

Center for Resource Solutions

Certified Electricity Products Verification Results

Building consumer confidence in renewable electricity

Verification Report



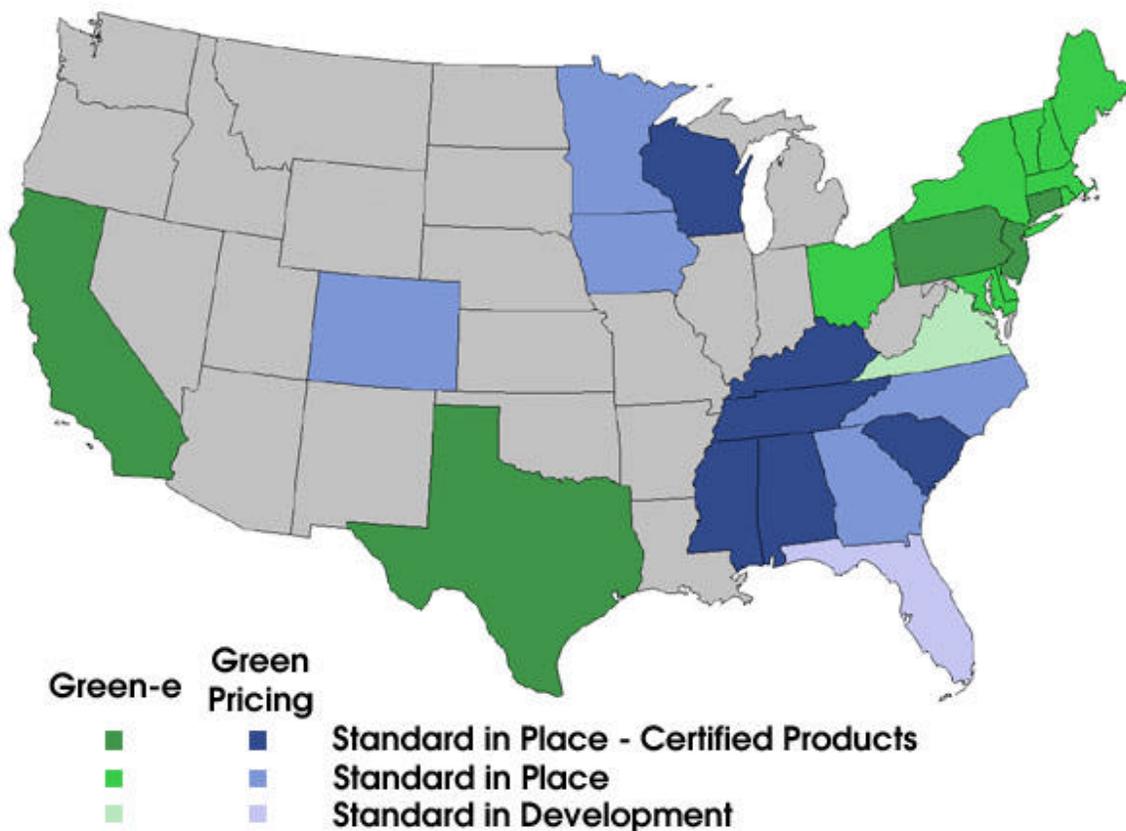
Year 2001

A report of the results of an annual independent process audit of Electricity Service Providers and Utilities offering Green-e Certified and Accredited products

Introduction

Electricity products that are certified by the Green-e Program and its companion Green Pricing Accreditation Program must meet environmental and consumer protection standards that are established through the Green-e and Green Pricing stakeholder advisory process, the Green Power and Green Pricing Boards, and the non-profit Center for Resource Solutions (CRS). Electricity Service Providers (ESPs) and utilities that sell certified electricity products undergo an annual independent process audit to verify that they meet CRS's standards. This annual verification is an integral part of the Green-e and Green Pricing Accreditation Program efforts to build consumer confidence in renewable-based electricity and to spur demand for renewable power in both restructured and regulated markets. This document presents the results of the Green-e and Green Pricing Accreditation process audit for 2001. In addition to the audit, Green-e and the Green Pricing Accreditation Program also perform a biannual review of ESP and utility marketing materials to ensure that information provided in all media (e.g. websites, radio commercials, customer bill inserts, and brochures) is truthful and does not overstate environmental benefits.

