



RI Office of Energy Resources Lead by Example Energy Initiative

2020 Annual Report



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Letter from the Commissioner

To the Honorable Daniel McKee, Governor of the State of Rhode Island

I am pleased to provide you with the Office of Energy Resources' (OER's) fourth annual report, for the year 2020, on State Government's Clean Energy Lead By Example efforts. Through on-going Lead by Example initiatives, OER and partner State agencies continue to reduce public sector energy consumption and costs while supporting the green economy and shrinking our carbon footprint. These efforts demonstrate the State's commitment to a clean, affordable, and reliable energy future, and serve as models for other public and private sector entities seeking to adopt sustainable energy solutions.

Thanks to your leadership in signing the Act on Climate, Rhode Island is now on a path toward achieving net-zero emissions by 2050. As a large energy user, State Government must do its part to adopt cost-effective energy efficiency measures, renewable energy resources, and more sustainable heating and transportation solutions. Our Lead by Example initiative is doing just that.



Recent program highlights include:

- Reducing energy consumption across State Government facilities by 11.3% compared to a 2014 baseline;
- 95% of State Government electricity consumption offset by renewable energy credits;
- Supporting the installation and operation of 62 EV charging stations (120 ports) on State Government properties;
- Participating in Demand Response Programs to reduce peak energy demand and generate revenues for the State;
- Promoting the State's first voluntary commercial and residential building Stretch Code;
- Development of an enterprise-level Building Automation System to help reduce energy consumption and costs at state facilities;
- Supporting the retrofit of 100% of State-owned streetlights to high-efficiency, cost-saving LEDs;
- Installation of solar generation at 10 State facilities;
- Implementation and management of competitive electricity and natural gas supply contracts to serve all State agencies;
- Management of a centralized utility payment system for State agencies that delivers administrative and financial efficiencies; and
- Use of utility bill management software to track and audit State Government energy expenses.

There is more work ahead, but I am confident that State Government will continue to do its part in reducing public sector energy costs and greenhouse gas emissions, while supporting the local clean energy economy.

Sincerely,

Nicholas S. Ucci
Commissioner



Executive Summary

Since December 2015, the Lead by Example Executive Order (LBE EO; 15-17) has set robust energy reduction targets and clean energy goals for State agencies consistent with broader policy goals that include clean energy industry and job growth, reducing public sector energy costs, diversifying the State's energy supply mix, and reducing public sector greenhouse gas (GHG) emissions.

The Rhode Island Office of Energy Resources (OER) has been tasked with overseeing and coordinating efforts across State government to achieve the LBE EO goals (see sidebar).

Pursuant to the LBE EO, OER provides this annual report to demonstrate compliance with and progress toward the achievement of the Governor's clean energy goals for State agencies. To advance this important work, OER has developed key LBE metrics to measure success across seven comprehensive work categories, including.

Executive Order 15-17 Goals

- Procure 100% of State Government electricity consumption from renewable sources by 2025
- Achieve an overall 10% reduction in energy consumption below FY2014 levels by FY2019
- Post State energy usage publicly and report progress toward goals on an annual basis
- Ensure a minimum of 25% of new light-duty State fleet purchases/leases be zero-emission vehicles by 2025
- Achieve a high standard of Green Building Operations & Maintenance at all State facilities
- Develop a voluntary Stretch Code based on the International Green Construction Code or equivalent by 2017
- Reduce the use of natural resources at State facilities
- Support the State-wide goal of decreasing overall greenhouse gas emissions by 45% below 1990 levels by 2035
- Agencies shall consider other policies to reduce greenhouse gas emissions, such as purchasing energy-efficient appliances and products and installing electric vehicle charging stations at State facilities
- State agencies shall consider full life-cycle cost analyses in planning and implementing projects

- Energy Data Management
- Purchasing Mechanisms
- Energy Efficiency
- Renewable Energy
- Clean Transportation
- Training and Recognition
- Energy Procurement

OER's LBE achievements, progress metrics, and ongoing efforts within the aforementioned work categories are detailed on the following pages. Appendix C offers a summary of annual energy consumption by State Agencies, 2014-2020.

Achievement Summary

After five years of implementation, Rhode Island's State Government has reduced its energy consumption by 11.3%. The Lead by Example initiative is also promoting interdepartmental cooperation, unlocking opportunities to invest in comprehensive energy efficiency and renewable measures that can reduce and stabilize public sector energy costs, shrinking government's carbon footprint, and supporting Rhode Island's burgeoning clean energy economy. Moreover, through competitive energy supply procurement of electricity and natural gas the State has realized significant energy cost savings and provided energy price stability for participating agencies.



The Rhode Island Army National Guard has upgraded several of its facility HVAC systems and completed 14 LED lighting retrofits. The Guard is currently retrofitting its 15th facility. In 2020, the National Guard interconnected the largest rooftop solar system on state facilities, with a 210 kW nameplate capacity.

2020 Lead by Example Progress Metrics

Executive Order Category	Target	Current Status
Overall Energy Consumption Reduction	10% reduction by end of FY2019	11.3% ¹ : percent reduction in overall State facilities' energy consumption
Electricity Consumption from Renewables	100% by 2025	95%: percent of State Government electricity consumption offset by renewables
Enterprise Level Building Automation Systems	Develop an enterprise level Building Automation Systems	16 buildings have enterprise level Building Automation Systems
LED Lighting Conversion	Convert to LED 100% all state buildings by 2022	60% of all state-building are already or in the process to be converted
Zero-Emission Vehicles in State's Light-Duty Fleet	25% of new light-duty State fleet purchases or leases be zero-emission vehicles by 2025	14.4% (54 vehicles): percent of light-duty vehicles (purchased or leased since Dec 2015) that are zero-emission vehicles
Green Building Operations & Maintenance Plan	Train facility managers in green building management	20: number of facility managers who have completed Building Operator Certification (BOC) training
Stretch Code Development	Complete Stretch Code development by end of 2017	Complete: Commercial and residential Stretch Codes were developed and are available on OER's website
Other Green Policies	Increase electric vehicle infrastructure	175: total number of charging stations (348 ports) installed with support from OER. 62: charging stations (120 ports) on state properties

¹Energy reductions for both electricity and natural gas consumption is compared to CY2014 data. This comparison is not normalized for weather fluctuations.

