



Agenda Date: 2/5/20
Agenda Item: 8A

STATE OF NEW JERSEY
Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Trenton, New Jersey 08625-0350
www.nj.gov/bpu/

CLEAN ENERGY

IN THE MATTER OF THE CLEAN ENERGY PROGRAM) ORDER
AUTHORIZATION OF COMMERCIAL AND)
INDUSTRIAL PROGRAM ENERGY EFFICIENCY)
INCENTIVES EXCEEDING \$500,000 – PRINCETON)
UNIVERSITY) DOCKET NO. QG20010005

Parties of Record:

William A. Broadhurst, Campus Energy Manager, Princeton University
Stefanie A. Brand, Esq., Director, New Jersey Division of Rate Counsel

BY THE BOARD:

The New Jersey Board of Public Utilities ("Board" or "BPU") through its New Jersey Clean Energy Program ("NJCEP") includes several individual Commercial and Industrial ("C&I") Energy Efficiency ("EE") Programs targeting the commercial and industrial market segments. Eligible applicants may receive rebates for a portion of the cost for installing energy efficient technologies such as lighting, HVAC, and other energy conservation measures. Incentives are also available for projects involving Distributed Energy Resources ("DER"). All proposed C&I EE financial incentives and rebates exceeding \$500,000 require explicit Board approval. In the Matter of the Comprehensive Energy Efficiency and Renewable Energy Resource Analysis for the 2009 through 2012 Clean Energy Program -- Revised 2012-2013 Programs and Budgets - Revised Rebate Approval Process, BPU Docket No. EO07030203, Order dated May 3, 2013.

The Large Energy Users Program ("LEUP") fosters self-investment in EE and combined heat and power projects for New Jersey's largest C&I customers. Incentives are awarded to customers that satisfy the program's eligibility and program requirements for investing in self-directed energy projects that are customized to meet the requirements of the customers' existing facilities, while advancing the State's energy efficiency, conservation, and greenhouse gas reduction goals.

By this Order, the Board considers the application of Princeton University ("University") in Princeton, New Jersey, submitted on July 27, 2018 under the Fiscal Year 2018 ("FY18") LEUP pursuant to the Energy Efficiency and Renewable Energy Program Plan Filing for FY18 dated January 26, 2018. The application proposes to install various energy conservation measures ("ECMs") at several buildings at the University's Princeton, New Jersey campus. The University requests a total financial incentive of \$876,636.77 for a project that will cost \$3,428,213.10.

This application outlines proposed upgrades for seven different locations across the University's campus. At Bowen Hall, upgrades to several HVAC systems will enable the building's heating and cooling needs to be met based on occupancy and set to minimal-use settings when spaces are unoccupied. Variable frequency drives and other fan upgrades will further assist in optimizing Bowen Hall's efficiency. At Jadwin Gym, the University will implement similar measures designed to serve heating and cooling needs based on occupancy, with occupancy and CO₂-based sensors enabling more efficient scheduling and demand response capabilities. The University will also retrofit the gym's existing heating and ventilation units to include modernized, dynamic controls that allow building staff to control economizer dampers, schedule need based on occupancy, and more effectively utilize outdoor temperatures when possible. In addition, the University will upgrade the existing lighting in the Frick Chemistry Lab, Jadwin Hall, Sherred Hall, Burr Hall, and Baker Rink with LED lighting.

Annually, the proposed project is anticipated to conserve 1,854,940 kWh of electricity and 70,535 therms of natural gas. The project will also reduce peak demand by an estimated 439 kWh per year. The proposed project will have an estimated annual energy cost savings of \$161,344.00, as well as annual operational and maintenance savings of \$65,193.47. The payback period without incentives is 15.13 years; when factoring in the incentives, the payback period is reduced to 11.26 years.

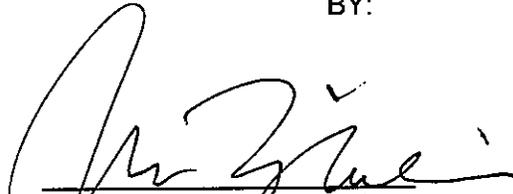
TRC Environmental Corporation, the Program Manager engaged by the Board to manage the NJCEP LEUP program, attested to the accuracy of certain information regarding the project and that the project application adheres to the current terms and conditions of the program. Further, TRC, in its role as the NJCEP Program Administrator, submitted its certification that the incentives were calculated in accordance with the program's policies and procedures, the listed amounts are the true and accurate estimated incentives for which the applicant is eligible, and the documentation supporting estimated energy savings inputs was located, reviewed, and made available to calculate the rebate amounts as required by the program's policies and procedures. Based on these certifications and the information provided by the Program Manager and Program Administrator, Board Staff recommends approval of the above-referenced application.