Green-e Activity by State



The Center for Resource Solutions is a non-profit organization that brings together diverse interests to preserve our environment, encourage sustainable economic growth; and promote clean energy for present and future generations.

CRS is a catalyst organization whose main function is to interpret the changing political, physical and social environment and provide useful and appropriate resource solutions. We administer domestic and international programs that preserve and protect the environment through the design of sustainable energy strategies and technologies.

Overview of Program Results

In 2001, over 120,000 customers purchased CRS-certified electricity products. Most of these customers, roughly 109,000, were residential accounts.

Green-e and Green Pricing Accreditation program sales totaled over 1,050,000 MWh in 2001, of which 980,000 MWh was from eligible renewable resources. Of this total, 26% was from qualifying “new” renewable resources. The table below summarizes the total renewable energy supply and total *new* renewable supply, by resource, for CRS certified electricity sales in 2001.

2001 Total Renewable Resource Supply for Certified Electricity Products

Resource	Total Renewables MWh (000s)	New Renewables MWh (000s)
Geothermal	471	0
Biomass	347	146
Wind	103	102
Small Hydro	58	2.5
Solar	<1	<1
Total	980	251



Green-e

Renewable Energy Certification Program

Information Verified by Green-e Process Audit

The Green-e process audit is different from a traditional financial audit in that the auditor only reviews those materials and processes dictated by a set of Agreed-Upon Procedures. The auditor reviews a company's contracts, invoices and metering data to verify the quantity and type of renewable power purchased and sold. More specifically, the independent auditor annually verifies that the ESP has contracts, documentation and processes that support the following Green-e requirements:

- the ESP purchased enough renewable power from eligible resources, in quantity and type, to meet customer demand for each specific Green-e electricity offering or "product;"
- any non-renewable portion of the electricity product had emissions less than or equal to the regional system power mix for SO_x, NO_x and CO₂;
- the information in the Annual Power Content Label was accurately calculated and displayed;
- the renewable power purchased and sold by the ESP was not sold to more than one customer or paid for by other customers through the rate base of regulated utilities;
- the ESP did not make any specific purchases of nuclear power for this product;
- the process for recording the amount of power sold to customers is accurate based on a statistical sampling of customer bills;
- as required by the Green-e standard, the ESP purchased sufficient quantities of new renewable resources; and
- in California, the Annual Retail Supplier Report forms filed with the California Energy Commission (CEC) are accurate and supported by contracts and/or invoices for power purchased and sold.

Green-e Providers and Products¹

In 2001, Green-e certified products were sold in California, Pennsylvania, New Jersey, and Connecticut². Nationwide, five wholesalers and 11 retailers participated in the Green-e Program. In total, 26 separate Green-e certified retail products were offered across the country. Twenty-one of the products were offered as 100% renewable, and five as 50% renewable.

