

Leading by Example Council Agenda September 12th, 2023





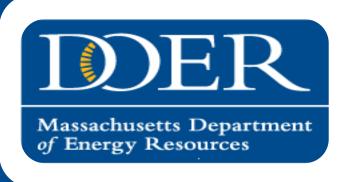
Welcome



News and Updates



Breakout Discussions: FY24 Goals for State Agencies

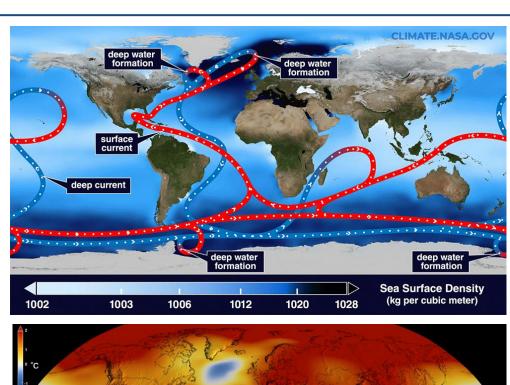


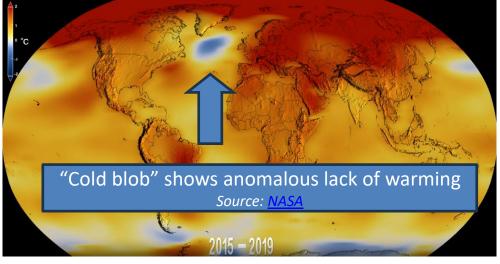
Climate News and Updates



What is the Atlantic Meridional Overturning Current?

- AMOC is a global heat pump, responsible for keeping Europe temperate, regulating monsoon season in tropics, etc
- Study published in <u>Nature</u>
 concluded "with high confidence"
 that AMOC is slowing, could shut
 down as early as 2025, likely
 somewhere between 2039-2070







What Would a Collapse of the AMOC Entail?

Impacts would span the globe, and could include...

- Colder European winters
- Destabilization of jet stream, causing polar vortexes and heat domes
- Increased rates of ice sheet melt and sea level rise
- Shifting of global rain patterns
- Limiting ocean's ability to absorb atmospheric CO2



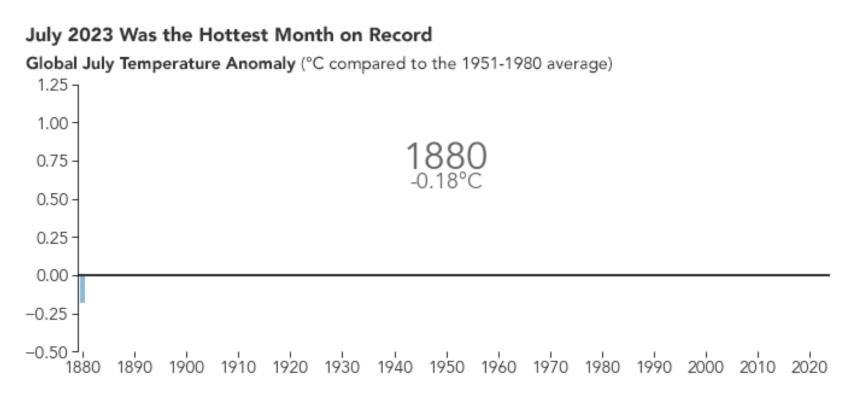
Not quite "Day After Tomorrow" bad...

Sources: <u>CNN</u>, <u>Gizmodo</u>, <u>PBS Terra et al</u>



July 2023 Was Hottest Month on Record

- The global average temperature in July 2023 was 2.12F warmer than the average July between 1951-1980
- The top 5 hottest Julys since 1880 have all happened in the past 5 years
- El Niño likely did not contribute to increased temperatures; NASA expects biggest impacts of El Nino to be felt in February, March, and April 2024



Source: NASA



Hydrogen-Powered Flight

Startups ZeroAvia and Universal Hydrogen have each successfully flown aircraft powered by hydrogen fuelcells, expect to have commercial operations by 2025-2026

Source: Canary Media



Offshore Winds of Change

- MA released 4th solicitation for up to 3,600 MW, ~25% of state's annual electricity demand. OSW would be online by 2032.
- Foundations for NY's 132 MW South Fork, have been installed
- NJ's 1,100 MW Ocean Wind 1 expected to come online in 2025
- U.S. Dept of Interior approved RI's 704 MW Revolution Wind 1
- DOI held first OSW auction in Gulf of Mexico, awarding a lease for a 1,240 MW farm
- BOEM on track to complete reviews of at least 16 OSW projects by 2025, representing more than 27 GW

Vineyard Wind Coming Soon!

