

Manchester-By-The-Sea Net Zero Municipal Operations Plan

Produced by the Metropolitan Area Planning Council
for the Town of Manchester-by-the-Sea
Funded by Green Communities

June 2023



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Acknowledgements:

Thank you to the Net Zero Municipal Operations Advisory Council for their time and thought throughout this process:

- Nate Desrosiers, Town Engineer and Facilities Manager
- Sue Croft, Grants/Special Projects Coordinator
- Greg Federspiel, Town Administrator
- Andy Oldeman, Finance Committee Vice-chair
- Alison Anholt-White, Sustainability Committee Chair
- Cathy Bilotta, Select Board
- Ann Harrison, Select Board Vice-chair

Introduction

To align itself with the Massachusetts goal of achieving net zero carbon emissions by 2050, the Town of Manchester-by-the-Sea (MBTS) has collaborated with the Metropolitan Area Planning Council (MAPC) to develop an actionable framework that will set the Town on a path towards net zero municipal operations. The Net Zero Municipal Operations Plan (“Plan”) will serve as a pivotal mitigation and resilience strategy to establish long-term climate goals focused on the reduction of greenhouse gas (GHG) emissions throughout the Town’s municipal sector. This includes the completion of a thorough assessment of the Town’s municipally owned buildings, vehicle fleets, public recreation spaces, water and sewer operations, as well as street and traffic lights.

This Net Zero Municipal Operation Plan complements and aligns with previous work that the Town has done to address its energy and GHG reduction goals. In 2013, Manchester-by-the-Sea was designated a Green Community by the Department of Energy Resources (DOER) and completed a Green Community Energy Reduction Plan to identify and implement energy efficiency strategies. The findings of the municipal energy evaluation revealed that vehicle fuels and water and wastewater treatment facilities made up most of the municipal energy usage.

As a result of these findings, addressing energy usage and clean energy transitions for municipal buildings and fleets has become a priority for MBTS and inspired other municipal projects that are currently in progress such as the transition to an all-electric police cruiser fleet and public EV chargers at Town Hall and additional locations around Town . For example, in 2021, Manchester-by-the-Sea successfully installed heat pumps in the Town Hall and library as well as wired and installed solar arrays in municipal school buildings. Additionally, in 2022 an Energy Management System was installed at the library to assist with energy savings. While municipal emissions generally make up a small percentage of a community’s GHG emissions, MBTS can lead by example and has direct control in reducing emissions from municipal operations.

This Plan serves as a roadmap to place MBTS on a path to meeting its energy reduction goals in an environmentally just way that will position the municipal government as a leader and example for the Town(combine with sentence below)by transitioning municipal buildings and transportation fleets from fossil fuels, primarily through electrification. The Plan will also target municipal land for clean energy installations via solar and thermal energy and net-out remaining emissions through carbon offsets to meet the State’s net zero goals.

This document is divided into the following sections:

- **Municipal Greenhouse Gas Emissions Baseline Profile (FY22):** A summary of the Town’s GHG emissions and top emitting buildings.
- **Strategies to Move Toward Net Zero:** A high level roadmap of municipal Net Zero strategies.
- **Implementation of the Plan:** Additional implementation guidance and funding opportunities.

Through this framework, Manchester-by-the-Sea will have the opportunity to pilot new ideas and advance the GHG reduction initiatives of the Town and throughout the state.

Municipal Greenhouse Gas Emissions Baseline Profile (FY22)

What are Greenhouse Gas Emissions?

Referred to as the “greenhouse gas effect”¹, Carbon dioxide (CO₂), methane, and water vapor are gases that trap heat around the earth which helps keep the planet warm. However, the burning of fossil fuels such as gasoline, diesel, oil, and natural gas to create energy for everyday activities release an unsustainable amount of GHGs into the atmosphere. This has caused earth’s average temperature to increase by 2-degrees F (1 degree C) since 1900.² Even small amounts of warming can have catastrophic impacts on the climate.

What is included in the GHG Emissions Baseline?

The municipal GHG baseline includes a summary of MBTS’s municipal GHG emissions measured in Metric Tons of Carbon Dioxide Equivalent (MTCO₂e) in Fiscal Year 2022 (FY22). Emissions from municipal activities include:

- Municipal buildings,
- Municipally owned vehicles and equipment,
- Energy associated with public recreation space,
- Towns water/sewer pumps and operations,
- Streetlights and traffic lights.

