Leading by Example Council Agenda
July 13, 2021

- Welcome
- LBE Updates
- Clean Energy News
- LBE Program Priorities and Support
- Breakout Discussions

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LBE Updates

EO 594 Guidelines

- Provide additional information and clarifications to support implementation of directives

Stakeholder comments through 7/16	*Coming soon*	*Coming this fall*
New construction	ZEV acquisitions	Fleet efficiency
Biofuels	EV charging infrastructure	Renewables
Program administration		Calculating progress
		Sustainability initiatives

2021 LBE Grant Wrap-up

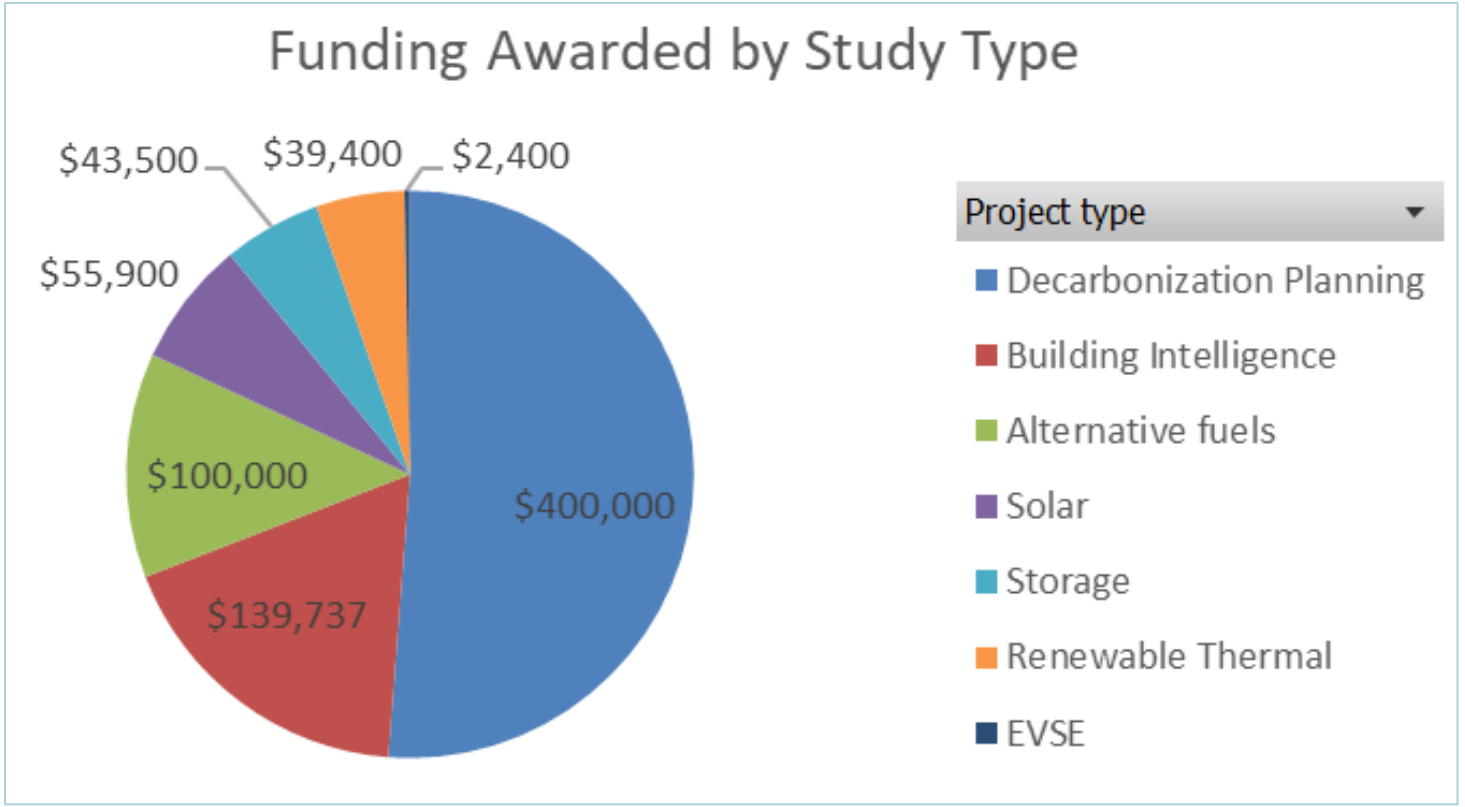
Feasibility Study Grant Awards

- ~$660K funded across 11 studies
  - 4 agencies + 7 campuses

Trend Alert

Technology-specific studies

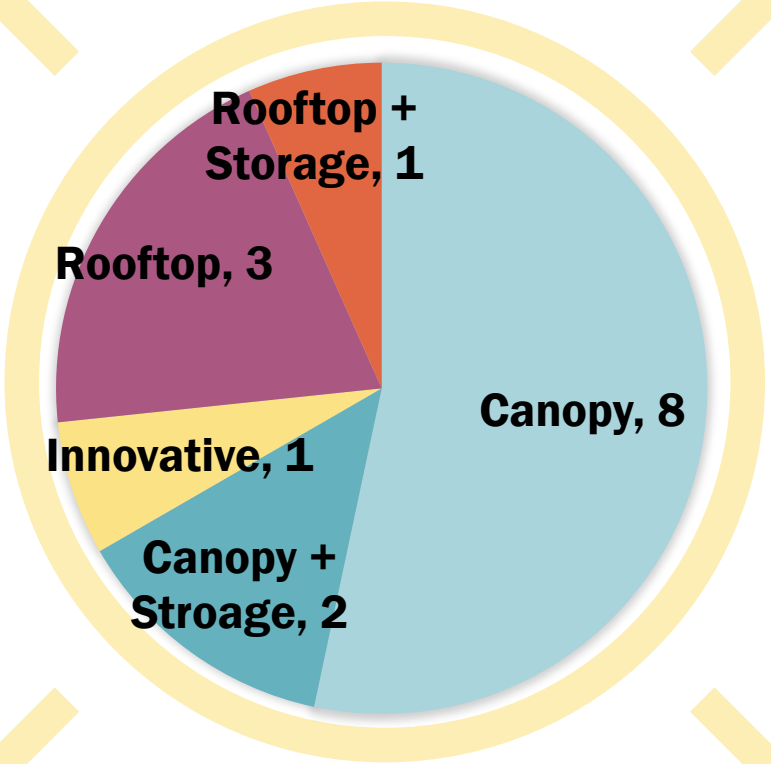
Holistic long-term decarbonization planning
(4 out of last 6 awarded)



2021 LBE Grant Wrap-up

Solar Grant Awards

- $4.9M committed to 15 projects
- 5 agencies/authorities + 5 campuses
- 10.9 MW solar
- 3.3 MW storage



