

PUBLIC MEETING AGENDA

This facility is accessible by public transit. For transit information, call: Metropolitan Transit Authority (MTA) at 1-800-COMMUTE, website: www.mta.net (This facility is accessible to persons with disabilities.)

DECEMBER 6 & 7, 2007

**TO SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN
ADVANCE OF THE MEETING GO TO:**
<http://www.arb.ca.gov/lispub/comm/bclist.php>

December 6, 2007

9:00 a.m.

Item #

07-12-1: Health Update: A Review of Chronic Air Pollution Exposure and Adverse Effects on the Brain

Staff will present a review of recent studies investigating the relationship between air pollution and adverse effects on the brain. The studies show that chronic exposure to air pollution is associated with inflammation and structural damage to the brain. These findings suggest that health impacts associated with exposure to air pollution are more far-reaching than previously thought.

07-12-8: Public Meeting to Consider Appointment of Replacement Member to the Economic and Technology Advancement Advisory Committee

The representative to the Assembly Bill 32 Economic and Technology Advancement Advisory Committee from the California Chamber of Commerce has resigned from the Committee. Staff will ask the Board to approve the appointment to the Committee of Ms. Amisha Patel of the California Chamber of Commerce, effective immediately.

07-12-2: Public Meeting to Update the Board on a Climate Change Science Update: Action at a Local Level

Staff will provide an update on how local cities and counties are implementing a variety of climate action strategies to reduce greenhouse gas emissions.

07-12-3: Public Hearing to Consider Adoption of a Regulation for the Mandatory Reporting of Greenhouse Gas Emissions

Staff will present a proposed regulation establishing a mandatory greenhouse gas (GHG) reporting program for California. This regulation is being developed pursuant to requirements of the California Global Warming Solutions Act (AB 32, Statutes of 2006, Chapter 488). Under the proposed regulation the most significant sources of GHGs in the State would be required to report their GHG emissions annually, beginning in 2009. The proposed regulation includes detailed specifications for emissions calculations, reporting, and verification of GHG emission estimates. Key industrial sectors subject to reporting include the electricity sector, oil refineries, cement plants, cogeneration facilities, and other significant industrial sources of GHGs.

07-12-4: Public Meeting to Consider the 1990 Statewide GHG Emissions Level and 2020 Emissions Limit

AB 32 requires ARB to determine what the statewide GHG emissions level was in 1990 and approve a statewide greenhouse gas emissions limit equivalent to that level to be achieved by 2020. Beginning with the California Energy Commission's "Inventory of California Greenhouse Gas Emissions and Sinks: 1990-2004," staff undertook an extensive review of the methods and data used to develop the statewide GHG inventory, with particular focus on the 1990 statewide GHG emissions level. After completing a comprehensive review and update process, ARB staff is proposing for Board approval a 1990 statewide GHG level and 2020 limit of 427 million metric tonnes of carbon dioxide equivalent.

07-12-5: Public Hearing to Consider Adoption of the Gaseous Pollutant Measurement Allowances for California's Heavy-Duty Diesel In-Use Compliance Regulation

In 2006, the Board adopted a new heavy-duty diesel in-use compliance regulation and test procedures, known as the manufacturer-run heavy-duty diesel in-use testing program. All testing in this program will be conducted by engine manufacturers with portable emission measurement systems (PEMS). ARB, the U. S. Environmental Protection Agency (U.S. EPA), and the Engine Manufacturers Association (EMA) agreed to fund a test program to determine a "measurement allowance" for each gaseous pollutant to account for any potential difference in measurement accuracy between measurements made with PEMS in the field and laboratory grade analyzers in the laboratory. The test program has been completed and ARB, U.S. EPA, and EMA have agreed on the appropriate measurement allowances.

07-12-6: Public Hearing to Consider the Adoption of Proposed Regulations to Reduce Emissions from Diesel Auxiliary Engines on Ocean-Going Vessels while at Berth at a California Port

The proposed regulations would require ocean-going vessels to reduce their emissions while docked at a California port.

07-12-10: Public Meeting to Consider Options Regarding the Requested Disclosure of Zero Emission Vehicle (ZEV) Credit Data Based on Submittals by Vehicle Manufacturers Who Have Designated the Data as Confidential Trade Secret Information

The staff will describe the potential options in responding to public requests for disclosure of information compiled by ARB from submittals by vehicle manufacturers of information on their production of ZEVs, partial ZEV allowance vehicles (PZEVs) and advanced technology PZEVs, and any exchanges of ZEV credits. This information, which has been claimed to be trade secret by all large volume manufacturers, is relevant to the upcoming rulemaking on proposed amendments to the ZEV regulations.

December 7, 2007

8:30 a.m.

Item #**07-12-9: Report to the Board on the Nonattainment Area Recommendations for the Revised Federal PM2.5 24-Hour Standard**

Staff will present recommendations to the Board on proposed nonattainment areas for the revised federal PM2.5 24-hour standard. The 24-hour PM2.5 standard was recently revised from 65 ug/m³ to 35 ug/m³. These recommendations are to be submitted to the U.S. Environmental Protection Agency by December 18, 2007.

07-12-7: Public Hearing to Consider the Adoption of Proposed Regulation to Control Emissions from In-Use On-Road Diesel-Fueled Heavy-Duty Drayage Trucks at Ports and Intermodal Rail Yard Facilities

The proposed regulation would require on-road heavy-duty diesel trucks servicing California's ports and intermodal rail yards to reduce their emissions by meeting specified emission standards.

CLOSED SESSION – LITIGATION

The Board will hold a closed session as authorized by Government Code section 11126(e) to confer with, and receive advice from, its legal counsel regarding the following pending litigation:

Central Valley Chrysler-Jeep, Inc. et al. v. Witherspoon, U.S. District Court (E.D. Cal. – Fresno), No. CIV-F-04-6663 REC LJO.

Fresno Dodge, Inc. et al. v. California Air Resources Board and Witherspoon, Superior Court of California (Fresno County), Case No. 04CE CG03498.

General Motors Corp. et al. v. California Air Resources Board and Witherspoon, Superior Court of California (Fresno County), No. 05CE CG02787.

OPPORTUNITY FOR MEMBERS OF THE BOARD TO COMMENT ON MATTERS OF INTEREST.

Board members may identify matters they would like to have noticed for consideration at future meetings and comment on topics of interest; no formal action on these topics will be taken without further notice.

OPEN SESSION TO PROVIDE AN OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE BOARD ON SUBJECT MATTERS WITHIN THE JURISDICTION OF THE BOARD.

