



Agenda Date: 5/21/14  
Agenda Item: 8B

**STATE OF NEW JERSEY**  
**Board of Public Utilities**  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, New Jersey 08625-0350  
[www.nj.gov/bpu/](http://www.nj.gov/bpu/)

CLEAN ENERGY

|                                                                                                                                                                |   |             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-------------|
| IN THE MATTER OF THE NEW JERSEY CLEAN ENERGY PROGRAM AUTHORIZATION OF COMMERCIAL AND INDUSTRIAL (C&I) PROGRAM ENERGY EFFICIENCY INCENTIVES EXCEEDING \$500,000 | ) | ORDER       |
|                                                                                                                                                                | ) |             |
|                                                                                                                                                                | ) |             |
|                                                                                                                                                                | ) | DOCKET NOS. |
|                                                                                                                                                                | ) |             |
| THE TRUSTEES OF PRINCETON UNIVERSITY                                                                                                                           | ) | QO14040382  |
|                                                                                                                                                                | ) |             |
| MASONIC CHARITY FOUNDATION OF NEW JERSEY                                                                                                                       | ) | QO14040383  |

**Party of Record:**

**Robert Chandler, Project Manager**, The Trustees of Princeton University  
**Cindy Shemansky, Administrator**, Masonic Charity Foundation of New Jersey

**BY THE BOARD:**

The New Jersey Board of Public Utilities' (the Board) Commercial & Industrial (C&I) Energy Efficiency Program includes nine (9) individual programs targeting the commercial and industrial market segments, consisting of New Construction, Retrofit, Pay for Performance - New Construction, Pay for Performance - Existing Buildings, Local Government Energy Audit, Direct Install, Small Combined Heat and Power (CHP) and Fuel Cells (FC), Large Energy Users Program, and the Societal Benefits Charge Credit Program. These programs collectively offer financial incentives to encourage the installation of energy efficient products and technologies. Eligible applicants may receive incentives for a portion of the cost of installing energy efficient technologies such as lighting, heating, ventilation and air conditioning, water heating and other measures in new or existing buildings.

The Trustees of Princeton University, Princeton, NJ, has submitted an application for a total financial incentive in the amount of \$669,250.90 under the 2012 Pay for Performance - New Construction program, for a project located at the Lakeside Graduate Housing complex on 5 New South, Princeton, NJ. The estimated first incentive, for the proposed energy reduction plan (ERP), is \$38,242.90. The estimated second incentive, for the as-built reduction plan, including installation of efficient water source heat pumps, installation of variable frequency drives on chilled water pumps, installation of an efficient gas-fired water heater, installation of high efficiency insulation in walls and ceilings, installation of efficient windows and glass doors,

installation of high-efficiency lighting, installation of Energy Star certified refrigerators and clothes washers, and installation of low-flow faucets and shower heads, is \$382,429. The estimated third incentive for the commissioning report is \$248,579. This application has an estimated 21% total energy savings<sup>1</sup> as compared to the current energy code used in New Jersey, American Society of Heating and Air-Conditioning Engineers (ASHRAE) 90.1.2007, and will save the customer an estimated 696,038 kWh of electricity annually, with an estimated annual demand reduction of 139.20 kW. Through this project, the customer will also save an estimated 37,820 therms of natural gas annually. Overall, this application will have an estimated annual energy cost savings of \$165,610, with a 10% internal rate of return and an 8 year payback. This project has an estimated measure incremental cost of \$1,302,753.