- ❖ Grant investment: ~$0.46 per watt
- ❖ Estimated annual electricity cost savings: $1M+
- ❖ Additional demand charge savings ($ unknown)

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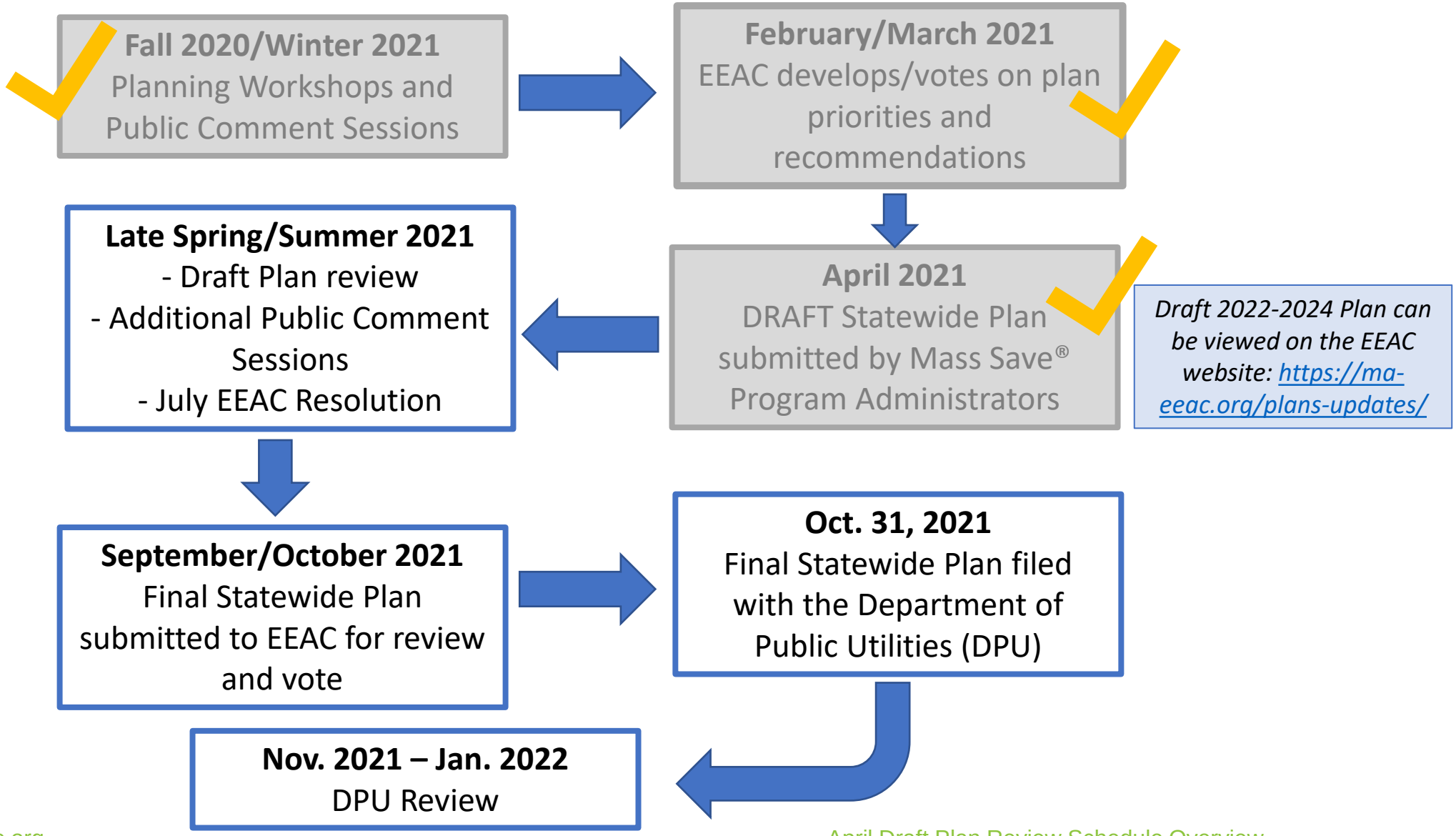
MA News

Mass Save Three-Year Planning 2022-2024 Status Update



Three-Year Plan Upcoming July Meetings (Virtual)

- July 14 – EEAC Monthly Meeting
  - Council will discuss a draft Resolution regarding the EEAC Comments on the April 2022-2024 Draft Three-Year Plan
- July 28 – EEAC Special Meeting
  - Council will have final discussion and will vote on the Resolution
- If you would like to provide public comment for consideration for the July Resolution:
  - Verbal comments can be shared during the 7/14 meeting (please pre-register by emailing ma-eeac@mass.gov)
  - Written public comment can be submitted to ma-eeac@mass.gov – please send as soon as possible for consideration for the Resolution

2030 Clean Energy and Climate Plan: Where Are We Now?

July 2019

EEA 2050 Roadmap study launched

December 2020

Interim 2030 CECP released for public comment. Set a 45% emissions limit by 2030.

Jan-March 2021

GWSA Implementation Advisory Committee accepts public comment, hosts info sessions

March 2021

AN ACT CREATING A NEXT-GENERATION ROADMAP FOR MASSACHUSETTS CLIMATE POLICY is signed into law. Sets a 50% emissions limit by 2030; requires a 2025 and additional interim targets.

Fall 2021

Public meetings around 2025 and 2030 emission limits, baseline, and goals

Winter 2021-2022

Public meetings and process around proposed emissions goals for 2025 and 2030 and the proposed plan to achieve those targets

