Sustainability Roadmap

2020-2021

California Department of Food and Agriculture (CDFA)

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

California Department of Food and Agriculture

Gavin Newsom, Governor

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Executive Summary

California Department of Food and Agriculture (CDFA) works with federal and county partners to serve California citizens 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 has owned and leased facilities throughout the State.

CDFA recognizes the importance of energy efficiency, reduction of greenhouse gas emissions (GHGe), conservation, and climate adaptation. This document outlines the requirements and describes the steps CDFA will take to comply with each of the Governor's Executive Orders (EO)s B-18-12, B-16-12, and other water and energy conservation policies. CDFA seeks guidance from the Department of General Services (DGS) on all property management needs related to these facilities, from construction to maintenance repairs; and will continue to work with DGS to ensure all regulations are met for all properties.

CDFA reduced natural gas use by 64% from 2010 to 2020 and reduced electricity used by 67% from 2003 to 2020. To reduce fleet energy consumption and gas emissions, CDFA significantly reduced its fleet, purchased Zero Emission Vehicles (ZEVs) such as Battery Electric Vehicles (BEV)s and Plug-In Hybrid Electric Vehicles (PHEVs), and installed Electric Vehicle Supply Equipment (charging stations: EVSE) to support the ZEVs, exceeding the purchasing percentage requirements set forth in EO B-16-12. CDFA has prioritized the purchase of environmentally preferable products (EPP) when possible. Through leak repairs, landscape water use reduction, fixture replacements, and more. CDFA reduced water use by 47% from the 2010 baseline, surpassing the goal of a 20% reduction by 2020 set forth by EO B-18-12. CDFA continues to work with DGS on cost-effective water conservation efforts and has made it a priority to utilize alternative water sources for all new and renovated State facilities.

I look forward to working closely with staff to achieve our conservation goals.

Karen Ross

Secretary

CHAPTER 1 - CLIMATE CHANGE ADAPTATION

Executive Order (EO) B-30-15 directs State Agencies to integrate climate change into all planning and investment. Planning and investment can include the following:

- Infrastructure and capital outlay projects.
- Grants.
- Development of strategic and functional plans.
- Permitting.
- Purchasing and procurement.
- Guidance development.
- Regulatory activity.
- Outreach, and education.

CDFA will continue to follow the guidance developed under EO B-30-15 and EO N-19-19 when planning reduction of greenhouse gas emissions (GHGe) in state operations.

Climate Change Risks to Facilities

For all infrastructure, it is important to assess the risk that a changing climate poses to an asset or project (e.g., sea level rise or increasing daily temperatures). It is also important to recognize the impact that an infrastructure project has on the surrounding community and the impacts on individual and community resilience (e.g., Urban Heat Island impacts).

To determine how to consider climate change for a given project or plan or existing infrastructure, CDFA will consider:

- The lifetime of the facility planned project, or plan,
- Changing average climate conditions or increases in extreme events over its lifetime. California is susceptible to many climate risks, with many locations at risk from multiple impacts, for example wildfire and mudslides in the same year. It is important to consider

the possibility of single climate impacts, as well multiple, compounding events that may need more conservative planning,

- The consequences of climate impacts, compounding events, and the planned project,
- The vulnerable populations, critical natural systems, critical infrastructure, or other assets being disrupted by climate changes and compounding events,
- Irreversible effects or unacceptable risks to public health and safety caused by climate change, compounding events and proposed projects.

CDFA has and will continue to work with Department of General Services (DGS), Real Estate Services Division (RESD) and the Project Management and Development Branch (PMDB) on all building design and construction projects. CDFA will consider the intended use, data projections, and sustainability materials such as the *Planning & Investing for a Resilient California Guidebook* when planning new building and construction projects.

Natural Infrastructure to Protect Facilities

EO B-30-15 directs State agencies to prioritize the use of natural and green infrastructure solutions. Natural infrastructure is the "preservation or restoration of ecological systems or the utilization of engineered systems that use ecological processes to increase resiliency to climate change, manage other environmental hazards, or both. This may include, but need not be limited to, flood plain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days" (Public Resource Code Section 71154(c)(3)).

CDFA is working with DGS RESD to meet property regulations and pursue natural infrastructure in new facility design and operation for all existing projects. CDFA will evaluate projects to employ natural infrastructure to reduce the risks of climate change to CDFA's facilities based on their suitability and cost-effectiveness. Future cooling strategies CDFA will consider implementing in public and private spaces may include:

- Adding shade structures (cooling the building/surrounding area),
- Reducing impermeable surface areas (impermeable surface areas, such as concrete and asphalt, increase heat surrounding facilities.

Where feasible, CDFA will consider expanding the use of cool, porous, or sustainable materials in pavements instead of impermeable surface areas), and

- Implementing additional green infrastructure (increasing the number of trees and drought tolerant plants around facilities will help replenish groundwater reserves, relieve stress on local water supplies, reduce the need to import potable water, reduce urban heat island effect, and provide additional shading to cool the building and surrounding area).

CDFA will work with DGS and refer to Preparing California for Extreme Heat: Guidance and Recommendations to develop the solutions which best fit the Department's needs.

Understanding the Potential Impacts of Facilities on Communities

It is important to recognize the impact that an infrastructure project has the surrounding community and the impacts on individual and community resilience (e.g., heat island impacts).

Climate change disproportionately impacts vulnerable communities, with certain populations experiencing heightened risk and increased sensitivity to climate change and have less capacity to recover from changing average conditions and more frequent and severe extreme events. Several factors contribute to vulnerability, often in overlapping and synergistic ways. These can include a few social and economic factors, and can be determined by existing environmental, cultural, and institutional arrangements. Vulnerable populations can include, but are not limited to, people living in poverty; people with underlying health conditions; incarnated populations; linguistically or socially isolated individuals; communities with less access to healthcare or educational resources; or communities that have suffered historic exclusion or neglect.

While there is no single tool to identify vulnerable populations in an adaptation context, there are several state-wide, publicly available tools that when overlaid with climate projection data can help identify communities most at risk to a changing climate. Some of these tools, including a definition for vulnerable communities, are available in a resource guide developed by the Integrated Climate Adaptation and Resiliency Program in the Office of Planning and Research.

When evaluating criticality and climate risk to CDFA facilities, CDFA will consider nearby and impacted populations. For example, prisons or state hospitals serve

many populations that are considered vulnerable. In other cases, facilities may be located near communities that have characteristics that could contribute to higher vulnerability.

Understanding Climate Risk to Existing Facilities

Cal-Adapt is the most updated source of climate change data/projections for the State of California. Using the latest climate change information from Cal-Adapt and correspondence from DGS, CDFA has collected data on the climate impacts and projected changes outlined below for each existing facility.

Background on Climate Projections: Global Circulation Models are used to project future climate conditions and high emission pathways. Models project future climate conditions under different future emission scenarios that are called Representative Concentration Pathways. Different Representative Concentration Pathways represent different rates and magnitudes of global GHGe reductions. These model results have been downscaled to provide projections of climate impacts on a finer scale across California.

Of the 32 internationally recognized course-resolution Global Circulation Models, California has chosen four models to utilize in its climate studies for "Creating Climate projections to support the fourth California Climate Assessment." The following four models were selected to capture a range of different climate futures:

- Model 1: HadGEM2-ES characterizes a warm and dry future (warm/dry).
- Model 2: CNRM-CM5 characterizes a cool and dry future (cool/wet).
- Model 3: CanESM2 characterizes an average future condition (average).
- Model 4: MIROC5 provides a complement to the above models and covers a range of outputs.

Data was collected from Cal-Adapt using these four Global Circulation Models and for a high emissions pathway. This pathway is represented by Representative Concentration Pathway 8.5. These model results have been downscaled to provide projections of climate impacts on a finer scale across California.

Risk from Changing Extreme Temperatures:

Under a changing climate, temperatures are expected to increase – both at the high and low end. As a result, facilities will experience higher maximum (max.) temperatures and increased minimum (min.) temperatures. In addition to changing average temperatures, climate change will increase the number of extreme heat events across the State. Extreme events are already being experienced, and they are likely to be experienced sooner than changes in average temperatures. Taking into consideration which facilities experience the largest change in temperature (deg F) and the highest percentage of change, the Annual Mean Max. will go from temperatures as low as 61.1 (1961-1990) to temperatures as high as 96.7 (2070-2099), with the largest difference being a 9.6 degree change from 1961 to 2099.

Table 1.1: Top 10 Facilities that Will Experience the Largest Increase in Extreme Heat Events

Facility Name	EHT °F	Average # of days above EHT 1961-1990	Average # of days above EHT 2035-2064	Change from Historical (1961-1990) to projected (2035-2064) # of days above EHT	# of days above EHT 2070-2099	Change from historical (1961-1990) to projected (2070-2099) # of days above EHT
Benton Agriculture Inspection Station	92.9	4	33	29	48	44
Dorris Agriculture Inspection Station	92.6	4	23	19	36	32
Hornbrook Agriculture Inspection Station	98.8	4	25	21	37	33
Long Valley Agriculture Inspection Station	93.1	4	22	18	35	31
Meyers Agriculture Inspection Station	86.7	4	21	17	34	30

Facility Name	EHT °F	Average # of days above EHT 1961-1990	Average # of days above EHT 2035-2064	Change from Historical (1961-1990) to projected (2035-2064) # of days above EHT	# of days above EHT 2070-2099	Change from historical (1961-1990) to projected (2070-2099) # of days above EHT
Needles Agriculture Inspection Station	115.7	4	23	19	36	32
Truckee Agriculture Inspection Station	89.8	4	23	19	36	32
Tulelake Agriculture Inspection Station	95.1	4	22	18	34	30
Vidal Agriculture Inspection Station	113.9	4	25	21	39	35
Winterhaven Agriculture Inspection Station	111.5	4	33	31	49	45

The information in Table 1.1, from DGS regarding Extreme Heat Threshold (EHT), can be found at Cal-Adapt.org.

Table 1.1 shows the top ten CDFA facilities with the highest percentage of temperature range change for the indicated years.

Table 1.2 a: Top 10 Facilities Most Affected by Changing Temperature (Temp.) – Annual Mean Max. Temp.

Facility Name	Historical Annual Mean Max. Temp. 1961 – 1990	Annual Mean Max. Temp. 2035 – 2064	Change from Historical to Annual Mean Max. Temp. 2035-2064	Annual Mean Max Temp. 2070-2099	Change from Historical to Annual Mean Max. Temp. 2070-2099
Tulelake Agriculture Inspection Station	63.7	71.4	7.7	73.3	9.6
Hornbrook Agriculture Inspection Station	67.8	6.9	74.7	76.7	8.9
Long Valley Agriculture Inspection Station	64.4	70.9	6.5	72.6	8.2
Topaz Agriculture Inspection Station	68	74.4	6.4	75.9	7.9
Dorris Agriculture Inspection Station	63.8	69.9	6.1	71.6	7.8
Truckee Agriculture Inspection Station	62.1	67.6	5.5	69.6	7.5
Alturas Agriculture Inspection Station	67.6	73.2	5.6	75	7.4
Turlock Veterinary Laboratory	76.1	81.7	5.6	83.4	7.3
San Bernardino Veterinary Laboratory	82.2	88.7	6.5	89.4	7.2
Vidal Agriculture Inspection Station	89	94.5	5.5	96.1	7.1

The information in Table 1.2a can be found at Cal-Adapt.org.

The facilities listed in Tables 1.2a and 1.2 b are the top locations with the projected highest change of temperature from 1961 – 2099. This rise in temperature shown above may increase the demand for energy used for cooling systems and outside temperatures may create heat advisory risks in the future for those working outdoors. CDFA remains vigilant in maintaining employee awareness, reminding employees of heat illness risks and prevention methods annually. CDFA also releases additional heat advisory warnings to all employees whenever a heat event is anticipated. CDFA does not anticipate any negative impact to occupant health within CDFA facilities or damage to structural integrity resulting from this heat increase.

CDFA has encouraged development of Best Management Practices (BMPs) that reduce climate risks, such as The Healthy Soils Initiative and various Specialty Crop Block Grants. CDFA also facilitates incentive programs for sustainable practices for resilience, such as the State Water Efficiency and Enhancement Program (SWEEP) and the Dairy Digester Research and Development Program. CDFA's SWEEP has been crucial in implementing resilient water management across the State. As referenced in the California Climate Adaptation Strategy CDFA is a key partner in various agricultural projects throughout the State designed to increase positive economic and environmental impact, conservation, sustainability and improve best practices.

CDFA worked with the United States Department of Agriculture (USDA) and Colorado State University to develop a new carbon and GHGe evaluation for the Natural Resources Conservation Service conservation practice planning tool, called the Carbon Dioxide Management Evaluation Tool-Planner. This tool was designed to enable farmers to assess the GHGe reductions from implementing various land management practices. Practices incorporated in the Carbon Dioxide Management Evaluation Tool-Planner include conservation tillage, strip tillage, cover cropping, windbreak establishment, and habitat restoration, among others. The development of tools to help the agriculture industry adapt to climate change is one of the recommendations referenced in the California Climate Adaptation Strategy, consistent with the 2013 Climate Change Consortium final report.

CDFA will continue to consider various options and strategies to reduce the impact of changing temperatures on facility performance and to protect occupant health and safety (e.g., additional heating, ventilation, and air conditioning (HVAC) capacity; shade structures or tree planting; relocation; expanding use of cool or porous materials in pavements; reviewing and improving access to and use of air conditioning; etc.).

Table 1.2 b: Top 10 Facilities Most Affected by Changing Temperature (Temp.) - Annual Mean Min. Temp.

Facility Name	Historical Annual Mean Min. Temp. 1961 – 1990 °F	Annual Mean Min. Temp. 2035 – 2064 °F	Change from Annual Mean Min. Temp. 2035-2064	Annual Mean Min. Temp. 2070-2099 °F	Change from Annual Mean Min. Temp. 2070-2099
Topaz Agriculture Inspection Station	62.7	66.8	4.1	69.6	6.9
Alturas Agriculture Inspection Station	59.7	65.3	5.6	66.3	6.6
Meadowview Road Complex	69.8	74.7	4.9	76.2	6.4
Meyers Agriculture Inspection Station	55.8	59.7	3.9	61.8	6
Truckee Agriculture Inspection Station	56.3	60.9	4.6	62.3	6
Benton Agriculture Inspection Station	62.2	66.4	4.2	68.1	5.9
Long Valley Agriculture Inspection Station	59.6	63.8	4.2	65.5	5.9
Winterhaven Agriculture Inspection Station	85.1	88.8	3.7	91	5.9
Vidal Agriculture Inspection Station	84.8	88.1	3.3	90.5	5.7
Tulelake Agriculture Inspection Station	59.7	63.2	3.5	65.3	5.6

The information in Table 1.2b, including Degrees Fahrenheit (°F), can be found at Cal-Adapt.org.

Heating and Cooling Degree Days

A Heating Degree Day (HDD) is defined as the number of degrees by which a daily average temperature is below a reference temperature (i.e., a proxy for when heat would be needed). The reference temperature is typically 65 degrees Fahrenheit, although different utilities and planning entities sometimes use different reference temperatures. The reference temperature loosely represents an average daily temperature *above which* space heating is not needed. The average temperature is represented by the average of the daily temperature (highest/lowest). Similarly, a Cooling Degree Day (CDD) is defined as the number of degrees by which a daily average temperature exceeds a reference temperature. The reference temperature is also typically 65 degrees Fahrenheit, and different utilities and planning entities sometimes use different reference temperatures. The reference temperature loosely represents an average daily temperature *below which* space cooling (e.g., air conditioning) is not needed.

Table 1.3: Top 10 Facilities that will be Most Impacted by Projected Changes in HDD/CDD

Facility Name	HDD/CDD 1961-1990	HDD/CDD 2035-2064	HDD/CDD 2070-2099
Alturas Agriculture Inspection Station	6971/189	5550/534	4988/744
Benton Agriculture Inspection Station	5825/323	4656/820	4116/1064
Dorris Agriculture Inspection Station	7101/157	5725/498	5161/705
Long Valley Agriculture Inspection Station	7112/111	5642/393	5080/582
Meyers Agriculture Inspection Station	7449/46	6027/207	5447/342
Redwood Agriculture Inspection Station	4349/12	3340/39	2842/99
Topaz Agriculture Inspection Station	6148/311	4705/707	4112/929
Truckee Agriculture Inspection Station	8178/35	6637/196	6025/315
Tulelake Agriculture Inspection Station	6757/157	5506/482	4892/702
Hornbrook Agriculture Inspection Station	5447/457	4422/1008	3998/1304

The information in Table 1.3 can be found at Cal-Adapt.org.

Table 1.3 shows the CDFA owned facilities with the highest percentage of change and overall average increase in days of heating/cooling days. Since wildfires usually occur during extreme heat days, some of the facilities listed in

Table 1.3 overlap with the facilities listed in Table 1.7. CDFA will work with DGS to determine what actions are necessary to stay within recommended temperatures and protect employees from potential hazards.

Some of the strategies CDFA may employ to reduce the impact of changing temperatures, and HDD/CDD, on facility performance and/or to protect occupant health and safety may include additional HVAC capacity, shade structures or tree planting, relocation, etc. When considering options on actions to take, CDFA will review and consider the options mentioned in the California Climate Adaptation Strategy for the applicable sector. To date, CDFA has referenced Preparing California for Extreme Heat: Guidance and Recommendations when employing strategies to reduce the impact of changing temperatures, but will be referencing the Extreme Heat Framework that is expected to be published in 2022 for future strategies.

Urban Heat Islands

Urban heat islands are areas with localized spikes in temperature, which impact human health, increase pollution, and increase energy demand. Urban heat islands occur during the hot summer months in areas with higher percentages of impervious surface and less vegetation. This is likely in areas with large parking lots, dense development, and lower tree density and shading. Urban heat islands can be mitigated (i.e., reduced) through tree planting and other greening measures, cool roofs (e.g., lighter roofing materials that reflect light), cooler pavements, and other measures.

Table 1.4: Facilities Located in Urban Heat Islands

Facility Name	Located in an urban heat island (yes/no)
Alturas Agriculture Inspection Station	No
Benton Agriculture Inspection Station	No
Blythe Agriculture Inspection Station	No
Dorris Agriculture Inspection Station	No
Glassy Winged Sharpshooter Project (Arvin)	No
Hornbrook Agriculture Inspection Station	No
Long Valley Agriculture Inspection Station (Chilcoot)	No
Meadowview Road Complex (Sacramento)	No
Needles Agriculture Inspection Station	No
Redwood Agriculture Inspection Station (Crescent City)	No
San Bernardino Veterinary Laboratory	**Yes (186)**
Smith River Agriculture Inspection Station	No

Facility Name	Located in an urban heat island (yes/no)
Topaz Agriculture Inspection Station	No
Turlock Veterinary Laboratory	**Yes (29)**
Vidal Agriculture Inspection Station	No
Winterhaven Agriculture Inspection Station	No
Mountain Pass Agriculture Inspection Station (Nipton/Yermo)	No

The information in Table 1.4 is from the California Environmental Protection Agency (CalEPA) and Urban Heat Island interactive maps.

The main cause of the urban heat island effect is from the modification of land surfaces (the temperature of a parking lot is higher than that of a grassy field). The CalEPA's document: Preparing California for Extreme Heat: Guidance and Recommendations recommends shading of buildings, asphalt and other dark surfaces with trees to reduce the urban heat island effect. Solar panels placed on canopies over parking lots and other paved surfaces can also shade and reduce the urban heat island effect.

Per Table 1.4, two CDFA facilities are in urban heat islands. Both have 30 parking spaces or fewer (San Bernardino Veterinary Laboratory has 30, Turlock Veterinary Laboratory has 23). Since the parking lots are so small, CDFA will need to further evaluate solutions to reduce the contribution to urban heat islands. CDFA will evaluate and consider selecting projects based on their suitability and cost-effectiveness. Future CDFA projects may include reducing impermeable surface areas surrounding facilities, implementing additional greening measures with the use of green infrastructure as part of cooling strategies in public and private spaces, utilizing additional shading (such as trees, vegetation, or shade structures), or expanding the use of cool, porous, or sustainable materials in pavements. CDFA will work with DGS and refer to Preparing California for Extreme Heat: Guidance and Recommendations to develop the solutions which best fit the Department's needs.

Risks from Changes in Precipitation

The impacts of climate change on the amount of precipitation that California will receive in the future are slightly less certain that the impacts on temperature. However, it is expected that California will maintain its Mediterranean climate pattern (dry summers and wet winters), but more precipitation will fall as rain than as snow. It is also likely that extremes will intensify, both drought and heavy precipitation events. Larger rains can result in flooding but will also result in shifts in runoff timing (earlier) and runoff volumes (higher). It will also result in decreased snowpack.

Table 1.5: Top 10 Facilities that will be Most Impacted by Precipitation Changes

Facility Name	AMP 1961 - 1990	AMP 2031 - 2060	%+ 1961 - 2060	AMP 2070 - 2099	%+ 1961 - 2099	EP 1961 - 1990	EP 2035 - 2064	EP 2070 - 2090
Alturas Agriculture Inspection Station	11.8	13	10.17	13.3	12.71	1	1	1
Benton Agriculture Inspection Station	7.5	8.2	9.3	8.2	9.3	7	7	8
Long Valley Agriculture Inspection Station	14.8	16.6	12.16	16.7	12.84	3	4	5
Meadowview Road Complex	17.6	19.8	12.5	20.1	14.2	4	5	6
Meyers Agriculture Inspection Station	28	31.9	13.93	32.3	15.36	3	5	6
Topaz Agriculture Inspection Station	10.3	11.5	11.65	11.7	13.59	3	3	4
Truckee Agriculture Inspection Station	58.9	63.7	8.15	65.6	11.38	4	5	6
Tulelake Agriculture Inspection Station	62.1	66.6	7.25	68.6	10.45	1	1	2
Turlock Veterinary Laboratory	74.4	78.5	5.5	79.9	7.39	1	1	2
Winterhaven Agriculture Inspection Station	87.2	92.1	5.62	93.5	7.22	5	5	5

The information in Table 1.5, from DGS, shows the Annual Mean Precipitation (AMP) per year, Extreme Precipitation (EP) per day, and the Percent Change

(%+). This information can be found at Cal-Adapt.org annual-averages and Cal-Adapt.org extreme-precipitation.

Table 1.5 shows the CDFA facilities with the highest percentage of change in precipitation. The top CDFA facilities impacted by changes in precipitation and changing temperatures overlap some of the facilities that will experience the largest increase in extreme heat events.

Most of the facilities owned by CDFA are Agriculture Inspection Stations on the side of highways and freeways, some in higher climates more prone to snowfall. The increase in precipitation may create a concern regarding the impact on the structural integrity of these facilities but more precipitation is anticipated to fall as rain than as snow so the structural integrity may not be compromised and less snowfall with more rain might make installation of solar panels more feasible in some areas. CDFA will work with DGS and the California Department of Transportation (CalTrans) to determine what, if any actions are needed to protect occupant health and safety.

Risks from Sea Level Rise

Increasing global temperatures are contributing to rising sea levels. Rising sea levels will result in inundation of coastal areas and increased flooding due to storm surges. The California Ocean Protection Council (OPC) has issued the State of California Sea-Level Rise Guidance (Guidance) for State Agencies on what level of sea level rise projections to consider in planning.

The Guidance provides estimates of the rise in sea level for the California Coast for all active tide gauges based on a range of emission trajectories, which are based on the report, Rising Seas in California: An Update on Sea-Level Rise Science. This data provides projections for use in low, medium-high, and extreme risk aversion decisions. Current guidance from the California Coastal Commission suggests using the medium-high risk aversion or extreme risk when assessing the vulnerability of critical infrastructure.

Table 1.6: All Facilities at Risk from Rising Sea Levels

Facility Name	Tide Chart Region	2050 Water Level (ft)	Exposed in 2050? (yes/no)	2100 Water Level (ft)	Exposed at 2100? (yes/no)
Oakland Office (Elihu Harris Building) - Leased	Alameda County	0	0	0	0
Meadowview - Owned	Sacramento	0	0	0	0

The information in Table 1.6 can be found using the Cal-Adapt reference tool at Cal-Adapt.org.

None of CDFA's facilities will be impacted by rising sea levels. Even the above locations (closest to the shoreline and potentially impacted areas) will not be impacted.

Risks from Wildfire

Wildfire is a serious hazard in California. Several studies have indicated that the risk of wildfire will increase with climate change. By 2100, if GHGe continue to rise, a study from DGS Office of Sustainability reports the frequency of extreme wildfires would increase, and the average area burned Statewide would increase by 77 percent.

Wildfire hazard is also a critical issue. Per the Department of Forestry and Fire Protection (CalFire), five of California's six largest fires all occurred in 2020. CalFire records show 2017 and 2018 previously set records as the most destructive fire seasons in California's history. To contextualize how wildfire hazards already impact California's facilities, consider that 1 in 5 California children were affected by wildfire-related school closures during the 2018-2019 school year per CalMatters data. To start to understand how wildfire could affect facilities, complete the following tables for all facilities. The first table is meant to give an indication of current risk, based on CALFIRE data for Fire Hazard Severity Zones. This is presented as low, medium, high, or very high. For future risk, the table uses data from Cal-Adapt to project acres burned in areas near CDFA facilities.

In identifying facilities most at risk, considerations included are location, fire risk in surrounding areas, required operations, impacts of current fire events, the

impact of disruption, access to facility during disruptions/wildfires in surrounding areas, and criticality of the facility and/or its operations.

Table 1.7: Top 5 Facilities Most at risk to current wildfire threats

Facility Name	Fire Hazard Severity Zone (low, moderate, high, very high)
Benton Agriculture Inspection Station (no NG/P)	Moderate
Hornbrook Agriculture Inspection Station	High
Long Valley Agriculture Inspection Station (no NG/P)	Moderate
Meyers Agriculture Inspection Station (no NG/P)	Very high
Redwood Agriculture Inspection Station	Very high

The information in Table 1.7 can be found using the Cal-Adapt reference tool at Cal-Adapt.org.

Table 1.8: Top 5 Facilities that will be Most Impacted by Projected Changes in Wildfire

Facility Name	Acres Burned 1961-1990	Acres Burned 2035-2064	Acres Burned 2070-2099
Benton Agriculture Inspection Station	79.57	61.28	63.01
Hornbrook Agriculture Inspection Station	65	98.35	91.68
Long Valley Agriculture Inspection Station	71.91	69.93	66.22
Redwood Agriculture Inspection Station	62.52	85.5	124.79
Truckee Agriculture Inspection Station	42.25	42.75	48.19

The information in Table 1.8 can be found using the Cal-Adapt reference tool at Cal-Adapt.org

Table 1.8 shows the CDFA owned facilities with the highest percentage of change in hectares burned. Most of CDFA's owned properties are Agriculture Inspection Stations located on highways/freeways that allow for some degree of separation from fires, but in the event of a fire, CDFA has emergency evacuation plans for every location and prioritizes protecting all employees' health and safety. CDFA will evaluate strategies, including working with DGS to

determine if additional HVAC precautions are necessary, to protect employees from elevated smoke levels and harmful exposure to other potential hazards.

Summarizing Natural Infrastructure Actions to Protect Existing Facilities

EO B-30-15 directs State Agencies to prioritize the use of natural and green infrastructure solutions. Natural infrastructure is the "preservation or restoration of ecological systems or the utilization of engineered systems that use ecological processes to increase resiliency to climate change, manage other environmental hazards, or both. This may include, but need not be limited to, flood plain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days" (Public Resource Code Section 71154(c)(3)).