Due to incomplete data, schools data is not included in this inventory. Community-wide emissions, which include homes, commercial buildings, industrial buildings, private vehicle usage, and regional transportation like the commuter rail and buses are *not* included in the municipal baseline.

MBTS’s Distribution of Municipal Emissions

Figure 1 illustrates the breakdown of municipal greenhouse gas emissions in the Town. The chart reveals the proportion of emissions attributed to different fuel types: the largest contributor is electricity, accounting for 53% of emissions. Natural gas and gasoline each contribute 14%, while oil and diesel account for 7% and 12%, respectively.

Figure 2 represents the distribution of emissions by municipal department and fuel type, for fiscal year 2022. The Water and Sewer Dept is the largest source of emissions at 45%, followed by Vehicle Fuels (26%), and General Government, or town buildings, (9%). Under the Water and Sewer department, the greatest source of emissions come from the Wastewater Treatment Plant (188.3 MTCO₂e, or 52%), followed by Pond Drinking Water Facility (121.5 MTCO₂e, or 33%) and the Lincoln Street Well (45.5 MTCO₂e, 12%).

Distribution of Emissions by Fuel Type in Manchester-By-The-Sea (FY22)

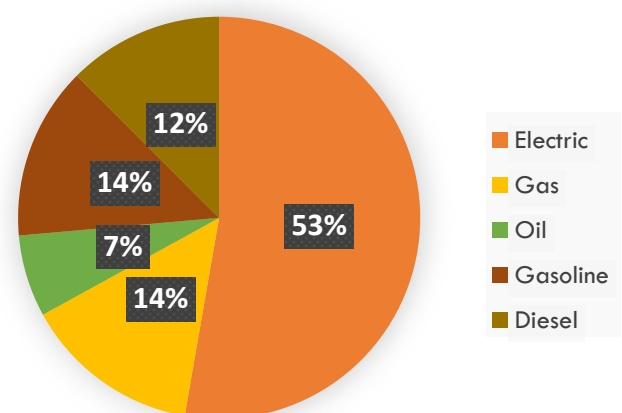


Figure 1. This chart represents the distribution of municipal emissions in Manchester-By-The-Sea for Fiscal Year 2022 by fuel type (electric, natural gas, oil, diesel, and gasoline). Data source: Mass Energy Insight.

