enroll, change their participation level, or drop out of the program at any time. The green power is supplied from the utility's 2-MW share of the 64-MW, Nine Canyon Wind Project in south central Washington.

MidAmerican Energy—MidAmerican Energy offers a green power option to its nearly 600,000 Iowa-based residential and business customers. Under its *Renewable Advantage* program, customers can make one-time, periodic, or monthly contributions to support the development of new renewable energy resources. Customers can sign up to participate either by using a check-off box on their utility bill or via the utility's Web site. Minimum contribution levels are \$1.00 for both residential and commercial customers. The funds collected will be used to construct an additional wind turbine at the company's existing wind site. Once built, other renewable energy sources, such as solar or landfill gas projects, will be explored.

Midstate Electric Cooperative—Midstate Electric Cooperative, which serves about 12,000 member customers in central Oregon, offers its customers a green power product derived from a mix of low-impact hydroelectric resources and wind energy 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.

Minnesota Power—Minnesota Power, an investor-owned utility serving approximately 140,000 customers in Minnesota and Wisconsin, offers its Minnesota customers an option to purchase 100-kWh blocks of wind energy for an additional \$2.50 per month or 2.5¢/kWh. To supply the *WindSense* program, the utility has a 15-year agreement with Great River Energy to purchase half the output (about one MW) of three wind generators at the Chandler Hills Wind Farm in southwestern Minnesota. Customers must commit to their subscription level for at least one year.

Minnkota Power Cooperative—Minnkota Power Cooperative, a G&T cooperative that supplies wholesale electricity to 11 member-owner electric cooperatives in eastern North Dakota and northwestern Minnesota, and also serves as the operating agent for the Northern Municipal Power Agency, which serves 12 municipal utilities, offers its member distribution cooperatives and the municipals the option to purchase wind-generated power through a program called *Infinity Wind Energy*. Customers can purchase 100-kWh blocks of wind energy for an additional

\$1.50 per month or a premium of 1.5¢/kWh. The wind energy is provided from two, 900-kW wind turbines in North Dakota.

Missouri River Energy Services—Missouri River Energy Services (MRES), a joint-action agency providing wholesale power to 56 member municipal utilities in Iowa, Minnesota, North Dakota, and South Dakota, makes wind energy available to these utilities through the *RiverWinds* program. The power supply comes from four 900-kW wind turbines located outside of Worthington, Minnesota. Customers of participating utilities can purchase 100-kWh monthly blocks of wind energy for \$2 to \$2.50 per block (2.0¢/kWh to 2.5¢/kWh), depending on the utility. MRES also makes “green tags” available for 2.5¢/kWh to nonmember municipal utilities interested in developing green pricing programs for their customers.

Moorhead Public Service—Moorhead Public Service (Minnesota) has constructed two, 750-kW wind turbines to serve customers of its *Capture the Wind* green pricing program. Both turbines were constructed only after the utility had fully subscribed the wind energy output. The utility charges a premium of 0.5¢/kWh for 100% renewable energy—one-third of the energy is provided from the wind projects 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 all of their electricity as renewable energy or buy monthly blocks of 1,500 kWh. Moorhead State University purchases 83,000 kWh each month, representing more than half of the average output of one turbine. The program has been fully subscribed for several years.

Muscatine Power and Water—Muscatine Power and Water, a municipal utility serving 10,800 electricity customers in eastern Iowa, offers a green power option—*Solar Muscatine*—through which its residential customers can make monthly contributions of \$3, \$5, or \$7 to support the acquisition and installation of photovoltaic arrays in the community.

City of Naperville—The City of Naperville (Illinois) municipal utility partners with Community Energy Inc. to offer a green pricing program to its residential and commercial customers. The Naperville *Renewable Energy Option* product is supplied from a combination of wind energy (90%), small-hydro (5%), and solar energy (5%) procured from in-state sources, and is priced at a 2.5¢/kWh premium to the regular electricity rate. The minimum participation level is \$5.00 for the purchase of 200 kWh.

Nevada Power—As part of an order approving the acquisition of a new natural gas-fired power plant, the Public Utilities Commission of Nevada issued a requirement that Nevada Power propose a green pricing tariff in its 2005 general rate case. Under the tariff, customers would be able to make voluntary purchases of power from renewable energy resources and be protected from cost increases in fossil fuels used for power generation. The commission also ruled that any renewable energy sources developed under the program should be in addition to green power sources used to meet the state’s renewable portfolio standard.

New-Mac Electric Cooperative—New-Mac Electric Cooperative, which serves about 16,000 customers in Newton, McDonald, and Jasper counties, Missouri, offers its customers an option to purchase green power in 100-kWh blocks for an extra \$3 per month or 3¢/kWh. There is no limit to the number of blocks that can be purchased, but customers must make a 12-month commitment to purchase the same number of blocks each month. The power is provided through KAMO Electric Cooperative (KAMO Power), an Oklahoma-based G&T cooperative, which makes green power available to its member distribution co-ops. The power is supplied by Associated Electric Cooperative Inc. (AECI), which sources wind energy from Aquila's 110-MW Gray County Wind Farm located in southeastern Kansas.

City of New Smyrna Beach—The City of New Smyrna Beach (Florida) Utilities Commission offers its customers a green power contribution program through which customers can make monthly contributions of \$2, \$5 or \$10 per month to support the installation of solar electric systems at local public facilities. To date, the city has installed two PV systems at public sites totaling 9.8 kW, and nine residential solar systems.

NorthWestern Energy—NorthWestern Energy, which provides default service to 288,000 electricity customers in Montana, offers the *E+ Green* program through which residential and business customers can purchase an unlimited number of 100-kWh blocks of renewable energy each month for \$2 per block, or a premium of 2¢/kWh. Commercial and industrial customers that meet minimum purchase requirements can become *E+ Green Partners*, which makes them eligible for inclusion in program advertisements and entitles them to use the *E+ Green* program logo. The Bonneville Environmental Foundation (BEF) supplies the program with *Green-e* certified renewable energy certificates generated from wind and solar facilities located in the Pacific Northwest. BEF will also use program revenues to encourage new Montana-based renewable energy projects.

OG&E Electric Services—OG&E Electric Services, which serves about 700,000 retail electricity customers in Oklahoma and western Arkansas, offers 100-kWh blocks of wind power for an extra \$2 per month or 2.0¢/kWh. However, wind power subscribers are exempted from the utility's fuel adjustment charge, which reduces the effective wind power premium. In October 2005, the fuel adjustment charge amounted to 2.01¢/kWh, bringing the wind energy rate to parity with the utility's standard electricity rate. The wind energy is supplied from OG&E's 51-MW share of the Oklahoma Wind Energy Center project near Woodward, Oklahoma.

Oklahoma Municipal Power Association—Oklahoma Municipal Power Association (OMPA), a joint-action agency serving 35 municipally owned electric systems in Oklahoma, offers wind energy from its 51-MW share of the Oklahoma Wind Energy Center. The wind energy is offered to customers of member utilities in 100-kWh increments each month for \$1.80, or a rate premium of 1.8¢/kWh. The wind energy purchases are exempt from the utility's monthly fuel-cost charge. In October 2005, the fuel adjustment charge amounted to 2.01¢/kWh, moving the effective wind energy charge below that of the utility's standard electricity service.

Omaha Public Power District—Omaha Public Power District (OPPD) offers a green pricing option to its customers consisting of power generated from new wind and landfill gas resources at a price premium of 3¢/kWh. Residential customers can participate at one of four set levels,

ranging from \$4.50 to \$30 per month (150 kWh to 1,000 kWh per month), while commercial customers can obtain 25%, 50%, or 100% of their power needs through the program. The green power is supplied from a 660-kW wind turbine and a 3.2-MW landfill gas plant. Customers must agree to participate in the program for a minimum of one year. OPPD serves more than 280,000 customers in southeast Nebraska.

Orcas Power and Light Cooperative—Orcas Power and Light Cooperative (OPALCO), an electric cooperative serving Washington’s San Juan Islands, offers its customers a green power mix of low-impact hydropower and wind energy sourced from the Bonneville Power Administration at a price of \$3.50 per 100-kWh block, or a premium of 3.5¢/kWh. The utility uses a portion of the customer contributions to support the development of on-site renewable resources in its service territory. OPALCO “buys down” the cost of customer-owned systems and purchases the system output at above-market prices. OPALCO sends its green power subscribers an annual report that documents program facts and figures.

Oregon Trail Electric Cooperative—Oregon Trail Electric Cooperative (OTEC), which serves 25,000 members in eastern Oregon, offers a green power option under which customers can purchase 200-kWh blocks of wind power for an additional \$3 each month, or 1.5¢/kWh. To supply the program, the co-op has contracted with the Bonneville Power Administration and the Bonneville Environmental Foundation for wind power generated by facilities located in the Pacific Northwest. Participants must enroll for a period of one year.

Otter Tail Power Company—Otter Tail Power, an investor-owned electric utility serving nearly 250,000 customers in Minnesota, North Dakota, and South Dakota, offers its customers an option to purchase wind energy in 100-kWh blocks for an extra \$2.60 per month, or a rate premium of 2.6¢/kWh. The green power for the *TailWinds* program is supplied from a single, 900-kW wind turbine located along Buffalo Ridge in southwestern Minnesota. Customers must subscribe for a minimum of one year.

Pacific County PUD #2—Pacific County PUD #2, which serves about 15,000 residents of Pacific County, Washington, offers a green power program through which its residential and business customers can purchase 100-kWh blocks of green power for \$1.05 per month, or 1.05¢/kWh. There is no limit to the amount of green power that customers can purchase. The utility purchases the green power from the Bonneville Power Administration. BPA, in turn, gives a portion of the wholesale green power payment to the Bonneville Environmental Foundation to support the development of new renewable energy facilities in the Pacific Northwest.

PacifiCorp—PacifiCorp offers a wind energy tariff in 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 California, Idaho, Oregon, Utah, Washington, and Wyoming can purchase 100-kWh blocks of electricity from new wind projects for a monthly premium of \$1.95 per block or 1.95¢/kWh. Since the inception of the program, PacifiCorp has twice lowered the premium because of the improved economics of wind energy. And in August 2004, Utah Power introduced a variation on the *Blue Sky* program, which provides volume purchase discounts to commercial customers that purchase more than 10,000 kWh of wind energy each month for at least one year. The wind energy that PacifiCorp sells to its customers is supplied from wind

energy projects in the Pacific Northwest. Pacific Power customers in Oregon can also choose from two other green power products offered through the utility by a third-party supplier.

City of Palo Alto Utilities—City of Palo Alto Utilities (CPAU) offers its residential, commercial, and industrial customers a 100% renewable energy product sourced from newly constructed wind turbines located within the western power system and new California-based solar photovoltaic projects. Participating residential customers must sign up to receive 100% of their electricity use as green power while commercial customers can either receive 100% green power or purchase the green power in 1,000-kWh blocks. The additional cost for the green power is 1.5¢/kWh. The city partners with 3 Phases Energy Services on the design and operation of the program, and procurement of the renewable energy supplies. Within 18 months of unveiling the *PaloAltoGreen* program, the city announced that it had enrolled 10% of its customers as green power purchasers.

Park Electric Cooperative—Park Electric Cooperative, a distribution co-op serving nearly 3,500 customers in southwestern Montana, is offering a renewable energy option under which its customers can purchase renewable energy for all of their electricity needs at a premium of 1.2¢/kWh above standard rates. The program is supplied by the Bonneville Environmental Foundation with “green tags” derived from wind (>98%), solar (<1%), and biomass (<1%) energy projects located in the Pacific Northwest. Participating customers are required to enroll for a minimum of one year.

Pasadena Water & Power—Pasadena Water & Power (PWP) offers a “green power” option to its approximately 60,000 residential customers. Through the program, customers can purchase newly developed wind energy at a premium of 2.5¢/kWh. The utility has a long-term agreement with PPM Energy to purchase 6 MW of output from the 150-MW High Winds project located in Solano County, California. PWP is using the wind energy both to supply the green pricing program and to comply with a state law that requires public utilities to develop and implement a renewable portfolio standard.

Peninsula Light Company—Peninsula Light Company (PLC), an electric cooperative serving about 26,000 consumers in Gig Harbor, Washington, offers a program through which member customers can purchase green power in 100-kWh monthly blocks for an additional \$2.80, or 2.8¢/kWh. To supply the *Green by Choice* program, PLC purchases *Environmentally Preferred Power* from the Bonneville Power Administration. The power comes from the Foote Creek Rim wind project in Wyoming and the Packwood Lake hydro project in Washington. A portion of the wholesale green power payment goes to the Bonneville Environmental Foundation to support the development of new renewable energy facilities in the Pacific Northwest. In addition, PLC uses 25% of the green power revenue to support environmental education programs and the development of local renewable resources.

Platte River Power Authority—Platte River Power Authority (PRPA) supplies wind power for the green pricing programs of its four Colorado-based municipal utility members—Estes Park, Fort Collins (see above), Longmont, and Loveland—as well as to Tri-State G&T and the city of Aspen. PRPA has expanded its Medicine Bow, Wyoming, wind site several times to meet

growing customer demand for green power—the site now includes 11 turbines totaling nearly 8.5 MW of generating capacity.

PNGC Power—PNGC Power, formerly the Pacific Northwest Generating Cooperative, is a not-for-profit, private energy services cooperative owned by 15 electric cooperatives in the Pacific Northwest. PNGC owns and operates the 2.5-MW Coffin-Butte landfill gas generation facility in Benton County, Oregon. While the project output is shared proportionally among the member cooperatives, four Oregon-based members market 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 power premiums charged range from 1.8¢/kWh to 2.0¢/kWh.

Portland General Electric—Portland General Electric (PGE) customers have access to three different green power products: *Green Source*, which is a 100% renewable power option sourced from and marketed in partnership with Green Mountain Energy Company and which includes energy from certified low-impact hydropower facilities (25%), geothermal plants at The Geysers in California (25%), and new wind resources in the Pacific Northwest (50%); *Healthy Habitat*, which adds a \$2.50 monthly contribution for salmon habitat restoration to the *Green Source* product; and *PGE Clean Wind*, which consists of wind power from the Pacific Northwest. The pricing for the first two products is 0.8¢/kWh above the basic utility rates, while residential and small commercial customers pay a rate premium of 1.75¢/kWh for the *PGE Clean Wind* product.

Progress Energy—In 2003, the North Carolina Utilities Commission approved a stakeholder-developed plan to offer two green power products to utility customers statewide. The first product is a "mass-market" product consisting of a resource mix of new solar, wind, and methane from biomass that is offered to residential and small business customers at a cost of \$4.00 per 100-kWh block or 4.0¢/kWh. The contribution is tax deductible. The second product includes a resource mix of new and existing solar, wind, small hydro, and biomass and is offered to larger-volume customers at a price of \$3.00 to \$4.00 per 100-kWh block, depending on the purchase size. The green power products are offered by most of the state's electric utilities, including Dominion North Carolina Power, Duke Power, Progress Energy Carolinas, and many North Carolina electric cooperatives and municipalities. The program is administered by Advanced Energy, a Raleigh-based nonprofit research organization.

PSI Energy—PSI Energy, a subsidiary of Cinergy that serves more than 700,000 retail electricity customers in Indiana, offers its customers the ability to make monthly contributions to a fund to support the development of renewable resources. The revenues collected are used to purchase green power or to assist the utility's efforts to develop energy generated from environmentally friendly sources. To date, PSI has used funds collected to build an 8-kW PV system and a 10-kW wind system in Indiana.

Public Service Company of New Mexico—Under the *PNM Sky Blue* program, Public Service Company of New Mexico (PNM) residential and small-business customers can purchase 100-kWh monthly blocks of wind energy for an extra \$1.80, or a premium of 1.8¢/kWh. Large businesses can purchase wind energy for up to 90% of their electricity usage at the same rate of 1.8¢/kWh. Power for the program is supplied from the 204-MW New Mexico Wind Energy

Center near Fort Sumner, New Mexico. PNM also sells 50 MW of the wind project output to Salt River Project for its *EarthWise Energy* green pricing program.

Puget Sound Energy—Puget Sound Energy (PSE), an investor-owned utility serving more than 900,000 customers in western Washington State, offers its residential and business customers an option to purchase 100-kWh blocks of green power for an extra \$2 per month, or a 2.0¢/kWh premium on the regular rate. Participating customers must purchase a minimum of 200 kWh per month. PSE is teaming with the Bonneville Environmental Foundation to supply the program with power from new wind projects and other renewable resources in the Pacific Northwest.

Roseville Electric—Roseville Electric, a municipal utility in northern California, offers its 40,000 customers options to purchase a 50% renewables content product at a premium of 0.5¢/kWh, or a 100% renewables product for an additional 1.0¢/kWh, for all of their electricity needs. The green power is supplied from geothermal and small hydropower resources. In addition, customers can contribute an additional 1.0¢/kWh to a fund used to build new, renewable energy systems, such as PV systems installed on public facilities, within the city.

Sacramento Municipal Utility District—Sacramento Municipal Utility District (SMUD) offers the *Greenenergy* program, through which its customers can choose to obtain 50% or 100% of their electricity needs from renewable energy sources for an additional \$3 and \$6 per month, respectively, which represents a premium of 0.80¢/kWh for an average residential customer using 748 kWh per month. The power content of the 100% renewables product is 65% biomass and waste, 34% wind energy, and 1% small hydroelectric. The *Greenenergy* products are also *Green-e* certified.

City of St. Charles—In partnership with ComEd and Community Energy Inc., the City of St. Charles (Illinois) municipal utility offers its residents and businesses the ability to donate a fixed monthly amount to purchase renewable energy certificates from ComEd. The certificates represent the output of local renewable energy projects, including landfill gas and a 51-MW wind project to be constructed just north of Peoria.

City of St. George Energy Services Department—The City of St. George Energy Services Department, which serves about 24,000 meters in southwestern Utah, offers a green power option to its residential and business customers. Under its *Clean Green Power Program*, users of city power can purchase renewable energy in 100-kWh monthly increments for \$2.95 each, or a rate premium of 2.95¢/kWh. The power is supplied from the 144-MW Pleasant Valley Wind Project in Wyoming and the city-owned Pine Valley hydro project. Program revenues will be invested in additional green power sources.

Salt River Project—Salt River Project (SRP), a public utility that provides electricity service to 820,000 customers in the Phoenix metropolitan area, offers customers the *EarthWise Energy* product, which can be purchased in 100-kWh blocks for an additional \$3 per month or a premium of 3¢/kWh. The product is supplied from a broad mix of renewable resources, including landfill gas, low-impact hydropower, geothermal energy, wind energy and solar PV projects. SRP has entered into several purchase agreements for renewable power including: a five-year contract to purchase 50 MW of wind power from Public Service Company of New

Mexico (PNM); a five-year agreement to purchase 25 MW of geothermal power from plants operating in California's Imperial Valley; and a 10-year agreement to purchase 10 MW from a 15 to 20-MW wood-fired power plant to be built near Snowflake, AZ in 2008.

City Public Service of San Antonio—City Public Service of San Antonio (CPS), the municipal electric utility serving more than 550,000 customers in San Antonio, Texas, offers a wind power option to the city's retail electricity customers. The wind energy is available in 100-kWh blocks for an additional \$3 per month, or a premium of 3.0¢/kWh. Customers are not contractually bound to the program and can enter or leave the program, or change their purchase levels at any time. The power for the *Windtricity* program comes from the 160.5-MW Desert Sky Wind Project in West Texas, from which CPS purchases the entire output.

Santee Cooper—Santee Cooper, a state-owned electric and water utility in South Carolina, sells green power derived from landfill gas plants to its customers and member utilities for a premium of 3.0¢/kWh, with all program revenues to be reinvested in development of additional renewable resources or facilities. Through the program, residential customers can purchase the green power in 100-kWh blocks, small commercial customers in 200-kWh blocks, and large business customers in blocks of 1,000 kWh. Santee Cooper serves 126,000 direct customers in Horry, Georgetown, and Berkeley counties. The utility also supplies power to 15 of the state's 20 electric cooperatives serving 437,000 customers in 38 counties and directly serves 34 industrial customers in 11 counties.