CDFA will evaluate and consider selecting projects to employ natural infrastructure to reduce the risks of climate change to CDFA's facilities based on their suitability and cost-effectiveness. Future CDFA projects may include reducing impermeable surface areas surrounding facilities, implementing additional greening potentially with the use of green infrastructure as part of cooling strategies in public and private spaces, utilizing additional shading (such as trees, vegetation, or shade structures), or expanding the use of cool, porous, or sustainable materials in pavements. CDFA will work with DGS and refer to Preparing California for Extreme Heat: Guidance and Recommendations to develop the solutions which best fit the Department's needs.

Understanding the Potential Impacts of Facilities on Communities

As described at the beginning of the chapter, CDFA will consider impacts on communities for resilience planning for CDFA assets and facilities. CDFA has and will continue to award grants to projects that are beneficial to severely disadvantaged communities and socially disadvantaged farmers and ranchers. As of 2019, CDFA has dedicated $9.25 million toward these projects.

Disadvantaged Communities

California is required to invest certain funding streams in disadvantaged communities. Many state programs that have disadvantaged communities funding requirements use California Communities Environmental Health Screening Tool (CalEnviroScreen 4.0 | OEHHA), a tool that ranks census tracts based on a combination social, economic, and environmental factors, to identify disadvantaged communities. While it does not capture all aspects of

climate vulnerability, it is one tool that is available, and does include several relevant characteristics. The department's facilities located in these communities can contribute or alleviate the vulnerability of these disadvantaged communities.

CDFA used the CalEnviroScreen 4.0 | OEHHA spreadsheet and tool to identify which facilities are located within disadvantaged communities and listed them in Table 1.9. DACs have CalEnviroScreen 4.0 | OEHHA CalEnviroScreen scores between 75 – 100%.

Table 1.9: Facilities Located in Disadvantaged Communities

Facility Name	CalEnviro-Screen Score	Located in a disadvantaged community? (Yes/No)
Alturas Agriculture Inspection Station	40-45%	No
Benton Agriculture Inspection Station	15-20%	No
Blythe Agriculture Inspection Station	75-80%	**Yes**
Dorris Agriculture Inspection Station	25-30%	No
Glassy Winged Sharpshooter Project (Arvin)	75-80%	**Yes**
Hornbrook Agriculture Inspection Station	35-40%	No
Long Valley Agriculture Inspection Station (Chilcoot)	15-20%	No
Meadowview Road Complex (Sacramento)	70-75%	**Yes**
Meyers Agriculture Inspection Station (Tahoe/Paradise)	15-20%	No
Mountain Pass Agriculture Inspection Station (Nipton/Yermo)	75-80%	**Yes**
Needles Agriculture Inspection Station	65-70%	No
Redwood Agriculture Inspection Station (Crescent City)	30-35%	No
San Bernardino Veterinary Laboratory	95-100%	**Yes**
Smith River Agriculture Inspection Station	30-35%	No
Topaz Agriculture Inspection Station	20-25%	No
Truckee Agriculture Inspection Station	1-5%	No
Tulelake Agriculture Inspection Station (Canby)	35-40%	No
Turlock Veterinary Laboratory	95-100%	**Yes**
Vidal Agriculture Inspection Station	45-50%	No

Facility Name	CalEnviro-Screen Score	Located in a disadvantaged community? (Yes/No)
Winterhaven Agriculture Inspection Station	70-75%	**Yes**

The information in Table 1.9, from DGS, can be found at CalEnviroScreen 4.0 | OEHHA.

The following CDFA programs and initiatives have issued financial grants and awards for projects in disadvantaged communities:

- CDFA contributes to and provides funding for programs which strengthen local and regional food systems by supporting and creating incentives for establishment of urban and peri-urban agriculture, farm to fork programs, farmers' markets, and school and community gardens, supported by the agriculture industry.
- The Specialty Crop Block Grant Program encourages projects that support and promote sustainable agricultural practices such as water conservation and practices that reduce soil degradation and the use of fossil fuel-based inputs such as pesticides and synthetic fertilizers.
- The Dairy Digester Research and Development Program encourages the implementation of dairy digesters that result in long-term methane emission reductions on California dairies and minimize or mitigate adverse environmental impacts.
- The Alternative Manure Management Program provides financial assistance for the implementation of non-digester manure management practices in California, which will result in reduced GHGe.
- SWEEP facilitates integration of irrigation systems that reduce GHGe and save water on California agricultural operations.
- CDFA leads the Healthy Soils Initiative, which is intended to reduce GHGe; promote resiliency; improve the capacity of communities to prepare, respond, and recover from climate-related health risks by storing water in soils; reduce agricultural water needs; improve

nutritional value of crops; and reduce the need for chemical inputs such as fertilizers.

Understanding Climate Risk to Planned Facilities

CDFA will continue to work closely with DGS RESD and PMDB for all new facility site searches to meet all requirements for new and existing properties. Relevant climate risks are considered by DGS experts and will be reported on the Roadmap when sites have been acquired. All existing facilities have been added to the calculations for the main tables (Table 1.1-1.9, and 1.11). The only facility not previously included is the Anaheim Laboratory, which was previously a leased facility but was purchased by CDFA in December 2020. Tables 1.10a-g include data only for this facility.

Table 1.10 a-g: Climate Risks to New Facilities

a.1

Facility Name	Historical Annual Max. Temp. 1961-1990	Annual Max. Temp. 2035-2064	Change from Historical to 2035-2064	Annual Max Temp. 2070-2099	Change from Historical to 2070-2099
Anaheim Laboratory	76.1	80.5	4.4	81.9	5.8

The information in Table 1.10a1, mean max., can be found at Cal-Adapt.org.

a.2

Facility Name	Historical Annual Min. Temp. 1961-1990	Annual Min. Temp. 2035-2064	Change from Historical to 2035-2064	Annual Min. Temp. 2070-2099	Change from Historical to 2070-2099
Anaheim Laboratory	52.6	56.6	4	57.9	5.3

The information in Table 1.10a2, mean min in °F, can be found at Cal-Adapt.org.

b.

Facility Name	AMP 1961-1990 (in/year)	AMP 2035-2064 (in/year)	EP 1961-1990 (in/day)	EP 2035-2064 (in/day)
Anaheim Laboratory	18.7	21	3	4

The information in Table 1.10b, from DGS, shows the AMP and EP per day. This information can be found at Cal-Adapt.org.

c.

Facility Name	EHT °F	Average number of days above EHT 1961-1990	Average number of days above EHT 2035-2064	Increase in number of days above EHT
Anaheim Laboratory	103.9	4	18	14

The information in Table 1.10c can be found at Cal-Adapt.org.

d.

Facility Name	Area (California Coast, San Francisco Bay, Delta)	Sea Level Rise 0.0 meters	Sea Level Rise 0.5 meters	Sea Level Rise 1.0 meters	Sea Level Rise 1.41 meters
Anaheim Laboratory	NA	0	0	0	0

The information in Table 1.10d can be found using the Cal-Adapt reference tool at Cal-Adapt.org.

e.

Facility Name	Current Fire Hazard Severity Zone (low, medium, high, very high)
Anaheim Laboratory	NA

The information in Table 1.10e can be found using the Cal-Adapt reference tool at Cal-Adapt.org.

f.

Facility Name	Acres Burned (1961- 1990)	Acres Burned (2035-2064)
Anaheim Laboratory	NA	NA

The information in Table 1.10f can be found using the Cal-Adapt reference tool at Cal-Adapt.org.

g.

Facility Name	HDD/CDD 1961-1990	HDD/CDD 2035-2064
Anaheim Laboratory	2690/1461	1987/2187

The information in Table 1.10g can be found using the Cal-Adapt reference tool at Cal-Adapt.org.

CDFA will work with DGS to determine what actions are necessary to prepare for potential hazards and protect employees.

Table 1.11: New Facilities in Disadvantaged Communities and Urban Heat Islands

Facility Name	Located in a Disadvantaged Community (yes/no)	Located in an urban heat island (yes/no)
Anaheim Laboratory	Yes	No

The information in Table 1.11 can be found at CalEnviroScreen and Urban Heat Island interactive maps.

CDFA used the CalEnviroScreen spreadsheet and tool to identify which new facilities are located within disadvantaged communities and listed this sole facility in Table 1.11. Below Table 1.9 is information regarding CDFA's efforts in assisting disadvantaged communities.

The main cause of the urban heat island effect is from the modification of land surfaces (the temperature of a parking lot is higher than that of a grassy field). CalEPA's document: Preparing California for Extreme Heat: Guidance and Recommendations recommends shading of buildings, asphalt and other dark surfaces with trees to reduce the urban heat island effect. Solar panels placed on canopies over parking lots and other paved surfaces can also shade and reduce the urban heat island effect, the guidance that CDFA has referenced to

date. For future strategies, CDFA will be referring to the Extreme Heat Framework to assist in reducing the effects on planned facilities

Natural Infrastructure

CDFA will meet the requirements set forth in EO B-30-15 to employ natural infrastructure, such as urban tree planting to mitigate high heat days to reduce climate change risks to CDFA's facilities based on sustainability and cost effectiveness.

Full Life Cycle Cost Accounting

EO B-30-15 directs State agencies to employ full life cycle cost accounting in all infrastructure investment. Lifecycle cost accounting includes:

- Considering initial investment costs, as well as lifetime operation and maintenance costs under changing climate conditions, including changing average conditions and increases in extreme events.
- Applying non-market evaluation methods such as travel cost, avoided costs, or contingent valuation to capture benefits that are hard to quantify.

CDFA is working closely with DGS regarding facility planning and will work with DGS RESD and PMDB experts in employing lifecycle considerations in new facility design and operation.

Integrating Climate Change into Department Planning and Funding Programs

EO B-30-15 extends beyond infrastructure to broader planning efforts. CDFA strives to work with communities to prepare for climate change and resolve potential concerns for public health and safety and environmental protection. One example of CDFA's efforts would be the public comment sessions held in conjunction with the Natural Resources Agency and CalEPA, to encourage feedback from the public on creating climate-resilient water systems. The intent is to broaden California's approach on water in the face of a range of existing challenges. Some examples of concerns the public comment sessions may take into consideration include major flood risks that threaten public safety, extreme droughts, severely depleted groundwater aquifers, rising temperatures, year-round wildfires, aging infrastructure, agricultural communities coping with uncertain water supplies and declining species such as native fish populations threatened with extinction, contaminated water supplies, and changing

demands for water. The public comment sessions may also review potential projects to build a safe and dependable climate-resilient water system and ensure healthy waterways for the State's communities, economy and environment. One such meeting was held in Fresno on September 5, 2019 to collect ideas to help shape a roadmap for meeting future water needs and ensuring environmental and economic resilience through the 21st century.

CDFA addressed and considered:

- State policies and laws that no longer fit California's water reality or public values and the most troublesome gaps in State data;
- Proven technologies and forecasting tools that should be adopted across California to bolster the sustainability of water systems; and
- Models from other States and Nations that may be useful to California.

CDFA also discussed the best methods to:

- Help communities ensure safe, affordable drinking water;
- Better enable local and regional water districts to capture, store and move water;
- Support ongoing water conservation;
- Manage urban and agricultural water through the next drought;
- Prepare for economic adjustments as communities fully implement the Sustainable Groundwater Management Act in coming years, and
- Ease regional water management.

CDFA will continue to work with DGS, the Natural Resources Agency, and CalEPA to integrate climate change planning when feasible.

Table 1.12: Integration of Climate Change into Department Planning

Plan	Have you integrated climate?	If no, when will it be integrated?	If yes, how has it been integrated?
Install solar field in Turlock	No	2025	N/A

EO B-30-15 directs state agencies to take climate change into account in their planning and investment decisions and employ life-cycle cost accounting to evaluate and compare infrastructure investments and alternatives. State agencies are directed to prioritize investments that both build climate preparedness and reduce GHGe; prioritize natural infrastructure; and protect the state's most vulnerable populations. Some specific efforts required by EO B-30-15 include the need for departments to:

- Incorporate climate change impacts into the state's Infrastructure Plan;
- Update the Safeguarding California Plan (the state climate adaption strategy) to identify how climate change will affect California infrastructure and industry and what actions the state can take to reduce the risks posed by climate change;
- Factor climate change into state agencies' planning and investment decisions; and
- Implement measures under existing departmental authority to reduce GHGe by 40 percent from 1990 to 2030 and 80 percent from 1990 to 2050.

To reach GHGe reduction goals and zero net energy goals, CDFA plans to install a field of solar panels at CDFA's Turlock Laboratory location. This project is projected for 2023-2025 and is still in the concept planning phase. CDFA's Building and Property Management Unit (BPMU) and the Office of Environmental Farming and Innovation will work together in developing additional planning to integrate climate change into departmental infrastructure. CDFA will consult with DGS' Office of Sustainability regarding best practices from other Departments that have integrated climate change into departmental planning. CDFA will determine the best course of action to prepare for projected climate change effects impacting CDFA facilities.

Table 1.13: Engagement and Planning Processes

Plan	Does this plan consider impacts on vulnerable populations?	Does this plan include coordination with local and regional agencies?	Does this plan prioritize natural and green infrastructure?
Grants for programs that benefit farmers, the industry, and the community in relation to agriculture	Yes	Yes	N/A

Climate change disproportionately impacts vulnerable communities, with certain populations experiencing heightened risk and increased sensitivity to climate change and have less capacity to recover from changing average conditions and more frequent and severe extreme events. Several factors contribute to vulnerability, often in overlapping and synergistic ways. These can include several social and economic factors, and be determined by existing environmental, cultural, and institutional arrangements. Vulnerable populations can include, but are not limited to, people living in poverty; people with underlying health conditions; linguistically or socially isolated individuals; communities with less access to healthcare or educational resources; or communities that have suffered historic exclusion or neglect.

While there is no single tool to identify vulnerable populations in an adaptation context, there are several statewide, publicly available tools that, when overlaid with climate projection data, can help identify communities most at risk to a changing climate. Some of these tools, including a definition for vulnerable communities, are available in a resource guide developed by the Integrated Climate Adaptation and Resiliency Program in the Office of Planning and Research.

CDFA has several systems in place to assist vulnerable populations and communities. To mitigate the impacts of climate change and other potential hazards, CDFA works with farmers to improve environmental practices. To assist struggling communities, CDFA helps communities and farmers by connecting low income communities that benefit from low cost fresh products with struggling farmers that need help selling their products, so both parties can benefit through programs such as farm-to-fork and farmers' markets. In addition,

CDFA, supported by the agriculture industry, also assists communities by helping to establish school and community gardens. Refer to CDFA's report: Improving Food Access in California and the Specialty Crop Block Grant Program for more details on CDFA's efforts on assisting disadvantaged communities and improving industry practices.

CDFA is the lead agency for the Emergency Support Function 11 (ESF 11) of the California State Emergency Plan. CDFA supports the responsible jurisdiction and coordinates activities during and immediately following emergencies impacting the agriculture and food industry and supports the recovery of impacted industries and resources post disaster. In addition, CDFA coordinates efforts to provide evacuation shelters at the fairgrounds throughout the state.

Table 1.14: Climate Change in Funding Programs

Grant or funding program	Integrated climate change into program guidelines?	If no, when will it be integrated?	Does this plan consider impacts on vulnerable populations?	Does this program include coordination with local and regional agencies?
Office of Environmental Farming and Innovation	Yes	N/A	N/A	Yes

Grant funding is designated for specialized purposes unrelated to CDFA facilities (such as industry impacts on the environment) and is not location-specific.

CDFA will continue to assist California's agricultural industry with reducing the impacts of climate change. CDFA's Office of Environmental Farming and Innovation supports agricultural production and incentivizes practices resulting in a net benefit for the environment through innovation, efficient management and science. Incentive Programs are developed in coordination with the Science Advisory Panel which facilitates public comment process.

Measuring and Tracking Progress

Changing climate conditions necessitate an adaptive management approach. An adaptive management approach is informed by tracking changing climate conditions and the performance of a plan or project. Building check points into a project or plan timeline can help to create a system for regular review and, if needed, adjustments.

CDFA will utilize tools from DGS, Energy Star, CalEPA, Climate Registry Information System, and other conservation contacts and tools provided to ensure all requirements are met. CDFA saves annual data to compare to benchmarks and will continue to improve practices based off the information collected.

With the help of DGS RESD and the PMDB, CDFA's BPMU will develop a policy to integrate climate change into all infrastructure investments. CDFA has and will continue to work with RESD and PMDB on all building design and construction projects to identify and prioritize natural and green infrastructure options.

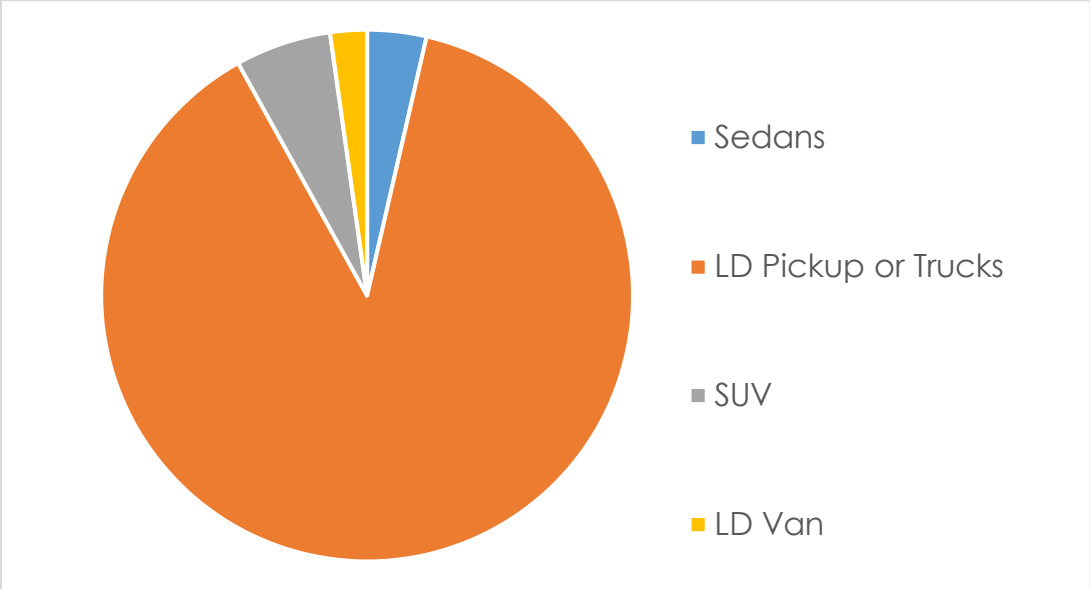
CHAPTER 2 – ZERO EMISSION VEHICLES

Department Mission and Fleet

This Zero Emission Vehicle (ZEV) Report and Plan demonstrates to the Governor and the public the progress the Department has made toward meeting the Governor's sustainability goals related to ZEVs. This report identifies successful accomplishments, ongoing efforts, outstanding challenges, and future efforts.

Per CDFA's internal historical data and the information found at green.ca.gov/fleet, CDFA has 635 vehicles: 13 Cargo/Passenger Vans, 515 Trucks, 34 Sport Utility Vehicles (SUV), 21 Sedans/Station Wagons, 52 ZEVs (25 Plug-In Hybrid Electric Vehicles [PHEVs], and 27 Battery Electric Vehicles [BEV]s).

Graph 2.1: 2020 Composition of Vehicle Fleet



Light-Duty Fleet Vehicles

Light-Duty (LD) Vehicles are primarily used to transport passengers and cargo (e.g., cars, vans, SUVs, pickup trucks), with a gross vehicle weight rating (GVWR) less than or equal to 10,000 pounds (i.e., Class 1 through Class 2 Vehicles, as designated by the U.S. Department of Transportation).

CDFA has over 100 programs performing various tasks 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 requires vehicles to achieve the tasks needed for these programs. Some of the tasks requiring vehicles include:

- Compliance and Enforcement Unit investigations throughout California. CDFA investigates/inspects illegal slaughter of animals, inedible kitchen grease transportation and theft, quality and safety of eggs being transported into California, compliance of rendering plants and collection centers, and dead animal haulers. Investigators are in the field every day, often for their entire work shift. Vehicles must be able to travel at least three hundred miles per day. SUVs are generally used for this work because there must be sufficient space for the investigator, as well as for the required equipment which is normally maintained in the vehicle. The vehicle must be covert so as not to give away the investigator's presence and not be identifiable as a government asset. This includes acquiring a vehicle with an exterior color that will allow it to blend in with the environment, as well as tinted privacy glass. The vehicle must be equipped with keyless entry for quick access in an emergency and a vehicle alarm to secure the equipment stored in the vehicle.

- Bureau of Livestock Identification inspections of all cattle for change of ownership, entry into a registered feedlot, out of state movement or at time of slaughter. Trucks are needed to provide stable driving over rugged terrain. Inspectors often drive off-road on uneven and unpaved roads containing rocks and muddy conditions with steep approach and departure angles. Undercarriage height must clear potential road gullies, ditches, and other road barriers. There is potential for inspectors to transport stolen calves which can weigh between 500-1000 lbs. Additionally, during surveillance, the vehicle must be able to idle for four to six hours while the investigator covertly sits in the cargo area gathering video and photographic evidence of the violations and/or violators. CEU Investigator vehicles function as a mobile office, as the investigators do not have a physical office work location.

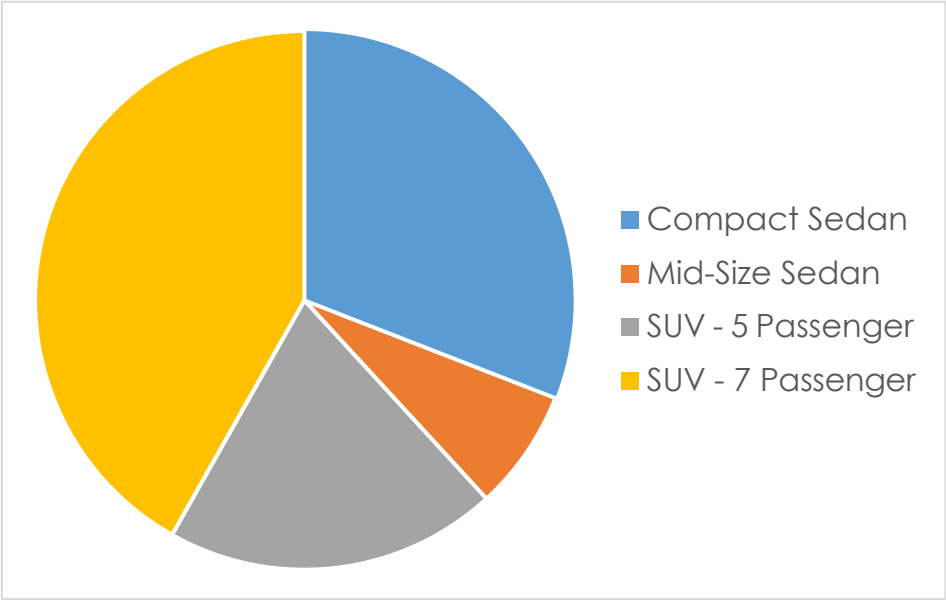
- Specialty Crop Block Grant Program and Farm to Fork related travel. Staff utilize vehicles to support various CDFA run grant programs. Vehicles are utilized to travel to stakeholder meeting venues, outreach events, conferences, additional public events, inspect site locations of grant projects to ensure awarded grant

funds are properly used, and to coordinate miscellaneous marketing and printing projects. This requires travel by state vehicle to various locations throughout the state. CDFA embraces the opportunity to use BEVs and PHEVs when feasible. Longer trips require standard sedans when miles needed exceed the mileage a BEV can run in a trip. Some outreach requires multiple CDFA employees to attend with various material and requires a larger vehicle such as an SUV or van. The appropriate vehicle is determined and selected for each trip with efficiency and economy taken into consideration.

- Surveys for exotic pests, and when found, eradication activities. The vehicles are needed to inspect traps for exotic pests, perform surveys, and apply pesticides. Often, the work occurs in rural areas with rough terrain or in groves. CDFA requires trucks to haul equipment such as spray tanks, water tanks, and toolboxes mounted to the back of the trucks to secure pesticides, re-fill traps with water, contain hazardous waste materials, and secure field tools. Without these trucks, the pest eradication operations or surveys cannot be performed. An exotic pest infestation will result in a large quarantine area; potentially the entire state could be placed under quarantine. This would result in an increase of production costs to the agricultural industry, loss of markets and higher use of pesticides. Trucks are used for hauling large, bulky loads of materials that include agricultural tools and equipment, pest samples, large tanks for water and wastewater, pesticides, and various trapping supplies. Sedans and similar light class vehicles do not provide an adequate area for carrying tanks that contain pesticides, water tanks and toolboxes that can be mounted to the back of the truck to secure pesticides, re-fill traps with water, contain hazardous waste and secure field tools. Many of these items are soiled and contain materials (chemicals, pesticides, and allergens) that must be separated from the occupants of the vehicle.

- Travel between various CDFA locations. CDFA employees are required to travel to different facilities to make deliveries, visit other programs, participate in trainings, and various other responsibilities necessary to continue efficiently function within the department. Generally, BEVs or PHEVs are used for these shorter distance trips and vehicles are charged onsite at CDFA's facilities.

Graph 2.2: Composition of LD Vehicle Fleet



The information in Graph 2.2 was derived from CDFA's internal historical data and the information found on The State Of California Green Fleet webpage.

CDFA has steadily increased the number of PHEVs and BEVs used in its fleet and anticipates an increase in miles per gallon (MPG) as more fuel-efficient vehicles are purchased. It was determined that the MPG drop in 2016 and 2017 was due to an increase in dense, congested traffic. The MPG drop in 2019 was due to rental mileage reporting issues (switched from State Miles Driven Report to Average Vehicle Miles Traveled Reports). 2020 data is not provided because CDFA switched to a new system for gas purchases in 2020 (from Voyager cards to WEX cards July 1, 2021), resulting in tracking gaps. Per CDFA's records:

- In 2015, the average was 15 MPG (7,381,083 miles driven in fleet vehicles + 1,188,292 miles driven in rental vehicles = 8,569,375 total miles driven/ 565,788 gallons of fuel used).
- In 2016, the average was 14 MPG (6,847,402 miles driven in fleet vehicles + 699,794 miles driven in rental vehicles [from private rental agencies] = 7,547,196 total miles driven/ 539,160 gallons of fuel used).
- In 2017, the average was 19 MPG (6,494,462 miles driven in fleet vehicles + 3,097,222 miles driven in rental vehicles [from private rental agencies] = 9,591,684 total miles driven/ 497,900.3 gallons of fuel used).

- In 2018, the average was 20 MPG (6,635,731 miles driven in fleet vehicles + 3,474,205 miles driven in rentals = 10,109,936 total miles driven/ 498,898.06 gallons of fuel used).

- In 2019, the average was 11 MPG (5,707,320 miles driven in fleet vehicles + 567,776 miles driven in rentals [some rental mileage not accounted for] = 6,275,096 total miles driven/ 584,162.46 gallons of fuel used).

CDFA's fleet has reduced the amount of GHGe created through CDFA's fuel use. Per Green California, CDFA's fleet created:

- 3,696 metric tons GHGe in 2015.

- 4,005 metric tons GHGe in 2016.

- 4,036 metric tons GHGe in 2017.

- 3,792 metric tons GHGe in 2018.

- Unable to provide GHGe reduction in 2019, per the above reporting issue, but ZEV purchases increased to reduce GHGe in future years.

CDFA supports California's agriculture through research and prevention of negative impacts caused by pests and diseases, such as the Asian Citrus Psyllid. Driving routes have and will continue to change due to newfound pests and diseases, requiring vehicles to travel to new project locations.