July 1, 2022

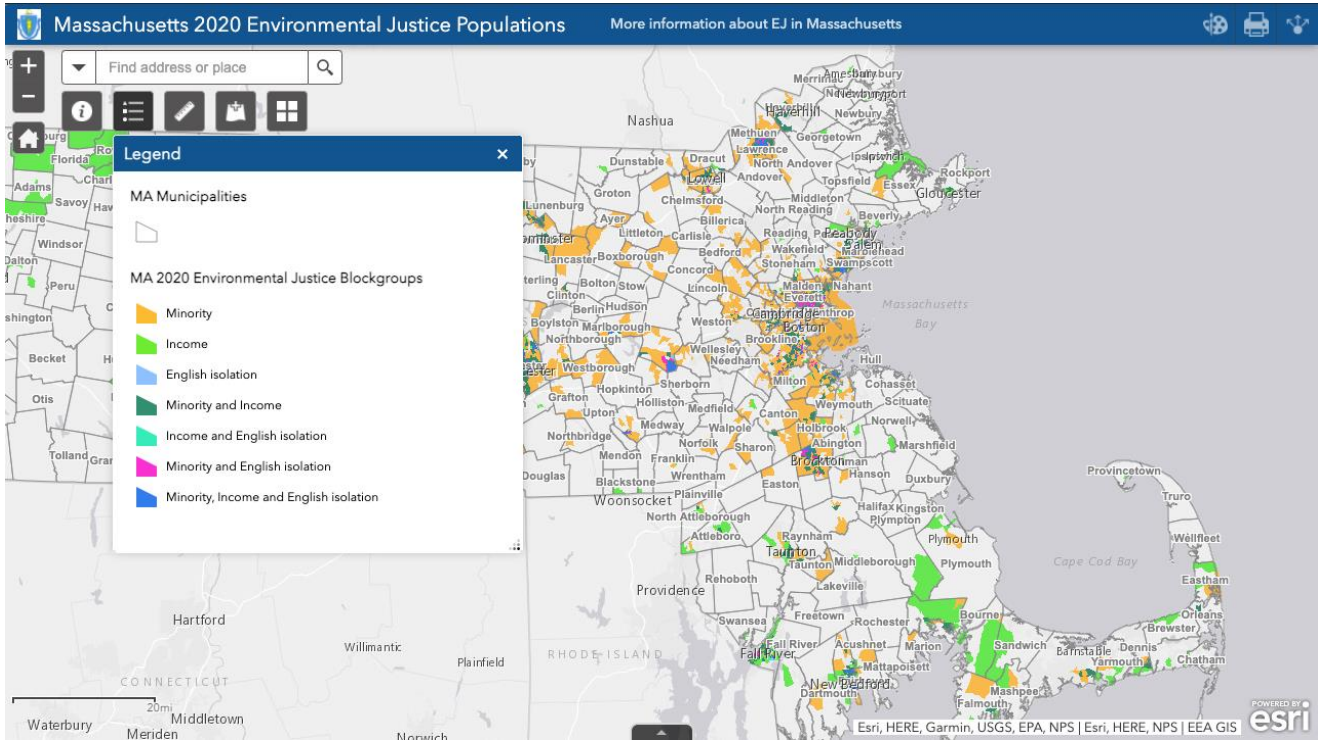
Release of new CECPs, and adoption of 2025 and 2030 emission limits

Visit www.mass.gov/2030CECP to see previous meeting recordings, slides, and to sign-up for updates

Update to EJ Viewer Map

A recent update to the Massachusetts Environmental Justice Mapping Tool allows us to more accurately characterize environmental justice populations throughout the Commonwealth

- https://mass-eoeea.maps.arcgis.com/apps/webappviewer/index.html?id=1d6f63e7762a48e5930de84ed4849212



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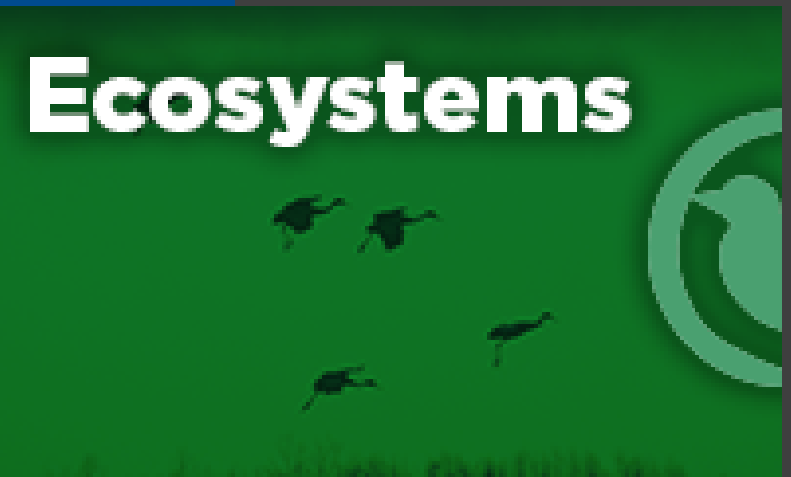
World News



EPA's Climate Change Indicators

- EPA compiles indicators related to causes and effects of climate change
- Indicators provide input to the National Climate Assessment and other efforts to understand and track the science and impacts of climate change
- Explore indicators, including graphics, storymaps, and data, at www.epa.gov/climate-indicators

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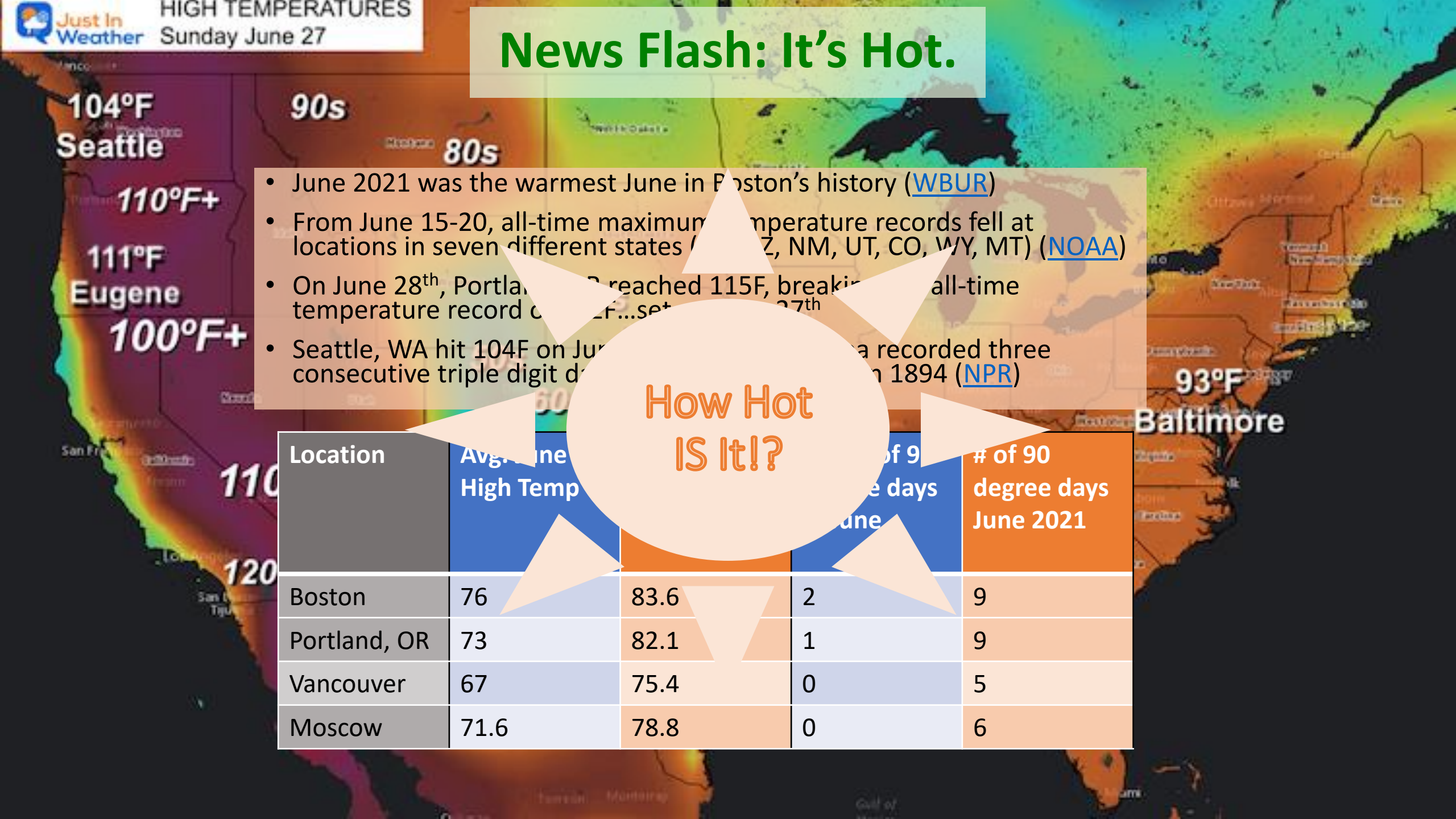


