Federal and State Planning Framework

APPENDIX B

Federal and State Planning Efforts

This appendix describes important federal and state regulations, policies, orders, guidance, and legislation related to greenhouse gas (GHG) emissions reductions, climate change vulnerability and adaptation, and public health and equity. These various directives directly influence and inform planning efforts across California. This appendix organizes federal regulations and requirements by climate change and GHG emissions and by public health and equity. State regulations and requirements are organized by GHG emissions reductions, adaptation, and public health and equity. Both sections present the regulations and requirements within each subsection chronologically. It is important to note that while rules and regulations are grouped into subcategories, many are cross-cutting across the topic areas.

The regulatory landscape is constantly shifting as amendments, revocations, and new requirements are adopted. The text in this section was drafted in 2021 and reflects the regulatory landscape as of this date. The appendix likewise is not exhaustive. Readers may need to conduct additional research to ensure they have the latest information. Links to websites and external resources that are frequently updated are presented at the conclusion of the appendix.

Federal Regulations and Requirements

Although currently there is no comprehensive federal law specifically related to climate change, climate adaptation, or the reduction of GHG emissions, in 2021, the U.S. rejoined the Paris Agreement to reduce national GHG emissions, and the federal government submitted to the United Nations Framework Convention on Climate Change

the U.S. Nationally Determined Contribution (NDC), which aims to reduce national GHG emissions 50 to 52 percent by 2030 from 2005 levels. The NDC, executive orders, and other goals and efforts of the Biden administration make up a new whole-of-government approach to reduce GHG emissions, increase resilience, improve equity, and boost economic growth (White House 2021a).

Additionally, the U.S. Environmental Protection Agency (U.S. EPA) is charged with implementing the federal Clean Air Act (CAA) and related regulations, and U.S. EPA and the National Highway Traffic and Safety Administration (NHTSA) implement fuel efficiency standards that have a direct effect on GHG emissions and public health and safety. The Civil Rights Act and several executive orders aim to improve equity and address environmental injustice. These regulations and rules are summarized below.

Climate Change and GHG Emissions

Clean Air Act and National Ambient Air Quality Standards (1963)

The CAA was enacted in 1963 and has been amended numerous times since (1965, 1967, 1970, 1977, and 1990). The CAA established federal national ambient air quality standards for six criteria air pollutants—lead, sulfur dioxide, particulate matter, ozone, carbon monoxide, and nitrogen dioxide—and specifies future dates for achieving compliance. These standards were set to improve air quality and public health outcomes. The CAA also mandates that states submit and implement a state implementation plan (SIP) for local areas not meeting those standards. The SIPs must include pollution control measures that demonstrate how the standards will be met (U.S. EPA 2021).

National Environmental Policy Act (1970)

Signed in 1970, the National Environmental Policy Act (NEPA) requires federal agencies to incorporate environmental considerations into planning and decision-making processes by using a systematic interdisciplinary approach. The purpose of NEPA is "to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans," (42 United States Code [U.S.C.] 4331(a)). Each federal agency has adopted its own NEPA procedures, but all must assess the potential environmental effects, and related social and economic effects, of proposed actions and alternative actions (U.S. EPA 2020a). The assessments must be reported in an environmental assessment (EA) that includes the following.

- The environmental impacts of the proposed action.
- Any adverse effects that cannot be avoided.
- Alternatives to the proposed action.
- The relationship between local short-term uses of the environment and the long-term productivity.
- Any irreversible and irretrievable commitments of resources that would be involved in the proposed action 42 U.S.C. 4332(2)(C).

If the EA determines the environmental impacts of the proposed action will be significant, the agency must prepare an environmental impact statement, which involves much stricter requirements, greater public participation, and a more detailed analysis.

CAFE Standards (1975)

The Corporate Average Fuel Economy (CAFE) standards were first enacted in 1975 to reduce energy consumption by improving the fuel economy of vehicles. The standards set fleet-wide averages that each automaker must meet. By improving the fuel efficiency of vehicles, the standards improve national energy security, save consumers money, and reduce GHG emissions.

Mandatory Greenhouse Gas Reporting Rule (2009)

In 2009, U.S. EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the 2008 Consolidated Appropriations Act, which required U.S. EPA to develop mandatory reporting of greenhouse gases above appropriate thresholds. The Reporting Rule applies to most entities that emit 25,000 metric tons (MT) of carbon dioxide equivalent (CO_2e) or more per year. Starting in 2010, facility owners were required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also mandates recordkeeping and administrative requirements to help U.S. EPA to verify annual GHG emissions reports (U.S. EPA 2016).

Endangerment and Cause or Contribute Findings (2009)

In 2009, U.S. EPA signed the Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the CAA. Under the Endangerment Finding, U.S. EPA found that the current and projected concentrations of the six key GHGs—carbon dioxide (CO_2), methane (CH_4), nitrous oxide, perfluorinated carbons, sulfur hexafluoride, and hydrofluorocarbons—in the atmosphere threaten the public health and welfare of current and future generations. U.S. EPA also found that the combined emissions of these GHGs from motor vehicle engines contribute to the GHG pollution that threatens public health and welfare (U.S. EPA 2020b).