Green-e Customers³

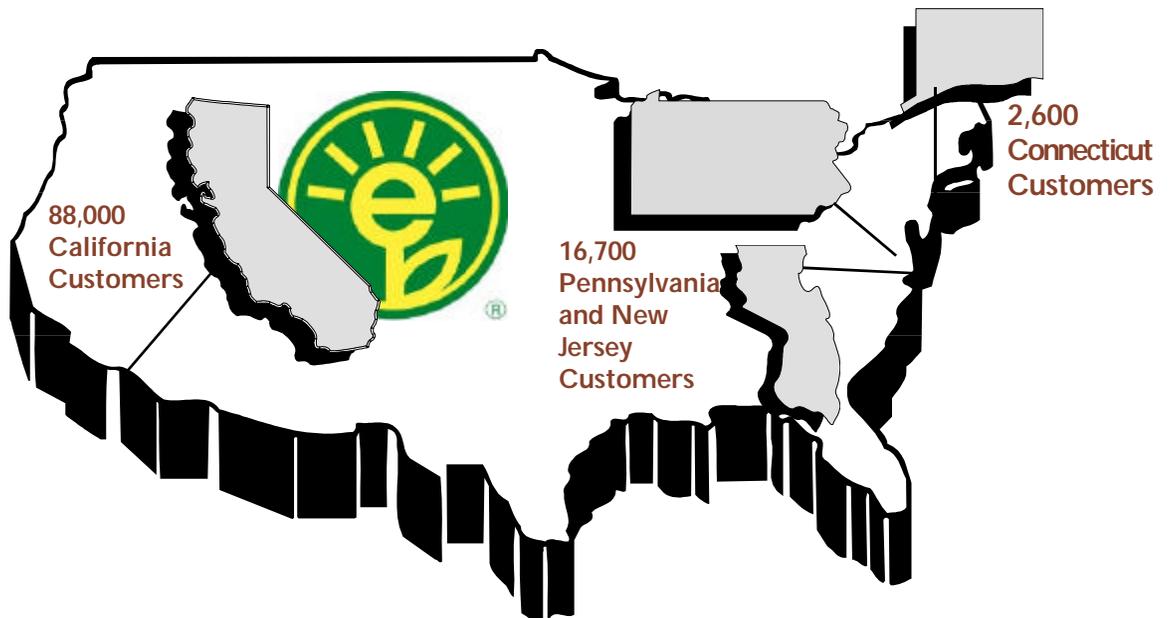
Nationwide, in 2001 over 107,000 electricity customers chose Green-e certified products. Green-e certified electricity was delivered to over 94,000 residential accounts and over 13,000 non-residential accounts nationwide. The total load served by Green-e electricity products in 2001 was approximately 950,000 MWh. Seventy-eight percent of this load was sold to residential customers and 22% to non-residential customers.⁴

¹ This section summarizes Green-e providers and products sold in competitive markets. Pages 8 through 11 describe Green-e products sold in traditional monopoly markets.

² One Green-e retailer, offering one Green-e certified product, did not complete the verification audit. Unaudited sales and supply data from this retailer are included in this report, and represent 1% of total Green-e program sales.

³ The data in the following section represents the number of customers at year end.

How many people were served by Green-e certified electricity in 2001?



Residential Consumers

In California, nearly 75,000 residential accounts were served Green-e certified electricity in 2001. In Pennsylvania and New Jersey, over 16,000 residential customers bought Green-e certified power, and in Connecticut, over 2,600 residential accounts were served by Green-e certified electricity in 2001.

Commercial Consumers

There were approximately 13,300 non-residential (industrial, small and large commercial and agricultural) California accounts served by Green-e certified power. In Pennsylvania and New Jersey, there were 125 non-residential accounts, and in Connecticut there were less than 10 non-residential accounts served by Green-e certified electricity.

Green-e *wholesale* suppliers sold over 350,000 MWh of renewable power into the competitive market during 2001. Roughly 25% of this wholesale energy was used to supply Green-e retailers.

The Demise of the California Market

Green-e Program sales were dramatically impacted by the repeal of direct access in California during 2001. Several Green-e marketers were forced by the market and regulatory environment to reduce or completely terminate serving Green-e customers in the state. Regulatory actions in the Fall of 2001 prohibited direct access marketers from signing up new customers.

⁴ The demise of the California market was responsible for the significant drop in non-residential customer load from 2000.

Green-e and Retail Access

A comparison of California Public Utility Commission data (DASR reports) shows that Green-e certified offerings represented 100% of the direct access residential market in the state at the end of 2001. In other words, all of the residential customers who still maintained an ESP at the end of 2001 were taking service from a Green-e certified provider. Due to the termination of direct access in California, many ESPs returned most or all of their customers to the default utility service providers. Although Green-e certified providers also returned many of their customers to utility service, these statistics show that as a group, the Green-e providers continued to serve their residential customers at a higher rate than other non-Green-e certified ESPs in California. For non-residential customers, over 45% of customers who took service from an ESP by the end of the year were taking service from a Green-e Certified retailer.

