



MASSACHUSETTS
**DEPARTMENT OF
ENERGY RESOURCES**

Fiscal Year 2022 Annual Progress Report

Leading by Example (LBE) Division,
Department of Energy Resources



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MA Department of Energy Resources Leading by Example (LBE)

LBE works with state agencies, quasi-public authorities, and public colleges and universities to advance clean energy and sustainable practices that reduce the environmental impacts of state government operations.

LBE State Portfolio

19 Executive Branch Agencies

15 Community Colleges

9 State Universities

5 UMass Campuses

2 Quasi-Public Authorities



89.2 million sq. ft. of buildings



13,446 vehicles

(includes 9,425 non-emergency and 4,021 exempt emergency vehicles)



16.15 million MMBtus annual energy usage



514,114 MTCO2e onsite fossil fuel emissions

LBE Executive Order 594 Overview

EO594, “Decarbonizing and Minimizing Environmental Impacts of State Government,” applies to all executive branch agencies and institutions of public higher education.

Objective	Executive Order 594 Targets			
	2025	2030	2040	2050
Reduce emissions from onsite fossil fuels*	-20%	-35%	-60%	-95%
Zero emission vehicles (ZEVs) in light-duty state fleet	5% of fleet	20% of fleet	75% of fleet	100% of fleet
Reduce fuel oil use*	-90%	-95%	TBD	TBD
Energy use intensity (site EUI) reduction*	-20%	-25%	TBD	TBD
EV charging stations at state facilities	350 stations	500 stations	TBD	TBD

*Over a Fiscal Year 2004 (FY04) baseline

New light-duty vehicles: In FY23, all acquisitions of vehicles with a Gross Vehicle Weight Rating (GVWR) of 8,500 pounds or less must be ZEVs. Starting in FY25, all acquisitions of vehicles with a GVWR of 14,000 pounds or less must be ZEVs.

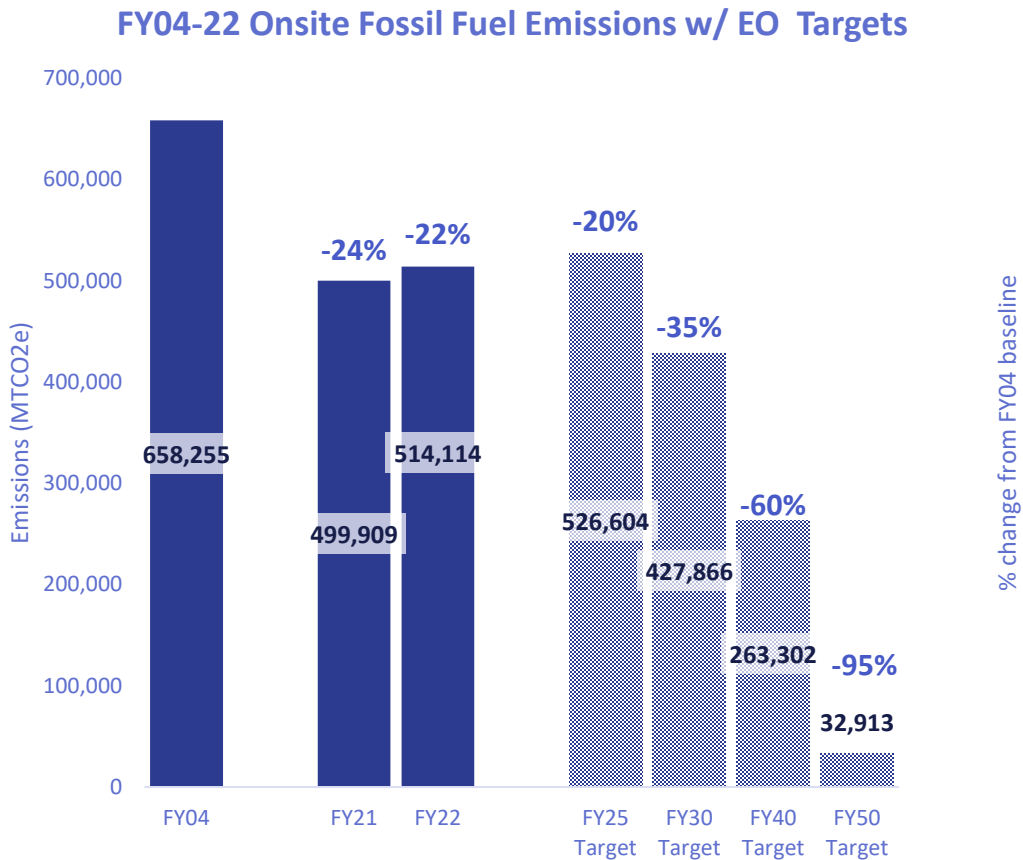
New heavy-duty vehicles: Starting in FY30, all acquisitions of vehicles with a GVWR of more than 14,000 pounds must be ZEVs.