Although no formal Board action may be taken, the Board is allowing an opportunity to interested members of the public to address the Board on items of interest that are within the Board's jurisdiction, but that do not specifically appear on the agenda. Each person will be allowed a maximum of three minutes to ensure that everyone has a chance to speak.

TO SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN ADVANCE OF THE MEETING GO TO:
<http://www.arb.ca.gov/lispub/comm/bclist.php>

**IF YOU HAVE ANY QUESTIONS,
PLEASE CONTACT THE CLERK OF THE BOARD
1001 I Street, 23rd Floor, Sacramento, CA 95814**

**(916) 322-5594
FAX: (916) 322-3928
ARB Homepage: www.arb.ca.gov**

To request special accommodation or language needs, please contact the following:

- **For individuals with sensory disabilities, this document is available in Braille, large print, audiocassette or computer disk. Please contact ARB's Disability Coordinator at 916-323-4916 by voice or through the California Relay Services at 711, to place your request for disability services.**
- **If you are a person with limited English and would like to request interpreter services to be available at the Board meeting, please contact ARB's Bilingual Manager at 916-323-7053.**

THE AGENDA ITEMS LISTED ABOVE MAY BE CONSIDERED IN A DIFFERENT ORDER AT THE BOARD MEETING. THOSE ITEMS ABOVE THAT ARE NOT COMPLETED ON DECEMBER 6 WILL BE HEARD BEGINNING AT 8:30 A.M. ON DECEMBER 7.

SMOKING IS NOT PERMITTED AT MEETINGS OF THE CALIFORNIA AIR RESOURCES BOARD

PUBLIC MEETING AGENDA

INDEX

LOCATION:

Air Resources Board
Auditorium
9530 Telstar Avenue
El Monte, California 91731

This facility is accessible by public transit. For transit information, call:
Metropolitan Transit Authority (MTA) at 1-800-COMMUTE, website:
www.mta.net (This facility is accessible to persons with disabilities.)

December 6, 2007

9:00 a.m.

	<u>Pages</u>
07-12-1: Update the Board on a Health Update: A Review of Chronic Air Pollution Exposure and Adverse Effects on the Brain	---
07-12-8: Public Meeting to Consider Appointment of Replacement Member to the Economic and Technology Advancement Advisory Committee	---
07-12-2: Public Meeting to Update the Board on a Climate Change Science Update: Action at a Local Level	---
07-12-3: Public Hearing to Consider Adoption of a Regulation for the Mandatory Reporting of Greenhouse Gas Emissions	1 - 242
07-12-4: Public Meeting to Consider the 1990 Statewide GHG Emissions Level and 2020 Emissions Limit	243 - 324
07-12-5: Public Hearing to Consider Adoption of the Gaseous Pollutant Measurement Allowances for California's Heavy-Duty Diesel In-Use Compliance Regulation	325 - 368
07-12-6: Public Hearing to Consider the Adoption of Proposed Regulations to Reduce Emissions from Diesel Auxiliary Engines on Ocean-Going Vessels while at Berth at a California Port	369 - 486
07-12-10: Public Meeting to Consider Options Regarding the Requested Disclosure of Zero Emission Vehicle (ZEV) Credit Data Based on Submittals by Vehicle Manufacturers Who Have Designated the Data as Confidential Trade Secret Information	---

December 7, 2007

8:30 a.m.

	<u>Pages</u>
07-12-9: Report to the Board on the Nonattainment Area Recommendations for the Revised Federal PM2.5 24-Hour Standard	487 - 492
07-12-7: Public Hearing to Consider the Adoption of Proposed Regulation to Control Emissions from In-Use On-Road Diesel-Fueled Heavy-Duty Drayage Trucks at Ports and Intermodal Rail Yard Facilities	493 - 560

TITLE 17. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER ADOPTION OF A REGULATION FOR THE MANDATORY REPORTING OF GREENHOUSE GAS EMISSIONS

The Air Resources Board (the Board or ARB) will conduct a public meeting at the time and place noted below to consider the adoption of regulations to require mandatory reporting of greenhouse gas (GHG) emissions for California facilities. This regulation is being developed pursuant to requirements of the California Global Warming Solutions Act (AB 32, Statutes of 2006, Chapter 488).

DATE: December 6, 2007

TIME: 9:00 a.m.

PLACE: Air Resources Board
Auditorium
9530 Telstar Avenue
El Monte, CA 91731

This meeting location may change. This item will be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., December 6, 2007, and may continue at 9:00 a.m., December 7, 2007. This item may not be considered until December 7, 2007. Please consult the agenda for the meeting, which will be available at least 10 days before December 6, 2007, to determine the location and day on which this item will be considered.

For individuals with sensory disabilities, this document is available in Braille, large print, audiocassette, or computer disk. Please contact ARB's Disability Coordinator at (916) 323-4916 by voice or through the California Relay Services at 711, to place your request for disability services. If you are a person with limited English and would like to request interpreter services, please contact ARB's Bilingual Manager at (916) 323-7053.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT **OVERVIEW**

Sections Affected: Proposed adoption of new sections 95100 to 95133, title 17, California Code of Regulations (CCR), sections 95100 to 95133.

Background

In 2006 the legislature passed and the Governor Schwarzenegger signed the California Global Warming Solutions Act of 2006 (AB 32; Stats. 2006, chapter 488). In AB 32 the Legislature declared that global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The Legislature further declared that global warming will have detrimental effects on some of California's largest industries including agriculture and tourism, and will increase the strain on electricity supplies. While national and international actions are necessary to fully address the issue of global warming, the Legislature recognized that action taken by California to reduce emissions of greenhouse gases will have far-reaching effects by encouraging other states, the federal government, and other countries to act.

AB 32 creates a comprehensive, multi-year program to reduce GHG emissions in California, with the overall goal of restoring emissions to 1990 levels by the year 2020. AB 32 requires ARB to do many things, including:

- Adopting a list of discrete, early action measures by July 1, 2007 that can be implemented before January 1, 2010, and adopting such measures;
- Establishing a statewide GHG emissions cap for 2020, based on 1990 emissions, by January 1, 2008;
- Adopting a scoping plan by January 1, 2009 indicating how emission reductions will be achieved from significant GHG sources via regulations, market mechanisms and other actions;
- Adopting regulations by January 1, 2011 to achieve the maximum technologically feasible and cost-effective reductions in GHGs; and
- Adopting mandatory GHG emissions reporting regulations.

