



Energy Management: Best Practices to Cut Usage and Save Money

New Jersey School Board Association Workshop
October 25, 2022

What is Sustainable Jersey?

- **Certification program** for municipalities and schools
- **Tools, resources, and guidance** to help municipalities and schools become more sustainable
- **Grants and funding** for municipalities and schools
- **Regional Hubs**



Statistics

2014
Program
Started

64%
Districts
Participating

1,058
Schools
Registered



306
Certified



48
Certified



43 Digital
Schools
Stars

7,861
Actions
Implemented



Statistics current as of 10/5/22

Participants Map Search

Use the [Participating Districts & Schools](https://sustainablejerseyschools.com/certification/search-participating-districts-schools-approved-actions/) (*sustainablejerseyschools.com/certification/search-participating-districts-schools-approved-actions/*) page to find examples of documentation from certified schools and connect with school green teams

Search by action

By Certified Action

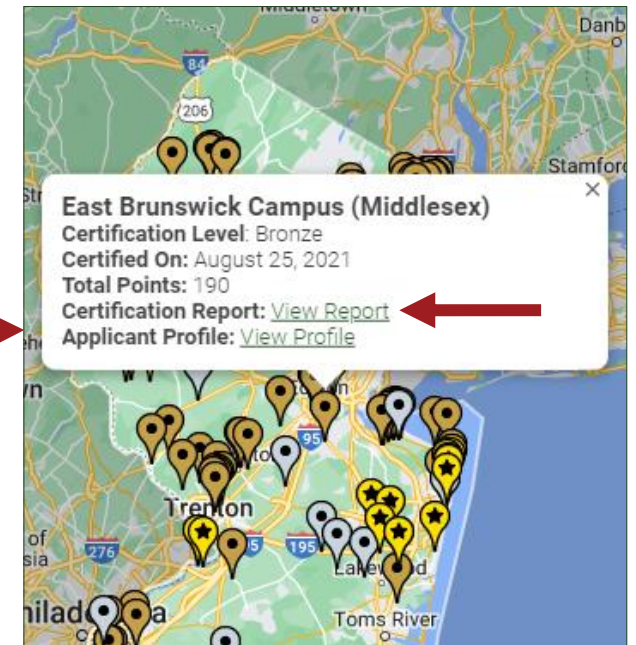
Board Leadership & Planning

- District Sustainability Policy
- Professional Development for Sustainability
- Green Enhancement of District Strategic Plans
- Strategic Plan Implementation of Green Initiatives
- School Community Asset Mapping
- School District Foundation

View certified schools approved for that action

APPLICANT	COUNTY	CERTIFICATION
Alexandria Middle School (Hunterdon)	Hunterdon	BRONZE
Lester D. Wilson Elementary School (Hunterdon)	Hunterdon	BRONZE
Florence M. Burd Elementary School (Sussex)	Sussex	BRONZE
Long Pond School (Sussex)	Sussex	BRONZE
Atlantic Highlands Elementary School (Monmouth)	Monmouth	BRONZE
Bedminster Township Elementary School (Somerset)	Somerset	BRONZE
Roy W. Brown Middle School (Bergen)	Bergen	BRONZE
Berkeley Elementary School (Essex)	Essex	BRONZE

View certification report for example documentation





SJS Energy Actions

Facilities and Operations

Energy Efficiency	Renewable Energy	Alternative Fuel Vehicles
<ul style="list-style-type: none"> • Carbon Footprint * • Energy Tracking and Management • Energy Efficiency for School Facilities * 	<ul style="list-style-type: none"> • On-Site Solar Energy + 10 pt storage/resilience + 5 pts solar thermal • On-Site Geothermal • Buy Renewable Energy 	<ul style="list-style-type: none"> • Sustainable Fleets

Student Engagement

Student Engagement and Community Outreach Actions

- Behavior-Based Energy Efficiency in Schools
- Civic & Stewardship Volunteer Initiatives
- Community Education and Outreach *
- Education for Sustainability
- Enrichment Programs through Partnership
- Green Challenges
- Professional Development for Sustainability *

* = priority action



Energy Management – the conscious effort to reduce energy usage through **equipment upgrades**, **renewable energy** projects, **maintenance**, occupant **behavior change**, and other strategies – is critical to transitioning away from fossil fuels, mitigating carbon emissions, and reducing costs.

