Sustainability Roadmap: Water Efficiency and Conservation

Progress Report and Plan for Meeting
the Governor's Sustainability Goals
for California State Agencies

California Department of Food and Agriculture

Edmund G. Brown Jr., Governor

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California Department of Food & Agriculture Sustainability Road Map: Water Efficiency and Conservation

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Acronyms

ADMIN	Administrative Services Division
BMP	Best Management Practices
BPMU	Building and Property Management Unit
CALGREEN	California Green Building Code (Title 24, Part 11)
CDFA	California Department of Food and Agriculture
DGS	Department of General Services
DWR	Department of Water Resources
EO	Executive Order
EPP	Environmentally Preferable Purchasing
ESPM	Energy Star Portfolio Manager
GHGe	Greenhouse Gas Emissions
GPM	Gallons Per Minute
GSA	Groundwater Sustainability Agencies
GSP	Groundwater Sustainability Plan
IEQ	Indoor Environmental Quality
LCM	The Landscape Coefficient
LEED	Leadership in Energy and Environmental Design
MBCX	Monitoring Based Building Commissioning
MM	Management Memo
MAWA	Maximum Applied Water Allowance
MWELO	Model Water Efficient Landscape Ordinance
SAM	State Administrative Manual
SGA	Sustainable Groundwater Agency
SGMA	Sustainable Groundwater Management Act
SQ.FT.	Square Feet
USGS	United States Geological Survey
WMC	Water Management Coordinator
WUCOLS	Water Use Classifications of Landscape Species
ZEV	Zero Emission Vehicle

Glossary

Backflow - is the undesirable reversal of the flow of water or mixtures of water and other undesirable substances from any source (such as used water, industrial fluids, gasses, or any substance other than the intended potable water) into the distribution pipes of the potable water system.

Back flow prevention device - a device that prevents contaminants from entering the potable water system in the event of back pressure or back siphonage.

Blowdown - is the periodic or continuous removal of water from a boiler to remove accumulated dissolved solids and/or sludge. Proper control of blowdown is critical to boiler operation. Insufficient blowdown may lead to deposits or carryover. Excessive blowdown wastes water, energy, and chemicals.

Compost - is the product resulting from the controlled biological decomposition of organic material from a feedstock into a stable, humus-like product that has many environmental benefits. Composting is a natural process that is managed to optimize the conditions for decomposing microbes to thrive. This generally involves providing air and moisture, and achieving sufficient temperatures to ensure weed seeds, invasive pests, and pathogens are destroyed. A wide range of material (feedstock) may be composted, such as yard trimmings, wood chips, vegetable scraps, paper products, manures and biosolids. Compost may be applied to the top of the soil or incorporated into the soil (tilling).

Critical overdraft - a condition in which significantly more water has been taken out of a groundwater basin than has been put in, either by natural recharge or by recharging basins. Critical overdraft leads to various undesirable conditions such as ground subsidence and saltwater intrusion.

Ecosystem services - are the direct and indirect contributions of ecosystems to human well-being. They support directly or indirectly our survival and quality of life. Ecosystem services can be categorized in four main types:

- Provisioning services are the products obtained from ecosystems such as food, fresh water, wood, fiber, genetic resources and medicines.
- Regulating services are the benefits obtained from the regulation of ecosystem processes such as climate regulation, natural hazard regulation, water purification and waste management, pollination or pest control.
- Habitat services provide living places for all species and maintain the viability of gene-pools.
- Cultural services include non-material benefits such as spiritual enrichment, intellectual development, recreation and aesthetic values.

Grasscycling - refers to an aerobic (requires air) method of handling grass clippings by leaving them on the lawn when mowing. Because grass consists largely of water (80% or more), contains little lignin and has high nitrogen content, grass clippings easily break down during an aerobic process. Grasscycling returns the decomposed clippings to the soil within one to two weeks acting primarily as a fertilizer supplement and, to a much smaller degree, mulch. Grasscycling can provide 15 to 20% or more of a lawn's yearly nitrogen requirements

Hydrozone – is a portion of a landscaped area having plants with similar water needs that are served by one irrigation valve or set of valves with the same schedule.

Landscape Coefficient Method (LCM) - describes a method of estimating irrigation needs of landscape plantings in California. It is intended as a guide for landscape professionals.

Landscape water budget - is the calculated irrigation requirement of a landscape based on landscape area, local climate factors, specific plant requirements and the irrigation system performance.

Model Water Efficient Landscape Ordinance (MWELO) - the Water Conservation in Landscaping Act was signed into law on September 29, 1990. The premise was that landscape design, installation, and maintenance can and should be water efficient. Some of the provisions specified in the statute included plant selection and groupings of plants based on water needs and climatic, geological or topographical conditions, efficient irrigation systems, practices that foster long term water conservation and routine repair and maintenance of irrigation systems. DWR adopted the Model Ordinance in June of 1992. One element of the Model Ordinance was a landscape water budget. In the water budget approach, a Maximum Applied Water Allowance (MAWA) was established based on the landscape area and the climate where the landscape is located. The latest update to MWELO was in 2015. MWELO applies to all state agencies' landscaping.

Mulch – is a layer of material applied on top of soil. Examples of material that can be used as mulch include wood chips, grass clippings, leaves, straw, cardboard, newspaper, rocks, and even shredded tires. Benefits of applying mulch include reducing erosion and weeds and increasing water retention and soil vitality. Whenever possible, look for mulch that has been through a sanitization process to kill weed seeds and pests.