Rhode Island's Clean Energy Lead by Example Initiative Achievements 2015-2020

For State Agencies



\$98,033,000

Lifetime electric and gas utility costs saved by LBE investments

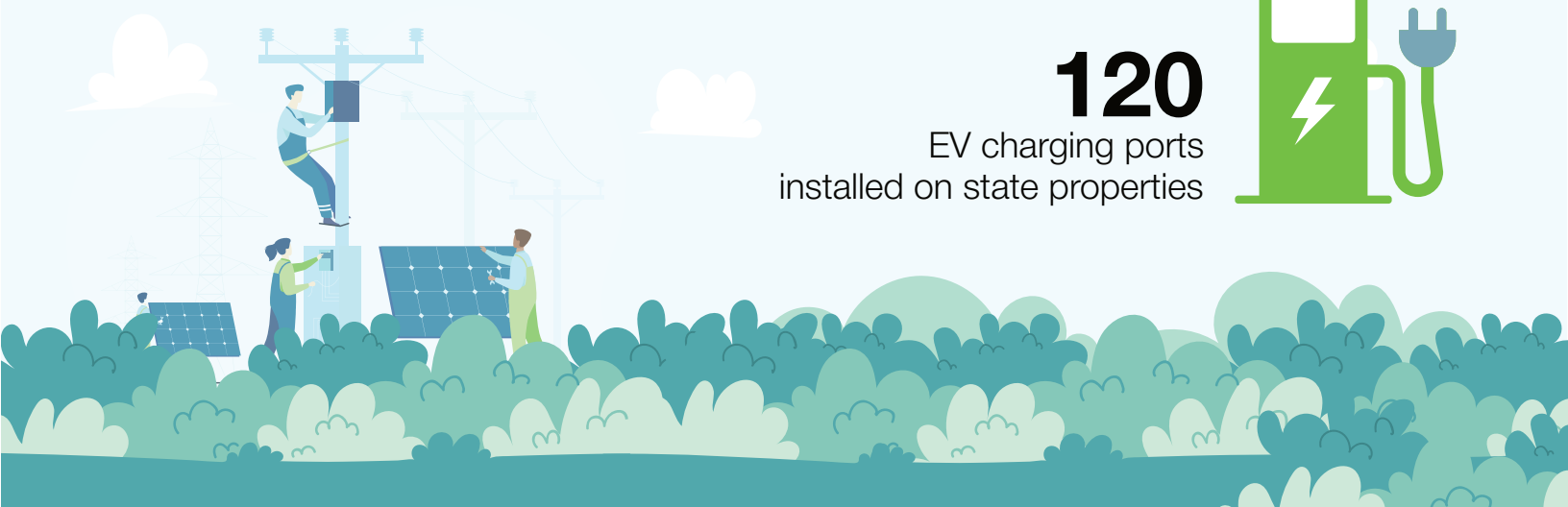
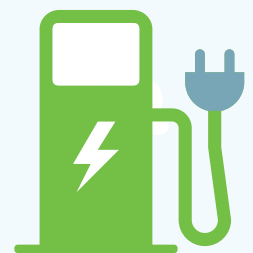


Electricity savings equivalent to
6,010
homes annually



11.3%
Reduction in overall State facilities' energy consumption¹

120
EV charging ports installed on state properties





95%

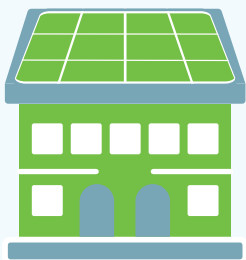
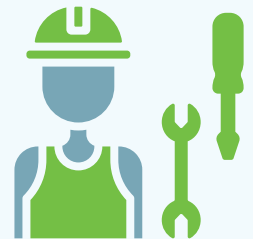
State Government
electricity consumption
offset by renewable
energy credits



Voluntary
Commercial and
Residential Stretch
Codes developed

466

Clean energy jobs
supported by LBE
investments per year²

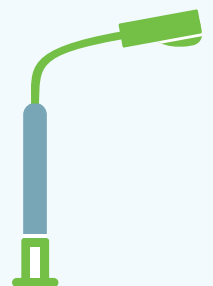


10

State facilities
have installed
rooftop solar

100%

Of all state-owned
streetlights have been
converted to LED



¹ Compared to baseline year 2014

² Calculations based on Macroeconomic Impacts of Rhode Island Energy Efficiency Investments, REMI Analysis of National Grid's Energy Efficiency Programs



Energy Efficiency

Achieving deep energy savings at existing facilities and implementing above-code new construction projects enabled the State to meet its LBE EO 10% energy consumption reduction target, reaching a reduction of 11.3% in energy usage as of December 2020 compared to a 2014 baseline. OER is working closely with its State agency partners to advance this work to achieve even deeper energy savings across its portfolio.

Currently, OER provides administrative, technical, and other support resources to public sector entities as they scope, design, procure, finance, and implement cost effective energy efficiency projects at their facilities. To streamline the availability and leveraging of existing energy efficiency program incentives, OER worked with the Department of Administration and National Grid to negotiate a Strategic Energy Management Plan (SEMP)². The SEMP Memorandum of Understanding (MOU) document describes specific incentive structures for energy efficiency projects completed by the State; supports building energy auditing and retro-commissioning efforts; provides a single point of contact for project coordination and technical assistance; and details other support initiatives, such as facilities management training for applicable State employees. The SEMP also establishes energy reduction goals for existing buildings, totaling 12 million kWh and 470,000 therms

over a period of four years.

Coupled with the establishment of a comprehensive SEMP, OER has allocated Regional Greenhouse Gas Initiative (RGGI) auction proceeds to support cost-effective energy efficiency and renewable energy projects across State Government. These dollars are being leveraged with available utility-administered incentives and other funding sources, where available, to build a pool of capital that will drive clean energy investments designed to reduce State energy costs, diversify the Government's energy supply portfolio, and reduce the State's carbon footprint.

² For more information on the State's SEMP, please see Appendix A.

Measuring our Impact

Overall, the Lead by Example program has been very successful at scaling up its efforts and achievements over time, meeting the goals outlined in the Executive Order, and delivering significant value for State facilities and the environment. Our efforts at State facilities have led to \$98,033,000 in lifetime cost savings, sequestered carbon equivalent to over 36,500 acres of forest per year, reduced the energy consumption from State facilities by 11.3%, and offset 95% of the remaining State energy use with renewables. This work also supports hundreds of clean energy jobs across Rhode Island and has leveraged nearly \$12 million dollars in utility incentive dollars.

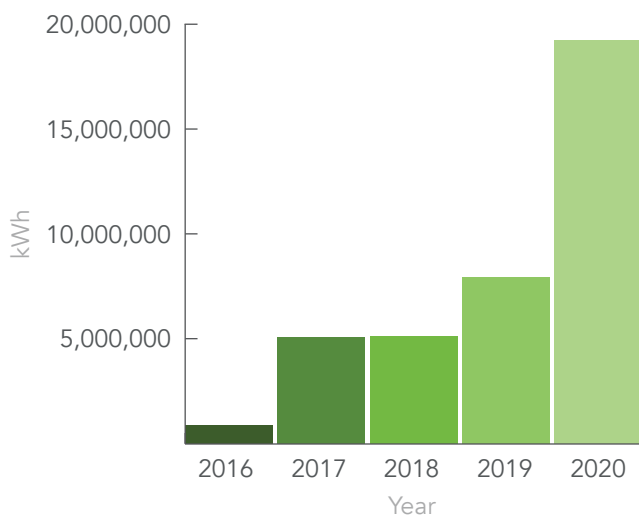
One of the important pillars of the Lead by Example (LBE) initiative since the outset has been collecting and utilizing data to both inform project selection and verify project impacts. By tracking data since the outset of this program we are able to measure our progress against the goals outlined in the Lead by Example Executive Order and transparently report out on that progress through these annual reports.

Beginning in 2016 with the formalized relationship between OER and National Grid through the Strategic Energy Management Plan (SEMP), we have enhanced our ability to quickly collect and analyze program data which has allowed for increased transparency into the projects being implemented and their results, but also has supported the development of focused programs to address specific measures like LED lighting and Building Automation Systems (BAS).

