

State Agency Greenhouse Gas Reduction Report Card

Background

Under Section 12892 of Part 2.5 of Division 3 of Title 2 of the Government Code, the California Environmental Protection Agency (CalEPA) is required to prepare an annual report describing state agency actions to reduce greenhouse gas (GHG) emissions. CalEPA is required to compile and organize this information in the form of a 'Report Card' and post it on the CalEPA website. The report reflects information gathered in 2014. The reports of actual GHG reductions are current as of 2013, the last year of available data. Projections of future GHG emissions were current as of October 2014, when state agencies were required to submit their information to CalEPA.

The statute requires that the Report Card include the following:

- A list of those measures that have been adopted and implemented by the state agency with the actual GHG emissions reduced as a result of these measures.
- A list and timetable for adoption of any additional measures needed to meet GHG emission reduction targets.
- A comparison of the reductions from actions taken or proposed to be taken by a state agency to that agency's GHG emission reduction targets.
- An estimate of the greenhouse gas emissions from each agency's own operations and activities.

Climate Change Report Card Tables

The required information is organized into four tables as described below:

TABLE 1: On-going Measures and Reductions in 2013:

A number of GHG emission reduction measures are already in place and operational. Table 1 shows the emission reductions achieved by these measures in calendar year 2013, as reported to CalEPA by the responsible agencies.

TABLE 2: GHG Reduction Strategies, and Timelines for Implementation:

Table 2 includes measures anticipated for implementation over the next few years, along with the expected GHG reduction from each measure, and the timeframe for completion.

The timeframes noted in Table 2 reflect current estimates based on the work to date. Where the timetable indicates "To Be Determined (TBD)", work on the measure is in preliminary stages. Measures described as "on-going" have already begun but either the final completion dates are still to be determined, or they are programs being implemented on a continuous basis. Future Report Cards will update these completion dates as implementation efforts mature.

There are several factors to consider regarding the reported GHG emission reductions in Table 2. A number of strategies have cross-agency implementation responsibilities. Agencies will refine their reduction targets for these strategies as implementation actions progress. The total reduction for these measures may be listed twice in some cases to reflect that each agency is responsible for some portion of the reductions. Also, several individual measures

have interacting impacts so that the reduction numbers from each are not strictly additive (as recognized and explained in the AB 32 Scoping Plan, which can be found at <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>).

TABLE 3: GHG Reduction Target Comparison:

Table 3 summarizes the reductions shown in Tables 1 and 2, and compares the 2020 goals from Table 2 with the annual reductions from current programs shown in Table 1. Reductions shown are only those achieved within California during the given year. The annual figures are not cumulative and do not reflect reductions that might occur out-of-state.

TABLE 4: Climate Action Team (CAT) – GHG Inventory Status:

Each CAT agency is required to report an estimate of the greenhouse gas emissions from their own operations and activities. Table 4 lists the CAT agencies, boards, departments and commissions, and the current status of the greenhouse gas inventory activities for each. The information in this Table was provided to CalEPA by the named agency or department.

The GHG inventories are conducted using protocols established by The Climate Registry (TCR)*. Inventories identified as ‘verified’ have been verified by an approved third party and submitted to the registry. The verified inventory reports can be found on the registry’s websites: <http://www.theclimateregistry.org/public-reports>.

*Originally chartered by the state of California as the California Climate Action Reserve

Please direct any questions or comments to John Blue: John.Blue@calepa.ca.gov

Abbreviations:

ARB – Air Resources Board	GWh – Gigawatt hour
CAL FIRE – California Department of Forestry & Fire Protection	GWP –Global Warming Potential
CAT -- Climate Action Team	LEED – Leadership in Energy and Environmental Design (certification program)
CDFA – California Department of Food & Agriculture	MMBtu – Million British Thermal Units
CEC – California Energy Commission	MMTCO ₂ E - Million Metric Tons of CO ₂ Equivalent
CalRecycle – California Department of Resources Recycling and Recovery	MTCO ₂ E - Metric Tons of CO ₂ Equivalent
CPUC – California Public Utilities Commission	MW – Megawatt
DGS – Department of General Services	MWh – Megawatt hour
DWR – Department of Water Resources	OPR – Office of Planning and Research
GHG – Greenhouse Gas	SF ₆ – Sulfur Hexafluoride
GW – Gigawatt	SWRCB – State Water Resources Control Board

TABLE 1: ONGOING MEASURES AND RELATED GHG EMISSION REDUCTIONSMMTCO₂e - Million Metric Tons of CO₂ Equivalent

California Air Resources Board Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Pavley (AB 1493)	This regulation, required by AB 1493 (Pavley, Chapter 200, Statutes of 2002) sets fleet-average GHG standards for new passenger vehicles, phasing in over 2009-2016. The emission reductions increase to 26 MMTCO ₂ e annually in 2020 as the GHG standards are fully implemented.	4.9	7.6
Diesel Anti-Idling	This Air Toxic Control Measure limits general idling of all commercial and publicly owned diesel-fueled vehicles with a gross vehicle weight of greater than 10,000 pounds. This regulation reduces diesel particulate matter and also reduces the amount of diesel fuel used in California, saving 50 million gallons per year. Each gallon saved reduces climate change emissions by 0.01005 metric tons of CO ₂ (MTCO ₂ e).	0.4	0.35
Tire Pressure Program	This strategy requires specified automobile servicing businesses to ensure proper tire inflation at the time of service, as well as public education about proper tire inflation.	0.7	0.7
Goods Movement (Drayage Trucks)	This regulation requires the reduction of GHG, diesel particulate matter (PM), and oxides of nitrogen (NOx) emissions from drayage trucks operating at, or transporting cargos to or from, California's ports and intermodal rail yards through retrofits, and fleet turnover of pre-1994 trucks.	0.1	0.1
Ship Electrification	This regulation requires most container, passenger, and refrigerated cargo ships to shut off their auxiliary engines while at dock and receive power from the electrical grid, or reduce their emissions by a similar amount via the implementation of other technologies.	<0.1	<0.1
Reduction of Refrigerant Emissions from Non-Professional Services	This regulation requires a self-sealing valve on small cans of refrigerant, and a deposit and recycling program for the cans.	0.3	0.3

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Air Resources Board Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
SF ₆ Limits in Non-Utility and Non-Semiconductor Applications	This regulation achieves GHG emission reductions from SF ₆ use in non-semiconductor and non-utility applications through a phase-out of use over several years. The use and sales requirements exclude a limited number of uses such as use in eye surgeries.	<0.1	<0.1
High Global Warming Potential GHG Reduction in Semiconductor Operations	This regulation requires semiconductor operations to use process optimization, alternative chemistries, and abatement technologies in combination or separately to reduce GHGs. The emission standards apply to semiconductor operations that emit more than 0.0008 MMTCO ₂ e per year. Reduction of GHG emissions from this measure began in 2012.	0.2	0.2
Global Warming Potential Use in Consumer Products	This regulation sets Global Warming Potential (GWP) limits for compounds used in specific consumer products.	0.2	0.2
Refrigerant Management Program	This regulation requires facilities with large refrigeration systems with more than 50 pounds of high-GWP refrigerant to conduct periodic leak inspections, promptly repair leaks, and keep service records on site. These facilities are also required to register and submit annual refrigerant usage reports to ARB. This regulation also affects any person who installs, services, or disposes of any appliance using a high-GWP refrigerant; as well as refrigerant wholesalers, distributors, and reclaimers. The regulation became effective January 1, 2011. The 2012 emission reductions are based on facilities with "large" refrigeration systems (greater than 2,000 lbs.) that have reported. The 2013 emissions are based on facilities with large and medium (200 to 2,000 lbs.) refrigeration systems that have reported. The annual leak rate for these facilities was reported to have been reduced from 25 to 14 percent annually.	0.5	1.4
SF ₆ Emission Reductions from Gas Insulated Switchgear	This regulation sets an annual emission rate limit for sulfur hexafluoride as a proportion of an entity's capacity of sulfur hexafluoride in gas-insulated switchgear. The maximum allowable annual emission rate was ten percent for 2011 and will decrease one percent per year until 2020, at which point the maximum allowable annual emission rate remains at one percent.	<0.1	<0.1

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Air Resources Board Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Landfill Methane	This regulation requires enhanced control of methane emissions from municipal solid waste landfills and requires owners and operators to install gas collection and control systems at smaller and other uncontrolled landfills. Affected landfills are required to implement advanced methane monitoring requirements. Design Plans were required by June 17, 2011 and emission controls are required within 18 months after approval of the Design Plan for active municipal solid waste (MSW) landfills or within 30 months after approval of the Design Plan for closed or inactive MSW landfills.	0.15	0.18
Low Carbon Fuel Standard	This regulation requires fuel providers in California to ensure that the mix of fuel they sell into the California market meets, on average, a declining standard for GHG emissions measured in CO ₂ equivalent grams per energy unit of fuel sold. Estimated reductions include those achieved by over-compliance with the regulation.	1.6	3.7
Heavy-Duty Vehicle Aerodynamic Efficiency	This regulation reduces GHG emissions from long-haul tractors and 53-foot or longer dry-van and refrigerated-van trailers pulled by these tractors, by requiring them to be either U.S. Environmental Protection Agency SmartWay certified or retrofitted with SmartWay verified aerodynamic technologies and low rolling resistance tires.	0.1	0.4
Medium- and Heavy-Duty Vehicle Hybridization	This incentive program reduces the GHG emissions of urban, stop-and-go vehicles, such as parcel delivery trucks and vans, utility trucks, garbage trucks, transit buses, and other vocational work trucks, through the use of hybrid and zero-emission technology. Incentives for hybrid and zero-emission trucks became available starting the first quarter of 2010 and the program will continue into 2015 with up to \$15 million in additional funding augmenting the \$69 million previously allocated.	<0.1	0.4

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Air Resources Board Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
With California Energy Commission, California Building Standards Commission Specifications for New Supermarket Refrigeration	The measure sets minimum prescriptive standards for energy efficient refrigeration systems and for design and installation of leak-tight refrigeration systems, which will apply to new supermarket construction and new supermarket refrigeration installation beginning January 1, 2014. The measures have been added to the California Title 24 Building Standards Code, Part 6 (Energy Efficiency), and Part 11 (Green Building Standards Code). GHG emission reductions are expected from increased energy efficiency, and from reduced refrigerant leakage. Estimated reductions are expected to be 0.5 MMTCO ₂ e annually by 2020, and as more supermarkets replace their older systems with newer systems, the reductions are expected to achieve a maximum of 1.2 MMTCO ₂ e annually by 2030.	N/A	N/A

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Department of Forestry and Fire Protection (CAL FIRE) Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Sustainable Forests (various programs)	Existing state and federal regulations and assistance programs. Recent research shows California forests increasing in growing stock ¹ and likely sequestering more than 5.0 MMTCO ₂ e per year. ² CAL FIRE, federal and other known state forest sector activities contributing to current sequestration rates include:		
Forest Practices	Annual benefit from California Forest Practice Act rule changes instituted in December 2004 equals 2.2 MMTCO ₂ e. ³	2.2	2.2
Urban Forestry	CAL FIRE funded planting of zero trees in 2013 for a cumulative total of 75,988 trees since 2005 resulting in annual reductions of 0.0009 MMTCO ₂ e. ⁴ Annual sequestration is based on cumulative numbers of trees since sequestration increases over time as trees mature. Educational programs enhance effectiveness of voluntary tree planting by homeowners, utilities and others, but we cannot reliably track voluntary outputs at this time.	<0.1	<0.1
Forest Legacy	CAL FIRE conserved zero acres in 2013 for a one time avoided conversion emission of 0.0 MMTCO ₂ e. ⁵ Ongoing annual uptake benefits from conservation purchases by other agencies in 2005-2007 total 0.02 MMTCO ₂ e. ⁶ CAL FIRE has not tracked subsequent conservation purchases.	0.3	0.0

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Department of Forestry and Fire Protection (CAL FIRE) Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
-Vegetation Management Program (VMP)	CAL FIRE conducted fuel reduction on 14,147 acres using mechanical or manual treatments and 6,067 acres using prescribed burning in 2013. No reliable methodology for calculating avoided fire emissions is available at this time. Biomass is not being used for energy, thus no avoided fossil fuel benefits are being realized at this time. CAL FIRE does not track fuel treatments and biomass utilization by federal agencies. CAL FIRE is revising its Vegetation Treatment Program EIR and will conduct a more detailed analysis of fuel treatment emissions. ⁷	N/A	N/A
California Forest Improvement Program (CFIP)	CFIP planted 44 acres in 2013 for a cumulative total of 1,994 acres since 2005. Annual sequestration from cumulative acres planted since 2005 are still negligible, since the methodology assumes near-term emissions from site preparation treatment. The methodology likely underestimates benefits for reforestation projects conducted immediately after wildfires, however, and should be revisited. ⁸ In addition, CFIP treated 6,359 acres for fuel reduction in 2013.	0	0
Fire Plan and Fire Prevention	The Fire Plan and Fire Prevention programs treated 9,645 acres in 2013.	N/A	N/A

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Department of Forestry and Fire Protection (CAL FIRE) Program Title	Description of Measures	Emission Reductions, MMTCO₂e	
		2012	2013
Other Federal Grants	Federal grants for biomass utilization treated 589 acres for a fuel reduction of 4,571 bone dry tons, which equals an unspecified offset of fossil fuel emissions.	N/A	N/A
<p>CAL FIRE NOTES:</p> <p>¹ CAL FIRE anticipates revisions to the estimate of carbon sequestration in California forests with recently revised estimates from Forest Inventory and Analysis data (FIA) that are currently under review by CAL FIRE and the Forest Climate Action Team (FCAT). New estimates should be made available by June, 2015.</p> <p>² Smith, James E., and Linda S. Heath. 2008. Carbon stocks and stock changes in U.S. forests, and Appendix C. P. 65-80, C-</p> <p>³ CAL FIRE, Forest Conservation Management Strategy, AB 32 Scoping Plan, Appendix C, p. 166.</p> <p>⁴ Benefits estimated using methodology developed for Urban Forestry Strategy in CAT Report and AB 32 Scoping Plan.</p> <p>⁵ Benefits estimated using methodology developed for Forest Conservation Strategy in CAT Report and AB 32 Scoping Plan.</p> <p>⁶ Personal communication, DFG; Resources Agency Prop 40/50 database.</p> <p>⁷ Personal communication, CAL FIRE Vegetation Management Program.</p> <p>⁸ Benefits estimated using methodology developed for Reforestation Strategy for AB 32 Scoping Plan.</p>			

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Department of Resources, Recycling and Recovery (CalRecycle) Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Statewide Recycling	CalRecycle provides assistance to local jurisdictions, businesses and the public with their recycling efforts. In 2013, a per-resident disposal rate of 4.3 pounds/resident/day was calculated using SB 1016's measurement system; the per-resident "diversion rate equivalent" was 65 percent. ¹ The Budget Act of 2014 authorized CalRecycle to issue grants that result in reduced greenhouse gas emissions. CalRecycle awarded \$5 million for three fiber, plastic and glass recycling projects that increases the amount of material being landfilled, reduces greenhouse gases and focuses on infrastructure development.	**	**
CALRECYCLE NOTES: ** Emission reduction not quantified. ¹ Achieved 65 percent in 2010; 65 percent in 2011; 66 percent in 2012; 65 percent in 2013.			

