

***California's Climate Action Team
Report Card***

**Bill Dean
California Environmental Protection Agency**

December 8, 2015

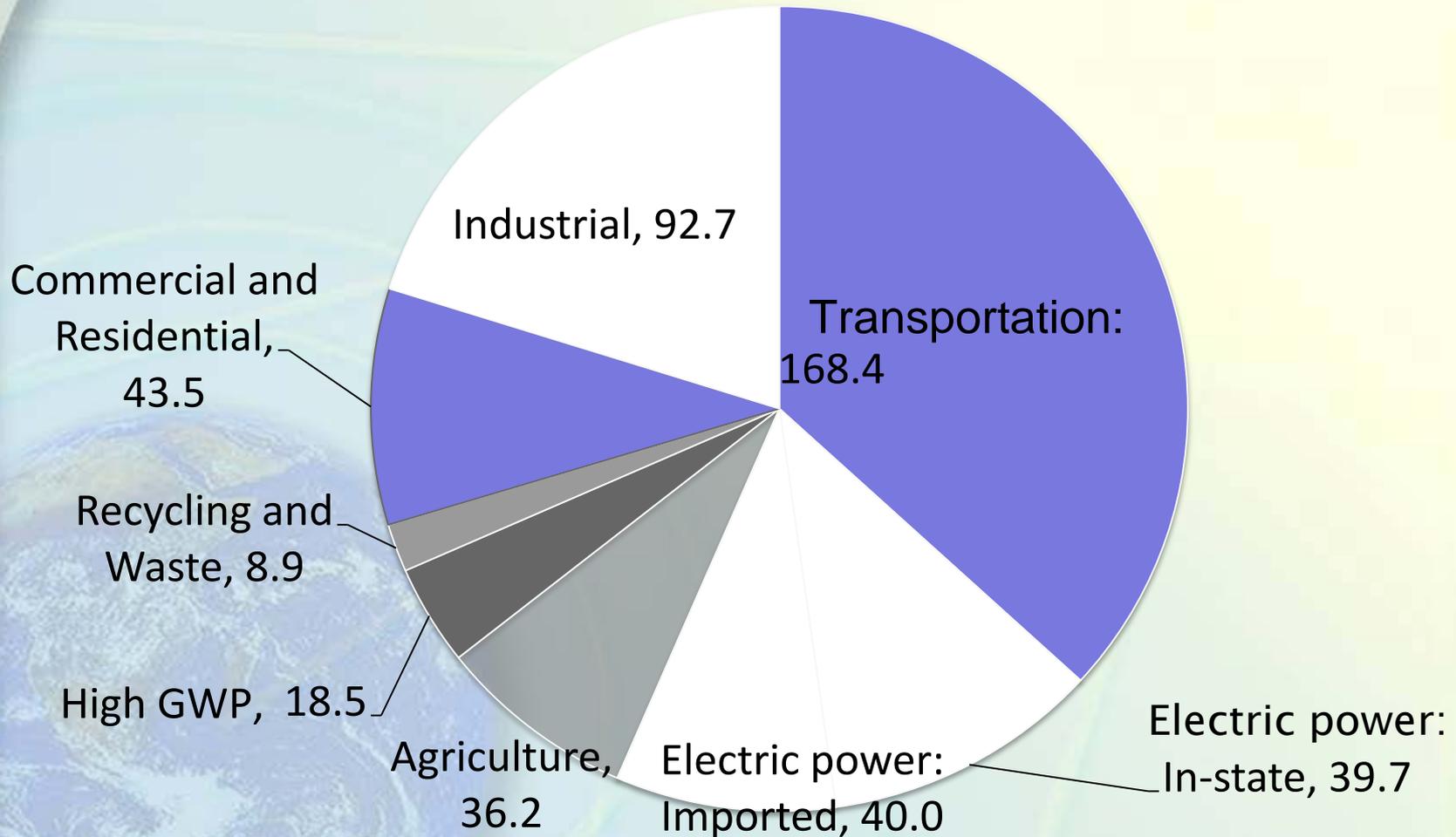
**Department of Energy & Environmental Protection
State of Connecticut**

Outline

- Background
- The Report Card – what it is
- The Report Card – how it comes about
- What Else?