Savannah Electric—In July 2003, Savannah Electric received regulatory approval to offer its residential and business customers the option to purchase 100-kWh blocks of green power for an additional \$6 per month or a premium of 6.0¢/kWh above the standard electricity rate. Monthly minimum purchase requirements are one block for residential customers, three blocks for small nonresidential, 100 blocks for medium nonresidential, and 400 blocks for large nonresidential. The initial supply source for the green power will be landfill gas generation. All participating customers are required to subscribe for a minimum of one year. Savannah Electric serves 320,000 people in a five-county area of Georgia.

Seattle City Light—In July 2005, Seattle City Light unveiled a new program through which customers can purchase renewable energy certificates equivalent to a portion or all of their electricity use. Initially, the *Green-Up* program will offer wind energy certificates supplied from the Stateline Wind Project at a rate premium of 1.5¢/kWh—the utility has a 20-year agreement with PPM Energy to purchase 175 megawatts of wind energy from the project. In the future, the program may also be supplied from biomass and landfill gas projects. The utility plans to use the net program revenues to make additional purchases of renewable energy from new facilities. Since 2002, Seattle City Light has offered the voluntary *Seattle Green Power* program through which customers can make contributions to support the development of smaller-scale, local, or regional renewable energy projects.

Silicon Valley Power—Silicon Valley Power (SVP), the municipal electric utility of the City of Santa Clara, CA, offers a program—*Santa Clara Green Power*—through which residential, commercial, and industrial customers can choose to receive 100% renewable energy for a premium of 1.5¢/kWh. The product is supplied with renewable energy credits from newly

constructed wind turbine facilities and new solar photovoltaic projects located within California. Additionally, a portion of the program revenues are used to support new solar facilities in the Santa Clara community. SVP is partnering with 3 Phases Energy Services, a California-based renewable energy company, to develop and manage the renewable energy purchases and marketing on behalf of the City.

Snohomish County PUD—Snohomish County PUD offers its 260,000 residential and business customers a voluntary program, *Planet Power*, through which they can purchase 150-kWh blocks of electricity generated from renewable energy sources for an additional \$3 per month, or 2.0¢/kWh. Each block represents about 15% of an average residential customer’s monthly use. There is no limit on the number of blocks that can be purchased, and customers can enroll or discontinue their participation at any time. The utility has contracted with the Bonneville Environmental Foundation to supply renewable energy certificates representing output from new wind energy projects in the Pacific Northwest.

Southern Minnesota Municipal Power Agency—Southern Minnesota Municipal Power Agency (SMMPA), the wholesale power supplier for 18 municipal utilities in southern Minnesota, supplies wind energy to its member utilities from two 950-kW wind turbines installed in 2003. Residential and business customers can purchase the wind energy through the member utilities for \$1 per 100-kWh block or a premium of 1.0¢/kWh. SMMPA was able to lower the price from an initial premium of 2.9¢/kWh because the cost of power from the turbines was less than expected. The lower costs resulted from a combination of strong winds, the efficiency of the turbines, and the ability to avoid costly transmission charges and losses by siting the turbines close to the distribution lines of Fairmont Public Utilities, which is a SMMPA member.

Southern Montana Electric G&T Cooperative—Five members of the Southern Montana Electric G&T Cooperative—Fergus Electric, Yellowstone Valley, Bear Tooth Electric, Mid Yellowstone, and Tongue River—offer their customers a green power option at a price premium of 1.05¢/kWh. Under the program, most of the co-ops offer the power in 100-kWh blocks, however, at least one co-op allows its customers to purchase green power for all of their electricity usage. The programs are supplied by Southern Montana with purchases of the Bonneville Power Administration’s Environmentally Preferred Power product, which is a blend of new and existing wind and low-impact hydro.

City Utilities of Springfield—City Utilities of Springfield, Missouri, offers a wind power option to its residential and business customers. Participants can purchase 100-kWh blocks of wind power for \$5, or 5¢/kWh and must agree to participate for a minimum of one year. The wind power is sourced from a Kansas wind farm.

Tacoma Power—Tacoma Power, which serves more than 140,000 customers in the state of Washington, offers its customers an option to purchase a blend of low-impact hydro and wind power supplied by the Bonneville Power Administration in partnership with the Bonneville Environmental Foundation. Residential customers can participate by paying an extra \$3, \$6, or \$10 each month. Business customers have additional purchase options. The effective premium charged for the power is 1.5¢/kWh.

City of Tallahassee—The City of Tallahassee municipal utility offers residential and business customers three different products and blends of green power. The *Wind Plus* product is a nationally sourced blend of 55% wind, 25% bioenergy, 15% hydro, and 5% solar, and carries a price premium of 1.85¢/kWh. The *Tallahassee Blend* is a mix from 80% hydropower and 20% solar from local sources and is priced at 2.5¢/kWh above the standard rate. And the *Pure Solar* product is 100% from local or other in-state solar sources with a premium of 11.6¢/kWh. Each product has monthly payment options of \$10, \$15, or \$20. All three products are supplied in partnership with Sterling Planet, a Georgia-based green power marketer.

Tampa Electric Company—Tampa Electric Company (TECO), an investor-owned utility serving more than 500,000 customers on Florida's west coast, offers customers an option to purchase 100-kWh blocks of green power for \$5 or a price premium of 5¢/kWh. Power for the program is sourced from local solar and landfill gas projects, and through co-firing biomass waste materials in existing coal-fired generating units.

Tennessee Valley Authority—Tennessee Valley Authority (TVA) offers the *Green Power Switch* program through which customers of TVA-supplied distribution companies can purchase 150-kWh blocks of renewable energy for an extra \$4 per month, or a premium of about 2.67¢/kWh. Power for the program is supplied from a mix of wind energy, landfill gas, and solar energy from PV systems installed at public facilities throughout the TVA region. In December 2004, TVA completed the expansion of its Buffalo Mountain Wind Park with the addition of 15, 1.8-MW wind turbines, bringing the total installed capacity to 29 MW. Three, 660-kW turbines have been in operation at the site since 2000. Eighty-five of TVA's 159 distributors currently offer the program to their customers. The program has also received *Green-e* accreditation from the Center for Resource Solutions.

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 constructed 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 municipal utility has not expanded the program.

Tri-State G&T Association—Tri-State, a G&T cooperative serving 44 rural electric systems, provides a green power product to its member distribution systems based in Colorado, Wyoming, and Nebraska. Tri-State offers the green power to its member systems in 100-kWh blocks at a rate premium of 2.5¢/kWh. The program is supplied primarily through purchases from wind energy facilities and small hydropower projects.

Tucson Electric Power Company—Tucson Electric Power Company (TEP), an investor-owned utility serving more than 350,000 customers in southern Arizona, offers its customers an option to purchase 20-kWh blocks of energy tied to the use of landfill methane at the company's Irvington Generating Station. Customers pay \$2 (10¢/kWh) per month for the first block purchased and \$1.50 (7.5¢/kWh) for all subsequent blocks. The customer funds collected are invested in the construction and operation of solar electric generating facilities in Arizona.

Unisource Energy Services—Unisource Energy Services (UES), an investor-owned utility providing electric service to about 77,000 customers in Arizona, gives customers the option to sponsor one watt (20 kWh) of solar power generation by contributing \$2 each month, or 10¢/kWh. Each additional watt or 20-kWh block of green power is priced at \$1.50 per month, or 7.5¢/kWh. Proceeds from the *GreenWatts* program will be used to build new solar power projects in communities served by UES. Until UES can establish its own sources of renewable energy, a portion of the customer contributions will be used to purchase green power “credits,” or renewable energy certificates, from other sources.

Upper Peninsula Power Company—Upper Peninsula Power Company (UPPCO), a subsidiary of WPS Resources Corporation, offers a renewable energy option to its more than 50,000 electric customers in the Upper Peninsula of Michigan. Under the *NatureWise* program, customers can purchase renewable energy in 100-kWh monthly increments for \$4.00 each, or a rate premium of 4¢/kWh. Currently, UPPCO purchases power generated from wind, landfill gas, and animal waste methane resources from its sister utility, Wisconsin Public Service. As more UPPCO customers enroll in the program, UPPCO will add renewable generation to the mix and consider purchasing from generating sources in the Upper Peninsula. Customers may purchase as many blocks as they wish and there is no minimum enrollment term.

Vigilante Electric Cooperative—Vigilante Electric Cooperative, which provides electricity service to about 4,500 members in nine southwestern Montana counties, offers its residential and nonresidential customers an option to purchase 100-kWh blocks of green power for an extra \$1.10 each month, or to meet their entire monthly electricity use with green power at the same premium of 1.1¢/kWh. The green power is supplied by the Bonneville Power Administration from wind, hydro, and solar projects in Oregon, Washington, and Wyoming.

Wabash Valley Power Association—Wabash Valley, a G&T cooperative serving 24 member distribution systems in Indiana, Michigan, and Ohio, offers customers of its member cooperatives the option to purchase green power generated from seven landfill gas facilities across the state of Indiana totaling about 22 MW of capacity. The distribution companies participating in the program are offering the green power at price premiums ranging from 0.5¢/kWh to 1.0¢/kWh.

Waverly Light and Power—Waverly Light and Power (WLP), a municipal electric utility serving 4,300 customers in northeast Iowa, developed a new green pricing option for its customers. Under its *Green Power Choice* program, customers can make contributions to support the development of renewable energy sources in Waverly. The minimum contribution is \$2 per month and all contributions are tax deductible. Since 2001, WLP has been selling wind power certificates under its *Iowa Energy Tags* program. Each “tag” represents 2,500 kWh of wind power output and is priced at \$50, or 2.0¢/kWh. The tags are sourced from three wind turbines owned and operated by the utility—one 900-kW turbine located north of Waverly and two 750-kW turbines located near Alta, Iowa. Revenues from the certificate sales are used to develop additional wind projects.

We Energies—Since 1996, We Energies, formerly Wisconsin Electric, has offered an optional renewable electricity service under which its customers can choose to receive 25%, 50%, or 100% of their power from renewable energy sources at a premium of 2.04¢/kWh. The renewable energy supply is a mix of wind energy, small hydropower, and landfill-gas generation and the program has received *Green-e* accreditation from the Center for Resource Solutions.

In fall 2005, We Energies announced two enhancements to its *Energy For Tomorrow* renewable energy program: an experimental buy-back rate for customer-sited solar PV systems and a bulk purchase rate for large business customers. Under the three-year solar buy-back pilot, We Energies will purchase the entire output of customer-sited PV systems sized between 1.5 kW and 100 kW at a rate of 22.5¢/kWh for 10 years, up to a total installed capacity of 500 kW. The solar output will be used to supply the *Energy for Tomorrow* program and solar system owners must be enrolled in the program to be eligible for the payments. The utility also lowered the cost of renewable energy for larger purchases made by nonresidential customers. Under the new tariff, customers who purchase more than 70,000 kWh of renewable energy per month will pay a premium of 1.5¢/kWh compared to the base premium of 2.04¢/kWh.

Western Farmers Electric Cooperative—Western Farmers Electric Cooperative (WFEC), an Oklahoma-based G&T cooperative, offers a wind energy option to approximately 400,000 retail customers in the state through its 19 distribution cooperatives. Under the *WindWorks* program, the co-ops offer wind energy certificates to residential and commercial customers in 100-kWh monthly blocks for \$0.50 each, or a price premium of 0.5¢/kWh. There is no minimum period of enrollment. The certificates are supplied from the 74.25-MW Blue Canyon wind energy project located in southwestern Oklahoma.

Wisconsin Public Power Inc.—Wisconsin Public Power Inc. (WPPI), which supplies wholesale power to 32 municipal utilities in Wisconsin, offers a green energy option to retail customers of participating distribution utilities. Residential and business customers can purchase 150-kWh blocks of green power for \$3 a month, or 2¢/kWh. The power comes from a mix of wind energy, low-impact hydropower, and small, local digester gas facilities. WPPI owns two wind turbines near Worthington, Minnesota, with a combined generating capacity of 1.8 MW, the output of which has been fully subscribed by the program. In 2004, WPPI contracted to purchase 40 MW of wind energy from a new project to be built near Waupun, Wisconsin, that will provide additional wind energy for its program.

Wisconsin Public Service Corporation—Wisconsin Public Service Corporation (WPS) offers two green power programs to its more than 400,000 customers in northeastern and central Wisconsin. Under the *SolarWise for Schools* program, WPS customers can make tax-deductible donations that 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, and also receive a renewable energy curriculum. The utility also offers the *NatureWise* program, under which customers can purchase 100-kWh blocks of green power for \$1.86, or 1.86¢/kWh—the premium was reduced by 30% in January 2005. The power is supplied from a combination of Wisconsin-based wind turbines and generation systems utilizing methane from landfill and farm waste resources. The tariff program has received *Green-e* accreditation from the Center for Resource Solutions.

Xcel Energy—In 1993, Xcel Energy established a green pricing contribution program for its Colorado-based customers. Through the *Renewable Energy Trust*, customers could either make fixed contributions or use a bill “roundup” option to support utility investments in renewable energy. Through the trust, Xcel has deployed more than 60 PV projects, including 40 kW of off-grid PV systems and more than 60 kW of school-based systems.

In 1997, Xcel introduced the *Windsource* program in Colorado, which offers customers an option to purchase 100-kWh blocks of wind energy at a base price of \$2.50 per month or a rate premium of 2.5¢/kWh. Customers can also receive their entire monthly electricity consumption from wind energy. Colorado-based *Windsource* customers are exempted from the utility’s energy cost adjustment (ECA), which has led to a steady decline in the effective premium paid for the *Windsource* product as fuel prices have risen. In October 2005, Xcel filed with the Colorado Public Utilities Commission for an ECA adjustment, which if approved, will provide *Windsource* customers with a *savings* of 1.55¢/kWh against standard electricity service. Because of growing customer demand over time, Xcel has expanded its Colorado-based wind energy supply to more than 60 MW, from which it also supplies a number of other utility programs.

Xcel has also installed 2 MW of wind to serve its New Mexico-based customers—the wind energy is priced at a premium of \$3 per 100-kWh block, or 3¢/kWh. Customers can purchase as few or as many blocks of wind energy as desired, up to their total monthly consumption. And, in early 2003, Xcel launched the *Windsource* program for its 1.1 million Minnesota-based customers, giving these customers the option to purchase 100-kWh blocks of wind power for \$2 each, or a premium of 2¢/kWh. Xcel supplies the program primarily from small wind power projects in Minnesota.

Yampa Valley Electric Association—Yampa Valley, which serves Steamboat Springs and several other cities in northwestern Colorado, offers its customers an option to purchase 100-kWh blocks of wind power for 3¢/kWh. Yampa Valley sources the supply from Xcel Energy’s Ponnequin wind site in northern Colorado.

Competitive Green Power and Renewable Energy Certificate Marketing

Green power marketing refers to the sale of green power in competitive markets, where multiple suppliers and service offerings generally exist. Currently, marketers offer green power products to retail customers in 10 states—Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island, Texas, and Virginia, as well as Washington, D.C. (for a summary of retail green power products, see **Table A-3**).

Renewable energy certificates (RECs)—also known as green tags or tradable renewable certificates (TRCs)—represent the unique attributes of electricity generated from renewable energy sources and are often sold separately from the commodity electricity. For a summary of retail REC products, see **Table A-4**.

This section presents information on retail green power marketers and REC suppliers, utility/marketer partnerships, selected wholesale green power providers, and REC brokers.

RETAIL GREEN POWER AND REC MARKETERS

3 Phases Energy Services—3 Phases is a registered energy service provider in California, where it markets power generated from renewable energy sources to residential and business customers under its *Green Direct* program. The company also offers green certificates supplied from new wind resources for approximately 2¢/kWh. The certificates can be purchased on a monthly or annual basis. The company's Web site includes an “environmental footprint calculator,” which helps potential customers calculate the number of certificates that would be required to offset the carbon emissions associated with an individual's annual household energy use and transportation requirements. 3 Phases supplies RECs to a number of large nonresidential customers, including the U.S. Environmental Protection Agency (EPA), Safeway, HSBC Bank, and Kinko's. The company also supplies renewable energy and marketing services for green pricing programs offered by utilities including PacifiCorp, the City of Palo Alto, and Silicon Valley Power.

APS Energy Services—In June 2005, APS Energy Services entered into a six-month contract with the University of California (UC) and California State University (CSU) systems to supply the universities with renewable energy for 15% of their electricity needs. Under a six-month contract, UC and CSU will purchase 39,000 MWh and 34,000 MWh, respectively, of RECs consisting of wind (86%) and landfill gas (14%) resources. The RECs are supplied by 3 Phases Energy Services under a wholesale agreement with APS Energy Services.

Bonneville Environmental Foundation—Bonneville Environmental Foundation (BEF), an independent nonprofit foundation established in 1998 by regional environmental groups and the Bonneville Power Administration, markets green tags sourced from renewable energy projects primarily in the Pacific Northwest. The revenues generated from the certificate sales are used to fund projects that restore damaged watersheds and support new renewable energy projects utilizing solar, wind, and biomass resources. Through its Web site, BEF offers Cooler Future Green Tags supplied from wind (99%) and solar (1%) in 1000-kWh increments for \$20, or a

price premium of 2¢/kWh. It recently introduced Brighter Future Green Tags, which have a higher percentage of solar (10%) and are priced at 2.4¢/kWh. It also wholesales green tags to a number of utilities in the West and to a variety of large nonresidential customers, including White Wave, Interface Fabrics Group, and a number of ski areas. Along with new wind energy resources, BEF funds have supported the development of more than 200 kW of solar energy projects in the region.

Cape Light Compact—An aggregator serving 185,000 residents of the 21 towns in Cape Cod and Martha's Vineyard (Massachusetts), the Cape Light Compact is offering two green power purchase options to its members. Under the Cape Light Compact Green program, customers can purchase 100% of their electricity from renewable energy sources including run-of-the-river hydro (75%), landfill gas or wind (24%), and solar (1%) at a premium of 1.8¢/kWh over the Compact's standard electricity product. Alternatively, customers can choose a 50% renewable energy option at a premium of 2.3¢/kWh for the green power portion. Initially, 25% of the product will come from “new” renewable resources. A portion of the renewable energy premium can be deducted from federal taxes. Additionally, the state will match up to 75% of the premium to provide funds for community-based, renewable energy projects and similar initiatives for low-income residents across the state.

Center for Ecological Technology—The Center for Ecological Technology (CET) has teamed with three other nonprofit suppliers of renewable energy in New England to market a single green power product to residential and small commercial customers in the region. Under the agreement, CET, Mass Energy Consumers Alliance, People's Power & Light, and Conservation Services Group (CSG) are offering New England GreenStart, a 100% renewable energy product sourced from New England-based resources and currently consisting of small hydro (75%), biomass (19%), wind (5%), and solar (1%). Going forward, CET will focus on marketing New England GreenStart in western Massachusetts and helping to secure new renewable energy sources from that area.

Clean and Green—In 2005, Boulder, Colorado-based Clean and Green began offering a *Green-e* certified REC product sourced from municipal and community-based wind energy projects nationwide. The company offers the RECs to residential customers in 300 kWh increments for about 3¢/kWh.

Clean Energy Partnership—The Clean Energy Partnership, a Maryland-based nonprofit that organizes businesses to support solutions to global warming and air pollution, has teamed with Community Energy and Sterling Planet to offer its members green power options. Under the program, participating businesses can choose among three options: wind energy generated in the Mid-Atlantic; wind energy generated nationally; and a blend of 75% biomass, 24% wind, and 1% solar. Discounts are provided for members and for larger-volume purchases.

Commerce Energy (electricAmerica)—A subsidiary of Commerce Energy, electricAmerica continues to provide renewable electricity service to some customers in California. In March 2004, the company renewed its contract with the City of Santa Monica to provide about 5 MW of renewable energy to meet 100% of the electricity needs at the city's municipal facilities.

Community Energy Inc.—Community Energy Inc. (CEI) is a Pennsylvania-based, for-profit corporation that markets wind energy certificates in New York, the Mid-Atlantic, Illinois, and Colorado. CEI builds customer demand to support identified wind energy projects in the customer's region and contracts for the supply under long-term arrangements with wind developers and other suppliers.

