Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
DEPARTMENT OF ENERGY RESOURCES

Executive Order No. 594
LEADING BY EXAMPLE: DECARBONIZING AND MINIMIZING ENVIRONMENTAL IMPACTS OF STATE GOVERNMENT

Section 5C Guideline
Electric Vehicle Supply Equipment

Guideline Effective Date: September ##, 2021

1: Background and Purpose

On April 22, 2021 Governor Baker signed Leading by Example Executive Order 594, *Decarbonizing and Minimizing Environmental Impacts of State Government* (the "Order").

The Order sets forth targets and establishes policies, programs, and strategies to substantially reduce greenhouse gas emissions from state government operations at state owned and managed buildings, facilities, and campuses, as well as enhance their resilience. This will be achieved by advancing high performance buildings for new construction; expanding energy efficiency and decarbonizing fuels in existing buildings; acquiring fuel efficient and zero emission vehicles and continuing the deployment of new renewable energy.

This document provides guidance regarding the terms of significance and directives of Section 5C of the Order that specifically relate to electric vehicle supply equipment (EVSE) for state fleets. Additional guideline documents can be downloaded from the Leading by Example (LBE) web page at https://www.mass.gov/info-details/leading-by-example-executive-order-594-decarbonizing-and-minimizing-environmental-impacts-of-state-government.

2: Scope

The vehicle requirements in Section 5 of the Order apply to all vehicles owned or leased and operated by the executive branch agencies and public institutions of higher education as well as to all non-revenue vehicles under the jurisdiction of the Massachusetts Bay Transportation Authority (MBTA). Marked and unmarked police cruisers are exempt from the requirements of Sections 5, but public safety agencies are encouraged to meet any or all of the vehicle-related requirements of the Order whenever possible.

3: Definitions

a) **Agency** - Although the language of the Order in section 5C uses the term "agency", the requirements still apply to the full range of state entities enumerated in the scope, including institutions of public higher education and the MBTA non-revenue fleet.

b) **DC fast charging (DCFC)** - Typically requires 480V three-phase input, provides a maximum current of 80 or 400 amps, a maximum output power of 80 kW or 400 kW, and involves an electric utility for installation. DCFC provides rapid charging compared to AC Level 1 and Level 2 units but is considerably more expensive to install and operate. Not every EV is capable of DC fast charging.

c) **Electric vehicle (EV)** - A vehicle fully or partially powered by electricity that can plug in to charge from an off-board electric power source. This distinguishes them from hybrid electric vehicles, which supplement an internal combustion engine with battery power but cannot be plugged in. There are two basic types of EVs: all-electric vehicles and plug-in hybrid electric vehicles (PHEVs). All-electric vehicles include battery electric vehicles (BEVs) and fuel cell electric vehicles (FCEVs). In addition to charging from the electrical grid, both types are charged in part by regenerative braking, which generates electricity from some of the energy normally lost when braking.

d) **Electric vehicle supply equipment (EVSE) or electric vehicle charging station** – An electric component assembly or cluster of component assemblies designed specifically to charge batteries within electric vehicles by permitting the transfer of electric energy to a battery or other storage device in an electric vehicle.

e) **Employee or workplace electric vehicle charging**[1] - EV charging station(s) intended for use by employees' personal vehicles; all employees should have practical access to such charging stations.

f) **Fleet electric vehicle charging**[2] - In the context of this Guideline, EV charging station(s) intended for use by state fleet vehicles; applicable charging spaces should be reserved for fleet EVs only.

g) **Fleet vehicles** - In the context of this Guideline, refers to vehicle assets owned or leased and operated by Commonwealth entities.

h) **Green Fleet Committee (GFC)** - The Operational Services Division (OSD) and LBE co-chair the GFC, which includes representatives from MassDEP and other agencies as applicable. The GFC is responsible for overseeing implementation of the fuel efficiency standard, which includes vehicle mile per gallon efficiency and EV requirements for executive branch agencies.

i) **Hydrogen refueling stations (for fuel cell electric vehicles)**[3] - Hydrogen refueling stations typically function like a typical gas station; hydrogen storage and dispensing equipment is above ground, and hydrogen is dispensed as a compressed gas. Some stations make the hydrogen onsite; others have hydrogen delivered as a liquid, and others receive hydrogen as a compressed gas. The manner of delivery dictates the equipment at the station.

j) **Level 1 EV charging (AC) -** Requires a standard 120V AC supplied by any standard electrical outlet and typically provides a maximum current of 15 amps and a maximum output power of 3.3 kW. This type of charging is relatively easy and inexpensive to install but provides the slowest

[1] To be eligible for MassEVIP workplace charging incentives, there must be 15 or more employees on site at the location.

