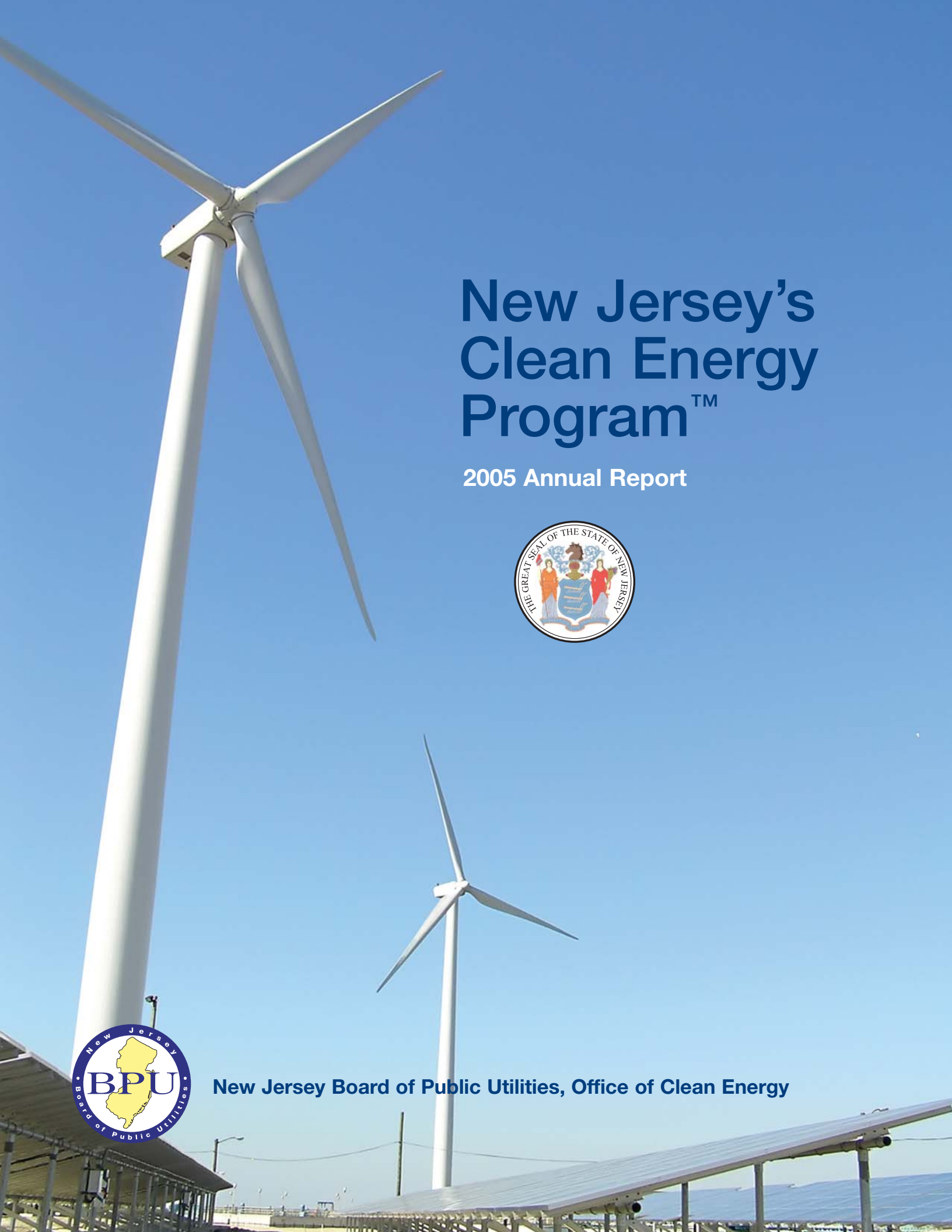

New Jersey's Clean Energy Program™

2005 Annual Report

New Jersey Board of Public Utilities, Office of Clean Energy

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New Jersey's Clean Energy PROGRAM™

Your Power to Save

For more information about New Jersey's Clean Energy Program, visit:

www.NJCleanEnergy.com

Letter from Governor Jon S. Corzine

State of New Jersey
Office of the Governor

As Governor, I am committed to a more affordable New Jersey, economic development around emerging industries and technologies of the 21st Century, improved environmental stewardship, and a new approach to governing that is more responsible and forward thinking. Few areas present more opportunity to deliver on this vision than energy policy. New Jerseyans are more focused on energy than they have been in decades. Rising fuel prices, increasing demand for energy at home and abroad, and the impact of global warming on New Jersey's shoreline communities have dramatically raised the profile of energy and our dependence on fossil fuel.

Meeting New Jersey's growing energy needs in a way that sustains our quality of life and economy poses some tremendous challenges but also presents an unparalleled opportunity for leadership. By committing to greater energy efficiency and the use of renewable energy technologies in our homes, businesses, state facilities, and communities, we can reduce energy costs while fostering a vibrant state economy. This course of action will benefit our natural resources and public health by reducing air pollution and the greenhouse gases which are responsible for climate change and threaten New Jersey's shoreline.

Working together, I believe we can achieve a 20% reduction in energy demand by 2020, while also increasing our use of renewable energy to 20% by 2020. This will require a concerted effort to address building codes, energy efficiency standards, and financial and other market-based incentives for renewable technologies, and will require broad public support and participation. In addition, we can do more to ensure energy affordability for low- to moderate-income families that are most vulnerable to rising energy costs.

I hope you find the initiatives outlined in New Jersey's Clean Energy Program 2005 Annual Report to be a practical resource in illustrating ways in which New Jersey works toward reducing energy usage and saving on energy costs. Please join us and help make New Jersey a national clean energy leader.

GOVERNOR JON S. CORZINE

Sincerely,

Governor Jon S. Corzine

Message from Jeanne M. Fox, President New Jersey Board of Public Utilities

New Jersey Board of Public Utilities

Over the last decade, New Jersey's energy needs have grown three times faster than the state's population. This increasing demand means we must be firm in our course of action. We will need to either build more costly, difficult-to-site, generators in New Jersey; import more electricity from outside the state, which has a negative impact on New Jersey's air quality; or set on a course to meet this new demand through energy efficiency and the use of clean, renewable energy technologies.

I am proud to say that New Jersey has chosen the latter option through its support of New Jersey's Clean Energy Program™. In doing so, we have established ourselves as a national model for programs that provide low-income assistance, increased efficiency, and spur market development for new technologies like solar photovoltaics. As you will see from our 2005 Annual Report, we have clearly achieved significant results; however, we still have far to go.

In 2005, our clean energy programs saved enough electricity to provide the annual electricity requirements of approximately 50,000 homes in New Jersey. Perhaps even more significantly, when you add these savings to prior year savings, we have reduced electric demand by 450 megawatts (MW), eliminating the need to site, construct, and operate a mid-sized power plant. These measures have been very cost effective when you consider that New Jersey's Clean Energy Program is currently paying about 2.4 cents for each kilowatt-hour of energy saved, while it costs 9 cents on average to produce and deliver a kilowatt-hour of energy.

JEANNE M. FOX

Equally impressive has been the growth of New Jersey's renewable energy market and the completion of New Jersey's first coastal wind farm in Atlantic County. In 2005, New Jersey emerged as the fastest growing solar market in the nation, having gone from 6 solar installations in 2001 to well over 1,000 today. This success is largely attributable to a winning combination of renewable portfolio standards, effective net-metering and interconnection rules, and rebates that work in combination with other market incentives. Together, this approach has succeeded in spurring attractive financing solutions that bring the cost of solar power in New Jersey to under a 10-year payback period.

Our challenge is to continue to find ways to engage the marketplace and provide value to New Jersey's residential and business customers through clean energy measures and technologies. Please join me—and the thousands of New Jersey residents and businesses who learned last year, amid rising energy costs and dwindling budgets—that clean energy is good for New Jersey!

Sincerely,

Jeanne M. Fox

Jeanne M. Fox, President
New Jersey Board of Public Utilities

Overview of New Jersey's Clean Energy Program

New Jersey's Clean Energy PROGRAM™
Your Power to Save

New Jersey's Clean Energy Program offers a comprehensive suite of programs that makes clean energy technologies affordable and accessible to all New Jerseyans including residential customers, businesses, schools, and local governments:

Residential Energy Efficiency & Assistance Programs

Home Performance for ENERGY STAR®

Contractors certified by the Building Performance Institute work with homeowners to identify sources of wasted energy and help make money-saving improvements. (To launch statewide October 2006)

New Jersey ENERGY STAR Homes

Incentives for energy-efficient new construction that target Smart Growth Areas.

New Jersey ENERGY STAR

Public education about home energy efficiency and appliance and lighting offers through major retailers.

New Jersey Comfort Partners

Installation of energy saving measures at no cost to customers to increase energy efficiency and improve energy affordability for income-eligible households.

Home Energy Analysis

A free, online energy audit to help residential customers understand their home energy use and take steps to save energy and save money. The analysis is linked to incentives and ENERGY STAR rebates.

*COOL*Advantage and *WARM*Advantage Programs

Provide rebates and promote energy-efficient heating and cooling equipment in homes.

Commercial Clean Energy Programs

New Jersey SmartStart Buildings® Program

Provides technical assistance and incentives for new and retrofit efficiency upgrades including high efficiency lighting, heating, and cooling equipment for schools, commercial buildings, industrial buildings and processes, and government.

Combined Heat and Power (CHP) Program

Offers incentives to purchase and install various types of CHP units to qualifying customers.

Clean Energy Financing for Businesses*

Low-interest loans for small businesses that implement energy efficiency upgrades and renewable energy installations at their facilities.

Clean Energy Financing for Schools & Local Governments*

Financial incentives and low-interest financing for local governments and schools that combine energy efficiency and renewable energy projects.

Other Programs

Education and Outreach Grants

Grants available to New Jersey nonprofit organizations to conduct outreach and promote clean energy.

Renewable Energy Programs

Customer On-Site Renewable Energy (CORE) Rebate Program

Rebates to reduce the up-front installation costs for solar, small wind, and sustainable biomass systems.

Solar Renewable Energy Certificate (SREC) Program

Provides online platform for the registration, verification, and sale of SRECs for solar owners, aggregators, and brokers. Other Renewable Energy Certificates (RECs) can be traded and verified through PJM-Generation Attribute Tracking System (GATS).

CleanPower Choice Program℠

A voluntary program that gives retail electricity customers the option to sign up for clean power directly through their local electric utility.

