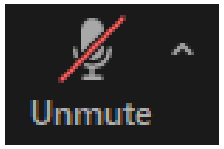
Leading by Example Council
May 11, 2021 Agenda

- Welcome
- LBE Updates
- Clean Energy News
- MA Climate Legislation
- Executive Order 594
- Open Discussion and Q&A

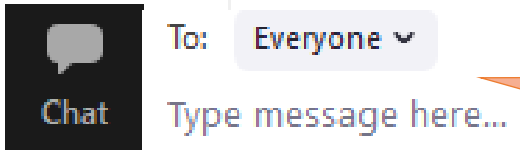
Using Zoom

Please keep yourself muted if not speaking



Please turn your camera on if speaking

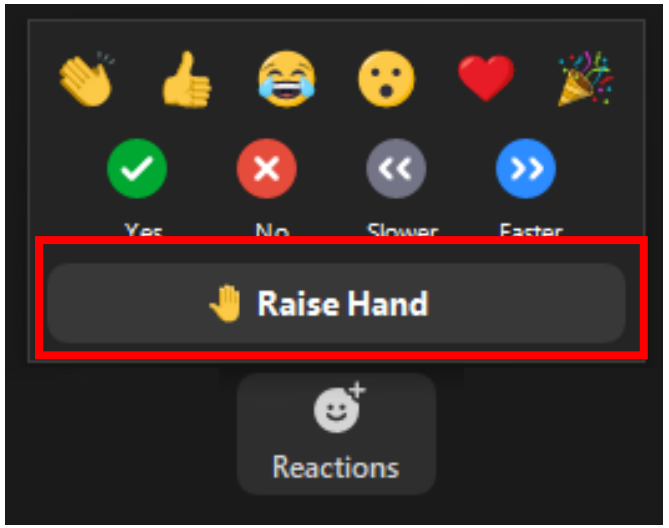
Use the chat box to ask questions and leave comments



Please enter your name and entity into the chat…

And let us know what you had for breakfast!

On the bottom of your screen, click “Reactions” to ‘applaud’ speakers and share other emotes.
Click “Raise Hand” if you have a question or comment during the meeting



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LBE Updates

2021 EV Purchase Challenge

Mass*EVolves* +

- **Massachusetts Water Resources Authority** joins **MassPort** and **UMass Lowell** as 2021 Mass*EVolves* participants!
- Opportunity for **peer-to-peer learning**, to **demonstrate leadership**, and to **gain additional recognition** for on-the-ground efforts to reduce environmental impacts

Recently purchased an EV, or plan to purchase or lease one in FY22? You've already completed the Challenge! Sign up today

Campus Fleet Listening Sessions

- LBE hosted campus fleet electrification ‘listening sessions’ in April and May
- Opportunity to solicit higher ed partner feedback on EVs and EV charging

  - Unique challenges and opportunities
  - Procurement processes and statewide contracts
  - Priorities for vehicle replacement
  - EVs coming to market and available incentives
  - Total cost of ownership considerations

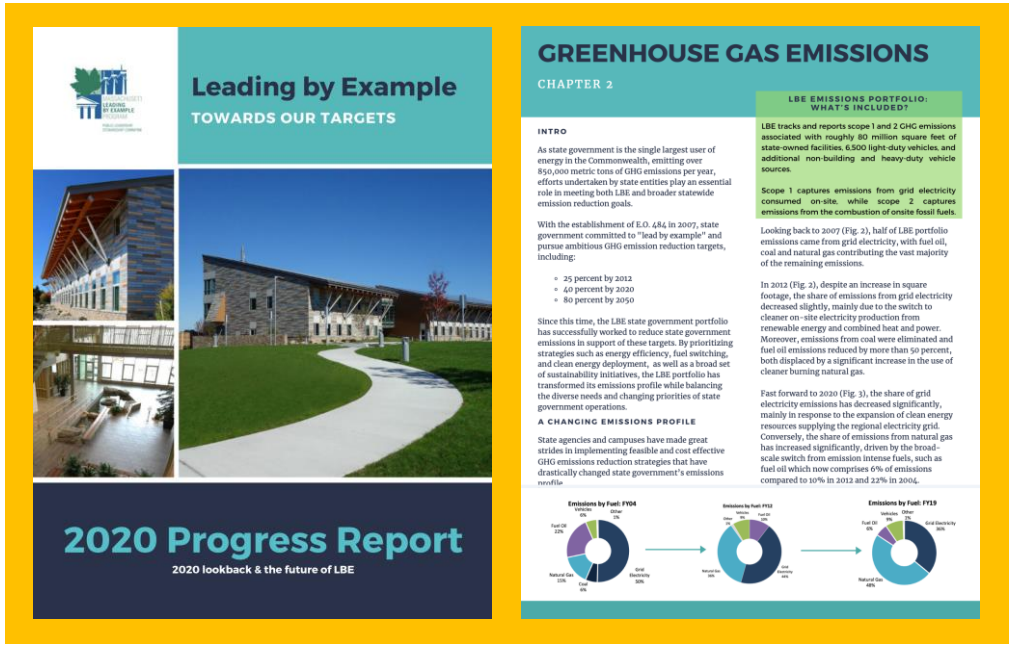
Image credit

- Follow-up email with resources coming soon
- Missed the session and want to chat? Reach out to Catie to schedule time

Upcoming 2020 LBE Progress Report

- LBE program & key partnerships
- Data tracking & reporting
- COVID impacts
- Progress reporting
  - GHG emissions
  - Energy use
  - Renewables
  - Clean transportation
  - Sustainability
- Outreach & communications
- Lessons learned
- EO 594 & Future LBE priorities

- Lookback on key program areas
- Technology & project highlights
- Partner spotlights & testimonials



Contact Chelsea with topic ideas and/or project & initiative highlights!

New LBE Home Page

New Pages!

Image cards will take you to your favorite LBE pages

Service pages located further down the page

Content Update!

Top actions & services

- LBE Program Overview and Contacts →
- LBE Council →
- LBE Awards →

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New Pages and Updates

Initiatives and Progress

New pages for:

- GHG Emissions
- Building Energy Use
- Green Buildings
- Renewables & Clean Energy

Executive Order

- Upcoming opportunities to learn more
- EO 594 Overview and link to full text
- Info on state partner responsibilities
- EO Guidance (*coming soon*)

Sustainability Initiatives

- LBE Interactive Map
- Sustainability Stories and Headlines
- State Facility Sustainability Database

Solar PV Installations at State Facilities

Listed below are state facilites that have installed solar rooftops, groundmounts, and canopies at their facilities. Data can be filtered in any column by selecting the arrow below each column name. For more information about statewide progress, visit the LBE Website linked below.

LBE Progress Page: LBE Renewable & Onsite Generation

Agency	Category	Site Name
Berkshire Community College	College/University	Berkshire CC - Field /Library/Arts Building
Berkshire Community College	College/University	Berkshire CC - Hawthorne Hall
Berkshire Community College	College/University	Berkshire CC - Melville Hall
Berkshire Community College	College/University	Berkshire CC - Stanley
Berkshire Community College	College/University	Berkshire CC - Susan B Anthony College Center
Berkshire County Sheriff's Office	Agency	Berkshire County Sheriff / HOC

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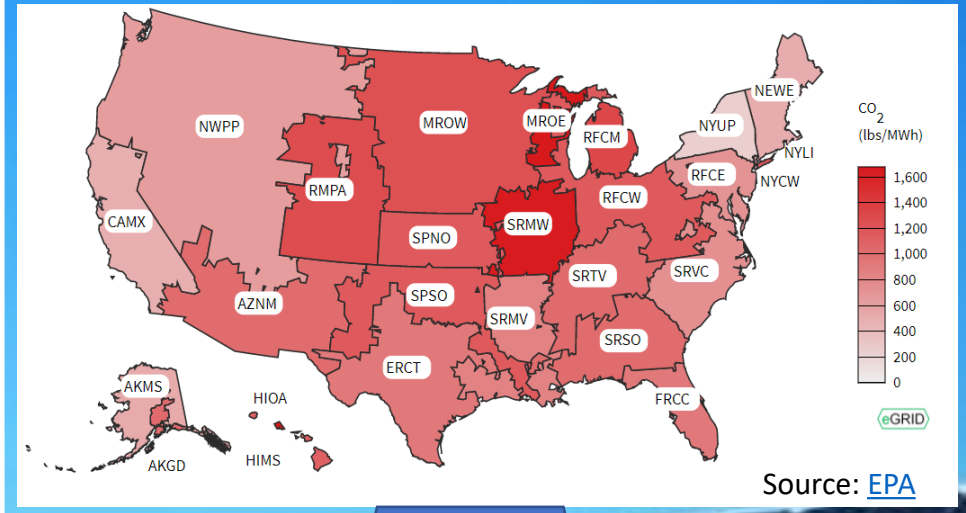
Clean Energy News

U.S. Announces New Climate Goals

- On Earth Day, Biden administration announced goal of reducing U.S. GHG emissions by **50-52% by 2030**
  - According to RMI, “It is very unlikely that this goal could be achieved without new federal legislation.”
- Biden administration pushing Congress to pass clean energy standard, requiring grid to get **80% of its power from emissions-free sources by 2030**
  - Can be achieved with existing technologies, no additional cost to ratepayers -> decreasing costs of renewables & batteries