In Pennsylvania, according to the data from the Pennsylvania Office of Consumer Advocates, Green-e certified electricity represented only 5% of all customers choosing to take service from an alternative supplier. Almost all of these Green-e accounts were residential customers.⁵

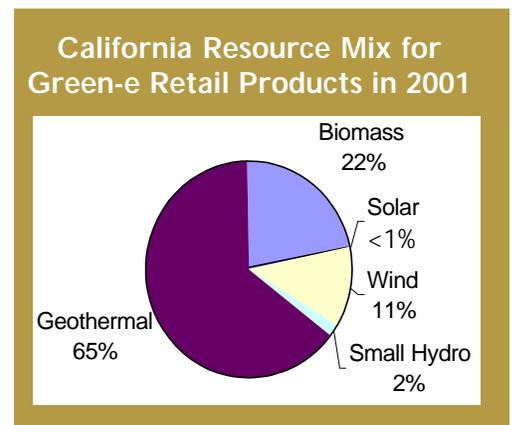
Types of Renewables

Of energy bought to supply Green-e certified products in 2001, 96% of that energy was generated from eligible renewable resources, amounting to over 900,000 MWh of renewable generation.

National 2001 Resource Mix- Electricity Generated or Purchased for Green-e Certified Products ⁶		
Resource	MWh Purchased or Generated (000s)	% of Total Electricity Purchased or Generated
Eligible Renewable Resources	928.4	96%
Geothermal	471.4	49%
Biomass	308.1	32%
Wind	93.4	10%
Small Hydro	55.1	6%
Solar	<1	<1%
Non-Renewable Resources	35.3	4%
Large Hydro	15.2	2%
Natural Gas	2.5	<1%
System Power	17.6	2%

The mix of resources sold as Green-e certified products varied by region. In all regions, the renewable energy content exceeded Green-e's minimum requirements substantially.

In California, all of the energy sold through Green-e certified products came from eligible renewable energy resources. For California products generally, 64% of the energy sold as Green-e was from geothermal facilities, 22% from biomass facilities, 11% from wind, 2% from small hydro, and less than 1% from solar. In California, there were 16 Green-e products sold. Fifteen claimed 100% renewable energy content, and one claimed 50% renewable energy content.

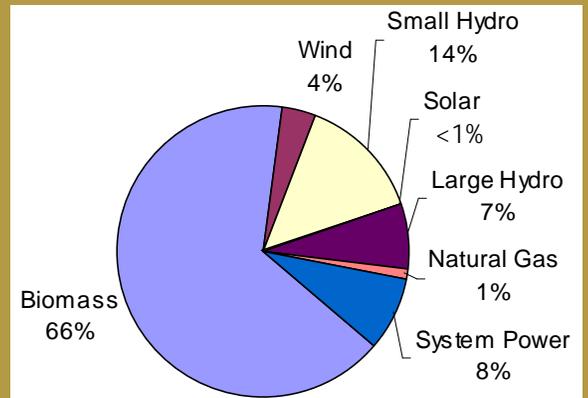


⁵ Excludes customers assigned to Competitive Discount Service.

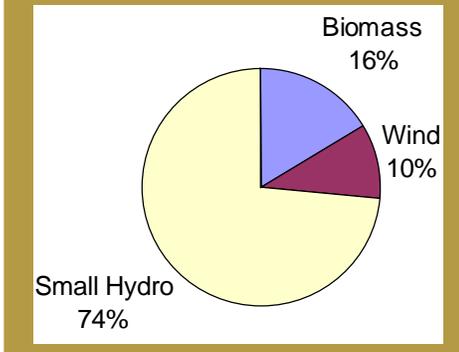
⁶ Figures approximate due to rounding.

