

California Environmental Protection Agency

 **Air Resources Board**

**STAFF REPORT: INITIAL STATEMENT OF REASONS FOR RULEMAKING**

**AMENDMENTS TO THE REGULATION FOR THE MANDATORY REPORTING  
OF GREENHOUSE GAS EMISSIONS AND CONFORMING AMENDMENTS TO THE  
DEFINITION SECTIONS OF THE AB 32 COST OF IMPLEMENTATION FEE  
REGULATION AND THE CAP-AND-TRADE REGULATION**



Planning and Technical Support Division  
Emission Inventory Branch

August 1, 2012

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**State of California**  
**AIR RESOURCES BOARD**

**Staff Report: Initial Statement of Reasons  
for Proposed Rulemaking**

**PUBLIC HEARING TO CONSIDER AMENDMENTS TO  
THE REGULATION FOR THE MANDATORY REPORTING OF  
GREENHOUSE GAS EMISSIONS AND  
CONFORMING AMENDMENTS TO THE DEFINITION SECTIONS OF  
THE AB 32 COST OF IMPLEMENTATION FEE REGULATION AND THE CAP-AND-  
TRADE REGULATION**

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**ATTACHMENT A: Proposed Regulation Order: Amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions**

**ATTACHMENT B: Proposed Regulation Order: Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms – Section 95802(a), Modified or New Definitions Only**

**ATTACHMENT C: Proposed Regulation Order: Amendments to the AB 32 Cost of Implementation Fee Regulation – Section 95202(a), Modified or New Definitions Only**



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## **EXECUTIVE SUMMARY**

Air Resources Board staff is proposing to amend the Regulation for the Mandatory Reporting of Greenhouse Gas (GHG) Emissions (reporting regulation) along with conforming amendments to the definition sections of the AB 32 Cost of Implementation Fee Regulation (fee regulation) and the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (cap-and-trade regulation). The reporting regulation was originally developed pursuant to the California Global Warming Solutions Act of 2006 (Assembly Bill 32 or the Act), and adopted by the Air Resources Board (ARB) in December 2007. In December 2010, the Board adopted amendments to the reporting regulation in order to harmonize with the GHG reporting requirements of the United States Environmental Protection Agency (U.S. EPA), support California's cap-and-trade program, and align with the Western Climate Initiative (WCI) reporting structure. Since the Board's December 2010 action, the U.S. EPA has made additional revisions to their GHG reporting rule and corrected errors, updated emission factors and modified other reporting requirements. In addition, ARB staff has also identified other omissions and inconsistencies in the regulatory requirements that need clarification to ensure the reported GHG data are accurate and fully support the cap-and-trade program, as well as California's statewide greenhouse gas emission inventory and other AB 32 programs.

This staff report presents the ARB staff's proposal to amend the reporting regulation and make conforming definition changes to the fee regulation and cap-and-trade regulation. The staff report discusses the reasons for the proposed amendments and the potential impacts from the regulatory changes. The proposed amendments represent minor but necessary revisions to the current reporting regulation. Staff is not proposing major changes to GHG reporting requirements nor adding reporting obligations for new industrial sectors. The changes correct or clarify reporting requirements necessary for submittal of complete and accurate emission data reports, and add or modify data elements for product data reporting necessary to support the cap-and-trade program. The changes are also necessary to align California's GHG emissions reporting with the changes and updates discussed above, to streamline and avoid duplicate GHG reporting, and to continue to provide the high quality of data needed to support a market-based cap-and-trade program. Other updates proposed and discussed in this staff report include changes to conform the definition sections of both the cap-and-trade and fee regulations to the amendments in the reporting regulation to ensure consistent application of each rule.

### **Background**

AB 32 requires California to cut greenhouse gas emissions to 1990 levels by 2020 and to develop a comprehensive strategy to reduce dependence on fossil fuels, stimulate investment in clean and efficient technologies, and improve air quality and public health. AB 32 also requires the Air Resources Board to adopt regulations for the mandatory reporting of greenhouse gas emissions in order to monitor and enforce compliance with ARB's GHG emissions reductions actions, including market-based compliance mechanisms. The ARB adopted a market-based, cap-and-trade program in October

2011. AB 32 also requires ARB to review existing and proposed international, federal, and state greenhouse gas emission reporting programs and make reasonable efforts to promote consistency among the programs.

## **Objectives of the Proposed Regulation Amendments**

ARB staff has proposed amendments to the regulations in order to:

- Continue alignment of the GHG reporting requirements with the U.S. EPA, to the extent feasible, by making corrections and updates to emission estimation methods, emission factors, and reporting requirements;
- Continue to support California's cap-and-trade program by clarifying product data collection requirements, product data verification procedures, and adding additional product data reporting;
- Ensure that reported GHG emissions data is accurate and complete in order to support California's GHG reduction programs, including the statewide GHG emission inventory; and
- Modify the definitions in the cap-and-trade and the fee regulations to conform to the proposed mandatory reporting definition amendments.

The proposed amendments to the mandatory reporting regulation do not change the overall reporting structure. No new sectors were added. All sectors which currently incorporate U.S. EPA's rule requirements (from 40 CFR Part 98) by reference continue to reference the U.S. EPA requirements, except for the Petroleum and Natural Gas Systems sector, as described below. The verification requirements remain constant, although staff is proposing that verification for all reporting entities emitting less than 25,000 metric tons of carbon dioxide equivalents (MTCO<sub>2</sub>e) would no longer be required. Instead, the proposed amendments improve upon, clarify, and add to the existing requirements. For the Petroleum and Natural Gas Systems sector, the regulatory text previously incorporated by reference from the U.S. EPA rule is proposed to be written directly into the regulation. While this amendment results in a seemingly large amount of changes, it does not alter existing reporting requirements, except in cases where methods were updated or changes were made to reflect the more rigorous data needed for the cap-and-trade or other AB 32 programs. ARB staff believes that adding in the U.S. EPA rule for petroleum and natural gas systems in the reporting regulation aids in understanding the regulatory requirements and will improve the accuracy of reporting. Product data elements and requirements were added to ensure facilities have the opportunity to receive their full allotment of allocations under the cap-and-trade program.

## Overview of the Proposed Amendments

Tables ES-1 and ES-2 provide summaries of the key amendments proposed to the regulations. More complete descriptions of the proposed amendments are found in the succeeding chapters of this report.

**Table ES-1**  
**Summary of Proposed Regulatory Amendments to**  
**the Mandatory Reporting Regulation**

<i>Topic/Sector</i>	<i>Proposed Regulatory Amendment</i>
<b>Petroleum and natural gas systems</b>	<ul style="list-style-type: none"> <li>◆ U.S. EPA GHG reporting rule language written directly into the reporting regulation to improve clarity and certainty for reporting entities in this sector</li> <li>◆ Added additional requirements for some industry segments to ensure complete reporting</li> </ul>
<b>Electric Power Entities (EPEs)</b>	<ul style="list-style-type: none"> <li>◆ Clarified the asset-controlling supplier application process</li> <li>◆ Removed explicit asset-controlling supplier designation for Bonneville Power Administration (BPA) and default BPA system emission factor</li> <li>◆ Clarified the vintage (year) of the data used to calculate the emission factors for specified sources and asset-controlling suppliers</li> </ul>
<b>Measurement accuracy requirements</b>	<ul style="list-style-type: none"> <li>◆ Added a voluntary field accuracy assessment in order to lower the risks of lost data between required three-year meter calibrations</li> </ul>
<b>Product data requirements</b>	<ul style="list-style-type: none"> <li>◆ Clarified and expanded product data reporting requirements for petroleum and natural gas systems</li> <li>◆ Clarified product data verification requirements</li> <li>◆ Added calcined coke to refinery products</li> <li>◆ Added additional requirements for natural gas fractionators who produce natural gas liquids</li> </ul>

<b>Topic/Sector</b>	<b>Proposed Regulatory Amendment</b>
<b>Verification</b>	<ul style="list-style-type: none"> <li>◆ Amended third-party verification requirements to only apply to reporting entities emitting 25,000 MTCO<sub>2</sub>e or more. Previously, certain reporting entities were required to report and verify their emissions data reports regardless of their emissions level; this modification results in more equitable verification treatment for all entities emitting less than 25,000 MTCO<sub>2</sub>e, and in cost savings as described in Chapter VI</li> <li>◆ Clarified product data verification requirements</li> </ul>
<b>Definition changes</b>	<ul style="list-style-type: none"> <li>◆ Updated definitions to clarify reporting requirements in current and proposed amendments</li> </ul>
<b>Other</b>	<ul style="list-style-type: none"> <li>◆ Added requirements for imported compressed natural gas (CNG) and liquefied natural gas (LNG)</li> <li>◆ Added reporting of process emissions for abbreviated reporters</li> <li>◆ Clarified the fuel supplier reporting requirements</li> <li>◆ Modified the unit aggregation for electricity generating units</li> <li>◆ Made corrections to typographical errors</li> </ul>

**Table ES-2**  
**Summary of Proposed Regulatory Amendments to**  
**the Cap-and-Trade and AB 32 Cost of Implementation Fee Regulations**

<b>Definition changes</b>	<ul style="list-style-type: none"> <li>◆ Updated definitions to conform with proposed changes made in the mandatory reporting regulation</li> </ul>
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### **Economic Impact Analysis**

The proposed amendments will result in a net cost savings of \$1.2 million for private industry and local government as described in Chapter VI.

## **Staff Recommendation**

Staff recommends that the Board adopt the proposed amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions and the conforming amendments to the definition sections of the AB 32 Cost of Implementation Fee Regulation and the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation.

## **I. INTRODUCTION AND BACKGROUND**

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This staff report presents proposed revisions to three interrelated regulations developed pursuant to the California Global Warming Solutions Act of 2006 (Assembly Bill 32, the Act). These include the:

- Regulation for the Mandatory Reporting of Greenhouse Gas (GHG) Emissions (reporting regulation).
- California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms (cap-and-trade regulation)
- AB 32 Cost of Implementation Fee Regulation (fee regulation)

The majority of proposed amendments and this staff report focus on the reporting regulation. However, to maintain consistency among the three regulations, staff is also proposing conforming amendments to those definitions also found in the cap-and-trade and fee regulations. Those conforming definition changes are also described within this staff report.