Trickle flow – a device that allows users to reduce flow to a trickle while using soap and shampoo. When the device is switched off, the flow is reinstated with the temperature and pressure resumes to previous settings.

Sprinkler system backflow prevention devices – are devices to prevent contaminants from entering water supplies. These devices connect to the sprinkler system and are an important safety feature. They are required by the California Plumbing Code.

Submeter - a metering device installed to measure water use in a specific area or for a specific purpose. Also known as dedicated meters, landscape submeters are effective for separating landscape water use from interior water use, evaluating the landscape water budget and for leak detection within the irrigation system.

Water Budget - a landscape water budget is the calculated irrigation requirement of a landscape based on landscape area, local climate factors, specific plant requirements and the irrigation system performance.

Water-energy nexus - water and energy are often managed separately despite the important links between the two. 12 percent of California's energy use is related to water use with nearly ten percent being used at the end water use. Water is used in the production of nearly every major energy source. Likewise, energy is used in multiple ways and at multiple steps in water delivery and treatment systems as well as wastewater collection and treatment.

Water Shortage Contingency Plans - each urban water purveyor serving more than 3,000 connections or 3,000 acre-feet of water annually must have an Urban Water Shortage Contingency Plan (Water Shortage Plan) which details how a community would react to a reduction in water supply of up to 50% for droughts lasting up to three years.

EXECUTIVE SUMMARY

Over 98 years ago, the California Legislature created the California Department of Food and Agriculture (CDFA) to serve the citizens of California by promoting and protecting a safe, healthy food supply, and enhancing local and global agricultural trade, through efficient management, innovation, and sound science, with a commitment to environmental stewardship. Currently organized in seven Divisions and located at more than 100 locations throughout the State, CDFA's employees work with its federal and county partners in striving to support and advance the success of those that have made California agriculture the recognized leader of food and agricultural products in the world.

With direction from the Governor's Office and the Department of General Services (DGS), CDFA was tasked with preparing a Road Map document to describe the status and steps CDFA is taking to meet the requirements of the Governor's Executive Orders (EO) B-18-12, B-16-12, and other water and energy conservation policies. This document is intended to outline the requirements and describe what next steps CDFA will take to comply with each EO.

CDFA currently owns 22 facilities throughout the State. These facilities provide a vast array of purposes for the Department. From greenhouses in Arvin to the 16 Border Protection Stations along California's borders, every facility is critical to meeting CDFA's mission. CDFA seeks guidance from DGS for all property management needs related to these facilities, from construction to minor maintenance repairs.

CDFA reduced water use by 36% from 2010 to 2016, surpassing the goal of a 20% reduction by 2020 set forth by EO B-18-12. CDFA recognizes the importance of water conservation and has made several efforts to reduce departmental water use. Some of these efforts include increasing employee awareness, reducing landscape irrigation water use, replacing and retrofitting greenhouse fixtures, and replacing bathroom fixtures with water-efficient alternatives. CDFA will continue to use the water conservation measures to ensure future conservation. CDFA is working with DGS to increase future water conservation efforts including additional greenhouse irrigation retrofits, swamp cooler replacements, selecting drought-tolerant landscape plants, and control boxes. CDFA has made it a priority to utilize alternative water sources for all new and renovated State buildings wherever cost-effective.

CDFA is committed to meeting the requirements set forth in EO B-18-12, B-16-12, and other water and energy conservation policies. I look forward to working closely with staff to achieve our goals through the execution of this Road Map.

Yours truly,

Kevin Masuda
for

Karen Ross
Secretary

SUSTAINABILITY GOALS

The Governor has directed California State Agencies to demonstrate sustainable operations and to lead the way by implementing sustainability policies set by the state. Sustainability includes the following general initiatives:

- Greenhouse Gas Emissions (GHGe) Reductions
- Building Energy Efficiency and Conservation
- Indoor Environmental Quality (IEQ)
- Water Efficiency and Conservation
- Monitoring Based Building Commissioning (MBCx)
- Environmentally Preferable Purchasing (EPP)
- Financing for Sustainability
- Zero Emission Vehicle (ZEV) Fleet Purchases
- Electric Vehicle Charging Infrastructure
- Monitoring and Executive Oversight

The Governor has issued numerous EOs directing sustainable state operations. The orders relevant to water are:

EO B-18-12

EO B-18-12 and the companion Green Building Action Plan require state agencies to reduce the environmental impacts of state operations by reducing GHGe, managing energy and water use, improving indoor air quality, generating onsite renewable energy when feasible, implementing environmentally preferable purchasing, and developing the infrastructure for electric vehicle charging stations at state facilities. The Green Building Action Plan also established two oversight groups; the staffs level Sustainability Working Group and the executive level Sustainability Task Force, to ensure these measures are met.

EO B-18-12 requires State agencies to reduce agency-wide water use 10% by 2015 and 20% by 2020 as measured against a 2010 baseline. The 2015 and 2020 targets reinforce the SB X7-7 requirement that State agencies reduce water use at facilities they operate to support local water suppliers in meeting their targets.

