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 7 Guideline
Additional Sustainability Priorities

Guideline Effective Date: March 25, 2022

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 7 of the Order that relate to additional sustainability priorities as part of the Leading by Example (LBE) Program including demand management and energy storage; resilience; building energy monitoring; improving water efficiency in both existing and new buildings; environmentally preferable purchasing; waste reduction and recycling; and sustainable landscaping. Additional LBE 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.

Definitions

a) **Battery energy storage system (BESS)** - A commercially available technology that can absorb energy, storing it for a period of time and thereafter dispatching the energy. Energy storage systems are either installed behind a retail customer's meter (i.e., customer-side or behind-the-meter) or interconnected directly into distribution and transmission infrastructure. Because energy storage resources can act as generators, loads, and transmission-type assets, there are many ways to realize their economic benefits in Massachusetts; a BESS may provide backup power, retail bill reduction through demand charge reduction and/or time of use, host-site payment, and wholesale market exposure for commercial buildings.

b) **Battery-powered landscape equipment (BPLE)** – Landscaping equipment, including handhelds (e.g., trimmers, chainsaws, blowers) and lawnmowers (e.g., push, ride-on, zero-turn), that is powered by rechargeable batteries. BPLE specifications vary from product to product, with high-end products meeting stringent commercial-grade standards. Batteries must be electrically recharged after use but result in no onsite fossil fuel emissions.

c) **Demand response** - Program through which customers reduce their grid electricity consumption in response to either high wholesale prices or system reliability risks in a pay-for-performance model.

d) **Energy resilience -** Ability of an energy system to recover quickly from a shock or stress event and is a significant factor in a facility's ability to maintain critical operations during that time without disruption.

e) **Environmentally preferable products (EPPs) and services** – Those that have lesser or reduced effects on human health and the environment when compared to competing products or services that serve the same purpose. These may meet any number of environmental and/or health criteria, including products that contain recycled materials, minimize waste, reduce environmental impact of operations (e.g., by saving water or reducing onsite emissions), reduce the use of toxic materials, and/or are sourced from local, sustainable sources.[1]

f) **Greywater –** Wastewater from bathtubs, showers, and bathroom wash basins, clothes washers, and laundry tubs.

g) **Pollinator habitats -** Open spaces managed to benefit local insects and wildlife. Management strategies may differ, but typically involve limiting mowing, minimizing use of herbicides and pesticides, and sowing native plant species.

h) **Potable water** - Also known as drinking water, comes from surface and ground sources and is treated to levels that that meet state and federal standards for consumption.

i) **Rainwater harvesting** – Rainwater collection in rain barrels or cisterns, typically used to replace potable water for use in landscape watering.

j) **Reclaimed water** – Wastewater processed with advanced treatment so that it can be reused safely for applications such as landscaping, irrigation, and toilet flushing.

k) **RecylcingWorks Massachusetts** - A statewide assistance program funded by the Massachusetts Department of Environmental Protection (MassDEP) and run under contract; provides free assistance to businesses and institutions, including state agencies, to reduce waste, recycle, and compost.

l) **Resilience -** Ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner.

[1] See the Operational Services Division EPP Program for more information.

m) **WaterSense -** A labeling and partnership program sponsored by the U.S. Environmental Protection Agency. WaterSense-labeled products and services are certified to meet rigorous water efficiency, performance, and testing requirements. Certified products must be at least twenty percent more efficient than standard products, while offering equivalent or superior performance; the program certification requirements provide detailed parameters by product type, such as high-efficiency toilets.

Additional Sustainability Priorities: Guidance on Section 7 of the Order

Language directly from the Order is italicized below.