### **A. Overview of Prior Regulatory Actions**

The Regulation for the Mandatory Reporting of Greenhouse Gas Emissions was originally developed pursuant to AB 32, and adopted by the Air Resources Board (ARB or Board) in December 2007 (ARB MRR 2007). In December 2010, ARB adopted substantial revisions to the original regulation to harmonize with the U.S. Environmental Protection Agency (U.S. EPA) federal mandatory GHG reporting requirements contained in title 40, Code of Federal Regulations (CFR), Part 98; to support a California greenhouse gas (GHG) cap-and-trade program; and to align with the Western Climate Initiative (WCI) reporting structure. These revisions became effective January 1, 2012. The full regulatory record and background for these two previous GHG reporting regulation rulemakings is available here:

<http://www.arb.ca.gov/regact/2007/ghg2007/ghg2007.htm> (ARB MRR 2007), and here: <http://www.arb.ca.gov/regact/2010/ghg2010/ghg2010.htm> (ARB MRR 2010).

AB 32 also authorized ARB, through Health and Safety Code section 38597, to adopt a schedule of fees to be paid by sources of GHG emissions to support the costs of carrying out AB 32 activities. At the Board's September 25, 2009 hearing, the Board approved the AB 32 Cost of Implementation Fee Regulation (fee regulation). The fee regulation was approved by OAL and became legally effective on July 17, 2010 (COI 2010). More information on the fee regulation may be found at:

<http://www.arb.ca.gov/cc/adminfee/adminfee.htm>.

AB 32 also authorized ARB to adopt a market-based compliance mechanism to reduce GHG emissions. From 2009 through 2011, ARB staff developed the overall options for a market-based mechanism program design and development. ARB staff conducted extensive public consultation to discuss and share ideas with the general public and key stakeholders on the appropriate structure of the cap-and-trade regulation. Staff also met regularly with individual stakeholders to hear their concerns and recommendations. ARB staff collected public comments during each public workshop, which focused on

key topics and program design components. The cap-and-trade regulation, first considered by the Board at its December 2010 hearing, provides a fixed limit on GHG emissions from the sources responsible for about 85 percent of the state's total GHG emissions (C&T 2011). The cap-and-trade regulation reduces GHG emissions by applying a declining aggregate cap on GHG emissions, and creates a flexible compliance system through the use of tradable instruments (allowances and offset credits). The cap-and-trade regulation went into effect January 1, 2012.

## **B. Objectives of the Proposed Regulatory Revisions**

ARB staff has proposed amendments to the regulations in order to:

- Continue alignment of the GHG reporting requirements with the U.S. EPA, to the extent feasible, by making corrections and updates to emission estimation methods, emission factors, and reporting requirements;
- Continue to support California's cap-and-trade program by clarifying product data collection requirements, product data verification procedures, and adding additional product data reporting;
- Ensure that reported GHG emissions data is accurate and complete in order to support California's GHG reduction programs, including the statewide GHG emission inventory; and
- Modify the definitions in the cap-and-trade and the fee regulations to conform to the proposed mandatory reporting definition amendments.

The proposed amendments to the reporting regulation are necessary to further clarify reporting requirements, provide updates and corrections to emission estimation methods and emission factors, enhance metering accuracy requirements to improve data quality, and include additional or modified definitions reflecting the other modifications. The proposed amendments do not change the overall reporting structure of the reporting regulation and no new sectors were added to reporting. All sectors which currently incorporate U.S. EPA's rule requirements by reference continue to reference the U.S. EPA requirements, except for the Petroleum and Natural Gas Systems sector, as described below.

For the petroleum and natural gas systems sector, subarticle 5 of the regulation, the full regulatory requirements previously incorporated by reference from the U.S. EPA, are proposed to be written directly into the reporting regulation. ARB staff believes that this aids in the understanding of the regulatory requirements and improves the accuracy of reporting. In addition, requirements for petroleum and natural gas systems have been updated to include, to the extent feasible, the most current U.S. EPA requirements and other changes needed to improve accuracy and completeness. Specifically, the continued use of best available monitoring methods (BAMM) and the updated definition of onshore petroleum and natural gas production were not added into subarticle 5. Additionally, ARB staff proposed adding equipment and pipeline blowdowns and flare stack emissions reporting requirements for certain industry segments. A further



discussion of the specific changes to subarticle 5 is discussed in Chapter VII, Summary and Rationale. Other proposed changes to the regulations are individually listed in Chapter VII.

### **C. Public Outreach**

In developing the proposed amendments, staff initially presented ideas for amendments in an informal discussion draft released on May 29, which was subsequently discussed at a public workshop held on May 30, 2012 to receive comment and feedback from stakeholders. Additional informal discussion drafts for electric power entity definitions and proposed amendments to subarticle 5 (petroleum and natural gas systems sector) were released on June 14th and 15th, respectively, and discussed in webinars held on June 19, 22, and 29, 2012. Staff considered the informal comments provided during and after these meetings in crafting the staff proposal (ARB Workshop Comments 2012). In response to requests from stakeholders, staff held numerous one-on-one and small group teleconferences to discuss and refine the proposed revisions to the mandatory reporting regulation and the conforming definitional amendments in the fee regulation and cap-and-trade regulation.

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## **II. DESCRIPTION OF THE PUBLIC PROBLEM, PROPOSED SOLUTIONS TO THE PUBLIC PROBLEM AND RATIONALE SUPPORTING THE SOLUTIONS**

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In order to carry out the goals of AB 32, a robust and accurate greenhouse gas reporting program is necessary to track the emissions from reporting entities over time and to demonstrate progress in reducing GHG emissions. The proposed amendments to update calculation methods and emission factors utilized by the reporting program are necessary in order to continue to track the GHG emissions reduction goals of AB 32. With the proposed amendments to the reporting, cap-and-trade, and fee regulations described below, ARB staff intends to update the calculation methods, emission factors, and definitions to ensure the accurate tracking of AB 32 goals is achieved.

Anticipated benefits of the proposed amendments include improved clarity for reporting entities as to their reporting and verification obligations, more accurate GHG emissions estimates from corrected or updated emissions calculation methods and emission factors, improved clarity to support the statewide greenhouse inventory program and continued robust methods for reporting emissions and product data in order to support ARB's cap-and-trade regulation, fee regulation, and other GHG-related programs. These benefits may also have indirect beneficial impacts on the health and welfare of California residents, worker safety, and the state's environment by ensuring that the state has an accurate emissions inventory to support ARB's emission reduction measures.

This chapter includes a discussion of proposed revisions to the regulations. Section A focuses on revisions to the reporting regulation. Section B highlights the conforming definition revisions to the cap-and-trade regulation. Section C discusses conforming definition revisions to the fee regulation. All changes are discussed in further detail in Chapter VII, Summary and Rationale.

### **A. Proposed Amendments to the Mandatory Reporting Regulation**

This section includes a discussion of some of the key proposed revisions to the reporting regulation. At this time, ARB staff is not considering incorporating additional updates from U.S. EPA's reporting rule that affect sectors that ARB has excluded from the reporting.

#### **1. General Revisions**

Applicability and Cessation of Reporting. To help clarify the applicability requirements for California reporting entities, all industry sectors subject to reporting are listed in the general applicability section of the reporting regulation, rather than referring to the applicability requirements of the incorporated U.S. EPA GHG reporting rule. This change does not affect the numbers or types of entities subject to reporting.

To improve reporting consistency and to better assess potential leakage of GHG emissions from larger to smaller facilities to avoid reporting requirements, facilities that produce process emissions must now include those emissions in their applicability

determinations and report the emissions under the proposed revisions. This is expected to affect less than five facilities.

Under the revisions, staff added suppliers of imported compressed natural gas or liquefied natural gas to the applicability requirements. Reporting was already required by California consignees of liquefied petroleum gas, so this revision will ensure equitable reporting by all fuel types. This is expected to affect five or fewer fuel suppliers, and does not add in any new reporting sector.

As with the applicability requirements, the proposed revisions will list the U.S. EPA reporting cessation requirements (USEPA MRR 2009-2010) in the reporting regulation, rather than simply incorporating them by reference. This revision clarifies the reporting cessation requirements and allows for minor sources to better understand their requirements to cease reporting when justified. Staff also clarified the cessation requirements for electric power entities, which are not subject to U.S. EPA reporting.

Abbreviated Reporting, Verification, and Product Data. Under the proposed revisions, facilities emitting between 10,000 to 25,000 metric tons of carbon dioxide equivalents (MTCO<sub>2</sub>e) that are allowed to submit an abbreviated emissions data report must now report process emissions in addition to combustion emissions. This additional requirement provides the process emissions information necessary for leakage analysis, as required by the Act. The proposed revisions also streamline the reporting requirements for abbreviated reports by not requiring third-party verification for those reporters. Previously, some sectors were required to obtain third-party verification regardless of their emissions level. This revision will result in a cost saving to all sectors where reporting entities emit less than 25,000 MTCO<sub>2</sub>e. (An analysis of this cost saving is included in Chapter VI, Economic Impacts).

Staff added text to clarify the reporting requirements for geothermal facilities, including the need to include information required in section 95112. This does not alter the existing requirements, but improves clarity for reporters.

Within the proposed revisions for product data, staff specified that the reporting accuracy requirements apply only to covered product data. Covered product data is product data used in the allocation of allowances under the cap-and-trade regulation, and is described in the newly added “covered product data” definition. This proposed amendment reduces the previous requirement that all product data, including any non-covered product data, had to meet the material misstatement requirements as part of third-party verification. This revision will provide a cost savings to reporters of product data.

