



2022 PATHWAY TO NET ZERO



TABLE OF CONTENTS

South Hadley Electric Light Department

Introduction.....3

Management Letter.....4

Sustainability.....5

Carbon Portfolio.....6

Roadmap to 2050.....7

NextZero.....8

Home Energy Audits.....9

ENERGY STAR®.....10

Heating and Cooling.....11

Connected Homes.....13

Greenhouse Gas Reduction Rebate.....14

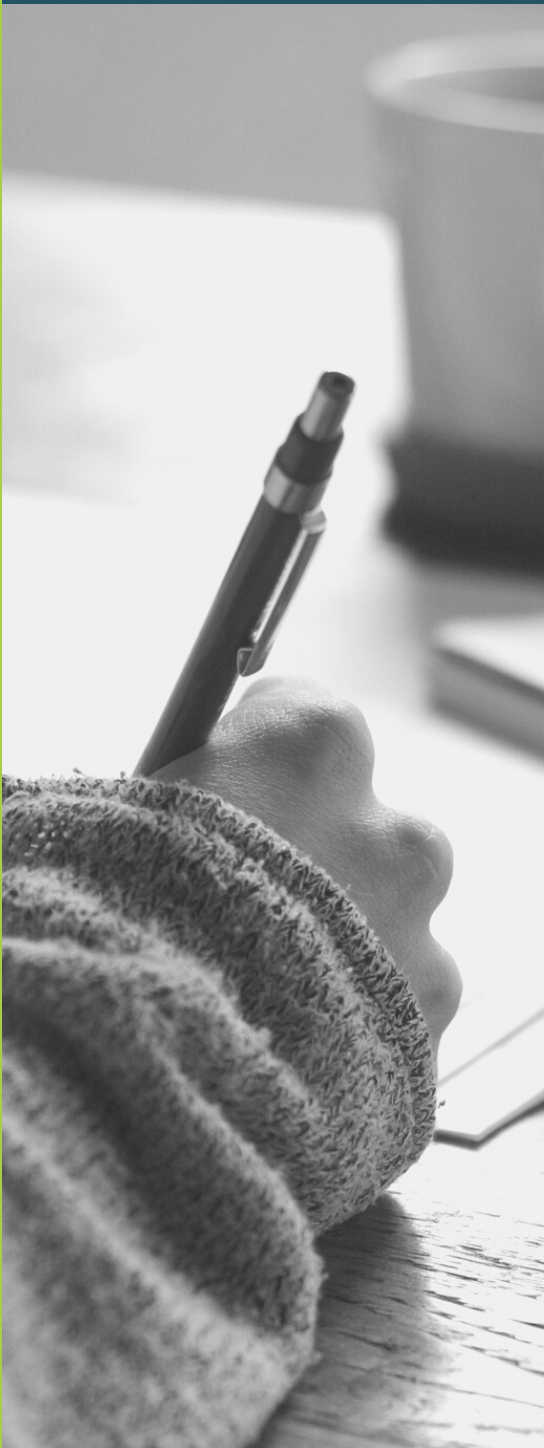
Commercial Offerings.....15

Advanced Metering Infrastructure.....16

Moving Forward.....17

THE PATHWAY TO NET ZERO

South Hadley Electric Light Department

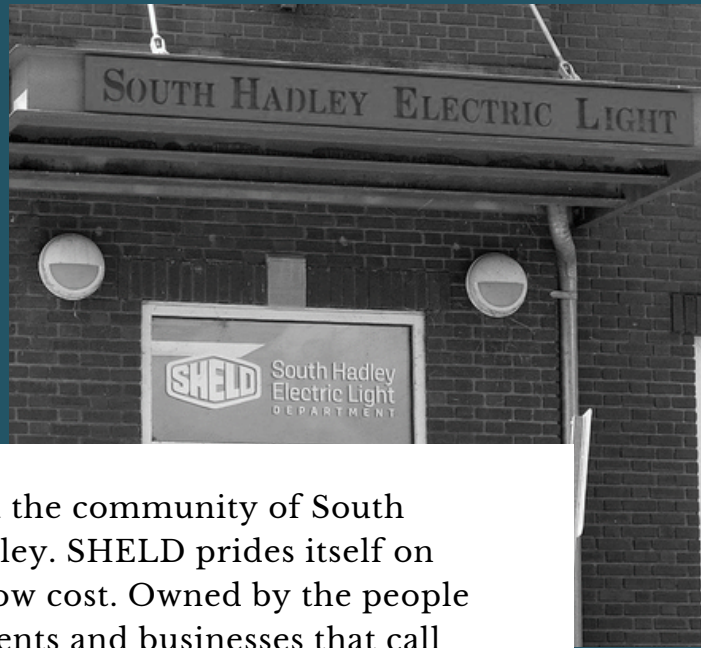


The town of South Hadley's journey to becoming a municipal light plant (MLP) began in 1913 when a group of residents proposed that the town purchase South Hadley's electric generating and transmission facilities from a private company to gain local control. The town formed a committee to learn more about municipal-owned utilities. After visiting other municipal utilities and learning more about MLP operations, the committee recommended the purchase at a town meeting on May 12, 1913. Voters approved the recommendation at the May meeting and then again at the second required vote on June 13, 1913 and South Hadley Electric Light Department (SHELD) was officially formed.

Today, SHELD has over a 90% residential customer base. The department is dedicated to providing their customers safe and reliable electricity at a low cost while paving the way to a carbon-free future.

REPORTING PROGRESS

Management Letter



For more than 100 years, SHELd has served the community of South Hadley, along with parts of Granby and Hadley. SHELd prides itself on providing exceptional, reliable service at a low cost. Owned by the people we serve, SHELd is accountable to the residents and businesses that call South Hadley home – not far away investors.

While SHELd already has a nearly 100% carbon-free power portfolio due to our nuclear and hydro energy contracts, we continue to do our part to help our customers reduce their carbon footprints.