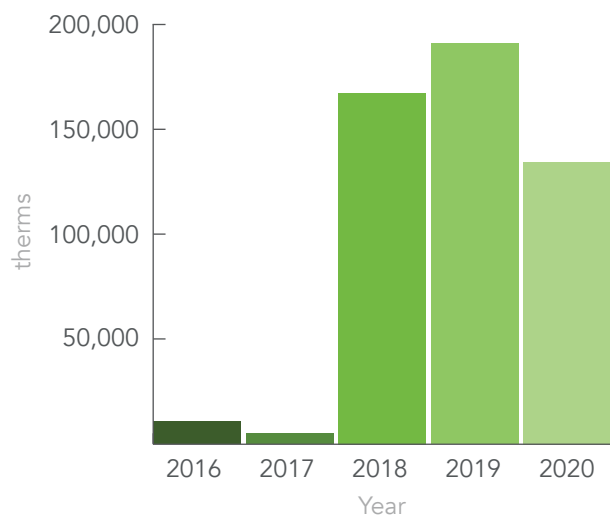
As the LBE program has progressed we have developed better processes, improved our relationships with agencies and vendors, and leveraged increasing utility incentives to increase the number of projects and the savings we have been able to achieve.

In 2020, State Government implemented 265 clean energy projects and received more than \$4.9 million in National Grid energy efficiency rebates. The projects will have a combined impact of 1,498,863 lifetime MMBTU energy savings, reducing greenhouse gas emissions equivalent to 56,900 passenger vehicles driven for one year.

Annual Electricity Savings

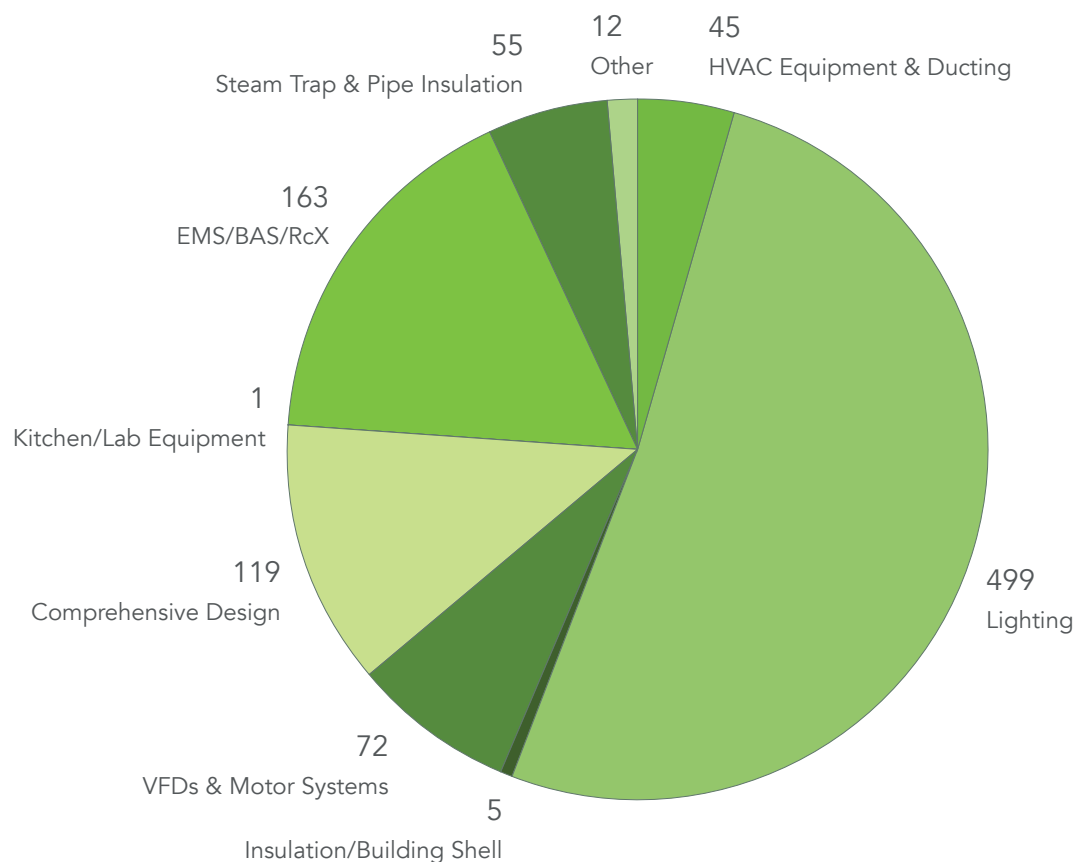


Annual Natural Gas Savings



While LED lighting upgrades remain the most common type implemented through the LBE program to date, a wide variety of other measures have been implemented over the years, including HVAC equipment upgrades, building insulation improvements, and mechanical systems tuning. We also expect Energy Management Systems (EMS)/ Building Automation Systems (BAS) to make up an increasing part of the portfolio moving forward, as this represents a sizeable opportunity to improve the HVAC and other mechanical operations in many State and municipal buildings.

Number of Completed Energy Efficiency Projects by Type



Energy Efficiency Project Spotlights

Pastore Complex exterior LED lighting project to save Rhode Island \$176K per year

In June 2020, the Rhode Island Office of Energy Resources (OER), Department of Administration (DOA), Division of Capital Asset Management and Maintenance (DCAMM) and Department of Corrections (DOC) completed a collaborative project to upgrade the exterior lighting at the John O. Pastore Complex in Cranston with LED technology. The project will help reduce annual greenhouse gas emissions by 811 tons, equivalent to removing 159 vehicles from the road for one year, on average.

Much of site's exterior lighting had reached the end of its useful life, making this an opportune time for an upgrade. Improving the infrastructure, however, was just one of the project goals. The energy and maintenance cost savings of this large-scale project will be significant, as will reductions in greenhouse gas emissions. Equally important is improved security resulting from increased and better-focused illumination across the complex. Finally, the project also upgraded the lighting of the outdoor prison exercise yards, improving conditions for security personnel and inmates.

Ultimately, approximately 1,100 fixture upgrades were completed – including street and walkway lighting, wall-packs, parking lot lighting, and flood lighting.



Howard Ave. Intersection — Lighting this busy intersection, which sees a great deal of foot traffic, will allow drivers to see pedestrians, including people walking across the field to and from the bus stops.



Rhode Island Training School – This facility had areas which were dark in the far corners of the parking lot and out to Powers Road. The new lighting has improved convenience and safety by reaching those previously dark pockets. Perimeter lighting in the recreational yard was also upgraded.

The project will provide economic and environmental benefits for years to come. The project is estimated to reduce annual energy consumption by 1,040,205 kWh, thereby generating approximately \$176,800 in electricity annual cost savings. Moreover, these installations will help reduce annual greenhouse gas emissions by 811 tons, equivalent to removing 159 vehicles from the road for one year, on average.

From a project financing perspective, OER’s \$283,563 commitment in RGGI funds was leveraged with \$333,000 in utility-administered energy efficiency incentives. The net cost to the State - \$283,563 – will be paid back through energy savings in just two years.

The Pastore Complex LED lighting project will also enhance security and improve comfort for all who

work there, live there or visit – improvements that will last years into the future. These include:

- Improved safety and security for campus occupants
- Better illumination across the complex
- Streamlined inventory requirements
- Extended hours for outdoor recreation at the correctional facilities
- Reduced vandalism

Based on its cost-effectiveness and other myriad benefits, additional lighting improvements at the site and across the state are now being considered.

