MASSACHUSETTS
DEPARTMENT OF
ENERGY RESOURCES

Beyond Energy Efficiency

Innovative solutions for sustainability

Leading By Example Council Meeting

July 8, 2025

Presented by
Department of Energy Resources, Leading By Example Division

07/08/2025

Agenda

Introduction

Updates & Reminders

Alternative Transportation Solutions

Speakers: **Ryan Conway and Derek Schradieck**, Country Club Enterprises; **Devan DiLibero**, MassCEC

Renewable Diesel

Speakers: **Bobby Brown**, President, Broco Energy; **Shahbaz Soofi**, Massachusetts Port Authority

All About Waste

Speakers: **Heather Billings**, Senior Waste Reduction Consultant, RecyclingWorks; **Joe MacKinnon**, Director of Facilities, Cape Cod Community College

Group Discussion

Closing

Welcome, Maddie!

Maddie Culcasi is DOER's LBE Summer Intern

Maddie is a second year Master's student at Tufts University studying Urban and Environmental Policy and Planning. She is interested in pursuing a career in renewable energy, climate resilient development, and/or environmental policy.

LBE Reminders

Things to look out for in the next few months:

- Large Building Energy Reporting (LBER)
- LBE Grants and the NEW Decarbonization Implementation Grant (DIG)
- Coming soon: 2025 Show-and-Mow

Large Building Energy Reporting (LBER)

The first energy reporting deadline for this program (June 30) has passed!

Extension: The default extension timeline for submitting energy data is **an additional 30 days** (July 30). Longer deadlines may have been negotiated with the LBER team.

Please reach out to Arianna (Arianna.Zrzavy@mass.gov) or Sophia (Sophia.Vitello@mass.gov) if you still need help:

- Thinking through and finding energy data
- Talking through the energy submission process
- Explaining any Knowledgebase forms

We don't have access to BEAM so we won't be able to answer specific questions about open tickets, etc.

The first building energy disclosure report will be released on **October 31, 2025**.

LBE Grant Programs

See our grants website for more information.

Solar-Decarbonization

Incentives for solar PV, decarbonization projects, and associated EVSE & storage at state owned facilities

LBE Contact: Sophia Vitello (Sophia.Vitello@mass.gov)

Equipment Decarbonization

Partial cost coverage for electrifying state-owned equipment

LBE Contact: Morgan Bowler (Morgan.Bowler@mass.gov)

Fleet EV Charging Equipment

Up to 100% cost coverage for deployment of EVSE at state facilities

LBE Contact: Sophia Vitello (Sophia.Vitello@mass.gov)

Clean Energy Feasibility Studies

Funding for studies examining the feasibility of technologies and strategies

LBE Contact: Morgan Bowler (Morgan.Bowler@mass.gov)

Restoration Program for Solar & Decarbonized Systems

Cost coverage for repair or replacement of critical components for existing systems at state facilities

LBE Contact: Arianna Zrzavy (Arianna.Zrzavy@mass.gov)

Introducing the LBE Decarbonization Implementation Grant (DIG) Program!

The DIG Program supports the affordability of large scale decarbonization efforts for new and existing state facilities.

Total Grant Funding: $12.5 million

Eligible Entities: Executive branch agencies, quasi-public authorities, public institution of higher education

Grant Amounts:

Grant Project Category	LBE Cost Coverage	Base Grant Amount	Optional Adders
Existing Facility Decarbonization	IOU: 40% of eligible costs MLP: 50% of eligible costs	Between up to $3M and $7M depending on square footage, not including adders	Environmental Justice Adder (+10%) Existing Solar Grant Adder (+2.5%) Existing Energy Storage Grant Adder (+2.5%)
New Construction & Major Renovations	IOU: 20% of eligible costs MLP: 30% of eligible costs	Up to $2.5M, including adders	Environmental Justice Adder (+10%) Existing Solar Grant Adder (+2.5%) Existing Energy Storage Grant Adder (+2.5%)

DIG Program Eligible Costs

Existing Facility Decarbonization

Actual decarbonization measures:

- Building retrofits
- Air- and ground-source heat pumps
- Systems using water or wastewater sources to meet thermal load

Elements that support future decarbonization at the site:

- site electrification preparation (e.g., electrical infrastructure upgrades or geo-exchange wells with heat pumps)
- envelope improvements (e.g., air sealing and window replacements)

New Construction & Major Renovations

- All equipment, electrical infrastructure, and installation costs directly associated with the deployment of a large-scale thermal system
- Does not cover the thermal efficiency measures necessary to comply with the Mass. LEED Plus 2.0 Standard and the Specialized Energy Code

DIG Application Process & Timeline

DIG is a competitive grant program.

Applicants must first submit a statement of interest; after receiving pre-approval, they may submit a final application.

There will be up to three rounds of applications awarded, depending on how much funding remains from earlier round(s).

The dates below are subject to change, but DOER currently anticipates the following deadlines:

	Statement of Interest Due	Final Application Form Due	Grant Review & Approval Period	Grant Awards Announced
Round 1	**July 17, 2025**	**August 1, 2025**	**August-September 2025**	**October 1, 2025**
Round 2	*October 15, 2025*	*November 3, 2025*	*November-December 2025*	*January 2, 2026*
Round 3	*January 15, 2026*	*February 2, 2026*	*February-March 2026*	*April 3, 2026*

Coming Soon: 2025 Show and Mow

What is a Show and Mow?

The Show and Mow is sponsored by the LBE Division and the Operational Services Division to familiarize staff with battery-powered landscaping equipment (BPLE).

At the Show and Mow, you can:

- Hear about the various BPLE offerings on statewide contract.
- Learn more about the incentives and funding available to your site.
- Ask questions and get some answers from folks who use battery powered landscaping equipment.
- Try some of the equipment out for yourself!

DOER Policy Updates

DOER is seeking comments on the following:

- Regulations* for Current SMART Regulation and its Successor SMART 3.0.
- Draft District Energy System Guideline for the Specialized Energy Code.

**Emergency regulations which are effective immediately*

Changes to Existing SMART MASSACHUSETTS SOLAR PROGRAM Regulation

DOER has amended the existing regulation to clarify the transition to SMART 3.0.

The new SMART program opens in October 2025. The SMART Program will stop accepting Statement of Qualification (SOQ) applications under the current regulation on December 31, 2026.

From 10/15/25—12/31/26, both programs will be open, and projects may qualify under either one depending on their construction date:

- To apply under the current program, SOQ applications must demonstrate that **significant on-site physical work has begun prior to December 31, 2025** (e.g., installation of racks to affix panels, collectors, or solar cells to a site).
- Limited exemptions to this requirement may be granted.

3.0 Regulation (225 CMR 28.00)

Allows DOER to adjust the program annually in response to economic analyses.

Sets a minimum 24-month reservation period for SOQs with possible extensions.

Institutes an annual application process for projects.

Incentive values for projects farther out are harder to predict but would better reflect current market conditions.

Specific details about requesting an extended reservation will be outlined in a program guideline.

Impacts how and when projects will enter the application queue; DOER may determine annually whether behind-the-meter projects between 25-250 kW are subject to capacity caps.

(not comprehensive; see here for full details)

3.0 Regulation (225 CMR 28.00) -- continued

Lists base compensation rate adders that will be included (values established annually).

Raises the size threshold for energy storage from 500 kW to 1 MW and exempts building-mounted solar.

Expands the “solar canopy” definition.

Establishes a land use mitigation fund to invest in conservation and biodiversity programs.

Extra incentives for solar canopies, building-mounted PV, public entities, and pollinator habitat, among others.

Smaller projects and rooftop solar projects will not have to request an energy storage exemption.

Percent of capacity that must maintain secondary function of the area beneath the canopy reduced from 100% to 75%.

An upfront mitigation fee applies to ground-mounted projects >250kW AC, unless receiving a locational adder or sited on previously developed land.

(not comprehensive; see here for full details)

3.0 Application Process & Waitlist

Statement of Qualification (SOQ)

Applications for program year 2025 can be submitted starting October 15, 2025.

