2024 Pathway to Net Zero

West Boylston Municipal Light Plant's Sustainability Report

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The Pathway to Net Zero

West Boylston first explored the idea of public power in 1908 when the town established a committee to investigate whether it was possible to bring electric street lights to the town to replace oil and gas lamp illumination. West Boylston Municipal Light Plant (WBMLP) was officially established during two town meetings in 1909. WBMLP has gone through a lot of changes over the years to adapt to meet the community's needs.

West Boylston is a central Massachusetts town set right next to the Wachusett Reservoir. It is the mission of WBMLP to provide reliable power as the department works toward a carbon-free portfolio, while maintaining competitive rates with a focus on safety for WBMLP employees and customers.

In this Report

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

Environmental

For over a century, West Boylston Municipal Light Plant (WBMLP) has provided the citizens and businesses of West Boylston with reliable and affordable electricity service. WBMLP continues to meet customer demands for cleaner and renewable energy and in August 2019, the Board of Light Commissioners adopted a Greenhouse Gas Emissions Standard (GGES). The GGES became state law in 2021 and requires all MLPs, including WBMLP, to achieve an energy supply that's net-zero greenhouse gas (GHG) emissions by 2050. In 2023, WBMLP's energy supply was approximately 50% clean, renewable, and didn't emit any GHG emissions. By 2030, WBMLP expects its energy supply to be at least 80% clean, renewable, and GHG-emissions free.

Social Responsibility

WBMLP's mission is to provide highly reliable electricity at the lowest possible cost to all our customers, while transitioning to an energy supply that's net-zero GHG emissions by 2050. Not only is our energy sector transitioning to net-zero GHG emissions, both the transportation and building sectors are as well. WBMLP's energy supply and electric distribution system is expected to support the electrification of these two sectors. Our customers will eventually become entirely dependent on a reliable, clean, and renewable energy supply.

Governance/Community

As a consumer-owned, municipal utility, WBMLP is committed to transparency and accountability. WBMLP is governed by an independent Light Commission whose members are elected by the town's citizens. The commissioners are sworn to uphold and regulate the WBMLP in the best interest of the town and its citizens. The commissioners hold monthly meetings and post the minutes of these public meetings on the WBMLP website. The public is welcome and encouraged to attend and contribute to any commissioner meetings. This local control and engagement is fundamental to the municipal light department business model.

Carbon-Free Timeline

50%

Carbon-free portfolio by 2030
West Boylston forecast is 70% by 2030

75%

Carbon-free portfolio by 2040
West Boylston forecast is 85% by 2040

Net Zero

portfolio by 2050

Power Supply

2023 GGES Qualified Energy Emits "0" GHG Emissions	Megawatt-Hours Owned or Purchased	Percentage of Supply
Hydro Québec Hydroelectricity, Canada, CES	2,628	4.4%
Brookfield Hydro & REC, New Hampshire	-	0%
NYPA Hydro, New York, CES	2,854	4.8%
Nuclear, Millstone 3, Connecticut, CES-E	6,514	10.9%
Nuclear, Seabrook, New Hampshire, CES-E	17,299	29%
West Boylston Solar, RPS	218	0.4%
Solar Rebate Generation, RPS, Class 1	57	0.1%
Total GGES-Qualified Energy Purchased	29,570	49.5%
Total WBMLP Electric Sales	59,699	

2023 kWh PURCHASES BY FUEL SOURCE

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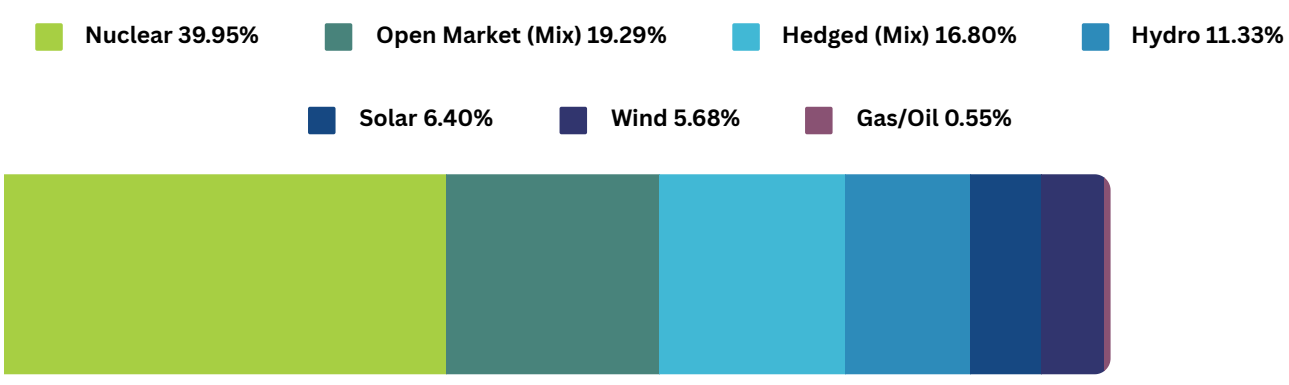
58,045	Total West Boylston Electric Sales	
51%	West Boylston Carbon-Free Electric Sales	

2023 kWh PURCHASES BY FUEL SOURCE



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 ENERGY STAR® appliances, electric assets like heat pumps, electric vehicle chargers, and thermostats.