California GHG Emissions, 2013

459.3 million metric tons CO₂-equivalent



Executive Order S-05-03 (2005)

- Promulgated GHG targets for California:
 - Back to 2000 levels by 2010
 - Back to 1990 levels by 2020
 - 80 percent below 1990 levels by 2050
- Established Climate Action Team
 - Coordination of State efforts
 - Chaired by CalEPA Secretary
 - Staffed by CalEPA Climate Unit

AB 32 – The Global Warming Solutions Act of 2006

- Assembly Bill 32. Nuñez and Pavley, Chapter 488, Statutes of 2006
- Established a GHG target for 2020: get back to 1990 emissions
- CARB to adopt a Scoping Plan by the end of 2008

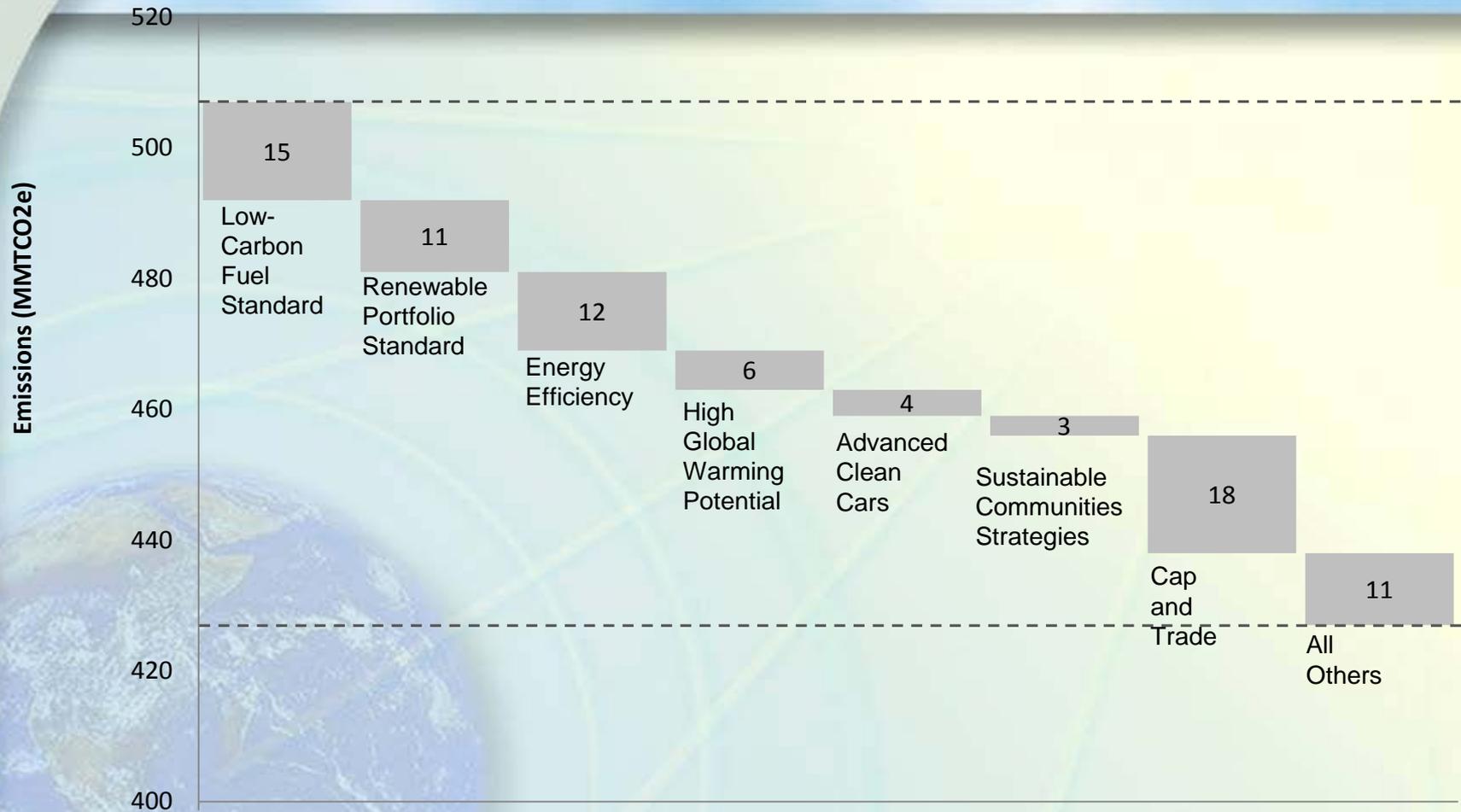
SB 85 (2007) mandates the Report Card

- Senate Bill 85. Committee on Budget and Fiscal Review, Chapter 178, Statutes of 2007
- 1.5 out of 21 pages describes the Report Card
 - Agencies report list of measures and reductions by Oct 1
 - CalEPA posts report on the Internet by Jan 1
 - Audits every three years (never happened)

