SHOWCASE PROJECT: DELAWARE STATE UNIVERSITY: LUNA I MISHOE SCIENCE CENTER – SOUTH

SOLUTION OVERVIEW

The Luna I Mishoe Science Center – South was constructed in 1995 and is home to the Department of Chemistry and the Department of Biological Sciences offices. The building is named after the seventh President of DSU and contains classrooms, lecture halls, laboratories and offices.

DSU secured bond financing through the State of Delaware's Sustainable Energy Utility (SEU) and utilized the Energize Delaware Performance Contracting program to select Johnson Controls, Inc. (JCI) to perform an investment grade audit and identify energy conservation measures across 26 academic and support buildings. See DSU's Implementation Model on their unique project funding approach here.

As part of this comprehensive energy reduction initiative, the Luna I Mishoe Science Center – South was selected for a spectrum of upgrades expected to reduce energy use in the building by 35% annually, with annual cost savings estimated at $68,000. The implementation of energy and water conservation measures began in October 2011 and was completed in December 2012.

SECTOR TYPE

Education

LOCATION

Dover, Delaware

PROJECT SIZE

70,000 Square Feet

FINANCIAL OVERVIEW

Project Cost $1.3 Million

SOLUTIONS

JCI analyzed cost-effective Energy Conservation Measures for facility systems including, but not limited to, building envelope, lighting, HVAC equipment, domestic hot water and other water using systems and building automation controls. The itemized cost for upgrades to Luna I Mishoe Science Center – South was $1.3 million.

The measures (and associated annual savings) implemented at Luna I Mishoe Science Center --

South include:

- Lighting upgrades: 121,246 kWh in electric savings
- Chilled water and condensed water loop pumps: 11,828 kWh in electric savings
- Boiler controls: 3,761 therms in gas savings
- Building envelope: 767 therms in gas savings
- Air Changes per Hour reductions through demand control ventilation system: 231,801 kWh in electric and 31,006 therms in gas savings
- Sink faucet aerators: 35% water savings

OTHER BENEFITS

In addition to the energy and cost savings benefits to the university, the following benefits have also been realized:

- Engaging students with green kiosks which provide real-time energy and water use data in the building lobby
- Annual water savings contribute to an estimated 8% of DSU's annual campus energy cost savings.
- Energy savings have allowed DSU to reduce tuition costs
- Local job creation as a result of engaging firms to complete efficiency work across campus

Note: Due to the unique configuration of Delaware State University's campus, the data is a combination of metered natural gas baseline and savings with modeled electric baseline and savings. Electric data is metered at a campus level, requiring models for building-level electric comsumption.

Annual Energy Use
(Source EUI)

Baseline(2010)
329 kBtu/sq. ft.

Actual(2013)
193 kBtu/sq. ft.

Energy Savings
41%

Annual Energy Cost

Baseline(2010)
$243,000

Actual(2013)
$141,000

Cost Savings
$102,000

Luna I Mishoe Science Center - South