

# BRICK TOWNSHIP BOE

LOCAL GOVERNMENT ENERGY AUDITS

**Presented By:**  
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# Presentation Objectives

- **Define Energy Auditing and its Process**
- **Describe NJ Clean Energy's LGEA Program**
- **Results of CEG Energy Audit**
- **Process Moving Forward**
- **Installation Funding Options**

# What is Energy Auditing?

- **Definition**
  - **An Energy Audit** is an inspection, survey and analysis of the energy consumption in a building, process or system to reduce the amount of energy input into the system without negatively affecting the output(s).
- **Types of Energy Auditing:**
  - **Preliminary Energy Use Analysis**
  - **ASHRAE Level 1 – Walkthrough Audit**
  - **ASHRAE Level 2 – Energy Survey & Analysis**
  - **ASHRAE Level 3 – Investment Grade Audit**

# The Energy Audit Process

- **Information Gathering**
  - **Facility Survey & Drawing Review**
  - **Utility Information Gathering**
  - **Operational Information Gathering**
- **Analysis**
  - **Load Profile Analysis**
  - **Operations Analysis**
  - **ECM Calculations**
- **Report Documentation**
  - **Recommendations**

# What is the LGEA Program?

- The **LGEA Program** is a New Jersey Clean Energy Program sponsored by the Board of Public Utilities
- Available Entities for Participation:
  - Local Governments
    - Municipal Buildings, Emergency Services
    - School Districts
    - Utility Authorities
  - New Jersey State Colleges and Universities
  - 501 (c)(3) Non-Profit Agencies
- For more information visit [www.njcleanenergy.com](http://www.njcleanenergy.com)

# LGEA Program Details

- **LGEA Program**
  - **Program is Administered by TRC Energy Services**
  - **Audits Provided Through 5 Pre-Approved Firms**
  - **Program Pays 100% of Audit Cost at Completion**
  - **\$100,000 Annual Cap on Audit Incentives**
  - **Most Schools and Townships Treated Separately (Annual Cap for Each)**

# LGEA Program Details

- **LGEA Program Audits include:**
  - **Energy Conservation Measures**
    - **First Cost**
    - **Energy Savings**
    - **Payback**
  - **Renewable Energy Measures**
    - **Solar**
    - **Wind**
  - **Energy Procurement Strategies**
    - **Tariff Analysis**
    - **Group Purchasing**
  - **Installation Funding Options**
    - **P4P / Direct Install**
    - **ESIP**
    - **PPA**

# Facilities Included in the Brick Township BOE Energy Audit

- **The Facilities Audited as Part of the LGEA Contract are as Follows:**
  - **Brick Memorial High School**
  - **Brick Township High School**
  - **Lake Riviera middle School**
  - **Veterans Memorial Middle School**
  - **EEC/Administration Building**
  - **Primary Learning Center**
  - **Drum Point Elementary School**
  - **Emma Havens Young Elementary School**
  - **Herbertsville Elementary School**
  - **Lanes Mill Elementary School**
  - **Midstreams Elementary School**
  - **Osbornville Elementary School**
  - **Veterans Memorial Elementary School**
  - **Transportation Garage**
  - **Receiving Warehouse**
  - **Custodial/Maintenance Building**

# Results of CEG Energy Audit

- **Fast Payback ECMs:**
  - **Lighting Upgrades and Lighting Controls**
  - **Variable Frequency Drives on Pump Motors**
  - **Valve and Piping Insulation**
  - **Demand Controlled Ventilation Controls**
  - **Vending Machine Controls**
  - **Computer Monitor Replacements**

# Results of CEG Energy Audit

- **Capital Improvement ECMs:**
  - **Boiler Replacements (High Schools)**
  - **High Efficiency Domestic Hot Water Heaters**
  - **High Efficiency Air Conditioning Unit Replacements**
  - **Premium Efficiency Motor Replacements**
  - **DDC Controls Upgrades**

# Results of CEG Energy Audit Cont'd

- Energy Savings Summary - Combined Project

| Recommended ECMs - Energy Cost Savings |                       |           |             |                  |               |                   |                   |
|--|-----------------------|-----------|-------------|------------------|---------------|-------------------|-------------------|
|  | Existing Energy Costs |           |             | Recommended ECMs |               |                   | Percent Reduction |
|  | Electric              | Nat. Gas  | Total Cost  | kWh Savings      | Therm Savings | Est. Cost Savings |                   |
| All Facilities                         | \$1,336,883           | \$820,287 | \$2,157,170 | 889,581          | 64,501        | \$216,445         | 10.0%             |

