Sustainability Roadmap December 31, 2023 California Department of Corrections and Rehabilitation

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

California Department of Corrections and Rehabilitation

Gavin Newsom, Governor

Department of Corrections and Rehabilitation Sustainability Roadmap 2023

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CONTENTS

EXECUTIVE SUMMARY

Executive Summary

The California Department of Corrections and Rehabilitation (CDCR) is the largest user of State-owned facilities, encompassing a vast portfolio including over 41 million square feet of State-owned spaces, covering over 21,000 acres and leases totaling 1.7 million square feet. CDCR has developed a comprehensive Sustainability Roadmap to outline the Department's progress and future plans to achieve sustainability goals set forth in the state of California's executive orders, policies, and procedures related to the five specific areas: climate change adaptation, zero emission vehicles (ZEV's), energy efficiency and renewal energy, water efficiency and conservation, and Sustainable operations.

Climate Change Adaptation

CDCR faces significant challenges with regard to, climate change adaptation due the vast footprint and locations of some facilities. Some facilities are in climate zones that experience extreme heat or cold in the summer and winter months, while others, due to their location, may suffer from monsoonal rains, wildfires, depletion of local water supplies or similar climate-related concerns. To combat these issues, CDCR has implemented various measures in compliance with Executive Order B-30-15, which mandates incorporating climate considerations into all planning and investment. CDCR has become an innovator in the area of sustainability that aims to alleviate the adverse effects of a changing climate on the operations of CDCR and establish a leadership position in environmental stewardship of the earth's natural resources and reducing impacts to the environment, while reducing the cost of doing business, and promoting healthier communities. Since 2008, CDCR's Energy and Sustainability Section (ESS) within the Facility Planning, Construction and Management (FPCM), together with other key Department stakeholders and a myriad of professionals, has implemented substantial changes to CDCR's operations and continues to identify the potential effects of climate change and pursue efforts to prevent or mitigate the ever-changing climate impacts.

Zero-Emission Vehicles

CDCR has one of the largest State fleets, with approximately 8,000 total fleet assets including leased vehicles and mobile equipment. These fleet assets serve a number of operational needs from large buses to transport incarcerated populations between institutions, to high-pursuit vehicles used by parole agents and fugitive apprehension teams, to sedans and trucks serving localized areas, to

name a few examples. Well over a decade ago, CDCR purchased hundreds of electric carts for use within prison property that reduces the numbers of gas-fueled vehicles within CDCR fleet. Since 2014, CDCR has been incorporating low-emission vehicles into its statewide fleet and has worked aggressively to secure funding from grants and incentive/rebate programs offered by the Investor Owned Utilities (IOUs) for Zero Emission Infrastructure (ZEV) infrastructure and charging station equipment. To date, CDCR has installed over 300 ports for fleet and employee electric vehicle charging, a 49% increase over 2020. CDCR is committed to reducing its greenhouse gas emissions through the adoption of ZEVs. CDCR aims to convert a significant portion of its fleet to ZEVs by 2025, in line with the 2016 Zero-Emission Vehicle Action Plan which sets a target for providing electric vehicle charging to 5 percent of state-owned parking spaces by 2022 and achieving 50 percent ZEV procurement for light-duty vehicles by 2025.

Energy Efficiency and Renewable Energy

Energy efficiency is a cornerstone of CDCR's sustainability strategy. Since 2008, CDCR has been in collaboration with California IOU/CDCR Energy Efficiency Partnership program to improve energy efficiency. To date, CDCR has completed 116 energy efficiency projects, resulting in annual savings of $9 million. CDCR has been a leader using clean on-site power generation, such as solar photovoltaic and wind power generation. Through third-party Solar Power Purchase Agreements, CDCR has completed 23 on-site renewable solar generation projects at 18 facilities generating more than 69 megawatts (MW) of power and three wind turbine projects generating 5.5 MW. The on-site generation accounts for almost 20% of CDCR's facility electricity consumption. CDCR has managed the design and construction of 69 new buildings that have achieved U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED®) certification of a Silver level or higher.

Water Efficiency and Conservation

Water conservation is another critical focus for CDCR. The department has implemented numerous water-saving technologies such as water efficiency fixates, plumbing controls and commercial grade equipment to facilitate the ongoing goal of water conservation. CDCR's statewide Water Conservation Management Plan, revised in 2021, mandates a 15% reduction in water consumption compared to 2020 levels, with each facility having a dedicated Water Conservation Manager overseeing efficiency initiatives and contingency plans for water shortages. Water usage has been cut 46% equating to 5.2 billion gallons since 2003,These efforts are reported via a Best Management Practices policy that is verified by ESS staff.

Sustainable Operations

CDCR's commitment to sustainability extends to its overall operations with the emphasis on building "green" throughout all facets of operations CDCR has established green practices throughout the facilities including waste management, recycling, and the adoption of environmentally preferable purchasing practices. The department has been proactive in integrating sustainable practices into its infrastructure projects, aiming for LEED certification and Zero Net Energy (ZNE) standards for new constructions and major renovations. CDCR's participation in various state and federal sustainability programs underscores its dedication to reducing environmental impact and promoting long-term sustainability.

Conclusion

CDCR's Sustainability Roadmap demonstrates a robust commitment to addressing climate change, enhancing energy and water efficiency, and promoting sustainable operations within the unique correctional system. Through strategic planning and the implementation of innovative projects, CDCR is not only meeting but exceeding State sustainability goals, setting a benchmark for other State agencies to follow. The Department's proactive approach ensures it remains an innovator at the forefront of environmental stewardship while effectively managing the unique challenges of operating within the correctional environment.

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CHAPTER 1: CLIMATE CHANGE ADAPTATION

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California faces significant challenges due to climate change, such as altered seasons, shifts in precipitation patterns, rising sea levels, and increasing temperatures. To combat these issues, California has implemented executive orders and passed multiple laws.

Executive Order B-30-15 mandates that State Agencies incorporate climate considerations into all planning and investment, covering areas like outreach infrastructure projects, strategic planning, permitting, procurement, guidance development, regulatory activities, and economic analysis.

Numerous CDCR facilities, listed in the tables to follow, are situated in areas prone to extreme weather conditions, including intense heat or cold, and some in remote regions are at risk of severe rain, wildfires, water shortages, and related climate hazards. CDCR, with its extensive reach, has become a pioneer in environmental sustainability, striving to mitigate the negative impacts of climate change on its operations and leading in environmental care. A notable early initiative was the installation of solar panels at Chuckwalla State Prison in 2006 to lower carbon emissions, setting a precedent for future installations. In 2008, CDCR established ESS within FPCM, focusing on its expanding renewable energy and sustainability efforts. This section, along with other key partners, has driven significant modifications in CDCR operations, while continually assessing and addressing climate change's potential impacts.

The Department has integrated climate action into its mandatory Master Plan Annual Report and Five-Year Infrastructure Plan for several years. Since 2007, CDCR has been a forerunner among California State agencies in measuring and reporting its carbon emissions, in collaboration with The Climate Registry, a North American nonprofit greenhouse gas emissions registry (GHGe) founded in 2007. This registry, governed by officials from various U.S. states, Canadian provinces, Mexican states, and native nations, aids organizations in managing and publicly reporting their GHGe. This data has informed CDCR's strategies for resource efficiency and emission reduction.

Climate Change Risks to Facilities

Understanding the climate change risks to infrastructure is crucial, including assessing the impacts of climate on assets and community resilience, like sea level rise and urban heat islands.

Climate change manifests in different ways, including direct exposure to climatic shifts and resultant stresses on facilities, like water scarcity, structural damage from erosion or sea level rise, and more frequent heatwaves. These effects vary greatly across California's regions.

CDCR's project screening depends on the nature of the project. New and renovation projects adhere to CALGreen and executive directives for LEED® and zero net energy (ZNE) construction. The Department has set uniform standards for architects and engineers to meet these directives, focusing on mitigating GHGe, enhancing energy and water efficiency, improving indoor air quality, implementing renewable energy, using eco-friendly materials, and developing electric vehicle charging stations. As of December 2022, CDCR has 18 out of 45 facilities that have solar electricity generation and three have both wind and solar electricity generation. Projects aimed at LEED® certification and ZNE are designed to reduce carbon footprints and adapt to current or future climate conditions.

Typically, CDCR's Capital Outlay and Infrastructure Repair Projects involve minor new or renovated structures at existing correctional facilities. All project impacts, including emissions, waste, and natural habitat effects, are evaluated as per the California Environmental Quality Act (CEQA). To compensate for project impacts, CDCR has conserved significant wildlife habitats and funded the restoration or creation of natural habitats and farmlands, resulting in thousands of acres preserved by environmental organizations.

Beyond structural repairs and improvements, CDCR's operations span various areas potentially affected by climate change. CDCR's leased properties, managed by the Department of General Services (DGS), are located across California. CDCR works with DGS to seek lease opportunities aligning with CDCR's sustainability objectives. Additionally, CDCR manages a substantial fleet of owned, leased, and mobile equipment, including electric vehicles. Collaborating with DGS, the Department is transitioning a portion of its fleet to zero-emission vehicles (ZEVs) and expanding electric vehicle charging facilities.

In 2021 electric vehicle (EV) charging was expanded at California Rehabilitation Center, Richard A McGee Correctional Training Center, Pelican Bay State Prison, and California State Prison, Sacramento.

Assessing Risk from Changing Extreme Temperatures:

A Heating Degree Day (HDD) is a measure of the demand for heating. It is calculated by subtracting the daily average temperature from a base temperature, usually 65°F. If the result is positive, that number represents the HDD for that day. Using a base temperature of 65°F, if the high of the day was 70° F and the low as 50°F, the average temperature would have been 60°F. By subtracting the daily average temperature from the base temperature, 65°F from 60°F gives us 5 HDD. This tells us that the there was a demand for heating to raise the indoor temperature to 65°F.

A Cooling Degree Day (CDD) is a measure of the demand for cooling. It is calculated by subtracting a base temperature, usually 65°F, from the daily average temperature. If the result is positive, that number represents the CDD for that day. Again, using a base temperature of 65°F, if the high of the day was 85°F and 65°F, gives us the average temperature of 75°F. Subtracting the 75°F from the 65°F gives us 10 cooling degree days. This means that there was a demand for cooling to lower indoor temperatures to 65°F.

Using the HDD and CDD measurements as mentioned above the below tables helps CDCR identify those facilities most affected by the change in temperature. The below tables illustrate and rank the top five facilities affected by extreme temperature.

Table 1.1: Top 5 Facilities that Will Experience the Largest Increase in Extreme Heat Events.