Renewable Energy Project Grants & Financing*

Competitive financing and incentives for up to 20% of project costs for projects larger than 1 MW.

Renewable Energy Business Venture Assistance*

Technical assistance and venture capital funding for clean energy businesses.

*Offered in partnership with New Jersey Economic Development Authority (NJEDA)

New Jersey Board of Public Utilities

BPU PRESIDENT
JEANNE M. FOX

BPU COMMISSIONER
FREDERICK F. BUTLER

BPU COMMISSIONER
CONNIE O. HUGHES

BPU COMMISSIONER
JOSEPH L. FIORDALISO

BPU COMMISSIONER
CHRISTINE V. BATOR

BOARD OF PUBLIC UTILITIES' MISSION STATEMENT

To ensure the provision of safe, adequate and proper utility and regulated service at reasonable rates, while enhancing the quality of life for the citizens of New Jersey and performing these public duties with integrity, responsiveness and efficiency.

The Board of Public Utilities is the regulatory authority for New Jersey's Clean Energy Program™ with a statutory mandate to ensure safe, adequate, and proper utility services at reasonable rates for customers in New Jersey. Accordingly, the BPU sets policies and goals for the Office of Clean Energy and New Jersey's Clean Energy Program. In addition, the BPU regulates critical services such as natural gas, electricity, water, and telecommunications and cable television.

The BPU addresses issues of consumer protection, energy reform, deregulation of energy and telecommunications services, and the restructuring of utility rates to encourage energy conservation and competitive pricing in the industry. The Board of Public Utilities also has responsibility for monitoring utility service and responding to consumer complaints.

The initiation by the BPU of a strategic planning process is in recognition of the need for performance measures or targets upon which the BPU staff, including the Office of Clean Energy, may rely to guide the agency in light of the changing regulatory paradigms associated with the industries the Board of Public Utilities regulates. The Strategic Plan establishes goals and objectives for the agency and its staff to pursue during the next four years and beyond. It is intended to move the agency from a predominantly reactive governmental entity that simply reacts to utility petitions and pressures brought by other governmental bodies, to a more proactive public policy making body focused on results-based management. This approach has helped to establish New Jersey's Clean Energy Program as one of the most effective programs of its kind in the nation.

Program Governance

New Jersey's Clean Energy Program™ was created as part of the Electric Discount and Energy Competition Act with the objective of transforming the energy marketplace in New Jersey in support of energy efficiency and renewable energy technologies. The Board of Public Utilities (BPU), the regulatory authority responsible for the provision of safe, reliable, and affordable utility services, administers New Jersey's Clean Energy Program and oversees the regulatory process governing the Program.

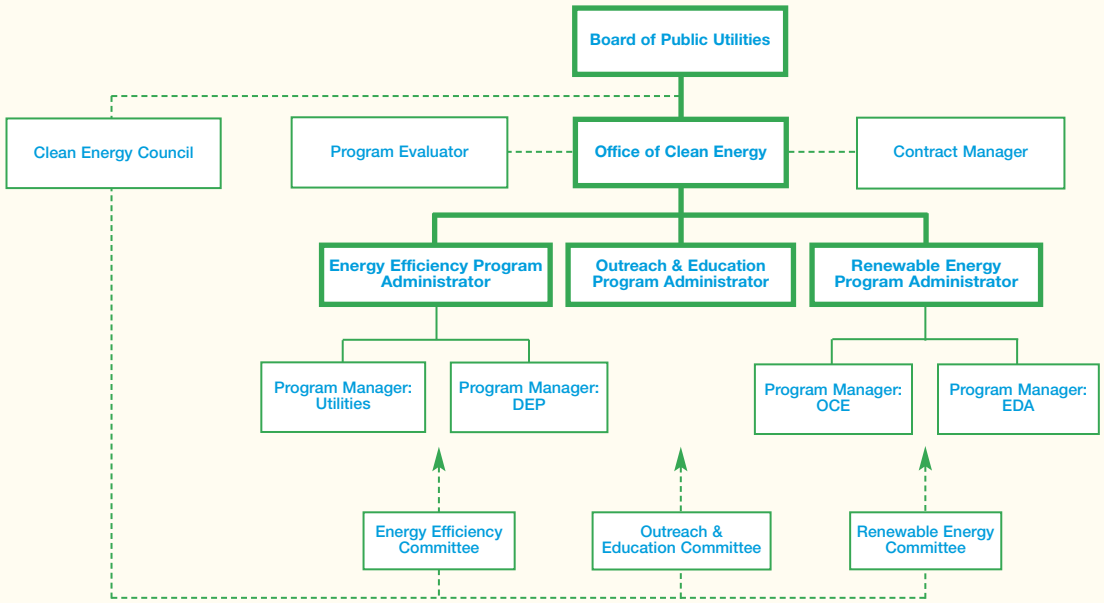
In 2003, the BPU established a 20-member Clean Energy Council (CEC) comprised of a cross section of government and industry representatives, energy experts, public interest groups, and academics to engage stakeholders in the Program's development and to advise the BPU on its administration. The Council serves as an advisor to the BPU regarding the design, budgets, objectives, goals, administration, and evaluation of New Jersey's Clean Energy Program. The Council's recommendations are developed through three Committees: Renewable Energy, Energy Efficiency, and Outreach and Education, that meet regularly and are open to all interested parties.

Program Governance Update

In 2004, the BPU reached an agreement with the NJ Department of the Treasury to establish the Clean Energy Trust Fund to hold program funds collected from ratepayers. The BPU also announced its plans to transition the management of the programs from the utilities and the Office of Clean Energy to third-party contractors or Market Managers who will help drive market development.

In 2005, the BPU issued a Request for Proposal (RFP) for a Program Coordinator and one for Market Managers for the Residential, Commercial and Industrial, and Renewable Energy Programs. The BPU is reviewing the Market Manager proposals and has announced its intention to reissue the Program Coordinator RFP. Once new management is in place and the transition is complete, the BPU and the Office of Clean Energy will continue to provide oversight of the Program as Program Administrator.

New Jersey's Clean Energy Program™ Administrative Structure



The Power of New Jersey's Clean Energy Program™ – General Overview

New Jersey's Clean Energy Program pursues strategies that promote increased energy efficiency and the use of clean, renewable sources of energy including solar, wind, geothermal, and sustainable biomass. In 2004, the BPU approved a total funding level of $745 million for the years 2005 through 2008 for the energy efficiency and renewable energy programs. This represents an increase of over $250 million above the funding levels approved for the first four years of the Program. The funding level provides financial incentives to residential customers, businesses, schools, and municipalities that install energy efficiency and renewable energy technologies, including solar photovoltaic systems. The result for New Jersey is a stronger economy, less pollution, lower costs, and reduced demand for electricity.

A Stronger Economy

When New Jersey's businesses and residential customers save money on their electric and natural gas bills, the entire state benefits. Residential customers have more dollars available to spend on other commodities which helps grow the economy, while business customers enjoy lower operating expenses and improved profitability, and gain a competitive edge. In addition, dollars spent on energy efficiency decrease the number of dollars flowing out-of-state, since New Jersey has no local sources of fossil fuels. New Jersey's Clean Energy Program relies heavily on local businesses to deliver energy efficiency and renewable energy to customers. Purchasing from local businesses has an economic multiplier effect that strengthens New Jersey's overall economy. By creating a market for clean energy, new local jobs are created to support clean energy implementation, services, and planning.

Since 2001, the energy savings and renewable energy generation delivered by New Jersey's Clean Energy Program have reduced electric demand by over 450 MW, eliminating the need to build, site, and operate a mid-sized fossil fuel power plant.

Less Pollution

By both reducing energy use and promoting renewable sources of energy generation, New Jersey's Clean Energy Program reduces the need to generate electricity and burn natural gas, in turn eliminating pollution that would have resulted from added electric generation or natural gas usage. One of the main environmental benefits is the reduction of greenhouse gas emissions such as carbon dioxide (CO_2). The benefits of these initiatives continue for the life of the measures installed, which average about 15 years. Thus, New Jersey's Clean Energy Program benefits the state's residents and businesses through substantial environmental and public health improvements, lower energy bills, and a stronger economy.

Lower Electricity Demand and Costs

Customers that participate in New Jersey's Clean Energy Program receive direct incentives that help offset the cost of purchasing high efficiency or renewable energy equipment. These customers benefit by reducing their energy usage and costs. Customers that do not directly participate in the programs share in the benefits through lower overall energy costs, reduced pollution, and public health improvements. Electricity prices in New Jersey, as in other places, historically tend to spike during times of peak demand. During these times, typically on the hottest summer days when air conditioning is in high use, electricity suppliers are forced to run the most expensive or inefficient power plants in order to meet demand and avoid power outages. Lowering electrical usage during times of peak demand can help to lower electricity costs for all customers.

Overall Program Objectives & Progress to Date

New Jersey's Clean Energy Program™ has established a set of objectives and measures to track progress in reducing energy use and increasing the use of renewable energy in New Jersey. The following overall objectives were established in consultation with the Clean Energy Council, further refined by staff, and adopted by the BPU as part of the BPU's 2005-2008 and Beyond Strategic Plan:

Objective 1: By December 31, 2008, six and a half percent of the electricity used by New Jersey residents and businesses will be provided by Class I and/or Class II renewable energy resources, of which a minimum of four percent will be from Class I renewable energy resources including 120,000 MWh (90 MW) from solar.

Description: The Renewable Portfolio Standards ensure investment in renewable energy technologies located in the PJM power pool and that a minimum percentage of Class I renewable energy resources is included in the electricity supply that serves New Jersey residents and businesses. Class I resources include electric energy produced from solar technologies, photovoltaic technologies, wind energy, fuel cells with renewable fuels, geothermal technologies, wave or tidal action, and methane gas from landfills or a biomass facility, provided that the biomass is cultivated and harvested in a sustainable manner.

Results: The RPS rules established an Energy Year (EY) compliance period which begins on June 1 and ends May 31 of the following year. The 2005 Energy Year required that 3.25% of a supplier's electricity be generated from renewable resources including 0.74% Class I and 0.01% solar. We are on track to achieve this objective. As of September 30, 2005, all regulated electricity suppliers are reported to be in compliance with the 2005 EY RPS, including the solar set aside.

