Clean Energy in NEW JERSEY





A Commitment to the Future.



Mastering the challenges of clean and renewable energy...

The New Jersey Energy Master Plan.

New Jersey is fully committed to the development of clean and renewable energy sources to reduce its carbon footprint. This commitment to become one of the most energy efficient and "green" states is clearly reflected in the very aggressive goals New Jersey established in its Energy Master Plan launched by Governor Jon S. Corzine in 2008. These goals include reaching the following milestones by 2020:

- Supply 30% of the state's electricity from renewable sources.
- Reduce overall energy consumption by at least 20%, saving 20,000 GWh per year and annual heat savings of nearly 110 trillion BTUs.
- Invest nearly \$33 billion to stimulate development of innovative, clean energy technologies.

Achieving these goals means providing strong support for New Jersey companies, organizations and institutions that are developing and implementing measures to improve energy efficiency.

The state—through its various agencies and entities—offers a wide variety of financing and incentive programs to support efforts of companies that develop and manufacture clean energy technologies, as well as to end users of those technologies. Our investment in clean and renewable energy programs will deliver four important benefits:

- 1. Reduce the cost of energy.
- **2.** Help the state become more energy self-sufficient.
- 3. Position New Jersey as a leader in the development of clean technologies.
- **4.** Build the infrastructure and generation capacity to make clean energy available and affordable throughout the state.

30%

One key goal of the New Jersey Energy Master Plan is to supply 30% of New Jersey's energy needs from renewable energy sources by 2020.



What we've accomplished.

New Jersey is recognized as a role model for the nation in developing and applying clean and renewable energy from solar, wind and biomass. Notable results from supporting programs include:

- New Jersey has helped fund over \$270 million to generate more than 90 MW of solar energy from 4,000 installations. New Jersey ranks first on the East Coast and second nationwide in terms of installed capacity.¹
- New Jersey was first in the nation to have a coastal wind farm?
- New Jersey has been ranked by *Forbes* as one of the top "green" states.
- New Jersey ranked sixth in the nation for production of energy from waste.⁴
- New Jersey ranked seventh in the nation for attracting venture capital investments in companies in the clean energy economy.⁵

Investments to date in energy efficiency and renewable energy projects have already achieved some impressive returns:

- Customers are already saving about \$11 for every dollar spent on commercial and industrial energy efficiency programs.⁶
- New Jersey consumes only 2.7% of the country's energy, while the state has 3.8% of the U.S. population. And, only 0.8% of carbon dioxide emissions are attributed to electric power generation in New Jersey.⁷

- More than 4,100 renewable energy projects have been supported by the state thus far, accounting for 128 MW of capacity.⁸
- New Jersey's first wind farm, the Jersey-Atlantic Wind Farm, is a 7.5 MW facility that produces approximately 19 million kWh of emission-free electricity per year.⁹ The facility began commercial operation in late 2005.

Participation at all levels—including the federal government.

New Jersey's efforts in "going green" are being recognized by the federal government. The state has been approved to receive funding from the American Recovery and Reinvestment Act (ARRA) to further state and federal conservation and efficiency goals. This allocation is based on New Jersey's application and ability to meet specific requirements, notably the generation of energy from renewable sources.

^{1.} New Jersey's Clean Energy Program Project Activity Reports, July 2009.

^{2.} www.NJwind.com, Community Energy Inc., Radnor, Pa.

^{3. &}quot;America's Greenest States," Forbes Magazine, October 17, 2007.

^{4.} Energy Information Administration, 2007

^{5.} The Clean Energy Economy: Repowering Jobs, Businesses and Investments Across America, The Pew Charitable Trusts (June 2009).

^{6.} New Jersey Energy Master Plan, October 2008.

^{7.} Energy Information Administration, August 2009.

^{8.} New Jersey's Clean Energy Program Project Activity Reports, July 2009.

^{9.} www.NJwind.com, Community Energy Inc., Radnor, Pa.

Many forms of enterprise. One challenge.

There are many ways that commercial, industrial and institutional organizations can support the goal of using and generating clean energy. To encourage participation, New Jersey has established a wide variety of incentives and programs that recognizes this diversity. Programs are tailored to the particular needs of these entities, depending on their place in the supply chain, as follows:

"Going Green"

Commercial, industrial and institutional organizations looking to "go green" and reduce their carbon footprint.