Executive Order 13547—Stewardship of the Ocean, Our Coasts, and the Great Lakes (2010)

In 2010, Executive Order 13547, also known as the National Ocean Policy, was signed by the president to protect, maintain, and restore the quality of ocean and coastal ecosystems. This order aims to protect aquatic resources, improve sustainable ocean and coastal businesses, and help adapt to and manage climate change and ocean acidification. The order also established a National Ocean Council to guide policy and action (White House 2010).

GHG Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles (2011, 2016)

In 2011, the U.S. EPA and NHTSA issued a final rule for GHG emissions standards and fuel efficiency standards for medium- and heavy-duty engines and vehicles. This rule includes three regulatory categories of heavy-duty vehicles—combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles—and applies to model years 2014–2018. U.S. EPA and NHTSA estimate that these standards will reduce CO_2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of vehicles built for these model years, generating $49 billion in net program benefits.

The U.S. EPA and NHTSA established Phase 2 of these standards in 2016, which apply to model years 2019–2027 medium- and heavy-duty vehicles. The agencies expect the standards to reduce CO_2 emissions by approximately 1.1 billion metric tons, save $170 billion in fuel costs, and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles built for these model years (U.S. EPA 2020c).

CAFE Standards (2012)

The 2012 CAFE standards (for model years 2017 to 2025) update incorporated stricter fuel economy requirements promulgated by U.S. EPA and NHTSA. The 2012 standards established GHG emissions regulations that required new passenger cars and light trucks to reach 54.5 miles per gallon in 2025. The program also included incentives to encourage adoption of new technologies to improve vehicle performance, such as electric vehicles (U.S DOT 2014).

SAFE Rule (2020)

In 2018, the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule was proposed, which would amend prior CAFE and GHG emissions standards and create new standards for model year 2021 to 2026 vehicles and reduce fuel economy requirements. In September 2019, NHTSA and U.S. EPA established "The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program," which withdrew California's ability to create its own fuel economy standards under the CAA, which was finalized in 2020 (NHTSA 2020). The One National Program Rule enables U.S. EPA/NHTSA to provide nationwide uniform fuel economy and GHG vehicle standards, specifically by 1) clarifying that federal law preempts state and local tailpipe GHG standards, 2) affirming NHTSA's statutory authority to set nationally applicable fuel economy standards, and 3) withdrawing California's CAA preemption waiver to set state-specific standards.

U.S. EPA and NHTSA published their decisions to withdraw California's waiver and finalize regulatory text related to the preemption on September 27, 2019 (Part One of the SAFE Vehicles Rule) (84 Fed. Reg. 51310). U.S. EPA and NTHSA published final rules to amend and establish national CO_2 and fuel economy standards on April 30, 2020 (Part Two of the SAFE Vehicles Rule) (85 Fed. Reg. 24174). The revised rule changes the national fuel economy standards for light duty vehicles from 46.7 mpg to 40.4 mpg in

future years. California, 22 other states, the District of Columbia filed a petition for review of the final rule on May 27, 2020.

On January 20, 2021, President Joseph Biden issued an executive order directing U.S. EPA and NHTSA to review the SAFE Vehicles Rule and propose a new rule suspending, revising, or rescinding it. On April 22, 2021, NTHSA issued a notice of proposed rulemaking to repeal the SAFE Vehicles Rule (49 Code of Federal Regulations Parts 531 and 533).

Public Health and Equity

Title VI of the Civil Rights Act (1964)

Passed in 1964, the Civil Rights Act is a law that protects civil rights and outlaws discrimination based on race, color, religion, sex, and national origin. Title VI specifically prohibits discrimination based on race, color, or national origin by any program or activity that receives federal funds, and any recipient of federal funds found to be violating Title VI may lose federal funding. Title VI requires each federal department and agency to execute the provisions of the act.

Executive Order 12898 (1994)

Executive Order 12898 was signed in 1994 and orders all federal agencies to make achieving environmental justice part of their mission. Agencies are directed to identify and address disproportionately high and adverse human health or environmental effects of agency programs, policies, and activities on minority and low-income populations. The order also established an Interagency Working Group on Environmental Justice that comprises the heads of numerous federal departments, agencies, and other bodies. The Working Group provides guidance to federal agencies on setting criteria to identify disproportionate effects, and to provide coordination and cooperation among agencies to develop projects and strategies that improve environmental justice outcomes (*Federal Register* 1994).

Environmental Justice Guidance Under the National Environmental Policy Act (1997)

In response to Executive Order 12898, the White House Council on Environmental Quality developed guidance for agencies to carry out the order, documented in a report titled *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. The guidance includes six principles for environmental justice analyses and provides guidance for how to assess human health or environmental effects on low-income, minority, and tribal communities and how to create opportunities for such communities and the public to participate in related planning processes (CEQ 1997). Following this guidance, federal agencies have developed (and since updated) plans, guidance, or strategies to address environmental justice through agency actions.

