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

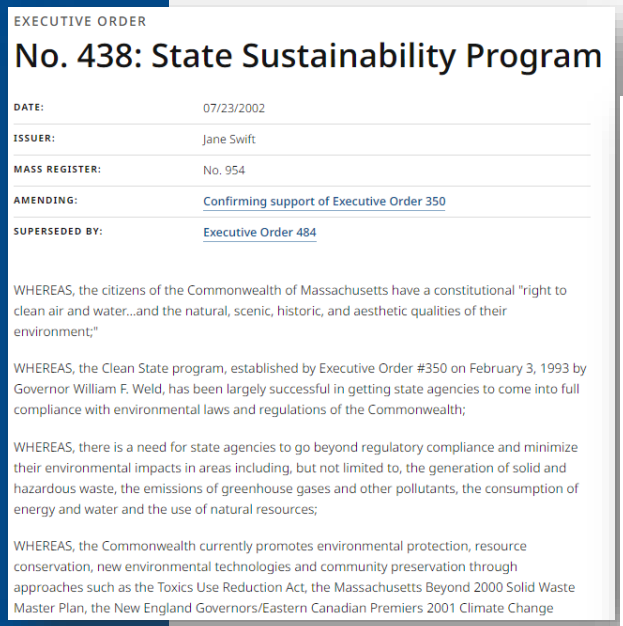
Massachusetts Department of Energy Resources

MASSACHUSETTS LEADING BY EXAMPLE PROGRAM
PUBLIC LEADERSHIP, STEWARDSHIP, COMMITMENT

Executive Order No. 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SUPERSEDED BY:	Executive Order 484

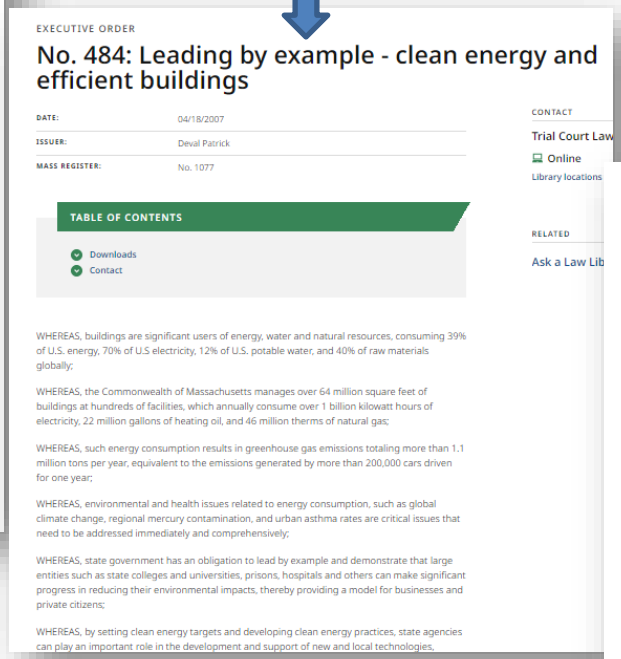
WHEREAS, the citizens of the Commonwealth of Massachusetts have a constitutional "right to clean air and water...and the natural, scenic, historic, and aesthetic qualities of their environment;"

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

CONTACT

Trial Court Law

Online

Library locations

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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;

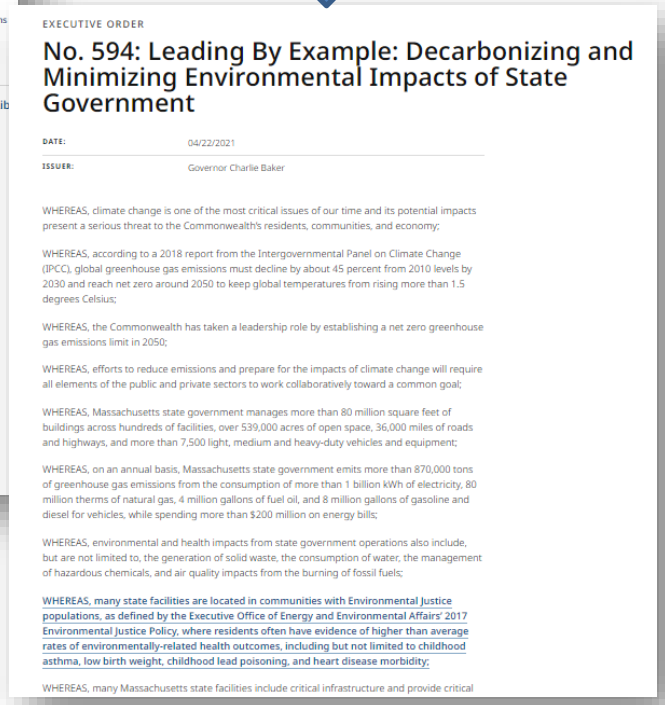
WHEREAS, such energy consumption results in greenhouse gas emissions totaling more than 1.1 million tons per year, equivalent to the emissions generated by more than 200,000 cars driven for one year;

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

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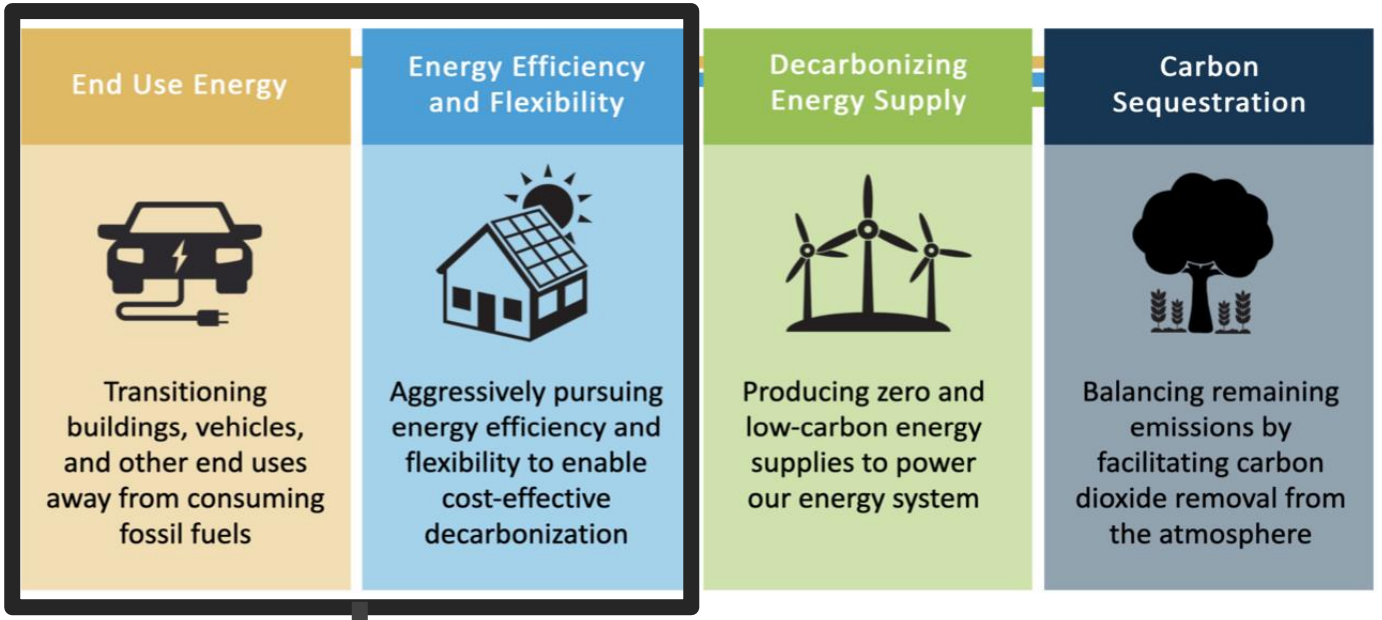
Supporting Statewide Policy Objectives