The total value of audits, rebates, and incentives awarded to customers through WBMLP's NextZero energy efficiency program in 2023 amounted to **$53,106**. The rebates provided by the program helped increase efficiency and reduce energy costs.

Home Energy Audits

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, WBMLP 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. WBMLP also provides inspections of customer installations to confirm that measures, for which incentives are sought, have been installed.

2023 Home Energy Audits	Quantity
Audits	43
LED Bulbs	129
PII Verification Visits	7

ENERGY STAR®

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

WBMLP pays rebates to customers that purchase specific efficient ENERGY STAR appliances for their homes through the NextZero program.

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

Appliance Rebates	Quantity	Value
Air Purifiers	3	$120
Clothes Washers	7	$350
Clothes Dryers	9	$450
Dehumidifiers	12	$360
Pool Pumps	1	$100
Induction Ranges	1	$100
Refrigerators	4	$200
Wi-Fi Thermostats	12	$1,205
Total	49	$2,885

Heating and Cooling

WBMLP is doing more than just decarbonizing its own power portfolio. Through NextZero, the department is also helping West Boylston customers switch to clean heating and cooling systems.

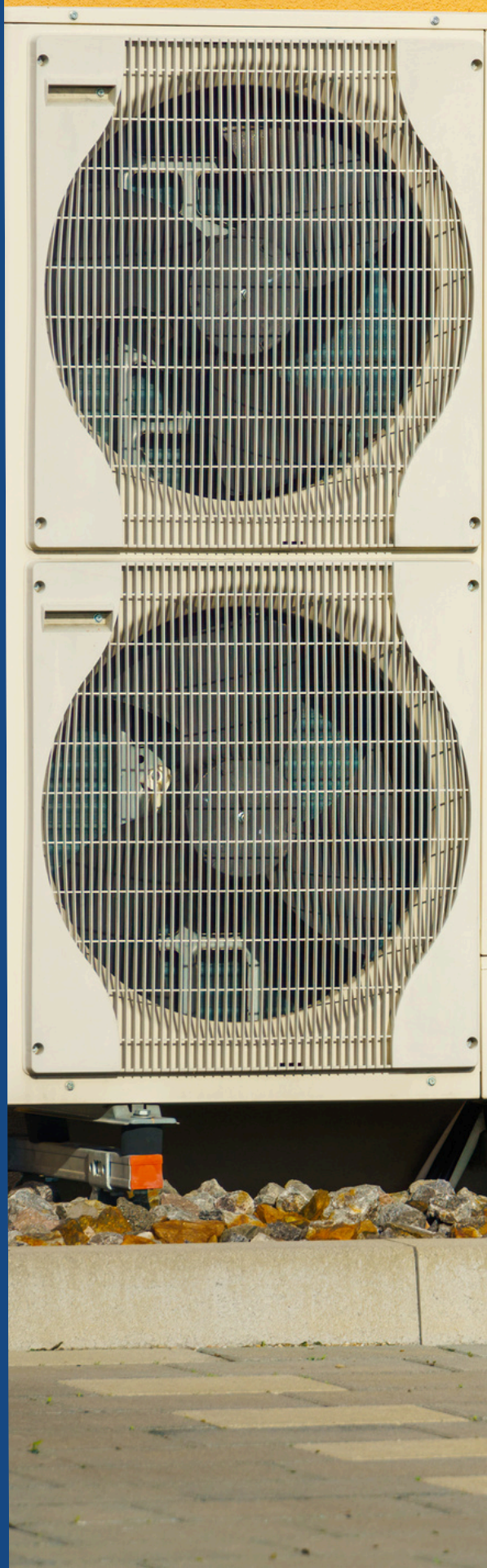
In order to reach state decarbonization goals by 2050, homeowners will need help converting their fossil fuel heating systems to electric heating systems.

The most efficient way to heat with electricity is with a heat pump. WBMLP is helping customers evaluate the conversion of their heating systems 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.