SHELd participates in the NextZero Connected Homes Program, a demand response program that optimizes smart devices and appliances to result in savings for customers and the light department. Customers save money, and the light department is able to control load – a win-win for everyone.

For customers who want to do even more, SHELd also offers the Green Choice Program, an optional program in which customers can take an active role in their impact on climate change. Under this program, customers can add a voluntary contribution onto their electric bills to ensure clean, renewable energy is delivered to the regional power grid on their behalf.

SHELd leads by example and incorporates energy efficiency and decarbonization in everything we do. SHELd led the efforts to convert all of South Hadley's nearly 1,400 streetlights to LEDs, resulting in reduced light pollution and superior energy efficiency. These lights result in fewer maintenance-related truck rolls, further reducing fossil fuel consumption and vehicle emissions. These environmentally-friendly streetlights result in improved public safety as well as reduced energy costs.

Here at SHELd, we believe we all must do our part to address climate change. We will continue to investigate new technologies and maintain our progressive path to a clean energy future.

IN THIS REPORT

This report highlights SHELD's focus on sustainability along three dimensions: environmental, social, and governance/community engagement. These facets are central to SHELD's mission of providing affordable, reliable, and clean energy in a transparent and accountable way.



Environmental

SHELD is committed to the protection of the environment and the welfare of its community. This is done by complying with environmental laws implemented in procedures and programs to ensure compliance. SHELD communicates goals and policies and provides education and training for employees, suppliers, customers, and the community.