Mandatory GHG reporting regulations are an important component of AB32. This is because in order to reduce GHG emissions, it is first necessary to establish an effective program to estimate, report, and track these emissions. This in turn requires an accurate and verified source of facility-specific GHG emissions data. AB 32 thus requires that ARB: "... on or before January 1, 2008, ... adopt regulations to require the reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with this program." (Health and Safety Code section 38530(a)).

Section 38530(a) further specifies, among other things, that these GHG reporting regulations must:

- require the monitoring and annual reporting of GHG emissions from GHG emission sources, beginning with the sources or categories of sources that contribute the most to statewide emissions;
- account for GHG emissions from all electricity consumed in the state, including transmission and distribution line losses from electricity generated within the state or imported from outside the state;
- incorporate the standards and protocols developed by the California Action Registry (where appropriate and to the maximum extent feasible), and make reasonable efforts to promote consistency among other existing and proposed international, federal, and state greenhouse gas emission reporting programs;
- ensure rigorous and consistent accounting of emissions;
- ensure that GHG emission sources maintain comprehensive records of all reported GHG emissions.

Description of the Proposed Regulatory Action

The purpose of the proposed regulation is to meet the requirements of AB 32 to develop a comprehensive, effective, and reasonable mandatory GHG reporting program for California. The primary objectives include: begin reporting with the most significant GHG emissions sources, use rigorous and consistent emission accounting methods and provide reporting tools, include verification of emissions data, and, to the extent feasible, provide consistency with the California Climate Action Registry (CCAR), except as needed to ensure complete and verifiable mandatory reporting.

The proposed GHG reporting regulation would require annual emissions reporting from facilities that account for approximately 94% of the total carbon dioxide (CO₂) produced in California from industrial and commercial stationary sources of emissions. Additional sources of GHG emissions will be accounted for through other mechanisms besides mandatory reporting, and are not included in this regulation.

Under the proposed regulation, the facilities required to annually report their GHG emissions would include electricity generating facilities, electricity retail providers, electricity marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 metric tonnes per year of CO₂ from stationary source combustion, including facilities such as food processing, glass container manufacture, oil and gas production, and mineral processing. The

staff proposal requires facilities to report their facility GHG emissions using the methods, equations, and emission factors specified in the regulation. To the extent feasible, these methods are consistent with existing CCAR protocols.

Staff is proposing that operators subject to reporting prepare and submit their GHG emissions estimates and other data as specified in the regulation. Greenhouse gas emissions reporting would be required from those with operational control of facilities or other entities subject to reporting. For this regulation, "operational control" for a facility means the authority to introduce and implement operating, environmental, health and safety policies. Nuclear, hydroelectric, wind, or solar electricity generating sources would not be required to report under the regulation. Hospitals with the North American Industry Classification System (NAICS) code starting with 62 would also not be required to report, nor would primary and secondary schools with a NAICS code of 611110. We have estimated that approximately 800 facilities would be subject to GHG reporting under the proposed regulation.

The proposed regulation provides specific reporting requirements for each industrial sector, defining which facility processes and greenhouse gases must be reported. In general, all facilities would be required to report their on-site stationary source combustion emissions of CO₂, N₂O (nitrous oxide), and CH₄ (methane). Some industrial sectors, such as cement and refineries, would also report their process emissions, which occur from chemical or other non-combustion activities. Facilities would report fugitive emissions as specified in the regulation. The CO₂ emissions from biomass-derived fuels would also be separately identified during reporting. In addition, the proposal would require that those reporting provide their consumption of purchased or acquired electricity and thermal energy, referred to in the regulation as indirect energy usage. An option is also provided in the regulation for the voluntary reporting of mobile source emissions within the context of an entity-wide California emissions report.

All data specified in the regulation would be reported to the ARB annually. The first emissions reports must be submitted in 2009 based on 2008 emission levels. To allow facilities to develop reporting systems, train personnel, collect data, and install any necessary equipment, a phase-in time is provided in which the reporting and verification requirements are less stringent for the first reporting year. Following this phase-in, those reporting must meet the more comprehensive reporting and verification requirements specified in the proposed regulation.

Except for the emissions reports submitted in 2009, submitted emissions and other data would undergo third-party verification to ensure the completeness and accuracy of the data, and to confirm the use of required methods in preparing the emission estimates. Under the proposal, the verification of facility emissions reports would be performed annually or triennially, depending on the complexity of the emission source. Either an air pollution control district/air quality management district or a private contractor could perform verification services, provided they met

specified education, experience, and training qualifications. Approval to perform verification services also involves a screening for conflict of interest by ARB.

Other items included in the proposed regulation and discussed in the ARB staff report are the detailed quantification and reporting requirements for each industrial sector, required elements of verification services, emissions verifier accreditation requirements, specifications for claiming confidential data, and document retention and record keeping requirements. Complete details are provided in the proposed regulation and staff report which are available here:

<http://www.arb.ca.gov/regact/2007/ghg2007/ghg2007.htm>

COMPARABLE FEDERAL REGULATIONS

Currently there are no federal statutes requiring comprehensive facility reporting of greenhouse gas emissions. However, the United States Environmental Protection Agency's Acid Rain Program requires the reporting of CO₂, SO₂, and NO_x emissions from certain fossil fueled power plants as part of its program to reduce atmospheric levels of sulfur dioxide and nitrogen oxides, which cause acid rain (see Title 40, Code of Federal Regulations, section 72.1 et seq.). Because of the very limited nature of this federal regulation related to GHG emissions reporting, the proposed ARB regulation is not duplicative of the federal requirements.

AVAILABILITY OF DOCUMENTS AND AGENCY CONTACT PERSONS

The ARB staff has prepared a staff report or Initial Statement of Reasons (ISOR) for the proposed regulation, which includes a summary of the economic and environmental impacts of the proposal. The ISOR is entitled: "Staff Report: Initial Statement of Reasons for Rulemaking: Mandatory Reporting of Greenhouse Gas Emissions Pursuant to the California Global Warming Solutions Act of 2006 (Assembly Bill 32)."

Copies of the ISOR and the full text of the proposed regulatory language may be accessed on the ARB's web site listed below, or may be obtained from the Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, 1st Floor, Sacramento, CA 95814, or by calling (916) 322-2990 within the 45 days prior to the scheduled hearing on December 6, 2007.

Upon its completion, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on the ARB's web site listed below.

Inquiries regarding the substance of the proposed regulatory action may be directed to the designated agency contact persons, Mr. Doug Thompson, Manager of the Climate Change Reporting Section, Planning and Technical Support Division at (916) 322-7062 or by e-mail at dthompson@arb.ca.gov, or Mr. Patrick Gaffney, Staff Air Pollution Specialist, at (916) 322-7303 or by e-mail at pgaffney@arb.ca.gov.