Objectives

Participants will:

- Brainstorm first steps or continuing steps in forming an energy management team/process for their district
- Learn about resources for energy management strategies

Agenda

Overview of Energy Management Practices/Resources

Break-out group 1

What could (or does) your district's energy management program look like?

Break-out group 2

Selecting energy management strategies for your district

Break-out group 3

Deep dive into specific energy management strategies

Jackson School District



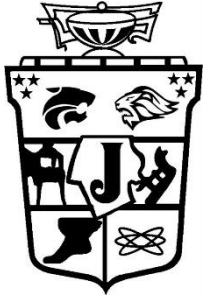
John Blair, Energy Specialist Energy Conservation Program

- Started in late 2016
- Behavior Based
- Student Internships

Going Green **\$aves** Green



Jackson School District



ESIP Project

- \$26 Million Self Funding ESIP Program
- Energy Efficient Building Upgrades
- NET ZERO COST to Taxpayers
- \$47,000 Projected Annual Positive Cash Flow

Demand Response

- Participation in this program has brought in a total of **\$366,747** since the 2017-2018 Fiscal Year

NJBPU SSB-NPFA Plumbing Grant

- \$595,290 grant for plumbing upgrades



Ann C Degnan, CEFM, MBA

Asst. School Business Administrator for Facilities

Long Branch Board of Education



- 21 Years in Long Branch Public Schools
- 7 years as Technology Manager, 14 years in Facilities
- Installed Fiber across the City for all 14 school locations
- Oversight for
 - Building \$190MM new School Facilities (2005-2014)
 - \$10 MM Renovation of Historic High School (2016-2018)
 - \$10MM ESIP (2019)
 - 300 KWH Solar installation and collection at 8 locations (2014-Ongoing)
 - Energy Management Program for Behavior Changes (2014-Ongoing)
 - Replacement of \$5.5 MM Controls, Equipment and Bldg Upgrades (2021-Ongoing)
- Champion for Sustainable Jersey for Schools in District – 9 Silver Schools , Highest Scoring Elementary and Middle School (2022)
- Champion for 2 Green Ribbon Schools (2017)

Adam Nasr, CEFM, CFM, SFP, LEED AP O+M

- ❖ Vice President of the Wall Township Board of Education
 - ❖ Chair of the District's Finance and Facilities Committee

- ❖ Director of Facilities for Middletown Township Public Schools
 - ❖ 15 years in educational facilities management
 - ❖ \$1m + in NJ Clean Energy Program grant funding (DI/PL)

- ❖ MBA, University of Illinois, Urbana-Champaign
- ❖ BS, Stockton University

- ❖ Certified Educational Facilities Manager (CEFM)
- ❖ Certified Facilities Manager (CFM)
- ❖ Sustainable Facilities Professional (SFP)
- ❖ LEED AP specializing in sustainable operations and maintenance (LEED AP O+M)
- ❖ CE, School Business Administrator

- ❖ Former Vice President of the NJ Chapter of the International Facilities Management Association



Educational Projects

- ▶ Belmar Elementary School District
 - ▶ Energy Star Award Recipient, 2013
 - ▶ At the time it was the oldest building in NJ and oldest school on East Coast to receive the honor
- ▶ Matawan-Aberdeen Regional School District
 - ▶ Approximately \$35m in capital improvement project funded through ROD Grants, NJCEP Grants, Referendum Funds, and operating budget following LEED Silver design guidelines
- ▶ Wall Township School District
 - ▶ Approximately \$60m referendum financed capital projects on the December 2022 Special Election Calendar
- ▶ Middletown Township Public Schools
 - ▶ 17 buildings, 16 solar arrays, starting the improvement cycle over

Michelle Rossi, Energy Savings Improvement Program (ESIP) Coordinator Office of State Energy Services, BPU

What is ESIP?