Some routes include more congested areas or require additional mileage through uneven and loose terrain for field experiments, which used more gas per mile. The increase in BEVs and PHEVs where feasible has helped to improve the average MPG for the Department, but the specialized needs required in the field create obstacles for using electric or PHEVs. CDFA will continue to reduce the carbon footprint created by State-owned vehicles by continuing to purchase BEVs or PHEVs that meet the needs of the Department.

Medium-Duty and Heavy-Duty Fleet Vehicles

Medium-Duty (MD) vehicles are trucks widely used by those in the trucking industry. MD trucks refer to truck Classes 6-7, which have a gross vehicle weight rating range of 19,501- 33,000 pounds. MD trucks are used for a variety of lighter duty applications.

Any vehicle exceeding 26,001 pounds is considered Heavy-Duty (HD). Examples include city transit buses, mobile cranes, cement mixers, refuse trucks, and tractors designed to pull refrigerated trailers, dry vans, and other equipment.

CDFA does not currently have MD or HD vehicles.

Table 2.1: Total Fuel Purchased in 2019

	Diesel	Gasoline	Renewable Diesel
Fuel Amount Gallons	2,390.44	581,772.02	0

The information in Table 2.1 was derived from CDFA's internal historical data.

Incorporating ZEVs into the State Fleet

Pursuant to the Governor's EO B-16-12, state departments are required to increase the number of ZEV within their state fleet. As CDFA moves towards this initiative, additional measures have been placed on the ZEV vehicle purchasing policy. As advised as of January 1, 2020, CDFA purchased vehicles from authorized Original Equipment Manufacturers (OEMs) that have aligned with the California Air Resources Board (CARB). In addition, the economic impacts from the COVID-19 pandemic resulted in a decrease in state revenues for fleet purchasing. With these policies in place, CDFA will continue to pursue the most effective ways to incorporate ZEVs into CDFA's fleet.

LD ZEV Adoption

A widespread shift to ZEVs is essential for California to meet its GHGe goals. Starting in Fiscal Year (FY) 2017/18 the percentage of ZEVs purchased to replace LD vehicles has and will continue to increase by 5% each year. The percentage of ZEVs currently required is at 35% in FY 2021/22 and will be 50% in FY 2024/25.

CDFA currently uses ZEVs throughout the Department for short commutes to meetings, small distances between CDFA facilities and other state buildings, and

mail distribution among Sacramento locations. CDFA has and will continue to meet all requirements set forth by the Governor's EOs and will continue to evaluate usage and additional feasible vehicle roles for ZEVs to determine viable options to expand the percentage of ZEVs in its fleet.

CDFA follows State guidelines on vehicle mileage and age thresholds for replacement; and considers operational needs and budget in determining the number of vehicles proposed to be acquired through its annual Fleet Acquisition Plan (FAP).

Currently ZEVs are available on statewide commodity contracts in a range of LD vehicle categories. Many vehicle classes currently lack a ZEV alternative to purchase due to the purchasing restrictions imposed in State Administrative Manual (SAM) Section 4121.8, but CDFA will continue to pursue the most effective ways to incorporate ZEVs into their fleet.

Table 2.2: LD Vehicles in Department Fleet Currently Eligible for Replacement

	Sedans	Minivans	Pickups	SUVs, 5 passengers	SUVs, 7 passengers	Total
# of vehicles eligible for replacement	3	0	50	6	0	59

Table 2.2 shows the vehicles that can be replaced. Vehicles will be replaced with ZEVs whenever feasible. CDFA FAP projections are based on department needs on an annual basis. Per the FY 2021-22 FAP, 59 vehicles are eligible to be replaced (3 sedans, 50 pickups, and 6 SUVs) but only 25 vehicles will be purchased (6 BEV sedans, 1 van, 11 trucks, 2 ATVs, and 5 SUVs) for the year.

CDFA requires regular gas vehicles, diesel trucks, or SUVs to meet increased cargo needs, travel on rugged terrain and unpaved roads in rural parts of the State, and protect personnel safety when performing vital and mandated field activities such as commodity inspections in rural and secluded areas; product sampling; and confiscation and transportation of infested/contaminated commodities using bio-controlled containment systems critical for the success of quarantines, potential eradication of new pests, and for ensuring contaminated food does not reach consumers. Sedans, vans, and similar light class vehicles do not provide adequate area for the safe storage and transportation of sensitive

and fragile inspection equipment and supplies used. Examples include Dairy Foods Specialists/Environmental Scientists in the field, and/or product samples collected for official purposes. Equipment, supplies (such as propane tanks) and samples must be protected, lay flat in the vehicle, and be properly segregated from the driver to ensure employee safety. Increased complexity and diversity of both processing equipment and varieties of products being manufactured in the State require greater amounts and types of equipment for purposes of regulatory inspection than in previous years. As equipment and supply needs have expanded, insufficient cargo space is putting official sample integrity and employee safety at risk.

Table 2.3: LD ZEV Additions to the Department Fleet

	21/22	22/23	23/24	24/25	25/26
BEV	6	13	15	17	18
PHEV	0	27	30	34	37
Fuel Cell Vehicle	0	0	0	0	0
Percent of total purchases	24%	40%	45%	51%	55%
Required ZEV Percentage	35%	40%	45%	50%	55%
Total number of ZEVs in Fleet	58	128	173	224	279

Table 2.3 lists projected purchases. CDFA can only provide estimates and not firm values for projected purchases because it is unknown, prior to the purchasing requests, what types or how many vehicles CDFA Programs will purchase for replacement. CDFA purchases vehicles based on need and ensures the appropriate percent of vehicles purchased are ZEVs. The overall number of vehicles CDFA will purchase in the future has not yet been determined. Currently, CDFA plans to purchase 25 vehicles for FY 2021/22 (6 BEV sedans, 1 van, 11 trucks, 2 ATVs, and 5 SUVs). Based off the current plan to purchase 25 vehicles, the 35% goal has been met. CDFA will continue to meet or exceed the purchasing percentage goals.

CDFA owns 27 and rents 29 BEVs: ten BEVs purchased in FY 2014/15, one purchased in FY 2015/16, seven purchased in FY 2016/17, four purchased in FY 2017/18, 29 acquired as long-term rentals in FY 2018/19, and five purchased in FY 2019/20. Long term rentals count towards purchasing percentage goals.

CDFA owns 25 PHEVs: one PHEV purchased in FY 2004/05, six PHEVs purchased in FY 2012/13, one PHEV purchased in FY 2013/14, three PHEVs purchased in FY 2014/15, eight Chevrolet Bolts purchased in FY 2015/16, four Chevrolet Bolts purchased in FY 2016/17, two PHEVs and three Chevrolet Bolts purchased in FY 2017/18, three Chevrolet Bolts purchased and 74 PHEVs rented in FY 2018/19,

nine PHEVs and two Chevrolet Bolts purchased in FY 2019/20, and four PHEVs purchased in FY 2020/21. Chevrolet Bolts are counted toward the ZEV goal on a one-to-one ratio; all other PHEVs are counted on a two-to-one ratio ({2017/18: 4 BEV + 3 Chevrolet Bolts + [6 PHEV/2] = 10, which is 17% of 60}, {2018/19: 29 BEV + 2 Chevrolet Bolts + [82 PHEV/2=41] = 72, which is 24.5% of 294}).

CDFA has met all goals set forth by the Governor's EO and will continue to work with DGS Office of Fleet and Asset Management, PBMD, RESD, and relevant contractors in meeting Zero Net Energy annual requirements such as purchasing ZEVs and integrating Electric Vehicle Supply Equipment (EVSE) to support all ZEVs purchased.

MD-HD ZEV Adoption

The adoption of MD/HD ZEVs is essential to meet GHGe reduction goals. As of July 2020, SAM section 4121.9 requires state agencies to prioritize the purchasing of MD and HD ZEVs vehicles into their fleets. Additionally, beginning December 31, 2025, departments are required, per Assembly Bill (AB) 739, to have 15% of newly purchased vehicles with a gross weight rating of 19,000 pounds or more be ZEVs. This percentage will increase to 30% by December 31, 2030.

CDFA vehicles are all LD. CDFA will continue to work with DGS to replace vehicles with ZEVs whenever possible.

Table 2.4: MD/HD Vehicles in Department Fleet Currently Eligible for Replacement

	Vans, Class 2b	Vans, Class 3 & 4	Vans, Class 5 & 6	Trucks, Class 3-6	Truck, Class 8	Total
# of vehicles eligible for replacement	0	0	0	0	0	0

All CDFA vehicles are LD vehicles.

Table 2.5: MD/HD ZEV Additions to the Department Fleet

	21/22	22/23	23/24	24/25	25/26
BEV	0	0	0	0	0
PHEV	0	0	0	0	0
Fuel Cell Vehicle	0	0	0	0	0
Percent of total purchases	0	0	0	0	0
Total number of ZEVs in Fleet	0	0	0	0	0

Table 2.5 shows the estimated number of MD/HD ZEVs that have been or are anticipated to be added to the department fleet in coming years. CDFA only has LD vehicles and does not have or anticipate having any MD or HD vehicles. CDFA will continue to consider the impact of the MD/HD ZEV first purchasing policy (SAM Section 4121.9) and the CARB Aligned Vehicle Manufacturer Purchasing Restrictions (SAM Section 4121.8). The number of ZEV's purchased in prior years is available from The State of California Green Fleet webpage.

ZEV Take-home Vehicles

Vehicles that are authorized for home storage, per SAM Section 4109, are subject to all applicable ZEV purchasing policies. When incorporating ZEVs authorized for home storage into CDFA's fleet, CDFA adheres to the ZEV purchasing mandate based on the total amount of vehicles requested for the department's annual FAP. CDFA evaluates the range and charging station availability for each vehicle needed and uses that data to determine whether the right type of ZEV to be purchased is a BEV or PHEV.

CDFA's charging policy holds employees accountable for ensuring ZEVs are charged by the employees utilizing the vehicles. Employees driving ZEVs with

Home Storage Permits are required to charge overnight at their home and/or use ChargePoint stations near their home.

Telematics Plan

Telematics is a method for monitoring vehicle use. Using Global Positioning System and on-board diagnostics, telematics provides valuable information that often results in fuel savings and improved vehicle utilization. Telematics is especially important for verifying that PHEVs are maximizing the use of electric fuel rather than gasoline. Departments that have committed to installing telematics on their fleet are exempt from the requirement to allocate half of their ZEV purchases as purely BEVs.

In accordance with SAM section 4122, state departments were required to install telematics devices on all state fleet assets. Departments were required to develop and issue a telematics policy specific to their needs by March 31, 2021, install telematics devices on all LD vehicles by August 1, 2021, and install telematics on all remaining assets by February 1, 2022.

CDFA consulted with representatives from CalTrans and DGS OFAM. A CDFA Telematics policy was completed in 2021 and posted on CDFA's Portal. Leveraging the Statewide telematics contract, which DGS OFAM and CalTrans developed, CDFA awarded a telematics contract and telematics GPS devices were installed on CDFA's fleet for all but one vehicle. The remaining vehicle installation is scheduled to be completed by April 30, 2022. The newly installed Telematics database is under review by the BPMU, and capabilities and functions are being explored, and are not yet defined.

CDFA Parking Facilities

CDFA has 21 owned facilities and 52 leased facilities. This means that 29% of CDFA facilities are owned, while the other 71% are leased. Six out of the 21 CDFA-owned facilities have allocated parking; 32 out of the 52 leased facilities have allocated parking for a total of 38 facilities (52% of all CDFA facilities) with mixed parking spaces available for employees and members of the public; 17 of these facilities have parking spaces available for fleet BEV/PHEVs.

The 21 CDFA-owned facilities include 16 Agriculture Inspection Stations and five other buildings which function as laboratories, greenhouses, or fruit and vegetable quality control centers.

The Agriculture Inspection Stations are small structures on freeways and highways used as check points to stop the public from spreading insects and

plant disease throughout California, which could negatively impact California's agriculture. These facilities do not have much capacity for impacting GHGe and generally don't have a large amount of space designated specifically to parking. These geographical locations tend to be impractical to use BEVs.

The five CDFA-owned facilities (three Laboratories, the Meadowview facility, and the Arvin greenhouse for the Glassy Winged Sharpshooter program) are more practical for impacting GHGe, as they contain more parking spaces and more square feet (Ft^2). Two of CDFA's laboratories have about 2,000 Ft^2 and the third has 10,000 Ft^2, one floor each, and 23-38 parking spaces each. CDFA's Meadowview facility has 101,238 Ft^2, two floors, and 196 parking spaces. CDFA's Arvin location has 14,300 Ft^2, and five parking spaces.

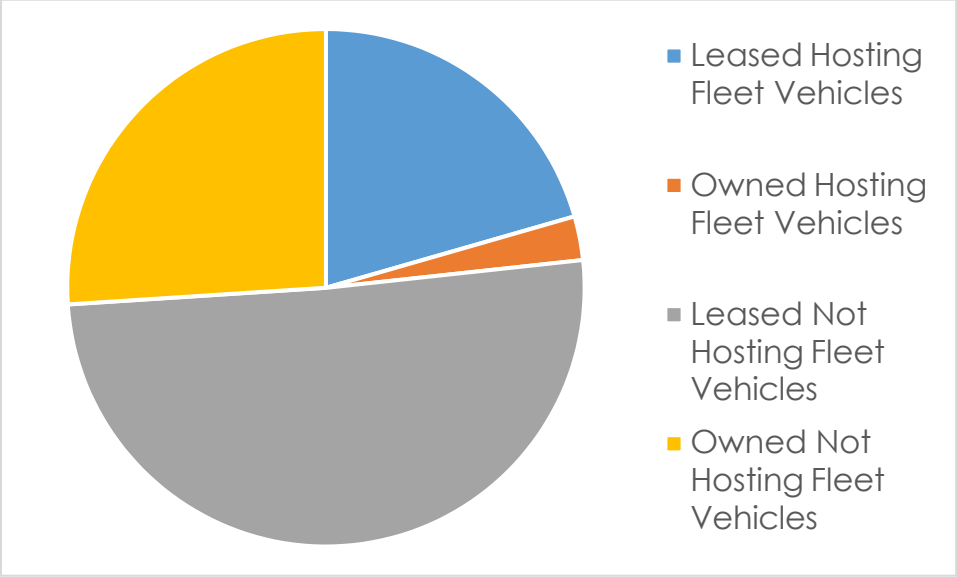
CDFA's GHGe reduction plan focuses on leased facilities and owned facilities large enough for feasible GHGe reductions. Level 1 (L1) chargers are 120-volt outlets accessible to vehicles. Level 2 (L2) chargers are 240-volt outlets or vehicle chargers. Level 3 (L3) chargers are 480-volt fast chargers. Throughout the State, CDFA currently has access to 106 EVSE (58 L1 charging ports and 48 L2 charging ports [24 dual chargers]).

Since 2015, CDFA has and will continue to analyze its State-owned facilities for EVSE parking capacity to determine where installation will be most cost-effective and appropriate, complete installations where applicable, and complete the EVSE Infrastructure Plan on an annual basis per EO B-16-12 (issued in 2012) and DGS Management Memo (MM) 16-07 (issued in 2016).

CDFA worked with DGS in acquiring and installing eleven dual EVSE (22 ports total) for five Sacramento locations – Meadowview (one dual charger), Florin-Perkins (one dual charger), 2800 Gateway Oaks (three dual chargers), 2750 Gateway Oaks (three dual chargers), and 2710 Gateway Oaks (three dual chargers).

The percentage of ZEVs in CDFA's fleet will gradually increase every year to meet the requirements and regulations set forth by the Governor's EO. As the number of ZEVs increases, CDFA plans to work with DGS RESD in planning and implementing the installation of more EVSE, where feasible.

Graph 2.3: Facilities with Parking



CDFA currently has fleet vehicles at 15 leased facilities and two owned facilities. There are 37 leased facilities and 19 owned facilities that do not currently have fleet vehicles.

Per the ZEV action plan, L1 or L2 chargers should make up approximately 5% of all CDFA parking areas. CDFA has L1 and L2 chargers for 5.17% of all parking areas. DGS recommends *at least* 25% of chargers for employees be L2 and that 75% of fleet chargers be L2. Although 55% of chargers at CDFA locations are currently L1 chargers, to meet DGS recommendations and in consideration of the nature of CDFA's fleet operations and the length of stay for visitors and employees, CDFA has determined it is appropriate to invest in L2 chargers for all new installations.

Based on estimates of future ZEV fleet purchases and a count of visitor and workplace parking spaces, it has been determined that CDFA has exceeded the EVSE goals for leased and total parking spaces; but CDFA will need 10 more L2 charging spaces at owned facilities to meet the goal of EVSE for 5% of parking areas at owned facilities.

Parking spaces at 21 CDFA owned facilities:

- CDFA currently has 293 owned parking spaces.
- Five parking spaces are EVSE (1.71% of owned parking spaces).
    - Three spaces have L1 charging ports,

- Two spaces have L2 charging ports.

- 15 spaces are required to meet the 5% goal (5% of 293= 15 spaces with charging ports). CDFA plans to install L2 chargers for the additional 10 spaces needed to meet the 5% goal (the other five spaces for this goal are listed above). The installation status of these chargers is detailed under Table 2.6.

Parking spaces at 52 leased facilities:

- CDFA currently has 1,756 leased parking spaces.

- 101 parking spaces are EVSE (5.75% of leased parking spaces).

  - 55 spaces have L1 charging ports,

  - 46 spaces have L2 charging ports.

- 88 spaces are required to meet the 5% goal (5% of 1,756). CDFA exceeds the 5% goal.

Total number of parking spaces at 73 facilities (owned and leased combined):

- CDFA currently has 2,049 parking spaces total.

- 106 parking spaces are EVSE (5.17% of all parking spaces).

  - 58 spaces have L1 charging ports,

  - 48 spaces have L2 charging ports.

- 103 spaces are required to meet the 5% goal (5% of 2,049). CDFA exceeds the 5% goal.

Table 2.6: High Priority EVSE Projects

Facility Name	Total Parking Spaces	Existing L1 Charging Ports (2020)	Existing L2 Charging Ports (2020)	Total Charging Ports (2020)	EVSE Ports Needed by 2025
Anaheim Laboratory	38	0	0	0	2
Meadowview Road Complex	196	2	2	4	10
San Bernardino Veterinary Laboratory	30	0	0	0	1
Turlock Veterinary Laboratory	23	0	0	0	1
Total	**287**	**2**	**2**	**4**	14

The information in Table 2.6 is from CDFA's internal historical data. The facilities with the most urgent need for chargers (only the CDFA owned properties that do not currently have charging stations for 5% of the parking available) are listed in Table 2.6. Table 2.6 does not include a department-wide count. The EVSE ports needed by 2025 that are listed in Table 2.6 includes the total count needed, including existing charging ports. (The Meadowview facility has four of the required 10 ports; CDFA will need to install six more charging ports by 2025. A total of 14 ports are needed for the four locations listed by 2025. There are currently four charging ports at Meadowview, requiring 10 more to be installed by 2025.)

There were no L1 or L2 chargers prior to the benchmark. CDFA's GHGe reduction plan focuses on leased facilities and owned facilities large enough for feasible GHGe reductions. Throughout the State, CDFA currently has 39 leased facilities, 15 of the leased facilities have EVSE. CDFA currently has 19 owned facilities, two of the owned properties have EVSE (four ports at the Meadowview facility and one port at the Needles facility). The facilities with EVSE contain a total of 106 EVSE ports (58 L1 chargers and 48 L2 chargers). There were previously 39 more ports, but they were at leased facilities CDFA no longer occupies. Some of CDFA's efforts to reach this number of stations include:

- CDFA analyzes its State-owned facilities for EVSE parking capacity to determine where installation will be most cost-effective and appropriate, and completes an EVSE Infrastructure Plan every year since 2015 per MM 16-07.

- In 2018, CDFA re-asserted the need for DGS RESD and OFAM to work with one another in supporting CDFA in pursuing the installation of charging infrastructure in its leased facilities after experiencing challenges.

CDFA will continue to work with the Office of Sustainability on plans to install chargers for the 10 additional ports needed and will evaluate the locations for these chargers. Some of the plans CDFA will pursue for installing chargers at owned and leased locations include:

New chargers for owned facilities:

- CDFA is currently working with DGS to install one dual charger (two ports) for the Anaheim laboratory for a total of two single panel and two dual chargers (four ports).
- CDFA is currently working with DGS to install two dual chargers (four ports) at CDFA's Meadowview facility and will continue to work towards installing one more dual charger (two ports) for a total of five dual chargers (10 ports).
- CDFA is in the planning stage of adding one dual charger (two ports) for the San Bernardino Veterinary Laboratory.
- CDFA is in the planning stage of adding one dual charger (two ports) for the Turlock Veterinary Laboratory.

New chargers for leased facilities:

- CDFA is currently working with DGS to install four dual chargers (eight ports) at the 2399 Gateway Oaks facility.
- CDFA is currently working with DGS to install one dual charger (two ports) at the Commerce facility for a total of three ports.
- CDFA is currently working with DGS to install one dual charger (two ports) at the Ontario facility for a total of two dual chargers (four ports).
- CDFA is currently working with Southern California Edison to install one dual charger (two ports) at the Camarillo facility. CDFA is still waiting on correspondence from the property owner in order to proceed with this project. If this doesn't move forward, CDFA plans to work with RESD to purchase the chargers. CDFA is currently utilizing charging stations 1.05 miles away from this location.

The percentage of ZEVs in CDFA's fleet will gradually increase every year to meet the requirements and regulations set forth by the Governor's EO. As the

number of ZEVs increases, CDFA will need chargers to support them. The chargers may be owned by DGS or other properties CDFA leases.

Outside Funding for Electric Vehicle Supply Equipment (EVSE)

CDFA has engaged with DGS, CalEPA, and ChargePoint to find funding assistance for energy conservation and EVSE. Most of CDFA's owned facilities are Agriculture Inspection Stations that cannot support the EVSE because they are on the highway with only highway shoulder parking instead of official dedicated parking owned by CDFA. CalEPA and ChargePoint have advised CDFA on a few possible opportunities for assistance from Utilities for EVSE installation efforts; including but not limited to CDFA's offices in Sacramento, Fresno, and San Joaquin County. CDFA will continue to evaluate the feasibility in using various programs, such as the above and Electrify America, to install EVSE in leased and owned facilities at reduced cost to the State.

Hydrogen Fueling Infrastructure

CDFA determined that installation of hydrogen fueling infrastructure at Department facilities is not an efficient use of State funds to reduce GHGe, especially since CDFA does not own any hydrogen fueled vehicles. CDFA has purchased Ethanol as an alternate fuel type and will continue to pursue alternate options to better serve the reduction of GHGe.

Comprehensive Facility Site and Infrastructure Assessments

Site Assessments are performed to establish the cost and feasibility of installing needed EVSE. Table 2.7 lists the facilities that should have additional chargers installed.

Table 2.7: Results of Site Assessments

Facility Name	L2 Chargers with Current Electrical System	Total cost for Project using Current Electrical System	L2 Chargers with Electrical System Upgrades
Anaheim Laboratory	1	$2,902	0
Meadowview	3	$8,706	0
San Bernardino Veterinary Laboratory	1	$2,902	0
Turlock Veterinary Laboratory	1	$2,902	0
Total	6	$17,412	0

The information in Table 2.7 contains approximate dollar amounts for new proposed chargers based off CDFA's historical data and quotes listed on CalEprocure's website. This dollar amount is subject to change pending official assessments and quotes.

All chargers provide dual charging (a dual charger is a charging unit that has two ports so it can charge two vehicles at the same time). There is one dual charger (two ports) at Meadowview and one at Florin Perkins, there are three dual chargers (six ports) at 2710 Gateway Oaks, and there are three dual chargers (six ports) at 2750 Gateway Oaks and 2800 Gateway Oaks. CDFA is proposing an addition of 6 chargers (12 ports) at the locations listed in Table 2.7.

EVSE Construction Plan

CDFA will continue to work with DGS, Office of Sustainability Transportation Unit, to ensure design, bid, construction, and activation of EVSE to support increase in fleet and workplace BEVs and PHEVs required to meet the Governor's EOs and other regulations impacting fleet purchases.

EVSE Operation

CDFA will continue to keep pace with the increasing regulations and requirements to reduce GHGe and other negative impacts on the environment. As CDFA purchases more BEVs and PHEVs, CDFA will install the EVSE infrastructure necessary to support these additional ZEVs.

There are service plan contracts in place for Department-owned chargers. CDFA has been working closely with DGS RESD to ensure all aspects of installation and maintenance are addressed at CDFA leased and owned facilities. For every new site search and construction project, CDFA is working with RESD to incorporate EVSE into the plans and DGS, Office of Sustainability, Transportation Unit to purchase chargers. CDFA will also pursue Sacramento Municipal Utilities District (SMUD), ChargePoint, and other DGS recommended funding applicable to the locations of the chargers.

CHAPTER 3 - ENERGY

This Energy Report demonstrates to the Governor and the public the progress CDFA has made toward meeting the Governor's sustainability goals related to energy. This report identifies successful accomplishments, ongoing efforts, and outstanding challenges.

Department Mission and Built Infrastructure

CDFA's mission 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.

Partnering with county offices, CDFA provides valuable services to producers, merchants, and the public. CDFA offices include leased properties with a total of 431,373 Ft^2 and owned properties with a total of 160,808 Ft^2.

To meet the Governor's sustainability goals and the EOs implementing those goals, CDFA has reduced energy purchased (electricity, natural gas, and propane) and is working with DGS in meeting the 50% ZNE requirement for all buildings by 2025.

Steps in Energy Use Reduction:

- **Tracked energy use:** CDFA has performed an internal energy use audit and reported energy use in EnergyStar and CRIS every year since 2012. CDFA will work with utility companies in performing more in-depth energy audits in the future.
- **Decreased load use:** CDFA has decreased load use through various methods, including:
    - Decreased air conditioning use in server rooms, setting the temperature for data centers to the base maximum temperature allowed by equipment manufacturers;
    - Reduced its use of standalone Windows servers from 60 prior to 2010, to approximately five, by consolidating and virtualizing the systems and functions they served into two virtualized multi-blade chassis;

- Set all computers, copiers, and printers to utilize their Energy Saver mode when inactive;
- Began using the Verdiem Surveyor power management software in 2008 to control and reduce power usage by desktop computers;
- Purchased Energy Star rated equipment where practical;
- Removed all vending machines and refrigerators that were not Energy Star rated;
- Set HVAC building controls for a two-degree fluctuation;
- Replaced and repaired HVAC where applicable;
- Partnered with SMUD on various projects at CDFA's Center for Analytical Chemistry Laboratory in Sacramento, California. Projects included shade trees planted around the facilities and participation in SMUD's Energy Rebate Program for the replacement of the facilities' HVAC chillers;
- Worked with CalEPA, DGS' Office of Sustainability, and the Climate Registry to determine the best course of action for energy reduction. CDFA has and will continue to evaluate incentive programs which may supplement project costs. CDFA continues to pursue energy reduction options which include, but may not be limited to, solar panel installation, energy audits, demand response for additional locations, and/or additional purchased renewable energy. CDFA is working with DGS and developing plans for increasing use of current strategies in the future for additional GHGe reductions and ZNE efforts.