Further, the agency representative and designated back-up contact persons to whom nonsubstantive inquiries concerning the proposed administrative action may be directed are Ms. Alexa Malik, Manager, Board Administration & Regulatory Coordination Unit (916) 322-4011, or Ms. Amy Whiting, Regulations Coordinator, (916) 322-6533. The Board staff has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

This notice, the ISOR and all subsequent regulatory documents, including the FSOR, when completed, are available on the ARB Internet site for this rulemaking at: <http://www.arb.ca.gov/regact/2007/ghg2007/ghg2007.htm>

COSTS TO PUBLIC AGENCIES AND TO BUSINESSES AND PERSONS AFFECTED

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred by public agencies, private persons and businesses in reasonable compliance with the proposed regulatory action are presented below. A detailed assessment of the economic impacts of the proposed regulation is included in the Initial Statement of Reasons for this item.

The Executive Officer has made an initial determination that the proposed regulatory action will not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons. Because of the generally low reporting costs relative to typical facility revenues, the affected businesses should be able to absorb the costs of the proposed regulation with no significant adverse impacts on their profitability. We do not expect a noticeable change in employment, business creation, elimination or expansion, or business competitiveness in California due the reporting requirements.

In developing this regulatory proposal, ARB staff evaluated the potential economic impacts on representative private persons or businesses and determined that there will be a potential cost on private persons and businesses directly affected. Staff estimates that the total costs associated with meeting the greenhouse gas reporting requirements to be in the range of \$10 to \$50 million during the first and second years for businesses, local, and state government, with a midpoint estimate of approximately \$30 million. Third year and subsequent costs are anticipated to be in the range of \$6 to \$35 million annually statewide, with a midpoint estimate of approximately \$21 million. First and second year costs are higher due to the possible need for new equipment, sampling systems, training, and other start-up costs to meet the regulatory requirements. The ranges of the estimated costs are extremely wide because of the substantial variability in potential reporting and verification costs among facilities subject to the regulation. We anticipate costs to diminish over time as facilities incorporate GHG reporting into their normal business practices.

The specific cost for an individual facility subject to GHG reporting will generally depend on the complexity of the facility. Complex facilities with a large number of processes or which require ongoing monitoring of variable fuel streams, such as refineries, will have higher costs that could range from \$50,000 to over \$300,000 per year. Simple facilities such as those with only natural gas fired boilers can use default emission factors to estimate their GHG emissions, and their costs will likely be in the \$3,000 to \$20,000 per year range. Medium complexity facilities such as cement manufacturing plants or cogeneration plants would likely have annual reporting and verification costs in the range of \$7,000 to \$50,000. The vast majority of facilities and entities subject to reporting (over 90%) will fall within the low and medium complexity categories. Staff anticipates that the additional costs for reporting can be easily absorbed under existing operating expenses for most entities and facilities.

The Executive Officer has also determined, pursuant to title 1, CCR, section 4, that the proposed regulatory action will affect small businesses. Staff estimates that a maximum of 30-60 small business may be affected in California. We have attempted to minimize costs to these businesses by providing simplified emission estimation methods and less frequent verification for a majority of facilities anticipated to be small businesses. Based on the types of small business expected to be impacted and the kinds of GHG generating activities present at these facilities, the reporting and verification costs for a typical small business subject to the regulation should range from \$3,000 to \$15,000 per year.

Some public agencies could also be subject to GHG reporting, such as certain county or city owned sewage treatment works or landfills, various utility districts or publicly owned electricity providers, some State universities, and other State facilities that emit more than 25,000 metric tonnes of CO₂ from stationary combustion sources. The Department of Water Resources is also expected to have a reporting requirement related to imported power. These local and state government agency GHG reporting costs are anticipated to be less than \$1 million per year statewide.

As described above, the proposed regulatory action will impose a mandate upon and create costs to some local agencies. Because the regulatory requirements apply equally to all reporting categories and unique requirements are not imposed on local agencies, the Executive Officer has determined that the proposed regulatory action imposes no costs on local agencies that are required to be reimbursed by the state pursuant to part 7 (commencing with section 17500), division 4, title 2 of the Government Code, and does not impose a mandate on local agencies that is required to be reimbursed pursuant to Section 6 of Article XIII B of the California Constitution.

An additional State cost will be incurred by the ARB to administer the reporting program. These costs include start-up costs to develop reporting tools and training materials, as well as annual costs for new staff to implement the reporting and verification program and maintain the reporting tool. Staff estimates that the initial ARB start-up costs will be roughly \$600,000, with annual ARB operational costs of approximately \$1 million to administer the program.

In accordance with Government Code section 11346.3, the Executive Officer has determined that the proposed regulatory action will not result in a loss of jobs within the State of California, or the elimination of existing businesses within the State. It is likely that the regulatory action will create the need for technical support for developing GHG emissions estimates, providing laboratory and other services, and providing emission verification services. It is anticipated that some of these services will be provided by existing companies and staffing; however, we anticipate that this regulatory action would result in some additional jobs within California to provide these services, and the expansion of some existing businesses. This regulatory action may also result in the creation of a few new businesses in California to provide these services.

Pursuant to Government Code sections 11346.5(a)(5) and 11346.5(a)(6), the Executive Officer has determined that the proposed regulatory action will not create costs or savings in federal funding to the state, or costs or mandate to any school district whether or not reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code.

In accordance with Government Code sections 11346.3(c) and 11346.5(a)(11), the ARB's Executive Officer has found that the proposed GHG reporting requirements which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

SUBMITTAL OF COMMENTS

The public may present comments relating to this matter orally or in writing at the hearing, and in writing or by e-mail before the hearing. To be considered by the Board, written submissions not physically submitted at the hearing must be received **no later than 12:00 noon, December 5, 2007**, and addressed to the following:

Postal Mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: <http://www.arb.ca.gov/listpub/comm/bclist.php>

Facsimile submittal: (916) 322-3928

To ensure that your comment will be available for consideration it is important that your comment is received by the deadline.

Please note that under the California Public Records Act (Government Code section 6250 et. seq.), your written and oral comments, attachments, and associated contact information becomes part of the public record and can be released to the public upon request. This includes personal information provided with your comments, such as your home address, your home phone number, and your personal email address. Additionally, your comments, attachments, and associated contact information may become available via internet search engines.

The Board requests but does not require that 30 copies of any written statement be submitted and that all written statements be filed at least 10 days prior to the hearing so that ARB staff and Board Members have time to fully consider each comment. The Board encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action.