Facility Name	Extreme heat threshold (EHT)°F	Average # of days above EHT (1961-1990)	Projected Average # of days above EHT (2031-2060)	Change from Historical to projected average # of days above EHT (2031-2060)	Average # of days above EHT (2070-2099)	Change from historical to projected average # of days above EHT (2070-2099)
CAL	112.9 °F	5.0	37.0	32.0	67.0	62.0
CCWF	104.3 °F	5.0	37.0	32.0	65.0	60.0
LAC	104 °F	6.0	38.0	32.0	58.0	52.0
MCSP	105.3 °F	4.4	32.0	28.0	55.0	51.0
CEN	105.3 °F	4.4	20	31.0	55.0	51.0

Source: [Extreme Heat Days & Warm Nights (cal-adapt.org)]

Table 1.2a: Top 5 Facilities Most Affected by Changing Temperature – Annual Mean Max. Temp

Facility Name	Historical Annual Mean Max. Temp. (1961 – 1990)	Annual Mean Max. Temp. (2031 – 2060)	Change from Historical to Annual Mean Max. Temp (2031-2060)	Annual Mean Max Temp. (2070-2099)	Change from Historical to Annual Mean Max. Temp (2070-2099)
CAL	88.2	93.2	5.0	96.9	8.8
CVSP	87.3	92.9	5.3	96.3	9.1
ISP	87.3	92.9	5.3	96.3	9.1
CEN	87.8	92.9	4.8	96.2	8.5
CRC	78.5	84.4	4.9	87.5	8.6

Source: [Annual Averages (cal-adapt.org)]

Table 1.2b: Top 5 Facilities Most Affected by Changing Temperature- Annual Mean Min Temp

Facility Name	Historical Annual Mean Min. Temp. (1961 – 1990)	Annual Mean Min. Temp. (2031 – 2060) °F	Change from Annual Mean Min. Temp (2031-2060)	Annual Mean Min. Temp. (2070-2099) °F	Change from Annual Mean Min. Temp (2070-2099)
ISP	58.7	64.3	5.5	68.9	10.2
CVSP	58.2	63.8	5.5	68.4	10.2
CAL	56.7	62.2	5.5	66.7	10.0
CEN	56.8	62.0	5.2	66.3	9.5
CIM	50.5	55.7	5.2	59.7	9.2

Source: Annual Averages (cal-adapt.org)

Assessing Risk from Heating Degree Days (HDD) and Cooling Degree Days (CDD)

Table 1.3a: Top 5 Facilities that will be Most Impacted by Projected Changes in Heating Degree Days (HDD)

Facility Name	Heating Degrees 1961-1990	Average Modeled Heating Degrees (year), 2031-2060	Change in Heating Degree Days Historical to Mid-Century	Average Modeled Heating Degrees (year), 2070-2099	Change in Heating Degree Days Historical to End-Century
HDSP	6307.6	4747.0	#N/A	3806.5	-2501.1
CCI	4770.3	3704.0	#N/A	2849.2	-1921.1
PBSP	4321.6	3150.0	#N/A	2167.0	-2154.6
LAC	3071.7	2091.0	#N/A	1553.0	-1518.7
CCWF	2689.7	1884.0	#N/A	1322.0	-1367.7

Source: Cooling Degree Days and Heating Degree Days (cal-adapt.org)

Table 1.3b Top 5 Facilities that will be Most Impacted by Projected Changes in Cooling Degree Days (CDD)

Facility Name	Cooling Degrees 1961-1990	Average Modeled Cooling Degrees (year), 2031-2060	Change in Cooling Degree Days Historical to Mid-Century	Average Modeled Cooling Degrees (year), 2070-2099	Change in Cooling Degree Days Historical to End-Century
ISP	4076.9	5518.0	1441.1	6718.3	2641.4
CVSP	3967.7	5391.0	1423.3	6578.2	2610.5
CAL	3744.1	5119.0	1374.9	6353.5	2609.4
CEN	3715.0	4988.0	1273.0	6166.0	2451.0
NKSP	2036.0	2957.0	921.0	3794.4	1758.4

Source: Cooling Degree Days and Heating Degree Days (cal-adapt.org)

Rising temperatures will have an impact on incarcerated individuals and employee health and wellbeing at many of our facilities. An increase in extreme heat events will impact our facilities by increasing the demand for mechanical cooling. High Desert State Prison, California Correctional Institution, Pelican Bay State Prison, California State Prison Los Angeles County, Central Women's Facility, Ironwood State Prison, Chuckwalla Valley State Prison, Calipatria State Prison, Centinela State Prison, and North Kern State Prison were identifiedbecause they are projected to have the most amount of heating degree or cooling degree days.

Tables 1.3A and 1.3B list the five CDCR facilities most affected by the anticipated shifts in heating and cooling degree days. CDCR has undertaken various adaptation measures, such as:

- Increased access to water stations, fans, portable cooling units and ice.
- Opening housing unit cell windows, if available.
- Utilizing alternative housing space, such as gymnasiums or chapels, if needed.
- Additional access to showers.

- Additional access to cooling stations in air-conditioned areas, such as clinics and mental health spaces.
- Considering conducting yard at night in order to limit daytime exposure to extreme heat, holding additional dayroom program opportunities and conducting recreational programs in a gymnasium.

Plan to Mitigate HDD and CDD

Planning Outline PO1 Plan for HDD and CDD Mitigation

Below is a table summarizing the extreme heat prevention and response action plan every facility will follow based on the temperature increases at the specific location.

Stage	Action
Stage I: Outdoor temperature exceeds 90 degrees.	• Incarcerated people identified as vulnerable to heat stress are moved indoors for recreation, to areas such as gyms, dayrooms, and classrooms. Their time outdoors is limited to 30 minutes for traveling to classes, programs and job assignments but is not to include outdoor recreation.
Stage II: Indoor temperatures exceed 90 degrees	• Outside temperatures are monitored each hour. • Vulnerable incarcerated people are moved to air-conditioned spaces, such as offices and classrooms; fans are used to provide additional cooling capacity; and they are given more access to more frequent showers, water and ice. • Nursing staff who are trained to recognize heat-related illnesses tour housing units more frequently to monitor the health of incarcerated people. • Liquids with electrolytes are provided to incarcerated people if directed by the medical staff.
Stage III: When indoor temperatures exceed 95 degrees	• All the relief measures listed above are continued. • Nursing staff check on each incarcerated person at least every two hours to prevent heat-related illnesses.

Source : Extreme heat prevention and response (ca.gov)

Assessing Risk from Urban Heat Islands

Urban heat islands are specific zones where temperatures are significantly higher, leading to adverse effects on human health, increased pollution, and heightened energy usage. These islands often emerge in areas with extensive impervious surfaces and minimal vegetation, particularly during hot summer months. Common features of these areas include expansive parking lots, dense building structures, and scarce tree cover or shade. Mitigating urban heat islands can be achieved through strategies like planting more trees, implementing greening initiatives, using cool roofing materials that reflect sunlight, and installing cooler pavement types, among other tactics.

CDCR's facilities often encompass large areas dominated by paved surfaces and buildings. An average facilities might span up to 1,000 acres and accommodate 3,000 to 5,500 incarcerated individuals, along with 2,000 to 5,000 staff members on-site. Table 1.4 highlights the top five CDCR facilities situated in urban heat islands.

Table 1.3: Facilities in Urban Heat Islands

Facility Name	Located in an Urban Heat Island (Yes or No)
CIM	Yes
CIW	Yes
CMF	Yes
CRC	Yes
SOL	Yes

Source: Urban Heat Island Index for California | CalEPA

Assessing Risk from Changes in Precipitation

Table 1.4: Top 5 Facilities that will be Most Impacted by Projected Changes in Precipitation

Facility Name	Annual Mean Max. Precip. (1961 – 1990) (in/yrs.)	Annual Mean Precip. (2031 – 2060) (in/yrs.)	Percent Change by mid-century	Annual Mean Precip. (2070 – 2099) (in/yrs.)	Percent change by end of century	Extreme Precip (1961-1990) (in/day)	Extreme Precip (2031-2060) (in/day)	Extreme Precip (2070-2090) (in/day)
CEN	2.6	2.2	0.0	2.4	0.0	9.0	8.0	9.0
CMF	22.8	26.7	0.0	30.5	0.0	4.0	5.0	7.0
SOL	21.7	26.7	0.0	30.5	0.0	4.0	5.0	7.0
CRC	12.2	12.4	0.0	13.5	0.0	6.0	6.0	7.0
CVSP	3.3	3.4	0.0	3.9	0.0	3.0	5.0	6.0

Source: [Annual Averages (cal-adapt.org)]

Reporting Narrative on Precipitation Impacts

The above select number of Statefacilities: CEN, CMF, CRC, CVSP & SOL, , are positioned near major drainage systems. Should these systems not be properly maintained by local authorities, the risk of occasional flooding could arise, potentially impacting facility operations and safety. CDCR may have to spearhead modifications at these sites to mitigate or prevent flooding. Furthermore, while Table 1.5 highlights the top five CDCR facilities expected to see increased precipitation, several others already experience high rainfall levels in their climate zones. Even with internal improvements, inadequate upgrades in surrounding areas could negatively impact operations. Heavy flooding of major transport routes could cut off access, posing risks to staff, the public, and particularly when transporting patients to hospitals. Other external systems crucial for CDCR's operations could also be affected. It's vital for CDCR to collaborate with local entities in maintaining climate adaptation strategies against excessive rainfall.

Decreased precipitation, a consequence of climate warming, was evident during California's drought from 2020 – 2022. This led to lowered groundwater and drinkable water availability across the state. Recognizing its facilities in water-scarce regions, CDCR had already initiated steps to cut water usage. With ongoing water scarcity and extended droughts, CDCR enforced additional water rationing and conservation across all facilities, following Executive directives. In 2021, CDCR revised its statewide Water Conservation Management Plan (WCMP), previously the "Drought Action Plan," requiring each facility to update its site-specific WCMP. In line with EO N-10-21, CDCR monitors water consumption at

each site to achieve a 15% voluntary reduction compared to 2020 levels. Each facility has a Water Conservation Manager (WCM) overseeing water use, leading conservation, and efficiency initiatives. WCMs collaborate with water suppliers, particularly at sites in critical groundwater basins, and maintain contingency plans for water shortages. The Department continues to focus on water conservation, implementing retrofit projects to reduce consumption of both potable and non-potable water.

For construction projects disturbing over one acre of land, CDCR mandates a Stormwater Pollution Prevention Plan to adhere to the National Pollution Discharge Elimination System Permit Program. Additionally, each facility is equipped with a Sewer System Management Plan to manage and mitigate stormwater runoff effectively. During the development of the CHCF, CDCR integrated bioswales in the landscaping to filter silt and pollutants from surface runoff, aiding in groundwater recharge and mitigating climate impacts on water supplies. Additionally, part of the parking lot at CHCF utilizes a permeable parking lot, allowing water to seep through the pavement and replenish the groundwater table, thereby reducing surface runoff and promoting water conservation.

Assessing Risk from Sea Level Rise

The escalation of global temperatures is leading to increased sea levels. This rise in sea levels is expected to cause coastal flooding and more frequent storm surges, affecting coastal regions. The State of California Sea-Level Rise Guidance, issued by the California Ocean Protection Council (OPC), advises State Agencies on anticipated sea level rises. Based on the "Rising Seas in California: An Update on Sea Level Rise Science" report, this Guidance offers sea level rise predictions for the California Coast at all active tide gauges, considering various emission scenarios. It suggests projections for different levels of risk aversion, including low, medium-high, and extreme.