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Department of Transportation (Caltrans) Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Alternative Cement and Concrete Strategies	In 2009, Caltrans amended their Standard Specifications for concrete to allow contractors to use less energy-intensive concrete mixes. These alternatives include fly ash, blast furnace slag, and silica fume. Caltrans is also looking into ways to reduce GHG emissions associated with concrete. These include prototyping use of roller-compacted concrete which requires less cement as a binding agent and thereby reduces life-cycle emissions. Completed work on new construction specifications for 2015 implementation that provide for increased use of recycled portland cement concrete. These specifications establish the means by which up to 15 percent returned plastic concrete (excess portland cement concrete that has not yet hardened) can be used for specified infrastructure improvements. In addition to conservation of water and other resources, this provides for a 16.2 percent reduction in embodied energy and a 15.3 percent reduction in carbon footprint for items using returned plastic concrete.	<0.1	<0.1
Alternative Asphalt Strategies	Caltrans has multiple initiatives to reduce the carbon content of asphalt and the energy required to lay it; Cold-in-place Recycling, Rubberized hot-mix Asphalt, and Rubberized warm-mix Asphalt. Caltrans use of alternatives to hot mix asphalt reduces its operational GHG emissions by over 61,000 tons per year.	<0.1	<0.1
Alternative Fuel and Fleet Strategies	Caltrans has been working to conserve fleet fuel use since the mid-1980s by developing more efficient ways to manage the fleet. Recent efforts focus on using alternative fuels and more efficient vehicles in its fleet and equipment, including: Biodiesel fuel, Ethanol fuel, Liquefied petroleum gas (propane), Compressed natural gas (CNG), Hydrogen fuel cell vehicles, and Hybrid electric vehicles.	<0.1	<0.1

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Department of Transportation (Caltrans) Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Alternative Employee Commuting Strategies	Caltrans has many employee commute programs in place that reduce the need to drive to work. These include monthly bus passes, emergency ride home vouchers, subsidies for vanpools, carpool matching services, and secure-access bicycle parking.	<0.1	<0.1
LED Roadway Lighting	Over the past several years, Caltrans has begun to require that most of the highway lighting system use light-emitting diode (LED) light fixtures. Statewide deployment started in 2010, full project funding was approved in February 2012, and full deployment is expected in 2014/2015.	<0.1	<0.1
Facility Efficiency and Energy Conservation	Caltrans continues to work towards reaching the goals articulated in the Drought State of Emergency Proclamation, the Executive Order B-16-2, and the Executive Order B-18-12 to support the state's renewable power statutes, "green power" electric grid demand, energy and water conservation, Leadership in Energy and Environmental Design (LEED) standards, climate change mandates, and the zero-emission vehicles mandates. Several of the most widely-deployed strategies to reduce GHG emissions at Caltrans administrative facilities, include: LEED certified buildings and leased office space, data center upgrades, energy efficient lighting, low flow toilets and water fixtures, and other energy efficiency upgrades and retrofits.	<0.1	<0.1

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Department of Food and Agriculture	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Fertilizer Research and Education Program	In collaboration with the Air Resource Board and the California Energy Commission, the CDFA Fertilizer Research and Education Program (FREP) is funding research to understand nitrous oxide (N ₂ O) levels from nitrogen fertilizers added to corn, tomatoes, and cotton crops. Research began in 2009. Research for tomatoes and cotton is expected to be completed at the end of 2014. Corn research will be completed at the end of 2015.	**	**
Specialty Crop Block Grant Program	Several research projects related to GHG reductions were funded under the 2010 Specialty Crop Block Grant Program. The research focus called for projects that address specialty crop agriculture's contribution to adaptation and/or mitigation of climate change.	**	**
Dairy Digesters	Dairy systems generate significant amounts of methane from onsite waste lagoons. A dairy digester (or biodigester) is a technology that uses dairy waste to generate and capture methane gas which is in turn used for energy production. This process results in reduced greenhouse gas emissions from dairy systems. CDFA, U.S. Environmental Protection Agency, and U.S. Department of Agriculture will work with other relevant state and local agencies, as well as industry stakeholders, to address the technical, regulatory and economic barriers for a robust dairy digester sector in California.	**	**

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Department of Food and Agriculture Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Biofuels	<p>Biofuels (fuels from plants) have been found to release less GHG compared to fossil fuels. CDFA, in partnership with scientists at UC Davis, and with funding from the California Energy Commission Public Interest Energy Research Program, have recently completed a four-year study to evaluate the economic, beneficial environmental performance of six bioenergy crops.</p> <p>Crops under evaluation included oilseed crops camelina, canola and meadowfoam which can be formulated into biodiesel along with grasses; sweet sorghum, energy cane and sugar cane which can be transformed into ethanol. Field trials evaluated crop varieties, fertilization, irrigation and planting date trials. The project also examined the economic conditions under which bio-energy crops could be adopted in California by use of the Bioenergy Crop Adoption Model (BCAM), a multi-region, multi-input and multi-output model. Click here for Draft Final Report: California Transportation Fuels Crops Development and Demonstration Project.</p>	**	**
Fuel Quality and Standards	<p>CDFA's Division of Measurement Standards is responsible for evaluating fuel quality and standards in California. The establishment and enforcement of fuel quality standards facilitates low carbon fuels to entering into the market. CDFA worked through ASTM to establish a fuel quality specification for Dimethyl Ether, a potential low carbon fuel and is leading the effort to establish the fuel quality specification for Natural Gas.</p>	**	**
<p>CDFA NOTES: ** Emission reduction not quantified.</p>			

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Energy Commission Program Title	Description of Measures	Emission Reductions, MMTCO₂e	
		2012	2013
Appliance Energy Efficiency Standards	The Appliance Efficiency Regulations increase efficiency of appliances sold to California consumers and businesses. Emission reductions result from energy-efficient appliances consuming less electricity and natural gas, avoiding emissions associated with electricity generation and natural gas combustion. Using the California Energy Demand (CED) 2013 final forecast and 2007 as a base year, cumulative electricity savings for 2008 through 2012 was 6,705 GWh. ¹ Electricity savings in 2013 was estimated to be 1,990 GWh. Natural gas savings between 2008 and 2013 was estimated to be 133 million therms. Estimates use a CO ₂ emissions factor for each MWh of electricity avoided of 0.267 MTCO ₂ e. ² Estimates use a CO ₂ emissions factor for each MMBtu of natural gas combustion avoided of 0.00529 MTCO ₂ e. One therm equals 0.1 MMBtu.	2.5	3
Building Energy Efficiency Standards	The Building Energy Efficiency Standards are designed to increase the efficiency of all newly constructed residential and nonresidential buildings and additions and alterations to existing buildings in California. The strategy is to develop, implement, and enforce standards that require and result in reductions in energy and water use in buildings. Estimates use a CO ₂ emissions factor for each MWh of electricity avoided of 0.267 MTCO ₂ e. ² Estimates use a CO ₂ emissions factor for each MMBtu of natural gas combustion avoided of 0.00529 MTCO ₂ . Using the CED 2013 final forecast and 2007 as a base year, cumulative electricity savings for 2008 through 2012 was 2,315 GWh. Electricity savings in 2013 was estimated to be 466 GWh. Natural gas savings was estimated to decline in 2013, but cumulative natural gas savings from building standards between 2008 and 2013 was estimated to be 77 million therms.	1.1	1.2

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Energy Commission Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Comprehensive Publicly Owned Utility Customer Energy Efficiency Programs	The publicly owned utilities (POU) in California offer electricity efficiency (EE) programs to their ratepayers. The publicly owned utilities reported GHG emissions reductions for the first time in 2007. Their programs achieved cumulative savings of 2,468 GWh between 2008 and 2012. ³ POU EE savings in 2013 was 521.5 GWh for 0.14 MMTCO ₂ e. Six years of POU EE savings between 2008-2013 equal 2,990 GWh for 0.8 MMTCO ₂ e. All figures use a GHG factor of 588 lbs CO ₂ /MWh or 0.267 MTCO ₂ e per MWh avoided. ²	0.7	0.8
CEC NOTES:	<p>¹ The estimates are based on the California Energy Demand 2014-2024 (CED 2013) final mid-case scenario which can be found at: http://www.energy.ca.gov/2013_energypolicy/documents/demand-forecast_CMF/mid_case/</p> <p>² Energy Commission staff use a GHG emission factor of 588 lbs CO₂/MWh or 0.267 MTCO₂/MWh to estimate the GHG emission attribute of electricity savings for the period 2008 through 2013. The Energy Commission is working with other agencies to develop a consistent methodology for estimating GHG emission reductions from efficiency and renewable energy policies and projects in California.</p> <p>³ Cumulative electricity savings from publicly owned utility energy efficiency programs for years 2008-2013 are reported in <i>Energy Efficiency in California's Public Power Sector – A Status Report</i> (2014), page 2. The POU's have developed a technical manual to standardize evaluation of energy efficiency program savings. The manual can be found at: http://cmua.org/wpcmuawp-content/uploads/2014/05/CMUA-_TRM-manual_5-5-2014_Final.pdf</p>		

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Public Utilities Commission	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Program Title			
California Solar Initiative	<p>SB1 (Murray, Capter 132, Statutes of 2006) established a \$3 billion rebate program to support the deployment of 3,000 MW of distributed solar generation capacity statewide through 2016. The CPUC's portion of this goal and associated budget is 1,940 MW and \$2.4 billion. To calculate the avoided emissions enabled by this program, each MWh of electricity is assumed to displace energy with the following utility-specific emissions factors: 0.26 MTCO₂e for Pacific Gas & Electric (PG&E); 0.32 MTCO₂e for Southern Califronia Edison (SCE); and 0.35 MTCO₂e for San Diego Gas & Electric (SDG&E). Reductions for 2013 are based on systems installed and operating through 2013, which represented a total of 1,382 MW nameplate capacity.</p>	0.5	0.6
California Solar Initiative – Thermal Program (Solar Water Heating)	<p>The CPUC's California Solar Initiative (CSI)-Thermal program offers incentives based on the amount of natural gas or electricity displaced by solar water heaters. Incentives are available for residential, multifamily and commercial applications. The program was created in January 2010 (by Decision (D).10-01-022, modified in 2012 by D.12-08-008, pursuant to AB 1470), and in 2013 by D.13-02-018 (new technologies beyond domestic hot water) and D.13-08-004 (non-single family swimming pools).</p> <p>In 2007, the Legislature authorized a new \$250 million program to be funded by natural gas ratepayers with a goal of promoting 200,000 solar thermal systems that displace natural gas use by 2017. In 2011, the CPUC authorized a low-income component of the CSI-Thermal Program with a \$25 million budget dedicated to low-income solar water heating incentives funded by gas ratepayers pursuant to AB 1470 (Huffman, Chapter 536, Statutes of 2007). In 2013, CSI-Thermal systems installed to date result in reductions of 7,500 MTCO₂e per year.</p>	<0.1	<0.1

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Public Utilities Commission	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Program Title			
Self-Generation Incentive Program	From 2009 through 2013 the SGIP program generated 3,934 GWh, avoiding 1.1 MMTCO ₂ E.	0.3	0.3
Investor-Owned Utilities Energy Efficiency Programs	The CPUC funds energy efficiency (EE) programs through the resource procurement budgets of the utilities, as required by Public Utilities Code Section 454.5 (b) (9) (C). The programs developed for energy efficiency reach residential - single family, residential - multi-family, commercial, industrial, and agricultural customers of investor-owned distribution utilities. Reductions in 2013 are based on gross savings from installed and operating measures from the 2007 through 2013 program years, including 7.8 percent assumed avoided line losses for consistency with the methodology of ARB's Climate Change Scoping Plan. Cumulative gross savings in 2013 were 17 million MWh of electricity (absent avoided line losses) and 300 million Therms of natural gas. Each MWh of electricity avoided emissions by 0.28 MTCO ₂ e, the weighted average emissions intensity of PG&E, SCE and SDG&E. ¹ Each avoided Therm is assumed to reduce emissions by 0.053156 MTCO ₂ e, reflecting the CO ₂ that would otherwise be emitted through the combustion of natural gas.	7.2	6.9

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Public Utilities Commission Program Title	Description of Measures	Emission Reductions, MMTCO₂e	
		2012	2013
Renewables Portfolio Standard	The California Renewables Portfolio Standard (RPS) Program was established by SB 1078 (Sher, Chapter 516, Statutes of 2002), and has been subsequently modified by SB 107 (Simitian, Chapter 464, Statutes of 2006), SB 1036 (Perata, Chapter 685, Statutes of 2007) and SB 2 (1x) (Simitian, Chapter 1, Statutes of 2011-12 First Extraordinary Session). The RPS program is codified in Public Utilities Code Sections 399.11-399.20. Under SB 2 (1x), the RPS program administered by the CPUC requires each retail seller to increase its total procurement of eligible renewable energy resources so that 33 percent of retail sales are served by eligible renewable energy resources no later than December 31, 2020. Emissions reductions in 2009 through 2013 represent the increased renewable energy procurement compared to 2007 levels. Total RPS procurement by PG&E, SCE and SDG&E in 2013 was 44,000 GWh. Each MWh of electricity avoids 0.26 MTCO ₂ e for PG&E; 0.32 MTCO ₂ e for SCE; and 0.35 MTCO ₂ e for SDG&E. ¹	3.2	6.5
CPUC NOTES: ¹ CEC uses a GHG emission factor relied upon by CARB for analysis of the Scoping Plan: 961 lbsCO ₂ /MWh or 0.436 MTCO ₂ /MWh. CPUC uses emission factors for investor-owned utilities based on the 2013 E3 GHG Calculator, which are lower than the statewide average.			

State Agency Greenhouse Gas Reduction Report Card: Table 1

Department of General Services (DGS)	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Green Buildings - LEED	This measure reduces GHG emissions associated with the design and construction of state-owned or state-leased buildings. During 2013, 33 new, renovated, or existing buildings totaling 1,652,955 sq. ft. were completed and LEED certified. This is more than double the highest number of buildings certified during any of the previous ten years. This included seven leased buildings. These buildings all exceed current Title 24 code requirements, for an estimated total reduction of 1,921 MTCO ₂ e. The combined reduction in electricity usage from what it would be if the buildings were designed to code is used to compute the GHG reductions.	<0.1	<0.1
Green Buildings – Distributed Generation	This measure reduces GHG emissions associated with the installation of clean on-site renewable generation. In 2013, 13.13 MWAC were installed at State facilities, with more being installed in 2014 and 2015. Efforts continue to expand distributed generation programs further, including a Request for Proposals for wind generation.	<0.1	<0.1
Green Buildings – Existing State Buildings Retro-Commissioning	This measure reduces GHG emissions associated with the optimization of energy systems and improvement of environmental performance in existing buildings. No Retro-commissioning projects have taken place since 2011 due to budget constraints, however, DGS is now moving forward with developing a monitoring-based commissioning (MBCx) program. The first MBCx project is scheduled to be installed in 2015.	0	0

State Agency Greenhouse Gas Reduction Report Card: Table 1

Department of General Services (DGS)	Description of Measures	Emission Reductions, MMTCO ₂ e	
Program Title		2012	2013
High-Performance Schools	<p>The State provided incentives for high-performance schools through Prop 1D administered through the Office of Public School Construction (OPSC) and verified by the Division of the State Architect (DSA), through the end of 2014. Total reported savings result from 29 High Performance Incentive Grants issued in 2013. The estimated energy reductions associated with these projects total 202,000 MMBtu/year, which equals 10,695 MTCO₂e/year of avoided CO₂ emissions.</p>	<0.1	<0.1

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Department of Water Resources (DWR)	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2012	2013
Program Title			
End Use Water Conservation & Efficiency	State agencies (including DWR and SWRCB) continue to implement SBX7-7, the Water Conservation Act of 2009 (Steinberg, Chapter 4, Statutes of 2009-2010 Seventh Extraordinary Session), which mandates a 20% reduction in statewide per capita urban water use by the year 2020 ("20x2020"). The Department's Integrated Regional Water Management grant program includes a climate change standard which requires the consideration of water-related GHG emissions in regional water planning. In addition, Urban Water Management Plan guidelines recommend the inclusion of a climate change element that addresses water-related energy demand. In 2014, the Department released a Proposal Solicitation Process for water-energy projects, authorized by the 2014 drought legislation and funded by Cap & Trade auction revenues; project awards are expected in 2015.	**	**
DWR NOTES:	** Emission reduction not quantified.		