Source: Politico, CNBC



Source: EPA

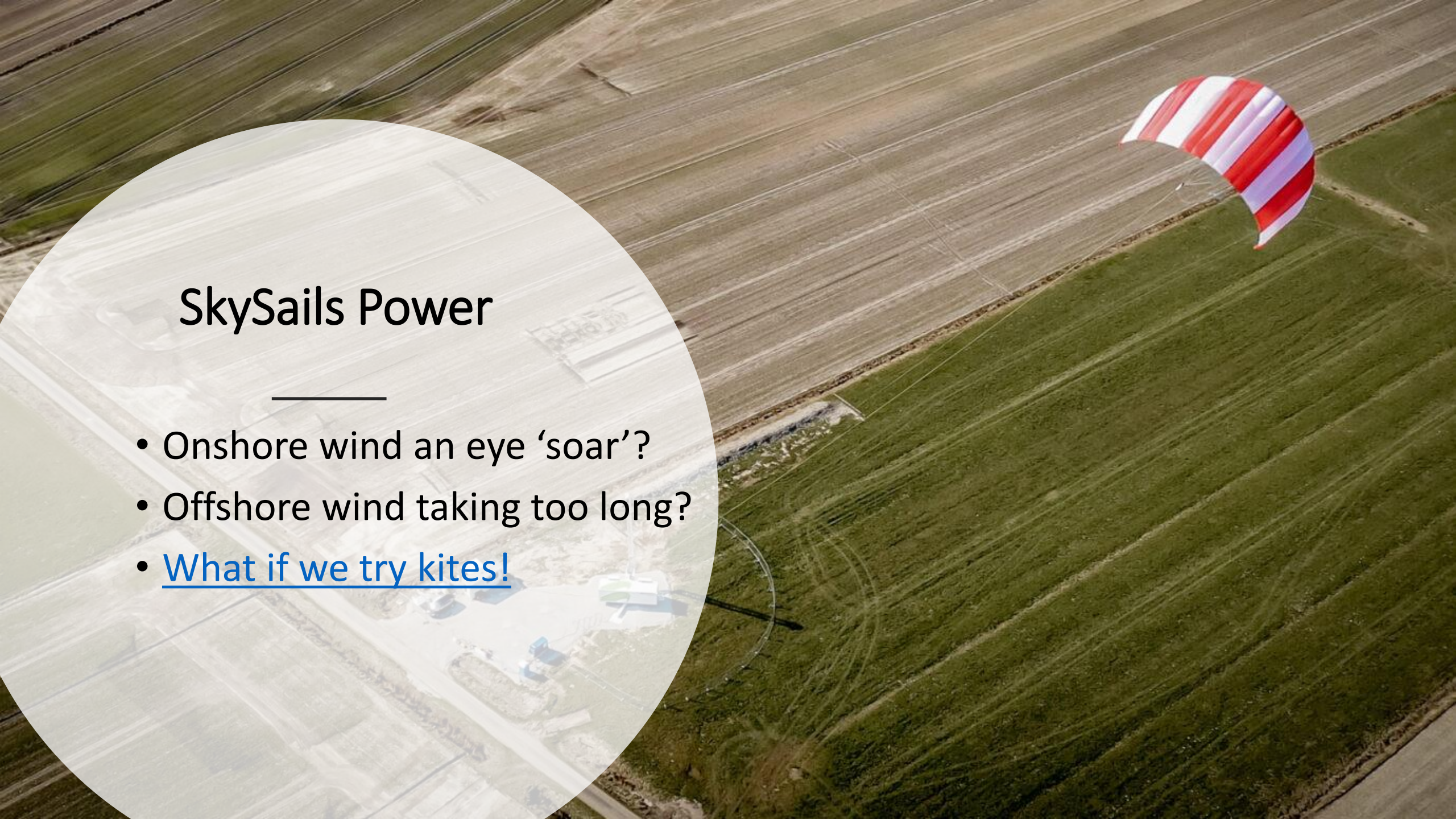
Biggest opportunity to reduce U.S. grid emissions lie in Midwest, where electricity emits nearly 1700lbs/MWh. Emissions in NE is ~522lbs/MWh

U.S. DOE Clean Energy Targets

- U.S. Energy Secretary Jennifer Granholm announced goals to:
  - Reduce solar energy costs by 60% by 2030
  - Reduce price of hydrogen energy by 80% by 2030
  - Cut battery cell prices in half
  - “Dramatically” reduce cost of industrial carbon capture
- To support solar targets, Granholm announced:
  - $128 million to cut cost of deploying solar and hasten development
  - $25 million for next-generation concentrating solar-thermal plant
  - $40 million toward R&D of perovskites, used for thin-film solar

Source: The Hill 1, 2

Image: Sandia National Laboratories will construct a next-generation solar-thermal power plant



SkySails Power

- Onshore wind an eye ‘soar’?
- Offshore wind taking too long?
- What if we try kites!

Limiting Warming will Limit Ice Melt and SLR

- Study found that land ice contribution to sea level rise could be halved if world meets Paris Accord
  - 1.5C of warming: Land ice would add 5.1 inches
  - 3.4C of warming: Land ice would add 9.8 inches
- Potential melting in Antarctica remains unknown
  - Uncertainties around ice loss vs snowfall
  - Under pessimistic scenario, Antarctic ice could add another 11.4 inches, even if Paris is met
- Model predictions lower than other IPCC reports and current observations
- Study will feed into next IPCC report, first part of which will be published in August

Sources: New Scientist, Nature

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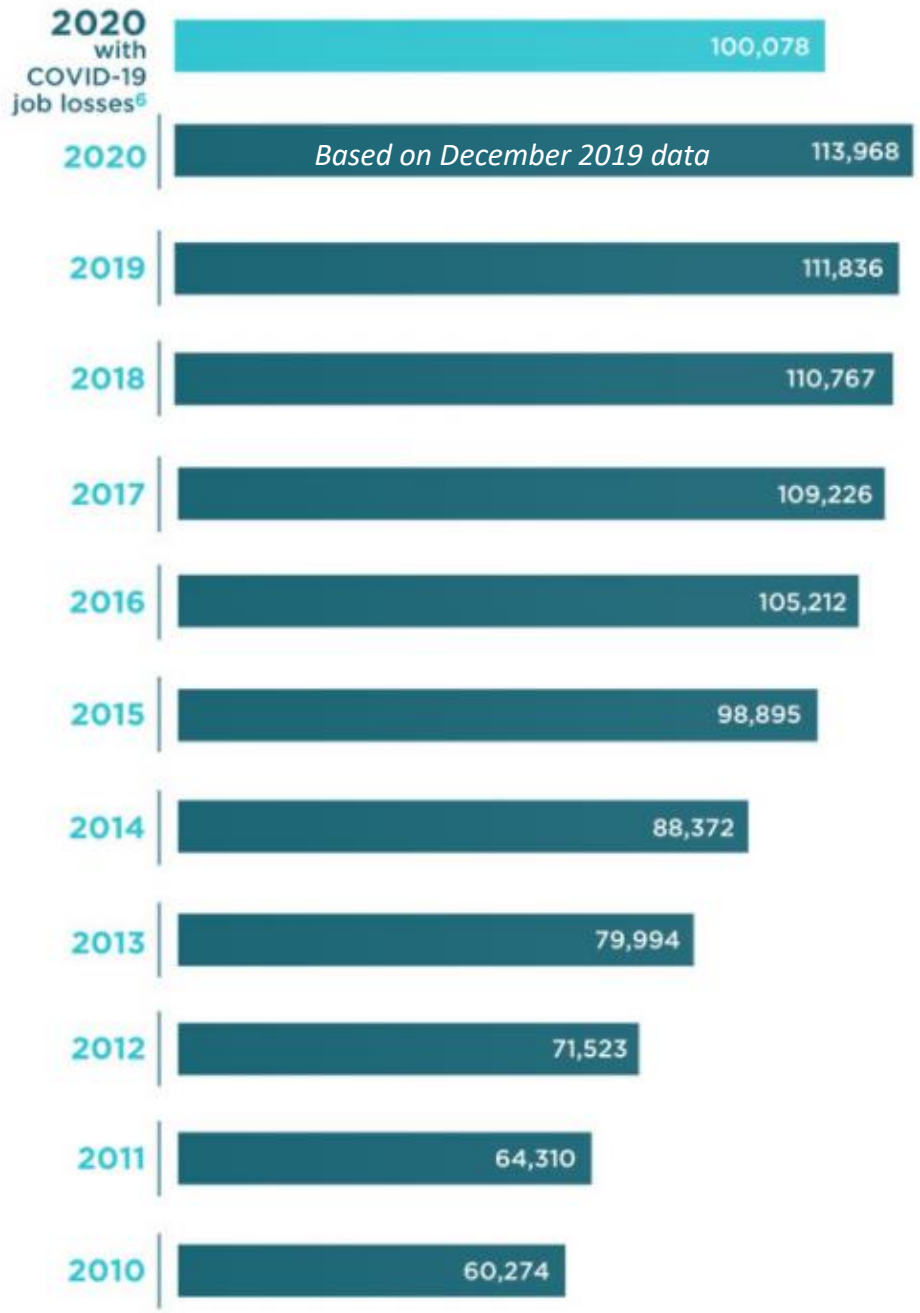
MA Clean Energy News

2020 MassCEC Clean Energy Industry Report

- The pandemic caused a net loss of ~13,890 clean energy jobs in MA
  - March-May 2020: lost 19,600
  - June-Sept 2020: gained 5,750
- Overall 89% clean energy job growth since 2010
- Fastest growing sectors from 2019-2020 were:
  - Wind (7% growth)
  - Smart Grid/Microgrid/Other Grid (4% growth)
  - Efficient lighting (3% growth)



Total Clean Energy Employment in MA

Source: MassCEC

MA is still a Leader in Clean Energy

#1	For clean energy workers per capita in the U.S. by Environmental Entrepreneurs (E2) (2020)
#1	On the clean energy Community Power Scorecard for the 4th straight year by the Institute for Local Self-Reliance (2020)
#1	For median clean energy wage by E2 (2020)
#2	For energy efficiency in the U.S. by ACEEE
#2	For Innovation overall by Bloomberg, for the 2nd year in a row (2020)
#2	Boston named city for clean energy by ACEEE (2020)
#4	In LEED by USGBC (2019)
#4	For total solar workers in the U.S. by the Solar Foundation (2019)
#7	For total clean energy workers in the U.S. by E2 (2020)

22,000+ EV's sold in MA since 2011

107,000+ solar projects

$900 million spent on EE, over $2.9 billion in benefits

Source: MassCEC

New RPS Rules for Biomass Plants

- Biomass projects prohibited from RPS if in/within five miles of an EJ Community
- All biomass units going into operation after 12/31/2020 must be 60% efficient
- DOER seeking public comment on changes
  - Write doer.rps@mass.gov until 5pm 5/17/21
- See the mass.gov page on RPS Rulemaking for more information

Source: State House News, WBUR

MA Offshore Wind News

Vineyard Wind (800 MW): BOEM completed final environmental impact statement in early March

- Q2 2021: Final Record of Decision from BOEM (expected soon)
- Second half of 2021: On-shore work begins
- 2022: Offshore construction
- 2023: Begin turbine installations
- Late 2023: Begin exporting power to grid

Mayflower Wind (804 MW): Power purchase contracts between Mayflower Wind and utilities approved by DPU in November

- Pending motion from AG concerning compensation levels for utilities
- December 2025: Project fully operational