 First turbine has departed New Bedford to be installed at lease site...one down, 61 to go!

Electricity from some turbines will reach the grid as

early as October







Draft Grid Modernization Plans Submitted

- 2022 Climate Law directed MA electric utilities to create Electric-Sector Modernization Plans (ESMPs), to be reviewed by Grid Modernization Advisory Council (GMAC)
- ESMPs include summary of distribution system improvements/investments needed to meet future demand associated with electrification of transportation and building sectors while ensuring reliability and resiliency
- DPU will issue final ruling on plans by late summer 2024
- Plans revised every 5 years

Listening sessions open for public comment:

10/30/23, 6-7:30pm

11/1/23, 12-1:30pm

Email MA-GMAC@mass.gov to provide comments.

See ESMPs and additional information on GMAC website.



Fossil Fuel-Free Community Pilot Update

- 2022 Climate Law requires DOER to establish demonstration project in which municipalities may adopt zoning ordinances or by-laws that require new construction and major renovations to be fossil fuel-free
- DOER may select up to 10 communities to participate; DOER received applications from nine Prioritized Communities:

<u>Acton</u>	<u>Brookline</u>	<u>Lexington</u>
<u>Aquinnah</u>	<u>Cambridge</u>	<u>Lincoln</u>
<u>Arlington</u>	Concord	<u>Newton</u>

- One Priority Community is not participating; substitute communities may submit applications through Nov 10
- Selected communities will submit final "fossil fuel-free" by-laws or ordinances to DOER no later than July 1, 2024



Office of Climate Innovation and Resilience Report

Office directed to develop a comprehensive, unified, whole-ofgovernment approach to advancing climate policy and achieving the Commonwealth's climate goals

Report will include several recommendations to better align decision-making and action on climate-related matters and offer more specificity to help agencies electrify fleets and decarbonize operations, while supporting broader climate mitigation and resiliency goals

The Climate Chief may propose legislative changes or changes to existing rules, regulations, executive orders, and other official policy documents



EVICC Initial Assessment

 An interagency EV Infrastructure Coordinating Council (EVICC) was established by the 2022 Climate Law to assess and report on strategies and plans necessary to deploy an equitable, interconnected, accessible, and reliable statewide EV charging network

Initial assessment submitted to the legislature on August 11th

> EVICC will continue developing plans based on the recommendations offered in the assessment

"The EVICC will collaborate with state fleet operators to collect data to determine the highest priority locations for electric vehicle charging at state facilities and direct resources to facilitate charging installations at those locations."



MassDEP VW and Refuse Truck Electric Solicitation Grant

- Grants available to public and private entities to mitigate NO_x and GHG emissions
- Funds can support diesel engine repowering (e.g., upfitting for alternative fuels) or replacement, including transit buses, airport ground service equipment, forklifts, and refuse trucks
- MassDEP will cover up to 60% of project costs, including engine purchase and installation, charging infrastructure, and other project elements depending on the eligible mitigation action







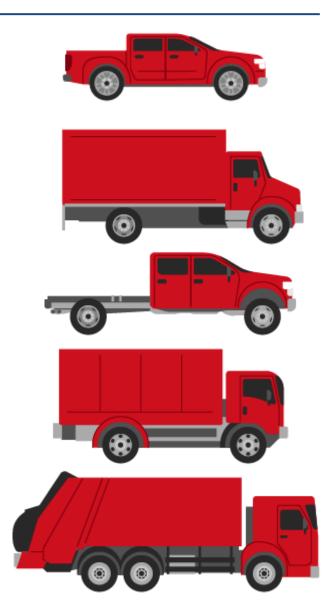


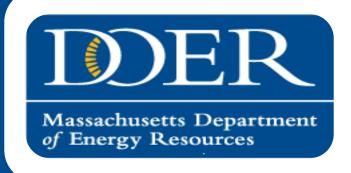


NEW MassDEP MD/HD Reporting Requirements

- MassDEP adopted regulation 310 CMR7.41, requiring the submission of a one-time report on vehicles greater than 8,500 pounds GVWR
- Government agencies are required to report if the agency had one or more vehicles over 8,500 lbs. in operation in CY 2022
- Reporting info includes garage location, vehicle make, model, weight class, and average daily miles driven
- The report will inform EV charging infrastructure development and programs to support and accelerate the adoption of medium- and heavy-duty EVs

Entities must submit the report to MassDEP by **5pm Friday, March 1, 2024**See MassDEP's website for reporting requirements and instructions:
https://www.mass.gov/how-to/large-entity-reporting-requirement







News and Updates: LBE



2023 LBE Recognition Awards

Have you (or your entity) launched, expanded	l, or compl	eted
clean energy or sustainability efforts in one of	or more of	the
following categories?		