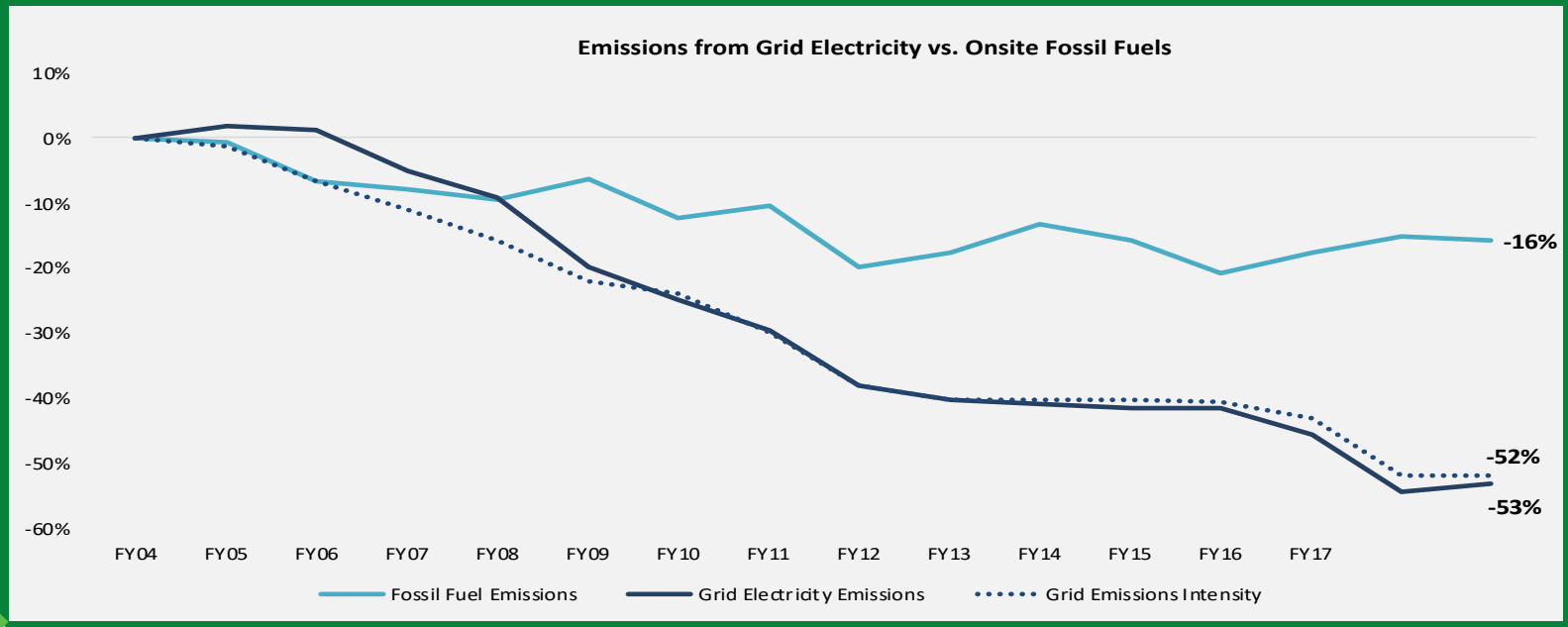
Four key pillars in the MA Decarbonization Roadmap



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

Setting the Context: 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 constitute the majority (and growing) portioni of emissions within the state portfolio



Challenging the LBE Portfolio

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

GHG Emissions	***Large facilities, central power plants complex distribution systems, 24/7 operations, variable building age, lots of newer equipment***
Zero Emission Vehicles	***State fleet mostly comprised of pickup trucks and vans with slow vehicle turnover***
Planning	**Long-term horizon for budget and capital planning**

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
- New construction standard
- Decarbonization of existing buildings
- Fleet electrification and EV charging
- Renewables, other sustainability directives, and more

Key Elements of EO 594

- GHG goals specifically for fossil fuel emissions
- Adoption of electric vehicles through fleet targets and acquisition requirements
- High-performance new construction that moves beyond Mass. LEED Plus
- Decarbonization of fuels in existing buildings
- Emissions reduction built into equipment replacement and long-term planning
- Minimum biofuel requirements for building and vehicle fuels
- Deployment of new renewable resources, energy storage, and resilience planning
- Adoption of innovative technologies and strategies to support state goals

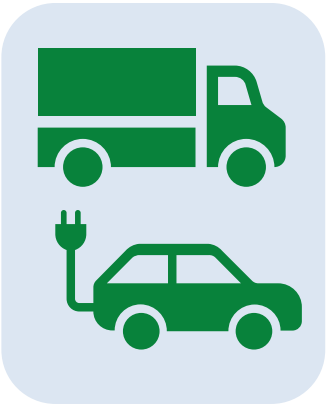
Key Changes -- EO 484 vs. EO 594

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

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.

Initial Thoughts on Funding

- Clear that decarbonization could be costly
- Creative financing strategies will be investigated
- Solutions will require multiple and combined solutions

Ideas to keep in mind:

- Total cost of ownership
- Existing & future incentive programs
- Advanced planning
- Declining technology costs
- New financing models

More to Come!

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Section 2:
Executive Order Targets

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

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

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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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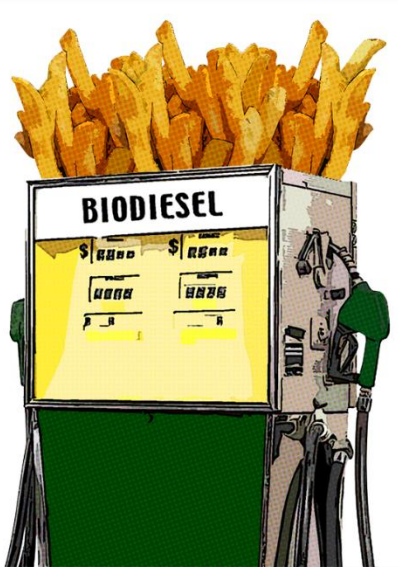
Section 4D: Heating Oil
Section 5D: Biodiesel

