Center for Resource Solutions
CERTIFIED RENEWABLE ENERGY PRODUCTS

Building Consumer Confidence in Renewable Electricity Since 1997

Green-e Verification Report Year 2004

Center for Resource Solutions
Presidio Building 97 · PO Box 29512 San Francisco, CA 94129
Phone: (415) 561-2100, Fax: (415) 561-2105
www.resource-solutions.org, www.green-e.org, (888) 63-GREEN

VERIFICATION RESULTS

Inside:

Green-e

Green-e is administered by the non-profit Center for Resource Solutions (CRS). Renewable energy products that are certified by the Green-e Program must meet environmental and consumer protection standards that are established through the Green-e and Green Pricing stakeholder advisory process and CRS. The Program requires that renewable energy and REC providers undergo an independent audit and verification process and disclose information about their product to customers in a standardized format. The Green-e Program is expanding the retail market and building consumer confidence in retail renewable energy products. This document presents the results of the Green-e verification process for calendar year 2004 sales.

Special points of interest:

- 3.5 million MWh of Green-e certified renewable energy products were sold in 2004 - up 18% from 2003.
- Sales of Green-e certified renewable energy Certificates increased more than 50% representing 2.8 million MWh of renewable generation.
- 80,000 MWh of renewable energy was purchased by companies who contracted to use the Green-e logo to promote their commitment to Green-e certified renewable energy.
- More than 50% of sales in the nationwide voluntary renewable energy market were Green-e certified in either retail or wholesale transactions.

Green-e Market Share and Availability

The Green-e program certifies three classes of renewable energy products:

1. Renewable Energy Certificate (REC) products offered nationwide. RECs are renewable electricity attributes sold independently of electricity.
2. Utility Green Pricing products offered by utilities in electricity markets not open to retail competition.
3. Competitive Renewable Electricity products offered in competitive electricity markets by electricity service providers (ESPs).

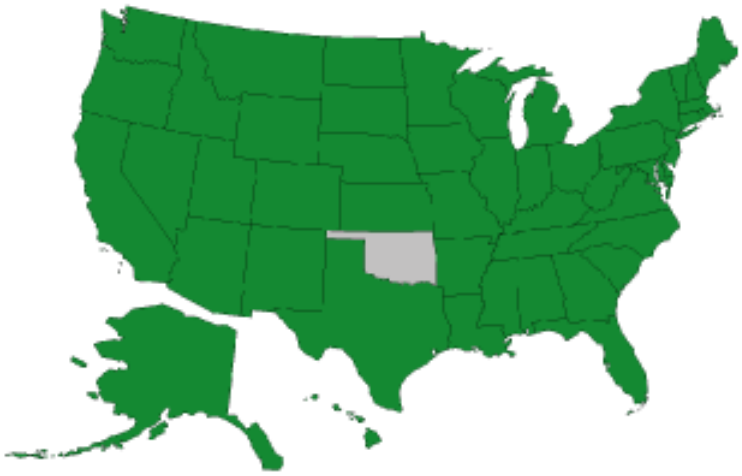
Green-e product standards for electricity & REC products are in place in all 50 states. Certified electricity products are currently offered in 18 states, while Green-e certified REC products are available nationwide. In 2004, Green-e certified renewable energy products were sold in 49 states, as shown in the map on the next page.

GREEN-E PROGRAM RESULTS SUMMARY

FIGURE 1: Green-e Product Availability by State

Commercial, industrial, and government purchasers - which account for substantial recent growth in the voluntary marketplace - are looking for certified renewable energy options so they can be confident in their purchases.

-Kurt Johnson, US EPA
Green Power Partnership



States with Green-e Certified Sales

Renewable Energy Certificate (REC) Certification Available Nationwide

Green-e Providers and Products

In 2004, twenty-two REC marketers,[1] thirteen electricity retailers, and seven utilities[2] participated in the Green-e Program. While RECs were sold nationwide, Green-e certified electricity products were sold in California, Iowa, New Jersey, Pennsylvania, Maryland, Washington D.C., New York, Ohio, South Carolina, Wisconsin the Tennessee Valley Authority (TVA) Service Territory,[3] and New England.[4]

Fifty-six different Green-e certified products had sales in 2004. Twenty-seven of these were Green-e certified retail electricity products offered in certain regions across the country and 29 were separate Green-e certified retail REC products available nationwide. In addition, there were five exclusively wholesale products offered. Green-e certified sales represented more than 50% percent of all voluntary green power sales in the U.S. in 2004 including Green pricing programs.[5]

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[1] Five of the marketers sold both electricity and REC products.