- Energy Performance Contracting = NJ ESIP
- A creative tool and financing mechanism that allows public entities to make energy efficiency improvements without impacting their budgets
- Project is paid for with the value of its own energy savings
- Administered by the NJBPU

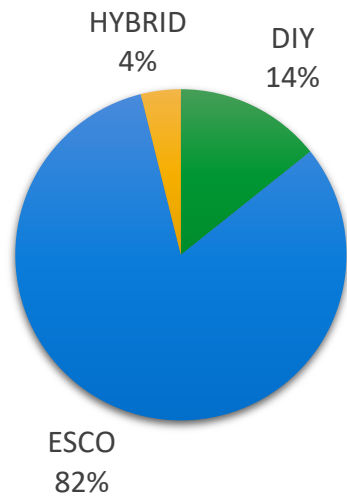
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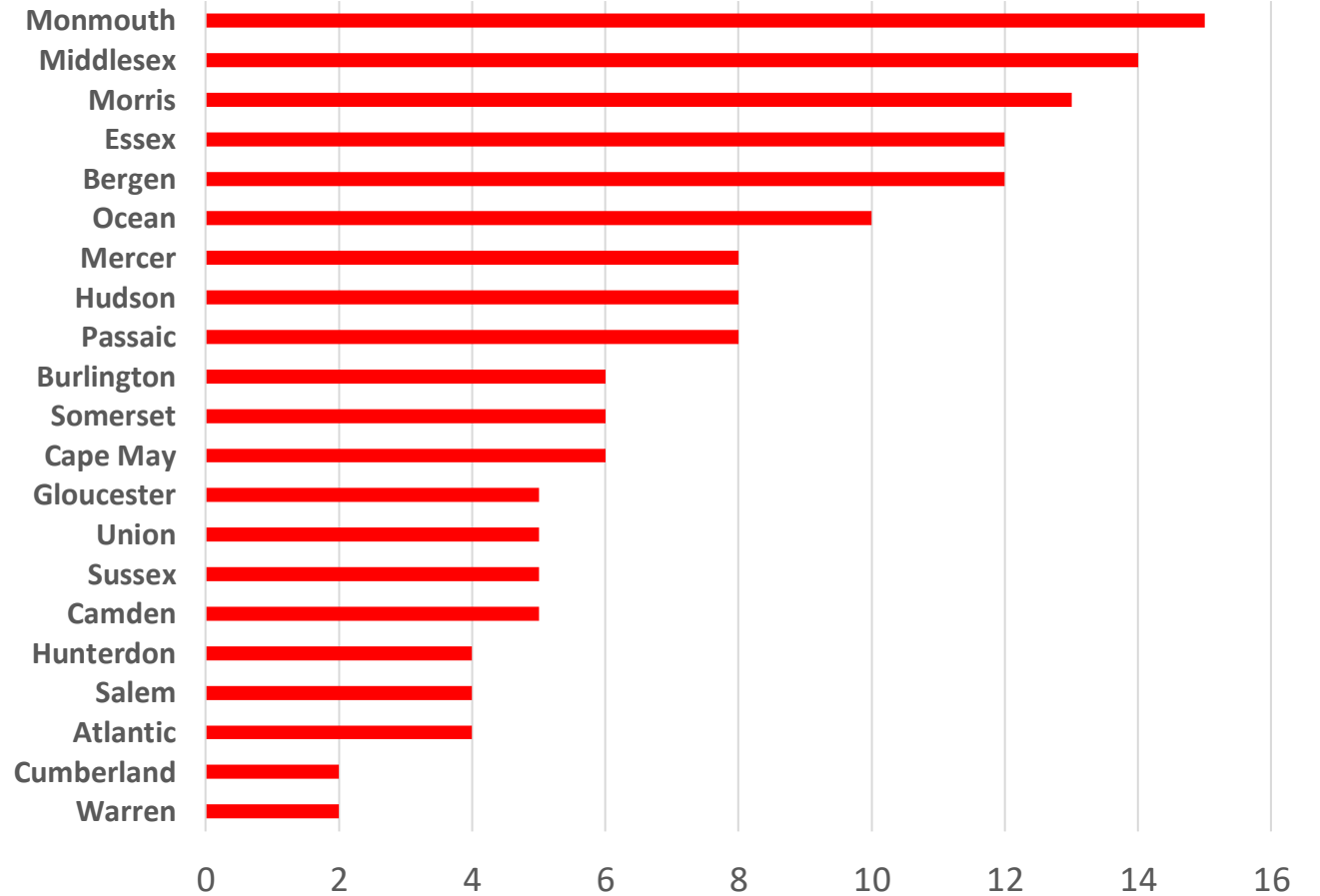
Why ESIP?