The Masonic Charity Foundation of New Jersey, in Burlington, NJ, has submitted an application for a total financial incentive in the amount of \$996,000 under the 2014 Small Combined Heat and Power (CHP) and Fuel Cells program, for a project located at 902 Jacksonville Road, Burlington, NJ 08016. Under the program, participants are eligible to receive financial incentives to further enhanced energy efficiency in their buildings through on-site power generation with recovery and productive use of waste heat to reduce existing and new demands to the electric power grid. The applicant proposes to install two 249 kW gas engine CHP units with a total system installed capacity of 498 kW. Estimated annual efficiency for the proposed plant is 70%. The first estimated incentive, in the amount of \$298,800, is to be paid upon proof of purchase of equipment. The second estimated incentive, in the amount of \$597,600, is to be paid upon project completion, review and acceptance of documentation, and successful inspection. The remaining estimated incentive, in the amount of \$99,600, is to be paid one year after project inspection, acceptance, and following confirmation that the project has achieved its required minimum efficiency threshold. The system is expected to produce 4,006,359.9 kWh of electricity annually and expected to produce 13,312.8 MMBtu of thermal energy recovered from waste heat, to be used for space heating and domestic water heating. Overall, this application is expected to result in an estimated average annual energy cost savings of \$270,939.78 at an estimated turn-key project cost of \$4,615,699.

TRC, the Market Manager engaged by the Board to manage the New Jersey Clean Energy Program (NJCEP) C&I energy efficiency programs, has submitted certifications that the incentives for which TRC now seeks approval to commit have been calculated in accordance with the program policies and procedures, and that the listed amounts are the true and accurate estimated incentives for which the applicants are eligible. Further, Applied Energy Group, in its role as the NJCEP Program Coordinator, has reviewed the applications and submitted certifications that the incentives for which TRC now seeks approval to commit have been calculated in accordance with the program policies and procedures, and that the listed amounts are the true and accurate estimated incentives for which the applicants are eligible. Based on the above, the Staff recommends that the Board approve the above-referenced applications.

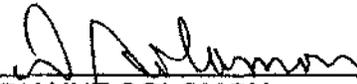
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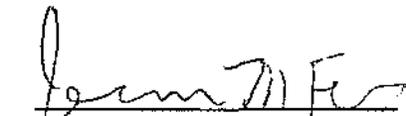
<sup>1</sup> Energy savings and cost savings are measured from a code-compliant building ASHRAE 90.1-2007 baseline.

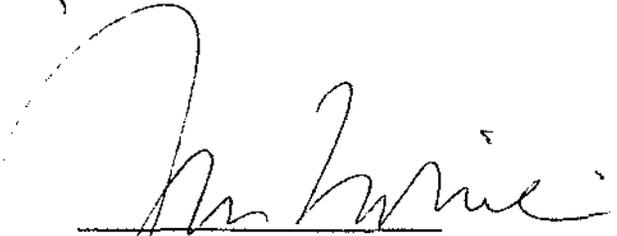
The Board **HEREBY ORDERS** the approval of the aforementioned applications for the total estimated incentive amounts of \$669,250.90 for the Trustees of Princeton University and \$996,000 for the Masonic Charity Foundation of NJ, and **AUTHORIZES** issuance of standard commitment letters to the applicants identified above, setting forth the terms and conditions of these commitments. The effective date of this Order is May 30, 2014.

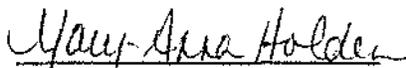
DATED: 5/21/14

BOARD OF PUBLIC UTILITIES  
BY:

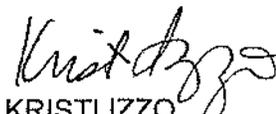
  
DIANNE SOLOMON  
PRESIDENT

  
JEANNE M. FOX  
COMMISSIONER

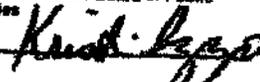
  
JOSEPH L. FIORDALISO  
COMMISSIONER

  
MARY-ANNA HOLDEN  
COMMISSIONER

ATTEST:

  
KRISTI IZZO  
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 NEW JERSEY CLEAN ENERGY PROGRAM AUTHORIZATION OF  
COMMERCIAL AND INDUSTRIAL (C&I) PROGRAM ENERGY EFFICIENCY INCENTIVES  
EXCEEDING \$500,000 – THE TRUSTEES OF PRINCETON UNIVERSITY AND MASONIC  
CHARITY FOUNDATION OF NJ  
DOCKET NOS. QO14040382 & QO14040383