Part I: Demand Management

> *To support peak demand reduction priorities, agencies shall, wherever possible, incorporate demand management strategies into their facilities and participate in applicable programs that provide financial incentives for participation in demand reduction programs.*

General demand reduction strategies should always be considered as part of state entity operations; in addition, further reducing grid electricity use during periods of peak demand can help to minimize such demand on the regional grid as well as reduce facility demand and associated demand charges. Strategies to reduce electricity demand during peak periods may vary depending on facility type and available resources[2], but may include:

- Manually or automatically adjusting heating, ventilation, and air-conditioning (HVAC) operation schedules
- Temporarily reducing lighting and plug loads
- Shutting down non-critical systems
- Activating permitted generators, battery storage systems, or backup renewable systems

These strategies typically require advanced planning to ensure appropriate staff are notified and can activate an end-user response plan in reaction to peak demand periods.

There are multiple programs that provide incentives to encourage facilities to reduce electricity demand, many of which can be accessed through the DCAMM-managed statewide contract ENE51: Demand Response Services. State entities should contact DCAMM to learn how to utilize ENE51, which will enable entities to access financial incentives by engaging a contractor who will enroll eligible entities and their assets in the programs described below:

- ISO-NE Real Time Demand Response Program – Based on grid needs, ISO-NE[3] alerts participants if load curtailment is needed to meet grid demand. Participants receive payment based on amount and duration of load curtailment.

- Investor-owned utility programs (e.g., ConnectedSolutions) – National Grid, Eversource, and Unitil customers can receive notifications of peak demand periods and receive payments for both reducing demand and dispatching battery electricity to the grid.

---

[2] The May 2020 meeting of the Leading by Example Council discussed demand reduction strategies and incentive programs; slides from this meeting can be downloaded here.

[3] Independent System Operator New England (ISO-NE) is a federally regulated, independent organization that dispatches power plants over six New England states, administers wholesale energy markets, and works to ensure grid reliability.

- Capacity Tag (Cap Tag) Management – By reducing electricity demand during peak periods, a facility's Cap Tag (a flat rate per kW on an electric bill) is reduced the following year.

- Massachusetts Clean Peak Energy Standard (CPS) – Clean energy technologies that can supply electricity or reduce demand during seasonal peak demand periods established by the Department of Energy Resources can receive Clean Peak Energy Certificates (CPECs). Similar to renewable energy credits, CPECs can be sold to provide revenue to system owners.

While ENE51 contractors will manage all aspects of participation in these demand response programs, state entities must still respond to event notifications, ensure generators are reliable (if applicable), and manage relevant electrical systems. To support long-term stability of the grid, as well as generate revenue for facilities, LBE encourages state entities to participate in as many of these programs as are applicable.

Part II: Energy Storage

Agency efforts shall aim to pair onsite renewable energy with storage in a resilient manner whenever possible.

While there are multiple energy storage technologies and strategies, this section of the Order and this Guideline are primarily targeting battery energy storage as a means of reducing demand and helping prepare the regional electric grid for further power source electrification, particularly when paired with renewable energy generation.[4]

To support the Commonwealth's energy storage goals, agencies seeking to install battery energy storage systems should first investigate opportunities to pair these systems with renewable energy systems to take advantage of clean power to recharge their batteries. These systems can be designed to support facility resilience and/or reduce electricity demand at peak periods. Doing so will allow these facilities to take advantage of the aforementioned demand response incentives, as well as the energy storage adder under the Solar Massachusetts Renewable Target (SMART) Program[5] for solar installations that meet the storage requirements under SMART.

Battery energy storage can also support facility energy resilience by providing backup power for critical loads if systems are designed to do so; given battery capacity and duration constraints, the resilience elements of battery energy storage will likely not replace full emergency backup power needs but can provide a short-term resilience solution for those selected critical loads.

In some cases, battery storage can be installed as a standalone measure that re-charges from the grid. However, because there are inefficiencies associated with the charging and dispatching of

[4] See the Section 6 Guideline on Renewable and Clean Energy Resources for more information on renewable electricity generation.

[5] The SMART Program is a tariff-based incentive program established to support the development of solar in Massachusetts; managed by the Department of Energy Resources.

energy from batteries, this strategy will result in somewhat greater electricity usage and costs, which can be offset through facility demand charge reductions.