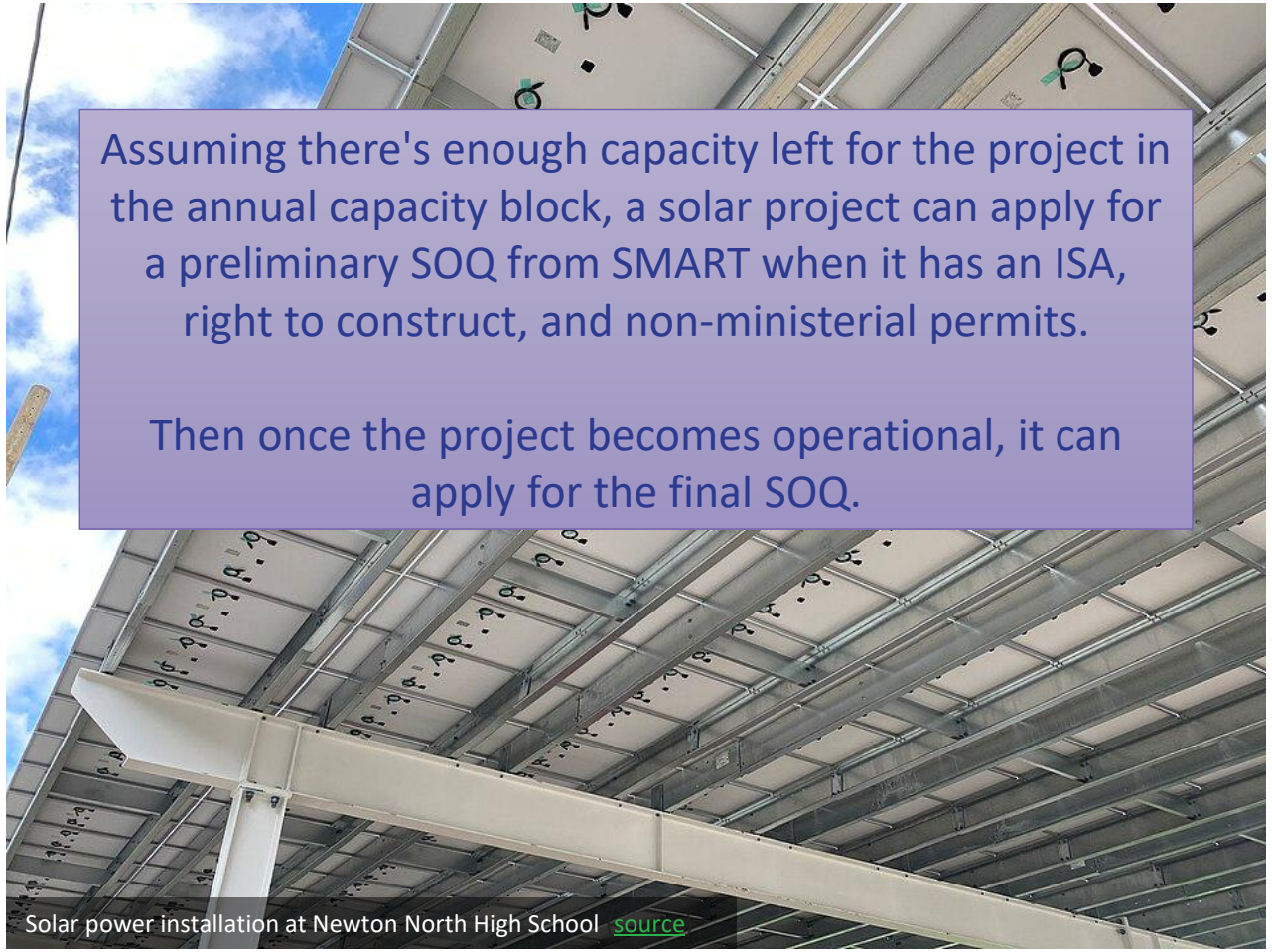
For Program Year 2026 and beyond, applications open at the start of January.

The initial application window is 10 business days.

Annual capacity will then be allocated on a first come, first served basis.

If all capacity is reserved, there will be a waitlist.

Projects on the waitlist can receive priority the following year.



Assuming there's enough capacity left for the project in the annual capacity block, a solar project can apply for a preliminary SOQ from SMART when it has an ISA, right to construct, and non-ministerial permits.

Then once the project becomes operational, it can apply for the final SOQ.

Solar power installation at Newton North High School source

(not comprehensive; see here for full details)

How to Provide Feedback

Comments are due by 5:00 PM on July 25, 2025.

DOER will accept public comment on both regulations and can make revisions in response to feedback during the three-month rulemaking period.

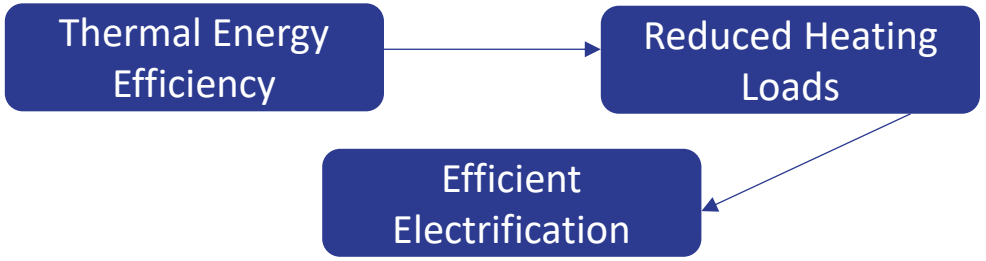
DOER requests that stakeholders submit their public comments as soon as possible to ensure all feedback is sufficiently captured.

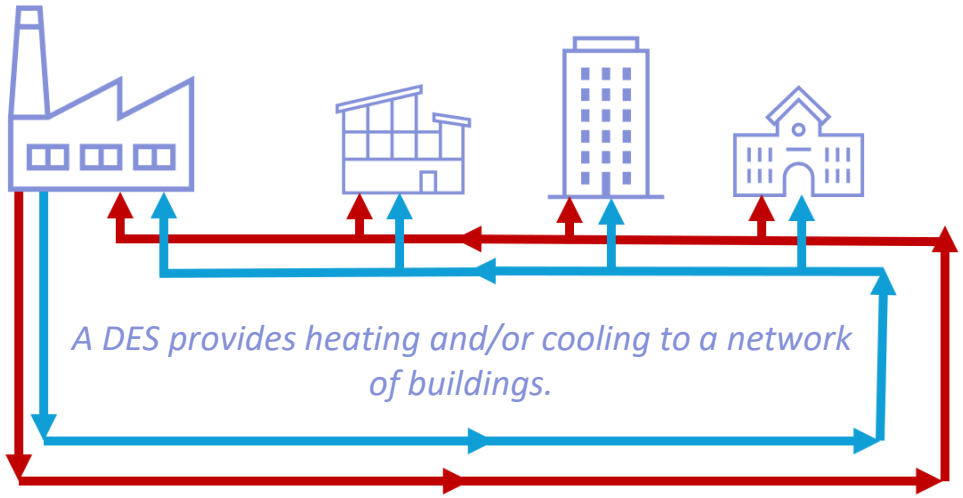
Written comments should be submitted as attached pdf files to DOER.SMART@mass.gov, with the words “SMART 3.0 Public Comment” in the subject line.

Proposed Energy Code Guideline: District Energy Systems

Specialized Energy Code

The Code is designed to ensure new construction is consistent with a net-zero economy in 2050:





Code Compliance

State new construction and major renovation projects are subject to the Specialized Code under E.O. 594.

There are two compliance pathways to meet the Code:

All-Electric

Mixed Fuel

+ Onsite solar
+ Pre-wiring for future electrification

Buildings Tied to District Energy Systems (DES)

New construction projects served by DESs that use fossil fuels are considered Mixed Fuel buildings.

The Code provides these Mixed Fuel buildings limited relief from certain electrification requirements ***if the DES is going to be electrified***.

District Energy Systems Draft Guideline

New Draft Guideline

In the February 2025 Code update, DOER introduced the concept of an **Order of Conditions (OoC).**

June 2025

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
DEPARTMENT OF ENERGY RESOURCES

Massachusetts Stretch and Specialized Codes
(225 CMR 22.00 and 23.00)

Guideline on District Energy Systems

Effective Date: TBD

Introduction

Massachusetts hosts a number of district energy systems (DESs). DESs traditionally make steam or hot water at a central location for distribution to a network of buildings to be used for space heating and/or service water heating. Some DESs also make chilled water for space cooling. A more modern DES arrangement is to provide mid-temperature, or variable temperature, water to a network of buildings to be used as a heat source and heat sink for buildings' heating, cooling, and service water in conjunction with locally sited heat pumps, thus improving overall system efficiency.

Most existing DESs use heat from burning fossil fuels to generate hot water or steam and some of these systems' owners are seeking ways to transition from fossil fuel to efficient electrification using electric heat pumps. The Massachusetts Stretch and Specialized energy Codes do not restrict the use of DESs using fossil fuels, however, buildings served by DESs using fossil fuels are by definition 'mixed fuel' buildings. Buildings seeking to be classified as 'all electric' buildings under the energy codes are typically served by on-site efficient electrification of space and water heating. However, some buildings may wish to connect to an existing DES that is undergoing a transition to efficient electrification and are seeking relief from the full requirements of mixed fuel buildings to provide electric capacity for on-site electrification as a result.