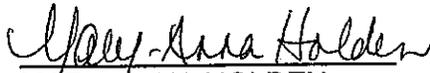
The Board **HEREBY ORDERS** the approval of the aforementioned application for the total estimated incentive amount of \$876,636.77 for Princeton University and **AUTHORIZES** issuance of a standard commitment letter to the applicant identified above, setting forth the terms and conditions of this commitment.

The effective date of this Order is February 15, 2020.

DATED: 2/5/20

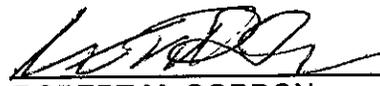
BOARD OF PUBLIC UTILITIES
BY:

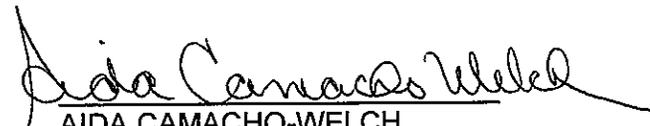

JOSEPH L. FIORDALISO
PRESIDENT


MARY-ANNA HOLDEN
COMMISSIONER


DIANNE SOLOMON
COMMISSIONER


UPENDRA J. CHIVUKULA
COMMISSIONER


ROBERT M. GORDON
COMMISSIONER

ATTEST: 
AIDA CAMACHO-WELCH
SECRETARY

I HEREBY CERTIFY that the within
document is a true copy of the original
in the files of the Board of Public Utilities.

IN THE MATTER OF THE CLEAN ENERGY PROGRAM AUTHORIZATION OF COMMERCIAL
AND INDUSTRIAL PROGRAM ENERGY EFFICIENCY INCENTIVES EXCEEDING \$500,000 –
PRINCETON UNIVERSITY - DOCKET NO. QG20010005

SERVICE LIST

William A. Broadhurst
Manager, Campus Energy
Princeton University
MacMillan Building
Princeton, NJ 08544

Stefanie A. Brand, Esq., Director
Division of Rate Counsel
140 East Front Street, 4th Floor
Trenton, NJ 08625-0003
sbrand@rpa.nj.gov

TRC Energy Solutions
900 Route 9 North, Suite 404
Woodbridge, NJ 07095

Carl Teter, P.E., LEED AP
Vice President
cteter@trccompanies.com

Marybeth Brenner
Associate Vice President
mbrenner@trccompanies.com

Valentina Rozanova
Associate Director, Engineering
vrozanova@trccompanies.com

Brian DeLuca
Senior Program Manager
bdeluca@trccompanies.com

Maura Watkins
Manager, Technical Support
mwatkins@trccompanies.com

Michael Ambrosio
Director, Policy and Planning
317 George Street, Suite 520
New Brunswick, NJ 08901
mambrosio@trccompanies.com

Thomas Kowalczyk
Manager, Regulatory Compliance
tkowalczyk@trccompanies.com

TRC Energy Solutions, cont'd

Alex Witzl
Project Engineer III
awitzl@trccompanies.com

Leigh Cignavitch
Associate Project Manager
lcignavitch@trccompanies.com

Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Trenton, NJ 08625-0350

Aida Camacho-Welch
Secretary of the Board
board.secretary@bpu.nj.gov

Stacy Ho Richardson, Esq.
Counsel's Office
stacy.richardson@bpu.nj.gov

Division of Clean Energy

Sara Bluhm Gibson, Director
sara.bluhm@bpu.nj.gov

Sherri Jones, Assistant Director
sherri.jones@bpu.nj.gov

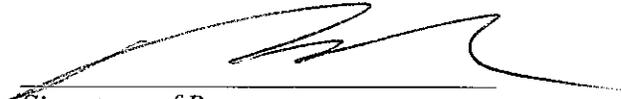
Benjamin Goldstein, Program Specialist
benjamin.goldstein@bpu.nj.gov

Deputy Attorneys General
Department of Law and Public Safety
Division of Law
25 Market Street, P.O. Box 112
Trenton, NJ 08625-0112

Pamela Owen, Assistant Section Chief, DAG
pamela.owen@law.njoag.gov

Paul Youchak, DAG
paul.youchak@law.njoag.gov

The undersigned preparer attests that, to the best of their knowledge and belief, the above information is accurate and the subject project application adheres to the current terms and conditions of the Large Energy Users program.



