

# Public School Energy Equity Program



**NOVEMBER 2023  
PROGRESS REPORT**



## Letter from the Commissioner

Dear Fellow Rhode Islander,

I am excited to share the transformative strides made by the Public-School Energy Equity Program. This program, part of our Lead by Example Initiative, not only aligns with our ambitious environmental and energy goals, as outlined in the 2021 "Act on Climate" legislation and Governor McKee's 2030 Plan but also holds a special place in our collective efforts to nurture a brighter future for Rhode Island.

At the heart of our mission, we focus on serving underserved communities, ensuring that the advancements in energy efficiency benefit every corner of our state, especially those areas previously overlooked. Here are some key achievements of our program:



- **Energy-Efficient Upgrades:** Completed or underway in 28 schools, impacting over 2.2 million square feet.
- **Investment and Savings:** Over \$5 million invested, leading to significant energy savings, financial efficiencies, and a substantial reduction in carbon emissions.
- **Collaborative Efforts:** A joint venture with the Rhode Island Department of Education, Rhode Island Energy, and the U.S. Department of Energy.

These achievements not only underscore our dedication to building a sustainable and equitable future for our youth but also significantly support Rhode Island's environmental objectives. Looking ahead, the Public School Energy Equity Program is set on a promising horizon of three additional years. During this period, we anticipate incorporating even more energy efficiency improvements, leading to deeper energy savings and enhanced learning conditions in our schools. This ongoing effort symbolizes our unwavering commitment to not just energy efficiency but also to fostering an educational environment conducive to learning and growth.

Your support for this program is crucial. As we continue to expand our reach and deepen our impact, your engagement in this initiative helps us move closer to achieving Governor McKee's 2030 objectives. These include investing in our schools, supporting local small businesses, and reinforcing our commitment to energy efficiency and education.

I am incredibly proud of our achievements to date and excited about the journey ahead. Thank you for joining us in this transformative journey. Your involvement is not just valued; it's essential to fulfilling Rhode Island's vision for a sustainable and prosperous future.

With warm regards,

Chris Kearns  
Acting Commissioner  
RI Office of Energy Resources



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# Public School Energy Equity Program



STATE OF RHODE ISLAND  
OFFICE OF  
ENERGY RESOURCES

2021-2023

28 total projects

This program aims to support public schools in R.I. with energy-saving measures. Currently, we have completed 13 projects with 15 schools under construction.



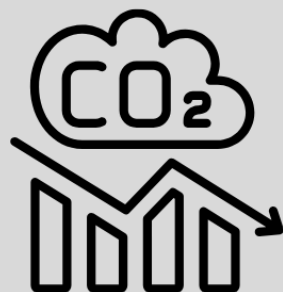
\$5.2 million

Program supported by the Regional Greenhouse Gas Initiative (RGGI), R.I. Department of Education, and federal grants from the U.S. Department of Energy.

43,238,884 kWh saved

Three programs in one!

1. Public School LED Lighting
2. Heat-Pump Water Heater
3. Public School Building Automation



Reduction of 15,088 tons of CO<sub>2</sub>

Reductions in energy use from energy efficient equipment led to a reduction in carbon emissions, which complies with the Net-Zero Emissions by 2050 requirement of the Act on Climate.

\$8m in reduced energy costs

These energy-efficient upgrades improve building occupants' health, safety, and comfort while also reducing energy costs.



# Executive Summary

This report provides a full overview of the Office of Energy Resources (OER) Public-School Energy Equity Program. It describes our main programmatic goals, where we are focusing our work, who is involved, and what results we have seen so far. We also plan to update this report regularly to ensure our latest successes and updates about the program are included.

In 2021, our program took its inaugural step with an LED lighting upgrade at Calcutt Middle School in Central Falls. This was the first project undertaken as part of the School Lighting Accelerator initiative, which was a pilot effort in

the communities of Central Falls and Providence to fine tune our technical and procurement processes. Since then, our program eligibility has broadened to ten school districts, predominantly aiming to enhance energy efficiency in RI Public Schools that cater to high-need communities, underscoring our commitment to equity. Capitalizing on the success of the Lighting Accelerator, we introduced the Building Automation Accelerator and the Heat-Pump Water Heater Accelerator. The subsequent sections provide a detailed overview of our accomplishments thus far.

Table 1: At-A-Glance Figures

|  |  |
|--|--|
| <b>Total Projects Completed and under Construction:</b>    | <b>28 Schools</b><br><b>2,298,983 sq. feet</b> |
| <b>Total Funding Provided:</b>                             | \$5,234,921.63                                 |
| <b>Lifetime<sup>1</sup> Energy Saved (kWh):</b>            | 43,238,884 kWh                                 |
| <b>Lifetime Energy Bill<sup>2</sup> Avoided Cost (\$):</b> | \$7,999,194                                    |

Our program stands out due to its focus on project implementation. We measure success through tangible outcomes: immediate reductions in energy consumption and costs, fostering clean energy jobs, and creating enhanced learning

environments in classrooms with improved lighting and heating/cooling. This is achieved by offering technical assistance, procurement support, implementation oversight, and financial

<sup>1</sup> The lifetime estimates are calculated over a 13-year period.

<sup>2</sup> Fixed cost of 18.5 cents per kWh

incentives (often covering 100% of costs) to Rhode Island public schools.