State Agency Greenhouse Gas Reduction Report Card: Table 2

TABLE 2: GHG EMISSION REDUCTION STRATEGIES, AND TIMELINES FOR IMPLEMENTATION

Numbered footnotes appear at the end of the document. **Notes** identified with asterisks are at the end of each agency's section.

MMTCO₂e - Million Metric Tons of CO₂ Equivalent

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
AIR RESOURCES BOARD (ARB) STRATEGIES						
AGRICULTURAL SECTOR						
A-1	ARB	Methane Capture at Large Dairies	Voluntary Measure Implementation 2017-2020	ARB issued offset credits to four compliance projects and 50 early action projects. Additional projects are currently under review. As this protocol is applicable across the US, not all of these projects are in California.	1 ³	This measure encourages voluntary installation of anaerobic digesters at large dairies through economic incentives such as marketable carbon offset credits (offsets), favorable utility contracts, or renewable energy incentives. Emissions reductions from offset projects approved and issued by ARB are attributed to reductions under the Cap-and-Trade Program. In addition, ARB is collaborating with CDFA, State Water Board, and other stakeholders to identify and reduce barriers to greater digester use. This collaboration is also shown under those being implemented by CDFA.
ELECTRICAL AND NATURAL GAS SECTOR						
E-3	CPUC, CEC, ARB	Renewables Portfolio Standard	Effective Dec-2011	ARB is working with CPUC and CEC on implementation.	Reduction included in CPUC totals	This measure, required by SB 2 (1x) (Simitian, Chapter 1, Statutes of 2011-12 First Extraordinary Session), increases the use of renewable electricity required by the Renewables Portfolio Standard (RPS). California electric utilities must obtain 33 percent of their electricity from eligible renewable energy resources by 2020.
HIGH GLOBAL WARMING POTENTIAL (GWP) GASES						
H-1	ARB	HFC Reduction Strategies: Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing	Approved Jan-2009; Implemented Jan-2010; Phase-in complete Jan-2011	Implementation ongoing.	0.26	This regulation requires a self-sealing valve on small cans of refrigerant, and a deposit and recycling program for the cans.
H-2	ARB	SF ₆ Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	Approved Feb-2009 Implementation 2010	Implementation ongoing.	< 0.1	This regulation places restrictions on nonessential end uses of SF ₆ , where feasible alternatives are available.
H-3	ARB	High GWP GHGs Reduction in Semiconductor Operations (Discrete Early Action)	Approved Feb-2009 Implementation 2010	ARB is collaborating with local air districts on implementation.	0.2	This regulation requires semiconductor operations to use process optimization, alternative chemistries, and abatement technologies in combination or separately to reduce GHGs. The emission standards apply to operations that emit more than 0.0008 MMTCO ₂ e per year. Emission reductions began in 2012.
H-4	ARB	Limit High GWP Use in Consumer Products-- Pressurized Gas Duster GWP Limit of 150 and Other Consumer Product Categories (Discrete Early Action)	Approved Jun-2008 Implementation 2010	Implementation ongoing.	0.23	This regulation requires setting GWP limits on specific consumer products.
H-5	ARB	High GWP Reductions from Mobile Sources: 1) Low GWP Refrigerants for New Vehicle Air Conditioning Systems.	1) Approved-January 2012; Implementation 2017 model year	Part of Advanced Clean Cars program	0.6	1) Measure provides credit incentives for using low GWP refrigerants for use with the air conditioning systems on new vehicles. This measure has been integrated into the Advanced Clean Cars Measure and therefore reductions from this activity are not counted toward the 0.6 MMTCO ₂ e in reductions for H-5.
		2) Air Conditioner Refrigerant Leak Test During Vehicle Smog check.	2) On hold.	Measure not feasible at this time.		2) Proposes the addition of a refrigerant leak check on motor vehicle air conditioning systems when smog check is required.
		3) Refrigerant Recovery from Decommissioned Refrigerated Shipping Containers	3) On hold.	Measure not feasible at this time.		3) Addresses the recovery of refrigerants from decommissioned refrigerated shipping containers.
		4) Enforcement of Federal Ban on Refrigerant Release during Servicing or Dismantling of Motor Vehicle Air Conditioning Systems	4) On hold.	Measure not feasible at this time.		4) Enforcement of federal ban on refrigerant release during servicing or dismantling of motor vehicle air conditioning systems.

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO _{2e})	Brief Description
H-6	ARB	High GWP Reductions from Stationary Sources: 1) High-GWP Refrigerant Management Program for Stationary Sources Refrigerant Registration /Reporting/Repair Program	Approved Dec-2009; Implementation 2011	Implementation ongoing.	5.9	1) Measure to reduce emissions of high GWP refrigerants from stationary, non-residential refrigeration equipment through leak detection and repair, system retrofit or retirement, and reporting and recordkeeping requirements.
		2) Specifications for Commercial and Industrial Refrigeration Systems	CEC to consider in 2012-13; Implementation Jan 2014	Adopted by CEC and CBSC. Implementation ongoing.		2) Measure to reduce both direct emissions of high GWP refrigerants resulting from the design and installation and indirect emissions resulting from energy consumption of large supermarket refrigeration systems.
		3) Foam Recovery and Destruction Program	On hold.	Measure not feasible at this time.		3) Measure for the collection of foam followed by recycling or destruction of high GWP gases.
		4) SF6 Emission Reductions from Gas Insulated Switchgear	Approved Feb-2010; Implementation 2011	Implementation ongoing.		4) Measure to set maximum SF ₆ emission rate for gas insulated switchgear.
		5) Alternative Fire Suppressants	On hold.	Measure not feasible at this time.		5) Use of leakage reduction methods and/or lower GWP fire suppression agents.
		6) Residential Refrigeration Early Retirement / Voluntary Program	On hold.	To be evaluated as part of planned Short-Lived Climate Pollutant plan.		6) ARB work with utilities to encourage recovery of high GWP materials from residential refrigerators at end of life.
H-7	ARB	Mitigation Fee on High GWP Gases	On hold.	To be evaluated as part of planned Short-Lived Climate Pollutant plan; research proposal approved by Board Dec 2014.	N/A	This regulation proposes establishment of an upstream fee on high GWP gases based on their GWP.
INDUSTRY SECTOR						
I-1	ARB	Energy Efficiency and Co-Benefits Assessments for Large Industrial Sources	Approved Jul-2010; Implementation 2010	Four of the five industrial sector public reports have been released.	N/A	This regulation requires major industrial facilities to conduct an assessment of the potential to reduce GHG emissions, and possible co-benefits for criteria air pollutants and toxic air pollutants.
I-2	ARB	Oil and Gas Extraction GHG Emission Reduction	Board to consider 2015; Implementation TBD	Regulatory development ongoing.	0.8	This measure would require controls to minimize the venting and fugitive emissions of methane and carbon dioxide from crude oil and natural gas production, processing, and storage operations.
I-3	ARB	GHG Leak Reduction from Natural Gas Transmission and Distribution	Measure currently on hold.	Continuing to evaluate. Currently working with CPUC on implementing SB 1371 (Leno, Chapter 525, Statutes of 2014).	0.5	Replace pipelines, as well as improve operations at meter and regulating stations, to minimize fugitive and venting emissions of methane and carbon dioxide from natural gas transmission and distribution.
I-4	ARB	Refinery Flare Recovery System Improvement	Measure no longer being considered.	Equivalent measure implemented by local air districts.	N/A	This measure proposed to minimize GHG emissions by recovering gases before they are combusted by the refinery flare. The system collects the gas, compresses it, cools it, and then sends it back to a refinery process, where the recovered gas can be used as refinery fuel gas or refinery feedstock.
I-5	ARB	Incorporation of Methane into Air District Rules for Major Industrial Sources to Reduce Fugitive Emissions/Leaks	Under evaluation in collaboration with local air districts	Under evaluation in collaboration with local air districts.	0.01	This regulation proposes to remove existing fugitive methane exemptions from the regulations applicable to equipment and sources employed in California's refineries and other major industrial sources.
RECYCLING AND WASTE MANAGEMENT						
RW-1	ARB	Landfill Methane Control Measure (Discrete Early Action)	Approved Jun-2009; Implementation 2010	Implementation ongoing.	1.5	This regulation requires enhanced control of methane emissions from municipal solid waste (MSW) landfills and requires owners and operators to install gas collection and control systems at smaller and other uncontrolled landfills. Affected landfills are required to implement advanced methane monitoring requirements. ARB is working with local air districts on implementation and enforcement.

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
TRANSPORTATION SECTOR						
T-1	ARB	Pavley I and Advanced Clean Cars	Pavley I: Approved Sep-2004; Implementation 2009-2016 Advanced Clean Cars: Approved Jan- 2012; Implementation 2017-2025	Implementation ongoing.	29.9	On May 19, 2009, the Obama administration announced an agreement to enact national GHG standards for cars and light trucks. This agreement among the U.S. Environmental Protection Agency (EPA), National Highway Transportation Safety Administration (NHTSA), California, and the major auto manufacturers has several key parts. EPA and NHTSA agreed to conduct a joint rulemaking establishing a national GHG and fuel economy standard for 2012 – 2016. California amended its new passenger motor vehicle GHG emission standards for model years 2012-2016 to permit compliance based on federal GHG emission standards. The automakers agreed to drop their lawsuits. EPA granted California the requested waiver. California's program went into effect with the 2009 model year, and all parties agreed to maintain all existing authorities. The Advanced Clean Cars Program will achieve additional GHG reductions from passenger vehicles for model years 2017-2025. This Program represents a new approach to passenger vehicles – cars and light trucks – by combining the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards known as Low Emission Vehicles (LEV) III. The new approach also includes efforts under the Zero-Emission Vehicle Program to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California.
T-2	ARB	Low Carbon Fuel Standard (Discrete Early Action)	Approved Apr-2009; Implementation 2010	Implementation ongoing. ARB to reconsidering regulation to address legal issues.	15	This regulation requires fuel providers in California to ensure that the mix of fuel they sell into the CA market meets, on average, a declining standard for GHG emissions measured in CO ₂ equivalent grams per energy unit of fuel sold.
T-3	Local Governments / ARB / CalTrans / HCD / OPR / Regional Planning Agencies	Regional Transportation-Related Greenhouse Gas Targets	Approved targets Sep-2010; Implementation is ongoing.	Working with MPOs on Sustainable Communities Strategies.	3.0	ARB set regional passenger vehicle GHG reduction targets to implement SB 375 (Steinberg, Chapter 728, Statutes of 2008) in September 2010, developed a methodology to review Metropolitan Planning Organizations (MPO) sustainable communities strategy (SCS) in Jul-2011, and is reviewing MPO SCSs as regions develop them. SB 375 enhances California's ability to reach its AB 32 (Nunez, Chapter 488, Statutes of 2006) goals by promoting effective planning with the goal of more sustainable communities. SB 375 also establishes incentives to encourage implementation of a SCS or alternative planning strategy (APS) to meet the targets. Developers can get relief from certain environmental review requirements under the California Environmental Quality Act (CEQA) if their new residential and mixed-use projects are consistent with a region's SCS (or APS) that meets the target.
T-4	ARB	Tire Pressure Program (Discrete Early Action)	Approved Mar-2009; Implementation Sep-2010	Implementation ongoing.	0.7	This strategy requires specified automobile servicing businesses to ensure proper tire inflation at the time of service, as well as public education about proper tire inflation.
T-5	ARB	Ship Electrification at Ports (Discrete Early Action)	Approved Dec-2007; Implementation 2010	Implementation ongoing.	0.2	This regulation requires most container, passenger, and refrigerated cargo ships to shut off their auxiliary engines while at dock and receive power from the electrical grid, or reduce their emissions by a similar amount via the implementation of other technologies.

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
T-6	ARB	<u>Goods Movement Efficiency Measures:</u> 1) Port Drayage Trucks	1) Approved Dec-2007; Implementation 2010	Continuing to evaluate and expand the focus to zero and near-zero technology options.	3.5	1) This regulation requires the reduction of GHG, diesel particulate matter (PM), and oxides of nitrogen (Nox) emissions from drayage trucks operating at California's ports and rail yards through retrofits and turnover of pre-1994 trucks.
		2) Transport Refrigeration Units Cold Storage Prohibition.	2) Board to consider TBD; Implementation TBD	Continuing to evaluate and expand the focus to zero and near-zero technology options.		2) Transport Refrigeration Units (TRUs) are powered by external combustion engines. This measure would limit the amount of time TRU engines could run for extended cold storage at facilities including distribution centers and grocery stores.
		3) Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification	3) Board to consider TBD; Implementation TBD	Continuing to evaluate and expand the focus to zero and near-zero technology options.		3) ARB will investigate and potentially develop a new measure to restrict unnecessary idling of cargo handling equipment, which would reduce fuel consumption and associated emissions of GHGs, criteria pollutants, and toxic air contaminants.
		4) Goods Movement System-Wide Efficiency Improvements	4) Board to consider TBD; Implementation TBD	Continuing to evaluate and expand the focus to zero and near-zero technology options.		4) The System-wide Efficiency Improvements measure addresses emissions from marine vessels, trucks, trains and port-support equipment. This measure entails development and implementation of strategies that provide continued progress toward a lower carbon, more sustainable freight transport system.
		5) Commercial Harbor Craft Maintenance and Design Efficiency	5) Board to consider TBD; Implementation TBD	Continuing to evaluate and expand the focus to zero and near-zero technology options.		5) This measure proposes to facilitate reduction of fuel consumption and associated CO ₂ emissions through a variety of technologies and strategies that improve vessel efficiency.
		6) Clean Ships	6) Board to consider TBD; Implementation TBD	Continuing to evaluate and expand the focus to zero and near-zero technology options.		6) This regulation proposes to require a reduction of fuel consumption and associated CO ₂ emissions through a variety of technologies and strategies, such as hull and propeller design in new ships, that improve the efficiency of ocean-going vessels.
		7) Vessel Speed Reduction	7) Board to consider TBD; Implementation TBD	Continuing to evaluate and expand the focus to zero and near-zero technology options.		7) This measure proposes to primarily require reduction of NOx emissions as well as diesel PM, SOx, and CO ₂ emissions resulting from reduced fuel consumption from speed reduction.
T-7	ARB	Heavy-Duty Vehicle GHG Emission Reduction Measure (Aerodynamic Efficiency) (Discrete Early Action)	Adopted Dec-2008; Amended Dec-2010; Amended Dec-2013; Implementation 2010-2019.	The regulation was amended in December 2013 to align it with the Phase 1 Medium- and Heavy-Duty Engine and Vehicle Standards. Implementation ongoing.	0.6	This regulation reduces GHG emissions from 53-foot or longer box-type trailers and the tractors that pull them by increasing their fuel efficiency through improvements in aerodynamic drag and tire rolling resistance. It requires (i) 2010 and older tractors to be retrofitted with U.S. EPA SmartWay verified tires, (ii) 2010 and older model year trailers with U.S. EPA verified aerodynamic technologies and low rolling resistance tires, and (iii) 2011+ model year trailers and 2011 through 2013 model year tractors to be U.S. EPA SmartWay designated.
T-8	ARB	Medium- and Heavy-Duty Vehicle Hybridization	Incentive program funding approved annually. Incentive program implementation initiated 2010.	Allocated up to \$15M in FY 2014-15 for hybrid and zero-emission trucks from AQIP and Low Carbon Transportation.	0.4	This incentive program reduces the GHG emissions of urban, stop-and-go vehicles, such as parcel delivery trucks and vans, utility trucks, garbage trucks, transit buses, and other vocational work trucks, through the use of hybrid and zero-emission technology. Incentives for hybrid and zero-emission trucks became available starting the first quarter of 2010 and the program will continue into 2015 with up to \$15 million in additional funding augmenting the \$69 million previously allocated.

