Sustainability Roadmap 2018-2019: Energy

Progress Report and Plan Update
on Meeting the Governor's Sustainability Goals
for State Departments

California Department of Fish and Wildlife

Edmund G. Brown Jr., Governor

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California Department of Fish and Wildlife Sustainability Roadmap 2018-2019: Energy

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Acronyms

ADR	Automated Demand Response
CA	California
CALGREEN	California Green Building Code (Title 24, Part 11)
CEC	California Energy Commission
DGS	Department of General Services
EMS	Energy Management System (a.k.a., EMCS)
EMCS	Energy Management Control System (a.k.a., EMS)
EO	Executive Order
EPP	Environmentally Preferable Purchasing
EUI	Energy Use Intensity (source kBTU/sq. ft.)
EVSE	Electric Vehicle Supply Equipment (charging equipment)
GHGe	Greenhouse Gas Emissions
IEQ	Indoor Environmental Quality
kBTU	Thousand British Thermal Units (unit of energy)
LEED	Leadership in Energy and Environmental Design
MM	Management Memo
OBF	On-Bill Financing
PPA	Power Purchase Agreement
PUE	Power Usage Effectiveness
SAM	State Administrative Manual
SCM	State Contracting Manual
ZEV	Zero Emission Vehicle
ZNE	Zero Net Energy

EXECUTIVE SUMMARY

The California Department of Fish and Wildlife's (CDFW) mission is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public.

CDFW is responsible for over 1,000,000 acres of fish and wildlife habitat, managed through 722 properties throughout the state. These properties provide habitat for a rich diversity of fish, wildlife, and plant species and comprise habitats from every major ecosystem in the state. In addition to managing wildlife areas and ecological reserves, CDFW operates 24 fish hatcheries to provide sportfish stock for anglers in California. The department is also responsible for other programs, such as private lands conservation programs that assist landowners with the management of wetlands, riparian habitats, native grasslands and wildlife-friendly farmlands.

Due to the variety of programs and services CDFW offers, its portfolio is very diverse. There are approximately 576 structures located on lands owned by CDFW. Some of these buildings include small hunter check stations, residences, and large offices. The wide variety of locations include labs, fish hatcheries, ecological reserves, wildlife areas, field offices and many more. Of the 722 properties, CDFW owns 86 facilities, leases 116 and the rest of the properties are open wildlife areas with no structures or personnel attached.

CDFW has three main types of locations, fish hatcheries, ecological reserves and wildlife areas. Many of the reserves and wildlife areas have large pumps for wildlife that consume large amounts of energy and the fish hatcheries often operate 24-hours and use large chillers that are necessary for fish health and safety.

Despite these challenges, and due to the diligent conservation work of staff, CDFW has already met the mandated 20 percent reduction target and is currently planning a new reduction goal. CDFW wants to be a leader and is looking at significantly reducing energy use across the department. CDFW will use available funding mechanisms and utility programs/audits to achieve all energy reductions possible.

The department is currently working with Pacific Gas and Electric (PG&E) and San Diego Gas and Electric to conduct energy efficiency audits for all facilities in their territories. Two pilot audits at Elkhorn Slough Ecological Reserve and San Joaquin Fish Hatchery were conducted in November 2017. Other utility providers and the Department of General Services' (DGS) Energy Efficiency program have been engaged as well as to see what assistance and services they can offer to improve energy efficiency.

CDFW is also working with DGS' solar team to determine feasibility of renewable energy within the portfolio. The department feels there are many possible opportunities and is hoping to add as much onsite renewable energy generation as possible to offset energy use.

Given the nature of CDFW sites, especially the wildlife areas and ecological reserves, along with the energy retrofits and the possibility of renewable energy generation, the department thinks

that there are many good candidates for Zero Net Energy (ZNE) buildings. CDFW has engaged DGS, PG&E, and the New Buildings Institute in assisting with the evaluation of possible ZNE sites. CDFW understands that conserving resources is extremely important and is committed to reducing energy use and greenhouse gas emissions as much as possible.