The state offers financing and incentive programs to commercial, industrial and institutional end users of energy. This assistance helps provide the resources they need to prosper while reducing New Jersey's carbon footprint. Complete program details are available on pages 12 and 13. Program summaries are noted below:

Clean Energy Solutions Capital Investment
(CESCI) Loan/Grant – for commercial, industrial
and institutional entities with total project capital
equipment costs of at least \$1 million; offered by the
New Jersey Economic Development Authority (EDA)
in cooperation with the New Jersey Department of
Environmental Protection (DEP).

Combined Heat and Power (CHP) Program – for combined heat and power, as well as combined cooling heat and power, electrical and thermal energy generation projects; offered by the EDA on behalf of the New Jersey Board of Public Utilities (BPU).

Direct Install – directed to small commercial and industrial facilities with peak demand of less than 200 kW; *offered by BPU*.

Local Government Energy Audit – for participating municipalities that select from a list of pre-qualified auditing firms that will deliver an investment-grade audit, with up to 100% of the cost subsidized; offered by BPU.

New Jersey Renewable Energy Manufacturer's Incentive (NJ REMI) – for commercial and residential entities purchasing solar panels, inverters and racking systems manufactured in New Jersey for projects up to 500 kW; offered by BPU.

New Jersey SmartStart Buildings® Program – for commercial, industrial, government and agricultural projects involving new construction and additions, removations, remodeling and equipment replacement; *offered by BPU*.

Pay for Performance – for existing commercial, industrial and institutional buildings with an average annual peak demand over 200 kW; offered by BPU.

Renewable Energy Incentive Program – for businesses, governmental entities, facilities managers, developers or residents building on-site renewable energy projects using solar, wind and biomass technologies; offered by BPU.

TEACH – for individual schools or school districts; *offered by BPU.*



Private partner programs.

To allow New Jersey to meet its aggressive energy reduction and renewable energy goals, while stimulating the economy and creating green jobs, Governor Corzine called upon BPU to work with New Jersey's utilities to dramatically increase the implementation of energy efficiency and renewable energy generation.

New Jersey's utilities can be extremely effective private partners to assist in meeting the state's energy consumption targets because they have tremendous access to the state's more than 3.6 million buildings, they can be held to an energy consumption standard to ensure the goal will be accomplished, and they are able to structure financial arrangements through their existing relationships with their customers.

BPU has approved innovative financing programs from New Jersey's utilities that will reduce energy use, encourage the use of solar and other renewable energy resources, and cut the amount of carbon dioxide emissions that contribute to global warming.

For more information about programs available from utilities, please visit the following websites to learn more:

Public Service Electric and Gas Company (PSE&G) www.pseg.com

Jersey Central Power and Light Company (JCP&L) www.firstenergycorp.com/JCP_L

Atlantic City Electric www.atlanticcityelectric.com

New Jersey Natural Gas www.njng.com

South Jersey Gas www.southjerseygas.com

Rockland Electric www.oru.com

Elizabethtown Gas www.elizabethtowngas.com

Solar Renewable Energy Certificates (SRECs)

The state's innovative move from rebates to a market-based framework based on system production of solar has allowed for the sale or trade of Solar Renewable Energy Certificates (SRECs) by solar owners, aggregators and brokers for all solar projects in the state. Customers (such as schools, municipalities or businesses) receive certificates based on their system's energy production. The benefit—these certificates can be traded, and help satisfy the state's requirement for generating renewable energy. The SREC Program makes it easy for individuals and businesses to finance and invest in clean, emission-free solar power.

Clean energy in New Jersey—by the numbers.

4,100

renewable energy projects have been supported by the state, generating 128 MW, representing more than \$290 million in rebates.¹⁰

2.7%

of U.S. energy is consumed in New Jersey,¹¹ although the state has

3.8%

of the nation's population.12 And only

0.8%

of total U.S. carbon dioxide emissions are attributed to electric power generation in New Jersey.¹³

New Jersey ranks

1ST

in installed solar capacity on the east coast and second in the nation.¹⁴

25%

of new homes built in New Jersey in 2007 met New Jersey's ENERGY STAR Home Standards 15



Developing Clean Technology

Companies that develop technologies for clean energy solutions, and companies that manufacture and bring these solutions to market.