SERVICE LIST

Robert Chandler, Project Manager  
The Trustees of Princeton University  
5 New South  
Princeton, NJ 08544

Cindy Shemansky, Administrator  
Masonic Charity Foundation of NJ  
902 Jacksonville Road  
Burlington, NJ 08016

Brian DeLuca  
TRC Solutions  
Program Manager  
900 Route 9 North, Suite 104  
Woodbridge, NJ 07095

Carl Teter  
TRC Solutions  
Associate Vice President  
900 Route 9 North, Suite 104  
Woodbridge, NJ 07095

Valentina Rozanova  
TRC Solutions  
Program Manager  
900 Route 9 North, Suite 104  
Woodbridge, NJ 07095

Michael Ambrosio  
Applied Energy Group, Inc.  
317 George Street, Suite 305  
New Brunswick, NJ 08901

James Nappi  
Applied Energy Group, Inc.  
317 George Street, Suite 305  
New Brunswick, NJ 08901

Caroline Vachier, DAG  
Department of Law & Public Safety  
124 Halsey Street  
Post Office Box 45029  
Newark, NJ 07102-45029

Veronica Beke, DAG  
Department of Law & Public Safety  
124 Halsey Street  
Post Office Box 45029  
Newark, NJ 07102-45029

Kristi Izzo, Secretary  
Board of Public Utilities  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, NJ 08625-0350

Elizabeth Ackerman, Director  
Office of Clean Energy  
Board of Public Utilities  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, NJ 08625-0350

Elizabeth M. Teng  
Board of Public Utilities  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, NJ 08625-0350

Sherri Jones  
Board of Public Utilities  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, NJ 08625-0350

Allison E. Mitchell  
Board of Public Utilities  
44 South Clinton Avenue, 9<sup>th</sup> Floor  
Post Office Box 350  
Trenton, NJ 08625-0350

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

I, **Maura Watkins**, hereby certify that in its role as Program Coordinator, Applied Energy Group, Inc. has reviewed the referenced below, as required by the policies and procedures applicable to each program, that the standardized equipment incentives for which TRC now seeks approval to commit have been calculated in accordance with those policies and procedures, and that the amount shown below is the true and accurate estimated incentive for which the applicant(s) is(are) eligible.

For incentives based on uniquely calculated estimated energy savings, including the Custom Program, Pay for Performance, Combined Heat & Power and Large Energy Users Program, Applied Energy Group certifies locating documentation supporting the inputs used to calculate the rebate amount and evidencing TRC's evaluation of those inputs as required by the program's policies and procedures.

*Maura H Watkins*

By: \_\_\_\_\_

Date: 04-16-2014

**Maura Watkins**

Quality Assurance Manager - Applied Energy Group, Inc.

Ref: \_\_\_\_\_  
App # 18528

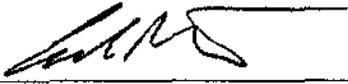
Applicant Princeton University

Payee The Trustees of Princeton University

Committed Amount: \$669,250.90

**Market Manager Certification**  
**(New Incentive Commitments > \$500,000)**

I Carl Teter hereby certify that applications on the attached list have been reviewed by TRC or its subcontractors as required by the policies and procedures applicable to each program, that the incentives for which TRC now seeks approval to commit have been calculated in accordance with those policies and procedures, and that the listed amounts are the true and accurate estimated incentives for which each applicant is eligible.