Building on our experiences from the Lead by Example (LBE) initiative for state facilities, we identified a significant gap between the current energy practices in schools and the desired efficiency standards. The success of energy projects hinges on three pillars: technical expertise, efficient management, and robust funding. The absence of any of these components can impede progress. Our program supplies all three, backed by an unwavering commitment from our administration to allocate resources effectively. Leveraging technical support, combined federal, state, and utility funding, and the administrative expertise of our office, we have charted a course to successfully accelerate the deployment of energy efficiency in our schools.

The program's achievements are a testament to its effectiveness, and we cannot stress enough the pivotal role played by the backing of our administration. Such steadfast support has enabled us to address the discrepancies in energy standards across schools. Our overarching objective is to engage as many schools as possible, driving deep energy savings, promoting sustainability, and build relationships with key school personnel.



*Jenks Junior High, Pawtucket RI.*



# Introduction

## 1.1. Background of the Public-School Energy Equity Program

The "Public School Energy Equity Program" and the "State Government LBE Energy Program" are the two cornerstones of the Lead by Example (LBE) initiative. These twin programs – one tailored for schools and the other for state agencies – form the essential pillars through which our office addresses the energy needs of Rhode Island's public sector. In this section, we delineate the evolution and development of the LBE initiative.



Understanding the unique challenges that the public sector faces in implementing energy projects, the RI Office of Energy Resources launched a targeted program in **2012**. Supported by the U.S. Department of Energy, the Rhode Island Public Energy Partnership (RIPEP) was formed as a collaborative initiative spanning three years (2012-2015). Its core objectives were to achieve deep energy savings in state and municipal facilities, and to cultivate an enduring

framework that would champion consistent energy efficiency adoption.

Under the RIPEP banner, a multifaceted partnership was fostered, weaving together the efforts of crucial state agencies, municipal governments, utilities, and state academic institutions.

The year **2015** marked a pivotal juncture in our program's evolution, with the promulgation of Executive Order 15-17, which laid the foundation for the "Lead by Example" program as it exists today. This initiative was designed to facilitate collaborative endeavors among state agencies and drive reductions in public sector energy utilization and associated expenditures while stimulating the green economy and curtailing carbon emissions.

After significant experience working on energy projects at State agencies, we developed several key insights and core programmatic activities needed to deliver successful energy projects. We also identified a glaring disparity between prevalent energy practices in educational institutions and baseline efficiency standards. We understood that the bedrock of a thriving energy project consisted of three core pillars: technical expertise, efficient management, and robust funding.

Rhode Island's fervent commitment to environmental stewardship was enshrined in the

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ambitious **2021** Act on Climate legislation, which championed aggressive, mandatory, and enforceable greenhouse gas emission reduction targets. This environmental commitment was further underscored in May **2023** with the issuance of Executive Order 23-06. This mandate expanded the "Lead by Example" program's purview within the Office of Energy Resources (OER) and provided new, more ambitious targets in alignment with the Act on Climate mandate. It sharpened the program's focus, steering it towards "oversee[ing] and direct[ing] initiatives aimed at curbing energy consumption and mitigating greenhouse gas emissions" across the whole public sector.



*Governor Aram J. Pothier School, Woonsocket RI.*

### 1.2. Importance of energy efficiency in schools

Energy efficiency in schools goes beyond just reducing utility bills; it has a direct impact on the learning environment, overall school budget, and community at large. Here's why energy efficiency is pivotal in the educational setting:

1. **Enhanced Learning Environment:** Well-designed lighting, optimal thermal comfort, and improved indoor air quality have been linked to better student concentration, reduced absenteeism, and improved test scores. Energy-efficient technologies ensure that classrooms are well-lit, appropriately cooled or heated, and free from indoor pollutants.
2. **Financial Savings:** Schools operate on tight budgets, and any cost savings can be redirected to essential resources like books, technology, staff, or other facility improvements. Efficient energy use can translate to substantial monetary savings, freeing up funds that can be better invested in the educational process.
3. **Environmental Stewardship:** Schools play a pivotal role in shaping future generations. By adopting and promoting energy-efficient practices, schools not only reduce their carbon footprint but also teach students the importance of sustainable living and energy efficiency. This fosters a sense of environmental responsibility among students, preparing them to be conscientious global citizens.
4. **Health and Well-being:** Energy-efficient systems, especially those that optimize

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ventilation and reduce indoor pollutants, contribute to a healthier indoor environment. This can lead to fewer respiratory issues, allergies, and other health problems among both students and staff.

5. **Operational Resilience:** Energy-efficient buildings tend to be more resilient, especially during extreme weather events. Schools equipped with efficient systems and backup energy sources can function as community shelters or emergency response centers when needed.
6. **Long-term Cost Avoidance:** Efficient systems generally require less maintenance and have a longer operational life. This means schools can avoid frequent and potentially costly repairs or replacements in the future.

In essence, energy efficiency in schools is a holistic approach that enhances the quality of education, ensures the well-being of students and staff, and sets a positive example for the broader community. By prioritizing this, we are investing in a brighter, more sustainable future for all.