New construction	Alternative transportation
------------------	----------------------------

- Existing buildings
 Sustainable landscaping
- ☐ Renewable energy ☐ Stakeholder engagement and education
- ☐ Clean vehicles ☐ Other sustainability efforts

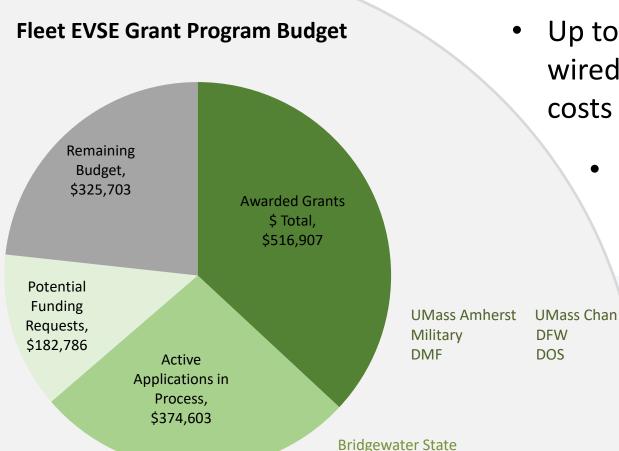
Then **YOU** may be eligible for a Leading by Example Award!

Tells us about it in an **Express Interest form!**

LBE Awards Ceremony will take place at State House in December See www.mass.gov/LBEAwards for more details



LBE Fleet EV Charging Grant Program



Plymouth Mosquito Control

Cape Cod Mosquito Control

DCR

Additional funding recently added to program budget

- Up to 100% of EV charging equipment (both hard-wired and portable), installation, and ongoing costs covered
 - Apply now to help your fleet prepare for future EV assets!



Average cost per charging port, all-in: \$11,160

- Equipment costs relatively consistent for Level 2 charging
- Installation costs (e.g., electrical upgrades) vary by site



Decarbonization Webpage

Decarbonization of Massachusetts State Facilities

Learn about various studies and strategies that state facilities are undertaking to decarbonize their operations, as well as resources available to support efforts to lead by example.

TABLE OF CONTENTS

- What is Decarbonization?
- Decarbonizing State Facilities: Targeting Onsite Fossil Fuels
- The State Building Portfolio
- State Entity Decarbonization Plans and Studies
- Spotlight on Higher Education Campus Decarbonization Studies (SSU, UMA, UMD, UML)
- Decarbonization Tools and Resources
- Laws and Policies

LBE Decarbonization Webpage includes:

- Completed state entity decarbonization plans and study RFPs
- Informational resources on completed decarbonization studies
- Links to tools and resources to support decarbonization planning
- Links to laws, policies, and programs related to facility decarbonization



LBE FY23 Tracking Form

What is it?



• Form collects data on energy consumption, vehicle fleet, EV charging, renewable energy, and other sustainability efforts for FY23

What's new?



- No major changes to FY23 form
- Vehicle Fleet tab
 - Updated to better align with EO594 fleet electrification goals & definitions fleet summary table revised & expanded to capture more detail on MD & HD fleets
- Sustainability tab
 - Types of waste diversion programs your entity participates in (e.g., food donation, cardboard, landscaping waste, furniture reuse)
 - o Irrigation at facilities & interest in participating in water-use assessment
 - Resilience efforts & planning

When is it due?



• Form is due **December 8, 2023**



LBE Progress Webpage

Leading by Example Progress Dashboard and Reports

Massachusetts state government entities are advancing the use of technologies and strategies that save energy and water resources, increasing the deployment of renewable energy, and reducing greenhouse gas (GHG) emissions from both buildings and fleets in support of the Commonwealth's efforts to address climate change. This page contains information about progress towards the LBE portfolio's collective goals and targets.

Revamped Progress webpage!

