

Sustainability Roadmap 2022-2023 California Air Resources Board

Sustainability Master Plan
and Biannual Progress Report on Legislative
Sustainability Mandates and the
Governor's Sustainability Goals
for California State Agencies

California Air Resources Board

Gavin Newsom, Governor

January 2024



CALIFORNIA AIR RESOURCES BOARD ROADMAP

Sustainability Road Map 2022-2023

California Air Resources Board

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EXECUTIVE SUMMARY

In accordance with the Governor's Executive Order B-18-12 and the Green Building Action Plan, all State agencies are to reduce energy and water consumption and greenhouse gas (GHG) emissions. Additionally, agencies are to follow specific guidelines as they relate to new construction, renovation of existing facilities, implementation of electric vehicle (EV) charging stations, purchasing products that are environmentally preferable, and achieving Leadership in Energy and Environmental Design (LEED) certification and Zero Net Energy (ZNE) goals. The following report provides information on the California Air Resources Board's (CARB) progress in responding to the goals set forth by the Governor's Office.

CARB serves as the State's primary agency to promote and protect public health, welfare, and ecological resources through the effective and efficient reduction of air pollutants while recognizing and considering the effects on the economy of the state. CARB is comprised of 15 divisions with over 1,900 employees.

CARB occupies 51 sites; two that are State-owned and 49 that are leased throughout the State. Of the leased sites, 38 are solely air-monitoring stations (AMS), two are AMS with attached offices/labs, and nine support an array of vehicle testing, warehouses, research, planning, enforcement, chemical laboratories, support services, and administrative needs.

The Haagen-Smit Laboratory (HSL), one of CARB's State-owned sites, has presented the most significant challenge due to the aging building and energy intensive demands of testing and research operations. Originally built in 1971, HSL was designed to support 40 staff. HSL is being decommissioned. As of April 2023, all personnel and operations have been relocated to CARB's new Southern California Headquarters (SCHQ) located in Riverside, California. The new facility is designed to house all testing, laboratory, and staff that was once located across multiple leased locations in El Monte, California. The new SCHQ facility is approximately 402,000 square feet and is designed to perform and operate in an energy-efficient manner and support CARB's goal of being LEED Platinum and ZNE certified.

In support of CARB's mission to address climate change and keep the State on a path towards a low-carbon future, CARB is seizing this opportunity to showcase how a laboratory and testing facility can incorporate sustainable building practices. CARB's goal is to not only achieve the Governor's energy and environmental goals, but to surpass them.

Serving as the lead agency for climate change programs, CARB oversees all initiatives for air pollution control in California to achieve and uphold health-based air quality standards.

Climate Change Adaptation

In a changing climate, CARB employs climate adaptation strategies for its facilities to help reduce climate risks. In regard to new construction, leases, and landscape/facility projects, CARB will consider the following:

- Temperature changes (including extreme heat events).
- Urban heat island effect, drought, and wildfires.
- Precipitation changes (including extreme precipitation events).
- Sea level rise (e.g., flood risk).

Zero Emission Vehicles (ZEV)

CARB manages a diverse operational fleet with vehicles tailored to specific programs and divisions. The majority of CARB's fleet consists of pickup trucks and sport utility vehicles (SUVs) utilized by field personnel. Other vehicles serve as pool vehicles, aiding in tests, transporting equipment and tools, and assisting staff in navigating challenging terrains. Some are highly customized such as the mobile fuel enforcement laboratory built into a coach bus.

One category of CARB MD and HD vehicles are those acquired for specific purposes as combustion engine emissions testing articles to allow retaining for long test program durations or to allow invasive instrumentation or modifications that cannot be performed on rented or borrowed vehicles. CARB's enforcement and research program needs dictate whether purchase of a combustion vehicle test article is required to meet the needs of the testing program. The vehicles obtained for testing programs are not counted in CARB's operational fleet statistics below, but it is important to acknowledge these acquisitions due to the significant role test programs have in reducing air pollutants.

At present, most battery electric vehicles (BEVs) in the operational fleet are employed for short urban trips and as pool vehicles. In the past, the primary

challenge in adopting more BEVs has been their limited mileage range for CARB's specific use cases. However, with the introduction of BEV options offering extended ranges, greater off-road capability and carrying capacity, CARB is progressively incorporating more of them. This is underscored by CARB's recent request for 100 percent BEV light-duty (LD) vehicles in its latest Fleet Acquisition Plan.

CARB is resolute in integrating medium-duty (MD) and heavy-duty (HD) Zero Emission Vehicles (ZEVs) whenever feasible into its fleet that stands at 41 percent MD and HD vehicles as of the time of this writing in late 2023. The more traditional category of vehicles serving CARB MD and HD transportation needs are vehicles typically used for towing, transporting bulky items, or for testing support, in some cases in rugged terrains requiring 4-wheel drive. Examples include the mobile fuels enforcement bus cited above, mobile audit labs that carry equipment to conduct quality assurance testing on air monitoring stations, and a 4-wheel drive truck carrying large emission testing equipment and towing a trailer with a mobile dynamometer to off-road sites to conduct emission testing in the field. 27 percent of the CARB MD and HD fleet was equipped with 4-wheel drive as the time of this writing in late 2023.

While there can be some constraints to adopting MD and HD BEVs arising from their mileage capabilities, which are further constrained when towing, the perhaps larger issue for ZEV composition of the CARB MD and HD fleet has been CARB's infrequent turnover cycles and extended retention periods. CARB has not yet achieved 100 percent MD and HD BEV acquisition. Nonetheless, CARB has recently included its first ZEV MD van in the Fleet Acquisition Plan and is actively exploring acquisition options for MD and HD vehicles to expedite the attainment of the 100 percent BEV goal once operational conditions permit.

Energy

CARB operates the HSL located in El Monte, California. This facility was the main operations for vehicle emissions testing during the 2020 calendar year. CARB has faced many challenges due to the age of the HSL facility. It was not cost effective to retrofit the facility to meet ZNE goals. HSL is being decommissioned and as of April 2023, all personnel and operations have been relocated to SCHQ. This new facility is designed to perform and operate in an energy-efficient manner and support CARB's goal of being LEED Platinum and ZNE certified.

Water Efficiency

CARB has determined it was not cost effective to replace any of the boilers or cooling systems as HSL will be decommissioned and sold on or around December 2024. CARB has constructed a new ZNE facility in Riverside, CA.

Sustainable Operations

All services contracted for at HSL and SCHQ include a requirement to use environmentally friendly methods whenever possible including battery or hand powered landscaping equipment, low VOC construction materials, high efficiency methods with limited chemical usage in both cleaning and pest management, and continued Environmental Preferable Purchasing (EPP) education and State Agency Buy Recycled Campaign (SABRC) awareness. CARB determined it was not cost effective to retrofit the building in order to meet LEED standards. HSL will be decommissioned and sold on or around December 2024. CARB's GHG Emissions since the 2010 baseline have shown a 60% reduction in natural gas, 50% reduction in vehicle emissions, and a 25% increase in purchased electricity. This increase in purchased electricity is due to the newly constructed SCHQ facility.

Public Education and Outreach

CARB's SCHQ facility and world-class laboratories facilitate awareness of air quality challenges and further scientific research with the local educational institutions. CARB is actively working to strengthen ties with schools and students from the region and help build support for the science that underpins our solutions to the air pollution challenges we face in the Riverside area, and the rest of the state. The new lab's expanded capabilities will also support the transition to zero or near-zero emissions technology in all areas recognized as mobile sources through rigorous screening and regulatory testing. The mutually beneficial partnerships will utilize the facility to offer classes, facility tours, and educational opportunities for faculty and students to inspire students at all levels to learn more about air quality, the impacts of climate change, and CARB's efforts to clean the air.



Steven S. Cliff, Ph.D., Executive Director

CHAPTER 1 - CLIMATE CHANGE

Department Mission and Climate Change Adaptation

[Executive Order B-30-15](#) directs State Agencies to integrate climate change into all planning and investment which include the following:

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

In a changing climate, CARB employs climate adaptation strategies for its facilities to help reduce climate risks. In regard to new construction, leases, and landscape/facility projects, CARB will consider the following:

- Temperature changes (including extreme heat events).
- Urban heat island effect, drought, and wildfires.
- Precipitation changes (including extreme precipitation events).
- Sea level rise (e.g., flood risk).

CARB's Haagen Smit Laboratory facility is located at 9528 Telstar Avenue, El Monte, California. This Facility is slated to be sold on or around December 2024. CARB will be working directly with the Department of General Services (DGS) Real Estate to prepare the building for sale.

SCHQ is located at 4001 Iowa Avenue, Riverside, California. SCHQ is part of the Inland Deserts Region, which is the hottest and driest region of California. Rainfall rates are currently low and highly variable from year to year. The variability is projected to increase over the coming decades with extreme weather events becoming more common. The frequency of these events will increase the risk of flash flooding and wildfires.

SCHQ is designed to be LEED Platinum certified, the highest level awarded by the U.S Green Building Council and meet California's Green Building Standards Code (CALGreen) Tier 2 threshold for overall sustainability and energy efficiency of the building. Extensive on-site use of the solar photovoltaics (PV) panels will

supply at least 3.5 megawatts of electricity while water conservation features and water efficient landscaping is used throughout the facility. Adjacent staff parking and visitor parking lots include 24 electric vehicle charging stations.

Climate Change Risks to Facilities

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

CARB's Haagen Smit Laboratory facility is located at 9528 Telstar Avenue, El Monte, California. This Facility is slated to be sold on or around December 2024. CARB will be working directly with DGS Real Estate to prepare the building for sale.

SCHQ located at 4001 Iowa Avenue, Riverside, California, was completed on or around April 2023. This facility has incorporated into the design and performance criteria the analysis of the impact of climate change in relation to the requirements of the California Building Code (CBC), LEED and other executive orders. The types of screening criteria are part of the scoping of a project and are integrated into the project design parameters.

In preparation of the project, the project team along with the Department of General Services, the design build team, architect, and consultants have outlined the project scope criteria to include the use of a ZNE screening process to identify the building design's energy usage intensity and how the design will then achieve the ZNE status.

Risk from Changing Extreme Temperatures

Under a changing climate, temperatures are expected to increase – both at the high and low end. As a result, facilities will experience higher maximum temperatures and increased minimum temperatures. In addition to changing average temperatures, climate change will increase the number of extreme heat events across the State.

Assessing Risk from Changing Extreme Temperatures:

Table 1.1: Top 5-10 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)	Average # of days above EHT (2031-2060)	Change from Historical to projected average # of days above EHT (2031-2060)	Avg. # days above EHT (2070-2099)	Change from historical to projected average # of days above EHT (2070-2099)
HSL	101.8	4.4	19.7	15.3	42.5	38.0
SCHQ	103.6	4.4	27.2	22.8	47.4	43.0

Table 1.2a: Top 5-10 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)
HSL	79.5	84.6	5.1	88.3	8.8
SCHQ	78.0	83.6	5.6	86.9	9.0

Table 1.2b: Top 5-10 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)
HSL	54.4	59.4	5.0	63.3	9.0
SCHQ	49.6	54.4	4.9	58.2	8.6

Table 1.3a: Top 5-10 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
HSL	1082.1	441.8	-640.3	216.1	-866.0
SCHQ	1829.5	971.9	-857.6	643.5	-1186.0

Table 1.3b: Top 5-10 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
HSL	1782.5	3204.9	1422.4	4168.1	2385.6
SCHQ	1377.5	2628.1	1250.6	3405.0	2027.5

SCHQ has incorporated into the design and performance criteria the analysis of the impact of climate change in relation to the requirements of the CBC, LEED, and other executive orders. SCHQ is a ZNE building. Under a changing climate, temperatures are expected to increase both at the higher maximum temperatures and increased minimum temperatures. In addition to changing

average temperatures, climate change will increase the number of extreme heat events across the State. It is likely that extremes will intensify, both drought and heavy precipitation events. To reduce the urban heat island effect, SCHQ installed cool roofs, PV canopies throughout the facility and parking areas, and native tree and vegetation landscaping for the surrounding campus path, inner courtyard, and visitor entrance.

Heating and Cooling Degree Days

A Heating Degree Day (HDD) is defined as the number of degrees by which a daily average temperature is below a reference temperature (i.e., a proxy for when heat would be needed). The reference temperature is typically 65 degrees Fahrenheit, although different utilities and planning entities sometimes use different reference temperatures. The reference temperature loosely represents an average daily temperature above which space heating is not needed. The average temperature is represented by the average of the maximum and minimum daily temperature.

Similarly, a Cooling Degree Day (CDD) is defined as the number of degrees by which a daily average temperature exceeds a reference temperature. The reference temperature is also typically 65 degrees Fahrenheit, and different utilities and planning entities sometimes use different reference temperatures. The reference temperature loosely represents an average daily temperature below which space cooling (e.g., air conditioning) is not needed.

Planning Outline PO1:a: Plan for Top 5-10 Facilities HDD and CDD Mitigation

Facility Name	2030
HSL	No plan due to decommissioning & sale of the building
SCHQ	No plan as this is a new facility

To reduce the impact of changing temperatures, and HDD/CDD, on facility performance and to protect occupant health and safety at CARB's new SCHQ facility, cool roofs and PV canopies were installed throughout the facility and parking areas, and native tree and vegetation landscaping for the surrounding campus path, inner courtyard, and visitor entry.

Urban Heat Islands

Urban heat islands are areas with localized spikes in temperature, which impact human health, increase pollution, and increase energy demand. Urban heat islands occur during the hot summer months in areas with higher percentages of impervious surface and less vegetation. This is likely in areas with large parking

lots, dense development, and lower tree density and shading. Urban heat islands can be reduced through tree planting and other greening measures, cool roofs (e.g., lighter roofing materials that reflect light), cooler pavements, and other measures.

Table 1.3: Facilities in Urban Heat Islands

Facility Name	Located in an Urban Heat Island (Yes or No)	sq. ft. of Surrounding Hardscape or Pavement if greater than 5000 sq. ft.
HSL	Yes	16,550
SCHQ	Yes	66,250

HSL is located within an Urban Heat Island. The facility is surrounded by several parking lots for fleet and employee use. In the year 2020 these lots were minimally used due to teleworking and decommissioning of the building.

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

SCHQ urban heat island impacts increase:

- Energy costs (e.g., for air conditioning)
- Higher daytime temperatures
- Reduced nighttime cooling
- Higher air-pollution levels
- Heat-related deaths and illnesses such as general discomfort, respiratory difficulties, heat cramps, heat exhaustion, and non-fatal heat stroke

Planning Outline PO1:b: Plan for Urban Heat Islands Mitigation

Facility Name	Mitigation or Plan	Est. Implementation Date
HSL	No	No Plan due to decommissioning and sale of the building
SCHQ	Yes	December 2021

To reduce the urban heat island effect at SCHQ, cool roofs and PV canopies were installed throughout the facility and parking areas, and native tree and vegetation landscaping for the surrounding campus path, inner courtyard, and visitor entry.

Table 1.4: Top 5-10 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 of century	Extreme Precip (1961-1990) (in/day)	Extreme Precip (2031-2060) (in/day)	Extreme Precip (2070-2090) (in/day)
HSL	16.8	18.0	0.1	19.7	0.2	6.1	6.5	7.8
SCHQ	9.6	9.9	0.0	10.6	0.1	3.0	3.2	4.3

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

Planning Outline PO1:c: Plan for Top 5-10 Facilities Most Impacted by Projected Changes in Precipitation

Facility Name	Extreme Precip (2030) Plan or strategy
HSL	No plan due to decommissioning & sale of the building
SCHQ	No plan available as this is a new facility

HSL and SCHQ do not currently have a Precipitation Changes Mitigation Plan.

Risks from Sea Level Rise

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

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

Table 1.5: All Facilities at Risk from Rising Sea Levels

Facility Name	Tide Chart Region	2050 Water Level (ft)	Exposed in 2050? (y/n)	2100 Water Level (ft)	Exposed at 2100? (y/n)
NO FACILITIES AT RISK	N/A	N/A	N/A	N/A	N/A

Planning Outline PO1:d: Planning for Sea Level Rise impacts Mitigation

Facility Name	Tide Chart Region	Plan 2030?
NO FACILITIES AT RISK	N/A	N/A

Risks from Wildfire

Wildfire is a serious hazard in California. Several studies have indicated that the risk of wildfire will increase with climate change. We are already seeing more extreme wildfire seasons that are longer and with more extreme wildfires. By 2100, if GHG emissions continue to rise, one study found that the frequency of extreme wildfires would increase, and the average area burned statewide would increase by 77 percent.