BHDDH Energy Project

Beginning in early-2020, OER worked closely with the Behavioral Healthcare, Developmental Disabilities and Hospitals (BHDDH), National Grid, and RISE Engineering to help audit and plan for energy improvements at this agencies extensive roster of group homes and other care facilities.

The first step was to collect a complete listing of all the properties currently owned by the agency, including address, on-site contact person, utility account numbers, and energy improvement history. This allowed the LBE team and its partners to work with the agency to prioritize all 170 buildings in their portfolio for energy audits and a more detailed accounting of other energy upgrades that may be needed.

Shortly after this work was completed, COVID-19 struck our state and interrupted the rollout of the energy audit and improvement plan for these buildings. Working collaboratively as a team, OER, BHDDH, National Grid and its vendors were able to

adapt plans to incorporate new safety protocols and leverage virtual auditing options to keep this project on track despite the very serious challenges posed by the pandemic. This allowed us to audit our goal of 25 facilities in year one.

In addition to the health and safety challenges, there were also significant financial impacts stemming from the COVID-19 pandemic. With the State budget and agency funding unclear for much of the summer/fall of 2020, moving projects from the audit stage to implementation would be even more challenging without additional support. Recognizing the importance and value in weatherizing buildings for both energy and health reasons, OER and National Grid were able to work together to secure 100% cost coverage for weatherization projects for BHDDH facilities throughout 2020. With no direct cost to the State, the project team was able to weatherize 14 facilities in 2020 – four more than the initial goal.

All together, the project team was able to audit 25 buildings, provide no-cost weatherization to 14 of them, and safely deliver these energy and health benefits during a global pandemic. As a result of this work, these facilities will reduce energy consumption by 411,805 kBtu annually and deliver nearly \$10,000 dollars in annual energy savings for the agency. Additionally, work will continue in 2021 to provide energy audits and implementation support to those facilities not yet served.

Municipal LED Street lighting Program Success

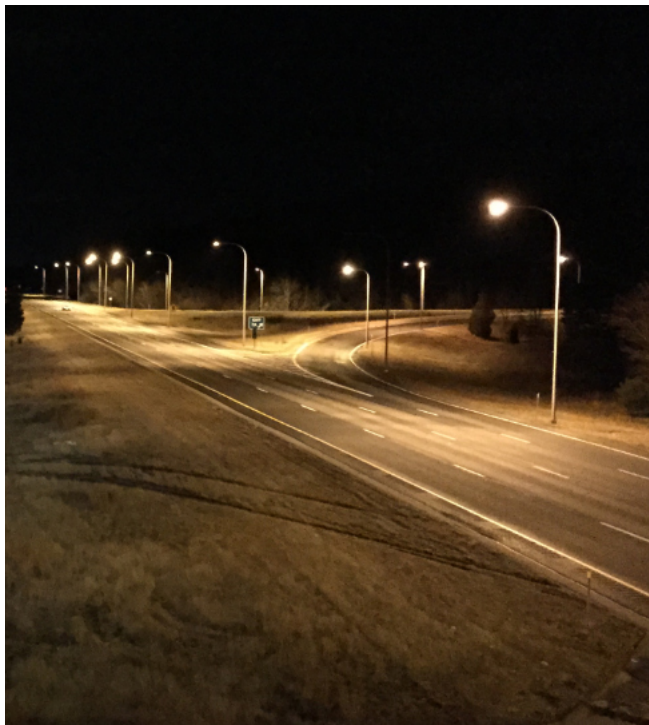
Conversion to more energy efficient LED fixtures across public roadways is one to capture substantial long-term energy consumption and cost savings. Replacement of traditional high-pressure sodium (HPS) lighting with LEDs offers numerous benefits, including, but not limited to:

1. Significant energy reduction potential. Depending on the type of fixture installed and dimming strategy utilized, streetlight LEDs can reduce kilowatt usage from anywhere between 50 to 65 percent. These reductions can translate into cost savings for public sector entities and taxpayers.
2. Installation of control technologies (along with conversion to an LED fixture) can offer public sector entities much greater control of their lighting quality (i.e. dimming) and scheduling across public roadways and other infrastructure.
3. LED conversion can help reduce maintenance and related equipment costs. For example, in comparison to traditional HPS fixtures, the newest LEDs have warranted lifespans from 10 to 20+ years.
4. LED lighting can enhance the quality of roadway lighting and safety.
5. Energy reductions stemming from LED conversions can not only save the public money and help reduce budgetary constraints, but they also help reduce greenhouse gas emissions and our carbon footprint, thereby enhancing a community's "green" image.

Over the past 6 years, OER's Municipal LED Streetlight Incentive program has helped a number of communities purchase and convert their streetlights to LEDs. Working in collaboration with National Grid, OER has provided enhanced financial incentives and technical support in addition to utility offerings. These efforts have helped streamline the lighting purchase and conversion process – and drastically reduce project costs – for municipalities.

Since the program's inception in 2014, OER has invested \$2.75 million dollars of RGGI funds to support Rhode Island municipalities with LED streetlight conversion. Twenty-nine communities have been engaged, representing ~ 80% of streetlights

statewide. Collectively, these communities are saving over 28 million kWh and \$4.5 million dollars annually as a result of these upgrades, not to mention the improved roadway visibility, reduced maintenance costs, and GHG reductions that result from these conversions.



All DOT-owned streetlights and seven (7) DOT maintenance facilities have now been converted to LED lighting. These investments are projected to save the state \$12.4 million in lifetime energy costs and have an estimated payback on investment of just 3.1 years.

Pascoag Utility District Energy Efficiency Program

Over the past several years, OER has actively collaborated with the Pascoag Utility District (PUD) to implement a number of clean energy programs and investments within its service territory. In particular, OER and PUD have worked together to enhance the utility's demand side management (DSM) programs

that connect local residents and businesses with cost-effective energy efficiency opportunities.

PUD's 2020 DSM Plan showcased their ability to be flexible and adapt the program to changing customer needs brought on by the COVID-19 pandemic. With in-person energy assessments unavailable and/or presenting more risk in 2020, OER and PUD worked to provide virtual home energy assessments to continue serving customers while protecting public health. Recognizing the financial strain the pandemic was having on its customers, PUD also increased incentive levels for key efficiency measures, such as weatherization, to allow all customers to benefit from their programs and realize critical energy savings in difficult financial times.

Mike Kirkwood, General Manager of PUD, is extremely pleased with the collaborative effort with OER over the past several years; from help with the conversion of every LED streetlight on its system, to technical and monetary help with the DSM programs mentioned above, to financial support for PUD's latest project which integrates a large battery storage system with an important substation upgrade to provide for a "non-wires alternative" to otherwise expensive transmission upgrades.

"OER has been an excellent partner, and has really helped PUD up its game in energy efficiency and innovative technology solutions to meet the challenges and opportunities of the power grid transition," said Kirkwood.

Block Island Utility District Energy Efficiency Program

Between 2015-2017, OER partnered with the Block Island Power Company to pilot an energy efficiency program for the residents and businesses of New Shoreham. The pilot program was designed to leverage

best practices in program development and to align with existing programs available elsewhere in Rhode Island to deliver energy efficiency assessments, education, incentives, and rebates to New Shoreham residents and small businesses.

