Agenda Date: 6/27/24
Agenda Item: 8H

STATE OF NEW JERSEY

Board of Public Utilities
44 South Clinton Avenue, 1st Floor
Trenton, New Jersey 08625-0350
www.nj.gov/bpu/

CLEAN ENERGY

IN THE MATTER OF THE CLEAN ENERGY PROGRAM AUTHORIZATION OF COMMERCIAL AND INDUSTRIAL ENERGY EFFICIENCY INCENTIVES EXCEEDING $500,000 – PRINCETON UNIVERSITY	))))	ORDER DOCKET NO. QO24050285

Parties of Record:

Brian O. Lipman, Esq., Director, New Jersey Division of Rate Counsel
William A. Broadhurst, **Director**, Campus Energy, Princeton University

BY THE BOARD:

The New Jersey Board of Public Utilities ("Board" or "BPU") through New Jersey's Clean Energy Program ("NJCEP") manages several individual commercial and industrial ("C&I") energy efficiency ("EE") programs targeting the C&I market segments. Eligible applicants may receive rebates for a portion of the cost of installing energy efficient technologies, such as light-emitting diode ("LED") lighting, heating, ventilation, and air conditioning ("HVAC"), and other energy conservation measures ("ECMs"). NJCEP offers incentives to large energy users to upgrade or install ECMs in existing buildings to help offset these capital costs. Incentives are also available for projects involving distributed energy resources. All proposed C&I EE financial incentives and rebates exceeding $500,000 require explicit Board approval.[1]

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 requirements, in addition to the 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 EE, conservation, and greenhouse gas reduction goals.

By this Order, the Board considers the application of Princeton University ("University") submitted on July 31, 2019 under the Fiscal Year 2019 ("FY19") LEUP pursuant to the Energy Efficiency and Renewable Energy Program Plan Filing for FY19 dated March 29, 2019. The project is located at multiple buildings in Princeton, New Jersey.

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[1] In re the Comprehensive Energy Efficiency and Renewable Energy Resource Analysis for the 2009 Through 2012 Clean Energy Program -- Revised 2012-2013 Programs & Budgets - Revised Rebate Approval Process, BPU Docket No. EO07030203, Order dated April 29, 2013.

The applicant requested a total financial incentive of $847,942.26 for a project with an estimated total cost of $3,212,991.40.

The University will perform the following at the facilities below:

- Computer Science/Friend Center
    - Installation of Variable Frequency Drives ("VFDs") on constant volume fans to control constant volume fan motor speeds, converting a constant-volume system into a variable-air-volume ("VAV") system. This adjusts fan speed based on zone temperature needs, optimizing airflow and minimizing unnecessary fan operation.
    - Installation of VFDs on chilled water pumps to control the pumps based on chilled water valve positions. This modulates pump speed according to actual demand, optimizing efficiency.
    - Installation of VFDs on heating water pumps to control the pumps based on hot water valve positions. This adjusts pump speed according to the heating demand, optimizing efficiency and reducing unnecessary power consumption.

- Fine Hall
    - Installation of VFDs on constant volume fans. This optimizes fan speed based on heating and cooling demands, reducing overall energy consumption in the HVAC system.
    - Installation of VFDs on chilled water pumps. This optimizes pump speed, aligning it with the actual chilled water demand, resulting in energy savings during periods of reduced load.

- Frist Campus Center
    - Installation of VFDs on constant volume fans. This optimizes fan speed based on temperature needs, reducing unnecessary fan operation and contributing to energy savings.
    - Installation of VFDs on heating water pumps. This optimizes heating water pump speed based on demand, reducing energy consumption during periods of reduced load.
    - Installation of Melink Intelli-Hood ventilation controls for the kitchen exhaust system. This adjusts exhaust airflow based on the cooking schedule, minimizing unnecessary fan operation.

- Woolworth Music Center
    - Installation of VFDs on constant volume fans. This optimizes fan speed based on zone temperature needs, avoiding unnecessary fan operation.

- Lewis Library
    - Installation of VFDs on heating water pumps. This optimizes heating water pump speed based on demand, resulting in energy savings during periods of reduced load.

- University Stadium
    - Replacement of existing fluorescent lighting with more efficient LED lighting in University Stadium's weight room. This reduces electrical consumption due to lower wattage fixtures and includes new controls, further reducing run hours.

- Frick Chemistry Lab
    - Replacement of existing fluorescent lighting with more efficient LED lighting in Frick Chemistry Laboratory. This reduces electrical consumption for lighting and includes new controls for optimized operation.

- Mudd Library
    - Replacement of existing fluorescent lighting with more efficient LED lighting in Mudd Library. This results in energy savings due to lower wattage fixtures and the implementation of new controls for improved efficiency.

- McCarter/Berlind Theater
    - Replacement of existing lighting with more efficient LED lighting in McCarter/Berlind Theater. This reduces electrical consumption, contributing to overall energy savings.

- Icahn Lab
    - Replacement of existing lighting with more efficient LED lighting in the Icahn Lab Atrium. This reduces electrical consumption and includes new controls for optimized operation.