On February 28, 2013, the California Department of Water Resources issued its Water Use Reduction Guidelines and Criteria, pursuant to EO B-18-12. Each applicable agency was required to take actions to reduce water use in facilities and landscapes that are operated by the state, including facilities owned, funded or leased. State operated facilities are defined as facilities where the agency has direct control of the buildings' function, maintenance and repair. For leased facilities, the Green Building Action Plan directed at that time that new and renegotiated leases include provisions for water conservation, reporting water use and installation of sub-meters to the extent possible and economically feasible.

All the following sections in this water plan and the accompanying worksheet only repeat the initial criteria and guidelines issued at that time. Only the MWELO requirements have been updated since that time. Additionally, other EOs have followed, strengthening and elaborating on the issues contained in EO B-18-12.

EO B-18-12 requires that beginning January 2013, agencies shall regularly report current water use into the water tracking database. Since January 2014, annual water use reports have documented progress towards the 2015 and 2020 targets using the Energy Star Portfolio Manager (ESPM) http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_benchmarking to track energy and water use and to submit annual reports to DGS. (Sustainability Manager, Department of General Services, 707 Third Street, 8th Floor, West Sacramento, CA 95798-9052). Additionally, for facilities with landscape areas over 20,000 square feet (sq. ft.) the landscape water use must be tracked with a water budget program.

EO B-29-15

EO B-29-15 directs state agencies to take actions in response to the ongoing drought and to the State of Emergency due to severe drought conditions proclaimed on January 17, 2014. The Governor directed numerous state agencies to develop new programs and regulations to mitigate the effects of the drought, and required increased enforcement of water waste state wide. Agencies were instructed to reduce potable urban water use by 25% between 2013 and February 28, 2016.

EO B-30-15

EO B-30-15 declared climate change to be a threat to the well-being, public health, natural resources, economy, and environment of California. It established a new interim statewide greenhouse gas emission reduction target of 40 percent below 1990 levels by 2030, and reaffirms California's intent to reduce GHGe by 80 percent below 1990 levels by 2050. To support these goals, this order requires numerous state agencies to develop plans and programs to reduce emissions.

Other Relevant EOs

EO B-37-16

EO B-37-16 builds on what were formerly temporary statewide emergency water restrictions in order to establish longer-term water conservation measures, including permanent monthly water use reporting, new permanent water use standards in California communities and bans on clearly wasteful practices such as hosing off sidewalks, driveways and other hardscapes. The EO focuses on using water more wisely, and eliminating water waste by taking actions to minimize water system leaks. DWR estimates that leaks in water district distribution systems siphon away more than 700,000 acre-feet of water a year in California - enough to supply 1.4 million homes for a year.

The EO further strengthens local drought resilience and looks to improve agricultural water use efficiency and drought planning. State agencies are to cooperate with urban water management plans which include plans for droughts lasting for at least five years by assuring that the water efficiency and conservation plan has drought contingency actions.

State Administrative Manual and Management Memos (MM)s

The following sections of the State Administrative Manual (SAM), and associated MMs currently impose sustainability requirements for water on the department under the Governor's executive authority:

SAM Sections

- Landscaping practices 1821.5
- Drought moratorium 1821.4

Relevant MMs

- MM 15-06 State Buildings And Grounds Maintenance And Operation
- MM 15-04: Energy Use Reduction for New, Existing, and Leased Buildings
- MM 14-02 Water Efficiency and Conservation
- MM 14-07: Standard Operating Procedures For Energy Management In State Buildings
- MM 14-09: Energy Efficiency in Data Centers and Server Rooms

Relevant Legislation

Sustainable Groundwater Management Act of 2014 - The Sustainable Groundwater Management Act (SGMA) directs the Department of Water Resources (DWR) to identify groundwater basins and sub-basins in conditions of critical overdraft. Conditions of critical overdraft result from undesirable impacts, which can include seawater intrusion, land subsidence, groundwater depletion, and/or chronic lowering of groundwater levels. As defined in the SGMA, "A basin is subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts."

As required in the SGMA, basins designated as high or medium priority *and* critically over-drafted shall be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2020. All other high and medium priority basins shall be managed under a groundwater sustainability plan by January 31, 2022.

WATER EFFICIENCY AND CONSERVATION REPORT

This Water Efficiency and Conservation Report demonstrates to the Governor and the public the progress the Department has made toward meeting the Governor's goals. This report identifies successful accomplishments, ongoing efforts, and outstanding challenges.

Introduction

California experiences the most extreme variability in yearly precipitation in the nation. In 2015, California had record low statewide mountain snowpack of only five percent of average while 2012-14 were the four driest consecutive years of statewide precipitation in the historical record. Now, the 2017 water year (October 1, 2016-September 30, 2017) is surpassing the wettest year of record (1982-83) in the Sacramento River and San Joaquin River watersheds and close to becoming the wettest year in the Tulare Basin (set in 1968-69). These potential wide swings in precipitation from one year to the next show why California must be prepared for either flood or drought in any year.

Therefore, using water wisely is critical. The EOs and SAM sections listed in the previous section help demonstrate the connection between water and energy use, (the water-energy nexus), water and climate change, and water and landscaping. Further, the impact of water uses by state agencies goes beyond the scope of these EOs and SAM sections and DGS MMs as these documents do not address such related issues as water runoff from landscaping and various work processes, the potential for water pollution, the benefits of water infiltration, or soil health and nutrient recycling. However, by using holistic water planning, a well-crafted water plan can meet all state requirements and add considerable value and benefits to the organization and surrounding communities.