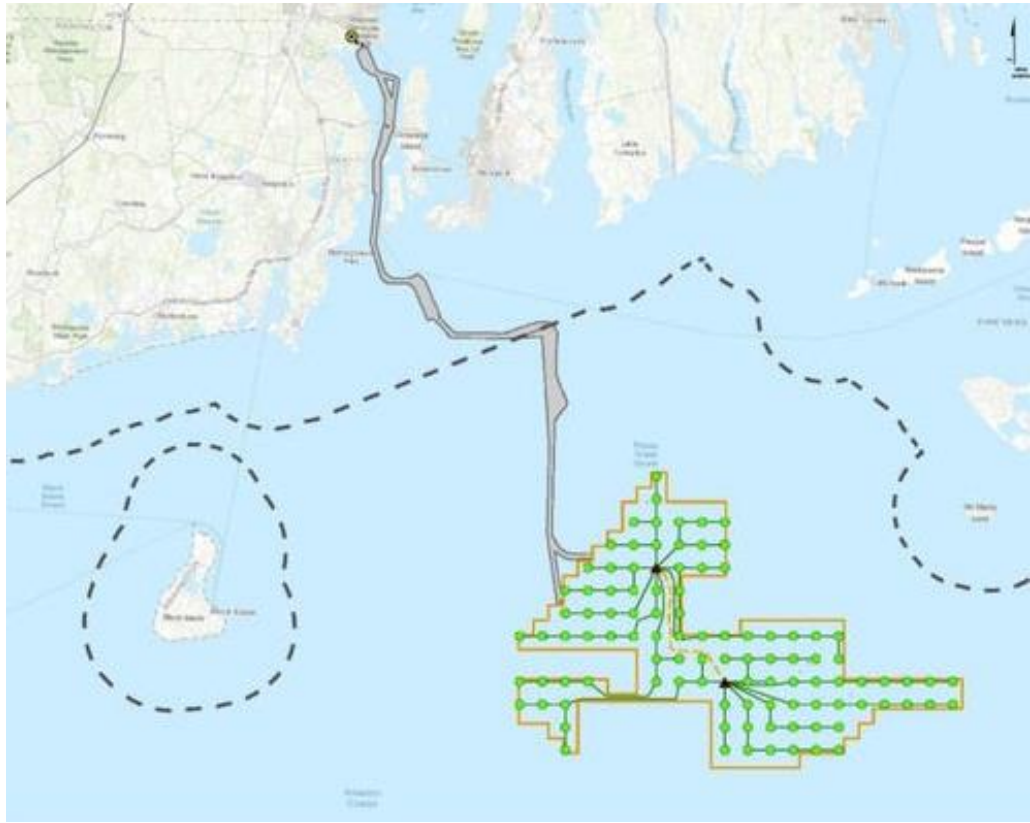
New RFP for up to 1600 MW

- Final RFP released May 7th
- Bids due 9/16, winner picked December 2021
- Price factors will represent 70% of score
- Qualitative factors (equity & inclusion, economic development, env. impacts) will make up 30% of score

Source: Boston Globe

Meanwhile, in Rhode Island: 880 MW Revolution Wind

- ~100 turbines 17.4 nautical miles south of R.I.
- RI would receive 400 MW; CT 304 MW
- BOEM comment period kicks off environmental review of project; comment period ends 6/1/21
- Virtual public meetings will be held May 13, 18, and 20. Registration is at www.boem.gov/Revolution-Wind-Scoping-Virtual-Meetings



Source: Energy News, South Coast Today

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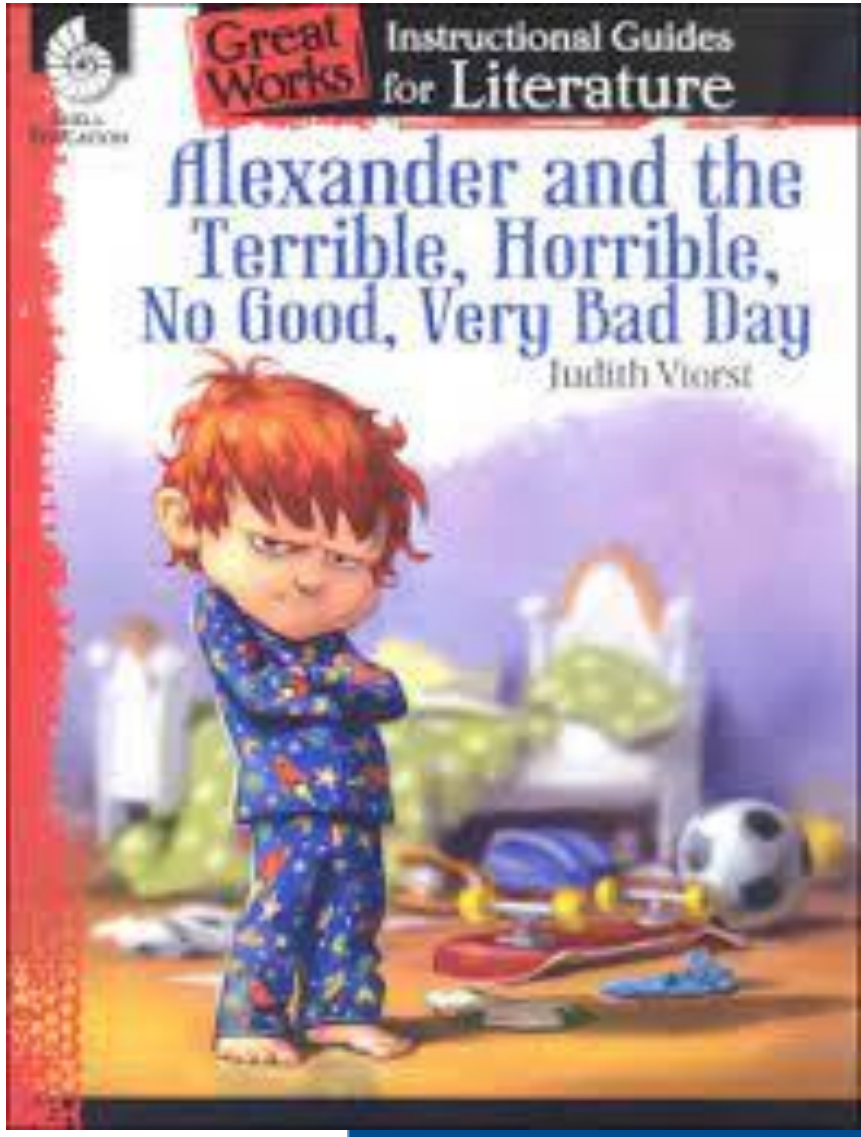
Charlie and the Wonderful, Hectic, So Good, Very Busy Week

Earth Week 2021 in MA included…

- Signed a little Executive Order called "Leading by Example"
- $5.5 million awarded to 77 cities and towns through the Rapid LED Streetlight Conversion Program
- Nine new municipalities designated Green Communities, bringing the total number to 280, representing 87% of MA population



Massachusetts Leads by Example

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

Massachusetts Department of Energy Resources

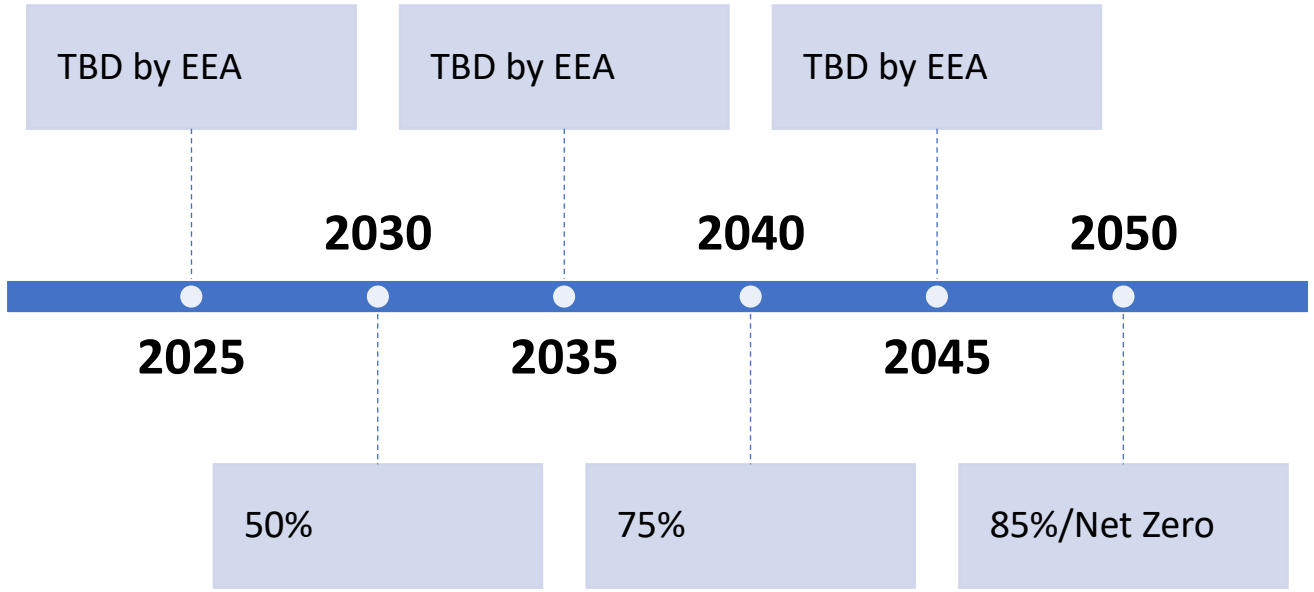
An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy

Chapter 8 of the Acts of 2021

Leading By Example – May, 2021

Greenhouse Gas Emissions Targets

- Sets net-zero emissions by 2050 into statute
- Creates interim emission targets for 2025, 2035, 2045 (set by EEA Secretary)
- Municipal Light Plant Greenhouse Gas Emission Standard
  - Each MLP may set their own minimum percentage of non-carbon emitting energy
  - MLP's may make an alternative compliance payment
  - Must meet 2030, 2040, 2050 emission targets
  - File annual report on emissions with DOER



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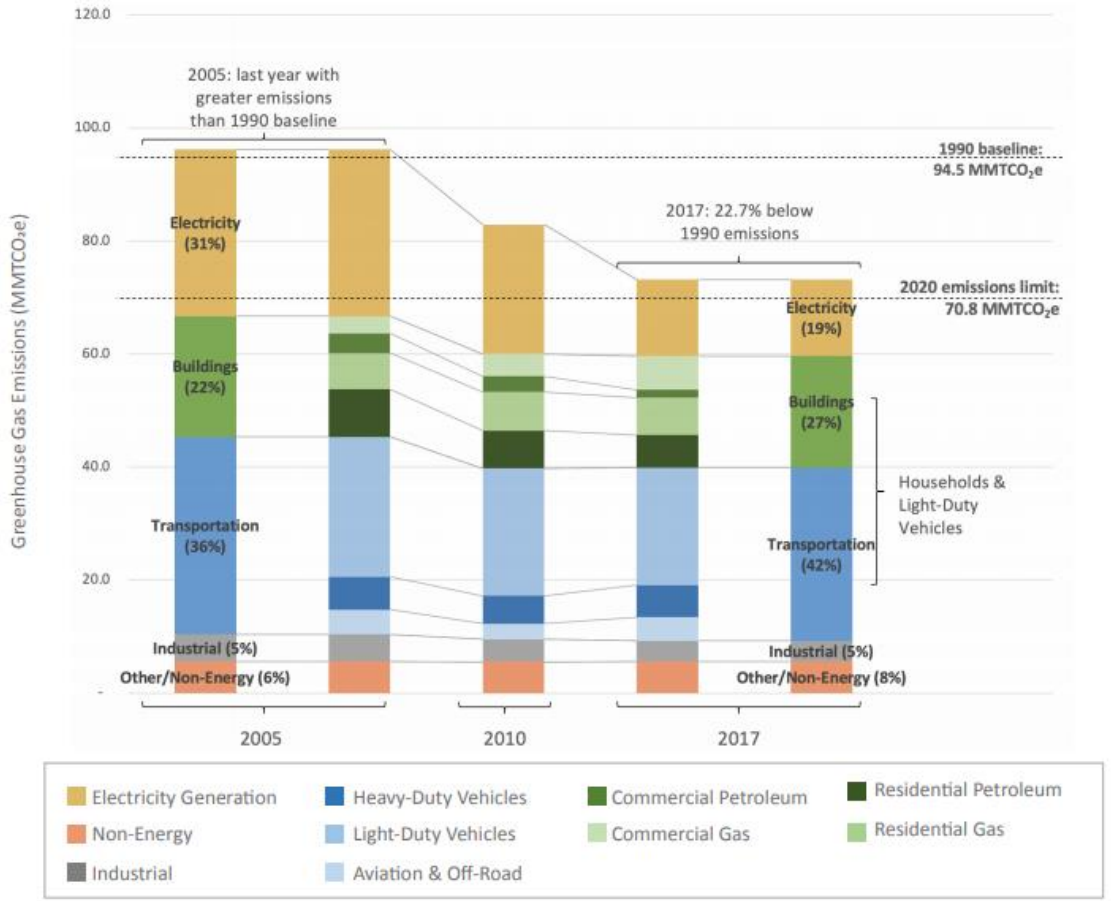
Sector Emissions Limits