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
OTHER SECTORS / STRATEGIES						
Appendix C, Sections 3 and 4	ARB	Cool Communities	Ongoing	Implementation ongoing.	N/A *	This guidance encourages efforts such as light colored pavement, cool roofs and shade trees to decrease the effective temperature of urban areas. These strategies can result in energy savings due to decreased need for air conditioning, leading to decreased GHG emissions associated with energy generation. These efforts also increase albedo, thus reflecting sunlight radiation back to space and resulting in local cooling.
Scoping Plan Chapter IV, Section B	ARB	Small Business Toolkit	Approved Apr-2009; Ongoing	Implementation ongoing.	N/A *	This toolkit provides guidance and informational resources to local businesses on best practices, emission calculation methods, case studies, cost-effectiveness information, and other tools to assist in reducing GHG emissions.
Appendix C, Section 3	ARB	Local Government Toolkit	Approved May-2009; Ongoing	Implementation ongoing.	N/A *	Local governments can use this toolkit to help California meet its AB 32 targets through climate action planning. The toolkit was designed to provide guidance and resources to help cities and counties reduce GHG emissions and save money.
Scoping Plan Chapter II, Section B	ARB	Local Government Operations Protocol	Approved Sep-2008; Ongoing	Implementation ongoing.	N/A *	This protocol provides a standardized set of guidelines to assist local governments in quantifying and reporting GHG emissions associated with their government operations. Allows cities to track their own emissions over time, but is not intended to be used to compare one city's emissions to another city's emissions.
Scoping Plan Chapter II, Section C.1.	ARB	Cap-and-Trade Program	Board Endorsed Dec-2010 with final adoption Oct-2011; Implementation/program launch Jan-2012. Linked with Québec's cap-and-trade program Jan-2014.	Implementation ongoing.	23**	The California Cap-and-Trade Program is a market-based approach that provides a firm limit, or "cap," on GHG emissions from the electricity, industrial, commercial, and residential fuels and transportation fuels sectors. The California program may link with other Western Climate Initiative Partner programs to create a regional market system that will achieve greater environmental and economic benefits for the State. Part of the GHG emission reductions under this program are expected to come from the use of offsets (qualified projects outside of sectors under the cap). Offset protocols that are in effect under the Cap-and-Trade Program include: 1) U.S. forest projects, 2) urban forests, 3) livestock manure (digesters), 4) ozone depleting substances (ODS), and 5) mine methane capture. These protocols can be used in any of the lower 48 states to generate offsets in the California Cap-and-Trade Program. ARB is continuing to hold quarterly auctions for allowances and held the first joint auction with linked jurisdiction Québec on November 25, 2014. Amendments to the regulation were approved by the Board Apr-2014 (went into effect Jul-2014) and Sep-2014 (expected to go into effect Jan-2015). An additional offset protocol and changes to an existing offset protocol were heard by the Board Dec-2014 and will go through additional public process and changes before expected adoption in late 2015.
Total Reductions Expected from ARB Led Strategies					87.4	
<p>ARB NOTES: * These measures facilitate reductions through voluntary actions. ** Set at a level needed to help achieve the GHG emission reduction target for 2020. <i>Note:</i> The term "approved" indicates the Board's action at the hearing. This is an interim step in the administrative process; final action by ARB to adopt a regulation occurs after the hearing, and a regulation does not become legally effective under California law until it has been approved by the Office of Administrative Law.</p>						

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
CAL FIRE / BOARD OF FORESTRY STRATEGIES						
FOREST SECTOR						
F-1 (Substrategies Below)	CAL FIRE / BOARD OF FORESTRY	Sustainable Forests *	On-going		TBD**	Maintain the current level of carbon sequestration through sustainable management practices including reducing the risk of wildfires, avoiding or mitigating land-use changes that reduce carbon storage, and supporting voluntary actions to conserve biodiversity. Actions to support this strategy are detailed below.
F-1: Substrategy 1	CAL FIRE / BOARD OF FORESTRY	Conservation Forest Management	2005-2020		TBD**	Maintain and enhance forest stocks on timberlands through forest management practices subject to the Forest Practice Act.
F-1: Substrategy 2	CAL FIRE / BOARD OF FORESTRY	Forest Conservation	2005-2020		TBD**	Prevent conversion of forestlands through publicly and privately funded acquisitions and easements.
F-1: Substrategy 3	CAL FIRE / BOARD OF FORESTRY	Fuels Management/Biomass	2005-2020	California Forest Improvement Program (CFIP), Vegetation Management Program (VMP), Prop 40 and federal programs funded manual or mechanical fuels reduction on >10,000 acres and prescribed burned > 10,000 acres.	TBD**	Reduce wildfire emissions through fuels reduction on private and federal lands and provide GHG benefits by using woody biomass for biofuels and biopower as fossil fuel alternative.
F-1: Substrategy 4	CAL FIRE / BOARD OF FORESTRY	Urban Forestry	2005-2020		TBD**	Plant trees in urban areas to sequester carbon and provide shade to reduce energy use. Urban forest wood waste will also be used for biopower (renewable energy/fossil fuel alternative).
F-1: Substrategy 5	CAL FIRE / BOARD OF FORESTRY	Afforestation/Reforestation	2005-2020	CFIP funded reforestation of 44 acres.	TBD**	Reforest state, private and federal lands to produce sequestration benefits.
Total Reductions Expected from CAL FIRE Led Strategies					TBD**	
<p>CAL FIRE NOTES: * CAL FIRE led activities may increase the baseline sequestration potential in future years as funding becomes available for more expansive implementation of the 5 substrategies listed above.</p> <p>**TBD – CAL FIRE anticipates revisions to the estimate of carbon sequestration in California forests with recently revised estimates from Forest Inventory and Analysis data (FIA) that are currently under review by CAL FIRE and the Forest Climate Action Team (FCAT). New estimates should be made available by June, 2015.</p>						

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
CALRECYCLE STRATEGIES						
RECYCLING AND WASTE MANAGEMENT						
RW-1	ARB, CalRecycle	Landfill Methane Control Measure (Discrete Early Action)	Approved June-2009 Implementation 2010	CalRecycle continues to work with ARB, other agencies, and external stakeholders as new data and scientific methodologies become available, to ensure that California has the most up-to-date and scientifically accurate estimates of fugitive methane emissions.	1.5 *	This regulation requires enhanced control of methane emissions from municipal solid waste landfills and requires owners and operators to install gas collection and control systems at smaller and other uncontrolled landfills. Affected landfills are required to implement advanced methane monitoring requirements.
RW-2	CalRecycle	Increasing the Efficiency of Landfill Methane Capture	Ongoing	CalRecycle continues to pursue strategies to reduce landfill methane emissions above and beyond what is required under RW-1. CalRecycle has initiated an investigation into a determination of the adequacy of compliance wells installed around the perimeter of landfills to monitor for potential landfill gas migration. CalRecycle reviewed EPA's plan on revising New Source Performance Standards (NSPSs) and Emission Guidelines (EG) and evaluated the potential impact to California landfills. CalRecycle determined the new requirements would not have a significant impact on California landfills since California regulations are generally more stringent.	TBD	Per the Statewide GHG emissions inventory, the largest emissions from the Recycling and Waste Management sector come from landfills and are in the form of methane, which is produced when materials placed in landfills decompose over time. Often, decades elapse and methane is still produced from this decomposition. Although methane is captured currently at many large landfill sites, there are still active landfill operations and closed landfill sites that continue to emit methane that could be captured. In addition, methane capture can also reduce air quality impacts by capturing and destroying volatile organic compounds and other landfill gases that are emitted during the decomposition process.
RW-3 (Sub strategies listed below)	CalRecycle	Zero Waste - High Recycling	Ongoing		Reductions detailed below	Detailed description of related measures below.
RW-3: Sub strategy 1	CalRecycle	Anaerobic Digestion	Full implementation by 2020	CalRecycle continues to participate in the implementation of the 2012 Bioenergy Action Plan, which contains more than 50 recommended actions to increase the sustainable use of organic waste, expand research and development of bioenergy facilities, reduce permitting and regulatory challenges, and address economic barriers to bioenergy development. The Budget Act of 2014 authorized CalRecycle to issue grants that result in reduced greenhouse gas emissions; CalRecycle awarded a number of grants to Anaerobic Digestion projects. In partnership with ARB, CalRecycle is developing additional Low Carbon Fuel Standard pathways as well as AD-specific Emission Reduction Factors to use in quantifying GHG reductions. CalRecycle continues to provide ongoing technical support to a number of the Anaerobic Digestion (AD) projects that are under development. CalRecycle collaborates with the California Energy Commission by providing technical support for AD project development under the Alternative and Renewable Fuel and Vehicle Technology program; and the Public Interest Energy Research and Electric Program Investment Charge programs. CalRecycle provides technical and permitting support to jurisdictions and stakeholders deploying AD projects in California. CalRecycle is developing in-vessel digestion regulations which will address all types of in-vessel digestion activities, including anaerobic digestion. CalRecycle continues to participate in the California/Federal Dairy Digester Working Group to encourage the development of anaerobic digesters at dairies.	2.0 **	Anaerobic digestion (AD) uses engineered in-vessel systems to accelerate the decomposition of organic materials to produce biogas production, soil amendments and reduce waste. Diverting organic waste from landfills to beneficial use provides significant reduction of GHG emissions through landfill methane avoidance. This strategy will also result in substantial renewable energy production that will aid in the 33 percent Renewable Portfolio Standards goal and compliance with the Low Carbon Fuel Standard. Additionally, AD provides employment opportunities and other co-benefits to the communities where the facilities are located.
RW-3: Sub strategy 2	CalRecycle	Mandatory Commercial Recycling Regulation	Approved May-2012 Full implementation by 2020	The first full year of Mandatory Commercial Recycling implementation by businesses and local governments was 2013. Each jurisdiction reported on its strategies for providing education, outreach, and monitoring to businesses and multifamily complexes in CalRecycle's 2013 Electronic Annual Report. Staff are analyzing these reports and assessing implementation progress. CalRecycle is also measuring if the state, as a whole, is meeting the goal of reducing approximately 2-3 million tons of solid waste from the commercial waste stream by conducting statewide waste characterization studies in 2014/15. CalRecycle Staff continues to provide assistance to jurisdictions in implementing MCR. Staff continue to promote the use of a climate calculator designed for California businesses and multifamily complexes to assess the financial, climate change, and waste reduction/environmental benefits of reducing and recycling their discarded materials. This commercial recycling program was expanded upon October 2014 when AB 1826 was chaptered (Chesbo, Chapter 727, Statutes of 2014), requiring businesses to recycle their organic waste on or after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that by 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units.	5.0 **	The commercial recycling measure focuses on increased commercial waste diversion. Commercial businesses in California generate roughly 75 percent of the statewide solid waste. Reductions in GHG emissions can be realized from solid waste management by recovering traditional recyclable materials from the commercial waste stream with the goal to remanufacture these materials, thus reducing the GHG emissions from multiple phases of product production including extraction of raw materials, preprocessing and manufacturing. Traditional recyclable materials have significant intrinsic energy value that displaces fossil fuel energy requirements when introduced back into the manufacturing cycle. Benefits from the commercial recycling measure include avoided methane emissions from landfill disposal by recycling any organic materials from the waste stream.