Building on the success of the pilot program, the newly established Block Island Utility District (BIUD) partnered with OER to develop a jointly-funded, full-scale energy efficiency program. OER committed state RGGI auction proceeds over three years (2020 – 2022) to support this important clean energy initiative. The proposed energy efficiency program was approved by the Public Utilities Commission (PUC) in May 2020, and will provide no-cost energy assessments and direct install measures (e.g., LED light bulbs, smart power strips, and low-flow showerheads) to local homes and businesses. The program is also emphasizing weatherization, heat pump heating and cooling

systems, and programmable thermostats to further reduce energy consumption, costs, and carbon footprints. The goals of the efficiency program are to continue empowering customers to make clean energy decisions that lower their energy usage and costs, reduce energy burdens, and help provide grid stability and reduce challenging peak loads during the summer tourist season.

After PUC approval, OER helped BIUD develop RFPs for a lead efficiency vendor, an energy efficiency consultant, and post-installation inspection services. Once vendors were hired and the program became operational (Fall 2020), it saw immediate demand from residents for home energy assessments, both in-person and virtually. The initial program year will run through April 2021, and OER will work with BIUD and its consultant to review, evaluate, and improve the program year over year.



Block Island Utility District is cooperating with the Office of Energy Resources to develop and scale up an energy efficiency program to help all residents and businesses access cost-effective energy saving measures and reduce peak demand.



Renewable Energy

OER is spearheading efforts to increase the adoption of renewable energy resources across State facilities, offering the potential to reduce long-term energy costs and exposure to price volatility, support local clean energy jobs, and “green-up” State facilities.

To date, nine solar installations are now operational at State Government facilities: three on the Capitol Hill complex (Providence), one at the Veterans home (Bristol), a PV carport at the Public Utilities Commission (Warwick), two at Rhode Island College (Providence), one at the new Attorney General building (Cranston), and one at the Rhode Island

National Guard’s Camp Fogarty Armory (East Greenwich). One additional solar project is currently under construction at the Rhode Island National Guard's Maintenance building.

In addition, the State purchases 95% of its energy supply needs from renewable resources thanks to the State’s Renewable Energy Standard (RES) and the use of competitive procurement strategies to exceed mandated renewable energy procurement amounts.

Facility	Type	Capacity (kW) - Installed	Est. Annual Savings
Dept. of Admin	Rooftop	180 – June 2017	\$37,627.91
Dept. of Health	Rooftop	40 – May 2017	\$8,406.24
Dept. of Transportation	Rooftop	67 – June 2017	\$14,010.39
PUC	Canopy	56 – August 2018	\$11,571.08
RI National Guard	Rooftop	207 – January 2020	\$43,157.02
Attorney General	Rooftop	101 - 2019	\$20,953.04
RIC (2 Buildings)	Rooftop	111 - 2019	\$23,117.15
Veterans Home	Rooftop	44 - 2018	\$9,106.76

RI Army National Guard installs largest rooftop solar array on state facility

In 2020, the Rhode Island Army National Guard (RIARNG) completed the interconnection of its rooftop solar facility on the 56 Troop Command Armory Building at Camp Fogarty in East Greenwich. The \$335,000 project is expected to generate \$45,700 in annual energy savings. The 207kW solar facility is the largest rooftop solar array on a state facility in Rhode Island and is the ninth solar project contributing towards the state's Lead by Example Initiative.

As one of the most critical facilities for the RIARNG, the armory houses several units that respond to natural disasters, pandemics, state of emergencies, and other critical events. With the building's brand new, flat roof and location free from shade, the armory was the perfect location for the RIARNG's first solar project.

Over the last several years, the RIARNG has implemented several energy-related projects, including

LED lighting retrofits. In addition to the 207kW system, RIARNG is also in the process of procuring a 550kW system for their Combined Support Maintenance Shop at Camp Fogarty. RIARNG also hopes to install storage components that will allow the facilities to run off electricity generated by the panels during power outages and natural disasters, so that units can continue their missions without disruption.

"The installation of a 207 kW-DC solar array on Camp Fogarty Armory made good organizational sense," said COL Sean McKiernan, CFMO. "The array is the largest rooftop solar array the State of Rhode Island has installed on a state facility to date. As the RIARNG looks to the future, there are plans to construct a 550 kW-DC solar array which will continue to advance the RIARNG closer to the Governor's goal for a 100% renewable energy future. We all have a responsibility to safeguard our environment and serve as an example for others to follow."



The National Guard installed the largest roof-top solar system on state facilities, with a 210 kW nameplate capacity.



Energy Procurement

In an effort to reduce public sector energy costs, OER – in partnership with the Department of Administration – is supporting competitive energy supply procurement processes for State Agencies. These procurements have also been made available to other public sector entities, such as quasi-state agencies and municipalities. By aggregating demand and leveraging economies of scale through a competitive process, OER and DOA aim to reduce energy supply costs and reduce energy price volatility for all participating public entities.

On June 26, 2020, the Rhode Island Office of Energy Resources (OER), in cooperation with the Department of Administration (DOA) Division of Purchases, conducted its third competitive reverse auction for State Government electricity supply. This was the largest electricity supply auction held to date and included all Executive, Judicial, Legislative accounts, as well as Community College of Rhode Island (CCRI), Rhode Island College (RIC), The University of Rhode Island (URI), Rhode Island Turnpike and Bridge Authority (RITBA), Rhode Island Resource Recovery Corporation (RIRRC), and Rhode Island Public Transit Authority (RIPTA).

The auction resulted in the selection of four-year electricity supply contracts, effective October 1, 2020, that are projected to save the State approximately \$2

million annually (-14.5%) when compared to current contract rates. Over the four-year contract period, the total avoided energy costs are estimated at nearly \$8 million. The contracts will lock in a fixed supply rate that will reduce State Government's exposure to energy price volatility and avoid price spikes during winter months and the summer peak period.

As part of this agreement, all State Government electric accounts included in this procurement will be offset by Renewable Energy Certificates (RECs), accounting for 95% of the government's total demand.

Electricity

For electricity supply service, the State of Rhode Island and participating entities¹ are currently in a 48-month retail supply agreement with Constellation/NewEnergy. This contract began October 2020 and will end October 2024. Due to a previously existing contract term, the start month for University of Rhode Island's main meter account was December 2020. This URI account is served by Direct Energy under a 46-month agreement that will also end October 2024.

¹ Community College of Rhode Island (CCRI), Rhode Island College (RIC), The University of Rhode Island (URI), Rhode Island Turnpike and Bridge Authority (RITBA), Rhode Resource Recovery Corporation (RIRRC), and Rhode Island Public Transit Authority (RIPTA).

These entities represent total consumption of approximately 181 million kilowatt-hours (kWh) - the equivalent of electricity consumed by 28,230 average homes each year. This group is projected to realize approximately \$2.3 million in savings in 2021 when comparing the contract rate versus the default price to compare. The default utility rate published by NGRID for 2021 was used as the benchmark against which to calculate savings versus the contract rate.

Natural Gas

The State of Rhode Island, together with the University of Rhode Island and participating quasi-entities, administered an aggregated purchasing process that led to a 36-month retail natural gas supply contract with Direct Energy; this service period started November 2019 and will end November 2022.

In total, these entities consume approximately 1.5 million dekatherms (Dth) per year. When compared to benchmark rates, approximately \$2.1 million in avoided energy costs were realized in 2020.