- Allows the establishment of enforceable emissions limits for sectors
  - Cannot be aggregated
  - May use market-based compliance mechanisms
- Sector specific GHG reduction plans
- EEA may establish regulations to achieve emissions limits and sub-limits

Sectors (in statute):

- Electric Power
- Transportation
- Commercial & Industrial Heating and Cooling
- Residential Heating and Cooling
- Industrial Processes
- Natural Gas distribution and service
- Any other sector or source designated by EEA Secretary



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Environmental Justice and Equity

Establishes an Environmental Justice Council

- 9-15 members that advise and provide recommendations to EEA Secretary on policies and standards to achieve EJ principals
- Conduct an analysis and review of EJ definition and polices to ensure they achieve the objectives of the statute every five years.
- May propose regulatory and legislative changes.
- First review due no later than July, 31, 2022.

Establishes the requirement for environmental impact reports

- All state agencies must issue an impact report for projects or permits issued within 1 mile of an environmental justice population or project that impact air quality within 5 miles of an environmental justice population.
- Review process must include public notice, meetings, appropriate information, and establish a local repository for project review information.

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Environmental Justice and Equity

Establishes a Clean Energy Equity Workforce and Market Development Program

- Annual investment of $12 million run by MassCEC
  - Workforce training
  - Educational and professional development
  - Job placement
  - Startup opportunities
  - Grants promoting participation in energy efficiency, clean energy, and clean heating and cooling industries
- Prioritizes investment and services with
  - Certified minority-owned and women-owned small business enterprises
  - Individuals residing within an environmental justice community
  - Current and former workers from the fossil fuel industry.

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Gas Safety

- DPU to host a public database of all written complaints and resolutions concerning gas companies
- Gas companies must file infrastructure repair plans with DPU, DPU sets standards for record and map keeping
- Increased fines for violation of emergency preparedness standards for electrical and gas distribution companies
  - Emergency preparedness violation fine from $250k per day to $500k
  - Maximum fine from $20m to $50m
- Establishes gas safety violations
  - Max of $500k per violation, $10m for a related series of violations

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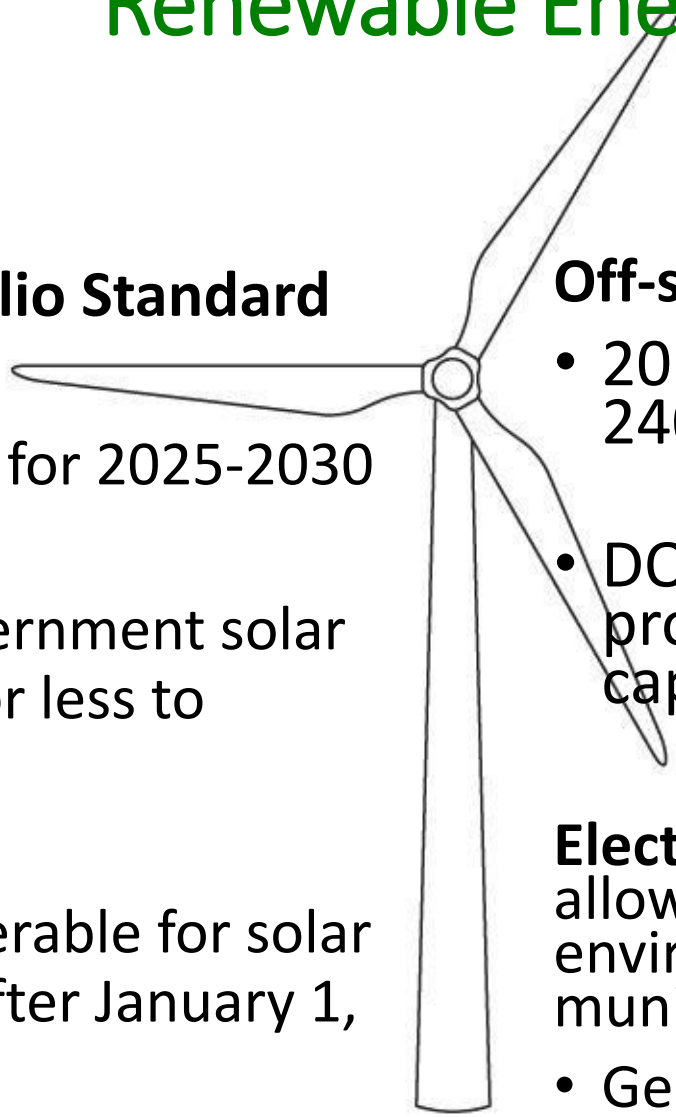
Renewable Energy



Renewable Energy Portfolio Standard (RPS)

- Increased from 2% to 3% for 2025-2030
- Municipal and other government solar facilities of 60 kilowatts or less to qualify for Class 1
- Excess RPS credits transferable for solar facilities coming online after January 1, 2021

Off-shore Wind Generation

- 2016 authorization increased by 2400 Mw to 4000Mw
- DOER may require ECS to conduct procurements of transmission capacity for OSW

Electric Distribution Companies allowed to own generation facilities in environmental high-risk areas with municipal approval.

- Generating capacity cap of 10% of the states total as of FY2020

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Statewide Energy Efficiency Plans

Changes to the energy efficiency programs to better align energy efficiency with emissions reductions limits.

- EEA Secretary sets a greenhouse gas emissions reduction goal for each three-year energy efficiency plan
  - EEA Secretary certifies if plan's goal was met and files report with Legislature
- Cost-effectiveness test to include a "social value of greenhouse gas emissions reductions"
- Distribution companies are required to file quarterly reports on progress and contribution
- EEAC's annual report to include annual estimation of impacts on meeting climate goals

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2022-2024 EE Plan Update: https://ma-eeac.org/plans-updates/

June 2021

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	
31	1	2 EEAC Executive Committee Meeting Public Comment Session	3	
7	8	9 Public Comment Session	10	11
14	15 Public Comment Session	16 EEAC Meeting	17	18
21	22	23	24	25

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New Stretch Code Requirement

…develop and promulgate, in consultation with the state board of building regulations and standards, a municipal opt-in specialized stretch energy code that includes, but is not limited to, net-zero building performance standards and a definition of net-zero building, designed to achieve compliance with the commonwealth's statewide greenhouse gas emission limits and sublimits established pursuant to chapter 21N.

- Municipal opt-in code for cities and towns
- Must be available for opt in by November 2022
- DOER must hold at least 5 public hearings

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Other Provisions

- Appliance Energy Efficiency standard update! Covers AC units, commercial appliances, computers and more
- Update for municipal tax exemptions for solar and wind turbines, and new municipal tax exemption for fuel cell technology
- Requires EEA to complete a study of biomass emissions and public health consequences within 2 years
  - Includes an analysis of greenhouse gas emissions generated and projected to be generated from all classes of biomass fuels
  - Public health consequences for affected populations
  - Minimum of 3 public hearings on design and conduct of the study

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Other Provisions (cont.)

- MassCEC to administer a heat pump market development program
  - Provides funding for the training of heating oil dealers, for the purpose of expanding markets for space and water heating using efficient heat pump technology
  - Funded out of the Renewable Energy Trust Fund
  - Runs until at least 2026, can go longer

- DPU may authorize pilot projects for utility-scale renewable thermal projects
  - (i) utility-scale renewable thermal energy sources, systems or technologies capable of substituting for fossil-based natural gas
  - (ii) utility-scale renewable thermal energy replacements for, or alternative uses of, infrastructure constructed originally to generate, transmit or distribute fossil-based natural gas; provided, however, that such substitute renewable thermal energy sources, have a reasonable likelihood of substantial reductions in greenhouse
  - Can not include the blending of other fuels with fossil-based natural gas.
  - Applications to be filed with the DPU January 1, 2023

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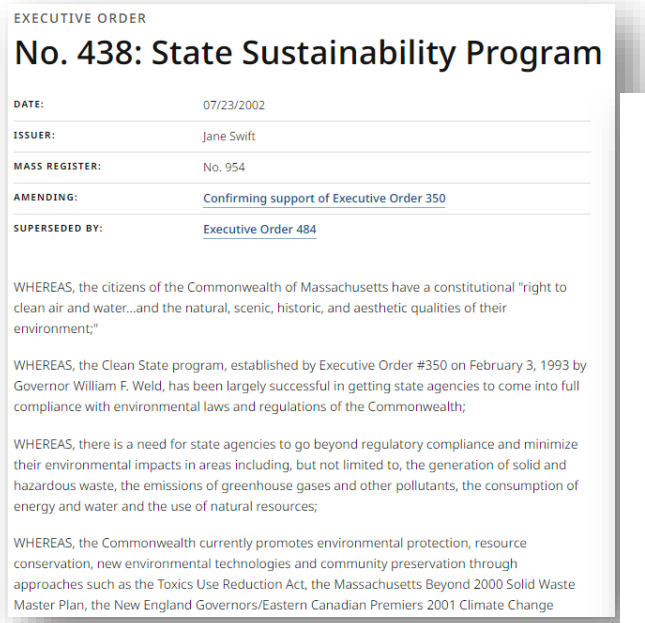
Executive Order 594: *Leading by Example: Decarbonizing and Minimizing Environmental Impacts of State Government*

The Long and Winding Road to EO594



EXECUTIVE ORDER

No. 438: State Sustainability Program

DATE:	07/23/2002
ISSUER:	Jane Swift
MASS REGISTER:	No. 954
AMENDING:	Confirming support of Executive Order 350
SUPERSEDED BY:	Executive Order 484