- Lower energy bills, more efficient buildings ultimately reduced carbon footprint
- Improves overall environment enhancing productivity for all building occupants via better air quality, lighting, and temperature control
- No upfront, out of pocket expenses
- No impact to tax payers
- Option to guarantee energy savings

ESIP Project Types

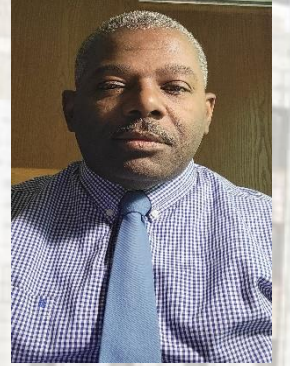


Total ESIP Projects by County



Rodney L. Williams, CEFM, SFP

Director of the Energy and Sustainability Newark Board of Education



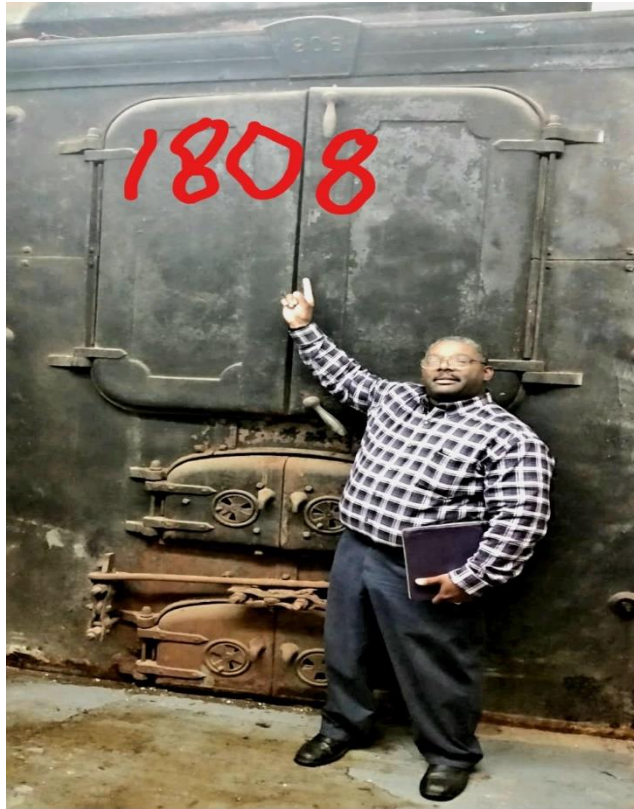
- A MEMBER OF NEWARK BOARD OF EDUCATION FAMILY FOR OVER 30 YEARS.
- DIRECTOR OF ENERGY AND SUSTAINABILITY FOR THE NEWARK PUBLIC SCHOOLS' OFFICE OF FACILITIES MANAGEMENT.
- MANAGE THE LARGEST ESIP (*ENERGY SAVINGS IMPROVEMENT PROGRAM*) FOR K-12 SCHOOLS IN THE STATE OF NEW JERSEY.
- THE PROGRAM IS ESTIMATED AT 100 MILLION DOLLARS OF CAPITAL IMPROVEMENT.
- THIS PROGRAM IS DESIGNED TO PROVIDE CAPITAL IMPROVEMENTS TO THE FACILITIES USING THE ENERGY SAVINGS FROM THE ENERGY CONSERVATION MEASURES WHICH IN TURNS PAY FOR THE UPGRADES WITH NO OUT-OF-POCKET MONEY FROM THE DISTRICT.

Overview

The Newark Board of Education is the Largest School District in NJ. Over 39,000 students, 65 School facilities (not including warehouses, offices and athletic facilities) with approximately 7 million square feet of surface. We have buildings that are more than 150 years old, some building have full ventilation, while others have little to no ventilation.

UTILIZING STATE AND FEDERAL PROGRAMS

HOPE-LESS



HOPE-FULL!!!



