

# Green Power Marketing In The United States

*An estimated 1.9 billion kWh of renewable energy was sold to retail customers in competitive electricity markets in 2003.*

**BY LORI BIRD AND BLAIR SWEZEY**

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 15% of utilities offer green power programs to customers in 34 states. These programs allow customers to purchase some portion of their power supply – almost always at a higher price – as renewable energy 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 noncompetitive electricity markets.

In some competitive (or restructured) retail electricity markets, customers can purchase electricity generated from renewable sources by switching to an alternative electricity supplier that offers green power. To

date, nearly a dozen states that have opened their markets to competition have experienced some degree of green power marketing activity.

Finally, any consumer can purchase green power through 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 already have access to a green power product from their retail power provider and without having to switch to an alternative supplier.

### **Green pricing programs**

The number of utilities offering green pricing has grown steadily in recent years – today, more than 500 investor-owned, public and cooperative utilities in 34 states offer green pricing programs. Because a number of small municipal or cooperative utilities offer programs developed by their power suppliers, the number of distinct green pricing programs is more than 100. Since 1999, between 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 recent growth has been

spurred by several states that have passed laws requiring utilities to offer green pricing. The key elements in these programs include:

- **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 (blocks) at a fixed price, such as a 100-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 .6 cents/kWh to as much as 17.6 cents/kWh, with a median of two cents/kWh and a mean of 2.62 cents/kWh.

- **Customer participation.** At the end of 2003, more than 265,000 customers were participating in utility green pricing programs nationwide, including about 6,500 nonresidential customers. Between 1999 and 2003, the number of

participating customers increased fourfold. During 2003, the number of nonresidential customers participating in green pricing programs increased by 66%, which was more than four times the rate of growth of residential customers. This reflects the fact that utilities have been increasing their marketing efforts to nonresidential customers, as well as the smaller base of pre-existing nonresidential customers.

In 2003, customer participation rates in utility green pricing programs remained steady, with an average of 1.2% and a median of .9% across all programs. The top programs showed greater improvement in participation rates, with average rates ranging from 4% to 11% in 2003, compared to 3% to 6% in 2002.

Other factors that limit participation rates include: a lack of customer awareness of the green power program; customer unwillingness to pay a premium for green power; customer uncertainty regarding the actual benefits of the program; varied levels of interest among utilities in marketing and promoting the program; and limited product availability.

- Green power sales. Collectively, utilities sold nearly 1.3 billion kWh of green power to customers in 2003. Green power sales to all customer classes increased by 44% in 2003, compared to 56% in 2002 and 26% in 2001. The growth in sales can be attributed to the larger number of customers purchasing green power – particularly new, nonresidential customers – as well as larger purchases by customers.

At the end of 2003, about 520 MW of new renewables capacity had been installed as a result of utility green pricing programs, with another 170 MW planned. 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.

### **Competitive green power markets**

About one-third of states have restructured their electricity markets to introduce retail service competition.

Initially, buying green power in

competitive retail markets entailed switching service from the incumbent utility to a green power supplier. However, in most of these markets, alternative marketers have found it difficult to persuade customers to switch suppliers. More recently, states are now requiring default suppliers (which are often the incumbent distribution utilities) to offer green power options to their customers. These suppliers typically allow customers to choose among green power options offered by competing green power marketers.

These programs are relatively new, and there is still too little experience to say whether they provide an effective strategy for marketing green power in restructured states, particularly to residential customers. Marketing issues faced in the competitive states include:

- Products and pricing. The products offered in competitive markets tend to differ from those offered by utilities in that they may contain a mix of electricity generated from new and pre-existing renewable energy projects. By contrast, utilities generally use only new renewable energy supplies, competitive suppliers are more concerned about price competition, and existing resources are typically available at lower costs. Also, when markets initially opened to competition, competitive suppliers were forced to offer existing renewables in some regions because of a lack of new renewable energy supplies.

- Customer participation. Based on data received from marketers, we estimate that 150,000 customers were purchasing green power from competitive suppliers at the end of 2003, primarily in the Northeast states and Texas. These figures include customers purchasing both certified and uncertified products, although they do not include customers purchasing products containing only a small fraction of renewable energy content.