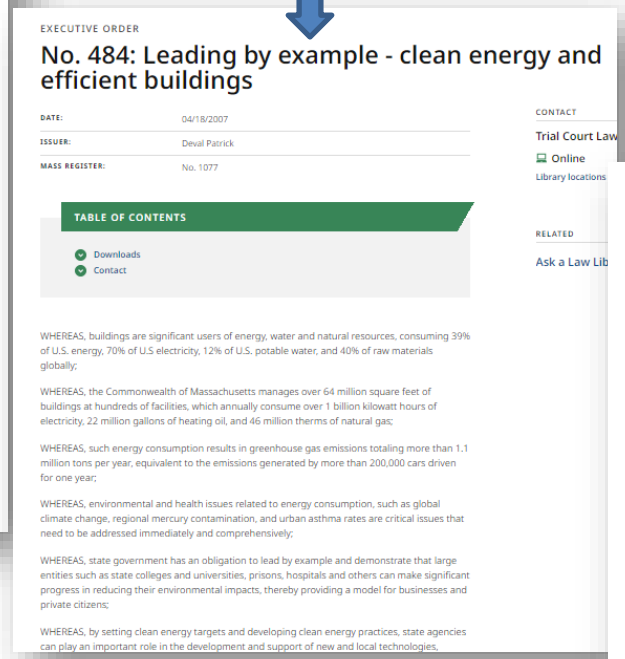
WHEREAS, the citizens of the Commonwealth of Massachusetts have a constitutional "right to clean air and water...and the natural, scenic, historic, and aesthetic qualities of their environment;"

WHEREAS, the Clean State program, established by Executive Order #350 on February 3, 1993 by Governor William F. Weld, has been largely successful in getting state agencies to come into full compliance with environmental laws and regulations of the Commonwealth;

WHEREAS, there is a need for state agencies to go beyond regulatory compliance and minimize their environmental impacts in areas including, but not limited to, the generation of solid and hazardous waste, the emissions of greenhouse gases and other pollutants, the consumption of energy and water and the use of natural resources;

WHEREAS, the Commonwealth currently promotes environmental protection, resource conservation, new environmental technologies and community preservation through approaches such as the Toxics Use Reduction Act, the Massachusetts Beyond 2000 Solid Waste Master Plan, the New England Governors/Eastern Canadian Premiers 2001 Climate Change

2001



EXECUTIVE ORDER

No. 484: Leading by example - clean energy and efficient buildings

DATE:	04/18/2007
ISSUER:	Deval Patrick
MASS REGISTER:	No. 1077

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WHEREAS, buildings are significant users of energy, water and natural resources, consuming 39% of U.S. energy, 70% of U.S electricity, 12% of U.S. potable water, and 40% of raw materials globally;

WHEREAS, the Commonwealth of Massachusetts manages over 64 million square feet of buildings at hundreds of facilities, which annually consume over 1 billion kilowatt hours of electricity, 22 million gallons of heating oil, and 46 million therms of natural gas;

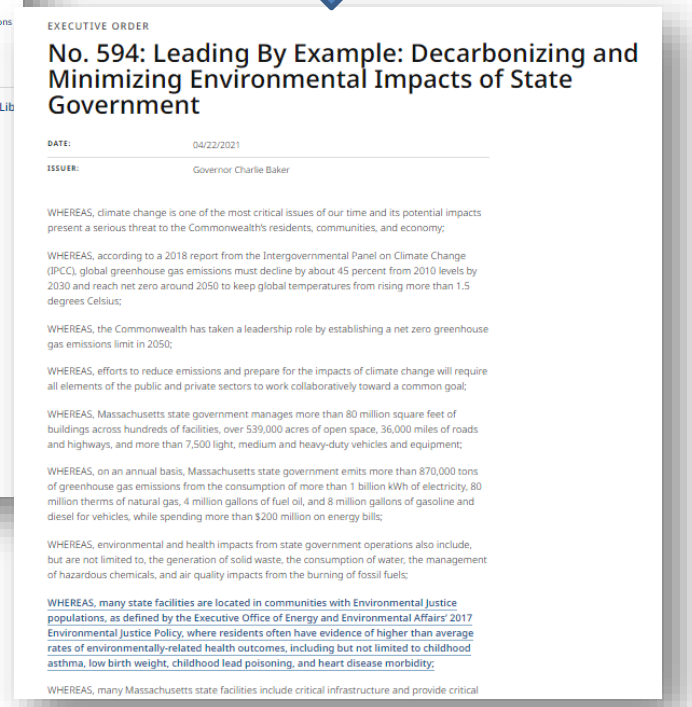
WHEREAS, such energy consumption results in greenhouse gas emissions totaling more than 1.1 million tons per year, equivalent to the emissions generated by more than 200,000 cars driven for one year;

WHEREAS, environmental and health issues related to energy consumption, such as global climate change, regional mercury contamination, and urban asthma rates are critical issues that need to be addressed immediately and comprehensively;

WHEREAS, state government has an obligation to lead by example and demonstrate that large entities such as state colleges and universities, prisons, hospitals and others can make significant progress in reducing their environmental impacts, thereby providing a model for businesses and private citizens;

WHEREAS, by setting clean energy targets and developing clean energy practices, state agencies can play an important role in the development and support of new and local technologies,

2007



EXECUTIVE ORDER

No. 594: Leading By Example: Decarbonizing and Minimizing Environmental Impacts of State Government

DATE:	04/22/2021
ISSUER:	Governor Charlie Baker

WHEREAS, climate change is one of the most critical issues of our time and its potential impacts present a serious threat to the Commonwealth's residents, communities, and economy;

WHEREAS, according to a 2018 report from the Intergovernmental Panel on Climate Change (IPCC), global greenhouse gas emissions must decline by about 45 percent from 2010 levels by 2030 and reach net zero around 2050 to keep global temperatures from rising more than 1.5 degrees Celsius;

WHEREAS, the Commonwealth has taken a leadership role by establishing a net zero greenhouse gas emissions limit in 2050;

WHEREAS, efforts to reduce emissions and prepare for the impacts of climate change will require all elements of the public and private sectors to work collaboratively toward a common goal;

WHEREAS, Massachusetts state government manages more than 80 million square feet of buildings across hundreds of facilities, over 539,000 acres of open space, 36,000 miles of roads and highways, and more than 7,500 light, medium and heavy-duty vehicles and equipment;

WHEREAS, on an annual basis, Massachusetts state government emits more than 870,000 tons of greenhouse gas emissions from the consumption of more than 1 billion kWh of electricity, 80 million therms of natural gas, 4 million gallons of fuel oil, and 8 million gallons of gasoline and diesel for vehicles, while spending more than $200 million on energy bills;

WHEREAS, environmental and health impacts from state government operations also include, but are not limited to, the generation of solid waste, the consumption of water, the management of hazardous chemicals, and air quality impacts from the burning of fossil fuels;

WHEREAS, many state facilities are located in communities with Environmental Justice populations, as defined by the Executive Office of Energy and Environmental Affairs' 2017 Environmental Justice Policy, where residents often have evidence of higher than average rates of environmentally-related health outcomes, including but not limited to childhood asthma, low birth weight, childhood lead poisoning, and heart disease morbidity;

WHEREAS, many Massachusetts state facilities include critical infrastructure and provide critical

2021

Creating A Clean, Affordable and Resilient Energy Future For the Commonwealth

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LBE Executive Order 594

- Signed by Governor Baker on Earth Day 2021
- Effective date: July 1, 2021
- Supersedes LBE Executive Order 484

EO 594 includes sections on:

