

**IMPLEMENTATION OF AB 32  
CALIFORNIA GLOBAL WARMING  
SOLUTIONS ACT OF 2006**

**Eileen Tutt**  
**Deputy Secretary for External Affairs**

Representing  
**California Environmental Protection Agency**

**Presented to the Assembly Natural Resources and  
Senate Subcommittee on Alternative Energy  
March 3, 2008**

**Climate Action Team Sector Subgroups  
Lead Agency and Group Chair**

▫ **Agriculture**

- CDFA
  - Lead: George Gomes [ggomes@cdfa.ca.gov](mailto:ggomes@cdfa.ca.gov) 916-654-0433
  - Steve Shaffer: [sshaffer@cdfa.ca.gov](mailto:sshaffer@cdfa.ca.gov) 916-653-5658
- Cal/EPA
- ARB
- DPR
- DTSC
- CEC
- Water Board

▫ **Cement**

- Caltrans
  - Lead: Tom Pyle: [tom\\_pyle@dot.ca.gov](mailto:tom_pyle@dot.ca.gov) 227-7281
- Cal/EPA
- ARB
- CEC
- DWR

▫ **Energy**

- PUC
  - Lead: Julie Fitch: [jf2@cpuc.ca.gov](mailto:jf2@cpuc.ca.gov)
- CEC
- Cal/EPA
- CalISO
- ARB

▫ **Forestry**

- Resources
  - Lead: Tony Brunello: [Tony.Brunello@resources.ca.gov](mailto:Tony.Brunello@resources.ca.gov) 653-5672
- Cal/EPA
- ARB
- CalFire
- CEC
- Board of Forestry
- Parks and Recreation
- State Water Resources Control Board
- Dept. of Fish and Game
- Sierra Nevada Conservancy
- National Park Service
- U.S. Forest Service

□ **Green Buildings**

- DGS
  - Lead: Roy McBrayer: 916-376-5035 [Roy.McBrayer@dgs.ca.gov](mailto:Roy.McBrayer@dgs.ca.gov)
- Cal/EPA
- ARB
- Caltrans
- CEC
- IWMB
- PUC
- CDCR

□ **Recycling and Waste Management**

- IWMB
  - Co-Lead: Stéphanie Young: [sYoung@ciwmb.ca.gov](mailto:sYoung@ciwmb.ca.gov) 916-341-6357
  - Scott Walker: [swalker@ciwmb.ca.gov](mailto:swalker@ciwmb.ca.gov) 916-341-6319
- Cal/EPA
- ARB
- CDFA
- CEC
- PUC
- Water Board
- DOC

□ **Land Use**

- CEC
  - Lead: Jackalyne Pfannenstiel: [jpfannen@energy.state.ca.us](mailto:jpfannen@energy.state.ca.us)
  - Panama Bartholomy: [pbarthol@energy.state.ca.us](mailto:pbarthol@energy.state.ca.us) 654-4896
- Cal/EPA
- ARB
- Caltrans
- Conservation
- DWR
- HCD
- IWMB
- OPR
- Water Board
- PUC
- DPH
- Dept. of Education
- DOC
- DGS

□ **State Fleet**

- DGS
  - Lead: Will Semmes: [will.semmes@dgs.ca.gov](mailto:will.semmes@dgs.ca.gov)
- Cal/EPA
- ARB
- Caltrans

- **Water/Energy**
- DWR
  - Co-Lead: Mark Cowin [mcowin@water.ca.gov](mailto:mcowin@water.ca.gov) 657-4113
- Water Board
  - Co-Lead: Frances Spivy-Weber [fweber@waterboards.ca.gov](mailto:fweber@waterboards.ca.gov) 341-5607
- Resources
- Cal/EPA
- ARB
- CEC
- PUC
- DFG
- DOC
- CalFed