Wildfire hazard is also a critical present issue. Five of California's six largest fires all occurred in 2020¹. 2017 and 2018 previously set records as the most destructive fire seasons in California's history². To contextualize how wildfire hazards already impact California's facilities, consider that 1 in 5 California children were affected by wildfire-related school closures during the 2018-2019 school year³.

The California Natural Resources Agency (CNRA), and its boards and departments, is the State agency primarily responsible for taking actions to reduce wildfire risk and severity. CARB staff work closely with CNRA in a number of ways⁴:

- Through our California Climate Investments (CCI) program, we work with CNRA to identify forest management strategies that improve forest health, lead to long-term carbon sequestration, and reduce the risk of wildfire. We work with CNRA to assess the GHG benefits from these actions. Some of the projects funded through the CCI program include land conservation and management, fuels reduction, prescribed fire, advanced technology biomass utilization, support for alternative wood products from forest residue, and others.
- Through policy and technical coordination on forest carbon accounting.
- By working with air districts and land managers to increase opportunities for prescribed fire, which is an important forest management tool.
- By supporting and encouraging prescribed burning across the state when meteorological conditions are conducive to burning with minimal impact on air quality to mitigate the effects of wildfire.
- Through collaboration in developing inventories and modeling capabilities to better understand current and future wildfire impacts and emissions for scientific and policy development needs.

1 https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf

2 <https://www.fire.ca.gov/incidents/2017/> ; <https://www.fire.ca.gov/incidents/2018/>

3 <https://calmatters.org/projects/california-school-closures-wildfire-middleton-paradise-disaster-days/>?

4 <https://ww2.arb.ca.gov/sites/default/files/classic/cc/inventory/Wildfire%20Emissions%20FAQ%202022.pdf>

Table 1.6: Top 5-10 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)
NO FACILITIES AT RISK	N/A

Table 1.7: Top 5-10 Facilities that will be Most Impacted by Projected Changes in Wildfire by Acres Burned

Facility Name	Acres Burned (1961-1990)	Acres Burned (2031-2060)	Acres Burned (2070-2099)
SCHQ	24.463	5.189	3.212

Planning Outline PO1:e: Plan for Mitigating Wildfire Risk by Acres Burned for Top 5-10 Facilities Most at Risk

Facility Name	Plan 2023-2030
HSL	No plan due to decommissioning & sale of the building
SCHQ	No plan

Understanding Climate Risk to Planned Facilities

Tables 1.8: a-g: Climate Risks to New Facilities

a.1 Annual Mean Max. Temperature

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)	<u>Annual Mean Temp. (2070-2099)</u>	<u>Change from Historical to Annual Mean Temp (2070-2099)</u>
NO NEW FACILITIES	N/A	N/A	N/A	N/A	N/A

a.2 Annual Mean Min. Temperature

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)
NO NEW FACILITIES	N/A	N/A	N/A	N/A	N/A

b. Annual Mean Max. Precipitation

Facility Name	Annual Mean Maximum Precipitation (1961 – 1990) (in/yr.)	Annual Mean Precipitation (2031 – 2060) (in/yr.)	Extreme Precip (1961-1990) (in/day)	Extreme Precip (2031-2060) (in/day)
NO NEW FACILITIES	N/A	N/A	N/A	N/A

c. Largest Increase in Extreme Heat Events

Facility Name	Extreme heat threshold (EHT) °F	Average number of days above EHT (1961-1990)	Average number of days above EHT (2031-2060)	Increase in number of days above EHT
NO NEW FACILITIES	N/A	N/A	N/A	N/A

d. Sea Level Rise

Facility Name	Area (California Coast, San Francisco Bay, Delta)	Sea Level Rise 0.0 m	Sea Level Rise 0.5 m	Sea Level Rise 1.0 m	Sea Level Rise 1.41 m
NO NEW FACILITIES	N/A	N/A	N/A	N/A	N/A

e. Wildfire Risks by Fire Hazard Severity Zone

Facility Name	Current Fire Hazard Severity Zone (low, medium, high, very high)
NO NEW FACILITIES	N/A

f. Wildfire Risk by Acres Burned

Facility Name	Acres Burned (1961-1990)	Acres Burned (2031-2060)
NO NEW FACILITIES	N/A	N/A

g. Risk from HDDs/CDDs

Facility Name	Heating/Cooling Degree Days (1961-1990) (HDD/CDD)	Heating/Cooling Degree Days (2031-2060) (HDD/CDD)
NO NEW FACILITIES	N/A	N/A

Understanding the Potential Impacts of Facilities on Communities

Table 1.9: Facilities Located in Disadvantaged Communities

Facility Name	CalEnviroScreen Score	Is it located in a disadvantaged community? Yes/No
HSL	100	Yes
SCHQ	98	Yes

SCHQ has incorporated natural infrastructure solutions to benefit users and the surrounding community. These include cool roofs and PV canopies which were installed throughout the facility and parking areas, and native tree and vegetation landscaping for the surrounding campus path, inner courtyard, and visitor entry.

CARB also signed Memorandums of Understanding (MOUs) with seven key educational partners in the Riverside area to promote learning and awareness of California's clean air efforts and develop a range of educational and learning opportunities for students at its new SCHQ.

CARB re-signed updated MOUs with the University of California, Riverside, Riverside Community College District and the Riverside Unified School District.

New MOUs were formalized with the Alvorad Unified School District, Cal Baptist University, La Sierra University, and the Riverside County Office of Education.

SCHQ offers expanded capabilities to support the transition to zero or near-zero emissions technology in all areas recognized as mobile sources through rigorous screening and regulatory testing. The mutually beneficial partnerships utilize the facility to offer classes, facility tours and educational opportunities for faculty and students to inspire students at all levels to learn more about air quality, the impacts of climate change and CARB’s efforts to clean the air.

The MOUs also facilitate collaboration for joint air quality and climate change research, promotion of science career pathways, employment opportunities, and training programs for local residents to become scientists and technicians in the environmental arena, all with an emphasis on reaching disadvantaged and underrepresented populations.

Other opportunities include partnerships to develop training programs and delivery of STEM (Science, Technology, Engineering, and Math) courses and other STEM-based career and technical education training programs, as well as development of continuing education and certificates.

Table 1.10: New Facilities and Disadvantaged Communities and Urban Heat Islands

Facility Name	Located in a Disadvantaged Community (yes/no)	Located in an urban heat island (yes/no)
NO NEW FACILITIES	N/A	N/A

Integrating Climate Change into Department Funding Programs

Table 1.11: Integration of Climate Change into Department Planning

Name of Plan	Have you integrated climate?	If no, when will it be integrated?
Achieve zero net carbon emissions from facility operations.	Yes	N/A
Implementation of the Green Power Purchase Agreement for SCHQ.	Yes	N/A
VMT reduction goal through local GHG mitigation plan.	Yes	N/A
Implementation of the Transportation Demand Program.	Yes	N/A

CARB is participating in a Green Power Purchase Agreement (PPA) with Riverside Public Utilities and has installed onsite renewable energy at SCHQ. CARB is planning to implement a transportation demand management (TDM) program to achieve both future year GHG obligations and the VMT reduction target. CARB's TDM program is focused on four key measures: active transportation, bike share, vanpool, and trip reduction outreach.

Climate change integration into department planning process achieved.

Community Engagement and Planning Processes

Table 1.12: 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
Mitigation Plan	Yes	Yes	Yes

Climate change disproportionately impacts vulnerable communities, with certain populations experiencing heightened risk and increased sensitivity to climate change and have less capacity to recover from changing average conditions and more frequent and severe extreme events. Several factors contribute to vulnerability, often in overlapping and synergistic ways. These can include a number of social and economic factors, and be determined by existing environmental, cultural, and institutional arrangements. Vulnerable

populations can include, but are not limited to, people living in poverty; people with underlying health conditions; incarcerated populations; linguistically or socially isolated individuals; communities with less access to healthcare or educational resources; or communities that have suffered historic exclusion or neglect.

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

California is required to invest certain funding streams in disadvantaged communities (DACs). Many state programs that have DAC funding requirements use CalEnviroScreen, a tool that ranks census tracts based on a combination of social, economic, and environmental factors, to identify DACs. While it does not capture all aspects of climate vulnerability, it is one tool that is available, and does include several relevant characteristics. The department's facilities located in these communities can contribute or alleviate the vulnerability of these DACs.

Community engagement and planning process achieved.

Climate Change Implementation Planning in Funding Programs

Table 1.13: Climate Change Implementation Planning in Department Funding Programs

Name of Grant or Funding Program	Have you integrated climate change into program guidelines? 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/No
NO FUNDING OR GRANT PROGRAMS	N/A	N/A	N/A	N/A

Measuring and Tracking Progress

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

CHAPTER 2 – ZERO-EMISSION VEHICLES

Department Mission and Fleet

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

CARB encompasses a very diverse fleet. Vehicles are utilized differently depending on the Program/Division. CARB's mission is to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy. All of the vehicles in CARB's fleet are important in helping CARB achieve its mission. CARB's fleet is comprised primarily of pickup trucks or SUVs that are used by CARB employees who conduct work in the field to help reduce air pollutants. Many of the other vehicles are used as pool vehicles to assist with conducting tests, carrying equipment and tools, and assisting staff with navigating through unique terrain.

The work that CARB field staff conducts is very diverse. Some vehicles must be large enough to carry or tow test equipment, such as mobile labs that conduct quality assurance testing on remote Air Quality Monitoring stations. Other vehicles need the cargo space of a pickup truck or SUV to carry liquid nitrogen tanks to conduct vapor recovery testing throughout the state. Some vehicles are equipped with emission testing equipment and can be parked in various communities to test roadside emissions. Fewer vehicles are used by office staff as pool vehicles or Enforcement Division staff to travel for enforcement compliance programs, but most CARB vehicles are used for purposes directly for CARB's air pollutant reduction efforts. Graph 2.1 below illustrates the composition of CARB fleet vehicles as of September 2023.

Graph 2.1: 2023 Composition of Vehicle Fleet

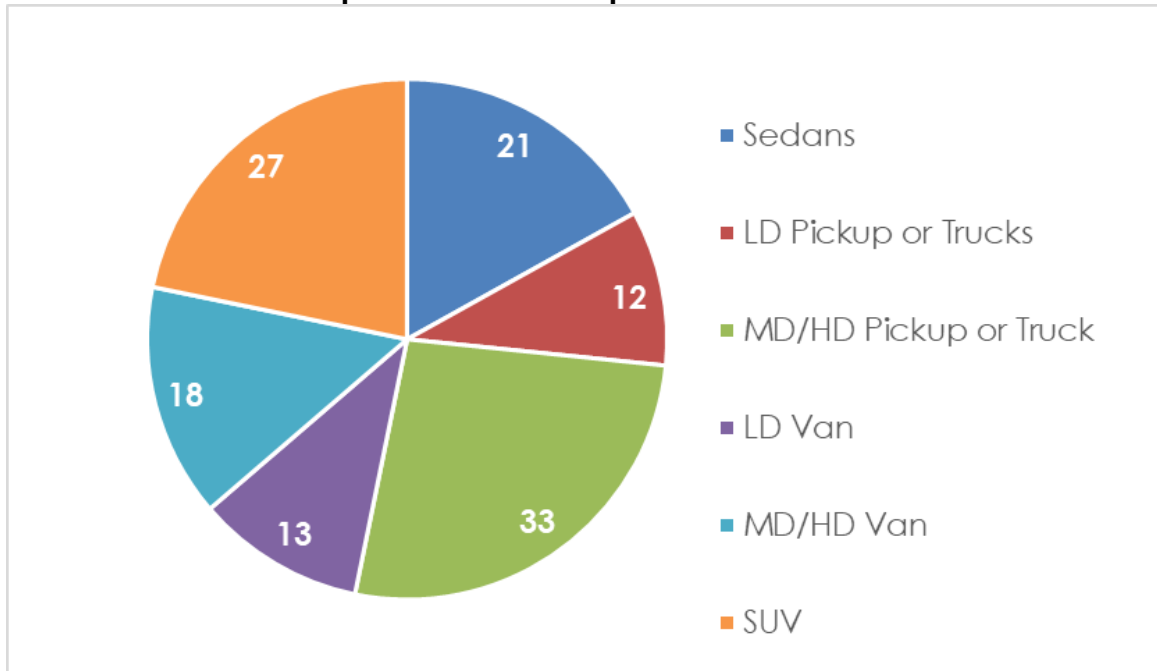


Table 2.1: Total Fuel Purchased in 2021/2022

Year	Diesel (Gallons)	Gasoline (Gallons)	Renewable Diesel (Gallons)
2021	2,325	30,210	0
2022	1,207	33,560	26

CARB does not currently have a policy in place regarding fuel type. The CARB fleet unit will work internally with other CARB programs to understand the different types of fuels available for our fleet and introduce a fuel policy that aligns with CARB's mission of reducing air pollutants throughout the state. The CARB fleet unit intends to transition to BEV vehicles as quickly as possible thereby reducing the need for fuel. When BEVs are not an option, Plug-in Hybrid Vehicles (PHEV) are preferred. When PHEV are unavailable, Hybrid is preferred over Internal Combustion Engine (ICE). When selecting ICE vehicles, CARB attempts to acquire the most fuel-efficient vehicles that allow operations to continue. The CARB fleet unit has looked into Hydrogen Fuel Cell Vehicles (HFCV), however the small number of models of HFCVs, and limited fueling infrastructure has led the fleet unit to prefer BEVs over HFCVs. The nature of the work performed by staff in the field varies significantly and at times may require MD or HD vehicles to tow or carry testing equipment. The limited model availability on the statewide contract has been the only limitation on acquiring more BEV or PHEV vehicles.

Rightsizing the Fleet

Teleworking, Mission Changes, and Technology Changes

CARB has no mission changes.

Telework has significantly influenced travel distances, thanks to CARB's adoption of new technology enabling staff to attend meetings remotely. However, as we transition further from the Covid era, operations are gradually intensifying, leading to increased demand for vehicles within the agency. Work that CARB field staff complete, such as emission testing, cannot be conducted remotely.

However, CARB is currently conducting a thorough assessment of its entire vehicle fleet to pinpoint any underutilized vehicles that could be reassigned within the agency. COVID brought a new telework option to many staff at CARB. CARB began utilizing Microsoft Teams for remote meetings. This technology has led to a reduction in use of pool vehicles. This has impacted CARB's fleet purchasing plan. All vehicles on the two most recent FAPs have been for field or program use instead of pool vehicles. Pool vehicles that are underutilized have been redirected to other programs to use in the field when feasible. This initiative aims to cut costs, enhance the acquisition of ZEVs, and upgrade older, high-mileage equipment to ZEVs.

This analysis includes determining if reallocating vehicles will reduce CARB's fleet emissions. Most of CARB's pool vehicles are still ICE vehicles. If an ICE vehicle is underutilized and meets the age threshold to be replaced, CARB plans replace them with ZEVs for field staff as swiftly as possible to eliminate ICE vehicles from our fleet.

Telematics

Implementation Status

CARB placed its telematics policy into effect in 2021. Telematics will provide data that will allow more efficiency in fleet utilization and procurement. With more data, CARB can ensure the correct vehicles are being purchased for divisions and programs. It will also add accountability for utilizing charging opportunities when they are available. In April 2022, CARB installed telematics devices on 84 of its vehicles, comprising 87.5 percent of its fleet vehicles that were operational and not expected to be surveyed out in the near future.

After CARB's initial telematics device installations were completed, a statewide hold was put on telematics device installations due to concerns over the installation method. Once an installation is finalized and approved by the State,

CARB will install telematics devices on its remaining fleet equipment. In the meantime, CARB has been working with our telematics vendor and fuel card vendor to interface our two programs to provide better tracking of miles and fuel efficiency. CARB expects this integration to be complete by the end of 2023.

Once our telematics and fuel card data are integrated, CARB plans to use this information to prioritize replacement of lower MPG vehicles with ZEV vehicles over higher MPG vehicles in situations where all ICE vehicles are unable to be replaced. Replacing lower MPG vehicles aligns with CARB's mission. Further, PHEV charging data will be analyzed to ensure programs are fully utilizing PHEV electric capability to minimize gasoline consumption.