To support this effort, on February 14, 2025, the Department of Energy Resources (DOER) published updates to the Massachusetts Stretch and Specialized Codes for commercial buildings under 225 CMR 23.00 that introduced the concept of a District Energy Order of Conditions (OoC) which provide relief from some of these codes' efficient electrification provisions which would otherwise be required for buildings connecting to these systems.

District Energy Order of Conditions are defined under 225 CMR 23.00, Section C202 as:

A document issued by the Commonwealth of Massachusetts Department of Energy Resources which regulates the decarbonization and efficient electrification of all energy inputs of a district energy system for the purposes of building energy code compliance.

↑ The new draft DOER guideline ↑ outlines the proposed requirements and process for requesting an OoC.

Order of Conditions

When the DES has a valid OoC...

… This means the DES is "qualified" by DOER.

Certain projects served by a qualified DES may receive relief from some Mixed Fuel building requirements under the Code, such as pre-wiring for future electrification.

Decarbonization Plan

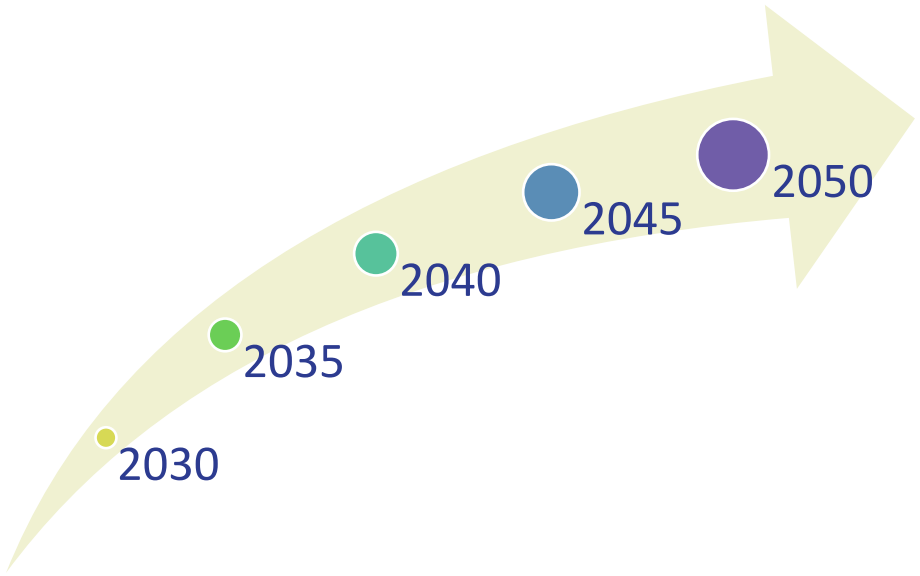
To get an OoC, the host site must demonstrate that it has a long-term plan to decarbonize and efficiently electrify the entire DES through the creation of a **Decarbonization and Efficient Electrification Plan (DEEP).**

Proposed DES Decarbonization Plan or “DEEP”

A DEEP is required to qualify a DES.

Getting DEEP

DEEPs should be prepared by engineering and technical professionals and include these components as applicable:



- ✓ Existing conditions of electrical infrastructure, operations, distribution, end users, permits and licenses.
- ✓ Description and specifications for future DES equipment.
- ✓ Future DES infrastructure and operations for years 2030, 2035, 2040, 2045, and 2050 as applicable.
- ✓ Key intermediate milestones including approximate years of equipment removal or replacement.
- ✓ Peak service load forecast including growth or reduction in steam, hot water, chilled water, etc.
- ✓ Demand reduction strategies plan.

Proposed DEEP Standards

*Please see draft guideline for full details **HERE**.*

A DEEP must demonstrate a long-term plan to decarbonize the DES and efficiently electrify all energy inputs to its system by 2050 with progress commitments in 2030, 2035, 2040, and 2045.

	No new electric resistance or fossil fuel heat infrastructure added to the DES, including CHP.
	Minimum 95% annual DES heat production with electric heat pumps (i.e., maximum 5% from fossil fuels) by 2050.
	Enable all or most buildings on a network to have inter-building heat recovery function if applicable.
	Strong commitment to demand reduction strategies for existing buildings on the DES.

Proposed DEEP Process & Guideline Comments

Proposed DEEP Review Process

DOER will review DEEPs to confirm compliance; if approved, DOER will issue an Order of Conditions that qualifies a DES.

Maintaining a valid OoC will require the host site to submit reporting and achieve its DEEP milestones.

DEEPs can be updated over time; revised plans must be submitted to DOER for re-approval.

Guideline Comment Period

DOER seeks comments on the draft guideline by **July 15, 2025**.

Written comments should be submitted to stretchcode@mass.gov with "Guideline on District Energy Systems" in the subject line.

Commonwealth Policy Updates

Important energy and environmental policies in Massachusetts

- Energy Affordability Bill
- Environmental Bond Bill
- Heat waves and load shed
- Solar and EV Tax Credit impacts

The Energy Affordability, Independence, and Innovation Act

May 13 – Governor Healey filed the "Afford-a-Bill" to cut costs for residents and businesses

Key reforms include:

- **eliminating and reducing certain charges on electric bills**, such as
  - phasing out the alternative portfolio standard bill charge
  - reducing net metering credit
- **empowering customers to lower bills** through, for example, protecting customers from predatory electricity marketing and pricing
- **creating accountability** (e.g., restricting costs that utilities can recover from ratepayers)
- **reducing barriers to new technologies** by, for example, expanding state energy procurement authority

This is not a comprehensive list of measures included in the bill. The Healey Administration estimates that the bill will save Massachusetts customers **more than $10 billion** over 10 years.

(Photo by Sam Doran/State House News Service)

Source: The Energy Affordability, Independence, and Innovation Act | Mass.gov

Healey shares $2.9B plan, the Mass Ready Act, to fund environmental reforms

June 24 – The bill includes funding for flood control projects, clean water infrastructure, and food security programs

This funding would go to:

- **Dept. of Conservation and Recreation (DCR)** property upgrades ($764M)
- **Dept. of Fish and Game (DFG)** to repair and modernize its infrastructure (e.g., boat ramps and fish hatcheries) ($90M)
- **Dept. of Environmental Protection (DEP)** to manage solid waste and reduce pollution ($28M)
- **Dept. of Agriculture (MDAR)** to protect farmlands and sustain agricultural economic viability ($68M)

This is not a comprehensive list of funding or measures included in the bill.

> *We cannot count on the president or Congress to be there to make the investments that we want to see made in Massachusetts, in our communities. They're, in fact, doing the opposite, and taking away from and undermining important investments on a whole bunch of fronts.*
>
> *In the face of that, [it's] all the more important that we take action like the action that we're taking today.*
>
> Governor Maura Healey