2005 NJCEP Energy Efficiency & Renewable Energy Annual Goals and Results

		Electric Energy Efficiency	Natural Gas Energy Efficiency	Solar Renewable Energy	Class I Renewable Energy
		MWh	Dtherm	MW	MW
2003	Actual	285,576	408,583	1.7	76
2004	Actual	328,912	432,758	2.1	3.7
2005	Goals	341,770	489,305	4	19
2005	Actual	382,845	617,261	5.5	14.9

As set forth in the December 23, 2004 Board of Public Utilities Order Docket No. EX04040276 Funding Allocation and Program Budget.

Overall Program Objectives & Progress to Date

Objective 2: By December 31, 2008, install 300 MW of Class I renewable electric generation capacity in New Jersey, of which a minimum of 90 MW will be derived from photovoltaics.

Description: The 300 MW goal ensures the development and use of clean, renewable energy resources and generation capacity within the state and requires a minimum of 90 MW of solar photovoltaics. New Jersey is one of the first states to adopt a minimum requirement for solar electricity, which has made it one of the fastest growing solar markets in the nation.

Results: Through the end of 2005, with an existing capacity of 65 MW of Class I renewables, 85 MW of Class I renewable energy have been installed including 9.2 MW of photovoltaics. Therefore, an additional 125 MW of Class I renewables and 80.8 MW of photovoltaics must be delivered by the end of 2008. Given the high level of activity in the renewable energy programs and the number of committed projects, particularly in the Customer On-Site Renewable Energy (CORE) Program, the programs appear to be on track to meet the renewable energy goals, although doing so will continue to be a challenge.

Objective 3: By December 31, 2012, 785,000 megawatt hours per year and 0.6 billion cubic feet of gas per year of energy savings will be derived from energy efficiency measures.

Description: The energy savings goal is designed to meet all future demand for energy beyond 2012 levels through increased energy efficiency. This goal will help ensure that all future growth in electric and natural gas usage in the state is met through energy efficiency measures such that overall energy usage remains at 2012 levels. This will ensure greater efficiency in the use of existing resources and reduce or eliminate the need to cite new generation facilities.

Results: Progress in meeting energy savings goals is measured relative to the levels of funding for energy efficiency programs. For every percentage increase in funding compared to 2003 funding levels, the goal is to increase energy savings over 2003 levels by the percentage increase in funding plus 10%. The funding level for energy efficiency in 2003 was $93 million and increased to $103 million in 2005. Savings for electric efficiency measures increased from 285,576 MWh in 2003 to 382,845 MWh in 2005 or by 34%, and natural gas savings increased from 410,517 Dtherms in 2003 to 617,261 Dtherms in 2005 or by 50%, both significantly exceeding the goal as noted on the preceding page.

In 2005, New Jersey proposed new RPS rules to increase the Class I requirements to 20% by the year 2020, which would include a solar requirement of 1,500 MW of solar.

WHAT'S A KILOWATT AND OTHER FREQUENTLY ASKED QUESTIONS:

Watt: The standard unit used to measure electric power.

Kilowatt (kW): One thousand watts of electricity, or the amount required to light ten 100-watt incandescent light bulbs.

Kilowatt-Hour (kWh): One thousand watts of electricity used over one hour. Ten 100-watt light bulbs burning for one hour would consume 1 kWh of electricity.

Megawatt (MW): One thousand kilowatts of electricity.

Megawatt-Hour (MWh): A MWh is 1,000 kilowatt-hours (kWh). A MWh is the amount of electricity generated by a one megawatt (MW) electric generator operating or producing electricity for one hour.

Average Residential Electricity Usage: The average residential electricity customer in New Jersey uses 690 kilowatt-hours (kWh) per month or 8,300 kilowatt-hours (kWh) per year in their home.

Average Annual Electricity Costs: An average New Jersey residential customer using 690 kWh per month at a rate of 12 cents per kWh will spend $995 a year for electricity service.

Energy Efficiency Savings: An average residential user can reduce their electricity usage by as much as 30% by using energy efficient appliances and lighting fixtures, and energy saving measures. This could save the average resident about $300 in annual electricity costs.

Average Emissions: The average New Jersey residential customer who uses 690 kWh of electricity a month contributes the following air emissions each year:

22 pounds of nitrogen oxides, which contribute to ground level ozone and acid rain

69 pounds of sulfur dioxide, a primary contributor to acid rain and irritant for respiratory and cardiovascular diseases

9,906 pounds of carbon dioxide, the predominant gas contributing to the greenhouse effect and global warming

This is the equivalent to: Adding one car to the road results in 11,450 pounds of carbon dioxide emissions per year. Adding one SUV to the road results in 16,035 pounds of carbon dioxide emissions per year. For example, if annual carbon dioxide emissions are 16,000 pounds, that equals adding approximately 1 SUV or 1.4 cars to the road for one year*.

You would need to plant 1.35 acres of trees to absorb 10,000 pounds of carbon dioxide in one year. For example, if your annual emissions of carbon dioxide are 20,000 pounds, you would need to plant 2.7 acres of trees to absorb that amount.

Average ratepayer cost for New Jersey's Clean Energy Program: In 2005, an average residential electric utility customer contributed approximately $12 to fund these programs and an average residential gas utility customer contributed approximately $10. An average commercial electric utility customer contributed approximately $77 to the fund in 2005, and an average commercial gas utility customer contributed approximately $50.

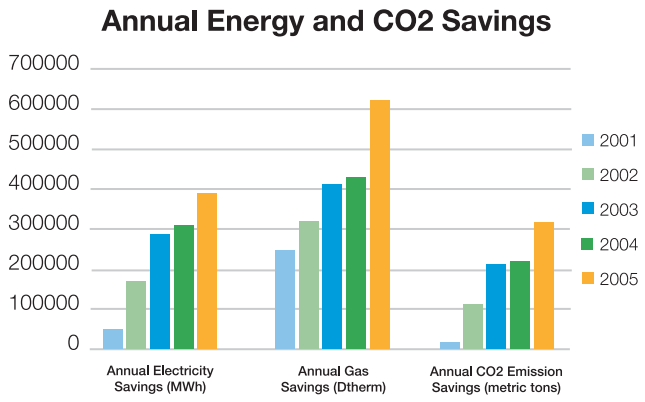
* Estimated values based on EPA Power Profiler

Energy Savings Continue to Grow

Since New Jersey's Clean Energy Program was launched in April of 2001, it has evolved and continues to grow. The energy savings and associated emission reductions produced by the programs in 2005 continued the trend of increasing savings in each year over and above the previous year.

Electric energy savings and renewable energy generation grew by over 22% and natural gas savings grew by over 42% from 2004 to 2005.

The table below—which provides a comparison of the annual energy and emission savings since 2001—demonstrates the significant gains the Program has achieved in influencing businesses and homeowners throughout the state to invest in energy efficiency and renewable energy.



Efficient equipment installed and practices put into effect in 2005 will continue to save energy for an average of 15 years. This year's results add to the energy savings achieved from 2001 to 2004. Combined, the 5-year Program activities resulted in lifetime energy savings of over 14 million MWh of electricity, 38 million Dekatherms of natural gas, and 788,000 MWh of renewable generation. The programs have also reduced electric demand by 450 MW, eliminating the need to site, construct, and operate a mid-sized power plant.

The 2005 New Jersey
Clean Energy Conference & Leadership Awards

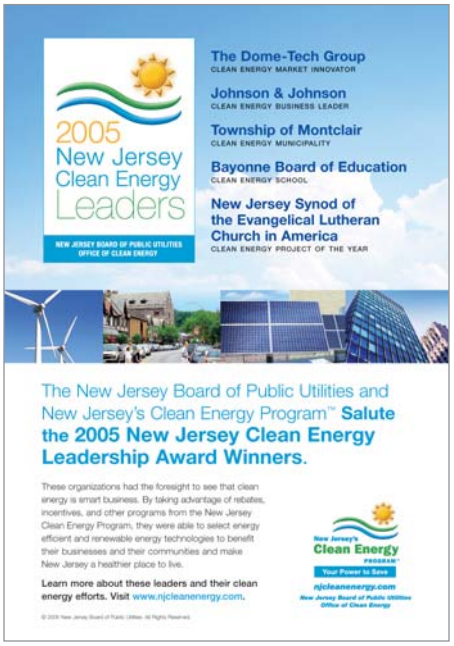
Clean Energy. Smart Business.

The BPU hosted the first, annual New Jersey Clean Energy Conference & Leadership Awards in September 2005, to invite the business community and market participants to explore clean energy policies, market trends, and business case studies in the Garden State. The Conference brought together more than 400 leading business and energy professionals to learn, network, and discuss issues shaping the Mid-Atlantic and New Jersey energy markets. The annual Conference, which focuses on *"Clean Energy. Smart Business."* features panel discussions on Clean Energy Project Financing, Renewable Energy Certificate Markets, Energy Efficient Buildings, and Energy Procurement. Details on the 2006 New Jersey Clean Energy Conference & Leadership Awards are available online at NJCleanEnergy.com.

CLEAN ENERGY LEADERSHIP AWARDS

Garden State Recognizes Clean Energy Leaders

The first, annual New Jersey Clean Energy Leadership Awards were presented at the 2005 New Jersey Clean Energy Conference. The Leadership Awards recognized organizations that made powerful choices to select energy efficiency and renewable energy technologies to benefit their businesses and communities. The awards were presented in five categories that showcased New Jersey institutions, manufacturers, businesses, schools, and communities.



Winners of the 2005 New Jersey Clean Energy Leadership Awards included:

- **Johnson & Johnson:** New Jersey Clean Energy Business Leader of the Year
- **The Dome-Tech Group:** New Jersey Clean Energy Market Innovator
- **Bayonne Board of Education:** New Jersey Clean Energy School
- **Township of Montclair:** New Jersey Clean Energy Municipality
- **New Jersey Synod of the Evangelical Lutheran Church in America (ELCA):** New Jersey Clean Energy YOUR POWER TO SAVE Project of the Year

New Jersey's Clean Energy Program™ 2005 Highlights

The BPU's approved funding level for 2005 was $140 million, including carry-over from prior year commitments; the total 2005 program budget was $233,950,000 for financial incentives to residential customers, businesses, industries, schools, and municipalities that install energy efficiency and renewable energy technologies resulting in the following achievements.