CEI has teamed with a variety of utilities and marketers to offer its *New Wind Energy* products to retail customers in the Northeast (see **Utility/Marketer Partnerships**). The company participates in default utility green power programs in Connecticut, New Jersey, New York, Massachusetts, and Rhode Island. CEI has also independently teamed with utilities such as New York State Electric and Gas (NYSEG), Rochester Gas & Electric, and PECO Energy to offer wind energy supplied from local wind projects. It also markets wind energy to customers in New York City, Philadelphia, and the Washington, D.C., area through cooperative marketing agreements with ConEdison Solutions, the Energy Cooperative Association of Pennsylvania, and Washington Gas Energy Services. In addition, CEI acts as a wholesale supplier. Its marketing partnerships have supported the development of more than 200 MW of new wind generation and it has wind projects under development in Illinois, Pennsylvania, New Jersey, New England, and other states east of the Mississippi River.

ConEdison Solutions—ConEdison Solutions, an unregulated subsidiary of Consolidated Edison that provides electricity service to residential and small business customers in the New York City region, teams with Community Energy Inc. to offer green power. The ConEdison Solutions *GREEN Power* product is a *Green-e* certified blend of New York-based wind (25%) and hydropower (75%) offered at a premium of 0.5¢/kWh compared to the company's standard electricity rate. The power is supplied from the 30-MW Fenner Windpower Project and small, run-of-the-river hydropower facilities. The offering is available to all residential customers in the ConEdison and Orange and Rockland service territories. The company also offers a nonresidential wind energy offering in conjunction with Community Energy that is priced according to the volume purchased.

Conservation Services Group—Conservation Services Group (CSG) has teamed with three other nonprofit suppliers of renewable energy in New England to market a single green power product to residential and small commercial customers in the region. Under the agreement, CSG, Mass Energy Consumers Alliance, People's Power & Light, and CET are offering New England GreenStart, a 100% renewable energy product sourced from New England-based resources and currently consisting of small hydro (75%), biomass (19%), wind (5%), and solar (1%). Going forward, CSG will concentrate on its wholesale market activities, including building new PV plants throughout Massachusetts and Rhode Island, many of which will be supported by *New England GreenStart* customers.

In addition, CSG offers a *Green-e* certified REC product called ClimateSAVE that is currently supplied from wind and solar facilities in New York and Kansas.

Constellation NewEnergy—Constellation NewEnergy offers renewable energy options to medium and large commercial and industrial companies in New England and other regions of the United States. Working in conjunction with Maine PowerOptions, a not-for-profit consortium

that serves as an aggregator for the state's governmental and nonprofit organizations, Constellation NewEnergy contracted to supply renewable energy to a number of facilities in Maine. It also supplied green power for both the Republican and Democratic national conventions.

Direct Energy—In summer 2005, Direct Energy Inc. began offering renewable energy purchase options to retail customers in Texas. Its *Pure Texas Wind Plan* is a 100% renewable energy product offered at a fixed price for one year. A second option, the *Clean Texas Wind Plan*, is a 50% renewable energy product offered at a 2% guaranteed savings to the “Price-to-Beat.” Direct Energy currently serves about 900,000 customers in Texas. In June, the company signed a long-term power purchase agreement with AES Corp. for the output of the 120-MW Buffalo Gap Wind Farm located near Abilene, Texas.

EAD Environmental—EAD Environmental is a New York City-based marketer of RECs and greenhouse gas credits. Via the Internet, the company markets a 100% wind energy REC product for 1.5¢/kWh and a small hydro option for 1.2¢/kWh. The company is a subsidiary of Natsource, a broker of emissions credits and RECs serving wholesale markets. It supplies green power to a number of nonresidential customers, including Connecticut College, Harvard, and the University of Southern Maine.

Energy Cooperative of New York—Energy Cooperative of New York (ECNY), a Buffalo-based nonprofit organization, offers a green power option to residential electric customers in the Niagara Mohawk service territory. The renewable energy for the product is sourced from wind (25%) and landfill gas (75%) generation facilities within New York state. ECNY customers pay a premium of about 1¢/kWh for the green power but save about 0.5¢/kWh by switching to ECNY service. The green power charge appears on the customer's regular Niagara Mohawk bill.

Energy Cooperative Association of Pennsylvania—Energy Cooperative Association of Pennsylvania (ECAP), a 20-year-old, Philadelphia-based fuel oil cooperative, offers a *Green-e* certified product to its members. The *EcoChoice 100* renewable energy product consists of nearly 90% landfill gas, 10% new wind energy, and a small fraction of solar. ECAP purchases the solar energy from members who own photovoltaic systems. ECAP's green power product is available only in the PECO service territory. ECAP also offers its members a wind power option in collaboration with Community Energy. The product, called *New Wind Energy*, is sold in 100-kWh blocks at an extra cost of \$2.50 per block or 2.5¢/kWh.

EnviroGen—Based in Buffalo, New York, EnviroGen participates in both the Niagara Mohawk *GreenUp* program and the Long Island Power Authority *LIPA Green Choice Program* (see **Utility/Marketer Partnerships**). In both programs, the company offers a product supplied from a blend of 75% biomass and 25% small hydro resources at a premium of 1.0¢/kWh.

Gexa Energy—In spring 2005, Gexa Energy began offering green power to residential and commercial customers in Texas, as well as to commercial customers in Massachusetts and New York. In the Houston market, the price for the company's “Gexa Green” renewable energy product is 0.5¢/kWh more than for the company's conventional power product. The power for the renewable energy offering is sourced from wind, solar, and hydroelectric sources. Gexa

currently serves approximately 800 megawatts of load associated with more than 100,000 small commercial and residential customers throughout Texas.

Green Mountain Energy Company—Based in Austin, Texas, Green Mountain Energy Company provides its brand of clean electricity products to about 600,000 customers in California, New Jersey, New York, Ohio, Oregon, Pennsylvania, and Texas. . Green Mountain offers a 100% wind energy product in Texas; but, in most other states, the company markets renewable energy blends from sources such as landfill gas, small hydro, wind, and solar. In Ohio, Green Mountain serves a number of municipal aggregation groups with electricity generated primarily from natural gas facilities, with a small percentage from renewable sources (2%). The company also offers *Green-e* certified RECs products to commercial customers nationally. In addition, the company administers and markets green power products offered through utilities in Florida, Ohio, Oregon, New Jersey, and New York.

Green Mountain's market activities have resulted in the development of more than 170 MW of new renewable energy projects, including a 160-MW wind project in west Texas, wind projects in California and Pennsylvania, and commercial-scale photovoltaic systems in most of the states in which the company operates. Green Mountain has financial backing from Nuon (one of the largest electric utilities in the Netherlands) and BP Amoco.

Jersey-Atlantic Wind—Jersey-Atlantic Wind participates in the New Jersey CleanPower Choice program, which began October 1, 2005. Under the program, the company is offering a blend of New Jersey-based wind (50%) and low-impact hydro (50%) at a premium of 2.9¢/kWh. The company is also offering a 100% New Jersey-based wind product in 100-kWh monthly increments for \$5.50, or a premium of 5.5¢/kWh.

Levco Energy—In March 2005, Levco Energy, a Norwalk, Connecticut-based heating oil and energy provider, began offering a 100% renewable energy product to residential customers in the Connecticut Light and Power service territory at the same cost as standard-offer service. Levco's 100% Renewable Program consists of RECs sourced 98.5% from state-defined Class II resources, such as existing waste-to-energy, biomass, or hydro facilities, and 1.5% from Class I resources, such as new solar, wind, fuel cells, and landfill gas.

Maine Interfaith Power & Light—In fall 2004, Maine Interfaith Power & Light introduced two new green power offerings sourced from zero-emission renewable energy resources, which replace and improve upon its initial green power offering launched in January 2003. The first new product, Green Supply II, is sourced from the Worumbo hydropower facility in Lisbon Falls, Maine, which is the only small hydropower dam in the state certified as low-impact by the Low Impact Hydropower Institute. The product is priced at 1¢/kWh above the standard offer rate. The second offering, Green Supply Plus, couples electricity from the Worumbo hydropower facility with 20% new wind electricity and is priced at 1.5¢/kWh above the standard-offer rate.

Mass Energy Consumers Alliance—Mass Energy Consumers Alliance (Mass Energy) has teamed with three other nonprofit suppliers of renewable energy in New England to market a single green power product to residential and small commercial customers in the region. Under the agreement, Mass Energy, People's Power & Light, CSG, and CET are offering *New England*

GreenStart, a 100% renewable energy product sourced from New England-based resources and currently consisting of small hydro (75%), biomass (19%), wind (5%), and solar (1%). Going forward, Mass Energy and People's Power & Light will continue to provide overall administration and management of *New England GreenStart*, as well as oversee the development of a marketing and outreach campaign to support the retail green power market.

Mass Energy also offers a REC product called *New England Wind*, which is available to customers throughout New England. The product is sold in 2-MWh blocks at a cost of \$100, or a premium of 5¢/kWh. Customers purchasing *New England Wind* do not switch electricity providers but continue to pay their standard monthly electricity bill. Mass Energy supplies the product from a 660-kW wind turbine located in Hull, Massachusetts.

NativeEnergy—*NativeEnergy* offers a program that enables individuals and businesses to support the development of new wind and biomass projects through the advance purchase of long-term streams of renewable energy credits, including the associated carbon dioxide (CO₂) offsets. The *NativeEnergy* program has directly supported the development of a 750-kW wind turbine on the Rosebud Sioux Indian Reservation in South Dakota and a small wastewater methane facility in New England. The company is assisting in the development of a 10-MW wind project on the Rosebud Sioux reservation, as well as farm-based methane projects in Pennsylvania and Vermont. In summer 2005, the nonprofit Intertribal Council On Utility Policy (COUP) announced that it had acquired a majority interest in *NativeEnergy* on behalf of its member tribes.

People's Power & Light—A Rhode Island-based nonprofit supplier of renewable energy, People's Power & Light has combined forces with three other New England-based green power marketers to market a single green power product to residential and small commercial customers in the region. Under the agreement, People's Power & Light, Mass Energy, Conservation Services Group (CSG), and the Center for Ecological Technology (CET) are offering *New England GreenStart*, a 100% renewable energy product sourced from New England-based resources and currently consisting of small hydro (75%), biomass (19%), wind (5%), and solar (1%). People's Power & Light is providing overall administration and management of *New England GreenStart*, as well as overseeing the development of a marketing and outreach campaign to support the retail green power market.

Pepco Energy Services—Pepco Energy Services, an unregulated subsidiary of Potomac Electric Power Company, offers green power to customers in some areas of Maryland, Pennsylvania, Virginia, and Washington, D.C. Customers can choose from the company's 10%, 51%, or 100% renewable energy options, which are supplied primarily from biomass sources, such as landfill gas. The company also offers 51% and 100% wind energy options supplied from new wind energy projects in the region. Pepco Energy Services serves a number of large accounts including the state of New Jersey, the Tower Companies, and the U.S. Department of Energy (DOE).

QVINTA Inc.—In June 2004, QVINTA Inc. entered into a three-year agreement with the U.S. EPA to supply 2.35 million kWh of RECs for EPA's Duluth, Minnesota, laboratory sourced from wind facilities located in Dodge Center, Minnesota.

Reliant Energy—Reliant Energy offers a 100% wind energy option to residential customers in Texas. Reliant introduced its renewable energy option to customers outside of the Houston area in 2002 and expanded the offering to Houston customers in 2005. Under the state’s electricity restructuring law, incumbent utilities were restricted from providing competitive products and services in their home territory until January 1, 2005. To supply the product offering, Reliant purchases renewable energy credits from Texas-based wind farms.

Renewable Choice Energy—Renewable Choice Energy (RCE), based in Boulder, Colorado, offers a REC-based wind energy product called *American Wind*, which is available to consumers nationwide. The product is supplied from a variety of new wind energy projects in the United States. The company uses grassroots marketing—including direct sales and community events—to sell its products.

Renewable Ventures—San Francisco-based Renewable Ventures offers a *Green-e* certified REC product sourced from California-based PVUSA solar projects. The RECs are sold in 750 kWh increments for \$25.

Select Energy—As the competitive energy marketing and services arm of Northeast Utilities, Select Energy offers *Green-e* certified renewable energy to business and institutional customers in the Mid-Atlantic. The company has entered into contracts to supply green power to the U.S. EPA and the U.S. General Services Administration.

Sky Energy Inc.—Greenville, South Carolina-based Sky Energy Inc. offers a *Green-e* certified REC product sourced from wind energy projects nationwide.

Sterling Planet—A Georgia-based green power marketer, Sterling Planet participates in utility green power programs in Connecticut, Massachusetts, New Jersey, New York, and Rhode Island (see **Utility/Marketer Partnerships**), through which it offers renewable energy blends. Sterling Planet also offers a *Green-e*-certified 100% REC product to residential and business customers nationwide. The RECs are obtained from a number of different sources throughout the United States, encompassing the use of solar, wind, and biomass resources. The average price of the RECs is 1.6¢/kWh. Sterling Planet has entered into contracts to supply RECs to a number of large, nonresidential customers, including the U.S. EPA and Fortune 500 companies that participate in the Green Power Market Development Group.

Sterling Planet also partners with Suburban Energy Services to offer green power to homeowners and small businesses in New York. It has developed green power marketing partnerships with several utility companies, including the City of Tallahassee, Keys Energy Services, and JEA.

Strategic Energy—A Pittsburgh-based competitive electricity supplier, Strategic Energy LLC provides green power to several large, nonresidential customers including Office Depot, Kinko’s, and the State of Pennsylvania.

Suburban Energy Services (formerly Agway Energy Products)—Suburban Energy Services, a Syracuse, New York-based company that provides heating oil, natural gas, and other energy services, offers green power to homeowners and small businesses in the Niagara Mohawk and

NYSEG electric service territories in partnership with Sterling Planet. The companies are offering a product called *Sterling Green*—a blend of new wind, small hydroelectric, and methane gas derived from renewable sources. Customers choosing the green power product pay 1.5¢/kWh more than the company’s standard electricity product.

TerraPass Inc.—Formed by a group of Wharton Business School classmates, TerraPass Inc. offers a service to offset automobile-related greenhouse gas emissions. Interested customers can purchase a TerraPass to offset the carbon dioxide (CO₂) emissions associated with driving 12,000 miles. The base price ranges from \$29.95 to \$79.95, depending on the fuel efficiency of the vehicle driven, which is equivalent to from \$9 to \$11 per metric ton of CO₂ offset. TerraPass uses the revenues to purchase RECs and to purchase and retire CO₂ emissions offsets from the Chicago Climate Exchange. For example, TerraPass has purchased *Green-e* certified RECs from wind projects and RECs from a dairy farm anaerobic digestion project.

TXU Energy—TXU Energy, a utility serving 2.7 million electric customers in Texas, contracted with Dyess Air Force Base in Abilene, Texas, to supply approximately 78 million kWh of wind power annually to meet all the electricity requirements of the base.

Washington Gas Energy Services—An affiliate of Washington Gas, Washington Gas Energy Services (WGES) partners with Community Energy to offer wind energy to businesses and residents in Washington, D.C., Maryland, and Virginia. In some service territories, WGES offers 100-kWh blocks of wind energy at a 2.5¢/kWh premium. In other areas, customers can choose to purchase wind energy for a portion of their electricity use, ranging from as little as 5% to as much as 100%. The power is supplied from the 66-MW Mountaineer Wind Energy Center in West Virginia, which began operating in December 2002.

Waverly Light and Power—Waverly Light and Power (WL&P), a municipal electric utility serving 4,300 customers in Waverly, Iowa, sells wind energy certificates representing the environmental attributes of the output of three utility-owned and operated wind turbines—a 900-kW turbine north of Waverly and two 750-kW turbines near Alta, Iowa. The certificates are sold in 2,500-kWh blocks for \$50, or 2.0¢/kWh. According to the utility, revenues from the certificate sales will be used to develop additional wind energy projects.

WindCurrent—Based in Baltimore, Maryland, WindCurrent offers a *Green-e* certified product called *Chesapeake WindCurrent* to customers in the Washington, D.C., area. Customers can purchase the green power to meet 25%, 50%, or 100% of their electricity needs or purchase 100-kWh blocks (two-block minimum) at a premium of 2.5¢/kWh. The product is currently supplied from the Mountaineer Wind Energy Center in West Virginia. In the future, wind power projects planned for Maryland and Virginia may be added to the resource mix.

UTILITY/MARKETER PARTNERSHIPS

Connecticut Light and Power and United Illuminating—In April 2005, a green power program was unveiled for customers of Connecticut Light and Power and United Illuminating. Under the new program, customers have the option to purchase green power for 50% or 100% of their electricity needs from two providers—Sterling Planet and Community Energy—which were selected by the Connecticut Department of Public Utility Control through a competitive bidding process.

The Sterling Planet product is sourced from new wind (33%), existing small hydro (33%), and new landfill gas generators (34%) at a premium of 1.15¢/kWh over standard-offer service. The Community Energy offering is sourced from 50% new wind and 50% landfill gas and priced at 1.1¢/kWh over standard-offer rates.

Long Island Power Authority—Long Island Power Authority (LIPA) provides green power options for the nearly 1.1 million electricity customers that it serves on Long Island. Under its *LIPA Green Choice Program*, retail customers can purchase green power in the form of RECs directly from participating green power marketers. Currently, three marketers—Community Energy, EnviroGen, and Sterling Planet—offer renewable energy blends or a 100% wind energy option ranging from 1¢/kWh to 2.5¢/kWh above standard electricity costs. Participating customers receive a single bill from LIPA reflecting both standard electricity charges and the incremental charge for the green power.

Massachusetts Electric Company and Nantucket Electric Company—In fall 2003, National Grid expanded its *GreenUp* program and began offering green power options to customers of its electric distribution subsidiaries in Massachusetts. Currently, customers of Massachusetts Electric Company and Nantucket Electric Company can purchase products offered by three different green power suppliers: Community Energy, Mass Energy, and Sterling Planet. The products are blends of power from new and existing renewable energy resources and range from 1.35¢/kWh to 2.4¢/kWh above a customer's standard electricity rate.

Narragansett Electric—In March 2004, National Grid expanded its *GreenUp* program to customers of Narragansett Electric, a subsidiary company that serves 465,000 electricity customers in Rhode Island. Under the program, customers can purchase green power from one of three participating green power marketers: Community Energy Inc., People's Power & Light, and Sterling Planet. The product options range from 1.5¢/kWh to 2.0¢/kWh above the cost of standard service and consist of renewable energy supplied from a variety of sources, such as wind, small hydro, biomass, and solar. Participating customers do not switch from their existing utility service but see a green power surcharge on their regular bills.

New Jersey Utilities—In fall 2005, the New Jersey Board of Public Utilities (BPU) announced the start of a new program through which the state's retail electric customers can purchase renewable energy without switching electricity suppliers. Under the Clean Power Choice Program, residential and business customers can enroll by checking a box on their utility bills and selecting from among renewable energy products offered by four marketers: Community Energy, Green Mountain Energy Company, Jersey-Atlantic Wind, and Sterling Planet. The

products offered through the program are renewable energy blends offered at rate premiums ranging from 0.9¢/kWh to 2.9¢/kWh. In addition, one supplier is offering blocks of New Jersey wind energy for 5.5¢/kWh. Green power sold in the program must be sourced from renewable energy that is not otherwise used to meet a statutory requirement, such as a renewable portfolio standard. The program began October 1 in the PSE&G and JCP&L service territories and will expand to Atlantic City Electric and Orange & Rockland Utilities in April 2006. The BPU's Office of Clean Energy will oversee and administer the program and ensure that relevant New Jersey consumer protection rules and procedures are followed.

New York State Electric and Gas—New York State Electric and Gas (NYSEG), an electric utility that serves about 830,000 electricity customers in upstate New York, has teamed with Community Energy to offer wind energy to its residential customers. The *New Wind Energy* product is available in 100-kWh blocks at a cost of \$2.50 per block monthly. Customers must purchase a minimum of two blocks. The power is supplied from the 30-MW Fenner Windpower Project, which is about 40 miles southeast of Syracuse.

Niagara Mohawk—In 2002, Niagara Mohawk, a National Grid subsidiary that serves 1.5 million electricity customers in upstate New York, introduced a program through which its residential and commercial customers could purchase electricity generated from renewable energy sources offered by third-party providers. The *GreenUp* renewable energy program was developed as a result of the settlement agreement reached in the Niagara Mohawk-National Grid merger. Under the program, participating customers do not switch from their regular utility service, but see a line item for a green power surcharge on their utility bills. Customers can choose to purchase green power products offered by four providers: Community Energy Inc., EnviroGen, Green Mountain Energy Company, and Sterling Planet. The products are blends of power from new and existing renewable energy resources and range from 1¢/kWh to 2¢/kWh above a customer's standard electricity rate. In September 2004, Niagara Mohawk announced that about 8,800 customers had enrolled in the program.