EO594 targets and directives relate to:

- ☐ Onsite fossil fuel emissions
- ☐ Fuel oil usage
- ☐ Buildings & energy performance
- ☐ Renewable energy deployment
- ☐ Fleet electrification & EV charging
- ☐ Budgeting & planning
- ☐ Data tracking & reporting

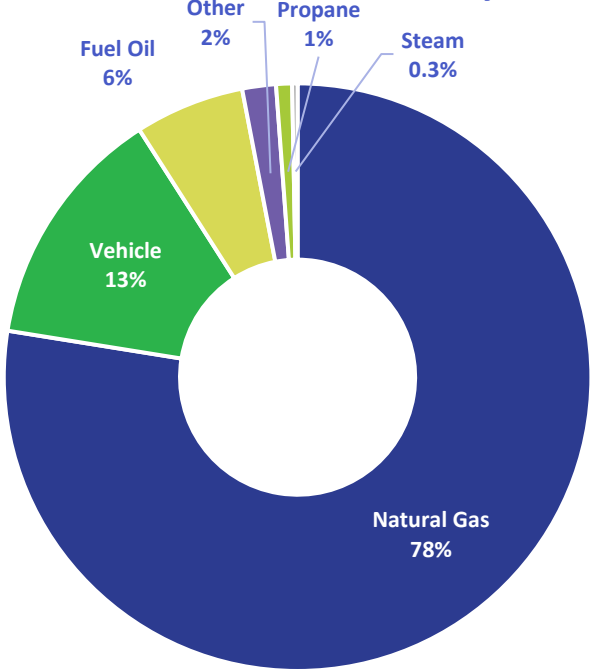
EO594 Target: Onsite Fossil Fuel Emissions

Target: Reduce onsite fossil fuel emissions by 20% in FY25, by 35% in FY30, by 60% in FY40, by 95% in FY50.



As of FY2022, the state portfolio has reduced onsite fossil fuel emissions by 22% from the FY2004 baseline, surpassing the FY2025 target. This represents a slight increase from the FY21 reduction likely due, in part, to partial building re-openings and some resumption of pre-COVID operations.

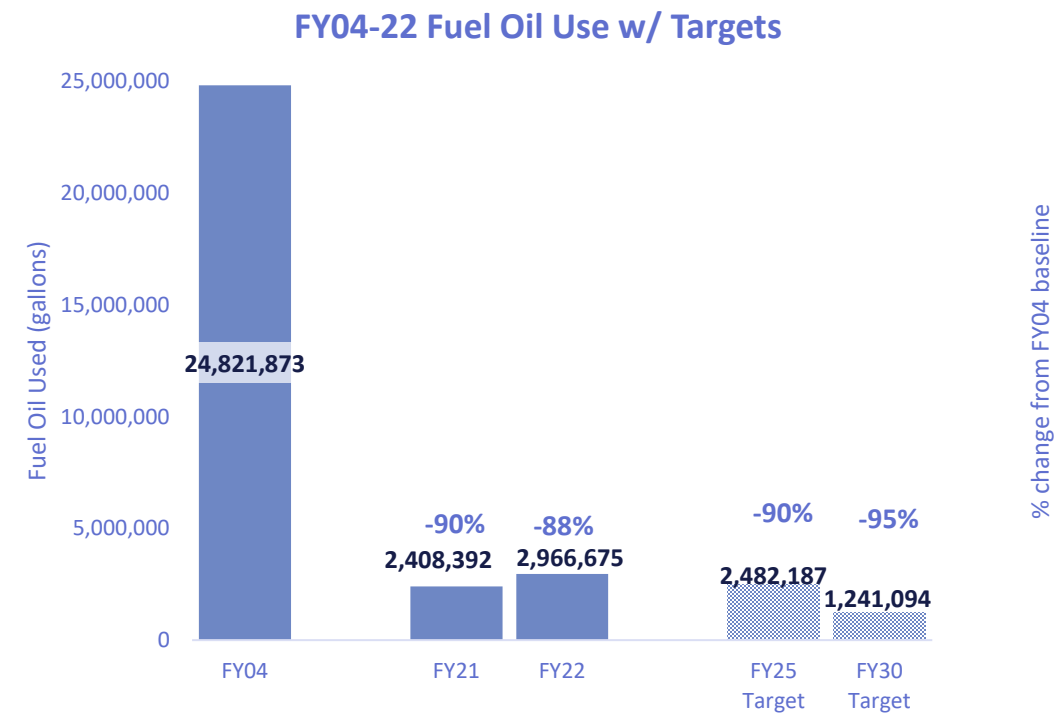
FY22 Onsite Fossil Fuel Emissions by Fuel Type