A clarification was also made to section 95105(d)(6) regarding recordkeeping, to clarify that third-party verifiers need to evaluate electric power entities for the compliance obligation, RPS adjustment and qualified export reporting requirements.

Measurement Accuracy Requirements. The proposed amendments clarify the measurement accuracy requirements in the reporting regulation. Specifically, the intent of the requirements has been clarified in section 95103(k) and a voluntary field accuracy assessment has been added to reduce the risk of data losses from potential failed meter calibrations. The current reporting regulation includes requirements for the frequency of meter calibrations, which, depending on the approach, is about every three years. If a meter fails calibration, it is possible that data collected by that meter in the past three years could be voided. In order to ensure that data losses due to failed calibrations do not result in a substantial loss of data for a multi-year time period, staff has proposed including a voluntary field accuracy assessment which would allow reporting entities to perform an annual test to ensure the meter is still calibrated accurately. Additionally, staff has proposed amendments to clarify that if a meter fails calibration, a reporter may also use other means to demonstrate the meter accuracy between calibrations.

Unit Aggregation. Revisions are proposed to allow for data aggregation for electricity generating units in order to streamline reporting. In the current regulation, electricity generating units do not have unit aggregation options. Therefore, the proposed amendments also include additional options and conditions for unit aggregation and other emission sources.

Other Product Data Amendments. Revisions to the product data reporting requirements were made to the refinery and hydrogen production sectors. Calcined coke was added to the product data reporting requirements since it is a product used to determine the allocation of allowances in the cap-and-trade program. Hydrogen production was modified to split out hydrogen gas and liquid hydrogen. In addition, for transportation fuel suppliers, the proposed revisions now specifically list those fuels subject to reporting, rather than referencing a list incorporated by reference from the U.S. EPA reporting rule.

Electric Power Entities. The two main amendments proposed for electric power entity reporting are clarifications to the requirements for asset-controlling suppliers and clarifications on the data used to generate the emission factors for specified sources and asset-controlling suppliers.

*Asset-Controlling Supplier Requirements:* The proposed amendments will modify and clarify the asset-controlling supplier application and reporting process. In the current reporting regulation, the asset-controlling supplier application process is ambiguous in addressing requirements to maintain an asset-controlling supplier designation. The requirements have also been misinterpreted by certain stakeholders as applying only to Bonneville Power Administration. This has generated many questions from stakeholders. Clarifications to the asset-controlling supplier application process and proposed language on the reporting requirements alleviate these concerns. Specifically, the amendments clarify that asset-controlling suppliers must report and verify annually, submit all necessary information to calculate their system emission factor, and in the case of an adverse verification

statement lose their status as an asset-controlling supplier, which includes their ARB-calculated system emission factor. Additionally, the system emission factor for Bonneville Power Administration as an asset-controlling supplier, which is directly listed in the current reporting regulation, is proposed to be removed but would be listed on ARB's web site with any other asset-controlling supplier designations. This change was proposed to ensure consistency in the treatment of asset-controlling suppliers and their ARB-calculated system emission factors. In the event that an asset controlling supplier fails to report and verify, the unspecified default emissions rate is applicable to emissions reports.

*Emission Factor Calculation Data Vintage:* Proposed language was added to indicate the vintage (i.e., year) of data for calculating the emission factors for specified sources and for asset-controlling suppliers. For example, for specified sources, a 2012 emission data report will be based on 2012 transaction data and 2011 emission factor data. However for an asset-controlling supplier, a 2012 emission data report will be based on 2012 transaction data and 2010 emission factor data. The additional lag time for the asset-controlling supplier is needed to ensure that power entities have advanced knowledge of the reporting and verification status of the asset-controlling supplier and are able to consider the appropriate system emission factor before they import electricity into California and to enable the use of that factor in their emissions data reporting. All 2012 emission data reports would be submitted in 2013. By the end of each calendar year, ARB plans to post asset-controlling supplier emission factors to the ARB website that will be applicable for reporting of each subsequent year's emissions. For example, by the end of 2013, ARB will post each asset-controlling supplier's emission factor to be used for 2014 emissions data reported in 2015.

*Other:* Staff is also proposing clarification amendments to wheeled power and the first point of receipt and final point of delivery. An additional reporting requirement for reporting renewable energy credits (REC) serial numbers was added to section 95111(g)(1)(M) to ensure accurate tracking of RECs as they pertain to the RPS adjustment.

Verification Requirements. Staff is proposing several clarifications for the verification of product data, including the requirement that only "covered product data" is subject to material misstatement assessments, and material misstatement assessments are conducted on total product data and not individual products. In addition to several minor general clarifications, staff has included revisions to clarify ARB's intent in the conflict of interest section, including changes to better describe how verification services that can be performed by verification bodies outside of the state are to be assessed. Finally, and as described previously, staff has proposed clarifications to specify that all entities emitting less than 25,000 MTCO<sub>2</sub>e would not need to obtain third-party verification.

## **2. Definition Revisions and Additions**

General Clarifications and Additions. Existing definitions were clarified to minimize ambiguity. New definitions were added to support changes described in this staff report,

such as additional product data reporting, the requirements for the petroleum and natural gas systems, and the inclusion of U.S. EPA requirements directly into the ARB regulation.

Electric Power Entity Definitions. Definitions associated with electric power entity reporting were added and modified to better define the source, the reporting requirements, and the data to be reported under the regulation.

Suppliers of Transportation Fuels Definitions. To clarify the reporting requirements, section 95121 of the regulation was updated to directly incorporate the fuels subject to reporting by transportation fuel suppliers. Previously, these fuels were identified by referencing separate tables in the U.S. EPA GHG Reporting Rule (Title 40, Code of Federal Regulations (CFR), Part 98). In listing the fuels directly in the ARB regulation, it was also necessary to define these fuels explicitly within the ARB regulation itself. As a result, about twenty additional definitions have been added, such as “premium grade gasoline,” “ethane,” and “rendered animal fat.” These additional definitions are adapted verbatim (as near as possible) from the U.S. EPA 40 CFR Part 98 regulation currently cited, and their inclusion does not change the existing reporting requirements. Each new definition is provided in section 95102 of the amended reporting regulation.

### **3. Subarticle 5 – Petroleum and Natural Gas Systems**

Include all Calculation Methods and Reporting Requirements. In the current reporting regulation, the calculation methods and reporting requirements for petroleum and natural gas systems were incorporated by reference from the U.S. EPA rule. However, since adoption of the reporting regulation, U.S. EPA has made considerable changes to the petroleum and natural gas systems section of their rule. In order to improve clarity and certainty of the methods and requirements for the California reporting program, the proposed amendments include, to the extent feasible, all the most recent U.S. EPA calculation methods, definitions, and reporting requirements directly in subarticle 5 of the reporting regulation. While the number of pages associated with this change is substantial, the actual reporting requirement changes from the current reporting regulation are small.

Onshore Petroleum and Natural Gas Production Definition. In the current regulation, the onshore petroleum and natural gas production industry segment definition requires reporting of emissions “associated with a well pad.” ARB staff is proposing no change to this definition as opposed to updating to U.S. EPA’s new rule term, “associated with a single well pad.” The reason for staying with the current approach was to require reporting of the full breadth of emissions from onshore petroleum and natural gas productions to support the cap-and-trade program.

Other. Modifications to the best available monitoring methods (BAMM) were made as well as some method improvements for various calculations. The proposed amendments would specifically allow the use of BAMM for certain calculation methods through the collection of 2012 data. However, beginning in 2013, the use

of BMM will no longer be permitted. Lastly, some of the methods proscribed in the U.S. EPA rule were replaced with more stringent methods and some of the requirements were extended to other industry segments. This added stringency is necessary because the U.S. EPA methods were not rigorous enough to support the needs of the cap-and-trade program and the statewide greenhouse gas inventory program.

## **B. Proposed Amendments to the Cap and Trade Regulation**

Definition Revisions and Additions. In order to ensure consistency in terminology across the reporting regulation, fee regulation, and cap-and-trade regulation, revisions, additions, and deletions were made in the definition section of the cap-and-trade regulation to conform to the proposed amendments of the reporting regulation. No other changes have been proposed to the cap-and-trade regulation in this rulemaking action.

## **C. Proposed Amendments to the Cost of Implementation Fee Regulation**

Definition Revisions and Additions. In order to ensure consistency in terminology across the reporting regulation, fee regulation, and cap-and-trade regulation, revisions, additions, and deletions were made in the definition section of the fee regulation to conform to the proposed amendments of the reporting regulation. No other changes have been proposed to the fee regulation in this rulemaking action.



### **III. SUMMARY OF RECOMMENDED BOARD ACTION AND SUMMARY OF ALTERNATIVES**

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Staff is proposing the amendments to the reporting regulation to continue harmonization with U.S. EPA on GHG emissions reporting methods and requirements, to the extent feasible, and to support the cap-and-trade program through the reporting of complete and robust GHG emissions data. Staff is also proposing conforming amendments to the definition sections of the AB 32 Cost of Implementation Fee Regulation and the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation. Staff is recommending that the Board accept the revisions to all three regulations, as proposed.

Prior to approval, California Government Code section 11346.2 requires ARB to consider and evaluate reasonable alternatives to the proposed regulatory action and provide reasons for rejecting those alternatives. This chapter discusses alternatives evaluated and provides reasons why they were not included in the proposed amendments to the regulations. ARB staff did not find any of the alternatives considered to be more effective in carrying out the purpose for which the proposed amendments are intended, or to be as effective or less burdensome to affected businesses, than the proposed revised regulations.

Performance standards were considered but are not feasible under AB 32 which requires rigorous and consistent statewide emissions reporting. These core requirements of the AB 32 reporting program do not lend themselves to the application of flexible performance standards.