¹ <https://climate.nasa.gov/faq/19/what-is-the-greenhouse-effect/>

² <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature>

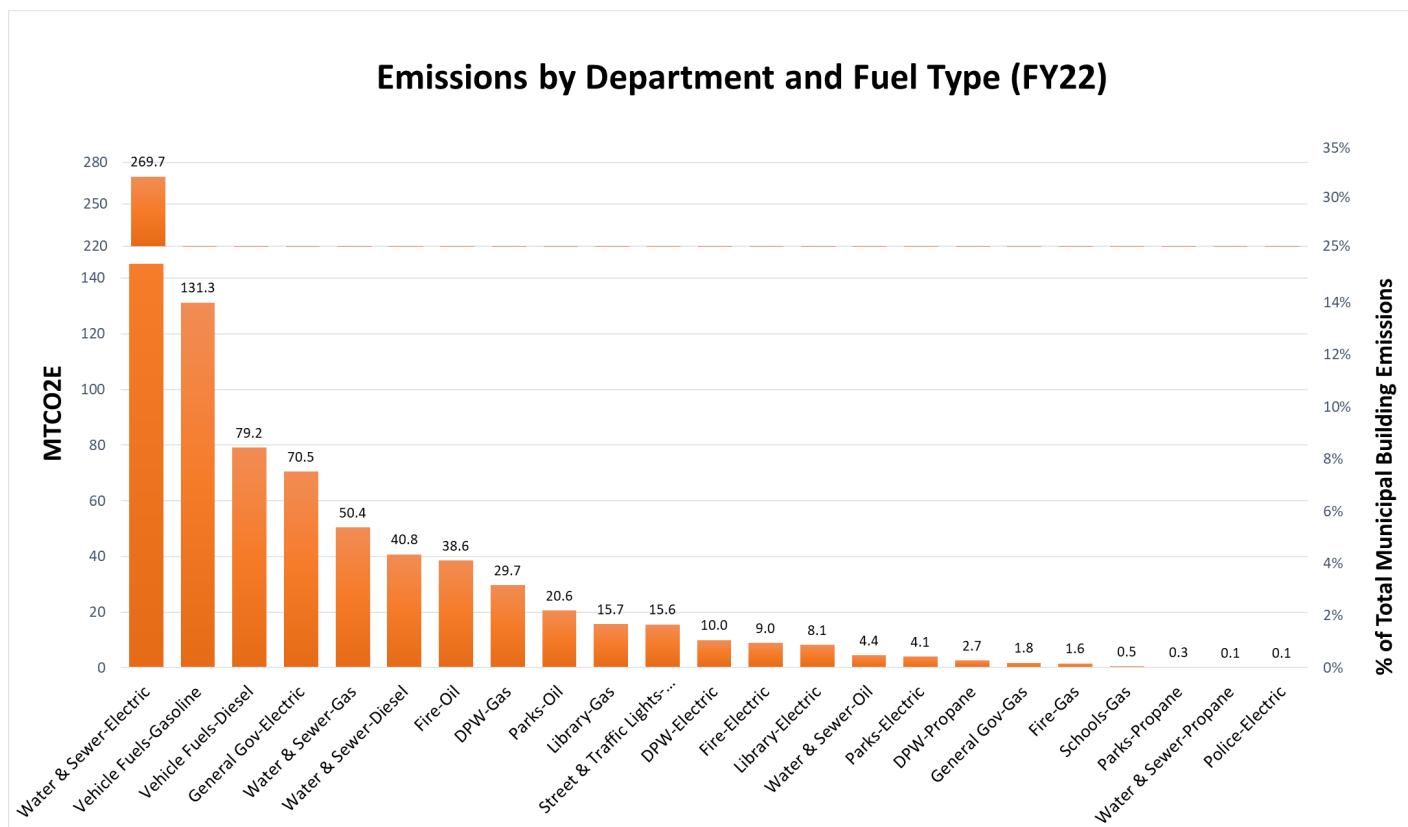


Figure 2. This chart represents the distribution of municipal emissions by department and fuel type in Manchester-By-The-Sea for Fiscal Year 2022. Data source: Mass Energy Insight.

Top Emitting Buildings

Table 1 outlines the Town's least efficient and highest emitting municipal buildings, including the percent of total municipal emissions each respective facility emits for fiscal year 2022. A lower energy use intensity (EUI) value (kBtu/sf) indicates greater energy efficiency. Table 1 is organized in order of EUI.

Table 1. List of MBTS's least efficient and highest emitting buildings. Note: Schools data were omitted from this analysis due to incomplete data.

| Facility | Energy Use Intensity (kBtu/sf) | Emissions (MtCO2e) | % of Total Municipal Building Emissions (FY22) |
|-----------------------|--------------------------------|--------------------|--|
| DPW Garage | 134.8 | 39.7 | 19% |
| Crowell Chapel | 123.8 | 21.3 | 10% |
| Library | 98.9 | 23.8 | 11% |
| Town Hall | 58.8 | 66.9 | 32% |
| Fire Department | 53.2 | 49.1 | 23% |
| Seaside 1 Building | 51.3 | 5.3 | 3% |
| Cemetery Office (DPW) | 48.8 | 2.7 | 1% |
| Singing Beach | 3.5 | 0.7 | <1% |
| Tucks Point | 3.4 | 0.6 | <1% |

The DPW Garage is the least efficient municipal building in MBTS. Additionally, while Town Hall and the Fire Department are notably more efficient, these two buildings combined make up 55% of the total emissions from municipal buildings in 2022. The information in Table 1 paired with local knowledge of

buildings usage can help inform the prioritization of energy reduction strategies. For example, to reduce emissions at Crowell Chapel's, possible strategies include: 1) operate the Chapel seasonally and drain the pipes in the winter, or 2) conduct an energy audit and identify further energy conservation strategies.

To further assess the Town's energy efficiency performance, Table 2 below benchmarks several building types where data is available for national and state median EUI using US Energy Star Portfolio Manager data and aggregated state data from Mass Energy Insight.