An OPC resolution advises departments to base their analyses on the higher end of these sea level rise estimates. Global warming is already causing sea levels to rise, a trend expected to accelerate. During the 20th century, California's coastline saw an average sea level increase of about seven inches (CEC 2012). If these trends continue, sea levels along the California coast south of Cape Mendocino could rise 12 to 61 cm (5 to 24 inches) by 2050 and 42 to 167 cm (17 to 66 inches) by 2100, relative to 2000 levels. To the north of Cape Mendocino, geological uplift is causing a slower rate of sea level rise, possibly between 10 to 143 cm (4 to 56 inches) between 2000 and 2100 (OPC 2013). The anticipated acceleration of sea level rise in the 21st century could lead to significant loss of coastal land, with erosion and inundation posing threats to coastal infrastructure, including buildings, roads, and other support structures.

Per Cal-Adapt data, no CDCR facilities are currently at risk due to rising sea levels. However, CDCR has pinpointed San Quentin Rehabilitation Center (SQRC) near the coast as potentially vulnerable to sea level rise and related flooding. Located on a low bluff along the San Francisco Bay, SQRC has seen erosion of its protective seawall over time. A recent project has strengthened SQRC's seawalls. Future sea level changes could damage SQRC's external support areas, and increased storm waves may necessitate further reinforcement of the perimeter seawall. Rising sea levels could also disrupt key transport routes like State Route 580 and U.S. Highway 101, essential for transporting incarcerated individuals, staff commutes, and vendor deliveries. Pelican Bay State Prison (PBSP) in Del Norte County, although situated in a coastal zone, is well inland from tidal effects and lies at an elevation of 20-70 feet above sea level. While PBSP is currently not considered at risk from sea level rise, CDCR remains vigilant about the potential impacts of seawater rise and continues to assess risks at this location.

Assessing Risk from Wildfire

Table 1.6: Top 5 Facilities Most at Risk to Current Wildfire Threats by Fire Hazard Severity Zone

Facility Name	Fire Hazard Severity Zone Designation (low, medium, high, very high)
SCC- Sierra Conservation Center	Very High
CCI- California Correction Institution	High
CMC-California Men's Colony	Medium
RJD-Richard J. Donovan Correctional Facility	Medium
ASP-Avenal State Prison	Medium

Source : Wildfire (cal-adapt.org)

Table 1.7: Top 5 Facilities that will be Most Impacted by Projected Changes in Wildfire by Hectares Burned (HA).

Facility Name	HA Burned (1961-1990)	Projected HA Burned (2031-2060)	Projected HA Burned (2070-2099)
PBSP	1.0	32.8	35.0
CTF	7.6	10.0	8.0
SVSP	7.6	10.0	8.0
CMC	7.6	7.5	7.6
ASP	2.3	6.0	7.3

Source: Wildfire (cal-adapt.org)

Narrative on the Threat of Wildfires

Wildfires pose a significant threat in California, and climate change is expected to exacerbate this hazard. Research suggests that, with ongoing climate change and increasing GHGe, the occurrence of extreme wildfires and the total area burned statewide could rise dramatically. A study projects a 77% increase in area burned by 2100 if GHGe continue to escalate. Table 1.7, using Cal-Adapt data, helps to evaluate how wildfires might impact facilities, considering factors like location, operational impacts, current precipitation events, disruption impacts, and the importance of the facility and its functions.

Climate change is anticipated to amplify the risk of wildfires across California, driven by a range of climatic shifts. These include earlier snowmelts, heightened

temperatures, prolonged dry spells, and extended fire seasons. Changes in vegetation, such as decreased moisture content, and increased lightning-induced ignitions, may further heighten wildfire risks. Over the past thirty years, the trend of longer fire seasons and more frequent large, intense wildfires is likely to persist, influenced by temperature and precipitation changes. This situation could lead to deteriorating local air quality due to wildfire smoke, affecting both the incarcerated population and staff, particularly during outdoor activities. Indoor air filtration systems might also experience increased strain.

Wildfires could also impact access to facilities situated in remote areas, typically reached through forested or fire-prone lands. Table 1.8 lists the top five CDCR facilities most likely to be affected by projected changes in wildfire patterns. Additional facilities located near or within Wildland Urban Interface (WUI) areas, as identified by (CALFIRE) 2003, may also be at risk. These include Avenal State Prison, California Correctional Center, California Correctional Institution, California Medical Facility, California State Prison in Sacramento, California State Prison in Solano, California State Prison, Corcoran, High Desert State Prison, Mule Creek State Prison, Pleasant Valley State Prison, Sierra Conservation Center, and Substance Abuse Treatment Facility.

Most CDCR facilities are equipped with on-site fire departments capable of responding to fires. Some also have nearby California Department of Foresty and Fire Protection, CALFIRE, conservation camps or agreements with local fire departments, providing additional wildfire response support. CDCR, in partnership with Investor-Owned Utilities (IOU), stays informed about Wildfire Mitigation Plans and Public Safety Power Shutoff (PSPS) protocols. As wildfires have become more frequent, utility companies have enhanced their PSPS programs. New guidelines for electric IOUs focus on a results-based approach to improve PSPS event notifications and minimize impacts.

CDCR maintains protocols for utility shutdowns, rolling blackouts, and repair work, ensuring each facility has backup generator power for critical operations. In cases where backup power proves insufficient, CDCR activates the Emergency Contract process to procure additional generator equipment.

Planning Outline to Mitigate Wildfire Risks

Currently, CDCR has no plans to mitigate wildfire risks due to resource limitations, environmental regulations, possible public opposition, land ownership and jurisdictional issues. Effective wildfire mitigation requires significant resources, including funding, manpower, and equipment. Budget constraints can limit the extent and effectiveness of mitigation efforts. Environmental protection laws can sometimes limit the ability of CDCR to conduct controlled burns or clear

deadwood and other fuel. Controlled burns and other mitigation strategies might face opposition from local communities due to concerns about air quality, safety, or damage to the landscape. Coordinating between state and federal agencies can be complex, leading to potential delays or inefficiencies in mitigation efforts.

Understanding the Potential Impacts of Facilities on Communities

Table 1.8: Facilities Located in Disadvantaged Communities

Facility Name	CalEnviroScreen Score	Is it located in a disadvantaged community? Yes/No
VSP	90-100 %	Yes
CCWF	90-100 %	Yes
COR	90-100 %	Yes
KVSP	90-100 %	Yes
NKSP	90 – 100 %	Yes

Source: **Census Geocoder**

Source: SB 535 Disadvantaged Communities | OEHHA (ca.gov)

Planning Narrative for Facilities in Disadvantaged Communities

Numerous State programs that allocate funding for Disadvantaged Communities (DACs) utilize CalEnviroScreen. This tool ranks census tracts using a blend of social, economic, and environmental criteria to pinpoint DACs. Though it doesn't encompass all aspects of climate vulnerability, CalEnviroScreen is a useful tool, incorporating several pertinent characteristics. DACs often face heightened risks of damage in the face of climate change, including during extreme events. CDCR acknowledges that its facilities in these areas can either exacerbate or mitigate the vulnerabilities faced by these communities.

As Table 1.12 illustrates, a portion of CDCR facilities, approximately 19% of the Department's facility portfolio, are situated within DACs as identified by CalEnviroScreen. Many of these facilities are in remote or rural locations. Given that CDCR is frequently the largest employer in regions hosting the facility, the Department actively seeks to provide residents with employment opportunities. This is achieved through job recruitment and procurement fairs, which are regularly held at various State facilities, facilitating local employment and service

provision. Additionally, CDCR maintains mutual aid agreements with local first responder agencies, ensuring support in public service emergencies.

Integrating Climate Change into Department Funding Programs

Table 1.9 Integration of Climate Change into Department Planning

Name of Plan	Have you integrated climate?	If no, when will it be integrated?
CDCR-Sustainability Roadmap Chapter 1 Climate Change Adaptation	Yes	OBF, PPA's, GS $mart

Community Engagement and Planning Process

Table1.10 Community Engagement and Planning Processes

Name of Plan	Does this plan consider impacts on vulnerable populations? Yes/No	Does this plan include coordination with local and regional agencies? Yes/No	Does this plan prioritize natural and green infrastructure? Yes/No
CDCR-Sustainability Roadmap Chapter 1 Climate Change Adaptation	As Necessary	Yes	Yes

Source: CDCR Community Involvement Archives (ca.gov)

The CDCR has demonstrated a longstanding commitment to community engagement, as evidenced by a multitude of initiatives highlighted across various archives on their official website. These efforts span across diverse activities that include charity fundraisers, educational programs, public safety events, and environmental contributions.

Significant examples of CDCR's community involvement include their active participation in events like the Special Olympics and local public safety career fairs, which foster interaction between law enforcement personnel and the community(https://www.cdcr.ca.gov/insidecdcr/category/community-

involvement/page/4/). Additionally, the CDCR has been involved in providing direct aid, such as donating school supplies to students, which shows a commitment to supporting local education systems (https://www.cdcr.ca.gov/insidecdcr/category/community-involvement/page/8/).

Rehabilitative programs also play a crucial role in CDCR's approach to community engagement. Programs aimed at reintegrating individuals into society are complemented by events that involve both staff and the incarcerated population working together for community betterment(https://www.cdcr.ca.gov/insidecdcr/category/community-involvement/page/4/). This collaborative spirit is further exemplified during holiday seasons when CDCR staff and those in their care engage in activities like food drives and fundraisers for cancer research (https://www.cdcr.ca.gov/insidecdcr/category/community-involvement/page/19/).

These activities are a part of a broader strategy to integrate community engagement deeply into CDCR's operations, highlighting a dual focus on rehabilitation and public service. This multifaceted approach underlines CDCR's recognition of the importance of maintaining strong community ties and supporting societal well-being in multiple dimensions.

Climate Change Implementation Planning in Funding Programs

State agencies are required to pursue all available financing and project delivery mechanisms to achieve executive order goals and mandates including, but not limited to: State revolving loan funds, utility On-Bill Financing (OBF), Power Purchase Agreements (PPAs), Green Seal (GS) $Mart, Energy Service Contractors, or other available programs.

CDCR has been successful in fulfilling many of the State mandates of energy efficiency and sustainability by seeking out various funding opportunities as they become available. CDCR is proactive in promoting additional funding opportunities by participating in policy discussions on topics such as OBF and On-Bill Repayment (OBR).

CDCR has utilized and will continue to explore multiple funding opportunities for projects that aid in climate adaptation including GS $Mart loans, OBF, Municipal utility company loan and incentive programs, American Recovery and Reinvestment Act (ARRA) loans, Department of Water Resources loans and

grants, and Solar or Wind PPAs. Table 1.16 summarizes the funding programs in use.