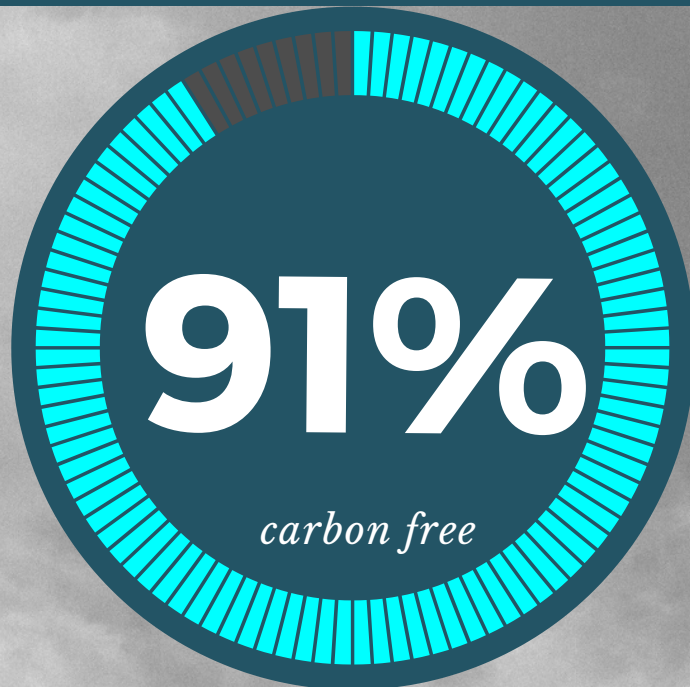
Social Responsibility

SHELD has made it a mission to provide customers and the community with reliable and safe electricity while still offering a competitive price. The energy delivered will be provided in a responsible manner.



Governance and Community Engagement

As a consumer-owned, municipal utility, SHELD is committed to transparency and accountability. SHELD is governed by a Light Commission whose members are elected by the town's citizens. The commissioners are sworn to uphold and operate in the best interest of the town and its citizens. The Commission holds monthly meetings and posts the minutes of these public sessions on its website. This engagement is important to SHELD in keeping the South Hadley community involved in their municipal light department.



A dark teal circle containing the year '2021' in large white font. Below the year, the text 'carbon-free power portfolio' is written in a smaller, italicized white font.