	Agency *	Strategy Name	Implementation Timeline	** Expected GHG Reductions in 2020 (MMT CO <sub>2</sub> e)
ARB - 1	ARB	Above ground storage tanks	2007-2012	TBD
ARB - 2	ARB	Add AC Leak Tightness to Smog Check	2010-2012	TBD
ARB - 3	ARB	Alternative Fuels for Cement Production	TBD 2010	TBD
ARB - 4	ARB	Cool Automobile Paints	2009-2012	1.2
ARB - 5	ARB	Cool Communities: Light colored paving, cool roofs, shade trees	2008-2012	TBD
ARB - 6	ARB	Detection, repair and recycling equipment for SF <sub>6</sub>	2009-2012	0.7
ARB - 7	ARB	Diesel Anti-Idling	2008-2012	1.5
ARB - 8	ARB	Diesel-Port Trucks	2007-2012	TBD
ARB - 9	ARB	Diesel-Vessel main engine fuel specifications	2007-2012	TBD
ARB - 10	ARB	Electrification of Stationary Agricultural Engines	Ongoing	TBD
ARB - 11	ARB, Caltrans, CEC	Forestry Protocol	Initial Protocol Adopted	TBD
ARB - 12	ARB	Green ports-shore electrification	2008-2010	TBD
ARB - 13	ARB	Guidance/protocols for businesses	2008-2010	TBD
ARB - 14	ARB	Guidance/protocols for Local Governments	2008-2010	TBD
ARB - 15	ARB	Heavy-Duty Vehicle Emission Reduction Measures	2008-2012	3.2
ARB - 16	ARB	HFC Reduction Strategies: - Enforce Federal Ban on HFC Release During Service/Dismantling of MVACs, - Reduction of HCFs from Foam Production, - Reduction of HFC-134a Emissions from Non-professional Servicing of Motor Vehicle Air Conditioning Systems (MVACs) - Foam Recovery/Destruction Program - Require Low GWP Refrigerants for New MVACs	2008-2012	8.7
ARB - 17	ARB/CIWMB	Landfill Methane Capture	2008-2010	2.7
ARB - 18	ARB	Low Carbon Fuel Standard	2008-2012	10
ARB - 19	ARB	Other New Light Duty Vehicle Technology Improvements	2008-2012	4
ARB - 20	ARB	PFC Emission Reduction for Semiconductor Manufacturers	2008-2012	0.5
ARB - 21	ARB	Reduce leaks from oil/gas systems	2008-2012	1
ARB - 22	ARB	Reduced Venting and Leaks in Oil and Gas Systems	2010-2012	1
ARB - 23	ARB	Reduction of High GWP GHG's used in consumer products	2008-2010	TBD
ARB - 24	ARB	Replacement of High GWP Gases in Fire Protection Systems	2011-2012	TBD