New Jersey's Clean Energy Program 2005 Participation Highlights

- 27,510 residential customers received rebates for the purchase of **high efficiency heating and cooling equipment** which will reduce their energy usage and costs
- 8,009 new homes were built and certified to **New Jersey ENERGY STAR Home** standards, representing over 20% of all new homes built in New Jersey
- Over 1.2 million **high efficiency compact fluorescent bulbs and fixtures** were distributed through New Jersey retailers. These high efficiency lights and fixtures use two-thirds less energy and last up to 10 times longer than standard incandescent light bulbs
- 6,403 **low-income homes received energy efficiency improvements** at no cost to the customer, thus ensuring continued savings and greater affordability
- Rebates were paid for 2,387 **commercial energy efficiency projects,** helping businesses reduce their energy costs while improving profitability
- 496 schools, businesses, and residents **installed solar electric or other renewable energy systems** that will generate clean, emission-free electricity and reduce energy costs for years to come
- 4,850 trees were planted through the ***Cool Cities*** program managed by the NJ Department of Environmental Protection. Shading from these trees will reduce cooling loads in cities by reducing the "heat island" effect

Overall, the energy savings plus the renewable energy generated from projects installed in 2005 will save over 411,982 MWh of electricity and 617,261 Dtherms of natural gas per year, enough to meet the electric needs of about 50,000 average homes and the natural gas needs of over 6,100 average gas-heated homes.

OUTREACH & EDUCATION PROGRAM

The Outreach & Education Committee provides communications support to New Jersey's Clean Energy Program and activities featured throughout this report through the NJCleanEnergy.com web site, event planning, special promotions, and general public education and media campaigns. Highlights for 2005 include:

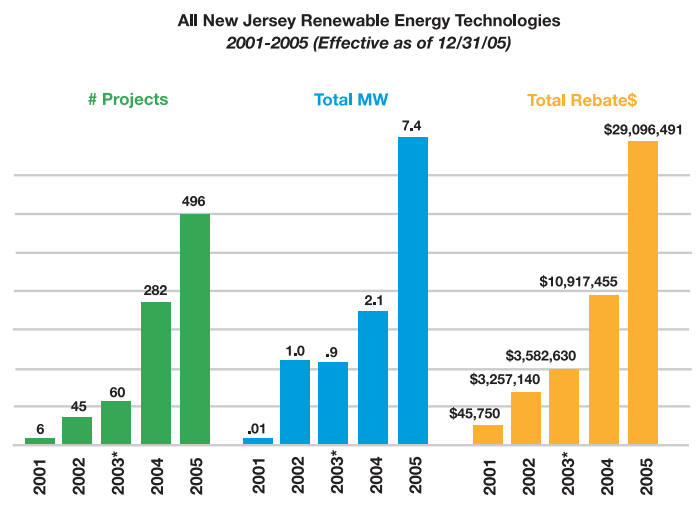
- **Education & Outreach Grants Program**
- **First, Annual Clean Energy Conference & Leadership Awards**
- **Official Proclamation October is Clean Energy Month**
- **Launch of CleanPower Choice Program℠**
- **ENERGY STAR Change-A-Light Campaign**
- **Summer Energy Savings Campaign**
- **Winter Energy Savings "5 Tips" Campaign**
- **Clean Energy Public Awareness Survey**
- **NJCleanEnergy.com Web Site Redesign**
- **Solar Market Mixer**

Program Implementation Reports

The following section summarizes and reports on the 2005 implementation of the Renewable Energy Program, Residential Energy Efficiency Program, and Commercial Energy Efficiency Program.

During 2005, the residential and commercial energy efficiency programs were managed by the state's 7 investor-owned gas and electric utilities, the NJ Department of Environmental Protection, and the NJ Department of Community Affairs. The renewable energy programs were managed by the Office of Clean Energy and the NJ Economic Development Authority (NJEDA). The Office of Clean Energy plans to transfer the management of the programs currently managed by the utilities and by the Office of Clean Energy to non-utility Market Managers in 2006.

All New Jersey Renewable Energy Technologies (CORE) Including Wind, Sustainable Biomass, and Solar



*Total NJCEP + Utilities
CORE program managed by utilities 2001 through mid-2003

Renewable Energy

Renewable Energy Program Summary

New Jersey's Clean Energy Program™ has been recognized as one of the best renewable energy programs in the nation. The groundwork for the development of a sustainable renewable energy industry, which was laid over the past several years, continued to pay significant dividends in 2005.

The Customer On-Site Renewable Energy (CORE) Program, which provides rebates for the installation of renewable technologies, grew significantly for the second consecutive year and achieved a major milestone with the installation of the 1,000th photovoltaic system occurring in early 2006. This milestone reflects the exponential growth of New Jersey's solar market from 2001, when there were only 6 solar electric systems installed through the program.

As of December 31, 2005, a total of 889 renewable energy systems, including 879 solar photovoltaic systems, were installed across the Garden State with a generating capacity of more than 11.4 megawatts of renewable energy. These solar installations will avoid the generation of more than 11,040 MWh in traditional sources of electricity and save solar owners an estimated $1.1 million annually in total electricity costs. These systems also will help protect New Jersey's environment by avoiding more than 18 million pounds of carbon dioxide emissions each year, the equivalent of removing 1,100 SUVs from the road or planting 2,433 acres of trees.

The state's first major wind generator was installed in 2005, a 7.5 MW system on the site of the Atlantic County Utilities Authority. (See Program Highlight under "Grid Supply Program.")

In addition to the financial incentives provided through New Jersey's Clean Energy Program, the BPU has implemented several other initiatives aimed at stimulating a renewable energy marketplace. These efforts included: the adoption of interconnection and net-metering rules; launch of the Generation Attribute Tracking System (GATS) for trading of Renewable Energy Certificates (RECs) through PJM-EIS and the trading system for Solar Renewable Energy Certificates (SRECs) through Clean Power Markets; and Renewable Portfolio Standards (RPS) that require suppliers of electricity to purchase a certain percentage of their electric power from renewable energy systems. The BPU commenced a rulemaking process in 2005 and is considering increasing the RPS requirements for Class I renewable energy to 20% by 2020.

Given the success of the programs, the BPU is exploring options to transition from rebate-based incentives to market-based incentives, primarily through the development and maturation of the Solar Renewable Energy Certificate (SREC) markets which provide additional revenue over the life of the system. The SREC system adds approximately $180 per kW of solar capacity in annual production value to solar facility owners, which helps reduce their payback period to about 10 years. The BPU has asked the Clean Energy Council to provide recommendations regarding ways to transition to a more market-based incentive framework and anticipates considering these recommendations in 2006.

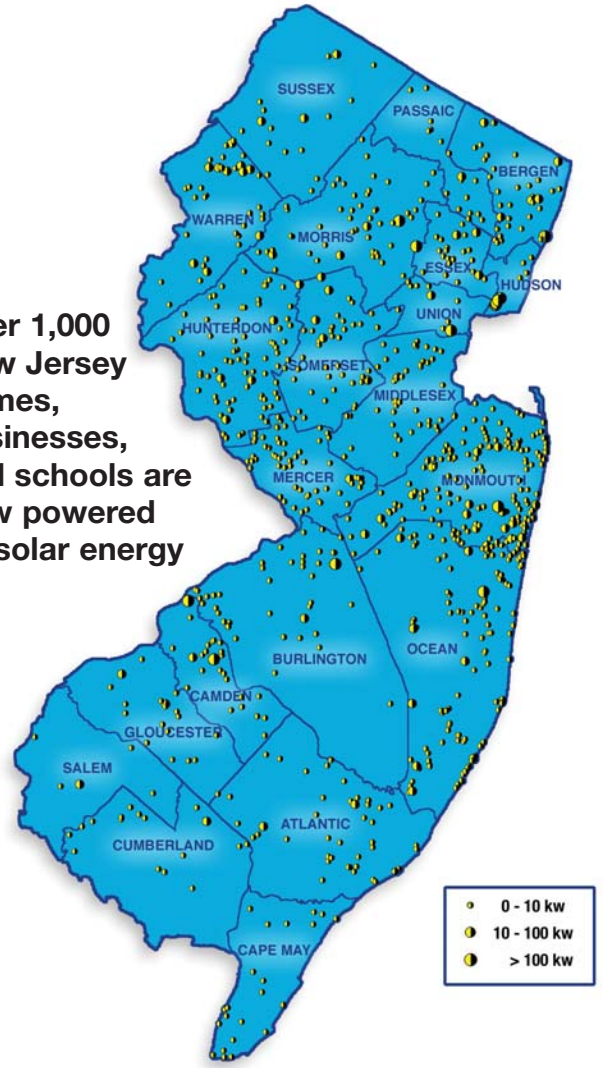
Customer On-Site Renewable Energy (CORE) Program

This Program provides rebates for the installation of renewable energy systems that serve customer loads. In 2005, the CORE program experienced significant growth for the second consecutive year. The number of renewable energy systems installed rose from 60 in 2003, to 282 in 2004 and to 496 in 2005 of which 493 were solar systems. The number of projects approved but not installed at year-end also increased in 2005. 1,182 projects totaling over 38 MW and $136 million in rebates were committed as of the end of 2005. Through 2005, the CORE program has provided rebates to 889 customers that have installed approximately 11.4 MW of renewable energy systems of which 9.2 MW are solar systems.

CORE Renewable Energy Technologies

2005 Quarterly Report

	# Projects	Total MW	Total Solar MW	Total Rebate $
Q4/2005	149	1.8	1.8	$8,466,891
Q3/2005	184	2.6	2.5	$11,900,246
Q2/2005	112	0.8	0.8	$4,489,023
Q1/2005	51	2.2	0.4	$4,240,331
Total:	**496**	**7.4**	**5.5**	**$29,096,491**



Over 1,000 New Jersey homes, businesses, and schools are now powered by solar energy

In early January 2006, New Jersey reached an important milestone of 1,000 solar installations across the state. Two hundred of New Jersey's leading businesses and institutions are among the 1,000 solar installations including: New Jersey American Water (Somerville), Valley National Bank (Wayne), Merck (Rahway), Whole Foods (Princeton), Johnson & Johnson (Skillman), and the Bayonne School District (Bayonne). At the same time, over 800 residents, small businesses, and institutions, like St. Anthony's Church (Bergenfield, NJ), Prout Funeral Home (Verona, NJ), and Goddard School (Wall, NJ), have installed solar systems in municipalities across the state.