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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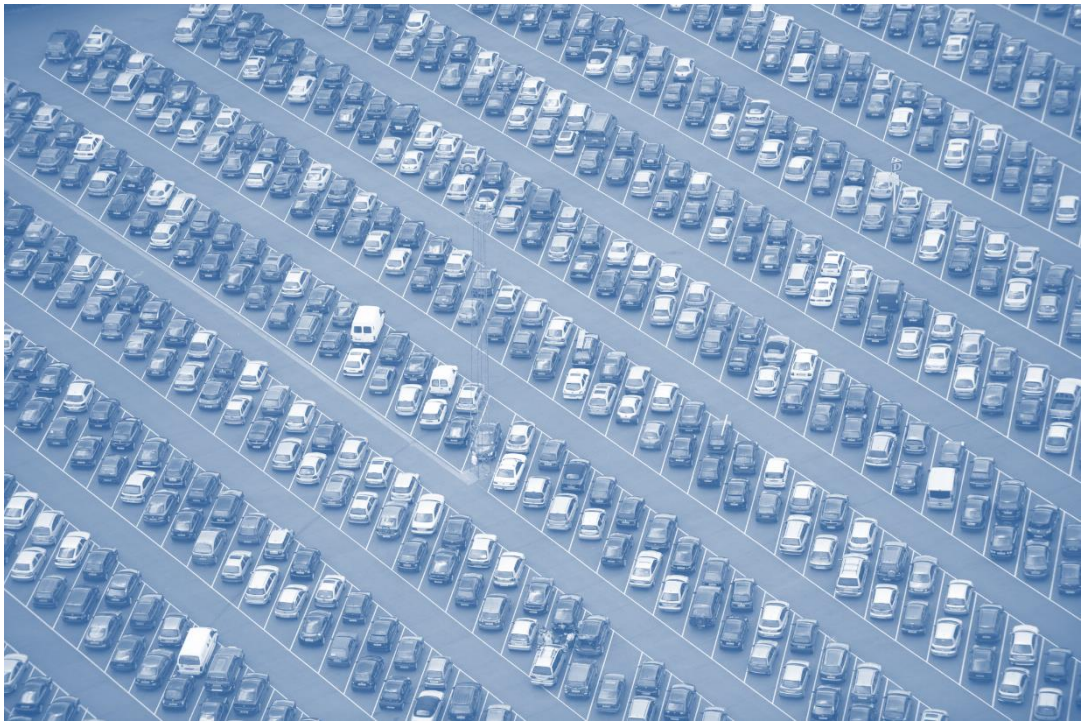
Section 5: Vehicle Efficiency and Fossil Fuel Reduction



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.

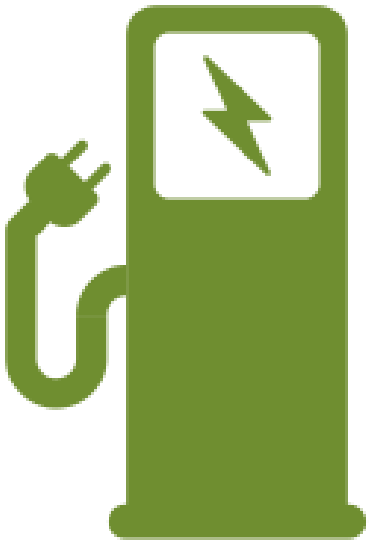
Fuel Efficiency Standard (FES)

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

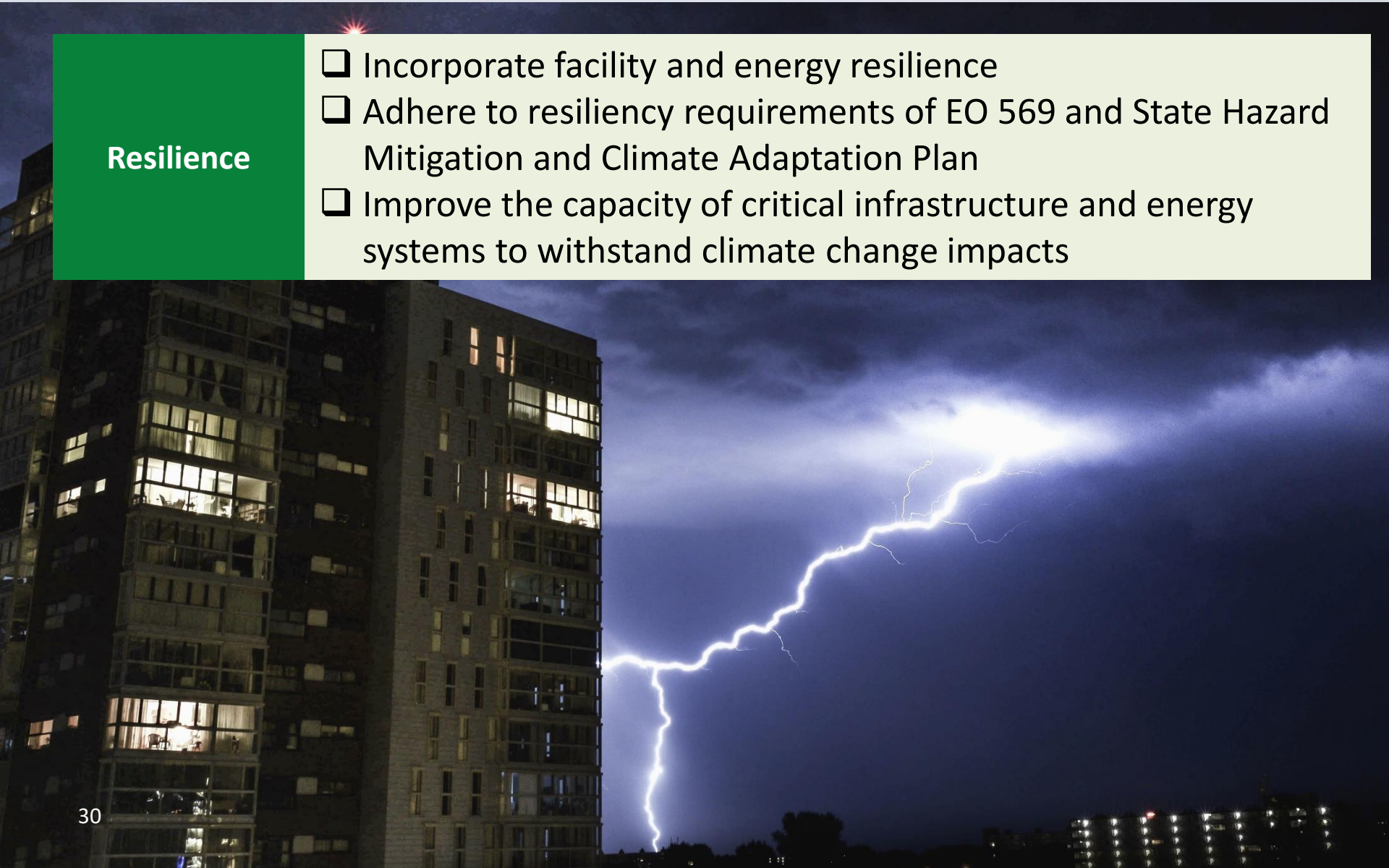
Section 9:
Program Administration

Sustainability Priorities: Energy

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: Energy

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



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

Sustainability Priorities: Non-Energy

Water conservation	Implement efforts to reduce water consumption and follow best practices in the Massachusetts Water Conservation Standards

Sustainability Priorities: Non-Energy

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

Sustainability Priorities: Non-Energy

Waste reduction and recycling	Comply with all waste bans promulgated by MassDEP, and minimize the total amount of waste generated

