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 5A Guideline
Electric Vehicle Acquisitions

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 5A of the Order that relate to the acquisition of electric vehicles (EVs) for state fleets. An appendix found at the end of this guideline centralizes relevant resources available to aid in implementation of these requirements. Additional Executive Order 594 guideline documents can be downloaded from the 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 of 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 that are subject to the Order, as well as to all non-revenue vehicles under the jurisdiction of the Massachusetts Bay Transportation Authority. Marked and unmarked police cruisers are exempt from the requirements of Sections 5, but public safety agencies are encouraged to meet these requirements where such vehicles meet operational needs.

3: Definitions

a) **Acquisition** - In the context of this guideline, acquisition refers to the purchase or lease of on-road vehicles (whether used or new) by and for the Commonwealth, either to replace an existing fleet vehicle or to expand a fleet. Executive branch departments are required to make acquisitions from Statewide Contracts or otherwise follow the procurement guidance outlined in 801 CMR 21.00.

b) **Alternative fuel vehicles (AFVs) -** Dedicated, flexible fuel, or dual-fuel vehicles designed to operate on at least one alternative fuel (such as electricity, biodiesel, propane, or natural gas) to reduce carbon emissions.

c) **Battery electric vehicle (BEV)** – An electric vehicle that draws propulsion energy solely from an on-board electrical energy storage device during operation that is charged from an external source of electricity.

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

f) **Fuel-cell electric vehicle (FCEV or FCV) -** An electric vehicle that draws propulsion energy solely from an on-board energy storage device during operation, where energy stored as hydrogen is converted to electricity by a fuel cell, that is recharged from an external source of hydrogen.

g) **Fuel Efficiency Standard (FES)** - Issued by the Operational Services Division (OSD), the Department of Energy Resources (DOER) and the Massachusetts Department of Environmental Protection (MassDEP) to fulfill the requirements of the Green Communities Act.[1] Requires executive branch agencies to acquire fuel-efficient and alternative fuel vehicles; applies to all light-duty vehicle acquisitions with a gross vehicle weight rating (GVWR) of 10,000 pounds or less. OSD, DOER and MassDEP work with agency fleet managers to ensure compliance with the standard and provide technical assistance and guidance as required.

h) **Gross vehicle weight rating (GVWR) -** The maximum safe operating weight of a vehicle, as specified by the manufacturer, including passenger and cargo loads.

i) **Most efficient vehicle -** If an exemption is granted for a specific non-zero emission vehicle acquisition, agencies must identify the most efficient vehicle that can meet the intended operation(s) of the asset. Vehicle efficiency should be determined by the combined miles per gallon (MPG) rating of the vehicle per U.S. Environmental Protection Agency fuel economy ratings.

j) **Plug-in hybrid electric vehicle (PHEV)** – An electric vehicle with an on-board electrical energy storage device that can be recharged from an external source of electricity which also has the capability to run on another fuel.

k) **Procurement -** The technical and management process functions directly related to the acquisition of a product or service. Executive branch departments are required to undertake procurement using statewide contracts or otherwise follow the guidance outlined in 801 CMR 21.00.[2]

l) Readily available - Refers to a vehicle that is on the market and/or available for order for state entities to purchase or lease that can be delivered at or near the time of necessary or desired

[1] Chapter 169, Section 1 of "An Act Relative to Green Communities."

[2] See the OSD *Conducting Best Value Procurements* handbook for more information regarding policy requirements and best practices established pursuant to the 801 CMR 21.00 regulation.

acquisition. State entities should consider manufacturer production and lead times to ensure that ZEVs and efficient vehicles can be procured and to avoid making more costly off-lot purchases.

m) **Telematics -** A telematics solution is a system that is installed in a vehicle that records and transmits information about the vehicle such as the current odometer, maintenance needs, and fuel/electricity consumption.

n) **Total cost of ownership (TCO) -** The purchase price of a particular asset plus the operation and maintenance costs over the asset's lifespan.

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

4: Guidance on Electric Vehicle Acquisition Requirements

Language directly from the Order is italicized below.