Program Implementation Reports

The table below shows the costs and renewable generation for the CORE projects that received rebates in 2005:

Customer On-Site Renewable Energy Program			
2005 Expenditures: $29,096,491 Committed Expenditures: $136,514,000			
	Renewable Electricity Generation from Projects Installed in 2005	Renewable Energy Installed Capacity Including Solar	Installed Solar Capacity
# Participants	MWh	MW	MW
496	16,620	7.4	5.5

Grid Supply Program

The Grid Supply Program provides incentives for large, grid-connected renewable energy electric generation facilities. In June of 2002, 5 proposals submitted in response to the BPU's solicitation for projects to supply the PJM Power Pool were awarded funding. The solicitation sought to provide the maximum installed capacity and energy for the funding to be awarded, while also promoting the use of diverse technologies and maximization of environmental benefits.

Of the 5 proposals awarded funding, one project, the Atlantic Renewable Energy Corporation off-shore wind feasibility study, has been completed and another, The Jersey-Atlantic Wind Farm, is online. Located at the Atlantic County Utilities Authority, the wind farm features five 1.5 MW wind turbines each standing 397 feet tall. (See Success Story to the right.)

Of the 5 proposals, 2 projects were terminated and one project, the County of Burlington's Landfill Gas to Energy Project, is still under development. Burlington

SUCCESS STORY

Jersey-Atlantic Wind Farm

An aerial view of the Jersey-Atlantic Wind Farm, right off the Atlantic City Expressway. The five 1.5 MW wind turbines are quickly becoming a landmark for visitors to Atlantic City.

On December 12, 2005, BPU President Jeanne Fox helped dedicate New Jersey's first wind farm and the nation's first coastal wind farm. The Jersey-Atlantic Wind Farm, located at the Atlantic County Utilities Authority, features five 1.5 MW wind turbines each standing 397 feet tall. Built on existing industrial-use land, the project pioneers the use of commercial-scale renewable energy technology in a well developed part of the country.

The facility is expected to produce approximately 20,000 MWh of emission-free electricity per year, enough to power 2,500 homes. A portion of the electricity generated by the wind turbines will be utilized at the wastewater treatment facility with the excess power fed into the grid and used to serve other customers. The project was made possible due in part to a $3.5 million rebate from the New Jersey Clean Energy Program.

What's more, the Jersey-Atlantic Wind Farm is emission-free, helping reduce greenhouse gases and protecting the state's 127 miles of shoreline threatened by climate change impacts.

County is developing a 5 MW landfill gas-to-energy project at the County's Resource Recovery Complex. A project grant agreement is under review and should be finalized and signed during the first quarter of 2006.

CleanPower Choice Program

The Board launched a major new program in 2005 aimed at increasing consumer participation in the renewable energy market through a voluntary retail program known as the **Clean**Power Choice Program℠. This program provides electric utility customers the option of selecting "clean energy" through a sign-up option on their electric utility bills. New Jersey's **Clean**Power Choice Program is the first statewide program of its kind where multiple utilities and clean power marketers participate in a joint effort with the state to give consumers access to the regional market for renewable energy. The program was initially made available to PSE&G and JCP&L customers in October 2005 and will be expanded to include Atlantic City Electric and Rockland Electric Company customers in 2006.

Clean Energy Project Financing Programs

Two new financing programs to be managed by the NJ Economic Development Authority were implemented in 2005: *Public Entity Financing for Schools and Local Governments* and *Clean Energy Project Financing for Businesses.* These programs, which require energy efficiency improvements in conjunction with the use of renewable energy technologies, will provide grants and low-cost financing to supplement the direct financial incentives provided through the other programs.

SUCCESS STORY

New Jersey CleanPower ChoiceProgram℠

New Jersey Makes the Choice for Clean Energy

The CleanPower Choice Program represents an easy way for residents to support the development of clean power. For as little as $6.00 a month, depending on the product chosen and the amount of electricity a homeowner uses, New Jersey residents and businesses can ensure that their electricity needs are served by clean, renewable sources of energy. Each choice offers a slightly different mix of renewable energy resources such as solar, wind, low-impact hydro, or landfill gas. New Jersey electric customers receive enrollment forms twice a year through their utility or can go to NJCleanPower.com for more information and links to the participating suppliers.

Program Implementation Reports

Renewable Energy Project Grants and Financing Program

The Program provides grants and financing to encourage the development of large-scale renewable energy facilities, greater than 1 MW, in New Jersey. The name of this program was changed from the Renewable Energy Advanced Power Program (REAP) to better reflect the nature of the program. The solicitation is designed to provide seed grants and access to capital in order to make renewable-powered electricity cost competitive with conventional power plants.

Three projects are currently under development that have been awarded grants or financing under this program: a 9.6 MW landfill gas-to-energy project to be located at the Ocean County Landfill; a 3.2 MW landfill gas-to-energy project to be located at the Warren County District Landfill; and a 1.5 MW cogeneration and sludge drying facility to be located at the Rahway Valley Sewerage Authority.

Renewable Energy Business Venture Assistance Program

Formerly known as the Renewable Energy Economic Development Program (REED), this program provides funding for renewable energy businesses in New Jersey. Grants were intended to promote renewable energy business development in the state. For the 2004 Renewable Energy Business Venture Assistance solicitation, $6.35 million in recoverable grant funds were made available. Two projects from this solicitation were approved by the BPU totaling $763,000. In 2005, $5 million was made available for demonstration projects and recoverable grants.

CASE STUDY

Bayonne Board of Education

The Bayonne Board of Education installed the East Coast's largest combined installation of electricity-saving photovoltaic (PV) roof panels. The $13.2 million solar project is being installed at Bayonne High School and eight elementary schools and is expected to produce about 2 MW of power and save the district and its taxpayers more than $500,000 yearly on energy costs. Slightly more than 1 MW (1,073 kW) was installed in 2005.

Upon completion, the panels will decrease reliance on fossil fuels, cut pollution, and reduce the area's strain on the electric grid during peak summer months. The project was made possible due in part to a $5.4 million rebate provided by New Jersey's Clean Energy Program.

Aerial photo of Bayonne High School: Almost 10,000 solar panels will be installed on nine Bayonne schools.

Residential Energy Efficiency

Program Summary

New Jersey's Clean Energy Program has been nationally recognized for the development of innovative energy efficiency initiatives. **For the second consecutive year, the New Jersey ENERGY STAR® Products Program received an ENERGY STAR Partner of the Year award from the U.S. Environmental Protection Agency and U.S. Department of Energy.** New Jersey's Clean Energy Program was recognized for its outstanding contributions to reducing greenhouse gas emissions by promoting the use of energy-efficient products.

New Jersey was also recognized by the American Council for an Energy Efficient Economy (ACEEE) for its innovative Low-Income Program. ACEEE awarded a Certificate of Recognition for Exemplary Low-Income Energy Efficiency Program to the New Jersey Comfort Partners Program in 2005. New Jersey was commended for **"its efforts in offering this exemplary program, which is a model of 'best practices' for utility-funded low-income programs across the nation."**

In addition to being recognized with numerous awards, in 2005, New Jersey's Clean Energy Program also worked to implement initiatives that are in direct response to global events. For example, in response to the natural gas price spikes experienced in the state following Hurricane Katrina, the BPU worked closely with the state's utilities to develop and implement several new efforts aimed at helping customers reduce their winter heating bills by reducing their energy usage. These efforts included:

- **Increased rebates for high efficiency natural gas heating furnaces and boilers:** replacing old, inefficient furnaces and boilers with new, high efficient equipment can reduce energy usage and costs for heating by more than 20%. The new, higher rebates for heating equipment were put in place in the fall of 2005, prior to the winter heating season.
- **Expanded the Home Performance with ENERGY STAR Pilot Program:** the Home Performance with ENERGY STAR Program provides incentives for improvements to a home's building shell and equipment. In 2005, the program was operated as a pilot in Atlantic County. Steps were taken to expand the program statewide, which is expected to commence in early 2006.
- **Energy Conservation Kits:** energy conservation kits that include materials and information that can help reduce energy usage were purchased and made available to customers for $5, well below the cost of the materials. The kits include items such as weatherstripping, low flow shower heads, and information on opportunities to save energy.
- **Programmable Thermostats:** programmable thermostats can reduce energy usage by automatically lowering the temperature at night and when rooms are not in use. The ENERGY STAR Products Program worked with The Home Depot to offer customers a 20% discount on the purchase of programmable thermostats.
- **Winter Energy Savings "Five Tips" Campaign:** the Office of Clean Energy developed tips to inform customers about ways to reduce energy usage and costs. The "Five Tips" were extensively promoted in media and through utility bill inserts.

Residential Energy Efficiency Program Implementation

In 2005, the energy efficiency programs offered to residential customers included the Residential New Construction Program (NJ ENERGY STAR Homes), the Residential Electric and Gas HVAC Programs (*COOL*Advantage and *WARM*Advantage), the ENERGY STAR Products Program (NJ for ENERGY STAR), and the Residential Low-Income (Comfort Partners) Program.

"The enhanced rebate has helped to sell better equipment and make it easier for customers to make the decision to upgrade to even higher levels of efficiency for their heating systems."

Tom Rostron
Tom Rostron Company, Inc.

CASE STUDY

The Danitom Difference

Danitom Development Company began in 1992 with a plan to offer affordable homes to the New Jersey entry-level market without compromising quality. The result of their business planning: Ranch homes in the range of 1,268 to 1,726 square feet of space, and colonial designs in a 1,290 to 3,000 square foot range. The average selling price of a Danitom home is ideal for the first time homebuyer in New Jersey.

Danitom prides itself on offering high-quality construction at a very affordable price. They believe that entry-level housing does not have to mean dull, boxy homes. All of Danitom Development's New Jersey homes are built to the New Jersey ENERGY STAR® Program standards and requirements. This means their homebuyers will enjoy greater year-round comfort, and annual electric and gas operating cost savings for years to come. By using higher efficiency heating and cooling units, and other energy saving construction measures, their homes will be at least 30% more energy efficient than other homes built to the state energy code.

The Danitom family seeks to build trust and friendship with their buyers. Their Web site says it all: "The Road to Affordable Home Ownership Ends Here."

New Jersey ENERGY STAR Homes Program

This Program is designed to increase the efficiency of residential new construction, with the long-term goal of transforming the market to one in which all new homes are built to the national ENERGY STAR Homes standard. To be eligible, a home must meet a performance standard of 30% less energy consumption than if it had been built to the national model energy code, and the home must be located in an area designated for growth based on the State Development and Redevelopment Plan.

Since the New Jersey ENERGY STAR Homes Program was launched in 2001, it has been coupled with an extensive outreach effort that has resulted in participation by many of New Jersey's largest builders that have committed to building all of their homes in New Jersey to the program's standards. A record 8,009 new homes were built and certified to New Jersey ENERGY STAR Home standards in 2005, representing over 20% of the new homes built in New Jersey last year.