The state's financing and incentive programs that provide funding to development and manufacturing firms for their technology initiatives are detailed on page 13. Program summaries are noted below:

Edison Innovation Clean Energy Fund – for companies engaged in clean energy R&D and commercialization; offered by the New Jersey Commission on Science and Technology (CST).

Edison Innovation Clean Energy Manufacturing Fund (CEMF) – for manufacturers of Class I renewable energy or energy efficiency systems, products or technologies; offered by the EDA.

^{10.} New Jersey's Clean Energy Program Project Activity Reports, July 2009

^{11.} Energy Information Administration, August 2009.

^{12.} Ibid.

^{13.} Ibid.

^{14.} Freeing The Grid, Best and Worst Practices in State Net Metering Policies, October 2008.

Network for New Energy Choices, New York, and the Interstate Renewable Energy Council.

^{15.} Alliance to Save Energy, Washington, DC.

New Jersey's

Clean Energy Success Stories

Edison Innovation at work.

Petra Solar received a total of \$3.3 million under CEMF to support planning and design of its manufacturing facility, as well as the purchase of equipment and machinery. Founded in 2006, the company develops and manufactures electric power and power management products focused on the solar energy and smart grid markets. Shortly after the CEMF award was announced, Petra Solar secured a \$200 million contract with a utility company for the production of 200,000 smart solar systems to be installed on utility poles and street light poles. As a result, the company tripled in size.

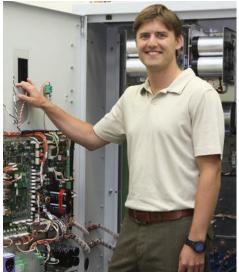
"The support Petra Solar has received from the State of New Jersey has been instrumental to our growth. My colleagues and I are honored that Petra Solar is the first company selected to obtain the assistance and recognition of New Jersey's CEMF program. Through the leadership of Governor Corzine and the efforts of BPU and the EDA, Petra Solar will be able to create green jobs at our New Jersey facility as well as at our New Jersey suppliers. Petra Solar is now positioned to deliver true technological innovation to utilities in the United States and the world."





Shihab Kuran, President and CEO, Petra Solar





Darren Hammell, Co-founder and Executive Vice President of Business Development, Princeton Power Systems

New Jersey ... the Ideal Place to Grow.

"We view New Jersey as the ideal place to grow our business. Since our founding, the state has provided us with some of the financing and incentives we needed to develop and commercialize our advanced power conversion technologies. Our electrical power technologies, including AC-linkTM and M-linkTM, provide a more reliable and cost-effective means for converting electric power cleanly and efficiently. New Jersey's commitment to investing in innovative and green technologies has made it the most attractive state for our company. We're in close proximity to excellent research universities like Princeton and Rutgers, we have access to a well-educated and talented workforce and we're in the heart of one of the world's most vibrant marketplaces. As we continue to grow, New Jersey will continue to play an important role in our long-term plan."





Herbert Nock (left), Vice President, U.S.
Business Development & Marketing and Charles
Dunleavy (right), Senior Vice President and CFO,
Ocean Power Technologies

The Power of the Ocean.

Ocean Power Technologies (OPT) is a Pennington-based public company that has developed technology to convert wave energy to electricity. OPT's proprietary PowerBuoy® technology uses innovative power take-off systems within large floating buoys anchored to the sea bed. The company manages a prototype buoy off the coast of Atlantic City, and is expanding internationally with wave farms planned for Europe and Australia. Since 1999, OPT has received \$1.25 million in state support from BPU, CST and the EDA.



A state "going green".

New Jersey's progress toward greater use of clean and renewable energy is facilitated across the state's government, notably by the following public entities:

New Jersey Board of Public Utilities

The New Jersey Board of Public Utilities (BPU) is a regulatory authority with a statutory mandate to ensure safe, adequate and proper utility services at reasonable rates for customers in New Jersey. Accordingly, BPU regulates critical services such as natural gas, electricity, water, telecommunications and cable television. 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. BPU also has responsibility for monitoring utility service and responding to consumer complaints.