OER and DCAMM worked with ENE Systems on an LED lighting retrofit at the Rhode Island State Fire Marshall's Technical Service Unit (aka "Bomb Squad") facility in the LADD campus. The projected annual energy savings are 62,324 kWh and \$10,595. The project was completed in December 2019.



Clean Transportation

To support greenhouse gas emission reductions in the transportation sector and encourage the adoption of clean transportation solutions by state agencies, OER has worked with partner agencies to install electric vehicle charging infrastructure at public locations. On state properties alone, there are now 62 charging stations with 120 ports to support state fleet, employees and the public. More broadly, OER-led initiatives have supported 175 Level II and DCFC stations (348 ports) across public and private sector locations in Rhode Island.

In October 2019, OER launched Electrify RI, an electric vehicle (EV) charging station incentive program that seeks to make more charging stations accessible to Rhode Island drivers. This \$1.4 million incentive program has helped fund the installation of new EV charging stations – including Level II and Direct Current Fast Charging (DCFC) – at Rhode Island workplaces, multi-unit dwellings, state and local government properties, and publicly-accessible locations. The funds for Electrify RI come from the Volkswagen Diesel Settlement (VW Settlement) Environmental Mitigation Trust and are being invested according to the State’s Beneficiary Mitigation Plan (BMP) to achieve significant and sustained reductions in diesel emissions and expedite development and widespread adoption of zero-emission vehicles. Other funds from this settlement are supporting an all-

electric bus pilot program at the Rhode Island Public Transit Authority (RIPTA).

In addition to charging infrastructure, the State is continuing to increase the number of Zero-Emission Vehicles (ZEVs) within its fleet. Under the Lead by Example initiative, 25% of the State’s light-duty fleet must be zero-emission by 2025. As of Q2 2020, the State is operating 43 ZEVs in its fleet. State fleet staff continue to collect vehicle inventory and replacement plans from all State agencies. This data will serve as the foundation for a strategic plan for procuring more electric vehicles as surplus vehicles are sold and replaced. Additionally, State fleet staff are focused on right-sizing the fleet by reducing the overall number of vehicles and encouraging the creation and use of pooled vehicles to more efficiently utilize owned vehicles.

See Appendix B for a table of electric vehicle charging infrastructure on state properties.

For more information on the Electrify RI program, please visit:

www.energy.ri.gov/electrifyri.php

For more information on the VW settlement, please visit:

www.dem.ri.gov/programs/air/vwsettle.php

Stretch Code



As directed in the Lead by Example Executive Order (EO 15-17), OER and partner stakeholders made the State's first voluntary stretch code available to private and public building construction and renovation projects.

A stretch code is a building code or compliance pathway that is more aggressive than a base code. Also known as "reach codes," their main purpose is to help buildings achieve higher energy savings and implement advanced building practices.

Rhode Island's first voluntary stretch codes have been made available to private and public building

construction and renovation projects. The codes were developed with the assistance of subject matter experts and were vetted through a public comment process.

Rhode Island's stretch codes are meant to be used on a voluntary basis to guide the construction and/or renovation of buildings that use less energy, have less negative impact on the environment, and achieve higher levels of occupant health and comfort. New building construction and large-scale renovation projects are also encouraged to use the stretch codes to help maximize the financial incentives available from National Grid's Energy Efficiency Programs.



The Compass School, a K-8 charter school in Kingston, was awarded a \$500,000 state grant to help improve the energy efficiency of a large building renovation project. With the help of these funds, the project will meet the RI Stretch Code – voluntary green building guidelines that help buildings use less energy, have less negative impact on the environment, and achieve higher levels of occupant health and comfort.



Building Operations Training

Encouraging and promoting green building management, operation, and maintenance practices are vital to achieving and perpetuating energy savings. For building operators and facility managers, the Northwest Energy Efficiency Council's Building Operator Certification® (BOC) program is one of the preeminent opportunities to master energy efficiency skills and best practices. The BOC training is nationally recognized and includes management and maintenance training.

As part of the States' Strategic Energy Management Plan (SEMP) agreement with National Grid, the utility is providing scholarships for State facility managers to attend Building Operator Certification (BOC) training. Since the signing of the LBE EO, twenty (20) State employees have followed the training. In 2021, we plan to send an additional ten (10) employees from state and municipal agencies, and school facilities, to BOC training.

The Level I course series offers eight one-day classes with Level II offering seven one-day classes. Course series consist of classroom training, project assignments to be completed at the participant's facility, and in-class tests administered at the end of each day of training. Completion of Level I requires a time commitment of 74 hours; Level II requires 61 hours.

Classes consist of lecture, discussion, small group exercises, and facility tours. Facility projects require participants to demonstrate competence in locating building equipment, distribution pathways, and control points; calculating facility energy consumption; critiquing HVAC systems operation; and, sketching the facility's electrical distribution system.



The William E. Powers Building, located at One Capitol Hill, houses over 800 state employees and is the largest state-owned building after the State House.

Energy Management

Energy Data Management

In order to streamline access to, and improve the accuracy of, State energy usage data and expenditures, OER initiated a process to centralize all State agency utility bills across the electric, natural gas, and delivered fuels sectors. In 2015, OER began auditing and charging the appropriate accounts for all State agency electricity bills. Natural gas bills were centralized in a similar manner by August 2016. OER anticipates delivered fuels (propane and oil) billing to be centralized by 2020.

By collating and providing greater oversight over State Agency utility bills, OER has been able to improve energy usage and cost forecasting, decrease payment errors, and analyze progress toward Lead by Example goals. Importantly, OER has been simultaneously working to increase public and inter-governmental transparency into these important data sets.

In 2019, OER completed the implementation of web-based utility bill management software (Energy CAP) to track and audit energy expenses and provide State Agencies with better online data access.

OER enhances agency-level communications and coordination by conducting outreach meetings with State Agencies to identify LBE point of contact(s),

connect Agencies to resources/programs/incentives supported by OER, and establish agency-specific goals to support the achievement of overall LBE EO directives.



Siemens provides building automation system training to Rhode Island state employees. There they learn about how to read and manage energy data.

Purchasing Mechanisms

OER, in partnership with the Division of Purchases, has developed purchasing mechanisms (including Master Price Agreements or MPAs) to streamline the procurement and implementation of cost-effective energy efficiency and renewable energy projects.