- Bloomberg Hall
    - Installation of carbon dioxide (CO_2) and occupancy sensors in rooms to operate VAV boxes based on CO_2, occupancy, and temperature. The addition of sensors reduces energy demand loads on HVAC systems when rooms are unoccupied, resulting in energy savings.
    - Conversion of the 100% outdoor air energy recovery unit to a recirculation system. This reduces the amount of outdoor air to be conditioned, leading to steam and chilled water savings.

- Baker Rink
    - Integration of Baker Rink's dehumidification system with the campus' central Building Automation System. This allows for optimized control, reducing energy consumption by modulating the supply fan based on dehumidification demand.
    - Installation of VFDs on cold brine pumps with infrared ice temperature sensing for modulation. This modulates pump speed based on ice temperature, maintaining continuous brine flow efficiently.
    - Replacement of the hot water system with a REALice unheated water de-aeration system for ice resurfacing.[2] The REALice system eliminates the need for steam, reducing energy consumption and lowering loads on the ice chiller and dehumidification system.

[2] The REALice water treatment system for ice arenas builds and resurfaces ice without the use of hot water.

- Andlinger Center, Computer Science Center, Corwin Hall, East Pyne Building, Forbes College, Friend Center, Holder Hall, Jones Hall, Madison Hall, McCosh Hall, Neuroscience Institute, Wallace Hall, Woolworth Music Center
    - Replacement of existing fluorescent/CFL lighting with more efficient LED lighting in various classrooms. This transition to LED fixtures lowers electrical consumption, contributing to energy savings in classroom lighting.

The project is anticipated to annually save 1,681,600 kilowatt-hours of electricity, 80,343 therms of natural gas, and 272.25 kilowatts of peak demand. The proposed project will have an estimated annual energy cost savings of $169,923.98 and estimated annual operational and maintenance savings of $109,185.83. The simple payback period without incentives is 11.5 years; when factoring in the incentives, the simple payback period is reduced to 8.47 years.

TRC Environmental Corporation ("TRC"), the Program Manager engaged by the Board to manage the LEUP, 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.

The Board **HEREBY ORDERS** the approval of the aforementioned application for the total estimated incentive amount of $847,942.26 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 July 3, 2024.

DATED: June 27, 2024

BOARD OF PUBLIC UTILITIES
BY:

CHRISTINE GUHL-~~SADOVY~~
PRESIDENT

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COMMISSIONER

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COMMISSIONER

ATTEST:

SHERRI L. GOLDEN
SECRETARY

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

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SERVICE LIST

William A. Broadhurst, Director, Campus Energy
Princeton University
MacMillan Building, Elm Drive
Princeton, NJ 08544
broadhu@princeton.edu

Brian O. Lipman, Esq., Director
Division of Rate Counsel
140 East Front Street, 4th Floor
Trenton, NJ 08625-0003
blipman@rpa.nj.gov

TRC Environmental Corporation

317 George Street, Suite 520
New Brunswick, NJ 08901

Marybeth Brenner, Associate Vice President
mbrenner@trccompanies.com

Michael Ambrosio
Director, Policy and Planning
mambrosio@trccompanies.com

Valentina Rozanova, Associate Director, Engineering
vrozanova@trccompanies.com

Thomas Kowalczyk, Manager, Regulatory Compliance
tkowalczyk@trccompanies.com

Maura Watkins, Manager, Technical Support
mwatkins@trccompanies.com

Brian DeLuca, Senior Program Manager
bdeluca@trccompanies.com

Leigh Cignavitch, Associate Project Manager
lcignavitch@trccompanies.com

New Jersey Division of Law

Public Utilities Section
R.J. Hughes Justice Complex
25 Market Street, P.O. Box 112
Trenton, NJ 08625

Daren Eppley, Section Chief, DAG
daren.eppley@law.njoag.gov

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

Matko Ilic, DAG
matko.ilic@law.njoag.gov

New Jersey Board of Public Utilities

44 South Clinton Avenue, 1st Floor
P.O. Box 350
Trenton, NJ 08625-0350

Sherri L. Golden, Secretary
board.secretary@bpu.nj.gov

Stacy Peterson, Deputy Executive Director
stacy.peterson@bpu.nj.gov

Taryn Boland, Chief of Staff
taryn.boland@bpu.nj.gov

Henry Gajda, Deputy Chief of Staff
henry.gajda@bpu.nj.gov

General Counsel's Office

Michael Beck, General Counsel
michael.beck@bpu.nj.gov

Carol Artale, Deputy General Counsel
carol.artale@bpu.nj.gov

Alex Cary, Regulatory Officer
alexander.cary@bpu.nj.gov

Division of Clean Energy

Véronique Oomen, Director
veronique.oomen@bpu.nj.gov

Stacy Ho Richardson, Esq.
Deputy Director
stacy.richardson@bpu.nj.gov

Kevin Monte de Ramos
Bureau Chief, Energy Efficiency and Building Decarbonization
kevin.montederamos@bpu.nj.gov

Rupa Deshmukh, Senior Program Manager
rupa.deshmukh@bpu.nj.gov

Dustin Wang, Program Specialist I
dustin.wang@bpu.nj.gov

Earl Thomas Pierce, Administrative Analyst
earl.pierce@bpu.nj.gov