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"*

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

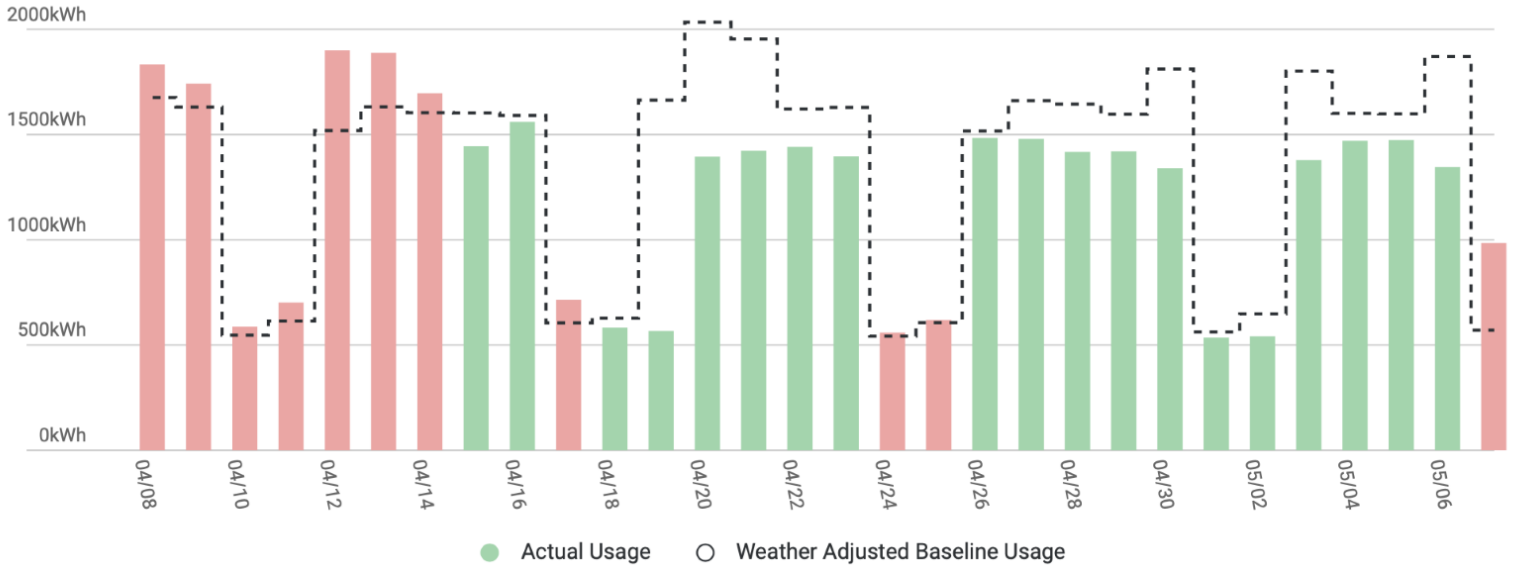
Agency participation, training, and awareness

- ❑ 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

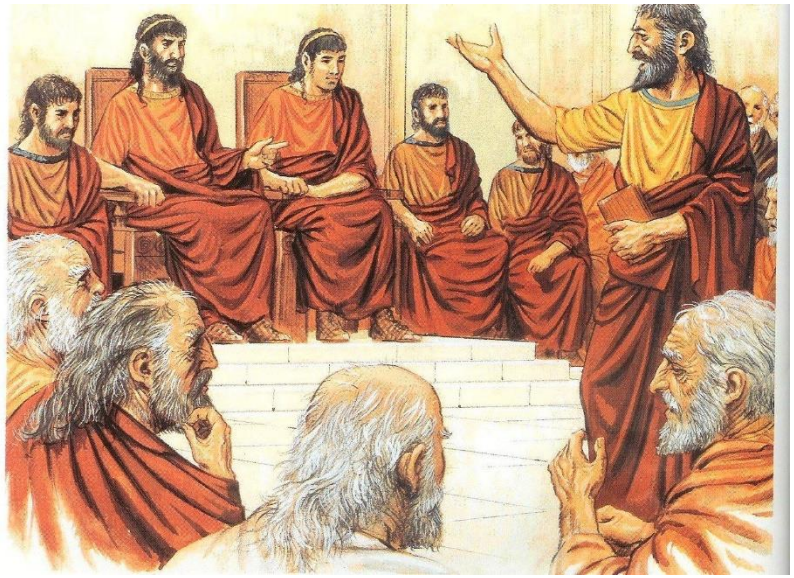
- ✓ Provide LBE data tracking and reporting
- ✓ Participate in LBE Council / identify designated LBE coordinators
- ✓ Advance innovative technologies and approaches
- ☑ Incorporate EO 594 goals into equipment replacement, capital and master planning

"..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

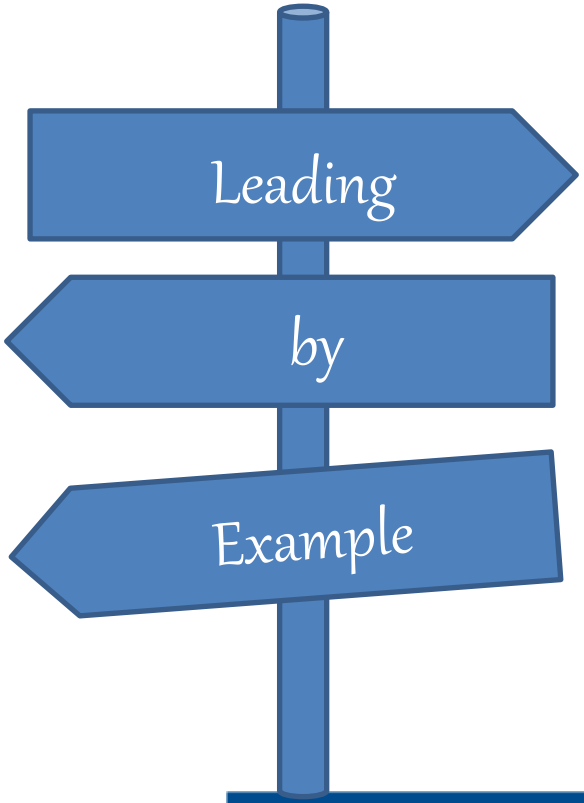


Membership of the Council shall, at a minimum, include at least one representative from each of the following agencies:

- 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

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Supplemental Information

LBE Scope – State Footprint

Buildings

- 80 million square feet
- 29 college and university campuses
- 18 prisons, hundreds of armories
- 50+ state owned courthouses
- State hospitals, youth detention centers, office buildings, visitor centers, garages, parks & beaches

Vehicles

- 7,500+ light, medium, heavy duty

Impacts

- Over 1 billion kWh electricity
- 8 million gallons gasoline + diesel
- 870,000 tons GHG emissions

LBE Role and Accomplishments

LBE Program at DOER

- Oversees comprehensive data collection and analysis
- Tracks agency progress in multiple energy and sustainability areas
- Researches innovative technologies and strategies
- Facilitates access to funding
- Coordinates outreach and communication among and across all agencies and public higher education
- Issues guidance documents to support policy implementation
- Collaborates closely with key agencies–DCAMM, OSD, DEP, etc.

Key Portfolio Achievements

35% GHG emissions reductions*

28.6 MW solar at state facilities

85% reduction in heating fuel oil use*

94 LEED buildings, 65% at highest levels

14% reduction in EUI*

*Over 2004 baseline

2007-2020: Executive Order 484

- EO 484 was issued in 2007 to reduce energy use, emissions and other environmental impacts resulting from state government agencies, state universities, community colleges, and certain authorities
  - LBE Program was established to oversee, track and coordinate efforts and provide financial support
- EO 484 goals expired in 2020 making it appropriately timed to revise goals, especially in context of the 2030 Clean Energy and Climate Plan

EO 484 Targets	2012	2020	2050
GHG emissions ↓	25%	40%	80%
State energy consumption ↓	20%	35%	
Renewables ↑	15%	30%	
Building performance	Mass. LEED Plus Standard		
*Water use ↓	10%	15%	
*Bioheat blend percentage ↑	10%		