	Agency *	Strategy Name	Implementation Timeline	** Expected GHG Reductions in 2020 (MMT CO <sub>2</sub> e)
ARB - 25	ARB	Tire Inflation Program	2009-2010	TBD
ARB - 26	ARB	Transportation Refrigeration-Electric Standby	Ongoing	0.1
ARB - 27	ARB	Truck Stop Electrification	Ongoing	TBD
ARB - 28	ARB	Vehicle Climate Change Standards	2009-2016*	30
ARB - 29	ARB	Diesel-Commercial Harbor Craft	2007-2012	TBD
ARB - 30	ARB	Diesel-Off-road equipment (agricultural)	2007-2012	TBD
ARB - 31	ARB	Diesel-Off-road equipment (non-ag)	2007-2012	TBD
ARB - 32	ARB	Diesel-Privately owned on-road trucks	2008-2012	TBD
ARB - 33	ARB/CIWMB	Diesel-Vessel Speed Reduction	Ongoing	TBD
ARB - 34	ARB	Gasoline dispenser hose replacement	2008-2012	TBD
ARB - 35	ARB	High GWP tracking, reporting and recovery program	2011-2012	TBD
ARB - 36	ARB	Portable outboard marine tanks	2008-2012	TBD
ARB - 37	ARB	Smart Truck Efficiency	2008-2012	1.3
ARB - 38	ARB	Specifications for Commercial Refrigeration	2010-2012	7.3
ARB - 39	ARB	Standards for off-cycle driving conditions	2008-2012	TBD
<b>Total Reductions Expected from ARB Led Strategies</b>				<b>70</b>
<b>ARB Target</b>				<b>67</b>
CIWMB - 1	CIWMB	Achieve 50% Statewide Recycling Goal	Full implementation achieved	3
CIWMB - 2	CIWMB, ARB	Commercial Recycling	Program to be developed by 2010	TBD
CIWMB - 3	CIWMB	Zero Waste - High Recycling	on-going	3
CIWMB - 4	CIWMB, PUC, ARB, CEC	Waste Technology Demonstration & Development	TBD	TBD
CIWMB - 5	CIWMB	Extended Producer Responsibility	TBD	TBD
CIWMB - 6	CIWMB	Optimization of Organics Diversion	Contract complete - July 2009	TBD
<b>Total Reductions Expected from CIWMB Led Strategies</b>				<b>6</b>
<b>CIWMB Target</b>				<b>8</b>
SWRCB - 1	SWRCB, DWR, CEC	Water Recycling	TBD	TBD
SWRCB - 2	SWRCB	Storm Water Reuse	TBD	TBD
<b>Total Reductions Expected from SWRCB Led Strategies</b>				<b>0</b>
<b>SWRCB Target (not a member of CAT in 2006)</b>				<b>0</b>
CalFIRE - 1	CalFIRE	Conservation Forest Management	2005-2020	2.4
CalFIRE - 2	CalFIRE	Forest Conservation	2005-2013	0.4
CalFIRE - 3	CalFIRE	Fuels Management/Biomass	2005-2020	3
CalFIRE - 4	CalFIRE	Urban Forestry	2005-2020	0.9
CalFIRE - 5	CalFIRE	Afforestation/Reforestation	2008-2020	2
<b>Total Reductions Expected from CalFire Led Strategies</b>				<b>9</b>
<b>CalFire Target</b>				<b>6</b>
DWR - 1	DWR, SWRCB, CEC, CPUC	Energy Intensity of the Water System	TBD	TBD
DWR - 2	DWR, SWRCB	Water Use Efficiency	dependent upon resources; BCP submitted for FY 08-09	0.5
<b>Total Reductions Expected from DWR Led Strategies</b>				<b>0.5</b>
<b>DWR Target</b>				<b>1</b>
CEC - 1	CEC	Building Energy Efficiency Standards in Place	Ongoing	2.1
CEC - 2	CEC	Appliance Energy Efficiency Standards in Place	Ongoing	4.5
CEC - 3	CEC	Fuel-Efficient Tire Program	Ongoing	0.3
CEC - 4	CEC	Comprehensive Municipal Utility Program	Ongoing	TBD

	Agency *	Strategy Name	Implementation Timeline	** Expected GHG Reductions in 2020 (MMT CO <sub>2</sub> e)
		<b>Total Reductions Expected from CEC Led Strategies</b>		<b>7</b>
			<b>CEC Target</b>	<b>8</b>
BTH - 1	BTH	Measures to Improve Transportation Energy Efficiency and Smart Land Use and Intelligent Transportation	TBD	19
BTH - 2	Caltrans, ARB, CEC,	Cement Sector Carbon Sequestration	TBD	TBD
BTH - 3	Caltrans, ARB, CEC	Cement Replacement	TBD	TBD
BTH - 4	Caltrans, ARB, DWR	Cement - Construction Related Strategies	TBD	TBD
BTH - 5	Caltrans, ARB	Cement Dilution with Inert Limestone	TBD	TBD
BTH - 6	Caltrans, ARB, CEC	Cement - Raw Material Processing Efficiency	TBD	TBD
BTH - 7	Caltrans, ARB, CEC	Cement - Determination of GHG Equivalence	TBD	TBD
		<b>Total Reductions Expected from BTH Led Strategies</b>		<b>19</b>
			<b>BTH Target</b>	<b>19</b>
CDFA - 1	CDFA	Conservation Tillage/Cover Crops	TBD	TBD
CDFA - 2	CDFA	Photovoltaic Installation	TBD	TBD
CDFA - 3	CDFA	Hydrogen Fuel Standards	TBD	TBD
CDFA - 4	CDFA, ARB, IWMB	Reduce Emissions from Livestock (Enteric Fermentation, Dairy Digesters)	TBD	3.9
CDFA - 5	CDFA, ARB, IWMB, Water Board, DPR, CEC	Improve Agricultural Operational Efficiency	TBD	2
CDFA - 6	CDFA, ARB, IWMB, Water Board, PUC, CEC	Increasing Renewable Energy Production in Agriculture	TBD	5.1
CDFA - 7	CDFA, ARB, Water Board, PUC, CEC, Resources, DOC, WCB	Agricultural Carbon Sequestration and Land Management	TBD	TBD
CDFA - 8	CDFA, ARB, Resources, Cal/EPA	Agricultural Research	Ongoing	TBD
		<b>Total Reductions Expected from CDFA Led Strategies</b>		<b>11</b>
			<b>CDFA Target</b>	<b>1</b>
SCSA - 1	SCSA	Green Buildings Initiative: New State Buildings - Existing State Buildings - Leased Buildings Schools - Distributed Generation	Ongoing	1.8
SCSA - 2	SCSA	Transportation Policy Implementation	Ongoing	TBD
SCSA - 3	DGS, DMV, state agencies	State Fleet Information Reporting	August 2008	TBD
SCSA - 4	DGS, ARB, CEC, Caltrans	State Fleet Coordinate Fueling Information with Infrastructure Funding	Early 2008	TBD
SCSA - 5	DGS, ARB, CEC, Caltrans, Resources, AQMDs, CalFire	State Fleet - Alternative Fuel Infrastructure	Ongoing	TBD
SCSA - 6	DGS, state agencies	State Fleet - Coordinate Usage and Procurement	Ongoing	TBD