Existing Fleet Description

Light Duty Fleet Vehicles

CARB's light duty fleet is comprised of 60 vehicles. The light duty fleet vehicles are used by various divisions and programs for many duties and functions including but not limited to, transportation and towing of equipment; investigations; surveillance; various enforcement activities; and inspections. The vehicles are driven statewide in cities and rural areas, on paved roads, highways, as well as rough and rugged terrain. Most of the employees that utilize these vehicles are staff that conduct work in the field. CARB has engineers and specialists that sometimes make long trips while others work in a city environment requiring multiple shorter trips during the day and throughout the week. Many of the divisions and programs are located in satellite offices around the city and utilize light duty fleet vehicles as pool vehicles to make trips to headquarters or other CARB sites.

Table 2.2: Total Miles Traveled

Year	2017	2018	2019	2020	2021	2022
Miles Traveled	1,005,607	847,010	735,740	560,272	626,593	671,846

CARB's mileage was in decline from 2017-2019 mostly due to the large project of moving CARB's Southern California headquarters from El Monte to Riverside. Staff based out of El Monte that were typically in the field spent more time on site in planning and preparedness meetings. In 2020, mileage dropped significantly due to the Coronavirus (COVID-19) shutdown. As operations are

resuming, mileage is increasing again.

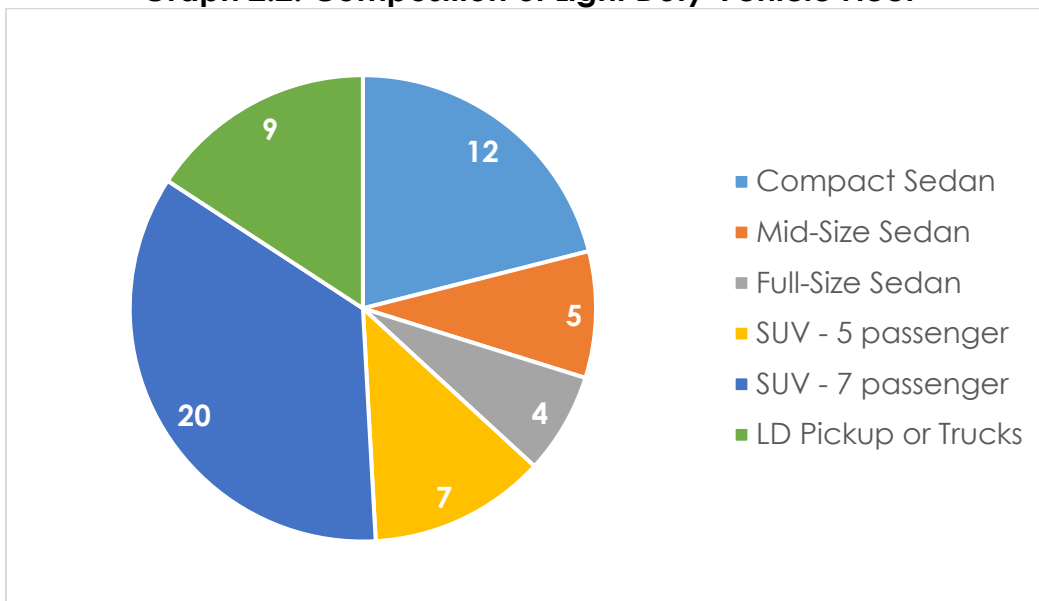
The biggest impact to overall mileage has been the advent of telework and better Information Technology infrastructure. This led to less travel in pool vehicles by staff that used to drive to off-site meetings. CARB's fleet unit will use telematics data to review mileage trends or anomalies to understand why vehicles are being used, especially pool vehicles, to see if other options are available to reduce mileage, such as meeting remotely instead of driving to meetings.

Table 2.3: Miles per Gallon

Year	2017	2018	2019	2020	2021	2022
MPG	23.08	23.04	25.69	27.96	28.29	31.82

Over time the average miles per gallon (MPG) of CARB vehicles has steadily gone up year over year since 2018. CARB attempts to acquire the most fuel-efficient vehicles that allow daily operations to continue. CARB will continue to acquire vehicles based on priority of BEV first, PHEV second, Hybrid third, and ICE as a last resort. CARB is currently working with our telematics vendor and fuel card vendor on integration to better track mileage and fuel trends to help determine the best vehicle models to purchase. As more models are made available, ranges increase, and charging infrastructure grows throughout the state, CARB anticipates MPG to increase at an even higher rate in the near future.

Graph 2.2: Composition of Light Duty Vehicle Fleet



Light Duty Take-Home Vehicle Fleet Status

Table 2.4: “Take Home” Vehicle Fleet Status

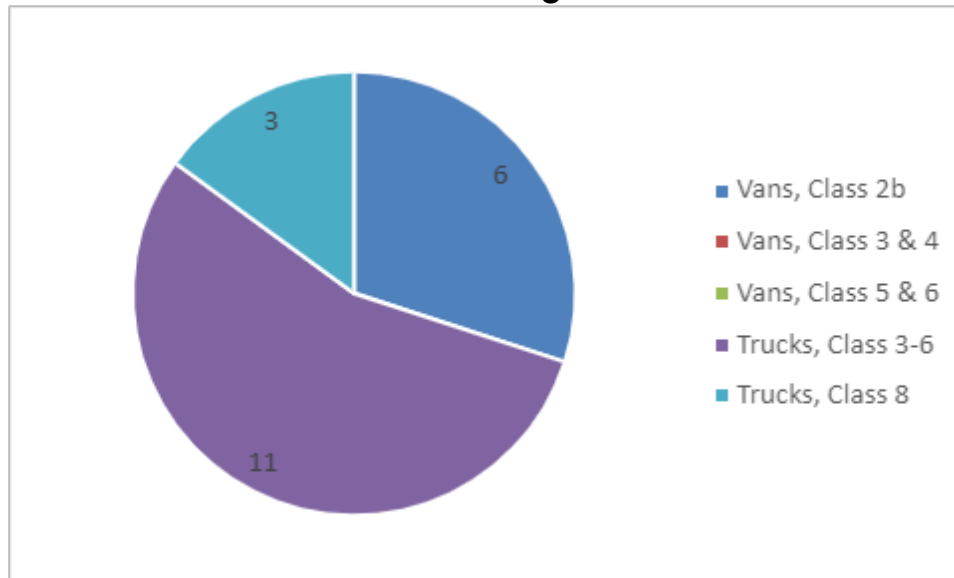
Vehicle Type	Sedans	LD Pickup or Trucks	MD/HD Pickup or Truck	LD Van	MD/HD Van	SUV
Totals	2	4	0	2	2	6

Vehicles that are authorized for home storage, per State Administrative Manual (SAM) Section 4109, are subject to all applicable ZEV purchasing policies. Currently, CARB does not have any ZEV vehicles authorized for home storage. As vehicles authorized for home storage are due for replacement, CARB will take the same approach to replacement vehicles as it does with the rest of its fleet. CARB will work with staff to find the charging opportunities available to staff with vehicle home storage permits, this will be key in finding the correct ZEV that will be utilized. In addition, telematics will assist with providing data on charging and vehicle use.

Currently home storage permits are mostly assigned to field staff conducting manufacturer laboratory testing and audits, roadside heavy-duty diesel inspections, and to travel to air monitoring stations throughout the state. These vehicles are either outfitted with specialize equipment or used to transport equipment requiring larger cargo capacities than sedans. CARB's fleet unit will use telematics data to review mileage trends and days used to work with CARB divisions to determine if vehicles are used for their intended purpose and to examine more fuel or energy efficient options.

Medium and Heavy-Duty Fleet Vehicles

Graph 2.3: Composition of Medium and Heavy-Duty Vehicle Fleet Subject to the ZEV First Purchasing Mandate



Incorporating ZEVs into the State Fleet

Light-Duty ZEV Adoption

Table 2.5: Light Duty Vehicles in Department Fleet Currently Eligible for Replacement

# of Vehicles eligible for replacement	Sedans	LD vans	LD Pickups	SUVs, 5 passengers	SUVs, 7 passengers	SUVs, 8 passengers	Total
Total	3	1	5	1	2	0	12

Table 2.6: Plan for Light Duty ZEV Additions to the Department Fleet

ZEV Category	21/22	22/23	23/24	24/25
Battery Electric Vehicle (BEV)	5	5	12	7
Plug-in Hybrid Vehicle (PHEV)	2	0	0	0
Fuel Cell Vehicle	0	0	0	0

Percent of total purchases	35%	100%	100%	100%
Required ZEV Percentage	35%	40%	45%	50%
Total number of ZEVs in Fleet*	4	7	19	26

A widespread shift to ZEVs is essential for California to meet its GHG emission goals. State departments are now required to incorporate and prioritize a larger number of light-duty ZEVs in their vehicle fleets. Starting in Fiscal Year (FY) 2017-18 the percentage of new light duty vehicles that must be ZEVs began increasing by 5 percent each year, reaching 25 percent in FY 2019-20 and 50 percent in FY 2024-25.

CARB anticipates utilizing ZEVs for all aspects of its fleet, mostly for field work, but also for general travel, and occasionally pool vehicles. Previously, CARB BEVs were used for short trips around the city due to their mileage range. The main challenge in incorporating more BEVs used to be their mileage range. Vehicles that would be most beneficial to CARB's fleet are SUVs, Pickups, or Vans due to their larger cargo capacities and 4-wheel drive options. Most field staff for CARB are conducting investigations or testing related to emissions and air quality. This requires large and heavy equipment that can be transported in our vehicles, often in remote areas and rugged terrain.

As mileage range and availability of 4-wheel drive models has increased, CARB has started requesting more BEVs to replace light duty vehicles through its fleet. This includes vehicles used by field staff and vehicles that travel to remote locations throughout the state. In 2022 the Ford F-150 Lightning was incorporated into CARB's fleet acquisition plan, and it has many of the options that are necessary for CARB's staff to complete their work duties.

PHEVs were easier to incorporate due to having an electric motor and a gas engine. PHEVs do not have the same mileage limitations that BEVs do. Recently, CARB procured a few PHEV Prius Prime sedans on their fleet acquisition plan. This was not CARB's first option. CARB originally intended to procure BEV Chevrolet Bolts, but they were discontinued. These were the only ZEV sedans available on the statewide fleet contract, which forced CARB into acquiring PHEVs instead. This example illustrates some of the challenges CARB has faced in implementing BEVs into its fleet more quickly. PHEVs may continue to play an important role in CARB's fleet as we await more BEV options.

Vehicles that meet specified mileage and age thresholds are eligible for replacement. Currently ZEVs are available on a statewide commodity contract

in a range of light duty vehicle categories. In FY 2021-22, CARB requested sixteen light duty replacements, which includes five BEVs and four PHEVs. In FY 2022-23 CARB requested five light duty replacements and all five were BEVs, but two were switched to PHEV due to discontinuation of the BEV model on the statewide contract.

As range and options and continually improving, BEVs and PHEVs are increasingly becoming options to meet all of CARB's needs. On the 21-22 FAP, 4-wheel drive SUV options were necessary and only PHEVs meet the criteria determined by the owning division. The CARB fleet unit is looking into other options such as external battery packs to augment current statewide contract options in an effort to expand ZEV options available to meet CARB's needs. With this approach, CARB does not anticipate having any issues acquiring ZEVs that can meet our needs.

Vehicles that are authorized for home storage, per SAM Section 4109, are subject to all applicable ZEV purchasing policies. Currently, CARB does not have any ZEV vehicles authorized for home storage. As vehicles authorized for home storage are due for replacement, CARB will take the same approach to replacement vehicles as it does with the rest of its fleet. CARB will work with staff to find the charging opportunities available to staff with vehicle home storage permits, this will be key in finding the correct ZEV that will be utilized. In addition, telematics will assist with providing data on charging and vehicle use.

Medium- Heavy-Duty ZEV Adoption

Table 2.7: MD/HD Vehicles in Department Fleet Currently Eligible for Replacement

Vehicle Type	Vans, Class 2b	Vans, Class 3 & 4	Vans, Class 5 & 6	Trucks, Class 3-6	Truck, Class 8	Total
Totals Eligible for Replacement	0	6	0	11	3	20

Table 2.8: Planned Medium/Heavy Duty ZEV Additions to the Department Fleet

Table Header Format	21/22	22/23	23/24	24/25	25/26
Battery Electric Vehicle (BEV)	0	1	9	7	13
Plug-in Hybrid Vehicle (PHEV)	0	0	0	0	0
Fuel Cell Vehicle	0	0	0	0	0

Percent of total purchases	0	33%	100%	100%	100%
Total number of ZEVs in Fleet	0	1	10	17	30

CARB's medium and heavy-duty vehicles are made up of mostly trucks and pickups. Most programs and divisions utilize these larger vehicles for field work because it allows them to transport more staff, includes larger cargo space, and features towing capabilities. These vehicles are also used all over the state and are driven in various conditions. They operate on highways, paved and unpaved roads, rough terrain, and in conditions that require 4-wheel drive. Most of the staff that drive these vehicles use them daily for both long and short trips depending on the need for that day.

Similar to the light-duty purchasing policy above, the adoption of MD/HD ZEVs is essential to meet GHG emission reduction goals. As of July 2020, SAM section 4121.9 requires state agencies to prioritize the purchasing of MD and HD ZEV vehicles into their fleet.

Vehicles that meet specified mileage and age thresholds are eligible for replacement. Currently, ZEVs that are available on statewide commodity contracts are the Class 2B, Class 3, Class 4, Class 5, Class 6, and Class 8. CARB is committed to incorporating MD and HD ZEVs whenever feasibly possible. Most CARB MD and HD vehicles are used for towing and transporting large items. Programs and divisions drive these vehicles throughout California, often in rough terrain that requires 4-wheel drive. The challenge with incorporating MD and HD BEV has come down to limited availability in the MD and HD categories.

Since travel of most MD and HD vehicles is extensive, staff would need a vehicle that could reach the destination where work is to be completed. On CARB's 2022-23 Fleet Acquisition Plan, CARB requested two MD vans and one HD truck. There were no BEV, PHEV, or Hybrid trucks in the two-ton category that could haul equipment and tow a heavy trailer to off-site construction sites. While a BEV MD van was available, the maximum range under ideal conditions was 108 miles. These vans are used to test AMS throughout the state and sit idling with staff inside for six hours while testing is conducted. Equipment in the van and idling with heater or air conditioner on reduces the range even further. The appropriate size van needed to transport Air Monitoring Station audit equipment was not available in BEV or PHEV that met the mileage requirements determined by the owning division when accounting for the testing time and battery drain. As such, CARB ordered one BEV MD Van to conduct these tests on stations that

are within range, and one ICE MD Van for stations outside of the calculated range.