State facilities in possession of an energy storage system may elect to manage it internally if such expertise is available. However, management of these systems can be complex and potentially exceed the capabilities of existing staff and/or the scope of facility staff responsibilities. State entities that procure storage, whether standalone or in conjunction with onsite solar installation, may instead choose to employ a third-party vendor to manage the system according to the site's desired outcomes (e.g., maximizing revenue/demand charge savings or enabling resilience when needed). In cases of third-party ownership, some renewable energy developers can bundle storage with onsite solar and include battery management and dispatch as part of an ongoing agreement (e.g., a power purchase agreement). Consultants on statewide contract PRF74: Energy, Climate Action, and Facility Advisory Services can assist state entities with navigating energy storage either alone or in conjunction with onsite renewables. The PRF74 contract user guide can be found on the OSD-Professional Services contracts website.

Part III: Resilience

Agencies shall incorporate facility and energy resilience and adhere to all applicable resiliency requirements, including, but not limited to, Executive Order No. 569 and the Massachusetts State Hazard Mitigation and Climate Adaptation Plan to improve the capacity of critical infrastructure and energy systems to withstand growing weather-related impacts associated with climate change.

Climate change will continue to result in more extreme and more unpredictable weather, resulting in increasing impacts on our built environment. It is therefore imperative that state entities account for these potential impacts when navigating capital improvements and planning projects related to building and energy systems. Making these systems more resilient means preparing physical assets and energy systems to account for projected changes in precipitation, temperature, sea level rise, and extreme weather events to position the Commonwealth to effectively reduce the risks associated with natural hazards and the impacts of climate change. This may mean moving equipment or systems to higher ground or providing for additional backup power for critical loads that may not have them or may benefit from emergency power redundancy. Entities should consider incorporating these efforts into deferred maintenance projects, master planning, and/or capital improvement projects, regardless of whether they include energy measures.

Planned projects[6] should assess resilience using the RMAT Climate Resilience Design Tool, which provides guidance for state-funded projects to enhance how the Commonwealth assesses climate resilience as part of its capital planning process, and develop appropriate design strategies to address identified risks.

For related planning resources, see the Massachusetts State Hazard Mitigation and Climate Adaptation Plan (SHMCAP) and the Resilient MA Action Team Climate Resilience Design Standards and Guidelines Project. Consultants on statewide contract PRF74: Energy, Climate

[6] Planned projects with physical assets requiring state project review.

Action, and Facility Advisory Services can assist state entities with resiliency planning. The PRF74 contract user guide can be found on the OSD Professional Services contracts website.

Part IV: Building Energy Monitoring

DCAMM, in collaboration with LBE shall continue to manage and expand an energy metering and monitoring program that ensures access to utility and real-time energy data. This program shall be targeted at buildings larger than 20,000 square feet or where it is deemed cost-effective. Agencies not participating in DCAMM programs shall ensure that building energy performance is monitored and evaluated on a regular basis.

Leveraging energy usage data can be a critical strategy for facility managers to improve building energy management practices and identify opportunities to reduce energy use. There are various ways to monitor energy use, including utility bill/metering data and real-time energy metering at the building, circuit, or sub-meter level. Determining which metering system is most relevant for a specific location depends on factors such as building size, operating schedules, energy intensity, and onsite fuel types. For example, the larger the building, higher the energy use, or more complicated schedules the building has, makes that building a better candidate for real-time energy monitoring, which provides significantly more granular level data, allowing for real-time adjustment of building operations. Smaller and/or lower energy-using buildings may be better suited for less granular tracking, such as monthly utility bill monitoring.

The Commonwealth has established two separate but complementary energy monitoring programs that executive agencies and state colleges and universities can use at their facilities: the Commonwealth Energy Intelligence (CEI) system and Mass Energy Insight (MEI).