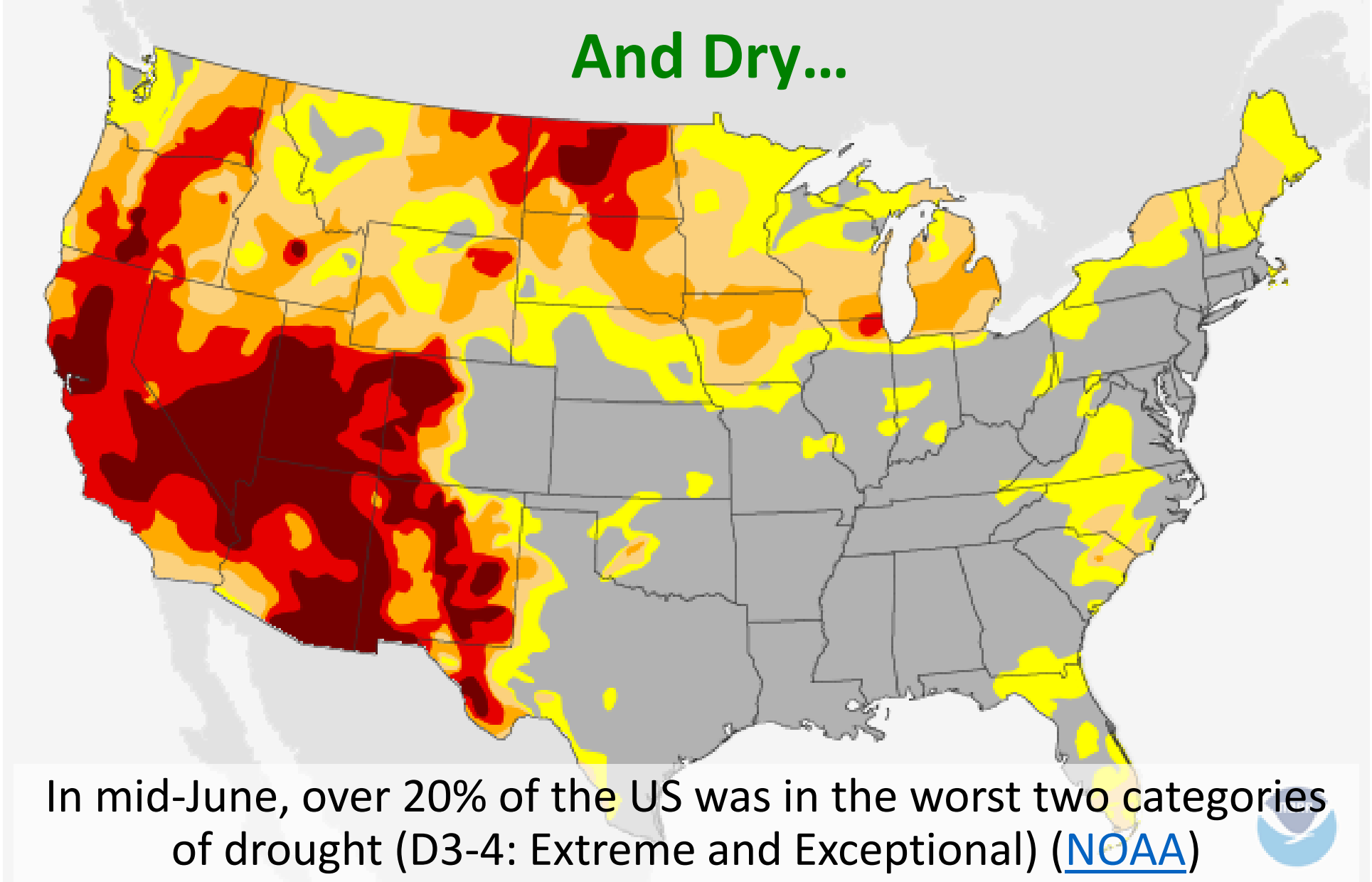
News Flash: It's Hot.

- June 2021 was the warmest June in Boston's history (WBUR)
- From June 15-20, all-time maximum temperature records fell at locations in seven different states (AZ, NM, UT, CO, WY, MT) (NOAA)
- On June 28th, Portland, OR reached 115F, breaking all-time temperature record of 107F…set on 27th
- Seattle, WA hit 104F on June 28th, a recorded three consecutive triple digit days in 1894 (NPR)

How Hot IS It!?