### 1.3. Importance of Energy Equity in Public Schools

Energy equity is a critical concept in today's evolving energy landscape, ensuring that all

individuals or communities, regardless of socio-economic status, have access to affordable and sustainable energy solutions. In the context of public schools, the concept takes on even more significance. Here's why energy equity is paramount for our educational institutions:

1. **Equal Opportunities for All Students:** Energy equity ensures that no student is disadvantaged due to inadequate lighting, heating, cooling, or other energy-related issues in their school environment. A school building that is comfortably heated or cooled, well-lit, and equipped with modern technology levels the playing field, giving every student an equal shot at academic success.
2. **Budgetary Implications:** Schools in underserved or economically challenged areas often operate on limited budgets. High energy costs can further strain these budgets. By addressing energy inequities, we can free up resources that schools can invest in educational materials, extracurricular activities, teacher training, or other key needs in their district.
3. **Community Health and Safety:** Energy equity often aligns with improved infrastructure and technology that can lead to better air quality and overall safety

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within school facilities. This not only impacts students but also benefits faculty, staff, and the wider community that uses school facilities for various events.

4. **Environmental Justice:** Schools in marginalized communities are often situated in areas prone to environmental challenges. Energy equity can reduce the environmental burdens these schools face, promoting a healthier learning environment and underscoring the broader principle of environmental justice.

5. **Long-term Community Development:** Schools are cornerstones of their communities. By ensuring energy equity in schools, there's a ripple effect on the larger community. An equitable distribution of energy resources can spur community revitalization, lead to job creation in the energy sector, and foster a sense of community pride and cohesion.

In sum, energy equity in public schools is not just about fair energy distribution. It's about creating holistic, healthy, and conducive environments for learning. It's about ensuring that every student, irrespective of their background, has access to the best possible educational experience. It's an investment in our future and our communities, and prioritizes resources in schools with the highest need, ensuring that every child has the resources and learning environment they need to thrive.



# Program Summary

In this section, we delineate the metrics used to gauge the progress and implementation of our program. Additionally, we discuss our priorities regarding the communities eligible to receive resources, along with the timeline of the program.

## 2.1. Program Goals – Metrics of success

The Public-School Energy Equity Program is dedicated to offering critical support to Rhode Island's underserved public schools. Our mission is to incorporate energy-saving interventions that not only reduce energy expenditures but also enhance the health, safety, and comfort of those within the buildings. This initiative aligns with Rhode Island's Act on Climate legislation, which has set ambitious goals to significantly cut greenhouse gas emissions, aiming for net-zero emissions by 2050.

To ensure we're making meaningful progress and truly benefiting our schools, it's imperative to have a robust measurement system in place. We've established a set of five distinct metrics that encompass quantitative and qualitative aspects to provide a holistic understanding of the program's effectiveness within Rhode Island's school system.

### 2.1.1 Total Number of Projects

- **Metric:** Number of Projects awarded for implementation. The number that we report includes completed and under construction projects.



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- **Rationale:** Tracks the overall number of projects our program has been able to support.

#### 2.1.2 Total Funding Provided

- **Metric:** The dollar amount of funding awarded to projects.
- **Rationale:** The amount of project costs that are funded from our program clearly describes the magnitude of the program's impact. Additionally, it is a metric whose unit (\$) is easily understood from all readers, expert or not.

#### 2.1.3 Energy Consumption Reduction

- **Metric:** The reduction in total energy consumption (kWh for electricity, BTUs for heating) in participating schools compared to a baseline period.
- **Rationale:** This is a direct measure of the program's primary objective. By comparing current energy consumption to historical data (before the program's implementation), you can quantify the program's impact.

#### 2.1.4 Avoided Energy Cost

- **Metric:** The total dollar amount saved in energy costs post-implementation versus a baseline period.

- **Rationale:** Financial metrics are crucial for stakeholders. Demonstrating tangible cost savings can justify the program's expenditures and highlight the economic benefits of energy efficiency.

#### 2.1.5 Carbon Footprint Reduction:

- **Metric:** The reduction in carbon emissions (tons of CO2 equivalent) as a result of reduced energy consumption.
- **Rationale:** One of the broader objectives of energy efficiency is environmental stewardship. Tracking the reduction in carbon emissions will highlight the program's contribution to Rhode Island's environmental and climate goals, such as the Act on Climate.

### 2.2 Target Schools and Regions with a focus on Equity

Since its inception, OER's school energy programming has been focused on prioritizing investment in school districts and communities with the highest demonstrated need across several different dimensions. The initial pilot focused on schools in Central Falls and Providence, two historically marginalized communities with a high number of low-to-moderate income residents and significant facility upgrade needs. As we expanded the program over time, we continued to focus on equity metrics in selecting additional

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communities for eligibility, including disadvantaged community status, COVID-19 impacted zip-codes, and percentage of students receiving free or reduced lunch. Our entire approach in prioritizing our limited funding for implementation has been to focus those resources on communities in which we can maximize the benefits, help level the playing field, and embrace equity as a key lens for making those investment decisions.

### 2.3 Program Timeline

This program began in 2021 with our pilot project in Central Falls and our initial allocation of RGGI funding. Currently, we have funding through multiple sources, including a three-year grant (2023-2026) with the Department of Energy (DOE). Our current plan is to run these programs through calendar year 2026, as that aligns all our funding with the end of our current grant period, though we will certainly evaluate our progress and available funding and look to extend the program as long as we have the resources to keep meeting community needs.

### 2.4 OER team and Partnerships

The Rhode Island Office of Energy Resources, with the support of the State's major utility, Rhode Island Energy, and the Rhode Island Department of Education are working together to provide the technical, procurement,

implementation, and financial resources public schools need to complete important energy infrastructure upgrades. Since June 2023, we also partnered with DOE after we received a congressional grant to support the core objectives of the program. By leveraging the expertise and resources of multiple entities, we increase the reach and impact of our programs.