Managed by DCAMM, CEI is a web-based portal that provides data from real-time metering and monthly utility account bills to conduct building energy analytics for roughly 30 million square feet of state-owned buildings across multiple commodities fuels (electric, gas, oil, steam, condensate, water, etc.). CEI enables staff to observe and optimize day-to-day energy management, identify energy anomalies as they occur, prioritize energy projects that target under-performing buildings, and identify billing errors on utility bills. DCAMM also utilizes CEI for project identification and measurement and verification for completed projects. State entities under DCAMM purview can contact DCAMM to learn more about CEI and opportunities to install and expand real-time energy monitoring systems at their facilities. More information can also be found in the Section 4 Guideline on Existing Buildings.

Entities may also monitor and evaluate building or facility energy performance through utility bill data using MEI, which is managed by the DOER. Available to all Massachusetts state agencies, including quasi-public authorities, this system provides monthly, account-level, utility consumption data (electricity and gas) and usage reports at the building, facility, and/or site level for over 80 state-owned entities for roughly 80 million square feet across 1,000 sites. Agencies can contact LBE staff to learn how to access, leverage, and enhance MEI to support their site operations and energy reduction efforts.

In instances where real-time energy monitoring is deployed, the inclusion of meters in every occupied building[7] over 20,000 square feet and/or that has high energy consumption is strongly recommended to optimize building energy use and operations. For campus-level views, and for buildings under 20,000 square feet, utility usage data in MEI can be a helpful resource in identifying high-energy using sites in an entity's portfolio and calculating the preliminary energy use intensity (EUI) of specific buildings within a site (contact LBE staff for access to MEI and/or help with site and building prioritization).

In addition, benchmarking tools such as ENERGY STAR® Portfolio Manager (connected through CEI) and the US DOE Building Energy Asset Score provide basic ratings to enable comparisons among buildings and subsequent identification of the need to identify energy conservation measures and/or operational changes.

Part V: Water Conservation

Agencies shall implement efforts to reduce water consumption by following the recommended best practices in the Massachusetts Water Conservation Standards and any future updates.

Not only is water a critical resource that must be protected, but significant amounts of energy are used to extract, treat, distribute, and use water; conserving water also reduces energy use. Additionally, future climate change impacts may result in changing rainfall patterns, which could affect access to water resources.

In accordance with the Massachusetts Water Conservation Standards, developed by the Water Resources Commission, state entities should work to track and reduce water usage whenever possible through metering, review of water bills, and audits of indoor and outdoor water use. These efforts can be leveraged to spot trends, patterns, and unexplained increases in usage that will help to identify opportunities to increase efficiencies by adjusting internal operations or replacing/retrofitting high water-consuming equipment. The CEI, described in Part IV of this Guideline, is one such tool that can aid state entities in tracking water use.

Strategies to reduce both indoor and outdoor water use can be found in resources developed by the Water Resources Commission at ConserveMAwater. Below is a list of sample strategies for water conservation and reuse that may be particularly relevant for state agencies.

Water Conservation

There are a host of conservation strategies identified by the Water Resources Commission that describe ways to reduce or eliminate use of potable water for both indoor and outdoor use. These strategies WaterSense-labeled appliances (such as high-efficiency fixtures for faucets, showerheads, urinals, and toilets); purchasing ENERGY STAR certified water-using appliances[8];

[7] In situations where there is an interest in tracking specific systems or utilization within a building system, additional sub-meters may be necessary.

[8] ENERGY STAR certified appliances must meet certain water and energy efficiency standards.

public education and behavior change; planting drought-resistant, native plants; adopting landscaping strategies that reduce water use; and more. If opportunities to replace water-using fixtures are presented, state entities should work to ensure any such fixtures are WaterSense-certified or otherwise highly efficient. "An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy," signed by Governor Baker on March 26, 2021, set energy and water efficiency standards for 15 product categories, including cooking equipment, plumbing fixtures, water coolers, dishwashers, spray sprinkler bodies, and more. Any of the listed appliances sold in Massachusetts must meet ENERGY STAR, WaterSense, and other high-efficiency standards. State entities can further conserve water and energy by ensuring any products they purchase not listed in these standards still meet WaterSense standards, Visit the Water Resources Commission Water Conservation Toolkit website for additional resources and guidance related to these strategies. Water conservation strategies related to landscaping are outlined in Part VIII of this Guideline.