Executive Order 13985—Advancing Racial Equity and Support for Underserved Communities Through the Federal Government (2021)

Executive Order 13985 aims to advance racial equity by addressing issues that have historically created inequity, and to advance civil rights, social justice, and equal opportunity. The directive declares that the government will address historic failures to invest sufficiently, justly, and equally in underserved communities, and will increase investment in underserved communities by promoting equitable delivery of government benefits and opportunities. To do so, it directs agencies to conduct equity assessments and allocate resources to advance fairness and opportunity. The order defines equity as "the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment," including minorities, LGBTQ+, disabled, rural, poor, and other disadvantaged groups (White House 2021a).

Executive Order 13990—Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis (2021)

Executive Order 13990 declares a recommitment to follow scientific evidence in decision-making processes to advance public health and environment outcomes. More specifically, it states the administration's intent to ensure clean air and water, reduce GHG emissions, limit pollution and hold polluters responsible, reduce exposure to toxic chemicals, enhance environmental justice, bolster climate change resilience, and create well-paying union jobs. To do so, the order directs all executive departments and agencies to review all federal regulations and other actions made in the prior administration, and address those that conflict with the new national objectives. Specifically, it requires agency heads to propose suspending, revising, or rescinding the following rules.

- Oil and Natural Gas Sector: Emission Standards for New, Reconstructed, and Modified Sources Reconsideration.
- The SAFE Vehicles Rule Part One: One National Program.
- Energy Conservation Program for Appliance Standards: Procedures for Use in New or Revised Energy Conservation Standards and Test Procedures for Consumer Products and Commercial/Industrial Equipment.
- National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units—Reconsideration of Supplemental Finding and Residual Risk and Technology Review.

In carrying out these reviews, agencies must seek input from environmental justice organizations and other stakeholders. Additional mandates include revoking the permit for the Keystone XL pipeline and barring oil drilling in the Arctic National Wildlife Refuge, reviewing the possibility of restoring national monuments, and mandating the development of a social cost of carbon and social cost of CH_4 to be used by agencies in accounting procedures (White House 2021b).

State Regulations and Rules

California has adopted numerous statewide laws, regulations, and policies to address GHG emissions reductions, climate adaptation, and public health and equity. In many instances, California has been a trailblazer and standard setter for climate-related regulations and program. For example, California passed the Pavley 1 rule in 2002, which set the nation's first GHG standards for automobiles, and the state's GHG cap-and-trade program was the first multi-sector cap-and-trade program in North America.

GHG Emission Reductions

California Environmental Quality Act (1970)

The California Environmental Quality Act (CEQA) guidelines explain how to determine if an activity is subject to environmental review, what steps are involved in the environmental review process, and what environmental documents are required. Specifically, they require agencies to describe, calculate, or estimate the amount of GHG emissions that are expected to result from a project. They also require a determination of whether the project would directly exacerbate climate change effects (for example by increasing wildfire potential in areas where wildfire is more likely due to climate change). CEQA Guidelines apply to public agencies. CEQA Guidelines confirm agencies have discretion to determine appropriate significance thresholds, but require the preparation of an environmental impact report if "there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with adopted regulations or requirements" (AEP 2010). The guidelines were updated in 2010 and 2018 to include revisions to transportation impact analysis and GHG emissions analysis (OPR 2021a).

Assembly Bill 1493—Pavley Rules (2002, Amendments 2009)

Known as "Pavley I," AB 1493 set the nation's first GHG standards for automobiles. AB 1493 requires the California Air Resources Board (CARB) to adopt vehicle standards that will lower GHG emissions from new light-duty autos to the maximum extent feasible beginning in 2009 (CARB 2021a). In 2012, CARB strengthened the Pavley standards through the Advanced Clean Cars regulations, which limit GHG emissions from passenger vehicles for model years 2017–2025 (CARB 2021b).

Senate Bill 1078 (2002), Senate Bill 107 (2006), Senate Bill 2 (2011), Senate Bill 350 (2015), Senate Bill 100 (2018)—Renewables Portfolio Standard

SB 1078 and SB 107, California's Renewables Portfolio Standard, obligates investor-owned utilities, energy service providers, and Community Choice Aggregations to procure an additional 1 percent of retail sales per year from eligible renewable sources until 20 percent is reached, by no later than 2010. The California Public Utilities Commission and California Energy Commission are jointly responsible for implementing the program. Senate Bill (SB) X 1-2, passed in 2011, expanded the target to 33 percent of retail sales by 2020. Next, SB 350 (passed in 2015) established an ambitious long-term target to source 50 percent of

electricity retail sales from renewable resources by 2030 (CARB 2021c). In 2018, SB 100 raised the 2030 target to 60 percent, and mandates that California source 100 percent of its electricity from carbon-free resources by 2045 (California Legislative Information 2018a).