Charlton H. Bonham
Director

SUSTAINABILITY GOALS

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

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

The Governor has issued numerous executive orders directing sustainable state operations. The orders relevant to energy are:

Executive Order B-18-12

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

Executive Order B-30-15

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

State Administrative Manual & Management Memos

The following sections of the State Administrative Manual (SAM), and associated Management Memos (MM), currently impose sustainability requirements on the Department under the Governor's executive authority:

SAM Sections

- Chapter 1800: Sustainability

Relevant Management Memos

- MM 15-06: State Buildings and Grounds Maintenance and Operation
- MM 15-04: Energy Use Reduction for New, Existing, and Leased Buildings
- MM 15-03: Minimum Fuel Economy Standards Policy
- MM 14-05: Indoor Environmental Quality: 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

ENERGY REPORT

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

The energy report will help all agencies and departments maximize energy efficiency and conservation. Further, this report helps agencies to gain additional benefits regarding climate adaptation and other ecosystem services. The energy efficiency report sets priorities, defines tasks, timelines and budgets and designates responsible personnel for each step of the report.

This energy report has two major components. The first component consists of a quantitative inventory of energy systems, boilers and cooling systems and appliances in state buildings and facilities. The second component includes a mandatory set of BMPs for ongoing energy use efficiency in buildings. The report includes monitoring, reporting, oversight and compliance.

A note about Energy Use Intensity (EUI), for the purposes of this report EUI is measured as Source EUI, rather than Site EUI. This is due to the definitions for Zero Net Energy (ZNE). EUI is the energy per square foot per year, and is calculated by dividing the total energy consumed by the building in one year by the total gross floor area of the building. EUI numbers come from the Environmental Protection Agency's Energy Star Portfolio Manager (ESPM) and are defined as:

> **Site**- is the combination of primary and secondary energy that you buy directly for use at your building
>
> **Source**- is your total primary energy consumption, which means your Site Energy plus all the delivery and production losses.

Finally, all total energy use figures referred to in this document are site energy totals, as that is what is recorded and reported on the Governor's Green Building website.

Department Mission and Built Infrastructure

The mission of the California Department of Fish and Wildlife (CDFW) is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public.

CDFW is the steward of over 1,000,000 acres of land managed through 722 properties throughout the state, 86 of these properties are owned by the department and include structures of various types and uses.

There are 576 structures located on these 86 sites with an approximate combined square footage of 1,107,416 square feet. CDFW has a variety of types and functions of its structures. More than half of these structures have purchased energy, and many also purchase some form of fuel for heating, which may include natural gas or propane. Roughly 115 structures, such as pump sheds, restroom facilities and garages have electricity, but are not heated.

Many of the facilities rely on large pumps to pump water for wildlife. These pumps consume a lot of energy. Further, Fish Hatchery facilities are often 24 hour facilities to keep fish alive and healthy. Finally, CDFW has many labs used for wildlife purposes and oil spill prevention activities that require constant temperatures that may increase energy use.

Table 1: Total

Purchased Utility	Quantity	Cost ($)
Electricity	18,242,945 kWh	N/A
Natural Gas	21,788 Therms	N/A
Propane	N/A	N/A
TOTAL COST	---	**N/A**

At this time, complete cost data is unavailable. As Table 2 will show, most of the department's largest energy users are fish hatcheries. Often these locations must use pumps to recirculate the water and/or have larger chillers to keep water in optimal temperature for fish. As funding allows, tank improvements and other energy and water saving upgrades will be made to increase energy efficiency.

Table 2: Properties with Largest Energy Consumption

Building Name	Floor Area (ft^2)	Site Energy (kBTU)	Source EUI ($kBTU/ft^2$)1*
MOJAVE FISH HATCHERY	21,508	11,251,485	1,617
FILLMORE FH	24,423	8,449,507	1,054
HONEY LAKE WA	35,685	4,147,796	365
R2 – NORTH CENTRAL HQS	66,667	3,966,198	187
YOLO BYPASS WA	44,544	3,236,144	202
WARM SPRINGS FH	54,810	3,102,888	178
MAD RIVER FH	50,819	2,515,330	155
GRIZZLY ISLAND WA	29,282	2,282,323	245
Total for Buildings in This Table	**270,376**	**41,011,826**	
Total for All Department Buildings	**1,061,365**	**64,589,559**	
Percent of Totals	**25%**	**63%**	

* Please note that this is source EUI, and uses source energy totals to calculate, not listed.