2021

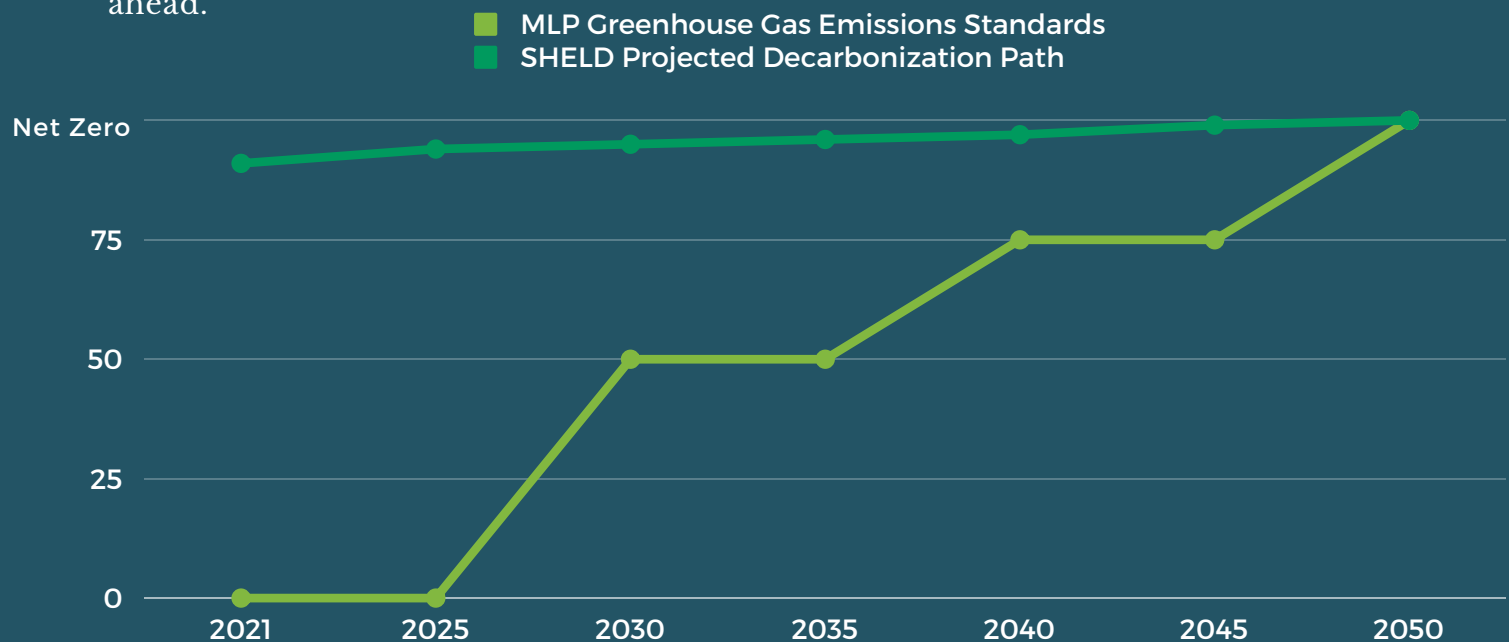
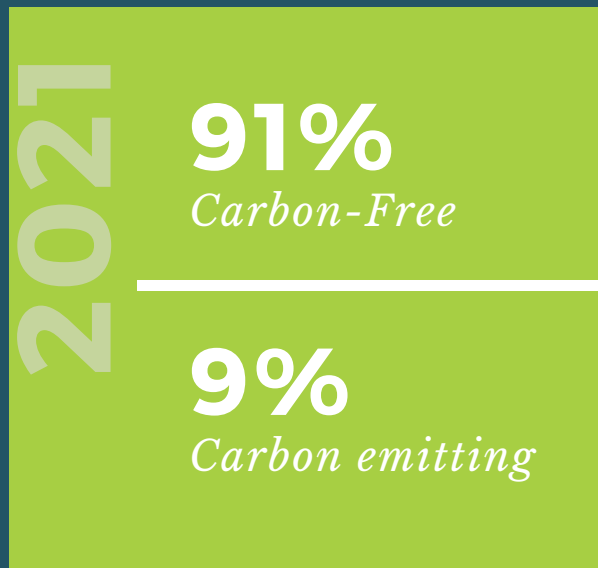
carbon-free power portfolio



Our Power Supply

ROADMAP TO 2050

SHELD is making steady progress in decarbonizing its power supply. SHELD is actively seeking renewable supplies as assets are developed and working with its joint action agency, Massachusetts Municipal Wholesale Electric Company (MMWEC) to identify reliable, cost-effective supplies of clean energy to supply South Hadley for the years ahead.



Today, SHELD is working on multiple fronts to reduce the carbon content of its electric supply including:

- Methodically moving its power sources to carbon-free and higher efficiency, low carbon-emitting sources
- Anticipating the addition of offshore wind to its portfolio, when it becomes available

- South Hadley's power portfolio is ahead by a large margin and on track to meet the net zero emissions goal by 2050



NextZero is the leading residential electrification, demand response, and energy conservation service for Massachusetts municipal utility customers. Managed by MMWEC, NextZero provides energy education, no-cost home energy audits, and incentives on home energy improvements. It also offers rebates on electric assets like heat pumps and mini-splits.

The total value of audits, rebates, and incentives awarded to SHELD residential customers through the NextZero energy efficiency program in 2021 amounted to **\$52,096**. The rebates provided by the program helped increase efficiency and reduce energy costs.

HOME ENERGY AUDITS

South Hadley Electric Light Department



Home energy audits are the best first step for homeowners and renters to get advice on measures they can take to reduce their energy use. By providing no-cost energy audits through NextZero, SHELD is committed to helping customers identify energy savings potential and helping educate customers about the rebates and incentives available to help them implement efficiency measures.

As part of the process, customers receive a Home Energy Assessment Report that highlights the results of the audit and lists the rebates and incentives available through the NextZero program.