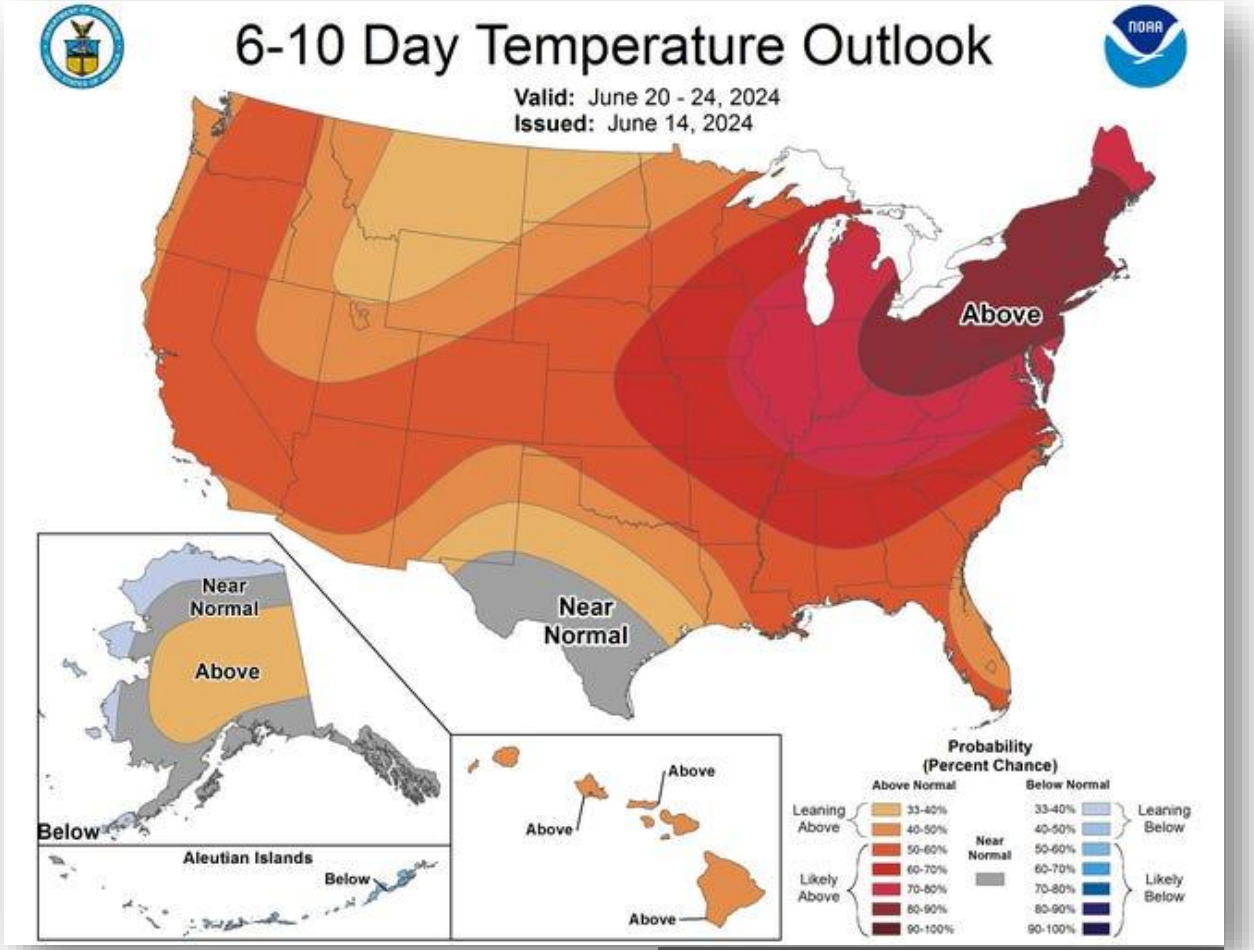
Heat Wave

Don't forget to take energy saving actions (i.e., load shed) if you can over the summer, especially on potential peak days!

Major cities in the Northeast shattered or tied heat records on June 24, leading to some heat-related illnesses and one death

Extreme heat warnings – in some places the hottest in over a decade – were in place for **160 million people** in:

- Baltimore
- Washington, D.C.
- New York City
- Boston
- Raleigh
- Philadelphia
- Newark, and
- Providence



(Photo by NOAA/National Weather Service)

Sources: Major Cities Break Heat Records Amid 'Extremely Dangerous' Temperatures – Newsweek; Tuesday was the hottest day in over a decade for parts of the East Coast. When will this extreme heat wave end?; US heat wave brings record-setting temperatures; forecast updates

Federal Legislation – Tax Credit Impacts

Bill rapidly phases down federal tax credits for solar, wind, and electric vehicles

- Bill signed on July 4
- Bill rapidly phases out the clean energy & EV tax credits
- To be eligible for full solar and wind tax credits, energy projects must begin construction **within 12 months of the date of bill enactment**
    - For projects that begin after 12 months of enactment, projects must be placed in service by **December 31, 2027**
- To be eligible for EV tax credit, electric vehicle must be acquired by **September 30, 2025**

Sources: Mayer Brown; Yale Environment 360; KBKG; H.R.1 One Big Beautiful Bill Act

Disclaimer

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Alternative Transportation Solutions

1. **Battery-powered golf carts and utility vehicles** (*Speakers: Derek Schradieck and Ryan Conway, Country Club Enterprises)*
2. **MassCEC Mobile Charging Program** (*Speaker: Devan DiLibero, Program Manager, MassCEC)*

VEHICLES

PRESENTED BY:
DEREK SCHRADIECK, VP COMMERCIAL SALES NEW ENGLAND
RYAN CONWAY, COMMERCIAL TERRITORY MANAGER EASTERN MA

7/8/2025

C2 Vehicles started 40 years ago as Country Club Enterprises, eventually becoming known as CCE Golf Cars and recently rebranded as C2 Vehicles.

C2 is the largest distributor of golf carts and small-wheeled electric and gas vehicles in New England. We are committed to offering a wide array of vehicles for personal, commercial, golf, and rental use. Our cars are backed by our award-winning service and extensive parts supply, all since 1978.

For more than four decades, C2 has been the top distributor for Club Car. We are also the only authorized GEM mobile service dealer in New England in addition to being the local dealer for Polaris Commercial, Moke & MadJax.

⚡ Electric Golf Carts & Utility Vehicles vs. 🚙 Full-Size Combustion Engine Vehicles

Feature	Electric Golf Carts / Utility Vehicles / LSV	Full-Size ICE Vehicles
Purpose	Short-range transport, cargo/light-duty tasks	Long-distance travel, heavier payloads, road-legal use
Power Source	Battery, Lithium & Flooded Lead Acid (electric motor)	Gasoline or diesel engine
Speed Range	8–25 mph (low-speed vehicles)	60–100+ mph
Range	20–90 miles per charge (varies by model)	300–500 miles per tank
Emissions	Zero tailpipe emissions	Significant CO_2 and pollutant emissions
Noise	Very quiet operation	Loud engine noise
Fueling/Charging Time	8–12 hours (standard charging) / 2-6 hours (fast charging)	5–10 minutes to refuel
Maintenance	Minimal (no oil, spark plugs, etc.)	Higher (engine, fluids, filters, exhaust system)
Operational Cost	Low (electricity is cheaper; fewer repairs)	High (fuel, oil changes, wear and tear)
Environmental Impact	Environmentally friendly, especially with renewable electricity	Contributes to greenhouse gas emissions and pollution
Legal Road Use	Often limited to private property or 30mph (or slower)	Fully street-legal on highways and city roads
Payload/Towing Capacity	Up to 2500lbs	Much higher (varies, up to several tons)
Initial Cost	Lower ($5k–$45k range)	Higher ($25k–$100k+)

C2 Vehicles can be a catalyst for change in the transition to clean mobility in Massachusetts. By focusing on electrification, infrastructure support, education, and circular economy practices, C2 can help integrate golf carts, UTV, LSV into the broader strategy to meet the state's 2050 climate goals.

1. Zero Emissions Transportation

- **Electric Carts/LSV** produce **no tailpipe emissions**, reducing:
  - Greenhouse gas emissions
  - Local air pollution
  - Helps Massachusetts meet its **Net Zero by 2050** emissions target

2. Reduced Energy Use & Fossil Fuel Dependence

- EVs are more energy-efficient than internal combustion engines
- Replacing/supplementing gas-powered fleets cuts reliance on imported petroleum
- Enables alignment with MA's **Clean Energy and Climate Plan**

3. Lower Operational & Maintenance Costs

- Electric carts/LSV vehicles are cheaper to operate and maintain
- Promotes **long-term savings for municipalities and organizations**
  - **Working with a local dealer to consolidate for multiple products and parts providers.**
- Enables budget reallocation to other sustainability efforts

4. Health & Environmental Benefits

- Improved **air quality** on campuses, public lands, and neighborhoods
- Quieter operation supports **noise pollution reduction**
- Contributes to **environmental justice goals** in overburdened communities

5. Policy Alignment & Leadership

- Adopting C2's portfolio of electric vehicles demonstrates **climate leadership** and compliance with:
  - **Global Warming Solutions Act (GWSA)**
  - **MA Clean Fleet Policies**
  - **Statewide fleet decarbonization goals**

POLARIS
PRO XD

GEM

Mobility is Changing >3 Miles

We live in a car-dependent nation, yet nearly 50% of all car journeys are under three miles. That percentage is even higher in cities. Consumers need mobility solutions that fit their needs. We envision a future where these products are used for localized mobility, full-size cars are used for highways and high speeds.