By: 

*Carl P. Teter, P.E., LEED AP, Associate Vice President*  
App# 18528

Date: 4-17-14

1. Application Number: **18528**
2. Program Name: **Pay for Performance- New Construction**
3. Customer Contact (name, company, address, phone #):  
**Robert Chandler, Project Manager/Real Estate**  
**Princeton University**  
**5 New South, Princeton, NJ 08544**
4. Project Name and Address:  
**Lakeside Graduate Housing**  
**Princeton University**  
**5 New South, Princeton, NJ 08544**
5. Rebate amount:  
**Incentive #1: \$38,242.90**  
**Incentive #2: \$382,429.00**  
**Incentive #3: \$248,579.00**  
**Total: \$669,250.90**
6. Brief description of measures: See next page



7. Annual Estimated Energy Savings: See below

8. Annual Estimate Energy Cost Savings: See below

| Energy Efficient Measure                         | Annual Energy Savings (MMBtu) (kWh) | Must Affected Fuel | Demand Savings (kW) | Annual Water/Sewer Savings (1000 gal) | Annual D&M Savings (\$) | Annual Cost Savings (\$) | Lifetime (years) | Payback (years) | IRR        | Lifecycle Savings  | Weighted Lifetime |
|--------------------------------------------------|-------------------------------------|--------------------|---------------------|---------------------------------------|-------------------------|--------------------------|------------------|-----------------|------------|--------------------|-------------------|
| 1 Water Source Heat Pump                         | 0                                   | 166,314            | Electricity         | 17.09                                 | 0                       | \$27,309                 | 50               | 16.5            | 6%         | \$252,648          | \$1,365,438       |
| 2 VFD - Chilled Water Pump                       | 0                                   | 72,961             | Electricity         | 6.50                                  | 0                       | \$11,980                 | 10               | 1.1             | 94%        | \$89,522           | \$119,802         |
| 3 Water Source Heat Pump                         | 0                                   | 54,445             | Electricity         | 91.47                                 | 0                       | \$8,940                  | 20               | 1.0             | 101%       | \$124,153          | \$178,797         |
| 4 Water Source Heat Pump                         | 0                                   | 173,949            | Electricity         | 0.00                                  | 0                       | \$28,562                 | 20               | 0.3             | 323%       | \$416,087          | \$571,249         |
| 5 Water Heater (Gas) - > 50 Gals.                | 1,540                               | 0                  | Gas                 | 0.00                                  | 0                       | \$20,894                 | 13               | 3.1             | 31%        | \$157,204          | \$271,618         |
| 6 Insulation - Walls, Kneewalls, Rim Band/Joists | 0                                   | 5,702              | Electricity         | 0.00                                  | 0                       | \$936                    | 25               | 133.5           | -10%       | -\$108,697         | \$23,407          |
| 7 Insulation - Ceiling                           | 0                                   | 26,178             | Electricity         | 0.00                                  | 0                       | \$4,298                  | 25               | 0.9             | 107%       | \$70,849           | \$107,461         |
| 8 Windows and Glass Doors                        | 0                                   | 48,670             | Electricity         | 0.00                                  | 0                       | \$7,992                  | 15               | 35.1            | -9%        | -\$185,197         | \$119,874         |
| 9 CFL - Indoor Fixture                           | 0                                   | 48,931             | Electricity         | 4.60                                  | 0                       | \$8,034                  | 12               | 3.0             | 32%        | \$55,653           | \$96,414          |
| 10 Fluorescent Fixtures                          | 0                                   | 56,019             | Electricity         | 6.39                                  | 0                       | \$9,190                  | 12               | 6.5             | 11%        | \$31,349           | \$110,282         |
| 11 Custom Electric                               | 0                                   | 31,301             | Electricity         | 3.08                                  | 0                       | \$5,140                  | 15               | 0.6             | 176%       | \$58,429           | \$77,094          |
| 12 Custom Electric                               | 0                                   | 7,364              | Electricity         | 9.59                                  | 0                       | \$1,209                  | 13               | 6.5             | 12%        | \$4,959            | \$15,719          |
| 13 LED Exit Signs                                | 0                                   | 4,204              | Electricity         | 0.48                                  | 0                       | \$690                    | 8                | 3.5             | 23%        | \$2,446            | \$5,522           |
| 14 Custom Gas                                    | 2,243                               | 0                  | Gas                 | 0.00                                  | 10,123                  | \$30,435                 | 13               | 0.3             | 295%       | \$313,373          | \$395,652         |
| <b>TOTALS:</b>                                   | <b>3,782</b>                        | <b>696,038</b>     |                     | <b>139.20</b>                         | <b>10,123</b>           | <b>\$0</b>               | <b>\$165,610</b> | <b>8</b>        | <b>10%</b> | <b>\$1,282,777</b> | <b>21</b>         |