As part of the audit, if warranted, the auditor provides up to three LED light bulbs as an instant savings measure. SHELD also provides inspections of customer installations to confirm that measures, for which incentives are sought, have been installed.

2021 Home Energy Audits	Quantity
Audits	53*
LED Bulbs	159
PII Verification Visits	13

*60 audits conducted in 2022 through quarter three.

ENERGY STAR®

South Hadley Electric Light Department



ENERGY STAR is the program developed by the US Environmental Protection Agency to identify and promote the most energy efficient products.

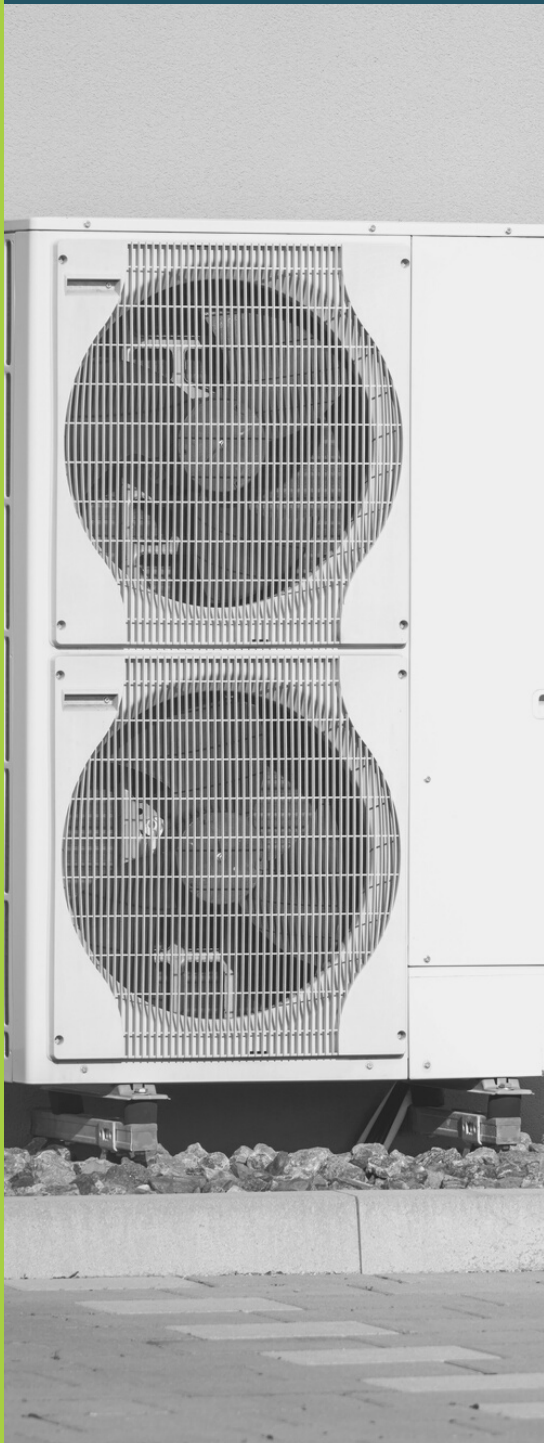
SHELD pays rebates to customers that purchase specific efficient ENERGY STAR appliances for their homes.

These rebates help offset the higher cost of energy efficient appliances, while reducing the amount of energy SHELD needs to purchase. This makes the program not only good for the customer receiving the rebate, but for all SHELD customers.