[2] In addition two of the utilities sell Green-e products through affiliated distribution utilities.

[3] The TVA territory includes all of or parts of the following states: Alabama, Georgia, Kentucky, Mississippi, North Carolina Tennessee and Virginia.

[4] For the purposes of Green-e criteria, New England includes the following states; Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

[5] Sales and customer data based on Green-e verification data and Bird and Swezey: *Green Power Marketing in the United States: A Status Report,* 8th Edition. National Renewable Energy Laboratory, Golden, CO: 2005.

Green-e Sales and Customers

Green-e Competitive Electricity, REC, and Green Pricing program sales totaled over 3.9 million MWh in 2004[6] compared to 3.1 million MWh in 2003 and 1.7 million MWh in 2002. This includes the non-renewable portion of blended electricity products. 3.5 million MWh of renewable products were Green-e certified in 2004. A doubling in commercial REC sales along with continued increases in wholesale REC and Green Pricing sales contributed to the overall increase. In 2004, 85,000 customers[7] purchased Green-e certified renewable electricity products (see Table 1).

TABLE 1: 2004 Customers Buying Green-e Certified Products [8]

Green-e Product Type	Residential Customers	Commercial Customers	Total
REC	2,100	400	2,600
Utility Green Pricing	57,700	2,200	59,900
Competitive Electricity	22,200	300	22,500
Total	82,000	2,900	85,000

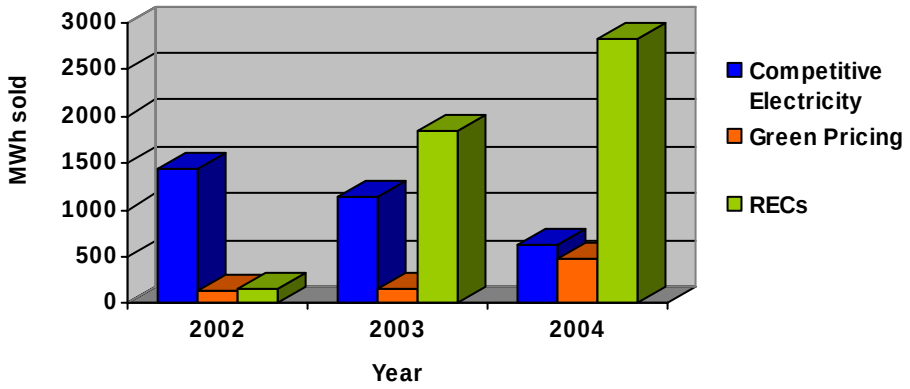
Table 2 below presents a summary of Green-e certified sales by customer and product type.

TABLE 2: 2004 Green-e certified Sales by Product Type [9]

Green-e Product Type	Residential Sales (MWh)	Commercial Sales (MWh)	Wholesale Sales (MWh)	Total (MWh)
REC	7,000	756,000	2,058,000	2,820,000
Utility Green Pricing	414,000	63,000	N/A	477,000
Competitive Electricity	153,000	255,000	211,000	618,000
Total	573,000	1,074,000	2,268,000	3,916,000

Figure 2 below presents a comparison of Green-e certified sales in 2004, 2003 and 2002.

FIGURE 2: Sales by Year and Product Type



6 Of the sales, 2,269,000 MWh were wholesale transactions of which 90% were sold to non-Green-e certified retailers and utilities.

7 The data in this report represent the number of customers at the end of 2004. In this report the term "customers" is interchangeable with electricity accounts.

8&9 Figures are approximate due to rounding.

Green-e Supply

There was a 20 percent increase in verified renewable sales in 2004 compared to 2003. Ninety-seven percent of total renewable sales or 3.3 million MWh were from qualifying new renewable resources.[10] Table 3, below, summarizes the total renewable energy sales and *new* renewable sales, by resource type, for Green-e certified electricity products in 2004, 2003 and 2002.