CDFW has three main types of locations, fish hatcheries, ecological reserves and wildlife areas. Each has its own challenges, but overall some of the challenges the department faces include large pumps for wildlife areas that consume large amounts of energy, facilities that operate 24-hours for wildlife purposes and finally facilities located in very remote locations.

Funding is also a challenge in implementing the Governor's sustainability goals. Scheduled maintenance budgets tend to be prioritized to prevent health and safety issues and compliance with the Americans with Disabilities Act (ADA) over energy efficiency goals. CDFW also lacks staff expertise in the field of energy. However, with development of the new Sustainability Unit, CDFW will now begin to look at the portfolio as a whole. The unit is working with partners to take advantage of all opportunities for funding and implementation of sustainability projects.

CDFW has already reached out to all utility partners and DGS to engage on projects. Initial assessments and plans are being finalized in 2017 with projects for both energy efficiency and renewable generation scheduled to commence in 2018.

CDFW does not have the resources for design and construction of major projects and therefore relies on the Department of General Services (DGS). The only new or major renovation on the 5 year plan is currently under construction. A new fish hatchery that will be used for aquaculture is being built outside Fresno. CDFW relies on DGS to ensure that the building for that project meets all environmental standards and mandates. The building is less than 50 thousand square feet. Since CDFW will not be building new structure in the near future the focus on sustainability will be related to existing buildings.

Zero Net Energy (ZNE)

The Governor has set forth the following milestones for state zero net energy buildings:

2020 – 50% of new construction & major renovations will be ZNE

2025 – 100% of new construction & major renovations will be ZNE

2025 – 50% of total existing building area will be ZNE

CDFW does not have any zero net energy facilities. However, CDFW is currently scheduling energy audits and efficiency upgrades at as many facilities as possible statewide. Further, the department is working with DGS to assess sites for solar capabilities. CDFW has many possible sites identified for ZNE but more evaluation needs to be conducted to determine the feasibility. CDFW is also working with DGS to ensure that the department is included in the DGS pilot of the ZNE survey tool with the New Buildings Institute. Potential sites for ZNE are anticipated to be identified in the first half of 2018.

Since there are no plans for new construction Table 3 does not apply at this time. Table 3a was created instead to look at existing square footage and help prioritize sites for ZNE.

Table 3: Zero Net Energy Buildings

Status of ZNE Buildings	Number of Buildings	Floor Area (ft^2)
Under Construction or Completed	X	A
Building In Design	Y	B
Building Proposed for Before 2025 (but not yet in design)	Z	C
Totals for ZNE Buildings	X+Y+Z	A+B+C
Totals for All Department Buildings	Q	R
% ZNE	(X+Y+Z)/Q %	(A+B+C)/R %

Table 3a was created as a way to prioritize sites for ZNE. It is sorted based on EUI and the ability to have onsite solar capabilities.

Table 4a: Zero Net Energy Buildings- Existing Buildings

Location	Address	EUI	Space for Solar
ELK GROVE BIOASSESSMENT LAB	9300 Elk Grove Florin Rd, Sacramento	22.3	TBD
DARRAH SPRINGS FISH HATCHERY	29661 Wildcat Rd, Paynes Creek	3.3	TBD
MOUNT SHASTA FISH HACTHERY	3 N Old Stage Rd	15.8	TBD
KERN RIVER FISH HATCHERY	14400 Sierra Way, Kernville	26.8	TBD
MT WHITNEY FISH HATCHERY	Fish Hatchery Rd, Independence	42.3	TBD

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.

As stated above, the department must rely on DGS for new construction. The only new facility that has been constructed recently is a fish hatchery that will be used for aquaculture located outside Fresno. CDFW relies on DGS as the project manager to ensure that the building meets all environmental standards and mandates. The building is less than 50 thousand square feet. No other new construction is planned for the department at this time.