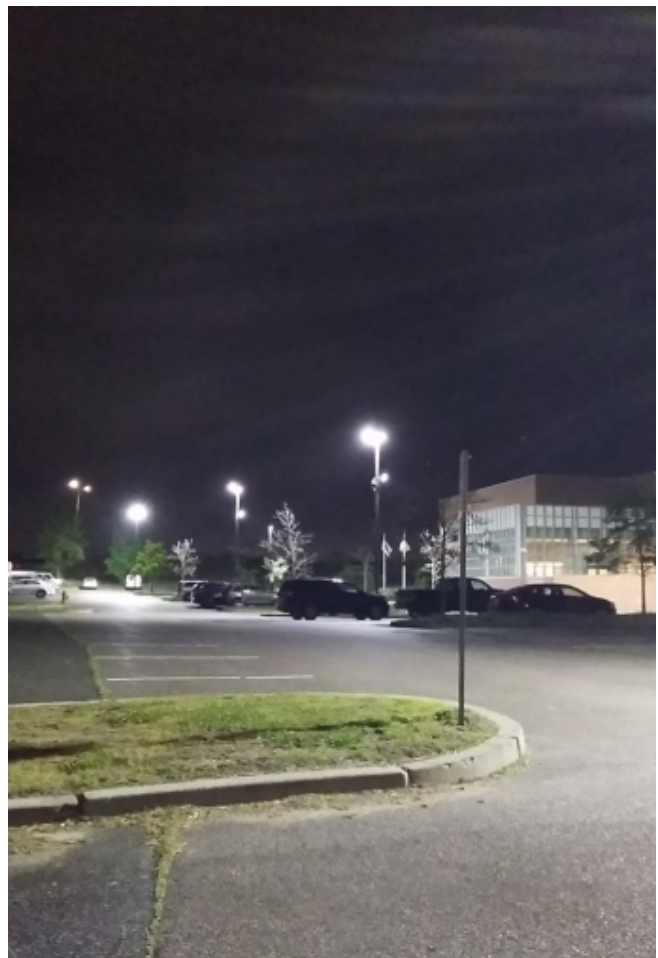
For example, in September 2015, MPA 508 – *Energy Efficiency Services* was developed to support turnkey energy efficiency projects. In July 2016, *Continuous Recruitment 44 – Solar Photovoltaic and Wind Turbine System Installation Services* was initiated to support public sector entities interested in developing renewable energy systems at their buildings and campuses. MPA 509 – *Electric Vehicle Supply Equipment* was developed to support public sector entity installation of electric vehicle charging infrastructure equipment. These purchasing mechanisms expedite project implementation by defining proposal requisition processes and providing access to a pool of prequalified vendors.

In addition to the aforementioned efforts, existing MPAs have been updated to support clean energy goals more broadly. Specifically, the State’s delivered fuels and heating fuel MPAs were adjusted in May 2016 to 1) ensure that all State-purchased transportation diesel contains at least 5% biofuel; 2) ensure that all State-purchased #2 heating oil contains 5% biofuel and 95% ultra-low sulfur heating oil; 3) establish options for State Agencies and municipalities to purchase 20% biodiesel, 99% biodiesel, and/or 20% biofuel heating oil (B20 BioHeat); and 4) ensure that all State-purchased off-road diesel is ultra-low sulfur (S15).

For more information on the MPAs described above, please visit: www.purchasing.ri.gov.

Demand Response Program

OER’s Demand Response Program for State facilities enables State Agencies to commit to ISO New England, the regional grid operator, that in times of extreme conditions and high demand on the grid, they will be able to curtail their electric demand and, as a result, be paid for making such commitments. In 2020, sites at the Department of Administration, Rhode Island College, and the University of Rhode Island were enrolled in the program. As a group, they earned \$89,076 of revenues through participation in the demand response program.



The Rhode Island Training School once had dark areas in the far corners of the parking lot and out to Powers Road. The new LED lighting has improved convenience and safety by illuminating those areas. Perimeter lighting in the recreational yard was also upgraded.



Recognition — Annual Lead by Example Awards

On November 16, 2020, OER recognized 20 state and quasi-government agencies, municipalities, and public schools for their renewable energy and energy efficiency achievements at its Fourth Annual Lead by Example Clean Energy Awards ceremony.

Due to the COVID-19 restrictions, OER held a virtual event with pre-recorded video interviews, footage and photographs of the projects.

The Lead by Example Awards program promotes the adoption of clean energy measures across public sector facilities throughout Rhode Island. State and municipal employees are helping to reduce energy costs and mitigate greenhouse gas emissions, while supporting the local clean energy economy. This work often goes unheralded, but is a critical tool in addressing public sector energy burdens across government.

The nominees that received honors

Municipalities:

Town of East Greenwich, City of East Providence, City of Providence, Town of West Warwick

Public Schools:

Bristol Warren Regional School District, Middletown Public Schools, North Kingstown School Department, Tiverton Schools, Warwick Public Schools

State Agencies:

Department of Administration - Division of Capital Asset Management and Maintenance, Rhode Island College, Rhode Island Department of Transportation University of Rhode Island, William M. Davies, Jr. Career and Technical High School

Quasi-Public Agencies:

Rhode Island Convention Center, Rhode Island Public Transit Authority

Lead by Example Energy Award-Winners

Category: Municipality – Town of South Kingstown



Comprehensive energy improvement projects throughout town buildings and ground-mounted solar arrays on capped landfills

The Public Services Department embarked on a number of mechanical and lighting energy efficiency projects throughout town buildings. The towns of South Kingstown and Narragansett, with the University of Rhode Island, have also formed a solar consortium, which supplies enough energy to power 900 homes a year.

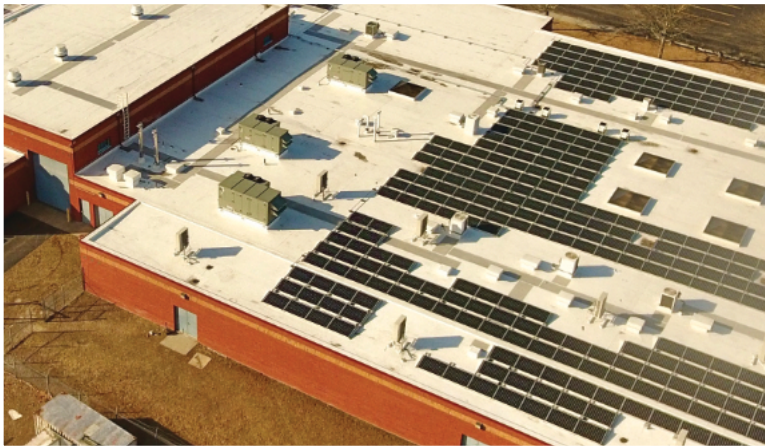
Category: Public School – Scituate Public School



Multiple energy efficiency measures installed district wide

Scituate Schools pursued comprehensive energy efficiency measures across its elementary, middle and high schools to maximize energy savings.

Category: State Agency – Rhode Island Army National Guard



Rooftop solar installation at RI Army National Guard facility

The Rhode Island Army National Guard upgraded several of its facility HVAC systems, completed 14 LED lighting retrofits and is currently retrofitting its 15th facility. In 2019, the Guard installed the largest roof-top solar system on a state facility.

Category: Quasi-Public Agency – Narragansett Bay Commission



76% of electricity needs now come from renewable energy sources

In 2019, the Narragansett Bay Commission installed a new state-of-the-art building management system and obtained 76 percent of its annual electricity needs from renewable energy resources. To date, the Bay Commission has initiated 27 individual energy efficiency measures resulting in more than 7.5 million kWh per year in energy savings, equivalent to 21 percent of its total energy usage.

Appendix A: Strategic Energy Management Partnership (SEMP)

OER and National Grid are in the fifth year of their collaboration through the Strategic Energy Management Partnership (SEMP), to integrate strategic energy planning across State and Municipal facilities, and leverage utility-administered programs and best practices. State agencies can leverage both OER and National Grid funding, technical assistance, and project support on energy efficiency projects that are designed to meet agency needs and achieve significant energy and cost savings.

The SEMP partnership has delivered significant benefits to the State of Rhode Island.