- **Increased employee awareness:** CDFA encouraged employees to reduce energy use by turning off lights when not in use; using power strips, and unplugging devices from outlets when fully charged. CDFA has issued notices to employees to reduce energy use during extreme fire, storm, and heat events while maintain a comfortable office or telework temperature by:
  - Turning off all unnecessary lights; especially in unused spaces. Only utilizing interior suite and office lighting for areas occupied by staff. Turn off interior lights for areas not being used by staff

where applicable. At the end of the workday turn off the interior suite and office lights;

- When leaving the office or when not in use, turning off computers, screens, appliances, and equipment (printers, copiers, etc.) or ensuring sleep mode or power management settings are enabled, so the equipment goes to sleep;
- Setting thermostat at 78 degrees or higher, if possible (at home and work);
- Using fans instead of air conditioning;
- Closing all doors, blinds, curtains, and other window coverings where possible. This will reduce the temperature in the office and limit the demand on the HVAC system; allowing the HVAC system to operate efficiently. The HVAC system operates on zones. Open doors result in the system trying to compensate for the larger area;
- Reducing the frequency of exiting and entering the building or office;
- Using major appliances during off hours (after 9 pm).

- **Participated in Demand Response Programs:** Prior to 2020, CDFA enrolled all facilities over 10,000 Ft^2 in automated Demand Response Programs (DRP) provided by utilities to reduce the stress on the grid and high electricity prices by curtailing, or reducing, the demand for electricity during certain time periods. One facility has been added to CDFA's owned property in the last year (Anaheim Laboratory) and CDFA will work with the utility to enroll it in a DRP to maintain DRPs for 100% of owned properties over 10,000 Ft^2.

- **Participated in conservation campaign:** In 2017, CDFA partnered with the State of California Energy Commission, participating in the statewide energy conservation campaign to reduce energy use. CDFA encouraged all employees to reduce energy consumption by powering off computers every night, using power strips, unplugging charging devices once fully charged, and turning off the lights when room(s) are not in use. The Cal Eclipse "One Thing for the Sun" campaign encouraged employees to reduce energy use leading up to and during the solar eclipse.

- **Participated in furloughs and teleworking:** In 2008-2013, CDFA participated in furloughs, reducing the number of days staff was onsite. In 2020, CDFA moved to a business model that permanently integrates more remote-based employment. This reduction of staff onsite impacted the energy used at each location, allowed CDFA to downsize the total office space and equipment needed for operation, and limited the number of break rooms and employee equipment needed, reducing energy demand and use. CDFA will continue to use the remote-based employment model in the future wherever feasible.

- **Worked with DGS to install solar field (2013-2015 and 2018-present):** In 2013-2015 CDFA worked with DGS in developing a project plan for the installation of solar panels at the Meadowview facility but instead entered into an agreement with USDA to have a laboratory built on the land. In 2018, CDFA began working with DGS on a plan to create a solar field at the new Turlock Laboratory location. The land was acquired in November 2019, the conceptual plan for a Power Purchase Agreement for solar power was established in 2020, and construction is projected for 2023-2025. CDFA's ZNE goals and other sustainability efforts will be pursued for this CDFA location.

Table 3.1: Total Purchased Energy 2020

Purchased Energy	Baseline Quantity	2020 Quantity	% Change
Electricity	22,596,391 kWh	7,496,537 kWh	-67%
Natural Gas	332,337 Therms	118,235 Therms	-64%
Steam	34,120,409 kBTU	7,481,000 pounds	-78%
TOTALS	**102,322,875 kBTU Site**	**94,966,017 kBTU Site**	**-7%**

The information in Table 3.1 is from CDFA's internal historical data and Energy Star. Units of energy are measured in Thousand British thermal units (kBTU), Kilowatt Hours (kWh), and Thermal Units (Therms). In 2003, CDFA used 22,596,391 kWh. In 2010, CDFA used 332,337 Therms (natural gas not tracked prior to 2010). In 2016, steam used was 34,120,409 (steam not recorded prior to 2016).

Table 3.2: Properties with Largest Energy Consumption

Building Name	Floor Area (Ft^2)	Site Energy (kBTU)	Source Energy (kBTU)	Source EUI (kBTU/ Ft^2-year)
Meadowview	101,238	17,279,456	586,350,629	26,987,722.33
Mountain Pass Inspection Station	19,000	10,866,546	12,109,546	-
San Bernardino Veterinary Laboratory	1,700	5,100,328	115,145,339	419,277.38
Turlock Veterinary Laboratory	2,765	1,099,762	15,107,421	702,607.24
Truckee Agriculture Inspection Station	1,308	841,524	28,555,771	-
Hornbrook Agriculture Inspection Station	784	618,567	10,831,956	218,751.68
Needles Agriculture Inspection Station	497	386,654	13,120,471	134,958.49
Glassy Winged Sharpshooter Project - Arvin	2,000	307,685	10,440,784	523,162.50
Smith Agriculture Inspection Station	550	320,383	5,610,288	135,648.56
Dorris Agriculture Inspection Station	722	288,730	5,056,045	201,452.44
Total in Table 3.2	**130,564**	**37,109,635**	**802,328,250**	**-**
All CDFA Buildings	**592,181**	**152,612,147**	**907,106,810**	**-**
Percent of Totals	**22%**	**24%**	**88%**	**-**

The information in Table 3.2 is from CDFA's internal historical data and Energy Star. The Energy Use Intensity (EUI) kBTU/ Ft^2 listed only includes the Ft^2 for the facilities reporting energy use which differs from the total Ft^2 of space for all leased and owned facilities. All site energy comes from the same utility source.

CDFA has been working with CalEPA, DGS' Office of Sustainability, and the Climate Registry to determine the best course of action for energy reduction. CDFA has performed an internal energy use audit and will work with utility companies in performing more in-depth energy audits. CDFA has and will continue to evaluate incentive programs which may supplement project costs. CDFA continues to pursue energy reduction options which include, but may not

be limited to, solar panel installation, energy audits, DRP for additional locations, and/or additional purchased renewable energy. CDFA is also developing plans for increasing use of current strategies in the future for additional GHGe reductions. CDFA is working with DGS in meeting ZNE requirements by December 2020 through new construction projects.

Zero Net Energy

State policies set forth the following milestones for state ZNE buildings:

- 2017 – 100% of new construction, major renovations and build-to-suit leases beginning design after 10/23/2017 must be ZNE.
- 2025 – 50% of total existing building area will be ZNE.

Table 3.3: ZNE Buildings

Status of ZNE Buildings	Number of Buildings	Floor Area (ft^2)	% of Building Area
Buildings Completed and Verified	0	0	0
Building in Design or Under Construction	0	0	0
Building Proposed for Before 2025 (but not yet in design)	1 (Turlock)	Undetermined	Undetermined
Additional Building Area within 15% w/ EE projects	0	0	0
Totals for ZNE Buildings by 2025	1	Undetermined	Undetermined
Totals for All Department Buildings by 2025	1	Undetermined	Undetermined
% ZNE by 2025	5%	Undetermined	Undetermined

The information in Table 3.3 is from CDFA's internal historical data.

In 2013, CDFA worked with DGS in developing a project plan for the installation of solar panels at the Meadowview facility. In 2015, the project was terminated and CDFA engaged in an agreement with the USDA to have a laboratory built on the land. In 2018, CDFA discussed the feasibility of installing solar panels on the parking lot of the new Turlock facility. Project developments are currently pending.

New Construction Exceeds Title 24 by 15%

All new state buildings and major renovations beginning design after July 1, 2012, must exceed the current California Code of Regulations (CCR) Title 24, energy requirements by 15% or more.

Completed Projects

- Anaheim Laboratory – 10,000 Ft^2: CDFA acquired the building in 2020-2021.
- Mountain Pass (Nipton/Yermo) – 19,000 Ft^2: CDFA informed CalTrans of the Title 24 requirements and CalTrans completed this new Agriculture Inspection Station in the Fall of 2018.
- Tulare – 142 Ft^2: Building construction was completed and CDFA is leasing to own this veterinary laboratory from the University of California.

Pending Projects

- Blythe: This project is in the acquisition phase. DGS is working with CalTrans on approval for the design and location of the facility before a site is acquired. Construction is projected to begin in 2024-2025.
- Needles: DGS performed an initial study for a new facility for the Needles Agriculture Inspection Station. CDFA received acquisition/preliminary plans funding for FY 2021-22.
- Turlock Laboratory: DGS completed the land acquisition in November 2019 and will proceed with construction process. ZNE and other sustainability efforts will be pursued for this CDFA location. Construction is projected for 2023-2025.

CDFA will continue to work with DGS to ensure that all new buildings and major renovations meet the energy requirements.

Table 3.4: New Construction Exceeding Title 24 by 15%

Buildings Exceeding Title 24 by 15%	Number of Buildings	Floor Area (ft^2)
Completed Since July 2012	2	29,000
Under Design or Construction	0	0
Proposed Before 2025	2	29,000

The information in Table 3.4 was derived from CDFA's internal historical data.

All new construction over 5,000 Ft^2 area is required to meet this standard. Mountain Pass Agriculture Inspection Station is 19,000 Ft^2 and Anaheim Laboratory is 10,000 Ft^2. No other measurements for pending projects have been determined so only Mountain Pass and Anaheim were included in Table 3.4.

Reduce Grid-Based Energy Purchased by 20% by 2018

EO B-18-12 requires state agencies to reduce grid-based energy purchased by 20% by 2018, compared with a 2003 baseline.

CDFA has performed the specific efforts necessary to fully comply with Department of Technology Basic Policy 4819.31, SAM Section 4819.31 item 12 and 13, such as: implementing power management practices on all computers, printers, copiers, scanners, and monitors; and ensuring that during normal business hours devices which are not in use for 30 minutes automatically go into an energy-saving mode. All desktop and laptop computing devices, thin client devices, printers, copiers, scanners, monitors, etc. come with factory default setting to go into energy saving mode after 30 minutes. CDFA uses this default setting to ensure all computers, copiers and printers are set to utilize their Energy Saver mode during periods of inactivity. This power management software comes with all Hewlett Packard, Sharp, and Canon products.

CDFA partnered with the California Energy Commission, participating in the Cal Eclipse "One Thing for the Sun" campaign. CDFA notified all employees to set air conditioners to 78 degrees, turn off unnecessary lights during the event, reduce overhead lighting as much as possible without creating unsafe conditions, and power down any equipment not in use (copiers, laboratory equipment, monitors, etc.).

CDFA will continue to work with DGS on possible projects to reduce energy usage at its State-owned facilities. CDFA will continue to seek partnerships with utilities for energy efficient projects for all facility system upgrades.

Per MM 14-07 "Standard Operating Procedures for Energy Management in State Buildings" and the associated Standard Operating Procedures, CDFA ensures all lights and equipment are turned off at the end of each workday. Where feasible, CDFA has installed motion sensor lights that automatically shut off when areas are not in use. CDFA will check facilities for incandescent light bulbs and any remaining magnetic fluorescent ballasts in fluorescent light fixtures and replace them where applicable. CDFA also educates employees, training them to turn off lights at the end of each workday. Some offices assign specific employees to ensure lights are off every night while other offices train their employees with the practice of the lights being turned off by the last employee to leave the office for the night. Energy Star rated equipment is purchased whenever practical and all vending units are Energy Star rated. All CDFA computers, copiers and printers are set to utilize their Energy Saver mode during periods of inactivity. Purchases of computers, copiers, etc. must go through CDFA's Office of Information Technology Services. This office ensures the applicable regulations are followed.

CDFA has released several emails to educate all employees on the importance of minimizing electrical plug loads. CDFA issued a message to all employees instructing them to unplug any personal devices to assist with energy conservation; and employees have been made aware that all equipment in employee kitchens and break rooms must have an Energy Star rating. Employees are encouraged to turn off break room equipment, such as coffee makers, and determine their own cleaning schedules for kitchen, break room, and lunchroom equipment and there have been no problems with it being cleaned regularly and maintained to optimize efficiency.

Energy Star rated equipment is purchased whenever practical and all vending units are Energy Star rated. To ensure that any new equipment purchased for employee kitchens and break rooms has an Energy Star rating, CDFA issued a mandate to employees that all refrigerators manufactured prior to the year 2000 be replaced with more efficient models. CDFA downsized the number of break room refrigerators and equipment onsite as the numbers of offices decreased in correlation with the new telework based work model. CDFA also ensured all vending machines on-site were removed unless they were certified to Energy Star version 3.0, section 3(B) or equipped with after-market occupancy sensor or sales-based energy management hardware.

CDFA works with DGS to ensure lighting and HVAC electric usage is minimized outside of normal building hours. Building HVAC controls are set to allow for a +2- or -2-degree fluctuation from the temperature set point for all energy management control systems (EMS), thermostats, and economizers. CDFA

ensures that HVAC ducts, filters and equipment are inspected and maintained at maximum effectiveness.

- CDFA has partnered with SMUD on various projects at CDFA's Center for Analytical Chemistry Laboratory in Sacramento. CDFA participates in SMUD's Energy Rebate Program for the replacement of HVAC chillers.

- CDFA ensures that all boilers are tuned up, including a combustion efficiency check, at least twice per year.

- CDFA works with DGS to ensure that domestic hot water systems are not set hotter than 105 degrees. Night flush cycles are also utilized where feasible. CDFA ensures that buildings take advantage of cool nighttime and morning temperatures by effectively utilizing economizer and night flush cycles. CDFA ensures that data centers are operated at the highest temperature allowed by equipment manufacturers.

- CDFA works with DGS to ensure that HVAC (ducts, filters, and equipment) are inspected and maintained to be the most effective. All boilers are tuned up (including a combustion efficiency check) at least twice per year, and all light levels are appropriate.

Per the MM 14-09 "Energy Efficiency in Data Centers and Server Rooms", all applicable CDFA data centers and server rooms greater than 200 Ft^2 are operated within the American Society of Heating, Refrigerating, and Air-Conditioning Engineers Technical Committee 9.9, Class A1-A4 guidelines, including operating at temperatures between 73-81 degrees Fahrenheit. CDFA has one server/network room greater than 200 Ft^2 located at CDFA Headquarters, 1220 N Street, Sacramento. CDFA does not own any data centers over 1,000 Ft^2.

All purchases of network switches and routers meet the Energy Efficient Ethernet IEEE 802.3-2012 Section 6 standard. Virtualization options have been considered when refreshing server equipment or standing up new systems.

CDFA has installed energy efficiency projects, including:

- CDFA began using the Verdiem Surveyor power management software in 2008 to control and reduce power usage by desktop computers.

- CDFA has reduced its use of stand-alone Windows servers from 60 prior to 2010, to approximately five, by consolidating and virtualizing the systems and functions they served into two virtualized multi-blade chassis.

- Server room energy reduction: Installed April 2012. Estimated annual kWh savings is unknown. CDFA has not received a baseline usage reading or any kind of measurement from DGS in the past five years.

- CDFA has made strides to ensure computers, copiers and printers are set to utilize their Energy Saver mode during periods of inactivity wherever possible.

- CDFA ensures that data centers are operated at the base highest temperature allowed by equipment manufacturers.

CDFA met with CalEPA to discuss solutions, audited usage, and continues to correspond with CalEPA and reach out to other departments to discuss viable options.

Table 3.5: Department-Wide Energy Trends

Year	Floor Area (ft^2)	Total kBTU Consumption	Department Average EUI
Baseline Year 2003	137,892	102,322,875	708
2013	148,857	76,377,623	528
2014	148,857	86,047,883	595
2015	134,731	85,828,896	594
2016	134,731	79,571,478	550
2017	134,731	79,759,547	552
2018	153,731	78,056,054	482
2019	150,808	95,529,651	725
2020	160,808	94,966,017	720
% Change 2003-2020	**16%**	**7%**	**2%**

The information in Table 3.5 is from CDFA's internal historical data. Ft^2 listed is for CDFA Owned facilities.

In 2010 CDFA used 6,149,923 kWh and 332,337 Therms, for a total of 102,322,875 kBTU used for electric and natural gas. CDFA has reduced energy use by 23.7%

from 2010 to 2018); surpassing the 20% reduction goal required by EO B-18-12. CDFA's energy use reductions were a result of CDFA's various efforts, including:

CDFA owned and leased facilities over 10,000 Ft^2 currently enrolled in a DRP include:

- Owned – 101,238 Ft^2: 3288-3294 Meadowview Road, Sacramento
- Leased – 78,604 Ft^2: 1220 N Street, Sacramento
- Leased – 17,732 Ft^2: 2750 Gateway Oaks Drive, Sacramento
- Leased – 63,826 Ft^2: 2800 Gateway Oaks Drive, Sacramento

CDFA selected the most advantageous Southern Edison energy plans for all locations covered by the Southern Edison utility.

CDFA utilized the leased facility, 2800 Gateway Oaks, which installed solar panels prior to CDFA leasing it.

CDFA continues to pursue options in reaching the future goals set forth in the Governor's EOs. Some strategies CDFA is considering employing include solar panels, energy audits, DRP for additional locations, and/or additional purchased renewable energy. CDFA is also developing plans for increasing use of the above strategies in the future for additional GHGe reductions. CDFA is evaluating options to meet ZNE requirements.

CDFA reduced energy use and GHGe at its State-owned facilities by partnering with SMUD on various projects, including participating in energy conservation projects at CDFA's Center for Analytical Chemistry Laboratory in Sacramento and participating in SMUD's Energy Rebate Program for the replacement of HVAC chillers.

CDFA partnered with the Statewide energy conservation campaign to reduce energy use in 2017. CDFA encouraged all employees to reduce energy consumption by using power strips, unplugging charging devices once fully charged, and turning off the lights when room(s) are not in use.

Table 3.6: Summary of Energy Projects Completed or In Progress

Year Funded	Estimated Energy Savings (kBTU/year)	Floor Area Retrofit (Ft^2)	Percent of Department Floor Area
2015	43,000,000 kBTU (approx.)	101,238	76%
2021	47,000,000 kBTU (approx.)	58,000 (approx.)	36%

CDFA does not have the means to differentiate kBTU impacts of individual savings efforts and the projects are not complete. The figures in Table 3.6 are projected estimates of 50% energy savings based off energy used in 2015 and 2021. Percentage of Departmental Floor Area is the total area of the Meadowview location in 2015 (101,238 Ft^2) and the projected space needed for solar fields at the Turlock location in 2021 (one third of the total space at Turlock location [174,240 Ft^2/3= 58,080 Ft^2]) compared to the total area of owned properties (134,731 Ft^2 in 2015 and 160,808 Ft^2 in 2021).

CDFA has made various efforts towards energy conservation, such as tracking energy use, decreasing load use, increasing employee awareness, participating in demand response programs and conservation campaigns, participating in furloughs, and switching to telework based employment. More details on these efforts are listed at the beginning of chapter 3, under the department mission and built infrastructure. Some energy projects CDFA has worked on include:

- Prior to 2013, CDFA partnered with SMUD on various projects at CDFA's Center for Analytical Chemistry Laboratory in Sacramento, California. Projects included shade trees planted around the facilities and participation in SMUD's Energy Rebate Program for the replacement of the facilities' HVAC chillers.

- CDFA worked with DGS from 2013 through 2015 to develop a project plan for the installation of solar panels at the Meadowview facility. This would have generated 5,182,755.10 kWh: over 50% of the department-wide energy. The total area for the whole Meadowview location is 101,238 Ft^2 (76% of the Ft^2 for CDFA owned property). In 2015, CDFA engaged in an agreement with the United States Department of Agriculture to have the land leased and a laboratory built; so, in 2015, CDFA began exploring different options to meet the ZNE requirements set forth in the Governor's EO and energy sustainability goals. Since most of CDFA's owned facilities are Inspection Stations on the highway with rights only to the land the booth is on, not the surrounding area (251-8,880 Ft^2, with an average of

1,557 Ft^2); and since most of these Inspection Station booths are located in areas with snow and low light (located in Alturas, Dorris, Hornbrook, Chilcoot [Long Valley], Tahoe Paradise [Meyers], Crescent City [Redwood], Smith River, Topaz, Truckee, Canby [Tulelake]) for at least half the year, it has been difficult for CDFA to find viable locations for solar panels to be effective. Therefore, CDFA has struggled to find a new project to meet the ZNE goals. The Inspection Stations were built from 1900 to 2007 with the average building being at least 57 years old.

- In 2018, CDFA began working with DGS on a plan to create a solar field at the new Turlock Laboratory location. DGS acquired the land in November 2019 and will proceed with the construction process. In November 2020, CDFA and the DGS Sustainability Branch worked together to establish a conceptual plan for a Power Purchase Agreement for solar power on site that would supply electrical power for the lab. CDFA's ZNE goals and other sustainability efforts will be pursued for this CDFA location. Construction is projected for 2023-2025. This, location, for the California Animal Health and Food Safety Program, is 4 acres (174,240 Ft^2); including landscaping, walkways, gutters, a 35,000 Ft^2 single story laboratory, and approximately one third of the 4 acres is planned to be used for a solar field. The project cost is estimated at $54,064,000.

- CDFA has been working with CalEPA, DGS' Office of Sustainability, and the Climate Registry to determine the best course of action. CDFA has performed an internal energy use audit and will consider having utilities perform more in-depth energy audits. CDFA will also evaluate incentive programs which may supplement project costs. CDFA continues to explore energy reduction options which include, but may not be limited to, solar panel installation, energy audits, demand response for additional locations, and/or additional purchased renewable energy. CDFA is also developing plans for increasing use of current strategies in the future for additional GHGe reductions.

Table 3.7: Energy Surveys

Year	Total Department Floor Area (Ft^2)	Energy Surveys Under Way (Ft^2) Level 1	Energy Surveys Under Way (Ft^2) Level 2	Percent of Department Floor Area Level 1	Percent of Department Floor Area Level 2
2014	148,857	0	0	0	0
2015	134,731	0	0	0	0
2016	134,731	0	0	0	0
2017	134,731	0	0	0	0
2018	153,731	0	0	0	0
2019	150,808	0	0	0	0
2020	160,808	0	0	0	0
2021	160,808	0	0	0	0

CDFA was not previously required to conduct energy surveys, and therefore no energy surveys were conducted from 2017-2018. CDFA will continue to work with DGS Office of Sustainability and relevant contractors to establish an energy survey schedule and start conducting energy surveys in 2022.

Demand Response Program

EO B-18-12 directed all state departments to participate in available DRPs and to obtain financial incentives for reducing peak electrical loads when called upon, as much as possible, when cost-effective.

CDFA enrolled in DRPs to purchased renewable energy for:

- Owned – 101,238 Ft^2: 3288-3294 Meadowview Road, Sacramento
- Leased – 2,450 Ft^2: 745 West Ventura Blvd, Ste A, Camarillo
- Leased – 78,604 Ft^2: 1220 N Street, Sacramento
- Leased – 17,732 Ft^2: 2750 Gateway Oaks Drive, Sacramento
- Leased – 63,826 Ft^2: 2800 Gateway Oaks Drive, Sacramento

CDFA selected the most advantageous Southern Edison energy plans for all locations covered by the Southern Edison utility, including the critical peak pricing plan (DRP) for 745 West Ventura Blvd., Camarillo.

CDFA continues to work with DGS in in construction efforts that will meet goals set forth in the Governor's EOs. and is developing plans for increasing use of the

above strategies in the future for additional GHGe reductions. CDFA will work with DGS RESD and PMDB in incorporating construction elements intended to assist in meeting ZNE goals to new leased or owned facility projects.

Table 3.8: DRP

DRP Participation	Number of Buildings	Estimated Available Energy Reduction Kilowatt (kW)
Number of Buildings Participating in 2020	5	20kW for at least 2 consecutive hours during peak times
Number of Buildings That Will Participate in 2021	5	20kW for at least 2 consecutive hours during peak times
All Department Buildings (Totals)	**73**	**Varies**
All Department Buildings (Percent)	**7 %**	**Unavailable**

The information in Table 3.8 is from CDFA's internal historical data and per the DGS data on DRP benefits for SMUD.

CDFA's Meadowview location is enrolled in the DRP for SMUD, which will reduce energy consumption by at least 20kW for at least 2 consecutive hours during peak times.

Renewable Energy

New or major renovated state buildings over 10,000 Ft^2 must use clean, on-site power generation, and clean back-up power supplies, if economically feasible. Facilities with available open land must consider large scale distributed generation through various financing methods, including, but not limited to, third party power purchase agreements.

Although there are no specific kW goals for renewable energy, renewable energy does count towards meeting: (1) ZNE goal for 2025 and (2) 20% grid-based energy use reduction by 2018.

The only new CDFA facility added since 2012 that is over 10,000 Ft^2 is the Mountain Pass Agriculture Inspection Station. This building was constructed by CDFA worked closely with CalTrans to encourage energy efficiency and renewable energy, but it was determined that due to the facility being located on the freeway and in the mountains where snow may inhibit solar panels, it was not feasible to provide renewable energy for this location.

Table 3.9: On-Site Renewable Energy

Status	Number of Sites	Estimated Annual Power Generation (kWh)
On-Site and Off-Site Renewable Energy	0	0
Additional Planned Renewable Energy	1	14,000 (approx.)

A solar field project for CDFA's new Turlock facility is currently in progress. This project is projected to cover all CDFA's renewable energy and ZNE goals. Construction is projected for 2023-2025. Once complete, it is anticipated this location will generate at least 50% of the energy CDFA uses throughout the state.

Monitoring Based Commissioning (MBCx)

New and existing state buildings must incorporate Monitoring Based Commissioning (MBCx) to support cost effective and energy efficient building operations, using an EMS. State agencies managing state-owned buildings must pursue MBCx for all facilities over 5,000 Ft^2 with EUIs exceeding thresholds described in MM 15-04.

CDFA currently refers to utility bills to report energy use. CDFA will work with DGS, EnergyStar, and utility companies to review options for installation of energy meters, where feasible, to meet requirements.

Table 3.10: Planned MBCx Projects

Facility	Floor Area (Ft^2)	EMS Make, Installation /Upgrade	EMS Year	MBCx Capable, or No EMS	MBCx Projected to Start	MBCx Projected Cost ($)
N/A	N/A	N/A	N/A	N/A	N/A	N/A

CDFA currently does not have locations identified for the installation of energy meters, but will work with DGS Office of Sustainability, RESD, PMDB, and relevant contractors in installing energy meters, where feasible.

Financing

State agencies are required to pursue all available financing and project delivery mechanisms to achieve these goals including, but not limited to state

revolving loan funds, utility On-Bill Financing, power purchase agreements, GS $Mart, Energy Service Contractors, or other available programs.

CDFA pursued free programs to install solar panels, but the solar generation requirements were higher than CDFA could achieve at any of the Agriculture Inspection Stations. CDFA is working with ChargePoint to determine if there are currently any incentive programs available that may provide financial assistance to CDFA in installing additional EVSE. CDFA is reviewing the incentive programs from Sacramento County, Fresno County, and San Joaquin Valley Air Pollution Control District to determine if CDFA can utilize any of the funds. CDFA will consult with DGS to determine if there are programs that provide incentives or supplement finances required to install energy tracking meters. CDFA has and will continue to consult with CalEPA on options available for renewable energy.

CHAPTER 4 - WATER EFFICIENCY AND CONSERVATION

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.

California experiences the most extreme variability in yearly precipitation in the nation. In 2015, California had record low statewide mountain snowpack of only 5 percent of average while 2012-14 were the four driest consecutive years of statewide precipitation on record. The 2017 water year (October 1, 2016-September 30, 2017) surpassed 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 EO's, SAM sections, and DGS MMs as these documents do not address such related issues as water runoff from landscaping and various work processes and the potential for water pollution or the benefits of water infiltration, soil health and nutrient recycling. However, by using holistic water planning, a well-crafted water plan can not only meet all state requirements but add considerable value and benefits to the organization and surrounding communities.

This water plan has two major components. The first component consists of a quantitative inventory of indoor water use by fixtures, boilers and cooling systems and appliances in state buildings and facilities. The second component focuses on outdoor water use and landscaping and includes a measurement of landscape areas and types as well as an assessment of irrigation equipment. Each water plan component includes a mandatory set of best management practices (BMPs) for ongoing water use efficiency in both buildings and landscapes. Additionally, there are further requirements for large landscape water use tracking, if an agency has a total landscape area greater than 20,000 Ft^2 at a facility. Both components of water use include monitoring, reporting, oversight, and compliance. State agencies shall complete all the applicable

Building and Landscape Inventories and Best Practices assessments found in the workbook sections and report their results in the following tables and sections.