PECO Energy—In May 2004, PECO Energy, a subsidiary of Exelon Corporation that serves 1.5 million electric customers in southeastern Pennsylvania, began offering a wind energy product to its residential and business customers. Customers can purchase *PECO WIND* in 100-kWh blocks monthly for an additional charge of \$2.54 per block (2.54¢/kWh), or can choose to receive 100% of their electricity from wind energy. The extra charge for the wind energy is added directly to the utility bills of participating customers. The wind energy is supplied by Community Energy Inc. from several Pennsylvania-based wind projects, including Mill Run (15 MW), Somerset (9 MW), and Waymart (60 MW). In November 2004, PECO announced that it had enrolled more than 9,000 households in its PECO WIND program.

Rochester Gas & Electric—Rochester Gas & Electric (RG&E), a utility distribution subsidiary of Energy East Corporation that serves 350,000 electricity customers in upstate New York, is teaming with Community Energy Inc. to offer its customers the option of purchasing electricity generated from new in-state wind energy sources. Under its *Catch the Wind* program, customers can purchase 100-kWh blocks of wind energy monthly for an extra \$2.50 (2.5¢/kWh). The minimum purchase is two blocks per month, which is equivalent to one-third of an average

residential customer's electricity use. The extra charge for the wind energy will be added to the regular electricity bill of participating customers.

SELECTED WHOLESALE MARKETERS

A variety of companies and generators supply green power or RECs in wholesale markets. Some of the more prominent wholesale marketers are listed below, as well as other supplier entities that have explicitly stated their intent to market the output of renewable energy generating projects in voluntary purchase markets.

Aquila—Aquila offers *Green-e* certified RECs to retail marketers and commercial and industrial customers. The certificates are supplied from the company's 110-MW Gray County (Kansas) Wind Farm, which was completed at the end of 2001.

Basin Electric Power Cooperative—Basin Electric, a regional power cooperative that generates and transmits electricity to 124 member rural electric systems in nine Midwestern states, markets RECs from two new 40-MW wind energy projects in North Dakota and South Dakota. Basin also supplies green power to many of its distribution cooperatives under the *Prairie Winds* product name.

Bonneville Power Administration—Bonneville Power Administration (BPA), a federal energy marketer with headquarters in Portland, Oregon, supplies green power to a number of utilities and large, nonresidential customers, primarily in the Pacific Northwest. BPA purchases the output of nearly 200 MW of wind energy from the Condon, Klondike, and Stateline projects in the Pacific Northwest; and the Foote Creek Rim project in Wyoming. It also partners with the Bonneville Environmental Foundation to market "green tags."

Calpine Corporation—Calpine, headquartered in San Jose, California, supplies utilities and power marketers with green power or RECs from its California-based geothermal power projects.

Endless Energy Corporation—Endless Energy, a Maine-based wind energy developer, entered into an agreement with the College of the Atlantic of Bar Harbor, Maine, to supply wind energy from the Redington Wind Farm, which is planned for completion in 2005. The college has made a 20-year commitment to purchase wind energy for 100% of its electricity needs.

EnXco—EnXco, a California-based wind energy developer, offers a *Green-e* certified commercial and wholesale tradable renewable certificate product called Viking Wind. The product is supplied from its wind energy projects, such as the 12-MW Viking Wind Project in Minnesota.

Exelon—Exelon has long-term power purchase agreements for the output of four wind projects in Pennsylvania and West Virginia, with a combined capacity exceeding 175 MW. The company has an agreement with Community Energy to market the output to customers throughout the region.

MidAmerican Energy—MidAmerican Energy, which provides electricity to about 700,000 customers in the upper Midwest, is marketing a portion of the output of its 360-MW wind project in northwest Iowa, which is expected to be complete by the end of 2005.

Missouri River Energy Services—Missouri River Energy Services (MRES)—a joint-action agency providing wholesale power to 56 member municipal utilities in Iowa, Minnesota, North Dakota, and South Dakota—provides wind energy to its member utilities from four wind turbines (with a combined capacity of 3.7 MW) located outside of Worthington, Minnesota. MRES also makes “green tags” available to nonmember municipal utilities interested in developing green pricing programs for their customers.

Mainstay Energy—Chicago-based Mainstay Energy purchases and aggregates RECs from small, customer-owned renewable energy systems, and markets them nationwide.

Nebraska Public Power District—Nebraska Public Power District (NPPD) plans to sell a portion of the output of a recently constructed 60-MW wind project near Ainsworth, Nebraska, to other public utilities as wholesale wind energy and RECs.

PPM Energy—PPM Energy, a nonregulated subsidiary of ScottishPower, markets the output from a number of wind energy projects in the West, including the 300-MW Stateline project wind plant on the Washington-Oregon border, the 144-MW Unita County wind project in Wyoming, the 162-MW High Winds project in California, and the 24-MW Klondike project in Oregon.

PowerLight Corporation—A Berkeley, California-based designer, manufacturer, and installer of grid-connected solar electric systems, PowerLight Corporation offers a *Green-e* certified commercial and wholesale REC product called *PureSolar*.

Vision Quest—A division of TransAlta Energy Corporation based in Calgary, Alberta, Canada, Vision Quest has entered into a two-year agreement with the Bonneville Environmental Foundation to supply Green Tags created from wind projects that it owns and operates at various locations throughout Canada, including the 68-MW Summerview wind farm in Alberta. Vision Quest facilities and products are certified both in Canada and by the *Green-e* program in the United States. BEF offers the Green Tags to businesses and utilities in both countries, opening up the market for cross-border sales of renewable energy.

CERTIFICATE BROKERS

Cantor Environmental Brokerage—Cantor Fitzgerald is a financial services firm with operating units involved in a variety of market-based business initiatives (including energy and environmental brokerage), such as RECs and CO₂ emissions trading.

Emissions Credit Brokers—Emissions Credit Brokers is a domestic broker of emissions credits and RECs.

Evolution Markets—Evolution Markets is an emissions and coal brokerage firm based in White Plains, New York, which has been approved as a broker of *Green-e* certified RECs. The company also manages an Internet-based bulletin board for RECs, which provides a venue for wholesale buyers and sellers to post bids and offers for renewable energy attributes and green power.

GFI Group—GFI Group, with offices in New York City and international locations, is a brokerage and financial services firm specializing in financial and commodity markets, including emissions trading and RECs.

GT Energy—GT Energy is an international environmental brokerage that is active in both U.S. and European renewable energy markets.

Natsource LLC—Natsource, based in New York City, is an international broker of emissions credits and RECs.

Selected Green Power Customers

Because polls and surveys show that individual consumers place a high value on environmental protection and the use of cleaner energy sources, early green power marketing efforts focused primarily on residential customers. More recently, green power providers have focused marketing efforts on 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. Larger customers are also more economical for marketers to serve than many small customers.

This section highlights green power purchasing by selected nonresidential customers. In addition to business customers, green power purchasers include municipalities, government agencies, and other organizations. In the federal sector, green power purchases are encouraged by the Energy Policy Act of 2005, which replaces a 1999 Presidential Executive Order that called for federal agencies to expand the use of renewable energy within facilities.

BUSINESSES

Advanced Micro Devices—In September 2005, Advanced Micro Devices (AMD), a leading supplier of personal computer processors and memory, announced that it would purchase 100% renewable energy from Austin (Texas) Energy's *GreenChoice* program for its Austin facilities. Under the agreement, AMD purchases 52 million kWh of renewable energy annually or enough to power 4,000 average Austin homes year-round.

American Psychological Association—Under an agreement announced in August 2003, the American Psychological Association (APA) committed to purchase green power equal to 75% of the annual electricity consumption of its two Capitol Hill office buildings. Green Mountain Energy Company supplied the green power as renewable energy certificates (RECs) derived from wind energy and other renewable resources. The green power purchase amounted to more than 20 million kWh during a 19-month period.

Aspen Skiing Company—In 1997, Aspen Skiing Company became the first ski resort to purchase wind power. Today, the company purchases 1,200 MWh of wind power annually and recently constructed a 115-kilowatt microhydro plant that combined represent about 5% of its electricity use. Aspen is also the first ski industry member to join the Chicago Climate Exchange and hopes to achieve a 10% reduction in annual carbon dioxide emissions by 2010 from 1999 levels.

Austin Independent School District—In October 2003, the Austin Independent School District entered into an agreement with Austin Energy to purchase 45 million kWh of green power annually, or enough to meet 30% of its annual electricity needs. According to the school district superintendent, the purchase is a “wise investment for Austin schools” because the price of the green energy is fixed through 2011 under Austin Energy’s *GreenChoice* program. During 2000 and 2001, the district was forced to double its utility budget as a result of increases in the price of natural gas.

Ben & Jerry's—In August 2002, Ben & Jerry's announced that it would offset a year's worth of carbon dioxide (CO₂) emissions from its Vermont ice cream production facilities by supporting the construction of a new 750-kW wind turbine on Native American lands in South Dakota. Through its participation in *NativeEnergy's WindBuilders Business Partner* program, Ben & Jerry's purchased renewable energy credits equivalent to 4.5 million kWh of wind energy generated during the life of the Rosebud Sioux Tribe wind turbine. The purchase offsets approximately 5,000 tons of CO₂.

Clif Bar—Clif Bar, a Berkeley, California-based maker of nutrition bars and foods for endurance activities, offset the carbon dioxide emissions associated with the energy used to power its offices, manufacturing operations, and business travel during 2002 by purchasing renewable energy credits generated from a new Native American-owned wind turbine. Through its participation in *NativeEnergy's WindBuilders* program, Clif Bar purchased RECs equivalent to 2.2 million kWh of wind energy generated during the life of the 750-kW Rosebud Sioux Tribe wind turbine in South Dakota. The purchase offsets about 2,000 tons of CO₂.

The Durst Organization—Under an agreement with ConEdison Solutions and Community Energy Inc. (CEI) announced in January 2004, the Durst Organization—a prominent New York City-based commercial real estate owner—committed to purchase 10.5 million kWh of wind power annually to supply seven high-rise office buildings in Manhattan. The green power purchase represents 10% of the total energy consumed in the company's New York properties. ConEdison's *Green Power* product for commercial customers consists of wind energy supplied by CEI and sourced from regional wind power projects including the 30-MW Fenner Wind Power Project located in Madison County, New York.

FedEx Kinko's—In October 2003, FedEx Kinko's (formerly Kinko's) entered into agreements to expand its green power purchases by 80%. Under a contract with 3 Phases Energy Services, the company purchases 13.9 million kWh of biomass energy certificates for 45 retail stores in Virginia, North Carolina, and South Carolina. In addition, FedEx Kinko's entered into agreements with utilities in South Carolina, Wyoming, and Colorado to purchase green power for another 20 branches. With these agreements, the company is purchasing a total of 29 million kWh of green power annually for more than 11% of its retail stores spanning 18 states.

HSBC Bank North America—In April 2005, HSBC Bank announced that it is purchasing wind energy certificates equivalent to about 25% of its electricity needs under an agreement with 3 Phases Energy Service. HSBC is purchasing 68 million kWh annually of Green-e certified RECs sourced from new wind projects in California and Minnesota, making it one of the largest retail green power purchases in North America. In December 2004, HSBC became the world's first major bank to commit to carbon neutrality. The bank plans to achieve this goal by reducing energy use, buying green electricity, and offsetting the remaining carbon dioxide emissions by investing in carbon credit or allowance projects.

Hyatt Hotels—In August 2005, two Hyatt hotels in Dallas entered into an agreement with Austin-based Green Mountain Energy Company to purchase renewable energy for 100% of their electricity needs. Together, the Hyatt Regency Dallas at Reunion and Hyatt Regency DFW

International Airport have committed to purchase about 35 million kWh of renewable energy annually, which is the largest hospitality industry purchase of renewable energy nationally.

Interface Fabrics Group—Interface Fabrics Group, a supplier of fabrics for commercial interiors based in Guilford, Maine, purchases wind energy certificates equivalent to the energy associated with manufacturing select patterns of its Terratex product. Under an agreement with the Bonneville Environmental Foundation (Oregon) announced in March 2003, the company is purchasing 12.5 million kWh of "green tags" over five years. Interface Fabrics Group, which is a division of Interface Inc., derives almost 90% of its thermal needs from biomass or waste wood chips.

Lockheed Martin— In October 2003, defense and aerospace contractor Lockheed Martin committed to purchase enough green power to meet 10% of the annual electricity needs of its Palo Alto (California) facilities through the City of Palo Alto Utilities' green pricing program. Under the agreement, Lockheed Martin purchases 1.8 million kWh of renewable energy annually.

Lowe's Home Improvement Warehouse—Lowe's, the nation's 13th largest retailer, announced in July 2002 that it would purchase about 3% of its monthly electrical use for its 32 stores from the *Green Power Switch* program offered by the Tennessee Valley Authority (TVA) and its distributors. The company agreed to purchase about 4.5 million kWh of green power annually for its stores and has since increased the purchase to 6 million kWh.

Lundberg Family Farms— Under an agreement with 3 Phases Energy Services announced in July 2003, Lundberg Family Farms, a Sacramento-based farm and packager of natural and organic rice products, committed to purchase green power for 100% of the electricity used to run its milling, processing, and packaging operations. Under the agreement, the farm purchased 4.4 million kWh per year of wind energy certificates supplied from the Stateline and Klondike wind energy facilities in Oregon

Luzenac America Inc.—In July 2003, Luzenac America Inc. entered into an agreement to purchase renewable energy certificates from the Bonneville Environmental Foundation to offset 100% of the greenhouse gas emissions associated with its electrical energy use at the Yellowstone Talc Mine in Montana. The certificates, or "green tags," represent more than 1.7 million kWh of renewable energy generated from wind energy sources in the region.

Mohawk Fine Papers, Inc.—In May 2005, Mohawk Fine Papers, the nation's largest manufacturer of premium printing and imaging papers, increased its annual purchases of wind energy by more than 350% to run its two mills in upstate New York as well as a newly purchased facility in Ohio. The annual purchase of 45 million kWh makes Mohawk one of the leading U.S. business purchasers of green power, according to data compiled by the U.S. Environmental Protection Agency's Green Power Partnership. Wind energy now provides 21% of the annual power needs of the New York mills and 50% of the Ohio mill's needs.

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.

Office Depot—Office Depot, a national seller of office products with 867 retail stores in 44 states, entered into an agreement with Pittsburgh-based Strategic Energy in June 2004 to purchase green power for 12 of its California retail stores and warehouses. Under the two-year contract, the company is buying approximately 19 million kWh of electricity annually, generated from landfill gas and wind.

OfficeMax, Inc.—OfficeMax Inc., one of the nation's largest providers of office supplies and services, announced that it is offering its North American business customers a 100% post-consumer recycled paper manufactured with wind power and certified by the Forest Stewardship Council (FSC). The paper is also made without the use of chlorine and chlorine compounds. Mohawk Color Copy 100% Recycled Paper is manufactured by Mohawk Paper Mills, the only U.S. mill using wind energy in its paper-making process.

Starbucks—In April 2005, Starbucks Coffee Company committed to purchase wind energy certificates sufficient to match 5% of the electricity used to power its company-operated stores in North America. The purchase is part of a multifaceted environmental sustainability strategy to reduce greenhouse gas emissions associated with the company's business activities. According to the company, the purchase is equivalent to the output of 11 large wind turbines. Starbucks also recently joined the Green Power Market Development Group, a collaboration of leading corporations and the World Resources Institute, dedicated to building corporate markets for green power.

Tower Companies—A family-owned commercial and residential building developer, the Tower Companies announced an agreement in March 2003 to purchase green power to supply company-owned buildings in the Washington, D.C., metropolitan area. Under the terms of a new 2-year deal signed in 2005, Pepco Energy Services (PES) will supply 41 million kWh of green power to meet 100% of the energy needs of Tower's commercial buildings and Tower-owned apartment communities. Sterling Planet is providing PES with green energy in the form of renewable energy certificates.

WhiteWave—In 2003, White Wave, a leading manufacturer of *Silk* soy milk and other soy-based foods based in Boulder, Colorado, contracted to purchase wind energy certificates equivalent to 100% of the electricity used in its manufacturing operations. Under agreements with Renewable Choice Energy and Bonneville Environmental Foundation, the company committed to purchase 20 million kWh of "Green Tags" supplied from wind farms in several states. In 2004, WhiteWave's parent company, Dean Foods, acquired Horizon Organic, a leading producer of organic dairy products and consolidated the *Silk* and Horizon Organic brands under a

new division called WhiteWave Foods. In 2005, the division more than doubled its purchase of green power to 49.5 million kWh to encompass the energy used by Horizon Organic.

Whole Foods Market Inc.— A leading natural and organic supermarket based in Austin, Texas, Whole Foods Market currently purchases or generates 71 million kWh of green power, which is equivalent to more than 20% of its electricity needs nationally. The company has expanded its purchases over time. In June 2004, Whole Foods committed to purchase wind energy certificates for 10% of the electricity used at its 28 stores and facilities in the North Atlantic Region, covering Massachusetts, Rhode Island, Connecticut, New York, and New Jersey. More recently the company purchased green power equivalent to 100% of the electricity usage of its nine natural food stores in Colorado and New Mexico.

UNIVERSITIES

American University—In February 2003, American University (Washington, D.C.) entered into a contract with Washington Gas Energy Services and Community Energy to meet 5% of its electricity needs for five years with wind power. The power is supplied from the 66-MW Mountaineer Wind Energy Center in West Virginia, which began operating in December 2002.

California Universities—In June 2005, the University of California (UC) and California State University (CSU) systems entered into an agreement to purchase renewable energy for 15% of their electricity needs. Under a six-month contract with APS Energy Services, UC and CSU will purchase 39 million kWh and 34 million kWh, respectively, of renewable energy certificates consisting of wind (86%) and landfill gas (14%) resources. The RECs will be supplied by 3 Phases Energy Services under a wholesale agreement with APS Energy Services. The purchase stems in part from UC's policy on Green Building Design and Clean Energy Standards, which was adopted in July 2003 to increase sustainability system-wide. At CSU, the announcement comes on the heels of a two-year campaign run by university students and Greenpeace to encourage CSU to adopt a comprehensive clean energy and sustainability policy. The university is drafting a policy that will include standards for energy conservation, clean energy generation, clean energy purchasing, and sustainable building design.

Carnegie Mellon University—In 2001, Carnegie Mellon University, a Pittsburgh-based research university of about 7,500 students, began purchasing wind energy to meet about 5% of its electricity needs under an agreement with Community Energy, Inc. In 2003, the university expanded its purchase to 5.8 million kWh annually or 6% of its annual electricity needs. Community Energy has supplied the power from the Mill Run and Somerset wind energy projects located southeast of Pittsburgh, which have a combined capacity of 24 megawatts (MW).

Catholic University—In August 2002, the Catholic University of America, based in Washington, D.C., entered into an agreement with Washington Gas Energy Services to purchase wind energy, meeting 12% of its electricity needs for five years. The power is supplied from the 66-MW Mountaineer Wind Energy Center in West Virginia under a wholesale supply agreement with Community Energy. The purchase is equivalent to the entire annual output of one, 1.5-MW wind turbine.

College of the Atlantic—In July 2004, the College of the Atlantic, based in Bar Harbor, Maine, made a 20-year commitment to purchase wind energy for 100% of its electricity needs. The college signed an agreement with Endless Energy Corporation (EEC) to buy wind energy from the Redington Mountain Windfarm, which will be completed in 2005. Pending completion of the wind project, the College of the Atlantic is purchasing renewable energy credits, or “green tags,” from *NativeEnergy* supplied from the Rosebud Sioux wind project in South Dakota.

Colorado State University—Colorado State University (CSU), a land-grant university in Fort Collins, Colorado, offers students living in university residence halls a wind power purchase option. CSU, with an enrollment of 25,000 students, is believed to be the first university in the nation to allow on-campus residents to choose wind energy. Since fall 2004, the approximately 5,000 students living in residence halls have had the option to purchase 100% wind energy for their rooms at a cost of \$17 annually. The typical residence hall student uses about 1,600 kWh of electricity during the nine-month school year. The wind power is supplied by Fort Collins Utilities through its *Wind Power Program*.