ENERGY STAR Appliance Rebates	ENERGY STAR Standard Rebate	ENERGY STAR Most Efficient Rebate
Air Purifiers	\$25	\$N/A
Clothes Washers	\$25	\$100
Clothes Dryers	\$25	\$100
Dehumidifiers	\$25	N/A
Dishwashers	\$25	\$100
Freezers	\$25	\$100
Refrigerators (≥12 cu.ft)	\$25	\$100
Room Air Conditioners	\$25	N/A
WiFi Thermostat	\$100	N/A
Variable Speed Pool Pump	\$200	N/A
Heat Pump Clothes Dryer	\$500	N/A
Heat Pump Water Heater (≤55 Gallon, Electric)	\$500	N/A

HEATING AND COOLING

South Hadley Electric Light Department



SHELD is doing more than just decarbonizing its own power portfolio. Through NextZero, SHELD is also helping South Hadley customers switch to clean heating and cooling systems.

In order to reach state decarbonization goals by 2050, homeowners will need help converting their fossil fuel heating systems to electric heating systems.

The most efficient way to heat with electricity is with a heat pump. SHELD is helping customers evaluate the conversion of their heating system to electric heat pumps through the NextZero heat pump assessment program.

As part of this program, a building science expert is available to answer any questions customers have about the application of heat pumps in their home.

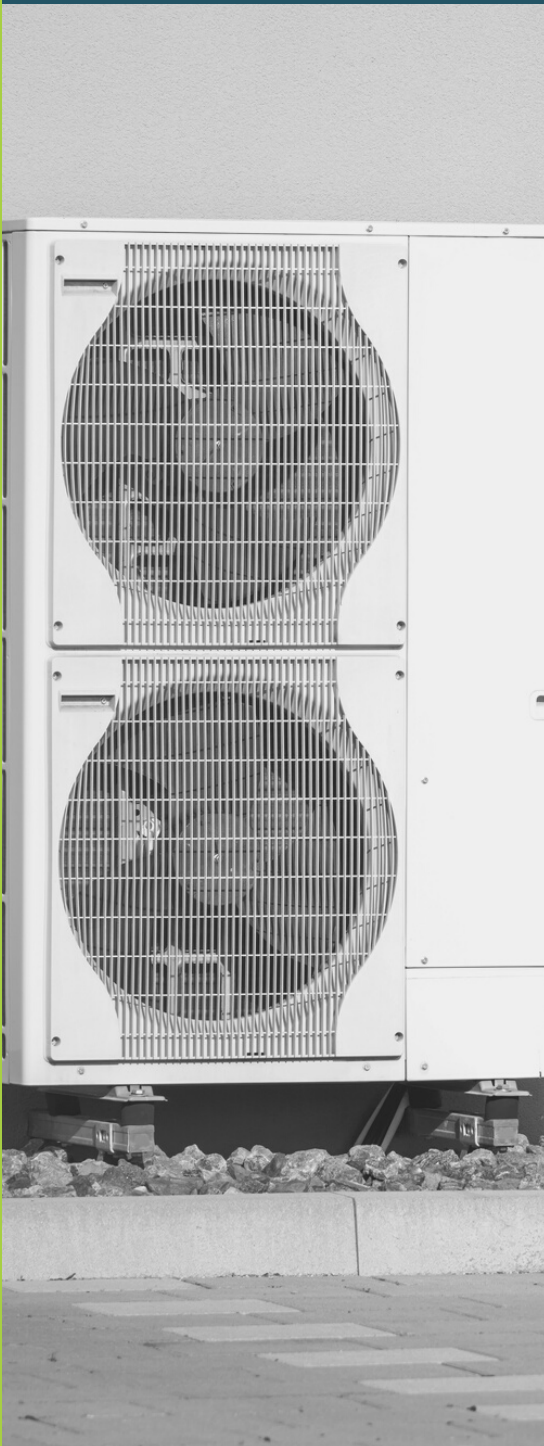
NextZero will also review equipment sizing for the space and ensure the heat pump is the correct size for the conditioned space, reducing the chance for any problems with implementation.

The NextZero heat pump assessment program helps customers get comfortable with the technology and decreases risk, ensuring good outcomes for the program and for customers.

Additionally, SHELD has partnered with UMassFive to offer 0% interest loans of up to \$10,000 to its customers for updating fossil fuel heating systems with energy efficient heat pump systems.