TABLE OF CONTENTS

- LBE Progress Dashboard
- **LBE Progress Snapshot: FY22**
- LBE Progress Reports

Revamped LBE Progress Webpage now includes:

- Progress dashboard download
- Summary of FY22 portfolio progress
- Annual portfolio progress reports (FY15-22)
- > FY12 & FY20 comprehensive progress reports (coming soon)



Intent of LBE Progress Dashboard

- Goal: Be as transparent as possible with the significant amount of existing data for the state portfolio
- Transparent data enables:
 - ✓ Insight on energy usage & emissions across state portfolio and at agency/campus level
 - ✓ Peer-to-peer comparison
 - ✓ Performance tracking over time
 - ✓ Tracking progress toward EO594 targets & directives



LBE Progress Dashboard

Previous public reporting/data

• Some static graphs on website but lacking details on progress toward EO594 goals & objectives

Progress Dashboard

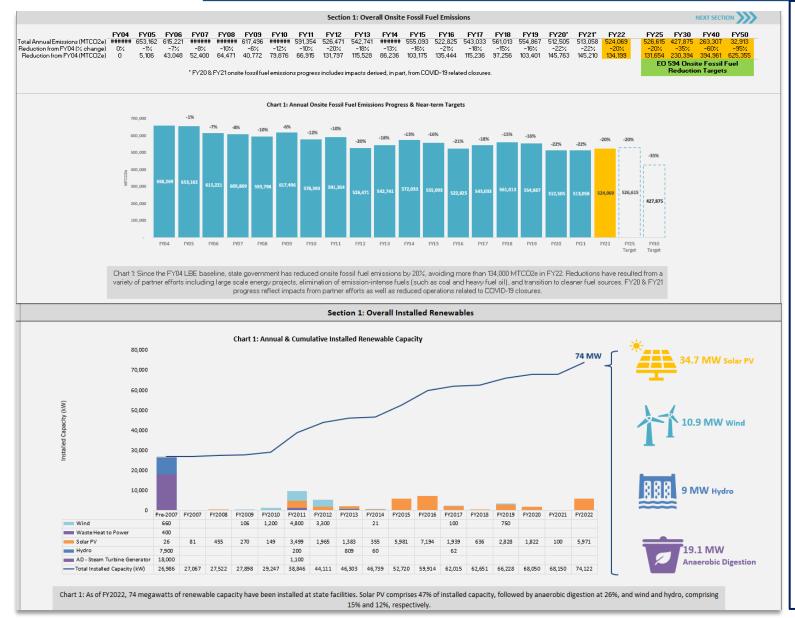
- Expands the granularity of LBE state portfolio data available on the LBE website
- Adds data for a wide range of topics (emissions, renewables, EVSE, etc.)
- Provides data at portfolio-level, secretariat-level, and agency/campus-level
- Shows movement towards all EO594 targets and other metrics

Dashboard Updates

- Dashboard will live on the new LBE Progress webpage and enable users to download
- Dashboard is current through FY22 and will be updated every fiscal year
- Launching new quarterly survey soon to enable more frequent tracking of certain data (e.g., EVs, EVSE, LEED buildings, etc.)



LBE Progress Dashboard



Includes data at portfolio-level, secretariat-level, & agency/campus-level for:

- ↑ Progress Toward EO594 Targets
- Onsite Fossil Fuel Emissions
- **■** Fuel Consumption
- **♀** Energy Use Intensity
- State Fleet Composition & Electrification
- EV Charging Stations
- LEED Certified Buildings
- * Installed Renewables
- Sustainable Landscaping
- **\$ LBE Grants**
- **Equity**