TABLE 3: Renewable Resource Mix for Green-e Certified Sales 2002-2004

Resource Type	2004	2003	2002
	Share (% New)	Share (% New)	Share (% New)
Wind	78% (99%)	81% (99%)	48% (100%)
Biomass	21% (90%)	21% (96%)	16% (90%)
Small & Low Impact Hydro	1% (6%)	<1% (<1%)	3% (0%)
Solar	<1% (100%)	<1% (100%)	<1% (95%)
Geothermal	<1% (100%)	-	33% (0%)

Green-e Environmental Benefits

Nationwide, Green-e certified products sold in 2004 resulted in a pollution benefit of over 2.5 million tons of avoided carbon dioxide (CO_2), a major contributor to global warming. The equivalent amount of average system power generated in 2004 released 6,800 tons of sulfur dioxide (SO_2), a precursor of acid rain, and 4,200 tons of nitrogen oxides (NOx), which causes smog.[11]

[10] 'New' refers to generation resources that were operational after regionally defined dates ranging from 1997-2002. These dates were determined by regional stakeholders as part of the Green-e standard setting process.

[11] Please note that renewable energy generators and/or purchasers cannot claim reduction of regulated "cap and trade" pollutants such as SO_x (and in some cases NO_x). This is because renewable energy facilities are not assigned emission reduction credits; therefore renewable energy generation has no effect on the number of credits available. The Green-e program is the only certification program that actively monitors the claims of marketers to ensure that no false claims related to capped and traded pollutants are made. The SO_x and NO_x emissions comparisons are included in this report for data collection purposes only and are not intended to imply that emissions reductions of capped and traded pollutants occur due to renewable energy generation. All emissions data are from the United States Environmental Protection Agency's Emissions and Generation Resource Integrated Database (EPA eGRID) 2003, Version 2.01. Figures are approximate due to rounding.

BUSINESSES PROMOTING GREEN-E CERTIFIED PURCHASES

In 2004, the Center for Resource Solutions officially launched the Green-e Product Labeling Initiative (PLI), allowing the use of the Green-e Logo and claims about renewable energy use on products produced with renewable energy. In 2004, forty businesses and governmental agencies in 14 states contracted to use the Green-e logo to promote their commitment to Green-e Certified renewable energy. In total, these companies and government agencies purchased over 80,000 MWh of renewable energy in 2004, approximately 7% of total Green-e certified commercial sales.

The forty customers contracted to use the Green-e logo in 2004 demonstrate the diversity in companies and agencies choosing to make a commitment to renewable energy. These companies are not only making long-term, sound investments in renewable energy, but they are discovering ways to capitalize on this commitment. Spread throughout 14 states, they range from ski resorts to a dentist office to a real estate company. Over half of these customers purchase 100% renewable energy for their entire operations. The following 40 organizations promoted their Green-e certified purchases in 2004 through the use of the Green-e logo:

Acterra Palo Alto	Earthsite	Molletphoto	The Tower Companies
Ars Vivendi	EcoFish	New Leaf Paper	The Trium Group
Batdorf & Bronson Coffee Roasters	Garden Court Hotel Palo Alto	Rapid Color Printing	Transcendentist
Beautyland Beauty Supply	Good Earth Natural Foods	Recellular, Inc	UN Senior Executive Residence
Bishop Ranch Veterinary Clinic	GSA New Jersey Service Center	Red Jellyfish	U.S. Department of Agriculture
Chautaugua Natural Foods	Harris Ranch Napa Valley, LLC	Solar Data Centers, Inc.	U.S. Department of Labor
Choice Organic Teas/ Granum, Inc.	Interface Fabrics Group	Sprint	U.S. Department of Transportation
Conservation Law Foundation	Keystone Resorts	Stanford Terrace Inn	U.S. EPA Edison Facility
Counter Production LLC	Lockheed Martin	Steamboat Ski & Resort Co.	White Wave Inc.
Debra Lynn Dad Communications	Lundberg Family Farms	Stoel Rives LLC.	Xtracycle

Product Labeling Initiative (PLI)

The number of companies that choose to label their products with the Green-e logo has increased exponentially since the inception of the PLI. As of November 2005, the Green-e logo appears on over 115 products distributed to tens of millions of consumers across the nation.