> ***5A) Electric Vehicle Acquisitions***
>
> *Agencies shall comply with zero emission vehicles (ZEV) acquisition requirements below when such vehicles are readily available, can meet agency needs, and the incremental costs associated with total cost of ownership are not excessive. When ZEV acquisitions are deemed not feasible, agencies shall select the most efficient vehicles available for their operational needs.*

It is important for state entities to undertake planning efforts to optimize any new fleet acquisitions. State entities should evaluate their vehicle assets at least once a year, preferably prior to the start of each new fiscal year.[3] When a vehicle is identified for replacement, acquisitions of ZEV must be prioritized over vehicles powered primarily by internal combustion engines utilizing fossil fuels.

Acquisitions must adhere to the following vehicle efficiency hierarchy, considering PHEV and other lower priority vehicles only when necessary.

- Priority 1: BEVs (and FCEVs)
- Priority 2: PHEVs[4]
- Priority 3: HEVs
- Priority 4: Most fuel-efficient internal combustion or vehicles that run on alternative fuels in accordance with requirements of the FES

[3] The Office of Vehicle Management (OVM) fleet policies outline how to assess when replacement or down-sizing vehicles may be prudent.

[4] While PHEVs are considered zero-emission, they can run in a hybrid mode that utilizes an internal combustion engine. State fleets using PHEVs must have the means to charge such vehicles and should maximize the vehicles' use of electricity in order to minimize emissions. PHEV fueling and charging utilization data will be tracked and reviewed at least annually by OVM and the LBE Program through telematics or another method to be determined in the future.

If acquiring a vehicle subject to the Order other than a ZEV, state entities must be able to sufficiently demonstrate and justify why their programmatic transportation requirements could not be satisfied with a Priority 1 or Priority 2 vehicle (see exemption process in Section 5 of this Guideline).

Certain exclusions to the ZEV acquisition requirement may apply:

- The terms of a fleet vehicle being readily available are defined in Section 3 of this Guideline; if it is believed that the intended acquisition is not readily available, state entities must follow the prescribed exemption process outlined in Section 5 of this Guideline.

- Replacement vehicles must be able to support all essential services of the particular vehicle job function and agency operations pertaining to that asset; if there is not a ZEV option identified that does such, the exemption process may be followed.

- In cases where an analysis of the total cost of ownership (TCO) of a ZEV illustrates that the acquisition of such would be financially burdensome[5] to the state entity (see Section 5 of this guideline), this can be considered grounds for an exemption; see the Appendix of this Guideline for TCO resources. In addition, LBE Program staff are able to assist state entities in developing customized TCO analyses.

Starting in fiscal year 2023, all acquisitions of vehicles with a Gross Vehicle Weight Rating (GVWR) of 8,500 pounds or less must be ZEVs, as defined by LBE Guidelines.

Starting in fiscal year 2025, all acquisitions of vehicles with a GVWR of 14,000 pounds or less, must be ZEVs.

Starting in fiscal year 2030, all acquisitions of vehicles with a GVWR of more than 14,000 pounds must be ZEVs.

Agencies shall strive to support the goals enumerated in this Order as quickly and to the greatest extent possible.

GVWR must be the metric used for determining if the ZEV requirements apply to a particular acquisition. As part of the acquisition process, state entities are strongly encouraged to work with LBE and/or OVM to identify the best available and most appropriate ZEV models for the intended vehicle use case.

GVWR	Effective date of ZEV acquisition requirement
≤ 8,500 pounds	July 1, 2022 (start of fiscal year 2023)
≤ 14,000 pounds	July 1, 2024 (start of fiscal year 2025)
>14,000 pounds	July 1, 2029 (start of fiscal year 2030)

[5] E.g., would cause substantial harm to successful vehicle acquisitions and fleet operations.

In meeting the zero emission vehicle targets in Section 2 [of the Order], *fleets subject to this section shall prioritize the acquisition of ZEVs without any internal combustion engines, including, but not limited to, battery electric vehicles and fuel cell vehicles.*

The ZEV acquisition requirements are intended to eliminate the combustion of fossil fuels in the state fleet through the transition to zero-emission technologies, thereby supporting the broader emissions reduction and ZEV fleet targets of the Order.

5: Exemption Process and Tracking and Reporting

For executive branch departments, the exemption process applies on an individual vehicle acquisition basis for any applicable acquisitions that are not ZEVs.[6] For non-executive branch entities, the rationale for vehicle acquisitions that do not meet the applicable requirements must be documented and submitted as part of the LBE tracking and reporting process.