STATUTORY AUTHORITY AND REFERENCES

This regulatory action is proposed under that authority granted to the ARB in sections 38510, 38530, 38580, 39600, 39601, and 41511 of the Health and Safety Code. This action is proposed to implement, interpret and make specific sections 38530, 38580, 39600, and 41511 of the Health and Safety Code.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Title 2, Division 3, Part 1, Chapter 3.5 (commencing with section 11340) of the Government Code.

Following the public hearing, the Board may adopt the regulatory language as originally proposed or with nonsubstantial or grammatical modifications. The Board may also adopt the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice that the regulatory language as modified could result from the proposed regulatory action. In the event that such modifications are made, the full regulatory text, with the modifications clearly indicated, will be made available to the public for written comment at least 15 days before it is adopted.

The public may request a copy of the modified regulatory text from the ARB's Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, 1st Floor, Sacramento, CA 95814, (916) 322-2990.

CALIFORNIA AIR RESOURCES BOARD

A handwritten signature in black ink, appearing to read "Tom Cackette", with a long horizontal flourish extending to the right.

Tom Cackette
Acting Executive Officer

Date: October 9, 2007

STATE OF CALIFORNIA



California Environmental Protection Agency

AIR RESOURCES BOARD

STAFF REPORT: INITIAL STATEMENT OF REASONS FOR RULEMAKING

PROPOSED REGULATION FOR

**MANDATORY REPORTING OF GREENHOUSE GAS EMISSIONS
PURSUANT TO THE CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006
(ASSEMBLY BILL 32)**



Planning and Technical Support Division
Emission Inventory Branch

October 19, 2007

STATE OF CALIFORNIA



California Environmental Protection Agency

AIR RESOURCES BOARD

STAFF REPORT: INITIAL STATEMENT OF REASONS FOR RULEMAKING

PUBLIC HEARING TO CONSIDER

**MANDATORY REPORTING OF GREENHOUSE GAS EMISSIONS
PURSUANT TO THE CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006
(ASSEMBLY BILL 32)**

Release Date: October 19, 2007
Scheduled for Consideration: December 6-7, 2007

This report has been prepared by the staff of the California Air Resources Board and approved for publication. Publication does not signify that the contents necessarily reflect the views and policies of the Air Resources Board.

STAFF REPORT: INITIAL STATEMENT OF REASONS**PUBLIC HEARING TO CONSIDER****MANDATORY REPORTING OF GREENHOUSE GAS EMISSIONS
PURSUANT TO THE CALIFORNIA GLOBAL WARMING SOLUTIONS ACT OF 2006**

Air Resources Board Meeting
December 6, 2007 at 9:00 a.m.
Air Resources Board
Auditorium
9530 Telstar Avenue
El Monte, CA 91731

This item will be considered at a two-day meeting of the Board, which will commence at 9:00 a.m. on December 6, 2007, and may continue to 9:00 a.m., December 7, 2007. Please consult the agenda for the meeting, which will be available at least ten days before December 6, 2007, to determine the day on which this item will be considered.

For those unable to attend the meeting in person, a live video webcast will be available beginning at 9:00 a.m. on December 6, 2007 at <http://www.calepa.ca.gov/broadcast>

This report and related materials are available for download from the Air Resources Board's Internet site at: <http://www.arb.ca.gov/regact/2007/ghg2007/ghg2007.htm>. In addition, written copies may be obtained from the Board's Public Information Office, 1001 I Street, 1st Floor, Environmental Services Center, Sacramento, California 95814, (916) 322-2990.

If you have a disability-related accommodation need, please go to: <http://www.arb.ca.gov/html/ada/ada.htm> for assistance or contact the ADA Coordinator at (916) 323-4916. If you are a person who needs assistance in a language other than English, please contact the Bilingual Coordinator at (916) 324-5049 or go to: <http://inside.arb.ca.gov/as/eo/languageaccess.htm>.

Questions

If you have questions concerning this report, please contact:

Mr. Doug Thompson
Manager,
Climate Change Reporting Section
Phone: (916) 322-7062
Email: dthompson@arb.ca.gov

or Mr. Patrick Gaffney
Staff Air Pollution Specialist,
Climate Change Reporting Section
Phone: (916) 322-7303
Email: pgaffney@arb.ca.gov

Prepared By**Climate Change Reporting Section, Planning and Technical Support Division**

Doug Thompson	Manager
Pam Burmich	Electric Power Sector
Patrick Gaffney	Overall Reporting Requirements
Byard Mosher	Refineries, Hydrogen Plants, Oil and Gas Production
Dana Papke	Cement Plants, Cogeneration
Rajinder Sahota	Verification, General Stationary Combustion
Sam Wade	Emission Factors, Electric Power Sector

Legal Counsel

Robert Jenne	Office of Legal Affairs
--------------	-------------------------

Reviewed By

Lynn Terry	Deputy Executive Officer
Michael Scheible	Deputy Executive Officer
Linda Murchison	Chief, Planning and Technical Support Division
Richard Bode	Chief, Emissions Inventory Branch
Doug Thompson	Manager, Climate Change Reporting Section

Acknowledgements

We wish to acknowledge the assistance and cooperation of the many individuals and organizations who were generous with their time and consistently constructive and helpful through our many workshops, technical discussions, meetings and teleconferences. The progress made to date would not have been possible without the able and steady assistance of the staff at the California Climate Action Registry, particularly Robyn Camp, Mike McCormick, Derek Markolf, and Rachel Tornek. ARB staff also appreciates the considerable technical assistance provided by staff at California's air pollution control and air quality management districts, the California Public Utilities Commissions, the California Energy Commission, and the U.S. Environmental Protection Agency. We additionally acknowledge the cooperative spirit and technical help provided by California's electric utilities and power producers, the Western States Petroleum Association, the Portland Cement Association and its California affiliates, the California Cogeneration Council, the Cogeneration Association of California/Energy Producers and Users Coalition, Environmental Defense, and the Natural Resources Defense Council. Valuable assistance was also provided by Future Perfect on emissions verification requirements.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	iii
I. BACKGROUND AND INTRODUCTION	1
A. Structure of the Staff Report	1
B. Background	2
C. The Public Process in Rule Development and Implementation	3
D. Proposed Regulation – A Summary	4
II. GREENHOUSE GAS REPORTING REGULATION DEVELOPMENT	10
A. General GHG Reporting Topics and Issues	10
B. GHG Data Reporting Submittals and Recordkeeping	21
C. Adding Sources to Mandatory Reporting	23
III. SECTOR SPECIFIC REPORTING REQUIREMENTS	25
A. Cement Manufacturing Plants	25
B. Electric Power Sector: Electric Generating Facilities, Retail Providers and Power Marketers	29
C. Cogeneration Facilities	39
D. Petroleum Refineries, Hydrogen Plants, and Combustion from Oil and Gas Production	43
E. General Stationary Combustion (GSC) Facilities	51
F. Emission Factors	53
IV. GREENHOUSE GAS VERIFICATION REQUIREMENTS	55
A. Background	55
B. Verification of Emissions Data	55
C. Accreditation of Verifiers	58
D. Conflict of Interest	59
V. ENVIRONMENTAL IMPACTS OF THE REGULATION	61
A. Air Quality and Environmental Impacts	61
B. Environmental Justice	61
VI. ECONOMIC IMPACTS OF THE REGULATION	63
VII. ALTERNATIVES TO THE PROPOSED REGULATION	73
VIII. REFERENCES	77