In FY2022, natural gas emissions accounted for the largest share of onsite fossil fuel emissions (78%). Emissions from vehicle fuels accounted for 13% of onsite fossil emissions and fuel oil for 6%. The “Other” category includes fuel used for emergency generation and uses not directly related to standard operations as well as vehicle fuels used for non-car purposes such as jet fuel or marine fuel.

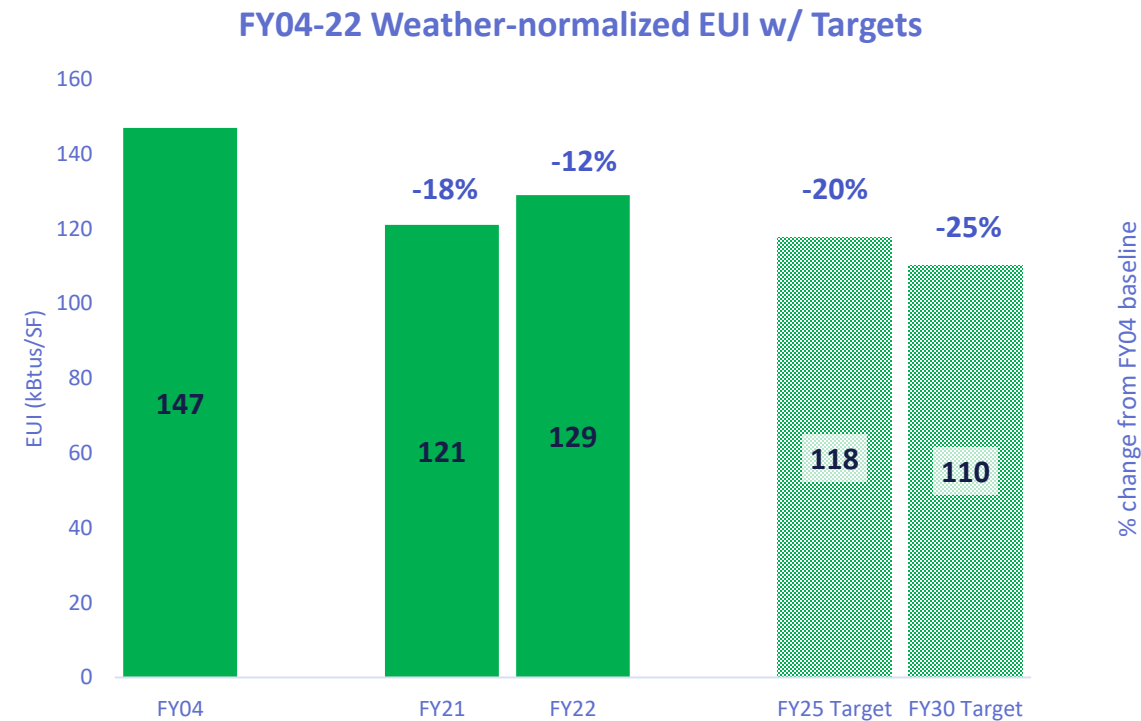
EO594 Targets: Fuel Oil Use & Energy Use Intensity (EUI)

Target: Reduce non-vehicle, petroleum-based oil consumption used to satisfy thermal loads for building and non-building uses by 90% in FY25 and 95% in FY30.