The California Department of Water Resources (DWR) suggests that state agencies contact their water supplier for advice and assistance regarding local water conditions. Water suppliers are a source of expertise and can assist with water conservation and water efficiency efforts in several ways including rebates and other incentives, free water audits for both buildings and landscapes, irrigation scheduling assistance, water shortage contingency plans, and informational brochures.

Best Management Practices

Building 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.

BMPs can be continuously updated based on need and tailored to fit the facility depending on occupancy and specific operations.

One of the critical practices in effective water management is to designate a water management coordinator to conduct the building walk-through inventory, implement the building BMPs, and monitor and report water use. In the beginning of implementation, these BMPs require that staff be able to have enough time and resources to perform the actions required. A certain level of expertise may also be required. It is possible that various skills are needed which may not be found in just one person but require a team approach. Additionally, many of the BMPs are location specific, and it may be that BMPs responsibilities are best assigned on that basis.

BMPs are found in the appropriate section. CDFA will continue to work with DGS to find and use feasible BMPs.

Department Mission and Built Infrastructure

CDFA's mission 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 offices include leased properties with a total of 431,373 Ft^2 and owned properties with a total of 160,808 Ft^2 These offices 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 made several steps toward building the infrastructure required to support the 20% reduction of CDFA's water use from 2010 to 2020.

Steps in Water Use Reduction:

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 47%; from 76 million gallons used in 2010 to 40 million gallons used in 2021.

Water use in 2010 was 76,404,011 gallons. To facilitate water use reduction, CDFA initiated various efforts, including:

- **Set baseline and started tracking data (2010):** CDFA collected water use data for all its State-owned facilities. Fifteen of CDFA's Agriculture Inspection Stations use water from non-metered wells. CDFA submitted water use data at its State-owned facilities for 2010 to be used as a baseline benchmark by December 31, 2013, in Energy Star Portfolio Manager (ESPM).

- **Furloughs (2008-2013):** Statewide furloughs reduced water use due to fewer employees using facilities on extra days off.

- **Landscaping reduced (2010 and 2014):** CDFA reduced landscape irrigation/water used at several facilities in 2010 and January 2014 per the Governor's directives.

CDFA had a water use reduction of 19,444,011 gallons per year from 2010--2014 (a water use reduction of over 25%). Water use in 2013 was 59,867,600 gallons after reduction; saving 16,536,411 gallons per year (water use reduction from 2010--2013); meeting the requirement to reduce water use in CDFA operated facilities by 10% by 2015, as measured against a 2010 baseline benchmark per EO and MM 14-02. Water use in 2014 was 56,960,000 gallons after reduction; 2,907,600 gallons per year less used than 2013. Water use in 2014 was 56,960,000 gallons after reduction; 2,907,600 gallons per year less used than 2013. In addition to CDFA's continued efforts from prior years, CDFA made various water use conservation and reduction efforts, including:

- **Reported use data (2013-present):** CDFA submitted water use data at its State-owned facilities for 2013 into the ESPM and has been entering data monthly thereafter for periodic reporting and an annual report due by March 1 each year.

- **Drought efforts (2013-2016 and 2018-2021):** CDFA followed guidelines set forth in EO B-21-13, the 2014 Save Our Water Campaign, EO N-10-19, and The Governor's Proclamation of A State of Emergency 10-19-21 to reduce water use in consideration of the drought. These efforts included an evaluation of water efficiency measures that could be implemented in California agriculture over several years, recommendations on additional increases in water use efficiency, and discontinued use of pressure washing to clean sidewalks and structures.

- **Shower signs (2014-present):** Installed "Limit Water Use" signs in showers at several facilities in January 2014. CDFA will continue to ensure all CDFA facilities have signs notifying employees to conserve water. These signs are posted in all rooms that contain a faucet, toilet, or shower.

- **Leak survey and repairs (2014):** CDFA surveyed water outlets for leakage and repaired low-cost leaks in March 2014.

CDFA had a water use reduction of 17,160,000 gallons per year from 2014-2018. Water use in 2015 was 48,090,000 gallons after reduction; 8,870,000 gallons per year less used than 2014. Water use in 2016 was 46,585,500 gallons after reduction; 1,504,500 gallons per year less used than 2015. Water use in 2017 was 45,200,000 gallons after reduction; 1,385,500 gallons per year less used than 2016. Water use in 2018 was 39,800,000 gallons after reduction; 5,400,000 gallons per year less used than 2017. CDFA made various water use conservation and reduction efforts, including:

- **Increased employee awareness (2015-present):** CDFA distributed "Save Our Water" brochures and stickers to CDFA employees in September 2015 to increase employee awareness. CDFA continues to further reduce water use by increasing employee awareness of water use through department-wide notifications to employees.

- **Meadowview Center for Analytical Chemistry Fixture Replacements (2015-2018):** CDFA invested $17,250 to complete install 10 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. It is estimated that these replacements save 131,468 gallons per year.

- **Meadowview Plant Pest Diagnostics Center Fixture Replacements (2015-2018):** CDFA invested $380 to replace one toilet, two sink faucets, two aerators, and one showerhead with low flow fixtures.

- **Meadowview Plant Pest Diagnostics Center Greenhouse Updates (2015-2018):** CDFA invested $81,650 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.

CDFA had a water use reduction of 120,500 gallons per year from 2018-2020. Water use in 2019 was 39,699,500 gallons after reduction; 100,500 gallons per year less used than 2018. Water use in 2020 was 39,679,500 gallons after reduction; 20,000 gallons per year less used than 2019. CDFA made various water use conservation and reduction efforts, including:

- **Telework (2020-present):** CDFA moved to a business model that permanently integrates more telework-based employment. Reducing staff onsite also reduces the water used at each location.

Water use in 2021 was 40,331,900 gallons after reduction; saving 36,072,111 gallons per year (total water use reduction of 47% from 2010-2021). CDFA made various water use conservation and reduction efforts, including:

- **Headquarters Fixture Replacements (2021):** CDFA replaced Americans With Disabilities Act (ADA) bathroom fixtures at it's headquarters, 1220 N Street, in Sacramento.

- **Maintenance (ongoing):** Repairing leaks, adjusting sensors, and other maintenance (working with DGS on an ongoing basis as needed).

Region specific information:

Tulelake Agriculture Inspection Station:

- Hot water heaters were set to 135 degrees.

- Well pump was replaced in 2014, improving water usage.

- Station has no outside water faucets (shut offs were placed on all outside 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 Agriculture Inspection Station:

- Not watering plants (Mandatory State reductions).

- Not running additional power coolers.

Hornbrook Agriculture Inspection Station:

- Waterless urinals in employee and public restroom.

- No watering since the mandatory reductions were issued.

- Not using the power coolers.

- New efficient water heater.

CDFA will continue to pursue efforts to reduce water use where feasible. Additional efforts to be implemented in the future, where feasible, may include:

- **Maintenance (ongoing):** Repairing leaks, adjusting sensors, and other maintenance (working with DGS on an ongoing basis as needed). CDFA will continue to work with DGS to survey water outlets for leakage and repair low-cost leaks at all CDFA locations.

- **Greywater recycling (if feasible):** CDFA will investigate the water savings vs cost of greywater recycling. If it is determined to be cost-effective and feasible, CDFA will implement where possible.

- **Well meters (if feasible):** Currently, 15 of the 21 facilities CDFA owns use unmetered well water. To better determine impacts generated from water conservation efforts, CDFA will evaluate the cost of installing meters to measure water use. If feasible, and funding is available, CDFA will install meters and upgrade wells and pumps at each applicable location. Installations may need to be staggered to budget constraints.

- **Tankless water heating units (if feasible):** CDFA will investigate the water savings vs cost of on-demand (tankless) water heating units. If cost-effective and feasible, CDFA will implement where applicable. (The 20 tanks listed in Table 4.12 are dependent on feasibility and funding availability.)

- **Visalia fixture repairs / replacements (working with DGS):** Recent leak survey and repairs at CDFA's Visalia office (possibly requiring fixture replacements) include one leaking toilet and one leaking faucet that may need to be replaced. CDFA will work with DGS to determine the best solution, find any other leaks present, and then begin repairs. (If replacements are needed, CDFA will replace with low flow fixtures.)

- **Water leak detection devices / automated control systems (if feasible):** CDFA will evaluate the feasibility of installing water leak detection devices and reporting systems that can be integrated into existing building security or automated control systems.

CDFA has developed various programs to encourage the public and private sector to conserve water throughout California. Some of CDFA's grant programs that provide grants to farmers and organizations to install energy and water conservation projects include:

- SWEEP: This program has expended $81million in grants (plus approximately $53 million in matching funds contributed by awardees) to save approximately 37.5 billion gallons / 115,000 acre-feet annually. CDFA will expend an additional $100 million through FY 2022-23 in a continued effort to create water use reductions for future years.

- Water Efficiency Technical Assistance Program: This program has allocated $5 million in grant funds to save approximately 117,000 acre-ft of water annually.

- Specialty Crop Multi-State Program (SCMP): This program allocates approximately $1-3 million in grant funds every other year (amount varies by year). In 2019, at least $1 million in grants were awarded to fund low water use plant research.

- Specialty Crop Block Grant Program (SCBGP): CDFA awards approximately $23 million annually for this program. Part of the annual award amounts (amount varies by year) go toward

conservation and drought resistance projects. In 2019, $1.9 million was awarded for drought resistance and water conservation. In 2021, at least $3.1 million was awarded to fund drought resistance and irrigation projects.

Table 4.1: 2020 Total Purchased Water

Purchased Water	Quantity	Cost ($/year)
Potable Water	40,331,900 (Approximately)	Unavailable (Rate varies)
Recycled Water	0	0
Total	**40,331,900 Gallons**	**Unavailable (Rate varies)**

The information in Table 4.1, from DGS and CDFA's internal historical data, per previous Sustainability Roadmap submissions, is also available on Energy Star's webpage and at green.ca.gov.

Water costs are not currently tracked (water costs vary and are not steady amounts per gallon) but CDFA is working with DGS' Office of Sustainability on preferred methods to track in the future.

Table 4.2: Properties with Largest Water Use Per Capita

Building Name	Area (Ft^2)	# of Building Occupants	Total 2020 Gallons	Gallons per Capita
Glassy Winged Sharpshooter Project (Arvin)	2,000	16	55,687.6	3,480
Meadowview Road Complex (Sacramento)	101,238	181	84,890.9	469
Mountain Pass Agriculture Inspection Station (Nipton/Yermo)	19,000	17	47,140.8	2,773
Needles Agriculture Inspection Station	497	19	102,584.7	5,399
Truckee Agriculture Inspection Station	1,308	17	40,490.1	2,382
Total for Buildings in This Table	124,043	250	330,794.1	1,323
Total for All Department Buildings	595,817	2,141	39,800,000	18,589
% of Totals	**21%**	**12%**	**0.83%**	**-**

The information in Table 4.2, from DGS and CDFA's internal historical data, per previous Sustainability Roadmap submissions, can be found on Energy Star's webpage.

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 4.3: Properties with Largest Landscape Area

Building Name	Landscape Area (Ft^2)
Glassy Winged Sharpshooter Project - Arvin	23,000
Meadowview (Sacramento)	56,300
San Bernardino Veterinary Laboratory	23,900
Truckee Agriculture Inspection Station	21,800
Winterhaven Agriculture Inspection Station	11,300
Total Landscaping area for Buildings in This Table	**136,300**
Total Landscaping for All CDFA Owned Buildings	**143,400**
% of Totals that is large landscape	**95%**

Landscape measurement estimates in Table 4.3 are approximate amounts found by using the measurement tool provided in google maps.

CDFA includes standard language in lease contract documents (DGS form: Exhibit B) stating all new landscaping shall be of a locally drought tolerant variety. CDFA reduced landscape watering at all facilities and stopped watering entirely at Vidal, Tulelake, and Hornbrook Agriculture Inspection Stations per the mandatory reductions. Other landscape related projects CDFA implemented to promote the Governor's water efficiency and conservation goals include:

2010

- CDFA reduced landscape water used per the Governor's directive.

2014

- CDFA reduced landscape irrigation at several facilities in January 2014.
- CDFA surveyed water outlets for leakage and repaired low-cost leaks in March 2014.

2015-2018

- CDFA completed retrofitting in 2018 on the Plant Pest Diagnostics Center (Meadowview) Greenhouse Irrigation. (Replaced four control boxes, 16 hose bibs, 640 feet of old copper pipes, and 440 nozzle heads/sprayers with more efficient fixtures.)

Table 4.4: Department-Wide Water Use Trends

Year	Total Occupancy /year	Total Amount Used (Gallons/year)	Per capita Gallons per person per day
Baseline Year 2010	2,521	76,404,011	30,307
Baseline Year 2013	2,035	59,867,600	29,419
2020	2,141	39,679,500	18,533
2020 Goal (25% reduction)	**-**	**57,303,008**	**-**

The information in Table 4.4, from DGS, can be found on Energy Star's webpage.

The Governor issued EO B-18-12 in 2012 with a goal to reduce water use from 2010-2020 by 20% and issued an additional reduction requirement in 2015 (EO B-29-15) changing the goal to reduce water use from 2010-2020 to 25%. CDFA exceeded both the 20% reduction goal from the 2010 baseline to 2020 required by EO B-18-12 and the 25% reduction goal (76,404,011 - 25% = 57,303,008 gallons per year) required by EO B-29-15. In 2016, water use was already reduced to 46,585,500 gallons per year. In 2020, water use was reduced to 39,679,500 gallons per year (a 48% reduction from 2010). CDFA will continue to pursue reductions where feasible.

Table 4.5: Total Water Reductions Achieved

Total Water Used in 2021 Compared to 2010 Baseline	Total Amount Used (gallons per year)	Annual Gallons Per capita
20% Reduction Achieved	40,331,900	18,838
Less than 20% Reduction Achieved	-	-
Totals	**40,331,900**	**18,838**
Department-Wide Reduction	**36,072,111**	**11,469**

The information in Table 4.5, from DGS, can be found on Energy Star's webpage.

CDFA has reduced water use 47% from 2010 to 2021 with a water savings of 36,072,111 gallons per year, and will continue to reduce water usage where feasible. CDFA used a total of:

- 76,404,011 gallons in 2010.
- 59,867,600 gallons in 2013.
- 56,960,000 gallons in 2014.
- 48,090,000 gallons in 2015.
- 46,585,500 gallons in 2016.
- 45,200,000 gallons in 2017.
- 39,800,000 gallons in 2018.
- 39,699,500 gallons in 2019.
- 39,679,500 gallons in 2020.
- 40,331,900 gallons in 2021.

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, greywater, rainwater capture, storm-water retention, and other water conservation measures. Landscape plants will be selected based on their suitability to local climate and site conditions, and reduced water needs and maintenance requirements.

Building Water Management BMPs

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 work with DGS in ensuring all requirements are met.

BMPs can be continuously updated based on need and tailored to fit the facility depending on occupancy and specific operations.

CDFA endeavors to maintain and improve BMPs and meet the regulations set forth in EO B-37-16. CDFA has consulted with the State Water Resources Control Board, the California Public Utilities Commission, the California Energy Commission, and the DWR to summarize in a report a framework for implementing the EO and incorporating water conservation as a way of life for all Californians; and will continue to work in conjunction with these agencies to release other helpful resources to establish long-term framework for water conservation and drought planning that builds on the conservation efforts. In conjunction with the other agencies, CDFA has developed a collaborative program to formulate the long-term framework for water conservation and drought planning called for by the EO with extensive public outreach and stakeholder engagement. In addition to public input throughout the process, CDFA has assisted in forming the Urban Advisory Group and Agricultural Advisory Group to provide input into the framework development. These advisory groups represent urban and agricultural water suppliers, local governments, professional associations, academics, environmental advocacy groups, and other interested parties. The framework development associated public outreach and stakeholder engagement process, and public comments received are available at DWR's Water Use Efficiency website.

CDFA will continue to pursue and develop further methods and planning to improve facility and agricultural water use and efficiency. CDFA will evaluate use to eliminate potential waste and strengthen local drought resilience.

CDFA will consult with DGS to determine the most feasible methods for continuing to reduce water use, such as:

- Pursuing additional sustainable landscape practices and sustainable landscapes;
- Checking irrigation schedules, adjusting schedules monthly, and posting schedules in the controller cabinet;
- Maintaining irrigation systems by adjusting heads for level, direction of spray, and distance of throw; cleaning filters; installing check valves and swing joints; and replacing nozzles as needed;
- Installing and maintaining pressure regulators to operate irrigation system according to the manufacturers' specifications;
- Inspecting and maintaining backflow prevention devices;

- Maintaining record drawings of landscapes with identification of hydro-zones and corresponding valves and landscape architect;
- Installing shut-off nozzles or quick-couplers for all hoses. Installing faucet timers for hose or hand irrigation;
- Upgrading irrigation systems components such as controllers, nozzles, and sensors; and
- Installing submeters or dedicated meters where appropriate.

Leak Detection and Repair

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

CDFA relies on DGS to perform monthly visual leak detection surveys on all water use fixtures:

- Toilets
- Urinals
- Faucets - Check faucets for proper aerators (kitchen faucets 2.2 gallons per minute and lavatory faucets 0.5 gallons per minute) and install aerators or laminar flow devices if necessary.
- Showers - Check showerhead flow rates and install showerheads using no more than 2.0 gallons per minute with trickle flow controls.

Kitchens

CDFA adjusts ice machines to dispense less ice if ice is being wasted so that water does not flow unnecessarily. CDFA does not use running water to melt ice in bar sink strainers or defrost food. Additionally, CDFA relies on DGS to ensure all Building Water Management requirements are met, taking steps such as checking all equipment water temperatures and flow rates against the manufacturer recommendations. Use the recommended lowest temperature and flow to optimize savings.

Laundry Facilities

CDFA relies on DGS to ensure all Building Water Management requirements are met, taking steps such as:

- Running washing machines only when full to optimize capacity.
- Appropriately setting the water level and water temperature according to the load.

Table 4.6: Summary of Indoor Water Efficiency Projects Completed 2014-2020 or In Progress

Year Completed	Water Saved (Gallons/year)	Number of Indoor Water Efficiency Projects Completed	Cost Savings per Year
2014	2,907,600	3	Unavailable (Rate varies)
2015	8,870,000	1	Unavailable (Rate varies)
2016	1,504,500	Continued efforts where feasible	Unavailable (Rate varies)
2017	1,385,500	Continued efforts where feasible	Unavailable (Rate varies)
2018	5,400,000	3	Unavailable (Rate varies)
2019	100,500	1	Unavailable (Rate varies)
2020	20,000	1	Unavailable (Rate varies)

The information in Table 4.6, from DGS, can be found at green.ca.gov.

Estimates are provided because most facilities are supplied by unmetered well water. Water use is not tracked separately for indoor versus outdoor use so total estimated water savings for all CDFA conservation efforts is provided in all tables, including Table 4.6. Water costs are not currently tracked (rate varies and not steady amount per gallon), however, CDFA is working with DGS' Office of Sustainability on preferred methods to track this data in the future.

In 2014, CDFA completed three indoor efficiency projects to promote the Governor's water efficiency and conservation goals, which included reduced landscape irrigation/watering at several facilities in 2010 and January 2014,

posting "limit water use" shower signs throughout 2014, and conducting leak surveys and repairs in March 2014.

In September 2015, CDFA distributed "Save Our Water" brochures and stickers to CDFA employees to increase employee awareness. CDFA continues to further reduce water use by increasing employee awareness of water use through department wide notifications to employees.

In 2018, the three indoor efficiency projects CDFA finished included replacing and retrofitting fixtures at the Meadowview Center for Analytical Chemistry and the Plant Pest Diagnostic Center Greenhouse. The Center for Analytical Chemistry project included installation of ten solar powered dual flush retrofit flushometers on toilets and replacements of two urinals, 13 aerators on sink faucets, and 11 restroom faucets with sensor auto-shut-off. The Plant Pest Diagnostic Center Greenhouse projects included low flow fixture replacements of one toilet, two sink faucets, two aerators, one showerhead, ten swamp coolers, four control boxes, 16 hose bibs, 640 feet of old copper pipes, and 440 nozzle heads/sprayers with more efficient fixtures.

In 2020, CDFA moved to a business model that permanently integrates more telework-based employment. Reducing staff onsite also reduces the water used at each location.

In 2021, CDFA replaced ADA bathroom fixtures at CDFA's headquarters, 1220 N Street, in Sacramento. CDFA also installed new efficient air conditioning and chiller units at the Hawaii Fruit Fly Rearing Facility. CDFA will continue to work with DGS to evaluate water efficiency and conservation projects and implement where feasible.

Region specific information:

Tulelake Agriculture Inspection Station:

- Hot water heaters were set to 135 degrees.
- Well pump was replaced in 2014, improving water usage.
- 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 Agriculture Inspection Station:

- Not watering plants (mandatory state reductions).
- Not running additional power coolers.

Hornbrook Agriculture Inspection Station:

- Waterless urinals in employee and public restroom.
- Not using the power coolers.
- New efficient water heater.

Building Heating and Cooling Systems BMPs

BMPs in this section not only save water and energy but they perform an important safety role as well. The meters, leak detection processes, and routine maintenance following manufactures instructions required by these BMPs assure that costly repairs and accidents are avoided.

These BMPs require that enough staff with the requisite expertise and knowledge have enough time and resources to perform the actions required.

CDFA reports leaks and requests replacement of faulty steam traps as soon as possible. CDFA also works with DGS in monitoring meters, detecting, and fixing leaks, and performing routine maintenance following manufactures instructions required by these BMPS to assure that costly repairs and accidents are avoided. CDFA relies on DGS to:

- Develop and implement a boiler tuning program to be completed a minimum of once per operating year.
- Provide proper insulation on steam and condensate return piping, as well as, on the central storage tank.
- For both cooling towers and boilers, obtain the services of a water treatment specialist to prevent system scale and corrosion and to optimize cycles of concentration. Treatment programs should include routine checks of boiler water chemistry.
- Develop and implement routine inspections and maintenance programs on condensate pumps.

- Regularly inspect both the water side and fire side of the boiler. If needed, clean the tube surfaces to ensure optimal heat transfer thereby optimizing system energy efficiency.
- Adjust boiler and cooling tower blowdown rate to maintain TDS at levels recommended by manufacturers' specifications.
- Shut off water-cooled air conditioning units when not needed or replace water-cooled equipment with air-cooled systems.

Table 4.7: Summary of Boilers and Cooling Systems Projects Completed or In Progress

Year Completed	Water Saved (Gallons/year)	Number of Systems with Water Efficiency Projects
2018	5,400,000	10

There are currently no new or in progress projects for boilers or cooling systems. The last retrofit project was completed in 2018 and included replacement of 10 swamp coolers.

Region specific information:

- Tulelake Agriculture Inspection Station: Hot water heaters were set to 135 degrees.
- Vidal Agriculture Inspection Station: Not running additional power coolers.
- Hornbrook Agriculture Inspection Station: Not using the power coolers. New efficient water heater.

Table 4.8: Summary of Landscaping Hardware Water Efficiency Projects Completed or In Progress

Year Funded	Water Saved (Gallons/year)	Estimated Annual Cost Savings	Total Number of Projects per Year
2014	2,907,600	Unavailable (Rate varies)	3
2018	5,400,000	Unavailable (Rate varies)	1

CDFA tracks overall water use and does not isolate water specifically used for landscaping. CDFA will consult with DGS Office of Sustainability regarding methods other Departments use in isolating landscaping water use.

Several efforts were made to reduce water use so CDFA cannot contribute to any one area of reduction. CDFA reduced water use by 16,536,411 gallons from 2010 to 2013, 13,282,100 from 2013 to 2016, and 6,785,500 from 2016 to 2018; for an average of 3,279,283 gallons per year reduction (76,404,011 2010 baseline – 40,331,900 used in 2021= total reduction of annual amount used of 36,072,111 gallons / 11 years = average amount used reduced by 3,279,283 gallons per year). This reduction was made, in part, due to the below efforts:

Landscape changes per the below:

- 2010: Reduced landscape water used per the Governor's directions.
- 2014: CDFA reduced landscape irrigation, surveyed water outlets for leakage, and repaired low-cost leaks.
- 2018: CDFA completed an irrigation retrofit at the Meadowview Plant Pest Diagnostics Center Greenhouse. Updates included: 16 hose bibs, 640 feet of old copper pipes, and 440 nozzle heads/sprayers with more efficient fixtures.

Region specific information:

Tulelake Agriculture Inspection Station:

- Well pump was replaced in 2014, improving water usage.
- Station has no outside water faucets (shut offs were placed on all outside faucets) and 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 Agriculture Inspection Station: Not watering plants (mandatory state reductions).

Hornbrook Agriculture Inspection Station: No watering since the mandatory reductions were issued.

Table 4.9: Summary of Living Landscaping Water Efficiency Projects Completed or In Progress

Year Funded	Water Saved (Gallons/year)	Landscape Area MWELO (Ft^2)	Climate Appropriate Landscape Area (Ft^2)
2014	2,907,600	0	0
2015	8,870,000	0	0
2016	1,504,500	0	0
2017	1,385,500	0	0
2018	5,400,000	0	0
2019	100,500	0	0
2020	20,000	0	0

Gallons used is reported by property, not split by indoor vs outdoor use. Table 4.9 lists the combined total water savings in comparison to the prior year. CDFA is working with DGS' Office of Sustainability on preferred methods to track in the future per the Model Water Efficient Landscape Ordinance (MWELO). Current MWELO and climate appropriate landscape area is estimated at 81,500 Ft^2 but measurements were not taken for landscaping water efficiency projects. Reduced landscape irrigation/water used in 2010 and 2014 also included efforts to reduce plants and increase ratio of low water landscaping. Additional information regarding savings shown in Table 4.9 is listed under Table 4.3 and Table 4.8.

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.

EO B-37-16 required DWR to strengthen the requirements for these plans, among other proposed changes, the creation of common standards for each stage in the plan and extending the drought planning from three to five years. For smaller water suppliers and rural communities not required to maintain a Water Shortage Contingency Plan, DWR works with counties to facilitate improved drought planning.

DWR has finalized these requirements in a Primer: Making Conservation a CA-Way-of-Life-Primer.

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 to respond to any stage implemented by the water supplier.

The Sustainable Groundwater Management Act established a new structure for managing California's groundwater resources at a local level by local agencies. Sustainable Groundwater Management Act required, by June 30, 2017, the formation of locally controlled groundwater sustainability agencies (GSAs) in the State's high and medium priority groundwater basins and subbasins (basins). A GSA is responsible for developing and implementing a groundwater sustainability plan 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 4.10: 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 Table 4.10, from DGS, can be found on Energy Star's webpage.

Water from Agriculture Inspection Stations comes from wells. CDFA will work with DGS to determine a contingency plan if applicable for CDFA locations.

Building Inventories Summary

Table 4.11: Summary of Building Inventory Needs

Number of toilets to be replaced	Number of urinals to be replaced	Number of faucet aerators to be replaced	Number of showerheads to be replaced *Changing to 1.8 gallons in 2020	Number of garbage disposals to be replaced	Number of pre-rinse valves to be replaced
1	0	1	0	0	0

The information in Table 4.11 (gallons per minute and other information), from DGS, can be found on Energy Star's webpage.