The first alternative that staff considered was a “no regulatory change” alternative, meaning that reporting entities would continue to operate pursuant to the requirements and definitions of the current reporting regulation. The consequence of this “no regulatory change” alternative would mean that reporters would not be able to benefit from the many updates and corrections made to emission estimation methods and emission factors. Most of the updates and corrections are based on changes made by U.S. EPA to their GHG reporting rule. Since the reported data would not be accurate, the data would not help ARB fulfill its responsibility to maintain the statewide GHG emission inventory. Without the proposed changes to product data requirements, some reporters would not be able to submit product data that enables them to receive allowance allocations under the cap-and-trade program. Finally, the amendments relieve some reporters with the lower emissions level, including local governments, from verification requirements and those reporters would not benefit from this cost savings. For these reasons, ARB staff chose to reject this alternative.

ARB staff also considered alternatives for each major proposed change to the reporting regulation. Each proposed amendment was evaluated against all reasonable alternatives, including, where applicable, a “no action” alternative and a “harmonization with U.S. EPA” alternative. A “no action” alternative would mean no specific change

would be made. A “harmonization with U.S. EPA” alternative would mean that ARB would use U.S. EPA’s specific rule requirement, if one exists.

A full discussion of alternatives considered for the proposed rule changes is provided below. Sections A through G focus on the alternatives to the reporting regulation and Section H is devoted to discussing alternatives to the proposed conforming definition amendments for all three regulations.

**A. Summary of Proposed Board Action and Alternatives to: Metering/  
Measurement Device Field Accuracy Assessment Requirements -- Section  
95103(k)**

ARB staff proposes to include in section 95103(k) a voluntary annual field accuracy assessment (FAA). The FAA will provide GHG reporting entities with the option to assess and document that flow meters and other measurement devices are operating within the required  $\pm 5$  percent accuracy range in years between required device calibrations. This proposal is intended to provide options for GHG reporting entities to minimize the risk of data loss associated with a failed calibration event. Since the assessment is voluntary, individual facilities can determine their own level of risk based on their unique operations and experiences. This represents the lowest cost alternative. ARB staff considered the following alternatives to the proposed voluntary FAA:

*No Action Alternative.*

The current rule requires that flow meters and other measurement devices measuring covered emissions or covered product data be calibrated at least once during each three year compliance period. These requirements provide a good foundation for ensuring GHG reporting program data integrity, however complications may arise in the instance that a meter or other measurement device fails a calibration. Under the current rules, should a device fail calibration, the operator must prove by other means that the data has continually met the  $\pm 5\%$  accuracy requirement going back to the last successful calibration. Given that calibrations will normally occur every three years, a reporting entity would be required to prove data quality going back multiple years in the event of a failed calibration. Failure to demonstrate data accuracy within 5% could result in the invalidation of the data for up to three years. The proposed voluntary FAA provides a mechanism that can be used by the operator to minimize the risk of data loss by assessing and documenting on an annual basis that the device is maintaining accuracy. This decreases the chance that a device will fail a calibration, and ensures that data will not have to be proven accurate going back longer than one year since the last successful FAA. The “No Action” alternative does not provide adequate mitigation options for failed calibration, does not provide a method for reporters to lower their meter failure risk without a costly and full meter calibration, and would result in a higher burden of time and resources on ARB staff, verifiers, and GHG reporting entities should a device fail a calibration.

Harmonization with U.S. EPA Alternative.

The U.S. EPA GHG reporting rule does not have a mechanism for mitigating risk of data loss in the event of a failed calibration; therefore the analysis for this alternative is identical to the “No Action” alternative addressed above.

Mandatory Annual Field Accuracy Assessment (FAA).

ARB staff considered proposing a mandatory FAA for all flow meters and other measurement devices measuring covered emissions and covered product data. This alternative proposal would ensure a high level of meter accuracy by requiring operators to annually assess and document device accuracy within the  $\pm 5\%$  accuracy range. However, this option imposed substantial costs on facilities and limited the ability of the operator to perform a facility level risk assessment based on internal expertise with the metering devices and systems. Because the FAA is intended to be a mechanism to manage data risk, ARB staff chose to reject the mandatory FAA alternative.

Mandatory Annual Full Calibration.

ARB staff considered proposing mandatory annual calibration of all flow meters and other measurement devices measuring covered emissions and covered product data. This alternative proposal would ensure optimum meter accuracy by requiring operators to annually perform a full calibration in accordance with the calibration procedures documented in section 95103(k). This option imposed the most significant costs to facilities, and went above and beyond U.S. EPA requirements as well as the original equipment manufacturer (OEM) recommendations for many types of flow meters and other measurement devices. Due to these concerns, and given the ability of reporting entities to mitigate risks and still provide accurate data using a voluntary FAA, ARB staff chose to reject the mandatory annual calibration alternative.

**B. Summary of Proposed Board Action and Alternatives to: Process Emissions Reporting for Abbreviated Reporters -- Section 95103(a)**

ARB staff proposes to include process emissions when evaluating the 10,000 metric ton applicability threshold, and require that process emissions be calculated and reported for specified industrial sectors emitting less than 25,000 metric tons of CO<sub>2</sub>e per year. Added costs from the proposed changes are expected to be small per facility, and only 3-4 facilities are estimated to be affected by the proposed change. ARB staff considered the following alternatives to the proposed revision:

No Action Alternative.

In the current version of the mandatory GHG reporting regulation, only stationary combustion emissions are considered when assessing the applicability threshold for abbreviated reporting (in the 10,000-25,000 MTCO<sub>2</sub>e emission range). Additionally, facilities in this range are not currently required to calculate and report process emissions. The lack of process emissions reporting by facilities with combustion emissions between 10,000-25,000 MTCO<sub>2</sub>e would limit the ability to detect changes in process emissions in this group and to identify potential emissions leakage from

facilities with emissions greater than 25,000 MTCO<sub>2</sub>e. Because added costs from the proposed changes are expected to be small per facility, and only 3 to 4 facilities are estimated to be affected by the proposed change, ARB staff has rejected the “no action” alternative in order to better assess leakage of certain facilities with process emissions.

Harmonization with U.S. EPA Alternative.

The U.S. EPA GHG reporting rule does not require GHG reporting below 25,000 MTCO<sub>2</sub>e. Therefore, the analysis for this alternative is identical to the “No Action” alternative addressed above.

**C. Summary of Proposed Board Action and Alternatives to: Reporting requirements for LNG/CNG Importers – Section 95122**

ARB staff proposes to add reporting requirements for importers of Liquefied Natural Gas (LNG) and Compressed Natural Gas (CNG). LNG and CNG imports were unintentionally left out of the current reporting regulation. The inclusion of the proposed imported LNG/CNG reporting requirements ensures completeness of reporting for all forms of imported natural gas. ARB staff considered the following alternatives to the proposed revision:

No Action Alternative.

Currently, a fuel supplier importing natural gas in the form of LNG or CNG for use in California would not have to report emissions associated with the combustion of this fuel. While natural gas is not typically imported in the form of LNG or CNG, ARB staff believes that the omission of natural gas imported as LNG/CNG in the current ARB regulation for mandatory GHG reporting is not sufficiently rigorous to support a cap-and-trade program for GHG emissions. As such, ARB staff chose not to maintain the current reporting requirements without making necessary revisions.

Harmonization with U.S. EPA Alternative.

The U.S. EPA GHG reporting rule does not address imports of natural gas in LNG/CNG form; therefore the analysis for this alternative is identical to the “No Action” alternative addressed above.

**D. Summary of Proposed Board Action and Alternatives to: Changes to Petroleum and Natural Gas Systems, Subarticle 5**

ARB staff proposes to incorporate the calculation methods for petroleum and natural gas systems directly into the reporting regulation, slightly modify some of reporting requirements to ensure the GHG statewide inventory needs are met, and modify the product data requirements to support the cap-and-trade program. While ARB has strived to minimize changes from the U.S. EPA Subpart W to limit additional reporting requirements for Subarticle 5 reporters, the proposed changes ensure that the needs of the California reporting program and cap-and-trade program are met, while ensuring stability and clarity of the reporting requirements in the face of potential U.S. EPA changes to the federal reporting rule.

No Action Alternative.

Currently, the petroleum and natural gas systems section references the U.S. EPA reporting rule as of April 2011. In the past year, the U.S. EPA has made multiple updates and corrections to the petroleum and natural gas systems section of the federal GHG reporting rule. A “no action” alternative would mean California petroleum and natural gas systems facilities would not be able to benefit from the more accurate factors and methods. In addition, without the proposed changes to product data requirements, some reporters would not be able to submit product data that enables them to receive allowance allocations under the cap-and-trade program. By not changing this section, ARB staff believes that the cap-and-trade program, and specifically the allocation of allowances, would rely on inaccurate emissions data. In addition, the California reporting program would be lagging behind the U.S. EPA rule, by not using the most up-to-date equations and methods. As a consequence, ARB staff has rejected the “no action” alternative.

Harmonization with U.S. EPA Alternative.

The ARB staff proposal to update and correct emission factors and emissions estimation methods does harmonize with the U.S. EPA. However, since the U.S. EPA reporting rule was designed to collect data adequate for emissions inventory purposes only, and not a more rigorous cap-and-trade program, the U.S. EPA rule lacks the more rigorous emission estimation methods and the additional product data necessary to support California’s cap-and trade program. For these reasons, some reporting regulation methods were modified to ensure that cap-and-trade quality emissions data is reported. For instance, ARB staff has limited reporters’ choice of methods to three of the four U.S. EPA calculation methods for Acid Gas Removal Vent emissions. The fourth, and least rigorous, method was examined and determined not to generate cap-and-trade quality data. While the majority of changes were made to harmonize with the U.S. EPA rule, a direct incorporation of rule would not support a rigorous California reporting program. As such, ARB staff rejected this alternative.