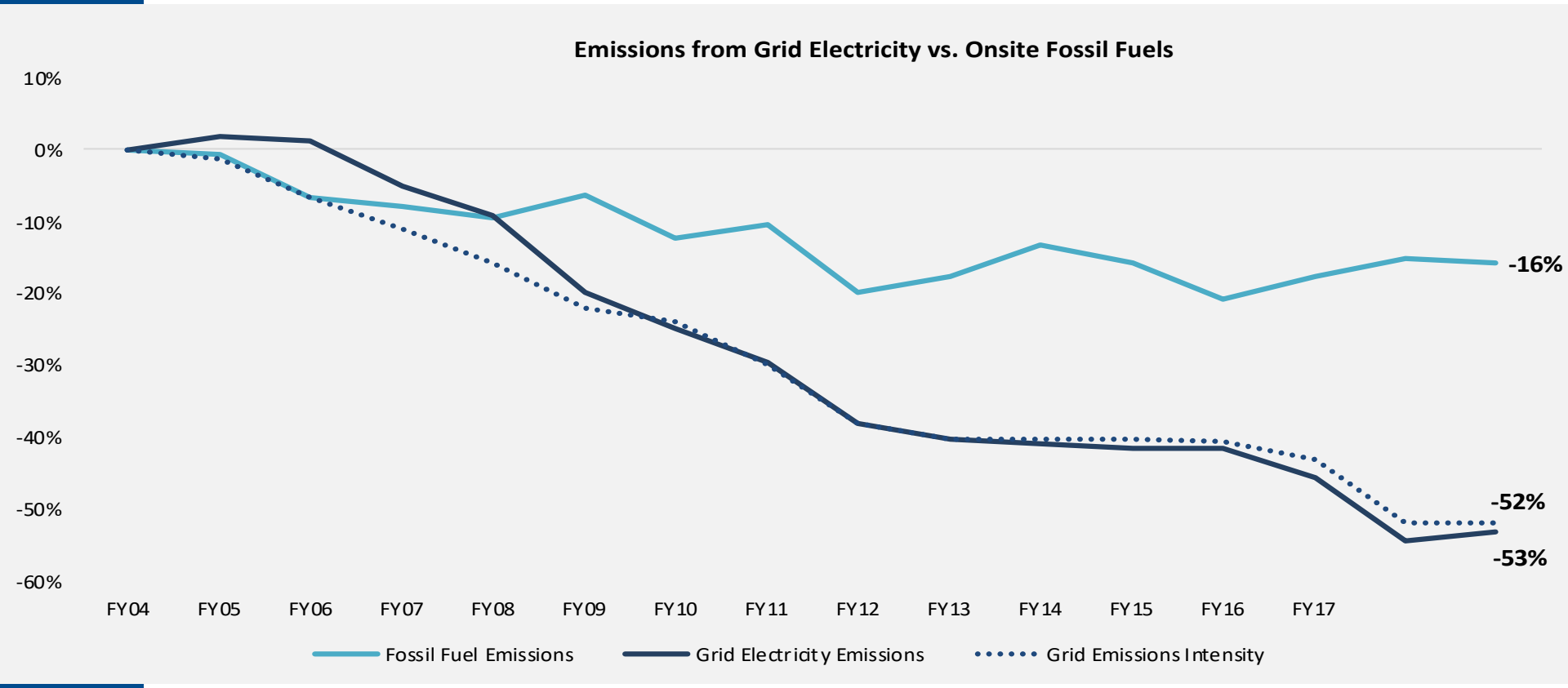
**Data could not be effectively collected, thus progress toward these targets has not been tracked.*

LBE Executive Order 594 Leadership

Strategy	Leadership Elements
Prioritize highest emitting sectors	• Aggressive emissions reductions in state buildings and vehicles • When coupled with a greening grid, will result in dramatic GHG reductions
Target onsite fossil fuels	• Establishes measurable emission reduction targets associated with fossil fuels • Target emissions directly generated by state entities/controlled by state action
Innovatively address complex facilities	• Aggressive fossil fuel goals necessitate development of innovative strategies • Target large central power plants and complex facilities
Further increase new construction performance	• Stringent energy performance requirements while prioritizing electrification • Certified to LEED Silver + EUI reductions (meet stretch code when promulgated)
Accelerate transition to ZEVs	• Overall fleet ZEV goals for 2025 through 2050 • ZEV acquisition requirements in FY2023, 2025 and 2030 for different vehicle sizes
Incorporate long-range planning	• Regular emissions analyses at state facilities • Include emissions projections and efforts into facility and budget planning
Expand transparency and participation	• Expands energy tracking, reporting, benchmarking and transparency • Includes all state entities with more than 75 employees

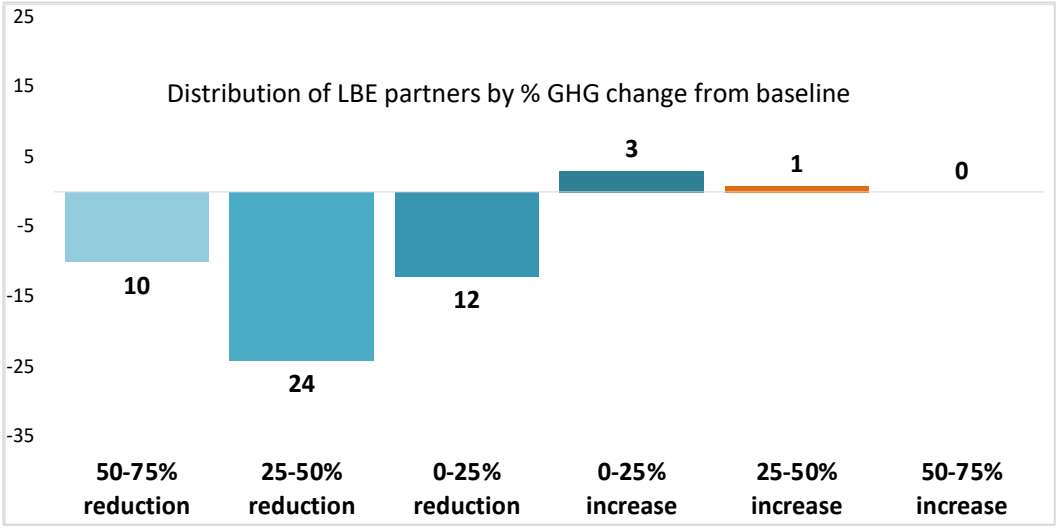
Impetus for Focus on Fossil Fuels

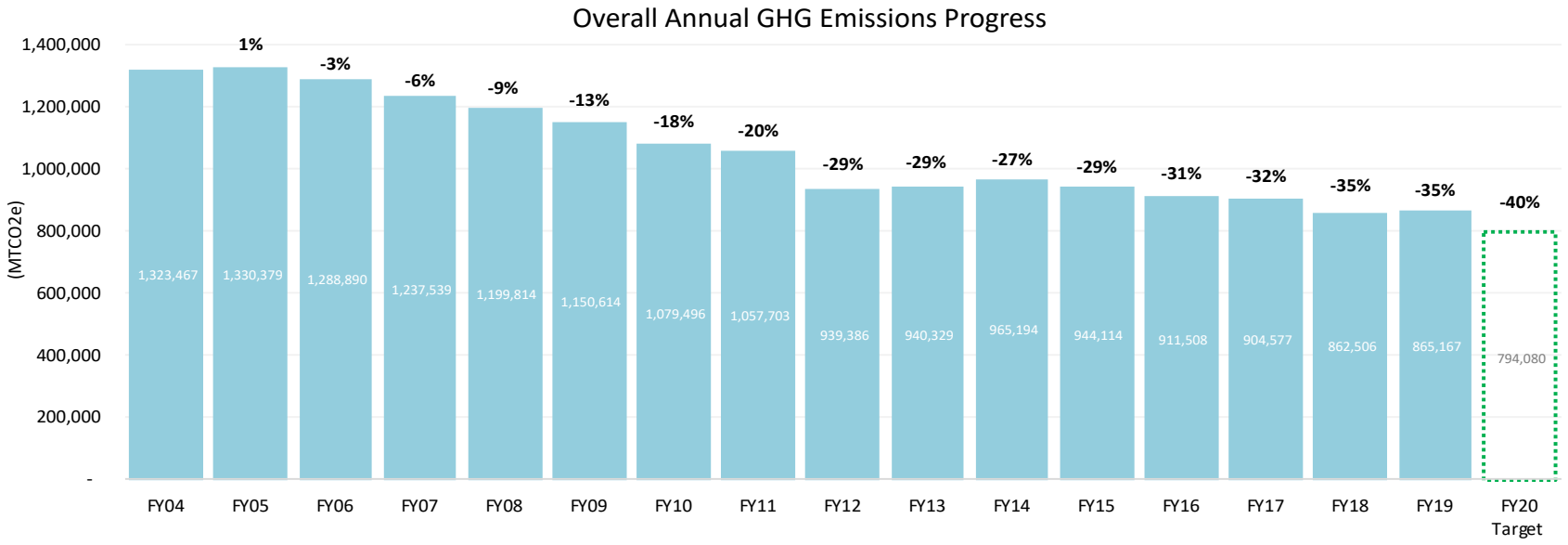
75% of current state government emissions reductions can be attributed to changes in the grid emissions intensity which has decreased 52% since 2004