#### 2.4.1 OER team

The Office of Energy Resources has 3 staff members working part-time on this program. Those staff members and their roles are:

*George Sfinarolakis, Implementation Director, Policy & Programs*

Dr. Sfinarolakis is the Director of the Lead by Example program and is responsible for the development of new programs and processes as well as securing additional funding to support our various LBE initiatives. He provides oversight of all elements of the program and creates the vision for the future of the program.

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*Nathan Cleveland, Administrator of Energy Programs*

Mr. Cleveland supports the development of new programs and processes and oversees the implementation of the energy projects supported by the Lead by Example Program. He oversees the technical consultants supporting the projects and, alongside Dr. Sfinarolakis, is involved in supporting the program's various partnerships.

*Terri Brooks, Assistant Director, Financial & Contract Management*

Mrs. Brooks handles the financial management, budget development, and contract management for the Lead by Example program. She is critical to ensuring that all contract terms are followed, project financials are well documented and transparent, and that all entities are paid in a timely fashion.

#### 2.4.2 Strategic Energy Management Partnership (SEMP)

OER has been a part of a Strategic Energy Management Partnership (SEMP) with the state's major utility, currently Rhode Island Energy, since 2016. These multi-year partnerships set energy savings goals, help develop a pipeline of energy projects, and provide financial and technical resources to ensure the identified projects are affordable and have the support

needed to go through procurement and implementation.

One of the major contributions to the Public-School Energy Equity Program from the SEMP agreement is the technical and procurement support provided through the utility. OER is able, thanks to this partnership, to offer school districts facility audits, lighting design, and detailed scopes of work and other procurement documents so that districts have a customized packet of materials to immediately facilitate a competitive bid, all at no cost to them. We are also able to provide ongoing project management and technical support throughout the implementation stage to ensure that the project specifications are followed, the energy savings are realized, and that the work is done efficiently and accurately. We have found that even more than funding, having procurement documents and project management support provides the necessary bandwidth school districts need to accelerate the deployment of energy projects.



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### 2.4.3 RIDE

The Rhode Island Department of Education provides important support and guidance to all RI school districts, including around construction projects and the importance of energy efficiency. They have provided a number of incentives and programs to encourage districts to improve the efficiency of their schools and partnership with them is critical to the success of both agencies' efforts. Through our partnership with RIDE we have been able to streamline our efforts to support schools utilizing the programming from each agency more effectively, improved our engagement with school districts, and received financial and technical support from them to advance our programmatic goals.



*Cafeteria at Pothier Elementary School with LED lighting*

### 2.4.4 DOE

OER was fortunate enough to receive a significant investment of \$5 million in federal congressionally directed spending in fiscal year

2022 as part of the federal budget – and overseen by DOE - to support the expansion of our school energy investments to building automation and other mechanical measures. Thanks to the advocacy and support of Senator Jack Reed, we were able to secure these funds to enhance and expand our public school program and make it a truly comprehensive and transformative program for the highest need public school districts in Rhode Island.

### 2.5 Funding Sources

The Program's initial funding was secured through a Regional Greenhouse Gas Initiative (RGGI) allocation plan in 2021 to finance lighting improvements in Rhode Island public schools. As stated in the allocation report: "funds shall be allocated to accelerate the adoption of LED lighting technologies across municipal and/or public-school facilities."

Since then, the program has received federal funding from DOE, additional allocations from RGGI, a funding commitment from RIDE, and we have solidified the utility incentive strategy with Rhode Island Energy.

As of October 6, 2023, the total amount of secured funding for the program stands at \$17,437,329.

It's crucial to note that all available funding is directed toward project implementation, excluding administrative or other soft costs. The

secured funding includes financial resources obtained through Memorandums of

Understanding (MOUs), letters of commitment, and grant awards.

Table 2: Funding Sources

| Source       | Amount       |
|--------------|--------------|
| <b>RGGI</b>  | \$10,029,895 |
| <b>DOE</b>   | \$5,000,000  |
| <b>RIDE</b>  | \$1,000,000  |
| <b>RIE</b>   | \$1,407,434  |
| <b>Total</b> | \$17,437,329 |

### 2.5.1 RGGI funding

The Regional Greenhouse Gas Initiative (RGGI) is a cooperative, market-based effort among the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia to **cap and reduce CO2 emissions from**

**the power sector.** It represents the first cap-and-invest regional initiative implemented in the United States. Proceeds from the Regional Greenhouse Gas Initiative (RGGI) have powered significant investment in the energy improvements in the State of Rhode Island, including in this program, as noted below.

Table 3: RGI Allocations

| Allocation Plan | Amount       | Purpose                |
|-----------------|--------------|------------------------|
| <b>2021-A</b>   | \$2,000,000  | Lighting at RI Schools |
| <b>2021-B</b>   | \$2,000,000  | Lighting at RI Schools |
| <b>2022-A</b>   | \$4,000,000  | Lighting at RI Schools |
| <b>2022-B</b>   | \$1,479,895  | Lighting at RI Schools |
| <b>2023-A</b>   | \$550,000    | Leverage federal grant |
| <b>Total</b>    | \$10,029,895 |                        |

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### 2.5.2 DOE

Through the advocacy and support of Senator Reed, OER was awarded a \$5 million grant overseen by DOE to support the expansion of the school energy program to mechanical measures like building automation systems, heat pump water heaters, and HVAC systems. This grant will be matched with additional RGGI funds and Rhode Island Energy incentive contributions to greatly expand the reach of our program beyond lighting upgrades.