Water Reuse

To reduce demand on potable water resources, state entities should investigate opportunities to use alternative water sources, which range in complexity and ease of adoption. Alternative water sources include rainwater, greywater (wastewater generated in buildings from streams without fecal contamination), or reclaimed water. Strategies such as rainwater harvesting for irrigation may be relatively straightforward and easy to adopt, with rain barrels readily available for state facility use via statewide contract FAC113. Strategies to utilize greywater and reclaimed water for indoor or outdoor reuse typically requires substantial treatment and permitting. Some facilities have had success in using treated reclaimed water for cooling towers, thereby substantially reducing the need for potable water. All relevant MassDEP regulations for use of reclaimed wastewater should be followed where applicable. The MassDEP wastewater website includes FAQs for reuse and permitting for reclaimed wastewater.

Additional Resources and Guidance

A variety of tools, best practices, case studies, and more are available to support water conservation efforts at state facilities. These include, but are not limited to, the following:

- Various environmentally preferable products (EPPs) and services on statewide contract meet the EPA's WaterSense and ENERGY STAR standards.[9] Part VI of this Guideline provides additional information about EPPs.
- Statewide contracts FAC 103 (Landscaping Services, Snow Removal, Tree Care and Related Services) and FAC104 (Landscaping Products, Parks and Recreation Equipment and Related Products, Supplies and Service) include products and services that can support creation and management of drought-tolerant landscapes, including composting, native

[9] Large, institutional facilities with complex mechanical systems for heating and cooling are encouraged to review the guidelines in EPA's *WaterSense at Work* publication, particularly Chapter 6, which addresses mechanical systems.

plants, mulch products, and more.[10] FAC113: Recycling Containers, Compost Bins, and Rain Barrels may be used to purchase products that can support sustainable landscapes. See Part VIII of this Guideline for further information about sustainable landscaping practices.

- Statewide contract GRO35 (Foodservice Supplies and Equipment, Institutional Commercial Grade Large and Small), offers ENERGY STAR and WaterSense-labeled foodservice equipment, including dishwashers, ice makers, refrigerators, and more.[11]
- Statewide contract FAC106: Water Treatment Chemicals and Alternative Treatment Systems includes water treatment systems and services, including alternative and environmentally friendly system treatment options.
- Statewide contract FAC100: Building Maintenance Repair and Operations Project Materials and Supplies includes plumbing products that meet EPA WaterSense certification.
- The Massachusetts Water Conservation Toolkit includes resources for residents, municipalities, institutions, and others. Case studies, water conservation tips, and other resources for state facilities managers can be found on the Industrial, Commercial, and Institutional (ICI) Facilities and Municipalities pages of the toolkit.
- Beyond product labeling, the WaterSense program also provides numerous toolkits and resources for commercial buildings, outdoor spaces, and more.
- The LEED Building Design and Construction (BD&C) and LEED Building Operations and Maintenance (O&M) rating systems standards include recommendations for water use reduction, rainwater management and the employment of alternative, non-potable water sources for appropriate end uses.
- Additional guidance on water conservation strategies will be developed by LBE in coordination with the MA Water Resources Commission and will be made available on the LBE website.

Part VI: Environmentally Preferable Products and Services

Agencies subject to Executive Order No. 515 shall continue to comply with that Order and purchase environmentally preferable products and services when such purchases meet the needs of the agency and are cost-effective.

Signed in October 2009, Executive Order 515 established an environmental purchasing policy for all Commonwealth Executive Departments to help conserve natural resources, reduce waste, protect public health and the environment, and promote the use of clean technologies, recycled materials, and less toxic products. This policy requires all executive branch departments to reduce their impact on the environment and enhance public health by procuring environmentally

[10] See the FAC103 and FAC 104 contract user guides on the Facilities Maintenance, Repair, and Services website.