The Product Labeling Initiative is proving that renewable energy is the next generation of product distinction among a rapidly growing environmentally-conscious consumer class.

FIGURE 3: Green-e Labeled Products

Example of the Green-e logo on a box of Choice Organic Tea.

In 2004, the Green-e logo was featured on packaging of fabric, olive oil, rice, and wine. In 2005 the Green-e logo is featured on paper, shoes, fabric, carpet, coffee, tea, CDs, juice, tomatoes, and a solar powered electric vehicle.

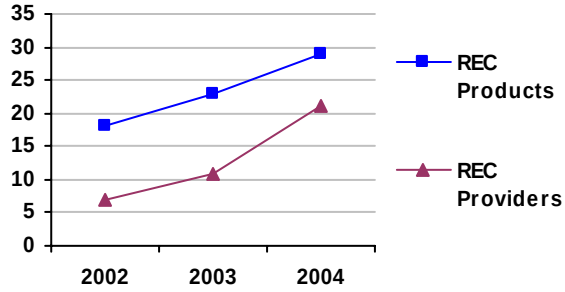
GREEN-E CERTIFIED RENEWABLE ENERGY CERTIFICATE PRODUCTS

Twenty-one REC marketers offered twenty-nine certified products during calendar year 2004.

3 Phases Energy	Evolution Markets	PPM Energy
Aquila	Green Mountain Energy Co.	Renewable Choice Energy
Big Green Energy	Mainstay Energy	Sky Energy
Bonneville Environmental Foundation	Pacific Renewables	Sterling Planet
Community Energy Inc.	People's Power and Light	Viking Wind
Conservation Services Group	Pepco Energy Services	VisionQuest
EAD Environmental	PowerLight	WindCurrent

FIGURE 4: Green-e REC Products and Providers 2002 – 2004

All REC retailers accepted customers from any location in the U.S. Green-e certified RECs can be generated anywhere in North America and sold to any customer location. Figure 4 presents the growth in the number of REC marketers and products participating in Green-e from 2002 to 2004.



REC Sales and Customers

Total residential, commercial and wholesale sales were over 2.8 million MWh of certificates, representing a fifty percent increase over 2003. Sales to commercial customers more than doubled, confirming RECs' increasing popularity among large commercial customers. The average purchase per commercial customer increased to almost 1650 MWh RECs compared to 850 MWh RECs per customer in 2003. Wholesale sales increased 50% in volume compared to 2003, with 10% of these being sold to Green-e retailers. The majority of wholesale sales were resold by monopoly utilities and competitive energy service providers (ESPs) in non-Green-e certified products through retail green power and green pricing programs.

Eighty-percent of REC purchasers were residential customers, however more than 99 percent of the demand was from commercial and wholesale buyers. Green-e REC retail sales represented approximately 45% percent of all REC voluntary retail sales in the U.S.[12]

TABLE 4: SALES OF GREEN-E CERTIFIED RECS 2002-2004[13]

Customer Type	Customers			Sales (MWh)			Percent of Sales		
	2004	2003	2002	2004	2003	2002	2004	2003	2002
Residential	2,100	2,730	2,030	7000	8,000	8,600	<1%	<1%	6%
Commercial	450	390	190	756,000	332,000	68,000	27%	18%	45%
Wholesale	70	50	20	2,058,000	1,494,500	73,000	73%	81%	49%
Total	2,600	3,170	2,240	2,820,000	1,834,500	1,50,000	100%	100%	100%

REC Supply

Table 5 below shows the resource mix for Green-e certified REC sales in 2004 and 2003. Wind power was the dominant source of renewable electricity generation supplying 83 percent of the total renewable sales.