An additional 8,337 homes were committed in 2005 to be built to the New Jersey ENERGY STAR Home standard. The number of committed homes in 2005 increased by over 25 percent compared to 2004 levels.

The New Jersey ENERGY STAR Homes built or enrolled in 2005 will result in 24,384 MWh of annual energy savings, which, when combined with the savings to be realized from those homes entered into the program in previous years, will grow to significant savings over the expected lifetime of the homes being constructed. The chart below summarizes these savings.

New Jersey ENERGY STAR Homes Program

2005 Expenditures: $23,261,000
Committed Expenditures: $43,693,000

		Annual Energy Savings for Homes Certified in 2005		
# Participants	Market Share	MWh	MW	Dtherm
8,009	20%	6,123	18.9	239,568

*WARM*Advantage and *COOL*Advantage Programs

These programs promote the installation and use of energy efficient residential heating and cooling equipment. The programs are designed to transform the market to one in which quality installations of high efficiency equipment are commonplace. Rebates are available to promote the installation of qualified high efficiency HVAC equipment (ENERGY STAR rated central air conditioning and heating systems, and water heaters). Rebates for heating equipment were increased in 2005 as a tool to help customers offset increases in natural gas costs by purchasing more energy-efficient equipment.

The US Department of Energy has issued new minimum energy efficiency standards for residential air conditioners and heat pumps that became effective in January 2006. The new standards increased the minimum Seasonal Energy Efficiency Ratio (SEER) for this equipment from 10 to 13. The *COOL*Advantage Program was modified to reflect this change by eliminating rebates for equipment that is now required by the new standard and providing rebates only for equipment with a SEER of 14 or greater.

The table below shows the number of rebates paid for high efficiency furnaces, central air conditioning systems, heat pumps, and hot water heaters installed in 2005.

***WARM* and *COOL*Advantage Programs**	
High Efficiency Equipment Installed 2005	
Furnaces	9,295
Central AC units	17,261
Heat pumps	449
Hot water heaters	3,307

Gains in efficiency also result from the promotion of proper sizing and installation practices through contractor training sessions. During 2005, 620 HVAC technicians received sales and technical training, and 118 technicians passed the test and were added to the North American Technician Excellence (NATE) certification list. In addition, the New Jersey list of contractors with 75 percent or more of their technicians holding NATE certification has grown to over 200 firms.

More New Jersey customers will be comfortable, and will save money on their heating and cooling bills, this year and for years to come, as a result of the rebates offered through this Program.

The chart below summarizes participation levels and annual energy savings for the *WARM* and *COOL* Advantage programs:

***WARM* and *COOL*Advantage Programs**			
2005 Expenditures: $13,117,000			
	Annual Energy Savings		
# Participants	**MWh**	**MW**	**DTherm**
27,510	15,021	12.7	138,959

New Jersey for ENERGY STAR

This Program promotes the sale and purchase of ENERGY STAR rated and labeled windows, lighting products, and appliances. In 2005, over 850 stores were enrolled in the ENERGY STAR Products Program with over 1,500 retailers participating in one or more of the program's promotions. Point-of-purchase materials and sales training were provided to support retailers and contractors selling ENERGY STAR products. The program also sponsored a co-op advertising program with industry allies.

ENERGY STAR Lighting Incentive and Room Air Conditioner Programs

The ENERGY STAR Lighting Incentive Program was launched in conjunction with the national *Change-a-Light, Change-the-World* campaign sponsored by the US Environmental Protection Agency and Department of Energy. The ENERGY STAR Lighting Program is designed to offer energy-efficient lighting to New Jersey consumers at special discounted prices. The program contracted with lighting manufacturers and retailer groups located throughout the state and focused on the sale of compact fluorescent lights (CFLs) which use 66% less electricity than standard incandescent light bulbs and last up to 10 times longer.

Program Implementation Reports

It built on successes achieved in 2003 and 2004 and resulted in the sale or distribution of over 1.1 million standard CFLs and over 63,000 high efficiency lighting fixtures.

The ENERGY STAR Room Air Conditioner Rebate Program provided a $20 rebate to 14,708 residents that purchased an ENERGY STAR qualified room air conditioner.

NJ ENERGY STAR Products Program		
2005 Expenditures: $5,973,000		
	Annual Energy Savings	
# Participants*	MWh	MW
Room AC: 14,708	921	1.7
Lighting: 1,238,074	62,588	3.2

*Participants equal number of room air conditioners rebated and the number of high efficiency light bulbs and fixtures sold or distributed under the program.

Home Energy Analysis

A free home energy audit tool, Home Energy Analysis is now included as part of the ENERGY STAR Products Program. Home energy audits were performed by 27,870 residents in 2005, more than double the number that completed audits in 2004. The home energy audits provide customers with a do-it-yourself tool for estimating savings that can be achieved through the installation of various energy efficiency technologies and through the purchase of ENERGY STAR products.

Home Performance with ENERGY STAR Program

This Program offers building contractors and homeowners of existing houses incentives to install building shell measures that reduce energy usage, such as insulation and ENERGY STAR windows and doors, and to install high efficiency appliances. This program was run as a pilot in Atlantic County in 2005. It will be expanded statewide in October 2006.

SUCCESS STORY

ENERGY STAR AWARD 2005
PARTNER OF THE YEAR

New Jersey for ENERGY STAR

RECEIVES NATIONAL AWARD FOR 2ND STRAIGHT YEAR

In March of 2005, New Jersey's ENERGY STAR Products Program received an ENERGY STAR Partner of the Year Award for Excellence in Energy Efficiency and Environmental Education, sponsored by the US Environmental Protection Agency and the Department of Energy. The award was presented to organizations that have made outstanding contributions to reducing greenhouse gas emissions through energy efficiency. Fifty organizations were selected from over 7,000 ENERGY STAR partners based on their efforts to utilize energy efficiency technologies, communicate the benefits of energy savings to consumers and businesses, and encourage others to partner with ENERGY STAR.

Comfort Partners Program

This Program has improved energy affordability for New Jersey low-income households who, by definition, spend a high percentage of their income on energy. The Comfort Partners Program provided energy savings, improved comfort, home safety, and health for 6,403 New Jersey low-income households during 2005. Energy savings were achieved through the installation of energy efficiency measures (including air sealing against drafts, insulation, and duct sealing), installation of high-performance products and appliances (such as compact fluorescent lighting and ENERGY STAR refrigerators), and performance of health and safety testing to detect, reduce, or prevent the existence of dangerous combustion by-products. The measures are installed at no cost to the customer.

The Comfort Partners Program is complemented by the Universal Service Fund (USF), which provides financial assistance for low-income residents, and the Weatherization Assistance Program managed by the NJ Department of Community Affairs (DCA), which delivers weatherization assistance services to low-income customers in the state. A partnership agreement between the Office of Clean Energy, the state's electric and natural gas utilities, and the NJ Department of Community Affairs was reached in 2005 and is intended to better coordinate the weatherization efforts of the Comfort Partners Program and DCA's Weatherization Assistance Program. Both of these programs install measures such as insulation and high efficiency heating and cooling equipment, appliances, and lights in the homes of low-income customers at no cost to the customer. The partnership agreement will result in a streamlined administrative process that will result in more homes being treated.

The utilities also issued RFPs in 2005 that were designed, in part, to increase the delivery capability of the program. This, combined with the partnership agreement, should result in significantly more low-income homes being treated in 2006 than were treated in 2005.

Comfort Partners Low-Income Program			
2005 Expenditures: $15,467,000			
	Annual Energy Savings		
# Participants	MWh	kW	DTherm
6,403	5,636	569	48,733

CASE STUDY

Comfort Partners

Upon arriving at the home of Ms. Rudolph, the Comfort Partner's Program Technician noted that the home was essentially an uninsulated wooden box that resulted in extremely high heating bills. The technician also found a potentially dangerous situation: the hot water heater was vented into the living space. The technician worked with the local gas company which reached out to several other community organizations including Checkmate; the Monmouth County Board of Supervisors; the Township of Neptune; and the Patriot Group. These organizations all worked with the Comfort Partner's Program to develop a plan for repairing the home and each contributed to the project. Work on the project has begun and the project is expected to be completed in the spring of 2006. Ms. Rudolph is most grateful that through the efforts of the Comfort Partners Program and the other organizations, she will be able to continue living in her home with significantly reduced energy bills.

Commercial Energy Efficiency

Program Implementation

New Jersey SmartStart Buildings®

The Commercial and Industrial Construction Program was designed to address key market barriers to efficient construction on the part of developers, designers, engineers, and contractors in the commercial sector. It is available to schools, commercial, industrial, governmental, institutional, and agricultural customers. The program focuses on both new construction and retrofits of existing buildings.

The program offers a wide variety of incentives. Rebates for measures such as high efficiency lighting, heating and cooling equipment, and motors are offered to help offset the incremental cost of high efficiency equipment. Design incentives and support are available to cover a portion of the cost for additional energy efficiency design services, and technical support is provided to help customers evaluate energy efficiency options. In 2005, 2,388 commercial and industrial projects were completed and received rebates. An additional 2,302 projects received rebate commitments that will be paid when the projects are completed at a future date. The chart to the right identifies the number and types of projects installed in 2005.

An important component of this program supports efficient design and construction in schools. The New Jersey SmartStart Buildings Program is working to ensure that schools take into consideration the life-cycle costs of energy design and equipment purchase decisions, not just up-front costs. The goal is to have designers make decisions that produce the lowest total costs over the life of the schools, where the energy savings more than offset any incremental up-front costs. In 2005, 266 schools received rebates and an additional 254 schools committed to the program.