[11] See the GRO35 contract user guide on the Food and Groceries contracts website.

preferable products and services (EPPs) whenever they are readily available, perform to satisfactory standards, and represent best value to the Commonwealth. Through this program, thousands of EPPs have become available and have been purchased through statewide contracts.[12]

When procuring products, whether they be cleaning supplies, landscaping equipment, office products, water-using fixtures, trash and recycling bins, heating and vehicle fuels, or others, executive branch agencies and others should make sure that EPPs are considered first. The EPP Procurement Programs website is a helpful resources for any entities seeking to purchase EPPs both on and off statewide contracts, with listings of EPPs available on statewide contracts; information on green certifications, labels, and product performance; annual impact reports; EPP policies; and in-depth information on a variety of relevant products and services. The Environmentally Preferable Products and Services Guide includes alphabetical listings of all EPPs available on statewide contracts through the Operational Services Division (OSD).

Quasi-public authorities and public institutions of higher education are also eligible to use statewide contracts; applicable product efficiency/sustainability certifications and the incorporation of EPP language into requests for quotes should be prioritized for state projects. These entities can still comply with EPP requirements by following best-practices and guidance outlined on the EPP Procurement Program website. This may include purchasing products with a high level of recycled content, contain low or no levels of toxic substances, result in lower use of water or fossil fuels, or are labeled with certified eco-labels.

Part VII: Waste Reduction and Recycling

Agencies shall comply with all existing and future waste bans promulgated by the MassDEP and strive to minimize the total amount of waste generated.

State facilities generate thousands of pounds of waste in the form of food waste, old furniture and appliances, construction debris, and more, contributing to the more than 5.5 million tons disposed across the Commonwealth annually. Solid waste disposal capacity in Massachusetts and throughout the Northeast has also shrunk over the years as more landfills close and are not replaced by new in-state/regional disposal capacity. This represents an opportunity for state facilities to lead by example by reducing the amount of waste they generate, and diverting waste through recycling, composting, reuse, and other means.

The Massachusetts Department of Environmental Protection (MassDEP) oversees the development of solid waste bans and enforcement and develops guidance and resources for public and private entities to support waste diversion efforts across the Commonwealth. The Recycling & Waste Management website includes resources for households, municipalities, commercial buildings, and solid waste facilities, including technical guidance and waste and recycling grants.

[12] Executive branch departments are required to undertake procurement using 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.

Waste Bans and Solid Waste Master Plan

MassDEP oversees compliance with 310 CMR 19.000: Solid Waste Facility Regulations,[13] namely waste products banned from solid waste disposal. Materials currently banned from disposal or transfer for disposal in the Commonwealth can be found on the Waste Disposal Bans website. These include recent bans on mattresses and textiles as well as organic food materials from commercial facilities generating one-half ton per week or more of these materials.

In Fall 2021, MassDEP released the final 2030 Solid Waste Master Plan (SWMP). The SWMP establishes goals to reduce disposal statewide by 30% (from 5.7 million tons in 2018 to 4 million tons in 2030) over the next decade. It also sets a long-term goal of achieving a 90% reduction in disposal to 570,000 tons by 2050. It also includes a provision to establish a State Agency Recycling Market Development Council to increase purchases of recycled products and use of recycled materials in state agency building, construction, and renovation projects. Focus areas will include glass, asphalt shingles, compost, office furniture, and tires. The SWMP and information on the MassDEP implementation strategy can be found on the MassDEP website.

Waste Management Strategies and Technical Assistance

State facilities are expected to comply with applicable waste bans and may refer to the mass.gov Recycling Waste Management website and resources related to Compliance Assistance for Generators & Haulers for guidance and technical assistance.