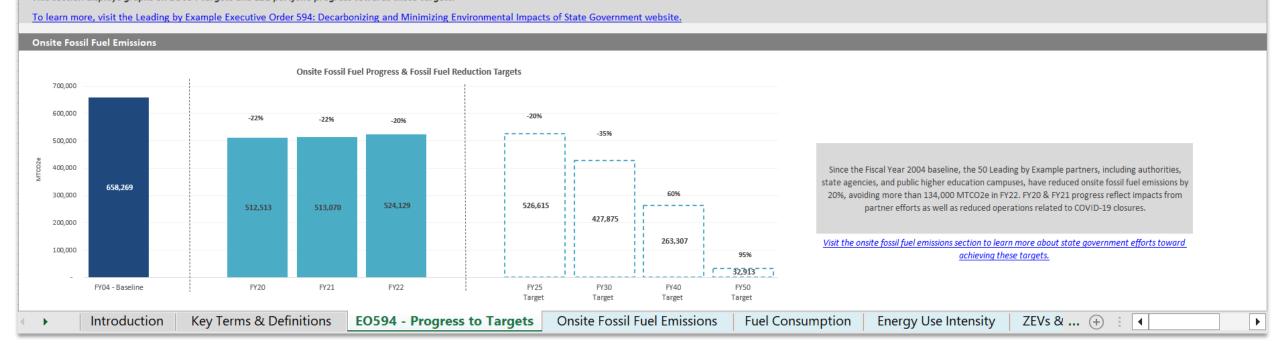


Dashboard: EO594 Progress

Executive Order 594: Progress to Targets

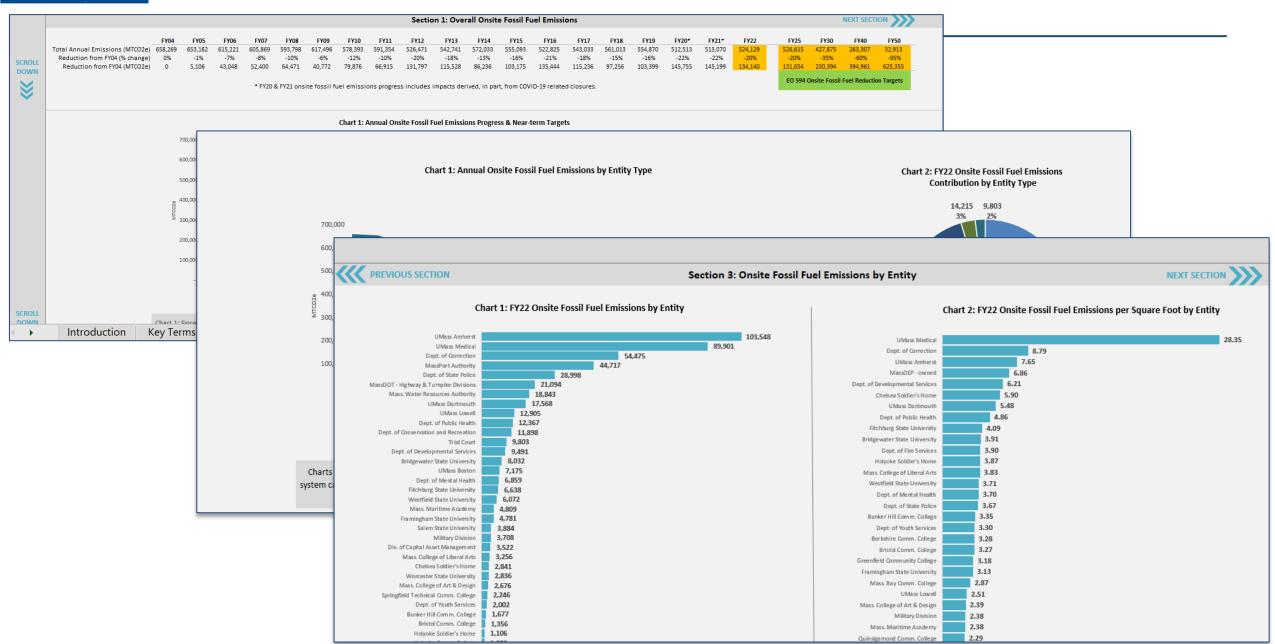
Executive Order 594 sets goals and requirements that will accelerate the decarbonization of fuels used to heat and cool state facilities, help to demonstrate new technologies and strategies necessary to meet the Commonwealth's energy goals, and quicken the shift to electric heating and vehicles. To help guide and measure the collective progress toward meeting these objectives, Executive Order 594 sets specific energy-related targets for Massachusetts state government between 2025 and 2050.

This section displays graphs on EO594 targets and LBE portfolio progress towards those targets.