Table 2 - 7

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
RW-3: Sub strategy 3	CalRecycle	Extended Producer Responsibility (EPR)	Full implementation by 2020	<p>These laws follow producer responsibility principles to ensure programs that are sustainably funded and properly manage leftover or discarded products generated in California.</p> <p>Carpet (AB 2398): In the 2013-2014 fiscal year, 22,000 tons of new raw materials were generated from old carpets and since July 2011, 63 thousand tons of materials have been recycled. Carpet America Recovery Effort estimates GHG emission reductions as 42,571 MTCO₂E for the 2013 calendar year.</p> <p>Mattresses (SB 254): The collection and recycling program could reduce GHG emissions by 130,000-190,000 metric tons per year. These reductions would be achievable by recycling 4.2 million mattresses and box spring units instead of landfilling them.</p> <p>Paint (AB 1343): Year two of the paint stewardship program processed over 2 million gallons of postconsumer paint, an increase over year one's 632,652 gallons, resulting in GHG emission reductions.</p>	TBD	Extended producer responsibility (EPR) laws place shared responsibility on producers and all entities in a product life cycle for reducing health and environmental impacts that result from supply chain, production, use, and end-of-life management. By implementing extended producer responsibility, GHG emission reductions can be realized from avoided energy use in the extraction of resources as recovered materials are recycled back into new products.
RW-3: Sub strategy 4	CalRecycle	Increase Production & Markets for Compost	Full implementation by 2020	<p>CalRecycle continued support of research projects related to compost production and markets including research on GHG emissions from composting piles, GHG impacts of compost application on agricultural land, and GHG impacts of direct land application of uncomposted green materials. Formal rulemaking process is underway for Title 14 and 27 regulation updates regarding compostable materials, transfer/processing, permit application form, and permit exemptions. The Budget Act of 2014 authorized CalRecycle to issue grants that result in reduced GHG emissions. CalRecycle awarded \$14.5 million for five organics projects that increases the amount of material being landfilled, reduces GHG emissions and focuses on infrastructure development. Other efforts include continued collaboration with the State Water Resources Control Board and Regional Water Boards on a statewide Order for compost facilities to implement water quality protection measures; working with the Air Resources Board and local Air Districts to address emissions related to compost facilities; identifying and addressing pesticides of concern affecting compost with the Department of Pesticide Regulation; working with USEPA to promote the "Food Recovery Challenge" that is encouraging programs to help reduce food waste; and continuing to work with Caltrans on compost/mulch specification development and increasing product use.</p> <p>In September 2014, AB 1594 was chaptered (Williams, Chapter 719, Statutes of 2014), mandating that as of January 1, 2020, the use of green material as alternative daily cover (ADC) does not constitute diversion through recycling and will be considered disposal in terms of measuring a jurisdiction's annual 50 percent per capita disposal target. This will be a change from the current situation in which jurisdictions and regional agencies receive diversion credit for ADC use, as such use is not currently reported as disposal (Public Resources Code (PRC) Section 41781.3). This law may encourage compostable organic material currently being used as ADC at landfills to be sent instead to compost facilities.</p>	2.0 **	CalRecycle continues efforts to divert organic materials from landfills by increasing the production of and markets for compost, mulch, and biofuels/energy. Organic materials diversion from landfill disposal can provide a significant GHG reduction through landfill methane avoidance. When compost and mulch products are applied to soils, including agricultural crop lands, additional GHG emission reductions may be achieved through reduced water consumption, resulting in energy savings in pumping irrigation water. Additional GHG benefits can be realized through reduced manufacturing and transport of fossil-fuel-derived fertilizers, and reduced off-gassing of those fertilizers once applied to agricultural land. CalRecycle's efforts to increase the production and markets for compost include compost-based best management practices; development of compost specifications for agriculture; and research covering a range of composting uses. Ongoing CalRecycle research will help clarify GHG emissions from compost production and compost use in agriculture, including compost impacts on agricultural N ₂ O emissions.
Appendix C, Section 9, C.	CalRecycle	Liquefied Natural Gas from Landfill Gas Measure	Full implementation by 2020	<p>The Gas Technology Institute received Public Interest Energy Research Program (PIER) funding to demonstrate and test a patented process at the Altamont Landfill to clean and convert landfill gas into liquefied natural gas (LNG) for use as transportation fuel. Built in 2009, the facility is a joint venture between Waste Management and Linde North America, a leading gases and engineering company. This fully operational facility produces over 4 million gallons of LNG biofuel annually. The Altamont LNG plant produces 13,000 gallons of clean-burning natural gas daily.</p> <p>High Mountain Fuels received "Alternative and Renewable Fuel and Vehicle Technology Program" (AB 118) funds for the development of new liquefied natural gas (LNG) production plant at Simi Valley Landfill; project to produce 6 million gallons of renewable bio-LNG per year. The Solid Waste Facility Permit for Simi Valley Landfill was issued on 4/3/2012. Project proponents, Waste Management and Linde, decided in 2014 not to move forward with the development of this landfill gas to LNG project and returned the funding from the AB 118 program.</p>	1.0	This activity implements grant-funded projects at two landfills to demonstrate commercial scale technologies for converting landfill gas to LNG vehicle fuel. Recovery of landfill methane that is combusted through flaring can be captured as a biomass renewable energy source. Executive order S-06-06 directs State agencies participating in the Bio-energy Interagency Working Group to enhance the sustainable management and development of biomass resources for electricity generation and production of alternative fuels (bio-fuels). However, substantial financial and technical barriers exist for in-state production of LNG from landfill gas. The technology transfer from these commercial projects could provide significant GHG reduction opportunities.
Not in Scoping Plan	CalRecycle	Achieved 50 Percent Statewide Recycling Goal (Accomplished prior to Scoping Plan development)	Ongoing****	<p>CalRecycle provides assistance to local jurisdictions, businesses and the public with their recycling efforts. In 2012, a per-resident disposal rate of 4.3 pounds/resident/day was calculated using SB 1016's measurement system; the per-resident "diversion rate equivalent" increased to 66 percent.</p> <p>The Budget Act of 2014 authorized CalRecycle to issue grants that result in reduced greenhouse gas emissions. CalRecycle awarded \$5 million for three fiber, plastic and glass recycling projects that increases the amount of material being landfilled, reduces greenhouse gases and focuses on infrastructure development.</p>	3 ⁵	Increasing the amount of solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by: 1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials; and 2) using recyclable materials that require less energy than raw materials to manufacture finished products. Increased diversion of organic materials (green and food waste) will also reduce GHG emissions by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost. [NOTE: The 3 MMTCO ₂ e figure for this strategy reflects the GHG reduction at the 54 percent level for recycled materials]
Not in Scoping Plan	CalRecycle, CEC, ARB, CPUC	Waste Technology Demonstration & Development	Full implementation by 2020	<p>A Recycling Market Development Zone loan to Clean World Partners was approved in 2012 for \$2 million to finance equipment for a new anaerobic digestion (AD) facility in Sacramento. CleanWorld officially broke ground in June 2013. Completed in December 2013, the Sacramento BioDigester converts 25 tons per day into various forms of renewable energy including heat, electricity, and natural gas, in addition to producing fertilizer and soil enhancements. With the success of the Phase I facility, CleanWorld applied for a second Recycling Market Development Zone loan in October 2014, that was subsequently approved and funded. Phase II of the facility will expand its size to 100 tons per day of food waste. Separately, CalRecycle launched a new Organics Loan Program in 2014 to fund projects that will directly result in GHG emissions reductions. Loan agreements will be signed and project implementation will begin in 2015.</p>	TBD	This measure will aid in the development of new technologies to reduce GHGs by providing necessary funding that will assist developers in demonstrating their technology on a commercial scale. Of particular interest is development of technologies that produce renewable energy from municipal solid waste. CalRecycle, through its Recycling Market Development Zones and the new Organics Loan Program, continued to provide low interest loans and technical and permitting assistance to eligible biofuel and renewable electricity projects that utilize municipal solid waste.

Table 2 - 8

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
Not in Scoping Plan	CalRecycle,	AB 341 – California's 75 Percent Recycling Initiative	Full implementation by 2020	CalRecycle continues to conduct workshops and meetings to obtain public input on strategies to achieve the policy goal for California that not less than 75 percent of the solid waste generated be source-reduced, recycled or composted by 2020.	TBD	Signed by the Governor in October 2011, AB 341 (Chesbro, Chapter 476, Statutes of 2011) set an ambitious 75 percent statewide recycling goal of California's solid waste by 2020 which means that roughly 20 million tons per year of materials currently disposed in landfills will be recycled resulting in significant GHG reductions.
WATER SECTOR						
Appendix C, Section 4.E.	CalRecycle, DWR	Watershed Friendly Landscape Guidelines	Full implementation by 2020	The calculator was released in early 2012 and is continually updated for improvements. The RFL Coalition host monthly training programs and landscape events. CalRecycle has expanded its work to include the California Urban Water Conservation Council to promote the benefits of compost and mulch applications to reduce water consumption.	TBD	CalRecycle works with the River Friendly Landscape (RFL) Coalition, a collaboration between public agencies, non-profit organizations, designers, private landscape architects, and contractors in the Greater Sacramento Region, in promoting and the use of the "RFL Benefits Calculator". The calculator is for homeowners, landscape professionals and anyone else who wants to see how much water, time and money can be saved by creating a river-friendly landscape. Also, this tool will estimate the amount of greenhouse gases that can be reduced by using river-friendly principles.
Total Reductions Expected from CalRecycle Led Strategies					10****	
<p>CalRecycle NOTES: * Reduction included under ARB's totals</p> <p>** GHG emission reduction estimate in Scoping Plan</p> <p>*** Split responsibility for Substrategy 3: CalRecycle is lead for EPR, and DGS is lead for EPP.</p> <p>****Achieved 65 percent in 2010, 65 percent in 2011, 66 percent in 2012.</p> <p>***** The total includes RW 3-Substrategy 1 (Anaerobic Digestion), RW 3-Substrategy 2 (Mandatory Commercial Recycling), RW-3 Substrategy 4 (Increase Production & Markets for Compost), and Appendix C. Section 9. C (Liquified Natural Gas). The total does not include RW 1 (Landfill Methane Control Measure) because its reduction is included under ARB's reductions. Also total does not include "Achieve 50 Percent Statewide Recycling Goal" because it pre-dates the Scoping Plan.</p>						

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ E)	Brief Description
CALTRANS STRATEGIES						
TRANSPORTATION SECTOR						
Not in Scoping Plan	CalTrans	Alternative Employee Commuting Strategies	2020	On-going. GHG emission reductions were approximately 6,000 MTCO ₂	0.007	Caltrans has many employee commute programs in place that reduce the need to drive to work. These include monthly bus passes, emergency ride home vouchers, subsidies for vanpools, carpool matching services, and secure-access bicycle parking
Not in Scoping Plan	CalTrans	Fleet Greening and Fuel Diversification	2020	The Caltrans Fleet Greening Program began as a five-year plan in August 2000 to reduce emissions from the Caltrans fleet, stay ahead of emerging regulations, and set the example for the use of emerging, clean air technologies. Today the Director's policy continues to promote an efficient fleet mix and use of efficient, low emission vehicles to lower Caltrans' use of petroleum as well as reduce emissions of criteria air pollutants and greenhouse gases. Through a combination of regulation compliance, state purchasing policies, and innovative demonstrations we've implemented, for example, hybrid passenger vehicles, solar-powered equipment, propane-fueled vehicles, low dust street sweepers, diesel particulate filters on heavy-duty, diesel-powered vehicles, two hydrogen demonstration vehicles, and an E-85 fuel ethanol demonstration project.	0.1	Fleet replacement
Not in Scoping Plan	CalTrans	Non-Vehicular Conservation Measures	2020	These activities include: district facility energy conservation projects coming on line; bridge light-emitting diode (LED) roadway lighting system upgrades; LED roadway lighting increased at intersections & on ramps; and a full statewide deployment of the Computer Energy Reduction and Data (CERB) collection project.	0.14	Energy Conservation Opportunities
INDUSTRY SECTOR						
Not in Scoping Plan	CalTrans	Alternative Asphalt Strategies	On-going		0.06	Caltrans use of alternatives to hot mix asphalt reduces its operational GHG emissions
Not in Scoping Plan	CalTrans	Alternative Cement and Concrete Strategies **	On-going		0.2	This strategy reflects Caltrans cement consumption only. The measure includes both the 2.5% limestone cement mix and up to 25% fly ash. It is also expected that given the new Caltrans' cement standards, the GHG emission savings could be reflected in the statewide cement consumption as well. However, that saving is not shown here. Starting in 2009, new Caltrans cement standards will reflect 5% limestone and up to 50% fly ash which is expected to improve the CO ₂ emission savings correspondingly. The Scoping Plan has identified the Cement Sector as falling under Cap & Trade.
OTHER						
Not in Scoping Plan	CalTrans	Facility Efficiency and Energy Conservation	On-going	Caltrans continues to work towards reaching the goals articulated in the Drought State of Emergency Proclamation, the Executive Order B-16-2, and the Executive Order B-18-12 to support the state's renewable power statutes, "green power" electric grid demand, energy and water conservation, Leadership in Energy and Environmental Design (LEED) standards, climate change mandates, and the zero-emission vehicles mandates. Milestones to be met in 2015 include reduction of water usage by 10 percent and LEED-Existing Building certification for all existing buildings that are greater than 50,000 square feet. Other facilities upgrades include water efficient plumbing and irrigation enhancements.	0.022	Caltrans has improved the energy efficiency of existing Caltrans buildings and has constructed new facilities that meet LEED standards. Several of the most widely-deployed strategies to reduce GHG emissions at Caltrans administrative facilities, include: LEED certified buildings, Data center upgrades, Energy efficient lighting, Low flow toilets and water fixtures. Other energy efficiency upgrades and retrofits.
Total Reductions Expected from CalTrans Led Strategies					0.5	

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE (CDFA) STRATEGIES *						
AGRICULTURAL SECTOR						
A-1	CDFA, ARB	Methane Capture at Large Dairies (Enteric Fermentation, Dairy Digesters)	12-Jan-15	CDFA received \$12 million to establish the Dairy Digester Research and Development Program. CDFA will administer the program in two Phases; approximately \$11.1 million is allocated for incentivizing the development of dairy digesters to promote greenhouse gas emission reductions in the agricultural sector (Phase I) and \$500,000 is allocated for research (Phase II). CDFA created the Dairy Digester Research and Development Program Technical Advisory Committee to implement the new program. CDFA is currently developing programmatic guidelines.	TBD	These activities have been initiated in coordination with the ARB. The State and Federal Agencies continue to work on addressing regulatory, (including permitting), technical and financial barriers to a widespread voluntary adoption of anaerobic digesters on dairies. CDFA organized the Dairy Digester Working Group to address some of the pending issues. More information about implementation of this measure and the protocol for measuring compliance can be found in the 'Agricultural Sector' listing on the ARB section of this document.
Early Action Item	CDFA, ARB, CEC	Agricultural Research - Nitrous Oxide Reduction	Ongoing	CDFA committed to funding \$150,000 on baseline agricultural nitrous oxide emissions. CDFA funded research on this topic will continue through 2015.	N/A ⁴	CDFA has engaged in efforts with ARB and CEC during the past several year to coordinate research activities on reducing nitrous oxide emissions from nitrogen fertilizer applications.
Not in Scoping Plan	CDFA	Hydrogen Fuel Quality and Quantity	Ongoing		N/A ⁴	CDFA – Division of Measurement Standards has played a central role in the establishment of a national standard under SAE International for Hydrogen used in fuel cell vehicles.
Not in Scoping Plan	CDFA	Biodiesel Blends Renewable Diesel	Ongoing	Active partner in ongoing development of national standards	N/A ⁴	CDFA-DMS is an active partner in ongoing development of national standards under ASTM International for biodiesel, renewable diesel fuels, and diesel substitutes such as dimethyl ether. Under a grant from the California Energy Commission, DMS is researching test methods needed for the development of a greater than 20 percent biodiesel blend standard.
Not in Scoping Plan	CDFA	Ethanol Flex Fuel, Gasoline-Ethanol Blends, and other alcohols	Ongoing	DMS is participating with ASTM International in the development of national standards for butanol based fuel. Regulations are in place to permit the sale of Bio-butanol and other Bio-alcohols fuels as these products are brought into the market. The California Type Approval Program has established clear guidelines for approval of any new alternative fuel metering devices.	N/A ⁴	CDFA-DMS promotes the use of Ethanol based fuels by the establishment of specifications and regulations which allow the sale of Ethanol Flex Fuel and higher Gasoline Ethanol blends.
Not in Scoping Plan	CDFA	Developmental Fuels	Ongoing	DMS is actively working with the California Air Resource Board to identify new fuels that meet California's goals of lower fossil carbon emissions, reduced air pollution, energy independence, and increased use in renewable fuels. These fuel will provide California agriculture new opportunities to develop crops for alternative fuels and even greater opportunity for transforming agriculture waste into green fuel.	N/A ⁴	CDFA developmental engine fuel variance program allows alternative fuels that currently have no National Standard to be used in limited applications for the purpose of developing a National Standard.
Not in Scoping Plan	CDFA, CEC	Energy Crops	Completed	CDFA, in partnership with scientists at UC Davis, and with funding from the California Energy Commission Public Interest Energy Research Program, have recently completed a four-year study to evaluate the economic, beneficial environmental performance of six bioenergy crops.	N/A	Coordinate with the CEC on research on energy crops.
Not in Scoping Plan	CDFA	Specialty Crop Block Grants	Ongoing	The 2012 Specialty Crop Block Grant Program (SCBGP) funded projects are ongoing. All 2012 SCBGP projects must be completed by June 2015. Once final performance reports are received in fall 2015, would be able to provide update.	N/A	Several research projects related to GHG reductions were funded under the 2012 SCBGP. The results of the funded research projects are expected to have a direct impact on the current understanding of GHG from agriculture and potential offset strategies. This research is critical in addressing knowledge gaps in GHG emissions for California specialty crops. More information on this and other funded projects can be found at www.cdfa.ca.gov/grants .
Total Reductions Expected from CDFA Led Strategies						