In Pennsylvania and New Jersey, 84% of the total energy sold under the Green-e logo came from eligible renewable resources. Overall, Green-e products in the Mid-Atlantic contained 66% biomass, 14% small hydro, 4% wind energy, and less than 1% solar. There were eight Green-e products sold. Four claimed 100% renewable energy content, and the remaining four claimed 50% renewable energy content.

Pennsylvania & New Jersey Resource Mix for Green-e Retail Products in 2001



Connecticut Resource Mix for Green-e Retail Products in 2001

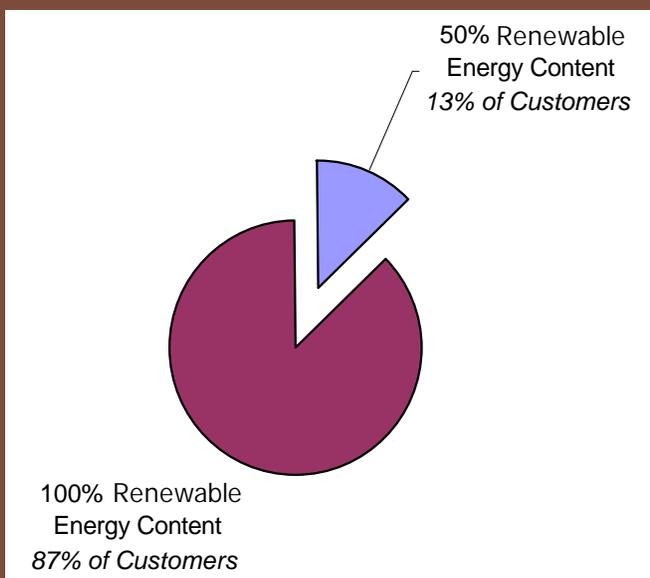


In Connecticut, like California, 100% of the electricity sold in Green-e certified products came from eligible renewable generators. Overall, 16% of energy in products sold in New England came from biomass, 74% from small hydro, and 10% from wind. In Connecticut, there were two Green-e certified products sold, both claiming 100% renewable energy content.

Renewable Content Mix

ESPs went beyond their commitment to customers in offering renewable power. Nationwide, 80% of all of the Green-e products sold exceeded Green-e's minimum requirements for renewable energy product content. These results show that ESPs have delivered more green power to the grid than required – a benefit for consumers, renewable power producers and the environment. This finding follows the 2000, 1999 and 1998 Green-e Verification Results which also documented that Green-e certified products had met and exceeded the program's minimum requirements for renewable energy product content.

Number of Green-e Customers by Product Content



This figure shows the percentage of customers that purchased 100% renewable products versus customers who chose products based on less than 100% renewables. Of the over 105,000 customers purchasing Green-e products in 2001, over 85% chose 100% renewable content products. In California, 87% of customers chose Green-e certified products with 100% renewable energy content, while in Pennsylvania, New Jersey and Connecticut, 58% of customers chose products with 100% renewable energy content and the remainder chose products with 50% renewable energy content.

New Renewables

The Green-e *new* renewables standard requires that certified products contain a specified percentage of new renewable resources. In California, Pennsylvania and New Jersey, "new renewables" are generated from wind, solar, geothermal or biomass facilities that have come on

line since 1997; and in Connecticut, since 1998. The percentage of new renewables required in product content increases over time. In 2001, 10% new renewable content was required in California and Pennsylvania, and 5% was required in New Jersey and Connecticut.

In total, 21% of the energy sold under the Green-e label nationwide was derived from new renewable resources. In California, 22% of the energy sold under the Green-e label was from new renewable resources. The new renewable resources used in California Green-e products were biomass (11%), wind (11%) and solar (less than 1%). In Pennsylvania and New Jersey, 14% of total energy was supplied from new renewables. Ten percent of this electricity came from biomass facilities, almost 4% from wind facilities, and less than 1% from new solar facilities. And in Connecticut, 17 % of the energy supplied was from new facilities- 13.5% from biomass and 3.5% from wind.