As of FY22, the state portfolio has reduced fuel oil usage by 88% from the FY04 baseline. This represents a slight increase from the FY21 reduction likely due, in part, to partial building re-openings and some resumption of pre-COVID operations. To meet the FY25 target, the portfolio must reduce fuel oil use by 484,488 gallons.

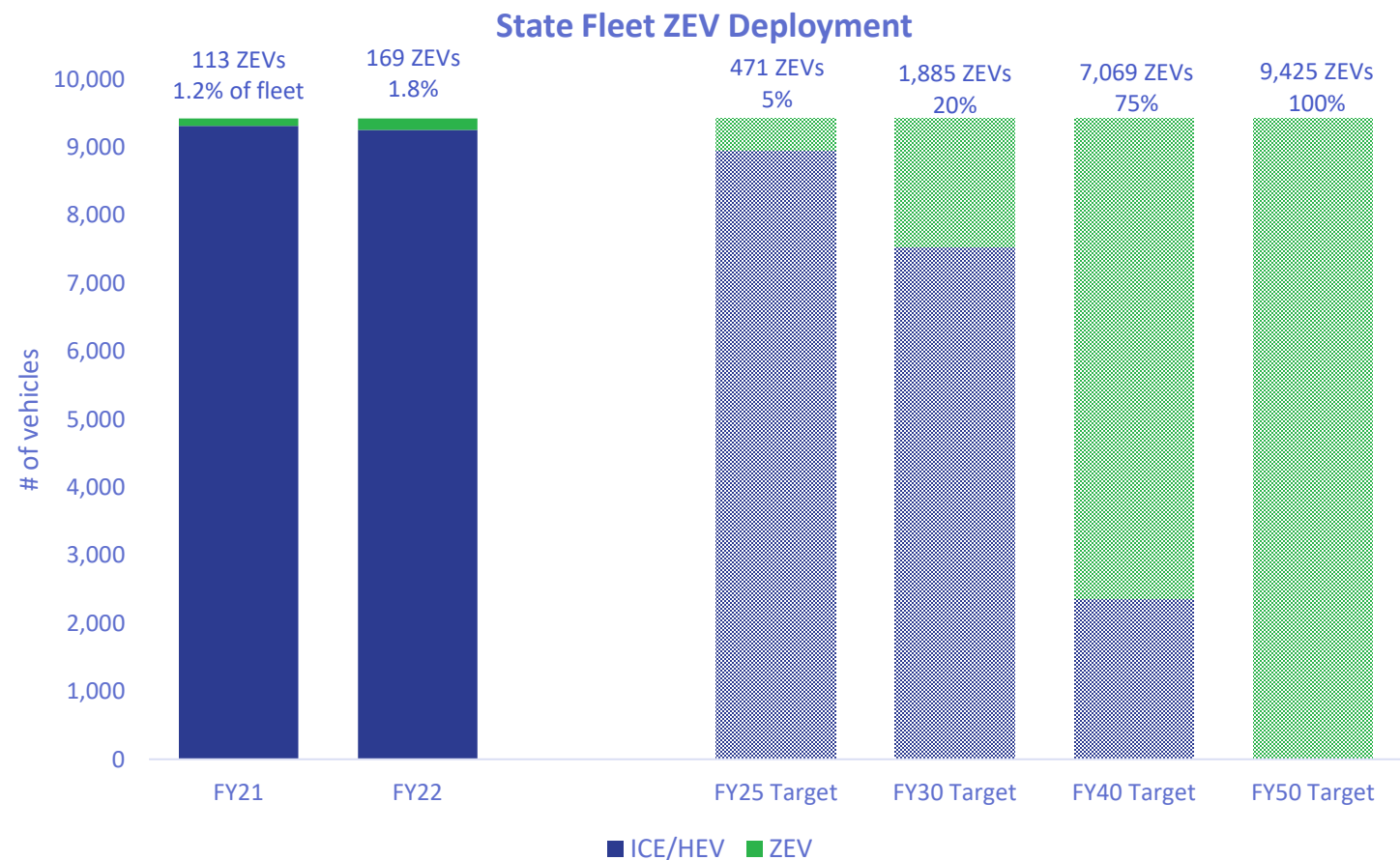
Target: Reduce EUI by 20% in FY25 and by 25% in FY30.