Table1.11 Climate Change Implementation Planning in Department Funding Programs

Name of Grant or Funding Program	Have you integra climate change i program guidelin Yes/No	If no, Date it be integrated?	Does this Funding Program consider impacts on vulnerable populations? Yes/No	Does this Funding Program include coordination with local and regional agencies? Yes / Np
OBF	Yes	N/A	Yes	Yes
PPA's	Yes	N/A	Yes	Yes
Green Seal $mart	Yes	N/A	Yes	Yes

Chapter 2 – ZERO-EMISSION VEHICLES

Chapter 2 ZERO-EMISSION VEHICLES

Department Overview and Fleet Operations

CDCR manages adult and various public safety and service programs across California. The department's mission includes facilitating successful reintegration of the incarcerated population into society by providing comprehensive programs in a safe environment. Key to fulfilling this mission are CDCR's fleet assets, used for diverse functions like staff and the transportation of the incarcerated population, plant operations, construction, educational services, delivery of food and pharmacy items, hazardous materials handling, IT operations, materials transport, perimeter security, and waste management. CDCR also possesses one of the state's largest fleets, comprising over 8,000 assets, including a variety of vehicles and mobile equipment.

The diverse CDCR fleet caters to numerous operational needs, ranging from large buses for transporting the incarcerated population to high-speed vehicles for parole agents and fugitive teams, along with standard cars and trucks for local operations. More than ten years ago, CDCR integrated hundreds of electric carts within its facilities, reducing reliance on gasoline-powered vehicles. Since 2014, the department has progressively added low-emission vehicles to its fleet and actively sought grants and incentives for ZEV charging infrastructure. Despite efforts, the adoption of ZEVs faces challenges like limited vehicle availability for specialized needs, range limitations, and higher initial costs. While some program areas have adopted vehicles available through State contracts, the range of options doesn't fully meet CDCR's varied operational requirements. CDCR continues collaborating with the DGS to increase ZEV procurement, and at the end of 2022 had 32 ZEVs in service. As of 2022 there are 321 charging stations over 22 different sites. This represents an increase of 49% over 2020.

Vehicle Types in the CDCR Fleet

As of 2022, CDCR's fleet, recorded in the DGS Fleet Asset Management database, includes 8,138 State-owned assets and 2,046 leased vehicles, reflecting improved reporting from CDCR programs statewide. This total encompasses both heavy- and light-duty vehicles, including 4,066 mobile equipment assets like electric carts and forklifts. Currently, out of 5,349 vehicles, a total of 268 are a mixture of hybrid, ZEV and plug-in hybrid vehicles.

Below is a list of types of vehicles utilized in CDCR's flee:

1. Sedans: Frequently utilized for staff transport, high-security transfers, emergency response, and law enforcement tasks, these vehicles often possess modifications for high-speed pursuit and enhanced security features to meet correctional needs.
2. SUVs: Employed for site security, perimeter patrol, and transport to court or medical appointments, these vehicles are adapted for security transportation, offering additional space for multiple incarcerated individuals and necessary tactical gear.
3. Vans and Trucks: Versatile for a range of CDCR operations, vans serve for transporting incarcerated individuals, staff, or visitors, and as paratransit and ambulance vehicles, often with specific modifications. Trucks are instrumental in facility maintenance, supply transport, food delivery, and security patrols.
4. Buses: Over 60 buses in CDCR's fleet facilitate incarcerated individuals transport for essential assignments and work projects across institutions.
5. Fire Engines: Approximately 60 fire engines are operated by CDCR for institutional services and in mutual aid agreements with local and state agencies.
6. Farm and Construction Vehicles: This category includes tractors, excavators, loaders, outdoor forklifts, and utility carts, essential for maintenance, building, and renovation activities.
7. Electric Carts: Used daily within institutions for transporting incarcerated individuals supplies, and medications.
8. Mobile Equipment: Various assets for grounds maintenance and operations, transporting materials and equipment across facility grounds.

CDCR's operational scope across California's diverse environments necessitates a fleet adaptable to various road conditions and terrains. Some facilities are in remote or rural areas, including deserts, requiring vehicles capable of traversing challenging landscapes and long distances. In contrast, urban facilities benefit from vehicles suited to congested traffic and high-occupancy lanes.

In alignment with environmental and efficiency mandates, many of CDCR's divisional programs have transitioned from standard full-size sedans to mid-size hybrid vehicles. This shift not only complies with green fleet initiatives but also enhances fuel efficiency, operational effectiveness, and results in significant cost savings for the State.

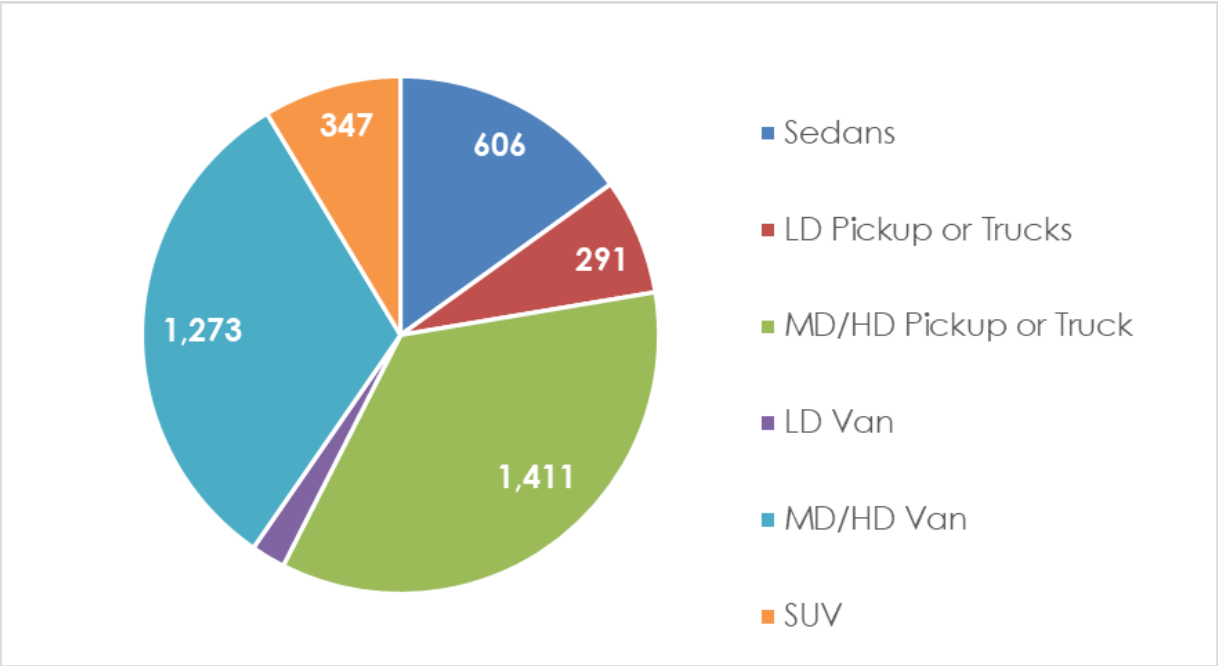
All the data listed below is from internal CDCR documents.

Table 2.1 Hybrid Vehicle Types

Vehicle Type	Count
Alternative-Fuel Hybrid Electric Vehicle (non-plug in)	146
Battery Electric Vehicle	32
Hybrid Electric Vehicle	90

SAC Electric Vehicle Parking completed 2021.

Graph 2.1: 2022 Composition of Vehicle Fleet



Reporting on Total Fuel Use by Fuel Type.

Table 2.2 Total Fuel Purchased in 2021/2022

Year	Diesel (Gallons)	Gasoline (Gallons)	Renewable Diesel (Gallons)
2021	42,300	741,693	2,117
2022	43,983	703,527	1,171

Reporting Narrative on Fuel Type Selections

Fuel Usage Determination and Policy

CDCR has identified specific uses for light-duty ZEVs, including administrative tasks, plant and maintenance operations, and transportation of staff and visitors within facility grounds. Battery-electric and plug-in hybrid electric vehicles are well-suited for these roles, given the right vehicle classification is available. For administrative purposes, light-duty sedan ZEVs are ideal for travel both on and off facility grounds. For plant, maintenance, and transport operations, ZEV trucks and vans are more suitable due to their capacity to transport multiple individuals or to

be modified for hauling materials and equipment. Medium-duty and heavy-duty ZEV trucks and vans are necessary for these tasks to effectively support the department's operational needs.

Graph 2.2 2022 Vehicles Eligible for Replacement

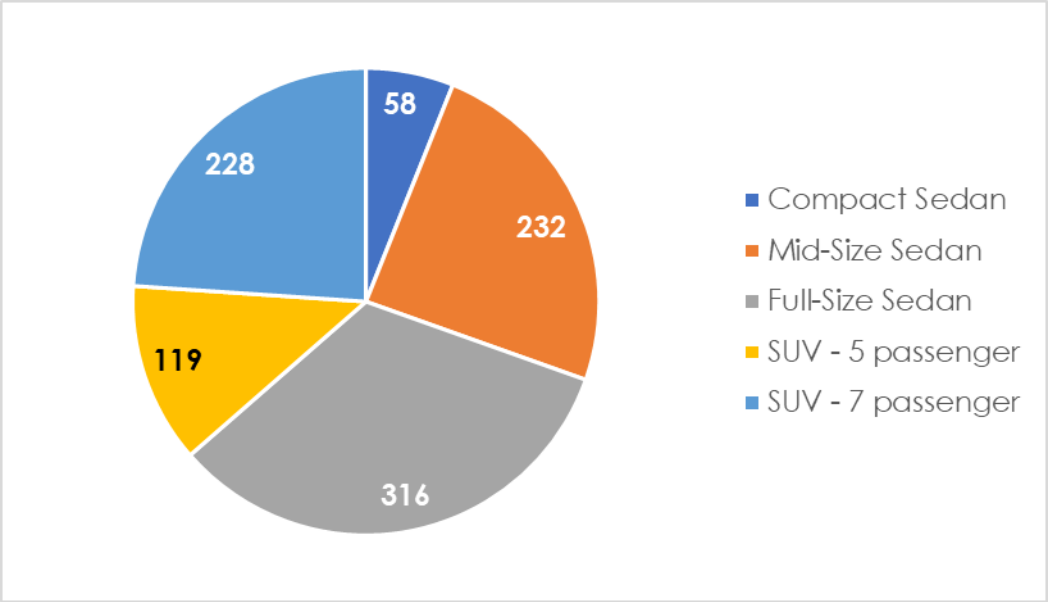


Table 2.3 LD /MD/HD Vehicles in Department Fleet Currently Eligible for Replacement.

Vehicle Type	Sedans	LD Vans	LD Pickups	SUVs, 5 passengers	SUVs, 7 passengers	SUVs, 8 passengers	Total
Totals Eligible for Replacement	363	75	275	55	117	11	896

Table 2.4 Planned Medium/Heavy Duty ZEV Additions to the Department Fleet

Type of Vehicle	21/22	22/23	23/24	24/25	25/26
Battery Electric Vehicle (BEV)	0	0	0	0	0
Plug-in Hybrid Vehicle (PHEV)	8	1	7	8	UNK
Fuel Cell Vehicle	0	0	0	0	UNK
Percent of total purchases	0	0	0	0	0
Total number of ZEVs in Fleet	32%	5%	58%	53%	UNK

Reporting Narrative for Implementing ZEVs

The implementation of Medium-Duty (MD) and Heavy-Duty (HD) ZEVs is critical for achieving GHGe reduction targets, akin to the policies for light-duty vehicle acquisition. Since July 2020, State agencies are mandated by State Administrative Manual (SAM)section 4121.9 to give preference to the acquisition of MD and HD ZEVs for their fleets. Furthermore, from December 31, 2025, as mandated by Assembly Bill (AB) 739, departments must ensure that 15% of their new vehicle purchases, with a gross weight rating over 19,000 pounds, are ZEVs. This requirement is set to rise to 30% by December 31, 2030.