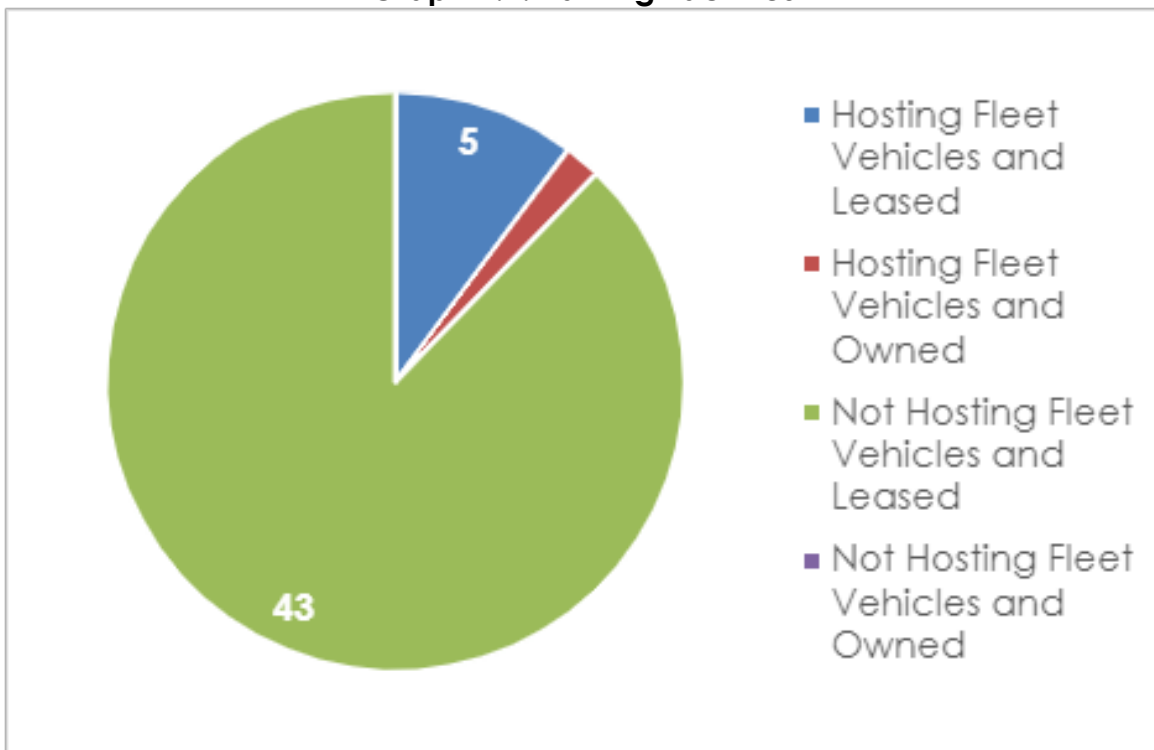
Due to this factor, CARB was unable to purchase two BEV vans. CARB purchased one BEV van and one ICE van. The BEV van will be the primary testing van and taken to test sites whenever possible. The ICE van will be utilized only when needed for more remote stations. As seen with the light-duty vehicles, this example illustrates some of the challenges CARB has faced in implementing MD and HD BEVs into its fleet as quickly as CARB would like. However, much like with CARB's LD fleet, the CARB fleet unit is looking into other options such as external battery packs to augment current statewide contract options in an effort to expand ZEV options available to meet CARB's needs. With this approach, CARB does not anticipate having any issues acquiring ZEVs that can meet our MD and HD needs.

ZEV Public Safety Exemption

CARB does not have a public safety function and therefore does not have sworn officers.

Department's Parking Facilities

Graph 2.4: Parking Facilities



CARB does not have any parking facilities. CARB mainly operates environmental laboratories, field AMS, and a few office locations throughout the state. For sites that have a parking lot, the parking is mainly utilized by employees and fleet vehicles. Fleet, employee, and visitor parking lots are physically separated at CARB's locations and all field AMS locations provide a parking spot for the field tech only on a weekly basis. CARB owns HSL in El Monte, California and SCHQ in Riverside, California.

Currently, three percent of CARB's facilities are state-owned, and 97 percent are leased.

Table 2.9: Status of EV Charging Projects

Facility Name	Total Parking Spaces	Existing L1 Charging Ports (2022)	Existing L2 Charging Ports (2022)	Existing L3 Charging Ports (2022)	Total Charging Ports (2022)	EV Charging Ports Needed by 2025
SCHQ	506	52	44	2	98	90
Total	506	52	44	2	98	90

Table 2.10: 2022 EV Charging Infrastructure Site Assessments Conducted

Facility Name	L1 EVSE Project Assessments	L2 EVSE Project Assessments	L3 EVSE Project Assessments	Entity that Conducted the Site Assessment
SCHQ	0	0	0	0
Total	0	0	0	0

CARB is committed to accelerating the adoption of EVs in the state of California as a critical strategy to reduce GHG emissions and air pollutants. To support this goal, CARB is developing a comprehensive plan for designing, bidding, constructing, and activating EV charging infrastructure across the state.

CARB's approach to EV charging infrastructure deployment begins with a robust design process that emphasizes collaboration and strategic placement with DGS's support. Recognizing the importance of accessibility, CARB will actively engage with DGS to identify optimal locations for EV charging stations. This collaborative effort ensures that charging stations are strategically placed in areas accessible for our staff to charge their EV vehicles.

CARB is working to identify the number of charging ports needed to support our anticipated fleet and staff charging needs, and consult with DGS to understand

technical requirements, funding through the CA Public Works process, and to foster a clear understanding of the expectations and standards for the project(s).

On-going EVSE Charging Operations and Maintenance

Public EV Charging Policies

CARB does not currently have a public charging policy in place.

CARB remains unwavering in its commitment to accelerate the adoption of EVs as a pivotal strategy to mitigate GHG emissions and improve air quality.

In line with this commitment, the Fleet and Assets Unit within CARB has embarked on a significant initiative: the research, development, and implementation of a comprehensive Public EV Charging Policy. This policy aims to set a robust standard for other state agencies to follow, ensuring that the adoption and usage of EVs are seamlessly integrated into the state's transportation infrastructure.

The core principle guiding the development of this Public EV Charging Policy is equitable access. CARB recognizes that accessibility to EV charging infrastructure is paramount in driving widespread EV adoption, making it a cornerstone of the policy. CARB envisions an EV charging landscape where all Californians have equal and convenient access to charging stations, enabling them to make the transition to electric mobility with confidence.

Furthermore, CARB's commitment to fiscal responsibility and public benefit plays a pivotal role in shaping this policy. While the policy encourages equitable access, it also recognizes the importance of managing costs efficiently and ensuring that the allocation of resources aligns with the best interests of the public. This dual focus on fiscal responsibility and public benefit underpins CARB's dedication to creating a policy that not only advances sustainability but also respects the financial considerations of state agencies and taxpayers.

As part of the policy development process, the Fleet and Assets Unit within CARB is collaborating with experts, stakeholders, and state agencies to gather insights, best practices, and feedback. By leveraging a diverse range of perspectives, CARB seeks to create a policy that is informed, comprehensive, and adaptable to the evolving landscape of electric mobility.

This policy will not only set standards for public EV charging within state agencies but also serve as an example for other entities across California. CARB envisions the policy as a catalyst for driving change beyond its immediate sphere of influence, inspiring the adoption of similar policies by other organizations and agencies throughout the state.

In conclusion, CARB's dedication to fostering a sustainable transportation ecosystem in California remains steadfast. By researching, developing, and implementing a Public EV Charging Policy that upholds the principles of equitable access, fiscal responsibility, and public benefit, CARB aims to pave the way for a future where electric vehicles play a central role in reducing emissions and improving air quality. Through collaboration, innovation, and leadership, CARB continues to lead the charge toward a cleaner and greener California.

Employee EV Charging Policies

CARB does not currently have an employee charging policy in place.

CARB recognizes that sustainable change starts from within. CARB's Fleet and Asset Unit is crafting an Employee EV Charging Policy to encourage EV adoption among its workforce while exemplifying environmental commitment.

CARB, dedicated to reducing emissions, understands the need to translate its mission into practice. By facilitating employee EV adoption, CARB sets an eco-conscious example and promotes a greener future.

Collaboratively, CARB's Fleet and Asset Unit is developing this policy, engaging employees and facility managers to align it with CARB's vision while catering to its diverse community's needs.

Steps in Policy Development:

1. **Stakeholder Engagement:** The Fleet and Asset Unit is actively involving employees, facility managers, and sustainability experts to gather insights and perspectives, ensuring a policy that is inclusive and effective.
2. **Equitable Access:** Ensuring equal access to EV charging stations for all employees, transcending roles and fostering a culture of sustainable transportation.
3. **Guiding Responsible Practices:** The policy will outline norms for charging times, behavior, and cooperative usage practices that reflect CARB's culture of shared responsibility.

4. Operational Efficiency: Designated charging times and procedures will be established, integrating EV charging seamlessly into daily routines while minimizing disruptions.

5. Promoting Sustainability: The policy will champion employee participation in CARB's carbon reduction goals through EV adoption, embodying CARB's mission.

6. Public Benefit and Fiscal Responsibility: The policy will harmonize CARB's commitment to environmental sustainability. We will ensure that CARB adheres to the fiscal laws and guidelines while adhering to legal and ethical standards.

CARB envisions a culture where employees are stakeholders in sustainability, catalyzing a mindset shift beyond charging to holistic environmental stewardship.

Fleet EV Charging Policies

CARB does not currently have fleet EV charging policies.

The Fleet and Assets Unit is diligently crafting robust policies to govern EV charging within the fleet. Their efforts involve a thorough examination of existing policies, drawing inspiration from the practices of other agencies. With the goal and principles of fairness and equity for employees, the public, and our fleet vehicles alike.

The Fleet and Assets Unit has set a target to present a draft policy for review by the second quarter of 2024. This timeline underscores their commitment to delivering tangible results and marks a pivotal step toward a more sustainable future for our fleet.

Hydrogen Fueling Infrastructure

CARB does not currently have hydrogen fuel plans.

CARB has always been at the forefront of innovation and environmental stewardship. As we steer towards a greener future, it is essential to clarify why CARB prefers EV charging over hydrogen as the primary choice for our workplace and fleet charging needs.

First and foremost, the preference for EV charging is grounded in its proven efficiency and convenience. Electric vehicles have witnessed a remarkable surge in popularity and technological advancements. Their widespread adoption is not only more practical but also significantly more accessible for the general public and our fleet vehicles alike. EV charging infrastructure is already well-established and continuously expanding, ensuring that EVs are a readily viable option for our department.

Furthermore, the environmental impact of EVs is a compelling factor in our preference. The reduction in GHG emissions achieved through the use of EVs is a crucial contributor to our sustainability goals. As we seek to mitigate the effects of climate change, EVs align seamlessly with our mission to promote clean and sustainable transportation solutions.

Moreover, the safety aspect plays a pivotal role in our choice. The handling and storage of hydrogen as a fuel source pose unique challenges and safety concerns. By prioritizing EV charging, we can minimize potential risks and ensure the well-being of our employees, the public, and our fleet vehicles.

Cost-effectiveness is another significant advantage of EV charging. EVs tend to be more cost-efficient in terms of both fuel and maintenance expenses. This translates into long-term savings for our department, allowing us to allocate resources more efficiently to other sustainability initiatives.

Additionally, prioritizing EV charging aligns seamlessly with Governor Newsom's broader vision for a sustainable, thriving California.

In conclusion, while hydrogen holds promise as an alternative fuel source, CARB's preference for EV charging is driven by practicality, environmental considerations, safety, cost-effectiveness, and the existing infrastructure.

CHAPTER 3 – ENERGY

Department Mission and Building Infrastructure

CARB's mission is to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy. CARB is the lead agency for climate change programs and oversees all air pollution control efforts in California to attain and maintain health-based air quality standards. CARB operates the HSL located in El Monte, California. HSL is approximately 54,000 square feet in total space.

SCHQ is in Riverside, California and as of April 2023, all personnel and operations have been relocated to this facility. This facility is approximately 402,000 square feet on a 19-acre campus. Additionally, CARB occupies 51 sites; two State-owned and 49 leased throughout the state. Of the leased sites, 38 are solely AMS, two are AMS with attached offices/labs, and nine sites support an array of vehicle testing, warehouses, research, planning, enforcement, chemical laboratories, support services, and administrative needs. SCHQ has greatly increased CARB's total building area. Even though overall energy use has increased, SCHQ is more efficient than the existing HSL.

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	1,862,162	kWh	1,353,699	7,584,025	307%
Less EV Charging	NO DATA	kWh			No baseline
Natural Gas	32,427	therms	27,457	17,853	-45%
Propane	NO DATA	gallons			No baseline
Fuel Oil	NO DATA	gallons			No baseline
Steam	NO DATA	pounds			No baseline
Chilled H2O	NO DATA	kBtu			No baseline
TOTALS	9,596,397	kBtu Site	7,364,521	27,661,964	188%

Department Energy Use

Table 3.2: Properties with Largest 2022 Energy Consumption

Building Name	Floor Area (ft ²)	Site Energy (kBTU)	Source Energy (kBTU)	Source EUI (kBTU/ft ² -yr)
SCHQ	402,604	42,962,624	135,332,266	336
HSL	54,000	5,612,201	14,000,778	259
Total for Buildings in This Table	456,604 ft²	48,574,825 kBTU	149,333,044 kBTU	---
Total for All Department Buildings	456,604 ft²	27,661,964 kBTU	83,457,531 kBTU	---
% of Totals	100%	100%	100%	---

*Lists the energy-consumption for CARB's owned facility.

Planning Outline PO3a: Planning for Buildings with Largest Energy Use

Building Name	Proposed Energy Efficiency Solutions
SCHQ	New facility meets efficiency targets, is ZNE, and zero carbon
HSL	No Plan, building will be removed from CARB portfolio in 2024

CARB has faced many challenges due to the age of HSL. It was not cost effective to retrofit the facility to meet ZNE goals. The new SCHQ was designed to support the state's climate initiatives and demonstrate the highest standards of sustainable practices. SCHQ integrates sustainable and energy-efficient measures throughout. The facility was designed to achieve LEED Platinum certification, CALGreen, and was designed to be ZNE and zero carbon.

Zero Net Energy (ZNE)

Table 3.3 Zero Net Energy Buildings

Status of ZNE Buildings	Number of Buildings	Floor Area (ft ²)	% of Building Area
Buildings Completed and Verified	1	402,604	100%
Building in Design or Under Construction	0	0	0
Building Proposed for Before 2025 (but not yet in design)	0	0	0
Addtl. Exist. Bldg. Area within 15% of ZNE target EUI and have EE projects planned	0	0	0
Totals for ZNE Buildings by 2025	1	402,604	100%
Totals for All Department Buildings by 2025	2	456,604	88.17%
% ZNE by 2025	1	402,604	100%

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

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

At 402,000 square feet, SCHQ is the largest ZNE laboratory in the United States. This campus provides 50 percent of CARB's ZNE portfolio requirement which is needed by 2025. Some of the energy-saving methods employed include:

- Chilled beam air conditioning in the office areas
- Automated lighting control
- Building management system that monitors the building's vital operations for problems and to maintain its "green" efficiency
- Solar arrays throughout to supply at least 3.5 megawatts of electricity
- Battery back up
- Central plant for chilled water
- Integrating sustainability and efficiency measures for regenerative dynamometers
- Orienting the light-duty lab wing perpendicular to predominant wind direction to reduce the possibility of testing exhaust being drawn back into the building
- Fresh outdoor air is conditioned via a dedicated outdoor air system to maintain the heating, cooling, and humidity requirements of the testing spaces

- CARB is looking to add long-term renewable energy from the utility to compensate for additional energy requirements beyond on-site generation to help the SQHQ qualify for ZNE.

New Construction Exceeds Title 24 by 15%

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

New Buildings Exceeding Title 24 by 15%	Number of Buildings	Floor Area (ft²)
Completed Since July 2012	1	402,604
Under Design or Construction	0	0
Proposed Before 2025	0	0

All new state buildings and major renovations beginning design after July 1, 2012, must exceed the current California Code of Regulations (CCR) Title 24, energy requirements by 15 percent or more. CARB's 402,000 square foot SCHQ campus exceeds the CCR Title 24.6 energy requirement.

HSL is an older facility, built before 2012, and therefore is not required to exceed T-24 by 15%. This building is scheduled to be sold on or around December 2024.

Existing Buildings Energy Efficiency

Table 3.5: Department-Wide Energy Trends (if available)

Year	Floor Area (ft ²)	Total Source kBTU Consumption	Department Average EUI (Source kBtu /square foot)
Baseline Year 2003	54,000	26,809,991	496
2013	54,000	0	0
2014	54,000	7,654,095	142
2015	54,000	19,837,814	367
2016	54,000	21,813,161	404
2017	54,000	20,104,815	372
2018	54,000	23,139,750	429
2019	54,000	23,131,830	428
2020	54,000	18,610,179	345
2021	54,000	4,618,821	86
2022	456,604	83,457,531	183
% Change 2003-2022	745%	211%	-63%

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

CARB has seen a trend in reduction at HSL due to the pandemic. Teleworking contributed to the overall reduction in energy consumption. CARB has not implemented or completed any energy projects other than focusing efforts on the completion of the ZNE SCHQ.

There are numerous Management Memos and sections of the SAM that provide specific directions and support for this goal, including, but not limited to, the following (note embedded links in [Appendix F](#) to the referenced documents). HSL currently does not have an Energy Management System (EMCS). There is no reporting currently.

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	0	0	0
2022	0	0	0
Total	0	0	0

CARB did not conduct any energy projects for HSL due to its age and plans to decommission and sell the building. SCHQ energy saving projects include:

- Chilled beam air conditioning in the office areas
- Automated lighting control
- Building management system that monitors the building's vital operations for problems and to maintain its “green” efficiency
- On-site use of solar PV panels which supply at least 3.5 megawatts of electricity.
- Battery back up
- Central plant for chilled water
- Integrating sustainability and efficiency measures for regenerative dynamometers
- Orienting the light-duty lab wing perpendicular to predominant wind direction to reduce the possibility of testing exhaust being drawn back into the building
- Fresh outdoor air is conditioned via a dedicated outdoor air system to maintain the heating, cooling, and humidity requirements of the testing spaces.