New Jersey SmartStart Buildings Program	
Types of Projects Completed - 2005	
Prescriptive Lighting	575
Lighting Controls	85
Performance Lighting	206
LED Traffic Signals	15
VFDs	78
Electric Chillers	35
Gas Chillers	9
Motors	182
Gas Heating	156
Gas Water Heaters	61
Elect Unitary HVAC	213
Geothermal	11
Custom - Gas	23
Custom - Electric	90
Design Support	22
Technical Assistance	14
Total	**1,775**

New Jersey SmartStart Buildings Program					
2005 Expenditures: $24,939,000 / Committed Expenditures: $26,219,000					
			Annual Energy Savings		
C&I Construction	Expenses	# Participants	MWh	MW	DTherm
C&I New Construction	$3,730,000	198	13,851	3.5	12,335
C&I Retrofit	$17,347,000	1,923	260,238	28.5	175,613
New School Construction and Retrofit	$3,360,000	266	13,583	4.4	2,053
Combined Heat and Power	$502,000	1	767	0.1	0
Total	**$24,939,000**	**2,388**	**288,439**	**36.5**	**190,001**

CASE STUDY

Rowan University

Rowan University, a growing state university in Gloucester County, had aging boilers and a need for air conditioning and lighting upgrades. The University proceeded with an energy efficiency project that included: an efficient central steam system; a chilled water plant along with variable frequency drives and efficient motors; energy saving HVAC equipment for the common area in new student town homes; and energy savings in the newly constructed College of Education building from high efficiency lighting, variable frequency drives, and efficient motors.

Rowan University received a rebate of $390,738 from the New Jersey SmartStart Buildings Program to help offset the costs of upgraded energy efficient equipment. The combined measures are expected to save 2,605,105 kWh of electricity and 7,943 DTherms of natural gas each year, reducing the University's energy costs by almost $300,000 per year.

Cool Cities Program

Managed by the NJ Department of Environmental Protection (DEP) and administered by the Board of Public Utilities, this initiative is designed to reduce cooling costs in specific neighborhoods through the planting of trees on city streets.

DEP's Community Forestry Program's "Cool Cities Initiative" was active during 2005 in 8 New Jersey cities. 4,850 trees were planted in 2005 and 8,553 trees have been planted since the program's inception in 2003. These trees are expected to reduce energy usage in buildings by over 4,000 MWh per year as well as improve the aesthetics of the urban neighborhoods.

NJ Cool Cities Program	
2005 Expenditures: $2,572,000	
	Annual Energy Savings
# Trees Planted	MWh
4,850	4,118

Combined Heat and Power (CHP) Program

A new program was implemented in 2004 which provides incentives for combined heat and power (CHP) projects. CHP projects will reduce emissions, help businesses lower their electric costs, and improve electric reliability. In 2005, over $7.4 million in commitments were made to 10 CHP projects that are expected to be built in 2006 or 2007.

CASE STUDY

Medford Care Center

The Medford Care Center is a 180-bed nursing facility located in Medford, NJ, that operates 24 hours a day, 365 days a year. The owners were looking for ways to reduce their electrical demand and usage. Two 70 kW natural gas micro turbines with heat exchangers were selected, which will generate electricity and provide the facility with both heat and hot water. It is anticipated that these micro turbines will generate 766,500 kWh/year, providing the Center with a reliable source of electricity and heat.

By achieving a total efficiency of over 70%, the system is expected to reduce the Center's energy costs by over $45,000 per year. The Combined Heat and Power Program provided a rebate of $107,460 to help offset the cost of the project. The rebate reduced the expected payback for the CHP system to less than 6 years.

This installation is the first Combined Heat and Power project to be installed and rebated under the auspices of New Jersey's Clean Energy Program.

Financial and Savings Data

2005 Program Expenditures

The total statewide budget for New Jersey's Clean Energy Program™ for 2005 was $244.2 million, which included $140 million in new funding and $104.2 million in carry-over funds from 2004. The budget allocated $113.8 million to energy efficiency programs, $120.2 million to renewable energy programs, and $10.2 million for program administration, including Office of Clean Energy administrative costs, evaluation, and related research, and outreach and education.

Actual spending for all programs was $124.6 million or 51% of the budget, which includes $85.4 million spent on energy efficiency, $35.5 million on renewable energy programs, and $3.7 million on administration. In addition, commitments were made to projects for incentives that will be paid when the projects are completed in the next year or two that totaled an additional $71 million for energy efficiency projects and $139 million for renewable energy projects. The tables below provide a comparison of budgeted to actual expenditures for each program:

Summary of 2005 Energy Efficiency Program Expenditures

2005 Energy Efficiency Program Expenses

Program	Budget (000)	Actual Expenses (000)	Committed Expenses (000)
ENERGY EFFICIENCY PROGRAMS			
Residential HVAC-Electric and Gas	$15,500	$13,117	$0
Residential New Construction	$22,950	$23,261	$43,693
ENERGY STAR Products	$6,830	$5,973	$0
Maintenance	$835	$1,021	$0
Room AC	$875	$396	$0
Change-a-Light & Other	$4,050	$4,016	$0
Online Audit	$870	$435	$0
Home Performance with ENERGY STAR	$200	$105	$0
Residential Low Income	$25,000	$15,467	$0
Utility Comfort Partners	$21,235	$15,460	$0
Utility Senior Weatherization Pilot	$40	$7	$0
DCA Low-Income	$3,725	$0	$0
DCA Green Homes	$1,600	$0	$0
STAC Evaluation	$170	$85	$0
Sub-Total: Residential	**$72,050**	**$57,903**	**$43,693**
Commercial/Industrial Construction			
C&I New Construction	$3,300	$3,730	$3,434
C&I Retrofit	$20,900	$17,347	$11,587
New School Construction & Retrofit	$3,500	$3,360	$3,541
Combined Heat and Power	$7,750	$502	$7,657
Pay for Performance	$1,000	$0	$0
Special Studies/Pilot Studies	$1,250	$0	$0
NJDEP Cool Cities	$4,000	$2,572	$1,067
Sub-Total: Commercial/Industrial	**$41,700**	**$27,511**	**$27,286**
TOTAL Energy Efficiency Programs	**$113,750**	**$85,414**	**$70,979**

Summary of 2005 Renewable Energy Program Expenditures

2005 Renewable Energy Program Expenses			
Program	**Budget (000)**	**Actual Expenses (000)**	**Committed Expenses (000)**
Customer On-Site Renewable Energy (CORE)	$85,700	$29,850	$136,514
CleanPower Choice	$3,000	$2,729	
EDA Programs			
NJBPU Grid	$2,000	$6	$2,000
Manufacturing Incentive*	$2,000	$6	
Public Entity Financing	$2,500	$8	
Clean Energy Financing for Businesses	$3,000	$9	$446
Renewable Energy Project Grants and Financing	$14,000	$557	
Renewable Energy Business Venture Financing	$8,000	$2,358	$81
Total Renewable Energy Programs	**$120,200**	**$35,523**	**$139,041**

* A 2005 budget for this program was established by the BPU but the program was not implemented in 2005. Expenses for this program were for program development.

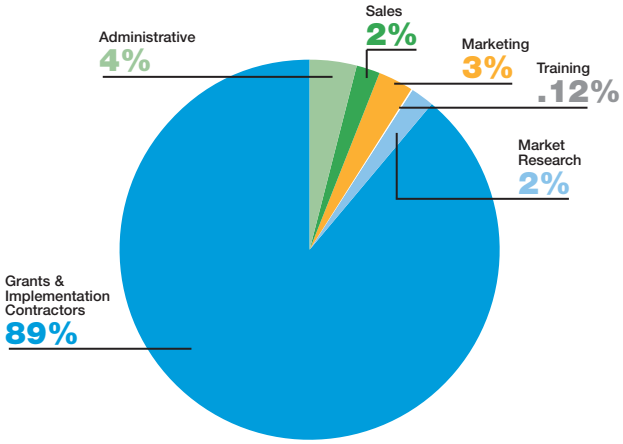
Summary of 2005 Expenditures for Program Administrative Costs

2005 Program Administrative Expenses			
Program	**Budget (000)**	**Actual Expenses (000)**	**Percent of Total Funding**
Administration and Overhead*	$2,400	$760	.54%
Evaluation and Related Research	$2,500	$866	.62%
Outreach and Education	$5,275	$2,028	1.45%
Total Program Administration	**$10,175**	**$3,654**	**2.61%**

Excess administrative funds will be reallocated to Energy Efficiency or Renewable Energy Programs as part of the 2006 Clean Energy Program budget.

* Includes implementation contractors.

Statewide Detailed Expenditures New Jersey's Clean Energy Program



The 11.12% in Administrative costs includes both the Utilities Administrative costs and OCE Administrative costs listed in the table at the left. Over 89% of the funds expended were spent directly on incentives paid to customers or on measures installed in customers' homes. The above chart shows expenditures broken out by each of the major cost categories.

Financial and Savings Data

Program Savings and Benefits

In 2005, New Jersey's Clean Energy Program expended $124.6 million to provide New Jersey homes and businesses with services and financial assistance that generated 382,845 MWh of annual electricity savings, 617,261 Dtherms of natural gas savings, and 29,136 MWh of electricity generated from clean, renewable sources of energy. The amount of electricity saved is enough to provide the annual requirements of approximately 50,000 homes in New Jersey. The programs also reduced demand on the electric system by 82.6 MW. Further, in 2005, $210 million in commitments were made for projects to be completed in the next two years that will produce additional annual savings of 162,993 MWh, 935,822 Dtherms, and 142,953 MWh of renewable generation.

The table below shows the average cost of savings for New Jersey's Clean Energy Program, which is significantly below the cost that would have been incurred to generate or purchase an equivalent amount of electricity or natural gas.

In addition to purchasing energy savings at a cost lower than the cost to purchase an equivalent supply of electricity or natural gas, these programs produce clear environmental and public health benefits through reduced emissions for electricity that did not need to be generated and natural gas that was not burned. Customers that install energy efficiency or renewable energy measures benefit even more by lowering their annual energy costs.

The table below documents that New Jersey's Clean Energy Program produces significant energy bill reductions for the state's consumers. Over the years, New Jersey's Clean Energy Program — from the energy conservation programs in the mid-'80s to the

Program Cost per kWh or Therms Saved in 2005

	Program Costs	Lifetime Savings/Generation from Measures Installed in 2005	Average Cost of Savings	Average Retail Price
Electric Programs	$98,280,000	4,032,971,000 kWh	$0.024	$0.100
Gas Programs	$26,312,000	116,774,000 Therms	$0.220	$1.00

The Overall Customer Bill Reductions Resulting from New Jersey's Clean Energy Program

	Annual Energy Savings for 2005 Measures	Lifetime Energy Savings for 2005 Measures	Cumulative Lifetime Energy Savings for 2001 through 2005
Electricity (kWh)	441,982,000	4,032,971,000	15,676,608,000
Natural Gas (therms)	6,172,610	116,774,000	389,438,130
	Annual Bill Reductions to NJ Energy Customers	**Lifetime Bill Reductions to NJ Energy Customers**	**Cumulative Bill Reductions to NJ Energy Customers**
Electricity (kWh) @ $0.10/kWh	$44,198,200	$403,297,100	$1,567,660,800
Natural Gas (therms) @ $1.00/therm	$6,172,610	$116,774,000	$389,438,130
Total Customer Bill Reductions	**$50,370,810**	**$520,071,100**	**$1,957,098,930**

*Estimated based on average cost, cost of .10 kWh residential customers, 600 kWh/month use and 1,000 therms.

mandatory Demand-Side Management (DSM) programs — through the Standard Offer programs have saved New Jersey residents and businesses over 41,000,000 MWh in avoided electricity use and over $2.1 billion in avoided energy costs. Growth in savings from natural gas energy efficiency programs has also been substantial.