Overview of LBE GHG Emissions Progress

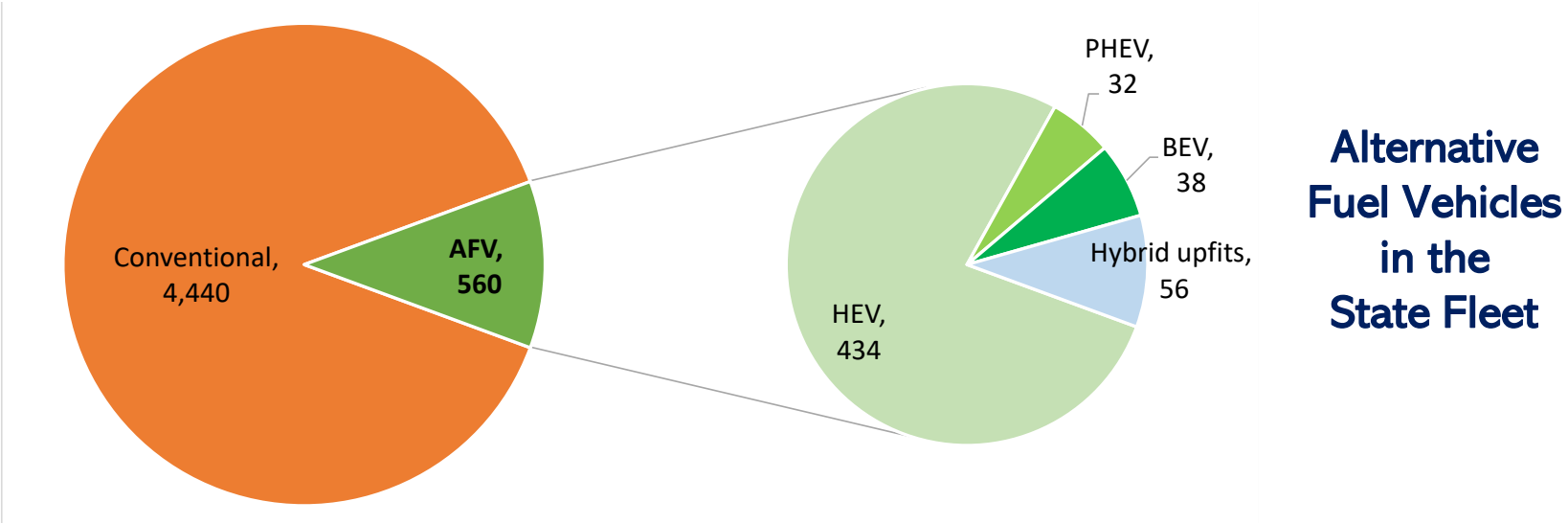
- **35% emissions reduction from 2004 to 2019**
- 46 of 50 agencies reduced overall emissions





Overview of LBE Vehicle Progress

Note: EO 484 did not include vehicle-specific targets



Fleet Electrification

- 70 zero-emission vehicles in the state fleet
- 225 electric vehicle charging stations installed at state sites
- Collaborating with Office of Vehicle Management on various outreach and education efforts with state fleet managers

LBE Executive Order 594: New Building Requirements

Massachusetts LEED Plus 2.0 Standard for New Construction

- Certify as LEED Silver or higher
- Meet EUI reduction requirements that will be replaced by Specialized Stretch Energy Code when promulgated
- Use only efficient electric or renewable thermal technologies for heating, cooling, and water heating
- Design to meet best-in-class energy use intensity threshold
- Maximize onsite renewables or be solar-ready
- Incorporate climate resilience
- Include EV charging stations

LBE Executive Order 594:
Zero Emission Vehicle Acquisition Requirements

When ZEVs are “readily available, not cost-prohibitive and can meet agency needs…”

Vehicle Acquisition Requirements

- All vehicle acquisitions <8,500 lbs. must be ZEVs starting in FY2023
- All vehicle acquisitions 8,500-14,000 lbs. must be ZEVs starting in FY2025
- All vehicle acquisitions must be ZEVs starting in FY2030

LBE Executive Order 594: Additional Priorities

Sustainability

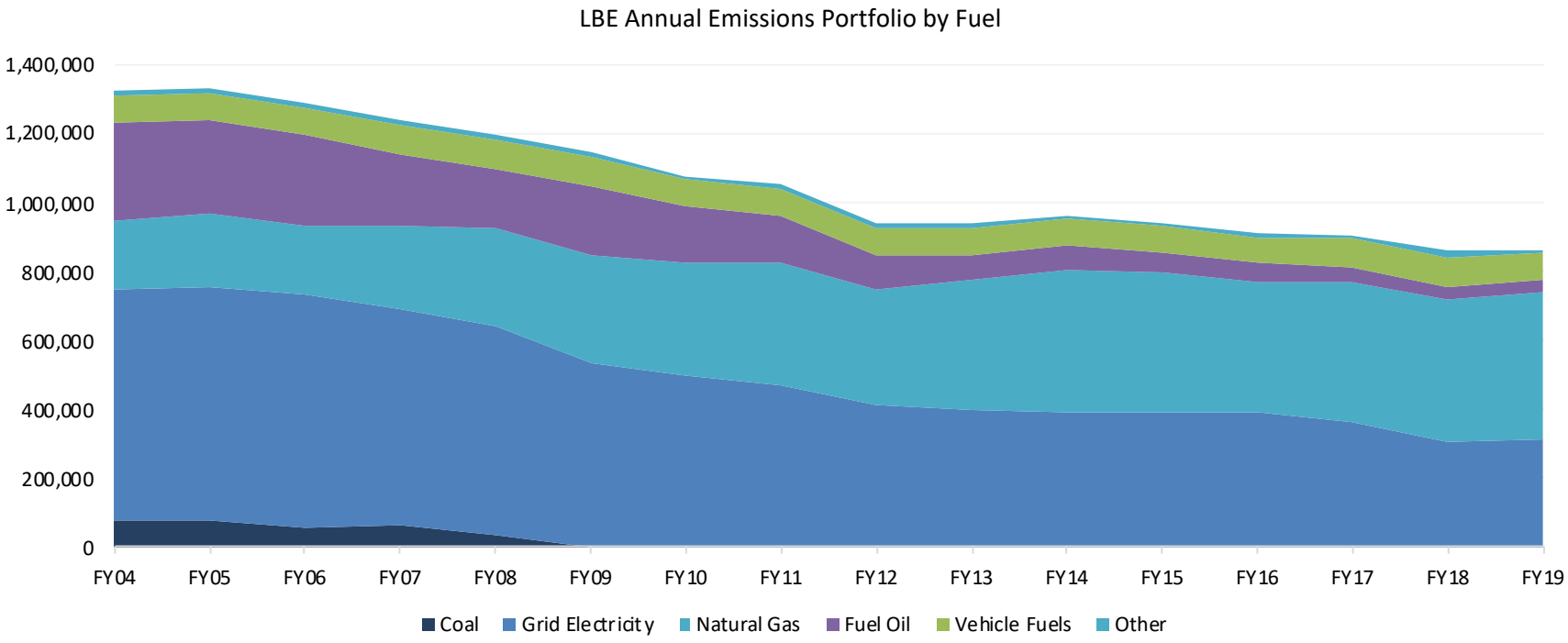
- Energy demand management
- Water conservation
- Waste minimization
- Sustainable landscaping
- Innovative technologies
- Environmentally preferable purchasing