Energy Audits/Surveys Completed or In-Progress

Table 3.7: Energy Audits/Surveys Completed or In-Progress

Year	Total Department Floor Area (sq. ft.)	Energy Audits/ Surveys Under Way (sq. ft.)	Percent of Department Floor Area
2021	54,000	NONE COMPLETED	N/A
2022	456,604	NONE COMPLETED	N/A

CARB did not conduct any energy surveys for HSL due to its age and future plans to decommission and sell the building. The new SCHQ was designed to be a green building, integrating sustainable and energy-efficient measures throughout. No energy audits/surveys were completed or planned within the 2021-2022 timeframe.

Demand Response (DR)

Table 3.8: Demand Response (DR) Program Participation

DR Program Participation	Number of Buildings	Estimated Available Energy Reduction (kW)	Actual Curtailment (kW)
Number of Buildings Participating in 2021	0	N/A	N/A
Number of Buildings Participating in 2022	0	N/A	N/A
Planned Number of Buildings that will Participate in 2023	0	N/A	N/A
Total Number of Department Buildings	2	N/A	N/A
2022 Department Buildings Participating (Percent)	0 %	0 %	0%

Executive Order B-18-12 directed all state departments are to participate in available DR programs and to obtain financial incentives for reducing peak electrical loads when called upon, to the maximum extent cost-effective. CARB is considering enrolling in DGS' demand response provider, Enersponse, and will be reaching out to discuss curtailment strategy and reduction capabilities at SCHQ.

Renewable Energy

Table 3.9: On-Site and Off-Site Renewable Energy

Status	Number of Sites	Capacity (kW)	Estimated Annual Power Generation (kWh)	Percent of Total Annual ARB Power Use
Current On-Site Renewables in Operation or Construction	1	3,500	6,086,160	78.4%
On-Site Renewables Planned	0	0	0	0
On-Site Renewables Totals	1	3,500	6,086,160	78.4%
Department-Wide Total Energy Use (kWh equivalent)	-	-	7,765,080	-
Current Off-Site Renewables	0	0	0	0
Planned Off-Site Renewables	0	0	0	0
Off-Site Renewables Combined Current & Planned	0	0	0	0
Current Combined On-Site and Off-Site Renewable Energy	1	3,500	6,086,160	0
Additional Planned On-Site and Off-Site Renewables	0	0	0	0

Executive Order B-18-12 requires that new or major renovated State buildings over 10,000 square feet must use clean on-site power generation and clean back-up power supplies, if economically feasible. Facilities with available open land must consider large scale distributed generation through various financing methods, including, but not limited to, third party PPAs.

Although there is no specific kW goal for renewable energy, onsite renewable energy does count towards meeting: (1) ZNE goal for 2025, (2) 20 percent grid-based energy use reduction by 2020, and (3) 100 percent renewable electricity purchases by State agencies by December 31, 2035.

HSL does not have onsite renewable energy due to the age of the facility. SCHQ has onsite PV system that generates at least 3.5 megawatts of electricity.

Monitoring-Based Commissioning (MBCx)

Table 3.10: Current & Potential MBCx Projects

Facility	Building Name	Location	Floor Area (sq. ft.)	EMS Make, Model, Installation/Upgrade	EMS Year	MBCx Capable, Difficult, or No EMS	MBCx Projected Start Date	MBCx Projected Cost (\$ if known)
HSL	Haagen-Smit Laboratory	El Monte	54,000	NO EMS/BMS	N/A	N/A	N/A	N/A
SCHQ	Mary D. Nichols Campus	Riverside	402,604	Tridium/Allerton	2021	Capable	2021	N/A

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

No data is available for Table 3.10 as CARB does not have any planned MBCx Projects for HSL due to its planned removal from CARB's building portfolio in 2024.

SCHQ integrates sustainable and energy-efficient measures throughout. The facility was designed to achieve LEED Platinum and CALGreen certification and was designed to be ZNE. SCHQ has a Tridium/Allerton building management system to monitor the building ZNE.

Building Controls

Table 3.11: Building Controls

Equipment Controls	% of Buildings Controlled Remotely Offsite	% of Buildings with Controls Onsite	% of Total Buildings
Lighting	0%	100%	100%
HVAC: EMS/BMS	0%	100%	100%
HVAC: Smart Thermostats	0%	100%	100%
Other: _____			

HSL is not appropriate for either a smart thermostat or an EMS/BMS. This building is scheduled to be sold on or around December 2024; therefore, no thermostats were installed. SCHQ has installed HVAC smart thermostats.

Energy Reduction Strategies - Best Management Practices (BMPs)

SCHQ was designed and constructed to be a green building for the future. By integrating sustainable and energy-efficient measures throughout, the facility was designed to achieve LEED Platinum and CALGreen certifications and was designed to be ZNE. The energy reduction strategies have been achieved.

CHAPTER 4 - WATER EFFICIENCY AND CONSERVATION

Department Mission and Water Use

CARB's water efficiency and conservation mission is to address water runoff from landscaping and various work processes, the potential for water pollution, the benefits of water infiltration, or soil health and nutrient recycling. CARB operates the HSL located in EL Monte, California. HSL is approximately 54,000 square feet in total space.

CARB also operates SCHQ is in Riverside, California and as of April 2023, all personnel and operations have been relocated to this facility. This facility is approximately 402,000 square feet on a 19-acre campus. These facilities are the only two that are owned by CARB and thus have control over water efficiency and conservation. Water conservation features and water efficient landscaping are used throughout the newly constructed SCHQ facility. The main source of water for landscaping is from water that is reclaimed from cooling towers and storm water runoff. To maximize water conservation all landscaping is on a drip irrigation system that utilizes a smart weather sensing irrigation controller.

Table 4.1: Total Purchased Water

Purchased Water	2021 Quantity	2022 Quantity	2021 Cost (\$/yr.)	2022Cost (\$/ yr.)
Potable	186,800	14,098,600	\$2,996	\$48,671
Recycled Water	0	0	0	0

Table 4.2: Properties with Purchased Largest Water Use Per Capita

Building Name	Area (ft2)	# of Building Occupants	Total 2022 Gallons	Total 2022 Irrigation in Gallons (if known)	Gallons per Capita
HSL	54,000	20	241,700	N/A	12,085
SCHQ	402,604	380	13,856,900	N/A	36,466
Total for Buildings in This Table	456,604 ft2	400	14,098,600		---
Total for All Department Buildings	456,604 ft2	400	14,098,600		---
% of Totals	100 %	100 %	100 %		---

Table 4.3: Properties with Largest Landscape Area Using Purchased Water

Building Name	Landscape Area (ft2)
HSL	16,550
SCHQ	168,387
Total Landscaping area for Buildings in This Table	82,800 ft2
Total Landscaping for All Department Buildings	82,800 ft2
% of Totals that is large landscape	100 %

HSL's landscape area has not created any significant challenges due to its small size and the pending closure and sale of the building.

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
Baseline Year 2010	65	474,232	20
2018	N/A	N/A	N/A
2019	N/A	N/A	N/A
2020	144	194300	4
2021	N/A	2,686,816	N/A
2022	380	16,456,000	118.64

CARB was able to exceed the 20 percent reduction goal from the 2010 baseline required by Executive Order B-18-12 and the 25 percent reduction from the required Executive Order B-29-15 by following water conservation recommendations and guidelines. In 2020 COVID-19 played a big factor in CARB's reduction of water usage as well as the phased operations in preparation for the shutdown of HSL. SCHQ uses a reclaimed water system, drip irrigation, and planted drought tolerant vegetation. Water supplied by the City of Riverside is only required if the reclaim water tank gets too low.

Table 4.5: Total Purchased Water Reductions Achieved in Gallons

Purchased Water Use	2021 Totals (Gallons)	2022 Totals (Gallons)
2010 Baseline totals (Gallons)	474,232	474,232
	186,800	14,098,600
+ or -Gallons Compared to Baseline Year	-287,432	13,624,368
Department- Wide Reduction as a % from 2010 baseline	-61%	2,873%

CARB was able to exceed the 20 percent reduction goal from the 2010 baseline required by Executive Order B-18-12 and the 25 percent reduction from the required Executive Order B-29-15 by following water conservation recommendations and guidelines. In 2020 COVID-19 played a big factor in CARB's reduction of water usage as well as the phased operations in preparation for the shutdown of HSL.

The 2,873% increase in water use from the 2010 baseline is a direct result of the new 402,000 square foot, 19-acre SCHQ campus in Riverside, California, in which all personnel and operations from HSL, including new personnel, transferred to the new SCHQ facility. The 2010 baseline only including HSL and does not include the newly built SCHQ.

Department Indoor Water Use

Fixtures and Water Using Appliances Needs Inventories

Table 4.6: Building Indoor Water Fixtures and Water Using Appliances Needs Inventories Summary

# of toilets to be replaced	# of urinals to be replaced	# of faucet aerators to be replaced	# of showerheads to be replaced *	# of clothes washers to be replaced	# of garbage disposals to be replaced.	# of pre-rinse valves to be replaced
NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA

CARB has faced many challenges due to the age of HSL. It was not cost effective to retrofit or implement water efficiency projects. HSL will be decommissioned and sold on or around December 2024.

SCHQ meets the long-term water conservation goals through several ways for this size of the facility. Low water and drought tolerant vegetation was planted for landscaping. An irrigation drip system utilizing a Smart (weather sensing) irrigation controller to adjust for watering schedule as the weather changes. The facility also uses a reclaim water system.

Water Conservation and Water Efficiency Projects for Purchased Water

CARB has determined it was not cost effective to replace any of the boilers or cooling systems described in the tables below as HSL will be decommissioned and sold on or around December 2024.

CARB constructed a new ZNE facility in Riverside, California.

Table 4.7: Summary of Current Indoor Water Efficiency Projects Completed 2020-Present or In Progress

Completed Projects per Year	Water Saved (Gallons/yr.)	Number of Indoor Water Efficiency Projects Completed	Cost Savings per Year
2020	0	N/A	0
2021	0	N/A	0
2022	0	N/A	0

Planning Outline PO4:a: Building Indoor Water Efficiency Priority Projects for the Next 5 Years

Building Name	Type of Project	Est Water Savings	Est. Start Date
SCHQ	WATER CONSERVATION REQUIREMENTS ACHIEVED	N/A	N/A

HSL will be decommissioned and sold on or around December 2024. SCHQ meets indoor water efficiency requirements and achieved general water management BMP and leak detection and repair BMP. There are no kitchens or laundry facilities.

Department Total Nonpurchased Water

Table 4.8: Department-Wide Nonpurchased Water Use

Year	Groundwater Basin(s) Name	Number of Domestic or Irrigation Wells	Groundwater Use in Gallons	Surface Water Use in Gallons	Total (Gallons/Year)
Baseline Year 2020	NON-PURCHASED WATER NOT USED	0	0	0	0
2021	0	0	0	0	0
2022	0	0	0	0	0

Department Water Energy Nexus Reporting

Table 4.9: Annual Amount of Boiler Makeup Water Used

Boiler Water Use	Year 2021	Year 2022
Amount of Water Used for Makeup (Gallons)	NO DATA	NO DATA
Amount of Water Currently Reused. (Gallons)	NO DATA	NO DATA
Remaining additional water suitable for other purposes (Gallons)	NO DATA	NO DATA
Totals for all Facilities	NO DATA	NO DATA

SCHQ does not use boiler water as reuse because the boiler is a closed loop system.

Table 4.10: Cooling Tower Water Use

Cooling Tower Water Use	Year 2021	Year 2022
Amount of Water Used for Make-up (Gallons)	NO DATA	NO DATA
Totals for all Facilities	NO DATA	NO DATA

HVAC systems are inspected at least annually. HVAC inspections and maintenance are documented in writing. These inspections must ensure that cooling towers are properly maintained and that records of chemical treatment are kept. Cooling towers are retrofitted to prevent plumes closer than 25 feet to any building air intake. SCHQ has four cooling towers. Cooling tower water reuse and cooling towers water use efficiency achieved as SCHQ.

There are no cooling towers located in HSL.

Table 4.11: Summary of Boilers Needs Inventory

Number of meters to purchase and install	Water Treatment	Other
Totals	NO BOILER WATER TREATMENT NEEDS	NO OTHER NEEDS

CARB has determined that it was not cost effective to replace any of the boilers or cooling systems described in the table above as HSL will be decommissioned and sold on or around December 2024.

CARB constructed a new ZNE facility in Riverside, California.

Table 4.12: Summary of Cooling System Needs Inventory

Equipment Needed	Equipment Totals for all Facilities
Meters	NO COOLING SYSTEMS NEEDS
Water Treatment	NO COOLING SYSTEMS NEEDS
Other	NO COOLING SYSTEMS NEEDS

Table 4.13: Summary of Efficiency Projects for Boilers and Cooling Systems

Project Type	Water Saved (Gallons/yr.)	Number of Completed Projects	Number of Projects in Progress
2020	0	0	0
2021	0	0	0
2022	0	0	0

SCHQ building was completed in 2023. SCHQ is designed to be ZNE. The building management system monitors the building's vital operations for problems and to maintain its "green" efficiency.

Department Outdoor Water Use:

Table 4.14: Summary of Outdoor Irrigation Hardware Needs Inventory

Irrigation Hardware Type	Total Hardware Needed
Separate meters or sub-meters	SCHQ has a meter
Irrigation controllers required with weather or soil moisture adjustment and flow sensing capabilities	Irrigation has a weather control sensor
Backflow prevention devices	SCHQ has a backflow device
Flow sensors to be purchased and installed	The irrigation system has a flow sensor
Automatic rain shut-off devices	Irrigation system will shut off if it rains
New pressure regulators	There are pressure regulators
New hydro-zones	Yes
New valves	Yes
Filter assemblies	There are filters of the reclaim skid
Drip irrigation emitters	Yes SCHQ has a drip system
Booster pumps	No
Rotary nozzles or other high efficiency nozzles	No

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

As stated previously, CARB has determined it was not cost effective to replace any of the irrigation hardware inventory described in the table above as HSL will be decommissioned and sold on or around December 2024. SCHQ outdoor irrigation needs include new hydro-zones, new valves, and drip irrigation emitters.

Table 4.15: Summary of Outdoor Hardware Water Efficiency Projects Completed 2020 -Present or In Progress

Year Funded	Water Saved (Gallons/yr.)	Completed Hardware Water Efficiency Projects	Hardware Water Efficiency Projects in Progress
2020	0	0	0
2021	0	0	0
2022	0	0	0

Irrigation Hardware Maintenance is in place for SCHQ. Landscape is maintained through the building and property management contract. Updates to irrigation hardware are complete.

Table 4.16: All Facilities With > 500 sq. ft. of Living Landscape Inventory

Facilities with Landscape >500 Sq.	Total Turf (sq. ft.)	Number Of Historic Sites Or Memorials MWELO Landscape Area (sq. ft.)	Climate Appropriate Landscape Groundwater Basin Name	Irrigation Source is Groundwater (Yes or No)	Irrigation source is Surface Water (Yes or No)
HSL	12,282	0	0	No	No
SCHQ	168,387	0	0	No	No

HSL's current landscape consists of approximately 12,000 square feet of turf and the remaining is soil, trees, and foliage. Due to the planned decommissioning and sale of the building on or around December 2024, CARB has not invested in landscape improvements and at this time does not maintain a landscape budget or a separate facility water budget.

SCHQ's current landscape consists of trees, shrubs, vines, and ornamental grasses. SCHQ does not have any living landscaping water efficiency projects in progress but was designed to have water efficient landscaping throughout the site. Landscape is maintained currently through the building and property management contract.

Planning Outline PO4:b: Planned Projects for Living Landscape Upgrades for the Next 5 Years

Landscape >500Sq. ft.) Facility Name	Replace Turf (Sq. ft.)	MWELO landscape area Upgrade (sq. ft.)	Climate appropriate landscape Upgrade area (sq. ft.)	Date for Achieving Upgrades
HSL	0	0	0	N/A
SCHQ	0	0	0	N/A

SCHQ does not have any plans available for Living Landscape Upgrades for the next 5 years.