Executive Order S-3-05 (2005)

Executive Order S-3-05 states that California is vulnerable to the effects of climate change and to help mitigate it, established the following GHG emissions reduction targets for state agencies.

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The Executive Order also requires the secretary of the California Environmental Protection Agency (CalEPA) to report to the governor and state legislature biannually the impacts of global warming on California, mitigation and adaptation plans, and progress made toward reducing GHG emissions and meeting the targets established in this Executive Order (Office of Governor 2005).

Assembly Bill 32—California Global Warming Solutions Act (2006)

In 2006, AB 32—the California Global Warming Solutions Act of 2006—was adopted by the state legislature. AB 32 established a cap on statewide GHG emissions and created a regulatory framework to reduce emissions. Under AB 32, CARB is required to take the following actions:

- Adopt early action measures to reduce GHGs,
- Establish a statewide GHG emissions cap for 2020 based on 1990 emissions,
- Adopt mandatory reporting rules for significant GHG sources,
- Adopt a scoping plan indicating how emission reductions would be achieved through regulations, market mechanisms, and other actions, and
- Adopt regulations needed to achieve the maximum technologically feasible and cost-effective reductions in GHGs (CARB 2018a).

Executive Order S-01-07—Low Carbon Fuel Standard (2007)

Executive Order S-01-07 establishes a statewide goal to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. The executive order initiated a research and regulatory process at CARB, which led to regulation that became effective in 2010 (CARB 2021c). In 2018, CARB passed amendments to the LCFS that set a target to reduce fuel carbon intensity by 20 percent by 2030, compared to a 2010 baseline (CARB 2018b).

California Air Resources Board Greenhouse Gas Mandatory Reporting Rule Title 17 (2007)

In 2007, CARB approved a rule requiring mandatory reporting of GHG emissions from certain sources, pursuant to AB 32. Facilities subject to the rule started to report their emissions from the calendar year 2009 and were required to have those emissions verified by a third party in 2010. The rule applies to facilities emitting more than 25,000 MT CO_2e in any given calendar year, or electricity generating facilities with a generating capacity greater than 1 megawatt and/or emitting more than 25,000 MT CO_2e per year. Additional requirements also apply to cement plants and entities that buy and sell electricity in-state. The most recent amendments to the regulation were made in 2018, and became effective in April of 2019, for 2019 data (CARB 2021d). These amendments more clearly define current requirements for calculation and reporting, ensure that electricity import emissions are fully accounted for, and support the state's GHG cap-and-trade program.

Senate Bill 375—Sustainable Communities Strategy (2008)

SB 375 provides a planning process that coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction goals established in AB 32. SB 375 requires regional transportation plans developed by metropolitan planning organizations to incorporate a sustainable communities strategy in their regional transportation plans. The goal of the SCS is to reduce regional vehicle miles traveled (VMT) through land use planning and transportation planning. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development (Institute for Local Government 2015).

Greenhouse Gas Cap-and-Trade Program (2011)

In 2011, CARB adopted a cap-and-trade program for California. The program is a key mechanism to reduce statewide GHG emissions and achieve California's GHG reduction goals. The cap-and-trade program created a market-based system that set an overall emissions limit (a "cap") for specific sectors, which is reduced annually. The program currently regulates more than 85 percent of California's emissions, including emissions from electricity generation, large industrial sources, fuel combustion, and transportation. Revenues from the program are deposited into a GHG Reduction Fund, which then distributes appropriations to state agencies to implement programs that reduce GHG emissions (35 percent of funds are required to be directed toward environmentally disadvantaged and low-income communities). More than $5 billion in revenue has been generated since the program began. In 2014, the program linked with Quebec, Canada's cap-and-trade program through the Western Climate Initiative (C2ES n.d.).

Assembly Bill 341 (2011)

AB 341 was passed in 2011 and sets requirements for the statewide mandatory commercial recycling program. The purpose of the law is to reduce GHG emissions by diverting commercial solid waste to recycling facilities and to expand recycling services.

AB 341 requires businesses and public entities that generate four cubic yards or more of commercial solid waste and multifamily residential buildings of five units or more to arrange for recycling services. It also requires local jurisdictions to implement a commercial solid waste recycling program, including education, outreach, and monitoring to help divert waste, and to report progress annually. CalRecycle must review each jurisdiction's program periodically (CalRecycle 2020a).

Senate Bill 743 (2013)

SB 743, passed in 2013, required revisions to the CEQA Guidelines (which occurred in 2018 and became effective in 2020) to establish new impact analysis criteria for the assessment of a project's transportation impacts. The intent behind SB 743 and the CEQA Guidelines revision was to integrate and better balance the needs of congestion management, infill development, active transportation, and GHG emissions reduction (Caltrans 2021). Starting on July 1, 2020, agencies are required to look at VMT instead of levels of service when analyzing the transportation impacts of new projects. The change was made because VMT is a better measure of the transportation system's impact on the climate, environment, and human health, and also indicates access to economic and social opportunity (OPR 2021b).