The savings identified in the chart below accrue to New Jersey residences and businesses that installed energy efficiency or renewable energy measures in 2005. The energy savings produced by these measures also produce savings on infrastructure costs, reduce congestion on transmission and distribution lines, and increase reliability. The customer bill reductions in the table on the previous page do not include the avoided environmental costs of the reductions in air emissions, wastewater discharges, and waste generated.

Summary of energy savings that resulted from the Energy Efficiency Programs implemented in 2005:

Savings from 2005 Energy Efficiency Programs			
	Actual	Committed	Total
Annual Savings from Measures Installed or Committed to in 2005			
kWh	382,845,000	162,993,000	545,838,000
kW	73,601	67,444	141,045
Therms	6,172,610	9,358,220	15,530,830
Lifetime Savings from Measures Installed or Committed to in 2005			
kWh	3,494,052,000	2,006,451,000	5,500,503,000
Therms	116,774,000	169,043,240	285,817,240
Cumulative Lifetime Savings from Measures Installed or Committed to (2001-2005)			
kWh	14,888,209,000	8,879,187,000	23,767,396,000
Therms	388,273,130	494,031,180	882,304,310

Summary of renewable energy generation that resulted from the Renewable Energy Programs implemented in 2005:

Electric Generation from 2005 Renewable Energy Programs			
	Actual	Committed	Total
Annual Renewable Electric Generation from Measures Installed or Committed to in 2005			
kWh	29,136,000	142,953,000	172,089,000
kW	8,986	51,498	60,484
Lifetime Savings from Measures Installed or Committed to in 2005			
kWh	538,919,000	1,785,136,000	2,324,055,000
Cumulative Lifetime Savings from Measures Installed or Committed to (2001-2005)			
kWh	788,399,000	2,761,398,000	3,549,797,000

Financial and Savings Data

New Jersey's Clean Energy Program is Reducing Pollution

By reducing energy use or promoting renewable sources of energy generation, New Jersey's Clean Energy Program reduces the need to generate electricity and burn natural gas which eliminates the pollution that would have been caused by such electric generation or natural gas usage. The benefits of these programs continue for the life of the measures installed, which on average is about 15 years. Thus, the public receives substantial environmental and public health benefits from programs that also lower energy bills and benefit the economy. The total reductions in carbon dioxide emissions resulting from New Jersey's Clean Energy Program in 2005 are equivalent to taking 60,998 cars off the road for an entire year. These emission reductions will reduce our state's contribution to greenhouse gases, smog, and acid rain.

The following table summarizes the annual and lifetime emission reductions that result from the installation of energy efficiency and renewable energy measures installed in 2005:

Emission Reductions				
	CO2	NOX	SO2	HG (lbs)
Annual Emission Reductions (Metric Tons) from Measures Installed in 2005	317,467	550	1,217	15
Lifetime Emission Reductions (Metric Tons) from Measures Installed in 2005	3,407,440	5,620	11,915	143
Cumulative Lifetime Emission Reductions (Metric Tons)	13,198,209	21,813	46,317	576

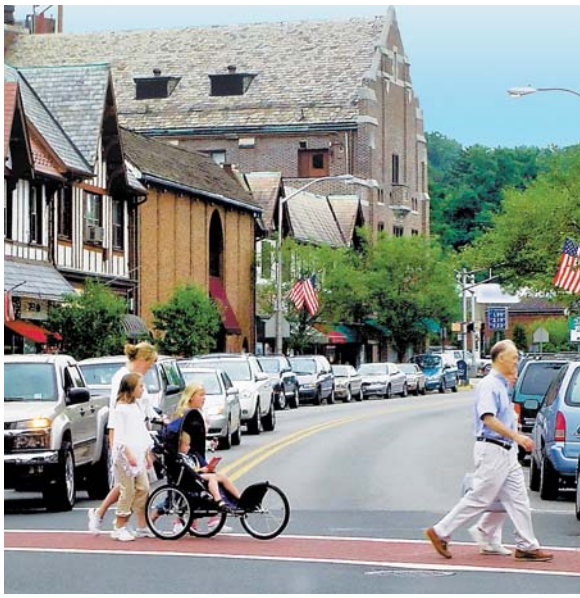
In 2005, the combined emission reductions from New Jersey's Clean Energy Program-installed measures is equivalent to taking 60,998 cars or 43,556 SUVs off the road for an entire year or planting 94,288 acres of trees. In addition to environmental benefits, these measures help improve our energy independence, provide for cleaner, healthier air, and create jobs for New Jersey.

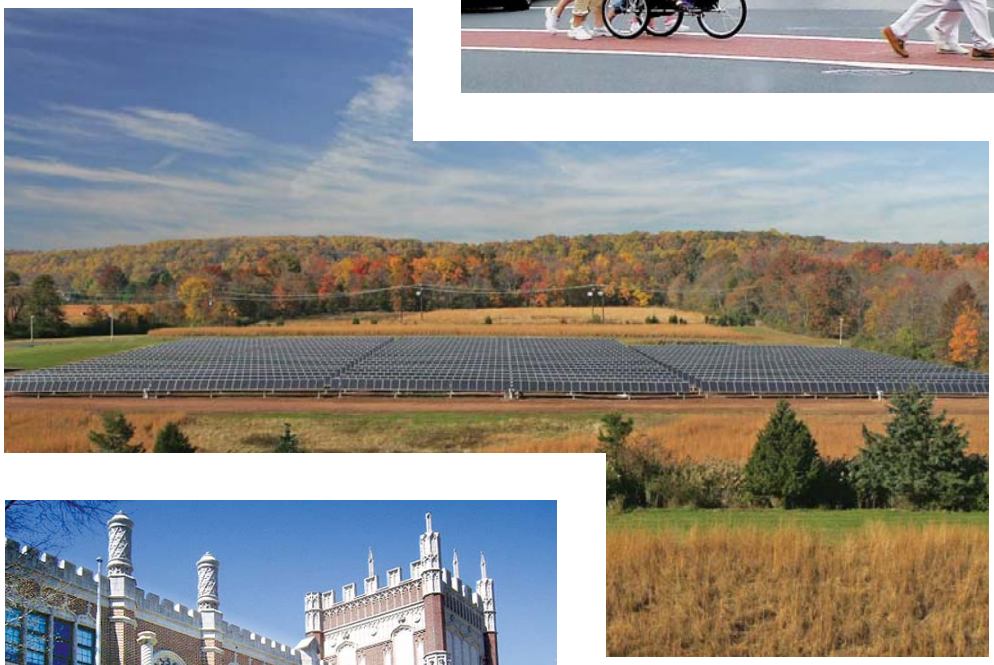
Program Evaluation

The two primary purposes for conducting evaluation and research regarding energy efficiency and renewable energy programs are: 1) to reliably document program effects, and 2) to improve program designs and operations to be more cost effective at obtaining energy savings and/or renewable energy generation. Evaluation and research activities are intended to provide a continuous feedback loop to policymakers, program administrators, and program managers regarding the operations of the programs. The ultimate goal of evaluation and research activities is to improve the programs.

Several key evaluation activities were under development or implemented in 2005. Summit Blue Consulting, LLC was engaged to perform an assessment of the energy efficiency marketplace. The results of Summit Blue's evaluation are expected in early 2006 and will include recommendations on ways to improve the energy efficiency programs currently being implemented. An RFP for a similar evaluation of the renewable energy marketplace was released in early 2006. An RFP for an impact evaluation, which will measure the actual energy savings or renewable energy generation from measures installed, is expected to be released in 2006.

Clean Energy is Working Hard for New Jersey





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New Jersey's Clean Energy Program™ Alliances and Partnerships

The success of New Jersey's Clean Energy Program is due in part to the many organizations, institutions, and alliances we work in partnership with to advance our clean energy initiatives. In addition to the organizations and institutions represented in the Clean Energy Council and Committees, NJCEP works in partnership with a wide variety of state, regional, and national organizations that provide valuable input on clean energy standards, best practices, policies, and opportunities for collaboration and outreach to key constituencies.

Our 2005 Clean Energy partners include:

- American Council for an Energy-Efficient Economy (ACEEE)
- Appliance Standards Awareness Project (ASAP)
- Business Council for Sustainable Energy
- Clean Energy States Alliance (CESA)
- Consortium for Energy Efficiency (CEE)
- Global Learning Inc.
- GreenFaith
- Mid-Atlantic Distributed Resources Initiative (MADRI)
- National Association of Regulatory Utility Commissions (NARUC) Energy and Environmental Resource Committee
- National Association of State Energy Officials (NASEO)
- National Conference of State Legislatures (NCSL) Renewable Energy Project
- National Council on Electric Policy (NCEP) Distributive Energy Resources
- New Jersey Citizen Action
- New Jersey Higher Education Partnership for Sustainability (NJHEPS)
- New Jersey Institute of Technology (NJIT) - High Performance Building Design
- Northeast Energy Efficiency Partnership (NEEP)
- Regional Greenhouse Gas Initiative (RGGI)
- The Rutgers' Hydrogen Learning Center
- US Department of Energy (USDOE), Clean Energy/Air Quality Integration Pilot
- US Department of Energy's Million Solar Roofs (MSR) Initiative
- US Environmental Protection Agency (USEPA) ENERGY STAR Program
- US Green Building Council - New Jersey Chapter (USGBC-NJ)
- USEPA Clean Energy - Environment State Partnership

For more information about
New Jersey's Clean Energy Program, visit:
www.NJCleanEnergy.com
or www.bpu.state.nj.us

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New Jersey's Clean Energy Program is a statewide Program administered by the New Jersey Board of Public Utilities that promotes energy efficiency and renewable energy for all New Jersey ratepayers, including residences, businesses, schools, and municipalities.

For more information on incentives for clean energy technologies for your home or business, please visit: **www.NJCleanEnergy.com**

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