HEATING AND COOLING REBATES

South Hadley Electric Light Department



Fifty percent of the NextZero Heating and Cooling rebates SHEL D issued in 2021 were for ductless mini-splits.

Heating and Cooling Rebates	Quantity
Central Air Conditioning	11
Ductless Mini-Splits	11
Total	22

Ensuring heating and cooling systems are efficient is only part of the solution to reducing energy use. The building envelope is key to keeping living spaces cooler in the summer and warmer in the winter. Sealing drafts and increasing ceiling and wall insulation are also important to keeping people comfortable while using less energy. That's why SHEL D, through NextZero, is providing rebates and incentives on insulation and air sealing.

2021 Home Efficiency Rebates	Quantity
Blower Door/Air Sealing	6
Insulation	8
Total	14

CONNECTED HOMES

South Hadley Electric Light Department



There are a wide variety of internet-connected devices that control energy consuming equipment in homes. SHELD customers can get rewarded for enrolling their smart devices in the NextZero Connected Homes Program.

Wifi thermostats, electric vehicle chargers, electric hot water heaters, mini-split controllers, and home battery systems all have the ability to control significant home electric loads and therefore can be used to help shift home energy use away from peak periods when the less efficient resources must be dispatched to meet demand.

The NextZero Connected Homes program enrolls smart devices to be controlled and provides incentives to residential customers who enroll their devices in the program. By dispatching these devices during peak periods, SHELD and customers work together to put South Hadley on the path to net zero carbon emissions.

Participating Customers	Devices Enrolled
20	24

GREENHOUSE GAS REDUCTION REBATES

South Hadley Electric Light Department



The Greenhouse Gas Reduction Rebates are offered directly through SHELd to promote the reduction of burning fossil fuels (heating oil, gasoline, diesel, etc.) locally within the town of South Hadley. Not only does the reduction in greenhouse gases help fight climate change, it also improves local air quality. This program includes rebates for electric vehicle chargers, electric bicycles, electric yard equipment, and electric service upgrades. Rebate amounts range from \$25 to \$200.

Electric vehicles, bicycles, and yard equipment have their benefits, but now, with a greener future in mind, they can be a part of the changes SHELd customers make to electrify their homes.

These rebates are available to all residential SHELd customers through their website at [SHELd.org](https://www.sheild.org).

Appliance/Service	Value
Electric Lawn Mower	\$100
Electric Leaf Blower	\$25
Electric Trimmer	\$25
Electric Bicycle	\$200
Electric Service Upgrade	\$200
Electric Vehicle Charger	\$300

COMMERCIAL OFFERINGS

South Hadley Electric Light Department



Prescriptive Lighting

The NextZero Prescriptive Lighting program is a fast track process for reviewing and implementing lighting projects.

Prescriptive HVAC

The NextZero Prescriptive HVAC program is a fast track process for reviewing and implementing HVAC projects.

Custom Retrofit

The NextZero Custom Retrofit Program is ideal for customers who are interested in energy savings, but do not have a specific project in mind. Once the application is received, the NextZero team works with the customers and contractors to fully define work scopes for the recommended projects including a cost-effectiveness evaluation based on estimated annual energy savings.