### 2.5.3 RIDE

RIDE committed to providing \$1 million in funding from their capital improvement budget to supplement the school lighting efforts already being undertaken with RGGI funding, allowing

the program to expand to serve additional high-need schools. Our agreement with RIDE also allows them the option to provide additional infusions of capital in subsequent years from any unused capital allocations they may have to further increase the reach of our program.

### 2.5.4 Energy Efficiency Rebates - RI Energy

As mentioned, RI's major utility, Rhode Island Energy (RIE), provides generous energy efficiency incentives towards most, if not all, of the energy efficiency projects we are implementing at schools across the State.

The total RIE rebates for our school energy projects are: **\$1,407,434.**

Table 4: RIE Rebates by School

|           | <b>Facility Name</b>                          | <b>School District</b> | <b>Rebates</b>     |
|-----------|---|------------------------|--------------------|
| <b>1</b>  | Calcutt Middle School                         | Central Falls          | \$53,960           |
| <b>2</b>  | Juanita Sanchez                               | Providence             | \$141,770          |
| <b>3</b>  | Central High School                           | Providence             | \$195,540          |
| <b>4</b>  | Lima Elementary                               | Providence             | \$87,790           |
| <b>5</b>  | Fortes Elementary                             | Providence             | \$53,020           |
| <b>6</b>  | Captain Hunt Elementary                       | Central Falls          | \$1,400            |
| <b>7</b>  | Ella Risk Elementary                          | Central Falls          | \$34,420           |
| <b>8</b>  | Raices Academy                                | Central Falls          | \$20,340           |
| <b>9</b>  | Veterans Elementary                           | Central Falls          | \$42,440           |
| <b>10</b> | Greenbush Elementary School                   | West Warwick           | \$45,699.30        |
| <b>11</b> | John F. Deering Middle School                 | West Warwick           | \$14,335.20        |
| <b>12</b> | John F. Horgan Elementary School              | West Warwick           | \$17,302.80        |
| <b>13</b> | Wakefield Hills Elementary School             | West Warwick           | \$51,987.90        |
| <b>14</b> | Maisie E. Quinn Elementary School             | West Warwick           | \$8,158.50         |
| <b>15</b> | West Warwick Senior High School               | West Warwick           | \$12,901.50        |
| <b>16</b> | Agnes E. Little School                        | Pawtucket              | \$34,049           |
| <b>17</b> | Fallon Memorial School                        | Pawtucket              | \$46,046           |
| <b>18</b> | Flora S. Curtis Memorial School               | Pawtucket              | \$25,360           |
| <b>19</b> | Joseph Jenks Junior High School / JMW Arts HS | Pawtucket              | \$64,565           |
| <b>20</b> | M. Virginia Cunningham School                 | Pawtucket              | \$31,375           |
| <b>21</b> | Governor Aram J. Pothier School               | Woonsocket             | \$53,640           |
| <b>22</b> | Woonsocket Middle School - Nova               | Woonsocket             | \$103,340          |
| <b>23</b> | Woonsocket Middle School - Hamlet             | Woonsocket             | \$103,340          |
| <b>24</b> | Harris Elementary School                      | Woonsocket             | \$44,560           |
| <b>25</b> | Pawtucket Annex                               | Pawtucket              | \$14,790.00        |
| <b>26</b> | Francis J. Varieur School                     | Pawtucket              | \$46,190.00        |
| <b>27</b> | Samuel Slater Middle School                   | Pawtucket              | \$33,354.00        |
| <b>28</b> | Lyman B. Goff Middle School                   | Pawtucket              | \$25,760.00        |
|           |   | <b>Total</b>           | <b>\$1,407,434</b> |





# Programs and Eligibility

In this section, we outline the strategy used to prioritize our projects, and provide a brief description of the three energy efficiency accelerators that serve as the vehicles for implementing energy upgrades at RI Public Schools.

## 3.1. Program Eligibility

Eligibility for the Public School Energy Equity program is currently determined by several equity based criteria to ensure that we are prioritizing our investments in the school districts in which they will provide the greatest benefits and serve the highest need. We utilize a combination of disadvantaged community status, COVID-19 impacted zip-codes, and percentage of students receiving free or reduced lunch as primary criteria for determining eligibility. We also look to serve historically marginalized and/or underinvested communities as a priority in this program.

## 3.2 Detailed Overview of the three Accelerators

The Public School Energy Equity Program is currently composed of three main accelerators, which are programs focused specifically on a single energy efficiency measure. These accelerators, through their combination of focus, technical support, and funding are able to dramatically accelerate the implementation of the energy efficiency measures being targeted and can scale up quickly utilizing the processes we

have developed. Eligible school districts fill out a brief application to OER indicating interest in the program, and OER provides support based on available resources to interested districts. These accelerators are described below.

### 3.2.1 Public School LED Lighting Accelerator

This initiative was OER's initial programming to support public school energy projects and served as a proof of concept for our model of technical, procurement, and financial support. This accelerator provides technical assistance, procurement support, implementation oversight, and financial incentives to Rhode Island public schools to accelerate the transition to LED lighting with controls. These projects can provide immediate energy consumption and cost reductions; support clean energy jobs; and improve the quality and functionality of lighting in classrooms. The accelerator is supported through Regional Greenhouse Gas Initiative (RGGI) auction proceeds, utility-administered energy efficiency funding, and the Rhode Island Department of Education (RIDE).

