### Executive Order 594:



Leading By Example: Decarbonizing and Minimizing Environmental Impacts of State Government

ACEC Building Engineering Committee March 25, 2022

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PUBLIC LEADERSHIP, STEWARDSHIP, COMMITMENT



### **LBE Executive Order 594**



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

Interim and long-term energy targets



New construction standard



**Existing building Decarbonization** 



Fleet electrification and EV charging



Developed with broad agency input



Massachusetts Department of Energy Resources

### State Entities Covered by EO 594

EO 594 applies to all "executive branch agencies and all public institutions of higher education."



#### 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 constitute the vast majority (and growing) portion of emissions within the state portfolio and are under the direct control of state action





Objective	2025	2030	2040	2050
↓ emissions from onsite fossil fuels	-20%	-35%	-60%	-95%
个 % of state fleet zero- emission	+5%	+20%	+75%	+100%
$igstyle  ext{fuel}$ fuel oil consumption	-90%	-95%	TBD	TBD
<b>↓</b> overall site EUI	-20%	-25%	TBD	TBD
↑ total # of EV charging stations	+350	+500	TBD	TBD

### Mass. LEED Plus 2.0: Scope

- New construction
- Renovations that include major HVAC, envelope, and internal rehabilitation
- For state use or on state lands



# 1a. LEED Certification

Certify buildings to the Silver Level or higher of the most recent version of LEED Standard.





### 1b. EUI Reduction

Reduce proposed building EUI by at least 20% lower than an equivalent building that meets the Massachusetts Energy Code.

EUI reductions shall be achieved by prioritizing:

- i. Improved envelope performance
- ii. Reduced air infiltration
- iii. Ventilation heat recovery
- iv. External shading and reduction in solar heat gains



# 1b. EUI Reduction (→ Specialized Stretch Energy Code)

All construction and renovation projects that initiate a study later than 6 months following promulgation of the Specialized Stretch Energy Code shall comply with the Specialized Stretch Energy Code in place of all requirements set forth in paragraph 1b.



### Heating and Cooling Technologies

### 2. Space Heating and Cooling

Use only efficient electric or renewable thermal technologies as defined in LBE Guidelines for all space heating and cooling.

### **3. Service Water Heating**

Use only efficient electric or renewable thermal technologies as defined in LBE Guidelines for service water heating to the greatest extent possible.



UMass Chan Medical School Geothermal



MMA Solar thermal installation

### 4. EUI Target-Setting

Establish and design to an EUI target that meets or exceeds best-in-class EUI for newly constructed buildings by type and climate zone.







## 5. Onsite Renewables

Maximize installation of onsite renewable energy and, when not possible, ensure that the project is solar-ready as defined by the Massachusetts Building Energy Code.

Extent of solar readiness should exceed minimum code requirements as much as possible.

### 6. Climate Resilience

Incorporate long-term climate resiliency into design and siting decisions.

#### Massachusetts State Hazard Mitigation and Climate Adaptation Plan September 2018



#### **Resilience Program**

Discover what the Division of Capital Asset Management and Maintenance (DCAMM) is doing to reduce the vulnerability of our facilities to climate change and build greater resilience against the risks to our agency and the public.

Addressing the escalating impacts of climate change is critical to maintaining the health and wellbeing of employees and the public. DCAMM is working to implement solutions that protect buildings and ensure the stability of services and operations. These efforts fulfill the agency's mission and will prepare DCAMM to confront issues





impacting the design, construction and operation of buildings and properties throughout Massachusetts.



## 7. Electric Vehicle Charging Infrastructure

For all new or fully reconstructed parking areas, install at least one charging port in parking areas up to 25 spaces and at least two EVSE charging ports in parking areas greater than 25 spaces.

In parking areas with more than 10 spaces, at least 20% of the spaces must be "EV Ready" as defined by the MA Building Energy Code.

EVSE spaces may be included in EV Ready space requirements.

Additional LBE guidance recommends broader deployment of installed and EV ready spaces

### Substantial Renovations and Smaller Buildings

These requirements shall also apply to substantial renovations when such projects are deemed similar to new construction as defined in LBE Guidelines. All building projects under 20,000 square feet shall meet the requirements set forth above, excluding the LEED certification requirements. Such projects shall strive to meet the certification requirements whenever possible.

### **Maximizing GHG Emissions Reductions**

### 1

Strive to achieve zero net energy, where sufficient renewable energy is generated onsite to offset the building's annualized energy consumption;

### 2

Implement energy storage wherever possible, especially when paired with onsite renewables;

#### 3

Prioritize sites that provide access to public transportation and alternative modes of transportation; and

### 4

Evaluate and implement strategies to reduce embodied carbon contained in building materials.



LBE EO <u>Webpage</u> Includes EO text EO Guidelines

### More Information

https://www.mass.gov/orgs/leading-by-example

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