Club Car

CARRYALL LI ION

July 8, 2025

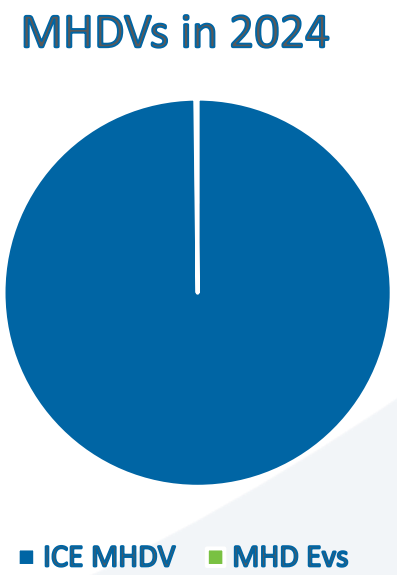
Medium- and Heavy-Duty Mobile Charging Solutions RFP

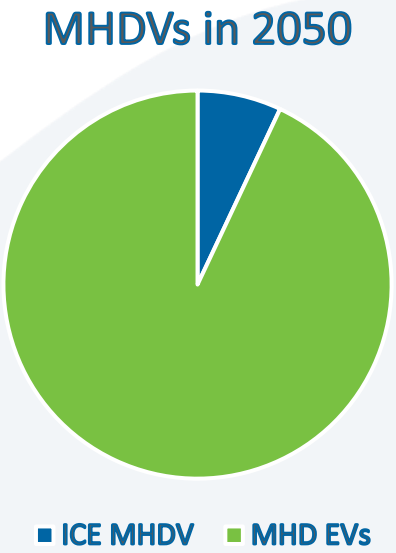
Devan DiLibero
Program Manager
ddilibero@masscec.com

MASSACHUSETTS CLEAN ENERGY CENTER

Why must we electrify medium- and heavy-duty vehicles?

- MHDV are 3% of the transportation sector but account for 20% of overall transportation emissions
- 203,521 MHDV in MA, 386 electric/PHEV (<1%)
- The Clean Energy and Climate Plan of 2050 (CECP) will require 93% of MHDV to be electric by 2050
  - 74,000 e-buses and trucks by 2035
  - Estimated need for 19,000 charging ports for MHD vehicles by 2035





Precursor to MHD Mobile Charging Solutions Program

- Mass Fleet Advisor (MFA) and utility advisor programs – provides feasibility studies to participating fleets
- Challenges to electrification realized by MFA:
  - Depot ownership structures
  - Hefty charging infrastructure costs
  - Lengthy utility and hardware lead times
  - Grid constraints

Program Goals

- Address challenges to MHD fleet electrification.
- Successfully pilot mobile charging solutions with various duty cycles providing specialized charging solutions
- Replicability & Scale
- Provide Resources
  - Technology Inventory Report
  - Public Resources

Nuvera HydroCharge

What is mobile charging?

- Semi-permanent, off-grid, and grid flexible charging solutions
- Charger types:
  - Mobile
  - Semi-permanent
  - Charging-as-a-Services (CaaS)

DANNAR Mobile Charging Station

MHD Mobile Charging Solutions Program

- **Participating fleets:**
  - Cero Cooperative
  - 5C Energy
  - TBA
  - TBA

- **Milestones to Engage:**
  - Technology Inventory Report & developing webinar series
  - Public facing resources – December 2026

Questions?

MASSACHUSETTS
CLEAN ENERGY
CENTER®

Renewable Diesel

1. **What is Renewable Diesel?** (*Speaker: Bobby Brown, President, Broco Energy)*
2. **MassPort Renewable Diesel Pilot** (*Speaker: Shahbaz Soofi, Climate Strategy Manager, MassPort)*

A Note on Renewable Diesel

LBE is looking at the extent to which renewable diesel (RD) is consistent with the Commonwealth's climate policies and goals and under what circumstances RD can be utilized by state entities as an emissions reduction strategy.

What is Renewable Diesel?

Bobby Brown, President, Broco Energy

Beyond Energy Efficiency:
Massport's Renewable Diesel Pilot

Shahbaz Soofi, Climate Strategy Manager
Office of Climate Innovation & Resilience
LBE Council Meeting
July 8th, 2025

Renewable Diesel (RD) is a “Drop-in" Fuel

Derived from sustainable sources (e.g. agricultural products, waste oils) and is identical to conventional diesel

IS NOT BIODIESEL

Biodiesel = FAME (fatty acid methyl esters)

Renewable Diesel = Hydrotreated Vegetable Oil (HVO)

MADE FROM 100% SUSTAINABLY SOURCED RENEWABLE RAW MATERIALS

65% LESS LIFE CYCLE GHG EMISSIONS

99% LESS SCOPE 1 EMISSIONS AS A RESULT OF BIOGENIC CO_2

100% COMPATIBLE WITH ALL DIESEL ENGINES, NO MODIFICATIONS REQUIRED

SO_x EMISSIONS ELIMINATED

*Reductions calculated using fuel emission factors from the Greenhouse Gases, Regulated Emissions, and Energy use in Technologies (GREET) and Alternative Fuel Life-Cycle Environmental and Economic Transportation (AFLEET) tools.

Renewable Diesel Due Diligence

Suppliers/Distributors:

GLOBAL PARTNERS
Putting Our Energy to Work

BROCO ENERGY

OEMs:

Trecan Combustion

Cummins

Refiners/Manufacturers:

NESTE

MARATHON

DIAMOND GREEN DIESEL

Renewable Energy Group

massport


BROCO
ENERGY
RENEWABLE DIESEL
Quality · Reliable · Prompt
1993
3
BUILDING MAINTENANCE
KNAPHEIDE
M 5587B
OFFICIAL

Heavy Duty Equipment Pilot at Maritime and Aviation Facilities

1. Logan: COBUS and Street Sweepers
2. Hanscom: Front loader
3. Maritime: Yard tractors
4. Trecan: Snowmelter

massport

Renewable Diesel Landscape Today

California is a significant consumer:

- SFO: transit, airfield buses, 23 coaches, & 122 staff vehicles
- Oakland: in all diesel equipment reducing 250k diesel gal/yr
- SAN: all diesel airside fleet & equipment

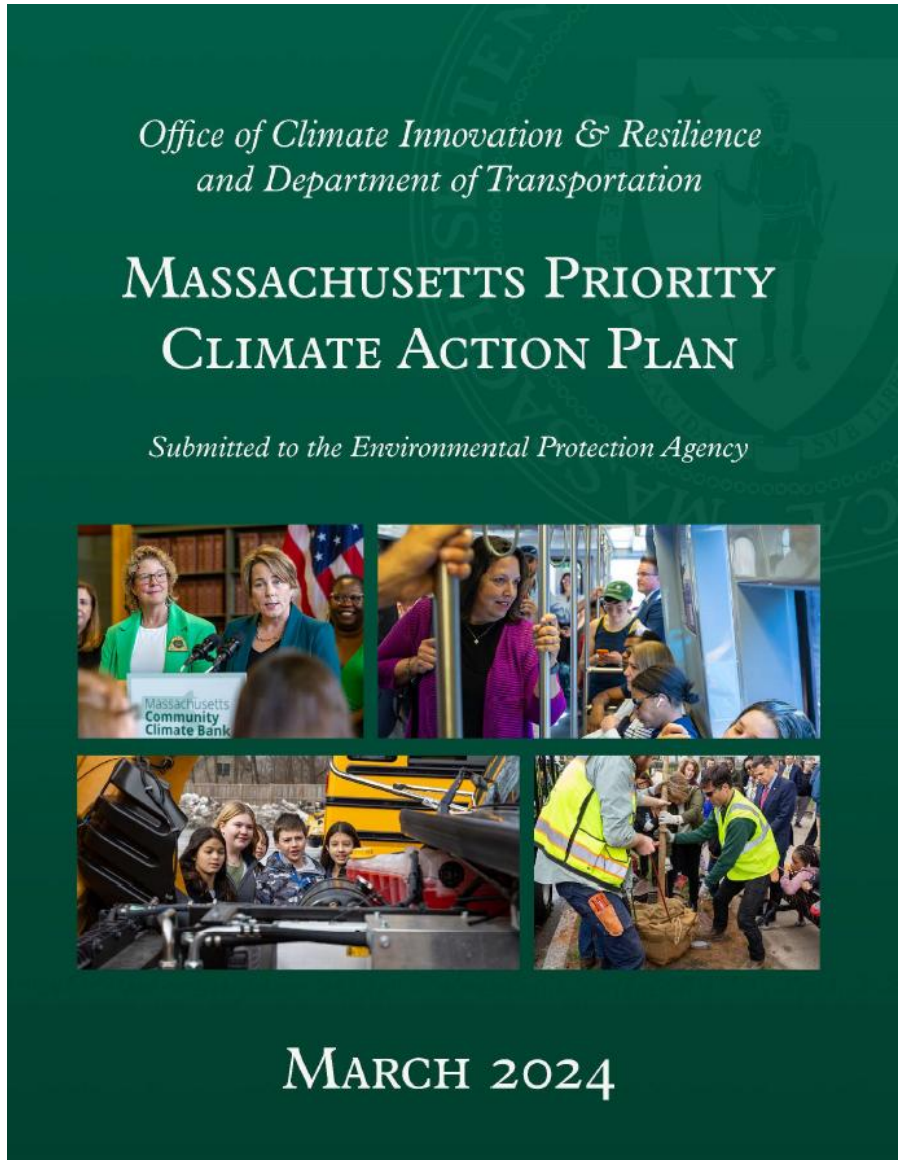
NYC has gone all in:

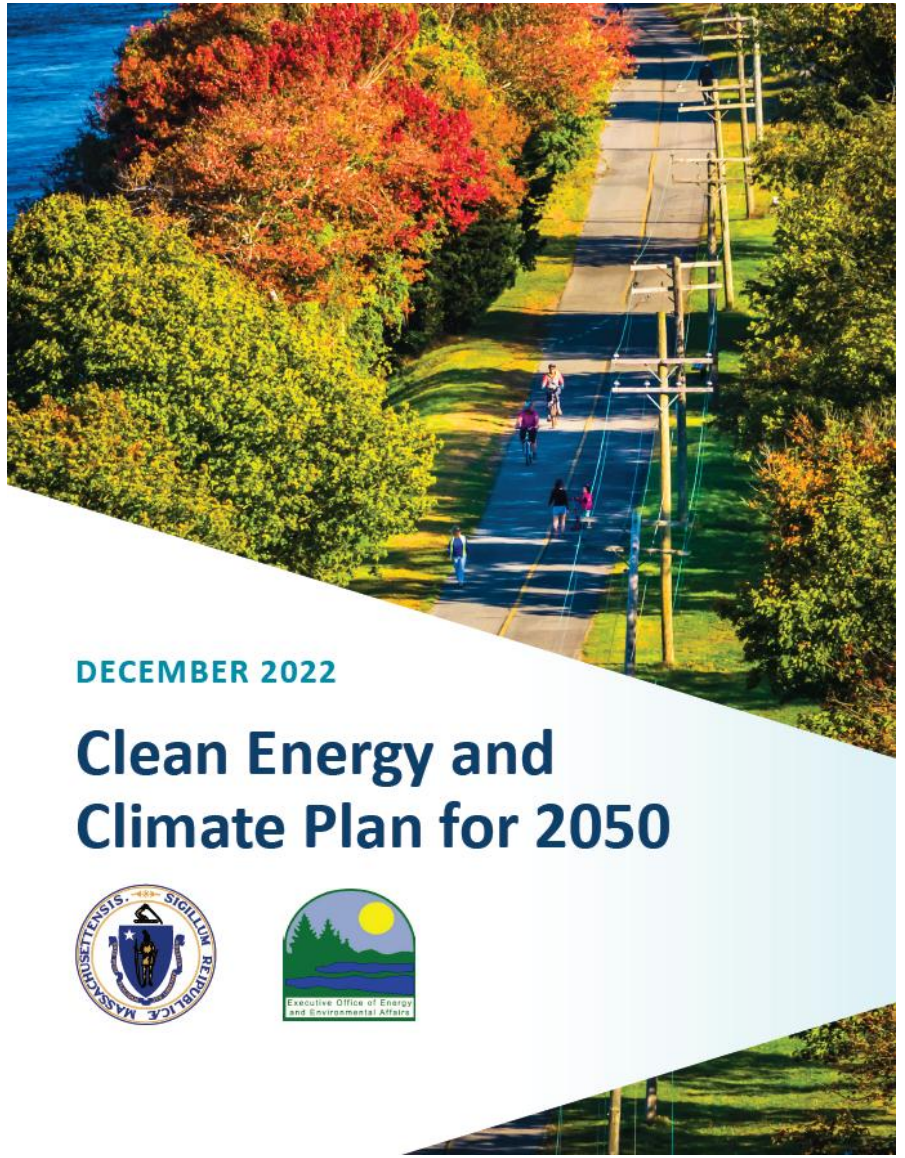
- Use renewable diesel in all 12,600 city vehicles by end of ‘24
- Replace 16 million gallons of fossil diesel
- Cut 128 billion grams of carbon dioxide pollution each year

45Z Clean Fuel Production Credit incentivizing producers:

- 20¢/gal for producing biofuels, including renewable diesel
- Includes feedstocks from the U.S.A, Mexico, or Canada
- Credit extended to 2029 if Big Beautiful Bill passes & is signed

Advancing a More Sustainable Commonwealth





Advancing a More Sustainable Massport in Alignment with the PCAP

Reducing Scope 1 Emissions, VOCs, and SO_x

- Per 2024 Massachusetts Priority Climate Action Plan (PCAP) Biogenic Emissions excluded from MA's GHG limits (until the 2050 net zero limit): renewable diesel = good bridge fuel.

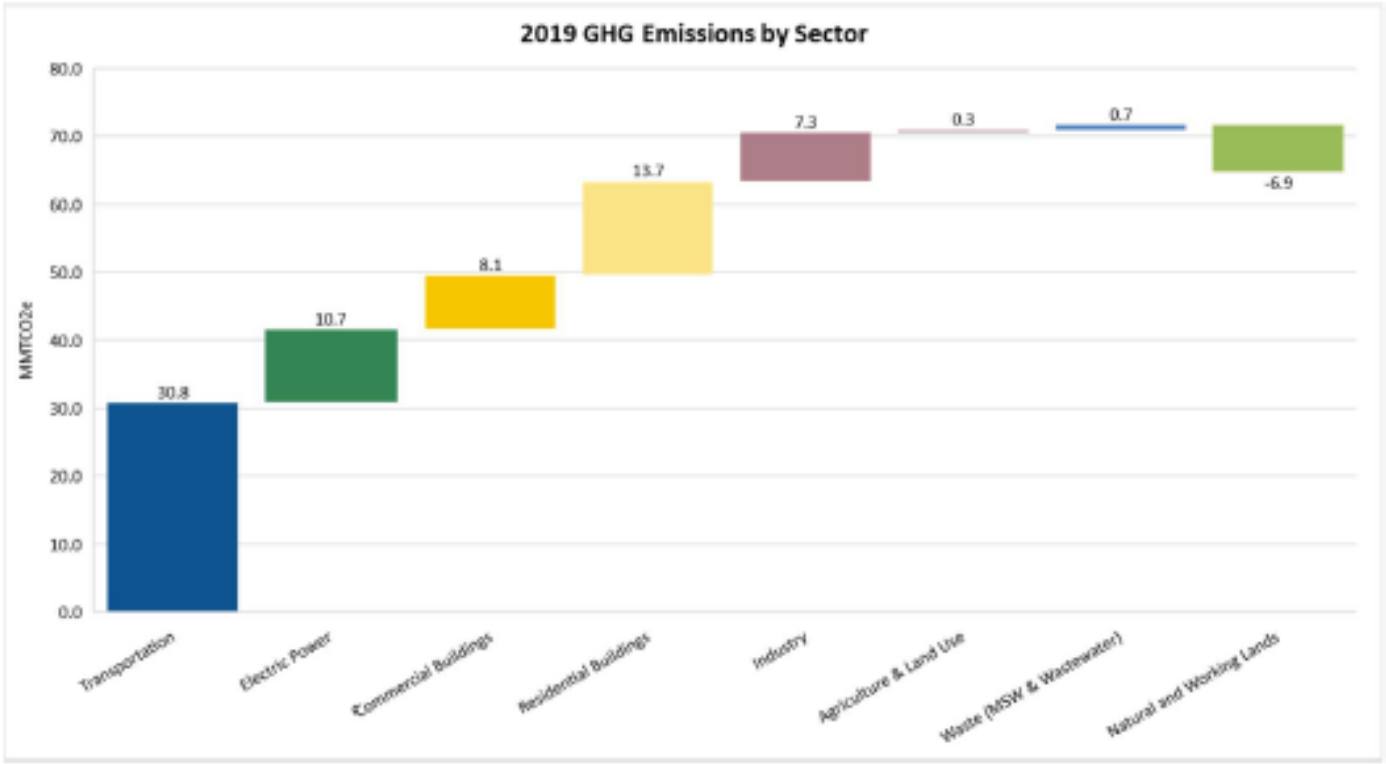


Figure 11: 2019 GHG Emissions by Sector

*2024 MA Priority Climate Action Plan, page 44

Advancing a More Sustainable Massport in Alignment with the CECP

Reducing Gross Emissions per MA PCAP and GHG Protocol

- Per 2022 Massachusetts Clean Energy and Climate Plan (CECP) Gross Emissions must be reduced to "85% below the 1990 level by 2050."
- Gross GHG Emissions = Scope 1, 2, and 3 Emissions

STANDARD	DESIGN OBJECTIVES	REQUIREMENT TO USE GHG PROTOCOL	ORGANIZATIONAL BOUNDARIES	OPERATIONAL BOUNDARIES	SCOPE 2	SCOPE 3	LAND SECTOR AND REMOVALS
GHG Protocol Corporate Standard (2004)	Designed to be program or policy neutral to support multiple reporting objectives and audiences	–	Choice among operational control, financial control, or equity share	Scope 1 and 2	Dual reporting of location-based and market-based required	Scope 3 reporting optional in Corporate Standard (2004); 15 categories required in Scope 3 Standard (2011)	Biogenic emissions and GHG removals reported separately from scopes

*2022 MA Clean Energy and Climate Plan, page 18 and Overview of GHG Protocol Integration in Mandatory Climate Disclosure Rules, page 3

Renewable Diesel Rollout: Where We Are and Where We're Going

Current State

- Fixed RD Price for Massport until the end of November 2025
- RD now the default at Logan Airport, Worcester Airport, Hanscom Field, & Conley Terminal

What's Next?