Department Mission and Built Infrastructure

The mission of CDFA is to serve the citizens of California by promoting and protecting a safe, healthy food supply, and enhancing local and global agricultural trade, through efficient management, innovation and sound science, with a commitment to environmental stewardship.

CDFA consists of seven Divisions that operate at more than 100 locations throughout the state. These locations include 49 leased properties with a total of 442,043 square feet and 22 owned properties with a total of 134,164 square feet. These Divisions provide valuable services to producers, merchants and the public. Many of the functions are conducted in partnership with local county offices.

To meet the Governor's sustainability goals and the EOs implementing those goals, CDFA has implemented various projects which provide the infrastructure needed to support the 20% reduction of CDFA's water use from 2010 to 2020. CDFA's water reduction projects were targeted at increasing employee awareness, reducing landscape irrigation, replacing and

retrofitting greenhouse fixtures, and replacing old bathroom fixtures with water-efficient alternatives. Due to these efforts, CDFA has successfully reduced water use by 36%; from 73 million gallons of water used in 2010 to 46.6 million gallons of water used in 2016.

Table 1: Total Purchased Water

Purchased Water	Quantity	Cost ($/year)
Potable	46,585,500	Unavailable (Rate varies and not steady amount per gallon)
Recycled Water	0	Unavailable (Rate varies and not steady amount per gallon)
Total	**46,585,500 Gallons**	Unavailable (Rate varies and not steady amount per gallon)

The information in the above table, from DGS and CDFA's internal historical data, per previous Sustainability Roadmap submissions, can be found at www.energystar.gov.

Water costs are not currently tracked but CDFA is working with DGS, Office of Sustainability on preferred methods to track in the future.

Table 2: Properties with Largest Water Use Per Capita

Building Name	Area (ft^2)	Total Gallons	Gallons per Capita
NEEDLES AGRICULTURE INSPECTION STATION	497	8,592,900	17,289.54
REDWOOD AGRICULTURE INSPECTION STATION	480	1,585,700	3,303.54
TRUCKEE AGRIC INSPECTION STATION - NEW	1,308	3,391,600	2,592.97
YERMO AGRICULTURE INSPECTION STATION	1,730	4,120,900	2,382.02
TOPAZ AGRICULTURE INSPECTION STATION	351	830,400	2,365.81
Total for Buildings in This Table	4,366 ft^2	18,521,500	4,242.21
Total for All Department Buildings	133,538 ft^2	46,585,500	348.86
% of Totals	3.27 %	39.76 %	---

The information in the above table, from DGS and CDFA's internal historical data, per previous Sustainability Roadmap submissions, can be found at www.energystar.gov.

CDFA has determined sub-meters for landscape irrigation would not be cost effective as many locations are on wells and other locations currently have minimal or no irrigation.

Table 3a: Properties with Largest Landscape Area

Building Name	Area (ft^2)
MEADOWVIEW	101,238
VIDAL AGRICULTURE INSPECTION STATION	8,880
BENTON AGRICULTURE INSPECTION STATION	3,814
Turlock Veterinary Laboratory	2,765
GLASSY WINGED SHARSHOOTER PROJECT	2,000
Total for Buildings in This Table	118,697 ft^2
Total for All Department Buildings	133,538 ft^2
% of Totals	89 %

The information in the above table (building area square feet), from DGS and CDFA's internal historical data, per previous Sustainability Roadmap submissions, can be found at www.energystar.gov. CDFA does not have the square foot measurements of the landscaped area.

CDFA includes standard language in lease contact documents (DGS form: Exhibit B) stating all new landscaping shall be of a locally drought tolerant variety. Other projects, public relations efforts, and steps CDFA implemented to promote the Governor's water efficiency and conservation goals include:

2010

- CDFA collected water use data for all its State-owned facilities. (Note: CDFA has 16 Border Protection Stations with wells that are not metered. This may result in CDFA's water use baseline not being accurate.)
- CDFA submitted water use data at its State-owned facilities for 2010 to be used as a baseline benchmark by December 31, 2013 in the ESPM.
- Furloughs reduced water use due to less employees needing facilities on extra days off.
- Reduced landscape water used per governor's directions.

2013

- CDFA submitted water use data at its State-owned facilities for 2013 by March 1, 2014 into the ESPM.
- Water use in 2010 was 76,404,011 gallons. 2013 water use was 60,298,236 after reduction; meeting the requirement to reduce water use in CDFA operated facilities by 10% by 2015, as measured against a 2010 baseline benchmark EO B-18-12 and MM 14-02.

2014

- CDFA submitted water use data at its State-owned facilities for 2014 by October 30, 2015 into the ESPM and has been entering data monthly thereafter for periodic reporting and annual report by March 1st each year.
- CDFA reduced landscape irrigation and installed "limit water use" signs in showers at several facilities in January 2014.
- CDFA surveyed water outlets for leakage and repaired low cost leaks in March 2014.

2015

- CDFA distributed "Save Our Water" brochures and stickers to CDFA employees in September 2015 to increase employee awareness.

2016

- CDFA worked with DGS, completing a Chemistry Lab Fixture replacement project to install ten solar powered dual flush retrofit flushometers on toilets, replace two urinals, install 13 aerators on sink faucets, and replace 11 restroom faucets with sensor auto-shut-off faucets at Meadowview Center for Analytical Chemistry by June 2016. It is estimated that these replacements will save 131,468 gallons per year.