**E. Summary of Proposed Board Action and Alternatives to: Asset-Controlling Supplier requirements – Section 95111**

Staff is proposing to modify the requirements for the asset-controlling supplier application and reporting process. The amendments clarify that asset-controlling suppliers must report and verify annually, submit all necessary information to calculate their system emission factor, and in the case of an adverse verification statement, lose their status as an asset-controlling supplier, which includes their ARB-calculated system emission factor. In addition, the proposed language would explicitly indicate the timing and use of data for developing the specified source and asset-controlling supplier system emission factor. These changes ensure consistent treatment of all qualified entities wishing to apply for asset-controlling supplier designation and ensure that electric power entities have advanced knowledge of the reporting and verification status of the asset-controlling suppliers and their emission factors for reporting power transactions.

No Action Alternative.

In the current reporting regulation, the asset-controlling supplier application process is ambiguous and incomplete in addressing requirements to maintain an asset-controlling supplier designation. The requirements have at times been mistakenly interpreted to limit the application process to only one entity - the Bonneville Power Administration. In addition, the current requirements do not state the data year and timing for developing the asset-controlling supplier system emission factor. Without the proposed change, electric power entities may not find out about a change in an asset-controlling supplier's status or emission factor until after power contracts have been made, resulting in substantial cost impacts as a consequence of the asset-controlling supplier changes. For these reasons, ARB staff chose to reject this alternative.

Harmonization with U.S. EPA Alternative.

The U.S. EPA GHG reporting rule does not address electricity power imports nor provide for any designation of asset-controlling supplier; therefore the analysis for this alternative is identical to the "No Action" alternative addressed above.

**F. Summary of Proposed Board Action and Alternatives to: Product Data Requirements – Sections 95103(k), 95103(l), and 95131(b)**

Staff has proposed changes that specify that reporting accuracy requirements apply only to covered product data. Covered product data is product data used in the allocation of allowances under the cap-and-trade regulation, and is described in the newly added "covered product data" definition. This amended requirement would replace the previous requirement that all product data, including any non-covered product data, had to meet the material misstatement requirements as part of third party verification. The proposed revisions also change the requirements for the material misstatement assessment for covered product data to be based on "total" product data rather than the current requirement of an assessment on each single product data. These revisions will provide a cost savings to reporters of product data.

No Action Alternative.

Without the proposed changes, reporters would incur increased costs for maintaining meter and data accuracy requirements that were intended only for products that are to be covered under the cap-and-trade program. In addition, reporters could incur greater verification costs as well. For this reason, ARB staff chose to reject this alternative.

Harmonization with U.S. EPA Alternative.

The U.S. EPA GHG reporting rule does not address the annual reporting of product for any of the product data listed in the reporting regulation. Therefore the analysis for this alternative is identical to the "No Action" alternative addressed above.

## **G. Summary of Proposed Board Action and Alternatives to: Verification Requirements – Section 95130**

Staff is proposing to remove language that places verification requirements on facilities that emit below 25,000 MTCO<sub>2e</sub>. Section 95130 of the reporting regulation currently indicates that reporting entities subject to reporting under section 95101 which are not eligible for abbreviated reporting must obtain third-party verification services. This means facilities subject to the no emission threshold reporting requirements of section 95101 must have their emissions data reports verified even if their emissions are below 25,000 MTCO<sub>2e</sub>. It was not the intent of ARB staff to require facilities to obtain verification services if their emissions are below 25,000 MTCO<sub>2e</sub>. The proposed change removes this language and clarifies that only facilities subject to section 95103(f) (emissions greater than or equal to 25,000 MTCO<sub>2e</sub>) are subject to the verification requirements. This revision will provide a substantial cost savings to reporting entities in these sector categories.

### *No Action Alternative.*

If this change was not made, some facilities with emissions below 25,000 and even some below 10,000 MTCO<sub>2e</sub> would be required to have their report verified by a third-party verifier. This requirement for small facilities would not be consistent with the intent of the verification requirements and would result in added costs for the affected facilities. For this reason, ARB staff chose to reject this alternative.

### *Harmonization with U.S. EPA Alternative.*

The U.S. EPA GHG reporting rule does not address third party verification requirements; therefore the analysis for this alternative is identical to the “No Action” alternative addressed above.

## **H. Alternatives to Proposed Definition Amendments**

In proposing the revisions to the reporting regulation described in this report, modifications, including additions, deletions, and revisions to existing defined terms, were necessary to ensure consistent and clear interpretation of terms used in the reporting, cap-and-trade, and fee regulations.

### *No Action Alternative: No Modifications to the Definitional Section of the Reporting Regulation.*

Currently, the terms of the existing reporting regulation are included in the extant provisions of the regulation. If ARB did not adopt the revisions to the definitions as proposed in this rulemaking, the existing definitions would not allow for an accurate understanding or interpretation of the revised substantive and procedural provisions described herein. As such, ARB staff has rejected the “no action” alternative in order to ensure correct interpretation of regulatory terms, including those now proposed for explicit listing within the reporting regulation that were formerly incorporated by reference from the U.S. EPA reporting rule.

*No Action Alternative: No Modifications to Definition Section of Fee Regulation.*

The fee regulation contains terms which are generally consistent with those in the reporting regulation. ARB staff has strived to maintain consistent definitions for similar terms across its regulatory programs. If amendments to the definition section of the fee regulation are not made in conformance with the proposed revisions to the reporting regulation, entities subject to both regulations, as well as ARB, will not be able to consistently interpret identical terminology. As such, ARB staff has rejected this alternative in favor of proposing conforming amendments to the definition section of the fee regulation.

*No Action Alternative: No Modifications to Definition Section of Cap-and-Trade Regulation.*

The cap-and-trade regulation contains terms which are generally consistent with those in the reporting regulation. ARB staff has strived to maintain consistent definitions for similar terms across its regulatory programs. If amendments to the definition section of the cap-and-trade regulation are not made in conformance with the proposed revisions to the reporting regulation, entities subject to both regulations, as well as ARB, will not be able to consistently interpret identical terminology. As such, ARB staff has rejected this alternative in favor of proposing conforming amendments to the definition section of the cap-and-trade regulation.



## **IV. ENVIRONMENTAL IMPACTS OF THE REGULATION**

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### **A. Introduction**

This chapter provides an environmental analysis for the proposed regulatory amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, the AB 32 Cost of Implementation Fee Regulation, and the Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms. Based on ARB's review, staff has determined that implementation of the proposed amendments would not result in any significant or potentially significant adverse impacts on the environment. This analysis provides the basis for reaching this conclusion. This section of the staff report also discusses the environmental benefits resulting from implementation of the proposed regulatory amendments.

### **B. Environmental Review Process**

ARB is the lead agency for the proposed regulatory amendments and has prepared this environmental analysis pursuant to its regulatory program certified by the Secretary of the Natural Resources Agency (14 CCR 15251(d); 17 CCR 60005-60007). In accordance with Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA), public agencies with certified regulatory programs are exempt from the requirements for preparing environmental impact reports, negative declarations, and initial studies (14 CCR 15250). As required by ARB's certified regulatory program and the policy and substantive requirements of CEQA, ARB has prepared an assessment of the potential for significant adverse and beneficial environmental impacts associated with the proposed regulation and a succinct analysis of those impacts (17 CCR 60005(b)). This environmental analysis is included in the Staff Report: Initial Statement of Reasons (ISOR) prepared for the rulemaking (17 CCR 60005). The resource areas from the CEQA Guidelines Environmental Checklist were used as a framework for assessing the potential for significant impacts (17 CCR 60005(b)).

If comments received during the public review period raise significant environmental issues, staff will summarize and respond to the comments in writing. The written responses will be included in the Final Statement of Reasons (FSOR) for the regulation. Prior to taking final action on any proposed action for which significant environmental issues have been raised, the decision maker shall approve the written responses to these issues (17 CCR 60007(a)). If the regulation is adopted, a Notice of Decision will be posted on ARB's website and filed with the Secretary of the Natural Resources Agency for public inspection (17 CCR 60007(b)).

### **C. Prior Environmental Analyses**

The Regulation for the Mandatory Reporting of Greenhouse Gas Emissions was originally developed pursuant to the California Global Warming Solutions Act of 2006 (AB 32), and became effective on January 1, 2009 (ARB MRR 2007). In 2010, ARB

proposed additional revisions in order to support a California greenhouse gas (GHG) cap-and-trade program and to harmonize with the U.S. Environmental Protection Agency (U.S. EPA) federal mandatory GHG reporting requirements contained in Title 40, Code of Federal Regulations, Part 98. The 2010 revisions became effective on January 1, 2012 (ARB MRR 2010). The environmental analyses in the prior Staff Reports for the initial regulation and its 2010 revisions concluded that the regulation would not result in any significant environmental impacts.

The AB 32 Cost of Implementation Fee Regulation became effective on July 17, 2010 (COI 2010). Revisions to the Fee Regulation were approved by the Board in October 2011, and are scheduled to be submitted to the Office of Administrative Law by August 2012 (COI 2012). The environmental analyses in the initial staff report and subsequent revisions concluded that the regulation would not result in any significant environmental impacts (COI 2012 SR).

The California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms became effective on January 1, 2012 (C&T 2011). The environmental analysis in the initial staff report concluded that the covered entities' compliance with California's cap-and-trade regulation would result in beneficial impacts to air quality through reductions in emissions, including GHGs, criteria pollutants, and toxics, in addition to beneficial impacts to energy demand. It further concluded that the regulations would result in less-than-significant impacts or no impacts to aesthetics, agricultural and forest resources, hazards, land use, noise, employment, population and housing, public services, recreation, transportation and traffic, and utilities/service systems. It concluded there could be potentially significant adverse impacts to biological resources, cultural resources, geology/soils and minerals, and hydrology/water quality largely due to construction activities for facility-specific projects. Although the potential for adverse localized air quality impacts were found to be unlikely, ARB conservatively considered them potentially significant. The environmental analysis concluded that implementation of offset projects under California's protocols would also result in beneficial impacts to GHG emissions and no adverse impacts, or less-than-significant impacts, in all resource areas except for the following: California's Livestock Protocol has the potential for significant adverse impacts to odors, cultural resources, noise, and transportation/traffic; the Urban Forestry Protocol has the potential for significant adverse impacts to cultural resources; the Forest Protocol has the potential for significant adverse impacts to biological resources and land use.