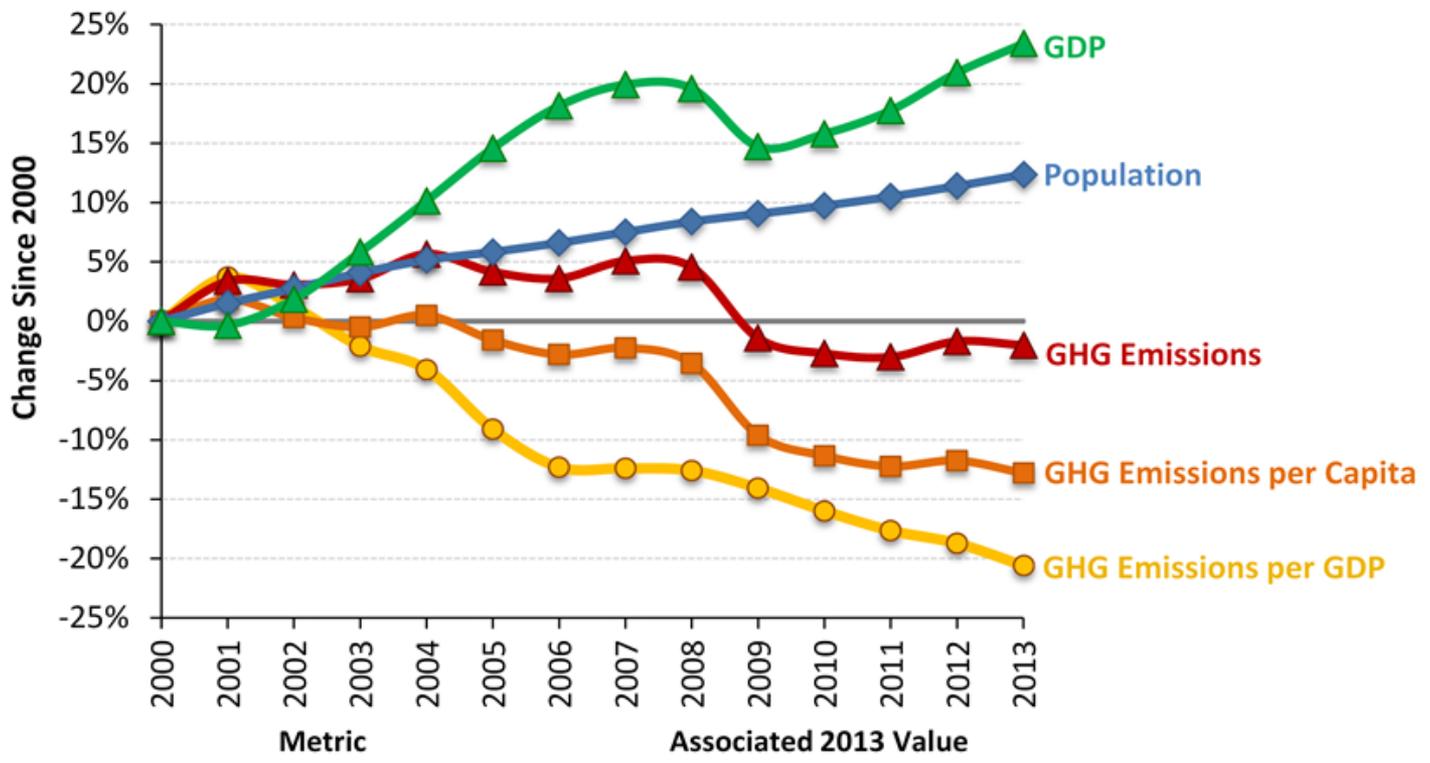
The 2008 Scoping Plan

- Required by AB 32, the Global Warming Solutions Act of 2006
- Plan by CARB for reducing emissions to reach 2020 target
- Main document plus Appendices A-J
- Adopted by ARB in late 2008
- Contains 73 measures, of which one is a cap-and-trade program

Major GHG Regulations



California Trends since 2000



GDP	2.05 trillion (2009 \$)
Population	38.2 million
GHG Emissions	459.3 MMTCO₂e
GHG Emissions per Capita	12 metric tons CO₂e per person
GHG Emissions per GDP	224 metric tons CO₂e per million dollars

Outline

- Background
- The Report Card – what it is
- The Report Card – how it comes about
- What Else?