Table 3: Department Wide Water Use Trends

Year	Total Occupancy /year	Total Amount Used (Gallons/year)	Per capita Gallons per person per day
Baseline Year 2010	Approximately 133,608	73,217,000	548
Baseline Year 2013	Approximately 133,633	59,867,600	448
2016	Approximately 133,482	46,585,500	349
2020 Goal	Approximately 133,608	54,912,750	411

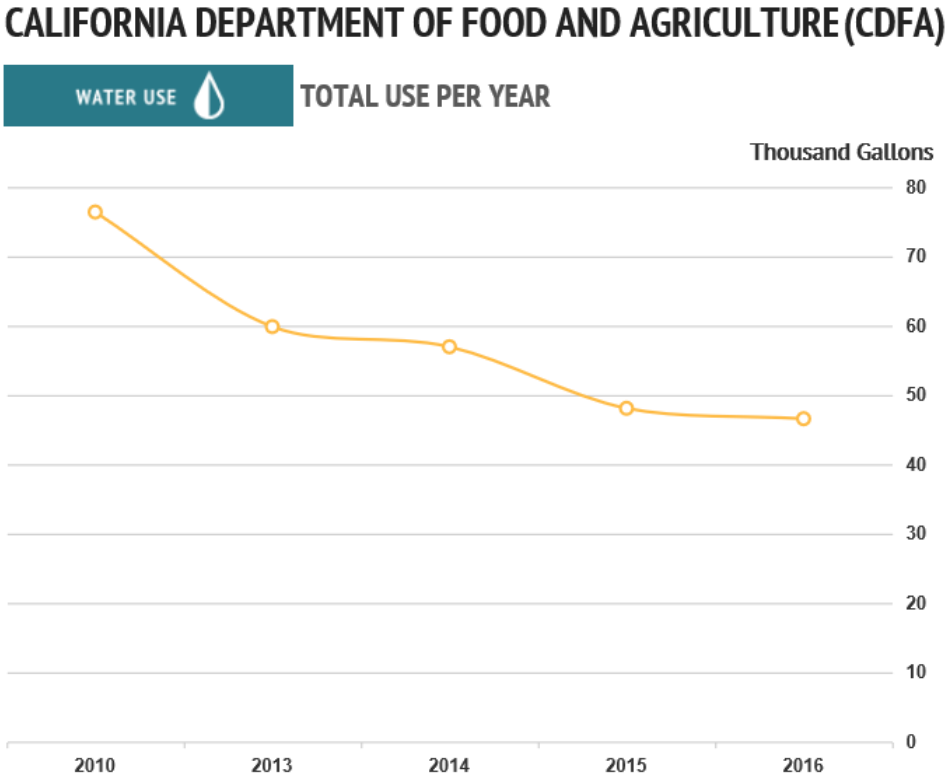
The information in the above table, from DGS, can be found at www.energystar.gov.

Table 4: Total Water Reductions Achieved

Total Water Use Compared to A: 2010 Baseline	Reduction Achieved	Total Amount Used (gallons per year)	Annual Gallons Per capita
2010 baseline: 20% Reduction Achieved	☒Yes ☐ No	73,217,000	548
2013 baseline: 25% Reduction Achieved	☒Yes ☐No	59,867,600	448

The information in the above table, from DGS, can be found at www.energystar.gov.

Graph 1: Annual Water Use



The information in the above graph can be found at http://green.ca.gov/Buildings/department/CDFA#chartanchor

Table 5: Water Use Reduction Details

Year	Water Use (gallons)	Amount Reduced In Three Years
2010	73,217,000	Baseline
2013	59,867,600	13,349,400
2016	46,585,500	13,282,100
Total		**26,631,500**

The information in the above table, from DGS, can be found at www.energystar.gov.

CDFA has and will continue to annually submit water use data at its State-owned facilities into the ESPM. All new and/or renegotiated State leases will encourage including provisions for reporting water use and installation of sub-meters where appropriate. All new and renovated State buildings and landscapes will utilize alternative sources of water wherever cost-effective. Sources may include, but are not limited to: recycled water, graywater, rainwater capture, storm-water retention, and other water conservation measures. There is currently a moratorium on new landscaping.

The below grant projects are still in progress as CDFA's contracts office works with DGS on an extension:

- CDFA will replace greenhouse fixtures and retrofit greenhouse irrigation.
- CDFA entered into a grant agreement with DGS for Greenhouse Fixture Replacement to replace one toilet, two sink faucets, two aerators, and one showerhead with low flow fixtures at the Meadowview greenhouse. It is estimated that these replacements will save 15,116 gallons per year.

- CDFA entered into a grant agreement with DGS for Greenhouse Irrigation Retrofit to replace ten swamp coolers, four control boxes, 16 hose bibs, 640 feet of old copper pipes, and 440 nozzle heads/sprayers with more efficient fixtures at the greenhouses. It is estimated that these replacements will save 633,600 gallons per year.

Projects will be observed until rescinded. Thereafter, landscape plants will be selected based on their suitability to local climate and site conditions, and reduced water needs and maintenance requirements.