	Agency *	Strategy Name	Implementation Timeline	** Expected GHG Reductions in 2020 (MMT CO <sub>2</sub> e)
SCSA - 7	DGS, state agencies	State Fleet - GPS tracking	TBD	TBD
SCSA - 8	DGS, State Agencies	Green Buildings - Demand Response	Ongoing	TBD
<b>Total Reductions Expected from SCSA Led Strategies</b>				<b>2</b>
<b>SCSA Target</b>				<b>2</b>
PUC - 1	PUC	Accelerated PRS to 33% by 2020	Requires Legislation; program currently limited to 20%	8.2
PUC - 2	PUC	California Solar Initiative	Program began in 2007; projected completion by 2016	0.9
PUC - 3	PUC	IOU Energy efficiency Programs	Ongoing through 2013	3.7
PUC - 4	PUC	IOU Additional Energy Efficiency Programs	Begins 2014 (extension of same strategy above)	5.6
PUC - 5	PUC	IOU CHP (Self Generation Incentive Program)	Began in 2001; ongoing	TBD
PUC - 6	PUC	IOU Electricity Sector Carbon Policy	Began in 2007 (emissions performance standard); 2008 recommendations expected to ARB for AB 32 implementation (2012)	TBD
PUC - 7	PUC	Carbon Capture & Sequestration	Projected to begin 2009 or after	TBD
PUC - 8	PUC, CIWMB, ARB	Expand Awareness of AB1969	TBD	TBD
<b>Total Reductions Expected from PUC Led Strategies</b>				<b>18</b>
<b>PUC Target</b>				<b>16</b>
Other - 1	CBSC, CEC, DGS, State Architect, HCD, OSHPD	Green Building Code Development	Ongoing	TBD
Other - 2	Green Action Team, DOC, CBSC, CEC	Private Sector Buildings	Ongoing	TBD
Other - 3	LUSCAT	State Agency Land Use Guidelines	4th quarter 2009	TBD
Other - 4	LUSCAT	Land Use - Regional Collaboration	Ongoing	TBD
<b>TOTAL ESTIMATED EMISSION REDUCTIONS</b>				<b>145.5</b>
<b>TOTAL ESTIMATED STATE EMISSION REDUCTION TARGET</b>				<b>173</b>

**NOTES:** \* Where multiple agencies are noted, the first is the lead agency and the rest work in collaboration to achieve strategy goals..

\*\* Strategies without GHG reduction figures are still in early development stages.