Administration

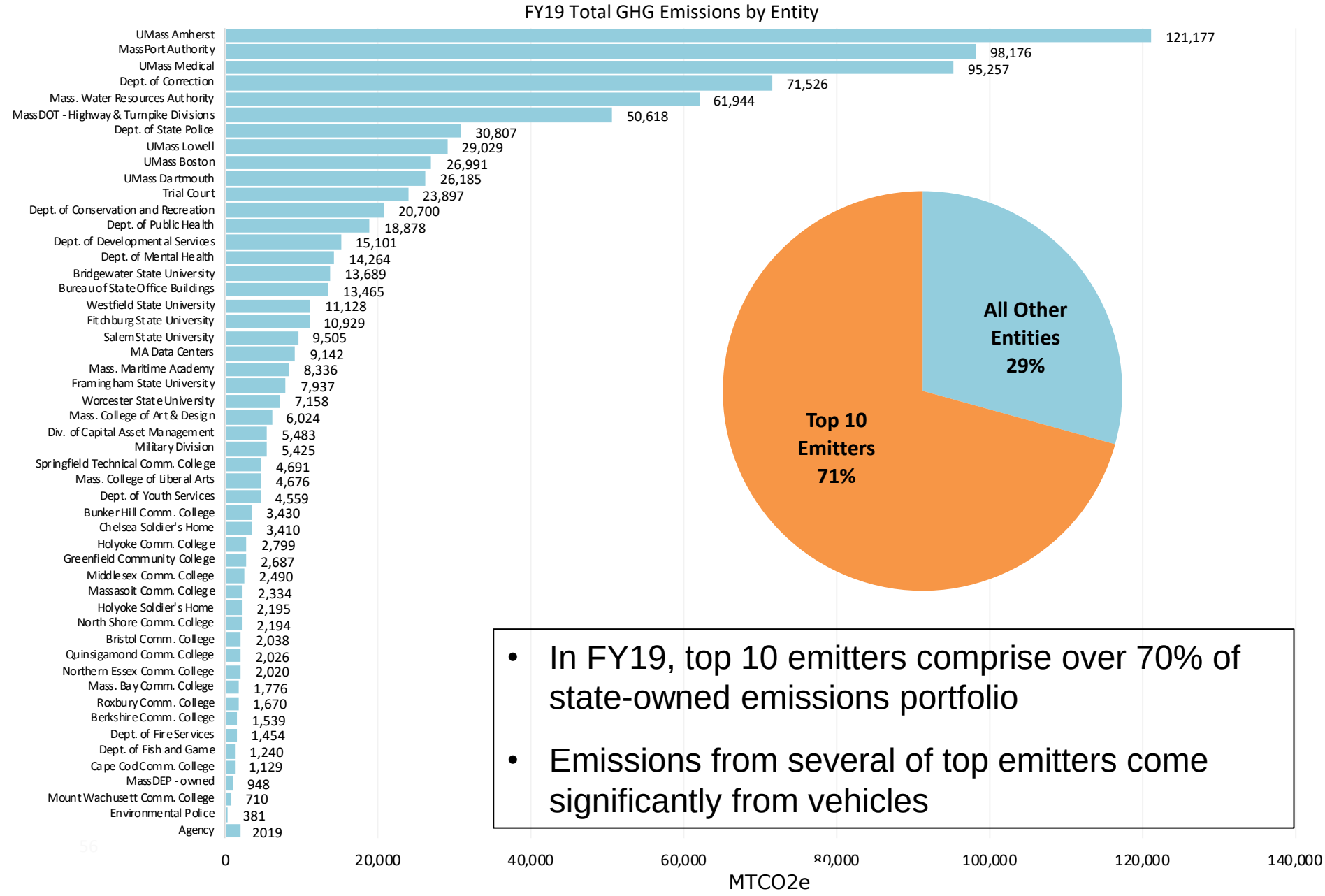
- Real-time building energy monitoring
- Data tracking, reporting, and benchmarking
- EO implementation guidance and future studies
- Training and awareness

Portfolio Emissions by Fuel Over Time

- Grid electricity emissions have decreased 53%, due in large part to a greening grid
- Natural gas emissions have increased 114%, primarily due to moving away from higher emission fuels such as coal and oil
- Vehicle fuel emissions have increased slightly, now just under 10% of total



GHG Emissions by Entity

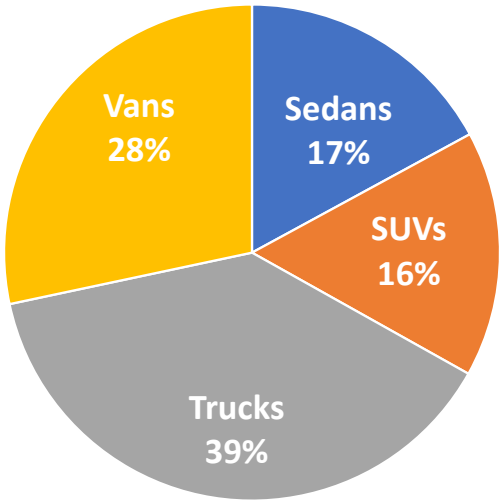


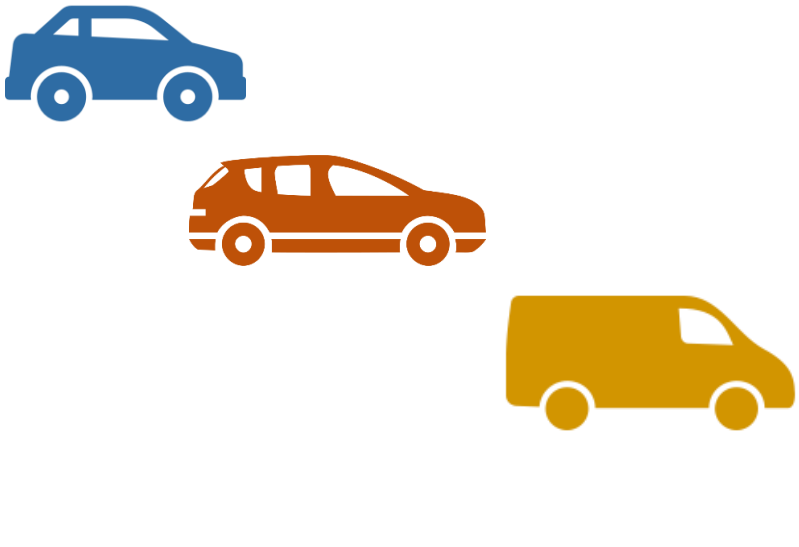
- In FY19, top 10 emitters comprise over 70% of state-owned emissions portfolio
- Emissions from several of top emitters come significantly from vehicles

State Lighter-Duty (LDV) Fleet: What's Included?