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

I, **Maura Watkins**, hereby certify that in its role as Program Coordinator, Applied Energy Group, Inc. has reviewed the referenced below, as required by the policies and procedures applicable to each program, that the standardized equipment incentives for which TRC now seeks approval to commit have been calculated in accordance with those policies and procedures, and that the amount shown below is the true and accurate estimated incentive for which the applicant(s) is(are) eligible.

For incentives based on uniquely calculated estimated energy savings, including the Custom Program, Pay for Performance, Combined Heat & Power and Large Energy Users Program, Applied Energy Group certifies locating documentation supporting the inputs used to calculate the rebate amount and evidencing TRC's evaluation of those inputs as required by the program's policies and procedures.

*Maura H Watkins*

By: \_\_\_\_\_

Date: 04-18-2014

**Maura Watkins**

Quality Assurance Manager - Applied Energy Group, Inc.

Ref: \_\_\_\_\_  
App # 24846CHP

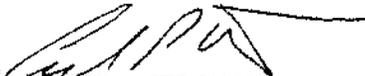
Applicant Masonic Charity Foundation of NJ

Payee Ener-G Rudox Inc.

Committed Amount: \$996,000.00

**Market Manger Certification  
(New Incentive Commitments > \$500,000)**

I Carl Teter hereby certify that applications on the attached list have been reviewed by TRC or its subcontractors as required by the policies and procedures applicable to each program, that the incentives for which TRC now seeks approval to commit have been calculated in accordance with those policies and procedures, and that the listed amounts are the true and accurate estimated incentives for which each applicant is eligible.

By:   
*Carl P. Teter, P.E., LEED AP, Associate Vice President*  
App# 24846CHP

Date: 4-18-14

1. Application Number: 24846CHP
2. Program Name: Masonic Charity Foundation of New Jersey
3. Customer Contact (name, company, address, phone #):  
**Cindy Shemansky, Administrator**  
**902 Jacksonville Road, Burlington, NJ 08016**  
**609-239-3900**

4. Project Name and Address:  
**Masonic Charity Foundation of New Jersey**  
**902 Jacksonville Road, Burlington, NJ 08016**

5. Rebate amount:  
**Incentive #1: \$298,800**  
**Incentive #2: \$597,600**  
**Incentive #3: \$99,600**  
**Total: \$996,000**

6. Brief description of CHP to be installed (size, efficiency, emission, equipment to be replaced):

Two (2), 249kW Gas Engine CHP units with total system installed capacity of 498 kW. Annual system efficiency of 70%. Waste heat to be used for space heating and domestic hot water via existing converted boilers. System will be designed to operate in grid-connected mode and is not currently designed to island.

| <b>CHP/Fuel Cell Emissions Reductions</b> |              |     |
|-------------------------------------------|--------------|-----|
| <b>NOx:</b>                               | -113,088.60  | lbs |
| <b>SO<sub>2</sub>:</b>                    | 9,623.25     | lbs |
| <b>CO<sub>2</sub>:</b>                    | 5,676,945.39 | lbs |

7. Annual Estimated Energy Savings:  
**Expected Annual Electricity Production: 4,006,359.9 kWh**  
**Expected Annual Thermal Energy Production: 13,312.8 MMBtu of recovered heat for space heating and hot water.**

8. Project Cost: \$4,615,699.00

9. Annual Estimate Energy Cost Savings:

| <b>Financial Evaluation</b>                 |              |
|---------------------------------------------|--------------|
| Simple Payback Period (years) w/o incentive | 14.25        |
| IRR                                         | 4%           |
| First Year (Annual) Cost Savings            | \$228,921.43 |
| Average Annual Cost Savings                 | \$270,939.78 |
| Lifecycle Savings                           | \$362,741.42 |