[2] To be eligible for MassEVIP fleet charging incentives, charging stations must be intended for use by fleet vehicles only; applicants must commit to having at least one EV in their fleet that will be able to use the fleet charging station(s).

[3] Hydrogen refueling is not included within the scope of this guideline at present, but it will be updated in conjunction with future advances in technology and relative applicability to the state fleet.

charge. Level 1 chargers may be configured as a standalone station or as a plug with a Level 1 charging cable.

k) **Level 2 EV charging (AC) -** Requires a 208V or 240V AC input, which may need to be installed by a certified electrician, and typically provides a maximum current of 80 amps and a maximum output power of 14.4 kW. This type of charging is the most versatile and appropriate for various use cases, provides a faster charge than Level 1 units, but can be more expensive. Level 2 chargers may be configured as a standalone station or as a Level 2 plug with an updated outlet.

l) **MBTA non-revenue fleet** – Vehicles owned or leased by the MBTA that are used for authority operational purposes. Vehicles used to transport the public are not included.

m) **Parking area** - Includes both open and covered parking lots as well as parking garages owned by the Commonwealth. When possible, the requirements of the Order should be incorporated at leased facilities as well.

n) **Public access electric vehicle charging** - Charging station(s) for which the general public has practical access to, and use of, the parking space and the EV charging station for a minimum of 12 hours per day, seven days per week, preferably up to 24 hours a day.

o) **Zero-emission vehicle (ZEV)** – Zero emission vehicles include battery electric vehicles, plug-in hybrid electric vehicles, and fuel cell vehicles; if the current definition of ZEVs per the Massachusetts Zero Emission Vehicle Commission diverges from this scope, the Commission definition shall take precedence.

4: Electric Vehicle Supply Equipment: Guidance on Requirements

Language from the Order is italicized below.

Installation of EV Charging Stations at State Facilities

> *5C) Electric Vehicle Supply Equipment (EVSE)*
>
> *Agencies shall also support the installation of EVSE, commonly known as electric vehicle charging stations, at state facilities for state vehicles, employee-owned vehicles, and those driven by the public, where such installations are appropriate and applicable.*

Massachusetts is pursuing a nation-leading clean energy agenda, as evidenced by the number of pioneering policies that are putting climate change action at the forefront, particularly for the transportation sector. State entities have a role to play in statewide transportation electrification by providing EV charging infrastructure for its fleets and employees as well as the public. The Order directs state entities to target GHG emission reductions by substantially reducing or eliminating emissions from fossil fuels in vehicles, prioritizing the transition to ZEVs in the state fleet, and increasing the number of EV charging stations at state facilities.[4]

[4] The Order sets ZEV acquisition requirements (see the Section 5A Guideline on ZEV Acquisitions) as well as total state fleet electrification targets: 5% ZEVs in 2025, 20% ZEVs in 2030, 75% ZEVs in 2040, and 100% ZEVs in 2050. For EV charging, the targets are 350 stations by 2025 and 500 stations by 2030.

To the greatest extent possible, state facilities should strive to install and pre-wire for EV charging stations per the directives of the Massachusetts LEED Plus 2.0 Standard, which states:

…Install at least one electric vehicle supply equipment (EVSE) charging port in parking areas up to 25 spaces, with at least two EVSE charging ports to be installed in parking areas greater than 25 spaces. In parking areas with more than 10 spaces, at least twenty percent (20%) of the spaces must be "EV-ready" as defined by the current Massachusetts Building Energy Code.

