

# New Jersey's ARRA Energy Funding

## Executive Summary

The State of New Jersey has submitted grant applications to the U.S. Department of Energy (DOE) for ARRA Funds to support or expand New Jersey's Energy Program. What follows are summaries of the grant applications. The grant applications can be found on the BPU ARRA Funding home page.

### **1. New Jersey Industrial Energy Grant - \$900,000**

The NJ Board of Public Utilities (NJBPU, Board) will administer American Recovery and Reinvestment Act (ARRA) grant on behalf of Rutgers University, Center for Advanced Energy Systems\* (CAES). Using the funding, CAES proposes to develop a New Jersey Industrial Energy Program (NJIEP). The NJIEP has been developed to provide a portfolio of free energy-related services to New Jersey manufacturers. These services are in the form of assessments, technical assistance, technology deployment, and they are aimed at reducing the energy intensity of New Jersey manufacturers. Beyond direct services, NJIEP will develop several marketing and outreach activities meant to distribute content of their direct services to a wider population of manufacturers. All of these activities will work towards the broader Industrial Technologies Program (ITP) goals of reducing industrial energy intensity by 2.5 percent annually, while concurrently helping companies become more streamlined and internationally competitive. During this quarter BPU staff received notice of award and is currently working with the Department of Treasury and fiscal in developing the State contract agreement between the NJ BPU and Rutgers' NJIEP.

### **2. State Energy Program (SEP), \$73million**

The U.S. Department of Energy has approved the State's proposal to use these funds to supplement the existing comprehensive array of programs that offer focused technical and financial assistance to homeowners, businesses, non-profits, schools and government organizations. The descriptions of the programs this funding supports are:

- **Innovation in Energy Efficiency (EE) and Renewable Energy (RE)– Public Entities (a.k.a. State Entity Grant), \$20.6 million**

In August 2009, the Board approved seven grant applications for funding through this portion of SEP ARRA funds. The program was designed to provide grants to project proposals from state departments, agencies,

authorities, colleges and universities that utilize innovative RE or EE technologies or innovative applications for renewable energy applications and energy efficiency projects to reduce greenhouse gases, support the EE and RE goals of the State's Energy Master Plan (EMP), and create jobs in the State.

The approved projects were selected after a competitive application process in which an independent grant evaluation committee consisting of representatives from NJBPU, the New Jersey Economic Development Authority, the Governor's Office of Economic Growth, the Commission on Science and Technology and the Treasury Office of Energy Savings. Evaluation Committee members rated each proposal and ranked them. The top seven projects were approved by the Board.

***Top seven projects approved by BPU:***

1. New Jersey Meadowlands Commission (NJMC) – Landfill Solar Project- \$8,500,000.00;

The NJMC is a zoning and planning agency for a 30.4 square mile area along the Hackensack River covering parts of 14 municipalities in Bergen and Hudson Counties. The NJMC proposal is for a solar project on its 1-A landfill, which it expects will utilize photovoltaic crystalline technology with non-penetrating foundations in conjunction with a thin film photovoltaic membrane, both of which are designed for landfill application. This project is expected to generate 5,570,000 kWh of electricity annually. Additionally, NJMC expects this project to save \$389,000 annually from displacing fossil fuel generation and help avoid 4,000 tons of CO<sup>2</sup> emissions per year. This project is expected to create 80 jobs during its construction. The NJMC estimated that the project will take 9 months to complete and will be placed in commercial operation by the end of the second quarter of 2010.

2. New Jersey Institute of Technology (NJIT) – Residence Hall Energy Efficiency/Renewable Energy Upgrade Project - \$1,675,084.00;

NJIT is a public research University located in Newark. NJIT's proposal is for an energy efficiency and renewable energy upgrade of its Oak Residence Hall (ORH). Facilities in ORH are generally old and inefficient,

which results in significant energy use. NJIT plans to utilize an innovative mix of technology to upgrade this building. This technology includes: 1) Demand Based Controls (DBC); 2) Solar Water Heating (SWH); 3) Solar Photovoltaic; 4) Regenerative Elevator Technology; and 5) Energy efficient lighting utilize T-5 fluorescent technology. The upgrade of the ORH with this technology, is expected to generate/save 765 MWh of electricity annually. In particular the DBC and SWH will greatly reduce the amount of energy used in this building. The new Demand Based Controls are expected to improve the efficiency of the Building's Heating and Air-Conditioning by 10 to 15%. Additionally, the Solar Water Heating system will become the buildings primary source of hot water, displacing gas heat. NJIT stated that this project will create 16 jobs and should be completed in 38 weeks.