* WE ARE LIVING IN HISTORIC TIMES WHERE THERE IS GREAT ATTENTION AND FINANCIAL RESOURCES GIVING TOWARDS IAQ (INDOOR AIR QUALITY). EVEN IF YOUR DISTRICT HAS EQUIPMENT FROM THE 1800'S WHERE AIR QUALITY WASN'T A PRIORITY, UTILIZING THE ENERGY INCENTIVE PROGRAMS WILL PUT YOUR DISTRICT IN A BETTER POSITION TO REPAIR, REPLACE AND INSTALL EFFICIENT EQUIPMENT THAT LEADS TO A HEALTHIER SCHOOL FACILITY.

Energy Management Cycle

Identify an Energy Champion

- Organizes meetings and keeps ball rolling

Understand your Energy Usage

- Energy tracking critical component of energy management
- Can be done by in-house staff or third party

Form Energy Management Team

- Liaison from school board
- Representative of administration department
- Representative of facilities departments
- Point person for energy tracking
- Other stakeholders

Create an Energy Management Plan

- Develop energy management plan tailored to needs of entity
- Identify resources needed for energy management

Keep It Going

- Energy management is ongoing process.
- Team should meet regularly to:
 - monitor progress in energy management plan
 - compare tracked energy usage information to energy management efforts
 - plan for next steps

Energy Management Strategies

To create energy management plan, entity selects strategies to implement.

Strategies can include:

- Tracking energy data and benchmarking
- Acquiring funding / incentives for energy conservation measures
- Creating a culture of conservation
 - Commissioning
 - Behavior-Based Conservation
 - Preventive maintenance
- Demand-side management / response
- Energy storage, batteries and microgrids
- Procurement of Energy Management Services
- Other Initiatives - Renewables, EVs / fleet optimization, etc.

Business Case

Low-cost initiatives typically generate **5-15% energy savings** in the first year or two; moderate-cost initiatives typically generate **15-30% savings over three to five years**; and high-cost initiatives typically generate **30-50% energy savings over the long term.**