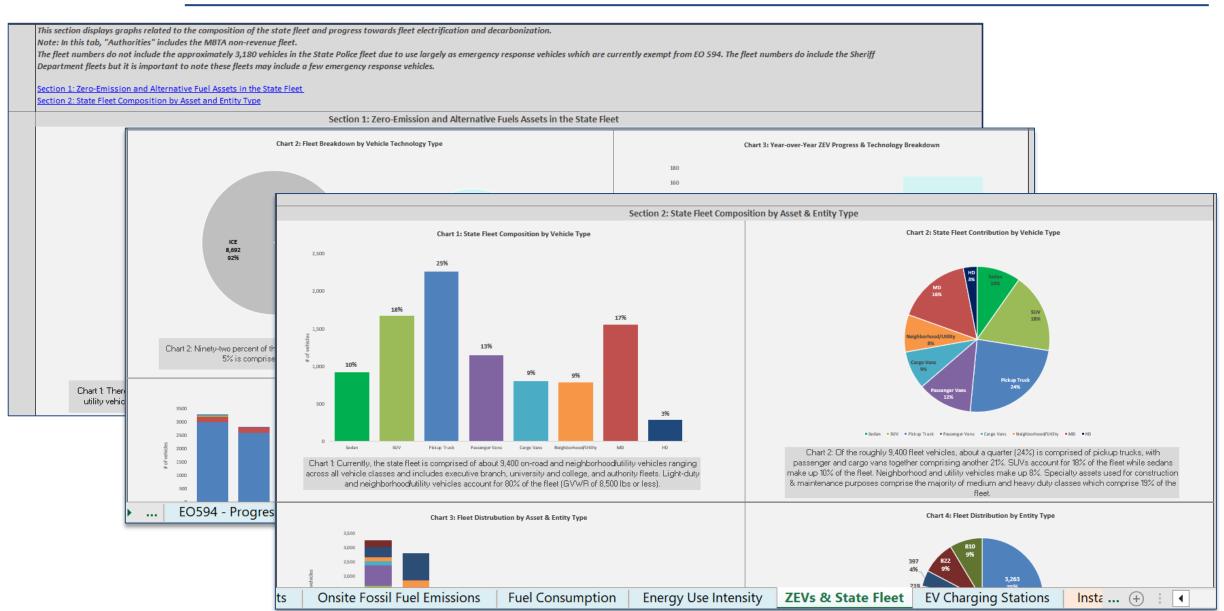


Dashboard: Onsite Fossil Fuel Emissions



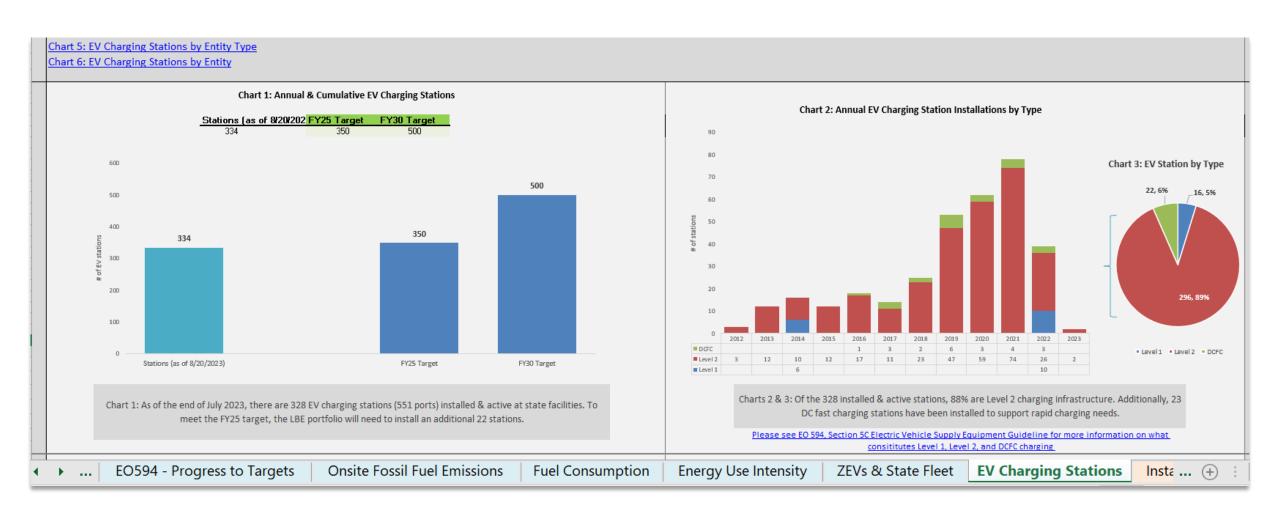


Dashboard: Fleet





Dashboard: EV Charging





Updated BPLE Calculator

Select your equipment and provide some basic equipment details (or use provided default data)...

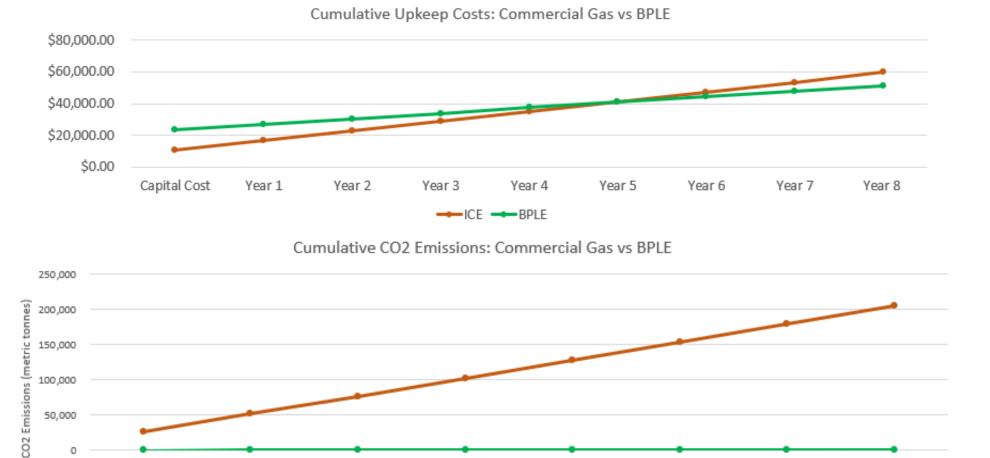
	Select	
Step 1	Equipment	Riding Zero-Turn Mower 48"