Table 2. Top emitting buildings in Manchester-By-The-Sea benchmarked against the national and state median.

| MBTS | | National Benchmark: US Energy Star | | State Benchmark: Mass Energy Insight | |
|-----------------------|-----------------------|---------------------------------------|-----------------------------------|---|------------------------------|
| Facility | Site EUI (kBtu/sf) | Facility Category | Median Site EUI (kBtu/sqft) | Category | Median Site EUI (kBtu/sf) |
| Library | 98.9 | "Library" | 71.6 | Library | 57.4 |
| Town Hall | 58.8 | "Other Public Services" | 40.1 | No statewide benchmark available | - |
| Fire Dept | 53.2 | "Fire Station" | 63.5 | Public Safety | 76.4 |
| Seaside Building 1 | 51.3 | "Office" | 52.9 | Administration | 57.8 |
| Crowell Chapel | 123.8 | "Social Meeting Hall" | 56.1 | No statewide benchmark available | - |
| DPW Garage | 134.8 | "Non- refrigerated warehouse" | 22.7 | Public Works | 60 |

As indicated above, the Library, Town Hall, Crowell Chapel, and DPW garage are less efficient than the national and/or state median; the Fire Station and Seaside Building 1 are either comparable or negligibly more efficient than the national and/or state median. The less efficient sites are prime opportunities for investing in energy efficiency upgrades.

Strategies to Move Towards Net Zero

The strategies outlined in this report provide an actionable framework for Manchester-by-the-Sea's town government to achieve GHG emission reduction goals for municipal operations. While achieving net zero operations is a long-term goal, there are actions that the Town can take today to set the municipality on a path to net zero and reducing emissions in the near term. **To meet net zero goals, the municipality must prioritize energy use reduction and transitioning off fossil fuels used for electricity, heating, cooling, and transportation.**

The strategies outlined in this plan are based on what local governments have direct control over including municipal buildings and property, municipal fleets, open space and recreation, and streetlights. The Town can also prioritize retrofits and upgrades (e.g., mechanical and HVAC equipment replacement, roof replacement, or change of use). These repairs are already accounted for in municipal planning and investment; therefore, GHG reduction goals should be prioritized in purchasing, operations, and maintenance decisions.

STRATEGY 1: Reduce Energy Usage

MBTS has already committed to reducing municipal energy consumption by 20% as part of their Green Communities energy reduction plan. To further drive energy conservation, the Town should conduct a follow up audit and develop a weatherization priority list to identify and prioritize improvements in energy efficiency; replace outdated equipment with energy efficient alternatives; and invest in Energy Management Systems.

A. Energy Audit and Weatherization Priority List

This action focuses on conducting an updated energy audit and developing a priority list for weatherizing town buildings. The energy audit will provide a more comprehensive assessment of energy usage in municipal facilities, allowing for the identification of areas for improvement such as enhancing the building envelope or replacing aging roofs or windows. Based on the audit findings, a priority list will be developed, outlining the key weatherization projects required to enhance energy efficiency. This approach will enable the town to systematically address energy waste and prioritize investments in building upgrades, ultimately working towards achieving its net zero goals.

To initiate this strategy, it is recommended to begin with the Town's top emitting buildings, as identified in Table 2, such as the DPW garage and Crowell Chapel.

B. Energy Efficiency Purchasing Policy

MBTS has significantly advanced transitioning building lighting to LEDs, replacing electronic equipment with energy efficient alternatives, and installing smart sensors. To codify this practice in place, the Town should pass an Energy Efficiency Purchasing Policy to require a certain level of efficiency, such as Energy Star rating, when replacing or procuring new equipment. This policy ensures that energy efficient equipment is prioritized, resulting in reduced emissions. Energy Star covers a wide range of appliances, ranging from home/office appliances such as refrigerators and dishwashers to heating/cooling equipment like heat pumps and boilers, among others; review the full list of Energy Efficient products [here](#).

Resource: EPA Guidance Documents. The EPA's Energy-Efficient Product Procurement Guide³ and Energy Efficiency in Local Government Operations⁴ offer guidance on developing and implementing GHG reduction programs focused on energy efficiency and sustainable procurement.

³ <https://www.epa.gov/sites/default/files/2015-08/documents/energyefficientpurchasing.pdf>

⁴ https://www.epa.gov/sites/default/files/2017-06/documents/ee_municipal_operations.pdf

C. Energy Management Systems (EMS) and Training

Consider installing supportive technologies to help monitor and reduce onsite energy loads, including energy management systems, smart thermostats, and smart inverters to monitor and reduce onsite energy loads. The library, which already has an EMS in place, can serve as a valuable example for other large energy consuming facilities to follow. Analyze the expected building performance and retrocommission any sites in need. Retrocommissioning involves optimizing existing building systems and controls to improve their energy efficiency and performance.