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### 3.2.2 Public School Heat-Pump Water Heater Accelerator

OER, through its LBE Initiative, has initiated this program to replace old water heaters in public school facilities with energy-efficient heat-pump models in school districts meeting our equity criteria. It is modeled after the School Lighting Accelerator and provides technical assistance, procurement support, implementation oversight, and financial incentives to accelerate the adoption of clean energy technologies and aligns with the 2021 Act on Climate legislation.

### 3.2.3 Public School Building Automation System Accelerator

OER is working to upgrade, or install for the first time, HVAC controls in many facilities. Modeled after our other successful accelerators, this provides technical assistance, procurement support, implementation oversight, and financial incentives to accelerate the adoption of Building Automation Systems (BAS). These systems can provide immediate and significant energy cost reductions, operational control and flexibility to building operators, and can improve building comfort and indoor air quality.



*LED lighting was installed at five schools in Pawtucket, RI.*

# Results and Projects

This section delineates the outcomes of the Equity Program based on the five metrics we previously defined in Section 3. A detailed, quantifiable, and measurable progress report for each school serves as an objective metric to convey the progress and achievements made in energy efficiency improvements.

## 4.1. Overall Achievements

To date, the Public School Energy Equity Program has been very successful in engaging

with school districts, securing partnerships and funding, and accelerating the adoption of energy efficiency projects in RI public schools. Below we provide an accounting of these achievements to date across 5 key metrics: Number of Schools Improved; Funding Awarded; Energy Saved; Costs Saved; and CO2 Reductions.

### 4.1.1 Number of schools improved:

**Total 28 Schools with area of 2,298,983 sq. feet.**

Table 5: List of Schools

|    | Facility Name                    | Address                | City          | Square Footage | Project Status     |
|----|----------------------------------|------------------------|---------------|----------------|--------------------|
| 1  | Calcutt Middle School            | 112 Washington St.     | Central Falls | 89,600         | Complete           |
| 2  | Juanita Sanchez                  | 182 Thurbers Ave.      | Providence    | 130,000        | Under Construction |
| 3  | Central High School              | 70 Fricker St.         | Providence    | 137,600        | Complete           |
| 4  | Lima Elementary                  | 222 Daboll St.         | Providence    | 125,500        | Under Construction |
| 5  | Fortes Elementary                | 234 Daboll St.         | Providence    | 61,700         | Under Construction |
| 6  | Captain Hunt Elementary          | 12 Kendall St.         | Central Falls | 18,300         | Complete           |
| 7  | Ella Risk Elementary             | 949 Dexter St.         | Central Falls | 53,784         | Complete           |
| 8  | Raices Academy                   | 135 Hunt St.           | Central Falls | 39,469         | Complete           |
| 9  | Veterans Elementary              | 150 Fuller Ave.        | Central Falls | 63,565         | Complete           |
| 10 | Greenbush Elementary School      | 127 Greenbush Road     | West Warwick  | 108,407        | Under Construction |
| 11 | John F. Deering Middle School    | 2 Webster Knight Drive | West Warwick  | 138,600        | Under Construction |
| 12 | John F. Horgan Elementary School | 124 Providence Street  | West Warwick  | 68,954         | Under Construction |

|    |   |                        |              |         |                    |
|----|---|------------------------|--------------|---------|--------------------|
| 13 | Wakefield Hills Elementary School             | 505 Wakefield Street   | West Warwick | 80,563  | Under Construction |
| 14 | Maisie E. Quinn Elementary School             | 1 Brown Street         | West Warwick | 54,539  | Under Construction |
| 15 | West Warwick Senior High School               | 1 Webster Knight Drive | West Warwick | 135,706 | Under Construction |
| 16 | Agnes E. Little School                        | 60 South Bend Street   | Pawtucket    | 44,700  | Complete           |
| 17 | Fallon Memorial School                        | 62 Lincoln Ave         | Pawtucket    | 61,244  | Complete           |
| 18 | Flora S. Curtis Memorial School               | 582 Benefit St         | Pawtucket    | 48,645  | Complete           |
| 19 | Joseph Jenks Junior High School / JMW Arts HS | 350 Division St        | Pawtucket    | 134,113 | Complete           |
| 20 | M. Virginia Cunningham School                 | 40 Baldwin St          | Pawtucket    | 48,939  | Complete           |
| 21 | Governor Aram J. Pothier School               | 420 Robinson Street    | Woonsocket   | 70,000  | Complete           |
| 22 | Woonsocket Middle School - Nova               | 240 Florence Drive     | Woonsocket   | 128,000 | Under Construction |
| 23 | Woonsocket Middle School - Hamlet             | 60 Florence Drive      | Woonsocket   | 128,000 | Under Construction |
| 24 | Harris Elementary School                      | 60 High School Street  | Woonsocket   | 49,790  | Complete           |
| 25 | Pawtucket Annex                               | 723 Central Avenue     | Pawtucket    | 31,887  | Under Construction |
| 26 | Francis J. Varieur School                     | 486 Pleasant St        | Pawtucket    | 49,299  | Under Construction |
| 27 | Samuel Slater Middle School                   | 281 Mineral Spring Ave | Pawtucket    | 99,712  | Under Construction |
| 28 | Lyman B. Goff Middle School                   | 974 Newport Ave        | Pawtucket    | 98,367  | Under Construction |

#### 4.1.2 Funding Provided to School Districts

The School Equity Program provides a unique opportunity for eligible communities to advance clean energy projects. It covers the net cost of the project, after accounting for the deductions from

energy efficiency rebates. This program, tailored based on equity criteria, empowers these communities to bridge the energy efficiency gap and take the lead in fostering clean energy development.