Location	Avg. June High Temp		# of 90 degree days June	# of 90 degree days June 2021
Boston	76	83.6	2	9
Portland, OR	73	82.1	1	9
Vancouver	67	75.4	0	5
Moscow	71.6	78.8	0	6

And Dry…



In mid-June, over 20% of the US was in the worst two categories of drought (D3-4: Extreme and Exceptional) (NOAA)

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"Renewable Gasoline" Around the World

A New Way of Heating Australian Homes

- Australia's largest electrolyser, at just 1.25 MW, switched on in May
- Pilot program providing blend of 5-10% green hydrogen (95% natural gas) to 700 homes
- State has longer-term goal to export green hydrogen; requires 12GW of wind and solar

Sweden Road Tests Renewable Gasoline

- Neste transforms fats into molecules to replace fossil fuels for road, air, marine transport, and chemicals (BCG.com)
- Testing began on commercial fleets, in partnership with Powertrain Engineering (supplier of Volvo cars) (Biomass Magazine)
- Emissions from vehicles can be reduced by up to 65% over the fuel's life

Creating a Clean, Affordable and Resilient Energy Future for the Commonwealth

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EO 594 Implementation Outlook: LBE Efforts and Support

LBE accomplishments are the result of the collective efforts of all state entities, who strive to meet the goals of applicable executive orders while supporting long-term statewide policies and goals

MISSION STATEMENT

The LBE Program aims to substantially reduce GHG emissions and environmental impacts of state owned and managed buildings, facilities, and campuses

LBE Scope

80 million sq. ft. of buildings

– 29 college and university campuses
– 18 prisons, hundreds of armories
– State hospitals, youth detention centers, office buildings, visitor centers, etc.
– 50+ state owned courthouses

State fleet of 6,500+ light duty vehicles

MA State government:

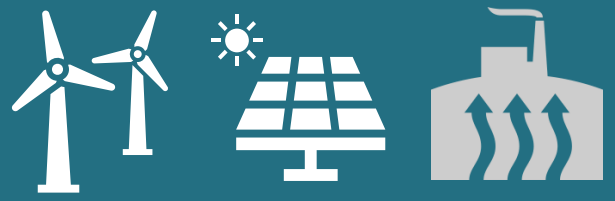
– Over 1 billion kWh of electricity
– 7 million gallons of gasoline & diesel
– Almost 1 million tons of GHGs

Working across state government

– Close collaboration with DCAMM, OSD, DEP
– Regular inter-agency meetings
– Multiple outreach strategies

LBE Priority Areas

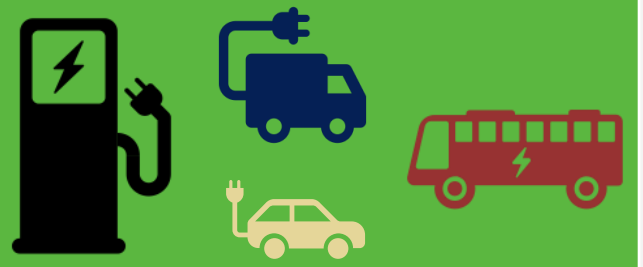
Greenhouse Gas Emissions



Renewable Energy

Building Energy Use

Green Buildings

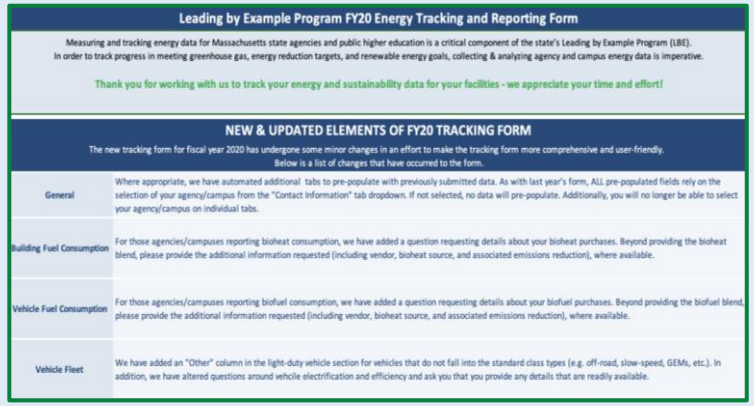


Clean Transportation

Sustainability Initiatives

Data Tracking & Reporting

Annual LBE Tracking Form



Leading by Example Program FY20 Energy Tracking and Reporting Form

Measuring and tracking energy data for Massachusetts state agencies and public higher education is a critical component of the state's Leading by Example Program (LBE). In order to track progress in meeting greenhouse gas, energy reduction targets, and renewable energy goals, collecting & analyzing agency and campus energy data is imperative.

Thank you for working with us to track your energy and sustainability data for your facilities - we appreciate your time and effort!

NEW & UPDATED ELEMENTS OF FY20 TRACKING FORM

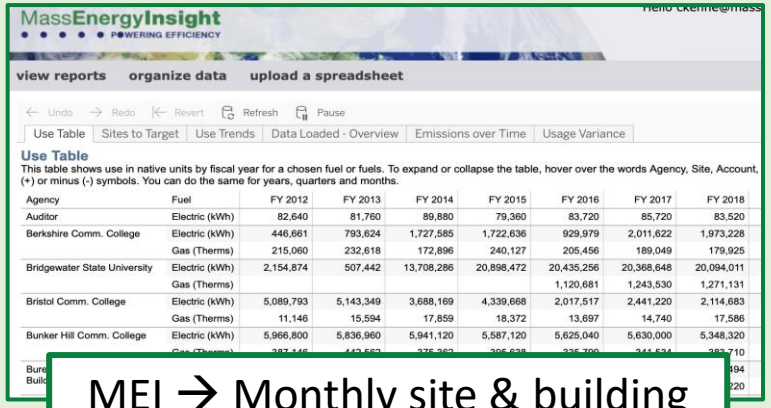
The new tracking form for fiscal year 2020 has undergone some minor changes in an effort to make the tracking form more comprehensive and user-friendly. Below is a list of changes that have occurred to the form.

General	Where appropriate, we have automated additional tabs to pre-populate with previously submitted data. As with last year's form, ALL pre-populated fields rely on the selection of your agency/campus from the "Contact Information" tab dropdown. If not selected, no data will pre-populate. Additionally, you will no longer be able to select your agency/campus on individual tabs.
Building Fuel Consumption	For those agencies/campuses reporting bioheat consumption, we have added a question requesting details about your bioheat purchases. Beyond providing the bioheat blend, please provide the additional information requested (including vendor, bioheat source, and associated emissions reduction), where available.
Vehicle Fuel Consumption	For those agencies/campuses reporting biofuel consumption, we have added a question requesting details about your biofuel purchases. Beyond providing the biofuel blend, please provide the additional information requested (including vendor, bioheat source, and associated emissions reduction), where available.
Vehicle Fleet	We have added an "Other" column in the light-duty vehicle section for vehicles that do not fall into the standard class types (e.g. off-road, slow-speed, GEMs, etc.). In addition, we have altered questions around vehicle electrification and efficiency and ask you that you provide any details that are readily available.