- Green power sales. According to data received from marketers, this includes renewable energy from both existing and new sources, as well as energy sold to customers in products that contain only a small percentage of

renewable sources. Data is not available on sales by customer segment. However, the EPA Green Power Partnership reports that its nonresidential partners currently purchase about 440 million kWh in competitive markets, which represents nearly one-fourth of the total.

The renewable energy sources most commonly used to supply competitive green power offerings are wind, landfill gas, and small or low-impact hydropower. A number of products also contain a small amount of solar energy.

Early competitive-market product offerings were supplied primarily from existing renewable energy sources, but more recent product offerings contain higher fractions of new renewables. Green-e certification criteria require marketers to increase the percentage of new renewable content over time – in 2002, 64% of the Green-e certified electricity was supplied from new renewable energy sources, up from only 26% in 2001. Higher-priced products often contain a larger fraction of new renewable energy content or more desirable resources, such as new wind and solar.

### **REC markets**

One alternative to both competitive and regulated green power offerings is renewable energy certificates (RECs). 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 a variety of renewable energy sources in a particular region or locality and marketed as such to local customers.

### **Summary and observations**

Nationally, some 400,000 electricity customers are purchasing a green power product through their regulated utility company, either from green power marketers in a competitive market setting or in the form of RECs. While the most successful utility pro-

grams have achieved customer participation rates of 4% to 11%, average participation is only about 1% for utility programs. Competitive markets have yielded similar averages where markets are conducive to competition and, thus, customer switching is occurring. Renewable energy certificates offer another product alternative and have been particularly popular with nonresidential customers.

Although the green power market is still evolving, it is already clear that it represents an important stimulus for renewable energy development. Green power marketing provides a new type of revenue stream for renewable energy developers, while raising consumer awareness of the benefits of renewable energy. An estimated 3.9 billion kWh of green power was sold in these voluntary markets in 2003, including energy from existing renewable energy sources. About 1,600 MW of new renewable energy capacity is currently supported, in part, through consumer demand for green power, and another nearly 400 MW of capacity is planned in the short term.

Several trends are clear from this review:

- Sales of green power continue to grow significantly. For example, sales through utility green pricing programs more than doubled from 2001 to 2003. Also, green power markets, as a whole, are supporting nearly 2,000 MW of new renewable energy development, up from an estimated 1,400 MW at the end of 2002. Purchases by large, nonresidential customers account for much of the growth in sales, although residential sales also continue to grow. In addition, customers who participate in green pricing pro-

grams have increased the size of their purchases.

- The number of customers purchasing green power nationwide remained relatively flat, as losses in California offset growth in other markets during 2003. However, participants in utility green pricing programs increased by about 16%, with much faster growth among the nonresidential sector. In addition, markets in the Northeast and Texas experienced some gains.

- Participation rates among the top utility green pricing programs showed improvement, with average rates ranging from 4% to 11% in 2003 compared to 3% to 6% in 2002. However, average participation rates among all programs remained relatively steady at about 1%, primarily due to a large number of relatively inactive programs and the introduction of new programs. Programs that have been in existence for at least four years have an average participation rate of 1.8%.

- About a dozen utility green pricing programs account for the vast majority of sales and participants. Therefore, sustained growth will depend on the ability of utilities to translate the success of a small number of programs to the rest of the industry.

- Utility green pricing premiums are falling from a combination of lower-than-expected resource costs, incentives and higher prices of conventional generation fuels.

- Although utilities continue to add green pricing programs at a steady rate, only 15% 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 pro-

grams may plateau unless more states require green power tariffs.

- While competitive markets accounted for half of all green power sales in 2003, new competitive retail market opportunities have stagnated because no new markets will open in the foreseeable future. And because of competitive market barriers, green power marketers have had trouble succeeding with bundled green power sales in most restructured markets. Many marketers have turned to RECs as an alternative for making green power sales in competitive markets. In addition, marketer partnerships with default suppliers show promise in jumpstarting the market, particularly among residential customers – but the jury is still out on whether these partnerships will have any greater level of success.

- Nonresidential customers are driving the success of the RECs market, as RECs introduce tremendous flexibility in purchasing. Sales of Green-e certified RECs to nonresidential customers increased nearly fivefold in 2003, indicating the growing level of attraction that RECs hold for this market segment.

- The use of RECs continues to increase and will put downward pressure on green power prices in voluntary purchase markets. **SNP**

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