Signature of Preparer

12/27/19
Date

Brian De Luis
Name of Preparer

52367
App#

1. Application Number: **52367**
2. Application Received Date and Fiscal Year: **7/27/2018, FY18 Large Energy Users Program**
3. Compliance Filing: **FY2018 Compliance Filing dated January 26, 2018**
4. Customer Contact (name, company, address, phone #):

**William A. Broadhurst
 Manager, Campus Energy
 Princeton University
 MacMillan Building
 Princeton, NJ 08544
 609-258-9008**

5. Project Name and Address:

Building	Project Name
Bowen Hall	Lab Air Change Rate Controls
	VFD Installation for Lab Exhaust Fans
	Occ-sensor Control Temperature Setback in Non-Lab Spaces
	Occ-sensor Control Temperature Setback in Lab Spaces
	VFD Installation for RF-2
	Occupancy-Sensor Control of Fan Powered
	Demand Control Ventilation for Classrooms & Common Areas
	Supply Air Temperature Reset for AH-1 & AH-2
Jadwin Gym	Arena - Fan Cycling Control
	Lobby - Building Pressure Control
	Squash Court-Fan/Occupancy Control
	Building Static Pressure Control
	Fencing Room Demand Control Ventilation/Occupancy Control
	Catwalk Heating and Ventilation Unit Control Retrofit
Frick Chemistry Lab	Lighting Upgrade to LED
Jadwin Hall	Lighting Upgrade to LED
Sherrd Hall	Lighting Upgrade to LED
Baker Rink	Lighting Upgrade to LED
Burr Hall	Lighting Upgrade to LED

6. Rebate amount: **\$876,636.77**
7. Brief description of measures:

Bowen Hall:

Mechanical upgrades to several HVAC systems throughout the Bowen Hall building. Install controls that will allow heating and cooling needs to be met in labs, classrooms and common areas while spaces are occupied then set back to

code-compliant ventilation levels while spaces are unoccupied. Installation of variable frequency drive on a lab exhaust fan and a return air fan for the building to allow existing constant-speed fans to be turned down to meet actual heating or cooling needs.

Jadwin Gym:

Mechanical upgrades to add occupancy-based or CO2-based sensors to control supply fans in area, lobby, squash court and fencing rooms in the Jadwin Gym building. These controls allow air conditioning needs to be met while maintaining code-compliant ventilation levels during times that spaces are unoccupied. Installation of variable frequency drives on exhaust fans which will reduce speeds to maintain necessary exhaust rates based on actual heating loads and building pressure. Retrofit of existing heating and ventilation units in gym ceiling arches with controls that allow for dynamic control of economizer dampers, occupancy scheduling and to optimize use of outdoor air when conditions allow.

Lighting Upgrades:

Removal of existing linear fluorescent, compact fluorescent, metal halide, incandescent lamps and fixtures in **Jadwin, Sherrerd and Burr Halls, Frick Chemistry Lab and Baker Rink** and replace with more efficient LED technology.

Please note that Jadwin Gym, Sherrerd Hall, Baker Rink and Aaron Burr Hall are served by an existing on-site CHP system but are also served by an investor owned utility (IOU) for their respective electric and gas use. Princeton will continue to purchase electric from an IOU and pay into the Societal Benefits Charge (SBC) after implementation of these measures.

8. Annual Estimated Energy Savings:

1,854,940 kWh
439 kW peak demand
70,535 therms

9. Annual Estimated Energy Cost Savings: \$161,344.00

10. Project cost: \$3,428,213.10

11. Operational and Maintenance Savings: \$65,193.47

12. Simple Payback Period: 15.13 years without incentive; 11.26 years with incentive

**Program Administrator Certification
(New Incentive Commitments > \$500,000)**

I, **Maura Watkins**, TRC Solutions Quality Control, hereby certify that, I have reviewed the application referenced below and determined that, as required by the policies and procedures applicable to the program, (1) the equipment incentives for which the NJCEP Program Manager now seeks approval to commit NJCEP funds have been calculated in accordance with those policies and procedures, and (2) that the amount shown below is the true and accurate estimated incentive for which the applicant(s) is(are) eligible.

Additionally, for incentives based on estimated energy savings that are uniquely calculated, including the Pay for Performance Program, Large Energy Users Program, and the Combined Heat and Power Program, I also certify that I was able to locate and review documentation supporting the inputs used to calculate the rebate amount and evidencing the NJCEP Program Manager's evaluation of those inputs as required by the program's policies and procedures.



By: _____

Date: **12-26-2019**

Maura Watkins

Quality Control – TRC Solutions

Application No.: **52367**

Applicant: **Princeton University**

Payee: **Princeton University**

Committed Amount: **\$876,636.77**