In line with the light-duty ZEV adoption policy, CDCR has pinpointed specific uses that can be fulfilled by medium-duty and heavy-duty ZEVs. Operations on the grounds and in plant and maintenance areas are such uses. For these operations, medium-duty and heavy-duty trucks and vans are identified as the ideal types. These vehicles need to have the necessary size and capabilities for retrofitting with special equipment to efficiently transport materials and equipment within facility premises.

Reporting Narrative Guidelines

ZEV Public Safety Exemption Strategy for the ZEV Public Safety Exemption, as CDCR employs sworn peace officers, the introduction of updated regulations for public safety vehicles significantly influences the incorporation of ZEVs into the fleet, given the nature of the Department's operations. ZEVs are generally not suitable for regular use in CDCR peace officer duties. These duties require vehicles that can accommodate peace officer gear, weapons, and have the capability for high-speed pursuits and apprehension tasks. Vehicles limited in size, range, or efficiency are not suited for such roles. Furthermore, these vehicles often necessitate security enhancements and radio installations for law enforcement purposes, restricting the use of ZEVs. CDCR is proactively exploring opportunities

to integrate suitable ZEV models into its operations where feasible in terms of application and cost. Ongoing assessments will determine the viability of ZEV medium-duty options for peace officer needs and their compatibility with necessary security modifications for law enforcement activities.

CDCR's extensive property portfolio encompasses over 41 million square feet and over 6438 buildings. These facilities are complemented by variously sized surface-level parking areas, as detailed in Table 2.5. These parking spaces, primarily situated outside the secured perimeter fence, serve employees, contractors, visitors, and other public members. The facilities offer between 500 and 2,500 spaces. Additionally, a small number of parking spots are located within the secured perimeter, adjacent to key buildings.

As discussed earlier in this Chapter, CDCR's operational demands necessitate fleet vehicles at almost all State-owned and leased correctional facilities. The layout of each facility dictates the placement of fleet parking, which is usually secured and positioned next to or behind the parking areas for staff and the public. Spaces for employees and the public are often in the same lot but are distinctly marked. Spaces compliant with the Americans with Disabilities Act are available but are not differentiated between employee and public use.

CDCR's projections for future ZEV fleet acquisitions and the current count of workplace parking spaces indicate a need for 46 Electric Vehicle Supply Equipment (EVSE) units for fleet vehicles and 460 EVSE units for workplace parking by 2025. Consequently, a total of 506 additional EV charging ports will be required. CDCR finished 2022 with 388 EV charging stations, meeting 77% of its 2025 target.

Table 2.5: Status of EV Charging Projects

Location	Project Status	Construction Project Start Date	Project Budget	Construction Project Estimated Completion Date	Total Existing Charging Ports (2022)
CAL	SFM Review	10/1/2024	$979,363	12/01/2024	0
CCI	Design	12/15/2024	$269,588	2/01/2025	4
CEN	Bid and Award	TBD	$664,018	12/20/2024	24
CHCF	Bid and Award	DSA Review	$1,051,817	2/01/2025	0
CIM	Construction	11/27/2023	$408,057	8/9/2024(A)	2
CMC	Construction	5/27/2024	$1.038,668	10/10/24	0
CMF	Construction	6/30/2024	$303,250	11/1/24	0
CTF Fleet	Construction	7/22/2024	$189,342	1/1/25	0
LAC	Design 95%	9/3/2024	$878,605	11/30/2024	10
MCSP	Design 100%	5/28/2024	$281,805	7/14/2025	9
PBSP	DSA Review	10/1/2024	$541,300	4/30/2025	24
PVSP	DSA Review	2/1/2025	$673,000	4/1/25	0
RJD	Design	12/15/2024		2/1/2025	10
SCC	Bid and Award	5/28/2024	$249,344	7/14/2025	0
SVSP	DSA Review	10/31/2024	$467,697	12/30/2024	0
WSP	Bid and Award	1/15/2025	$174,900	3/16/2025	0

*(A)- actual construction completion

Table 2.6 All 405 EV Charging Ports as of 2022

Facility	Acronym	Total
Avenal State Prison	ASP	10
Central California Women's Facility	CCWF	31
California Health Care Facility	CHCF	6
California Institute for Men	CIM	2
California Institute for Women	CIW	6
California State Prison, Corcoran	COR	36
California Rehabilitation Center	CRC	14
California Training Center	CTC	18
Central Valley State Prison	CVSP	54
Ironwood State Prison	ISP	28
Kern Valley State Prison	KVSP	10
California State Prison Los Angeles	LAC	12
Mule Creek State Prison	MSCP	9
North Kern State Prison	NKSP	10
Pelican Bay State Prison	PBSP	24
R.J. Donovan Correctional Facility	RJD	28
Sacramento SAC Administration	SAC	43
California State Prison Solano	SOL	18
San Quentin Rehabilitation Center	SQRC	8
Valley State Prison	VSP	34

Chapter 3 - ENERGY

Chapter 3 Energy

Department Mission and Building Infrastructure

Amongst California state agencies, CDCR stands out for achieving the goals of EO B-18-12, particularly in deploying clean on-site power generation methods like solar photovoltaic and wind power, facilitated through third-party power purchase agreements. As of December 2022, CDCR had finalized 23 solar generation projects across 18 facilities. As of the end of 2022, three CDCR facilities CTF, SVSP, and LAC generate more electricity than they consume. Furthermore, CDCR operates three wind turbine projects, contributing 5.5 MW of wind energy. The cumulative renewable energy generated by CDCR was 1,575,542,026 KWH at the end of 2022.

From 2020 to 2022 CDCR reduced indirect GHGe from 1,649,479 metric tons to 1,490,265 for a total savings of 159,214 tons.

In its pursuit of energy-efficient infrastructure, CDCR has overseen the design and construction of 71 new buildings, each achieving a US Green Building Council LEED® Certification of Silver or higher. CDCR is planning two more projects aiming for a minimum LEED® Silver certification. Over 35 ongoing sub-projects under the Health Care Facility Improvement Program (HCFIP) are being developed to comply with CALGreen standards. Additionally, several potential ZNE building projects are in various stages of design, construction, or certification. All data presented below is from internal CDCR documents.

Total Purchased Energy

Table 3.1: Total Purchased Energy 2021 and 2022

Purchased Energy	2003 Baseline Quantity	Unit	2021 Quantity	2022 Quantity	% Qty. Change 2003-22
Electricity	621,303,895	kWh	603,014,449	573,476,496	-8.4%
Natural Gas	41,530,929	Therms	37,245,058	34,972,176	-18.75%
TOTALS	6,273,070	MMBTU	5,687,446	5,018,969	-25%

Reporting High Energy Use Buildings

Table 3.2: Properties with Largest 2022 Energy Consumption

Facility Name	Property GFA - Calculated (Buildings) (ft²)	Site Energy Use (kBtu)	Source Energy Use (kBtu)	Source EUI (kBtu/ft²)
COR	1,652,194	445,903,263	745,211,362	451
SAC	1,359,429	394,235,836	555,419,671	408.6
CIM	1,774,873	340,864,833	601,142,111	338.7
RJD	1,610,317	316,854,417	446,628,112	277.4
ASP	1,671,840	304,108,108	397,677,497	237.9

Energy Efficiency Solutions for Largest Energy Using Buildings

CDCR's Commitment to State Energy and Sustainability Goals

CDCR demonstrates its commitment to the State's energy and sustainability objectives through various initiatives:

- Member of the US EPA Green Power Partnership. Participant in the Carbon Footprint initiative (formerly known as Climate Registry)
- Member of the Governor's Sustainability Task Force.
- Completion of a total of 71 LEED® certified buildings.
- CDCR's FPCM provides a monthly executive report on all energy projects, whether planned or underway. This ensures that CDCR executives stay informed about and engaged in the Department's commitment to State energy and sustainability targets. The report monitors progress and identifies challenges for timely resolution.
- CDCR is the first State Agency to solicit and implement wind-generated power in its facilities, with three operational wind turbines generating 5.5 MW since 2019.
- CDCR includes third-party sustainability consultants and commissioning agents in major construction projects to ensure adherence to sustainability goals.

CDCR's Five-Year Capital Improvement Program

CDCR prepares a Five-Year Infrastructure Plan outlining Capital Outlay priorities for the next five years. This Plan includes fully developed Capital Outlay Budget Change Proposals for the first year and Budget Concept Statements for subsequent years. The Plan covers Infrastructure, Facility Maintenance, Energy, and Categorized Proposals (Fire/Life/Safety, Health Care, Housing, Adult Programs, Security, Support Services, and Utilities).

Additionally, CDCR develops the Master Plan Annual Report, encompassing proposed projects, active and completed projects in the reporting period, and narrative sections on population, infrastructure, housing needs, healthcare, and facility project summaries. These reports document CDCR's efforts in energy management, sustainability, and conservation to comply with EOs, laws, and regulations.

Pursuant to California Penal Code Sections 7000 and 7001, CDCR is authorized to plan and construct facilities and renovations in its Plan. CDCR may delegate some projects to DGS, including energy-related ones. Regular meetings between CDCR and DGS project teams ensure effective workload monitoring.

Challenges Faced by CDCR in Meeting State Goals

• Security: CDCR's primary mission of ensuring public safety through secure incarceration and parole supervision limits its energy efficiency options. For instance, LED lighting is not used in cells as metal strips in the lamps could be weaponized. CDCR adheres to Design Criteria Guidelines (DCG) and policies to ensure safety for the incarcerated population, staff, and the public. New technologies undergo thorough analysis and approval.

• 24-hour Operations: CDCR's continuous operation contrasts with typical office environments, posing unique energy management challenges.

• Unique Utility Needs: The large scale of CDCR facilities necessitates independent operation from standard city services. Operating its own water and wastewater plants, CDCR faces high replacement costs for more efficient systems until adequate funding is available.

• Financing: CDCR explores various funding sources, including Golden State Financial Marketplace (GS $Mart) loans, on bill financing loans (OBF), Energy Conservation Assistance Act loans, and power purchase agreements (PPA). Additionally, CDCR leads in policy discussions on funding mechanisms such as on bill repayment. Challenges with the current OBF program include caps on funding per site or utility account, restricting the scope of energy efficiency projects within these financial limits. Efforts are underway with the IOUs and the California Public Utilities Commission (CPUC) to potentially increase these loan caps.