Interim and long-term targets

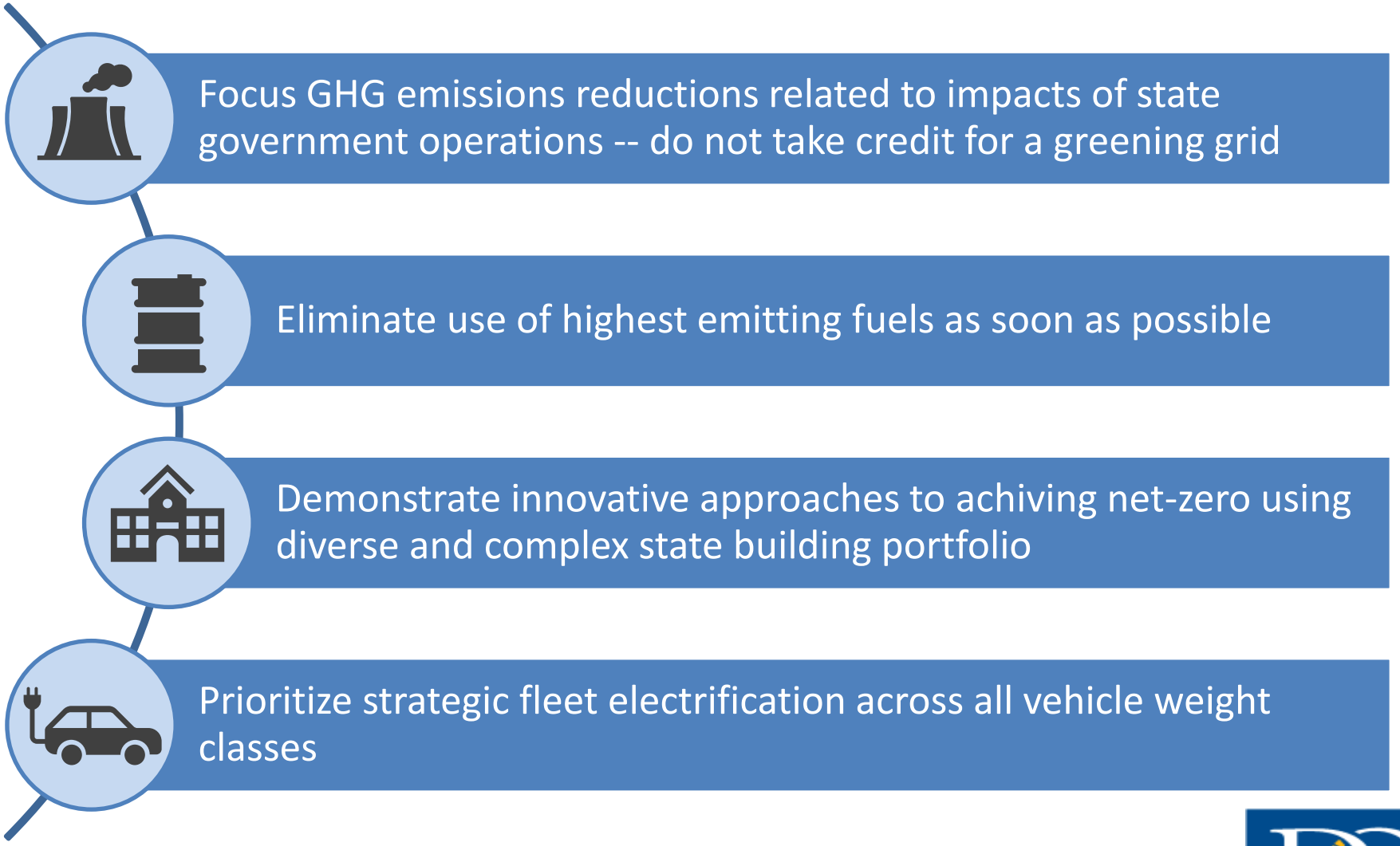
Revised new construction standard

Decarbonization of existing buildings

Fleet electrification and EV charging

Renewables, other sustainability directives, and more

Overarching Objectives of EO 594



Key Changes -- EO 484 vs. EO 594

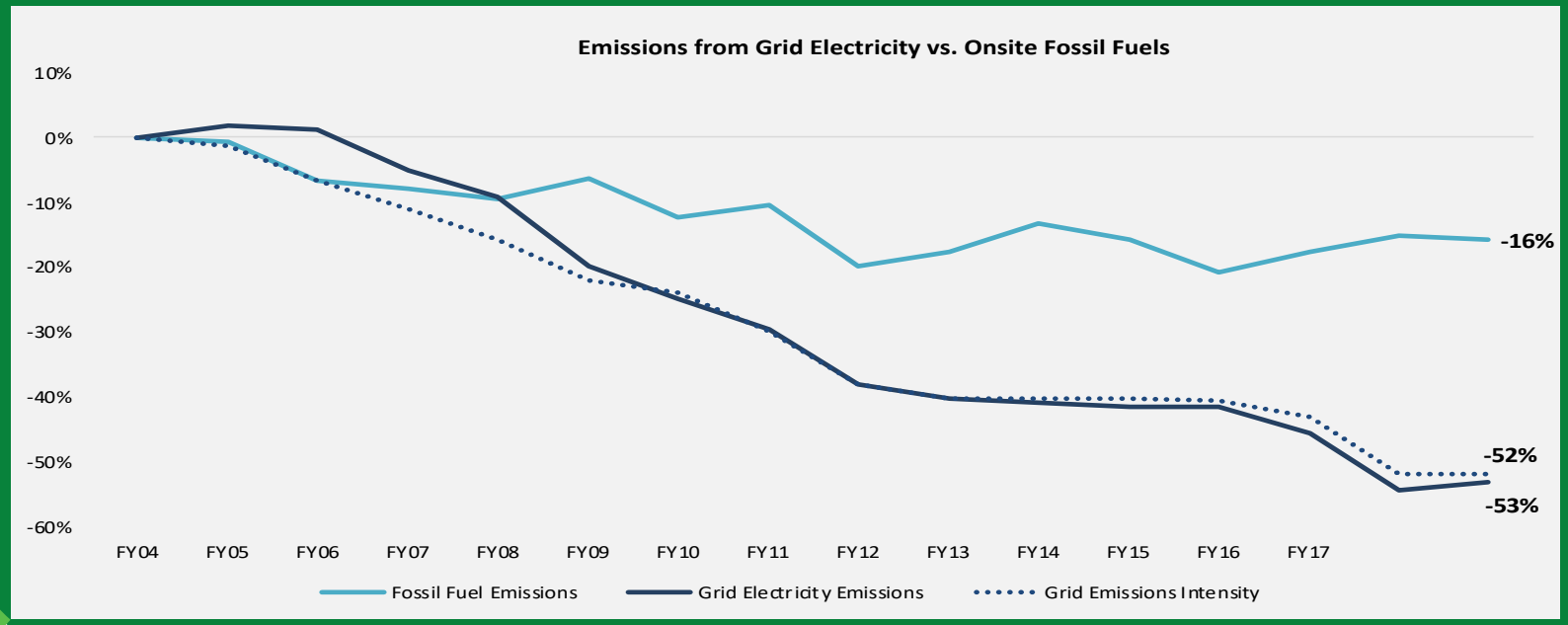
Area	EO 484	EO 594
Timeframe	Most targets through 2020, overall emissions through 2050	Targets set for 2025 and 2030 plus additional emissions and fleet targets for 2040 and 2050
Emissions reduction targets	Total GHG emissions (all fuels, including electricity)	Specifically fossil fuel emissions to avoid taking credit from a greening grid
New construction and major renovations	LEED Certification + 20% better than code	• LEED Silver Certification • 20% better than code; meet Specialized Stretch Energy Code when promulgated • Only efficient electric or renewable thermal for heating/cooling/hot water • Design to best in class EUI • EV station minimums
Electric vehicles and charging	N/A	• ZEV targets as % of overall state fleet • Charging station goals • ZEV acquisition requirements in FY23, FY25 and FY30 based on vehicle weight

Key Elements of EO 594

- Targets **decarbonization** of fuels used by state facilities through aggressive fossil fuel emissions reduction **goals**
- Accelerates the **adoption of electric vehicles** for state fleets
- Sets the stage for deployment of **new and innovative technologies and strategies** necessary to support statewide emissions goals
- Advances **high-performance new construction** by requiring better than energy code and only non-fossil fuel-based heating/cooling/hot water
- **Creates new priority for decarbonizing fuels** in existing buildings
- Requires emissions reduction strategies to be incorporated into equipment replacement and capital and master planning efforts
- Sets **zero emission vehicle** (ZEV) acquisition requirements across vehicle types starting in FY23
- Establishes **minimum biofuel** requirements for building and vehicle fuels
- Promotes the deployment of new **renewable resources, addition of energy storage,** and resilience planning

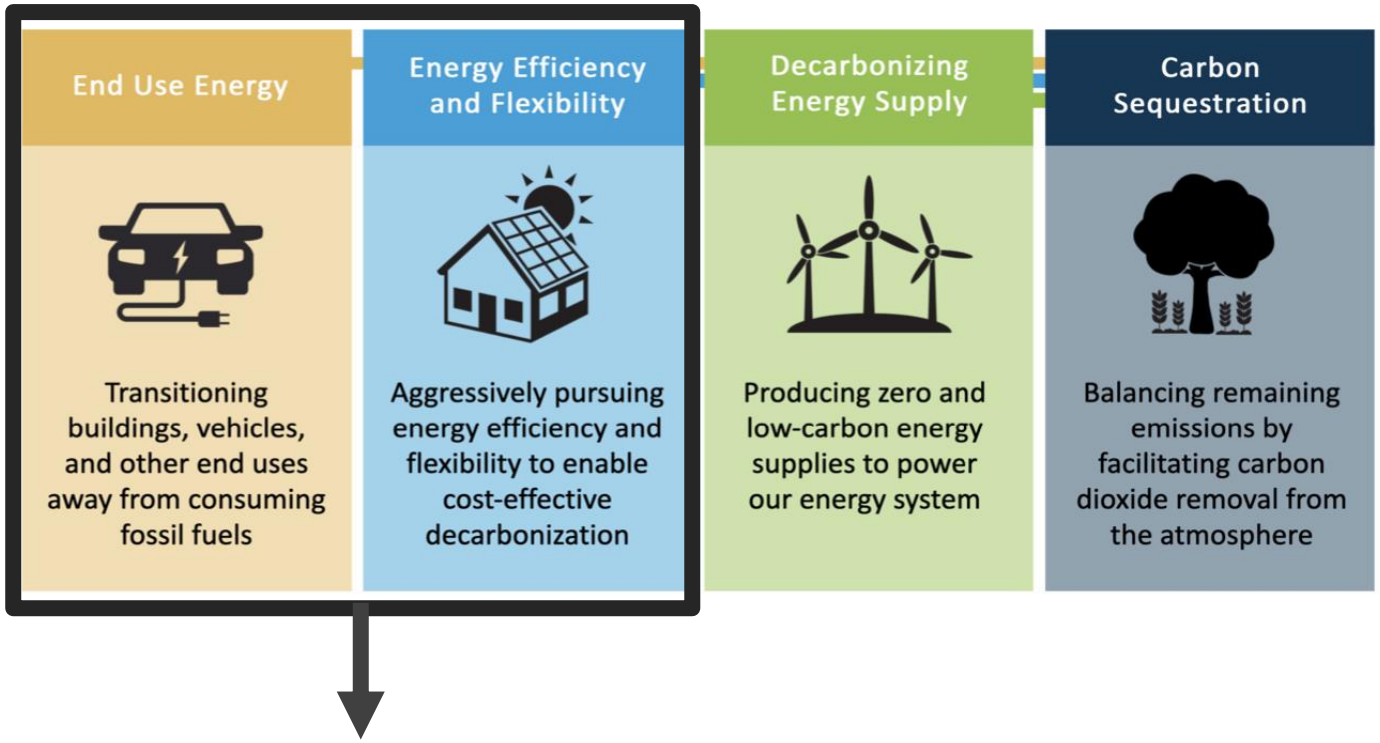
EO 594 Focus on Fossil Fuel Emissions

- 75% of current state government emissions reductions can be attributed to changes in the grid emissions intensity
- Fossil fuel emissions are most challenging to address, under the direct control of state action, and form the vast (and growing) majority of emissions within the state portfolio



Supporting Statewide Policy Objectives

Four key pillars in the MA Decarbonization Roadmap



Focus of EO 594; within the control of state government operations

Targets vis-à-vis the LBE Portfolio

Targets largely set to ramp-up over time with significantly more progress expected in later years

Existing Buildings	*Large facilities, complex distribution systems, 24/7 operations, variable building age, etc.* • Relatively new equipment and recent investments • Central power plants at multiple campuses requires long-term planning • May not be cost effective or technically feasible to replace many systems right away
Vehicles	*State fleet mostly comprised of pickup trucks and vans with slow vehicle turnover* • Increase readiness to adopt various EVs as they come to market • Ramp up to all new acquisitions as EVs by 2030 • Expand EV charging infrastructure and planning, particularly for fleets
Planning	• EO requires state entities to integrate its goals into capital plans, master plans, and equipment replacement decisions

Initial Thoughts on Funding

- ❑ Clear that decarbonization could be costly
- ❑ LBE Program will be investigating financing strategies and creative approaches
- ❑ Answers will require multiple and bundled solutions

Ideas to keep in mind:

- Total cost of ownership
- Existing & future incentive programs
- Advanced planning
- Declining technology costs
- Support of innovative tech/strategies

More to Come!

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EO 594 Applicability

State Entities Covered by EO 594

Executive Order 594 applies to all "***executive branch agencies and all public institutions of higher education***." The term agency denotes "*all executive offices, boards, commissions, departments, divisions, councils, bureaus, offices, and other state agencies within the Executive Department…*"

Section 5 (Vehicle Efficiency and Fossil Fuel Reduction) requirements "***apply to all vehicles owned or leased and operated by agencies subject to this Order, as well as to all non-revenue vehicles under the jurisdiction of the MBTA***." Marked and unmarked police cruisers are exempt from the requirements of this Section.