- ATTACHMENT A: Proposed Regulation Order – Regulation for the Mandatory Reporting Of Greenhouse Gas Emissions**
- ATTACHMENT B: Table of Contents and Matrix of Methodologies for the Proposed Regulation (non-regulatory attachment)**
- ATTACHMENT C: Explanation of Interim Emissions Attribution Methods for the Electricity Sector (non-regulatory attachment)**
- ATTACHMENT D: Decision of the California Public Utilities Commission and Attachment: California Public Utilities Commission / California Energy Commission Joint Proposed Electricity Sector Greenhouse Gas Reporting and Verification Protocol (non-regulatory attachment)**
- ATTACHMENT E: Technical Attachment on Development of Emissions Reporting Requirements for Oil Refineries and Hydrogen Plants (non-regulatory attachment)**
- ATTACHMENT F: Text of the California Global Warming Solutions Act of 2006 (Assembly Bill 32)**

EXECUTIVE SUMMARY

This report presents the California Air Resources Board (ARB) staff's proposed Mandatory Greenhouse Gas (GHG) Reporting Regulation pursuant to the California Global Warming Solutions Act of 2006 (the Act). The Act requires ARB to develop a regulation for the reporting of GHGs by January 1, 2008. This regulation was developed through an extensive public processes involving multiple stakeholders, State agencies, and the public.

Objectives of the Proposed Regulation

ARB staff has developed a regulation to meet the greenhouse gas reporting requirements specified in the Act, which include:

- begin reporting with the most significant GHG emissions sources;
- use rigorous and consistent emission accounting methods;
- provide for verification of reported emissions data;
- use the standards and protocols of the California Climate Action Registry (CCAR) to the extent feasible and appropriate.

The State is also working with other states to develop registries and reporting procedures that maximize consistency while preserving the rigor called for by the Act. California is actively participating in efforts to develop consistent reporting tools and procedures on a national and regional basis through The Climate Registry, a collaboration between states, tribes, and provinces, and the Western Climate Initiative.

Summary of Proposed Regulation

The proposed GHG reporting regulation requires emissions reporting from facilities that account for approximately 94 percent of the total carbon dioxide (CO₂) produced in California from industrial and commercial stationary sources. Additional sources of GHG emissions will be accounted for through other inventory mechanisms such as ARB's inventory model for motor vehicles, and are not included in this regulation. ARB staff has proposed that emissions reporting occur at the facility level, consistent with other mandatory programs. To support future program development, the regulation also would require reporting of entity identification information for the broader entities that own and operate the facilities that report. The ARB will provide electronic reporting tools to assist with mandatory reporting, and the tools will provide a mechanism for reporting additional voluntary entity-wide data for those who want to report this additional information.

Under the proposed regulation, the facilities required to annually report their GHG emissions include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and industrial sources that emit over 25,000 metric tonnes per year of CO₂ from stationary source combustion. The latter category includes diverse facilities such as food processing, glass container manufacture, oil and gas production, and

mineral processing. The staff proposal requires facilities to report their facility GHG emissions using the methods and equations specified in the regulation. Staff has relied on CCAR protocols to craft the reporting methods for most sectors.

Basic Requirements and Gases. The proposed regulation provides detailed reporting specifications for each industrial sector, defining which facility processes and greenhouse gases must be reported. In general, all facilities report their on-site stationary source combustion emissions of carbon dioxide (CO₂), nitrous oxide (N₂O), and methane (CH₄). Some industrial sectors, such as cement and refineries, would also report their process emissions of these same gases, which occur from chemical or other non-combustion activities. Facilities report fugitive emissions when specified in the regulation. The CO₂ emissions from biomass-derived fuels would be separately identified during reporting.

Particular requirements apply to the electric power sector to meet the requirements of the Act. Utilities and power marketers would be required to report certain electricity transactions, including purchases, sales, imports, exports, and exchanges. Emissions reports in the electric power sector will include two additional Kyoto gases, sulfur hexafluoride (SF₆) and hydrofluorocarbons (HFCs). Staff found no significant use of these compounds by the other sectors proposed for reporting. Also, for the sectors subject to reporting, we did not identify any significant use of perfluorocarbons (PFCs) so the proposed regulation does not explicitly require reporting of these substances.

The proposed regulation would also require that sources other than the electric power sector provide their consumption of purchased or acquired electricity and thermal energy, referred to as indirect energy usage.

The proposed regulation requires facilities subject to reporting to submit an emissions report annually to the ARB. The first emissions reports would cover 2008 calendar year emissions and be submitted in 2009. To provide a phase-in period for reporting 2008 emissions these estimates may be based on the best available information, incorporating the proposed ARB methods as feasible. All future emissions reports would need to fully comply with specified calculation requirements.

Verification of Emissions Reports. Except for the first-year reports, submitted emissions reports would be required to undergo third-party verification consistent with international standards to ensure the completeness and accuracy of the reported data. Under the proposal, verifications would be performed annually or triennially, depending on the complexity of the emission sources involved. The third-party verifiers, working in teams under the auspices of verification bodies (private firms or air districts), would be required to meet education, experience, and conflict of interest qualifications specified in the regulation prior to being approved by ARB to verify emissions reports. All verifiers would undergo pre-screening, ARB-approved training, and accreditation to perform verification services.

Implementation. Reporting would be implemented through an ARB approved web-based reporting tool. ARB will provide user-friendly interfaces, consistent with those being developed for The Climate Registry, to ease the reporting process. We will also publish guidance documents and conduct training over the next eighteen months, leading up to the first emissions reports in April 2009. We will work to streamline reporting requirements as much as possible for those already reporting to the California Energy Commission or other State agencies. To the extent that California air districts develop compatible tools to facilitate integrated GHG and criteria pollutant reporting, ARB would approve such optional tools for use by reporting facilities.