Reporting on Existing Building Zero Net Energy (ZNE)

Table 3.3 Zero Net Energy Buildings

Facility	Project Name	Building Name	Floor Area (SF)	Date Completed
CSP, Los Angeles County	HCFIP SP#1	New ASU Primary Care Clinic	2,594	1/15/2016
CSP, Los Angeles County	HCFIP SP#5	New Health Care Administration and Health Records Building	5,921	3/4/2016
CSP, Los Angeles County	HCFIP SP#2	New Complex Primary Care Clinic (Facilities A & B)	5,573	6/27/2016
CSP, Los Angeles County	HCFIP SP#3	New Complex Primary Care Clinic (Facilities C & D)	5,573	7/29/2016
Mule Creek State Prison	HCFIP SP#4	New Pharmacy and Laboratory Building	2,471	9/21/2016
RJ Donovan State Prison	HCFIP SP#4	New Health Care Administration Building	7,680	11/9/2016
Mule Creek State Prison	HCFIP SP#3	New ASU Primary Care and ASU-EOP Mental Health Clinic	611	11/29/2016
RJ Donovan State Prison	HCFIP SP#1	New ASU Primary Care and ASU-EOP Mental Health Clinic	9,880	1/31/2017
Wasco State Prison	HCFIP SP#8	New Correctional Case Management and Health Care Administration Building	6,983	9/30/2017
Salinas Valley State Prison	HCFIP SP#1	New ASU Primary Care Clinic	2,687	12/18/2017
Folsom State Prison	HCFIP SP#1	New Minimum Support Facility Primary Care Clinic	3,072	12/27/2017

Facility	Project Name	Building Name	Floor Area (SF)	Date Completed
Folsom State Prison	HCFIP SP#2	New Building 1 Primary Care Clinic	3,268	12/28/2017
North Kern State Prison	HCFIP SP#8	New Correctional Case Management Building	5,038	4/27/2018
Mule Creek State Prison	HCFIP SP#2	New Clothing Exchange Buildings (Facilities A, B and C) (Three buildings)	5,357	5/7/2018
CSP, Sacramento	HCFIP SP#1	New Facility A PSU-ASU Primary Care Clinic	6,578	5/23/2018
CSP, Solano	HCFIP SP#1	New Complex Facility Clinic	13,711	6/12/2018
California Men's Colony	HCFIP SP#1	New West Facility Primary Care Clinic	5,268	6/14/2018
Correctional Training Facility	HCFIP SP#1	New Facility A Primary Care Clinic	3,468	6/25/2018
California Correctional Institution	HCFIP SP#2	New Pharmacy and Laboratory Building	2,205	8/8/2018
Correctional Training Facility	HCFIP SP#7	New Facility D Primary Care Clinic	3,614	8/24/2018
Correctional Training Facility	HCFIP SP#4	New Facility C Primary Care Clinic	4,400	9/4/2018
CSP, Sacramento	HCFIP SP#3	New Central Health Services Building	27,676	9/6/2018
North Kern State Prison	HCFIP SP#2	New Facility B Primary Care Clinic	2,873	11/29/2018
North Kern State Prison	HCFIP SP#4	New Facility D Primary Care Clinic	3,873	11/29/2018

Facility	Project Name	Building Name	Floor Area (SF)	Date Completed
North Kern State Prison	HCFIP SP#5	New Medication Distribution Rooms (Facilities B & D, 2 each) (Four buildings)	2,111	11/29/2018
Wasco State Prison	HCFIP SP#4	New Facility D Primary Care Clinic	4,236	11/30/2018
California Men's Colony	HCFIP SP#5	New Pharmacy and Laboratory Building	3,000	1/28/2019
California Correctional Institution	HCFIP SP#6	Facility E Primary Care Clinic	3,876	5/13/2019
RJ Donovan State Prison	HCFIP SP#3/8	New Pharmacy and Dialysis Unit Building	8,389	7/12/2019
North Kern State Prison	HCFIP SP#3	New Facility C Primary Care Clinic	4,835	8/30/2019
California Correctional Institution	HCFIP SP #5	Facility D Primary Care Clinic	3,876	10/15/2019
California Men's Colony	HCFIP SP#4	New East Facility Primary Care Clinic and Health Care Administration Building	13,091	12/18/2019
California Men's Colony	HCFIP SP#6	New East Facility ASU Primary Care and ASU-EOP Mental Health Clinic	10,795	12/18/2019
Folsom State Prison	HCFIP SP#3	New Central Health Services Building and Education Annex Building	17,945	1/10/2020
Chuckawalla Valley State Prison	HCFIP SP#3	New Health Care Administration and Health Records Building	2,880	3/27/2020

Facility	Project Name	Building Name	Floor Area (SF)	Date Completed
Wasco State Prison	HCFIP SP#3	New Facility C Primary Care Clinic	4,835	9/26/2020
Central California Women's Facility	HCFIP SP#4	New Pharmacy	2,244	1/19/2021
Wasco State Prison	HCFIP SP#5	New Medication Distribution Rooms (Facilities B & D, 2 each) (Four buildings)	2,111	7/5/2021

Status of ZNE Buildings	Number of Buildings	Floor Area (ft2)
Buildings Completed and Verified	39	224,598
Buildings in Design	1	80,729
Under Construction	2	444,660

Table 3.4: New Building Construction Exceeding Title 24 by 15%

New Buildings Exceeding Title 24 by 15%	Number of Buildings	Floor Area (ft^2)
LEED Silver	14	503,840
LEED Gold	33	2,059,451
Under Design or Construction	3	163,491
Proposed Before 2025	N/A	

According to EO B-18-12, all new State constructions and major renovations that start their design phase after July 1, 2012, must surpass the energy requirements stipulated in the current California Code of Regulations (CCR) Title 24 by a minimum of 15%.

Despite the specific exemption of facilities under Title 24 (Part 6, California Energy Code for Non-Residential Buildings, current edition, Institutional Group I buildings) due to their distinctive construction traits, CDCR is committed to complying with Title 24 standards. Moreover, in certain cases, CDCR aims to achieve an efficiency that is 15% higher than these requirements.

Guidelines for Design and Construction Exceeding Title 24 Standards CDCR's unique facility construction exempts it from Title 24, as previously discussed. Nonetheless, CDCR has integrated energy efficiency into its DCG. For new builds and major renovations within CDCR's plans that fall outside this exemption, the design aims to surpass the existing Title 24 energy standards by 15%.

The Sustainable Design Guidelines (SDG) set forth overarching sustainable design principles for CDCR's correctional facilities, serving as a reference for LEED® and ZNE certifications, regulatory compliance, CDCR policies, and adherence to Title 24, among other aspects. Under the SDG, energy modeling is required to ensure that projects align with energy benchmarks set by Executive Orders, CDCR, LEED® energy efficiency standards, and Sustainable Building Design (SBD) incentives. Energy modeling and life-cycle cost analysis are fundamental in guiding design decisions.

Reporting on Energy Efficiency for Existing Buildings

The total floor area remains constant over the years at 598,485,660 square feet. There is a noticeable increase in total energy consumption over the years. In 2017, the energy consumption was approximately 25.41 billion Kbtu, which increased to approximately 26.29 billion Kbtu in 2018, and further to around 27.03 billion Kbtu in 2019. This also indicates that, on average, each square foot of floor area consumed more energy year over year. However, this does not reflect that nearly 20% of CDCR's facility electricity consumption is generated from renewable sources, specifically onsite wind and solar. Additionally, as of December 2022 there were a further 8 renewable energy projects at CMC, CCI, RJD, KVSP, LAC, PVSP, CTF, SVSP, CVSP, ISP and SOL.

Table 3.5 Department-Wide Energy Trends

Year	Floor Area (ft^2)	Total Source Kbtu Consumption	Department Average EUI (Source Kbtu /square foot)
2017	44,783,106.60	25,410,478,273	42.4580
2018	44,783,106.60	26,285,663,828	43.9203
2019	44,783,106.60	27,033,711,699	45.1702
2020	44,783,106.60	26,951,458,581	45.0328
2021	44,783,106.60	26,318,229,300	43.9747
2022	44,783,106.60	25,354,571,465	42.3645
% Change 2003-2022	15%	73%	

Energy Savings Projects

Table 3.6: Summary of Energy Savings Projects 2021-2022

Year Funded	Estimated Energy Savings (Kbtu/yr.)	Floor Area Retrofit (sq.ft.)	Percent of Department Floor Area
2021	38,775.01	Facility wide	Facility wide
2022	328,288.44	Facility wide	Facility wide
Total	367,063.46		

Demand Response (DR)

A demand response program is a program run by utility companies in which customers reduce or curtail their usage during peak demand times. Currently CDCR does not participate in demand response programs because of security concerns, operational requirements, outdated infrastructure, emergency preparedness, etc. Facilities require continuous, reliable power to ensure security

systems (like surveillance cameras, electric fences, and alarms) remain operational. Demand response programs, which may involve reducing or shifting electricity use during peak times, could compromise these essential security measures. Facilities have specific operational needs that require consistent power supply. This includes lighting, heating/cooling systems, and other facilities essential for the health and safety of the incarcerated populations and staff. Facilities need to be prepared for emergencies, which often require a reliable and uninterrupted power supply. Participation in demand response programs might conflict with these emergency preparedness plans. It should also be noted that may other organizations whose operations run 24 hours a day such as hospitals, freight hubs, telecommunications companies, etc. are unable to take part in demand response programs.

Renewable Energy

Table 3.7: On-Site and Off-Site Renewable Energy

Status	Number of Sites	Capacity (kW)	Estimated Annual Power Generation (kWh)
Department-Wide Total Energy Use (kWh equivalent)	18	68.79	1,528,241,811.00
Current Combined On-Site and Off-Site Renewable Energy.	18	68.79	1,528,241,811.00
Additional Planned On-Site and Off-Site Renewables	5	12.9	n/a

Renewable energy, derived from both solar power and wind, plays a crucial role in reducing greenhouse gas (GHG) emissions from state operations. In 2022, CDCR's renewable energy consumption reached an impressive 1,528,241,811 kWh, accounting for 20% of our total energy use. This achievement was supported by our renewable energy capacity of 68 MW.

This is a major step to ensure that CDCR's renewable energy initiatives align with the mandate for state agencies to procure 100% renewable electricity by December 31, 2035, paving the way for a sustainable and environmentally friendly future.

Harnessing clean, renewable energy is not just about meeting regulatory goals; it is about leading by example in the fight against climate change and promoting

sustainable practices across all sectors. Through continued investment and innovation in renewable energy, CDCR is on a path to significantly reduce our carbon footprint and set a benchmark for other states and organizations to follow.

Chapter 4 – WATER EFFICIENCY AND CONSERVATION

Chapter 4 WATER EFFICIENCY AND CONSERVATION

In California, annual precipitation fluctuates drastically. The state experienced its lowest mountain snowpack at just 5% of the average in 2015, and from 2012 to 2014, it faced the driest consecutive years in its recorded history. The water year spanning October 1, 2016, to September 30, 2017, set records as the wettest in the Sacramento and San Joaquin River basins, almost becoming the wettest in the Tulare Basin. By 2021, California endured a second successive year of dry conditions, leading to widespread extreme or exceptional drought. These dramatic shifts in precipitation underscore the need for California to be prepared for both heavy rainfall and prolonged droughts.