2023 Heat Pump Assessments	Quantity
Heat Pump Assessments	**22**



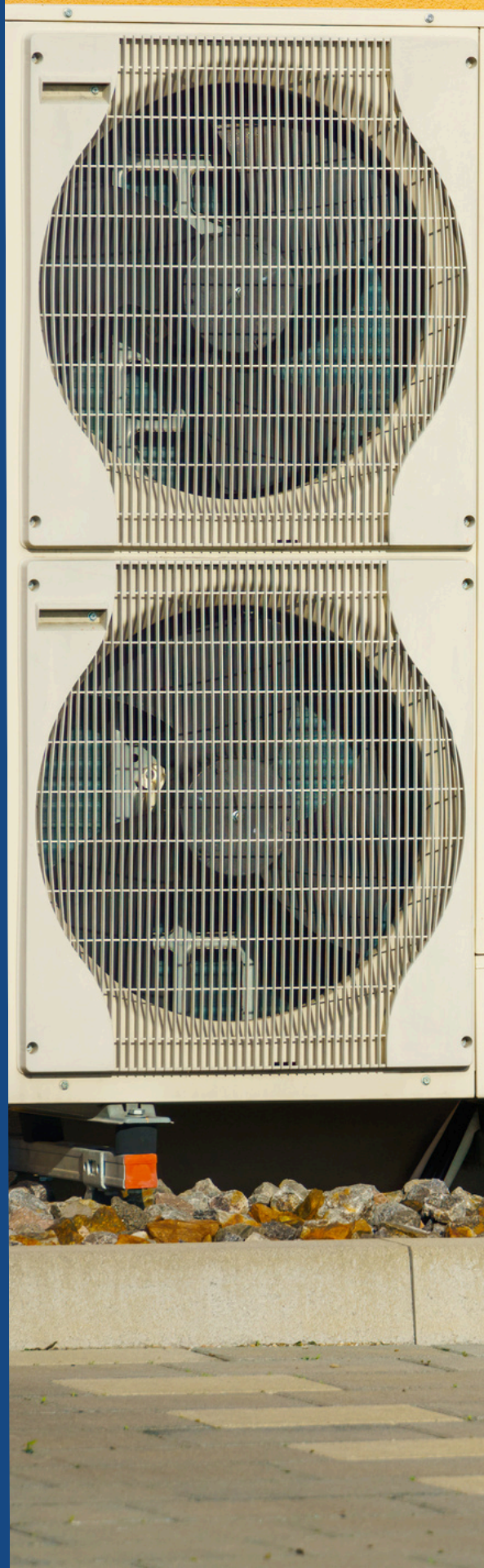
Heating and Cooling Rebates

Of the Heating and Cooling rebates provided through NextZero in West Boylston in 2023, 88% were for ductless mini-splits and 12% were for air source heat pumps.

Heating and Cooling Rebates	Quantity	Value
Air Source Heat Pumps	3	$3,000
Ductless Mini-Splits (Single Zone)	8	$4,800
Ductless Mini-Splits (Multi Zone)	16	$16,000
Total	27	$23,800

Ensuring the 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. That's why WBMLP, through NextZero, is providing rebates and incentives on insulation, air sealing, and duct sealing.

Home Efficiency Rebates	Quantity	Value
Air Sealing	2	$1,000
Insulation	4	$2,000
Total	6	$3,000



Electric Vehicles Scheduled Charging

Electric vehicles are starting to enter the mainstream of transportation options.

As the number of electric vehicles increases, we can expect increasing demand on our electric distribution system. However, there are ways to help shift some of these periods of peak electric use to help get the most use out of existing infrastructure, helping to keep electric rates lower for all.

Through the NextZero Scheduled Charging Program, WBMLP provides an electric vehicle charger rebate for both fully electric vehicles and plug-in hybrid electric vehicles to qualified residential customers. In exchange for rebate, the customer agrees to allow WBMLP to have the charger turned off during peak periods to shift electric vehicle charging to times of the day when electric use is lower.

This helps keep more expensive, more carbon intensive energy resources from being needed at the peak hours and reduces costs and emission of greenhouse gases.

Total EV Chargers Distributed	Value
6	$3,598

Connected Homes

There is a wide variety of other internet-connected devices that control energy consuming equipment in homes, in addition to electric vehicle chargers.

Wi-Fi thermostats, electric vehicles and 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 that enroll their devices in the program. By dispatching these devices during peak periods, WBMLP and customers work together to put West Boylston on the path to net zero carbon emissions.

Total Customers	Total Devices	2023 Incentives
17	29	$925

Battery Rebates

WBMLP offers rebates on residential lithium-ion battery systems. To qualify, batteries must be Duracell or Emporia brands and have a storage capacity of 7.5 to 20 kilowatt-hours (kWh). Eligibility for the rebate requires enrollment in the Connected Homes program where additional incentives of $30/month for participation in peak events are available.

The rebates and incentives for the program are intended to make the purchase of battery systems easier for residents in exchange for sharing the battery capacity to help keep electric costs lower for all WBMLP customers.

Residential batteries can be paired with solar panels to store excess energy generated by the panels during the day for later use after sunset. Residential batteries can also provide back up for critical loads in the home, like refrigerators and Wi-Fi, in case of a power outage. Residents should consult with their installer to get the most out of their battery installation.

Solar Projects

West Boylston incorporates solar generated power into its portfolio through three current projects:

The 333 kW West Boylston Solar 1 system at the corner of Shrewsbury Street and Paul Tivnan Drive includes a mechanical flywheel energy storage system that allows the storage solar energy to use later in the day when solar production is down and grid demand is peaking.

WBMLP installed a 1.7 MW community solar project on the department's old landfill site to offer its customers an opportunity to purchase solar energy without installing their own solar panels.

WBMLP also purchases through a long term contract, the energy output of a 786 kW rooftop community solar system at 180 Shrewsbury Street.

WBMLP's community shared solar projects provide a simple and affordable opportunity for customers to acquire solar without the traditional space constraints and is an investment which is based on a month-to-month subscription.

This allows customers to be a part of renewable solar energy in an easy and accessible way.

Moving Forward

While WBMLP 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.

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