- Transition Flynn Cruiseport
- Transition Logan Express bus fleet
- Issue RFP for new RD contract that starts December 1st, 2025

Thank you!

All About Waste

1. **Recycling Assistance for Businesses and Institutions** *(Speaker: Heather BIllings, Senior Waste Reduction Consultant, RecyclingWorks)*
2. **Toilet of the Future** *(Speaker: Joe MacKinnon, Director of Facilities, Cape Cod Community College)*

Waste Reduction and Reuse Opportunities

July 8, 2025

Lead by Example

RECYCLINGWORKS MASSACHUSETTS

CET
Resilient climate solutions

RECYCLINGWORKS
MASSACHUSETTS

MassDEP

No-Cost Assistance for Businesses & Institutions

RecyclingWorks MA is funded by MassDEP, delivered under contract by CET

recyclingworksma.com

Massachusetts Waste Disposal Bans

Commercial Food Waste

Applies to businesses & institutions generating one-half (0.5) tons or more food waste per week

Textiles & Mattresses & Box Springs

Cardboard & Paper

Metal, Glass, and Plastic Containers

Construction & Demolition Materials

Yard Waste

White Goods

recyclingworksma.com/waste-bans-and-compliance/

What Is Technical Assistance?

Evaluate existing waste streams

Identify opportunities to prevent, recover, and divert waste

Connect with service providers

Create customized waste bin signage

Conduct cost analysis

Implementation assistance – education and training

Colleges and Universities

Click here for a printable, fill-in version of this Commercial Food Waste Disposal Ban threshold estimation guide for colleges and universities.

	Average Measurement		Material
Meals Served	0.35	lbs/meal	Food Waste
Students[1] [Residential]	141.75	lbs/student/year	Food Waste
Students[2] [Non-Residential]	37.8	lbs/student/year	Food Waste

https://recyclingworksma.com/food-waste-estimation-guide

Estimating Food Waste Generation

Best Management Practice Guidance Developed by RecyclingWorks

Source Reduction Guidance

https://recyclingworksma.com/source-reduction-guidance/

Food Donation Guidance

https://recyclingworksma.com/donate/

Source Separation Guidance

https://recyclingworksma.com/local-health-department-guidance-for-commercial-food-waste-separation/

Guidance for Businesses Contracting for Trash, Recycling, and Food Waste Services

https://recyclingworksma.com/hauler-contracting-bmp/

And recently released….

Consensus-Based Best Management Practices for Reusable Food and Beverage Containers in Food Establishments

https://recyclingworksma.com/reusable-containers-guidance/

Food Donation. Let's Get Started

Food donation can help your business comply with the Massachusetts Commercial Food Material Disposal Ban while reducing disposal costs and supporting people in need.

Get Assistance | Best Management Practices →

[Food Donation Webpage]

Who Can Donate?

Events | Farms | K-12 Schools | Manufacturers | Restaurants | Supermarkets | Universities | Wholesalers

This webpage provides guidance to organizations interested in establishing food donation programs by offering a broad overview of how successful food donation programs can be structured.

What Kind of Food to Donate

Food Donation Giving Guide

Thank you for considering food donation as a way to support our community and reduce waste. It's important to know that businesses that donate perfectly good food are protected from liability from the Bill Emerson Good Samaritan Act, which was signed into law in 1996, and recently updated in 2022 (https://chlpi.org/wp-content/uploads/2023/03/Emerson-Fact-Sheet.pdf).

This flyer provides information on which foods may or may not be acceptable for donation at your nearby meal site or food bank.

Donatable Foods

When donating food, it is important to only select items that are safe and suitable for human consumption. Here are some examples of acceptable foods. Always work with your food donation partner to determine what can and cannot be donated.

Donatable **Non-Perishables**

Examples:
- Canned vegetables, fruits, beans, soups, fish, and poultry
- Dry pasta, rice, beans and grains

**Note: Cans/packaging should be unopened and undamaged. Consult your local food rescue partner to see if they will take items past their Best By, Use By, and/or Sell By dates.*

Donatable **Perishables**

Examples:
- Fresh fruits and vegetables (check with your food donation partner if produce with minor bruising is OK!)
- Dairy products
- Deli meats and cheeses
- Bakery items (uncontaminated and mold-free)
- Frozen fruits and vegetables
- Frozen meats
- Packaged salads, soups, sandwiches, and wraps

**Notes:*
- *Any items with packaging/seals should be intact and undamaged*
- *Check the Best By, Use By, and/or Sell By dates on the packaging, if applicable. Some meal sites may take food after its sell by date.*
- *Items can be stored, transported, and donated at the same temperature as they were sold, but also chilled or frozen within cooling parameters.*

Certain hot bar or buffet items may be donatable. Check with your food rescue partner and/or health department to confirm.

Non Donatable Foods

Prescreening and excluding unsuitable food items can greatly benefit the recipients of food donations.

Non Donatable **Non-Perishable** Items

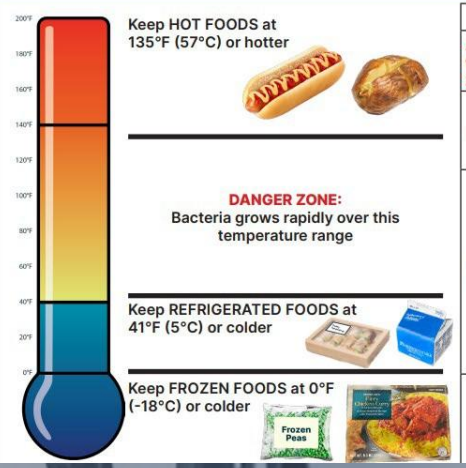
Examples:
- Goods with significantly dented cans and/or missing labels
- Items with damaged or opened packaging
- Home-canned goods

Non Donatable **Perishable** Items

Examples:
- Hot or cold foods not kept at temperature for greater than 2 hours
- Moldy items
- Stale items
- Overly bruised produce
- Items with damaged or opened packaging

Prepared Food: Guidelines for Food Donation

This document is intented to provide basic information to encourage food donation. Food that is directed to those in need is entitled to the same protective measures as food prepared and served to paying consumers. In general, entities already preparing and serving food for public consumption are already practicing the measures necessary to easily adopt safe food donation programs. For additional resources and guidance, contact your local health department, scan the QR codes below, or contact RecyclingWorks MA at recyclingworksma.com.



Keep HOT FOODS at 135°F (57°C) or hotter

DANGER ZONE:
Bacteria grows rapidly over this temperature range

Keep REFRIGERATED FOODS at 41°F (5°C) or colder

Keep FROZEN FOODS at 0°F (-18°C) or colder

Guidelines for Donating Prepared Foods	
Avoid TCS (Time/Temperature/Controlled Food for Safety) food that has been in the 41°F to 135°F danger zone for more than 2 hours, as it cannot be donated.	
Packaging	• Food-grade packaging in direct contact with food • Securely closed and separated by food type to avoid cross-contamination • Labeled and date
Labeling Language	• The name and location of food donation organization • The name and location of donor • The food description • The date of donation • Allergen disclaimer statement
	To help reduce the frequency of pick-ups and if refrigeration space allows, consider cooling down foods from hot temperatures to prevent them from going to waste. This process should be done as rapidly as possible and it must not take more than 6 hours for all

DONOR NAME AND LOCATION	Ex: ABC Restaurant 1234 main St, Dallas, TX
FOOD CHARITY NAME AND LOCATION	Ex: XYZ Shelter 5678 Main St, Dallas, TX
FOOD DESCRIPTION (MENU DESCRIPTION):	Ex: Black Bean Burger
DATE OF DONATION:	Ex: 11/02/2015
WARNING: This container holds rescued food! This food may contain, have come into contact with, or have been produced in a facility which also produces milk, eggs, peanuts, tree nuts (walnuts, almonds, pecans, hazelnuts/filberts, pistachios, cashews, coconuts, pine nuts, macadamia nuts, and/or Brazil nuts), fish, shellfish (crab, crawfish, lobster, shrimp, mussels, and/or oysters), wheat, and / or soybeans.	