Environmental Benefit⁷

Nationwide, Green-e retail products sold in 2001 resulted in a pollutions benefits of 330,000 tons of carbon dioxide (CO₂), a major contributor to global warming, 1,100 tons of sulfur dioxide (SO₂), a precursor of acid rain, and 500 tons of nitrogen oxides (NO_x), which causes smog.



Most of the carbon dioxide emissions benefits came from Green-e sales in California, reflective of the fact that most of the energy sold under the Green-e label was sold in California. California retail customers accounted for nearly 211,000 tons of carbon dioxide emissions benefits. Sales of Green-e retail products in Pennsylvania, New Jersey, and Connecticut provided approximately 119,000 tons of carbon dioxide emissions benefits.

Sulfur dioxide emissions benefits were greatest in the Eastern states. With much higher regional emissions rates of SO₂, Pennsylvania, New Jersey and Connecticut accounted for 870 tons of SO₂ emissions benefits despite the fact that these three states combined represent only about 24% of the total Green-e MWh sold nationally. California customers accounted for 240 tons of SO₂ emissions benefits.

Finally, NO_x emissions benefits were split evenly between California and the Eastern states. California Green-e sales provided 240 tons, while Pennsylvania, New Jersey and Connecticut together accounted for 270 tons of NO_x emissions benefits. With higher emission rates of NO_x in eastern states, purchasers of Green-e certified energy in the East created greater pollution benefits despite a smaller percentage of overall sales.

Future Outlook

In early 2002, CRS began offering Green-e certification nationally for Tradable Renewable Certificate (TRC) products. Since CRS began TRC certification in the Spring 2002, the Green-e Program has certified 7 different TRC products, and it is anticipated that additional products will receive certification before year end. CRS expects that TRC certified product sales will grow quickly, significantly expanding the market for Green-e certified products, especially in the commercial sector.

There are also developments in Green-e electricity products. In 2002, the Green-e program began certification of retail products in Texas, and expects increases in Green-e sales in the Mid-Atlantic region as well. The Green-e program also adopted product standards for Green-e certified products in New York, and CRS anticipates that several products will be certified by year-end. The program is examining expansion or development of electricity standards in Virginia, Michigan, Illinois, and Montana in 2002 and 2003.

⁷ Emission benefits are the emissions associated with the system energy in each region that was displaced by the use of renewable energy by Green-e retail customers. Emissions factors for each region were adjusted for imports and exports in the region. All emissions data is from the EPA EGRID 2000 Version 2, released in September 2001.

Green Pricing⁸

Information Verified in Green Pricing Process Audit

The Green Pricing Accreditation verification process is a process audit. A process audit is different from a traditional financial audit in that the auditor only reviews those materials and processes dictated by a set of Agreed-Upon Procedures. The auditor reviews a company's generation meter data, contracts, invoices and customer data to verify the quantity and type of renewable power generated, purchased and sold. More specifically, the independent auditor annually verifies that the participating utility has contracts and processes that support the following Green Pricing Accreditation requirements

- The Utility Participant generated or acquired "eligible renewable resources", and the purchases or generation of eligible renewables reported by the Utility Participant are accurate.
- The process for recording the amount of power sold to customers is accurate based on a statistical sampling of customer bills.
- Purchases or generation of eligible renewables were sufficient to meet program sales.
- The eligible renewables represented in the product were not used to meet a "renewable portfolio standard (RPS)" or other mandatory requirement for renewable generation.
- If the Utility Participant is selling a block product, the product provides at a minimum 75 kWh (or higher if required by regional criteria) of new renewable supply per month for each customer enrolled in the program.
- If the Utility Participant is selling a percent of use (blended) product, it provides a minimum of 15% of the customer's load with new renewable generation.
- The Utility Participant has accurately reported the number and type/class of customers being served by the green pricing program, and the kWh of eligible renewables sold to those customers.
- If the utility makes any specific purchases of non-renewable power for the purpose of supplying only the customers in the accredited Green Pricing Program, the utility must document that no specific purchases of nuclear power were made and the average emission rates of the non-renewable portion of the product do not exceed net system power emissions rates.
- The price offered for the Green Pricing product is based on direct program costs and related overhead, and does not reflect any shifting of Green Pricing program costs to non-participants.
- The information in the Annual Power Content Label was accurately calculated and displayed.