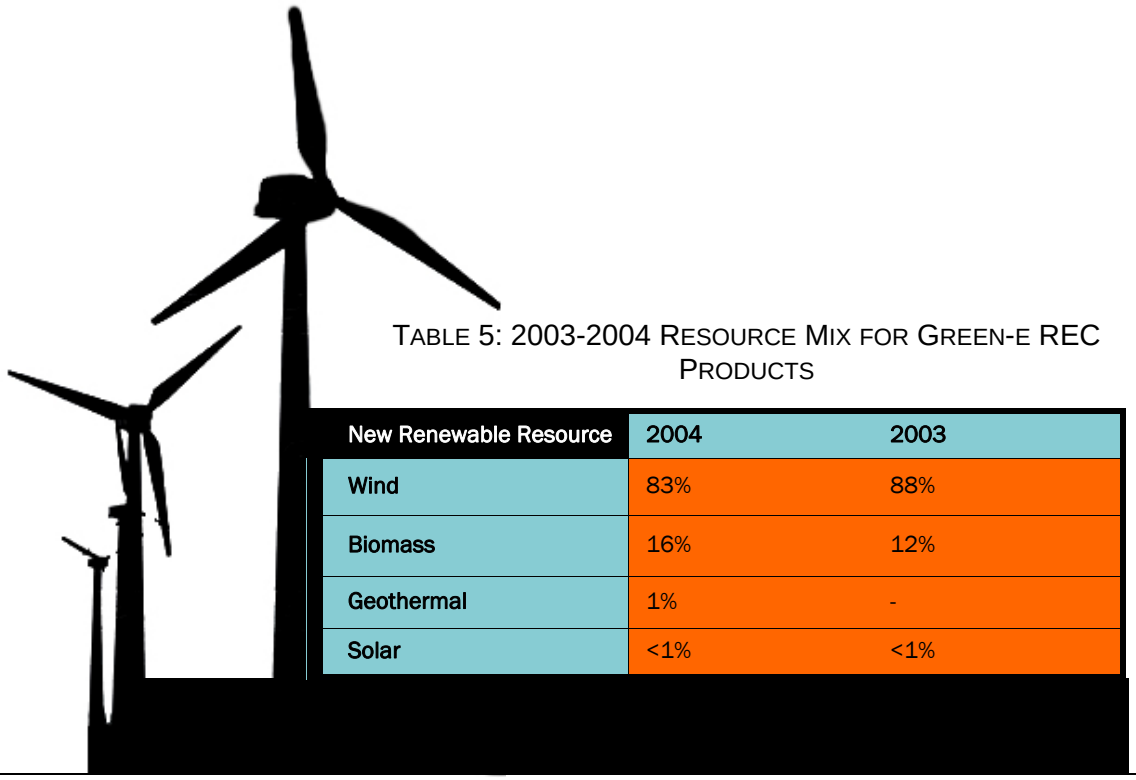


TABLE 5: 2003-2004 RESOURCE MIX FOR GREEN-E REC PRODUCTS

New Renewable Resource	2004	2003
Wind	83%	88%
Biomass	16%	12%
Geothermal	1%	-
Solar	<1%	<1%

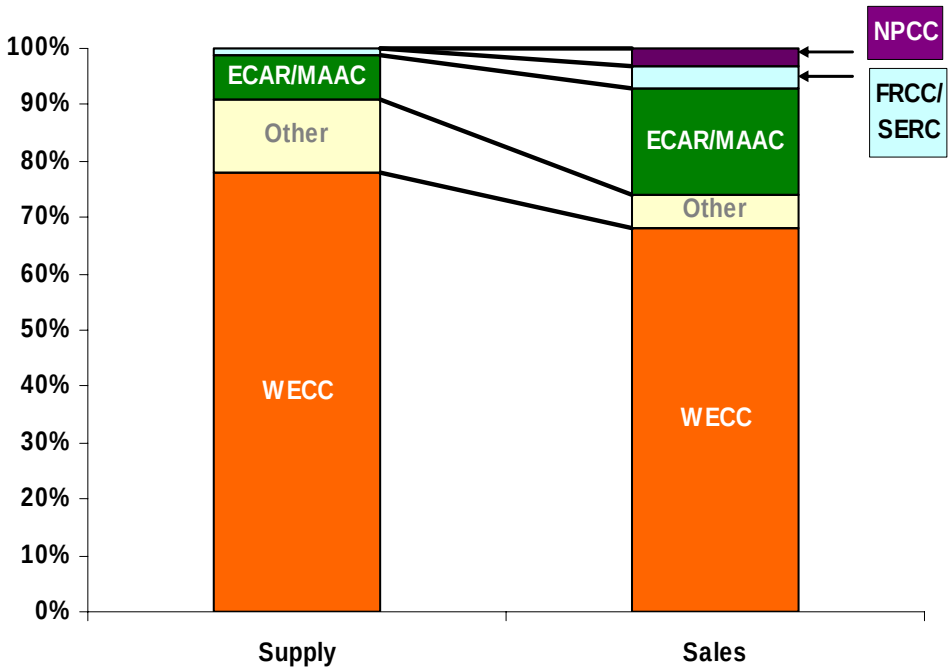
[12] Sales and customer data based on Green-e verification data and Bird and Swezey: *Green Power Marketing in the United States: A Status Report,* 8th Edition. National Renewable Energy Laboratory, Golden CO: 2005.