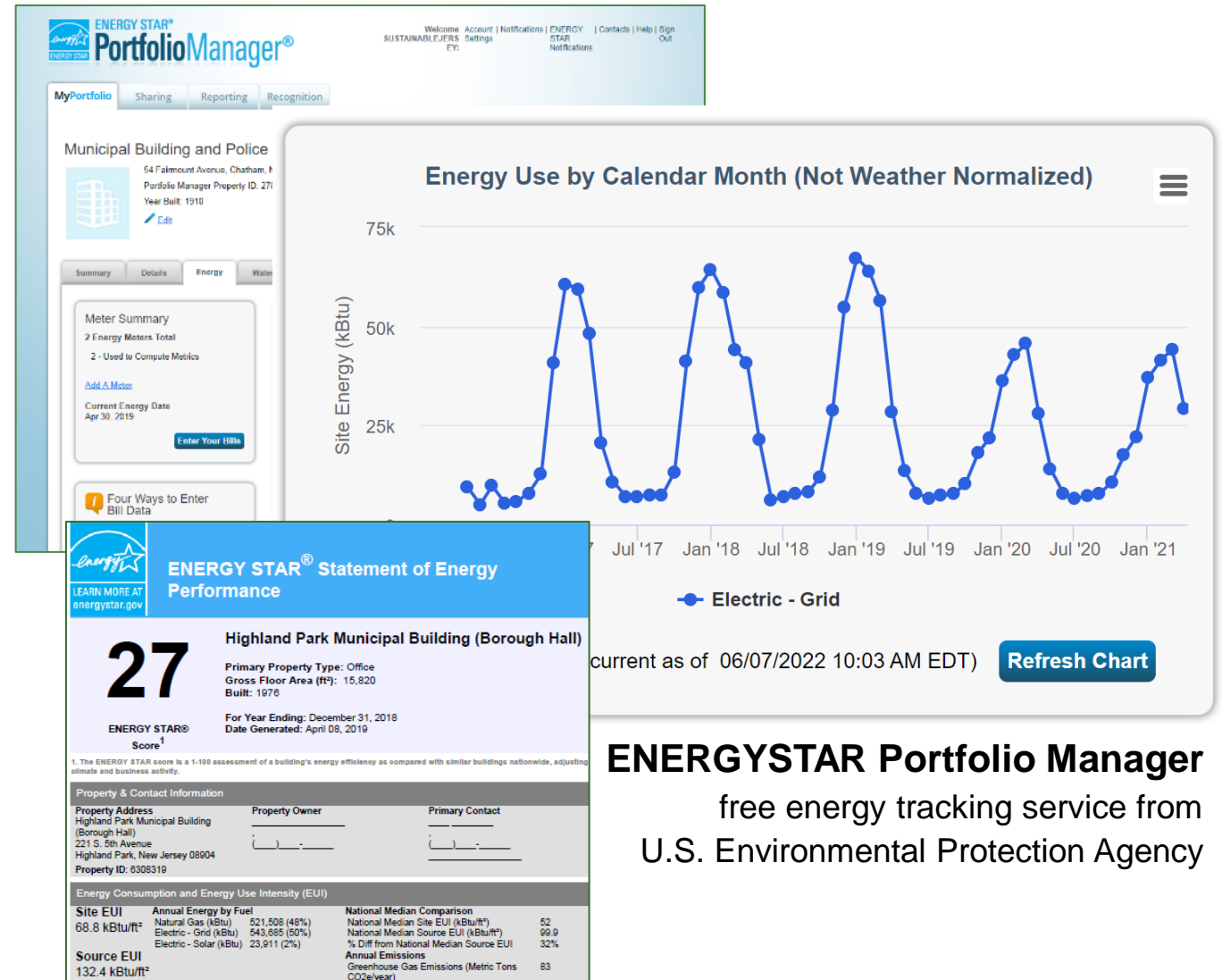
Energy Tracking & Management Action

For base 10 points

- Building portfolio
- Most recent twelve-months of energy use data for all buildings

For additional 10 points

- Benchmarking report for each building in the inventory
- Demonstrate ongoing Energy Tracking and Management system



ENERGYSTAR Portfolio Manager
free energy tracking service from
U.S. Environmental Protection Agency

Energy Efficiency for Facilities Action



5 points - Audit on at least one building

10 points - Local Government Energy Audit (LGEA)

15 points - Significant upgrade work

20 points - LGEA on all buildings PLUS significant upgrade work

30 points - Efficiency upgrades; 10%-19% decreased energy use

40 points - Efficiency upgrades; 20%-29% decreased energy use

50 points - Efficiency upgrades; at least 30% decreased energy use

NJCEP Incentives

- New Construction (residential, commercial, government)
- Combined Heat & Power & Fuel Cells
- Local Government Energy Audits
- Energy Savings Improvement Program

The screenshot shows the NJCEP website interface. At the top, there are logos for BPU and New Jersey's Clean Energy Program, along with the URL <https://njcleanenergy.com/muni> and a search bar. The navigation menu includes HOME, RESIDENTIAL, COMMERCIAL, INDUSTRIAL AND LOCAL GOVERNMENT (highlighted in yellow), and RENEWABLE ENERGY. The left sidebar contains a 'PROGRAMS' section with 'LOCAL GOVERNMENT ENERGY AUDIT' and 'NEW CONSTRUCTION ENERGY EFFICIENCY' highlighted in red. The main content area features a 'Local Governments, Schools and Non-Profits' section with a note about transitioning to utility companies and information about P4P and CTEEP programs. The right sidebar includes 'Program Updates', 'Program Literature' (with a download icon), 'Find a Trade Ally' (with an image of a contractor), 'Success Stories' (with a leaf icon and 'Library IV Restaurant'), 'Clean Energy Learning Center' (with a building icon), and 'Local Govt and Schools' (with a house icon and text about financial incentives).