## **D. Proposed Amendments**

### **1. Description**

The proposed regulatory amendments are described in detail in Chapters II and VII of this Staff Report. These changes clarify and amend existing requirements and definitions in the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions and provide conforming definitional changes to the AB 32 Cost of

## Implementation Fee Regulation and the Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms.

### 2. Methods of Compliance

In order to comply with the proposed amendments, the regulated community would collect and submit the required data in the required timeframe, as required by the regulations.

### **E. Environmental Impacts**

Based on ARB's review of the proposed regulatory amendments, staff concludes that the amendments would not result in any significant or potentially significant adverse impacts on the environment because compliance with the proposed amendments would not result in any physical change to the existing environment. The amendments consist of administrative and procedural changes that affect only program administration and contents of databases, and do not involve or result in any new development, modifications to buildings, or new land use designations. Further, compliance with the proposed amendments would not involve any activity that would involve or affect aesthetics, air quality, agricultural and forestry resources, biological resources, cultural resources, geology and soils, greenhouse gases, hazardous material, hydrology and water quality, land use planning, mineral resources, noise, population and housing, public services, recreation, or traffic and transportation because they would not require any action that could affect these resources.

No discussion of alternatives or mitigation measures is necessary because no significant or potentially significant adverse environmental impacts were identified.

## V. ENVIRONMENTAL JUSTICE

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State law defines environmental justice as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Senate Bill 115, Solis; Stats 1999, Ch. 690; Government Code § 65040.12(c)). The Board approved Environmental Justice Policies and Actions on December 13, 2001, to establish a framework for incorporating environmental justice into the ARB's programs consistent with the directives of State law. The policies subsequently developed apply to all communities in California, but they recognize that environmental justice issues have been raised more in the context of low income and minority communities, which sometimes experience higher exposures to some pollutants as a result of their proximity to multiple sources of air pollutants.

Actions of the ARB, local air districts, and federal air pollution control programs have made substantial progress towards improving the air quality in California. However, some communities continue to experience higher exposures than others because of the cumulative impacts of air pollution from multiple sources.

Adoption and implementation of the proposed amendments to the reporting regulation, and the conforming amendments to the definition sections of the fee regulation and the cap-and-trade regulation, will have no negative environmental impacts on environmental justice communities. Facilities throughout the state will be required to report their GHG emissions, with the focus on those facilities producing the highest levels of emissions. The amended regulations continues to include mandatory reporting for over 90 percent of the stationary source GHG emissions in California, including specified combustion, process, and fugitive emissions. Emissions information from these reports will be made available to the public.

## VI. ECONOMIC IMPACTS

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The economic impacts analysis shown in this staff report was conducted to meet current legal requirements under the Administrative Procedure Act (APA). Section 11346.3 of the Government Code requires that, in proposing to adopt or amend any administrative regulation, State agencies shall assess the potential for adverse economic impact on California business enterprises and individuals. The assessment shall include a consideration of the impact of the proposed or amended regulation on the ability of California businesses to compete with businesses in other states, the impact on California jobs, and the impact on California business expansion, elimination, or creation.

In this chapter, ARB staff provide the estimated costs to businesses and public agencies to comply with staff's proposed amendments to the mandatory California greenhouse gas (GHG) reporting requirements (the reporting regulation) and the conforming amendments to the definition sections of the AB 32 Cost of Implementation Fee Regulation (the fee regulation) and California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (the cap-and-trade regulation). The amendments to the reporting regulation will affect approximately 94 reporting entities in the state, including 83 industrial facilities, 2 fuel suppliers, and 9 electricity generating facilities operated by local government. Given that various facilities are under common ownership, this equates to approximately 43 private businesses and 9 local government entities. The cost estimates are based on approximations of the amount of time required to comply with the amended provisions, associated labor wage rates, costs of any fuel sampling and analysis, and verification costs. The above approximations provide a general picture of the economic impacts that typical businesses subject to the proposed amendments might encounter. ARB staff recognizes individual companies may experience different impacts than those projected here, depending on various factors such as complexity of operation, types of emission units on-site, and existing compliance practices. Some facilities may experience an incremental cost increase, while some may experience an incremental cost saving as a result of the proposed amendments.

Overall, most affected businesses that may incur a cost are among the larger businesses in California. ARB staff does not expect these businesses to be affected adversely by the costs of the proposed amendments. Certain facility operators with emissions less than 25,000 MTCO<sub>2</sub>e will see an incremental saving. As a result, staff does not expect a noticeable change in employment, business creation, expansion, or elimination, or business competitiveness in California.

In performing this analysis, and given that the conforming amendments to the definition sections of the fee regulation and the cap-and-trade regulation do not modify the substantive or procedural requirements of reporting entities subject to those two regulations, staff does not expect any economic impacts to any private or public entity resulting from the conforming definitional amendments to those two regulations. As

such, this chapter focuses primarily on an analysis of the potential economic impacts which may result from the amendments to the reporting regulation.

## **A. Summary of Costs and Economic Impacts**

There are three primary costs associated with complying with the proposed amendments to the reporting regulation:

- 1) Emission reporting compliance costs, including costs incurred for monitoring, sampling, recordkeeping activities and the preparation of an annual emissions data report;
- 2) Costs for third-party verification of submitted GHG emissions data, when required; and
- 3) Costs to the State to administer the reporting program, including modifying the existing web-based reporting tool and data system to incorporate the proposed amendments.

In developing the amendments to the GHG reporting regulation, staff has attempted to minimize costs, while complying with the specific reporting requirements of AB 32 and collecting cap-and-trade quality data. The amended regulation will have noticeable cost impacts on only a subset of all the businesses currently subject to the extant California GHG reporting regulation. Other businesses that are already subject to the regulation will not experience a noticeable change in cost of compliance. In addition, certain facilities that are subject to the federal and State reporting programs regardless of the emission level (i.e. facilities with emission source categories listed in 40 CFR Part 98 Table A-3) that have emissions less than 25,000 MT of CO<sub>2</sub>e will be exempted from third-party verification requirement, resulting in a cost saving. These include several electricity generating facilities operated by local government entities.

For all reporting entities state-wide, ARB staff estimates that the amended GHG reporting requirements will lead to a net saving of \$158,000 per year for all affected entities, including businesses, local, and state government combined. The initial costs for training and planning incurred during the first year only are anticipated to be \$50,000 statewide. These equate to a total net saving of \$1.2 million for all affected entities state-wide over the course of 10 years, which can be further broken down to a saving of \$871,000 over 10 years for private businesses, a saving of \$356,600 for local government entities, and no cost impacts for state government entities. ARB staff anticipates costs to diminish over time as facilities incorporate GHG reporting into their normal business practices.

The amendments are expected to result in an annual cost saving of approximately \$4,900 (\$2,500-\$7,000) per year for nine local government entities operating electricity generating facilities that are subject to the federal Acid Rain Program (40 CFR Part 75) (U.S. EPA Part 75 2009). The proposed rule amendments are not expected to affect any state government entities. The ranges of the estimated costs are wide because of the substantial variability in potential reporting and verification costs among facilities subject to the regulation.

Summaries of state-wide incremental costs are presented in Tables VI-1a and VI-1b.

**Table VI-1a. Summary of State-Wide Incremental Costs for Private Businesses**

Industry Sector	No. of Companies	No. of Reporting Entities <sup>3</sup>	Cost Incurring Sector		Cost Saving Sector	
			10-Year Cost <sup>1</sup> (\$1000)	% of the Total Cost	10-Year Cost <sup>1,2</sup> (\$1000)	% of the Total Saving
Electricity Generating Facility (Privately Owned)	8	26			(1,030.0)	83.1%
Cement Production	1	1			(70.0)	5.6%
Glass Production	3	3	21.6	5.85%		
Iron and Steel Production	1	1	11.65	3.15%		
Nitric Acid Production	1	1			(70.0)	5.6%
Oil & Gas Production	25	49	259.0	70.20%		
Petroleum Refineries	1	1			(70.0)	5.6%
Pulp and Paper Manufacturing	1	1	11.65	3.15%		
Fuel Suppliers-CNG/LNG Importers	2	2	65.1	17.65%		
<b>SUM</b>	<b>43</b>	<b>85</b>	<b>369</b>	<b>100%</b>	<b>(1,240)</b>	<b>100%</b>

<sup>1</sup>. All cost numbers are in 2011 dollars. Future costs are discounted at 5%.

<sup>2</sup>. Numbers in parenthesis denote a cost saving.

<sup>3</sup>. As defined in the GHG reporting regulation, a "reporting entity" is a facility, a supplier of fuel or CO<sub>2</sub>, or an electric power entity.

**Table VI-1b. Summary of State-Wide Incremental Saving for Local Government Entities (2011 \$1,000)**

	No. of Local Government Entities	No. of Facilities	Annual Cost (\$1000) <sup>1</sup>	10-Year Cost (\$1000) <sup>1</sup>
Electricity generating facilities operated by local government	9	9	(44)	(356.6)

<sup>1</sup>. Numbers in parenthesis denote a cost saving.

The proposed amendments will not require additional ARB funding. The amendments will be implemented using existing ARB staffing. Any ARB fiscal expenses needed for implementing the proposed amendments are already accounted for in the current operational budget that was approved as a part of the previous rule amendments.

Most businesses affected by the proposed amendments are the larger businesses in California, typically with millions of dollars in annual revenue. The cost of this amendment is not expected to have a significant material impact on these businesses. As a result, ARB staff does not expect a noticeable change in employment, business creation, elimination or expansion, or business competitiveness in California due the reporting requirements. ARB staff also expects no job or business losses due to the reporting regulation since most of the job creation associated with GHG reporting was gained following implementation of the original rule in 2007. Although it is not quantified, some technical consultants who will assist facilities in meeting the amended regulatory requirements may see a business expansion as the result of the proposed rule amendments.