3. William Paterson University (WPU) – Smart Buildings/Energy Management System Project –\$1,120,000.00;

WPU is a public university located in Wayne. WPU's Smart Building Project will install an Energy Management System (EMS) that will utilize smart technology to control existing equipment to lower the electrical and gas consumption of 4 buildings on the schools campus. This project will save 1,230,685 kWh annually with a reduced peak of 1,380 kWh. The EMS will also monitor the incoming power into each building and run load shed programs and peak demand limiting. In addition, old inefficient motors will be replaced with new premium efficient motors with variable frequency drives. This project will create or save 25 jobs and should start about 4 weeks after execution of the grant agreement. WPU expects that this project will be completed within 8-10 months after construction begins.

4. Richard Stockton College (Stockton) – Solar Thermal/Solar Photovoltaic (PV) and Demand Side Management Project –\$3,464,599.00;

Stockton is a public liberal arts and professional studies institution located in Galloway Township. Stockton has proposed a Solar Thermal, Solar PV and Demand Side Management Project that will generate/save? 668,775 kwh of electricity and 10,287 therms of gas annually. Stockton's project will install Solar Photovoltaic panels on canopies over parking stalls. The electricity generated from this solar installation will be used by local

buildings and connected to the local utility for grid input if it is not needed on campus. In addition, solar hot water heaters will be installed in campus housing and the oldest housing building on campus will be equipped with remote Heating, Ventilating, and Air Conditioning (HVAC) controls to better facilitate energy management. Furthermore, Stockton intends to re-invest the revenue from the 428 kWh solar PV installation annually in order to expand its solar capacity, so that a total of 1,628 kWh of solar generating capacity will be in place after 15 years. Stockton can begin this project in 4 months and complete it in 8 months. This project will create 7 jobs.

5. Rutgers Office of Research & Sponsored Programs (RORSP) – Eco Complex – Gas Boiler Retrofit Project –\$63,100.00;

RORSP is a unit of Rutgers University that advises and assists members of the Rutgers Community who are engaged in scholarly and creative activities. RORSP has proposed a gas boiler retrofit that will save 21,200 therms of gas annually. RORSP plans to install burners and boilers that will enable it to utilize landfill gas for a majority of the EcoComplex office's heating needs. The technology that RORSP plans to use to retrofit the boiler is a patented design from CPL systems. This technology will eliminate the incomplete combustion that occurs with typical burner designs that have been modified for landfill gas and allows for complete combustion of low BTU gas. The retrofit will allow the boilers to utilize the landfill gas for approximately 80% of their operating time, reducing the use of natural gas. The burner design is innovative in that it slows the airflow over the burner tips to avoid blowing the flame away from the burner orifice. RORSP can commence this project 60 days after notice of award and complete it 90 days afterwards. This project will require 260 hours of work for contractors/technicians.

6. New Jersey Transit (NJT) – Solar PV Kearny Project –\$4,320,217.00;

New Jersey's public transportation corporation is one of the largest electricity users in the State. NJT proposes a solar PV project that will be installed on the roof of NJT's maintenance facility in Kearny and generate 1.1MW of electricity. All of the electricity generated will be utilized at the facility. The proposed PV system will include a measurement and reporting

sub-system that will report exactly how much electricity the system generates on a real time basis. This project would be completed by competitive procurement process, which will take 3-4 months. This project can be completed 6-12 months from award of contract and will create 99 jobs.

7. Atlantic City Convention & Visitors Authority (ACCVA) – Wind Turbine Generator - \$1,500,000.00;

Atlantic City Convention & Visitors Authority proposed a 1.5 megawatt wind turbine that would generate 2,822,882 kWh annually and enable ACCVA to reduce its net Electric Peak Demand from the grid. Additionally, the energy generated from this wind turbine will produce \$338,754 in reduced energy costs. This project would commence within 12 months of the issuance of the award letter and be completed 16 months after the award grant. The turbine would be mounted on a 75 meter hub height tubular tower. This project would create 11 jobs.

- **Grants and Loans for Energy Efficiency, Renewable Energy and Alternative Energy Applications, \$15 million;**

A competitive grant program administered by the New Jersey Economic Development Authority (EDA). The program will fund public and private renewable energy projects that are classified as a Class 1 or Class 2 renewable energy technology as well as energy efficiency and alternative energy projects. A Memorandum of Understanding to facilitate this funding flowing from NJBPU to EDA was approved by the Board on December 16, 2009.

- **New Jersey Housing and Mortgage Finance Agency (HMFA) Solar Financing Program for Residential Solar, \$7 million;**

Funds will be dedicated to the HMFA for grants to construct solar energy projects on HMFA's income-qualified multi-family buildings. The funds will be leveraged with existing state rebate programs and the federal investment tax credit. HMFA will own the Solar Renewable Energy Credits (SRECs) and the

funds generated by the credits will be used to establish a revolving fund to finance additional solar installations.

- **New Jersey Housing and Mortgage Finance Agency (HMFA) Low-Interest Loan Program for Residential Energy Efficiency, \$8 million;**

Funds will be dedicated to the HMFA for a low-interest loan program for energy efficiency upgrades at single-family and multi-family homes. These loans will be made available to households that are at or below 250% of Area Median Income (the higher of statewide or county median income) based on a family of four, and affordable multifamily building owners that meet HMFA's affordability requirements. Participation will also be limited to those ineligible for other equivalent financing programs offered by the utilities or New Jersey's Clean Energy Program. Loan repayments will be used to establish a revolving loan fund to finance additional energy efficiency projects.