As stated above, HSL is in the process of being decommissioned and sold and therefore CARB has not invested in landscape improvements and currently does not maintain a landscape budget or a separate facility water budget.

SCHQ was designed to have water efficient landscaping throughout the site.

Table 4.17: Summary of Completed Living Landscaping Water Efficiency Projects

Year Funded	Est Annual Water Savings (Gallons)	Sum of MWELO Landscape installed (sq. ft.)	Sum of Climate Appropriate Landscape Installed (sq. ft.)
2020	0	0	0
No current projects	0	0	0
No current projects	0	0	0

SCHQ does not have any living landscaping water efficiency projects in progress. To maintain efficient water use, the property has drought tolerant landscaping planted throughout the property and uses reclaimed water to irrigate these landscapes. SCHQ has 72 irrigation system stations that get checked, tested, and adjusted to conform with water savings, including, as-needed service and repairs, performed by landscaping contracted professionals.

Table 4.18: Large Landscape Inventory and Water Budget Requirements

Name of Facility Sites/Locations with > 20,000 sq. ft. of Landscaping	Landscape Area per Facility	Water Budget per Facility	EPA WaterSense or Irrigation Association Certified Staff per Facility
SCHQ	168,387 sq. Ft.	N/A	N/A

Planning Outline PO4:c: Achieving Large Living Landscape Area Requirements

Facility Name	Landscaping sq. ft. to be upgraded to MWELO standards	Water Budget per Facility in Gallons	Ground Water Basin	# of staff Needing EPA WaterSense certification	Date for Achieving
SCHQ	N/A	N/A	N/A	N/A	N/A

Critically Overdrafted Groundwater Basins and Water Shortage Contingency Plans

Table 4.19: Buildings in Designated Critically Overdrafted Groundwater Basins

Building Name	Basin Name	Amount of water Used 2021 (Gallons)	Amount of water Used 2022 (Gallons)
SCHQ	Riverside Basin	2,686,816	16,456,000

Table 4.20: Buildings with Urban Water Shortage Contingency Plans

Building Name	Name of Water Supplier with Urban Water Shortage Contingency Plans	Year of Publication or Update
SCHQ	Riverside Public Utilities	2021

SCHQ is a newly constructed building whose water supplier is Riverside Public Utilities. The 2020 Urban Water Plan was adopted by the City of Riverside on June 22, 2021.

The 2020 Water Shortage Contingency Plan was adopted by the City of Riverside on June 22, 2021 and followed by SCHQ. SCHQ's main source of water

for vegetation comes from cooling towers. The secondary source is from stormwater runoff. Water supplied by the City of Riverside is only required if the reclaimed water tank becomes low.

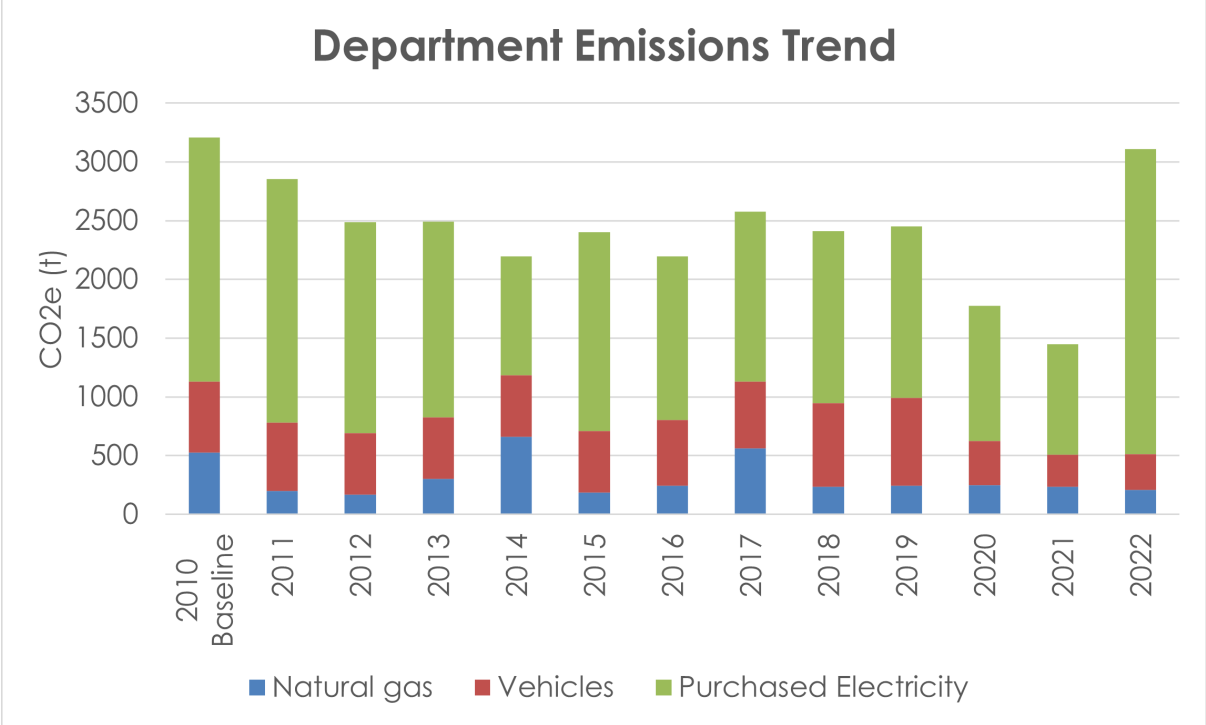
CHAPTER 5 - SUSTAINABLE OPERATIONS

Greenhouse Gas Emissions

Table 5.1: GHG Emissions since 2010 (Metric Tons)

Emissions Source	Natural gas	Vehicles	Purchased Electricity	Total
2010 Baseline	526	607	2,075	3,208
2011	199	581	2,075	2,855
2012	167	526	1,794	2,487
2013	304	523	1,665	2,492
2014	661	525	1,009	2,195
2015	186	524	1,692	2,402
2016	245	561	1,391	2,197
2017	561	568	1,447	2,576
2018	234	712	1,467	2,413
2019	247	747	1,459	2,453
2020	249	375	1,154	1,778
2021	238	269	943	1,450
2022	208	306	2594	3108
Percent Change since Baseline	-60%	-50%	25%	-3%

Graph 5.1: GHG Emissions since 2010



The purchased electricity has increased in 2022 as a result of the new SCHQ facility. HSL will be decommissioned and sold on or around December 2024 and will reduce our total emissions volumes.

Carbon Inventory Worksheet

SCHQ is a new constructed building that was designed to achieve LEED Platinum and CALGreen certification and was designed to be ZNE. Full occupancy was on or around April 2023. There is no Carbon Inventory Worksheet available at this time.

Building Design and Construction

Table 5.2: New Building Construction since July 1, 2012

Building Name	LEED Certification Type & Level Achieved	Commissioning Performed (Y/N)
SCHQ	LEED Platinum	Y

The new SCHQ was designed to achieve LEED Platinum and CALGreen certification and was designed to be ZNE.

LEED for Existing Buildings Operations and Maintenance

Table 5.3: Large Building LEED Certification for Existing Buildings

Number of Buildings over 50,000 sq. ft. and eligible for LEED EBOM	Number of Building over 50,000 sq. ft. that have achieved LEED EBOM	Percentage of Buildings over 50,000 sq. ft. that have achieved LEED EBOM
1	1	100

SCHQ achieved its LEED certification on November 17, 2021.

Indoor Environmental Quality (IEQ)

Daylighting in New Construction

SCHQ has implemented mandatory measures and feasible voluntary measures of the CALGreen, Part 11, related to indoor environmental quality (IEQ). This facility was completed using adhesives, sealants, caulks, paints, coatings, and aerosol paints that meet the volatile organic chemical (VOC) content limits specified in CALGreen Tier 2.

Indoor Environmental Quality is maintained using low emitting furnishings, cleaning products, and cleaning procedures including: carpet systems, carpet cushions, composite wood products, resilient (e.g., vinyl) flooring systems, and thermal insulation, acoustical ceilings and wall panels that meet the VOC emission limits specified in CALGreen.

SCHQ meets California's CALGreen Tier 2 threshold for overall sustainability and energy efficiency. Indoor environmental quality and CALGreen measures achieved.

The new SCHQ facility was commissioned to ensure proper operation of all building systems, including delivering the required amount of outside air and appropriate outdoor airflow monitoring systems in place. At the facility, specialized air treatment was installed where air quality standards are routinely exceeded, including MERV 7, MERV 13, MERV 16, HEPA and Aluminum Air filters and ozone removing air cleaning devices where appropriate. The building was also designed to achieve CALGreen Building Standards Code, furnishing standards, green cleaning products standards, and cleaning procedures standards.

SCHQ HVAC system is maintained and operated to provide at least the quantity of outdoor air required by the California Title 24, Part 2. The HVAC system shall be operated continuously during working hours except:

- (A) during scheduled maintenance and emergency repairs.
- (B) during periods not exceeding a total of 90 hours per calendar year when a serving electric utility by contractual arrangement requests its customers to decrease electrical power demand; or
- (C) during periods for which the employer can demonstrate that the quantity of outdoor air supplied by nonmechanical means meets the outdoor air supply rate required by (a)(1) of this Section.

HVAC inspection requirements achieved.

Integrated Pest Management (IPM)

Table 5.4: Integrated Pest Management Contracts

Pest Control Contractor Name	IPM Specified (Y/N)	Contract Renewal Date
Abba Termite and Pest Control for HSL	Y	2024
Orkin for SCHQ	Y	2024

Department staff and contracted pest management companies will follow an integrated pest management (IPM) strategy that focuses on long-term prevention of pest problems through monitoring for pest presence, improving sanitation, using physical barriers, and other nonchemical practices. If nonchemical practices are ineffective, Tier 3 pesticides may be used, progressing to Tier 2 and then Tier 1 if necessary.

Currently CARB sends informational bulletins to HSL personnel informing them of the use of IPM practices within the facility and to not disturb any of the listed IPM items. CARB currently has incorporated IPM strategies into their executed contract listed in table 5.4 for the effective pest management of SCHQ and HSL. HSL is in the process of decommissioning and sale of the building.

Fossil Fuel Landscaping Equipment Replacement with Low Emitting Landscaping Equipment

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

CARB contracts all landscaping services for HSL and SCHQ and ensures within the scope of the contract that these services are performed with manual equipment whenever possible. These manual tools include the use of the following equipment:

- Hand pruners
- Leaf rakes
- Push brooms
- Weed hoes
- Shovels

For tasks that require power equipment, electric or battery powered equipment are used whenever possible. Equipment in this category includes, but is not limited to:

- Lawn mowers
- Leaf blowers
- String trimmers
- Hedge trimmers

Waste and Recycling Programs

Designated Waste and Recycle Coordinator and Program Basics

The California Integrated Waste Management Act (Assembly Bill (AB) 939, Sher, Chapter 1095, Statutes of 1989 as amended) established the solid waste management hierarchy. Source reduction is at the top of the State's waste management hierarchy; recycling and composting is next, followed last by environmentally safe disposal. California's Department of Resources Recycling and Recovery (CalRecycle) administers the state's recycling and waste management programs. State agencies must report their waste and recycling efforts by May 1 of each year covering activities conducted during the prior calendar year.

Pursuant to Senate Bill (SB) 1106 each state agency shall have at least one designated waste and recycle coordinator. The coordinator shall perform the duties in this chapter using existing resources. The coordinator shall be responsible for implementing the integrated waste management plan and shall serve as a liaison to other State agencies and coordinators. In addition, each State agency is required to provide adequate receptacles, signage, and education and outreach to staff.

CARB has a dedicated recycling coordinator for all CARB locations and all required communication regarding the waste management plan. Employees are aware of the recycling programs at the agency and have successfully

reduced waste as compared to prior years. The recycling coordinator has ensured contracts are in place for waste and recycling services and that the recycling receptacles and signage are adequately displayed. Training and education are ongoing for staff. The recycling coordinator reports annual tonnage for each facility annually by obtaining the information from the contracted waste and recycling vendors.

Designated waste, recycle coordinator, and program basics achieved.

SARC Report

Table 5.5: State Agency Reporting Center (SARC) Report on Total Waste per Capita

Per Capita Disposal Rate Baseline	2021	2022	Total Waste 2021	Total Waste 2022	% Change from 2020/2021
0.50	.02	.04	7.01 tons	12.50 tons	34%

Above is the Waste Disposal and Food Waste Diversion Rates Data of both the solid waste that was disposed of and food waste that was diverted from the waste stream of the CalEPA Headquarters Building during 2021 and 2022. Due to COVID-19 and the subsequent predominant practice of staff working from home during 2022, these figures are not necessarily reflective of actual staff working in the building, but of actual staff who normally would be in the building if it was fully staffed, which would have been approximately 85 percent higher than the current building occupancy which has only been about 14 percent for 2022. Note: As the COVID-19 restrictions relaxed and staff began returning to work, occupancy of the building has crept up from 10 percent in 2021 to 14 percent in 2022. CARB achieved per capita disposal rate. Additional information can be found on the [CalRecycle website](#).

Recycling Program and Practices

Recycling is the practice of collecting and diverting materials from the waste stream for remanufacturing into new products, such as recycled-content paper. Stewardship programs help collect and recycle carpet, paint, pharmaceutical and sharps, and mattresses. AB 341, Mandatory Commercial Recycling (Chesbro, Chapter 476, Statutes of 2011) requires businesses and public entities that generate four cubic yards or more of commercial solid waste per week to arrange for recycling services under the goal of source reducing, recycling, or composting 75 percent of solid waste generated statewide.

Items that are commonly still thrown away include plastic containers, organic waste, paper, food-soiled paper goods, complex or specially treated packaging or containers, broken non-electrical office supplies, and film plastics.

CARB is continuing its efforts to educate staff on the different disposal types that exist throughout our agency and are promoting reuse, recycle, and composting throughout our agency.

Organics Recycling

State agencies must implement [AB 1826](#) (Chesbro, Chapter 727, Statutes of 2014). State agencies that generate 2 cubic yards or more of commercial solid waste (total trash, recyclables, and organics) per week shall arrange for organic waste recycling services.

Organic waste includes:

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

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

Effective January 1, 2022, state agencies must implement [SB 1383](#) (Lara, Chapter 395, Statutes of 2016). State agencies are currently required to maintain mandatory commercial recycling and organic recycling programs, including ensuring that properly labeled recycling containers are available to collect bottles, cans, paper, cardboard, food waste, and other recyclable materials. SB 1383 builds upon these efforts by identifying non-local entities and expanding the definition of organic waste to include food scraps, landscape and pruning waste, organic textiles and carpets, lumber, wood, manure, biosolids, digestate, and sludges.

Under SB 1383, non-local entities include:

- Special districts
- Federal facilities
- Prisons

- State Park facilities
- Public universities and community colleges
- County fairgrounds
- State agencies

SB 1383 organics collection requirements are effective January 1, 2022. CARB participated in food scraps and food portion right sizing for organic waste and reuse programs. Currently we work with Building management located in the CalEPA building to ensure that organic waste receptacles are placed in the proper areas, such as breakrooms and small kitchenettes throughout the building. The Building Management mitigates contamination by properly recycling the contents of the organic's recyclables daily. At this time CARB does not create enough organic or solid waste to comply with the bill outlined above due to the pandemic and emergency telework policy.

Organic recycling requirements achieved.

Table 5.6: Edible Food Recovery Program Elements

Building Name	Cafeteria ≥ <u>5,000</u> Square Feet (Enter sq. ft.)	Cafeteria +250 Seats (Enter actual number of seats)	Was Cafeteria Open in 2022?	Food Recovery Agreement Yes, No or Unknown
NO EDIBLE FOOD RECOVERY PROGRAM REQUIRED	N/A	N/A	N/A	N/A

Table 5.7: Food Service Concessionaire Items Program Elements

Building Name	Prepared Food Service Operations Type	Food Service Packaging Meets Requirements	Process in Place for selecting Food Services that meet Packaging Requirements
NO FOOD SERVICES	N/A	N/A	N/A

Hazardous Waste Materials

Table 5.8: Hazardous Waste Materials

Department -Wide Hazardous Material Name	Department Total Hazardous Material Amount (lbs.)
Waste Gasoline/Diesel	330gal or 2340.886 lbs.
Lab waste: Acetonitrile/methanol solution	110gal or 726 lbs.
Waste Coolant	110gal or 958-990 lbs.
Lab waste: DCM/hexane/acetone/isooctane solution	55gal or 390.148 lbs.
Waste Oil	220gal or 1560.591 lbs.