Therefore, efficient water use is essential. EOs and SAM sections, as cited in earlier chapters, highlight the link between water use, energy consumption (the water-energy nexus), climate change, and landscaping. The implications of water usage by State agencies extend beyond the directives of these EOs, SAM sections, and DGS management memos. They don't fully address issues like water runoff from landscaping, different work processes, potential water pollution, or the advantages of water infiltration, soil health, and nutrient recycling. However, comprehensive water planning can fulfill all state mandates while adding significant value to the organization and its community.

CDCR has boosted the efficiency of key water systems through its CALGreen and LEED® certification initiatives. Operational changes have furthered water conservation, including the installation of water-efficient fixtures and plumbing controls. A notable example is the introduction of devices in toilets that limit flushes within a set timeframe, leading to a 40% reduction in water use across CDCR facilities. Recent measures also involve updating operational procedures to further decrease water usage, as mandated by CDCR's revised Water Conservation and Management Plans and Best Management Practices checklist.

CDCR remains committed to exploring further water-saving opportunities, often combining infrastructure repairs or replacements with water efficiency enhancements. The department actively seeks funding or grants for water efficiency initiatives at its facilities.

To date, CDCR has cut its water usage by 37%, amounting to over 4.2 billion gallons since 2003. EO B-18-12 sets a target for State Agencies to reduce water use by 10% by 2015 and 20% by 2020, compared to a 2010 baseline.

For its water supply, CDCR often relies on its own wells, reservoirs, and water treatment plants. Approximately 20% of CDCRs facility water consumption is from its own wells. All the data presented below is from internal CDCR documents.

Table 4.1: Total Purchased Water

Purchased Water	2021 Quantity	2022 Quantity
All Water Sources	81,989,357.20	76,657,586.80

Reporting on Properties with Largest Purchased Water Use per Capita.

Table 4.2: Properties with Largest Purchased Water Use Per Capita

Building Name	Area (ft2)	# of Building Occupants	Total 2022 Gallons	Gallons per Capita
COR	1,652,194	3,445	4,192,440	1,217
CTF	1,456,302	3,927	3,949,668	1,006
CMC	1,494,987	3,816	3,522,420	923
ASP	1,671,840	4,062	3,418,871	842
SATF	1,681,956	4,650	3,260,364	701
Total for Buildings in This Table	1131	---	---	---
Total for All Department Buildings	7,957,279	19,900	18,343,763	---

Reporting on Properties with Largest Landscape Area Using Purchased Water

Table 4.3: Properties with Largest Landscape Area Using Purchased Water

Building Name	Landscape Area (ft2)
MCSP	3,475,090
PVSP	3,013,145
SQ	2,580,391
CIM	1,895,526
CMF	1,780,548
Total Landscaping area for Buildings in This Table	12,744,000
Total Landscaping for All Department Buildings	36,682,490
% of Totals that is large landscape	35 %

Reporting on the Department's Purchased Water Use Trends from 2010 to Present

Table 4.4: Department Wide Purchased Water Use Trends

Year	Total Occupancy /year	Total Amount Used (Gallons/year)	Per capita Gallons per person per day
2020	162,965	86,119,825	1.44
2021	155,419	81,989,357	1.44
2022	144,213	76,657,586	1.45

Reporting on Total Purchased Water Reductions from 2010 to Present

Table 4.5 Total Purchased Water Reductions Achieved in Gallons

Purchased Water Use	2021Totals (Gallons) Y	2022 Totals (Gallons) Z
2010 Baseline totals (Gallons) 105,647,185.50	81,989,357	76,657,586
+ or -Gallons Compared to Baseline Year	-23,657,828	-28,989,599
Department- Wide Reduction as a % from 2010 baseline	28%	37%

Table 4.6 Summary of Current Indoor Water Efficiency Projects Completed 2020-Present or In Progress.

PBSP installation of thermal packs and ASP condensate return were completed October 2022. The estimated water savings from PBSP is 22,450 gallons per month. ASP condensate return has a water savings of 175,000 gallons a month. It should be noted due to the recent completion of both projects two months of water savings data is available for reporting..

Completed Projects per Year	Water Saved (Gallons/yr.)	Number of Indoor Water Efficiency Projects Completed	Cost Savings per Year
2021	0	0	0
2022	395,000	2	$541,000

Planning Outline: Building Indoor Water Efficiency Priority Projects for the Next 5 Years

Due to the state of California's budget deficit, CDCR has an urgent need to prioritize spending. Essential services, including healthcare of incarcerated individuals, security measures, and basic facility maintenance, have taken precedence, leaving less critical projects without funding. Projects identified are based on immediate needs, regulatory compliance, and potential cost savings. Although the Building Indoor Water Efficiency projects were recognized for their long-term benefits, including water conservation and reduced utility costs, they were deemed non-essential compared to immediate security concerns and legal obligations towards the welfare of incarcerated individuals.

Department Total Nonpurchased Water:

To help mitigate and alleviate water use consumption. CDCR also utilizes nonpurchased water for a variety of purposes such as day-to-day operations, dust control, water of landscape irrigation in an effort to conserve water supplies. The table below will show these nonpurchases sources, well water and potable water used per year throughout CDCR facilities.

Table 4.7 Department-Wide Non purchased Water Use (CDCR wells)

All units in k-gals

Year	Groundwater Basin(s) Name	Well Water Use	Municipally Supplied Potable Water	Total (Gallons/ Year)
Baseline Year 2020		19,654,867	66,464,958	86,119,825
2021	Kern, San Bernardino, Rialto, Fall River, Valley, and the Riverside Basins	17,795,496	64,193,860	81,989,357
2022	Kern, San Bernardino, Rialto, Fall River, Valley, and the Riverside Basins	15,905,855	60,751,731	76,657,586

Department Outdoor Water Use:

Currently, CDCR does not monitor or track the consumption of water by function such as boilers, cooling, irrigation etc. for several reasons. The cost of purchasing, installing, and maintaining sub-meters for different water systems (boiler, cooling, and irrigation) might be deemed non-essential or too expensive compared to other pressing needs within the facility. Facilities may lack the administrative support or technical expertise to effectively manage and interpret the data collected by sub-meters. In a sensitive environment like a facility, data regarding facility operations could be considered confidential and its collection and storage would need to be carefully managed.

Reporting on Buildings in Critically Over drafted Groundwater Basins

Table 4.8 Buildings in Designated Critically Over Drafted Groundwater Basins

Facility Name	Basin Name	Amount of water Used 2021 (Gallons)	Amount of water Used 2022 (Gallons
CCI	Kern	3,071,374	2,685,262

In the face of mounting urban water shortages, many public and private entities are being urged to participate in Urban Water Shortage Contingency Plans. These plans are critical for ensuring water availability during periods of scarcity,

and they involve significant changes in water usage practices, infrastructure upgrades, and participation in regional water management strategies. However, the institution system finds itself in a unique position, constrained by a set of challenges that make participation in these plans difficult, if not impossible, at the current juncture. Institution systems are subject to a complex web of regulations and legal obligations, including mandates to maintain certain living conditions for the incarcerated population. Any changes to water usage practices must be carefully evaluated to ensure they do not violate these obligations. The risk of legal challenges or regulatory non-compliance acts as a significant deterrent to modifying water use in ways that would align with Urban Water Shortage Contingency Plans.

Chapter 5 - SUSTAINABLE OPERATIONS

Chapter 5 Sustainable Operations

Greenhouse Gas Emissions

All the data presented below is from internal CDCR documents.

Table 5.1 GHG Emissions since 2010 (Metric Tons).

Source: Energy Star Portfolio Manager

Emissions Source	Natural gas	Vehicles	Purchased Electricity	Total
2021	197,064	6,597	251,399	448,463
2022	185,038	6,255	239,085	424,123
Percent Change since Baseline	-18.75%		-7.75%	-12.8%

Greenhouse Gas Equivalencies Calculator | US EPA

Building Design and Construction

New Building LEED Certification

EO B-18-12 requires that all new buildings, major renovation projects, and build-to-suit leases over 10,000 square feet shall obtain LEED Silver certification or higher. All new buildings smaller than 10,000 square feet shall meet applicable CALGREEN Tier 1 Measures. New buildings and major renovations greater than 5,000 square feet are also required to pursue monitor-based commissioning after construction.

Since July 1, 2012, CDCR has 18 LEED BD+C certified new construction projects involving 70 buildings, totaling 14 Gold and 55 Silver certifications. Additionally, CDCR renovated one existing building to earn LEED-Commercial Interior Silver certification, which was awarded in 2013.

All new buildings and renovations built since July 1, 2012 and the associated LEED level achieved, along with post-construction commissioning (Cx) completed or planned, are listed below in table 5.2.

Table 5.2 All LEED Buildings

Building Name	LEED Certification Type & Level Achieved	Commissioning Performed (Y/N)
California Institution for Women, 45-bed Mental Health Facility, Corona	Silver	2013
California Medical Facility, 64-bed Mental Health Facility, Vacaville	Gold	2013
Salinas Valley State Prison, 64-bed Mental Health Treatment Facility	Silver	2009
San Quentin Central Health Services Building	Silver	2010
California State Prison, Sacramento, EOP Office and Treatment	Silver	2018
California Men's Colony, 50-bed Mental Health Facility, San Luis Obispo	Gold	2014
California State Prison, Los Angeles County EOP Office and Treatment	Silver	2014
California Medical Facility, EOP	Gold	2013
Corcoran State Prison, ASU EOP	Gold	2014
California Health Care Facility, DB1 Materials Service Center	Silver	2014
California Health Care Facility, DB1 Central Utility Plant	Silver	2014
California Health Care Facility, DB2 Administration	Silver	2014
California Health Care Facility, DB2 Facility Support Services	Silver	2014
California Health Care Facility, DB2 Housing	Silver	2014
California Health Care Facility, DB2 Kitchen Plant Maintenance	Gold	2014
California Health Care Facility, DB2 Permanent Work Labor	Silver	2014
California State Prison, Sacramento, Psychiatric Services Unit	Silver	2014
Salinas Valley State Prison, Enhanced Outpatient	Silver	2014

California Health Care Facility, Dewitt Nelson Correctional Annex, Enhanced Outpatient Housing	Gold	2015
Building Name	**LEED Certification Type & Level Achieved**	**Commissioning Performed (Y/N)**
California Health Care Facility, Dewitt Nelson Correctional Annex, Management Transfer Unit	Silver	2015
Folsom State Prison HCFIP (Sub Project 3)	Gold	2020
Mule Creek State Prison InfillHousing	Gold	2016
Mule Creek State Prison Infill Program Support Services	Silver	2016
Mule Creek State Prison Infill Complex Control	Silver	2016
Mule Creek State Prison Infill, Work Zone/Work Change	Silver	2016
Mule Creek State Prison Infill, Facility Support Services	Silver	2016
California State Prison, Sacramento, HCFIP (Sub Project 3)	Silver	2018
Ironwood State Prison HVAC System Central Plant	Gold	2020
California Men's Colony HCFIP (SP4)	Silver	2020
California Men's Colony HCFIP (SP6)	Silver	2020
RJD Level II Dorms Facility Support Services	Silver	2021
RJD Level II Dorms Housing Dorms	Silver	2021
RJD Level II Dorms Program Support Services	Silver	2021

Source: LEED rating system | U.S. Green Building Council (usgbc.org)

Under Construction and designed to meet LEED requirements.