- **Energy Efficiency Programs through the Clean Energy Program - \$17 million;**

Energy Efficiency funds will be committed to the Clean Energy Program to develop new programs or supplement existing programs to increase New Jersey's investment in energy efficiency. As part of this Clean Energy Program funding, eligibility will be expanded to include energy users not currently subject to the Societal Benefit Charge, such as oil and propane heat customers and electric customers not served by the four investor-owned utilities.

### **3. Energy Efficiency and Conservation Block Grants (EECBG) - \$75.4million**

- New Jersey will receive \$75.4 million under the program of which approximately \$61 million is going directly to 75 eligible units of local government. The funds are distributed using a population-based and energy-consumption-based formula under which 75 New Jersey local governments are eligible for direct grants totaling \$61 million. These include cities and municipalities with a population of at least 35,000, and counties with a net population of at least 200,000 after reducing

population totals by the population of all cities and municipalities receiving direct funding under the program.

- \$14.4 million is the State's allocation. The EECBG Program requires that not less than 60% of state funds be shared with local governments that are not eligible for direct formula grants. This group includes 501 municipalities and 11 counties in the state. In its application, NJ allocated 71 percent (\$10M) for the non-formula-eligible local governments. They will be able to apply for a rebate of up to \$20,000 for building/facility energy efficiency and conservation after they have obtained an energy audit. These rebates will be used to supplement existing Clean Energy Program incentives (Direct Install, SmartStart, Pay for Performance, Local Government Energy Audit Program) and ultimately to help enable local governments to finance EE to their facilities with little or no outlay of current budget funds.
- The remaining 29 percent of the funds - approximately \$4.2 million -will be allocated for work at state government buildings and facilities. These funds will be managed by the Treasury Department's Office of Energy Savings.

#### **4. State Energy Efficient Appliance Rebate Program, \$8.33million**

- New Jersey has received United States Department of Energy (USDOE) approval to use these ARRA funds for appliances through its existing state efficiency program, the New Jersey's Clean Energy Program (NJCEP). The products selected for the funding will both compliment and expand on the current list of efficient products offered through the residential Energy Efficient Products and Gas & Electric HVAC programs. The NJCEP is working with its current retail and contractor partners to effectively role out the programs expand on this network and look to incorporate the participation of individual utilities to raise awareness of the program offerings. The State of New Jersey will implement an instant and mail-in rebate program that will help residents replace older, inefficient appliances with new, efficient ENERGY STAR® qualified and ultra-efficient models.

## **5. Enhancing State and Local Governments Energy Assurance, \$996,658**

To meet the requirement of the State Energy Assurance Initiative, the New Jersey Board of Public Utilities proposes:

- Energy Assurance Plan (EAP) – Using the services of a contractor and/or in-house staff, develop a format EAP to include all current EA initiatives as well as incorporate cyber security and smart grid applications and vulnerabilities. The formal EAP will also lay a framework to augment the Division's critical infrastructure protection role to address interdependencies, emergency communications (all energy sectors), and emerging technologies that can have an impact on electric grid reliability. The plan will also include a framework for an energy supply disruption tracking and response process.
- Energy Emergency Monitoring and Response – Augment existing communications and add data monitoring capabilities through the procurement of new technologies. If possible, consolidate energy supply data into a concise display. Identify and utilize commercial available energy data sources as well as participate in the Energy Information Sharing and Analysis Center (E-ISAC). Develop mobile and redundant capabilities for assessing and responding to energy emergencies as they arise.
- Workforce Development – Identify and complete various courses available to train staff on cyber security, EAP development, and/or smart grid applications and vulnerabilities.
- Energy Assurance Tabletop Exercises- Develop and execute two tabletop exercises to test newly developed EAP, including all energy stakeholders (such as petroleum). This is to include one state level and one regional exercise. Collaborate with the NJ Office of Emergency Management (OEM) and surrounding OEMs and regional PUCs to execute the regional exercise.

## **6. Public Utilities Commission Grant, \$900,000**

The NJBPU has received USDOE approval of its application to meet the management objectives of the grant.

These are:

- 1) To increase the capacity of state Public Utilities Commissions (PUCs) to manage a significant increase in dockets and other regulatory actions resulting from ARRA electricity-related topical areas;
- 2) Facilitate timely consideration of regulatory actions pertaining to ARRA electricity-related topical areas;
- 3) Create jobs.

Electricity-related ARRA topical areas include, but are not necessarily limited to: energy efficiency, electricity-based renewable energy, energy storage, smart grid, electric and hybrid-electric vehicles, and demand response equipment, coal with carbon capture and storage, and transmission.

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