Concordia University—In July 2003, Concordia University became the first college or university in the nation to subscribe to 100% green power for all of its power needs. The 77-year-old Lutheran school in Austin, Texas, enrolled in Austin Energy’s *GreenChoice* program for all of the approximately 6 million kWh of electricity that it uses annually. Concordia will use energy efficiency improvements to offset the additional cost of the green power.

Connecticut College—In December 2003, Connecticut College entered into an agreement with New York-based EAD Environmental to purchase wind energy for approximately 44% of its annual electricity needs, doubling its previous green power commitment. Under the two-year agreement, the college is purchasing 13 million kWh of *Green-e* certified wind energy certificates sourced from wind farms in the United States.

Drexel University—In 2002, Pennsylvania-based Drexel University committed to purchase wind energy to meet nearly 10% of its electricity needs under an agreement with Community Energy. The wind purchase amounted to 4 million kWh per year or the output equivalent of a single 1.5-MW wind turbine. The wind energy has been supplied from the new 64.5-MW Pocono Wind Farm near Scranton, Pennsylvania.

Duke University—In April 2003, Duke University (North Carolina) teamed with certificate-marketer Renewable Choice Energy to issue a green power challenge to its students. The university has agreed to match student purchases of wind power up to 1.25 million kWh annually. Funding for the program comes from savings generated by a cooperative energy conservation effort between the university and Environmental Alliance, a student organization committed to promoting the implementation of sustainable practices at the university. The student group has conducted events to promote the challenge. In 2005, the university began purchasing 18 million kWh of wind RECs from Sterling Planet.

Harvard University— In May 2004, Harvard University entered into a two-year contract with EAD Environmental to purchase about 4 million kWh of *Green-e* certified RECs to offset the electricity consumption of a newly constructed, energy-efficient Graduate Student Housing

building. The purchase is helping the university achieve certification for the new building under the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) Green Building Rating System. Since then, Harvard has expanded its green power purchases and as of fall 2005, eight of Harvard's schools and departments were collectively purchasing 22 million kWh of renewable energy, or the equivalent of 7% of Harvard's total electricity usage.

Oregon State University—In September 2003, Oregon State University (OSU) committed to purchase 5 million kWh of green power from the Bonneville Environmental Foundation. Under the four-year agreement, the university is purchasing “green tags” representing the energy output of wind and solar facilities in the Pacific Northwest. The purchase was made possible through a state policy that allows large customers, like OSU, to self-direct a portion of their state-mandated public purpose charge payments to support specific renewable energy and energy efficiency programs. The university also announced plans to site a small renewable energy project, such as a solar photovoltaic array, on the campus.

Pennsylvania Colleges—The Pennsylvania Consortium for Interdisciplinary Environmental Policy (PCIEP), in partnership with wind energy marketer Community Energy Inc., announced in spring 2005 that nine Pennsylvania-based colleges and universities increased their wind energy purchase commitments. As of April 2005, 34 PCIEP members were collectively purchasing 92.2 million kWh of wind energy, which constitutes the largest nongovernmental aggregated commitment to wind power in the United States.

Schools that increased their purchases as part of the Consortium's “Getting to 10% Wind” campaign include: Eastern University, which purchases wind energy equivalent to 32% of its electricity use, Dickinson College (12%), the University of Pennsylvania (10%), Juniata College (10%), Allegheny College (10%), Chatham College (10%), Duquesne University (10%), Keystone College (10%), and Mercyhurst College (10%). Other schools purchasing wind energy include Drexel University (8%), Franklin & Marshall College (7%), Carnegie Mellon University (6%), Gettysburg College (5%), and Penn State University (5%).

Pennsylvania State University—Under a five-year contract with Community Energy (announced in October 2001), Penn State University began purchasing 13.2 million kWh of wind energy annually. In the spring of 2002, Penn State purchased another 4.4 million kWh of wind power for its satellite campuses to achieve a total purchase of 17.6 million kWh annually. The power is supplied from Mill Run and Somerset wind energy projects in Pennsylvania, which have a combined capacity of 24 megawatts (MW).

State University of New York— Under a contract with Community Energy signed in 2002, the University at Buffalo, the largest campus in the State University of New York (SUNY) system, committed to purchase wind energy for about 2% of its electricity needs. In 2004, the University at Buffalo increased its multi-year purchase to the output of three wind turbines from the Fenner wind project in upstate New York, or 12 million kWh annually.

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 per semester so that several campus buildings could 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.

In May 2005, the university expanded its green power purchases to offset 100% of the electricity needs of the three student-run campus buildings. The university was able to increase its wind energy purchases from 2 million kWh to 8.8 million kWh annually, partly because it used a competitive bid process, which yielded a lower supply price. CU now buys wind energy from Community Energy Inc. at a price premium of about 0.61¢/kWh, compared to an original purchase price of 2.5¢/kWh through Xcel Energy's *Windsource* green pricing program. Half of the wind energy for the new purchase is being supplied from a wind project in southeast Colorado and the other half from the upper Midwest.

University of Pennsylvania—In April 2003, the University of Pennsylvania entered into a 10-year agreement to purchase 40 million kWh of wind energy annually from Community Energy. The new agreement doubles the amount of wind energy that the university previously purchased to the equivalent of 11% of its annual electricity needs. The purchase made it possible for Community Energy and other partners to move forward with the construction a new 20-MW wind project in Pennsylvania, with the university purchasing 40% of the output.

University of Southern Maine—In May 2004, the University of Southern Maine purchased RECs from EAD Environmental to offset the electricity consumption of a newly constructed, energy-efficient building. Under the agreement, the university is purchasing 1.5 million kWh of green power, which is equivalent to approximately 7% of the total electricity consumption at its three campuses. The purchase is helping the university achieve certification for the new building under the U.S. Green Building Council's LEED Green Building Rating System.

University of Wisconsin—In spring 2003, the University of Wisconsin (UW) Oshkosh became the first Wisconsin university to make a green power purchase commitment. At least 3% of the university's electricity needs, totaling nearly 1 million kWh annually, have been provided through Wisconsin Public Service (WPS) Company's *NatureWise* product, which is sourced from a combination of wind and biomass resources in Wisconsin.

Western Washington University—In June 2005, the Western Washington University (WWU) board of trustees confirmed the university's intent to purchase renewable energy from Puget Sound Energy for 100% of its electricity needs. In spring 2004, a WWU student initiative on renewable energy passed with 84.7 percent approval. The student initiative included a maximum fee of \$19 per quarter for full-time students to support a renewable energy purchase. On June 10, the board capped the student fee at \$10.50 per quarter. The fee is expected to generate \$355,000 per year or enough revenue to purchase approximately 35 million kWh of renewable electricity in the 2005-06 school year at a rate premium of 1¢/kWh.

LOCAL GOVERNMENT

Long Island—In April 2005, six Long Island municipalities in Suffolk County announced that they are purchasing more than 8 million kWh of wind energy annually through the LIPA Green Choice Program in partnership with Community Energy Inc. Through the program, the communities of Southold, East Hampton, Riverhead, and Shelter Island, as well as the Town of Southampton and Village of Southampton, are using the green power to meet some or all of their municipal electricity needs. In addition, both the Suffolk County and Nassau County legislatures recently passed legislation calling for the counties to purchase up to 50% of their future electricity needs from renewable energy sources, subject to cost caps.

City of Los Angeles/ Los Angeles World Airports—In October 1999, the Los Angeles World Airports (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 an initial 10% of total electricity use to 50% in 2010. LAWA hopes to purchase 100% green power by 2015. LAWA initially is using discounted rate savings to pay the higher cost of the green energy, but the organization is prepared to spend an additional \$250,000 annually to meet the longer-term commitment. LAWA currently purchases about 1 million kWh annually to power the LAX and Van Nuys airports.

On March 2, 2001, the Los Angeles City Council expanded the city government's purchases when it approved a plan to meet about 10% of the city's electricity needs with power generated from new renewable resources. The city will purchase approximately 50 million kWh per year of renewable power from LADWP.

Montgomery County Aggregation—In May 2004, an aggregation of Maryland city and county agencies led by Montgomery County entered into an agreement with Washington Gas Energy Services and Community Energy Inc. to meet 5% of the group's combined electricity use with wind energy. Under the two-year deal, the buying group, which includes six county agencies, 11 municipalities, and Prince George's County, collectively purchase 38 million kWh of wind energy annually sourced from the 66-MW Mountaineer Wind Energy Center in West Virginia. Montgomery County has included the wind energy purchase as a control measure for ozone pollution in a State Implementation Plan (SIP) for air quality improvement.

City of Myrtle Beach—In April 2002, Myrtle Beach became the first city in South Carolina to purchase green power for its municipal facilities by subscribing to Santee Cooper's *GreenPower* program. Under the one-year agreement, Myrtle Beach purchased 372,000 kWh of green power—which represents between 2% and 5% of the city's total annual energy use—at an extra cost of \$10,800, or 2.9¢/kWh.

City of Newark—On January 24, 2005, the Newark (Delaware) City Council unanimously approved a resolution to increase the city's purchase of renewable energy to 2% of total electricity use by 2006 or approximately 7.5 million kWh annually. The vote followed a recommendation made by the City's Conservation Advisory Commission to increase renewable

energy purchases from the current level of 0.1% to 0.5% in 2005 and 2% in 2006. It is estimated that the purchase will increase the average household electric bill by 14 cents per month in 2006. The city, which operates its own electric utility and purchases power on the wholesale power market, currently uses about 373 million kWh of electricity annually.

New York City Economic Development Corporation—In March 2005, ConEdison Solutions and the New York City Economic Development Corporation (EDC) announced an agreement under which the EDC is purchasing 3.7 million kWh of wind energy annually for two city-owned industrial centers in Brooklyn: the 4 million-square-foot Brooklyn Army Terminal and the 1 million-square-foot Bush Terminal. The wind energy is supplied under a wholesale agreement with Community Energy Inc. and sourced primarily from the 30-MW Fenner Wind Power Project, which is east of Syracuse, New York.

New York Municipal Wind Buyers Group—In 2004, Community Energy announced that it is supplying 36 New York municipalities with wind energy to meet from 5% to 100% of their municipal electricity needs. The 36 communities are part of a “Municipal Wind Buyers Group,” which is able to reduce wind energy prices for all members as they reach aggregate purchasing milestones. In February 2004, the aggregated purchases had led to a 5% price reduction from the initial 2¢/kWh premium. As of September 2005, the number of communities participating in the buyers group had expanded to more than 50.

Radnor Township—In February 2003, the Board of Commissioners of Radnor Township (a suburb of Philadelphia with about 30,000 residents) unanimously approved a resolution to purchase wind energy to meet 62% of the township's electricity needs. Under a three-year contract with Community Energy and the Energy Cooperative Association of Pennsylvania (ECAP), Radnor is purchasing 1.4 million kWh of wind energy annually from the 66-MW Mountaineer Wind Energy Center in West Virginia. The township is offsetting the added cost of the green power with energy savings from the installation of energy-efficient LED traffic lights and competitive market savings from switching its entire electric load to ECAP.

Salt Lake City—In fall 2002, Salt Lake City Mayor Rocky Anderson approved a contract to purchase wind energy to supply Salt Lake's historic City and County Building. Under the agreement, the city initially purchased 420,000 kWh of wind energy annually from Utah Power, and has since increased its annual purchase to 1.5 million kWh. The extra cost of the wind energy was covered with savings realized from energy efficiency improvements. The Mayor's Office also worked with the Utah Wind Power Campaign and Utah Power to develop a direct-mail piece for residents to tout the benefits of wind power.

City of Santa Monica—In March 2004, electricAmerica and the City of Santa Monica (California) renewed an agreement under which the company will continue to supply 100% renewable energy to the city's municipal facilities. The 5 MW purchase is sourced from a variety of renewables such as wind, biomass, and geothermal. In 1999, Santa Monica became the first city in the nation to purchase green power to meet its entire municipal electricity needs.

City of Saratoga Springs—The city of Saratoga Springs, New York, has committed to purchase wind energy certificates equivalent to about 40% of the electricity used at its municipal facilities.

Under a five-year agreement with Community Energy Inc., the city will purchase 2.9 million kWh annually at an extra cost of \$43,750, or approximately 1.5¢/kWh. The power will come from the 30-MW Fenner Windpower Project in Madison County, New York. Saratoga Springs is one of 24 municipalities in the state that purchase wind energy.

City of Seattle— In fall 2001, the Seattle City Council (Washington) unanimously approved a plan for its municipal utility to obtain about 5% of its power supply from wind resources. Initially, Seattle City Light purchased 50 megawatts (MW) of wind energy generation from the Stateline project, under a contract with PacifiCorp Power Marketing Inc., which was expanded to 175 MW in 2004.

STATE GOVERNMENT

Connecticut— In April 2004, Connecticut Governor John G. Rowland issued an executive order that calls for state government to obtain 20% of its electricity needs from renewable energy sources by 2010, increasing to 50% in 2020 and 100% by 2050. The order, which covers all state-owned buildings (including colleges and universities), is an outgrowth of a stakeholders dialogue on climate change conducted during 2003. Under the order, the total state government demand for renewable electricity is estimated to be 140 million kWh in 2010.

Illinois—Illinois Governor George Ryan issued an executive order in April 2002 committing the state to purchase green power for at least 5% of the electricity used by buildings owned or operated by agencies under the governor's control. The amount of renewable energy purchased will increase to at least 15% by 2020. The executive order defines “green power” as electricity generated from renewable sources such as wind, solar, organic wastes, and hydropower. It excludes the burning of municipal solid waste, wood waste, or tires.

Iowa—On April 22, 2005, Iowa Governor Tom Vilsack issued an executive order directing state agencies to obtain 10% of their electricity from renewable energy sources. According to the order, “agencies may generate their own alternative energy or may participate in their utility’s green power purchase program, where available, to meet this requirement.” The order also calls for the agencies to reduce their energy consumption by an average of 15% by 2010, relative to 2000 levels, and to procure alternative or hybrid-electric vehicles for 100% of their non-law enforcement light-duty fleet by 2010. In addition, all state bulk purchases of diesel fuel must contain 5% renewable content by 2007, increasing to 20% by 2010.

New Jersey—In July 2003, the State of New Jersey reaffirmed its commitment to purchase green power by entering into a 33-month contract with Pepco Energy Services and Community Energy for 54.9 million kWh or 20.6 MW of wind energy generated from wind farms in the Mid-Atlantic region. The agencies entered into the agreement in part to meet the 10% environmentally friendly green power purchase goal established by New Jersey Governor James McGreevey.

New York—In June 2001, New York Governor George Pataki issued an executive order calling for state agencies to obtain 10% of their electricity needs from renewable sources (such as wind, solar, biomass, geothermal, and fuel cells) by 2005, with the percentage increasing to 20% by

2010. The order applies to state buildings and those of quasi-independent organizations such as the State University of New York and the Metropolitan Transportation Authority.

Pennsylvania— In October 2004, the State of Pennsylvania announced that it would triple the amount of wind energy it purchases as a component of a plan to obtain 10% of its electricity needs from in-state energy sources. Under four-year contracts with Community Energy Inc. and Strategic Energy LLC, the state is purchasing 100 million kWh annually, or 10% of the state government's electricity needs, from wind energy (35%), waste coal (10%), and low-impact, run-of-river hydroelectric energy (55%), at an average rate premium of 0.34¢/kWh. Initially, the state purchased renewable energy for 5% of its electricity needs, under a contract signed in 2002.

Rhode Island—In April 2004, Governor Donald Carcieri announced that the Rhode Island State Energy Office committed to purchase enough green power to meet all of the electricity needs of the State House for the next five years. The purchase was estimated to cost about \$210,000, which is to be paid through funds from the Rhode Island Renewable Energy Fund. In April 2005, the State Energy Office issued a competitive solicitation for the renewable energy supply.

Tennessee—In May 2002, Tennessee Governor Don Sundquist announced that all state buildings in Nashville, including the governor's mansion, were obtaining a portion of their power from renewable sources, making Tennessee the first state government in the Southeast to purchase green power. The power is supplied by Nashville Electric Service through the utility's participation in the Tennessee Valley Authority's *Green Power Switch* program, which uses wind, landfill-methane, and solar resources. The state purchases totaled about 720,000 kWh annually at an extra cost of \$19,000 per year.

In May 2005, Governor Phil Bredesen announced plans for all state parks in Tennessee to purchase renewable energy, where available. Forty-four of the 54 state parks have access to green power through the Tennessee Valley Authority's *Green Power Switch* program and have committed to collectively purchase nearly 2.1 million kWh annually. The combined park purchases will cost \$55,152 annually but will be offset by more than \$190,000 in expected savings achieved through energy efficiency measures, such as lighting and cooling improvements. The State of Tennessee also purchases green power for the Executive Residence and state buildings in downtown Nashville. Supporting greater use of renewable energy was a recommendation of the Governor's Interagency Workgroup on Air Quality.

Wisconsin—In August 2005, Wisconsin Governor Jim Doyle unveiled a broad package of legislation and executive orders to support conservation and sustainable use of the state's natural resources, including a call for state agencies to purchase 10% of their power needs from renewable energy sources by 2006, increasing to 10% by 2010. The action was recommended by the Governor's Task Force on Energy Efficiency and Renewables in July 2004.

FEDERAL GOVERNMENT

The Energy Policy Act of 2005, signed into law by President Bush on August 8, calls for the energy secretary to "ensure that, to the extent economically feasible and technically practicable," 3% of the electric energy consumed by the federal government in fiscal years 2007 through 2009

be derived from renewable sources, increasing to 5% in fiscal years 2010 through 2012, and 7.5% by 2013 and each fiscal year thereafter. The new law replaces Executive Order 13123, issued in 1999, which established a goal for federal agencies to obtain 2.5% of their electricity from renewable energy sources by 2005.

Dyess Air Force Base—In early 2003, Dyess Air Force Base in Abilene, Texas, contracted with TXU Energy to purchase wind power to meet the entire electricity requirements of the base. Under the two-year agreement, Dyess purchased approximately 78 million kWh of wind power each year. Dyess offset the extra cost of the wind power with savings realized in the state's competitive retail electricity market.

Fairchild AFB—Under the agreement with the Bonneville Power Administration announced in March 2004, Fairchild Air Force Base, outside of Spokane, Washington, committed to purchase renewable energy to meet the entire electricity load of the military base. Under the contract, Fairchild purchased 65.7 million kWh of green power from wind (99%) and small hydro (1%) projects in the region. The bulk of the purchase was in the form of renewable energy certificates, with the remainder made up of delivered energy.

General Services Administration— Under the three-year contract with Green Mountain Energy initiated in the fall of 2002, the General Services Administration (GSA) committed to purchase 100% renewable electricity service for the Liberty Bell Pavilion at Independence National Historical Park and other federal government-operated facilities in Philadelphia. The purchase amounted to 3.7 million kWh of green power annually.

In 2002, GSA also entered into a contract to purchase green power to meet the entire electricity needs of two of its buildings in New York – the Binghamton Federal Building and the Pirnie Federal Building in Utica. Under a three-year contract with Select Energy, GSA has purchased 1.1 million kWh of wind energy annually at a premium of 1.75¢/kWh. The wind energy is supplied from the Fenner wind farm in New York. This contract was renewed for another year in 2005.

In November 2003, GSA also contracted with Pepco Energy Services (PES) to supply electricity generated from renewable sources to the U.S. departments of Interior, Labor, and Transportation. Under the contract, PES supplied more than 10 million kWh of *Green-e* certified power to the three federal agencies through May 2004. One-fourth of the green energy was supplied from regional wind farms with the remainder from landfill-gas projects.

Oak Ridge National Laboratory—In 2000, the U.S. Department of Energy's Oak Ridge National Laboratory (ORNL) began purchasing green power from the Tennessee Valley Authority (TVA) to meet a portion of its electricity needs. Under the agreement, the laboratory became one of the first industrial participants in TVA's *Green Power Switch* program. ORNL purchased 375 blocks, or 675,000 kWh annually, at an extra cost of \$18,000 per year.

Pacific Northwest National Laboratory—In January 2004, the Pacific Northwest National Laboratory (PNNL) entered into agreements to purchase green power for all of the electricity used at its Marine Sciences Laboratory in Sequim, Washington. When added to preexisting

purchases for its main campus in Richland, Washington, PNNL purchases 12 million kWh of green power annually, representing 15% of the laboratory's total electricity needs. The purchases are made from the Clallam County Public Utility District and the City of Richland. PNNL is a U.S. Department of Energy research laboratory operated by Battelle.