Exemption process for state entities subject to Section 5 of the Order that acquire vehicles through OVM: All exemption requests shall be submitted to OVM through a form that will be developed and made available to state entities. A request for an exemption to the ZEV acquisition requirement must demonstrate to the satisfaction of OVM and LBE that the exemption is required and necessary for one or more of the allowable exemption criteria as outlined in the Order and this Guideline. LBE and OVM will jointly review and approve or deny all requested exemptions and ensure that agencies adhere to the vehicle efficiency hierarchy. For cost-related exemptions, the OVM vehicle request workbook for executive branch departments will be equipped with a basic TCO calculator to help compare vehicle costs. Agencies must still submit ZEV exemption requests for assets currently exempted through the FES, except for assets used for police pursuit.

Exemption process for state entities subject to Section 5 of the Order that do <u>not</u> acquire vehicles through OVM: When electing to exempt state fleet vehicle acquisitions from the ZEV requirement, state entities must record in writing the rationale for doing so at the time of acquisition via a form that will be developed by LBE and made available to state entities. Exemption documentation must explain why the ZEV requirements cannot be achieved[7] and demonstrate adherence to the vehicle efficiency hierarchy. Through LBE progress tracking or another method developed by the LBE Program, vehicle acquisitions and any associated exemption justification documentation will be submitted to and reviewed by LBE Program staff on at least an annual basis. LBE will leverage all documentation to work with state partners to address specific challenges and identify opportunities, and to ensure compliance with the directives and goals of the Order.

[6] Marked and unmarked police cruisers are exempt from the ZEV acquisition requirements of the Order and do not need to undergo the exemption process.

[7] If the self-authorized exemption is on a cost-prohibitive basis, the entity must include a detailed TCO analysis as part of the reporting process.

Appendix: ZEV Resources

For these and other resources, visit the LBE tools and guides web page.

Technology and ZEV Model Information

- EV Quick Guide: Developed by LBE, this two-page guide includes introductory information on electric vehicle types, incentives available for state entities, and procurement resources.
- Current ZEV model lists: Various organizations provide list of ZEV models currently available on the market along with vehicle key metrics.
    - EVAdoption
    - Electric Vehicle Database
    - Alternative Fuels Data Center
- Upcoming ZEV model list: Maintained by LBE, this list collates information from various sources to provide a wide range of upcoming ZEV models and specifications.

Total Cost of Ownership

- EV Ownership Costs: Published by Consumer Reports in 2020, this white paper details the total cost of ownership of electric vehicles, highlighting fuel savings, maintenance and repair savings, and comparable depreciation as key benefits when weighed against conventional fuel vehicles.
- TCO calculators: Various organizations provide online TCO calculators that offer comparison for a wide range of vehicle models, technologies, and metrics.
    - PG&E EV savings calculator
    - Edmunds TCO calculator
- LBE EV Savings Calculator: Developed by LBE, this calculator provides TCO comparisons for ZEV and conventional fuel models currently available on Statewide Contract VEH98.

LBE Program staff are available to assist with developing TCO analyses; state entities may conduct their own TCO analyses. It is strongly recommended that the assumptions used are comparable with those listed below.

- 8-year replacement schedule
- 3-year average fuel rates for electricity, gasoline, diesel, etc.
- Annual estimated maintenance and repair costs
- Upfront cost of asset (either MSRP or bid price) compared to readily available, equivalent ZEV model(s) that can fulfill the same asset function and/or are of similar vehicle class size and type
- Applicable incentives comparable

Relevant Incentive and Technical Assistance Programs

- MassEVIP Fleets Program: Administered by MassDEP, this grant program supports Massachusetts cities, towns, state agencies, and public colleges and universities in acquiring ZEVs for their fleets. Vehicle incentives range from $3,000-$7,500 depending on technology and ownership model.
- MOR-EV Trucks Program: Administered by DOER, this rebate program aims to provide air pollution emission reductions by supporting the acquisition of medium- and heavy-duty electric trucks, vans, and buses. Vehicle incentives are determined by the GVWR and are available for battery electric and fuel-cell electric vehicles with sale price over $50,000, a GVWR of more than 8,500 pounds, and a manufacturer date after February 16, 2021.
- Fleet Advisory Services: National Grid's Fleet Advisory Service Program offers an assessment that identifies fleet vehicles ready for electrification.