Table 5: New Construction Exceeding Title 24 by 15%

Buildings Exceeding Title 24 by 15%	Number of Buildings	Floor Area (ft^2)
Completed Since July 2012	0	0
Under Design or Construction	1	Under 50K
Proposed Before 2025	0	0

Reduce Grid-Based Energy Purchased by 20% by 2018

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

Thanks to the diligent conservation work of the department, CDFW has already met the 20 percent reduction target and is in the planning stages of setting the next reduction goal. The

department is looking to use all available funding mechanisms and utility programs/audits to achieve all energy reductions possible.

In addition, a list of best practices will be sent around annually to remind locations of the state's energy policy. Employee behavior can also be a huge energy saver and the department will work with employees to ensure they are acting in a sustainable manner.

Energy Efficiency in Data Centers and Server Rooms

The California Natural Resources Agency data center, which hosts the vast majority of CDFW servers is operated within the ASHRAE-TC 9.9, Class A1-A4 guidelines. The data center houses servers for many other state departments that are part of the Natural Resources Agency and is 3,800 square feet. The average temperature in the data center is between 68 and 78 degrees Fahrenheit. In addition, the data center is designed with Hot and Cold isles to maximize temperature regulation efficiencies. The average power usage effectiveness (PUE) is about 1.48 which exceeds the mandate of 1.5. The PUE is measured based on the rate of consumption by information technology (IT) equipment against the total power of the facility. The agency is constantly improving the environmental footprint in the data center by adjusting and directing cooling where it is most needed by using perforated tiles. Finally, it is standard practice to replace old computer equipment with new, more energy efficient equipment.

As a department CDFW is already over 98 percent virtualized. In addition, CDFW has begun exploring cloud-based virtualization options, which would take on premise services and move them to a hosted data center. This project is currently in the beginning of planning and implementation phase, but is expected to expand in the future and significantly reduce energy use.

Department Energy Use Trends

CDFW has achieved its 20 percent reduction goal by reducing its purchased energy use by 31 percent since 2003. CDFW has achieved a 39 percent reduction in site EUI since 2003. Now that the governor's mandate has been reached, CDFW is setting new purchased energy goals, and plans to finalize these goals by the end of 2017.

Table 5 looks at overall energy use trends over a series of years. Please note that the baseline year is 2003, and from 2013 on is when the department began having reliable data being reported.

Table 5: Department Wide Energy Trends

Year	Floor Area (ft^2)	Total Site kBTU Consumption	Department Average Source EUI
Baseline Year	1,283,369	91,142,669	258
2013	1,238,506	65,878,637	163
2014	1,237,906	62,730,501	155
2015	1,237,906	61,222,627	151
2016	1,237,906	63,350,122	157
2018 Goal (20% reduction of baseline)	Not Applicable	72,914,135	206
Percent Change 2003 - 2016	Not Applicable	-31%	-39%
2018 Goal Met?		Yes	Yes

CDFW's owned facilities have a total building area of 1,238,506 square feet. Of these facilities, 90 percent of the square footage consists of wildlife areas, ecological reserves, and fish hatcheries, which may be located at remote places. The remaining 10 percent are screen shops, offices, labs, and other services mainly located in cities. The total purchased energy consumption for 2016 is 63.4 million kBtu. The department average EUI is 157 ($kBtu/sqft^2$). Since 2003, CDFW has been reducing energy consumption as well as EUI.

CDFW's leased facilities have a total building area of 298,968 square feet. Of the leased square footage, 80 percent are offices, while the remaining facilities are warehouses and other types of buildings. Energy consumption data is not available for leased facilities at this time.

Facilities often serve as other functions or multiple functions, which include but are not limited to visitor centers, residential spaces, home offices, and/or educational centers. In 2016, fish hatcheries accounted for 58 percent of the department's total energy consumption, wildlife areas 34 percent, ecological reserves 2 percent, and other types of facilities 6 percent. Average source EUIs ($kBtu/sqft^2$) for fish hatcheries- 196, wildlife areas- 151, ecological reserves- 32, and others- 97.