Recent leak survey and repairs at CDFA's Visalia office (possibly requiring fixture replacements) include one leaking toilet and one leaking faucet that may need to be replaced. CDFA will work with DGS to determine the best solution and find any other leaks present and then begin repairs, and if replacements are needed, CDFA will replace with low flow fixtures.

CDFA's continued efforts for water conservation in the future, where feasible, may also include:

- Working with DGS to survey water outlets for leakage and repair low-cost leaks at all CDFA locations;
- Ensuring all CDFA facilities have signs notifying employees to conserve water. These signs are posted in all rooms that contain a faucet, toilet, or shower; and
- Installing water leak detection devices and reporting systems that can be integrated into existing building security or automated control systems.

Heating and Cooling Systems Inventories Summary

Table 4.12: 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 (Gallons)
To be determined	21	15	0	0

CDFA has 21 owned properties. The estimates provided in Table 4.12 are based on providing one flash tank and one water meter at every owned property. 15 CDFA owned properties currently use unmetered well water. CDFA will investigate the water savings vs cost of on-demand (tankless) water heating units. If cost-effective and feasible, CDFA will implement where applicable. The approximation of 21 tanks and 15 water meters listed in Table 4.12 is dependent on feasibility and available funding.

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.

CDFA has and will continue to work with DGS experts when installing landscape irrigation.

Table 4.13: Summary of Irrigation Hardware Inventory

Number of separate meters or sub-meters needed	15
Number of irrigation controllers required with weather or soil moisture adjustment and flow sensing capabilities needed	0
Number of backflow prevention devices needed	0
Number of flow sensors to be purchased and installed	0
Number of automatic rains shut-off devices needed	0
Number of new pressure regulators needed	0
Number of new hydrozones needed	0
Number of new valves needed	0
Number of filter assemblies needed	0
Amount of drip irrigation needed (area covered)	0
Number of booster pumps needed	0
Number of rotary nozzles or other high efficiency nozzles needed	0

Currently, 15 of the 21 facilities CDFA owns use unmetered well water. To better determine impacts generated from water conservation efforts, CDFA will evaluate the cost of installing meters to measure water use. If feasible, and funding is available, CDFA will install meters and upgrade wells and pumps at each applicable location. CDFA may have to stagger installations due to available funding. CDFA will continue to work with DGS to meet conservation goals where feasible.

Landscaping Hardware Maintenance BMPs

CDFA works with DGS in ensuring all landscaping hardware maintenance requirements and BMPs are met.

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 residents 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 GHGe reductions, climate adaptation, 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. Large shade trees should be considered valuable infrastructure and given priority over other plants to maintain tree health. A voluntary urban forest plan is encouraged to assess individual trees and plan for additional tree plantings.

Table 4.14: Summary of Living Landscape Inventory

Landscape >500 Ft^2)	Turf (Ft^2)	Number of historical sites or memorials	MWELO landscape area (Ft^2)	Climate appropriate landscape area (Ft^2)
Dorris Inspection Agriculture Station	0	0	2,000	2,000
Glassy Winged Sharpshooter Project - Arvin	0	0	23,000	23,000
Hornbrook Agriculture Inspection Station	0	0	2,000	2,000
Meadowview Road Complex	38,000	0	18,300	18,300
Needles Agriculture Inspection Station	0	0	500	500
Redwood Agriculture Inspection Station	0	0	2,600	2,600
San Bernardino Veterinary Laboratory	23,900	0	0	0
Truckee Agriculture Inspection Station	0	0	21,800	21,800
Winterhaven Agriculture Inspection Station	0	0	11,300	11,300

Landscape measurement estimates in Table 4.14 are approximate amounts found by using the measurement tool provided in google maps. MWELO and climate appropriate landscape overlap so total measurements are duplicated in both columns of Table 4.14. Turf area measurement includes trees planted with the grass. CDFA owned properties with living landscape include:

- Dorris Agriculture Inspection Station includes a center divider on the freeway that is approximately 2,000 Ft^2 of trees/bushes.

- Glassy Winged Sharpshooter Project (Arvin facility) has approximately 5,000 Ft^2 of trees lining the front of the property and 18,000 Ft^2 of shrubbery/garden area.

- Hornbrook Agriculture Inspection Station has approximately 2,000 Ft^2 of trees lining the back of the parking area along the side of the freeway.

- Meadowview Road Complex has approximately 38,000 Ft^2 of grassy area with trees and 18,300 Ft^2 of other landscaping with shrubbery/trees. There is also an additional ten acres in the back of the property that have yet to be developed. CDFA is engaged in an agreement with the USDA to have a laboratory built on the land, so it was not counted toward the total landscaped area.

- Needles Agriculture Inspection Station has approximately 500 Ft^2 of trees/bushes lining the back of the parking area along the side of the freeway.

- Redwood Agriculture Inspection Station includes a center divider on the freeway that is approximately 2,600 Ft^2 of trees/bushes.

- San Bernardino Veterinary Laboratory has approximately 23,900 Ft^2 of grassy area with trees and shrubbery around the perimeter of the parking lot.

- Truckee Agriculture Inspection Station includes a center divider on the freeway that is approximately 15,300 Ft^2 of trees/bushes and has an additional 6,500 Ft^2 of shrubbery around the perimeter of the parking lot along the side of the freeway.

- Winterhaven Agriculture Inspection Station is next to approximately 11,300 Ft^2 of trees/shrubbery along the side of the freeway.

CDFA has and will continue to work with DGS experts when considering any landscaping changes, including living landscape.

Living Landscape BMPs

CDFA works with DGS in ensuring all living landscape requirements and BMPs are met.

CDFA reports any leaks and sprinkler malfunctions immediately to DGS to prevent wasting water and water runoff, and ensure sprinklers are directing water to only landscape areas, avoiding hardscapes such as parking lots, sidewalks, or other paved areas.

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 uses for landscape areas over 20,000 Ft^2 shall be tracked through a water budget program.

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. The water budget establishes an efficient standard for the landscape area. The water budget programs use local weather measurements to adjust the irrigation schedule on a weekly, biweekly, or monthly basis. A dedicated landscape meter or an irrigation sub-meter is required to track the actual landscape water use. The actual water use is entered the water budget program and the program compares the water use to an efficiency standard. A landscape water use tracking program will help improve irrigation scheduling and will also help detect irrigation system leaks. Landscape water budget management services in California are available by landscape associations and private vendors.

By reading the water meter and entering water use data into the program database, the landscape water manager can monitor water use and make immediate decisions regarding the irrigation schedule to maintain the landscape at or below the water budget. A landscape water audit and needed repairs to the irrigation system are advised at initiation of the Program to obtain optimum results. Costs for the program are the responsibility of the agency.

Water use data from the local water provider or data entered by the landscape manager and landscape water budget calculated specific to each landscape based on local climate and plant water needs is used for landscape water management. Data from dedicated landscape meters or in the case of facilities

with mixed use meters, a landscape sub-meter can provide the necessary data. If a dedicated meter or sub-meter is not available a winter / summer water use comparison can be used to estimate the summer irrigation demand and landscape water budget.

CDFA has severely reduced plants in small-landscaped areas.

Table 4.15: Summary of Large Landscape Inventory and Water Budget

Number of Facilities with > 20,000 Ft^2 of Landscaping	Total Landscape Area all Facilities	Total Water Budget all Facilities	Total EPA WaterSense or Irrigation Association Certified Staff
4	125,000 Ft^2	Varies	0

Landscape measurement estimate in Table 4.15 is an approximate amount found by using the measurement tool provided in google maps. CDFA has severely reduced plants in small, landscaped areas. In 2020, CDFA used a total of 39,784,800 gallons of water for all 21 CDFA owned properties. The four properties listed in Table 4.15 used 17,881,800 gallons of water in 2020 (45% of the total water used by CDFA for owned properties). CDFA will work with DGS to meet use reduction goals and certification requirements.

Large landscape areas include:

- CDFA's Glassy Winged Sharpshooter Project (Arvin facility) has approximately 5,000 Ft^2 of trees lining the front of the property and 18,000 Ft^2 of shrubbery/garden area.
- Meadowview Road Complex has approximately 38,000 Ft^2 of grassy area with trees and 18,300 Ft^2 of other landscaping with shrubbery/trees. There is also an additional ten acres in the back of the property that has yet to be developed. CDFA is engaged in an agreement with the USDA to have a laboratory built on the land, so it was not counted toward the total landscaped area.
- San Bernardino Veterinary Laboratory has approximately 23,900 Ft^2 of grassy area with trees and shrubbery around the perimeter of the parking lot.
- Truckee Agriculture Inspection Station includes a center divider on the freeway that is approximately 15,300 Ft^2 of trees/bushes and has

an additional 6,500 Ft^2 of shrubbery around the perimeter of the parking lot along the side of the freeway.

Table 4.16: Summary of Completed Living Landscaping Water Efficiency Projects

Total of all Facilities	Est Annual Water Savings (Gallons)	Est Annual Cost ($) Savings	Sum of MWELO Landscape installed (Ft^2)	Sum of Climate Appropriate Landscape Installed (Ft^2)
N/A	N/A	N/A	N/A	N/A

CDFA does not have any new landscaped projects. CDFA severely reduced plants in small, landscaped areas to reduce water use per the Governor's directives in 2010 and 2014.

Monitoring, Reporting and Compliance

Each state agency is responsible for monitoring water use and reporting baseline and annual water use for compliance with the water use reduction targets. CDFA's water use data is available through Energy Star. Water use is reported to the Energy Star website based on information available on water company invoices or reasonable estimates for facilities that use well water.

CHAPTER 5 - GREEN OPERATIONS

Greenhouse Gas Emissions (GHGe)

State agencies are directed to take actions to reduce entity-wide GHGe by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline.

CDFA has taken several measures to achieve the 20% minimum reduction by 2020, and has used each of the below strategies to meet this goal.

Energy Efficiency

CDFA has been working with the CalEPA, DGS' Office of Sustainability and the Climate Registry to further reduce energy use and GHGe at its State-owned facilities.

CDFA partnered with SMUD on various projects at CDFA's Center for Analytical Chemistry Laboratory in Sacramento. CDFA participates in SMUD's Energy Rebate Program for the replacement of HVAC chillers.

CDFA installed energy efficiency projects, including:

- Computer energy reduction: CDFA began using the Verdiem Surveyor power management software in 2008 to control and reduce power usage by desktop computers. Estimated annual kWh savings is unknown. CDFA has not received a baseline usage reading or any kind of measurement from DGS in the past five years.
- CDFA has reduced its use of standalone Windows servers from 60 prior to 2010, to approximately five, by consolidating and virtualizing the systems and functions they served into two virtualized multi-blade chassis.
- CDFA has made strides to ensure computers, copiers and printers are set to utilize their Energy Saver mode during periods of inactivity wherever possible.
- CDFA ensures that data centers are operated at within the temperature allowed by equipment manufacturers.
- Furloughs reduced usage (2008-2013). When furloughs ended in 2013, electricity use went up again because CDFA had more staff

hours and was therefore using more power for all the extra staff/hours. Due to the implementation of telework in 2020-2021, energy use was reduced due to less staff/hours using electricity at CDFA locations.

- CDFA partnered with the Statewide energy conservation campaign to reduce energy use in 2017. CDFA encouraged all employees to reduce energy consumption by using power strips, unplugging charging devices once fully charged, and turning off the lights when room(s) are not in use.

On-Site Renewable Energy

Meadowview Road Complex: CDFA worked with DGS in developing a project plan for the installation of solar panels at the Meadowview facility which would have generated over 50% of the Department-wide energy. The project was terminated and CDFA engaged in an agreement with the USDA to have a laboratory built on the land. In 2018, CDFA discussed the feasibility of installing solar panels on the parking lot with the USDA construction project team. Project developments are currently pending.

CDFA leased the 2800 Gateway Oaks building, which installed solar panels prior to CDFA leasing it.

Purchased Renewable Energy

CDFA buildings and facilities enrolled in a DRP include:

77% of Ft^2 for CDFA owned buildings over 10,000 Ft^2 are currently enrolled in a DRP (101,238 Ft^2 out of 130,238 Ft^2 total owned property with 10,000 Ft^2 or more).

- Owned – 101,238 Ft^2: 3288-3294 Meadowview Road, Sacramento

56% of Ft^2 for CDFA leased buildings over 10,000 Ft^2 are currently enrolled in a DRP (160,162 Ft^2 out of 285,145 Ft^2 total leased property with 10,000 Ft^2 or more).

- Leased – 2,450 Ft^2: 745 West Ventura Blvd, Ste A, Camarillo
- Leased – 78,604 Ft^2: 1220 N Street, Sacramento
- Leased – 17,732 Ft^2: 2750 Gateway Oaks Drive, Sacramento
- Leased – 63,826 Ft^2: 2800 Gateway Oaks Drive, Sacramento

63% of Ft^2 for CDFA buildings (leased and owned over 10,000 Ft^2 are currently enrolled in a DRP (261,400 Ft^2 out of 415,383 Ft^2 total leased and owned property with 10,000 Ft^2 or more). Properties enrolled in DRP make up 45% of all leased and owned Ft^2 (263,850 Ft^2 out of 592,181 Ft^2 total leased and owned). CDFA selected the most advantageous Southern Edison energy plans for all locations covered by the Southern Edison utility, including the critical peak pricing plan (DRP) for 745 West Ventura Blvd., Camarillo.

Fuel Efficient Vehicles

CDFA currently owns a total of 635 vehicles, 52 of which are fuel efficient vehicles (25 PHEVs and 27 BEVs).

Chevrolet Bolts are counted toward the ZEV goal on a one-to-one ratio; all other PHEVs are counted on a two-to-one ratio ({2017/18: 4 BEV + 3 Chevrolet Bolts + [6 PHEV/2] = 10, which is 17% of 60}, {2018/19: 29 BEV + 5 Chevrolet Bolts + [79 PHEV/2=39] = 73, which is 25% of 293}). Long term rentals count toward purchasing percentage goals.

PHEVS

Per DGS' guidance, PHEVs can be purchased in place of ZEVs, but the PHEVs are counted differently depending on the emissions. All Chevrolet Bolts purchased in FY 2015/16 and FY 2016/17 were counted the same as ZEVs. All other PHEVs CDFA purchased are considered long range PHEVs and therefore are counted on a two to one ratio (two PHEVs = one BEV).

CDFA owns 25 PHEVs and 18 Chevrolet Bolts:

- One PHEV purchased in FY 2004/05,
- Six PHEVs purchased in FY 2012/13,
- One PHEV purchased in FY 2013/14,
- Three PHEVs purchased in FY 2014/15,
- Eight Chevrolet Bolts purchased in FY 2015/16,
- Four Chevrolet Bolts purchased in FY 2016/17,
- Two PHEVs and three Chevrolet Bolts purchased in FY 2017/18,

- Three Chevrolet Bolts purchased in FY 2018/19 (and 74 were rented in FY 2018/19),
- Nine PHEVs purchased in FY 2019/20, and
- Four PHEVs purchased in FY 2020/21.

BEVs

CDFA has met the Governor's EO, EO B-16-12 to have at least 20% of fleet purchases of LD vehicles be ZEVs by 2019; and will continue to increase the percentage of BEVs for fleet purchases of LD vehicles in the future.

CDFA owns 27 BEVs:

- Ten BEVs purchased in FY 2014/15,
- One BEV purchased in FY 2015/16,
- Seven BEVs purchased in FY 2016/17,
- Four BEVs purchased in FY 2017/18,
- 29 BEVs were rented in FY 2018/19,
- Five BEVs purchased in FY 2019/20,

EVSE

To meet the goals set forth in the Governor's EOs requiring that at least 10% of LD fleet purchases be ZEVs by 2015 and at least 25% of LD fleet purchases be ZEVs by 2020 EO B-16-12, CDFA has pursued the installation of the EVSE to support these ZEVs so it is reasonable to keep them in operation.

CDFA analyzed its State-owned facilities for EVSE parking capacity to determine where installation will be most cost-effective and appropriate. An EVSE Infrastructure Plan was completed in 2019.

In Sacramento, CDFA purchased 12 dual EVSE [24 spaces] for CDFA facilities and entered into an agreement with DGS (three dual stations [six spaces] for 2710 Gateway Oaks, three dual stations [six spaces] for 2800 Gateway Oaks, and one station [two spaces] for the Division of Measurement Standards at Florin-Perkins) and a private contractor (one station [two spaces] at Meadowview) for the installation. All 12 EVSE have been completed. CDFA also

reached an agreement with DGS to install four dual EVSE (eight spaces) at a parking facility close to CDFA headquarters (1220 N Street),

Throughout the State, CDFA currently has 106 EVSE ports (58 L1 chargers and 48 L2 chargers). CDFA met with CalEPA to discuss solutions, audited usage, and continues to correspond with CalEPA and reach out to other Departments to discuss viable options. CDFA will continue to purchase ZEVs and integrate EVSE to support them.

Biofuels

CDFA does not use biofuels.

Other

Furloughs were in 2008-2013. When furgloughs ended in 2013, electricity use went up, and when CDFA implemented a remote workforce in 2020, electricity usage went down.

CDFA has several grant programs designed to reduce GHGe in the agricultural industry and across California such as SWEEP, Healthy Soils Program, and Dairy Digester Research and Development Program:

> In January 2017, in conjunction with CARB, SWEEP released a notification to award grants for agricultural water efficiency projects that reduce GHGe: SWEEP GHGe Reduction Fund. These grants provided financial incentives for GHGe reductions such as water irrigation treatment and distribution systems that reduce energy use, augment supply by reducing on-farm water use and enhance energy and water use efficiency in agricultural operations.
>
> In August 2017, CDFA's Healthy Soils Program released a document titled "GHGe Quantification Methodology for the CDFA Healthy Soils Program – GHGe Reduction Fund" to reduce GHGe and further the purpose of the Global Warming Solutions Act of 2006, also known as AB 32.
>
> In November 2017, CDFA's Dairy Digester Research and Development Program released the GHGe Reduction Fund report to provide financial incentives for GHGe reductions such as digester systems on dairy operations that capture methane, a GHGe many times more potent than carbon dioxide (CO_2), and use it to generate renewable fuels. Utilizing methane for energy use reduces the GHGe levels by reducing the methane released and using it instead of other energy sources used that

produce GHGe. Emission reductions will be realized throughout the digester's life span, typically 10 to 20 years.

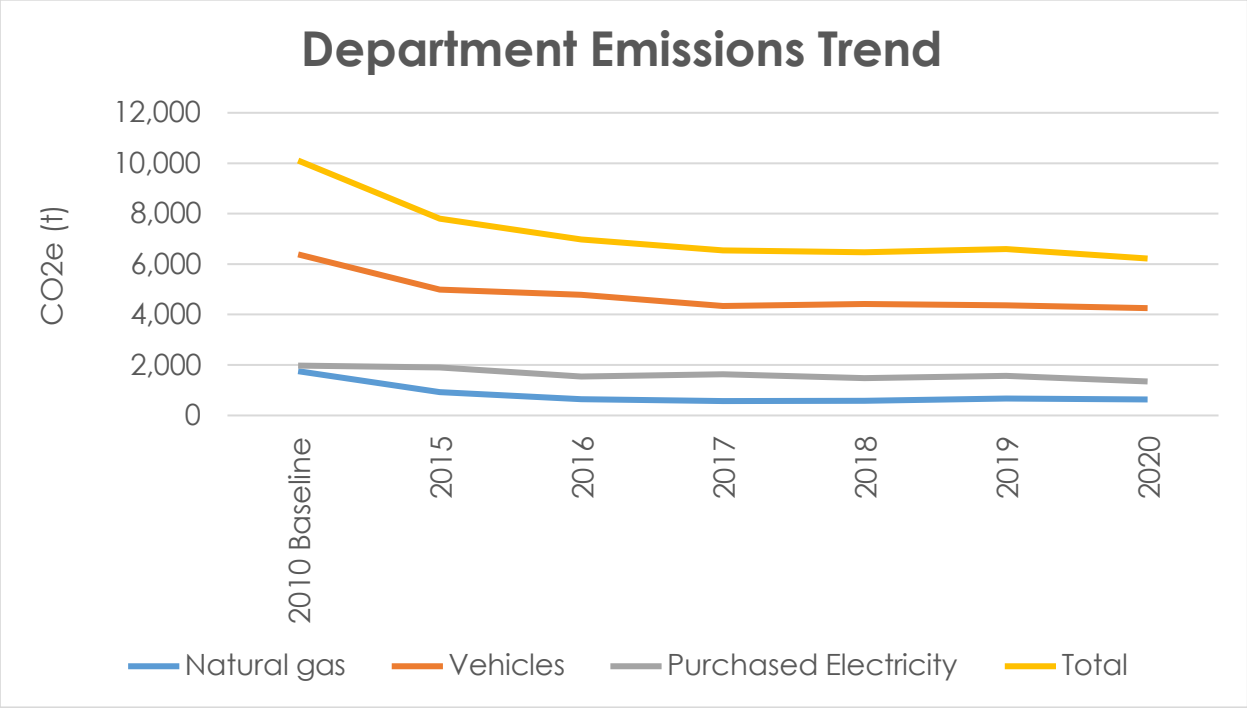
Table 5.1: GHGe since 2010

Emissions Source	Natural gas	Vehicles	Purchased Electricity	Total
2010 Baseline	1,752	6,381	1,974	10,107
2015	918	4,978	1,901	7,796
2016	649	4,782	1,548	6,980
2017	571	4,332	1,639	6,542
2018	581	4,407	1,479	6,467
2019	663	4,360	1,576	6,599
2020	626	4,249	1,347	6,222
Percent Change since Baseline	**-64%**	**-33%**	**-32%**	**-38%**

The information in Table 5.1(Carbon Dioxide Equivalent (CO_2e) (Tons = t)) was derived from The Climate Registry (CRIS).

Table 5.1 contains the metric tons of GHGe (CO_2e) (Tons = t)) that were reported by CDFA in The Climate Registry (CRIS) report to CalEPA. This GHGe reduction has been a result of several efforts CDFA has made through fleet purchases and building energy use reductions. CDFA has increased the total numbers of PHEVs and BEVs in the Department's fleet, reducing the GHGe produced from fuel use. CDFA has reduced the building energy used by increasing employee awareness, enrolling in DRP, decreasing load use in server rooms, utilizing energy saver mode when equipment is not in use, and setting timers for lights to automatically turn off outside of regular work hours.

Graph 5.1: GHGe since 2010



Graph 5.1 is a visual representation of the information contained in Table 5.1 to show the CO_2e generated from CDFA energy and vehicle use.

Low Emitting Landscaping Equipment

State agencies are to use manual landscape and hardscape maintenance as much as possible to reduce air pollution, dust, and noise. These measures are addressed in SAM Section 1821.6.

CDFA works with DGS in ensuring all landscape requirements are met; including transitioning to manual and/or electric or battery powered landscape maintenance equipment.

Building Design and Construction

EO B-18-12 requires that all new buildings, major renovation projects and build-to-suit leases over 10,000 Ft^2 shall obtain Leadership in Energy and Environmental Design (LEED) Silver certification or higher. All new buildings under 10,000 Ft^2 shall meet applicable California Green Building Standards Code (CALGreen) Tier 1 Measures. New buildings and major renovations greater than 5,000 Ft^2 are also required to be commissioned after construction.

Completed

- Anaheim: CDFA acquired the building in 2020-2021.
- Mountain Pass (Nipton/Yermo): Construction has been completed and the new building is in operation.
- Tulare: Building construction was completed and CDFA is leasing to own this veterinary laboratory from the University of California.

Pending

- Blythe: This project is in the acquisition phase. DGS is working with CalTrans on approval for the design and location of the facility before a site is acquired. Construction is projected to begin 2024-2025. This new Agriculture Inspection Station will be located on 25 acres; will include nine vehicle lanes, nine pre-manufactured booths, a 3,266 Ft^2 office building, and a 1,120 Ft^2 truck office building. The project cost is estimated at $62,406,000.
- Needles: DGS performed an initial study for a new facility for Needles Agriculture Inspection Station. CDFA received acquisition/preliminary plans funding for 2021-2022.
- Turlock: DGS completed the land acquisition process in November 2019 and will proceed with construction process. In November of 2020, CDFA and the DGS Sustainability Branch worked together to establish a conceptual plan for a Power Purchase Agreement for solar power on site. This solar field will be used to meet CDFA's ZNE goals and other sustainability efforts. Construction is projected for 2023-2025. This location is four acres including landscaping, walkways, a solar field, and a 35,000 Ft^2 single story laboratory. The project cost is estimated at $54,064,000.

CDFA will continue to work with DGS to ensure that all new buildings and major renovations meet the EO B-18-12 requirements.

Table 5.2: New Construction since July 1, 2012

Facility Name	LEED Certification Type & Level Achieved	Commissioning Performed (Yes/No)
Anaheim Laboratory	Completed	Yes
Blythe Agriculture Inspection Station	Acquisition Phase	In Progress
Mountain Pass Agriculture Inspection Station (Nipton/Yermo)	Completed	Yes
Needles Agriculture Inspection Station	Initial Study Complete	In Progress
Tulare Veterinary Laboratory	Completed	Yes
Turlock Veterinary Laboratory	Acquisition Phase Completed	In Progress

The information in Table 5.2 was derived from CDFA's internal historical data.

State agencies shall implement mandatory measures and relevant and feasible voluntary measures of the California Green Building Standards Code (CALGreen), Part 11, related to indoor environmental quality (IEQ) that are in effect at the time of new construction or alteration and shall use adhesives, sealants, caulks, paints, coatings, and aerosol paints and coatings that meet the volatile organic chemical (VOC) content limits specified in *CALGreen*.

CDFA strongly encourages implementation of CALGreen measures related to IEQ and will work with DGS RESD on all new building design and construction projects, ensuring due diligence with CALGreen measures.

Leadership in Energy and Environmental Design (LEED) for Existing Buildings Operations and Maintenance (EBOM)

All State buildings over 50,000 Ft^2 were required to complete LEED Existing Buildings Operations and Maintenance (EBOM) certification by December 31, 2015, and meet an Energy Star rating of 75 to the extent cost effective.

CDFA leases three facilities (two in Sacramento: 1220 N Street and 2800 Gateway Oaks; and one in Phoenix: 3645 E Wier/Chipman) and owns one facility (in Sacramento: 3298-3294 Meadowview) over 50,000 Ft^2.

Table 5.3: LEED for Existing Buildings and Operations

Number of Buildings over 50,000 Ft² and eligible for LEED EBOM	Number of Building over 50,000 Ft² that have achieved LEED EBOM	Percentage of buildings over 50,000 Ft² required to achieve LEED EBOM that have achieved it
4	4	100%

The information in Table 5.3 was derived from CDFA's internal historical data.

CDFA works with DGS in ensuring all regulations are followed and all requirements are met regarding LEED standards.

Indoor Environmental Quality

When accomplishing alterations, modifications, and maintenance repairs and when relevant and feasible, state agencies shall implement the mandatory and voluntary measures of the California Green Building Standards Code (CALGreen), Part 11, related to IEQ.

CDFA uses low emitting furnishings, cleaning products, and cleaning procedures to maintain IEQ.

CDFA has strongly encouraged implementation of CALGreen measures related to IEQ. CALGreen regulations are specified in property leases and construction contracts as appropriate. CDFA disseminated CALGreen requirements to employees; and CDFA has and will continue to work with DGS RESD on all materials applicable to CALGreen requirements; including but not limited to new construction and renovation, furnishings, cleaning products, cleaning procedures, and HVAC operation.

New Construction and Renovation

New and ongoing projects - building project measures from CALGreen related to IEQ:

- Using only adhesives, sealants, caulks, paints, coatings, and aerosol paints and coatings that meet the volatile organic chemical content limits specified in CALGreen.
- Using carpet systems, carpet cushions, composite wood products, resilient (e.g., vinyl) flooring systems, and thermal insulation,

acoustical ceilings and wall panels that meet the volatile organic compounds emission limits specified in CALGreen.