State Agencies Only				
State of RI Fiscal Year	Incentive Received (\$)	Project Cost (\$)	kWh Saved	Therm Saved
2016	143,096	610,651	863,803	9,766
2017	1,271,472	4,514,082	5,090,821	4,077
2018	1,947,247	12,251,499	5,140,762	166,852
2019	2,171,214	19,688,605	7,936,892	190,511
2020	4,914,050	42,172,841	19,275,442	133,732
Grand Total	10,447,078	79,237,678	38,307,721	504,938

Measure Type	Count of SEMP Projects (State and Municipal)
Comprehensive Design	119
EMS/BAS/RcX	163
HVAC Equipment & Ducting	45
Insulation/Building Shell	5
Kitchen/Lab Equipment	1
Lighting	499
Other	12
Steam Trap & Pipe Insulation	55
VFDs & Motor Systems	72
Grand Total	971

Municipal Projects					
State of RI Fiscal Year	Incentive Received (\$)	Project Cost (\$)	kWh Saved	Therm Saved	CO2 Reduced
2017	\$61,479	\$749,704	262,733	1,491	189
2018	\$1,878,466	\$7,025,096	6,112,197	152,955	5,021
2019	\$3,288,254	\$17,094,980	13,550,462	127,462	10,011
2020	\$2,821,733	\$21,069,339	9,014,805	54,681	6,501
Grand Total	\$8,049,932	\$45,939,118	28,940,197	336,589	21,722

Appendix B: Electric Vehicle Charging Station Locations

Agency	EVSE Address	Municipality	Station Type	# of Stations	# of Ports
DPUC	89 Jefferson Blvd	Warwick	Level II Dual Port	4	8
DOA/Powers Bldg. - Garage	1 Capitol Hill	Providence	Level II Dual Port	5	10
DOA/Capitol Hill	Francis St Parking Lot	Providence	Level II Dual Port	2	4
RI Turnpike & Bridge Authority	33 Ferry Rd	Bristol	Level II Dual Port	1	2
DOT Warwick	360 Lincoln Ave	Warwick	Level II Dual Port	3	6
RI Veterans Home	480 Metacom Ave	Bristol	Level II Dual Port	1	2
Narragansett Bay Commission	2 Ernest St	Providence	Level II Dual Port	1	2
Narragansett Bay Commission	102 Campbell Ave - Rumford	East Providence	Level II Dual Port	1	2
Rhode Island College	600 6th Street	Providence	Level II Dual Port	8	16
University of Rhode Island	URI	South Kingstown	Level II Dual Port	1	2
Powers Building – Parking lot	1 Capitol Hill	Providence	Level II Dual Port	2	4
Misquamicut State Beach	300-398 Atlantic Ave	Westerly	Level II Dual Port	1	2

Agency	EVSE Address	Municipality	Station Type	# of Stations	# of Ports
Burlingame State Park (DEM)	1 Burlingame State Park Rd	Charlestown	Level II Dual Port	1	2
Colt State Park (DEM)	1 Colt Dr	Bristol	Level II Dual Port	1	2
FISHERMENS PARK	1011 Point Judith Rd	Narragansett	Level II Dual Port	1	2
Fort Adams (DEM)	82-94 Fort Adams Dr	Newport	Level II Dual Port	1	2
Foundry Building (DEM)	285 Edith St	Providence	Level II Dual Port	1	2
East Matanuck State Beach (DEM)	950 Succotash Rd	South Kingstown	Level II Dual Port	1	2
Pulaski State Park (DEM)	151 Pulaski Rd - Chepachet	Glocester	Level II Dual Port	1	2
Scarborough State Beach	970 Ocean Road	Narragansett	Level II Dual Port	1	2
Salty Brine State Beach (DEM)	250 Sand Hill Cove Rd	Narragansett	Level II Dual Port	1	2
T.F. Green Airport (Garage A)	700 Jefferson Blvd	Warwick	Level II Dual Port	1	2
T.F. Green Airport (Lot D)	T.F. Green Airport	Warwick	Level II Dual Port	1	2
University of Rhode Island	3 E Alumni Ave	Kingston	Level II Dual Port	1	2
Department of Business Regulation	560 Jefferson Blvd	Warwick	Level II Dual Port	2	4

Agency	EVSE Address	Municipality	Station Type	# of Stations	# of Ports
Park and Ride - Rt 117 (DOT)	292 Centerville Rd RT 117	Warwick	Level II Dual Port	3	6
Park and Ride - Ashaway	Ashaway Park and Ride	Hopkinton	Level II Dual Port	3	3
DCAMM - Building 61	14 West Road	Cranston	Level II Dual Port	2	4
RIEMA	645 New London Ave	Cranston	Level II Dual Port	2	4
Park and Ride - Rt 117 (DOT)	292 Centerville Rd RT 117	Warwick	DCFC	2	2
Park and Ride - Ashaway (DOT)	Ashaway Park and Ride	Hopkinton	DCFC	2	2
Wickford Junction Station (DOT)	1011 Ten Rod Road,	North Kingstown	Level II Dual Port	5	10
Total				63	119

Appendix C: Energy Consumption by Year for State Agencies (Actual Billed) Electricity and Natural Gas

Monthly MMBTU Billed							
	CY2014	CY2015	CY2016	CY2017	CY2018	CY2019	CY2020
January	194,493	173,848	150,806	150,395	164,396	150,022	152,460
February	183,676	173,812	149,678	152,718	161,098	162,787	148,034
March	176,547	170,435	136,749	139,142	142,315	148,358	136,866
April	134,923	122,401	119,122	174,327	145,761	140,353	136,151
May	115,935	107,961	98,825	98,861	119,221	111,572	123,780
June	110,362	106,517	107,252	90,672	98,066	96,922	98,647
July	109,787	115,342	119,286	109,282	107,957	104,626	105,517
August	107,923	123,492	117,358	113,052	115,180	107,096	109,686
September	110,665	114,982	103,668	114,878	117,430	96,010	110,228
October	112,016	100,775	92,089	96,679	102,515	83,890	97,012
November	123,896	111,450	107,451	98,071	111,669	96,690	96,860
December	152,889	124,139	123,577	130,773	134,988	135,607	125,012
Cumulative MMBTU Billed							
	CY2014	CY2015	CY2016	CY2017	CY2018	CY2019	CY2020
January	194,493	173,848	150,806	150,395	164,396	150,022	152,460
February	378,169	347,660	300,485	303,113	325,494	312,809	300,494
March	554,717	518,096	437,234	442,256	467,810	461,167	437,361
April	689,640	640,497	556,357	616,583	613,571	601,521	573,513
May	805,576	748,459	655,182	715,444	732,792	713,094	697,294
June	915,938	854,976	762,435	806,117	830,859	810,017	795,941
July	1,025,726	970,319	881,722	915,399	938,817	914,643	901,458
August	1,133,650	1,093,811	999,080	1,028,451	1,053,998	1,021,739	1,011,145
September	1,244,316	1,208,794	1,102,749	1,143,330	1,171,428	1,117,749	1,121,374
October	1,356,332	1,309,569	1,194,839	1,240,009	1,273,943	1,201,640	1,218,386
November	1,480,229	1,421,020	1,302,290	1,338,080	1,385,612	1,298,330	1,315,247
December	1,633,118	1,545,159	1,425,867	1,468,854	1,520,601	1,433,937	1,440,260
Annual Total	1,633,118	1,545,159	1,425,867	1,468,854	1,520,601	1,433,937	1,440,260

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