New Jersey's Clean Energy PROGRAM™

Your Power to Save

Success Stories

Rutgers University:
Continued Commitment to Saving Energy

PROJECT INFORMATION

Organization
- Rutgers University

Location
- Camden
- Newark
- New Brunswick

Project Contact
- Michael Kornitas, Energy Conservation Manager

Technologies
- Premium efficiency motors
- Variable frequency drives
- Natural gas boilers
- Solar photovoltaic system

NJCEP Incentives
- $78,971 NJ SmartStart Buildings
- $63,100 ARRA funding
- $4.8 million Core Program rebate

Total Project Costs
- Motors/Drives $900,675
- Boiler Retrofit $178,100
- Solar Farm $10 million

PROJECT SAVINGS

Estimated Annual Savings
- Motors/Drives
  - 2.8 million kWh
  - 1,500 tons CO_2
  - $300,000 energy costs
- Boiler Retrofit
  - 75,800 therms
  - 612 tons CO_2
  - $104,600 energy costs
- Solar Project
  - 1,200 tons CO_2
  - $200,000 energy costs

Project information, savings and environmental benefits were provided by the project contact.

Rutgers University has long been regarded as a top research institution and now also stands as a leader in energy efficiency and renewable technology.

The Rutgers EcoComplex is the university's Environmental Research and Extension Center.

"We looked into New Jersey's Clean Energy Program before installing energy-efficient measures and it helped Rutgers decide how to best move forward."

Michael Kornitas
Energy Conservation Manager
Rutgers University

Background

Founded in 1766, Rutgers University is the eighth oldest institution of higher learning and the premier public research university in New Jersey with multiple campuses located in New Brunswick, Newark and Camden. This prestigious state university is also a member of the Association of American Universities and has more than 180 nationally recognized programs, offering more than 100 bachelors and masters degree programs and over 80 distinct doctoral degrees.

Challenge

Due to the sheer size of its sprawling campuses, Rutgers University consumed considerable quantities of power, resulting in a substantial carbon footprint and utility bills to match. In fact, the university's energy costs totalled $60 million annually.

Solution

In an effort to implement green technologies, a group of university engineers began to look into *New Jersey's* ***Clean Energy*** *Program*™ and took the critical first step to savings by having an energy audit conducted. They quickly discovered that, by installing premium efficiency motors and variable frequency drives on their existing HVAC equipment, they could conserve significant amounts of electricity and slash their utility bills dramatically.

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With newly installed premium efficiency motors and variable frequency drives on its HVAC systems, Rutgers now saves significant amounts of electricity and money.

The Livingston Campus gets 10% of its energy needs from a seven acre solar farm.

RUTGERS
THE STATE UNIVERSITY OF NEW JERSEY

Officials submitted 60 applications for projects that would include the installation of both premium motors and variable frequency drives. Following *New Jersey's* ***Clean Energy*** *Program* requirements of approval before any measures were installed, random site pre-inspections were made to verify existing equipment and, in many cases, Rutgers received project approvals in just a few weeks.

Rutgers also installed burners on gas boilers supplying heat to the Eco Complex office. The boiler retrofit enables the utilization of carbon-neutral landfill gas for approximately 80% of the operating hours. This innovative burner design slows the airflow over the burner tips to avoid blowing the flame away from the orifice and allows for complete combustion of this low-BTU gas.

Additionally, the university installed 7,993 solar panels, a 1.4 MW ground mounted installation that provides 10% of the energy needs at the Livingston campus. In addition to reducing energy expenses, Rutgers University will be earning Solar Renewable Energy Certificates (SREC), which are credits that can be sold or traded from the energy generated.

Benefits

The installation of variable frequency drives and premium efficiency motors is projected to save 2.8 million kilowatt hours of electricity per year while eliminating the release of 1,500 tons of CO_2. With an estimated $300,000 annual energy savings and a $78,971 incentive from NJ SmartStart Buildings, this retrofit produced a three year payback on the university's investment.

The innovative design associated with the boiler retrofit is expected to produce annual savings of $104,600. After funding from the American Reinvestment and Recovery Act (ARRA) totaling $63,100, the total project cost was reduced to $115,000, resulting in a payback in just over one year.

The university's seven acre solar farm is one of the largest renewable energy systems on a single campus nationwide. The project reduces carbon dioxide emissions by more than 1,300 tons per year while cutting annual utility costs by $200,000.

Rutgers serves as an excellent example for other institutions of higher education in terms of its commitment to saving energy. The university recently began a five-year program to replace lighting fixtures that will ultimately save an additional 42 million kWh of electricity per year. Additionally, a number of new construction projects currently under consideration will continue to allow Rutgers to demonstrate its leadership role.