RecyclingWorks provides no-cost waste diversion technical assistance for businesses and institutions, including higher education institutions and state entities. RecyclingWorks can help entities ensure they are in compliance with waste bans, create educational resources, and effectively navigate waste hauler contracts. For particularly difficult waste streams, RecyclingWorks may be able to provide custom technical assistance. State entities can contact LBE staff to get connected to RecyclingWorks or refer to their website for contact information.

Successful waste diversion often requires effective communication and educational strategies to ensure staff, students, residents, visitors, and other relevant stakeholders comply with a facility's waste reduction strategies and goals. Signage, infrastructure, color-coding, and in-person trainings can be to ensure successful ongoing implementation. RecyclingWorks also offers technical assistance and case studies that can support such efforts.

The Operational Services Division (OSD) EPP Program has compiled a list of statewide contracts that provide products and services to help facilities recycle and divert waste, including FAC110: Hazardous/Universal, Medical, and Electronic Waste Disposal, FAC86: Solid Waste and Recycling Services, and FAC113: Recycling Containers, Compost Bins, and Rain Barrels; see the EPP Recycling Flyer and the EPP website for more information.

[13] Through 310 CMR 19.000: Solid Waste Facility Regulations, the Massachusetts Department of Environmental Protection (MassDEP) bans the disposal of specific materials in the trash. Banned materials may need to be recycled, reused, or diverted to other uses.

State entities may also avoid waste disposal and support EPP priorities by donating and reusing materials. OSD offers a Surplus Property Program for executive agencies and municipalities that encompasses the redistribution and disposal of equipment, supplies, and materials; some state entities, such as higher education campuses, may elect to develop similar internal programs to facilitate exchange of unwanted, yet functional, goods such as furniture, computers, and office supplies.

Part VIII: Sustainable Landscaping

> *Agencies shall aim to incorporate sustainable landscaping practices including, but not limited to: the planting of native plant species on state lands that support a variety of native insect and animal species; reducing the use and toxicity of pesticides unless necessary to address invasive species or provide for public safety; and utilizing zero emission landscaping equipment to reduce pollution and improve the health and safety of agency staff.*

As the largest landholder in the Commonwealth, with over 539,000 acres of open space, state entities have significant opportunities to manage these lands in sustainable ways that help to support native plant, insect, and animal species, as well as reduce GHG emissions and other environmental impacts. The LBE Program's sustainable landscaping website details strategies and provides resources state entities may leverage to reduce the environmental impacts of landscaping practices, summarized below. The Facilities Maintenance, Repair, and Services website includes contract user guides for all FAC statewide contracts, including products and services that can support state entities as they create native pollinator habitats or convert to battery-powered landscaping equipment.

Pollinator Habitats

State entities can reduce emissions associated with landscaping equipment, reduce fuel and labor costs, and support native plants and wildlife by creating pollinator habitats on underutilized lawns and outdoor spaces. Habitats can be created through several strategies: 1) limiting mowing in designated space to one or two times per year; 2) seeding large areas with native wildflowers and grasses; and 3) planting pollinator gardens. These three strategies are described in greater detail as part of the LBE Pollinator Landscapes at State Facilities Guiding Framework.

Battery-Powered Landscaping Equipment (BPLE)

Use of BPLE eliminates all fossil fuel emissions coming from landscaping equipment, improves worker health by reducing noise and vibrations while eliminating toxic pollutants, and eliminates the need to store hazardous materials including fuel and lubricants. There is a wide range of available BPLE equipment, including weed whackers, blowers, and push-mowers, as well as ride-on equipment including zero-turn mowers and electric utility vehicles such as golf carts. State entities are strongly encouraged to consider electric-powered equipment when replacing any landscaping equipment.