Table 6: Summary of Indoor Water Efficiency Projects Completed or In Progress

Year Started	Water Saved (Gallons/year)	Cost Savings per Year
2010	Baseline	Baseline
2013	16,105,775	Unavailable (Rate varies and not steady amount per gallon)
2016	131,468	Unavailable (Rate varies and not steady amount per gallon)

The information in the above table, from DGS, can be found at www.energystar.gov.

Estimates are provided because most facilities are supplied by unmetered well water. Water costs are not currently tracked but CDFA is working with DGS, Office of Sustainability on preferred methods to track in the future.

- 2010-2012: Furloughs reduced water use due to less employees needing facilities on extra days off.
- 2015: CDFA distributed "Save Our Water" brochures and stickers to CDFA employees in September 2015 to increase employee awareness.
- 2016: CDFA worked with DGS, completing a Chemistry Lab Fixture replacement project to install ten solar powered dual flush retrofit flushometers on toilets, replace two urinals, install 13 aerators on sink faucets, and replace 11 restroom faucets with sensor auto-shut-off faucets at Meadowview Center for Analytical Chemistry. It is estimated that these replacements will save 131,468 gallons per year.

Region specific information:

Hornbrook:

- Waterless urinals in employee and public restroom.

Table 7: Summary of Boilers and Cooling Systems Projects Completed or In Progress

Year Funded	Water Saved (Gallons/year)	Number of Systems with Water Efficiency Projects	Percent of Department Heating and Cooling systems
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0

There are currently no new or in progress projects for boilers or cooling systems.

Region specific information:

Tulelake:

- Hot water heaters were set to 135 degrees.

Vidal:

- Not running additional power coolers.

Hornbrook:

- Not using the power coolers.
- New efficient water heater.

Table 8: Summary of Landscaping Hardware Water Efficiency Projects Completed/In Progress

Year Funded	Water Saved (Gallons/year)	Estimated Annual Cost Savings	Total Number of Projects per Year
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0

Water costs are not currently tracked but CDFA is working with DGS, Office of Sustainability on preferred methods to track in the future.

Several efforts were made to reduce water use so CDFA cannot contribute to any one area of reduction. CDFA reduced water use by 13,349,400 gallons from 2010 to 2013, and 13,282,100 from 2013 to 2016; for an average of 5,551,033 gallons per year reduction and a total reduction of 26,631,500 gallons 2010-2016. This reduction was made, in part, due to the below efforts:

Landscape changes per the below:

- 2010: Reduced landscape water used per governor's directions.
- 2014: CDFA reduced landscape irrigation and installed "limit water use" signs in showers at several facilities in January 2014.
- 2014: CDFA surveyed water outlets for leakage and repaired low cost leaks in March 2014.

Region specific information:

Tulelake:

- Well pump was replaced in 2014, improving water usage.
- Discontinued the practice of watering lawns. Shut offs were placed on all outside faucets.
- Station has no outside water faucets, no power washer, the only water used for agricultural duties is in five gallon buckets for the cherry crusher.
- Compliant with USGS static levels –Upper Klamath Basin Ground – Water Study.

Vidal:

- Not watering plants (Mandatory state reductions).

Hornbrook:

- No watering since the mandatory reduction were issued.

Table 9: Summary of Living Landscaping Water Efficiency Projects Completed or In Progress

Year Funded	Water Saved (Gallons/year)	Landscape Area MWELO (ft2)	Climate Appropriate Landscape Area (ft2)
2012	0	0	0
2013	0	0	0
2014	0	0	0
2015	0	0	0
2016	0	0	0

Water costs are not currently tracked but CDFA is working with DGS, Office of Sustainability on preferred methods to track in the future. See the information listed between Table 8 and Table 9 for details.

CDFA includes standard language in lease contact documents (DGS form: Exhibit B) stating all new landscaping shall be of a locally drought tolerant variety.

Water Shortage Contingency Plans and Critical Groundwater Basins

Urban water suppliers are required to maintain Water Shortage Contingency Plans that are customized to local conditions. These plans include a staged response to water shortages and droughts lasting up to three years. When implementing the stages of the Water Shortage Contingency Plan, the water supplier will require increasingly stringent reductions in water use.

State agencies are to be aware of their water suppliers' Water Shortage Contingency Plan and the potential impact each stage may have on their water use. State agencies are to have their own contingency plans in place for their building and landscaping water use in order to respond to any stage implemented by the water supplier.

The SGMA established a new structure for managing California's groundwater resources at a local level by local agencies. SGMA requires, by June 30, 2017, the formation of locally-controlled groundwater sustainability agencies (GSAs) in the State's high and medium-priority groundwater basins and sub-basins (basins). A GSA is responsible for developing and implementing a groundwater sustainability plan (GSP) to meet the sustainability goal of the basin to ensure that it is operated within its sustainable yield, without causing undesirable results. For those facilities located in critical groundwater basins, state agencies are to work with the local GSA plan.

Table 10: Number of Buildings with Urban Water Shortage Contingency Plans and in Critical Groundwater Basins

Number of Buildings with urban water shortage contingency plans.	Number of buildings in critical groundwater basins	Total Amount of water used by buildings in critical groundwater basins (Gallons)
0	0	0

The information in the above table, from DGS, can be found at www.energystar.gov.