Additionally, it is important to provide training to building management staff on how to effectively operate and maintain this equipment.

STRATEGY 2: Transition Off Fossil Fuels Through Electrification of Buildings

One of the largest sources of municipal emissions comes from the burning of fossil fuels for heating and cooling needs in buildings. To meet net zero goals, MBTS must transition municipal buildings off fossil fuels primarily through electrification. To aid in this transition, MBTS can establish a policy to ensure new municipal buildings are net zero and fully electric; adopt the specialized stretch energy code; and develop an electrification master plan.

A. Establish a Policy to Ensure New Municipal Buildings are Net Zero and Fully Electric

Municipalities are adopting net zero carbon standards for new municipal buildings, schools, and municipally funded affordable housing projects. These policies aim to reduce future energy use by incorporating high energy efficiency standards while using renewable energy from on-site and off-site sources to meet the energy demands of the building and its occupants.

Example: Amherst, MA Zero Energy Town Buildings By-Law. In 2017, the Town of Amherst passed a Zero Energy Town Buildings By-Law⁵ aimed to eliminate nearly all use of fossil fuels in new town buildings and building additions, applicable to all projects over \$2 million. Building projects are required to be conceived, planned, designed, engineered, and commissioned collaboratively to ensure Zero Energy Requirements.

B. Adopt the Specialized Stretch Energy

At the end of 2022, Massachusetts adopted an updated Stretch Energy Code and a new municipal opt-in Specialized Code⁶ to support meeting the State's and local climate goals for rapidly reducing. MBTS should adopt the new codes to make a significant impact in GHG emissions reduction.

The new Specialized Code builds upon the updated Stretch Code and allows municipalities to opt-in to even stronger regulations for new construction that will put communities on a path towards net zero emissions. Municipalities interested in adopting the Specialized Code will have to go through a formal adoption process with their City Council or at Town Meeting. Several municipalities have already adopted the new Specialized Code. The Department of Energy Resources (DOER) recommends that a municipality wait at least six months after adopting the new Specialized Code and to start enforcement of the new codes on either July 1, 2023 or January 1, 2024.

⁵ <https://www.amherstma.gov/DocumentCenter/View/60024/Amherst-General-Bylaws-Net-Zero-Energy-Bylaw?bidId=>

⁶ <https://www.mass.gov/info-details/stretch-energy-code-development-2022>

Resource: Guidance on the Specialized Stretch Code. MAPC's Codes for Climate webinar⁷ outlines the Specialized Energy Code process and touched on how municipalities can adopt the Specialized Code through Town Meeting, and how to obtain guidance from the Green Communities program.

C. Develop an Electrification Master Plan

MBTS should release an RFP to develop an Electrification Master Plan to map out how existing buildings will be retrofitted and electrified (particularly with heat and cooling loads) over time. The plan should prioritize electrification of the municipality's largest emitters that are also up for renovation soon. The Town should identify key points for electrification overhauls (i.e., large renovations, retrofits, alternations, replacement of HVAC systems, and change of use in line with the building code). Plans for electrifying boilers and heating systems should be made well in advance of equipment failure or the system's end of life. Otherwise, if existing equipment were to fail in an emergency, you may not be able to switch over to an all-electric system in a tight turn-around.

Example: Arlington, MA RFP for Electrification and Air Quality Master Plan. In 2021, the Town of Arlington released an RFP⁸ for an Electrification and Air Quality Master Plan for 6 school buildings to provide electrification pathways and inform renovations and potential bylaws. The resulting plan will be publicly released by Arlington this summer.

STRATEGY 3: Install Clean Energy on Publicly Owned Property

Municipalities own and operate large amounts of property- including buildings, parking lots, and open space that may be suitable for renewable energy. This space can be maximized for installing clean energy to meet the direct needs of the municipality, or community needs through community solar. While MBTS already has small solar arrays installed on some municipal properties, the Town is ripe for re-evaluating the potential given new financial incentives and market conditions.

A. Clean Energy Assessment

Assess municipally owned property to identify suitable roofs, parking lots for solar canopies, and potential brownfields for ground-mounted solar. Larger areas may be able to be leased to a third party for a community-shared solar project that could include a carve-out for local renters and low-moderate income (LMI) residents who otherwise may not be able to install solar on their own roofs.