Annual LBE Tracking Form

- Contact info
- Square footage/space optimization
- Utility account inventory
- Electricity consumption
- Renewable generation
- RECs/AECs
- Building fuel consumption
- Vehicle & other fuel consumption
- Installed clean power
- Vehicle fleet composition
- EV charging stations
- Energy efficiency projects
- Water use
- Recycling
- Sustainability initiatives

Utility Tracking Platforms



MassEnergyInsight
POWERING EFFICIENCY

view reports organize data upload a spreadsheet

Undo Redo Revert Refresh Pause

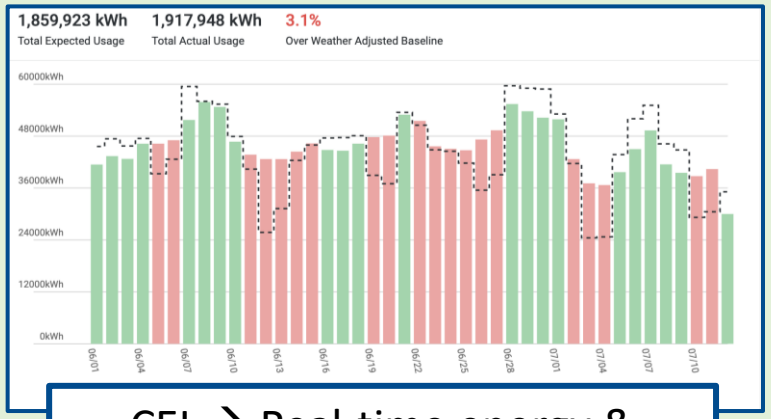
Use Table | Sites to Target | Use Trends | Data Loaded - Overview | Emissions over Time | Usage Variance

Use Table

This table shows use in native units by fiscal year for a chosen fuel or fuels. To expand or collapse the table, hover over the words Agency, Site, Account, (+) or minus (-) symbols. You can do the same for years, quarters and months.

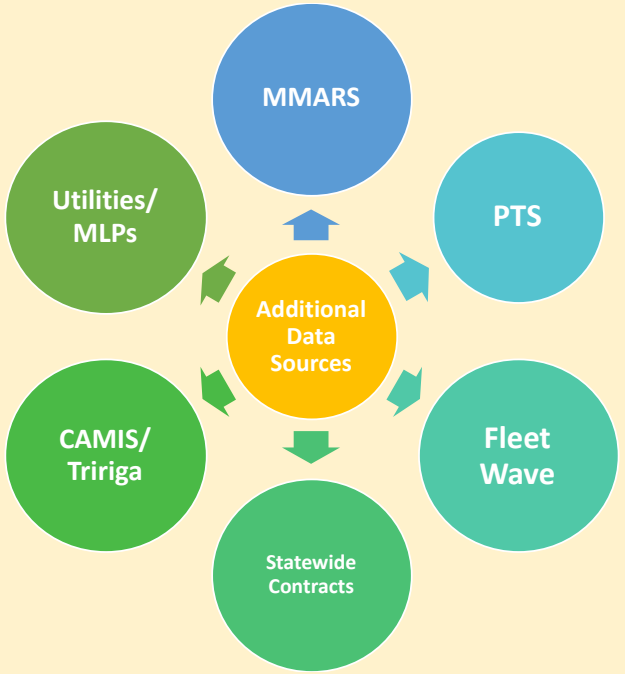
Agency	Fuel	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Auditor	Electric (kWh)	82,640	81,760	89,880	79,360	83,720	85,720	83,520
Berkshire Comm. College	Electric (kWh)	446,661	793,624	1,727,585	1,722,636	929,979	2,011,622	1,973,228
	Gas (Therms)	215,060	232,618	172,896	240,127	205,456	189,049	179,925
Bridgewater State University	Electric (kWh)	2,154,874	507,442	13,708,286	20,898,472	20,435,256	20,368,648	20,094,011
	Gas (Therms)					1,120,681	1,243,530	1,271,131
Bristol Comm. College	Electric (kWh)	5,089,793	5,143,349	3,688,169	4,339,668	2,017,517	2,441,220	2,114,683
	Gas (Therms)	11,146	15,594	17,859	18,372	13,697	14,740	17,586
Bunker Hill Comm. College	Electric (kWh)	5,966,800	5,836,960	5,941,120	5,587,120	5,625,040	5,630,000	5,348,320

MEI → Monthly site & building utility account data



CEI → Real-time energy & utility bill tracking

Databases Galore

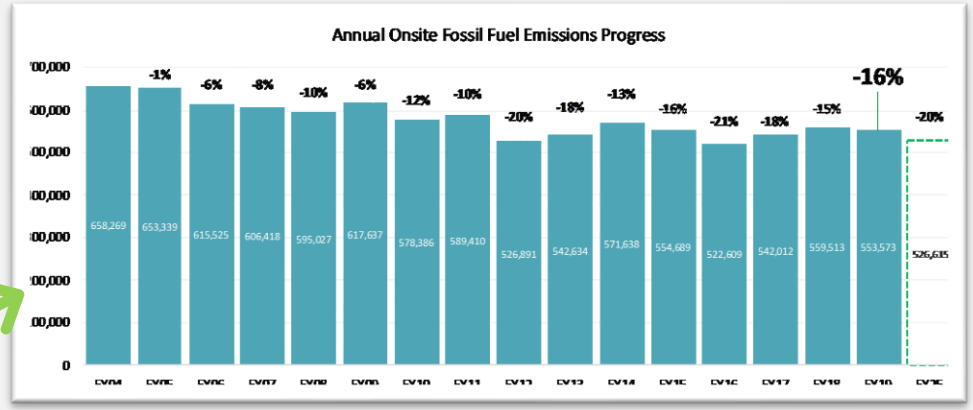


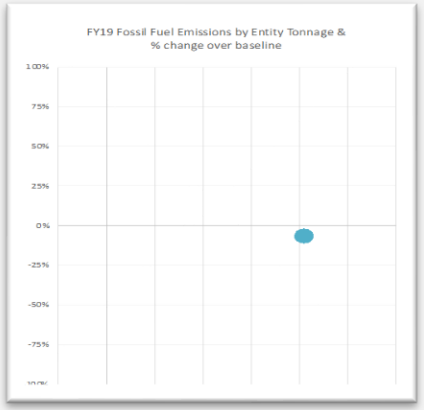
- Solar production
- Delivered fuels
- Fleet inventory
- LBE Project Database
- Upcoming EV models