Coordination and Consistency with the California Climate Action Registry

The Act requires ARB to, "where appropriate and to the maximum extent feasible, incorporate the standards and protocols of the California Climate Action Registry" (CCAR) in the mandatory reporting program." ARB staff worked closely with CCAR staff throughout the rule development process. We looked to *standards* established by the CCAR program in setting core requirements, such as independent third-party verification. We looked to CCAR *protocols* as the foundation for our reporting methodologies, and as a result the requirements proposed bear strong similarity to CCAR requirements. This is particularly true for the cement, cogeneration, and general stationary combustion sources, as well as the verification element of the staff proposal. We also considered the requirements and reporting procedures under development to support The Climate Registry, and participated in initial discussion of reporting under the Western Climate Initiative.

Where differences between the ARB proposal and the CCAR program occur, they are due to (1) other requirements of the Act and California regulatory law; (2) the need to develop new methodologies for sources not specifically considered by CCAR protocols, and (3) agency recommendations and public comment. Examples of these differences are provided in this report.

Summary of Industry Sector Reporting Requirements

Staff is proposing that GHG emissions reports be required at the facility level for the sectors subject to reporting, and about 800 facilities are expected to be required to submit emissions data. A summary of the proposed requirements are included in Table 2. Electricity retail providers and marketers would have broader requirements that are often not facility-specific, such as reporting power purchases and sales. The company or organization with "operational control" over a facility -- the authority to introduce and implement operating, environmental, health and safety policies -- would be responsible for submitting the report each year. Backup generators and portable equipment at affected facilities would not be included in the reporting requirement. Hospitals and primary and secondary schools would be exempted from reporting.

Facilities would report their GHG emissions using methods specified by the proposed ARB regulation. The proposed ARB calculation methods are detailed and

well defined to help ensure consistency and accuracy in reporting. For simple or less significant GHG emission sources, the methods are based on look-up tables of emission factors. For larger, more complex or variable emission sources, calculations are based on methods specific to fuel type and process, and employ measurements of key parameters such as fuel heat value, carbon content, or direct measurement of GHGs through the use of continuous emission monitoring systems (CEMS). In some cases options are provided for the use of facility-specific test data to develop GHG emission factors.

Schedule Summary. Power generation and cogeneration facilities not part of other reporting entities, and industrial sources that emit over 25,000 metric tonnes of CO₂ per year from general stationary combustion sources, would report each year by April 1 on the previous year's emissions. Remaining facilities would report each year by June 1. Dividing reporters into two groups will help ensure sufficient availability of verifiers and facilitate ARB staff assistance with specific questions or problems. Each reporting deadline would be followed by a six-month period for verification of emissions reports, ending with verification opinions filed with ARB.

As mentioned above, facility operators reporting on their 2008 emission levels during 2009 may use the best available emissions data for their estimates. This ramp-up period will allow for the installation of monitoring equipment, development of record-keeping systems, and training of personnel. We will encourage use of the more accurate methods specified in the regulation so facilities can gain familiarity with the full requirements that will apply in subsequent years. Third-party verification of the 2008 emissions data would be optional.

Following are key reporting requirements by industrial sector:

Power Sector Overview:

During the development of mandatory reporting requirements for the electric power sector, three approaches were discussed as potential regulatory mechanisms to achieve emission reductions from the power sector. A source-based approach regulates electric generating facilities; a first-seller approach includes generating facilities and entities that import power into California; and a load-based approach regulates retail providers. Since the regulatory approach to be taken is an open question at this time, the reporting regulation requires information that would support any of these options. ARB will carry out an extensive public process prior to selection of a regulatory approach for this sector, and will receive formal recommendations from the California Energy Commissions and the Public Utilities Commission. These two agencies have recently provided joint formal recommendations for mandatory reporting in the electric power sector. ARB staff has incorporated these recommendations into the regulation and accompanying nonregulatory guidance. The sections below summarize the power sector reporting requirements.

Electricity Generating Facilities. Facilities with a total generating unit capacity of at least 1 megawatt (MW) that emit 2,500 metric tonnes or more of CO₂ would report

their CO₂, N₂O, and CH₄ emissions from fuel combustion. Where applicable they would also report CO₂ process emissions from acid gas scrubbers, fugitive CO₂ emissions from geothermal power, CH₄ emissions from coal storage, HFCs from generator cooling units, and SF₆ emissions from facility equipment. The facilities would report wholesale power exports when known. Fuel use data would also be reported.

Electricity Retail Providers. Retail providers would report the emissions above for the generating facilities they operate, and fugitive SF₆ emissions related to the transmission and distribution systems they maintain. Under the proposal retail providers would also report imported and exported power in megawatt hours, by source when known. There are additional requirements for retail providers related to implementing a possible load-based approach. These include reporting ownership share, renewable energy contract dates, determination of native load power, in-state power purchases and sales, out-of-state owned power sold to out-of-state entities, and other information. Attachment C of this document explains the staff proposal for performing calculations related to this sector.

Electric Power Marketers. Electric power marketers as defined under this proposal are power purchasing and selling companies or agencies that do not serve end users. They are required to report the amount of power they import into and export out of California. Marketers that maintain transmission system substations inside California would report fugitive SF₆ emissions at those substations as well.

Overviews of Other Sectors:

Cogeneration Facilities. Cogeneration facilities that meet the generating capacity (MW) and emissions thresholds of electric generating facilities, or that are operated by another reporting facility, would report CO₂, N₂O, and CH₄ emissions from fuel combustion at the facility, as well as the distribution of emissions for electricity generation, thermal energy production, and (when applicable) manufactured products. Process and fugitive emissions, where applicable, would be as specified for electricity generation units. Fuel use data would also be reported.

Petroleum Refineries. Refineries would report stationary combustion emissions of CO₂, CH₄, and N₂O using fuel specific emission factors that account for carbon variability; the methodology developed by ARB staff is an enhancement to existing protocols. Refinery process emissions reported would include CO₂ from catalytic cracking, CO₂ from hydrogen production, CO₂, CH₄, and N₂O from process vents, and CO₂ from sulfur recovery. Refineries would report certain fugitive emissions, including wastewater treatment CH₄ and N₂O emissions, CH₄ emissions from oil/water separators, CH₄ from storage tanks, and CH₄ from equipment fugitive emissions. If there is a cogeneration unit at refinery, the reporting requirements for a cogeneration facility apply. Fuel use data would also be reported.