Table 1

- Ongoing measures and related GHG emission reductions
- Columns
 - Agency, program title
 - Description of measure
 - Emission reductions in last two years
- Implemented as an Excel file
 - Each agency has its own worksheet
 - Less confusing than a Word file with table

Table 1

State Agency Greenhouse Gas Reduction Report Card: Table 1

California Energy Commission Program Title	Description of Measures	Emission Reductions, MMTCO ₂ e	
		2013	2014
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 2013 was 8,695 GWh. ¹ Electricity savings in 2014 was estimated to be 2,362 GWh. Natural gas savings between 2008 and 2014 was estimated to be 177 million therms. ²	3.0	3.9
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. Using the CED 2013 final forecast and 2007 as a base year, cumulative electricity savings for 2008 through 2013 was 2,781 GWh. Electricity savings in 2014 was estimated to be 795 GWh. Natural gas savings was estimated to be 54 million therms in 2014, with cumulative natural gas savings from building standards between 2008 and 2014 estimated to be 130 million therms. ²	1.2	1.6
Comprehensive Publicly Owned Utility Customer Energy Efficiency Programs	Publicly owned utilities (POU) in California have electricity efficiency (EE) programs that benefit their ratepayers. The publicly owned utilities began reporting GHG emissions reductions in 2007. Their programs achieved cumulative savings of 2,990 GWh between 2008 and 2013. ³ POU EE savings in 2014 was 625 GWh for 0.17 MMTCO ₂ e. Seven years of POU EE savings between 2008-2014 equal 3,615 GWh for 0.97 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	0.8	1.0

Table 2

- GHG emission reduction strategies and expected reductions in 2020
- Columns
 - Scoping Plan Strategy Number
 - Agency and Sector
 - Name
 - Brief Description
 - Expected GHG Reductions in 2020
 - Activities since last Report Card

Table 2

State Agency Greenhouse Gas Reduction Report Card: Table 2

Scoping Plan: Strategy Number or Chapter / Section	Agency' and Sector	Name	Brief Description	Expected GHG Emission Reductions in 2020 ² (MMTCO ₂ e)	Activities since last Report Card
RW-3 (Sub strategies listed below)	CalRecycle	Zero Waste - High Recycling	Detailed description of related measures below.	Reductions detailed below	
RW-3: Sub strategy 1	CalRecycle	Anaerobic Digestion	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 meeting the 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.	2.0 ¹¹	<p>CalRecycle continues 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:</p> <ul style="list-style-type: none"> • Awarded three Greenhouse Gas Reduction Fund grants to AD projects. • Working with ARB to develop additional Low Carbon Fuel Standard pathways as well as AD-specific Emission Reduction Factors. • Collaborates with the California Energy Commission on the Alternative and Renewable Fuel and Vehicle Technology program; and the Public Interest Energy Research and Electric Program Investment Charge programs for AD project development. • Provides technical and permitting support to jurisdictions and stakeholders deploying AD projects in California. • Developing in-vessel digestion regulations. • Participates in the California/Federal Dairy Digester Working Group to encourage the development of anaerobic digesters at dairies.
RW-3: Sub strategy 2	CalRecycle	Mandatory Commercial Recycling Regulation	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.	5.0 ¹¹	<p>In accordance with AB 341 (Chestro, Chapter 476, Statutes of 2011), CalRecycle reviews jurisdiction annual reports to assess implementation progress; recent review of 19 jurisdictions found them in compliance. CalRecycle also promotes a climate calculator to assess the financial, climate change, and waste reduction/environmental benefits of reducing and recycling discarded materials. CalRecycle conducted a statewide waste characterization study in 2014/15 to assess statewide goals; final report currently being drafted.</p> <p>The mandatory commercial recycling program was expanded in October 2014 when AB 1825 (Chestro, Chapter 727, Statutes of 2014) was chaptered, requiring businesses, including State agencies, to recycle their organic waste on and after April 1, 2016. CalRecycle conducted numerous workshops, revised its Enforcement Policy, and developed outreach materials and case studies in anticipation of implementation.</p>