Even though the department has met the mandated goals, when comparing to national mediums CDFW is higher on average. CDFW is confirming the accuracy of the data in ESPM as well as looking for opportunities to decrease energy use intensity across the portfolio. The department is putting an emphasis on fish hatcheries as they tend to have higher energy use.

No cost data is available, so a cost comparison cannot made at this time.

Energy Efficiency Audits and Projects

CDFW had four lighting retrofit projects in partnership with Pacific Gas and Electric (PG&E) using their on-bill finance program. Two projects have been completed, and two are currently

in progress. As part of deferred maintenance, when units are needed to be replaced more efficient ones are used. Generally, projects have been selected based on specific need at the time. With the addition of the new Sustainability Unit, CDFW now has resources to use a more holistic approach to managing its portfolio. The new unit will evaluate all properties to determine energy savings with the assistance of utility partners and DGS.

Table 6: Summary of Energy Projects Completed or In Progress

Year Funded	Energy Saved (kBTU/yr)	Floor Area Retrofit (ft^2)	Percent of Department Floor Area
2016	429,895	79,942	8 %
2017	138,828	73,826	7 %

CDFW has not conducted many energy surveys but is planning to assess its portfolio statewide for energy savings in 2018. Table 7 was modified to make more relevant for CDFW as there have been little to no surveys performed in past years. However, energy audits of nearly all locations are being scheduled. Based upon the findings of those energy audits, CDFW will make all feasible savings upgrades as funding allows. Roughly 70 buildings out of 96 fall in the territories of the three largest investor owned utilities and CDFW has been working diligently with each to take advantage of program offerings. The other 26 properties fall into smaller utility districts and DGS energy efficiency programs are being considered for the purpose of conducting audits and implementing savings upgrades. By the end of 2018, CDFW intends to have all locations audited for energy savings and implement energy retrofit projects at more than half of the locations. Table 7 shows the potential energy audit schedule that is to be conducted throughout the end of 2017 and continue through 2018. Note, this is a working table and is subject to change. We anticipate scheduling the rest of PG&E audits (40+) in January and February 2018.

Table 7: Energy Audits Scheduled

Name	Address	Utility	Contractor	Date Scheduled
San Joaquin Hatchery FH	17372 Brook Trout Drive, Friant	PGE	EcoGreen	11/17
Elkhorn Slough WA	1454 Elkhorn Rd, Watsonville	PGE	EcoGreen	11/17
Rancho Jamul WA	14555 Highway 94 A, Jamul	SDGE	Matrix	12/17
San Vincente ER	22165 Chuckwagon Rd, Ramona	SDGE	Matrix	12/17
San Felipe ER	HWY 78 20N 10E Banner D, Warner Springs	SDGE	Matrix	12/17
Hot Creek FH	121 Hot Creek Road, Mammoth Lakes	SCE	SCE	1/18
Mojave FH	12550 Jacaranda Ave, Victorville	SCE	SCE	1/18

Demand Response

Executive Order B-18-12 directed all state Departments to participate in available demand response programs and to obtain financial incentives for reducing peak electrical loads when called upon, to the maximum extent cost-effective.

CDFW is not participating in automated demand response/demand response at its locations. Due to type and size of locations demand response participation can be challenging. CDFW has spoken with all utilities about possible participation and the utilities are evaluating. One of the more promising programs for the department is the Smart Thermostat program through San Diego Gas and Electric (SDG&E). Audits are currently being scheduled with SDG&E's contractors and to determine eligibility in that program.

Table 8: Demand Response

Demand Response Participation	Number of Buildings/Sites	Estimated Available Energy Reduction (kW)
Number of Buildings Participating in 2016	0	0
Number of Buildings That Will Participate in 2017	TBD	TBD
All Department Buildings (Totals)	Q	R
All Department Buildings (Percent)	(X+Y)/Q %	(A+B)/R %

Renewable Energy

New or major renovated state buildings over 10,000 square feet 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 (PPAs).