Assembly Bill 1826 (2014)

AB 1826 was passed in 2014 and requires businesses and public entities that generate four cubic yards or more of commercial solid waste and multifamily residential buildings of five units or more to arrange for organic waste (e.g., food and lawncare waste) recycling services and for local jurisdictions to implement organic waste recycling programs. A 2014 report found that approximately one-third of overall waste was organic waste and seven percent was compostable paper. AB 1826 targeted this waste stream to reduce GHGs and to use the waste for more beneficial purposes such as compost, mulch, and biofuel production. The law phased in requirements over time and exempted rural counties. In 2020, CalRecycle reduced the threshold to 2 cubic yards of solid waste (CalRecycle 2020b).

Senate Bill 605 (2014) and Senate Bill 1383 (2016)—Short-Lived Climate Pollutants Reduction Strategy

SB 605 (passed in 2014) directed CARB, in coordination with other state agencies and local air districts, to develop a comprehensive Short-Lived Climate Pollutants (SLCP) Reduction Strategy. SB 1383 (passed in 2016) directed CARB to approve and implement the SLCP Reduction Strategy to achieve the following reductions in SLCPs.

- 40 percent reduction in CH_4 below 2013 levels by 2030.
- 40 percent reduction in hydrofluorocarbon gases below 2013 levels by 2030.
- 50 percent reduction in anthropogenic black carbon below 2013 levels by 2030.

The bill also establishes the following targets for reducing organic waste in landfills and CH_4 emissions from dairy and livestock operations.

- 50 percent reduction in organic waste disposal from the 2014 level by 2020.
- 75 percent reduction in organic waste disposal from the 2014 level by 2025.
- 40 percent reduction in CH_4 emissions from livestock manure management operations and dairy manure management operations below the dairy and livestock sector's 2013 levels by 2030 (BAAQMD 2020).

Final regulations to achieve the GHG reduction goals expressed in SB 1383 were codified under the California Code of Regulations (Title 14, Division 7, Chapters 3 and Title 27, Division 2, Chapters 2, 3, and 4) in November 2020. The regulation goes into effect on January 1, 2022.

Executive Order B-30-15 (2015)

Signed in 2015, Executive Order B-30-15 establishes the connection between reducing GHG emissions to limit future climate change and adapting to current and future climate change impacts. It established a statewide interim GHG reduction target to reduce GHG emissions by 40 percent below 1990 levels by 2030 to ensure the state reduces emissions 80 percent below 1990 levels by 2050, and mandated state agencies to implement measures to achieve these targets. It also requires that the California Natural Resources Agency (CNRA) update the state's climate adaptation strategy—Safeguarding California—every three years. The strategy must:

- Identify vulnerabilities to climate change by sector and regions;
- Outline the primary risks to residents, property, communities, and natural systems and identify priority actions to reduce those risks; and
- Identify a lead agency or group of agencies to lead adaptation efforts in each sector.

The order also requires state agencies to take into account current and future climate impacts in all planning and investment decisions (Office of Governor 2015).

Senate Bill 32—California Global Warming Solutions Act (2016)

In 2016, the California legislature passed SB 32, which mandates a 40 percent reduction in GHG emissions from 1990 levels by 2030 and directs CARB to use the most advanced technology feasible to achieve cost-efficient reductions in GHG emissions. SB 32 also includes an environmental justice component that requires GHG reduction targets to be met in a way that benefits the most disadvantaged communities, which are often most affected by climate change (California Legislative Information 2016b).

Assembly Bill 197—State Air Resources Board: Greenhouse Gases – Regulations (2016)

In 2016, the California Assembly passed AB 197, which provides guidance to CARB on enacting GHG emission reduction measures and making air emissions data more accessible to the public. Specifically, AB 197 requires the following.

- Presenting GHG benchmarks and toxic air contaminant data to the public.

- Considering social costs of GHG emissions.
- Prioritizing reductions from large stationary sources and mobile sources when passing emission reduction rules and regulations that protect disadvantaged communities.
- Identifying the following for each GHG emissions reduction measure.
  - Potential range of GHG emission reductions.
  - Potential range of air pollution reductions.
  - Cost-effectiveness of the measure (including social costs) (California Legislative Information 2016a).

2017 Climate Change Scoping Plan (2017)

CARB adopted the *2017 Climate Change Scoping Plan* in November 2017 to meet the GHG reduction requirement set forth in SB 32. The plan outlines how the State can reach the 2030 climate target to reduce GHG emissions by 40 percent from 1990 levels and provides a path for state regulators and policymakers to follow. Specifically, it describes how California can build on past policies and increase electric vehicle adoption, generate cleaner electricity, design denser and more walkable communities, improve energy efficiency, and reduce agricultural pollution (CARB 2021e).