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
CALIFORNIA ENERGY COMMISSION (CEC) STRATEGIES						
ELECTRICAL AND NATURAL GAS SECTOR						
E-1	CEC	Comprehensive Publicly Owned Utilities Efficiency Program	Ongoing	The POU's prepared a technical resource manual that provides the methods, formulas, and default assumptions for estimating energy savings and peak demand impacts from energy efficiency measures and projects. The POU's expect this tool to provide consistent and transparent energy savings estimates.	1.7 *	The POU's have developed a technical resource manual to standardized estimation of energy savings from efficiency programs. The POU's will use this technical guidance in their next annual report on energy savings.
E-1	CEC	Building Energy Efficiency Standards in Place	Ongoing	Published the Building Energy Efficiency Standards update in 2013. Working closely with the CPUC and other stakeholders on strategies to achieve zero net energy (ZNE) buildings. Continue programs that support education and workforce training related to energy efficiency. In February 2014 the Energy Commission published the 2013 Integrated Energy Policy Report (IEPR), which renewed the state's commitment to achieving ZNE building standards for newly constructed residences by 2020. The 2013 Building Energy Efficiency Standards went into effect July 1, 2014. The Energy Commission expects to take a major step closer to ZNE in the 2016 Standards, for which work began in 2013. The Commission completed the pre-rulemaking process for the 2016 Standards during 2014, including an extensive public vetting process of draft standards, several stakeholder meetings, multiple workshops and two forums with the California Building Industry Association.	4.5 **	The Energy Commission will publish the proposed 2016 Standards in January 2015 and complete the rulemaking proceeding to consider and improve those standards in response to public comments. The Energy Commission may adopt those standards in July 2015 and California Building Standards Commission could approve them in December 2015.
E-1	CEC	Appliance Energy Efficiency Standards in Place	Ongoing	Implemented small and large battery charger standards with over 12,000 product models certified as compliant. Enforcement regulations were adopted that provide a framework for fines with violations of appliance regulations that will help ensure savings are achieved. Proposed standards were released and workshops held for toilets, urinals, faucets, dimming ballasts, air filters, LED lamps, multi-faceted reflector lamps, and heat-pump water-chilling packages.	7.4 **	The Energy Commission will continue the standard setting process for toilets, urinals, faucets, dimming ballasts, air filters, LED lamps, multi-faceted reflector lamps, and heat-pump water-chilling packages. In addition, the Energy Commission will release draft energy efficiency standards for computers and monitors. Standards for these products may be adopted in 2015 and begin saving energy and water when they become effective in 2016.
TRANSPORTATION SECTOR						
T-4	CEC	Fuel-Efficient Tires	Ongoing	Monitored research and coordinate with the National Highway Traffic Safety Administration on tire efficiency strategies and metrics.	TBD ***	Assess federal actions with fuel efficiency of replacement tires. Reducing the average rolling resistance of replacement tires through consumer information and minimum standards promises fuel savings and reductions in GHG emissions. The Obama Administration released a fact sheet on tire efficiency measures on December 9, 2014. The fact sheet can be found at: http://www.whitehouse.gov/the-press-office/2014/12/09/fact-sheet-increasing-safety-and-efficiency-while-saving-money-pump
WATER SECTOR						
W-3	CEC, DWR, CPUC, SWRCB	Energy Intensity of the Water System	Ongoing		2 ³	The Commission has a current investigation into water conservation and subsequent energy conservation
W-5	CEC, DWR, CPUC, SWRCB	Increase Renewable Energy Production from Water	Ongoing		0.9 ³	The purpose of this measure is to identify and implement specific projects that take advantage of the State's water system-related opportunities to generate renewable electricity. Examples: water moving through conduits, sunlight, wind, and gases emitted during treatment of wastewater at wastewater treatment plants.
Total Reductions Expected from CEC Led Strategies					4.6****	
<p>CEC NOTES: * Estimate of POU EE Program energy savings is based upon a 2014 status report to the Legislature; average of the last 6 years is used to project savings through 2020. The POU's have developed a standardized approach to assessment of efficiency program savings. This manual can be found at: http://cmua.org/wp-content/uploads/2014/05/CMUA_TRM-manual_5-5-2014_Final.pdf</p> <p>** Building and appliance standards pre-date the Scoping Plan and are not included in AB32 reduction totals, but shown here to document on-going efforts. Savings based on CA Energy Demand (CED 2013) final mid-case forecast and 588 lbsCO₂/MWh for avoided electricity consumption and 0.00529 MTCO₂e per MMBtu.</p> <p>*** NHTSA (US DOT) has a goal to finalize a rule by 2017 that provides a consumer information program on tire fuel efficiency.</p> <p>**** The strategies that contributes to this total are E-1 (Comprehensive Publicly Owned Utilities Efficiency Program), W-3 (Energy Intensity of the Water System) and W-5 (Increase Renewable Energy Production from Water).</p>						

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCo ₂ e)	Brief Description
CALIFORNIA PUBLIC UTILITIES COMMISSION (CPUC) STRATEGIES *						
ELECTRICAL AND NATURAL GAS SECTOR						
E-1	CPUC	IOU Energy Efficiency Programs	Ongoing through 2020	Decision adopted in October 2014 established 2015 energy efficiency (EE) savings goals and budgets, opened proceeding to implement EE "rolling portfolio" cycles and identified continued collaboration with Energy Commission on Proposition 39 program guidelines; Database for Energy Efficient Resources (DEER) 2015 Code Update (April 2014); Completed Statewide Impact Evaluations for 2010-12 EE program cycle (October 2014); Decision adopted enabling Community Choice Aggregators to administer EE programs (January 2014); Implementation of Energy Upgrade California (Decision adopted December 2013); Continued collaboration with Energy Commission on AB 758 Action Plan (draft released in May 2013); Collaboration with Energy Commission on adopting Zero Net Energy Code Building definition (January 2014)	11.7	Energy savings reflect EE program reductions in investor-owned utility (IOU) territories not included in the CEC standards measures above. Based on the 2008 Iron High Goals Scenario and EE reductions based on the Commission's Long Term Energy Efficiency Strategic Plan, including four "Big Bold strategies": 1) All new residential construction in California will be zero net energy by 2020; 2) All new commercial construction in California will be zero net energy by 2030; 3) Heating, ventilation, and air conditioning (HVAC) industry will be reshaped to ensure optimal equipment performance; 4) All eligible low-income homes will be energy-efficient by 2020.
E-2	CPUC, CEC	Customer-Installed Combined Heat and Power systems (non SGIP)	2008-2020	CPUC continued implementation of the comprehensive Qualifying Facility and Combined Heat and Power (CHP) Settlement, effective November 2011. As of July 2014, the IOUs have completed CHP-only competitive solicitations and have executed contracts for 2,200 MW of CHP Settlement-eligible facilities, resulting in 2.1 MMT of GHG emission reduction credit (according to the Settlement's accounting rules). The CPUC is currently considering several aspects of the Settlement's Second Program Period that were not finalized in the Settlement, such as the IOUs' GHG targets and procurement processes, among other things (R.13-12-010).	4.8	In December 2010, the CPUC approved a comprehensive CHP program with several procurement options for CHP facilities. This program establishes a requirement that the utilities procure 3,000 MW of CHP by November 2015 and achieve 4.8 MMT of GHG emission reductions by 2020. This GHG target is the proportional share of the ARB Scoping Plan GHG emissions reduction target from CHP facilities within the CPUC's jurisdiction. Emissions reductions from the CPUC's CHP Program are calculated based on accounting methodologies defined in the Commission's QF/CHP Program Settlement. Additionally, the Commission is implementing a CHP Feed-in-Tariff program for highly-efficient CHP facilities 20MW in capacity and smaller, pursuant to AB 1613 (Blakeslee, Chapter 713, Statutes of 2007).
E-2	CPUC	Electricity Sector Carbon Policy	Began 2007		N/A **	The Emissions Performance Standard (EPS) ensures that baseload generation used to serve California consumers is from power plants that have an emissions intensity no greater than a combined cycle gas turbine plant.
E-3	CPUC, CEC	33 Percent RPS	Ongoing -- legislative target was modified by SB2(1x) to 33 percent renewable energy by 2020	CPUC is implementing SB 2 (1x) (Simitian, Chapter 1, Statutes of 2011-12 First Extraordinary Session), which codified the 33 percent RPS mandate (CPUC Proceeding R.11-05-005).The CPUC oversees utility procurement of renewables including those described in more detail below: Renewable Auction Mechanism for system-side renewable distributed generation, Renewable SB 32 Feed-In Tariff Program, and Renewable SB 1122 Feed-In Tariff.	19.3	The RPS program establishes a minimum amount of renewable energy the IOUs and POU's must procure from renewable sources to serve their retail customers by 2020. In 2012, approximately 20 percent of the three large IOUs' energy deliveries were from renewable resources. The "Expected GHG Emission Reductions in 2020" value shown here reflects the total anticipated annual avoided GHG emissions resulting from all renewable capacity installed pursuant to the RPS program since 2007.
E-4	CPUC, CEC	Senate Bill 1 - GoSolarCalifornia (previously titled - 'Million Solar Roofs')	Program began in 2007; projected completion by 2016	The CPUC issued a decision (D.14-11-001) to transfer responsibility for collecting solar statistics from the CSI to the net energy metering interconnection process.	2.2	The goal of GoSolarCalifornia is to facilitate the deployment of 3,000 MW of rooftop solar via provision of rebates to help buy-down the up front cost of rooftop solar PV on residential and commercial buildings. The CPUC portion of GoSolarCalifornia is known as the California Solar Initiative (CSI). The CPUC is responsible for 1,940 MW of retro-fit projects.
CR-1	CPUC, CEC	Energy Efficiency: 800 mil. therms reduced consumption.	TBD	See above (E-1) for IOU EE program activities overseen by the CPUC.	4.3	This strategy includes: utility energy efficiency programs; building and appliance standards; and additional efficiency and conservation programs.
CR-2	CPUC	Increased Use of Solar Water Heating	TBD	In 2013 the program was modified to provide rebates for non-domestic hot water solar thermal applications, such as solar cooling and process heat. It was also modified to allow rebates for non-single family swimming pool solar heating systems.	0.1	In January 2010, the CPUC approved the California Solar Initiative (CSI) Thermal Program, which provides up-front incentives toward the purchase of solar water heaters and other solar thermal technologies in the territories for customers electric and gas investor-owned utilities in California. Within the IOU service territories, this program provides customer rebates to support the deployment of gas displacing solar water heating systems on homes and businesses sufficient to displace 585 million therms (equivalent to 200,000 single-family residential systems) as well as support the deployment of electric displacing systems to displace 276 million kWh (equivalent to 100,800 single-family residential systems).

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
Not in Scoping Plan	CPUC	Self Generation Incentive Program	Began in 2001; ongoing	The Commission is working to comply with Senate Bill 861, which modified some eligibility criteria and measurement and evaluation guidelines. The Commission is also reviewing the program to ensure continued effectiveness through the end of the program in 2020.	TBD	Within the IOU service territories, this program provides customer rebates to support the deployment of clean customer side generation including wind and fuel cells. Pursuant to SB 412, in 2011, the CPUC issued a decision modifying the program to focus more specifically on technologies that provide for net GHG emission reductions.
Scoping Plan Chapter II, Section C.1.	ARB, CPUC	Cap-and-Trade Program	Began November 2012; ongoing	The CPUC is continuing implementation of the Cap-and-Trade Program (R.11-03-012) and issued a decision establishing the revenue return formulas to emissions-intensive, trade-exposed customers. The CPUC also adopted rules and procedures for the electric utilities to forecast their annual GHG revenue returns for inclusion in customer rates. Additionally, the CPUC continued oversight of utility procurement of GHG compliance instruments. The CPUC opened a rulemaking (R.14-03-003) and issued a decision to address the rules necessary for natural gas IOUs to participate in the Cap-and-Trade Program (their compliance obligation begins in 2015). The CPUC will continue to consider customer outreach and education efforts to increase awareness and understanding of the program.	Reduction included in ARB totals.	The California Cap-and-Trade program is a market-based approach that will provide a firm limit, or "cap," on GHG emissions from the electricity, industrial, commercial, and residential fuels and transportation fuels sectors. The Commission's role in the Cap-and-Trade program is to determine appropriate uses of the revenue utilities will receive from participation in the program. Additionally, the Commission reviews and approves the utilities' procurement authorities, strategies and associated costs to comply with the Cap-and-Trade program.
Not in Scoping Plan	CPUC, Calrecycle, ARB	Renewable Auction Mechanism for system-side renewable distributed generation	Began 2008	The Commission has overseen five RAM auctions for facilities between 3MW and 20MW in capacity to procure a targeted 1,330 MW. The IOUs held a fifth RAM auction which closed on June 27, 2014 and are currently seeking Commission authorization to procure 418 MW of capacity through the auction. D.14-11-042 mandated a RAM 6 auction to close by June 30, 2015.	Is included in goal for 33 percent RPS	The Renewable Auction Mechanism (RAM) is a simplified, market-based procurement mechanism for renewable distributed generation (DG) projects on the system side of the meter. The Commission adopted RAM as the primary procurement tool for system-side renewable DG to promote competition, elicit the lowest costs for ratepayers, encourage the development of resources that can utilize existing transmission and distribution infrastructure, and contribute to RPS goals in the near term. To begin the program, the Commission authorized the utilities to procure 1,330 megawatts through RAM. On November 20, 2014 the Commission modified the RAM program by adopting D.14-11-042. D.14-11-042 mandated one final RAM 6 auction to close by June 30, 2015. Beyond RAM 6, the Decision directs IOUs to outline their plans to use RAM as a procurement process in their 2015 and beyond RPS procurement plans. IOUs now have the flexibility to use RAM as an optional procurement process to meet a CPUC identified capacity or system need or a legislative mandate.
Not In Scoping Plan	CPUC	Renewable SB 32 Feed-In Tariff Program	Began November 1, 2013	Effective July 24, 2013, the AB 1969 (Yee, Chapter 731, Statutes of 2006) Feed-In Tariff (FIT) program was replaced by the SB 32 (Negrete, Chapter 328, Statutes of 2009) FIT program, featuring the renewable market adjusting tariff (Re-MAT). Between November 2013 and November 2014, the Commission has overseen 7 auctions.	Is included in goal for 33 percent RPS	The purpose of the FIT program is to promote the development of small-scale renewable Distributed Generation, under 3 MW, by streamlining the process for generators to sell wholesale generation to the IOUs through a standard contract without having to engage in time-consuming contract negotiations and solicitations. Re-MAT provides a starting FIT market price for the three RPS product categories: baseload, peaking, and non-peaking resources. Sellers may then subscribe to sell RPS-eligible generation at the given Re-MAT market price. Re-MAT prices may increase or decrease for each product type on a bi-monthly basis based on seller subscription levels. The utilities began accepting Re-MAT applications on October 1, 2013 and the first Re-MAT contract with starting dates on November 1, 2013.
Not In Scoping Plan	CPUC	Renewable SB 1122 Feed-In Tariff	Began December 18, 2014	On December 18, 2014, the Commission implemented the provisions of SB 1122 (Rubio, Chapter 612, Statutes of 2012) through D.14-12-081. The Commission will oversee IOU procurement of mandated quantities of RPS-eligible generation from facilities using specified types of bioenergy.	Is included in goal for 33 percent RPS	In September 2012, Gov. Brown signed SB 1122 (Rubio, 2012) into law, requiring an incremental 250 MW of renewable Feed-In Tariff (FIT) procurement from small-scale bioenergy projects that commence operation on or after June 1, 2013. The statute requires that each of California's three large investor owned utilities (PG&E, SCE, and SDG&E) procure a share of the statute's 250 MW requirement based on the ratio of each utility's peak demand to statewide peak demand. Additionally, the statute orders the CPUC to allocate the 250 MW procurement requirement among the following categories: (i) For biogas from wastewater treatment, municipal organic waste diversion, food processing, and codigestion, 110 megawatts. (ii) For dairy and other agricultural bioenergy, 90 megawatts. (iii) For bioenergy using byproducts of sustainable forest management, 50 megawatts. The Commission implemented SB 1122 through D.14-12-081, which sets procurement targets for each IOU for each bioenergy category, identifies the required characteristics of each fuel type to be used, and sets the mechanism for determining the tariff price of generation.
Not In Scoping Plan	CPUC	Alternative Fuel Vehicles (Natural Gas and Electric Vehicles)	Began November 2013	CPUC began its current regulatory proceeding in October 2013. In July 2014, CPUC identified the following priorities: the utility role in infrastructure, vehicle-grid integration, customer education and outreach, and rate design. In December 2014, CPUC adopted a new approach to evaluating utility investments in PEV infrastructure. In December 2014, CPUC approved two methods that the utilities may use to return Low Carbon Fuel Standard (LCFS) revenue to alternative-fueled vehicle drivers.	TBD	Executive Order B-16-2012 set a state target of getting 1.5 million plug-in electric vehicles (PEVs) on the roads by 2025. CPUC rulemaking addresses regulatory barriers to help foster widespread adoption of electric vehicles and the provision of the electric vehicle charging services, to ensure EV deployment is done in a manner that maintains system reliability and reasonable rates.