Building Inventories Summary

Table 11: Summary of Building Inventory Needs

Number of toilets to be replaced with 1.25 gallon per flush	Number of urinals to be replaced	Number of faucet aerators to be replaced	Number of showerheads to be replaced @ 2.0 gpm and trickle flow control	Number of clothes washers to be replaced with Energy Star washers	Number of garbage disposals to be replaced.	Number of pre-rinse valves to be purchased and replaced
10	2	13	0	0	0	0

The information in the above table (Gallons per minute (GPM) and other information), from DGS, can be found at www.energystar.gov.

Heating and Cooling Systems Inventories Summary

Table 12: Summary of Boilers and Cooling Systems Inventory

Amount of Water Used for make up (Gallons)	Number of flash tanks to purchase and install	Number of meters to purchase and install	Amount currently reused? (Gallons)	Remaining additional water suitable for other purposes such as irrigation (Gallons)
0	0	0	0	0

The information in the above table, from DGS, can be found at www.energystar.gov.

Irrigation Hardware Inventories Summary

Landscaping typically uses 50 percent or more of an agency's total water use. While landscaping serves critical functions, the accompanying irrigation hardware, if not properly installed and maintained, can contribute to water waste. By reviewing and inventorying all irrigation hardware, it is possible to achieve significant water savings.

Table 13: Summary of Irrigation Hardware Inventory

Number of separate meters or sub-meters to purchase and install.	Number of irrigation controllers required with weather or soil moisture adjustment and flow sensing capabilities to purchase and install.	Number of backflow prevention devices to purchase and install.	Number of flow sensors to be purchased and installed	Number of automatic rain shut-off devices needed	Number of new pressure regulators to purchase and install.	Number of new hydrozones needed.	Number of new valves to purchase and install.	Number of filter assemblies to purchase and install.	Amount of drip irrigation to purchase and install (area covered)	Number of booster pumps to purchase and install	Number of rotary nozzles or other high efficiency nozzles to purchase and install
0	0	0	0	0	0	0	0	0	0	0	0

The information in the above table, from DGS, can be found at www.energystar.gov.

In 2010, CDFA reduced landscape water use per the governor's direction (watered plants less). In 2014, CDFA reduced landscape irrigation again, replaced well pump, and surveyed water outlets for leaks (repairing leaks as needed). None of the items listed in the table above were needed.

Living Landscape Inventory

Far from being just an aesthetic or ornamental feature, landscaping plays a critical role around public buildings and facilities. From providing safety and security, to reducing local heat islands, suppressing dust, reducing water runoff, maintaining soil health, aiding in water filtration and nutrient recycling, landscaping around public buildings is essential. Further, landscaping in public places frequently surrounds historic places and public memorials as well as provides pleasant public gathering spaces. The health and proper maintenance of these landscapes is vital to the physical wellbeing of California's people as well as to its social, cultural, political and historical life.

Additionally, the many vital ecosystem functions carried out by living public landscaping are critical in helping California meet its goals for greenhouse gas reduction, climate adaptation, and water and energy efficiency and water conservation.

Urban forests are vital to improve site conditions for occupants and visitors to buildings and the surrounding community.

Table 14: Summary of Living Landscape Inventory

Landscape >500Sq. ft.)	Turf (Sq. ft.)	Number of historical sites Or memorials	MWELO landscape area (SQ.FT.)	Climate appropriate landscape area (SQ.FT.)
UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN

CDFA does not track landscape Square Feet (SQ.FT.).

Large landscape water use

Large landscape water use often represents a significant percentage of a facility's water use and significant water savings can often be achieved through better irrigation scheduling or inexpensive improvements in irrigation hardware. As part of the Water Use Guidelines and Criteria, the water use for landscape areas over 20,000 sq. ft. shall be tracked through a water budget program.

CDFA does not have any large landscaped areas and has severely reduced plants in small landscaped areas due to the drought restrictions set forth by the governor.

Table 15. Summary of Large Landscape Inventory and Water Budget

Number of Facility Sites/Locations with > 20,000 SQ.FT. of Landscaping	Total Landscape Area per facility	Total Water Budget per facility	Total EPA WaterSense or Irrigation Association Certified Staff
0	0	0	0

The information in the above table, from DGS, can be found at www.energystar.gov.

BMPs

Building Best Management Practices (BMPs) are ongoing actions that establish and maintain building water use efficiency. State agencies are required by DGS MM 14-02 to implement the building BMPs outlined below. CDFA has and will continue to rely on DGS to ensure all requirements are met.

Building Water Management

CDFA relies on DGS to ensure all Building Water Management requirements are met. Additionally, CDFA has taken and will continue to take the following steps:

General Water Management

- CDFA sends out reminders to staff on conserving water.
- CDFA works with DGS to survey, report, and repair leaks promptly.

Leak Detection and Repair

- CDFA promptly submits work orders to DGS on leaking toilets, urinals, faucets, showers, and sprinklers.

Kitchens

- CDFA adjusts ice machines to dispense less ice if ice is being wasted.
- CDFA does not allow water to flow unnecessarily.

Laundry Facilities

- CDFA/DGS runs washer only when full to maximize capacity.
- CDFA/DGS sets water level and water temperature appropriate according to the load.

Building Heating and Cooling Systems

CDFA relies on DGS to monitor meters, detect and fix leaks, and perform routine maintenance following manufactures instructions required by these BMPs to assure that costly repairs and accidents are avoided. CDFA also reports leaks and requests replacement of faulty steam traps as soon as possible.