Executive Order B-55-18 (2018)

Executive Order B-55-18 established a new state goal to achieve carbon neutrality as soon as possible, and no later than 2045, and to achieve and maintain net negative emissions thereafter. To track progress toward this goal, it orders CARB to work with state agencies to develop an implementation and accounting framework. It also states that all policies and programs undertaken to achieve the goal should support climate adaptation, resource conservation, biodiversity, and improve public health in urban and rural communities, particularly low-income and disadvantaged communities (Office of Governor 2018).

Innovative Clean Transit Regulation (2019)

Adopted in 2019, the Innovative Clean Transit (ICT) regulation requires all public transit agencies to transition to a 100 percent zero-emission bus fleet by 2040 and requires large transit agencies to begin to purchase zero-emission buses (ZEBs) as early as 2023. Large and small transit agencies must submit their ZEB rollout plans by July 1, 2020, and July 1, 2023, respectively. The agencies are required to phase in the proportion of ZEBs purchased over time. State funding to transit agencies is contingent upon the agencies purchasing the required level of ZEBs.

The ICT also encourages agencies to provide innovative first- and last-mile connectivity for riders. The ICT will significantly reduce NO_x and GHG emissions, especially in transit-dependent and disadvantaged communities, and is expected to provide other benefits including reduced dependency on fossil fuels, expanding the zero-emissions vehicle industry, creating high quality green jobs, and improving mobility and connectivity (CARB 2021g).

California Green Building Standards Code (2019)

The California Green Building Standards Code (Part 11, Title 24), known as CALGreen, was adopted in 2007 as part of the California Building Standards Code. It established voluntary standards that became mandatory under the 2010 edition of the code. These involved sustainable site development, energy efficiency (above California Energy Code requirements), water conservation (e.g., low-flow fixtures), material conservation, and reducing internal air contaminants. As of the writing of this Handbook, the current energy efficiency standards were adopted in 2019 and took effect in 2020 (California Building Standards Commission 2019).

California 2030 Natural and Working Lands Climate Change Implementation Plan (2019)

In 2019, CARB, CNRA, CalEPA, and other state agencies released the 2030 Natural and Working Lands Climate Change Implementation Plan that describes how effectively utilizing natural and working lands can help reduce GHG emissions and improve resilience. The plan outlines specific conservation, restoration, and management activities that will improve resilience, maintain a natural carbon sink, and improve environmental quality. The plan sets a goal to at minimum double the pace and scale of State-supported land activities by 2030 and beyond. Additionally, by 2030, the plan strives to do the following.

- Double the rate of State-funded forest management or restoration efforts.
- Triple the rate of State-funded oak woodland and riparian restoration.
- Quintuple the number of acres of cultivated lands and rangelands under State-funded soil conservation practices.
- Double the rate of State-funded wetland and seagrass restoration.

The plan estimates that these activities will decrease emissions by 12.4 to 35.9 million MT CO_2e by 2030 and reduce emissions by 83.1 to 84.2 million MT CO_2e by 2045. (CARB 2019).

Advanced Clean Truck Regulation (2020)

CARB adopted the Advanced Clean Truck (ACT) Regulation in June 2020 to accelerate a large-scale transition to zero-emission medium- and heavy-duty vehicles. The purpose of the regulation is to reduce NO_x and GHG emissions to improve air quality and public health. The regulation requires the sale of zero-emission medium- and heavy-duty vehicles as an increasing percentage of total annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55 percent of Class 2b–3 truck sales, 75 percent of Class 4–8 straight truck sales, and 40 percent of truck tractor sales. By 2045, every new medium- and heavy-duty truck sold in California will be zero-emission. The regulation requires fleet owners with 50 or more trucks to report on their existing fleet operations. The regulation is the first in the world to require manufacturers to sell increasing percentages of zero-emissions trucks (ICCT 2020). This effort is currently in litigation.

Climate Adaptation

Executive Order S-13-08 (2008)

Signed in 2008, Executive Order S-13-08 requires the CNRA to develop a state Climate Adaptation Strategy (described below) in partnership with local, regional, state, and federal entities. It also requires the development of a California Sea Level Rise Assessment Report that is reviewed every two years. Among other directives, it directs state agencies planning construction projects to assess their vulnerability to sea level rise and other climate change impacts (Adaptation Clearinghouse 2008).

California Climate Adaptation Strategy (2009) and Update (2018)

In 2009, California adopted a statewide Climate Adaptation Strategy (CAS) that summarized climate change impacts and recommended adaptation strategies for seven sectors—public health, biodiversity and habitat, oceans and coastal resources, water, agriculture, forestry, and transportation and energy. In 2018, the CNRA updated the CAS to lay out ongoing climate actions, cost-effective and achievable next steps to respond to climate change in 11 sectors, and overarching strategies to make California more resilient to climate change (CNRA 2018).