All agencies and authorities are encouraged to meet all provisions of the Executive Order regardless of whether the order applies directly to them or not.

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Section 2:
Executive Order Targets

Targets and Tracking

- Targets apply to the state portfolio as a whole
- Progress will be calculated annually based on data for Commonwealth owned and managed assets
- Electricity consumption will not be calculated for emissions targets but will be part of EUI reduction calculations
- LBE will continue to track overall GHG emissions in support of broader statewide tracking

Summary of EO 594 Targets

Objective	Baseline	Current Progress	2025	2030	2040	2050
↓ emissions from onsite fossil fuels	2004	-16%	-20%	-35%	-60%	-95%
↑ percent of state fleet that consists of ZEVs	N/A	<1%	5%	20%	75%	100%
↓ fuel oil consumption	2004	-85%	-90%	-95%	TBD	TBD
↓ overall site EUI	2004	-13%	-20%	-25%	TBD	TBD
↑ total # of EV charging stations	N/A	225	350	500	TBD	TBD

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Section 3: Massachusetts LEED Plus 2.0 Standard for New Construction

New Construction & Substantial Renovations

Massachusetts LEED Plus 2.0 Standard

Applicable for projects greater than 20,000 square feet; projects under this size threshold must meet all requirements except LEED Certification

- ❑ Certify as LEED Silver or higher
- ❑ Perform 20% better than current energy code requirements (to be replaced by Specialized Stretch Energy Code when promulgated)
- ❑ **Prioritize envelope performance, air filtration, ventilation heat recovery, and reduced solar heat gains**
- ❑ **Use efficient electric or renewable thermal technologies for space heating/cooling and hot water heating systems**
- ❑ **Design to an EUI target that meets or exceeds best-in-class by building type and climate zone**

New Construction & Substantial Renovations

Massachusetts LEED Plus 2.0 Standard

Applicable for projects greater than 20,000 square feet; projects under this size threshold must meet all requirements except LEED Certification

- ❑ Maximize installation of onsite renewable energy or design solar-ready
- ❑ Incorporate long-term climate resiliency into design and siting decisions
- ❑ Install EV charging stations and “EV-ready” parking spaces

And where possible and cost-effective:

- Implement **energy storage** with onsite renewables
- Prioritize sites with access to **public and alternative modes of transportation**
- Evaluate and implement strategies to **reduce embodied carbon** in building materials

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Section 4:
Existing Buildings

Existing Buildings

Decarbonizing existing buildings

Agencies are required to take the Executive Order targets into account when planning for, designing, and deploying projects that affect energy use.

1. Reduce or eliminate onsite fossil fuel emissions
2. Optimize building performance through efficient operations
3. Participate in all available energy efficiency and clean energy incentive and rebate programs
4. Regularly monitor building energy performance
5. Install highest efficiency equipment
6. Incorporate energy performance into leasing decisions

Additional Existing Building Requirements

Planning	Ensure that GHG reductions, energy efficiency, renewable and clean energy, and emissions reduction strategies are incorporated into their equipment replacement and capital and master planning efforts.
Renovations + comprehensive energy projects	Projects that address district energy systems and building renovations where electrical, heating, ventilation, or air conditioning infrastructure are included in the project scope must include or plan for low or zero-carbon fuels, envelope upgrades, resilience-conscious design, renewable generation and storage, and establish a low target EUI.
Operations	Track energy performance of existing buildings and take concrete steps to reduce building energy use through operational efficiencies.
Leasing	Evaluate leased space using selection criteria that encompasses energy use, environmental certifications, municipal energy disclosure ordinances, recycling, EV charging, and other elements that contribute to reduced GHG emissions and environmental impacts.

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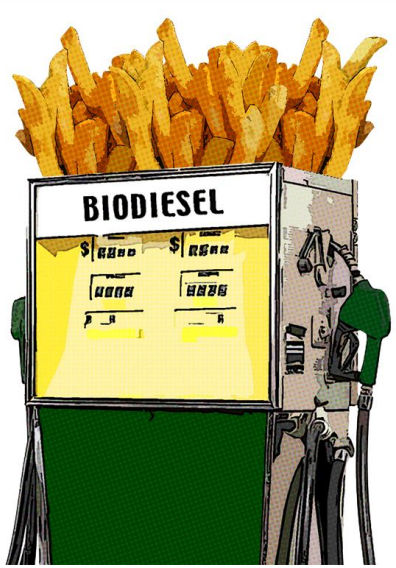
Section 4D: Heating Oil
Section 5D: Biodiesel

Biofuels

As of July 1, 2021, agencies that utilize heating oil for their buildings or that purchase and store diesel fuel at their own facilities shall ensure that:

Heating oil	Any heating oil product purchased shall consist of **at least 10% biofuels** (i.e., B10)
Biodiesel	Any diesel fuel purchased for use in motor vehicles owned and operated by Commonwealth agencies shall consist **of at least 5% biofuels** (i.e., B5)



Agencies may be exempt from this requirement if biofuels "are not readily available or are cost prohibitive, or if a specific performance constraint is identified."

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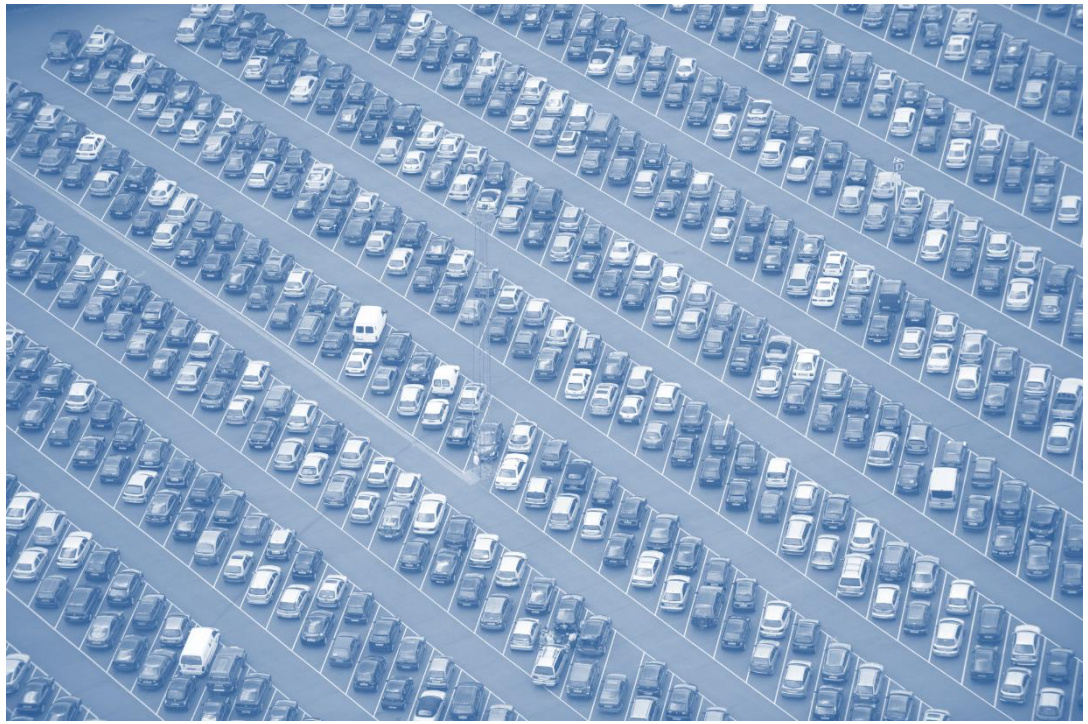
Section 5: Vehicle Efficiency and Fossil Fuel Reduction



ZEV Acquisitions

ZEV new acquisition requirements	FY 2023	FY 2025	FY 2030
	All ZEVs for GVWR ≤8,500 lbs.	All ZEVs for GVWR ≤14,000 lbs.	All ZEVs for GVWR >14,000 lbs.

- Applies to both purchased and leased vehicles
- Fleets *"**shall prioritize the acquisition of ZEVs without any internal combustion engines**, including, but not limited to, battery electric vehicles and fuel cell vehicles"*
- Agencies shall purchase ZEVs *"**when such vehicles are readily available, can meet agency needs, and the incremental costs associated with total cost of ownership are not excessive***
- When deemed not feasible, agencies shall select the most efficient option available for operational needs

Green Fleet Committee & Fuel Efficiency Standard

Fleet acquisition + management policies

Agencies shall comply with OSD policies developed in collaboration with the Green Fleet Committee that outline procedures necessary to reduce vehicle fossil fuel use to the greatest extent feasible.

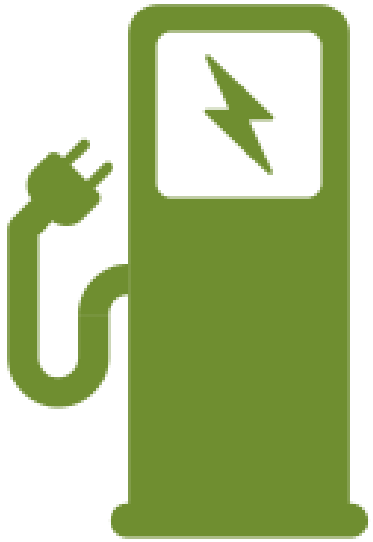
Fuel Efficiency Standard (FES)

Green Fleet Committee--DOER, MassDEP, OSD--shall continually develop new and more appropriate requirements for FES (update to FES likely coming soon).

Some of these policies will address:

- ZEV acquisitions
- Fleet optimization evaluations to identify vehicles for removal or replacement
- Vehicle right-sizing for operations
- Increasing fuel economy
- Driver education
- Reducing vehicle miles traveled

Electric Vehicle Charging Stations



- More than double the number of EV charging stations sited at state facilities, including for:
  - State fleets
  - Employees / students
  - Public
- Ensure charging stations and/or EVSE prewiring are prioritized during relevant construction

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Section 6: Renewable & Clean Energy Resources

Renewable & Clean Energy Resources

Renewable and clean energy resources	❑ Continue to prioritize the deployment of renewable and clean energy resources to be consumed onsite or on the grid ❑ Onsite installation of renewable energy generation, long-term financial support for off-site resources, and/or the procurement of local, clean electricity supply. ❑ Prioritize advancing cost-effective innovative technologies, energy storage and resilience, and advanced building controls whenever possible

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Section 7:
Additional Sustainability Priorities

Section 8:
Guidance, Guidelines, and Studies

Section 9:
Program Administration

Sustainability Priorities: Energy

Demand management + energy storage	❑ Incorporate demand management strategies into facilities ❑ Participate in programs that provide financial incentives for DR ❑ Pair onsite renewable energy with storage in a resilient manner whenever possible
Resilience	❑ Incorporate facility and energy resilience ❑ Adhere to resiliency requirements of EO 569 and State Hazard Mitigation and Climate Adaptation Plan ❑ Improve the capacity of critical infrastructure and energy systems to withstand climate change impacts
Building energy monitoring	❑ Ensure access to utility and real-time energy data, particularly for buildings >20,000 square feet or where cost-effective ❑ Ensure that building energy performance is monitored and evaluated on a regular basis

Sustainability Priorities: Non-Energy

Environmentally preferable purchasing	Comply with EO 515 and purchase environmentally preferable products and services when *"such purchases meet the needs of the agency and are cost-effective"*
Waste reduction and recycling	Comply with all waste bans promulgated by MassDEP, and minimize the total amount of waste generated
Sustainable landscaping	❑ Plant native plant species on state lands ❑ Reduce use and toxicity of pesticides unless necessary to address invasive species or provide for public safety ❑ Utilize zero emission landscaping equipment
Water conservation	Implement efforts to reduce water consumption and follow best practices in the Massachusetts Water Conservation Standards

Guidance, Guidelines, and Studies

Guidance, guidelines, and studies	LBE, DCAMM, MassCEC, and others will lead efforts to develop guidance, guidelines or studies to support agency implementation of strategies and programs designed to meet the goals of EO 594.