Building Name	LEED Certification Type & Level Achieved	Commissioning Performed (Y/N)
California State Prison, Solano, HCFIP (SP1)	TBD	TBD
California Institution for Men, 50-Bed Mental Health Crisis Facility	TBD	TBD

San Quentin Rehabilitation Center, Educational and Vocational Center	TBD	TBD

Organic waste, pest control, recycling, and hazardous waste disposal.

Recent legislative changes and policy shifts have played a significant role in driving the prison system towards sustainability. New regulations aimed at reducing carbon footprints, minimizing waste, and promoting recycling and waste management have necessitated a reevaluation of existing contracts. These changes reflect a growing recognition of the environmental responsibilities held by all sectors of society, including those that are state-operated or state-funded.

The push for including environmental management in prison system contracts also comes from increased pressure from the public and stakeholders interested in criminal justice reform and environmental sustainability. Advocacy groups, environmental organizations, and the general public have called for more responsible and sustainable practices within the prison system. This pressure has encouraged prison administrators to reconsider how prisons' operational practices can be aligned with broader environmental goals.

In response to these pressures and opportunities, the prison system is now moving to include specific requirements for tracking organic waste, implementing environmentally friendly pest control measures, enhancing recycling efforts, and safely disposing of hazardous waste in new contracts. This shift represents a significant step towards integrating sustainability into the core operational practices of the prison system.

The inclusion of these provisions in new contracts signals a broader commitment to environmental stewardship and responsibility. It acknowledges the role that the prison system, like all sectors, must play in addressing environmental challenges. By adopting these measures, the prison system not only contributes to the health of the planet but also sets an important example of sustainable operation within the context of public facilities.

Funding Opportunity

CDCR, as the largest state agency in California, faces a myriad of challenges, including diverse climate conditions, remote facilities locations, and complex logistical operations. Managing a significant portion of the state's budget and employing tens of thousands of people, CDCR occupies a unique position to lead

in sustainability innovation. The agency must balance stringent security requirements, maintain aging facilities, and navigate fiscal constraints within California's intricate political landscape, making it, arguably, one of the most challenging state agencies to manage.

To address these challenges and maintain its leadership in energy and sustainability, CDCR's ESS has adopted adaptive and creative strategies to align with California's ambitious energy and sustainability goals. A key strategy has been the engagement of a third-party consultant, Alternative Energy Systems Consulting, Inc. (AESC), which specializes in energy efficiency, renewable energy, and sustainability consulting. AESC also assists in identifying research funding opportunities through utility providers. CDCR remains committed to seeking alternative funding solutions to continue advancing energy efficiency and sustainability initiatives.

Appendix A – Sustainability Leadership

Dave Lewis- Director

Michelle Weaver – Deputy Director

Sohail Shaikh – Associate Director

Jeremiah Peacock – Chief, Energy and Sustainability

Yang Lu – Project Director I

Mark Tipton – Associate Construction Analyst

Michelle Heuer – Associate Construction Analyst

Laura Radcliffe - Associate Estimator of Building Construction

Mannix Perera – Associate Governmental Program Analyst

Kierstenlee Houghland – Staff Services Analyst

Appendix B – Acronyms

Acronym	Meaning
AB	Assembly Bill
ADR	Automated Demand Response
AMB	Asset Management Branch (at DGS)
BMP	Best management practices
CA	California
CALGREEN	California Green Building Code (Title 24, Part 11)
CEC	California Energy Commission
DGS	Department of General Services
DWR	Department of Water Resources
EHT	Extreme heat threshold
EMS	Energy management system (aka EMCS)
EMCS	Energy management control system (aka EMS)
EO	Executive Order
EPP	Environmentally preferable purchasing
AB	Assembly Bill
ESPM	Energy Star Portfolio Manager
ETS	Enterprise Technology Solutions (a division at DGS)
EUI	Energy use intensity (source kBTU/sq. ft.)
EVSE	Electric vehicle supply equipment (charging equipment)
FMD	Facilities Management Division (a division at DGS)
GCM	Global circulation model
GHG	Greenhouse gas
GHGe	Greenhouse gas emissions
GSP	Groundwater Sustainability Plan

IEQ	Indoor environmental quality
Kbtu	Thousand British thermal units (unit of energy)
LCM	The Landscape Coefficient Method
LEED	Leadership in Energy and Environmental Design
MAWA	Maximum applied water allowance
MM	Management Memo
MWELO	Model Water Efficient Landscape Ordinance
OBAS	Office of Business and Acquisition Services (at DGS)
OBF	On-bill financing
OFAM	Office of Fleet and Asset Management (at DGS)
OS	Office of Sustainability (at DGS)
PMDB	Project Management and Development Branch (at DGS)
PPA	Power purchase agreement
PUE	Power usage effectiveness
RCP	Representative Concentration Pathway
SABRC	State Agency Buy Recycled Campaign
SAM	State Administrative Manual
SB	Senate Bill
SCM	State Contracting Manual
SGA	Sustainable groundwater agency
SGMA	Sustainable Groundwater Management Act
WMC	Water management coordinator
VHSP(s)	Vehicle home storage permits
WUCOLS	Water Use Classifications of Landscape Species
ZEV	Zero-emission vehicle
ZNE	Zero net energy

Appendix C - Sustainability Milestones

2012 - Executive order B-18 and B16-12 issued new and renovated buildings exceed T-24 by 15%

2013 - Buildings < 10,000 sq feet meeting CalGreen tier 1.
2013 - Buildings water use benchmarking (2010 baseline).

2015 - LEED – EB certification for all existing buildings greater than 50,000 sq feet.
2015 - Reduce water use 10%.
2015 - 10% of fleet light duty vehicles purchased are zero emissions vehicles.

2016 - Reduce water use by 25% from 2013 to February 28, 2016

2017 - 100% of new and renovated buildings are zero net emissions designed after 10/2017

2018 - 20% energy use reduction from a 2003 baseline.

2020 - Reduce water use by 20%
2020 - 25% of fleet light duty vehicles purchased are zero emissions vehicles.

2025 - 50% of existing buildings are zero net emissions.

Appendix D – 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, boilers - 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.

Blowdown, cooling towers – Is the water discharged to remove high mineral content system water, impurities, and sediment.

Building Best Management Practices (BMPs) - are ongoing actions that establish and maintain building water use efficiency. BMPs can be continuously updated based on need and tailored to fit the facility depending on occupancy and specific operations.

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).

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.

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.

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 maximum and minimum daily temperature.

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

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

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

Lifecycle cost accounting - includes initial investment costs, as well as lifetime operation and maintenance costs under changing climate conditions, including changing average conditions and increases in extreme events. It may involve applying non-market evaluation methods such as travel cost, avoided costs or contingent valuation to capture hard to quantify benefits and costs.

Make Up Water - Makeup water, or the water replacing evaporated or leaked water from the boiler, is first drawn from its source, whether raw water, city water, city-treated effluent, in-plant wastewater recycle (cooling tower blowdown recycle), well water, or any other surface water source.

Model Water Efficient Landscape Ordinance (MWELO) - The Water Conservation in Landscaping Act was signed into law on September 29, 1990. The premise was that landscape design, installation, and maintenance can and should be water efficient. Some of the provisions specified in the statute included plant selection and groupings of plants based on water needs and climatic, geological, or topographical conditions, efficient irrigation systems, practices that foster long term water conservation and routine repair and maintenance of irrigation systems. 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.

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)).

Non-purchased Water – is water that a department uses that does not come from a 3rd party supplier. It may be water from domestic wells owned by the department or water that is taken from a river, lake, canal, or other source and used by the department. The water may be returned to source after use.

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.

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.

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.

WUCOLS - Water Use Classification of Landscape Species. WUCOLS are used to help determine water budgets and irrigation schedules. Use this link to access the necessary information for your landscaping needs. WUCOLS Plant Search Database (ucdavis.edu)

Appendix E – Department Stakeholders

Demand Response: Yang Lu

Energy Efficiency: Yang Lu, Mark Tipton, Michelle Heuer, Laura Radcliffe, Kiersten Houghland, and Mannix Perera.

EVSE Construction Plan: Laura Radcliffe

EVSE Operation Plan: Laura Radcliffe

Greenhouse Gas emissions: Michelle Heuer and Mannix Perera

Measuring and Tracking Progress: Laura Radcliffe, Michelle Heuer and Mannix Perera

Renewable Energy: Yang Lu, Michelle Heuer and Mannix Perera

Water Efficiency: Yang Lu, Laura Radcliffe, and Kiersten Houghland

Waste Management and Recycling: Mark Tipton

Appendix F – Sustainability Statutory Requirements.

Executive Orders and Management Memos References The following executive orders, Management Memos, legislative actions, resources, and guidance documents provide the sustainability criteria, requirements, and targets tracked and reported herein. The governor issued the following executive order relevant to chapters of this roadmap:

- Executive Order B-16-12

  EO B-16-12 directs state agencies to integrate zero-emission vehicles (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.
- Executive Order 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 greenhouse gas emissions, managing energy and water use, improving indoor air quality, generating on-site 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. Agencies annually report current energy and water use into the Energy Star Portfolio Manager (ESPM).
- Executive Order 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. Governor Brown 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.

- Executive Order 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 GHG emission reduction target of 40 percent below 1990 levels by 2030 and reaffirms California's intent to reduce GHG emissions 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 GHG emissions; prioritize natural infrastructure; and protect the state's most vulnerable populations.

- Executive Order 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. The California Department of Water Resources (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 have drought contingency actions.

State Administrative Manual & Management Memos

The following section of the State Administrative Manual (SAM), and associated Management Memos (MMs) currently impose sustainability requirements on the department under the governor's executive authority:

- SAM Chapter 1800: Energy and Sustainability
- MM14-02: Water Efficiency and Conservation

- MM 14-05: Indoor Environmental Quality: New, Renovated, And Existing 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: Zero-Emission Vehicle Purchasing and EVSE Infrastructure Requirements.
- MM 17-04: Zero Net Energy for New and Existing State Buildings

Recent Legislative Actions

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

- Assembly Bill (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)
- Senate Bill (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)

Other Legislative Actions

- AB 4: Passed in 1989. The State Agency Buy Recycled Campaign (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 GHG 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

- 2016 Zero-Emission Vehicle Action Plan
  The plan establishes a goal to provide electric vehicle charging to 5 percent of state-owned parking spaces by 2022. It also advances the ZEV procurement target to 50 percent of light-duty 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.
- Safeguarding California Implementation Action Plans: 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 California Department of Water Resources February 28, 2013, pursuant to Executive Order 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 greenhouse gas emissions 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.

Appendix G – Tables and Graphs.