- All relevant mandatory and all feasible voluntary measures from CALGreen Division 5.5 and Appendix section A5.5.
- Specialized air treatment for buildings where air quality standards are routinely exceeded, including Minimum Efficiency Reporting Value 13 or 16 air filters and ozone removing air cleaning devices.
- Commissioning to ensure proper operation of all building systems, including delivering the required amount of outside air and outdoor airflow monitoring systems.
- An IEQ Construction Management Plan that meets CALGreen Sections A5.501.1-A5.504.2. Furnishings
- CDFA purchases furniture through the California Prison Industries Authority (CalPIA). CALPIA manufacturing and associated products are compliant with the DGS' Purchasing Standard and Specifications (Technical Environmental Bid Specification 1-09-71-52). CDFA follows guidance from DGS to ensure that all furniture and seating purchased by the department complies with either:
    - The DGS' Purchasing Standard and Specifications (Technical Environmental Bid Specification 1-09-71-52, Section 4.7) or
    - The American Society of Heating, Refrigerating and Air-Conditioning Engineers' (ASHRAE) Standard 189.1-2011 (Section 8.4.2.5).

Cleaning Products

CDFA works with DGS to ensure that all cleaning products meet Green Seal (GS) Standard GS-37: Cleaning Products for Industrial and Institutional Use.

Cleaning Procedures

CDFA works with the property managers for each location to ensure that:

- All vacuum cleaners used in Department facilities achieve the Carpet and Rug Institute Seal of Approval.
- Entryways are maintained as specified in CALGreen Section A5.504.5.1.
- Cleaning procedures meet the Green Seal -42 standard.
- Cleaning procedures follow the Carpet and Rug Institute's Carpet Maintenance Guidelines for Commercial Applications.
- Cleaning procedures meet the California Occupational Safety and Health Administration, General Industry Safety Orders, Title 8, Section 3362.

Heating, Ventilation, and Air Conditioning Operation

CDFA works with DGS to ensure:

- HVAC systems provide no less than the required minimum outdoor air requirements
- HVAC systems are inspected at least annually and that all HVAC inspections and maintenance are documented in writing. These inspections must include:
    - Verification of minimum outdoor airflows using hand-held airflow measuring instruments.
    - Confirmation that air filters are clean and replaced based on manufacturer's specified interval.
    - Air filters used have a MERV rating of no less than 11.
    - Verification that all outdoor dampers, actuators, and linkages operate properly.
    - Checking condition of all accessible heat exchanger surfaces for fouling and microbial growth, with action taken when fouling is found.

- Checking the first 20 feet of ductwork downstream of cooling coils for microbial growth and resolving any issues if growth is found.

- Ensuring that cooling towers are properly maintained and that records of chemical treatment are kept. Retrofit to prevent cooling tower plumes closer than 25 feet to any building air intake.

- A computer-based preventative maintenance program is in place for all HVAC equipment.

- Buildings are purged with outdoor air sufficient for three complete air changes or the minimum ventilation rate allowed in Section 120.1(c)2 of Title 24 for one hour before occupancy.

Integrated Pest Management

CDFA contracts contain the language referenced in SAM 1821.3 to ensure contracted pest management companies will follow an integrated pest management (IPM) strategy that focuses on long-term prevention of pest problems through monitoring for pest presence, improving sanitation, and using physical barriers and other nonchemical practices. If nonchemical practices are ineffective, Tier 3 pesticides may be used, progressing to Tier 2 and then Tier 1 if necessary. CDFA works with DGS to ensure all regulations are followed and all requirements are met, including IPM as described in MM 15-06. DGS takes point on IPM standards and advises CDFA on any changes needed. All Material Safety Data sheets (MSDS) are required and submitted for on-site treatments.

Table 5.4: Pest control contracts

Pest Control Contractor	IPM Specified (Yes/No)
EcoGuard Pest Management	Yes

Waste and Recycling Programs

The California Integrated Waste Management Act (AB 939, Sher, Chapter 1095, Statutes of 1989 as amended) established the solid waste management hierarchy. Source reduction is at the top of the state's waste management hierarchy; recycling and composting is next, followed last by environmentally safe disposal. California's Department of Resources Recycling and Recovery (CalRecycle) brings together and administers the state's recycling and waste

management programs. State agencies must report their waste and recycling efforts by May 1 of each year covering activities conducted during the prior calendar year.

It is CDFA's policy to recycle as much as possible and CDFA encourages all employees to do so. CDFA's Office of Information Technology sends Department-wide e-mails at least once a year and the BPMU directly notifies branches as soon as the unit becomes aware of the planned disposals. When there is electronic waste (e-waste), employees must submit a survey request to dispose of the item, and are informed that e-waste must be recycled through CalPIA or an authorized recycler listed on CalRecycle's webpage with a waiver from CalPIA (per MM17-06).

Pursuant to Senate Bill (SB) 1106 Lowenthal, et. al Chapter 590, Statutes of 2006, CDFA has designated a waste and recycling coordinator. The coordinator performs the duties imposed pursuant to this chapter. The coordinator is responsible for implementing the integrated waste management plan. The coordinator completes the annual State Agency Reporting Center (SARC) Report and ensures that disposals are properly conducted, and that materials are recycled as often as possible. The coordinator meets the statutory requirement and ensures all the necessary policies are followed and all requirements are met.

Some of the steps CDFA has instituted to ensure CDFA recycles as much as possible and meets the recycled content purchasing requirements set forth in SB 1106 Lowenthal, et. al Chapter 590, Statutes of 2006 include:

- CDFA's waste and recycling coordinator ensures at least 50% of CDFA's purchases are recycled products. This purchasing goal is for at least 50% of the total dollars spent for each product category (paper products, printing, mulch, compost, glass, lubricating oils, plastic, paint, antifreeze, tires, and metal) are recycled products.

- CDFA's contracts office requires the businesses CDFA contracts with to certify at least 50% use of recycled products to the maximum extent economically feasible in the performance of the contract work.

- CDFA's property controller and waste and recycling facilitator ensure all electronics, used toner cartridges, and batteries are recycled.

- CDFA's property controller coordinates recycling and donations where applicable and encourages all employees to donate or recycle obsolete office supplies (such as binders, folders, desk organizers, staplers, etc.) whenever feasible.

- CDFA's BPMU ensures paper recycling receptacles and recycling services are provided for all CDFA facilities. Paper recycling receptacles are available throughout the occupied space at each CDFA facility. These receptacles are regularly filled and emptied to ensure CDFA meets recycling goals.

- CDFA's BPMU provides bottle and can recycling receptacles where feasible and coordinates recycler collection for eligible facilities.

*CDFA disposal was reduced due to more employees working from home.

Table 5.5: SARC Report on Total Waste per Capita

Per Capita Baseline	Waste Per Capita 2019	Waste Per Capita 2020	Total Waste 2019	Total Waste 2020	% Change from 2019/2020
2.1	0.21	0.21	93.6 tons	93.6 tons	0%

The information in Table 5.5 was derived from the SARC Report and information provided by DGS.

CDFA is meeting the requirements of AB 2812 in providing adequate receptacles, signage, education, and staffing, as well as arranging for recycling services. CDFA's 2019 and 2020 disposal rate was 0.21 per capita. CDFA exceeded the disposal target rate, set by Cal Recycle, of 0.60 per capita. Some of the steps taken to exceed the waste per capita goals set forth by Cal Recycle are listed above Table 5.5.

Recycling

Recycling is the practice of collecting and diverting materials from the waste stream for remanufacturing into new products, such as recycled-content paper. Stewardship programs help collect and recycle carpet, paint, pharmaceutical and sharps, and mattresses. AB 341, Mandatory Commercial Recycling (Chesbro, Chapter 476, Statutes of 2011) requires businesses and public entities that generate four cubic yards or more of commercial solid waste per week to

arrange for recycling services under the goal of source reducing, recycling, or composting 75% of solid waste generated statewide.

CDFA meets all recycling goals. Some of the steps taken to meet the recycling goals are listed above Table 5.5. Materials CDFA recycles include paper, bottles, cans, electronics, plastic, metal, batteries, toner, and other office supplies. CDFA has waste and recycling collection services in place for all CDFA facilities. To meet the policy of the State of California to recycle as much as possible, CDFA will continue to recycle and donate wherever feasible.

Organics Recycling

CDFA abides by AB 1826 (Chesbro, Chapter 727, Statues of 2014) which requires that State Agencies arrange for recycling services for organic Waste.

Organic waste includes:

- Food waste
- Green waste
- Landscape and pruning waste
- Nonhazardous wood waste
- Food-soiled paper

This law requires that each State Agency recycle organic material on or by the following dates based on number of materials generated:

- Eight or more cubic yards of organic material per week-April 1, 2016.
- Four or more cubic yards of organic material per week-January 1, 2017.
- Four or more cubic yards of solid waste per week-January 1, 2019.
- Two or more cubic yards of solid waste per week if Statewide disposal of organic waste is not decreased by half-January 1, 2020.

Note: Solid waste means trash, recycling, and organics. This is different than AB 341, which is trash only.

The exemption under 42649.82 (e)(3)(E) related to businesses that generate one cubic yard or less of organic waste is no longer in effect. Furthermore, CalRecycle has extended the current AB 1826 rural exemption until December 31, 2026.

Effective January 1, 2022, state agencies must implement SB 1383 (Lara, Chapter 395, Statutes of 2016). State agencies are currently required to maintain mandatory commercial recycling and organic recycling programs, including ensuring that properly labeled recycling containers are available to collect bottles, cans, paper, cardboard, food waste, and other recyclable materials. SB 1383 builds upon these efforts by identifying non-local entities and expanding the definition of organic waste to include food scraps, landscape and pruning waste, organic textiles and carpets, lumber, wood, manure, biosolids, digestate, and sludges. Commercial edible food recovery begins January 1, 2024, for Tier 2 generators which most state agencies would fall under. SB 1383 requires that by 2025 California will recover 20 percent of edible food that would otherwise be sent to landfills, to feed people in need.

Under SB 1383, non-local entities include:

- Special districts
- Federal facilities
- Prisons
- State Park facilities
- Public universities and community colleges
- County fairgrounds
- State agencies

SB 1383 organics collection requirements are effective January 1, 2022.

CDFA does not create food waste at any CDFA owned or leased facilities because there are no cafeterias being operated. If organic waste is created, CDFA will work with DGS to meet all requirements for organics recycling and Commercial edible food generator requirements; including identifying and mitigating contamination in the recycling and organics recycling streams.

Hazardous Waste Materials

It is CDFA's policy to recycle as much as possible and CDFA encourages all employees to do so. This includes but is not limited to Electronic Waste (e-waste), Universal Waste, and any hazardous wastes such as antifreeze, asbestos, paint, treated wood, used oil, etc.

CDFA requires a survey request to be completed when e-waste is being recycled. In addition to the survey request, staff is informed that e-waste must be recycled through CalPIA or an authorized recycler listed on CalRecycle's webpage with a waiver from CalPIA (per MM17-06).

If it is not e-waste, programs are encouraged to go through a scrap recycler or the recycler applicable to the type of waste being disposed of.

CDFA maintains internal processes to funnel waste through individual programs to properly dispose of Universal Waste, Electronic Waste, as well as any other hazardous wastes such as antifreeze, asbestos, paint, treated wood, used oil, etc. CDFA's internal processes ensure that employees give all waste to specific representatives, so everything is properly disposed of.

Material Exchange

CDFA utilizes the DGS Surplus program to promote the exchange and reuse of unwanted or surplus materials. The exchange of surplus materials reduces the cost of materials/products for the receiving agency and results in the conservation of energy, raw resources, landfill space, and the reduction of GHGe, purchasing costs, and disposal costs.

CDFA continues efforts to recycle toner, batteries, paper, cardboard, cans, and bottles through various organizations. Due to the impact of COVID-19 on schools statewide and per the direction of DGS, CDFA implemented a policy to donate as many computers and related useable electronics as possible to support schools throughout the pandemic. In consideration of this new policy, CDFA also donated furniture and office supplies to schools. CDFA works with DGS and various donation entities to recycle as much as possible.

Waste Prevention/Reuse

CDFA supports waste prevention: actions or choices that reduce waste and prevent the generation of waste in the first place; and reuse: using an object or material again, either for its original purpose or for a similar purpose, without significantly altering the physical form of the object or material.

CDFA follows all current recycling and disposal regulations and will continue to endeavor to increase recycling to ensure the future and well-being of California's natural resources.

Training and Education

CDFA is compliant with the AB 2812 (Gordon, Chapter 530, Statutes of 2016) requirement to provide adequate receptacles, signage, education, and staffing, and arrange for recycling services consistent with existing recycling requirements for each office building or large State facility. The bill requires, at least once per year, each covered State Agency and large State facility to review the adequacy and condition of receptacles for recyclable material and of associated signage, education, and staffing. Additionally, the bill requires each State Agency to include in its existing Report to CalRecycle a summary of the State Agency's compliance with the Act.

CDFA works with the property managers of each facility to reduce waste, reuse, recycle, compost, buy green products, educate suppliers about efforts to reduce, reuse, recycle, compost, and buy recycled products to ensure all regulations are followed and all requirements are met. In addition to signs posted through CDFA's facilities, CDFA sends out notices and instructions to employees and supervisors, reminding them what materials to recycle and how. Purchasing employees are trained on what the recycled content requirements are and purchases are regularly audited to ensure compliance. New staff is trained on purchasing policies as they join CDFA, and recycling signs remain posted in visible areas as constant reminders to be mindful of recycling efforts.

Foodservice Items

SB 1335 (Allen, Chapter 610, Statutes of 2018) requires food service facilities located in a state-owned facility, operating, or acting as a concessionaire on state-owned property, or under contract to provide food service to a state agency to dispense prepared food using food service packaging that are reusable, recyclable, or compostable. CalRecycle approved proposed regulations December 31, 2020 to establish the process and criteria to determine what types of food service packaging are reusable, recyclable, or compostable. CalRecycle was also required to publish a list of food service packaging that meets these criteria within 90 days of the regulation going into effect. Food service facilities are only allowed to purchase food service packaging from the approved list, which will be updated at least once every five years.

CDFA does not currently have any operational food service facilities.

Environmentally Preferable Purchasing

State Agencies are required to purchase and use environmentally preferable products (EPP) that have a reduced effect on human health and the environment when compared with competing goods that serve the same purpose.

CDFA purchases and uses EPP that have a reduced effect on human health and the environment when compared with competing goods that serve the same purpose.

Additionally, the State Agency Buy Recycled Campaign (SABRC) is a joint effort between CalRecycle and DGS to implement state laws requiring state agencies and the Legislature to purchase recycled-content products and track those purchases. CDFA and its contractors must track purchases that fall under eleven product categories.

SABRC product categories include:

- Paper products
- Printing and writing paper
- Compost, mulch, etc.
- Glass products
- Lubricating oil products
- Plastic products
- Paint

- Antifreeze
- Tires
- Tire-derived products
- Metal products

It complements the intent of the Integrated Waste Management Act (AB 939, Sher, Chapter 1095, Statutes of 1989, and Public Resources Code 4000 et al), which was enacted to reduce the amount of waste going to California's landfills. An annual report detailing state agencies' annual recycled-content products purchase is due to CalRecycle by October 31 each year.

Pursuant to Public Contract Code Sections 12203 and 12211 (AB 2675, Lowenthal. State agency: public contracts), effective January 1, 2020, each state agency is required to ensure that at least 75 percent of the total purchases under the reportable categories contain recycled-content products meeting the minimum percentage content for SABRC compliance, except for paint, antifreeze, and tires which would remain at the 50 percent requirement.

Reducing Impacts

The environmental impact of the goods purchased is often larger than the impact of the department purchasing them. CDFA is committed to reducing the environmental impact of goods and services CDFA purchases. CDFA works with CalRecycle and DGS to ensure all regulations are followed and requirements are met. CDFA also compiles and submits annual recycling reports to track progress and will attend the green purchasing training provided by DGS to continue to ensure compliance with all regulations, including:

Buying goods and services that lessen any negative impacts to public health, natural resources, economy, and environment.

- Reducing environmental impacts such as energy, water and natural resource conservation when making purchasing decisions.
- Ensuring contractors provide EPP goods and meet the SABRC requirements in service contracts.
- Ensuring goods and services bought meet the current DGS purchasing standards and specifications available from the DGS Buying Green website;

- Ensuring purchases (such as paint, Information Technology goods, janitorial supplies and cleaners, paper products, desk lamps, office equipment, and toner) are EPP.
- Paint (i.e., master painter's institute certified paint and recycled paint).
- IT goods (energy star rated: computers, monitors, and televisions DGS-52161505 Purchasing Standard or meet current specifications of Statewide contracts).
- Janitorial supplies and cleaners (EcoLogo, Green Seal certified cleaners, DGS_471318A Purchasing Standard compliant).
- Janitorial supplies, paper products (i.e., SABRC compliant and DGS_141117A Purchasing Standard Compliant).
- Desk Lamps (DGS-391115-A Purchasing Standard compliant).
- Office equipment (i.e., EPEAT compliant and EnergyStar rated printers, copiers and DGS_432121A Purchasing Standard compliant for high-end multifunctional devices).
- Paper products (i.e., Forest Stewardship Council certified, SABRC compliant copy paper, DGS-441200-A Purchasing Standard compliant).
- Remanufactured toner cartridges (available from PIA and Statewide contract ID/Number: 1-15-75-61).

Measure and Report Progress

CDFA engages in environmentally friendly purchasing strategies, which include:

- Increasing EPP spending to include identifying top five percent of spending with largest opportunity to use "green" options.
- Incorporating EPP criteria in the goods and services the State buys.
- Embedding sustainability roles and responsibilities into purchasing procedures.
- Training buyers in the benefits of buying EPP products, how to apply EPP best practices, the importance of accuracy in recording buys

within State Contract and Procurement Registration System and reporting labor separate from goods in service contracts and listing EPP goods by line item.

- Engaging and educating suppliers and encouraging them to offer EPP products when selling to the State.
- CDFA disseminates purchasing requirements to all buyers to ensure that all EPP purchases are tracked and recorded, into the State Contract and Procurement Registration System.

Table 5.6: SABRC FY 2019/20 Performance

Product Category	SABRC Reportable Dollars	SABRC Compliant Dollars	% SABRC Compliant
Antifreeze	0	0	0
Compost and Mulch	0	0	0
Glass Products	5,670.00	5,670.00	100%
Lubricating Oils	0	0	0
Paint	0	0	0
Paper Products	2,015,700.57	2,015,696.73	100%
Plastic Products	94,361.65	93,185.01	98.75%
Printing and Writing Paper	59,038.49	57,947.40	98.15%
Metal Products	200,515.69	104,144.69	51.94%
Tire Derived Products	0	0	0
Tires	88.40	0	0%

Compliant with SABRC, CDFA compiles and submits annual recycling reports to track progress. Agencies reporting SABRC purchases can access the information through CalRecycle.

To meet SABRC compliance percentages, at least 50-75% of the products listed in the above table must have at least 10-80% recycled content per the breakdown found on the CalRecycle webpage.

CDFA works with DGS in an ongoing effort to achieve SABRC compliance and increase procurement of recycled products across all categories.

CDFA purchases new tires instead of retreaded tires, consistent with State regulations. There is a statewide contract prohibiting the purchase of recycled tires. A total of $148,508.00 reportable procurements for category 9 were for

goods purchased from CalPIA. As stated in the State Contracting Manual, Volume F, Chapter 2: Pursuant to Penal Code Section 2807, state departments must first consider if CalPIA can fulfill the state department's need prior to purchasing goods and services from private sector suppliers (including suppliers that have a Leveraged Procurement Agreement with the DGS/Procurement Division).

CDFA procures post-consumer recycled content products whenever feasible, including contract materials. CDFA requires contractors to adhere to the SABRC purchasing requirements per Public Contract Code 12203(d) and use recycled products to the extent economically feasible in the performance of contract work per Public Contract Code Sections 12200-12217. All outside contractors working with CDFA are required to report recycled content purchased and this content is reported in CDFA's annual SABRC report.

Table 5.7: Commodities categories with the greatest Potential to Green

Commodity	2020 Total Spend ($)	2020 Percent EPP Spent (%)	EPP Target (%)
Plastic Products	94,361.65	98.75 %	10 %
Metal Products	200,515.69	51.94 %	50 %
Paper Products	2,015,700.57	100 %	30 %
Printing and Writing Paper	59,038.49	98.15 %	30 %

The information in Table 5.7 was derived from CDFA's internal historical data.

The Green Buyer website tracks and offers transparency in agencies' performance for buying EPP goods, which are those identified as EPP when keyed into the State Contract & Procurement Registration System. These goods are available from statewide contracts and complaint with DGS Purchasing Standards or SABRC. EPP goods are categorized by United Nations Standard Products and Services Code (UNSPSC) and compared with goods of the same category to establish the percent EPP spend as reported in State Contract & Procurement Registration System. EPP goods are found on DGS Buying Green website.

As demonstrated in the Table 5.6, for the top commodities that CDFA buys with the greatest Potential to Green, CDFA exceeds the postconsumer content requirements, per Public Contract Code Section 12209. CDFA will continue to work with DGS to follow all regulations and increase spending each year for the

top four commodities listed. The commitment will be reported as "Commitment to increase EPP per commodity". It is reported as a percent of spend.

Sustainability Development and Education

CDFA is committed to promoting the understanding and advancement of sustainable procurement internally within the agency and external suppliers. CDFA ensures all buyers are informed and trained on all EPP requirements. CDFA notifies bidders of EPP requirements within the following areas: construction contracts, service and transportation agreements, commodity purchases, grants, interagency agreements and Architecture and Engineering contracts.

Total Number of Employees Assigned as Buyers: 5

Table 5.8: Buyers who have completed EPP Training

California Department of Human Resources Classification	Total Number of Buyers	Percent Completing EPP Training	Commitment to have buyers complete EPP training (Percent)
Staff Services Manager I	1	100	100 %
Associate Governmental Program Analyst/Staff Services Analyst	4	100	100 %

The EPP training referenced in Table 5.8 is through California Procurement and Contract Academy. CDFA also works closely with DGS to ensure all training requirements are met.

Location Efficiency

Location efficiency refers to the effect of a facility's location on travel behavior and the environmental, health and community impacts of that travel behavior including emissions from vehicles. Locating department facilities in location efficient areas reduces air emissions from State employees and users of the facilities, contributes to the revitalization of California's downtowns and town centers, helps the Department compete for a future workforce that prefers walkable, bikeable and transit-accessible worksites and aligns Department operations with California's planning priorities.

CDFA's headquarters is located at 1220 N Street, Sacramento, California. This building is located less than a block from the Archives Plaza light rail stop and approximately one and a half miles from two entrances to the American River

Bike Trail. CDFA's other Sacramento facilities boast free parking options, and all locations encourage carpooling and bicycling. CDFA works with DGS to ensure all regulations are followed, all requirements are met, and the goal of average location efficiency score for all new leases be 10% higher than the Statewide average as of January 1, 2017.

CDFA references Smart Location Scores listed in the Smart Location Calculator; a simple tool for exploring how workplace location affects worker commute travel. Indicators include worker commute mode-share, vehicle miles traveled, and workplace accessibility via transit. The data and research behind this tool, as well as a user guide, are available in the Resources section at the bottom of the page. The Calculator provides a Smart Location Index (SLI), ranging from the least location efficient site in the region (0) to the most location efficient site (100). These scores are relative to the region and should not be compared across regions.

Table 5.9: Smart Location Score for new Leases

Facility name	Smart Location Calculator Score
834 Striker Ave Suite F, Sacramento	53
1317 N Melrose Self Storage, Vista	60
Blue Oaks Self Storage 1705 (1450 Blue Oaks Blvd, Roseville)	67
Blue Oaks Self Storage 1706 (1450 Blue Oaks Blvd, Roseville)	67
724 N. Ben Maddox Way, Visalia	69
2750 Gateway Oaks Drive, Sacramento	71
403 Avenue 33, Los Angeles	73
201 S Balcom Ave, Fullerton	74
930 6th Street, Suite 100, Eureka	86
Average	68.9
Baseline	Unknown
% change from Baseline	Unknown

The information in Table 5.9 is from the U.S. General Services Administration's Smart Location Calculator. Table 5.9 lists all new executed leases that began site search after January 1, 2017.

Table 5.10: Lowest Smart Location Score Leases

Facility name	Smart Location Calculator Score
5100 Douglas Avenue, Shafter	31
295 Durley Avenue, Camarillo	36

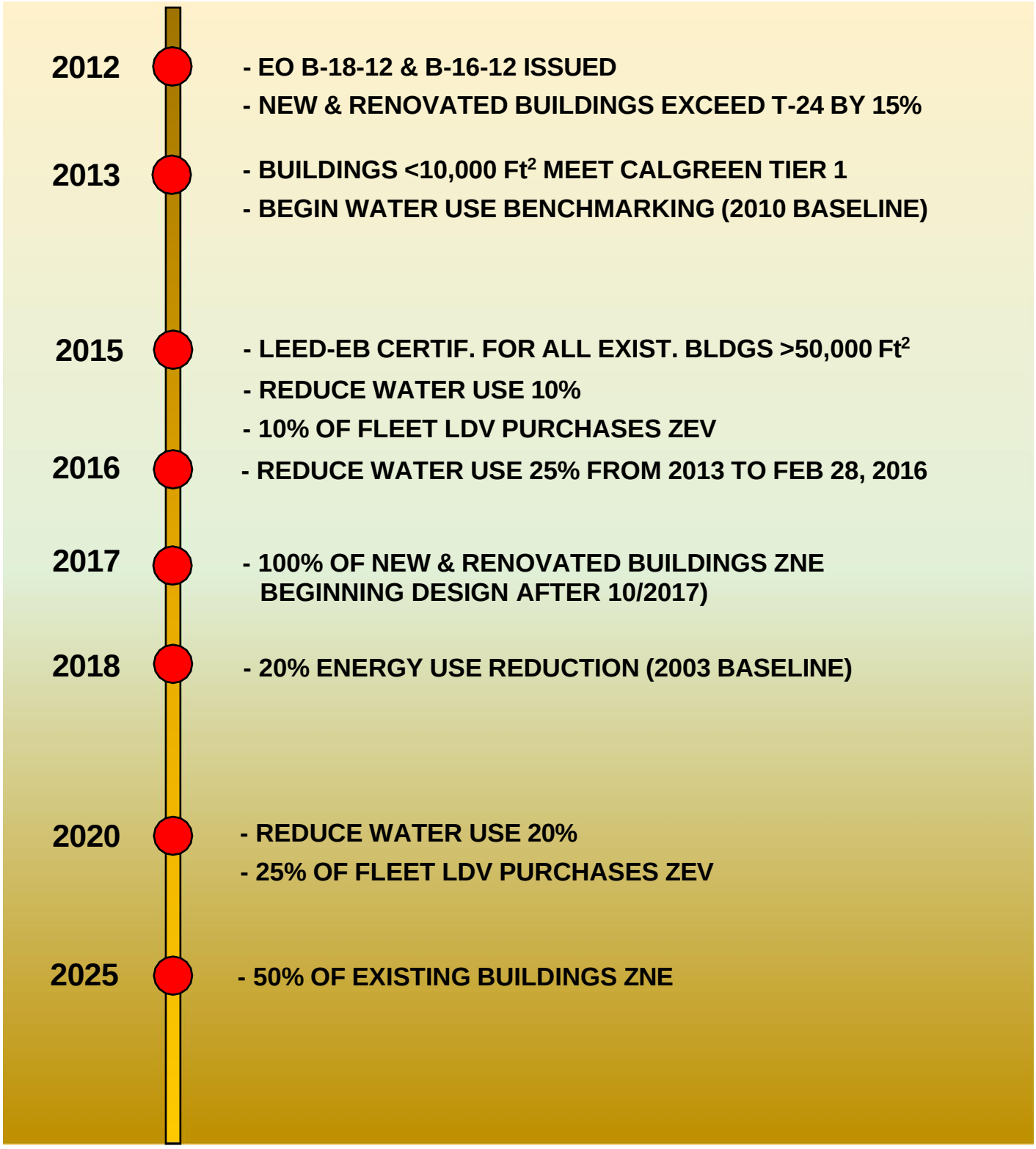
The information in Table 5.10 is from the U.S. General Services Administration's Smart Location Calculator. Table 5.10 lists the lowest scoring leases in CDFA's portfolio.