- Emissions policies and calculations around sequestration, embodied carbon, offsets, negative emissions, internal cost of carbon
- Reducing non-carbon GHG emissions
- Funding and financing
- Developing clean energy, low carbon roadmaps for decarbonization
- Adopting innovative clean energy technologies and strategies
- Addressing administrative and regulatory barriers

Program Administration

LBE Council

Chaired by EEA with representation required by enumerated partners; other state entities invited to participate.

- Exec Office for Administration and Finance
- Exec Office of Education
- Exec Office of Health and Human Services
- Exec Office of Public Safety and Security
- Massachusetts Department of Transportation
- Department of Conservation and Recreation
- Department of Energy Resources
- Department of Environmental Protection
- Department of Higher Education
- DCAMM
- Operational Services Division
- UMass Office of the President

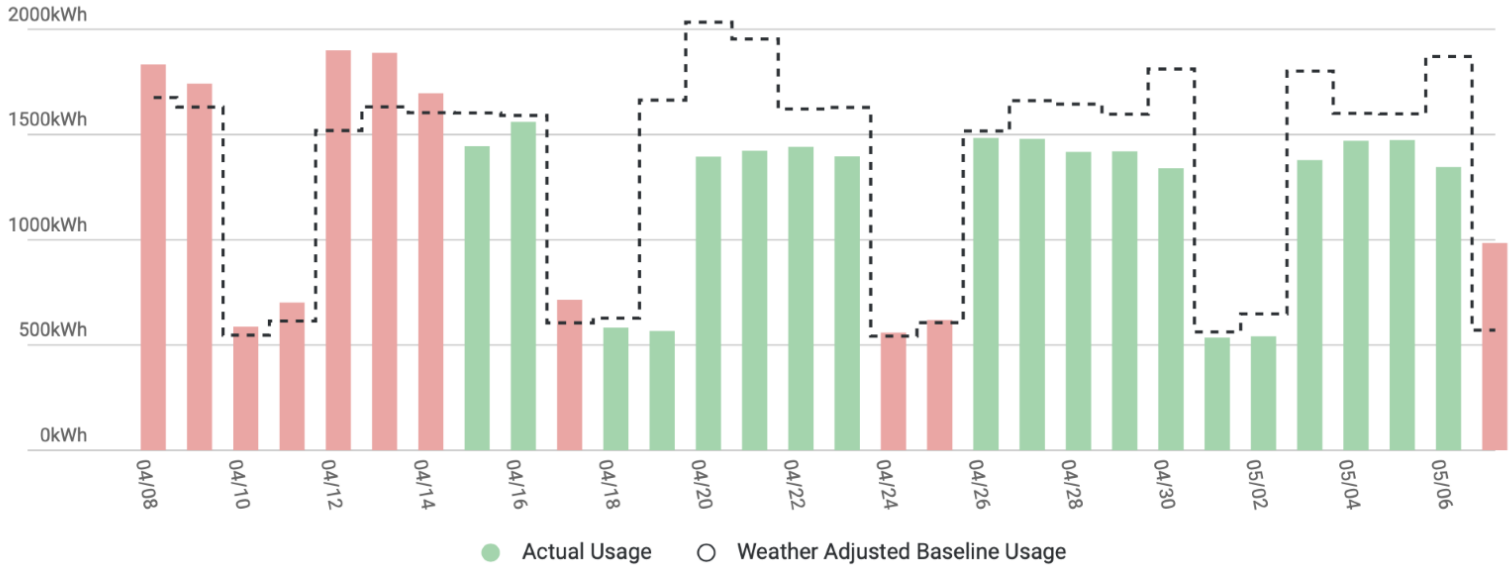
Agency participation, training, and awareness

- ❑ All agencies with more than 75 employees must appoint an LBE coordinator to collaborate with LBE staff as applicable
- ❑ Tools and training will be made available for state employees
- ❑ LBE shall develop recognition programs

Program Administration

Energy tracking, reporting, transparency, benchmarking

- ❑ LBE will track, collect, and report on building and vehicle energy consumption data, benchmark performance of state facilities
- ❑ Additional data to be collected include clean energy development, GHG emissions, and other relevant operations information.



Innovative technologies

Agencies shall consider opportunities to use innovative technologies that can effectively address challenges not solved by business-as-usual practices; LBE to help coordinate an approach to support deployment.

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What Comes Next

Agency Responsibilities

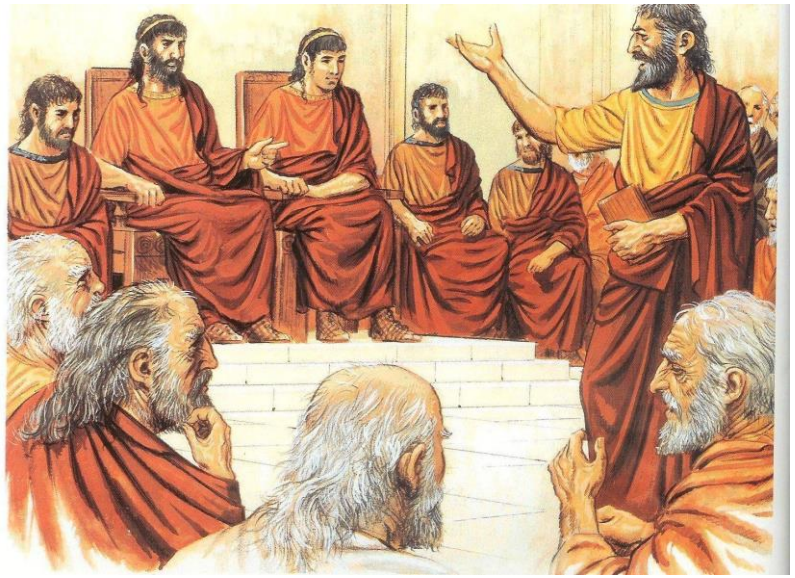
- ✓ Provide LBE data tracking and reporting
- ✓ Participate in LBE Council / identify designated LBE coordinators
- ✓ Advance innovative technologies and approaches
- ☑ Incorporate EO 594 goals into equipment replacement, capital and master planning

"..ensure that GHG reductions, energy efficiency, renewable and clean energy, and emissions reduction strategies are incorporated into their equipment replacement and capital and master planning efforts in support of the goals of this Order"

-Section 4A: Planning

LBE Coordinators and LBE Council

- DOER Commissioner will be sending letter to leadership of agencies with 75+ employees to confirm LBE Coordinators
- Other agencies, quasi-independent authorities and higher education institutions will be invited to join the Council and appoint LBE Coordinators
- Required vs invited LBE Council membership will be noted

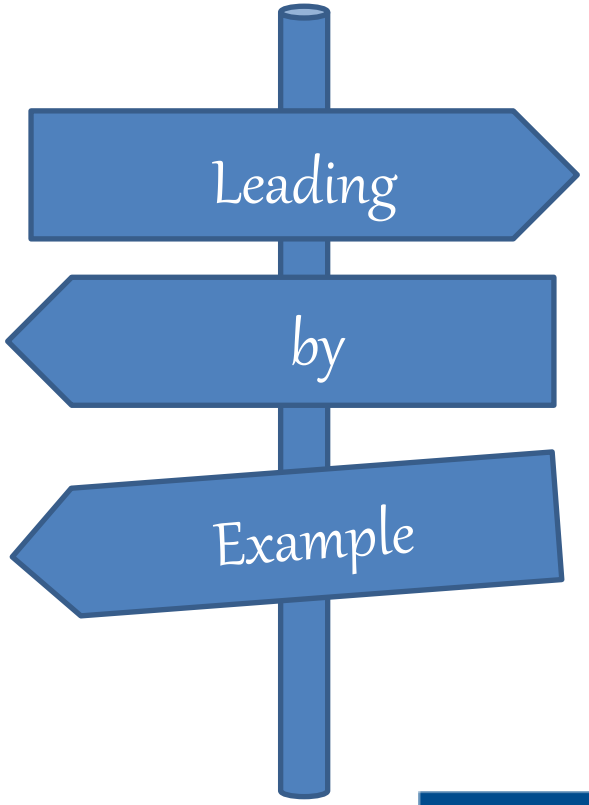


Membership of the Council shall, at a minimum, include at least one representative from each of the following agencies:

- Exec Office for Administration and Finance
- Exec Office of Education
- Exec Office of Health and Human Services
- Exec Office of Public Safety and Security
- Massachusetts Department of Transportation
- Department of Conservation and Recreation
- Department of Energy Resources
- Department of Environmental Protection
- Department of Higher Education
- DCAMM
- Operational Services Division
- UMass Office of the President

Guideline Development for EO 594

- EO 594 terms of significance and implementation guidance to be released in coming months
- Tentative roster of guidelines:
  - New construction standard
  - Biofuels / biodiesel
  - Applicability / program administration
  - ZEV acquisitions
  - EV charging
  - Fleet efficiency
  - Existing buildings
  - Renewables
  - EO targets and calculating progress
  - Other sustainability initiatives



Upcoming Opportunities to Learn More

New Executive Order Overview – The Encore Presentation
Overview of key content, priorities, and targets of EO 594

May 13th
3-4pm

Defining and Achieving New LBE Targets
Deeper dive review of EO 594 targets, and discussion on suggested guidance for state entities

May 26th
11am-12pm

Building a Decarbonized Future for New & Existing Facilities
Massachusetts LEED Plus 2.0 building standard for new construction and targets for existing buildings

June 10th
1-2pm

Ramping Up Clean Transportation Efforts
Targets and directives related to EVs and charging infrastructure

June 16th
11am-12pm

What Comes Next? EO Implementation
Roles and responsibilities of state entities

June 24th
1-2pm

Next LBE Council Meeting

Save the Date!

Tentative:

Tuesday, July 13th

10:00 am–12:00 pm

Upcoming Tentative Meeting Dates:
September 7th
November 9th
January 11th

On our way to get that magic carbon-free gas…