Learn more by visiting www.state.nj.us/bpu and www.njcleanenergy.com, or call 1-866-NJSMART

New Jersey Commission on Science and Technology

The New Jersey Commission on Science and Technology (CST) is responsible for the development and oversight of policies and programs that promote science and technology research and entrepreneurship in New Jersey. CST focuses mainly on promoting strong ties between industry and universities to create new potential for increased federal funding and private investment and to accelerate the commercialization of technology. CST supports entrepreneurial technology businesses in areas of strategic importance to the state.

Learn more by visiting www.nj.gov/scitech

New Jersey Department of Environmental Protection

The New Jersey Department of Environmental Protection (DEP) is a state regulatory agency that preserves the ecological integrity of New Jersey, and maintains and transforms places into healthy, sustainable communities through innovation, education, community involvement and sound science. DEP coordinates New Jersey's participation in the Regional Greenhouse Gas Initiative (RGGI), the nation's first mandatory greenhouse gas cap-and-trade program. RGGI auctions generate millions of dollars to finance New Jersey's investment in energy efficiency, renewable energy and clean energy technologies, as well as carbon sequestration through restoration and stewardship of the state's forests and tidal marshes.

Learn more by visiting www.nj.gov/dep

New Jersey Economic Development Authority

The New Jersey Economic Development Authority (EDA) is a state financing and development agency that works to strengthen New Jersey's economy by retaining and growing businesses through financial assistance, by renewing communities and by promoting the state's strategic advantages to attract domestic and international business.

Financing and Incentive Programs

The following chart helps to identify which financing and incentive programs may be available for your specific project. For specific program eligibility criteria, funding amounts and other details, locate the corresponding program headings in the following fold-out pages.

What is your business financing goal?	Options that may be available:
To reduce my carbon footprint by installing energy efficiency systems (lighting, HVAC, refrigeration, controls, etc.)	 Clean Energy Solutions Capital Investment (CESCI) Loan/Grant Direct Install Local Government Energy Audit NJ SmartStart® Buildings Program Utility Energy Efficiency Programs Pay for Performance TEACH
To install a renewable energy system (solar, CHP, wind, etc.)	 CESCI Loan/Grant Combined Heat and Power (CHP) Program New Jersey Renewable Energy Manufacturer's Incentive Program (NJ REMI) Pay for Performance Renewable Energy Incentive Program Utility Solar Programs
To identify a manufacturing site, support site improvements, construct a facility, and/or purchase equipment for my renewable energy or energy efficiency systems manufacturing business	 Edison Innovation Clean Energy Manufacturing Fund (CEMF)
To support demonstration projects and developmental and ancillary activities necessary to commercialize identified renewable energy technologies and energy efficiency technologies	• Edison Innovation Clean Energy Fund

Please note that some programs are done through a competitive solicitation, and all programs are subject to available funds.

Where we go from here.

New Jersey's support for the clean energy supply chain begins with its ambitious commitments, defined by the Energy Master Plan, to develop sources for clean and renewable energy and reduce the state's carbon footprint. It is reflected in the financing and incentive programs already in place and utilized by companies that develop and manufacture clean and renewable energy technology and by businesses and organizations that increasingly use these new energy sources.

The results to date are further evidence of New Jersey's leadership as it transforms its economy to meet the energy demands of the 21st century. Clearly, New Jersey is up to the challenge.





To find out more, call 866-534-7789.

If you are a developer of clean energy technology, a manufacturer of clean energy systems or an end user considering the benefits of renewable energy and energy efficiency, you are invited to learn more about how your business can benefit from the programs offered by New Jersey.

Just call 866-534-7789 (609-777-0885 if calling from outside of the U.S.) or visit **www.NewJerseyBusiness.gov** for additional information.



"Going Green"

For commercial, industrial and institutional organizations looking to "go green":

Clean Energy Solutions Capital Investment (CESCI) Loan/Grant

The EDA, in partnership with DEP, offers up to \$5 million in the form of grants and loans to commercial, industrial and institutional entities "going green" in New Jersey. Under this program, scoring criteria based on the project's environmental and economic development impact determines the percentage split of loan and grant awarded. Funding can be used to purchase fixed assets, including real estate and equipment, for an end-use energy efficiency project, combined heat and power (CHP or cogen) production facility, or new state-of-the-art efficient electric generation facility including renewable energy. For more information, visit www.njeda.com/CESCI.