[13] Figures are approximate due to rounding.

Location of REC Resources

The REC market is a national market. While 78% of the supply of RECs was generated in the WECC region, only 68% of the RECs were sold in that region. Regions that purchased more RECs than they supplied included ECAR/MAAC, FRCC/SERC and NPCC. Figure 5 below, shows Green-e certified REC supply and sales by NERC region.

FIGURE 5: GREEN-E REC SUPPLY AND SALES BY REGION[14]



REC Products Environmental Benefit

Renewable electricity generation used to supply Green-e REC products in 2004 resulted in a pollution benefit of 1.4 million tons of avoided carbon dioxide. The equivalent amount of average system power generated in 2004 released 3,200 tons of sulfur dioxide and 2,600 tons of nitrogen oxides.[15]

[14] For a map of NERC regions, please see Appendix A
[15] See footnote 11.

GREEN-E CERTIFIED UTILITY GREEN PRICING PRODUCTS

Green Pricing Providers and Products

Seven utilities covering all or parts of 14 states offered Green-e certified Green Pricing products in 2004.

Alliant Energy

City of Palo Alto Utilities

Sacramento Municipal Utility District (SMUD)

Santee Cooper

Tennessee Valley Authority (TVA)

We Energies

Wisconsin Public Service

Green Pricing Customers and Sales

Purchases of Green-e certified Green Pricing products more than doubled in 2004 compared to 2003. In 2004, almost 60,000 customers purchased Green Pricing Green-e accredited products. The increase can be traced to two new utility offerings by Sacramento Municipal Utility District[16] in California and Alliant Energy in Minnesota and Iowa, as well as increasing sales among existing programs.

TABLE 6: Green-e Certified Green Pricing Customer and Sales[17]

	2004		2003	
Customers Class	Customers	MWh	Customers	MWh
Residential Customers	57,700 (96%)	414,000 (87%)	21,000 (93%)	122,500 (81%)
Commercial Customers	2,200 (4%)	63,000 (13%)	1,500 (7%)	28,000 (19%)
Total	59,900	477,000	22,500	150,500

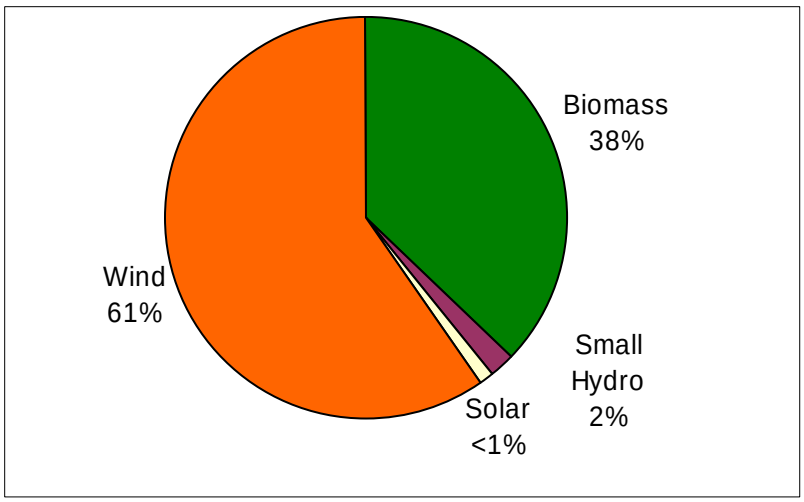
The participation rates for the seven utilities ranged from less than 0.1% to just over 10% measured as a percentage of the number of meters served by the utility. In addition, two of the Green-e certified utility products (SMUD and We Energies) are on the NREL Top Ten[18] list for successful Green Pricing Programs .