U.S. Department of Energy—As of October 2005, the U.S. Department of Energy (DOE) began purchasing 152 million kWh of green power, or enough to supply 3% of the total electricity needs of its facilities throughout the country.

In August 2005, the Western Area Power Administration (WAPA) announced that 10 entities of the U.S. Department of Energy, including the National Renewable Energy Laboratory, have teamed with the Fort Carson Army Base to purchase 117,825 MWhs of renewable energy certificates (RECs) annually for the next five years. The RECs will come from a combination of biomass generation from sawmill plants in California, and wind projects in California and Nebraska, and will be supplied by Sterling Planet, a national RECs marketer based in Norcross, Georgia. WAPA coordinated the requests for proposal for all of the agencies and also committed to purchase a portion of the RECs.

U.S. Environmental Protection Agency—As of August 2005, the U.S. Environmental Protection Agency (EPA) had entered into contracts to purchase about 250 million kWh of green power to supply about 80% of the electricity needs of its facilities nationally. EPA has dramatically increased its renewable energy purchases in the past few years. For example, in June 2004, EPA facilities were purchasing about 130 million kWh of green power annually, or the equivalent of 46% of the electricity consumed at all EPA facilities nationwide; and, in fiscal year 2003, EPA purchased approximately 30 million kWh of green power.

In 2001, EPA founded the Green Power Partnership to help build demand for green power among commercial and industrial electricity customers. As of September 2005, more than 600 companies and organizations had joined the Partnership Program, with collective purchases of about 2.9 billion kWh of green power annually.

PROGRAMS SUPPORTING LARGE GREEN POWER PURCHASERS

Green Power Market Development Group—Formed in 2000, the Green Power Market Development Group (GPMDG) is a commercial and industrial partnership of more than a dozen companies dedicated to building corporate markets for green power. In December 2004, the group announced 67 MW of renewable energy purchases following 97 MW of renewable energy commitments in September 2003. The group's goal is to develop 1,000 MW of new, cost-competitive green power by 2010. The diverse group of businesses, which represent an estimated 8% of total U.S. corporate energy use, includes DuPont, General Motors, IBM, Interface, Johnson & Johnson, Kinko's, and Pitney Bowes. More recently, Dow Chemical Company, Staples Inc., and Starbucks have joined the group.

U.S. EPA Green Power Partnership — In 2001, EPA founded the Green Power Partnership to help build demand for green power among commercial and industrial electricity customers. As of September 2005, more than 600 organizations had joined the program as partners, including Fortune 500 companies, states, federal agencies, trade associations and universities. Collectively, these program partners purchase about 2.9 billion kWh of green power annually (see **Appendix B** for the list of the top 25 green power partners as of October 2005).

References

Amato, Anthony 2005. Email communication, ERG (contractor for U.S. EPA), Boston, MA, September 26, 2005.

Bird, L. and E. Brown, 2005. *Trends in Utility Green Pricing Programs (2004)*, NREL/TP-620-38800 Golden, CO: National Renewable Energy Laboratory, September.

Bird, L. and K. Cardinal, 2004. *Trends in Utility Green Pricing Programs (2003)*, NREL/TP-620-36833 Golden, CO: National Renewable Energy Laboratory, September.

Bird, L. and B. Swezey, 2005. "Estimates of New Renewable Energy Capacity Serving U.S. Green Power Markets" National Renewable Energy Laboratory, September.
http://www.eere.energy.gov/greenpower/resources/tables/new_gp_cap.shtml

Bird, L. and B. Swezey, 2004. *Green Power Marketing in the United States: A Status Report (Seventh Edition)*, NREL/TP-620-36823. Golden, CO: National Renewable Energy Laboratory, September. <http://www.eere.energy.gov/greenpower/pdfs/36823.pdf>

Bird, L. and B. Swezey, 2003. *Green Power Marketing in the United States: A Status Report (6th Edition)*, NREL/TP-620-35119. Golden, CO: National Renewable Energy Laboratory, October. <http://www.eere.energy.gov/greenpower/resources/pdfs/35119.pdf>

Center for Resource Solutions, 2002. *Green-e Verification Report, 2001* http://www.green-e.org/what_is/standard/verification.html

Center for Resource Solutions, 2001. *Green-e Verification Report, 2000* http://www.green-e.org/what_is/standard/verification.html

U.S. Energy Information Administration (EIA), 2004. *Renewable Energy Annual 2003*, DOE/EIA-0603(2003), December. http://www.eia.doe.gov/cneaf/solar.renewables/page/rea_data/rea_sum.html

Holt, E.A., and M. Holt, 2004. *Green Pricing Resource Guide (2nd Edition)*, Ed Holt & Associates, Inc., Harpswell, Maine. Prepared for the American Wind Energy Association, Washington DC, September. <http://www.awea.org/greenpower/greenPricingResourceGuide040726.pdf>

Pennsylvania Office of Consumer Advocate, 2005. *Electric Shopping Statistics*, July 1, 2005, accessed October 10, 2005: <http://www.oca.state.pa.us/cinfo/instat.htm>

Public Utility Commission of Texas, 2005. *Report Card on Competition*, August 2005 accessed October 10, 2005: <http://www.puc.state.tx.us/electric/reports/RptCard/rptcrd/aug05rptcrd.pdf>

Swezey, B. and L. Bird, 2000. *Green Power Marketing in the United States: A Status Report (5th Edition)*, NREL/TP-620-28738. Golden, CO: National Renewable Energy Laboratory, August. <http://www.eere.energy.gov/greenpower/resources/pdfs/28738.pdf>

Swezey, B. and L. Bird, 2001. *Utility Green Pricing Programs: What Defines Success?* NREL/TP-620-29831. Golden, CO: National Renewable Energy Laboratory, August. <http://www.eere.energy.gov/greenpower/29831.pdf>

Wiser, R., M. Bolinger, E. Holt, and B. Swezey, 2001. *Forecasting the Growth of Green Power Markets in the United States*. NREL/TP-620-30101. Golden, CO: National Renewable Energy Laboratory, August 2001. <http://www.eere.energy.gov/greenpower/30101.pdf>

Appendix A – Tables of Green Power Product Offerings

Table A-1: Utilities Offering Green Pricing Programs in 2004

<p>Investor-Owned Utilities Alabama Power Company Alliant Energy Arizona Public Service Avista Utilities Central Vermont Public Service Dominion NC Power Duke Power El Paso Electric Florida Power & Light Company Green Mountain Power Gulf Power Hawaiian Electric Idaho Power Company Indianapolis Power & Light Company Madison Gas & Electric MidAmerican Energy Minnesota Power Northwestern Energy OG&E Electric Services Otter Tail Power Company PacifiCorp* Portland General Electric Progress Energy PSI Energy/Cinergy Public Service of New Mexico Puget Sound Energy Tampa Electric Company Tucson Electric Power Company UniSource Energy Services Upper Peninsula Power Company We Energies Wisconsin Public Service Corporation Xcel Energy</p> <p>Electric Cooperatives Basin Electric Power Cooperative* Boone Electric Cooperative Corn Belt Power Cooperatives Dairyland Power Cooperative* Deseret Power East Kentucky Power Cooperative* Farmers Electric Cooperative Georgia Electric Membership Corporation* Great River Energy* Holy Cross Energy Hoosier Energy* Lower Valley Energy Midstate Electric Cooperative Minnkota Power Cooperative* Orcas Power & Light Cooperative Oregon Trail Electric Cooperative/PNGC Power* Park Electric Cooperative Peninsula Light Company Southern Montana Electric G&T Cooperative Tri-State Generation and Transmission Assoc.* Vigilante Electric Cooperative Wabash Valley Power Association* Western Farmers Electric Cooperative Yampa Valley Electric Association</p>	<p>Federal Tennessee Valley Authority*</p> <p>Municipals/Other Public Utilities City of Alameda AMP Ohio Anaheim Public Utilities City of Ashland Austin Energy Benton County PUD City of Bowling Green Burbank Water and Power Cedar Falls Utilities Chelan County PUD Clallum County PUD Clark Public Utilities Colorado Springs Utilities Concord Municipal Light Plant Cowlitz PUD ElectriCities Emerald People's Utility District Eugene Water & Electric Board Gainesville Regional Utilities Grant County PUD Grays Harbor PUD Iowa Association of Municipal Utilities* Keys Energy Services Lansing Board of Water and Light Lewis County PUD Lincoln Electric System Los Angeles Department of Water and Power Mason County PUD No. 3 Missouri River Energy Services* Moorhead Public Service Muscatine Power and Water City of New Smyrna Beach Oklahoma Municipal Power Authority Omaha Public Power District Pacific County PUD #2 Pasadena Water & Power City of Palo Alto Utilities Platte River Power Authority* Roseville Electric Sacramento Municipal Utility District City of St. Charles Salt River Project City Public Service of San Antonio Santee Cooper* Seattle City Light Silicon Valley Power Snohomish County PUD Southern Minnesota Municipal Power Agency* City Utilities of Springfield Tacoma Power City of Tallahassee Traverse City Light & Power Waverly Light & Power Wisconsin Public Power Inc.*</p> <p>*denotes program offered through multiple utilities or distribution cooperatives</p>
--	--

Table A-2: Utility Green Pricing Programs by State, October 2005

State	Utility Name	Program Name	Type	Start Date	Premium
AK	Golden Valley Electric Association	Sustainable Natural Alternative Power (SNAP)	various local projects	2005	Contribution
AL	Alabama Power Company	Renewable Energy Rate	biomass co-firing	2003	6.0¢/kWh
AL	TVA: City of Athens Electric Department, Cullman Electric Coop, Cullman Power Board, Decatur Utilities, Florence Utilities, Hartselle Utilities, Huntsville, Joe Wheeler EMC, Muscle Shoals Electric Board, Scottsboro Electric Power Board, Sheffield Utilities, Tusculumbia Electric Department	Green Power Switch	landfill gas, PV, wind	2000	2.67¢/kWh
AZ	Arizona Public Service	APS Solar Partners Program	central PV	1997	17.6¢/kWh
AZ	Salt River Project	EarthWise Energy	central PV, wind, landfill gas, small hydro, geothermal	1998/2001	3.0¢/kWh
AZ	Tucson Electric	GreenWatts	landfill gas, PV	2000	10¢/kWh
AZ	UniSource Energy Services	GreenWatts	PV	2004	10¢/kWh
CA	Anaheim Public Utilities	Green Power for the Schools	PV	2002	Contribution
CA	Anaheim Public Utilities	Green Power for the Grid	wind, landfill gas	2002	1.5¢/kWh
CA	Burbank Water and Power	Clean Green Support	various	2001	1.0¢/kWh
CA	Los Angeles Department of Water and Power	Green Power for a Green LA	wind, landfill gas	1999	3.0¢/kWh
CA	PacifiCorp: Pacific Power	Blue Sky Block	wind	2000	1.95¢/kWh
CA	Palo Alto Utilities/3 Phases Energy Services	Palo Alto Green	wind, PV	2003	1.5¢/kWh
CA	Pasadena Water & Power	Green Power	wind	2003	2.5¢/kWh
CA	Roseville Electric	RE Green Energy	geothermal, PV	2000	1.0¢/kWh
CA	Sacramento Municipal Utility District	Greenergy	wind, landfill gas, hydro, PV	1997	1.0¢/kWh or \$6/month
CA	Silicon Valley Power / 3 Phases Energy Services	Santa Clara Green Power	wind, PV	2004	1.5¢/kWh
CO	Colorado Springs Utilities	Green Power	wind	1999	3.0¢/kWh
CO	Holy Cross Energy	Wind Power Pioneers	wind	1998	2.5¢/kWh
CO	Holy Cross Energy	Local Renewable Energy Pool	small hydro, PV	2002	3.3¢/kWh
CO	Platte River Power Authority: Estes Park, Fort Collins Utilities, Longmont Power & Communications, Loveland Water & Light	Wind Energy Premium	wind	1999	1.0¢/kWh - 2.5¢/kWh
CO	Tri-State Generation & Transmission: Carbon Power, Chimney Rock, Gunnison County Electric, Kit Carson Electric, La Plata Electric, Mountain Parks Electric, Mountain View Electric, New Mexico, Northwest Rural, Poudre Valley Rural Electric Association, Public Power District, San Isabel Electric, San Luis Valley Rural Electric Coop, San Miguel Power, Sangre, Springer Electric, United Power, White River (18 of 44 coops offer program)	Renewable Resource Power Service	wind, hydro	1998	2.5¢/kWh
CO	Xcel Energy	Renewable Energy Trust	PV	1993	Contribution
CO	Xcel Energy	WindSource	wind	1997	0.97¢/kWh
CO	Yampa Valley Electric Association	Wind Energy Program	wind	1999	3.0¢/kWh

State	Utility Name	Program	Type	Start Date	Premium
FL	City of Tallahassee/Sterling Planet	Green for You	biomass, PV	2002	1.6¢/kWh
FL	City of Tallahassee/Sterling Planet	Green for You	PV only	2002	11.6¢/kWh
FL	Florida Power & Light / Green Mountain Energy	Sunshine Energy	biomass, wind, PV	2004	0.975¢/kWh
FL	Gainesville Regional Utilities	GRUgreen Energy	landfill gas, wind, PV	2003	2.0¢/kWh
FL	Keys Energy Services / Sterling Planet	GO GREEN: Florida Ever Green	solar hot water, PV, biomass	2004	2.75¢/kWh
FL	Keys Energy Services / Sterling Planet	GO GREEN: USA Green	wind, biomass, PV	2004	1.60¢/kWh
FL	Tampa Electric Company (TECO)	Tampa Electric's Renewable Energy Program	PV, landfill gas, biomass co-firing	2000	5.0¢/kWh
FL	Utilities Commission City of New Smyrna Beach	Green Fund	local PV projects	1999	Contribution
GA	Georgia Electric Membership Corporation (16 of 42 coops offer program): Carroll EMC, Coastal Electric, Cobb EMC, Coweta-Fayette EMC, Flint Energies, GreyStone Power, Habersham EMC, Irwin EMC, Jackson EMC, Jefferson Energy, Lamar EMC, Ocmulgee EMC, Sawnee EMC, Snapping Shoals EMC, Tri-County EMC, Walton EMC of Monroe	Green Power EMC	landfill gas	2001	2.0¢/kWh-3.3¢/kWh
GA	Georgia Power	Green Energy	landfill gas	2005	5.5¢/ kWh
GA	TVA: Blue Ridge Mountain Electric Membership Corporation, North Georgia Electric Membership Corporation	Green Power Switch	landfill gas, PV, wind	2000	2.67¢/ kWh
HI	Hawaiian Electric	Sun Power for Schools	PV in schools	1997	Contribution
ID	Avista Utilities	Buck-A-Block	wind	2002	0.33¢/kWh
ID	Idaho Power	Green Power Program	various	2001	Contribution
ID	PacifiCorp: Utah Power	Blue Sky	wind	2003	1.95¢/kWh
ID	Vigilante Electric Cooperative	Alternative Renewable Energy Program	wind, PV, hydro	2003	1.1¢/kWh
IL	CCS/Soyland and Community Energy, Inc (8 of 11 coops offer program): Adams Electric Co-op, Coles-Moultrie Electric, Eastern Illini Electric, McDonough Power, Menard, Rural Electric Convenience Co-op, Shelby Electric, Spoon River Electric Co-op	EcoEnergy	wind	2005	3.0¢/kWh
IL	City of Naperville / Community Energy	Renewable Energy Option	wind, small hydro, PV	2005	2.5¢/kWh
IL	City of St. Charles/ComEd and Community Energy	TBD	wind, landfill gas	2003	Contribution
IL	Dairyland Power Cooperative: Jo-Carroll Energy/Elizabeth	Evergreen Renewable Energy Program	wind	1997	1.5¢/kWh
IN	Hoosier Energy (5 of 17 coops offer program): Southeastern Indiana REMC, South Central Indiana REMC, Utilities District of Western Indiana REMC, Decatur County REMC, Daviess-Martin County REMC	EnviroWatts	landfill gas	2001	2.0¢/kWh-4.0¢/kWh
IN	Indianapolis Power & Light	Elect Plan Green Power Program	geothermal	1998	0.9¢/kWh
IN	PSI Energy/Cinergy	Green Power Rider	wind, PV, landfill gas, digester gas	2001	Contribution

State	Utility Name	Program	Type	Start Date	Premium
IN	Wabash Valley Power Association (7 of 27 coops offer program): Boone REMC, Hendricks Power Cooperative, Kankakee Valley REMC, Miami-Cass REMC, Tipmont REMC, White County REMC, Northeastern REMC	EnviroWatts	landfill gas	2000	0.9¢/kWh-1.0¢/kWh
IA	Alliant Energy	Second Nature	landfill gas, wind	2001	2.0¢/kWh
IA	Basin Electric Power Cooperative: Lyon Rural, Harrison County, Nishnabotna Valley Cooperative, Northwest Rural Electric Cooperative, Western Iowa	Prairie Winds	wind	2000	1.0¢/kWh-2.5¢/kWh
IA	Cedar Falls Utilities	Harvest the Wind	wind	2000	2.5¢/kWh
IA	Corn Belt Power Cooperatives (5 of 11 co-ops): Butler County REC, Franklin REC, Grundy County REC, Humboldt County REC, Sac County REC	Energy Wise Renewables	wind	2003	1.5¢/kWh
IA	Dairyland Power Cooperative: Allamakee-Clayton/Postville, Hawkeye Tri-County/Cresco, Heartland Power/Thompson & St. Ansgar	Evergreen Renewable Energy Program	wind	1997	3.0¢/kWh
IA	Farmers Electric Cooperative	Green Power Project	biodiesel, wind	2004	Contribution
IA	Iowa Association of Municipal Utilities (80 of 137 participating) Afton, Algona, Alta Vista, Aplington, Auburn, Bancroft, Bellevue, Bloomfield, Breda, Brooklyn, Buffalo, Burt, Callender, Carlisle, Cascade, Coggon, Coon Rapids, Corning, Corwith, Danville, Dayton, Durant, Dysart, Earlville, Eldridge, Ellsworth, Estherville, Fairbank, Farnhamville, Fontanelle, Forest City, Gowrie, Grafton, Grand Junction, Greenfield, Grundy Center, Guttenberg, Hopkinton, Hudson, Independence, Keosauqua, La Porte City, Lake Mills, Lake View, Laurens, Lenox, Livermore, Maquoketa, Marathon, McGregor, Milford, Montezuma, Mount Pleasant, Neola, New Hampton, Ogden, Orient, Osage, Panora, Pella, Pocahontas, Preston, Readlyn, Rockford, Sabula, Sergeant Bluff, Sibley, Spencer, Stanhope, State Center, Stratford, Strawberry Point, Stuart, Tipton, Villisca, Vinton, Webster City, West Bend, West Liberty, West Point, Westfield, Whittemore, Wilton, Winterset	Green City Energy	wind, biomass, PV	2003	Varies by utility
IA	MidAmerican Energy	Renewable Advantage	wind	2004	Contribution
IA	Missouri River Energy Services (MRES): Alton, Atlantic, Denison, Fontanelle, Hartley, Hawarden, Kimballton, Lake Park, Manilla, Orange City, Paullina, Primghar, Remsen, Rock Rapids, Sanborn, Shelby, Sioux Center, Woodbine	RiverWinds	wind	2003	1.0¢/kWh-2.5¢/kWh
IA	Muscatine Power and Water	Solar Muscatine	PV	2004	Contribution
IA	Waverly Light & Power	Green Power Choice	wind	2003	Contribution
IA	Waverly Light & Power	Iowa Energy Tags	wind	2001	2.0¢/kWh
KY	East Kentucky Power Cooperative: Blue Grass Energy, Clark, Cumberland, Fleming, Grayson, Inter-county Energy, Jackson, Licking, Mason, Nolin, Owen Electric, Salt River, Shelby, South Kentucky	EnviroWatts	landfill gas	2002	2.75¢/kWh
KY	TVA: Bowling Green Municipal Utilities, Franklin Electric Plant Board	Green Power Switch	landfill gas, PV, wind	2000	2.67¢/kWh
MA	Concord Municipal Light Plant (CMLP)	Green Power	hydro	2004	3.0¢/kWh
MI	Consumers Energy	Green Generation	wind, landfill gas	2005	1.67¢/kWh
MI	Lansing Board of Water and Light	GreenWise Electric Power	landfill gas, small hydro	2001	3.0¢/kWh