There are four key roles in hazardous waste management: the generator, the transporter, the Treatment, Storage, and Disposal Facility (TSD), and the Department of Toxic Substances (DTSC). Each CARB site that generates hazardous waste is a generator, the transporter is the company awarded the service contract, the TSD are selected by the transporter based on waste type, and DTSC regulates the overall process.

The Industrial Hygiene and Safety Section (IHSS) manages the Sacramento and Southern California transporter contracts and all divisions that generate hazardous waste contribute funds to the contracts. Currently, both contracts' services are provided by a small California-based business, North State Environmental, which include emergency clean up, transport, and disposal of hazardous wastes.

Hazardous waste is accumulated in satellite collection containers near where it is generated, such as in a chemical fume hood in a lab. Access to labs is restricted to lab workers and select personnel by keycard entry. Satellite containers are transported by trained staff to main hazardous waste collection sites which are locked by physical key and/or keycard.

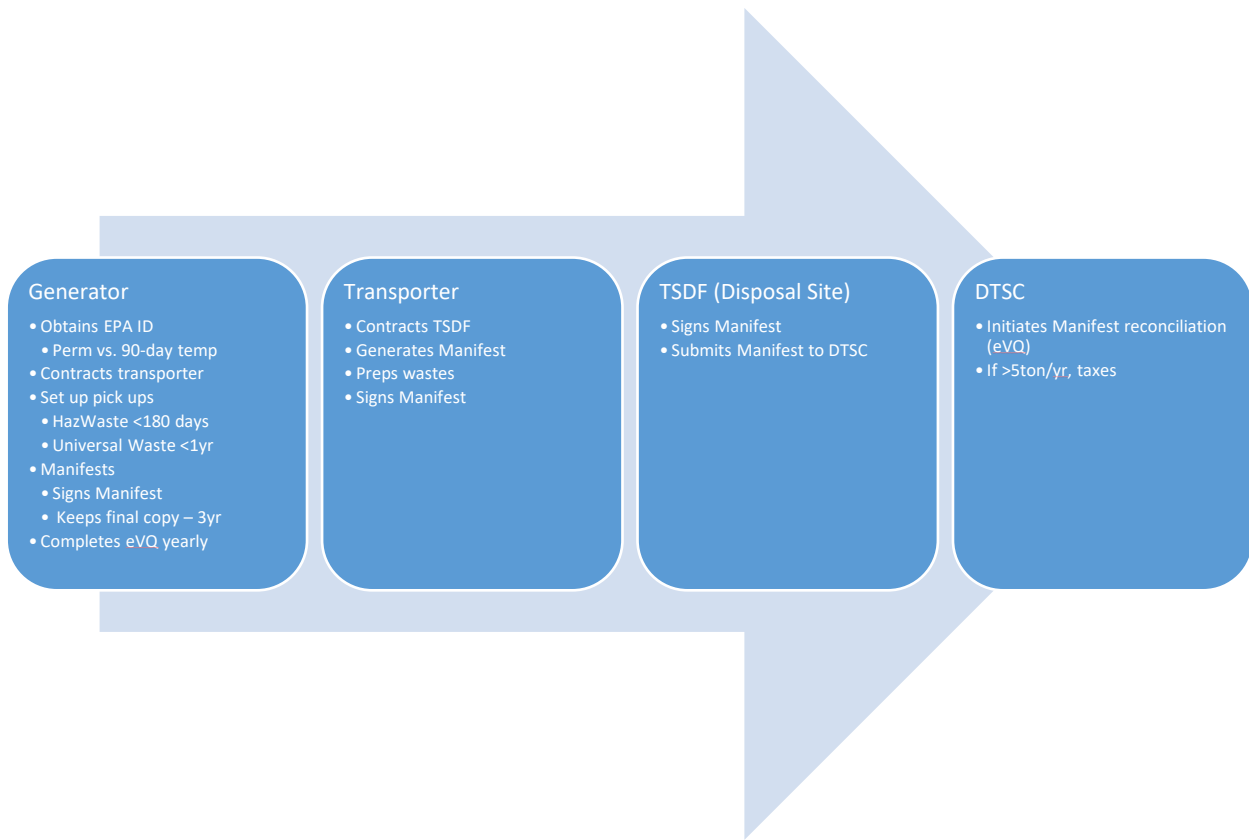
IHSS works with generators to track the accumulation of hazardous waste and schedules contractor services either when waste containers are full or when they approach the accumulation time limit per California regulations. The transporter prepares the wastes for transport including ensuring proper labeling, packaging of waste if needed, and generating manifests.

The hazardous waste manifest includes the DTSC or EPA issued EPA ID numbers for both generator and transporter, a unique manifest tracking number, and a description and amount of each waste to be transported. At time of pick up, the manifest is signed by generator or representative and transporter; the generator or representative receives the initial copy for recordkeeping. When

the hazardous waste reaches the TSDf, the manifest is signed a final time. The TSDf is responsible for submitting a copy of the completed manifest to both generator and DTSC. The generator is responsible for reconciling their initial manifest copies with the final copies, investigating missing manifests immediately, providing manifests to regulators when requested, and recordkeeping for 3 years. IHSS manages recordkeeping of manifests for all CARB generators on a group Teams channel which may be accessed by generators or representatives as needed. Additionally, IHSS often acts as generator representative to oversee hazardous waste transport from CARB facilities including reviewing, approving, signing, and reconciling manifests.

DTSC posts all manifests on their public [Hazardous Waste Tracking System](#) website, which are searchable by EPA ID number, generator business name or address, or a number of other fields. Finally, manifests are reconciled yearly with DTSC by the generator or representative. DTSC sends a questionnaire to confirm that all manifests, and hence all hazardous waste disposals, are accounted for.

Due to the nature of CARB's emissions testing on different equipment and vehicles, there is no feasible way to remove, replace, or reduce the hazardous waste volume in table 5.8.



Universal Waste

Table 5.9: Reporting on Department- Wide Universal Waste Materials

Category	Universal Waste Contract in Place YES or NO
Electronic Waste	YES – managed by BMB
Batteries	YES
CRTS	YES
CRT glass	YES
Lamps	YES
Mercury Wastes	YES
Non-empty aerosol cans	YES
PV modules	YES

Recycling is taking place through recycling programs within each of our building locations. Regarding e-waste, we have been using CalPIA for disposal. Additionally, we use GovDeals through DGS to resell items that can be recycled or repurposed by another entity.

Material Exchange

The exchange of surplus materials reduces the cost of materials/products for the receiving agency and results in the conservation of energy, raw resources, landfill space, including the reduction of GHG emissions, purchasing and disposal costs.

CARB utilizes internal property reuse and employee supplies exchange by participating in a Second Chance Outlet to encourage staff to reuse and recycle supplies. CARB utilizes the State surplus through DGS to reuse State-owned surplus items such as furniture. CARB also works with the Federal Surplus Property Unit at the Department of General Services to donate lab equipment to qualified entities.

CARB participated in material exchange activity in 2021 and 2022. CARB did not identify other opportunities that did not result in a material exchange. We are continuing efforts to educate staff on the different disposal types that exist throughout our agency and are promoting reuse, recycle, and composting throughout our agency.

Waste Prevention Program

Programs in this section support (a) waste prevention: actions or choices that reduce waste and prevent the generation of waste in the first place; and (b)

reuse: using an object or material again, either for its original purpose or for a similar purpose, without significantly altering the physical form of the object or material.

CARB utilizes several different waste prevention/reuse activities throughout the organization. CARB staff also participate in office supply recycling and used equipment/office furniture from DGS Surplus, whenever possible.

Each year CARB leverages the annual CalRecycle State Agency Reporting Center (SARC) Report to evaluate our waste reduction effectiveness and identify avenues for improvement.

Reuse Program

CARB utilizes several different waste prevention/reuse activities throughout the organization. CARB staff also participate in office supply recycling and used equipment/office furniture from DGS Surplus, whenever possible.

CARB is continuing efforts to educate staff on the different disposal types that exist throughout our agency and are promoting reuse and recycling throughout our agency.

Employee Waste and Recycling Training and Education

Recycling receptacles and signage are adequately displayed. Employees are aware of the recycling programs at the agency and have successfully reduced waste as compared to prior years. Training/education is ongoing for staff. CARB has a dedicated recycling coordinator that serves as the coordinator for all CARB locations.

The methods for waste reduction training and end education at our new Riverside facility will mirror those already in place at our Sacramento headquarters. The Northern California Recycling Coordinator, formerly CARB Recycling Coordinator, will work to onboard the Southern California Recycling coordinator helping them to implement the already successful structure in our new facility.

Each year CARB leverages the annual CalRecycle SARC Report to evaluate our waste reduction effectiveness and identify avenues for improvement.

There are no known deficiencies identified since SCHQ is a newly built building with occupancy approved in November 2021.

All services contracted for HSL include a requirement to use environmentally friendly methods whenever possible including battery or hand powered landscaping equipment, low VOC construction materials, high efficiency methods with limited chemical usage in both cleaning and pest management, and continued EPP education and SABRC awareness.

HSL was built in 1971. CARB determined it was not cost effective to retrofit the building in order to meet LEED standards. HSL will be decommissioned and sold on or around December 2024.

Environmentally Preferred Purchasing (EPP)

State agencies are required to purchase and use EPP that have a reduced effect on human health and the environment when compared with competing goods that serve the same purpose.

Additionally, the SABRC is a joint effort between CalRecycle and DGS to implement state laws requiring state agencies and the Legislature to purchase recycled-content products (RCP) and track those purchases. Both state agency and its contractors must track purchases that fall under 16 product categories. It complements the intent of the Integrated Waste Management Act (AB 939, Sher, Chapter 1095, Statutes of 1989 and Public Resources Code 4000 et al), which was enacted to reduce the amount of waste going to California's landfills. An annual report detailing State agencies' annual RCP purchase is due to CalRecycle by October 31 of each year.

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

The environmental impact of the goods we buy is often larger than the impact of our own department operations. Our department is committed to reducing the environmental impact of the goods and services we purchase.

CARB procurement buyers utilize State Contracts and Leveraged Procurement agreements that offer energy efficient and recycled products. For non-contract items, buyers focus on purchasing electronics or appliances that are Energy-Star certified or energy efficient whenever possible. In completing purchases, buyers

are also focused on conserving energy by maintaining their records as electronic files rather than physical paper files. This reduces the need for paper, energy, and ink required to print documents.

Each procurement/bidding packet contains the CalRecycle Form 74 and contractors/vendors are required to fill it out and certify which goods meet SABRC requirement.

CARB's Office of Information Services (OIS) division handles IT purchases. For items like computers, laptops, peripherals, and copiers, State Contracts and LPAs that feature Energy Star Certified products are utilized. OIS utilizes contracts with vendors like HP that offer recycled toner cartridges or have a cartridge take-back program that allows us to return used cartridges for recycling.

For the majority of our printing needs, CARB utilizes a Statewide Contract that makes recycled paper available. Line items with the highest post-consumer recycled content (PCRC) are selected. For non-contract paper products, buyers do research on which products have PCRC and request these from vendors or ask vendors to provide an equivalent product with the required PCRC.

CARB plans to integrate into their acquisitions for EPP a robust training and tracking system over the coming years to successfully identify opportunities to "green" purchases and to provide buyers with the correct training for EPP criteria when considering items for purchase.

Goods and Services Categories with the Greatest Potential to Green:

Table 5.10: Goods and Services Categories with the Greatest Potential to Green

Good or Service	2022 Total Spend (\$)	2022 Percent EPP Spend (%)	EPP Target (%)
56101700 Office Furniture	\$102,940	0%	75%
55121706 Banners and Signs	\$19,596	0%	75%
44121600 Office Supplies, Desk supplies	\$17,674	0%	75%
44111524 Office and desk accessories	\$7,950	0%	100%

EPP BMPs

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

CARB currently has minimal construction contracts, A&E, or transportation agreements. No information was available for how bidders are notified of EPP requirements for types of purchases, grants, or interagency agreements.

Table 5.11: 2022 EPP Basic Training Completions

CalHR Classification	Total Number of Staff	EPP Basic Training Completion	Percent Trained	2023 EPP Training Goal
Analyst	16	16	100%	100%
Manager I	4	4	100%	100%
Manager II	2	2	100%	100%
Branch Chief	1	1	100%	100%

Table 5.12: 2022 EPP Intermediate Training Completions at CARB

Classification	Total number of staff	EPP Intermediate Training Completions	Percent Trained	2023 EPP Training Goal (%)
Analyst	16	0	0%	50%
Manager I	4	0	0%	50%
Manager II	2	0	0%	50%
Branch Chief	1	0	0%	0%

Table 5.13: 2022 EPP Executive Training Completions for Executive Members at CARB

Executive Member	Title	Date Completed
0		

CARB department buyers have completed the basic EPP training and education. Training is tracked by managers and there are regular announcements of training opportunities to all staff members including buyers as well as discussions regarding policy changes to buy more green products. There is training related to reporting and how to enter EPP information in FI\$Cal as well as a training on how to source EPP items.

Reporting on State Agency Buy Recycled Campaign (SABRC), and Reducing Impacts

Table 5.14: State Agency Buy Recycled Campaign (SABRC) FY 21/22 Performance

Product Category	SABRC Reportable Dollars	SABRC Compliant Dollars	% SABRC Compliant
Antifreeze	N/A	N/A	N/A
Carpet	N/A	N/A	N/A
Compost and Mulch	N/A	N/A	N/A
Glass Products	\$3500	\$3500	100%
Erosion Control Products:	N/A	N/A	N/A
Lubricating Oils	N/A	N/A	N/A
Paint	N/A	N/A	N/A
Paper Products	\$1361.79	\$1061.44	77.94 %
Pavement Surfacing	N/A	N/A	N/A
Plastic Products	\$5190.77	\$2030.62	39.12 %
Printing and Writing Paper	\$5814.30	\$2691.32	46.29 %
Metal Products	\$2044.14	\$1874.49	91.70 %
Soil Amendments and Soil Toppings	N/A	N/A	N/A
Textiles	N/A	N/A	N/A
Tire Derived Products	N/A	N/A	N/A
Tires	N/A	N/A	N/A

CARB did not have any purchases with antifreeze, carpet, compost and mulch, erosion control products, lubricating oils, paint, pavement surfacing, soil amendments and soil toppings, textiles, tire derived products or tires. Because of this, these categories are deficient. Printing and writing paper, and plastic products are deficient.

The environmental impact of the goods we buy is often larger than the impact of our own department operations. Our department is committed to reducing the environmental impact of the goods and services we purchase.

Reducing Impacts

CARB procurement buyers utilize State Contracts and Leveraged Procurement agreements that offer energy efficient and recycled products. For non-contract items, buyers focus on purchasing electronics or appliances that are Energy-Star certified or energy efficient whenever possible. In completing purchases, buyers are also focused on conserving energy by maintaining their records as electronic files rather than physical paper files. This reduces the need for paper, energy, and ink required to print documents.

Each procurement/bidding packet contains the CalRecycle Form 74 and contractors/vendors are required to fill it out and certify which goods meet SABRC requirement.

CARB's OIS division handles IT purchases. For items like computers, laptops, peripherals, and copiers, State Contracts and LPAs that feature Energy Star Certified products are utilized. OIS utilizes contracts with vendors like HP that offer recycled toner cartridges or have a cartridge take-back program that allows us to return used cartridges for recycling.

For the majority of our printing needs, CARB utilizes a Statewide Contract that makes recycled paper available. Line items with the highest PCRC are selected. For non-contract paper products, buyers do research on which products have PCRC and request these from vendors or ask vendors to provide an equivalent product with the required PCRC.

Location Efficiency

Table 5.15: Smart Location Score for New Leases after January 1, 2020

Facility name	Smart Location Calculator Score
N/A	N/A
Average	
Baseline	
% change from Baseline	

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

Our department's goal is that the average location efficiency score for all new leases be 10 percent higher than our average on of January 1, 2017.

CARB has not executed any new leases that began with a site search after January 1, 2017. The majority of CARB's lease portfolio is AMS throughout the state of California. These small AMS are not always brick and mortar locations nor are they driven by smart location scores. The selection of the locations is in compliance with Federal and State regulations to ensure monitoring of specific air emissions in specific locations. Additionally, CARB works with local air monitoring pollution districts to agree upon site locations. Many of these sites are small trailers or shelters that require minimal power.