[16] The Sacramento Municipal Utility District has been certified since the beginning of the Green-e program as a competitive electricity provider. Due to changes in the electricity structure in California, SMUD transitioned into the Green Pricing program beginning in 2004.
[17] Figures are approximate due to rounding.
[18] NREL Green Power Network Green Pricing Top Ten Utility Green Pricing Programs; http://www.eere.energy.gov/greenpower/markets/pricing.shtml?page=3 for full list.

Green Pricing Resource Mix

Green Pricing criteria allow utilities to sell products that contain certain amounts of non-renewable resources. Of the total volume sold in Green-e certified Green Pricing products, sixty-five percent (310,050 MWh) was from renewable generation, more than 4 times the volume certified in 2003. Figure 6 below shows the renewable resource mix for Green-e Green Pricing Sales.

FIGURE 6: Green-e Green Pricing Resource Mix[19]



Green Pricing Products Environmental Benefit

Green Pricing retail products sold in 2004 resulted in a pollution benefit of 184,000 tons of avoided carbon dioxide. The equivalent amount of average system power in 2004 released 450 tons of sulfur dioxide and 354 tons of nitrogen oxides.[20]

GREEN-E CERTIFIED COMPETITIVE ELECTRICITY PRODUCTS

The following 13 Electricity Service Providers (ESP) offered 28 products for sale during calendar year 2004 in deregulated electricity markets. Products were available in Maryland, Delaware, Washington D.C., New Jersey, Pennsylvania, New England, New York, and Ohio.

Agway Energy Services	Green Mountain Energy Co.
AMP-Ohio	Mass Energy
Community Energy, Inc.	People's Power & Light
Con Edison Solutions	Pepco Energy Services
Conservation Services Group	PPL Energy Plus
Constellation New Energy	Sterling Planet
Energy Cooperative of PA	

[19] Figures are approximate due to rounding.
[20] See footnote 11.

TABLE 7: Green-e Certified Competitive Electricity Products & Suppliers

Table 7 presents the number of suppliers and products participating in the Green-e competitive electricity program from 1998 through 2004.

Year	Suppliers of Green-e Certified Products	Green-e Certified Products
1998	11	15
1999	11	18
2000	17	27
2001	16	26
2002	9	19
2003	14	37
2004	13	27

Green-e Certified Competitive Electricity

Sales of Green-e certified competitive electricity products declined in 2004 partly as a result of products that were decertified or moved to another Green-e program.[21] While it can be difficult to discern a trend from these data, we have received feedback from some marketers that they are having a difficult time signing up residential customers. Commercial purchasers are more amenable to shifting away from their standard provider, but these commercial customers are also much more likely to choose to buy RECs instead of renewable electricity products.

TABLE 8: GREEN-E COMPETITIVE ELECTRICITY CUSTOMERS 2002-2004[22]

Customer Type	2004	2003	2002
Residential	22,200	67,500	118,000
Non-Residential	300	500	8,000

For the first time, the majority of competitive electricity sales were to commercial customers. The total sales for Green-e certified competitive electricity products in 2004 were 618,000 MWh, a 46% decline compared to 2003. While commercial sales remained constant, the decline in residential purchases continued. The average commercial purchase increased from 3,150 kWh per month in 2002 and 44,680 kWh per month in 2003 to 70,830 kWh per month in 2004. Figure 7 on the following page compares Green-e competitive electricity sales and customers in 2003 and 2002.

[21] The Sacramento Municipal Utility District had been certified as a competitive electricity provider until 2003. Due to changes in the electricity structure in California, SMUD transitioned into the Green-e Green Pricing program beginning in 2004.

[22] Figures are approximate due to rounding.