Although the economic impacts of these amendments are not expected to have a direct impact on the health and welfare of California residents, worker safety, and the state's environment, the anticipated benefits of the amendments described in Chapter II may have indirect benefits on the health and welfare of California residents, on worker safety, and on the state's environment.

All the cost estimates provided in this chapter are given in 2011 dollars. The information, assumptions and methodologies used to determine compliance costs are summarized in Section C of this chapter.

## **B. Legal Requirements for Fiscal Analysis**

Section 11346.3 of the Government Code requires that, in proposing to adopt or amend any administrative regulation, State agencies must assess the potential for adverse economic impacts on California business enterprises and individuals, including the ability of California businesses to compete with businesses in other states. The assessment must also include the potential impact of the regulation on California jobs, business expansion, elimination or creation, and the ability of California business to compete with businesses in other states.

Also, State agencies are required to estimate the costs or savings to any State or local agency and school district in accordance with instructions adopted by the Department of Finance. The estimate shall include any non-discretionary cost or savings to local agencies, and the cost or savings in federal funding to the State.

Health and Safety Code section 57005 requires ARB to perform an economic impact analysis of submitted alternatives to the proposed regulation before adopting any major regulation. A major regulation is defined as a regulation that will have a potential cost to California business enterprises in an amount exceeding ten million dollars in any single year. ARB staff has determined that the amendments to the proposed regulations are not a major regulation as defined above.

The following is a description of the methodology used to estimate costs, as well as ARB staff's analysis of the economic impact on California businesses and State and local agencies.

## **C. Analysis of Estimated Costs for Compliance**

As a part of developing the regulatory amendments, ARB staff estimated the costs of compliance for facilities subject to the amendments. Briefly, the methodology for estimating costs for facilities and entities included:

- Establishing the baseline for the cost estimation, which is the cost of compliance to meet the requirements of the extant regulations;
- Categorizing affected reporting entities, which include those currently subject to reporting and those that may be potentially subject to reporting as a new reporter



- under the proposed amendments;
- Identifying the new tasks that each facility type will need to perform to comply with the amended regulation, as well as the existing tasks that each facility type will no longer need to perform;
  - Evaluating the incremental costs associated with the changes in tasks that are expected to be performed by the reporting entities in monitoring and sampling fuel, preparing emissions reports, creating or updating GHG monitoring plans, developing GHG emission estimates, and providing staff to prepare and submit the emissions reports. The labor costs are calculated by multiplying the estimated time requirements for performing each task by a range of wage rates from the U.S. Bureau of Labor Statistics (BLS 2011);
  - Estimating the incremental costs for reporting facilities to contract with third-party verifiers to confirm that the facilities performed their emission estimates in compliance with the GHG reporting regulation;
  - Applying the appropriate costs to each facility type to develop overall cost ranges for program implementation;
  - Determining whether any affected facilities are operated by local or state government entities; and
  - Analyzing costs to small businesses.

The methodology for estimating incremental costs is described in the following subsections.

## **1. Scope of Cost Estimation**

### ***Baseline and Incremental Cost***

This analysis focuses on the net difference (or increment) between two cost estimates:

- baseline compliance costs for GHG reporting under extant regulations, and
- additional compliance cost or saving under the proposed amendments.

The incremental costs or saving estimated in this analysis do not represent the total costs to comply with GHG reporting regulations, but only the difference between the cost of GHG reporting with and without the proposed amendments. The net incremental cost combines both cost increases and cost savings.

### ***Amended Rule Provisions with Noticeable Change in Costs***

Many of the amended rule provisions provide clarifications to the rule requirements and do not lead to a noticeable change in cost. As mentioned previously, this is the case for the proposed conforming amendments to the definition sections of the fee regulation and the cap-and-trade regulation, which are not expected to have any economic impact on the entities covered by those regulations. Staff identified four proposed rule provisions in the reporting regulation that may lead to a noticeable change in costs.

ARB staff has estimated the economic impacts for each of these provisions in this analysis:

- Inclusion of process emission reporting for abbreviated reporters
- Exempting facilities listed in section 95101(a)(1)(A) with less than 25,000 MTCO<sub>2</sub>e of emissions from third-party verification requirements
- Inclusion of reporting imports of compressed and liquefied natural gas
- Additional monitoring and reporting requirements for oil and gas production entities

### ***Cost Categorization of Affected Facilities***

To estimate incremental costs incurred by reporting entities to comply with the proposed amendments, ARB staff categorized the affected entities by how they are affected by the combinations of amended rule provisions. To the extent possible, staff categorized the reporting entities into facility types that will be affected by the amendments in different ways, as some existing tasks are no longer required and new compliance tasks become effective under the amended rule.

Different types of facilities within the same industry sector will see different incremental impacts from the proposed rule amendments. In some cases, one industry sector can often be categorized into several facility types, with each expecting to see different incremental impacts. For example, the oil and gas sector is further categorized into 10 facility types by their industry segments and size: offshore production; onshore production- small, medium, large, very large; natural gas processing; natural gas transportation/compression; natural gas underground storage; natural gas distribution; existing abbreviated reporter; and new abbreviated reporter. In contrast, among all the facilities in the petroleum refineries sector that are subject to the GHG reporting regulation, only one facility may be potentially affected by the proposed amendments.

In total, ARB staff categorized the affected facilities into 21 facility types. The facility categorizations are listed in Table VI-2. For each facility category, ARB staff reviewed any changes in compliance tasks before and after the effective date of the proposed amendments and estimated the incremental costs of compliance for these tasks. The cost to perform a new task represents an incremental cost increase, while the cost to perform a current task that is no longer required under the amended rule represents an incremental cost saving (or a negative cost number). The following subsections describe the methodology that staff employed for the cost estimation.

**Table VI-2. Facility/Fuel Supplier Categorization**

Facility Type / Fuel Supplier Type	No. of Affected Reporting Entities <sup>1</sup>
Electricity Generating Facility, Part-75, <25K MTCO <sub>2</sub> e, Private Entities	26
Electricity Generating Facility, Part-75, <25K MTCO <sub>2</sub> e, Public Agencies	9
Cement Production, <25K MTCO <sub>2</sub> e, existing reporter	1
Glass Production, <25K MTCO <sub>2</sub> e, existing reporter	2
Glass Production, <25K MTCO <sub>2</sub> e, new reporter	1
Iron and Steel Production, <25K MTCO <sub>2</sub> e, new reporter	1
Nitric Acid Production, <25K MTCO <sub>2</sub> e, existing reporter	1
Oil & Gas: Onshore production- small	10
Oil & Gas: Onshore production- medium	11
Oil & Gas: Onshore production- large	3
Oil & Gas: Onshore production- very large	2
Oil & Gas: Natural gas processing	4
Oil & Gas: Natural gas transportation/compression	9
Oil & Gas: Natural gas underground storage	2
Oil & Gas: Natural gas distribution	3
Oil & Gas: <25K MTCO <sub>2</sub> e, existing reporter	6 <sup>2</sup>
Oil & Gas: <25K MTCO <sub>2</sub> e, new reporter	5
Petroleum Refineries, <25K MTCO <sub>2</sub> e	1
Pulp and Paper Manufacturing, <25K MTCO <sub>2</sub> e, new reporter	1
Importer of CNG/LNG- existing reporter	1
Importer of CNG/LNG- new reporter	1
<b>TOTAL AFFECTED REPORTERS</b>	<b>94<sup>2</sup></b>
<b>Private Industry</b>	<b>85<sup>2</sup></b>
<b>Local Government</b>	<b>9</b>
<b>State Government</b>	<b>0</b>

<sup>1</sup> As defined in the GHG reporting regulation, a “reporting entity” is a facility, a supplier of fuel or CO<sub>2</sub>, or an electric power entity.

<sup>2</sup> The 6 facilities in the “Oil & Gas: <25K MTCO<sub>2</sub>e, existing reporter” category are already accounted for among the other eight categories listed above it. However, a separate category must be created for it for a separate set of cost estimation due to the anticipated cost saving associated with the exemption from third-party verification requirements. Therefore, the 6 facilities are shown as duplicates in this table and are not added to the total facility count.

## 2. Costs of Performing Compliance Tasks

Staff utilized a method similar to an expert elicitation process to estimate the cost components, including labor costs (associated with monitoring, sampling, recording, training, and planning), fuel analysis cost, equipment cost, and verification cost, based on staff’s experience in providing support to reporting entities and verification bodies. The method for estimating each cost component is described below.

## ***Number of Affected Facilities and Companies***

For industrial facilities, cost estimation was performed on a facility basis, not on a company basis. This is because the rule applicability of the GHG reporting regulation is determined on a facility basis. For this reason, the number of companies impacted by the regulation is smaller than the number of facilities impacted because many impacted companies operate multiple facilities. On the other hand, the reporting boundary and regulation applicability for fuel suppliers and electric utilities is determined on a company basis in the reporting regulation. Therefore, the cost analysis for these types of facilities was done on a company basis.

ARB staff leveraged the inventory data collected under the existing GHG reporting program (2008-2011 data years) (ARB GHG Summary 2008-2011) to determine the number of facilities affected by each amended rule provision. Using the facility types in Table VI-2, their respective characteristics, and other knowledge about the facilities that staff acquired through assisting reporters and verifiers, staff analyzed the inventory data and counted the number of potentially affected facilities. The identified affected facilities are grouped by their parent company to determine the number of affected businesses in each sector. The numbers of facilities were multiplied by the estimated incremental costs per facility to obtain the sector-wide and program-wide cost impacts. The average cost per company was calculated by dividing the total sector-wide cost by the estimated number of companies in the sector.