LBE Program Resources for State Facilities

The LBE Program offers an EV Charging Procurement Guide & Implementation Roadmap for state entities that includes a range of topics including procurement and funding programs that are also described to some extent in this Guideline. In addition, LBE has an EV Charging Quick Guide that can serve as a primer for learning more about the EV charging landscape (e.g., charging equipment basics and use cases) and a template scope of services that is outlined in the EVSE Procurement section of this Guideline.

EVSE Considerations to Inform Decision-making

The following considerations are intended to better inform the initial decision-making process for EVSE installation; LBE Program staff and members of the Green Fleet Committee are available to assist state entities in planning and mobilizing EVSE installation, which will significantly vary by site. To find staff contacts and get started, visit the LBE webpage.

Topic	Agency Task
Fleet vehicle locations	Identify key fleet locations to prioritize EVSE infrastructure needs for the agency.
Site identification	Determine the location(s) where installing EV charging stations makes sense to help determine available funding and charging station types.
Intra- and/or interagency use	Identify opportunities for shared fleet charging among sites from the same agency or between multiple agencies; visit the LBE webpage to see an interactive map of state-sited charging station locations. LBE Program staff can assist agencies in identifying potential charging hub locations and further inform the siting of new stations.
Specific EVSE location(s)	Determine specific location(s) for EV charging to help vendors determine the necessary infrastructure and installation work
Proximity to power	Site charging stations in areas that are close to buildings or existing electricity service to help to reduce the costs associated with infrastructure work whenever possible.
Charging station users	Identify whether charging stations are intended for public use, employee use, or fleet use to help determine the appropriate charging station type and available grant funding.
Number of charging stations	Determine the optimal number of stations for a site to help identify whether existing infrastructure and electrical service can support the additional demand and space needs of charging stations.

EV charging station type	Identify the level of EV charging station(s) to be installed. The type of charger installed often depends on the use case and existing facility infrastructure; in most use cases, Level 2 chargers are well-suited for state government applications. However, there may also be cases where Level 1 charging meets the site needs (e.g., limited vehicle miles driven per day, smaller battery sizes, cost or electrical service constraints).
Electric utility provider and funding availability	Verify availability of utility financial support; depending on the service territory a site is located in, there may be funding for EV charging infrastructure work (e.g., electrical service).
Usage fees	Assess fee structure for charging station use; chargers installed for use by employees and/or the public should be networked to enable the collection of charging fees.
Future planning	Take future charging needs into account when going through the installation process. While current site needs may require the installation of a small number of charging stations, it is strongly recommended that pre-wiring is installed to facilitate future EVSE installations.
Non-traditional EV charging	Consider whether non-traditional EV charging technology may suit the needs of sites with unique attributes, such as those that may not have ready access to electrical power. Examples of technologies that are available on statewide contract VEH102 include solar and battery-powered off-grid chargers that fits into standard parking spaces and portable chargers that can be moved from site to site.

Funding and Procurement

Agencies shall work with all appropriate funding, contracting and oversight agencies to identify locations and strategies for deployment of EVSE.

There are several state agencies that play a role in the funding, contracting, and oversight of the installation of EVSE at state sites. It is valuable for state entities to understand the roles played by these partners to ensure they are being involved at the right time.

- Massachusetts Department of Environmental Protection: Oversight of the MassEVIP incentive programs; can provide program guidance and information about grant funding availability.
- Operational Services Division: Oversight of, and assistance with, statewide contracts for goods and services including procurement guidelines and contract user guides.
- State construction and management agencies[5]: Confirmation whether sites are appropriate for EVSE installation considering long-term capital or master plans; these entities are further directed to include EVSE in any new construction projects per the Order.
- Office of Vehicle Management: Administration of state fleet telematics program, which can aid in identifying potential EVSE locations and vehicle electrification opportunities.

[5] Namely the Division of Capital Asset Management and Maintenance, UMass Building Authority, and Massachusetts State College Building Authority.

In addition, state entity legal teams play a key role in overseeing site access agreements with utilities and navigating procurement processes. There may also be outside parties to consult as part of the EVSE installation process such as utilities (funding and electrical permitting) or building owners for leased sites.