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

CDFW only has two sites with small solar PV systems installed, generating about 48,594 kWh in 2016. Mojave Fish Hatchery is currently on DGS' schedule to conduct a competitive solicitation sometime in 2017 for a potential 1 MW system. In 2017 and 2018, CDFW will evaluate all of its locations to determine feasibility for onsite renewable generation. CDFW believes there are some potential sites and is working in partnership with DGS to get projects into their PPA program in various locations around the state. In addition, CDFW is exploring purchasing its energy from renewable sources through utility provider programs. The department is very interested in supporting renewable energy and hopes to be able to install systems at many of its locations.

Table 6: On-Site Renewable Energy

Status	Number of Sites	Capacity (kW)	Estimated Annual Power Generation (kWh)
Renewables In Operation or Construction	2	20	48,594
Renewables Proposed	1	1000	1,500,000
Renewable Totals	3	1020	1,548,594
Department Wide Totals	88		18,242,945
Department Wide Renewable Percent	3%		8%

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 Energy Management Control System (EMCS). State agencies managing state-owned buildings must pursue MBCx for all facilities over 5,000 square feet with EUIs exceeding thresholds described in Management Memo 15-04.

CDFW does not currently have an installed EMCS or current MBCx activities. Many of the locations are smaller buildings that do not have a need for a large energy management system. Per MM15-04, the following facilities meet the criteria for requiring MBCx. CDFW is evaluating these sites to determine if it is feasible to implement MBCx.

Table 10: Planned MBCx Projects

Building	Location	Floor Area (ft^2)	EMCS Exists? (MBCx Capable, MBCx Difficult, No EMCS)	MBCx Projected To Start	Projected Cost ($)
BUTTE VALLEY WILDLIFE AREA	MACDOEL	26,798	No EMCS		
FILLMORE FH	FILLMORE	24,423	No EMCS		
FISH SPRINGS FH	BIG PINE	17,189	No EMCS		
GRAY LODGE WA	GRIDLEY	34,089	No EMCS		
GRIZZLY ISLAND WA	SUISUN CITY	29,282	No EMCS		
HONEY LAKE WA	WENDEL	35,685	No EMCS		
LOS BANOS WA	LOS BANOS	21,162	No EMCS		
MAD RIVER FH	ARCATA	50,819	No EMCS		
MARINE WILDLIFE VET CARE & RESEARCH CENTER	Santa Cruz	19,400	No EMCS		
MENDOTA WA	MENDOTA	13,111	No EMCS		
MOJAVE FISH HATCHERY	VICTORVILLE	21,508	No EMCS		
NORTH GRASSLANDS WA	GUSTINE	17,433	No EMCS		

R2 - NORTH CENTRAL HQs	RANCHO CORDOVA	66,667	No EMCS		
UPPER BUTTE BASIN WA	BUTTE CITY	13,994	No EMCS		
WARM SPRINGS FH	GEYSERVILLE	54,810	No EMCS		
YOLO BYPASS WA	DAVIS	44,544	No EMCS		
Totals		490,914			