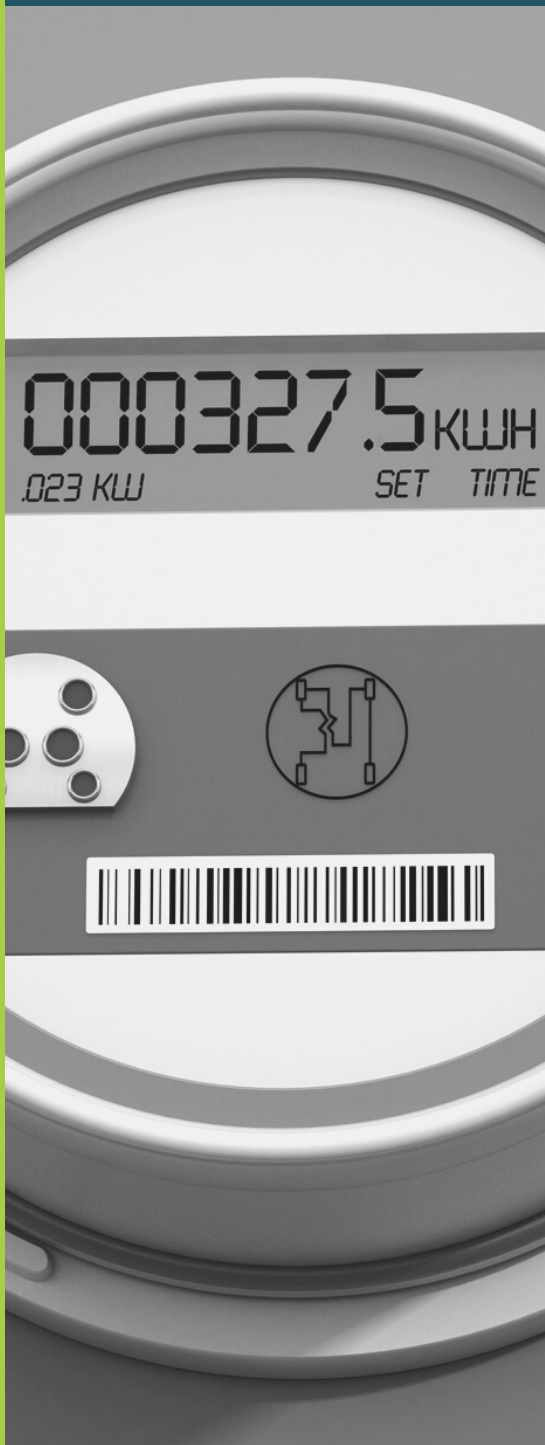
New Construction and Major Renovation

SHELD's New Construction and Major Renovation program offers a customized plan that may consist of co-funded technical services, custom prescriptive rebates, or both.

2021 Total Projects	Total Rebates	Total kWh Savings	Total MMBtu Savings
2	\$20,545	9,396	3.67

ADVANCED METERING INFRASTRUCTURE

South Hadley Electric Light Department



SHELD is in the midst of replacing its metering system, which is near its end of life and based upon technology more than 40 years old. The new advanced metering infrastructure (AMI) system will allow SHELD to meet the challenges of an ever changing power grid, and improve customer satisfaction.

The method used to bill customers for energy usage has remained virtually unchanged for 100 years. The meters are read once every month, and then the bills are produced based upon the total amount of energy used for the month. As the power system evolves with widespread adoption of electric vehicles, solar, batteries, heat pumps, etc., it is necessary to have a better understanding of when and where the energy is used. The AMI system will record the usage during each day and that information will help SHELD develop programs to help manage the system. In the near future, customers will have the ability to view this detailed usage data to help them conserve energy and save costs.

The AMI system will also allow SHELD to provide quicker restoration for any power outages. The current method to alert SHELD of an outage is the same as it was in the early 1900's; the customer has to notify the department. The new metering system will automatically inform SHELD of the lost of power at a meter, even before a customer calls. This leads to more efficient outage management and faster service restoration. The new system will further reduce SHELD's carbon footprint due to reduced truck rolls and fewer vehicle miles resulting in reduced carbon emissions and fossil fuel consumption.

MOVING FORWARD

South Hadley Electric Light Department



While SHELD has made many strides in decarbonizing its power portfolio and offering new ways for its customers to increase energy efficiency in their homes, vehicles, and businesses, we recognize the path to electrification and decarbonization will be a challenging one. We all must work together to see real results.

SHELD will continue to charge forward and set the standard for meeting, if not exceeding, the Commonwealth's greenhouse gas emissions targets. Together, SHELD and its customers can pave the way to a cleaner, greener tomorrow.