As of FY22, the state portfolio has reduced weather-normalized energy use intensity (EUI) by 12% from the FY04 baseline. This represents a slight increase from the FY21 reduction likely due, in part, to partial building re-openings and some resumption of pre-COVID operations.

EO594 Target: State Fleet Electrification

Target: Transition 5% of fleet to electric in FY25, 20% in FY30, 75% in FY40, 100% in FY50.



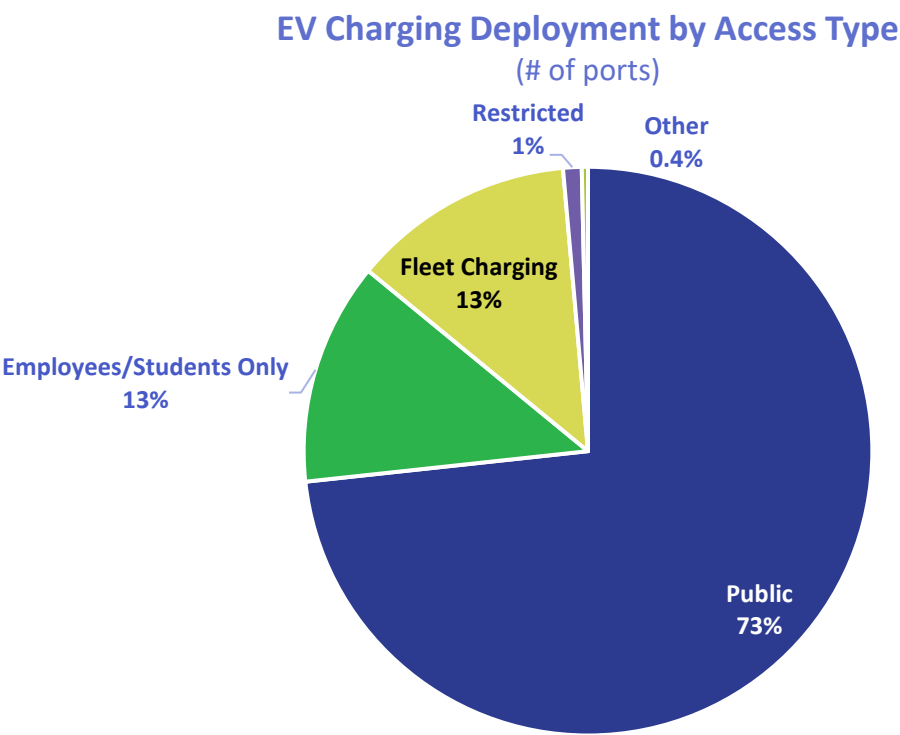
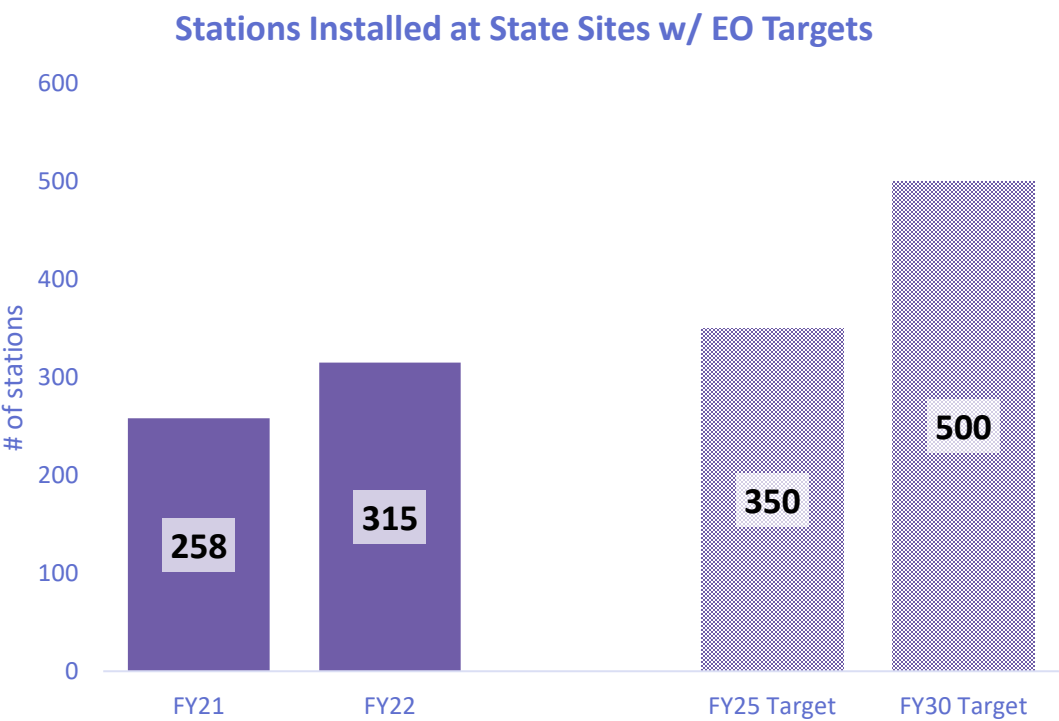
As of FY22, **1.8% of the state fleet is electric.** This includes battery electric and plug-in hybrid vehicles, as well as electric neighborhood and utility vehicles. To meet the FY25 fleet electrification target set in EO594, the state fleet must transition about 326 additional vehicles to electric.