BPLE is available to state entities via statewide contract FAC116: Lawns and Grounds Equipment, Parts and Services under Category 8. Products include but are not limited to commercial-grade equipment, which can now provide equal or very similar performance to any fossil fuel

counterparts. As such, state facilities are encouraged to procure commercial-grade equipment by requesting products that meet the specifications included in the FAC116 contract user guide. The LBE Sustainable Landscaping website contains additional guidance and resources on BPLE, including the "Commercial Battery-Powered Landscaping Equipment for State Facilities guidance. This two-page document includes information on benefits of BPLE and a list of entities currently using BPLE.

Reduced Use and Toxicity of Pesticides and Fertilizers

State facilities should first employ landscaping best practices to reduce the need for pesticides and fertilizers upfront. Such inputs can be reduced by selecting a variety of native plants, leaving grass clippings to act as a natural fertilizer, removing weeds via hand tools, etc. Because every site is different, facilities may request landscaping services to identify specific strategies to reduce the need for pesticides and fertilizers. Facilities should also make efforts to eliminate or minimize any runoff from landscaped areas, thus minimizing the transport of fertilizers and pesticides to receiving water bodies.

While facilities should prioritize practices that reduce the need for chemical inputs, at times pesticides may be needed to control particularly aggressive invasive plants or pests, and fertilizers may be needed to ensure successful plant growth. When the use of pesticides or fertilizers are required, there are quality control parameters that can minimize environmental impacts. The Massachusetts Department of Agricultural Resources (MDAR) has developed regulations for both pesticide applications and plant nutrient amendments for both agricultural and non-agricultural lands. Information on approved pesticides and herbicides, as well as information on trainings and certifications, can be found on the MDAR Pesticide Program page. Factsheets on regulations related to fertilizers can be found on MDAR's Plant Nutrient Management webpage.

State entities can also reduce the impact of grounds management by complying with Executive Order 403: Integrated Pest Management (IPM). The value of IPM goes hand in hand with the reduced use of toxic pesticides; Executive Order 403 requires all state agencies to adopt and implement IPM practices. Statewide contract FAC92: Integrated Pest Management provides services to help facilities create an IPM plan with a list of vendors that will implement pest management approaches.

Multiple statewide contracts include products with reduced or zero toxicity:

- Statewide contract FAC104: Landscaping Products, Parks and Recreation Equipment and Related Products, Supplies and Service, includes certified organic fertilizers[14] and soil amendments that do not contain chemical pesticides or fertilizers.
- Statewide contract FAC103: Landscaping Services, Snow Removal, Tree Care and Related Services includes vendors that can treat non-native plant species without use of herbicides where possible, at the request of the buyer.

[14] Certified to the USDA Organic standards by nationally recognized certifying bodies (e.g., Organic Materials Review Institute or National Organic Program). Any fertilizers used at state facilities should be certified organic whenever possible.

Landscaping Water Conservation

In most years, Massachusetts receives enough rainfall to naturally supply the water needs of a healthy, mature lawn or landscape, designed to be drought-resistant, without the need for supplemental watering. State entities should follow the common-sense guidelines for watering landscapes outlined in the *Massachusetts Water Conservation Standards* (see Chapter 9, Outdoor Water Use, and associated appendixes).

If conditions warrant use of an irrigation system, state entities should use best management practices for irrigation systems and the best available technology, along with regular system evaluation. See guidelines in Appendix I of the *Massachusetts Water Conservation Standards*.

During a drought, state entities should follow state guidance for limiting outdoor water use as outlined in the *Massachusetts Drought Management Plan*. Depending on the condition/level of drought by region[15], nonessential outdoor water use restrictions range from limiting watering to one day a week to no outdoor water use:

- Level 1 (mild drought): 1 day per 1 day per week watering, after 5 p.m. or before 9 a.m. to minimize evaporative losses.
- Level 1 (significant drought): Limit outdoor watering to hand-held hoses or watering cans, to be used only after 5 p.m. or before 9 a.m.
- Level 3 (critical drought): Ban on all nonessential outdoor water use.
- Level 4 (emergency drought): Ban on all nonessential outdoor water use.

[15] For current drought status by region, consult https://www.mass.gov/info-details/drought-status.