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
WATER SECTOR						
W-3	CPUC	Water Energy Communications Nexus	Proceeding opened in December 2013; decision expected in 2015	CPUC opened Proceeding R.13-12-011 to address the Water Energy Communications Nexus.	TBD	Proceeding (opened by CPUC's Office of Ratepayer Advocates) will develop a partnership framework between investor owned energy utilities and the water sector to co-fund programs that reduce energy consumption by the water sector in supplying, conveying, treating, and distributing water, and examine the role of telecommunications in water management, use and public safety. A main project of this proceeding is determining the cost effectiveness of water-energy programs through a calculator developed by the CPUC in consultation with consulting firm Navigant and the parties to the proceeding.
Total Reductions Expected from CPUC Led Strategies					42.4	
<p>CPUC NOTES: ¹ GHG Reduction goals for PUC measures are taken from ARB's AB 32 Scoping Plan. Unless otherwise noted, values represent statewide reductions for the measures and are not prorated to the CPUC jurisdictional utilities' share.</p> <p>² The EPS prevents CA utilities from entering into long-term contracts with inefficient generation resources, which will in effect prevent such resources from being built to serve CA load. A reduction calculation would involve speculation about amount of these resources that would have been built in the absence of the EPS.</p>						

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
Department of General Services (DGS)						
GREEN BUILDINGS						
GB-1	DGS	Green Buildings Initiative	Ongoing		Reductions specified by substrategy (below)	This project focuses on implementing green building measures in new and existing buildings, including LEED certification, Retro-commissioning, Retrofit projects, and on-site clean generation projects (details included in substrategies described below).
GB-1: substrategy 1	DGS, State Agencies	New state buildings	Ongoing: All new state buildings constructed to LEED-Silver standards	31 LEED-NC (New Construction) & LEED-CI (Commercial Interiors) certifications were received for new buildings and tenant spaces in 2013 (1,498,655 sq. ft.).	0.1	Ensuring all new and renovated state buildings are built to LEED-NC (New Construction) Silver or higher standards. This estimate is based on achieving LEED-NC certifications at a rate consistent with what was achieved in 2007-2008.
GB-1: substrategy 2	DGS, State Agencies	Existing state buildings	All existing State buildings over 50,000 SF in size to be LEED-EB certified by 2015	DGS enrolled in U.S. Green Building Council LEED Volume Certification to streamline LEED-EB (Existing Buildings) certification, internalize, and greatly reduce costs. Two new state leases in existing buildings LEED-EB certified in 2013.	0.88	Attain LEED-EB (Existing Buildings) certification for all existing buildings over 50,000 square feet in size. This estimate is based on the LEED certification of 60 DGS buildings by 2020.
GB-1: substrategy 3	State Architect, Office of Public School Construction, Department of Education	Schools	Ongoing: California Schools encouraged to achieve green standards	High performance school bond funding came to a close at the end of 2014. The Division of the State Architect completed 20 plan verifications for the High Performance Incentive Grant in calendar year 2013. The State Allocation Board approved 29 HPI approvals totalling \$11.4 million in 2013.	0.16	Various activities to encourage California schools to be built and operated to high levels of energy and environmental performance. This estimate is based on 40 percent of California schools constructed/renovated to LEED and Collaborative for High Performance Schools standards by 2020.
GB-1: substrategy 4	DGS, State Agencies	Leased Buildings	Ongoing: Encourage owners/occupants to implement green building measures	All new build-to-suit leases still being built LEED Silver or higher, as well as large leases in existing buildings.	0.25	Now mandatory energy and environmental improvements for leased buildings. This estimate is based on all new build-to-suit leases constructed to LEED standards and continuing to educate owners/occupants on the benefits of green buildings.
GB-1: substrategy 5	DGS, State Agencies, CSU/UC	Distributed Generation	Ongoing: Investigate implementation of clean/renewable on-site generation	On-going efforts increased on-site renewable generation capacity by 13.13 MW during 2013, & 3.2 MW more by the end of 2014.	0.16	Implement clean renewable energy generation projects at state facilities. It is anticipated that at least 70 MW of clean/clean renewable generation will be installed in state facilities by 2020. Installations will consist of Solar Photovoltaic, Wind and Solar Thermal generation projects.
GB-1: substrategy 6	DGS, State Agencies, CIWMB, DTSC	Environmentally Preferable Purchasing (EPP)	Ongoing: Minimize energy and resource impacts from procured commodities	Identification of appropriate metric and baseline by commodity is in progress.	*	Develop environmentally preferable purchasing specifications, contracts and guidelines to promote the use of commodities that lower energy use, increase recycling and reuse and reduce the emission of greenhouse gasses. Develop metrics to help assess significance of impact reduction.
GB-1: substrategy 7	California Building Standards Commission, CEC, DGS, State Architect, HCD, OSHPD	Green Building Code Development	Ongoing	CALGreen's intervening code supplement (effective July 1, 2015) moved voluntary electric vehicle infrastructure requirements to mandatory. Mandatory prescriptive fixture flow rates were added along with clarifications to the voluntary tier fixture flow rate tables and percentages. The reference standards for carpet systems and resilient flooring systems were updated. Additionally, voluntary Solar Reflective Index values were updated.	2.9	In 2008 California adopted the first-in-the-nation Green Building Standards Code (CALGreen) which became effective August 1, 2009. It contained voluntary standards which local authorities could adopt as mandatory regulations within their jurisdictions. On January 1, 2011, the 2010 edition of the CALGreen Code went into effect. It is composed of both voluntary and mandatory measures to further promote green building standards. Since then the Building Standards Commission has continued to enhance the CALGreen Code, implementing reductions in construction waste, water use, environmental impact during and after construction and increase the efficient use of building materials. All 13 of the 2013 California Building Standards Codes, California Code of Regulations, Title 24 took effect January 1, 2014 except for Part 6 (the Energy Code) which had a delayed effective date of July 1, 2014.
TRANSPORTATION SECTOR						
Appendix C, Section 2.B.	DGS, State Agencies	Right-size the State Fleet	Ongoing	As a result of Executive Order (EO) B-2-11, the state will reduce 6,931 state fleet assets that have been identified as cost-inefficient and/or non-mission critical. At this time, the state has eliminated 6,889 of these assets and is 99.4 percent completed. DGS' Office of Fleet and Asset Management (OFAM) is anticipated to conclude its EO B-2-11 fleet reduction activities in FY 14/15.	0.2	As a result of Executive Order (EO) B-2-11, the state will reduce 6,931state fleet assets that have been identified as cost-inefficient and/or non-mission critical. At this time, the state has eliminated 6,889 of these assets and is 99.4 percent completed. DGS' Office of Fleet and Asset Management (OFAM) is anticipated to conclude its EO B-2-11 fleet reduction activities in FY 14/15.
Appendix C, Section 2.B.	DGS, State Agencies	Removing Higher-Polluting Vehicles from the State Fleet	Ongoing	As a result of Executive Order (EO) B-2-11, the state will reduce 6,931state fleet assets that have been identified as cost-inefficient and/or non-mission critical. At this time, the state has eliminated 6,889 of these assets and is 99.4 percent completed. DGS' Office of Fleet and Asset Management (OFAM) is anticipated to conclude its EO B-2-11 fleet reduction activities in FY 14/15.	0.4	After the state fleet is right-sized we will continue to identify the most polluting vehicles in the state fleet and replace those vehicles with greener more fuel efficient vehicles utilizing the Fleet Asset Management System and the Vehicle Allocation Methodology (VAM). We will continue working with other state agencies on cost effective vehicle replacement strategies which will include the institution of default compact vehicle class size for future vehicle procurements..

Table 2 - 16

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
Appendix C, Section 2.B.	DGS, State Agencies	Actively manage vehicle miles traveled and reduce petroleum consumption	Ongoing	Vehicle allocation methodology evaluated all vehicles. Utilization will result in car sharing/reduced trips. <i>DGS OFAM continues to reduce vehicle miles travelled and petroleum use achieved through State fleet oversight and specifically the vehicle acquisition approval process. The process allows DGS OFAM to maintain fleet sizes and promote fuel efficient vehicles where feasible.</i>	0.2	Eliminating trip redundancy to optimize vehicle utilization reduces the number of vehicle miles traveled, GHG emissions, criteria pollutants, and maintenance costs. Actively managing fuel consumption meets objectives by decreasing petroleum use through the increased use of renewable and alternative fuels for necessary business travel. By combining all three strategies listed above the State fleet is expected to reduce petroleum consumption by 20 percent or 9 million gallons of gasoline and diesel.
Total Reductions Expected from DGS Led Strategies					5.3	
DGS NOTES: * Unable to determine projected GHG reductions arising from EPP Program due to the relative immaturity of computational algorithms and lack of data collection processes in this area.						

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
DEPARTMENT OF WATER RESOURCES (DWR) STRATEGIES						
WATER SECTOR						
W-1	DWR, SWRCB	Water Use Efficiency	Dependent upon resources; various milestones through 2020.	Continued implementation of "20x2020".	1.4 ³	Promote greater implementation of water conservation measures, including best management practices, to improve efficiency. Implement the Governor's 20x2020 Plan (20 percent reduction in water use by 2020), and implement provisions of SBx7 7, the Water Conservation Act of 2009 (Steinberg, Chapter 4, Statutes of 2009-2010 Seventh Extraordinary Session).
W-6	DWR	Public Goods Charge on Water	Will not be implemented	None	N/A	A fee to be used to fund end-use water efficiency improvements, system-wide efficiency projects, water recycling, and other actions that improve water and energy efficiency and reduce GHG emissions.
W-3, W-5; Appendix, Volume 1	DWR	Reid Gardner Power Plant Divestiture/renewable energy procurement/energy efficiency	2013	DWR continues to implement energy efficiency and renewable energy projects for the State Water Project. The Department ceased receiving power from Reid Gardner Station in July 2013. As of 2014, DWR's carbon emissions are approximately 30% below their 1990 levels (based upon a five-year running average), and continue to be on track to be 50% below 1990 levels by 2020, the target the Department established in its Climate Action Plan.	1.2	DWR's Climate Action Plan includes procurement and development of renewable energy supplies, termination of its ownership interest in Unit 4 at Reid Gardner Station, and energy efficiency improvements.
Total Reductions Expected from DWR Led Strategies					2.6	

Table 2 - 19

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
DEPARTMENT OF HOUSING & COMMUNITY DEVELOPMENT (HCD) STRATEGIES						
TRANSPORTATION SECTOR *						
T-3: C-56	HCD	Regional, Transportation-Related Greenhouse Gas (GHG) Targets.	Beginning 2010 and ongoing	Over 2014 HCD approved Regional Housing Need Allocation (RHNA) plans for the AMBAG region (Monterey and Santa Cruz counties) and the counties of Fresno, Humboldt, Kern, Kings, Madara, Merced, San Benito, San Joaquin, Stanislaus, and Tulare.	Not Applicable. Regional transportation entities provide GHG reduction information to Air Resources Board.	HCD RHNA determinations specify number of new housing units for regional and local planning entities to plan for and coordinate and integrate with the SCS and RTP for housing and transportation planning to be consistent. Regional planning entities must allocate a share of RHNA to each local gov't to plan for in updating its housing element. HCD is required to approve region RHNA Plans and local gov't housing elements that describe local land-use decisions regarding housing siting and densities, etc. and consideration of factors relevant to achieving reductions in vehicle trips and GHG emissions.
LAND USE *						
C-82 **	HCD	Housing Element Technical Assistance	Beginning in 2010 and ongoing.	Over 2014, HCD conducted 9 housing element technical assistance workshops among several California counties.	N/A ⁴	Housing Element Technical Assistance: HCD updated technical assistance and completed outreach efforts to include climate change and greenhouse gas emission reductions objectives in technical assistance materials and resources for local governments to use and include in updating their housing elements. This included identification of new land use strategies that both address housing supply and affordability requirements (density of housing, infill potential, energy conservation in residential development both in construction and retrofitting and design) and reduction in greenhouse gas emissions.
C-83 **	HCD	Affordable Housing Finance Incentives	Beginning 2011 and ongoing.	Implementation of CalGreen building standards underway after delay resulting from significant reduced local development activity and economic and budget constraints.	N/A ⁴	HCD added scoring criteria to 2014 funding applications for the Transit Oriented Development (TOD) housing program to support GHG reduction and energy efficiency objectives
C-49 **	HCD	Local Assistance on GHG Reduction Strategies	Beginning 2011 and ongoing.	Additional technical assistance and outreach efforts were completed pursuant to above description for C-82.	N/A ⁴	HCD staff made presentations at statewide, region, and local conferences and workshops to educate housing developers, housing advocacy groups, business and industry groups, environmental advocates, and local government housing and planning departments about the relationship between planning well for housing and achieving climate change objectives and effective housing and land use strategies to reduce greenhouse gas emissions.
C-76 **	HCD	Regulatory Relief to GHG Emission Reduction Land Use Strategies	2014	Over 2014, HCD reviewed 180 housing elements finding 163 local governments adequately updated land use and regulatory relief strategies to comply with State housing law as amended by SB 375.	N/A ⁴	Dependent upon resources and workload, HCD intends to review information regarding regulatory barriers to housing and efficient land use strategies and prepare recommendations on how such barriers can be addressed.
Total Reductions Expected from HCD Led Strategies					2.9	
<p>HCD NOTES:</p> <p>* Transportation / Land Use Sectors: Responsibility for many of the reductions previously associated with land use, smart growth and related strategies has shifted to the ARB to ensure consistency with the Scoping Plan and the mandates of SB 375 (Steinberg, Chapter 728, Statutes of 2008). HCD will play an active role in the implementation of these and related land use measures through a variety of planning efforts and programs.</p> <p>** References section numbers of the Scoping Plan where the strategies are described.</p>						

Table 2 - 19

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
CALIFORNIA HIGH SPEED RAIL AUTHORITY (HSR) STRATEGIES						
<i>Transportation</i>						
Not in Scoping Plan	HSR	Caltrain Electrification	December 1, 2012	Environmental planning work underway for electrification	0.018	The Authority has provided funding to Caltrain to carry out electrification of the Caltrain system between San Jose and San Francisco
Total Reductions Expected from HSR Strategies					0.0 *	
HSR notes: * Expected GHG reductions in 2020 total less than a tenth of MMTCO ₂ e.						