From FY21, the share of EVs in the state fleet grew by 56 vehicles or about 0.6% of the total fleet.

*ZEV (zero-emission vehicle) includes battery electric, plug-in hybrid electric, and neighborhood and utility electric vehicles

EO594 Target: EV Charging Deployment

Target: Reach 350 EV charging stations deployed at state sites in FY25 and 500 in FY30.

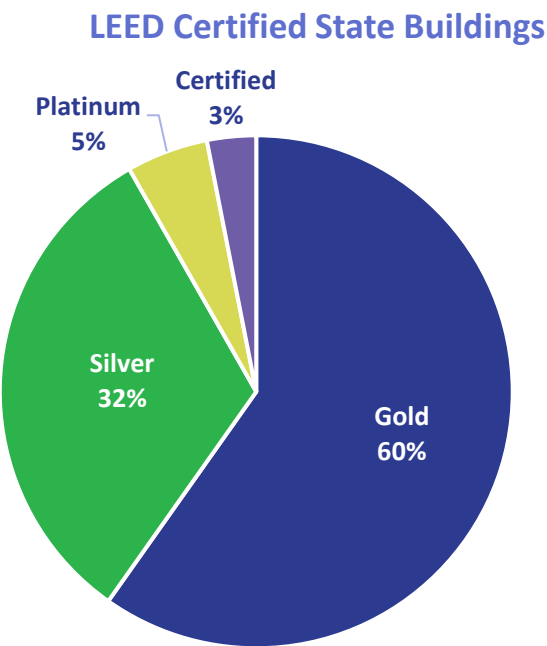


As of FY22, there are 315 active and installed EV charging stations (569 charging ports) at state sites. To meet the FY25 target set in EO594, an additional 35 stations must be installed at state sites. Of the 569 ports, 73% are for public use, 13% for state fleet use, 13% for employee or student use, and about 1% for other or more restricted access uses.

From FY21, the number of stations increased by 57 stations or 22%.