Combined Heat and Power (CHP) Program

The CHP Program is administered by the EDA on behalf of BPU, and was designed to complement the CESCI Loan/Grant. Performance-based incentives are available for combined heat and power and combined cooling, heat and power electrical and thermal energy generation projects. The amount of the grant will be based on the actual electric and thermal energy production on an annual basis, which shall begin upon the commencement of operations of the CHP project. Grants shall be made only for performance based on a per kilowatt per hour and per BTU delivered. The grant amount will be calculated based on a 75% capacity factor over four years, and will be equal to \$450 per kilowatt of installed electric generation capacity. In addition, construction projects may be eligible for financing through the EDA Bond Financing program. For more information, visit www.njeda.com/CHP.

Direct Install

Direct Install is a BPU program that addresses small commercial and industrial facilities with peak demand of less than 200 kW. This turnkey program is aimed at providing owners a seamless, comprehensive process for analysis, equipment replacement and financial incentives to reduce consumption, lower utility costs and improve profitability. The Direct Install Program is designed to identify cost-effective energy efficiency retrofit opportunities and provide direct installation and financial incentives for up to 80% of installed cost to encourage the early replacement of existing equipment with high efficiency alternatives. Systems and equipment eligible for incentives include lighting, controls, refrigeration, HVAC. motors, variable speed drives, natural gas and food service. The program strives to result in the installation of a comprehensive package of cost-effective energy efficiency improvements for each project. Energy assessments are conducted as part of the Direct Install Program to identify energy efficiency improvement opportunities at the owner's facility. For more information, visit www.NJCleanEnergy.com.

Local Government Energy Audit

Under this BPU program, local governments select from a list of pre-qualified auditing firms that will follow the strict parameters of New Jersey's Clean Energy Program™ and deliver an investment-grade audit. The program will subsidize up to 100% of the audit cost. Eligible municipal and local government-owned facilities include offices, courtrooms, town halls, police and fire stations, municipal water or wastewater, schools and community centers. For more information, visit www.NJCleanEnergy.com.

New Jersey Renewable Energy Manufacturer's Incentive Program (NJ REMI)

The NJ REMI is a BPU program offering rebates to New Jersey residents, businesses, local governments, and not-for-profit organizations that purchase and install solar panels, inverters, and racking systems manufactured in New Jersey. Available for up to 500 kW of a solar project, rebates for panels start at \$0.25 per watt and rebates for racking systems and inverters start at \$0.15 per watt. To be eligible for an incentive, applicants must begin by applying to either the Renewable Energy Incentive Program (REIP) or the SREC Registration Program (SRP). To become a certified New Jersey manufacturer under this program, companies must supply products manufactured with at least 50 percent of the product cost from facilities located in New Jersey. Organizations awarded a grant under the Edison Innovation Clean Energy Manufacturing Fund (CEMF) are automatically certified as a New Jersey manufacturer. For more information, visit www.NJCleanEnergy.com.

NJ SmartStart Buildings® Program

BPU offers up to \$500,000 in incentives per customer utility account for commercial, industrial, institutional, government and agricultural projects throughout New Jersey. Eligible projects include new construction and additions, renovations, remodeling and equipment replacement to improve energy efficiency. Incentives for new construction are available only for projects in areas designated for growth in the New Jersey State Development and Redevelopment Plan. Public school (K–12) new construction projects are exempt from this restriction and are eligible for program incentives. The program pays incentives after the installation of qualified energy efficient measures that were pre-approved through the application process. For more information, visit www.NJCleanEnergy.com.

Pay for Performance

Pay for Performance is a BPU program directed at commercial, industrial and institutional buildings with an average annual peak demand over 200 kW in a manner that directly links incentives to energy savings in a whole-building approach. Pay for Performance relies on a network of Program Partners that provides technical services under direct contract to building owners. These Partners develop an Energy Reduction Plan for each project that includes technical components typically found in a traditional energy audit, a financial plan for funding the energy efficient measures and a

construction schedule for installation. Incentives are awarded as program milestones are completed with the final incentive paid following a comprehensive measurement and verification report that proves the savings targets have been met or exceeded.