State	Utility Name	Program	Type	Start Date	Premium
MI	Traverse City Light and Power	Green Rate	wind	1996	1.5¢/kWh
MI	Upper Peninsula Power Company	NatureWise	wind, landfill gas and animal waste methane	2004	4.0¢/kWh
MI	We Energies	Energy for Tomorrow	wind, landfill gas, hydro	2000	2.0¢/kWh
MN	Alliant Energy	Second Nature	landfill gas, wind	2002	2.0¢/kWh
MN	Basin Electric Power Cooperative: Minnesota Valley Electric Coop., Sioux Valley Southwestern	Prairie Winds	wind	2002	1.0¢/kWh-2.5¢/kWh
MN	Central Minnesota Municipal Power Agency	Green Energy Program	wind, landfill gas	n/a	1.5¢/kWh-2.5¢/kWh
MN	Dairyland Power Cooperative: Freeborn-Mower Cooperative / Albert Lea, People's / Rochester, Tri-County / Rushford	Evergreen Renewable Energy Program	wind	1997	1.5¢/kWh
MN	Great River Energy (all 28 coops offer program): Agralite, Arrowhead, BENCO Electric, Brown County Rural Electric, Connexus Energy, Co-op Light & Power, Crow Wing Power, Dakota Electric Association, East Central Electric Association, Federated Rural Electric, Goodhue County, Itasca Mantrap Cooperative, Kandiyohi Power Cooperative, Lake Country Power, Lake Region Electric Cooperative, McLeod Cooperative Power, Meeker Cooperative Light & Power, Mille Lacs Electric Cooperative, Minnesota Valley, Nobles Cooperative Electric, North Itasca, Redwood Electric Cooperative, Runestone Electric, South Central Electric Association, Stearns Electric, Steele-Waseca, Todd-Wadena, Wright-Hennepin Electric	Wellspring Renewable Wind Energy Program	wind	1998	1.45¢/kWh-2.0¢/kWh
MN	Minnesota Power	WindSense	wind	2002	2.5¢/kWh
MN	Minnkota Power Cooperative: Beltrami, Clearwater Polk, North Star, PKM, Red Lake, Red River, Roseau, Wild Rice, Thief River Falls	Infinity Wind Energy	wind	1999	1.5¢/kWh
MN	Missouri River Energy Services (39 of 55 munis offer program): Adrian, Alexandria, Barnesville, Benson, Breckenridge, Detroit Lakes, Elbow Lake, Henning, Jackson, Lakefield, Lake Park, Luverne, Madison, Moorhead, Ortonville, St. James, Sauk Centre, Staples, Wadena, Westbrook, Worthington	RiverWinds	wind	2002	1.0¢/kWh-2.5¢/kWh
MN	Moorhead Public Service	Capture the Wind	wind	1998	1.5¢/kWh
MN	Otter Tail Power Company	TailWinds	wind	2002	2.6¢/kWh
MN	Southern Minnesota Municipal Power Agency (all 18 offer program): Fairmont Public Utilities, Wells Public Utilities, Austin Utilities, Preston Public Utilities, Spring Valley Utilities, Blooming Prairie Public Utilities, Rochester Public Utilities, Owatonna Public Utilities, Waseca Utilities, St. Peter Municipal Utilities, Lake City Utilities, New Prague Utilities Commission, Redwood Falls Public Utilities, Litchfield Public Utilities, Princeton Public Utilities, North Branch Water and Light, Mora Municipal Utilities, Grand Marais Public Utilities	SMPMA Wind Power	wind	2000	1.0¢/kWh
MN	Xcel Energy	WindSource	wind	2003	2.0¢/kWh
MS	TVA: City of Oxford, North East Mississippi Electric Power Asssocation, Starkville Electric System	Green Power Switch	landfill gas, PV, wind	2000	2.67¢/kWh
MO	Boone Electric Cooperative	Renewable Choice	wind	2003	2.0¢/kWh
MO	City Utilities of Springfield	WindCurrent	wind	2000	5.0¢/kWh

State	Utility Name	Program	Type	Start Date	Premium
MT	Basin Electric Power Cooperative: Lower Yellowstone	Prairie Winds	wind	2000	1.0¢/kWh-2.5¢/kWh
MT	Northwestern Energy	E+ Green	wind, PV	2003	2.0¢/kWh
MT	Park Electric Cooperative	Green Power Program	wind, hydro	2002	1.2¢/kWh
MT	Southern Montana Electric Generation and Transmission Cooperative (5 co-ops): Fergus Electric, Yellowstone Valley, Bear Tooth Electric, Mid Yellowstone, and Tongue River	Environmentally Preferred Power	wind, hydro	2002	1.05¢/kWh
MT	Vigilante Electric Cooperative	Alternative Renewable Energy Program	wind, hydro, PV	2003	1.1¢/kWh
NE	Lincoln Electric System	LES Renewable Energy Program	wind	1998	4.3¢/kWh
NE	Omaha Public Power District	Green Power Program	landfill gas, wind	2002	3.0¢/kWh
NE	Tri-State: Chimney Rock Public Power District, Northwest Rural Public Power District	Renewable Resource Power Service	wind, landfill gas	2001	2.5¢/kWh
NM	El Paso Electric	Renewable Energy Tariff	wind	2003	3.19¢/kWh
NM	Los Alamos Department of Public Utilities	Green Power	wind	2005	1.8¢/kWh
NM	Public Service of New Mexico	PNM Sky Blue	wind	2003	1.8¢/kWh
NM	Tri-State: Kit Carson Electric Cooperative	Renewable Resource Power Service	wind, landfill gas	2001	2.5¢/kWh
NM	Xcel Energy	WindSource	wind	1999	3.0¢/kWh
NC	Dominion North Carolina Power	NC GreenPower	biomass, wind, solar	2003	4.0¢/kWh
NC	Duke Power	NC GreenPower	biomass, wind, solar	2003	4.0¢/kWh
NC	ElectriCities: City of High Point, City of Laurinburg, City of Newton, City of Shelby, City of Statesville, town of Apex, Town of Granite Falls	NC GreenPower	biomass, wind, solar	2003	4.0¢/kWh
NC	NC Electric Cooperatives (15 of 27 cooperatives offer the program): Albemarle EMC, Blue Ridge Electric Membership Corp., Brunswick Electric Membership Corp., Carteret Craven Electric Coop., Edgecombe-Martin County Electric Membership Corp., EnergyUnited, Four County Electric Membership Corp., Haywood Electric Membership Corp., Jones-Onslow Electric Membership Corp., Pee Dee Electric Membership Corp., Piedmont Electric Membership Corp., Randolph Electric Membership Corp., Roanoke Electric Membership Corp., Tri-County Electric Membership Corp., Wake Electric Membership Corp.	NC GreenPower	biomass, wind, PV	2003	4.0¢/kWh
NC	Progress Energy / CP&L	NC GreenPower	biomass, wind, solar	2003	4.0¢/kWh
NC	TVA: Mountain Electric Cooperative	Green Power Switch	landfill gas, PV, wind	2000	2.67¢/kWh
ND	Basin Electric Power Cooperative (49 coops offer program in 5 states): Oliver Mercer Electric Coop, Mor-gran-sou Electric Coop, KEM Electric Coop, North Central Electric Coop, Verendrye, Capital, Northern Plains, Dakota Valley, Burke Divide, Montrail Williams, McKenzie Electric Coop, West Plains, Slope Electric Coop	PrairieWinds	wind	2000	1.0¢/kWh-2.5¢/kWh

State	Utility Name	Program	Type	Start Date	Premium
ND	Minnkota Power Cooperative: Cass County Electric, Cavalier Rural Electric, Nodak Electric, Northern Municipal Power Agency (12 municipals)	Infinity Wind Energy	wind	1999	1.5¢/kWh
ND	Missouri River Energy Services: City of Lakota	RiverWinds	wind	2002	1.0¢/kWh-2.5¢/kWh
OH	American Municipal Power-Ohio / Green Mountain Energy: City of Bowling Green, Cuyahoga Falls, Wyandotte	Nature's Energy	small hydro, landfill gas, wind	2003	1.3¢/kWh-1.5¢/kWh
OK	OG&E Electric Services	OG&E Wind Power	wind	2003	2.0¢/kWh
OK	Oklahoma Municipal Power Authority: Tonkawa, Altus, Frederick, Okeene, Prague Municipal Utilities and Edmond Electric	Pure & Simple	wind	2004	1.8¢/kWh
OK	Western Farmers Electric Cooperative (19 of 19): Alfalfa Electric Cooperative, Caddo Electric Cooperative, Canadian Valley Electric Cooperative, Choctaw Electric Cooperative, Cimmaron Electric Cooperative, Cotton Electric Cooperative, East Central Oklahoma Electric Cooperative, Harmon Electric Cooperative, Kay Electric Cooperative, Kiamichi Electric Cooperative, Kiwash Electric Cooperative, Northfork Electric Cooperative, Northwestern Electric Cooperative, Oklahoma Electric Cooperative, People's Electric Cooperative, Red River Valley Rural Electric Cooperative, Rural Electric Cooperative, Southeastern Electric Cooperative, Southwest Rural Electric Cooperative	WindWorks	wind	2004	0.5¢/kWh
OR	City of Ashland/Bonneville Environmental Foundation	Renewable Pioneers	PV, wind	2003	2.0¢/kWh
OR	Columbia River PUD	Choice Energy	wind	2005	2.0¢/kWh
OR	Emerald People's Utility District/Green Mountain Energy	Choose Renewable Electricity	wind, geothermal	2003	1.2¢/kWh
OR	Eugene Water & Electric Board	EWEB Wind Power	wind	1999	0.71¢/kWh
OR	Midstate Electric Cooperative	Environmentally-Preferred Power	wind, small hydro	1999	2.5¢/kWh
OR	Oregon Trail Electric Cooperative	Green Power	wind	2002	1.5¢/kWh
OR	PacifiCorp: Pacific Power	Blue Sky QS (Commercial Only)	wind	2004	Sliding scale depending on size
OR	PacifiCorp: Pacific Power	Blue Sky Block	wind	2000	1.95¢/kWh
OR	PacifiCorp: Pacific Power / 3 Phases Energy Services	Blue Sky Usage	wind, biomass, PV	2002	0.78¢/kWh
OR	PacifiCorp: Pacific Power / 3 Phases Energy Services	Blue Sky Habitat	wind, biomass, PV	2002	0.78¢/kWh + \$2.50/mo. donation
OR	Pacific Northwest Generating Cooperative: Central Electric Cooperative, Clearwater Power, Consumers Power, Douglas Electric Cooperative, Umatilla Electric Cooperative (5 of 16 coops offer program)	Green Power	landfill gas	1998	1.8¢/kWh-4.0¢/kWh
OR	Portland General Electric / Green Mountain Energy	Green Source	existing geothermal, wind	2002	0.8¢/kWh
OR	Portland General Electric / Green Mountain Energy	Healthy Habitat	existing geothermal, wind	2002	0.8¢/kWh + \$2.50/mo. donation

State	Utility Name	Program	Type	Start Date	Premium
OR	Portland General Electric Company	Clean Wind for Medium to Large Commercial & Industrial Accounts	wind	2003	1.35¢/kWh-1.7¢/kWh
OR	Portland General Electric Company	Clean Wind Power	wind	2002	1.75¢/kWh
SC	Santee Cooper, Aiken Electric Cooperative, Berkeley Electric Cooperative, Edisto Electric Cooperative, Fairfield Electric Cooperative, Horry Electric Cooperative, Laurens Electric Cooperative, Lynches River Electric Cooperative, Marlboro Electric Cooperative, Mid-Carolina Electric Cooperative, Palmetto Electric Cooperative, Pee Dee Electric Cooperative, Santee Electric Cooperative, Tri-County Electric Cooperative, York Electric Cooperative	Green Power Program	landfill gas	2001	3.0¢/kWh
SD	Basin Electric Power Cooperative: Bon Homme-Yankton Electric Assn., Central Electric Cooperative Association, Charles Mix Electric Association, City of Elk Point, Clay-Union Electric Corporation, Codington-Clark Electric Cooperative, Dakota Energy Cooperative, Douglas Electric Cooperative, FEM Electric Association, H-D Electric Cooperative, Kingsbury Electric Cooperative, Lyon-Lincoln Electric Cooperative, McCook Electric Cooperative, Northern Electric Cooperative, Oahe Electric Cooperative, Renville-Sibley Coop. Power Assn., Sioux Valley Southwestern Electric Coop, Southeastern Electric Coop, Union County Electric Cooperative, Whetstone Valley Electric Cooperative, Black Hills Electric Coop, LaCreek Electric Coop, West River Power Association, Butte Electric Coop, Cherry Todd Electric Coop, Moreau Grand, Grand Electric Cooperative, Rosebud	Prairie Winds	wind	2000	1.0¢/kWh-2.5¢/kWh
SD	Missouri River Energy Services: City of Vermillion	RiverWinds	wind	2002	1.0¢/kWh-2.5¢/kWh
TN	TVA: Alcoa Electric Department, Appalachian Electric Cooperative, Athens Utility Board, Bristol Tennessee Electric System, Caney Fork Electric Cooperative, City of Maryville Electric Department, Clarksville Department of Electricity, Cleveland Utilities, Clinton Utilities Board, Cookeville Electric Department, Cumberland Electric Membership Corporation, Dickson Electric Department, Duck River Electric Membership Corporation, Elizabethton Electric System, EPB (Chattanooga), Erwin Utilities, Fayetteville Public Utilities, Gibson Electric Membership Corporation, Greeneville Light and Power System, Harriman Utility Board, Johnson City Power Board, Jackson Energy Authority, Knoxville Utilities Board, LaFollette Utilities Board, Lawrenceburg Power System, Lenoir City Utilities Board, Loudon Utilities, McMinnville Electric System, Memphis Light, Gas & Water, Meriwether Lewis Electric Cooperative, Middle Tennessee Electric Membership Corporation, Morristown Power System, Mountain Electric Cooperative, Murfreesboro Electric Department, Nashville Electric Service, Newport Utilities, Oak Ridge Electric Department, Paris Board of Public Utilities, Plateau Electric Cooperative, Powell Valley Electric Cooperative, Pulaski Electric System, Sequachee Valley Electric Cooperative, Sevier County Electric System, Springfield Department of Electricity, Sweetwater Utilities Board, Tullahoma Utilities Board, Upper Cumberland Electric Membership Corporation, Volunteer Energy	Green Power Switch	landfill gas, PV, wind	2000	2.67¢/kWh

State	Utility Name	Program	Type	Start Date	Premium
TX	Austin Energy (City of Austin)	GreenChoice	wind, landfill gas, hydro	2000/1997	0.5¢/kWh
TX	City Public Service of San Antonio	Windtricity	wind	2000	3.0¢/kWh
TX	El Paso Electric Company	Renewable Energy Tariff	wind	2001	1.92¢/kWh
UT	City of St. George	Clean Green Power	wind, small hydro	2005	2.95¢/kWh
UT	Deseret Power	GreenWay	various	2004	1.95¢/kWh
UT	PacifiCorp: Utah Power	Blue Sky	wind	2000	1.95¢/kWh
VT	Central Vermont Public Service	CVPS Cow Power	biogas	2004	4.0¢/kWh
VT	Green Mountain Power	CoolHome / CoolBusiness	wind, biomass	2002	Contribution
WA	Avista Utilities	Buck-A-Block	wind	2002	0.33¢/kWh
WA	Benton County Public Utility District	Green Power Program	landfill gas, wind	1999	Contribution
WA	Chelan County PUD	Sustainable Natural Alternative Power (SNAP)	PV, wind, micro hydro	2001	Contribution
WA	Clallam County PUD	Clallam County PUD Green Power Program	landfill gas	2001	0.7¢/kWh
WA	Clark Public Utilities	Green Lights	PV, wind	2002	1.5¢/kWh
WA	Cowlitz PUD	Renewable Resource Energy	wind, PV	2002	2.0¢/kWh
WA	Grant County PUD	Alternative Energy Resources Program	wind	2002	2.0¢/kWh
WA	Grays Harbor PUD	Green Power	wind	2002	3.0¢/kWh
WA	Lewis County PUD	Green Power Energy Rate	wind	2003	2.0¢/kWh
WA	Mason County PUD No. 3	Mason Evergreen Power	wind	2003	2.0¢/kWh
WA	Orcas Power & Light	Go Green	wind, hydro	1999	3.5¢/kWh
WA	Pacific County PUD	Green Power	landfill gas	2002	1.05¢/kWh
WA	PacifiCorp: Pacific Power	Blue Sky	wind	2000	1.95¢/kWh
WA	Peninsula Light	Green by Choice	wind, hydro	2002	2.8¢/kWh
WA	Puget Sound Energy	Green Power Plan	wind, PV, biogas	2002	2.0¢/kWh
WA	Seattle City Light	Green UP (C&I only)	wind	2005	1.5¢/kWh
WA	Seattle City Light	Seattle Green Power	PV, biogas	2002	Contribution
WA	Snohomish County Public Utility District	Planet Power	wind	2002	2.0¢/kWh
WA	Tacoma Power	EverGreen Options	small hydro, wind	2000	1.5¢/kWh
WI	Alliant Energy	Second Nature	wind, landfill gas	2000	2.0¢/kWh
WI	Dairyland Power Cooperative: Barron Electric, Bayfield/ Iron River, Chippewa / Cornell Valley, Clark / Greenwood, Dunn / Menomonie, Eau Claire / Fall Creek, Jackson / Black River Falls, Jump River / Ladysmith, Oakdale, Pierce-Pepin / Ellsworth, Polk-Burnett / Centuria, Price / Phillips, Richland, Riverland / Arcadia, St. Croix / Baldwin, Scenic Rivers / Lancaster, Taylor / Medford, Vernon / Westby	Evergreen Renewable Energy Program	wind	1998	1.5¢/kWh
WI	Great River Energy: Head of the Lakes	Wellspring Renewable Wind Energy Program	wind	1997	1.45¢/kWh-2.0¢/kWh
WI	Madison Gas & Electric	Wind Power Program	wind	1999	3.3¢/kWh
WI	We Energies	Energy for Tomorrow	landfill gas, hydro, wind	1996	2.04¢/kWh

State	Utility Name	Program	Type	Start Date	Premium
WI	Wisconsin Public Power Inc. (34 of 37 munis offer program): Algoma, Cedarburg, Florence, Kaukauna, Muscodia, Stoughton, Reedsburg, Oconomowoc, Waterloo, Whitehall, Columbus, Hartford, Lake Mills, New Holstein, Richland Center, Boscobel, Cuba City, Hustisford, Sturgeon Bay, Waunakee, Lodi, New London, Plymouth, River Falls, Sun Prairie, Waupun, Eagle River, Jefferson, Menasha, New Richmond, Prairie du Sac, Slinger, Two Rivers, Westby	Renewable Energy Program	small hydro, wind, biogas	2001	2.0¢/kWh
WI	Wisconsin Public Service	NatureWise	wind, landfill gas, biogas	2002	1.86¢/kWh
WI	Wisconsin Public Service	Solar Wise for Schools	PV in schools	1996	Contribution
WY	Lower Valley Energy	Green Power	wind	2003	1.17¢/kWh
WY	PacifiCorp: Pacific Power	Blue Sky	wind	2000	1.95¢/kWh
WY	Tri-State: Carbon Power & Light	Renewable Resource Power Service	wind, landfill gas	2001	2.5¢/kWh
WY	Yampa Valley Electric Association	Wind Energy Program	wind	1999	3.0¢/kWh

Table A-3: Retail Green Power Product Offerings in Competitive Electricity Markets, October 2005