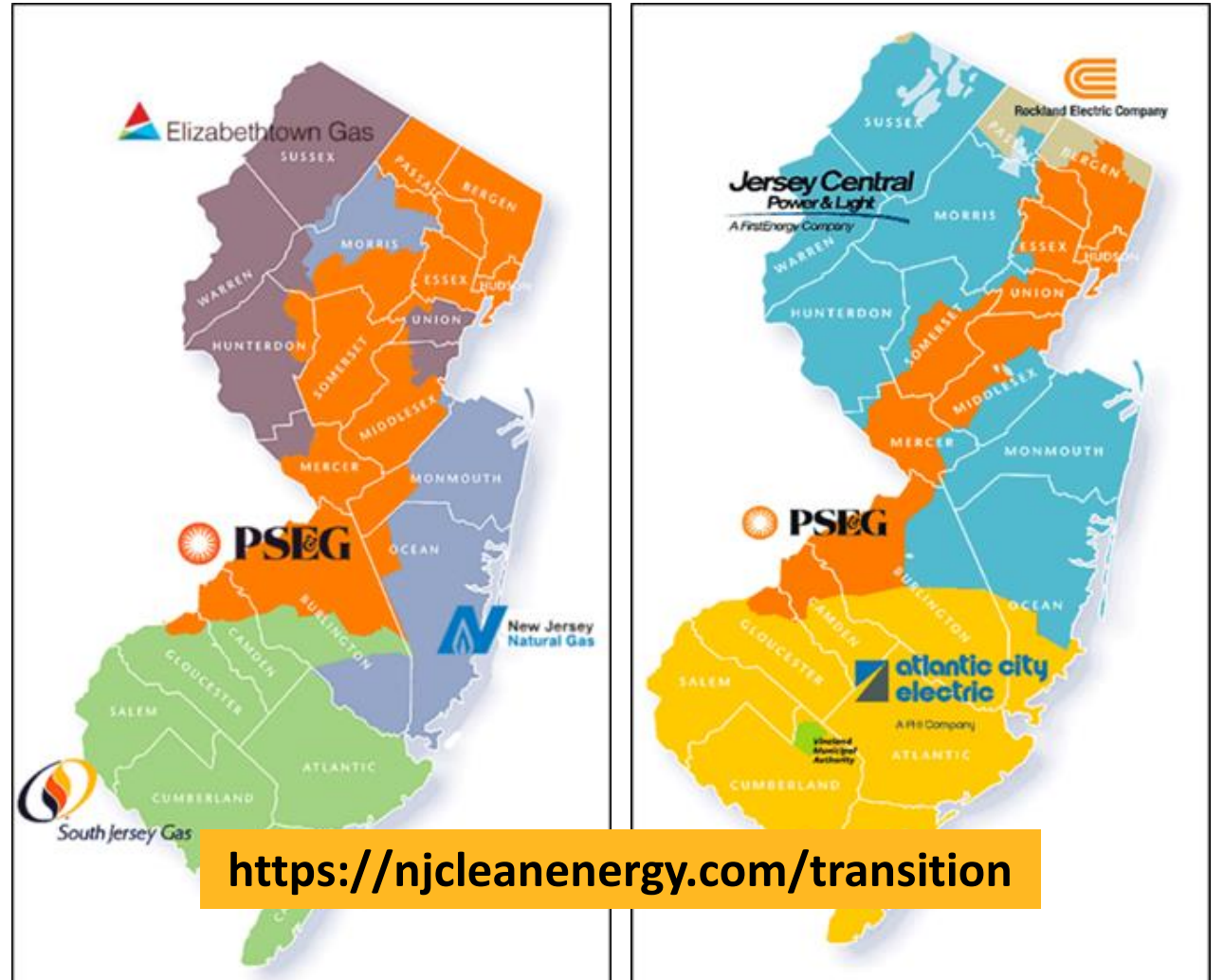
Throughout New Jersey, residents and business owners are looking for ways to save energy and the environment - local governments and schools are no exception. *New*

NJCEP School and Small Business Stimulus Grant Program

- Grant programs for ALL schools to upgrade HVAC, plumbing fixtures, and appliances
- Grant funding can cover up to 75% of the total cost for projects
- NJCleanEnergy.com/school-and-small-business-energy-efficiency-stimulus-program

Utility Incentive Programs

- Existing Buildings (residential, commercial, government)
- Incentives vary by utility
- Contact your local natural gas and electric utilities





Energy History Report

Request a Report of Your School District's Energy History

- NJCEP energy incentives received
- Sustainable Jersey energy actions

Once you receive the report, Sustainable Jersey energy staff are available to consult on next steps.