Landscaping Hardware Maintenance

CDFA relies on DGS to ensure all landscaping hardware maintenance requirements and BMPs are met.

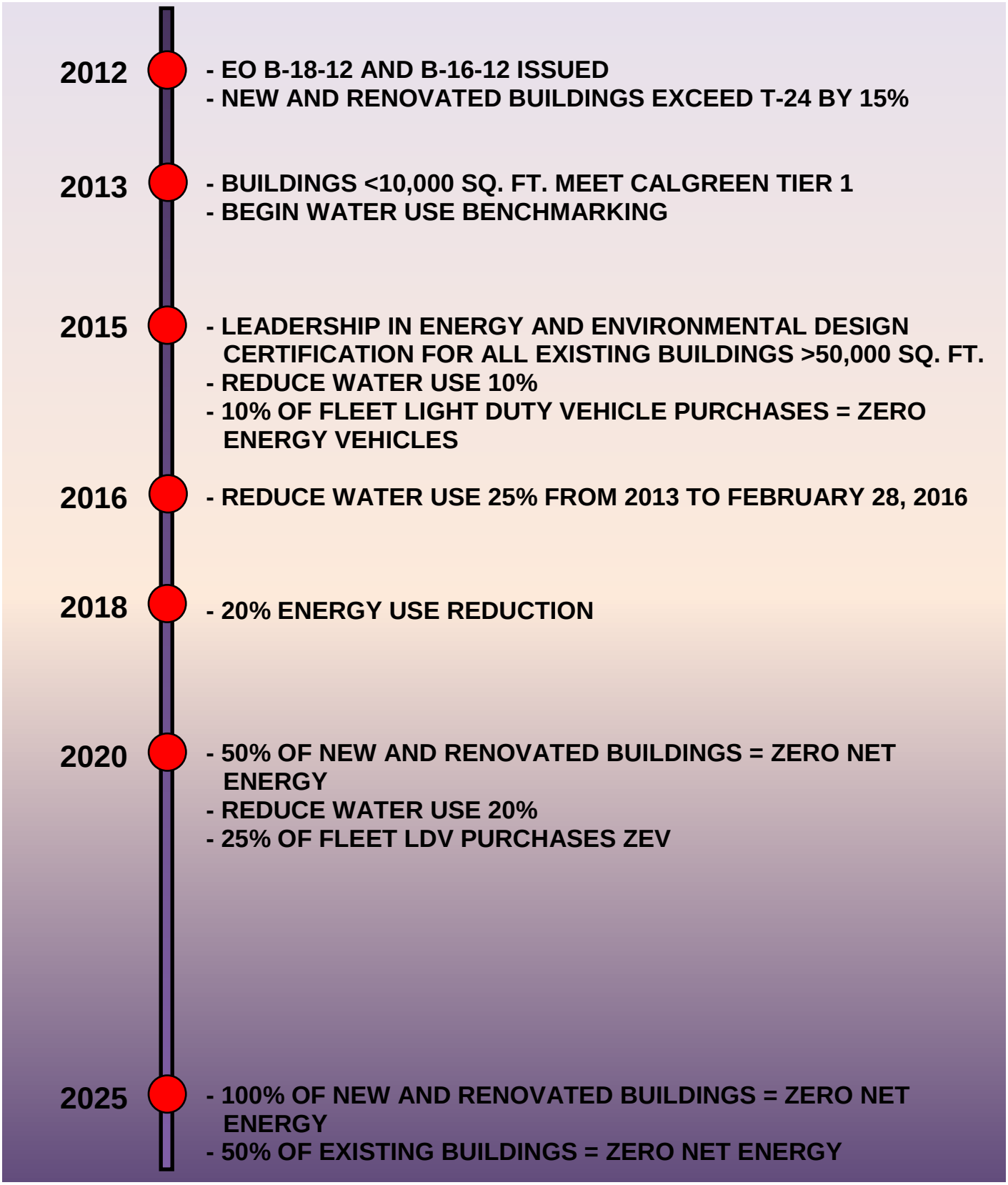
Living Landscape

CDFA relies on DGS to ensure all living landscape requirements and BMPs are met.

Monitoring, Reporting and Compliance

CDFA's water use can be viewed for most properties through Energy Star because the providers report directly to the Energy Star website. All other CDFA properties are run on well water and usage cannot be measured so water use is estimated at these facilities because they do not have water meters. All estimates and assumptions of water use are well documented on Energy Star.

SUSTAINABILITY MILESTONES AND TIMELINE



RESPONSIBLE DEPARTMENT, PROGRAMS AND EMPLOYEES

The "**responsible party**" is the individual or entity that controls, manages, or directs the entity and the disposition of the entity's funds and assets

Indoor Water Efficiency Projects In Progress First initiative	
DGS	DGS Building Manager

Boilers and Cooling Systems Projects In Progress	
Administrative Services, Building and Property Management	Mari McNeill, Energy Conservation Liaison

Landscaping Hardware Water Efficiency Projects In Progress	
Administrative Services, Building and Property Management	Mari McNeill, Energy Conservation Liaison

Living Landscaping Water Efficiency Projects In Progress	
Administrative Services, Building and Property Management	Mari McNeill, Energy Conservation Liaison

Buildings with Urban Water Shortage Contingency Plans In Progress	
Administrative Services, Building and Property Management	Mari McNeill, Energy Conservation Liaison