State	Company	Product Name	Residential Price Premium ¹	Fee	Resource Mix ²	Certification
CT	Community Energy (CT Clean Energy Options Program)	CT Clean Energy Options 50% or 100% of usage	1.1¢/kWh	—	50% new wind, 50% landfill gas	—
CT	Levco	100% Renewable Electricity Program	0.0¢/kWh	—	98% waste-to-energy and hydro (Class II), 2% new solar, wind, fuel cells, and landfill gas	—
CT	Sterling Planet (CT Clean Energy Options Program)	Sterling Select 50% or 100% of usage	1.15¢/kWh	—	33% new wind, 33% existing small low impact hydro, 34% new landfill gas	—
DC	PEPCO Energy Services (3)	Green Electricity 10%, 51% or 100% of usage	1.35¢/kWh (for 100% usage)	—	landfill gas	—
DC	PEPCO Energy Services (3)	NewWind Energy 51% or 100% of usage	2.05¢/kWh (for 100% usage)	—	new wind	—
DC	Washington Gas Energy Services / Community Energy	New Wind Energy (5%, 10%, 25%, 50%, or 100% of usage)	2.5¢/kWh	—	new wind	—
ME	Maine Renewable Energy/Maine Interfaith Power & Light (4)	Maine Clean Power	2.37¢/kWh	—	100% low impact hydro	—
ME	Maine Renewable Energy/Maine Interfaith Power & Light (4)	Maine Clean Power Plus	2.87¢/kWh	—	80% low impact hydro, 20% wind	—
MD	PEPCO Energy Services (5)	Green Electricity 10%, 51% or 100% of usage	2.75¢/kWh (for 100% usage)	—	landfill gas	—
MD	PEPCO Energy Services (5)	NewWind Energy 51% or 100% of usage	3.35¢/kWh (for 100% usage)	—	new wind	—
MD	PEPCO Energy Services (5)	Non-residential product	NA	—	50% to 100% eligible renewables	Green-e
MD	Washington Gas Energy Services / Community Energy	New Wind Energy	2.5¢/kWh	—	new wind (5%, 10%, 25%, 50%, or 100% of usage) or 100 kWh blocks	—
MA	Cape Light Compact (6)	Cape Light Compact Green 50% or 100%	1.768¢/kWh (for 100% usage)	—	75% small hydro, 24% new wind or landfill gas, 1% new solar	—
MA	Massachusetts Electric/Nantucket Electric/Community Energy	New Wind Energy 50% or 100% of usage	2.4¢/kWh	—	50% small hydro, 50% new wind	Green-e

State	Company	Product Name	Residential Price Premium ¹	Fee	Resource Mix ²	Certification
MA	Massachusetts Electric/Nantucket Electric/Mass Energy Consumers Alliance	New England GreenStart 50% or 100% of usage	2.4¢/kWh (for 100% usage)	—	75% small hydro, 19% biomass, 5% wind, 1% solar (≥25% of total is new)	—
MA	Massachusetts Electric/Nantucket Electric/Sterling Planet	Sterling Premium 50% or 100% of usage	1.35¢/kWh	—	50% small hydro, 30% bioenergy, 15% wind, 5% new solar	Environmental Resources Trust
NJ	Green Mountain Energy Company (7)	Enviro Blend	1.0¢/kWh	\$3.95/mo.	5% new wind, 0.4% solar, 44.6% captured methane, 50% large hydro	—
NJ	PSE&G/JCP&L/Community Energy	Clean Power Choice Program	1.3¢/kWh	—	50% wind, 49% low impact hydro, 1% solar	—
NJ	PSE&G/JCP&L/ Green Mountain Energy	Clean Power Choice Program	0.9¢/kWh	—	50% wind, 50% low impact hydro	—
NJ	PSE&G/JCP&L/ Jersey-Atlantic Wind	Clean Power Choice Program	2.9¢/kWh	—	50% wind, 50% low impact hydro	—
NJ	PSE&G/JCP&L/ Jersey-Atlantic Wind	Clean Power Choice Program: New Jersey Wind Energy	5.5¢/kWh	—	100-kWh new wind	—
NJ	PSE&G/JCP&L/ Sterling Planet	Clean Power Choice Program	1.2¢/kWh	—	33% wind, 33% small hydro, 34% bioenergy	Environmental Resources Trust
NY	ConEdison Solutions (8) / Community Energy	GREEN Power	0.5¢/kWh	—	25% new wind, 75% small hydro	Green-e
NY	ECONergy	Keet It Clean	\$.10/day for 100kWh \$.20/day for 200kWh	—	100% new wind	—
NY	Energy Cooperative of New York (9)	Renewable Electricity	0.5¢/kWh to 0.75¢/kWh	—	25% new wind, 75% existing landfill gas	—
NY	Long Island Power Authority / Community Energy	New Wind Energy	2.5¢/kWh	—	new wind	—
NY	Long Island Power Authority / Community Energy	New Wind Energy and Water	1.3¢/kWh	—	60% new wind, 40% small hydro	—
NY	Long Island Power Authority / EnviroGen	Green Power Program	1.0¢/kWh	—	75% landfill gas, 25% small hydro	—
NY	Long Island Power Authority / Sterling Planet	New York Clean	1.0¢/kWh	—	55% small hydro, 35% bioenergy, 10% wind	—
NY	Long Island Power Authority / Sterling Planet	Sterling Green	1.5¢/kWh	—	40% wind, 30% small hydro, 30% bioenergy	—
NY	NYSEG/Community Energy	Catch the Wind/New Wind Energy	2.5¢/kWh	—	100-kWh blocks of new wind	—
NY	Niagara Mohawk / Community Energy	60% New Wind Energy and 40% Small Hydro	1.0¢/kWh	—	60% new wind, 40% hydro	—
NY	Niagara Mohawk / Community Energy	NewWind Energy	2.0¢/kWh	—	new wind	—

State	Company	Product Name	Residential Price Premium ¹	Fee	Resource Mix ²	Certification
NY	Niagara Mohawk / EnviroGen	Think Green!	1.0¢/kWh	—	75% landfill gas, 25% hydro	—
NY	Niagara Mohawk / Sterling Planet	Sterling Green	1.5¢/kWh	—	40% wind, 30% small hydro, 30% bioenergy	Environmental Resources Trust
NY	Niagara Mohawk/Green Mountain Energy	Green Mountain Energy Electricity	1.3¢/kWh	—	50% small hydro, 50% wind	Green-e
NY	Rochester Gas & Electric/Community Energy	Catch the Wind/NewWind Energy	2.5¢/kWh	—	100-kWh blocks of new wind	—
NY	Suburban Energy Services /Sterling Planet	Sterling Green Renewable Electricity	1.5¢/kWh	—	40% new wind, 30% small hydro, 30% bioenergy	—
PA	Energy Cooperative of Pennsylvania (10)	EcoChoice 100	2.78¢/kWh	—	89% landfill gas, 10% wind, 1% solar	Green-e
PA	Energy Cooperative of Pennsylvania (10)	Wind Energy	2.5¢/kWh	—	wind	—
PA	PECO Energy/Community Energy (10)	PECO Wind	2.54¢/kWh	—	100-kWh blocks of new wind	—
PA	PEPCO Energy Services (10)	Green Electricity 10%, 51% or 100% of usage	3.7¢/kWh (for 100% usage)	—	100% renewable	—
PA	PEPCO Energy Services (10)	NewWind Energy 51% or 100% of usage	4.48¢/kWh (for 100% usage)	—	100% new wind	—
RI	Narragansett Electric / Community Energy, Inc.	NewWind Energy 50% or 100% of usage	2.0¢/kWh	—	50% small hydro, 50% new wind	Green-e
RI	Narragansett Electric / People's Power & Light	New England GreenStart RI 50% or 100% of usage	1.5¢/kWh	—	69% small hydro, 30% new wind, 1% new solar	Green-e
RI	Narragansett Electric / Sterling Planet	Sterling Supreme 100%	1.98¢/kWh	—	40% small hydro, 25% biomass, 25% new solar, 10% wind	Environmental Resources Trust
TX	Gexa Energy (11)	Gexa Green	-1.1¢/kWh	—	100% renewable	—
TX	Green Mountain Energy Company (11)	100% Wind Power: Reliable Rate or Month-to-Month	1.46¢/kWh	\$5.34/mo.	wind	—
TX	Green Mountain Energy Company (11)	Pollution Free: Reliable Rate or Month-to-Month	-0.03¢/kWh	\$5.34/mo.	wind and hydro	—
TX	Reliant Energy (11)	Renewable Plan	-1.1¢/kWh	—	wind	—
VA	PEPCO Energy Services (12)	Green Electricity 10%, 51% or 100% of usage	4.53¢/kWh (for 100% usage)	—	landfill gas	—
VA	PEPCO Energy Services (12)	NewWind Energy 51% or 100% of usage	5.33¢/kWh (for 100% usage)	—	new wind	—
VA	Washington Gas Energy Services / Community Energy	New Wind Energy Certificates	2.5¢/kWh	—	100 kWh blocks of new wind	—

- ¹ Prices updated as of July 2005 and may also apply to small commercial customers. Prices may differ for large commercial/industrial customers and may vary by service territory.
- ² New is defined as operating or repowered after January 1, 1999 based on the Green-e TRC certification standards.
- ³ Offered in PEPCO service territory. Product prices are for renewal customers based on annual average costs for customers in PEPCO's service territory (6.8¢/kWh).
- ⁴ Price premium is for Central Maine Power service territory based on standard offer of 7.13¢/kWh.
- ⁵ Product offered in Baltimore Gas and Electric and PEPCO service territories. Price is for PEPCO service territory based on price to compare of 6.55¢/kWh.
- ⁶ Price premium is based on a comparison to the Cape Light Compact's standard electricity product.
- ⁷ Green Mountain Energy offers products in Conectiv, JCPL, and PSE&G service territories. Product prices are for PSE&G (price to compare of 6.503¢/kWh).
- ⁸ Price premium is based on a comparison to ConEdison Solutions' standard electricity product in the ConEdison service territory.
- ⁹ Price premium is for Niagara Mohawk service territory. Program only available in Niagara Mohawk service territory. Premium varies depending on energy taxes and usage.
- ¹⁰ Product prices are for PECO service territory (price to compare of 6.21¢/kWh).
- ¹¹ Product prices are based on price to beat of 12.1¢/kWh for TXU service territory (specifically Dallas, Texas) (Except where noted). Except for Gexa Green, which is listed in price per kWh, prices based on 1000 kWh of usage monthly, and include monthly fees.
- ¹² Products are available in Dominion Virginia Power service territory

Table A-4: Renewable Energy Certificate (REC) Retail Products, October 2005

Certificate Marketer	Product Name	Renewable Resources	Location of Renewable Resources	Residential Price Premiums*	Certification
3 Phases Energy Services	Green Certificates	100% new wind	Nationwide	2.0¢/kWh	Green-e
Blue Sky Energy Corp	Greener Choice™ Green Tags	Landfill Gas	Utah	1.95¢/kWh	—
Bonneville Environmental Foundation	Green Tags	≥98% new wind, ≤1% new solar, ≤1% new biomass	Washington, Oregon, Wyoming, Montana, Alberta	2.0¢/kWh	Green-e
Clean and Green	Clean and Green Membership	100% new wind	National	3.0¢/kWh	Green-e
Clean Energy Partnership/Community Energy	Mid Atlantic Wind	100% new wind	Mid Atlantic	2.0¢/kWh	Green-e
Clean Energy Partnership/Sterling Planet	National New Clean Energy Mix	24% wind, 25% biomass, 50% landfill gas, 1% solar	National	0.6¢/kWh	Environmental Resources Trust
Clean Energy Partnership/Sterling Planet	National and Regional New Wind	100% new wind	National	1.0¢/kWh	Environmental Resources Trust
Community Energy	New Wind Energy	100% new wind	Colorado, Illinois, New York, Pennsylvania, West Virginia	2.0¢/kWh - 2.5¢/kWh	Green-e
Conservation Services Group	ClimateSAVE	95% new wind, 5% new solar	Kansas (wind), New York (solar)	1.65¢/kWh - 1.75¢/kWh	Green-e
EAD Environmental	100% Wind Energy Certificates	100% new wind	Not specified	1.5¢/kWh	—
EAD Environmental	Home Grown Hydro Certificates	100% small hydro (<5MW)	New England	1.2¢/kWh	—
Green Mountain Energy	TBD (Pennsylvania REC product)	100% wind	National	1.7¢/kWh- 2.0¢/kWh	—
Maine Interfaith Power & Light/BEF	Green Tags (supplied by BEF)	≥98% new wind, ≤1% new solar, ≤1% new biomass	Washington, Oregon, Wyoming, Montana, Alberta	2.0¢/kWh	—
Mass Energy Consumers Alliance	New England Wind	100% new wind	Massachusetts	5.0¢/kWh	—
NativeEnergy	CoolHome	New biogas and new wind	Vermont and Pennsylvania (biomass), South Dakota (wind)	0.8¢/kWh - 1.0¢/kWh	**
NativeEnergy	WindBuilders	100% new wind	South Dakota	~1.2¢/kWh, \$12 per ton of CO2 avoided	**
Renewable Choice Energy	American Wind	100% new wind	Nationwide	2.0¢/kWh	Green-e
Renewable Ventures	PVUSA Solar Green Certificates	100% solar	California	3.3¢/kWh	Green-e

Certificate Marketer	Product Name	Renewable Resources	Location of Renewable Resources	Residential Price Premiums*	Certification
SKY energy, Inc.	Wind-e Renewable Energy	100% new wind	Nationwide	2.4¢/kWh	Green-e
Sterling Planet	Green America	45% new wind, 50% new biomass, 5% new solar	Nationwide	1.6¢/kWh	Green-e
TerraPass Inc.	TerraPass	Various (including efficiency and CO2 offsets)	Nationwide	~\$11/ton CO2	—
Waverly Light & Power	Iowa Energy Tags	100% wind	Iowa	2.0¢/kWh	—
WindCurrent	Chesapeake Windcurrent	100% new wind	Mid-Atlantic States	2.5¢/kWh	Green-e

Premium may also apply to small commercial customers. Large users may be able to negotiate price premiums.

Most product prices are as of July 2005.

** The Climate Neutral Network certifies the methodology used to calculate the CO2 emissions offset.

NA = Not applicable.

Appendix B

Table B-1: EPA Green Power Partnership Top 25 Partners by Size of Purchase, October 2005

Rank	Purchaser	Annual Purchase (MWh)
1.	U.S. Air Force	321,416
2.	U.S. Environmental Protection Agency	246,809
3.	Johnson & Johnson	241,398
4.	U.S. Department of Energy	152,000
5.	The World Bank	85,000
6.	Safeway Inc.	78,000
7.	U.S. General Services Administration/Region 2	76,185
8.	Whole Foods Market	71,428
9.	City of San Diego, CA	69,843
10.	HSBC North America	68,181
11.	New Jersey Consolidated Energy Savings Program	55,624
12.	Advanced Micro Devices/Austin, TX Facilities	52,448
13.	WhiteWave Foods	49,500
14.	Austin (TX) Independent School District	48,827
15.	Staples	48,283
16.	Mohawk Fine Papers, Inc.	45,000
17.	The Tower Companies	41,000
18.	U.S. Army/Fort Carson	40,000
19.	University of Pennsylvania	40,000
20.	Montgomery County, MD	38,412
21.	Hyatt Regency/Reunion & DFW Airport Hotels	35,300
22.	Western Washington University	35,000
23.	Commonwealth of Pennsylvania	34,800
24.	FedEx Kinko's	29,300
25.	East Bay Municipal Utility District/Main WWT Plant	26,000

Source: U.S. EPA Green Power Partnership <http://www.epa.gov/greenpower/partners/top25.htm>

Appendix C

Table C-1: Estimated U.S. Green Power Customers by State and Customer Class

State	Electric Industry Participants 2003 ^P	Participating Customers			
		2003 ^P			2002
		Residential	Non-Residential	Total	Total
Alabama					
Alaska					
Arizona	2	5,838	96	5,934	4,039
Arkansas					
California	8	60,626	1,653	62,279	55,631
Colorado	18	43,418	776	44,194	39,191
Connecticut					1,056
Delaware					8
District of Columbia	2	4,612	212	4,824	1,686
Florida	1	206	12	218	146
Georgia	11	3,881	14	3,895	418
Hawaii	3	3,551	28	3,579	3,040
Idaho	4	2,437	71	2,508	2,090
Illinois	1	8		8	8
Indiana	9	1,075	16	1,091	708
Iowa	30	5,756	29	5,785	4,403
Kansas					
Kentucky	5	115	3	118	6
Louisiana					
Maine	1		5	5	47
Maryland	2	14,205	151	14,356	2,553
Massachusetts	1		1	1	
Michigan	6	1,285	61	1,346	1,189
Minnesota	76	19,805	450	20,255	7,922
Mississippi	1	7		7	
Missouri	4	261		261	136
Montana	4	48	1	49	241
Nebraska	4	4,086	85	4,171	4,809
Nevada	1	284	1	285	241
New Hampshire					
New Jersey	1	1,731	85	1,816	2,226
New Mexico	5	5,610	164	5,774	629
New York	2	133	1	134	
North Carolina	9	3,747	166	3,913	
North Dakota	9	1,771	21	1,792	670
Ohio	1	387,938	40,911	428,849	356,309
Oklahoma	1	6,712	46	6,758	
Oregon	12	37,173	4,966	42,139	35,674
Pennsylvania	3	74,583	93	74,676	92,722
Rhode Island					
South Carolina	4	1,506	219	1,725	1,152
South Dakota	12	613	11	624	^R 513
Tennessee	1		1	1	
Texas	4	65,618	2,993	68,611	47,638
Utah	1	12,264	3,216	15,480	8,924
Vermont					
Virginia	2	4,624	15	4,639	2,394
Washington	18	16,406	452	16,858	11,003
West Virginia					
Wisconsin	50	26,158	437	26,595	20,913
Wyoming	5	1,488	85	1,573	1,215
Total	308	819,579	57,547	877,126	^R 711,550

P = Preliminary; R = Revised

Note: Electric industry participants include the following respondent types: Federal, state, municipal, investor-owned, and cooperative utilities; municipal marketing authorities; and power marketers (or energy service providers). Non-residential may include some customers for which no customer class is specified. Blank cells indicate no data was reported for the state or the number of customers in a class was zero. Totals may not equal the sum of the components due to independent rounding. Source: Energy Information Administration, Form EIA-861, "Annual Electric Power Industry Report."

Source: EIA *Renewable Energy Annual 2003*, DOE/EIA-0603(2003), December 2004.

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

The 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 the burden, to Department of Defense, Executive Services and Communications Directorate (0704-0188). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION.

1. REPORT DATE (DD-MM-YYYY) October 2005			2. REPORT TYPE Technical Report		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Green Power Marketing in the United States: A Status Report (Eighth Edition)				5a. CONTRACT NUMBER DE-AC36-99-GO10337		
				5b. GRANT NUMBER		
				5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) Lori Bird and Blair Swezey				5d. PROJECT NUMBER NREL/TP-620-38994		
				5e. TASK NUMBER ASG5.1003		
				5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) National Renewable Energy Laboratory 1617 Cole Blvd. Golden, CO 80401-3393				8. PERFORMING ORGANIZATION REPORT NUMBER NREL/TP-620-38994		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S) NREL		
				11. SPONSORING/MONITORING AGENCY REPORT NUMBER		
12. DISTRIBUTION AVAILABILITY STATEMENT National Technical Information Service U.S. Department of Commerce 5285 Port Royal Road Springfield, VA 22161						
13. SUPPLEMENTARY NOTES						
14. ABSTRACT (Maximum 200 Words) Voluntary consumer decisions to purchase electricity supplied by renewable energy sources represent a powerful market support mechanism for renewable energy development. Beginning in the early 1990s, a small number of U.S. utilities began offering "green power" options to their customers. Since then, these products have become more prevalent, both from utilities and in states that have introduced competition into their retail electricity markets. Today, more than 50% of all U.S. consumers have an option to purchase some type of green power product from a retail electricity provider. This report provides an overview of green power marketing activity in the United States. The first section provides an overview of green power markets, consumer response, and recent industry trends. The second section provides brief descriptions of utility green pricing programs. The third section describes companies that actively market green power in competitive markets and those that market renewable energy certificates nationally or regionally. The final section provides information on a select number of large, nonresidential green power purchasers, including businesses, universities, and government agencies.						
15. SUBJECT TERMS Green power; green power marketing; green tags; voluntary markets; renewable energy markets; utilities; electricity customers; energy industry trends; renewable energy certificates; RECs; green power products; consumer response; utility green pricing programs; Lori Bird; Blair Swezey						
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UL	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON	
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (Include area code)	