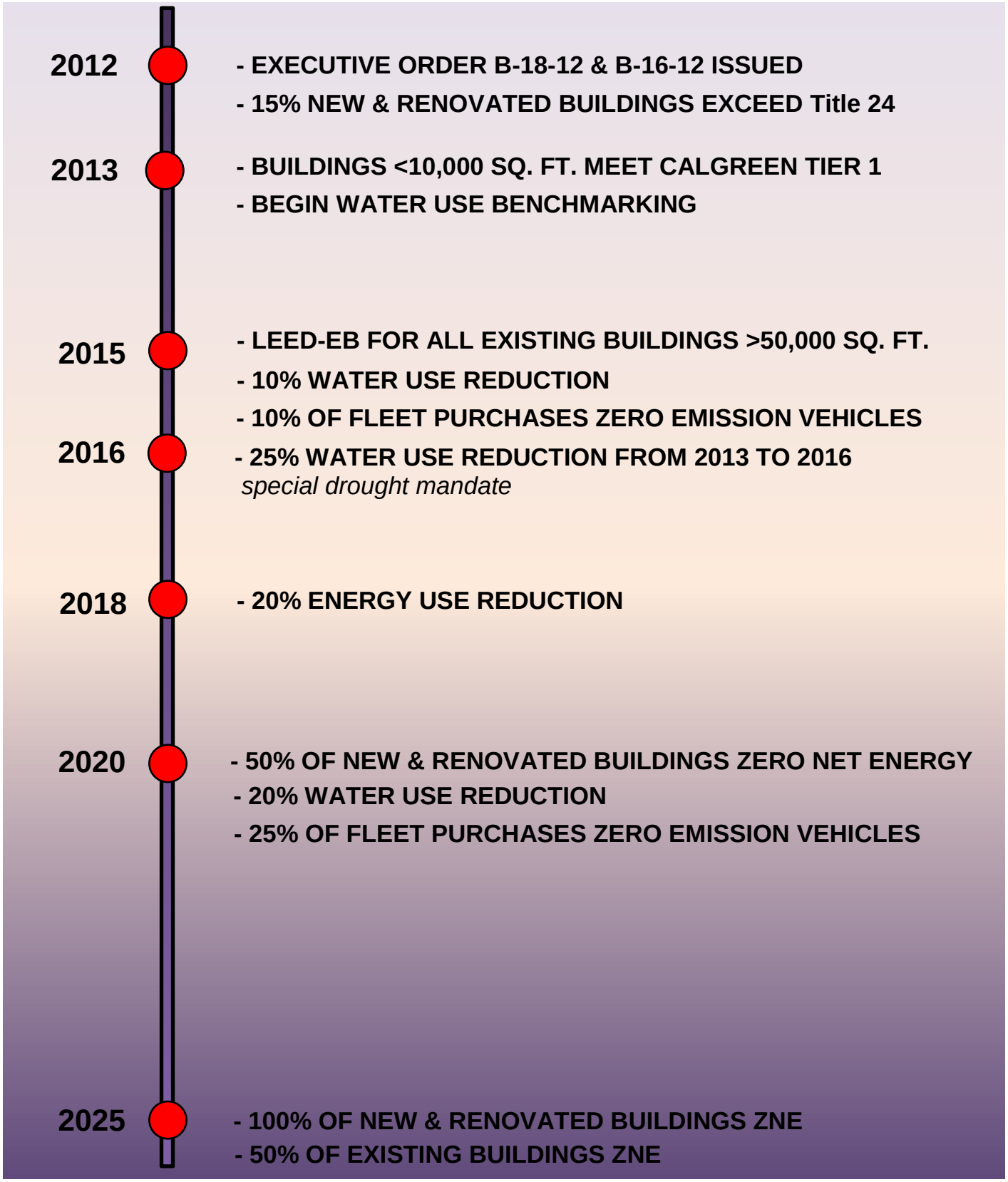
A note about Table 10, these sites were chosen because of the EUI threshold listed in MM15-04. CDFW is currently evaluating its portfolio to ensure the data is accurate. Also, as energy efficiency audit/retrofits are conducted, EUIs are expected to lower and sites may drop from the list. Finally, some of the high EUIs are due to pump energy use. If this use is separated, then the EUIs will not be as large.

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 (OBF), Power Purchase Agreements (PPAs), GS $Mart, Energy Service Contractors (ESCOs), or other available programs

In 2016 and 2017, CDFW coordinated with PG&E to take advantage of OBF for four of the higher-energy consumers within PG&E service areas. CDFW has ambitious goals and intends on using all financing available to state departments. CDFW recently began working with PG&E to have 45 buildings evaluated for energy savings, and plans to use OBF to complete the energy retrofits. The department is also using SDG&E's direct install for lighting upgrades in San Diego locations. CDFW is meeting with DGS to pursue the ESCO program for those locations that do not fall into the major energy service provider locations and their PPA program for renewable energy system installations. Finally, CDFW is committed to finding the maximum amount of outside funding as possible, and therefore, has been researching grant opportunities, utility incentives, partnerships with non-governmental organizations, and other funding mechanism not listed above.

SUSTAINABILITY MILESTONES & TIMELINE



DEPARTMENT STAKEHOLDERS

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New Construction Exceeds Title 24 by 15%	
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Reduce Grid-Based Energy Purchased by 20% by 2018	
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