Table 6: Funding Agreements with School Districts

| Date       | School District  | Amount                |
|------------|------------------|-----------------------|
| 8/1/2021   | Central Falls I  | \$202,828.28          |
| 1/18/2022  | Providence I     | \$918,430.00          |
| 2/10/2022  | Central Falls II | \$419,266.44          |
| 6/2/2022   | Pawtucket I      | \$1,016,139.80        |
| 9/21/2022  | Woonsocket       | \$1,350,831.31        |
| 11/14/2022 | West Warwick     | \$730,379.80          |
| 8/23/2023  | Pawtucket II     | \$597,046.00          |
|            | <b>Total</b>     | <b>\$5,234,921.63</b> |

#### 4.1.3 Lifetime Energy savings (kWh)

The lifetime estimated energy savings, calculated over a 13-year period to coincide with the useful life of the installed lighting, totals 43,238,884 kWh. Given the assumption that the average electricity consumption for a household in Rhode Island is about 500 kWh per month, this

corresponds to 6,000 kWh per year or 78,000 kWh over 13 years. Thus, the energy savings from the program are equivalent to the electricity consumption of 554 households over the same period.





Table 7: Lifetime Estimated Energy Savings

| #  | Facility Name                                 | Program  | Lifetime kWh Savings |
|----|---|----------|----------------------|
| 1  | Calcutt Middle School                         | Lighting | 1,678,547            |
| 2  | Juanita Sanchez                               | Lighting | 3,948,113            |
| 3  | Central High School                           | Lighting | 3,981,068            |
| 4  | Lima Elementary                               | Lighting | 2,021,435            |
| 5  | Fortes Elementary                             | Lighting | 1,301,716            |
| 6  | Captain Hunt Elementary                       | Lighting | 101,205              |
| 7  | Ella Risk Elementary                          | Lighting | 903,097              |
| 8  | Raices Academy                                | Lighting | 903,097              |
| 9  | Veterans Elementary                           | Lighting | 1,354,782            |
| 10 | Greenbush Elementary School                   | Lighting | 1,980,303            |
| 11 | John F. Deering Middle School                 | Lighting | 621,192              |
| 12 | John F. Horgan Elementary School              | Lighting | 749,788              |
| 13 | Wakefield Hills Elementary School             | Lighting | 2,252,809            |
| 14 | Maisie E. Quinn Elementary School             | Lighting | 353,535              |
| 15 | West Warwick Senior High School               | Lighting | 559,065              |
| 16 | Agnes E. Little School                        | Lighting | 1,252,160            |
| 17 | Fallon Memorial School                        | Lighting | 1,617,044            |
| 18 | Flora S. Curtis Memorial School               | Lighting | 954,187              |
| 19 | Joseph Jenks Junior High School / JMW Arts HS | Lighting | 2,130,349            |
| 20 | M. Virginia Cunningham School                 | Lighting | 729,651              |
| 21 | Governor Aram J. Pothier School               | Lighting | 1,735,682            |
| 22 | Woonsocket Middle School - Nova               | Lighting | 3,452,644            |
| 23 | Woonsocket Middle School - Hamlet             | Lighting | 3,452,644            |
| 24 | Harris Elementary School                      | Lighting | 1,279,252            |
| 25 | Pawtucket Annex                               | Lighting | 558,441              |
| 26 | Francis J. Varieur School                     | Lighting | 1,061,567            |
| 27 | Samuel Slater Middle School                   | Lighting | 1,272,271            |
| 28 | Lyman B. Goff Middle School                   | Lighting | 1,033,240            |
|    | Total   |          | 43,238,884           |

#### 4.1.4 Avoided Energy Cost

Similarly, the avoided energy cost is calculated over the same 13-year equipment useful lifetime. For the 28 schools completed or under

construction through the program, those lifetime energy bill savings total \$7,999,194.

Table 8: Lifetime Avoided Energy Cost

|    | <b>Facility Name</b>                             | <b>School District</b> | <b>Lifetime Avoided Energy Cost</b> |
|----|--|------------------------|-------------------------------------|
| 1  | Calcutt Middle School                            | Central Falls          | \$310,531                           |
| 2  | Juanita Sanchez                                  | Providence             | \$730,401                           |
| 3  | Central High School                              | Providence             | \$736,498                           |
| 4  | Lima Elementary                                  | Providence             | \$373,965                           |
| 5  | Fortes Elementary                                | Providence             | \$240,817                           |
| 6  | Captain Hunt Elementary                          | Central Falls          | \$18,723                            |
| 7  | Ella Risk Elementary                             | Central Falls          | \$167,073                           |
| 8  | Raices Academy                                   | Central Falls          | \$167,073                           |
| 9  | Veterans Elementary                              | Central Falls          | \$250,635                           |
| 10 | Greenbush Elementary School                      | West Warwick           | \$366,356                           |
| 11 | John F. Deering Middle School                    | West Warwick           | \$114,921                           |
| 12 | John F. Horgan Elementary School                 | West Warwick           | \$138,711                           |
| 13 | Wakefield Hills Elementary School                | West Warwick           | \$416,770                           |
| 14 | Maisie E. Quinn Elementary School                | West Warwick           | \$65,404                            |
| 15 | West Warwick Senior High School                  | West Warwick           | \$103,427                           |
| 16 | Agnes E. Little School                           | Pawtucket              | \$231,650                           |
| 17 | Fallon Memorial School                           | Pawtucket              | \$299,153                           |
| 18 | Flora S. Curtis Memorial School                  | Pawtucket              | \$176,525                           |
| 19 | Joseph Jenks Junior High School /<br>JMW Arts HS | Pawtucket              | \$394,115                           |