The Green Pricing Accreditation Program differs from the competitive market Green-e program in a number of respects. One of the chief differences is the Green Pricing Accreditation program's criteria for eligible renewable generation only allow new renewables to be counted towards the required renewable energy content of products. These criteria are intended to encourage utilities to develop new sources of renewable generation and to avoid double-charging customers for renewable energy. For TVA, new generation is defined as generation from facilities installed on or after January 1, 2000, and for Wisconsin, new generation is defined as generation from facilities installed on or after January 1, 1998. Because of the emphasis on developing new resources, the Green Pricing Program may also allow utilities a grace period to true up total supply to total sales. This true up period varies by region.

Green Pricing Providers

Two utilities completed the verification audit for sales during calendar year 2001, Tennessee Valley Authority and We Energies. TVA offered a 150 kWh block product to both residential and nonresidential customers through its affiliated distributors. We Energies offered percent-of-use products to residential and nonresidential customers, and also offered a block product to a commercial customer. The three percent-of-use products contained 25%, 50% and 100% eligible

⁸ Green Pricing Accreditation is part of the Green-e family of certification programs.

renewable energy content. Over 99% of the MWh sales of the We Energies program were attributable to the percent-of-use products.

Green Pricing Customers and Customer Sales

In 2001, there were over 15,000 customers purchasing Green Pricing Accredited products. Over 98% of the customers in these programs were residential customers. Total sales to Green Pricing customers in 2001 were over 106,000 MWh, with residential customer representing 94% of the total MWh sold in the utility programs.

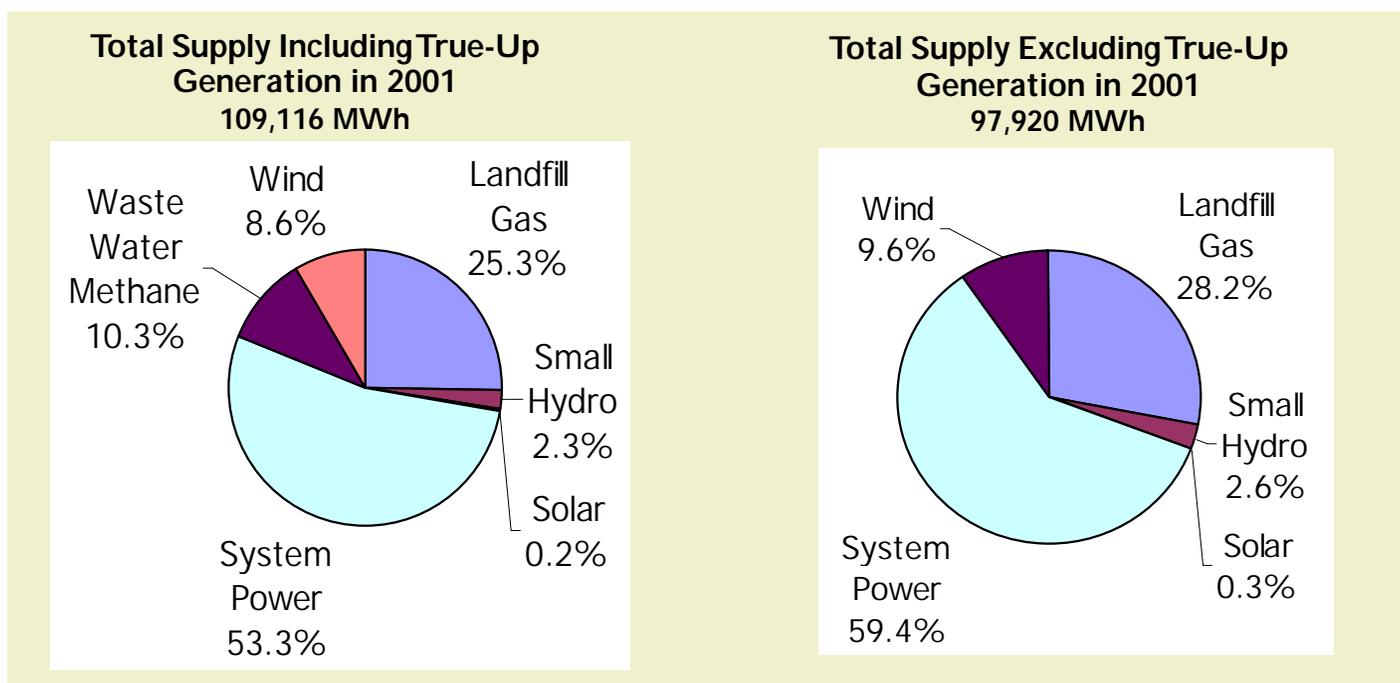
Customers	Total Customers
Residential Customers	14,987 (98%)
Non-Residential Customers	305 (2%)
Total	15,292