The Advisory Group suggested conducting an evaluation of rooftop solar opportunities at the Water Treatment Plant, which is currently under assessment for heat pumps, and exploring the feasibility of implementing a solar canopy at the elementary school. The Advisory Group also recommended exploring the potential for geothermal on new sites.

Example: Solar Parking Canopy Zoning Bylaw. The Towns of Natick⁹ and Medfield¹⁰ have both passed a Solar Parking Canopy Zoning Bylaw to facilitate the installation of solar energy and increase renewable energy generation capacity.

B. Pursue SolSmart Designation

SolSmart is a program offered by the Department of Energy (DOE) that offers no-cost technical assistance to municipalities to expand solar energy use and recognizes leaders by designating them SolSmart Platinum, Gold, Silver, and Bronze. By pursuing SolSmart designation, MBTS, like 19 other

⁷ <https://www.mapc.org/planning101/massachusetts-stretch-energy-specialized-code/>

⁸ <https://www.arlingtonma.gov/home/showpublisheddocument/57164/637612416674070000>

⁹ <https://www.natickma.gov/DocumentCenter/View/14890/March-2023-Zoning-Bylaw>

¹⁰ <https://ecode360.com/41108002>

municipalities in Massachusetts¹¹, can leverage the resources and expertise provided by the program to update its solar policies, streamline permitting, and reduce the soft costs of solar energy projects. “Soft costs” come from costs associated with sales and marketing, permitting processes, planning, zoning considerations, and financing, among others that increase the cost of installation and are often passed down to customers – the DOE estimates soft costs make up 64% of the total cost of a solar energy system.¹² SolSmart designation can help send a signal to the community that Manchester-By-The-Sea is “open for solar business.”

Resource: SolSmart Program Guide. The SolSmart Program Guide offers comprehensive information on how to get SolSmart designated, as well as a resource library of solar best practices from other municipalities across the country. MBTS should fill out the SolSmart [interest form](#) to be matched with an on-call consultants and learn more about the process.

C. Assess Battery Storage Potential

Battery storage should be considered at key facilities for resilience purposes or to participate in utility demand management programs that incentivize customers to reduce energy usage during peak demand hours.. Peak demand management can help the municipality save hundreds of thousands of dollars in energy costs.¹³

Other municipalities in the region have added battery storage systems onto public buildings, schools, brownfields, and the bus fleet. The Town should take stock of critical facility sites, prioritizing those with high energy consumption, those undergoing renovations, or with an existing storage-compatible solar system.

STRATEGY 4: Purchase Clean Energy from Off-Site Sources

In addition to maximizing on-site solar, MBTS can also ensure that the electricity purchased from the grid comes from 100% renewable sources.

A. Community Choice Aggregation.

MBTS recently approved Community Choice Aggregation (CCA), also known as Municipal Aggregation or Green Municipal Aggregation, at Town meeting. CCA allows municipalities to collectively procure a higher percentage of renewable energy supply on the competitive market for both municipal energy use, as well as on behalf of residents and businesses. In addition to the clean energy benefits, CCA rates are often fixed in multi-year contracts and can help save rate-payers money.

As a next step in implementing CCA, the Town should hire an Energy Broker and bid out a contract and then develop an aggregation plan with DOER.

Resource: MAPC Start a Green Municipal Aggregation Program Guide. MAPC’s Green Municipal Aggregation Program Guide offers more information on the program as well as step-by-step guidance on implementation and sample CCA Plans from other municipalities.¹⁴

STRATEGY 5: Decarbonize the Water Treatment Plant

¹¹ List of municipalities in Massachusetts that are SolSmart designated can be viewed here: <https://solsmart.org/our-communities#?state=Massachusetts&level=>

¹² <https://www.energy.gov/eere/solar/soft-costs>

¹³ <https://www.mapc.org/our-work/expertise/clean-energy/peak-demand/>

¹⁴ https://www.mapc.org/wp-content/uploads/2020/02/MAPC-Green-Municipal-Aggregation-Toolkit_2020-Update.pdf

Because the Water Treatment Plant (WTP) is the facility with the largest source of municipal emissions, this strategy targets decarbonizing its operations. In 2021, the Town converted the Water Treatment Plant back onto the original hot water boiler which runs on diesel.