Table 5.16: Current (non-expired) Leases Prior to 2020 - Lowest Smart Location Score

Facility name	Smart Location Calculator Score
Lease 1 Arvin AMS	5
Lease 2 Ferguson Office	7
Lease 3 Demetre Warehouse	9

CHAPTER 6 -FUNDING OPPORTUNITIES

Table 6.1: Climate Change Priority Projects

Building Name	Project	Funding Source	Est. Begin Date	Est. Completion Date
NO PRIORITIES	N/A	Choose an item.	N/A	N/A

Table 6.2: EV Priority Projects

Building Name	Project	Funding Source	Est. Begin Date	Est. Completion Date
SCHQ	EV Charger	5-Year Infrastructure Plan	11/1/23	TBD

Table 6.3: Building Energy Conservation and Efficiency Priority Projects

Building Name	Project	Funding Source	Est. Begin Date	Est. Completion Date
NO PRIORITIES	N/A	Choose an item.	N/A	N/A

Table 6.4: Water Conservation and Efficiency Priority Projects

Building Name	Project	Funding Source	Est. Begin Date	Est. Completion Date
NO PRIORITIES	N/A	Choose an item.	N/A	N/A

Table 6.5: Sustainable Operations Priorities

Building Name	Project	Funding Source	Est. Begin Date	Est. Completion Date
NO PRIORITIES	Choose an item.	Choose an item.	TBD	TBD

Full Life Cycle Cost Accounting

There are currently no infrastructure investments.

CHAPTER 7 – PUBLIC EDUCATION AND OUTREACH

In May 2022, CARB signed MOUs with seven key educational partners in the Riverside area to promote learning and awareness of California's clean air efforts and develop a range of educational and learning opportunities for students at its new CARB Southern California Headquarters – Mary D. Nichols Campus.

CARB re-signed updated MOUs with the University of California, Riverside, Riverside Community College District and the Riverside Unified School District. New MOUs were formalized with the Alvord Unified School District, Cal Baptist University, La Sierra University, and the Riverside County Office of Education.

CARB is a vital part of the Riverside community, with a state-of-the-art facility and world-class laboratories to facilitate awareness of air quality challenges and further scientific research with the local educational institutions. CARB is actively working to strengthen ties with schools and students from the region and help build support for the science that underpins our solutions to the air pollution challenges we face in the Riverside area, and the rest of the state.

The SCHQ Laboratory offers some of the most advanced emissions testing capabilities for passenger cars, motorcycles, trucks, buses, lawn and garden equipment, small off-road engines, and marine engines. The new lab's expanded capabilities will also support the transition to zero or near-zero emissions technology in all areas recognized as mobile sources through rigorous screening and regulatory testing. The mutually beneficial partnerships will utilize the facility to offer classes, facility tours, and educational opportunities for faculty and students to inspire students at all levels to learn more about air quality, the impacts of climate change, and CARB's efforts to clean the air.

The MOUs also facilitate collaboration for joint air quality and climate change research, promotion of science career pathways, employment opportunities, and training programs for local residents to become scientists and technicians in the environmental arena, all with an emphasis on reaching disadvantaged and underrepresented populations.

Other opportunities include partnerships to develop training programs and delivery of STEM courses and other STEM-based career and technical education training programs, as well as development of continuing education and certificates.

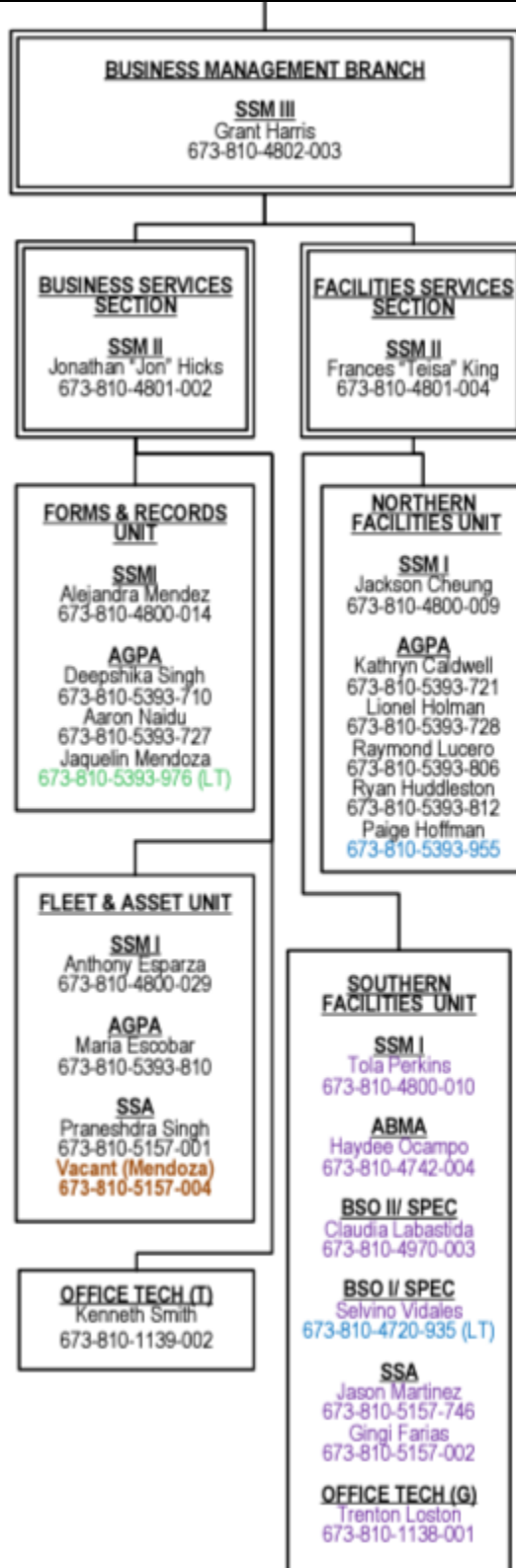
The MOUs expire in 2027 and may be renewed at that time.

In addition, CARB's Community Outreach and Enforcement (COES) team coordinates within CARB and with external agencies, community-based organizations, industry, and other stakeholders to implement and promote

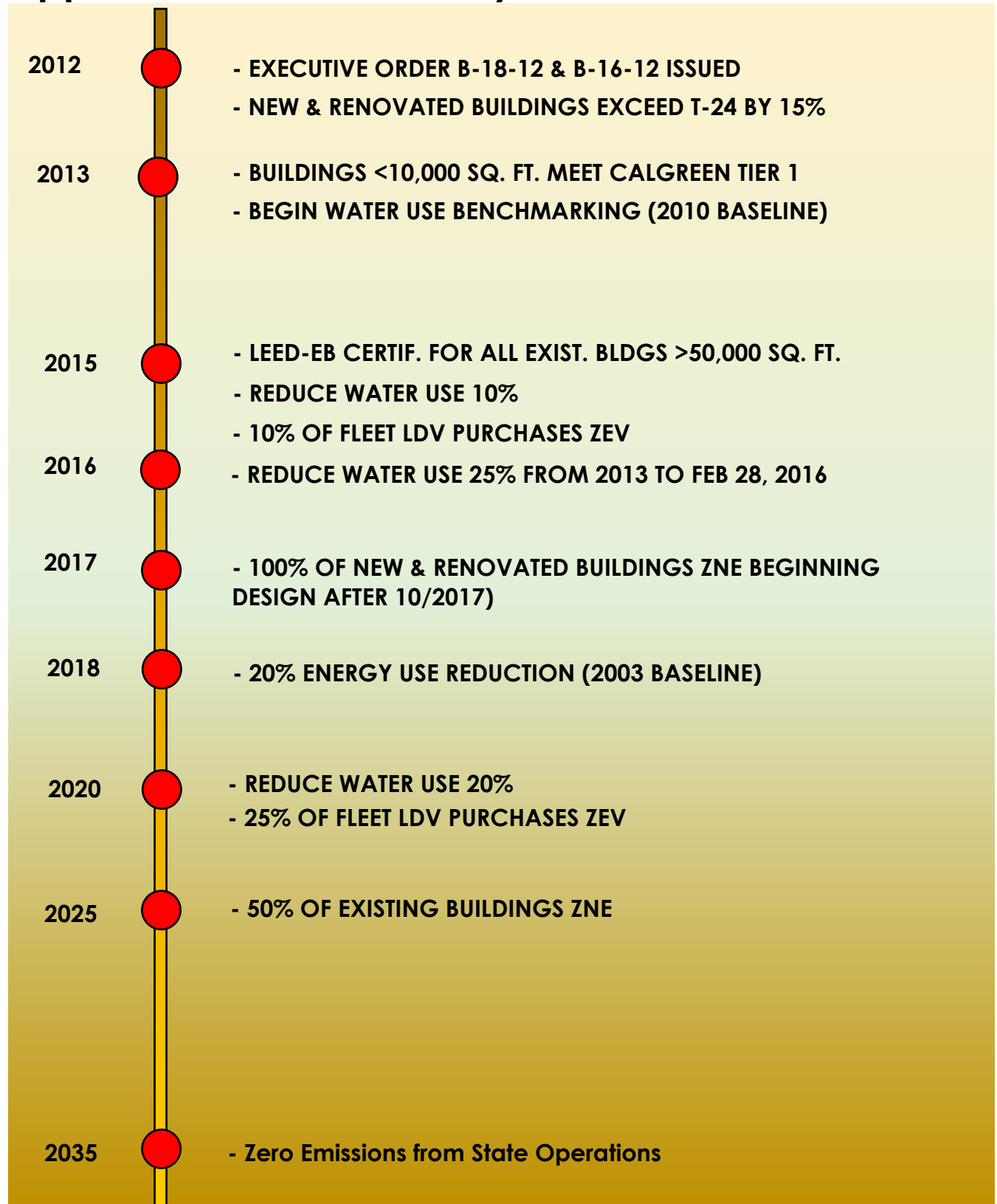
CARB's Environmental Justice and Supplemental Environmental Project programs and initiatives, including the Community Air Protection Program established through AB 617.

The COES team aims to work with communities across California to identify, develop, and implement enhanced enforcement strategies. In addition, COES develops outreach and educational materials intended to increase public participation in identifying and reporting potential emission violations. COES strives to provide transparency and increase public access to these programs, especially for DACs across the state.

APPENDIX A – SUSTAINABILITY LEADERSHIP



Appendix B - Sustainability Milestones & Timeline



APPENDIX C – ACRONYMS

Customize to include organizations and acronyms within your specific department.

Abbreviation	Definition
AB	Assembly Bill
AMS	Air Monitoring Stations
BEV	Battery Electric Vehicles
BMP	Best management practices
CALGREEN	California Green Building Code (Title 24, Part 11)
CARB	California Air Resources Board
CBC	California Billing Code
CCI	California Climate Investments
CDD	Cooling Degrees Day
CNRA	California Natural Resources Agency
COVID-19	Coronavirus
CCR	California Code of Regulations
COES	Community Outreach and Enforcement
DACs	Disadvantaged Communities
DGS	Department of General Services
DR	Demand Response
DTSC	Department of Toxic Substances
EHT	Extreme heat threshold
EMS	Energy management system (aka EMCS)
EMCS	Energy management control system (aka EMS)
EPP	Environmentally preferable purchasing
ESPM	Energy Star Portfolio Manager
EUI	Energy use intensity (source kBtu/sq. ft.)
EV	Electric Vehicle
EVSE	Electric vehicle supply equipment (charging equipment)

FY	Fiscal Year
GHG	Greenhouse gas
HD	Heavy-duty
HDD	Heating Degree Day
HFCV	Hydrogen Fuel Cell Vehicles
HSL	Haagen-Smit Laboratory
ICE	Internal Combustion Engine
IEQ	Indoor environmental quality
IHSS	Industrial Hygiene and Safety Section
IPM	Integrated Pest Management
kBTU	Thousand British thermal units (unit of energy)
LCM	The Landscape Coefficient Method
LEED	Leadership in Energy and Environmental Design
LD	Light-duty
MBCx	Monitoring Based Commissioning
MD	Medium-duty
MM	Management Memo
MOU	Memorandums of Understanding
MPG	Miles Per Gallon
MWELO	Model Water Efficient Landscape Ordinance
OIS	Office of Information Services
PCRC	Post-consumer Recycled Content
PHEV	Plug-in Hybrid Vehicles
PPA	Power purchase agreement
PV	Photovoltaics
RCP	Representative Concentration Pathway
SABRC	State Agency Buy Recycled Campaign

SAM	State Administrative Manual
SARC	State Agency Reporting Center
SB	Senate Bill
SCHQ	Southern California Headquarters
STEM	Science, Technology, Engineering, and Math
SUV	Sport Utility Vehicles
TDM	Transportation Demand Management
TSDf	Treatment, Storage, and Disposal Facility
VOC	Volatile Organic Chemical
WUCOLS	Water Use Classifications of Landscape Species
ZEV	Zero-emission vehicle
ZNE	Zero net energy

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 percent 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 percent 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.

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

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

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

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)).

Nonpurchased 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 percent 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 \(ucdavis.edu\)](http://ucdavis.edu/wucols)

APPENDIX E – DEPARTMENT STAKEHOLDERS

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

Climate Change Adaptation

Understanding Climate Risk at Existing Facilities
Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I

Understanding Climate Risk at Planned Facilities
Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I

Integrating Climate Change into Department Planning and Funding Programs
Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I

Measuring and Tracking Progress
Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I

Zero Emission Vehicles

Incorporating ZEVs Into the Department Fleet
Grant Harris, Acting Division Chief Jon Hicks, Staff Services Manager II Anthony Esparza, Staff Services Manager I

Telematics
Grant Harris, Acting Division Chief Jon Hicks, Staff Services Manager II Anthony Esparza, Staff Services Manager I

Public Safety Exemption
Grant Harris, Acting Division Chief Jon Hicks, Staff Services Manager II Anthony Esparza, Staff Services Manager I

Outside Funding Sources for ZEV Infrastructure
Grant Harris, Acting Division Chief

Jon Hicks, Staff Services Manager II
Anthony Esparza, Staff Services Manager I

Hydrogen Fueling Infrastructure

Grant Harris, Acting Division Chief
Jon Hicks, Staff Services Manager II
Anthony Esparza, Staff Services Manager I

Comprehensive Facility Site and Infrastructure Assessments

Grant Harris, Acting Division Chief
Jon Hicks, Staff Services Manager II
Anthony Esparza, Staff Services Manager I

EVSE Construction Plan

Grant Harris, Acting Division Chief
Jon Hicks, Staff Services Manager II
Anthony Esparza, Staff Services Manager I

EVSE Operation

Grant Harris, Acting Division Chief
Jon Hicks, Staff Services Manager II
Anthony Esparza, Staff Services Manager I

Energy

Zero Net Energy (ZNE)

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

New Construction Exceeds Title 24 by 15%

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Reduce Grid-Based Energy Purchased by 20% by 2018

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Server Room Energy Use

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Demand Response

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Renewable Energy

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Monitoring-Based Commissioning (MBCx)

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Financing

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Water Efficiency and Conservation**Indoor Water Efficiency Projects In Progress First initiative**

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Boilers and Cooling Systems Projects In Progress

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Landscaping Hardware Water Efficiency Projects In Progress

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Living Landscaping Water Efficiency Projects In Progress

Grant Harris, Acting Division Chief
Teisa King, Staff Services Manager II
Tola Perkins, Staff Services Manager I

Buildings with Urban Water Shortage Contingency Plans In Progress

Grant Harris, Acting Division Chief

Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I

Green Operations

Greenhouse Gas Emissions

Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I
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Building Design and Construction

Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I
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LEED for Existing Buildings Operations and Maintenance
--

Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I
--

Indoor Environmental Quality

Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I
--

Integrated Pest Management

Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I
--

Waste Management and Recycling

Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I
--

Environmentally Preferable Purchasing

Alice Kindarara, Staff Services Manager III

Location Efficiency

Grant Harris, Acting Division Chief Teisa King, Staff Services Manager II Tola Perkins, Staff Services Manager I
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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.

Executive Orders

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

- [Executive Order B-16-12](#)
Executive Order 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](#)
Executive Order 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](#)
Executive Order 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 Executive Order 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.

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

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

- **Assembly Bill (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 Executive Order 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 Executive Order 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.

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