Total Sales	MWh
Residential	99,907 (94%)
Non-Residential	6,499 (6%)
Total	106,406

The average Green Pricing residential customer purchased 556 kWh per month through the utility programs, of which 236 kWh/month was from eligible renewable resources. The average non-residential customer purchased 1,776 kWh/month, of which over 1,575 kWh/month was from eligible renewable energy.

Product Content

During calendar year 2001, over 109,000 MWh was attributable to Green Pricing Program Sales, including MWh allocated to the true up period. Of this total, 51,000 MWh was from new eligible renewable generation. Generation from landfill methane represented 25% of average product content, while generation from waste water methane, wind, small hydro and solar constituted 10.3%, 8.6%, 2.3% and 0.2% of overall product content, respectively. Excluding generation that is planned for the true-up period, over 97,900 MWh of generation was attributed to Green Pricing Program sales.



Environmental Benefit

Green Pricing retail products sold in 2001 resulted in a pollution benefits of 41,600 tons of carbon dioxide (CO₂), a major contributor to global warming, 250 tons of sulfur dioxide (SO₂), a precursor of acid rain, and 110 tons of nitrogen oxides (NO_x), which causes smog.⁶

Future Outlook

The Green Pricing program expects substantial program growth during calendar year 2002 and 2003. The Green Pricing Accreditation Board has approved program criteria in six states, and expects three more states to enter the program by the beginning of 2003. At press, the Program had welcomed two new utility programs in 2002 - Wisconsin Public Service's Nature Wise and The South Carolina Public Service Authority's Green Power Program - and expects several more new products to begin accreditation before the year's end. In addition to adding new utility programs, the existing participants in the program are expanding their green power programs as well. In 2002, TVA expanded its Green Pricing Program to 26 new distributors in Northern Alabama, Tennessee, and Kentucky, raising the total number of distributors participating in the program to 46. Increasing demand for Green Pricing Accredited products is resulting in the addition of new renewable capacity. In total, utility participants in the program have built and/or are building over 20 MW of new renewable generating capacity.



The Green-e and Green Pricing Accreditation Programs are administered by the Center for Resource Solutions, a non-profit organization.

⁶ Emissions benefits are the emissions associated with the system energy in each participating utility that was displaced by the generation of renewable energy used in Green Pricing Accredited Programs. All emissions data is from the EPA EGRID 2000 Version 2, released in September 2001.

For More Information

The Green-e and Green Pricing Accreditation Programs are the only national certification programs for electricity offerings based on renewable energy supply. For more information about Green-e and for a copy of this report, please visit the Green-e website at www.green-e.org. More information on the Green Pricing Accreditation program can be found on the CRS website, www.resource-solutions.org. For other Green-e or Green Pricing Accreditation questions or comments, please call our toll free number at 1 (888) 63-GREEN or contact the Center for Resource Solutions at (415) 561-2100.



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