Sustainable Jersey Energy History Report for Mayberry School District

NJCEP Incentives History

Year	Project Type	NJCEP Program	Invoiced Incentive	Premise Sq. Ft	Street Address
2011	Work	Direct Install	\$50,000.00	22,162	Elementary School, 359 Henry Ave
2012	Work	Direct Install	\$20,550.70	8,500	Garage, 120 Carol Ave
2012	Work	Direct Install	\$17,138.88	10,000	Middle School, 359 Ohara Ave
2012	Work	Direct Install	\$21,971.87	22,100	High School, 574 River Street
2015	Audit	Local Government Energy Audit	\$2,827.37	22,100	574 River Street
2015	Audit	Local Government Energy Audit	\$3,432.11	39,000	1618 Alton Ave
2015	Audit	Local Government Energy Audit	\$3,180.14	22,162	359 Ohara Ave
2015	Audit	Local Government Energy Audit	\$1,915.00	1,900	574 River Street
2015	Audit	Local Government Energy Audit	\$3,432.11	9,295	105 Durham Rd
2015	Audit	Local Government Energy Audit	\$2,925.52	28,691	187 Night Ave
2015	Audit	Local Government Energy Audit	\$2,960.00	8,550	120 Border Ave

Sustainable Jersey Energy Action History

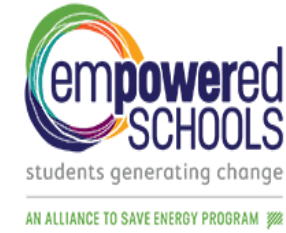
Action	Years Certified
Energy Efficiency	
Carbon Footprint *	2010, 2019
Energy Tracking and Management	2010, 2016, 2019
Energy Efficiency for School Facilities *	
Renewable Energy	
On-Site Solar Energy	
On-Site Geothermal	2019
Buy Renewable Energy	

Behavior-Based Energy Conservation

- Energy conservation team
 - Science class, extracurricular club
- Energy conservation measures
 - Lighting, computer, HVAC policies
 - Student energy audits
 - Brochures, flyers, email blasts
 - School assembly presentations
 - Holiday shut-down policy
- EmPowered Schools



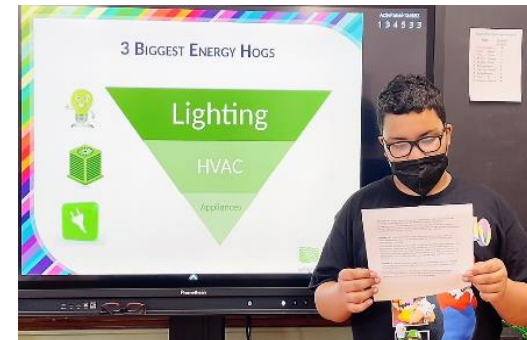
EmPowered Schools



The EmPowered Schools program provides free support and resources to engage PK-12 students in hands-on learning to take the lead in saving energy and money in their schools and homes.

**LEARN MORE AND SIGN UP
VIA THE QR CODE OR BY GOING TO:**

bit.ly/SJSEmpoweredSchools





Sustainable Jersey Energy Technical Assistance

**Sustainable Jersey Staff can
help your municipality or
school district with:**

- Energy Tracking and Management
- Applying for Local Government Energy Audits (LGEAs)
- Applying for State and utility energy efficiency incentives
- Applying for NJCEP's Energy Savings Improvement Program

Email info@sustainablejersey.com
to learn about current technical
assistance options open to your
school or municipality.



SUSTAINABLE JERSEY GRANTS PROGRAM



PSEG
Foundation

New Funding Cycle Announced!

- \$100,000 is available to New Jersey public schools participating in the Sustainable Jersey for Schools programs
 - \$2k and \$10k grants to fund sustainability projects and support your green team

Informational Webinar

3-4pm on
Thursday,
**December 15,
2022**

Application Deadline

By 11:59pm
on Friday,
**March 10,
2023**

Award Notifications

By **early May 2023** with an event in **early June 2023**

Performance Period

10k Grants:
18 months
2k Grants:
12 months

Learn More & Apply



Sustainable Jersey for Schools Underwriters and Sponsors

Program Underwriters



NEW JERSEY
EDUCATION
ASSOCIATION



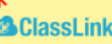
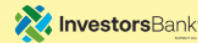
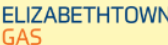
Grant Program Underwriters



NEW JERSEY
EDUCATION
ASSOCIATION



Corporate Sponsors



*Digital Schools Underwriters and Sponsors



Thank You

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FOR SCHOOLS

**SUSTAINABLE
JERSEY[®]**

• CERTIFIED •