EO594 Additional Progress

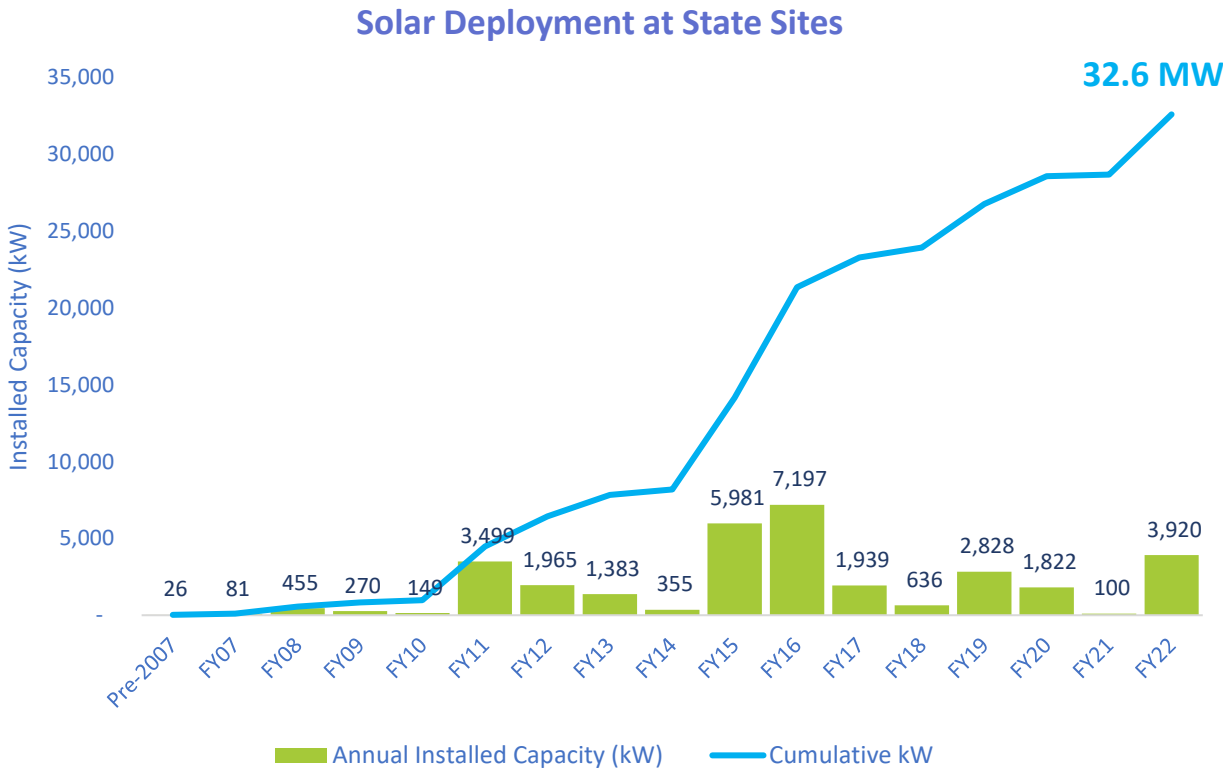
State LEED Buildings



As of FY22, there are 97 LEED certified buildings in the state portfolio, accounting for over 11.9 million square feet of space. Of these 97 buildings, 65% are at the highest level of Platinum and Gold, 32% at silver, and 3% are certified. These LEED buildings are distributed across 35 entities and represent a variety of sectors, including transportation, higher education, public safety, and others.

In FY22, 2 state buildings became LEED certified (198,000 SF).

On-site Solar Deployment



As of FY22, there are 32.6 MW of solar capacity installed at state sites, almost 4 MW of which were deployed in FY22. Solar canopies make up over half of the capacity (55%) while ground-mounted rooftop PV systems each account for 23%.

LBE Key Accomplishments & LBE Awards

2022 LBE Awards Recipients by Category

Category	Award Recipients	
Agency	Department of Developmental Services	MassDOT – Highway
Public Higher Education	Cape Cod Community College	
Municipality	City of Beverly	Ashburnham Municipal Light Plant
Individual	Liz Minnis, DCAMM	Shawn Luz, City of Framingham

Release of Statewide Contracts: VEH110 & PRF74



In 2022, staff from LBE and state agencies were part of the strategic sourcing teams for two statewide purchasing contracts that feature goods or services with a positive environmental impact:

- **VEH110 (Light & Medium-Duty Vehicles) contract:** Includes a variety of electric vehicles for state agencies to procure to electrify the state fleet; this contract now only offers electric options for certain vehicle types.
- **PRF74 (Energy, Climate Action, and Facility Advisory Services) contract:** Provides pre-qualified vendors that offer advisory services related to a wide range of energy and climate action activities, including, but not limited to, utility efficiency program design and implementation, climate action analysis and planning, energy project management, and capital investment planning.

Battery-Powered Landscaping Equipment



LBE, in collaboration with the Operational Services Division (OSD), held its **first ever** Ride & Drive for battery-powered landscaping equipment (BPLE) in 2022, allowing state employees to learn more about and test out battery powered equipment. BPLe provides emissions reduction as well as noise and air pollution reduction benefits. An increasing number of state agencies and campuses are making the switch to BPLe!