In addition, Pay for Performance projects that incorporate CHP will be eligible for additional incentives up to \$1 million. The annual CHP solicitation has been eliminated and customers are now able to apply for CHP incentives on a year-round basis (funding permitted). To qualify, the facility must be located in New Jersey, and the customer must purchase electricity from the utility grid. A minimum overall annual system efficiency rating of 60%, based on total energy input and total utilized energy output, must be met. For more information, visit www.NJCleanEnergy.com.

Renewable Energy Incentive Program (REIP)

Residents, business owners, local government officials, facility managers or developers building on-site renewable energy projects using solar, wind and biopower technologies may be eligible for financial incentives and support services under REIP. Incentives vary according to the type of project, type of building, type of equipment and other factors. Generally, commercial, government and municipal solar photovoltaic projects up to 50 kW may be eligible for rebates up to \$1.00/watt of capacity. Wind systems may be eligible for up to \$3.20/kWh of capacity, and sustainable biomass systems may be eligible for up to \$4.00/watt of capacity. REIP is administered by BPU. For more information, visit www.NJCleanEnergy.com.

TEACH

This integrated solution from BPU provides energy use and cost benchmarking for each school in a district. Schools are ranked, and the top 25% receive an ENERGY STAR award from the U.S. Environmental Protection Agency. Hands-on curricula are then provided to faculty members for use in teaching students about energy efficiency. For more information, visit www.NJCleanEnergy.com.

Utility Energy Efficiency Programs

BPU has approved a series of energy efficiency investments for nearly \$250 million over 18 months for four of the state's major utilities, which are expected to spur approximately 1,000 green jobs and provide a major boost to the state's economy. The programs, from PSE&G, New Jersey Natural Gas, South Jersey Gas, and Elizabethtown Gas, will make significant investments in energy efficiency within each service territory. The approved plans will complement and supplement investments in energy efficiency through the New Jersey Clean Energy Program and under the American Recovery and Reinvestment Act of 2009. The plans also will reduce energy costs, improve air quality and reduce greenhouse gas emissions, which contribute to climate change. Additional energy efficiency programs will continue to be introduced through BPU and New Jersey's utility companies. For the most up-to-date information on utility energy efficiency programs, please contact your respective utility company.

Utility Solar Programs

BPU has approved innovative solar financing programs at three of the state's major electric utilities. JCP&L, Atlantic City Electric and Rockland Electric enter into long-term contracts with customers for the purchase of SRECs, which facilitate long-term financing for solar projects. In addition, PSE&G currently provides loans to install solar systems on homes, businesses and municipal buildings. The loans are repaid to the utility through revenue provided by the sale of SRECs from the financed projects. PSE&G also installs solar on its own territory, and funds larger third party solar projects. Additional solar financing programs will continue to be introduced through BPU and New Jersey's utility companies. For the most up-to-date information on utility solar financing programs, please contact your respective utility company.

Developing Clean Technology

For companies that develop technologies for clean energy solutions and manufacturers that bring these solutions to market:

Edison Innovation Clean Energy Fund

CST provides funding in the amount of \$100,000 to \$500,000 to New Jersey technology companies for demonstration projects and developmental and ancillary activities necessary to commercialize identified renewable energy technologies and innovation technology that significantly increase energy efficiency. The grant funds technologies that can demonstrate their integral nature to the development of Class I renewable technologies that produce or support the production of renewable or clean electricity generation. For more information, visit www.nj.gov/scitech.

Edison Innovation Clean Energy Manufacturing Fund (CEMF)

This EDA program includes two separate program components offering up to \$3.3 million as a grant and interest-free loan for New Jersey manufacturers of Class I renewable energy and energy efficiency technologies. Up to \$300,000 is available as a grant to assist with the manufacturing site identification and procurement, design and permits. Up to \$3 million is available as an interest-free loan to support site improvements, equipment purchases, and facility construction and completion. One-third of the loan may convert to a performance grant if certain business and technology-based milestones are met. For more information, visit www.njeda.com/CEMF.







The company we keep, keeps getting better.

PHOTO BY TOM GRIMES PHOTOGRAPHY COMPLIMENTS OF SUNPOWER.

For more information or to set up an appointment with one of our knowledgeable representatives, call 866-534-7789 (609-777-0885 if calling from outside of the U.S.) or visit www.NewJerseyBusiness.gov