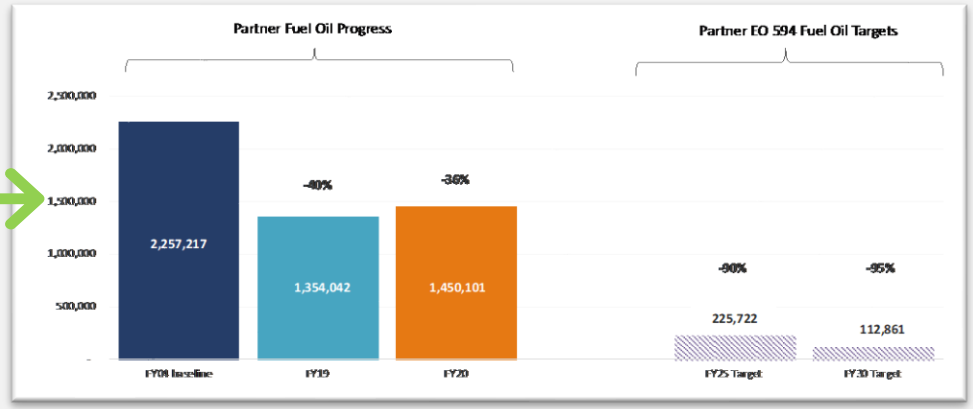
Data Analysis

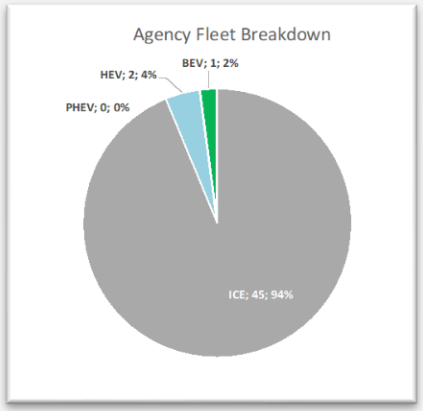
- Portfolio-level
  - Progress towards EO 594 goals
  - Sector progress
  - Target areas
- Agency-specific
  - Progress towards EO 594 goals
  - Sector-specific progress
  - Partner comparison
- Initiative/project specific
  - Fleet replacement analysis
  - Vehicle model TCO comparison
  - Demand response impacts

Example Analyses









	2021 Honda Civic Hatchback	2021 Chevy Bolt
VEH98 Bid Price	$22,901	$28,231 - $32,895
Bid Price - MassEVIP incentive*	**$22,901**	(-$7,500) = **$20,731 - $25,395**
Range	392 (gas)	259 (electric)
Fuel/100 Miles	3.7 gallons	29 kWh
Est. annual energy costs	$1,471	$870
Est. annual maintenance costs**	$915	$465
Est. operating costs after 8 years	$19,086	$10,680
Est. total cost of ownership after 8 years	**$41,987**	**$31,411 - $36,075**

Funding, Financing, and Technical Assistance

LBE facilitates state entity access to funding and technical assistance programs by:

- Staying up-to-date on resources available
- Assisting state entities with navigating the nuance of various programs
- Providing policy and technical expertise to ensure programs are in-line with strategic priorities

LBE Partner Engagement

LBE partner engagement is critical for:

- Sharing technical expertise
- Encouraging peer-to-peer learning
- Disseminating resources and tools
- Celebrating and recognizing success

LBE Council

Partner Meetings

Featurettes and PR

Recognition and Awards

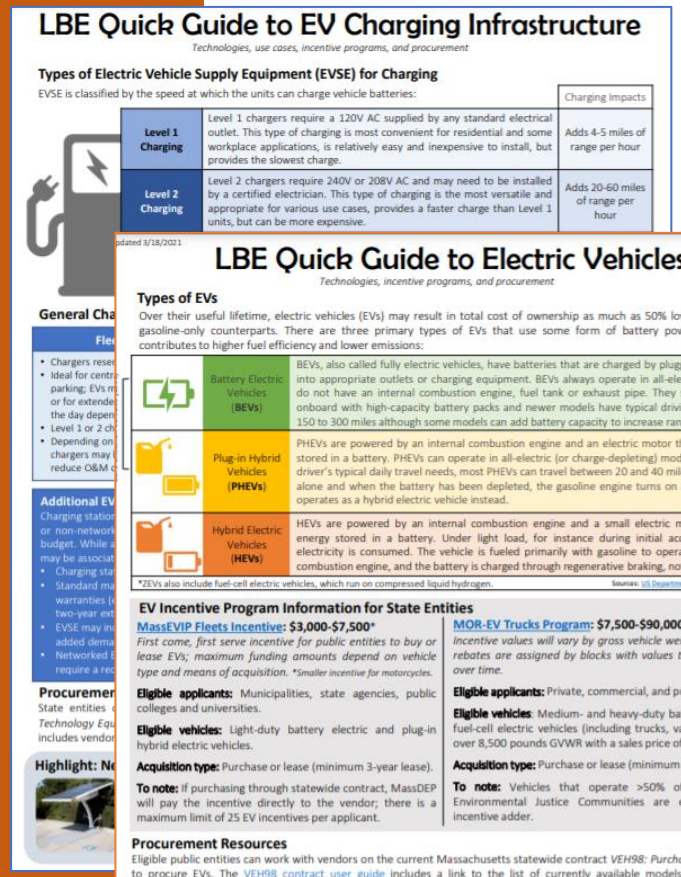
LBE Dispatch and Alerts

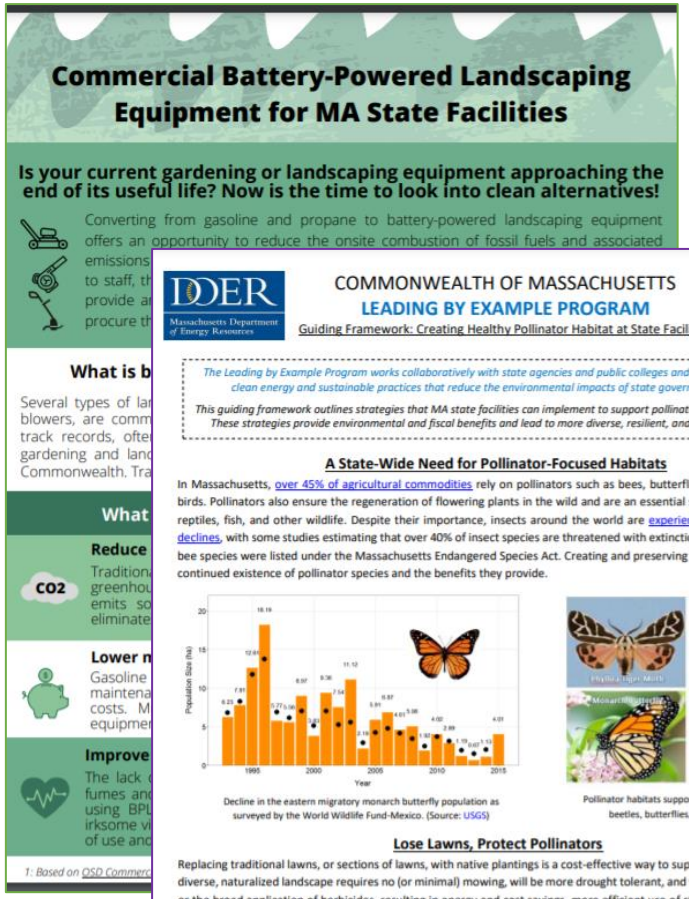
Tools and Guidelines: Calculators

- GHG emissions
- Fuel Efficiency Standard and recommended vehicles
- Lawn to pollinator habitat conversion
- Commercial battery-powered landscaping equipment