A. Energy Assessment of WTP through UMass

MBTS should conduct an energy audit of the facility to identify areas of inefficiencies and develop a plan for improvement. As noted in Strategy 3A, the Town should reevaluate the physical and financial feasibility of installing rooftop solar or a solar canopy on the site, in addition to the ongoing work to assess heat pump feasibility. The Advisory Group recommended exploring the feasibility of a solar canopy on the unpaved, back corner area of the Water Treatment Plant site.

The University of Massachusetts Amherst's Industrial Assessment Center offers no-cost energy assessment services for water and wastewater treatment facilities. In-depth assessments are conducted by a team of engineering graduate students to provide specific recommendations to reduce energy use and operating costs. Facilities are eligible if their gross annual sales are below \$100 million, have fewer than 500 employees, have annual energy bills between \$100,000 and \$2.5 million, and lack professional in-house staff to perform the assessment. MBTS is encouraged to connect with the Center to explore a potential collaboration.

Resource: UMass Amherst Industrial Assessment Center. No-cost energy audit for water treatment plants.¹⁵

STRATEGY 6: Fleet Electrification

Vehicles represent the second largest opportunity for emissions reductions. In addition to implementing the recommendations outlined in the ongoing Fleet Electrification Assessment roadmap, being done in collaboration with National Grid and ICF, the Town should explore passing a vehicle purchasing policy and electrification of school buses.

A. Vehicle Purchasing Policy and Guidance

MBTS has successfully purchased new EV vehicles for the police fleet, and can go further by passing a policy that requires new and replacement vehicles to be all-electric, hybrid, or as fuel efficient as possible when EVs are not available. A similar policy is required for Green Communities but has several exemptions. This policy should be re-visited every five years as the EV technology and market shifts and make more vehicle types available. In anticipation of electrifying the full municipal fleet, the Town should invest in EV charging at key locations and schools where charging will occur. Funding is available through utility "EV Make Ready" programs for charging infrastructure at municipal sites and schools.¹⁶

Example: City of Cambridge Clean Fleet Policy. In February of 2023, Cambridge issued a citywide Clean Fleet Policy, requiring all departments to acquire the lowest emitting vehicles for municipal use, plan for charging infrastructure, and other strategies to reduce energy use (e.g., minimize engine idling, optimize vehicle performance, etc.).¹⁷

Example: Town of Brookline Resolution Calling for Electrification of Town's Motorized Fleet. In 2019, a Town Meeting in Brookline called for the Town to fully electrify its motorized vehicle fleet.¹⁸

¹⁵ <http://www.ceere.org/iac.html>

¹⁶ [https://www.mass.gov/how-to/apply-for-massevip-public-access-charging-](https://www.mass.gov/how-to/apply-for-massevip-public-access-charging-incentives#:~:text=MassEVIP%20Public%20Access%20Charging%20is%20one%20of%20several,EV%20charging%20stations%20more%20widely%20available%20across%20Massachusetts.)

[incentives#:~:text=MassEVIP%20Public%20Access%20Charging%20is%20one%20of%20several,EV%20charging%20stations%20more%20widely%20available%20across%20Massachusetts.](https://www.mass.gov/how-to/apply-for-massevip-public-access-charging-incentives#:~:text=MassEVIP%20Public%20Access%20Charging%20is%20one%20of%20several,EV%20charging%20stations%20more%20widely%20available%20across%20Massachusetts.)

¹⁷ <https://www.cambridgema.gov/Departments/publicworks/Initiatives/Sustainability/cleanfleetinitiative>

¹⁸ https://www.brooklinema.gov/AgendaCenter/ViewFile/Minutes/_05082019-6867

B. Explore Electrification of School Buses

MBTS should explore and advocate for the electrification of school buses with its third-party contractor on future contractors. Electric school buses may be phased in, such as piloting a smaller number of EV buses to better understand infrastructure needs and operations.

Example: City of Beverly. In 2020, the City of Beverly transitioned 27 school buses to EVs in partnership with Highland Electric Transportation¹⁹.

¹⁹ <https://www.mapc.org/planning101/saying-no-to-diesel-engaging-educators-and-students-in-the-energy-transition/>

Implementation of the Net Zero Plan

The Town will need staff capacity, resources, and funding to implement the Net Zero Operations Plan. Current capacity for energy and climate goals is limited, because it is a small part of the overall work done by several staff.