FIGURE 7: Green-e Competitive Electricity Products & Suppliers

Green-e Certified Competitive Electricity Resource Mix

Up to 50% of the content of Green-e certified competitive electricity products can come from non-renewable resources. In 2004, eighty-two percent of the electricity sold in Green-e certified residential and commercial electricity products was generated from renewable resources, amounting to nearly 335,000 MWh of renewable generation. Table 9 below shows the resource sales mix and the proportion of new renewables sold in 2004.[23]

TABLE 9: Green-e Certified Competitive Electricity Resource Mix

Resource	% of Total Electricity Sold (% New)	
	2004	2003
Wind	46% (87%)	33% (99%)
Biomass	41% (53%)	35% (98%)
Small & Low Impact Hydro	13% (0%)	32% (0%)
Solar	<1% (100%)	<1% (100%)

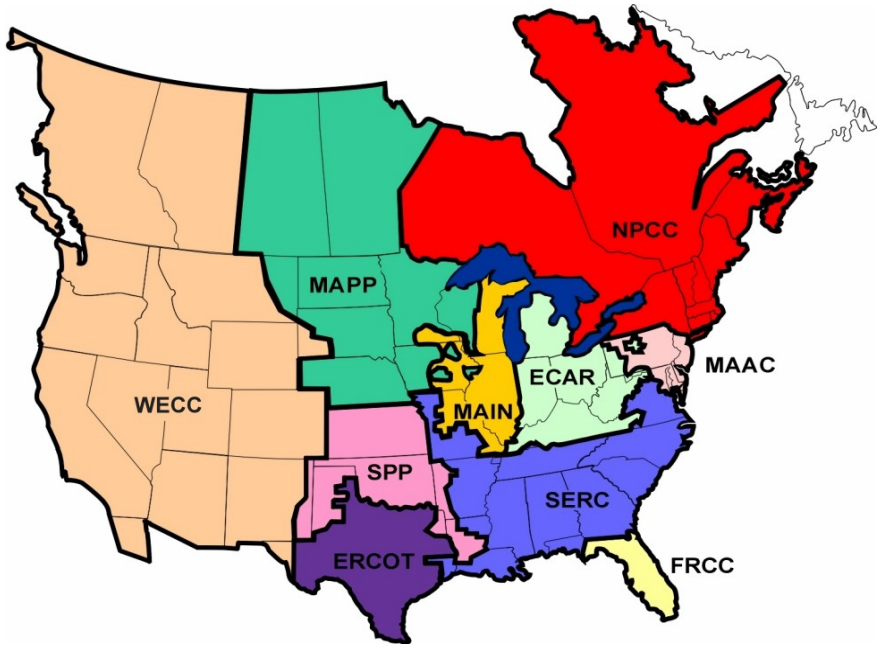
Green-e Certified Competitive Electricity Products Environmental Benefit

Electricity generated to supply Green-e certified competitive electricity retail products in 2004 resulted in a pollution benefit of 414,000 tons of avoided carbon dioxide. In addition, the equivalent amount of average system power generated in 2004 released 2,000 tons of sulfur dioxide, and 900 tons of nitrogen oxides.

[23] See footnote 11.

Appendix A: NERC Regions

The following map and table detail the breakdown of the North American Electricity Reliability (NERC) regions.



NERC Region	States
ASCC	Alaska
ECAR	Indiana, Kentucky, Michigan, Ohio, Pennsylvania*, West Virginia
ERCOT	Texas*
FRCC	Florida*
HICC	Hawaii
MAAC	Delaware, District of Columbia, Maryland, New Jersey, Pennsylvania*
MAIN	Illinois, Iowa*, Missouri*, Wisconsin*
MAPP	Iowa*, Minnesota*, Montana*, Nebraska, North Dakota, South Dakota*, Wisconsin*
NPCC (Only US)	Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont
SERC	Alabama, Arkansas*, Florida*, Georgia, Louisiana*, Mississippi, Missouri*, North Carolina, South Carolina, Tennessee, Virginia
SPP	Arkansas*, Kansas, Louisiana*, New Mexico*, Texas*, Oklahoma*,
WECC (Only US)	Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico*, Oregon, South Dakota*, Texas, Utah, Washington, Wyoming

* Note that these states reside in more than one NERC region.