Senate Bill 246—Integrated Climate Adaptation and Resiliency Program (2015)

Signed in 2015, SB 246 establishes a statewide plan for integrated climate adaptation and resiliency that coordinates regional and local efforts with state strategies to effectively adapt to climate change. The program emphasizes climate equity considerations throughout all sectors and regions to help develop holistic strategies for climate adaptation. The bill requires numerous state agencies and other government bodies to coordinate with local and regional efforts to do the following.

- Develop tools and guidance.
- Promote and coordinate state agency support for local and regional efforts.
- Inform state-led programs to better facilitate local and regional goals and efforts to improve adaptation and resilience (California Legislative Information 2015).

As a result of SB 246, in 2020, a new version of the California Climate Adaptation Planning Guide was developed by the California Governor's Office of Emergency Services and OPR to include new requirements for local adaptation planning.

Senate Bill 379 (2015)

SB 379 was adopted in 2015 to ensure that climate adaptation is integrated into local jurisdictions' general plan processes. Jurisdictions must review and update the safety elements of their general plans to include climate adaptation and resilience strategies. The bill requires jurisdictions to do the following in their safety element review and update.

1. Conduct a vulnerability assessment that identifies climate change risks.

2. Set adaptation and resilience goals, policies, and objectives based on the vulnerability assessment.
3. Set feasible implementation measures to achieve the goals and objectives.

Jurisdictions with a local hazard mitigation plan (LHMP) or a climate adaptation plan that meet these requirements can comply with SB 379 by incorporating these documents by summary in the safety element. For jurisdictions that have already adopted a local hazard mitigation plan, these requirements were to be satisfied upon the next of the LHMP starting January 1, 2017; those without an LHMP must update the safety element of the general plan by January 1, 2022 (OPR 2017).

Sea-Level Rise Policy Guidance (2015) and Science Update (2018)

The California Coastal Commission adopted the Sea-Level Rise Policy Guidance in 2015. The guidance provides an overview of the sea level rise science and a methodology for addressing sea level rise in the Coastal Commission planning and regulatory actions. The Coastal Commission describes the guidance as "a menu of options" that local planners can select from as appropriate, rather than a checklist of requirements. The guidance is broadly applicable and is used by the Coastal Commission, local governments, project applicants, and other stakeholders.

In 2018, the Coastal Commission adopted a "Science Update" to the guidance that integrates the best available scientific data. The update provides broad recommendations for how to plan for and address sea level rise impacts, and includes new projections that can inform planning, permitting, investment, and other decisions (CCC 2019).

California Water Action Plan (2016)

The California Water Action Plan sets forth a collection of actions developed by the CNRA, California Department of Food and Agriculture, and CalEPA with the goals to improve reliable water supply, restore the state's ecosystems, and build a resilient and sustainable water resource system. The plan provides specific actions to improve water conservation, protect and restore ecosystems, improve drought planning, expand water storage, recycle water, and identify sustainable and integrated financing opportunities. The Water Action Plan also emphasizes diversified regional supply portfolios to increase resilience to droughts, floods, population growth, and climate change (CNRA 2016).

State Water Board Resolution 2017-0012—Comprehensive Response to Climate Change (2017)

The State Water Resources Control Board (State Water Board) has taken a variety of actions to respond to climate change, including the adoption of Resolution 2017-0012 in 2017, known as the Comprehensive Response to Climate Change. The resolution requires that proactive measures to respond to climate change must be integrated into all State Water Board actions. The resolution outlines specific measures to reduce GHG emissions, improve ecosystem resilience, and respond to climate change impacts. Some measures include capturing CH_4 to support the SLCP Reduction strategy, improve water efficiency and

conservation, recycle water, improve storm water capture infiltration, and improve energy efficiency and use renewable energy to power water systems (State Water Board 2017).

Senate Bill 901—Wildfire Preparedness and Response (2018)

The Wildfire Preparedness and Response bill, signed in 2018, supports the state's climate adaptation and resilience efforts in response to increasingly frequent and extreme wildfires. The bill allocates $200 million annually from 2019 through 2024 to fund grants to fire departments, cities, counties, and nonprofit organizations to help reduce forest fuel loads with thinning and prescribed burns in high-risk areas. The California Department of Forestry and Fire Protection (CAL FIRE) distributes the funding and will create a Wildfire Resilience Program to provide technical assistance to non-industrial timberland owners. It also requires CARB to develop a standardized approach to quantifying the carbon emissions from fuel reduction activities and the emissions attributed to wildfires. Furthermore, SB 901 creates a s process for electrical utilities to seek approval to recoup costs from wildfires, but also requires them to create and implement wildfire mitigation plans (Adaptation Clearinghouse 2018).

Senate Bill 1035 (2018)

Local California jurisdictions are required to adopt a comprehensive, long-term general plan that includes, among other things, a housing element and safety element to protect against geologic and climatic hazards. SB 1035 requires local planning agencies to review, and if necessary, revise the safety element during each revision of the housing element or a local hazard mitigation plan, and not less than once every eight years. The review must identify any new information related to flood and fire hazards and adaptation and resiliency strategies that are applicable to the jurisdiction (California Legislative Information 2018b).