**Brick TWP BOE Total Energy Costs:** \$2,157,170  
**Est. Total Energy Savings:** \$216,445  
**Overall Percent Reduction:** 10.0%

# Results of CEG Energy Audit Cont'd

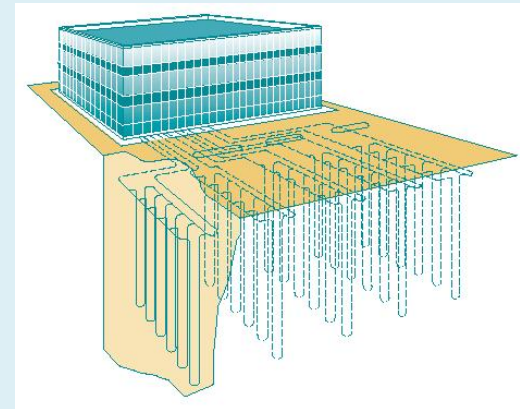
- **Energy Savings Summary - Combined Project**

| <b>Recommended ECMs - Simple Payback</b> |                                      |                                    |                             |
|--|--------------------------------------|------------------------------------|-----------------------------|
|  | <b>Estimated Annual Cost Savings</b> | <b>Estimated Installation Cost</b> | <b>Simple Payback (Yrs)</b> |
| <b>All Facilities</b>                    | <b>\$216,445</b>                     | <b>\$3,030,714</b>                 | <b>14.0</b>                 |

**Total Est. Installation Costs:** \$3,030,714  
**Est. Total Annual Cost Savings:** \$216,445  
**Overall Simple Payback:** 14.0 yrs

# Other Considerations for Brick Township Board of Education

- **Geothermal Heat Pump Systems**
  - **Higher Efficiency than Standard HVAC systems**
  - **Low Maintenance**
  - **Low Life Cycle Cost**



# Other Considerations for Brick Township Board of Education Cont'd

- Solar PV Systems



**Brick Township High School**



**Veterans Memorial Middle School**

# Other Considerations for Brick Township Board of Education Cont'd

- Solar PV Systems (cont'd)



**Drum Point Elementary  
School**



**Veterans Memorial  
Elementary School**



**Midstreams Elementary  
School**

# Other Considerations for Brick Township Board of Education Cont'd

- **Solar PV Systems (cont'd):**
  - **Electrical Consumption (All Facilities):**  
**8,895,805 kWh**
  - **Total Potential Electrical Production:**  
**3,320,055 kWh**
  - **Total Potential Energy Reduction of**  
**36%**

# Post Energy Audit Steps

“The **Energy Audit** is complete, what are the next steps?”

- Review the Energy Audit Report Recommendations
- Assess the Current State of your Facility
- Review Long Term Master Plans
  - Operation and Maintenance
  - Additions and Renovations
- Get Involved with the Process and Understand the Technology

# Post Energy Audit Steps Cont'd

- **Look Closely at the Financial Analysis**
- **Create An Energy Reduction Plan with Realistic Goals**
- **Review Installation Funding Options**

# Installation Funding Options

The Following **Installation Funding Options** are available:

- **Conventional Capital Purchase**
- **Solar Power Purchase Agreements (PPA)**
  - **15 Year Max Term**
  - **Solar Renewable Energy Credits (SREC)**
  - **Lease Agreement with Developer selling Generated Power back to the Owner**
- **New Jersey Clean Energy's Programs**
  - **Pay for Performance (P4P)**
    - **Performance Based Incentives**
  - **Smart Start Program**
    - **Prescriptive and Custom Measures**

# Installation Funding Options Cont'd

The Following **Installation Funding Options** are available:

- **Energy Savings Improvement Program (ESIP)**
  - **15 Year Max Payback**
  - **Energy Savings Fund Project**
  - **Two Models Adopted by DCA**
    - **Self Perform (DIY)**
    - **Energy Services Company (ESCO)**
  - **Third Party Energy Savings Verification**

**Questions?**

**Thank You!**