Appendix A – Sustainability Leadership

Below is the Organization Chart of CDFA from the Secretary to the branch housing CDFA's Sustainability Leadership.

SECRETARY KAREN ROSS
UNDERSECRETARY CHRISTINE BIRDSONG
DEPUTY SECRETARY FOR FINANCE AND ADMINISTRATION KEVIN MASUHARA
DIRECTOR, DIVISION OF ADMINISTRATIVE SERVICES JODY LUSBY
CHIEF, DEPARTMENTAL SERVICES BRANCH STEPHANIE ROSS
MANAGER, BUILDING AND PROPERTY MANAGEMENT UNIT RENE AGUILERA

Appendix B - Sustainability Milestones &Timeline



Appendix C – Roadmap Checklists

1 - Climate Adaptation Roadmap Checklist

Policy References: EO B-30-15

Executive Summary:

☐ Summary of status and actions underway to meet sustainability objectives related to climate adaptation.

☐ Include summary of changes from previous roadmap.

(This executive summary can be a paragraph in a single, comprehensive executive summary including all roadmap chapters if combined into one document.)

Past Performance:

☐ Describe how screening process will integrate facility operations and planning processes

☐ Describe approach and steps taken to integrate climate considerations in planning and investment, and how this will address changes

☐ Use Cal-Adapt to collect data and characterize anticipated climate change

☐ Report Top 5 facilities most affected by changing temperature in Table 1.2a

☐ Discuss how temperature and extreme heat events affect your facilities and operations, and what facilities and regions are most affected

☐ Describe strategies to reduce impacts of changing temperatures

☐ Describe ways you could employ natural infrastructure to reduce risks of climate change

☐ Report facilities located in disadvantaged communities in Table 1.5 and discuss how these facilities can interact with the community or serve as a resource

☐ Report facilities located in urban heat islands in Table 1.4

☐ Describe whether these facilities have large parking lots or impervious surface

☐ Describe actions that can be or are being taken to reduce urban heat island affect at these facilities

Future Planning:

☐ Report five facilities that will experience the largest increase in extreme heat events in Table 1.1

☐ List facilities most impacted by projected changes in precipitation in Table 1.5, and describe strategies to reduce these impacts

☐ Identify facilities at risk from rising sea levels in Table 1.6

☐ Discuss actions that can be taken to minimize risks of sea level rise

☐ List facility climate risks in Table 1.10

☐ Identify new facilities anticipating future extreme heat events in Table 1.10

☐ Discuss how new facilities siting, design, construction, and operation are accounting for these changing conditions

☐ Report new facilities and disadvantaged communities and urban heat islands in Table 1.11

☐ Describe how climate change will affect useful life of each planned facility

☐ Verify the integration of a Climate Change Plan into department planning in Table 1.12

☐ Verify the engagement and planning processes in Table 1.13

☐ Report if climate change is integrated into funding programs in Table 1.14

☐ Describe what climate impacts are of most concern to your facilities and plans, and how department will track how they are changing

☐ Describe which office or branch will develop a policy to integrate climate change into infrastructure, how it will prioritize, and when the policy will be completed

2 – ZEV Roadmap Checklist

Policy References: EO B-18-12, EO B-16-12, 2018 ZEV Action Plan

Executive Summary:

☐ Summary of status and actions underway to meet sustainability objectives related to fleet operations and ZEVs.

☐ Include summary of changes from previous roadmap.

(This executive summary can be a paragraph in a single, comprehensive executive summary including all roadmap chapters if combined into one document, signed by the department executive director.)

Department Fleet Status:

☐ Describe fleet composition and uses

☐ Edit Graph 2.1 to reflect Department fleet vehicle composition

☐ Edit Graph 2.2 to reflect Department LD vehicle fleet composition

☐ Edit Graph 2.3 to reflect Department medium and HD vehicle fleet composition

Past Performance:

☐ Report all prior year Total Purchased Fuel in Table 2.1

☐ Describe any successes or challenges encountered by your department as it seeks to incorporate ZEVs into its portfolio

☐ Report on department LD fleet eligible for replacement in Table 2.2

☐ Report recent and planned LD ZEV fleet additions in Table 2.3

☐ Report on facilities with parking and whether hosting fleet vehicles & modify Graph 2.2 to reflect this

Future Planning:

☐ Identify facilities with the most urgent need for EVSE in Table 2.4

☐ Describe department's engagement with utility and other funding programs for EVSE's and infrastructure

☐ List any hydrogen fueling stations that could serve as any primary refueling stations for fleet vehicles, and any plans to install hydrogen refueling infrastructure at department facilities

☐ List site and infrastructure assessment results for ZEV parking in Table 2.5

☐ Describe plan to design, bid, construct, and activate EVSE infrastructure

☐ Describe department's operation plan for EVSE infrastructure and how it will collect and report EVSE use data and maintain equipment

☐ Identify department stakeholders for ZEVs and EVSE efforts in Appendix

3 - Energy Efficiency Roadmap Checklist

Policy References: EO B-18-12, MM 14-07, MM 14-09, MM 15-04, MM 15-06, MM 17-04

Executive Summary:

☐ Summary of status and actions underway to meet sustainability objectives related to energy use and efficiency.

☐ Include summary of changes from previous roadmap.

(This executive summary can be a paragraph in a single, comprehensive executive summary including all roadmap chapters if combined into one document, signed by the department executive director.)

Department Energy Status:

☐ Describe mission of your department

☐ Describe built infrastructure supporting department mission that consumes energy (electricity, natural gas, propane, etc.). Include number and total Ft^2 of department facilities.

☐ Complete summary of actions and timeframes to meet requirements (can be bullet points)

Past Performance:

☐ Report 2020 Total Purchased Energy in Table 3.1

☐ List department properties with largest energy consumption in Table 3.2

☐ Describe any successes or challenges encountered by your department and solutions as it seeks to achieve energy efficiency

☐ Identify specific challenges to achieving ZNE, T-24+15%, reducing grid-based energy, DRP, renewable energy, or monitoring-based commissioning

☐ Describe department's 5-year capital improvement program

☐ List department ZNE buildings in Table 3.3 and department's plans to achieve ZNE at 50% of building portfolio area

☐ Report department wide energy trends in Table 3.5

☐ Report yearly energy surveys in Table 3.7

☐ Discuss energy survey status and efforts over past 5 years

Future Planning:

☐ Describe efforts to reduce plug loads and comply with energy standard operating procedures

☐ List status of new buildings exceeding Title 24 by 15% in Table 3.4, and describe strategy for ensuring this minimum level of efficiency in future

☐ Identify department energy projects in Table 3.6

☐ Identify department DRP in Table 3.8

☐ Describe DRPs available, and positive or negative experiences or lessons learned, and department benefits for participation

☐ Discuss steps department is taking to implement DR in more buildings

☐ Identify department on-site renewable energy in Table 3.9

☐ Discuss proposed increases in on-site renewable energy

☐ Report department planned MBCx projects in Table 3.10

☐ Summarize department's MBCx experience, challenges, successes, and whether MBCx is incorporated as required, or plans to implement

☐ Discuss how energy efficiency BMPS have been implemented, how they were institutionalized, and quantify repairs and replacements with estimated energy savings, if possible.

☐ Describe department steps to finance energy goals and requirements, and what programs it us using

4 - Water Efficiency and Conservation Roadmap Checklist

Policy References: EO B-37-16

Executive Summary:

☐ Summary of status and actions underway to meet sustainability objectives related to water efficiency and conversation.

☐ Include summary of changes from previous roadmap.

(This executive summary can be a paragraph in a single, comprehensive executive summary including all roadmap chapters if combined into one document.)

Past Performance:

☐ Describe built infrastructure supporting department mission that consumes purchased water. Include number and total Ft^2 of department facilities.

☐ Report all 2020 Total Purchased Water in Table 4.1

☐ List department properties with largest water use per capita in Table 4.2

☐ List facilities with largest landscape areas in Table 4.3

☐ Describe any successes or challenges encountered by your department, and solutions as it seeks to achieve water efficiency and conservation

☐ Report department wide water use trends in Table 4.4

☐ Report total water reductions achieved in Table 4.5

☐ Describe major water efficiency project over past five years or underway

☐ Identify indoor water efficiency projects in Table 4.6

☐ Identify boilers and cooling systems projects in Table 4.7

☐ Identify landscaping hardware water efficiency projects in Table 4.8

☐ Identify living landscaping water efficiency projects in Table 4.9

Future Planning:

☐ Report the number of buildings with urban water shortage contingency plans and in critical groundwater basins in Table 4.10, and discuss steps to reduce water use in those facilities

☐ Identify building inventory interior fixture needs in Table 4.11

☐ Summarize water using boilers and cooling systems inventory in Table 4.12

☐ Identify irrigation hardware inventory in Table 4.13 and discuss how replacements will occur

☐ Identify living landscape inventory in Table 4.14 and discuss results

☐ Identify large landscape inventory and water budget, as well as certified staff in Table 4.15

☐ Discuss how water conservation BMPS have been implemented, how they were institutionalized, and quantify repairs and replacements with estimated water savings, if possible.

5 - Green Operations Roadmap Checklist

Policy References: EO B-18-12

Executive Summary:

☐ Summary of status and actions underway to meet sustainability objectives related to green operations

☐ Include summary of changes from previous roadmap.

(This executive summary can be a paragraph in a single, comprehensive executive summary including all roadmap chapters if combined into one document.)

Past Performance:

☐ Report GHGe since 2010 in Table 5.1 and update Graph 5.1 to reflect department emissions trend

☐ Describe any successes or challenges encountered by your department as it seeks to achieve GHGe reductions, and how various strategies contribute

☐ Explain which actions your department has taken that had the largest impact on GHGe

☐ Identify newly constructed buildings since July 1, 2012, and LEED level achievement in Table 5.2 and list number of buildings eligible as well as have achieved LEED for Existing Buildings and Operations in Table 5.3.

☐ Report SABRC 2016 performance in Table 5.5 and describe your department's efforts to increase green commodities

☐ Report the lowest smart location score leases in Table 5.9 and describe the department's measures to improve location efficiency scores

Future Commitment:

☐ Discuss how your department implements efficiency measures to meet Energy Star targets and to achieve LEED EBOM for buildings >50,000 Ft^2 Describe steps to achieve these and goal dates.

☐ Discuss the steps taken to ensure new construction incorporates the IEQ provisions of CALGreen, and ensures IEQ is considered and incorporated into products, cleaning, and HVAC operation

☐ Identify pest control contracts in Table 5.4 and discuss the steps taken to incorporate IPM into all contracts and practices

☐ Describe department efforts to reduce waste and recycle

☐ Describe department efforts to reduce environmental impacts through purchases of goods and services

☐ Identify commodities categories with the greatest potential to green in Table 5.6 and describe your department's efforts to increase green commodities

☐ List buyers who have completed EPP Training in Table 5.7 and discuss available training and certifications buyers may have beyond the basic training courses

☐ List new leases and their smart location scores in Table 5.8 and describe the department's measures to improve location efficiency scores

☐ Describe how you will achieve greener operations and how many GHGe reductions your department will need to achieve its goal

Appendix D – Acronyms and Abbreviations

Customize to include organizations and acronyms within your specific department

AB	Assembly Bill
AMP	Annual Mean Precipitation (per year)
ASHRAE	The American Society of Heating, Refrigerating and Air-Conditioning Engineers
BEV	Battery Electric Vehicle
BMPS	Best management practices
BPMU	Building and Property Management Unit
CalEnviroScreen 4.0 OEHHA	California Communities Environmental Health Screening Tool
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CDD	Cooling Degree Days
CDFA	California Department of Food and Agriculture
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide equivalent
°F	Degrees Fahrenheit

DGS	Department of General Services
DRP	Demand Response Program
DWR	Department of Water Resources
EBOM	Existing Buildings Operations and Maintenance
EHT	Extreme Heat Threshold
EMS	Energy management control system
EO	Executive Order
EP	Extreme Precipitation (per day)
EPP	Environmentally preferable purchasing
ESPM	Energy Star Portfolio Manager
EUI	Energy use intensity (source kBTU/ Ft^2)
EVSE	Electric Vehicle Supply Equipment (charging equipment)
Ft^2	Square Feet
FY	Fiscal Year
GHGe	Greenhouse gas emissions
HD	Heavy-Duty (Vehicle)
HDD	Heating Degree Days
HVAC	Heating, Ventilation, and Air Conditioning

IEQ	Indoor environmental quality
IPM	Integrated Pest Management
kBTU	Thousand British thermal units (unit of energy)
kW	Kilowatt (energy measurement)
kWh	Kilowatt Hour (energy used per hour)
L1	Level 1 (120-volt outlet)
L2	Level 2 (240-volt outlet or vehicle charger)
L3	Level 3 (480-volt fast vehicle charger)
LD	Light-Duty (Vehicle)
LEED	Leadership in Energy and Environmental Design
MBCx	Monitoring Based Commissioning
MD	Medium-Duty (Vehicle)
MM	Management Memo
Max.	Maximum
Min.	Minimum
MPG	Miles Per Gallon
MWELO	Model Water Efficient Landscape Ordinance
OFAM	Office of Fleet and Asset Management (at DGS)

%	Percent
%+	Percent Change
PHEV	Plug-In Hybrid Electric Vehicle
PMDB	Project Management and Development Branch (at DGS)
RESD	Real Estate Services Division (at DGS)
SABRC	State Agency Buy Recycled Campaign
SARC	State Agency Reporting Center
SAM	State Administrative Manual
SB	Senate Bill
SCMP	Specialty Crop Multi-State Program
SMUD	Sacramento Municipal Utilities District
SUV	Sport Utility Vehicle
SWEEP	State Water Efficiency and Enhancement Program
Temp.	Temperature
Therms	Thermal Units (unit of energy)
USDA	United States Department of Agriculture
ZEV	Zero Emission Vehicle (includes both BEV and PHEV)
ZNE	Zero net energy

Appendix E - 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 – 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.

Grass cycling -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. Grass cycling 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. Grass cycling 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 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.

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, the highest Applied Water Allowance 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 – 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 10 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.

Appendix F – Department Stakeholders

List individuals, offices, and divisions responsible for leading efforts related to each initiative identified in this report. Include their respective titles, roles, responsibilities.

Climate Change Adaptation

Understanding Climate Risk at Existing Facilities	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

Understanding Climate Risk at Planned Facilities	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

Integrating Climate Change into Department Planning and Funding Programs	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

Measuring and Tracking Progress	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

ZEVs

Incorporating ZEVs Into the Department Fleet	
Paulette Montez Administrative Services Division, Building and Property Management Unit	Fleet Consultant

Telematics	
Paulette Montez Administrative Services Division, Building and Property Management Unit	Fleet Consultant

Outside Funding Sources for ZEV Infrastructure	
Stephanie Ross, Administrative Services Division, Departmental Services Branch	Branch Chief

Comprehensive Facility Site and Infrastructure Assessments	
Rene Aguilera, Administrative Services Division, Departmental Services Branch	Business Services Manager

EVSE Construction Plan	
Paulette Montez Administrative Services Division, Building and Property Management Unit	Fleet Consultant

EVSE Operation	
Paulette Montez Administrative Services Division, Building and Property Management Unit	Fleet Consultant

Energy

ZNE	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

New Construction Exceeds Title 24 by 15%	
Rene Aguilera, Administrative Services Division, Departmental Services Branch	Business Services Manager

Reduce Grid-Based Energy Purchased by 20% by 2018	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

Server Room Energy Use	
Robert Peterson, Office of Information Technology Services	Agency Information Officer

DRP	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

Renewable Energy	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

MBCx	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

Financing	
Rene Aguilera, Administrative Services Division, Departmental Services Branch	Business Services Manager

Water Efficiency and Conservation

Indoor Water Efficiency Projects in Progress First initiative	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

Boilers and Cooling Systems Projects in Progress	
Fuad Said, Facilities Management Division, Department of General Services	DGS Building Manager

Landscaping Hardware Water Efficiency Projects in Progress	
Fuad Said, Facilities Management Division, Department of General Services	DGS Building Manager

Living Landscaping Water Efficiency Projects in Progress	
Fuad Said, Facilities Management Division, Department of General Services	DGS Building Manager

Buildings with Urban Water Shortage Contingency Plans in Progress	
Fuad Said, Facilities Management Division, Department of General Services	DGS Building Manager

Green Operations

GHGe	
Mari McNeill, Administrative Services Division, Building and Property Management Unit	Energy Conservation Liaison

Building Design and Construction	
Rene Aguilera, Administrative Services Division, Departmental Services Branch	Business Services Manager

LEED for Existing Buildings Operations and Maintenance	
Rene Aguilera, Administrative Services Division, Departmental Services Branch	Business Services Manager

IEQ	
Rene Aguilera, Administrative Services Division, Departmental Services Branch	Business Services Manager

IPM	
Fuad Said, Facilities Management Division, DGS	DGS Building Manager

Waste Management and Recycling	
Rene Aguilera, Administrative Services Division, Departmental Services Branch	Business Services Manager

EPP	
Anastasia Isborn, Administrative Services Division, Departmental Services Branch	Purchasing Manager

Location Efficiency	
Rene Aguilera, Administrative Services Division, Departmental Services Branch	Business Services Manager

Appendix G – Sustainability Requirements & Goals

Consistent with the direction from Governor Edmund G. Brown Jr., Governor Gavin C. Newsom continues to direct California state agencies to demonstrate sustainable operations and to lead the way by implementing sustainability policies set by the state. Additionally, enacted legislation includes sustainability-related requirements of state facilities and operations. Specific references and background on EO, legislation, MMs and other requirements or actions are included in five general chapters within this roadmap, as follows:

1. Climate change adaptation
2. ZEV
3. Energy
4. Water efficiency and conservation
5. Green operations

These general sustainability initiatives include the following:

- GHGe reductions
- Climate change adaptation
- Building energy efficiency and conservation
- IEQ
- Water efficiency and conservation
- MBCx
- EPP
- Financing for sustainability
- ZEV fleet purchases and EVSE
- Monitoring and executive oversight
- ZNE

Appendix H – Sustainability Background References

The following EOs, MMs, legislative actions, resources, and guidance documents provide the sustainability criteria, requirements, and targets tracked and reported herein.

EOs

The governor issued the following EOs relevant to chapters of this roadmap:

- **EO B-16-12**

  EO B-16-12 directs state agencies to integrate ZEVs into the state vehicle fleet. It also directs state agencies to develop the infrastructure to support increased public and private sector use of ZEVs. Specifically, it directs state agencies replacing fleet vehicles to replace at least 10 percent with ZEVs, and by 2020 to ensure at least 25 percent of replacement fleet vehicles are ZEVs.

- **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 on-site renewable energy when feasible, implementing EPP, and developing the infrastructure for EVSE at state facilities. The Green Building Action Plan also established two oversight groups – the staff-level Sustainability Working Group and the executive-level Sustainability Task Force – to ensure these measures are met. Agencies annually report current energy and water use into the ESPM.

- **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 has directed numerous state agencies to develop new programs and regulations to mitigate the effects of the drought and required increased enforcement of water waste statewide. Agencies were

instructed to reduce potable urban water use by 25 percent between 2013 and February 28, 2016.

- **EO B-30-15**

  In 2015, the governor issued EO B-30-15, which 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 GHGe reduction target of 40 percent below 1990 levels by 2030 and reaffirms California's intent to reduce GHGe to 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. It also directs state agencies to take climate change into account in their planning and investment decisions and employ life-cycle cost accounting to evaluate and compare infrastructure investments and alternatives. State agencies are directed to prioritize investments that both build climate preparedness and reduce GHGe; prioritize natural infrastructure; and protect the state's most vulnerable populations.

- **EO B-37-16**

  EO B-37-16 builds on what were formerly temporary statewide emergency water restrictions 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.

SAM & MMs

The following section of the SAM, and associated MMs currently impose sustainability requirements on the department under the governor's executive authority:

- **SAM Chapter 1800**: Energy and Sustainability
- **MM 14-02:** Water Efficiency and Conservation
- **MM 14-05**: IEQ: New, Renovated, And Existing Buildings
- **MM 14-07**: Standard Operating Procedures for Energy Management in State Buildings
- **MM 14-09**: Energy Efficiency in Data Centers and Server Rooms
- **MM 15-03**: Minimum Fuel Economy Standards Policy
- **MM 15-04**: Energy Use Reduction for New, Existing, and Leased Buildings
- **MM 15-06**: State Buildings and Grounds Maintenance and Operation
- **MM 15-07**: Diesel, Biodiesel, and Renewable Hydrocarbon Diesel Bulk Fuel Purchases
- **MM 16-07**: ZEV Purchasing and EVSE Infrastructure Requirements
- **MM 17-04**: ZNE for New and Existing State Buildings

Legislative Actions

Several pieces of legislation were signed in 2015-16 that codified several elements of the EOs, or provided further requirements included in the policies. These include the following:

- **AB 1482** (Gordon, 2015): Requires that the California Natural Resources Agency (CNRA) update the state's adaptation strategy safeguarding California every three years. Directs state agencies to promote climate adaptation in planning decisions and ensure that state investments consider climate change impacts, as well as the use of natural systems and natural infrastructure. (Public Resources Code Section 71153)

- **SB 246** (Wieckowski, 2015): Established the Integrated Climate Adaptation and Resiliency Program within the Governor's Office of Planning and Research to coordinate regional and local efforts with state climate adaptation strategies to adapt to the impacts of climate change. (Public Resources Code Section 71354)

- **AB 2800** (Quirk, 2016): Requires state agencies to take the current and future impacts of climate change into planning, designing, building, operating, maintaining, and investing in state infrastructure. CNRA will establish a Climate-Safe Infrastructure Working Group to determine how to integrate climate change impacts into state infrastructure engineering. (Public Resources Code Section 71155)

- **AB 4**: Passed in 1989. SABRC statutes are in Public Contract Code Section 12153-12217. The intent of SABRC is to stimulate markets for materials diverted by California local government and agencies. It requires state agencies to purchase enough recycled-content products to meet annual targets, report on purchases of recycled and nonrecycled products, and submit plans for meeting the annual goals for purchasing recycled-content products.

- **AB 32 Scoping Plan**: The scoping plan assumes widespread electrification of the transportation sector as a critical component of every scenario that leads to the mandated 40 percent reduction in GHGe by 2030 and 80 percent reduction by 2015.

- **AB 2583** (Blumenfield 2012) **Public Resources Code §25722.8**: Statute requires reducing consumption of petroleum products by the state fleet compared to a 2003 baseline. Mandates a 10 percent reduction or displacement by Jan. 1, 2012, and a 20 percent reduction or displacement by Jan. 1, 2020.

- **AB 75** – Implement an integrated waste management program and achieve 50 percent disposal reduction target. State Agencies report annually on waste management program.

- **SB 1106** – Have at least one designated waste management coordinator. Report annually on how your designated waste and recycling coordinator meets the requirement.

- **AB 2812** - Provide adequate receptacles, signage, education, staffing, and arrange for recycling services. Report annually on how each of these is being implemented.

- **AB 341** – Implement mandatory commercial recycling program (if meet threshold). Report annually on recycling program.

- **AB 1826** – Implement mandatory commercial organics recycling program (if meet threshold). Report annually on organics recycling program.

- **SB 1383** - 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020, a 75 percent reduction by 2025, and 20 percent of currently disposed edible food is recovered for human consumption by 2025.

    - Agencies already in compliance with AB 1826 may need to further expand their organic waste recycling service to comply with the new requirements.

    - Jan. 1, 2024, Tier 2 Commercial Edible food Generators will be required to donate edible food to a recovery organization.

- **SB 1335** - requires food service facilities located in a state-owned facility, a concessionaire on state-owned property, or under contract to dispense prepared food using reusable, recyclable, or compostable. food service packaging.

Action Plan

- **2018 ZEV Action Plan**

  Reaffirms the commitment established in 2016, with the goal to provide EVSE to 5 percent of state-owned parking spaces by 2022 and a ZEV procurement target of 50 percent of LD vehicles by 2025.

State Resources and Guidance Documents

California has invested significant resources in understanding the risks of climate change, water efficiency, strategic growth, and state actions available to respond to and reduce these risks. These include the following:

- **Safeguarding California**: The state's climate adaptation strategy organized by sector. Each sector identifies risks from climate change and actions to reduce those risks.

- **California Climate Adaptation Strategy**: Directed under EO B-30-15, the Implementation Action Plans outline the steps that will be taken in each sector to reduce risks from climate change.

- **Planning and Investing for a Resilient California**: Prepared under direction of EO B-30-15, this document provides a framework for state agencies to integrate climate change into planning and investment, including guidance on data selection and analytical approach.

- **California's Climate Change Assessments**: California has completed three comprehensive assessments of climate change impacts on California. Each assessment has included development of projections of climate impacts on a scale that is relevant to state planning (i.e., downscaled climate projections). These data are available through **Cal-Adapt**, an online data visualization and access tool.

- **Water Use Reduction Guidelines and Criteria**: Issued by the DWR February 28, 2013, 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 owned, funded, or leased facilities. 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.

- **Strategic Growth Council (SGC) Resolution on Location Efficiency**: Location efficiency refers to the GHGe arising from the transportation choices of employees and visitors to a building as

determined by the Smart Location Calculator. Adopted on December 6, 2016, the resolution directs members of the SGC to achieve a 10 percent improvement in the Smart Location Score of new leases compared to the average score of leased facilities in 2016.

Table G-1: Background References and Applicable Roadmap Chapters

	Climate Adaptation	ZEV	Energy	Water	Green Operation
EOs:					
EO B-16-12		X			X
EO B-18-12		X	X	X	X
EO B-29-15				X	
EO B-30-15	X	X	X		X
EO B-37-16				X	
MMs					
MM 14-02				X	
MM 14-05			X		X
MM 14-07			X		X
MM 14-09			X		
MM 15-03		X	X		
MM 15-04			X		X
MM 15-06			X	X	X
MM 15-07		X			
MM 16-07		X			
MM 17-04			X		

	Climate Adaptation	ZEV	Energy	Water	Green Operation
Legislative Actions					
SB 246	X				
SB 1106					X
SB 1383					X
AB 4					X
AB 32		X			X
AB 75					X
AB 341					X
AB 1826					X
AB 2800	X				
AB 2812					X
AB 1482	X				
Action Plans					
2018 ZEV Action Plan		X			

	Climate Adaptation	ZEV	Energy	Water	Green Operation
State Resources and Guidance Documents					
Cal-Adapt	X				
California's Climate Change Assessments	X				
Public Resources Code §25722.8		X			
Planning and Investing for a Resilient California	X				
Safeguarding California	X				
Safeguarding CA Implementation Action Plan	X				
Sustainable Groundwater Management Act of 2014				X	

Appendix I - List of Tables & Graphs