Getting Started

The following are recommendations for getting started with implementation:

- **Continue meeting as an Advisory Group.** The Advisory Group for the development of this Plan consisted of key staff including the Select Board, Sustainability Committee, Facilities, and Town Manager, among others to advance the goals in the plan, along with existing Green Communities commitments around energy use reduction. Present annually on Green Communities progress and present quarterly to existing Team meetings to ensure engagement and buy-in from across municipal departments.
- **Hire a full-time, part-time, or regional sustainability manager.** Having a designated position to implement this Plan and advance other energy, sustainability, and climate resilience initiatives would be instrumental in making progress towards the Town's net zero and resilience goals. Additional staff capacity would also enable the Town to apply for additional state and federal grant programs specifically on climate mitigation and resilience. MBTS can partner with a nearby municipality, such as Rockport, Essex, and/or Topsfield, to hire a joint position for the various towns. For example, the North Suffolk Office of Resilience and Sustainability (NSORS) was founded in 2021 as a partnership between Chelsea, Revere, and Winthrop funded through the Barr Foundation.
- **Establish a funding and financing plan.** Developing a funding and financing plan for key strategies outlined in the plan including capital budget, operations and Maintenance budget, state and federal grants, private financing, and tax credits/rebates. See suggested funding sources below. Furthermore, the Town should integrate these energy efficiency improvements into its capital planning process, ensuring that they are considered and implemented as part of future renovation and construction projects.

State and Federal Grants

- **Green Communities Competitive Grants:** The DOER's Green Communities Division provides funding for clean energy projects in municipal buildings, facilities, and schools; guidance, technical assistance, and local support from Regional Coordinators. MBTS should continue to apply for competitive grants to implement eligible energy conservation measures and recommissioning. Applications are due May 5th, 2023.²⁰
- **Massachusetts School Board (MSBA):** Provides guidelines for green school development²¹, as well as an Accelerated Repair Program that supports replacement of windows, roofs, and boilers.²²
- **Federal Funding Opportunities Center:** MAPC has put together a resource center to track federal grants. This website will be updated regularly [Federal Funding Opportunities Center – MAPC](#)
- **Energy Efficiency and Conservation Block Grant (EECBG):** Although MBTS is not eligible for EECBG formula funding (communities over 35,000 residents), the Town would be eligible for sub-grant funding through the EECBG Competitive Grants. DOER will apply for about \$2.49 million in funding from DOE in July 2023 that can be administered to Massachusetts municipalities not included in the formula program. EECBG Program funding is flexible and encouraged to be used towards established climate strategies such as the Operational Plan and be used to implement recommended solar, fleet electrification projects and energy efficiency retrofits.

²⁰ <https://www.mass.gov/doc/key-program-dates-calendar/download>

²¹ https://www.massschoolbuildings.org/programs/green_schools

²² https://massschoolbuildings.org/programs/Accelerated_Repair

- **EPA School Bus Grant:** The EPA anticipates awarding approximately \$400 million in competitive grant funding to eligible applicants nationwide to procure electric school buses and charging infrastructure. The program includes two sub-programs: (1) School District Sub-program for school districts, and a (2) Third-Party Sub-program for third-party applicants. The application closes on August 22, 2023.²³

Clean Energy Financing and Tax Incentives

- **Federal Tax Incentives:** Under the Inflation Reduction Act (IRA) municipalities are now eligible for the Investment Tax Credit (ITC) for clean energy, which were previously unavailable. See the IRS website for updates and guidance on how municipalities can access these and other tax credits.²⁴
- **Mass Save Electrification Incentives:** Municipal buildings and schools can take advantage of incentives for electrification and weatherization through the Mass Save program. This can help reduce project costs on new construction and retrofits.²⁵
- **Massachusetts SMART Incentives:** Municipal and school solar projects may be eligible for the state's SMART incentive- "Solar Massachusetts Renewable Target" Program. This program provides adders for solar parking canopies and storage.²⁶

²³ <https://www.epa.gov/cleanschoolbus/clean-school-bus-program-grants>

²⁴ <https://www.irs.gov/inflation-reduction-act-of-2022>

²⁵ <https://www.masssave.com/en/business/rebates-and-incentives/building-insulation-and-weatherization>

²⁶ <https://www.mass.gov/info-details/solar-massachusetts-renewable-target-smart-program#:~:text=The%20SMART%20Program%20is%20a%203%2C200%20MW%20declining,that%20decline%20in%20incentive%20rates%20between%20each%20block.>