Incentive and Technical Assistance Programs

Depending on the location, type of charging, and charging use case, partial and full funding for infrastructure upgrades, hardware and installation may be available, so it is important that state entities access and leverage available funding wherever applicable and appropriate. Potential EVSE funding sources include:

- MassDEP Electric Vehicle Incentive Program[6] - MassEVIP
- Utility Make Ready Programs - National Grid and Eversource

In addition, Eversource and National Grid may offer fleet advisory services that can help state entities identify and plan for EVSE installations as well as support efforts to transition fleets to zero emission vehicles. Visit the mass.gov electric vehicle charging webpage for links and updates.

More information and resources can be found on the LBE Clean Transportation webpage; there are some complexities with bundling incentives that will vary by site, but LBE Program staff are available to work with state entities on an individual basis to navigate this process.

EVSE Procurement

State entities should first be aware of the various procurement laws related to the acquisition of EV charging stations.[7,8] There are also certain requirements related to the value of labor associated with installation and construction activities that may be applicable;[9] state entities should consult with the appropriate legal staff before proceeding with a project.

To acquire EVSE, state entities can work with vendors on the current Massachusetts statewide contract *VEH102: Advanced Vehicle Technology Equipment, Supplies, and Services*. The VEH102 contract user guide includes vendor information and details about currently available products and services. Additionally, the LBE Program offers an EVSE scope of services template to aid state entities in developing bid documents for desired equipment. Regardless of procurement method, MassDEP and the LBE Program recommend purchasing only ENERGY STAR®-certified EV charging stations.

Accessibility

State facilities should take steps during the planning process to make EV charging accessible and usable by persons who have disabilities. The Commonwealth of Massachusetts has obligations under Title I and II of the Americans with Disabilities Act (ADA) to ensure all public programs, services, and activities are accessible to persons with disabilities. To meet this mandate, state entities must ensure that at least 5% of the site's EV charging spaces, but not less than one such space, be accessible to persons with disabilities.

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[6] More information on MassDEP grant programs can be found here.

[7] Executive branch departments are required to make acquisitions from statewide contracts or otherwise follow the guidance outlined in 801 CMR 21.00; see the OSD *Conducting Best Value Procurements* handbook for more information regarding policy requirements and best practices established pursuant to this regulation.

[8] Executive branch goods and services, MGL c. 7, § 22 and MGL c. 30, § 51, § 52

[9] Construction materials and services, G.L. c. 149, § 44A; G.L. c. 149, § 29; G.L. c. 30, § 39M

EV charging stations and associated parking spaces must comply with the Massachusetts Architectural Access Board's rules and regulations (521 CMR) and/or the 2010 ADA Design Standards. Site layouts should consider connector and receptacle heights, special curb cutouts, and loading areas to ensure accessibility for those with disabilities and further facilitate access in difficult weather conditions. For more information and diagrams, please see the accessibility guidance for executive branch agencies and the MassEVIP program requirements.

Accessibility strategies for station placement will largely be site-specific and therefore it is advisable that a qualified, design professional review all planned installation locations for code-required factors.

Leased Sites

Section 4 of the Order states, *DCAMM and other agencies responsible for leasing space shall evaluate such space for agency use by including the following elements in the selection criteria…[including] access to electric vehicle charging stations*. This directive is most applicable during new lease solicitations and during renegotiations or renewals of existing leases.

Depending on the site characteristics, occupants, facility use, and other site-specific factors, EV charging may be desirable for any one or combination of charging use cases: fleets, employees, and the public. When there are opportunities to incorporate EV charging infrastructure into lease agreements, state entities should strongly consider working with DCAMM or other leasing counterparts to ensure that EV charging provisions are taken under advisement.

Installation and Pre-wiring During Construction

Agencies shall ensure that EVSE stations are considered and prioritized during relevant construction.

Charging station siting and the pre-wiring for additional station locations should include an assessment of the entire parking area in anticipation of future increasing charging needs of both state and publicly operated EVs. For the most up to date information on this topic, please see the Section 3 Guideline on New Construction and Substantial Renovations.