|    |                                   |            |             |
|----|-----------------------------------|------------|-------------|
| 20 | M. Virginia Cunningham School     | Pawtucket  | \$134,985   |
| 21 | Governor Aram J. Pothier School   | Woonsocket | \$321,101   |
| 22 | Woonsocket Middle School - Nova   | Woonsocket | \$638,739   |
| 23 | Woonsocket Middle School - Hamlet | Woonsocket | \$638,739   |
| 24 | Harris Elementary School          | Woonsocket | \$236,662   |
| 25 | Pawtucket Annex                   | Pawtucket  | \$103,312   |
| 26 | Francis J. Varieur School         | Pawtucket  | \$196,390   |
| 27 | Samuel Slater Middle School       | Pawtucket  | \$235,370   |
| 28 | Lyman B. Goff Middle School       | Pawtucket  | \$191,149   |
|    |                                   | Total      | \$7,999,194 |

#### 4.1.5 CO2 reduction

The amount of carbon dioxide (CO2) emissions avoided by not generating a certain amount of electricity depends on the mix of fuels used to generate electricity in a specific region. The carbon intensity of electricity generation can vary significantly from one place to another depending on the proportion of electricity generated using coal, natural gas, renewable energy, and other sources.

The energy generation mix in Rhode Island in 2022 was predominantly natural gas (83.8%), with smaller contributions from solar (11%), wind

(2.6%), biomass (2.5%), and hydroelectric (0.1%)

. The carbon intensity would therefore largely depend on the emissions from natural gas generation.

A RI specific calculation is 0.3489 kilograms of CO2 per kWh. Applying this value to the amount of electricity avoided (3,326,068 kWh) would result in an annual avoidance of approximately 1,160 metric tons of CO2 emissions or 15,087 metric tons over the lifetime of the measure (13 years).

Table 9: Lifetime Carbon Dioxide Avoided

|    | <b>Facility Name</b>                          | <b>School District</b> | <b>CO2 Metric Tons</b> |
|----|---|------------------------|------------------------|
| 1  | Calcutt Middle School                         | Central Falls          | 585.70                 |
| 2  | Juanita Sanchez                               | Providence             | 1377.63                |
| 3  | Central High School                           | Providence             | 1389.13                |
| 4  | Lima Elementary                               | Providence             | 705.35                 |
| 5  | Fortes Elementary                             | Providence             | 454.21                 |
| 6  | Captain Hunt Elementary                       | Central Falls          | 35.31                  |
| 7  | Ella Risk Elementary                          | Central Falls          | 315.12                 |
| 8  | Raices Academy                                | Central Falls          | 315.12                 |
| 9  | Veterans Elementary                           | Central Falls          | 472.73                 |
| 10 | Greenbush Elementary School                   | West Warwick           | 691.00                 |
| 11 | John F. Deering Middle School                 | West Warwick           | 216.76                 |
| 12 | John F. Horgan Elementary School              | West Warwick           | 261.63                 |
| 13 | Wakefield Hills Elementary School             | West Warwick           | 786.08                 |
| 14 | Maisie E. Quinn Elementary School             | West Warwick           | 123.36                 |
| 15 | West Warwick Senior High School               | West Warwick           | 195.08                 |
| 16 | Agnes E. Little School                        | Pawtucket              | 436.92                 |
| 17 | Fallon Memorial School                        | Pawtucket              | 564.24                 |
| 18 | Flora S. Curtis Memorial School               | Pawtucket              | 332.95                 |
| 19 | Joseph Jenks Junior High School / JMW Arts HS | Pawtucket              | 743.35                 |
| 20 | M. Virginia Cunningham School                 | Pawtucket              | 254.60                 |
| 21 | Governor Aram J. Pothier School               | Woonsocket             | 605.64                 |
| 22 | Woonsocket Middle School - Nova               | Woonsocket             | 1204.75                |
| 23 | Woonsocket Middle School - Hamlet             | Woonsocket             | 1204.75                |
| 24 | Harris Elementary School                      | Woonsocket             | 446.37                 |
| 25 | Pawtucket Annex                               | Pawtucket              | 194.86                 |
| 26 | Francis J. Varieur School                     | Pawtucket              | 370.42                 |
| 27 | Samuel Slater Middle School                   | Pawtucket              | 443.94                 |
| 28 | Lyman B. Goff Middle School                   | Pawtucket              | 360.53                 |
|    |   | Total                  | 15,087.52              |

# Conclusion

The Public-School Energy Equity Program has clearly showcased the cost-effectiveness of investing in energy efficiency. Furthermore, we've observed marked enhancements in the learning environments of the participating schools. In under two years, we have finalized projects in 13 schools, with an additional 15 currently under construction.

The energy savings from these projects alone will lead to an avoidance of electrical costs amounting to \$8 million for the school districts. Given this level of successful implementation, our team is optimistic about the program's future. We are already onboarding new schools to undertake building automation system upgrades, aiming for even deeper energy savings.