Compare battery electric and traditional gas landscaping equipment, including fiscal and environmental impacts

Tools and Guidelines: Internal Guidance Resources





Other resources

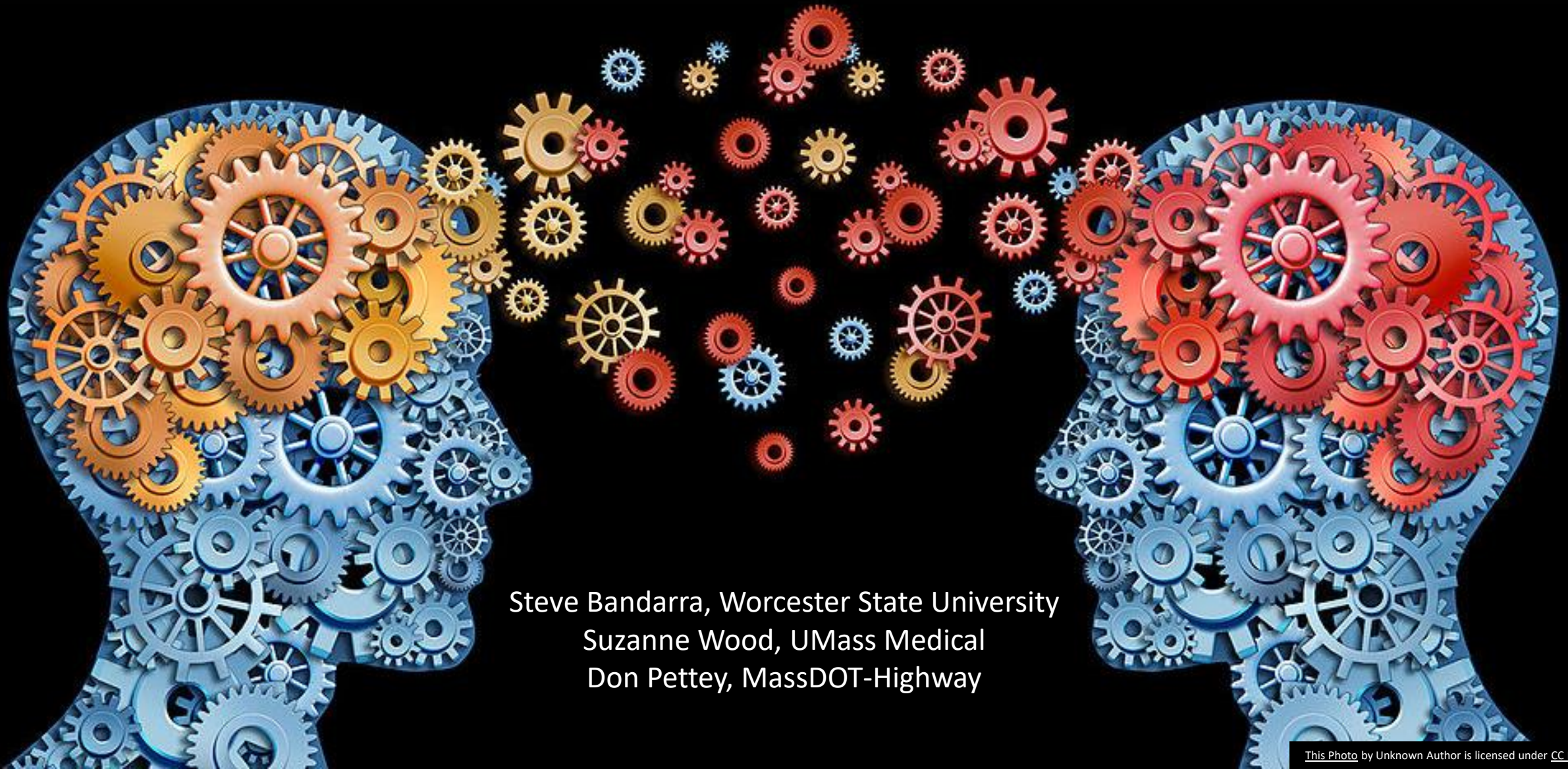
- EV charging scope of services template*
- Guidance for EV charging at state sites*
- EV charging procurement roadmap*
- Biofuels one-pager*
- Water conservation one-pager*

Executive Order 594

- Webinar recordings
- Overview document
- Various guidelines*
- Staff summary/primer*

*in development

Partner Perspectives



Steve Bandarra, Worcester State University
Suzanne Wood, UMass Medical
Don Pettey, MassDOT-Highway

Four General LBE Work Areas

Data Collection and Analysis

- Data tracking & reporting
- Portfolio-level
- Entity-specific
- Project & technology-specific

Funding, Financing and Technical Assistance

- LBE Grants
- Information-sharing on State and Federal programs
- Guidance and TA for various programs
- Strategic Planning

Partner Engagement

- LBE Council Meetings
- One-on-one meetings
- Facilitate access to experts, peers
- Emails, website, featurettes

Tools and Guidelines

- Calculators (emissions, EV TCO, landscaping…)
- EO Guidelines
- Tech/policy quick-guides

Breakout

(Into groups, not into a sweat…)

Breakout Group Objectives

We want to hear from you! Your input will help the LBE program design and provide the kinds of tools, resources, and assistance state entities will need as they work to implement strategies necessary to meet the goals of EO 594.

- We'd like your feedback on previous LBE program efforts, tools, and resources, and on how LBE staff can be most helpful to moving forward
- We want to know:
  - What tools have been the most useful?
  - What additional support should LBE be providing?
  - What type of support should LBE prioritize?
  - And if you're new – how can we be of service?

Breakout Group Format

- Choose your own adventure: Select your own group!
  - We will break out into four groups, each focused on one LBE work area
  - Share your thoughts on how LBE has been helpful in this area, what can be improved, what is missing
- After ~25 minutes, you will have the opportunity to switch to a new room and new topic

SELECT YOUR BREAKOUT ROOM

Data Collection and Analysis	Funding and Technical Assistance
Partner Engagement	Tools and Guidelines

Please turn cameras on while in small groups!

Breakout Discussion Report-Out

Next LBE Council Meeting

Save the Date!

Tentative:

Tuesday, Sept 14th

10:00 am–12:00 pm

Upcoming Tentative Meeting Dates:
November 9th
January 11th
March 8th

"This afternoon we'll have a breakout session ... but I wouldn't advise breaking out too far."

Creating a Clean, Affordable and Resilient Energy Future for the Commonwealth

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