## Agency and Overall State GHG Reduction Targets

### Preliminary Report on CAT Activities

The members of the Climate Action Team (CAT) have submitted the proposed activities that have been developed through the end of calendar year 2007. Currently nine sub-groups of the CAT are working in coordination with the Air Resources Board to develop additional GHG reduction measures that will appear in the state's Scoping Plan. As many of these measures are still under development, they are not all reflected in the list below. All Scoping Plan measures developed by the CAT sub-groups will be enumerated in the first draft release of the Scoping Plan in the summer of 2008.

Agency *	GHG Emission Reductions Expected from Proposed Strategies	Agency GHG Emission Reduction Target*
ARB	73	67
CIWMB	6	8
CalFIRE	9	6
DWR	0.5	1
CEC	7**	8**
BTH	19	19
CDFA	17	1
SCSA	2	2
PUC	18	16
<b>TOTALS</b>	<b>151.5</b>	<b>127</b>
<b>Total Statewide Emissions Reduction Target</b>		<b>173</b>

**NOTES:**

\* Emission Reduction Targets have been calculated based on the updated strategies from the 2006 CAT report, as described in the Update Macroeconomic Analysis of October 2007. As the Scoping Plan, required under the Global Warming Solution Act, is developed the state agency targets will be adjusted and the sum of the agency targets will equal the total statewide emission reduction target.

\*\* The CEC emission reduction numbers do not include the Municipal Utilities strategy whose emission reductions are currently being recalculated

**Abbreviations:**

ARB Air Resources Board  
 CIWMB CA Integrated Waste Management Board  
 CalFIRE CA Dept. of Forestry and Fire Protection  
 DWR Dept. of Water Resources  
 CEC CA Energy Commission  
 BTH Business, Transportation & Housing  
 CDFA CA Dept. of Food & Agriculture  
 SCSA State and Consumer Services Agency  
 PUC Public Utilities Commission

## Measures Adopted and Implemented – 2006

Agency	Program Title	Description	2006 Emission Reduction (MMT CO <sub>2</sub> e)
California Air Resources Board	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. The measure reduces diesel particulate matter emissions and also reduces diesel fuel combustion in California, saving 50 million gallons in 2006. Each gallon saved reduces climate change emissions by 0.01005 MtCO <sub>2</sub> .	0.5
California Energy Commission	Appliance Energy Efficiency Standards	The Appliance Efficiency Regulations are designed to increase the efficiency of appliances sold or offered for sale to California consumers and businesses. Emission reductions result from energy efficient appliances consuming less electricity and natural gas, thereby avoiding emissions associated with electricity generation and natural gas. Reductions in 2006 were 0.3 million MWh of electricity and 0.5 million MMBtu of natural gas. Each MWh of electricity avoided reduces emissions by 0.499 MtCO <sub>2</sub> , and each MMBtu of natural gas saved prevents emissions of 0.0529 MtCO <sub>2</sub> .	0.2
California Energy Commission	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 alteration to existing buildings in California. The principal strategy is to develop, implement, and enforce standards that require and result in reduction in energy use in these buildings. Reductions in 2006 were 0.4 million MWh of electricity and 0.7 million MMBtu of natural gas. Each MWh of electricity avoided reduces emissions by 0.499 MtCO <sub>2</sub> , and each MMBtu of natural gas saved prevents emissions of 0.0529 MtCO <sub>2</sub> .	0.2
California Public Utilities Commission	Investor-Owned Utilities Energy Efficiency Programs	The CPUC directs the investor owned utilities to implement energy efficiency programs. The programs reach residential, commercial, industrial, and agriculture customers. In 2006 the programs reduced 2.2 million MWh of electricity and 25.6 million Therms of natural gas. Each MWh of electricity avoided reduces emissions by 0.499 MtCO <sub>2</sub> , and each Therm of natural gas saved prevents emissions of 0.00529 MtCO <sub>2</sub> .	1.3
California Integrated Waste Management Board	Statewide Recycling	This program reduces climate change emissions by: (1) increasing the availability of recycled materials, which can substitute for energy-intensive raw materials; and (2) reducing methane emission from landfills. In 2006 the diversion rate of 54%, exceeded the state mandate of 50%, reducing climate change emissions by several MMtCO <sub>2</sub> e. Additional analysis is ongoing to assess the portion of the emission reductions that occur within California.	(not available)