Current fleet of **5,000 vehicles** (GVWR 10,000 lbs. or less)

- Includes state agencies, public higher ed & MassDOT
- Does not include State Police or MBTA
- Passenger cars/sedans make-up 17% of the fleet, while trucks and vans make-up 67%
- Additional heavier duty vehicles in the fleet

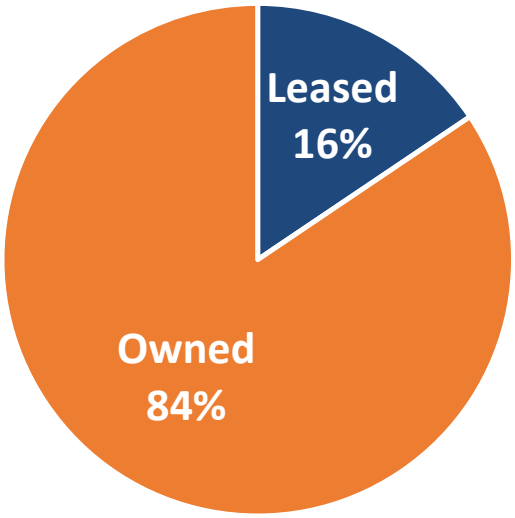




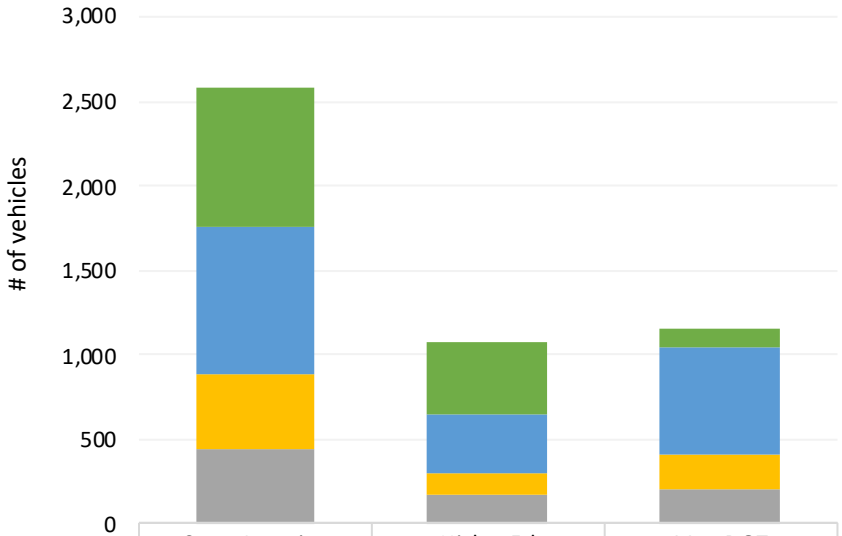
State LDV Fleet: Distribution & Ownership Model

- 5,000 LDV state fleet includes:
  - 36 state agencies
  - 23 out of 29 campuses
  - MassDOT fleet vehicles

Ownership Model
(State Agencies ONLY)



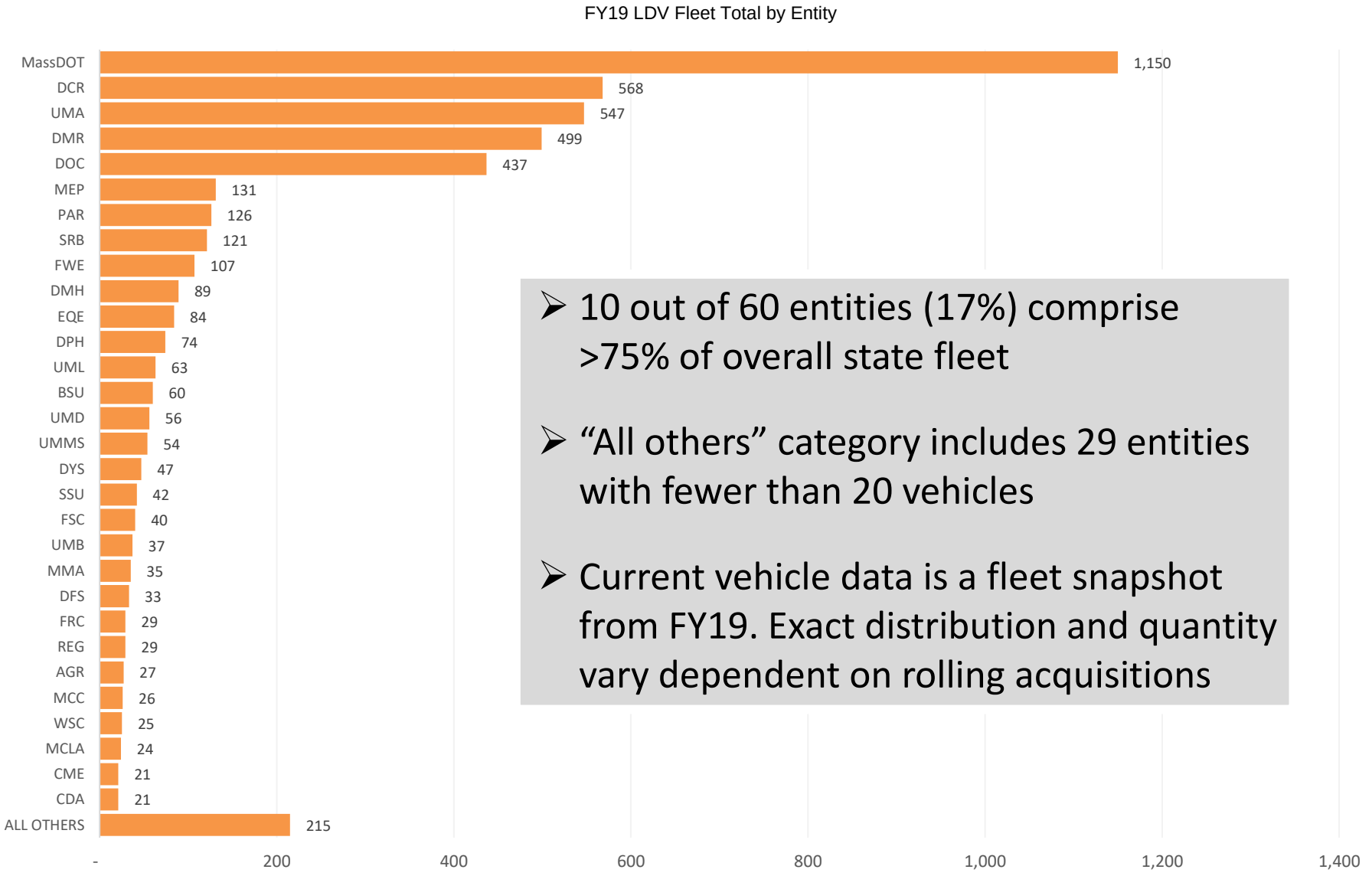
Vehicle Distribution by Entity & Vehicle Class



	State Agencies	Higher Ed	MassDOT
Vans	826	421	113
Trucks	863	355	632
SUVs	456	118	196
Sedans	434	177	209

DOER
Massachusetts Department of Energy Resources

State LDV Fleet: Vehicles By Entity



- 10 out of 60 entities (17%) comprise >75% of overall state fleet
- "All others" category includes 29 entities with fewer than 20 vehicles
- Current vehicle data is a fleet snapshot from FY19. Exact distribution and quantity vary dependent on rolling acquisitions