Comme	ercial Battery-Powere	d	
	Default Data	Use Default Data?	Input (if Default not used)
Price of Equipment	\$27,000.00	Yes	
Mass Save Rebate*	\$3,500.00	Yes	
Prompt Pay Discount	use drop down>		<u>0%</u>
Add-ons	Include total cost of any additional features, such as extra chargers, lights, solar canopy, etc		
Additional Number of Batteries to be Purchased	use drop down>		<u>0</u>
Cost per Additional Battery	\$0.00	Yes	
Equipment Specifications			
Battery size (kWh)	24	Yes	
Electricity Information			
Electricity cost (\$/per kWh)	\$0.16	Yes	
H	ours of Operation		
Hours per day	use drop down>		<u>8</u>
Days per month	use drop down>		<u>15</u>
Months per year	use drop down>		<u>6</u>
Warranty			

ICE				
	Default Data	Use Default Data?	Input (if Default not used)	
Price of equipment	\$10,719.00	Yes		
Prompt pay discount (PPD)	use drop d	own>	<u>0%</u>	
Add-ons	Include total cost of any additional features, such as extra lights, extra tanks, etc			
	Equipment Specifications			
Horsepower	23.5	Yes		
Gallons of gasoline per hour	2	Yes		
	Fuel Information			
Price per gallon of gas	\$3.38	Yes		
	Hours of Operation	n		
Hours per day	8.0	Yes		
Days per month	15.0	Yes		
Months per year	6.0	Yes		
	Warranty			
Length of warranty (years)	Length of warranty (years) use drop down> 3		<u>3</u>	

Updated BPLE Calculator

...and see the total cost of ownership and emissions reduction potential of switching to BPLE!



See a similar calculator for ICE vs Electric Vehicles on <u>LBE's Clean Transportation page!</u>



New BPLE Flyer

- One-stop shop for public entities to learn benefits of BPLE, how to try out equipment, where and how to purchase, and how to take advantage of Mass Save rebates.
- Be sure to report BPLE you procure on the FY23 LBE Tracking Form!



MASSACHUSETTS LEADING BY EXAMPLE PROGRAM



Sustainable Landscaping Strategies

Battery-Powered Landscaping Equipment Resources Guide

DOER Leading by Example and OSD are working collaboratively to promote the adoption of battery-powered landscaping equipment (BPLE) at state facilities. BPLE offers a clean, emissions-free alternative to traditional gas- and propane-powered internal combustion equipment. Besides contributing to the Commonwealth's decarbonization goals, this equipment offers numerous benefits including reduced operational costs and improved staff health and comfort. This guide is intended to summarize key resources to help state entities navigate the various educational resources, costs, benefits, incentives, and statewide contract availability.

Learn the Benefits	Compared to fossil fuel-based equipment, BPLE is quieter, smoother, easier to maintain, and produces zero onsite greenhouse gas and particulate matter emissions. Several resources are available to provide a deeper dive on the potential benefits to state entities: • Presentation from 2022 Ride and Drive event: Recording and Slides • Two-page flyer: Commercial-Grade BPLE for State Entities • OSD's Environmentally Preferable Products Program • Leading by Example Sustainable Landscaping • External organizations: Quiet Communities and AGZA
Calculate Your Savings	Depending on the type of equipment, BPLE may have higher capital costs than traditional equipment. However, due to lower fuel and maintenance costs, BPLE often has a lower lifetime cost of ownership. Use the BPLE Savings Calculator to estimate the potential costs and emissions savings by switching to BPLE.
Test the Equipment	The DCAMM Tool Barn is a program available to state agencies to borrow and test equipment at no cost. The Tool Barn includes a battery electric backpack leaf blower, commercial push mower, and pro-turn mower. For the latest inventory, usage guidelines, and request form, see the Tool Barn Program website.
Leverage Statewide Contracts	BPLE is available for purchase via statewide contract FAC116: Lawns and Grounds Equipment, Category 8. Many vendors have demonstration equipment for potential buyers to test prior to purchase. The FAC116 contract user guide includes vendor contact information and instructions for using this contract. To ensure you are procuring commercial-grade equipment, consult the FAC116 Commercial Grade BPLE Specifications document on COMMBUYS.
Get a Rebate	Mass Save offers a \$3,500 rebate for the purchase of commercial-grade battery-powered lawnmowers with battery capacity greater than 7kWh, as well as \$100 rebates for leaf blowers, string trimmers, and chainsaws with battery capacity greater than 0.5kWh. Visit the Mass Save website for more information and rebate forms.
Report	Did your entity purchase battery-powered equipment? What were your challenges? Success

stories? Contact Ryan.Kingston@mass.gov to share your progress and discuss barriers.