Food Scraps Source Separation Guidance

- Collect for composting, animal feed, or anaerobic digestion
- Container placement and color coding
- Clear signage
- Easily accessible and available bins
- Good housekeeping practices

recyclingworksma.com/source-separation-guidance

Recycle Smart

Smart Recycling Guide

Your go-to reference for recycling in Massachusetts

AN INITIATIVE OF THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

Metal

Food and Beverage Cans
empty and rinse

Plastic

Bottles, Jars, Jugs and Tubs
empty and replace cap

Glass

Bottles and Jars
empty and rinse

Paper & Cardboard

Mixed Paper, Newspaper, Magazines, Boxes
empty and flatten

NO!

No Plastic Bags
Do Not Bag Recyclables

No Clothing or Linens
use donation programs

No Hazardous Items
no propane tanks, batteries, sharps, or chemicals

No Tanglers
no hoses, wires, chains or electronics

No Food or Liquid
empty all containers

Recyclopedia: Can I recycle it?

Enter name of item (ex. bottle) Search

Use our online search tool at: RecycleSmartMA.org

RecycleSmartMA.org

All recycling programs in Massachusetts accept the items pictured above.

Always Empty Recyclables out of Plastic Bags

Bags tangle recycling equipment causing delays, injuries and extra costs.

Pair trash and recycling bins whenever possible. Use color-coded plastic bags as liners to keep bins clean and make it easier to move materials.

Leave recycling bags untied or loosely tied so they are easy to empty.

Color-coded plastic bags make it easier to visually differentiate so that trash doesn't get confused with recycling in one cart.

Always empty recyclables out of the plastic bag into the dumpster.

Reuse or dispose of the plastic bag in the trash.

https://recyclingworksma.com/how-to/business-sector-guidance/hospitality/

A Broad Commitment to Sustainability:

Hyannis Yacht Club Business Spotlight

Located in one of the nation's top places to sail, and surrounded by the beauty of Cape Cod, Hyannis Yacht Club (the Club) has a strong commitment to sustainability and to protecting local beaches from pollution. The Club engages a network of people who share a passion for boating, sailing, and the ocean lifestyle. Their commitments help preserve the health of the coastal environment that both guests and marine life depend on.

At A Glance

- Expanded recycling from just cardboard to single stream—diverting paper, plastics, bottles and more from the trash stream
- Implemented food scrap diversion with weekly collection, diverting 26 tons a year into nutrient-rich compost
- Utilizes durable and reusable tableware, significantly reducing single-use products
- Installed clearly labeled waste, recycling, and food scrap bin signage

info@recyclingworksma.com | recyclingworksma.com | (888) 254-5525

RecyclingWorks in Massachusetts is a recycling assistance program funded by the Massachusetts Department of Environmental Protection and delivered under contract by CET that helps businesses and institutions reduce waste and maximize recycling, reuse, and food recovery opportunities.

https://recyclingworksma.com/wp-content/uploads/2025/06/Hyannis-Yacht-Club-Case-Study.pdf

How can we help?

Heather Billings
heather.billings@cetonline.org

info@recyclingworksma.com
888-254-5525

recyclingworksma.com

RECYCLINGWORKS
MASSACHUSETTS

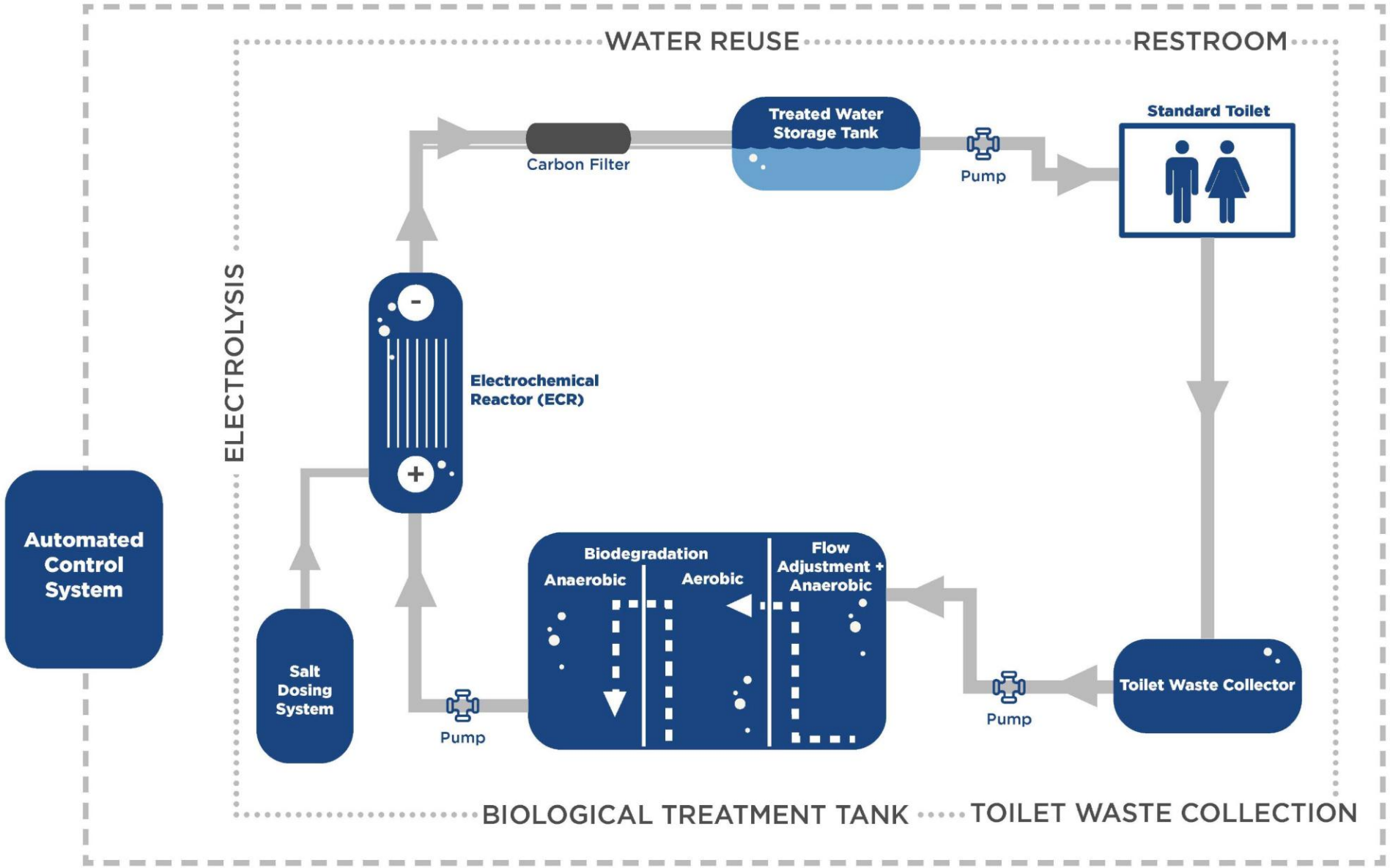
Cape Cod Community College Toilet of the Future

History:

2012 - Bill & Melinda Gates Foundation Launch a Reinvent the Toilet Challenge

- Professor Michael Hoffman & Team from Cal Tech Won 1st Prize
- President Dr. John Cox from 4Cs attended Conference Where the Technology was Presented
- Relationship Established, MA State Plumbing Board Approval Obtained for Experimental Toilet Installation
- While Under Design, the Technology was Added to 4Cs New STEM Building Constructed in 2022
- Toilet has been Operational for Three Years

TOILET OF THE FUTURE




Automated
Control
System

Group Discussion

Time to connect with your peers to share thoughts, challenges and successes regarding these innovative technologies!

We will have several breakout rooms, with LBE staff that will listen, take notes, and facilitate conversation.

Discussion Questions

These questions are meant as a starting point for conversation!

- What are your reactions to what we heard today? Were there any technologies or services that were particularly interesting? Were there any that you were hesitant about?

- What innovations are you already making at your agencies/campuses, either similar or different to the ones we discussed? Any advice or best practices for implementing those technologies?

- What challenges do you encounter with implementing innovative technologies or strategies? What resources would be helpful?

MASSACHUSETTS
DEPARTMENT OF ENERGY RESOURCES

Thank You!