Quantification of Reductions in Table 2

- Out of 13 agencies that contributed to Table 2,
 - Agencies that have measures with quantified reductions greater than 0.1 MMT: 8
 - Agencies that report measures that only get less than 0.1 MMT each: 2
 - Agencies that do not quantify reductions: 3

Table 3

- GHG Emission Reductions Achieved
 - Based on Table 1
 - Shows subtotal for each agency
 - Shows grand total
- Agency GHG Targets for 2020
 - Based on Table 2
 - Shows subtotal for each agency
 - Shows grand total

Table 4

- Agencies' GHG Inventory
 - Emissions from State operations
 - Reported to The Climate Registry
 - For some years, the emissions are verified
- Department of Water Resources
 - Reported emissions are large and fluctuate a lot
 - Reflects variability in hydro power, amount of water pumped, coal-fired power

Table 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	Total			
Natural Resources Agency, continued							Green indicates verified inventory
		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 Fish & Wildlife	Yes	2014	2014	14,049	4,962	19,011	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. 2014 inventory is in the process of being verified
		2007	2007	14,299	3,226,250	3,240,549	
		2008	2008	9,929	2,400,211	2,410,140	
		2009	2009	11,477	2,025,807	2,037,284	
		2010	2010	864,416	1,157,503	2,021,919	
		2011	2011	740,434	1,212,373	1,952,807	
		2012	2012	929,992	1,228,365	2,158,357	
		2013	2013	470,730	783,861	1,254,591	
- Dept. of Water Resources	Yes	2014	2014	17,866	433,778	451,644	

Table 4 Summary - 4

Outline

- Background
- The Report Card – what it is
- The Report Card – how it comes about
- What Else?

Engage State Agencies

- In early September, send email to:
 - Management at 14 agencies
 - 17 other staff at those agencies
- Obtain contributions by early October
- Interact with agencies if necessary
 - Table 2, confusion between Brief Description and Activities since last report card
 - Table 2, Brief Description not brief

Assemble the Report Card

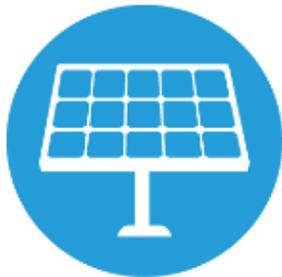
- Insert agency contributions into Excel files for Tables 1 and 2
- Make the Report look presentable
 - Page Break Preview is a big help!
 - Revamp of Table 2 for 2016
 - Convert to PDF, print out, inspect
- Get review by CalEPA management
- Put on Climate Action team website in early January

Outline

- Background
- The Report Card – what it is
- The Report Card – how it comes about
- What Else?

California's 2030 Goal

- The goal: 40 percent emission reduction below 1990 levels by 2030
- Proposed “5 Pillars” to achieve this goal



50%
RENEWABLE
ELECTRICITY



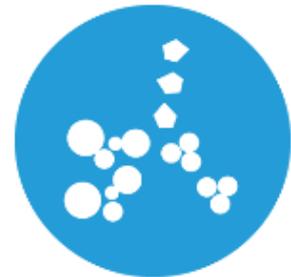
50%
REDUCTION IN
PETROLEUM



DOUBLE
ENERGY
EFFICIENCY
SAVINGS AT
EXISTING
BUILDINGS



PROTECTING
ECOSYSTEMS



REDUCE SHORT-
LIVED CLIMATE
POLLUTANTS

Reports Relating to GHG Reduction

- The 2008 Scoping Plan
 - <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>
- The 2013 Scoping Plan Update
 - <http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm>

Other Climate-related Reports

- Environmental Goals and Policy Report
 - http://www.opr.ca.gov/s_egpr.php
- Safeguarding California
 - <http://resources.ca.gov/climate/safeguarding/>
- Climate Action Team Reports
 - http://climatechange.ca.gov/climate_action_team/reports/index.html

Links

- Climate Change Portal
 - <http://climatechange.ca.gov/>
- Climate Action Team
 - http://www.climatechange.ca.gov/climate_action_team/index.html

Contact Information

- Bill Dean, Climate Change Advisor,
California Environmental Protection
Agency:

William.Dean@calepa.ca.gov

916-445-0039

Questions?