Progress



New Program Changes

Buying or Leasing an EV for Yourself?

MOR-EV Standard, MOR-EV Used, and MOR-EV+ Rebates

- \$3,500 for <u>eligible new</u> battery electric (BEVs) or fuel cell electric vehicles (FCEVs)
- \$3,500 rebate for <u>used BEVs/FCEVs</u> if income-qualifying resident
- \$1,500 MOR-EV+ rebate adder if income-qualifying resident
- Rebates now available at point of purchase or lease through participating MA auto dealerships



Buying or Leasing EVs for Your Fleet?

MOR-EV Trucks and MOR-EV Medium- and Heavy-Duty Rebates

Public fleets can access funding for eligible new BEVs and FCEVs

- New! Pickup trucks 6,000-10,000 pounds GVWR and other body types 8,501-10,000 pounds; maximum \$80K MSRP; **\$7,500 rebate**
 - Vehicles over 10,000 pounds; maximum \$2M MSRP; \$15,000-\$90,000 rebate
 - Rebates can be combined with new federal tax credit elective pay incentives
 - Cannot be combined with funds from other stateadministered programs (e.g., MassDEP's programs, including MassEVIP Fleets for vehicles <8,500lbs)





MOR-EV Trucks

- \$7,500 rebate available after purchase or lease
- Pickup trucks 6,000-10,000 pounds GVWR
- All other body types 8,501-10,000 pounds GVWR
- Maximum \$80,000 total MSRP
- Minimum lease term or vehicle retention period: 36 months

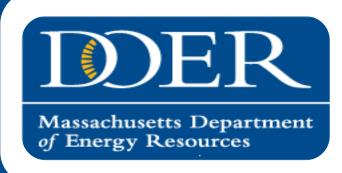




MOR-EV Medium-/Heavy-Duty Rebates

- \$15,000-\$90,000 rebate depending on GVWR over 10,000 pounds
- All applicants must apply for Rebate
 Reservation Voucher before claiming the rebate
- Declining block structure: after 200 rebates reserved in collective Block 1, value of rebates declines by 15%
- 10% rebate adder if registered or operating in an EJC
- Maximum \$2M total MSRP
- Minimum lease term or vehicle retention period: 48 months

Vehicle Class	GVWR (lbs.)	Block 1 Incentive Amount
3	10,001-14,000	\$15,000
4	14,001-16,000	\$30,000
5	16,001-19,500	\$45,000
6	19,501-26,000	\$60,000
7	26,001-33,000	\$75,000
8	33,001+	\$90,000







Meeting Spotlight



Breakout Discussion 1: Electrification Efforts

- EO594 directs state agencies to effectively eliminate onsite use of fossil fuels in buildings, vehicles, and equipment
- This directive aims to reduce greenhouse gas emissions from fuels and equipment that are in direct control of state government
- Strategies to meet this directive include:
- Procuring EVs and deploying charging stations
- Switching to battery-powered landscaping equipment
 - Undertaking studies to strategize facility electrification
 - Deploying heat pumps



Breakout Discussion 1: Electrification Efforts



What are 1-3 goals you have related to electrification of your facilities/fleets/equipment? (New to this year or continuation of previous efforts)



What do you see as your biggest challenge in accomplishing these goals?



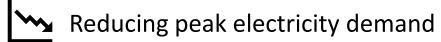
What needs to happen in order for you to achieve those goals?

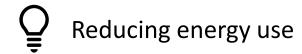




Breakout Discussion 2: Supporting Commonwealth Decarbonization

- Achieving net-zero emissions across the Commonwealth by 2050 (or earlier) will require an all-of-government approach
- State facilities can support the Commonwealth's broader climate goals through a number of strategies that go beyond vehicle and facility electrification, including:





Deploying battery energy storage systems



Conducting internal or external education and outreach



Breakout Discussion 1: Supporting Commonwealth Decarbonization



What are 1-3 goals you have that will support the Commonwealth's broader decarbonization goals? (New to this year or continuation of previous efforts)



What do you see as your biggest challenge in accomplishing these goals?



What needs to happen in order for you to achieve those goals?





Next LBE Council Meeting

Save the Date!

November 14th 10am-12pm

Upcoming Tentative

Meeting Dates:

January 9th

March 12th