Hydrogen Plants. Hydrogen plants emitting 25,000 metric tonnes or more of CO₂ would report their process-related CO₂ emissions from hydrogen production in addition to their CO₂, CH₄ and N₂O combustion emissions. If there is a cogeneration unit at the facility, then the cogeneration reporting requirements would also apply for the cogeneration unit. The plants would also report transferred CO₂, hydrogen production, and fuel use data.

General Stationary Combustion (GSC) Facilities. Facilities not included in the sectors above but emitting 25,000 metric tonnes or more of CO₂ per year from stationary combustion would report their CO₂, N₂O and CH₄ emissions from facility combustion sources. Most facilities can use simple default emission factors and fuel use data to estimate their emissions, but they have the option to use more detailed fuel analysis methods. Examples of some GSC facilities that could be required to report are shown in Table 1. If there is a cogeneration unit at a GSC facility, then all reporting requirements for a cogeneration facility would apply. Facility fuel use data would be reported. Because of their additional complexity and potential for significant fuel carbon content variability, GSC facilities that perform oil and gas production would implement specific fuel test requirements similar to refineries.

Table 1. Examples of Major Stationary Combustion Sectors Potentially Affected*

Natural gas transmission	Oil production
Industrial gases	Food processing
Paperboard manufacture	Steel foundries
Colleges and universities	Mineral processes
Glass container	Malt Beverages

*Note: Must also exceed 25,000 metric tonne CO₂ threshold to be subject to reporting.

In developing all requirements, ARB staff worked to apply the best scientific and technical information available. The data generated as a result of implementing the proposed regulation will inform decision processes critical to the success of the Act.

Future Updates to the Regulation

ARB staff will propose updates to this regulation in future years, to improve the current requirements and to add sectors as the overall California GHG program is further defined and calculation methods are adopted. We expect additional GHG emission sources in the oil and gas sector to be included in reporting once current protocol development work is completed. Other possible sectors for future reporting are discussed in this report, including the glass, chemical, and mineral processing industries. Staff will re-examine the thresholds for reporting in the general combustion sector and consider what industries have significant process emissions that should be reported. In addition, we anticipate that any facility that becomes part of a future GHG emissions trading program would become subject to annual verification requirements, if they are not already.

Table 2.
Summary of Proposed Mandatory Reporting Requirements

Topic/Sector	ARB Staff Proposal
Who Reports, What Level, How Often	<ul style="list-style-type: none"> ◆ Facility-level reporting by company operating facility. ◆ Annual reporting of emissions by calendar year, beginning in 2009. ◆ Hospitals, primary and secondary schools, backup generators, portable equipment excluded. ◆ Non-regulatory option provided for voluntary reporting of entity emissions.
Reporting Scope and Source Categories	<ul style="list-style-type: none"> ◆ Direct stationary combustion emissions. ◆ Specified process and fugitive emissions. ◆ Fuel usage by fuel type. ◆ Indirect energy usage--electricity in kWh and thermal in Btu. ◆ Mobile emissions in optional supplemental entity report.
Gases Reported	<ul style="list-style-type: none"> ◆ Reporting of the six Kyoto gases is required as specified by sector. ◆ Most facilities will have only CO₂, CH₄ and N₂O to report. ◆ SF₆ and HFCs in the electricity sector. ◆ PFCs are not included in current proposal because it is not a significant GHG source for the sectors subject to reporting.
Emissions Quantification	<ul style="list-style-type: none"> ◆ Sector-specific methods rely on fuel testing (heating value, carbon content) for combustion, or use of continuous measurement systems. ◆ Default emission factors provided for general stationary combustion sources; all sources can use default CH₄ and N₂O factors. ◆ Site-specific factors can be developed for some sources, under air district supervision with ARB approval.
Verification	<ul style="list-style-type: none"> ◆ Required annually for more complex sources, triennially for less complex. ◆ Will be provided by third-party verifiers including air districts that meet accreditation criteria. ◆ Includes a conflict of interest policy. ◆ ARB will play an oversight role in verifications and quality of verifiers. ◆ Consistent with CCAR, TCR, ISO 14064-3, and EU practices.
Cement Plants	<ul style="list-style-type: none"> ◆ Clinker-based method from CCAR for CO₂ process emissions with plant-specific factors. ◆ Combustion methods for CH₄ and N₂O use default emission factors. ◆ Fuel testing for CO₂ combustion factors, per CCAR.
Electricity Sector	<ul style="list-style-type: none"> ◆ <i>Generating Units:</i> Report if ≥ 1 MW and $\geq 2,500$ MT CO₂. ◆ Methods from CCAR power/utilities protocol include fuel testing or use of continuous monitoring systems; more frequent testing in some

Topic/Sector	ARB Staff Proposal
	<p>cases to address fuel variability.</p> <ul style="list-style-type: none"> ◆ Process and fugitive emissions methods from CCAR, including HFCs. ◆ Retail providers and power marketers also provide purchase, sales, import, export information per CPUC/CEC recommendations. ARB would apply default emission factors from CEC for unknown (and some known) power sources, and provisions to assure future reductions from contract changes are real. ◆ Facilities and entities report SF₆ fugitive emissions from equipment and circuit breakers.
Cogeneration Facilities	<ul style="list-style-type: none"> ◆ Combustion methods like generating units (above). ◆ Distribution of emissions for electricity generation, thermal energy production, manufactured products based on CCAR Efficiency Method.
Petroleum Refineries	<ul style="list-style-type: none"> ◆ Combustion methods for CO₂ use fuel specific emission factors derived from daily fuel sampling to account for carbon variability. ◆ Combustion methods for CH₄ and N₂O use default emission factors. ◆ Reported process emissions (CO₂, CH₄ and N₂O) include catalytic cracking, hydrogen production, process vents and sulfur recovery. ◆ Reported fugitive emissions (CH₄ and N₂O) include wastewater treatment, oil/water separators, storage tanks. ◆ CCAR discussion paper aided methodology development.
Hydrogen Plants	<ul style="list-style-type: none"> ◆ Process-related CO₂ emissions from hydrogen production ◆ Combustion methods similar to refineries. ◆ Transferred CO₂ and hydrogen production.
General Stationary Combustion Facilities	<ul style="list-style-type: none"> ◆ Facilities not included in other sectors but emitting 25,000 metric tonnes or more of CO₂ per year from stationary combustion would report their CO₂, N₂O and CH₄ emissions. ◆ Most facilities apply default emission factors and fuel use data to estimate their emissions, per CCAR protocols. ◆ GSC facilities involved in oil and gas production would implement specific fuel test requirements similar to refineries.