Public Health and Equity

Senate Bill 535 (2012) and Assembly Bill 1550 (2016)—Disadvantaged and Low-Income Communities

SB 535 requires California to invest a portion of the proceeds from cap-and-trade auctions—the Greenhouse Gas Reduction Fund (GGRF)—in disadvantaged communities. At least 25 percent of funds must benefit disadvantaged communities, and at least 10 percent must be invested directly in disadvantaged communities. In 2016, AB 1550 updated the GGRF funding targets to 25 percent for projects located within and directly benefiting disadvantaged communities, and 10 percent for low-income households or communities.

SB 535 requires CalEPA to identify disadvantaged communities in California based on environmental pollution burden, exposure, socioeconomic characteristics, and other criteria. To identify communities, CalEPA relied upon the California Communities Environmental Health Screening Tool (CalEnviroScreen), which scores all census tracts in California for their exposure and vulnerability to pollution burden. CalEPA defined disadvantaged communities as those scoring in the top 25th percentile of CalEnviroScreen scores.

Low-income households and census tracts are defined as those at or below 80 percent of the statewide median income, or at or below the low-income threshold for each county set by the California Department of Housing and Community Development.

Senate Bill 1000—Land Use: General Plans: Safety and Environmental Justice (2016)

SB 1000 requires cities and counties with disadvantaged communities to include an environmental justice element in their General Plans to ensure that local governments address environmental justice when planning long-term goals and policies related to land use and growth. To do so, local governments must identify any disadvantaged communities and develop measures to mitigate and reduce health risks that can be attributed to the environment. Additionally, the bill requires cities and counties to create policies to include members of disadvantaged communities in decision-making processes and to prioritize projects and improvements in those communities (Strategic Growth Council 2021). OPR has developed updated and expanded guidance on environmental justice and SB 1000 (OPR 2021).

Assembly Bill 2722—Transformative Climate Communities Program (2016)

AB 2722 was signed in 2016 to help create more sustainable cities, address climate justice, and help California meet its GHG emissions reduction goals. To achieve this, the California Strategic Growth Council created the Transformative Climate Communities program, which issues competitive grants to eligible entities to help develop "transformative" climate community plans. Entities must use the funds to implement community plans that improve air and water quality, reduce GHG emissions, and that show the potential to provide climate, economic, employment, health, and environmental benefits to disadvantaged communities. Up to $250 million in funding will be provided for the program (California Legislative Information 2016c).

Assembly Bill 617 (2017)

Passed in 2017, AB 617 requires the State to develop a statewide annual reporting system for emissions of criteria air pollutants and toxic air contaminants for certain stationary sources. It also requires the State to prepare a monitoring plan for emissions and to prepare a statewide strategy to reduce emissions of toxic air contaminants and criteria pollutants in communities that experience a high cumulative exposure burden. Environmental justice groups and other stakeholders must be consulted in developing the monitoring plan, and the reduction strategy must be updated every five years. Furthermore, the law requires the provision of grants to community organizations for technical assistance and requires air districts to adopt community emissions reduction programs (California Legislative Information 2017).

In response, CARB established the Community Air Protection Program (CAPP), which focuses on reducing pollution exposure to communities that are most affected by air pollution. CAPP includes community air monitoring and emissions reductions programs, which are funded to deploy clean technologies in communities. Additional funding is used

to retrofit pollution controls on industrial sources. The CAPP also increases penalty fees for polluters and improves transparency and greater access to air quality and emissions data (CARB 2021f).

Additional Resources

For additional information, interested readers can reference the following resources. Please also refer to Chapter 6, *Resources to Support Resilient and Equitable Emission Reduction Planning*.

- **CNRA's (2018) *Safeguarding California Plan: 2018 Update***. The plan provides a timeline highlighting climate adaptation policies in California.
- **Georgetown Climate Center (n.d.)**. The Georgetown Climate Center offers an overview of and links to all state and agency laws and policies, as well as local and regional plans that guide California's approach to planning for climate change.
- **CARB (2021h) Local Actions for Climate Change**. CARB's website provides background information and resources to help local government take part in helping California achieve its climate goals.
- **Berkeley Law (2021) California Climate Policy Dashboard**. The dashboard collects all major state laws and programs in a concise format to provide background and direct links to resources related to climate policies.
- **OPR's (2021c) Resilient California Adaptation Clearinghouse**: The State's Adaptation Clearinghouse is a searchable database of the many resources that are useful for local, regional, and state adaptation planning efforts. Resources include tools, case studies, guidelines, scientific reports, and more. It also contains a clearinghouse for equity and environmental justice.
- **ARCCA (2021) Website**: The Alliance of Regional Collaborative for Climate Adaptation (ARCCA) is a network of regional collaboratives and allies that work to advance statewide adaptation and community resilience efforts. Their website tracks the latest policy updates, describes ongoing resilience and equity initiatives, and provides additional resources such as toolkits and roadmaps.

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