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
OFFICE OF PLANNING AND RESEARCH (OPR) STRATEGIES *						
OTHER SECTORS/STRATEGIES						
Chapter II Section A	OPR	CEQA Guidelines re: GHG emissions	Ongoing	Ongoing	N/A ⁴	OPR developed California Environmental Quality Act (CEQA) guidelines to help lead agencies address greenhouse gas impacts. A comprehensive update to the CEQA guidelines will be occurring in 2014.
Not in Scoping Plan	OPR	General Plan Guidelines: Update to the Circulation Element Section	December 15, 2010	Completed	N/A ⁴	OPR developed an "Update to the Circulation Element, Complete Streets and the General Plan". This publication is in response to AB 1358 (Leno, Chapter 657, Statutes of 2008) requiring cities and counties to modify the circulation element of the general plan to provide for a balanced multi-modal transportation network. Final publication was completed in December 2010.
Chapter II Section B	OPR	Technical Advisory and Technical Assistance	Ongoing	Ongoing	N/A ⁴	OPR is developing a "Technical Advisory" to provide advice to state and local agencies on preparing climate action plans that integrate with CEQA, planning and zoning law and climate change legislation. Other technical advisories have support distributed generation, zero emissions vehicles and other Governor/State priorities. On an on-going basis, OPR provides technical advice, including training on climate action planning and related implementation measures, to local and state agencies.
Not in Scoping Plan	OPR	CEQA Guidelines re: Infill and transportation emissions	Ongoing through 2014	Ongoing	N/A ⁴	SB 226 (Simitian, Chapter 469, Statutes of 2011) requires OPR to develop performance standards for certain infill projects that promote, among other policy objectives, the reduction in greenhouse gas emissions. SB 743 (Steinberg, Chapter 386, Statutes of 2013) requires OPR to propose alternatives to Level of Service (LOS) as a metric for transportation which will result in metrics being changes to support activities that have a lower greenhouse gas emissions component relative to historic metrics.
Not in Scoping Plan	OPR	General Plan Guidelines: Comprehensive Update	Ongoing through mid 2014	Ongoing	N/A ⁴	OPR will engage in a comprehensive update to the General Plan Guidelines, which will include, among other topics, ways for local governments to address climate change in their General Plans.
Not in Scoping Plan	OPR	Environmental Goals and Policy Report (EGPR)	Ongoing through 2014	Ongoing	N/A ⁴	The Environmental Goals and Policy Report (EGPR) is required by statute to be completed every four years and provides the framework for State action across a wide variety of topic areas, including climate change and greenhouse gases. Although goals and policies in the EGPR help guide the development of plans such as the AB 32 (Nunez, Chapter 488, Statutes of 2006) scoping plan, the EGPR itself does not have direct emissions reductions.
Not in Scoping Plan	OPR	ZEV Action Plan	December 15, 2012	Completed	N/A ⁴	OPR is helping to develop a zero-emission vehicle (ZEV) Action Plan to implement the Governor's ZEV Executive Order, which establishes several GHG emission milestones, highlighted by the target of 1.5 million ZEVs in California by the year 2025.
Total Reductions Expected from OPR Strategies					0.0 *	
OPR NOTES: * OPR has important programmatic responsibilities but does not have emission reduction regulatory authority.						

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency ¹ and Sector	Name	Implementation Timeline	Activities since last Report Card	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Brief Description
STATE WATER RESOURCES CONTROL BOARD (SWRCB) STRATEGIES						
WATER SECTOR						
W-2	SWRCB, DWR, CEC, CPUC	Water Recycling	By 2020	On June 3, 2014, the State Water Board adopted a Statewide General Order for Recycled Water Use to streamline permitting of recycled water projects. In 2014, the State Water Board executed contracts for planning grants (\$375,000), construction grants (\$5,897,213), and construction loans (\$240,614,206).	0.3 ³	This measure proposes the production and use of additional recycled water where the recycling of treated effluent is not maximized at wastewater treatment plants located in areas where imported water is used. Implementation of water recycling projects would be prioritized for those areas that discharge to water bodies from which the wastewater cannot otherwise be easily recovered, such as the ocean and brackish water bodies. GHG benefits would be realized where recycled water would consume less energy than water obtained from existing sources.
W-4	SWRCB	Storm Water Reuse	By 2020	In 2014, the State Water Board's Division of Water Quality started developing a strategic stormwater plan and will continue this work in 2015. In addition, the State Water Board's Division of Financial Assistance has developed a Drought Response Outreach Program for Schools (DROPS). DROPS is focused on projects that address the drought, reduce stormwater pollution, and provide multiple benefits including water conservation, water supply augmentation, energy savings, increased awareness of water resource sustainability, and reduced dry weather runoff. All projects must include an education/outreach component that is designed to increase student and public understanding of the project's environmental benefits and the sustainability of California's water resources directly related to the project. Approximately \$25.5 million is available in grant money through Propositions 13 and 40 for DROPS projects. The State Water Board is also implementing the provisions in SB 985 that are intended to increase stormwater and dry weather runoff reuse projects through stormwater resource plans. SB 985 will allow cities to better allocate resources available locally for sustainable water management.	0.2 ³	This measure proposes that Low Impact Development (LID) be required to maximize the infiltration and/or capture of storm water to increase local water supplies. Where favorable soil and geologic conditions exist, storm water would be infiltrated to increase groundwater supplies. In locations where potential infiltration is either limited or not recommended, capture and storage for on-site non-potable use would be encouraged. GHG benefits would be realized where local water would consume less energy than water obtained from existing sources.
Total Reductions Expected from SWRCB Led Strategies					0.5	

TABLE 2 FOOTNOTES: 1. Where multiple agencies are noted, the first is the lead agency and the others work in collaboration to achieve strategy goals.

2. Measures shown with GHG emission reduction shown as "TBD" represent on-going or future efforts for which quantification has not been completed.

3. GHG emission reduction estimate not included in calculating the total reductions needed to meet the 2020 target as established in the Scoping Plan. (See Scoping Plan for details).

4. These strategies will not result in direct reductions of GHG emissions but will facilitate reductions through associated voluntary actions and potential future regulatory efforts.

5. These programs pre-date the Scoping Plan but are included here to document on-going efforts. GHG reductions are not included in the total for the agency as they do not provide additional reductions over and above what would have occurred absent AB 32.

TABLE 3 - GREENHOUSE GAS (GHG) EMISSION REDUCTIONS

The following summarizes the totals from Tables 1 and 2. Reductions shown are Million Metric Tons of CO₂ equivalent (MMTCo₂e) and are those achieved within California during the given year. The annual figures are not cumulative and do not reflect reductions that might occur out-of-state.

TABLE 3a: GHG EMISSION REDUCTIONS ACHIEVED			
Agency	GHG Emission Reductions Achieved in 2011 ¹	GHG Emission Reductions Achieved in 2012 ¹	GHG Emission Reductions Achieved in 2013 ¹
ARB	4.8	9.1	15.5
CAL FIRE	2.7	2.5	2.5
CalRecycle	0.0	0.0	0.0
Caltrans	<0.1	<0.1	<0.1
CDFA	0.0	0.0	0.0
CEC	3.7	4.3	5.0
CPUC	10.0	10.9	14.3
DGS ³	<0.1	<0.1	<0.1
DWR	0.0	0.0	0.0
HCD ⁴	0.0	0.0	0.0
OPR ⁴	0.0	0.0	0.0
SWRCB	0.0	0.0	0.0
Additional GHG emissions reductions from previous year		5.6	10.5

TABLE 3b: Agency GHG Targets for 2020	
Agency	Expected GHG Emission Reductions in 2020 from Proposed Strategies ²
ARB	87.4
CAL FIRE	0.0
CalRecycle ⁵	1.0
Caltrans	0.5
CDFA	0.0
CEC	4.6
CPUC	42.4
DGS ³	5.3
DWR	2.6
HCD ⁴	0.0
HSR	0.0
OPR ⁴	0.0
SWRCB	0.5
Total	144.3

Notes

1. The values in this column are taken from the totals in Table 1. The figures may reflect emission reductions from programs implemented before AB 32 was enacted in order to provide a broad picture of all on-going GHG related efforts. Figures for years prior to the most recent year come from previous year Report Cards.
2. The values in this column are taken from the agency totals in Table 2. These figures only reflect reductions from programs implemented since AB 32 was enacted. The total aggregate GHG reduction cannot be directly calculated from these values due to issues of double counting. Example: the Green Building measures achieve reductions, primarily, by reducing energy consumption. Such reductions would be captured in the energy sector but the measure would be implemented by non-energy sector agencies such as DGS.
3. Most of the GHG reductions from DGS measures are captured within the energy sector. The target is for measures that are not counted elsewhere.
4. These agencies have important programmatic responsibilities but do not have emission reduction regulatory authority.
5. Only 1.0 MMTCo₂e of the CalRecycle total shown on Table 2 is included in the target because the balance of the reductions may occur largely out-of-state.

GHG Inventories of State Agencies

Starting with the January 2010 report card, we began including information about GHG inventories prepared by the CAT member agencies. These inventories were each prepared independently using the Climate Action Reserve's *General Reporting Protocol*.

In April of 2012, Governor Brown issued Executive Order B-18-12 which, among other things, requires all state agencies to reduce greenhouse gas emissions by 10 percent by 2012 and 20 percent by 2020, as measured against a 2010 baseline. In order to track progress, all state agencies were instructed to develop annual GHG inventories and enter them into The Climate Registry's *Climate Registry Information System*, or CRIS.

In order to avoid double counting in this state-government-wide reporting effort, starting with 2010 there have been some changes in the way departments and agencies are reporting their emissions. For example, in most cases, departments and agencies occupying DGS buildings, no longer include emissions from those buildings in their inventories. Instead, DGS is reporting those emissions in its own inventory. For this reason, it would be advised to only compare emissions from calendar year 2010 forward.

Additionally, while changes in year over year GHG emissions can result from changes in the way state agencies do business, they can also be attributed to things beyond the control of individual agencies. In particular, California utilities rely extensively on hydropower for base-load energy generation. In dry years, more electricity will be generated using fossil fuels and the increase in GHG emissions for a given amount of electricity can be substantial. Also, weather conditions (cold or hot) can have a significant impact on buildings. For this reason, observing longer-term, multi-year trends will be more useful for policy makers.

2015 State Greenhouse Gas Report Card

The data below is organized by Agency though many departments are reporting individually.

Table 4: Climate Action Team - GHG Inventory Status							
INVENTORY STATUS >	Member of The Climate Registry	Inventory Completed (CY)	Emissions in Metric Tons CO ₂ e for each year calculated			NOTES	
			Year	Direct	Indirect		Total
							Green indicates verified inventory
California State Transportation Agency							
<i>The following Boards and Departments calculate emissions separately:</i>		2007	2007	136,587	93,996	230,583	
		2008	2008	75,546	111,331	186,877	
		2009	2009	98,423	131,227	229,650	
		2010	2010	83,695	98,918	182,613	
		2011	2011	82,729	108,672	191,401	
		2012	2012	83,049	87,851	170,900	
- CalTrans	Yes	2013	2013	75,063	90,654	165,717	
California Environmental Protection Agency							
<i>-Totals include inventory data for the ARB, CalRecycle, OEHHA, DPR, DTSC and SWRCB</i>		2005	2005	2,632	4,914	7,546	
		2006	2006	3,119	4,780	7,899	
		2007	2007	3,050	5,545	8,595	
		2008	2008	3,177	5,478	8,655	
		2010	2010	2,364	4,884	7,248	
		2011	2011	2,120	4,952	7,072	
		2012	2012	1,964	4,704	6,668	
	Yes	2013	2013	2,069	4,544	6,613	

Table 4 Summary - 1

2015 State Greenhouse Gas Report Card

INVENTORY STATUS >	Member of The Climate Registry	Inventory Completed (CY)	Emissions in Metric Tons CO ₂ E for each year calculated			NOTES	
			Year	Direct	Indirect		Total
							Green indicates verified inventory
California Department of Food and Agriculture	Yes	2010	2010	6,381	1,974	8,355	
		2011	2011	6,065	1,966	8,031	
		2012	2012	5,558	1,948	7,506	
		2013	2013	5,081	1,603	6,684	
California Governor's Office of Emergency Services	Yes	2010	2010	0	1,125	1,125	
		2011	2011	320	990	1,310	
		2012	2012	303	904	1,207	
		2013	2013	1,354	1,261	2,615	
CA Public Utilities Commission	Yes	2004	2004	92	849	941	
		2005	2005	432	1,084	1,516	
		2006	2006	515	1,228	1,743	
		2010	2010	167	892	1,059	
		2011	2011	156	850	1,006	
		2012	2012	149	805	954	
		2013	2013	173	836	1,009	
Health and Human Services Agency - Department of Public Health	Yes	2010	2010	5,320	5,909	11,229	
		2011	2011	6,244	5,026	11,270	
		2012	2012	5,855	4,768	10,623	
		2013	2013	5,390	2,140	7,530	

Table 4 Summary - 2

2015 State Greenhouse Gas Report Card

INVENTORY STATUS >	Member of The Climate Registry	Inventory Completed (CY)	Emissions in Metric Tons CO ₂ E for each year calculated				NOTES
				Year	Direct	Indirect	
							Green indicates verified inventory
Natural Resources Agency							
- The following Boards and Departments		2007	2007	41,882	7,460	49,342	
		2008	2008	37,222	6,044	43,266	
		2009	2009	34,273	5,620	39,893	
		2010	2010	33,832	4,916	38,748	
		2011	2011	32,916	4,587	37,503	
		2012	2012	38,355	4,664	43,019	
- CalFire	Yes	2013	2013	35,536	5,540	41,076	
		2003	2003	22	576	598	
		2008	2008	14	948	962	
		2009	2009	11	863	874	
		2010	2010	4	903	907	
		2011	2011	3	894	897	
		2012	2012	3	1347	1350	
- CA Energy Commission	Yes	2013	2013	1	489	490	
Natural Resources Agency, continued							

2015 State Greenhouse Gas Report Card

INVENTORY STATUS >	Member of The Climate Registry	Inventory Completed (CY)	Emissions in Metric Tons CO ₂ E for each year calculated			NOTES	
			Year	Direct	Indirect		Total
						Green indicates verified inventory	
- Dept. of Fish & Wildlife	Yes	2007	2007	15,716	18,303	34,019	
		2008	2008	15,175	14,597	29,772	
		2009	2009	13,557	9,026	22,583	
		2010	2010	13,223	8,483	21,706	
		2011	2011	13,793	8,490	22,283	
		2012	2012	14,447	8,318	22,765	
		2013	2013	12,060	8,263	20,323	
- Dept. of Water Resources	Yes	2007	2007	14,299	3,226,250	3,240,549	DWR re-verified 2010-2013 inventories after the Verifier agreed to take into account the environmental attributes of renewable energy generation resulting in lower GHG emissions. 2012 and 2013 inventories are in the process of being verified
		2008	2008	4,116	2,397,336	2,401,452	
		2009	2009	11,477	1,989,900	2,001,377	
		2010	2010	864,416	1,157,503	2,021,919	
		2011	2011	740,434	1,212,373	1,952,807	
		2012	2012	875,037	1,225,802	2,100,839	
		2013	2013	478,015	779,986	1,258,001	
Natural Resources Agency, continued							

Table 4 Summary - 4

2015 State Greenhouse Gas Report Card

INVENTORY STATUS >		Member of The Climate Registry	Inventory Completed (CY)	Emissions in Metric Tons CO ₂ E for each year calculated			NOTES
				Year	Direct	Indirect	
							Green indicates verified inventory
- Dept. of Parks and Recreation	Yes	2010	2010	15,833	10,988	26,821	
		2011	2011	17,263	12,097	29,360	
		2012	2012	17,143	13,730	30,873	
		2013	2013	15,903	15,135	31,038	
Office of Planning & Research	Yes						OPR's inventory is included in DGS's report.
Government Operations Agency		2006	2006	56,135	80,434	136,569	The Department of General Services's inventory includes much of the operations (including buildings and vehicles) of many other agencies.
- The following Department calculates emissions separately:		2007	2007	58,124	90,739	148,863	
		2008	2008	60,256	83,678	143,934	
		2009	2009	55,324	80,009	135,333	
		2010	2010	52,137	81,181	133,318	
		2011	2011	55,286	80,073	135,359	
		2012	2012	50,040	67,554	117,594	
- Dept. of General Services		Yes	2013	2013	43,767	54,778	