## ***Labor Costs***

*Estimation of Labor Hours.* Since the inception of the California GHG reporting program in 2008, ARB staff has been working closely with reporting entities in providing technical support for emission calculations, providing training on the rule requirements and the use of the reporting tool, assisting reporters in preparing and submitting electronic GHG reports, and noting informal feedback from reporters on the time requirements of GHG reporting. ARB staff also works closely with the accredited verifiers to ensure the quality of GHG reports by observing the on-site practices of reporting entities (observations took place during verification site visits), and collecting informal feedback provided by verifiers and reporters regarding the expenses of GHG reporting and verification. The knowledge gained by ARB staff's direct involvement with reporters and verifiers over the last three years has given staff an understanding of the cost and workload of implementing this regulation. With this knowledge, staff has estimated the range of costs and hours spent on the following compliance tasks:

- Becoming familiar with rule requirements and the use of the reporting tool, preparing and implementing GHG monitoring plan, and training facility staff in performing compliance tasks;
- Collecting and analyzing fuel samples, keeping records of fuel analytical data, and calculating emissions at various periodic sampling frequencies;

- Monitoring proper operation of fuel or feedstock measurement equipment and recording consumption data;
- For suppliers of fuels, gathering data required for GHG reporting from their existing database system;
- For oil and gas facilities, complying with the additional monitoring, sampling, testing, and reporting requirements;
- For each applicable sector, performing additional process emissions calculations called for by the respective sections of the proposed amended regulation;
- Entering data, performing quality assurance (QA) checks, and certifying and submitting GHG report in the reporting tool;
- Coordinating, preparing records for, and hosting verification site visits; and
- Following-up on verification and revising the GHG emissions data report as needed.

ARB staff estimated the incremental time requirement of different compliance tasks that are expected for the 21 facility types. Most facility types are expected to see only 1 to 4 incremental tasks listed above as the result of the amendments, although they may already be performing most of these tasks under the existing regulations.

*Cost of Reporting.* For the purpose of satisfying the requirements in Section 11346.3 of the Government Code, ARB staff has assessed the labor costs related to reporting emission data (“cost of reporting”) as consisting of the costs associated with recordkeeping, submitting data through the web-based reporting tool system, and certifying and submitting the report, which is a subset of the total reporting costs. Costs for training and planning, fuel sampling and testing, emission monitoring, emission calculation, and third-party verification are not included in the “cost of reporting.” “Cost of reporting” and other labor costs are all estimated using the methodology described in this subsection.

Staff identified the facility types that can be expected to see a noticeable incremental “cost of reporting” and estimated the labor costs associated with the three “cost of reporting” compliance tasks. The average “cost of reporting” is calculated as the sum of the weighted-averages of the costs for each of the three compliance tasks, weighted by the number of facilities in each facility type. The facility types are mapped into the categories shown below, where the incremental costs of reporting are assumed to be similar among the facility types in each category shown below. (See Table VI-2 for facility types characterization.) In this case, cost per facility is the same as cost per company because the affected companies operate only one facility in the affected facility types. There is a one-to-one correspondence between “facility” and “company.”

Existing reporters with fuel combustion emissions in the 10,000-25,000 MTCO<sub>2</sub>e range, which may be affected by the proposed changes:

- Cement production, <25K MTCO<sub>2</sub>e, existing reporter (1 reporter)
- Glass production, <25K MTCO<sub>2</sub>e, existing reporter (2 reporters)
- Nitric acid production, <25K MTCO<sub>2</sub>e, existing reporter (1 reporter)
- Oil & gas production, <25K MTCO<sub>2</sub>e, existing reporter (6 reporters)

- Petroleum refineries, <25K MTCO<sub>2</sub>e (1 reporter)

Potential new abbreviated reporters, which may be affected by the proposed changes:

- Glass production, <25K MTCO<sub>2</sub>e, new reporter (potentially 1 reporter)
- Iron & steel production, <25K MTCO<sub>2</sub>e, new reporter (potentially 1 reporter)
- Oil & gas production, <25K MTCO<sub>2</sub>e, new reporter (potentially 5 reporters)
- Pulp & paper manufacturing, <25K MTCO<sub>2</sub>e, new reporter (potentially 1 reporter)

Importers of CNG/LNG, which may be affected by the proposed changes:

- Importer of CNG/LNG, existing reporter (potentially 1 reporter)
- Importer of CNG/LNG, new reporter (potentially 1 reporter)

Facility Staff Time in Support of Verification. ARB staff estimated different levels of time required to better represent the efforts needed for a facility based on the complexity of verification-related tasks. For example, a moderately complex facility such as a nitric acid production facility is likely to spend more time preparing for and hosting a verification site visit than a simple facility such as an electricity generation plant with only one natural gas-fired engine. ARB staff developed time requirement estimates for a simple and moderately complex facility for preparing and hosting the verification site visit, and applied them to each facility type. The total labor costs for performing each compliance task were estimated by multiplying the estimated time requirement of the task by a range of wage rates (in \$/hour) for the type of facility staff that typically performs the task.

Wage Rate by Staff Class. ARB staff assigned each individual task to a corresponding staff classification. Staff classifications include administrative staff, technical staff, managerial staff, and lawyers. The technical staff classification is further divided: 1) technical staff 1 may include junior engineers, scientists, senior operators, and senior technicians; and 2) technical staff 2 may include mid- to senior- level engineers or compliance specialists.

The U.S. Bureau of Labor Statistics (BLS) 2011 Occupational Employment and Wage Estimates data (BLS 2011) for the state of California are used to construct ranges of wage rates. The wage data for several similar occupations that are likely to perform the compliance tasks are combined together to form the 5 staff classifications in the analysis. For example, the technical staff 2 wage rate range is a composite of wage rates of chemical, civil, environmental, industrial, mechanical, and health and safety engineering occupations. The minimum 25th percentile, the maximum 75th percentile, and the average of the median wage rate values in the BLS data set are used as low, high, and mid estimates, respectively.

To account for the total labor costs incurred by the reporting entities, which may include employee benefits and overhead costs, staff applied the same adjustment factors that U.S. EPA used in estimating the economic impacts of the federal GHG reporting program (USEPA 2009a). These adjustment factors are a “benefit loading factor” of 0.5 and an “overhead loading factor” of 0.17. In other words, the ranges of wage rates

extracted from BLS data are scaled up by a factor of 1.67 to obtain the final “loaded wage rate” numbers for the labor cost analysis. The resulting loaded wage rates for the 5 facility staff classes in 2011 dollars are summarized in Table VI-3.

**Table VI-3. Wage Rates Used to Estimate Labor Costs**

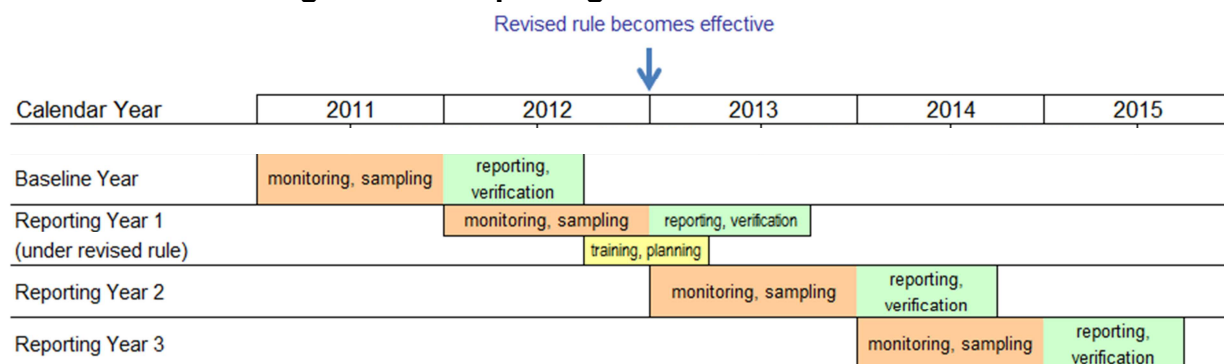
Facility Staff Class	Loaded Wage Rate (2011\$/ hour)		
	Low	Mid	High
Administrative	21.31	24.03	28.44
Technical 1	34.89	49.07	62.09
Technical 2	52.39	71.27	79.99
Managerial	75.15	91.97	114.86
Lawyer	81.41	114.68	147.95

To estimate the labor costs of each facility type that will be affected by the amended rule in different ways, the labor costs of the applicable compliance task are summed to obtain the total incremental labor costs of the amended GHG reporting rule. For the current tasks that will no longer be required under the amended rule, the costs for performing those tasks are subtracted (or represented by a negative value as cost saving).

***Annual Cost Summed by Reporting Cycle vs. by Calendar Year***

To keep cost accounting on a yearly basis, ARB staff summed the costs by the yearly reporting cycle, which does not coincide with one calendar year. For example, the labor costs for recording fuel use and collecting/analyzing fuel samples are expended during calendar year 1. Labor costs for performing emission calculations, reporting and verification of the year 1 typically occur in calendar year 2. In addition, during calendar year 2, there are new costs for collecting data for the next reporting cycle. Therefore, each calendar year has both cost for the collection of data and the cost for reporting and verification, which makes up the reporting cycle. For purposes of this analysis, each reporting cycle takes into account the collection and reporting and verification costs. Figure VI-1 graphically illustrates the overlap of “reporting year” and “calendar year.”

**Figure VI-1. Reporting Year and Calendar Year**



### ***Equipment Costs***

Staff does not anticipate that the affected facilities will need to purchase new equipment to comply with the amended rule requirements. They should already have the necessary equipment in place for GHG reporting due to the existing California reporting regulation, other federal or local requirements, or normal industry practices.

### ***Cost of Third-Party Verification Service***

In working closely with the accredited verifiers and collecting feedback informally provided by verifiers and reporters, ARB staff has compiled estimated ranges of verification service fees that reporting entities spent to comply with the existing verification requirements.

Using the ranges of verification service fees and the estimated time requirements for verifiers to perform specific verification-related tasks, staff estimated the likely ranges of verification service fees, which could either be an intensive verification or less-intensive verification. Most facilities will need to go through an intensive verification at least once every 3 years, and it is assumed that for the other 2 years, approximately half of the facilities will have no major issues to warrant an intensive verification and a less-intensive verification will suffice.<sup>1</sup> Staff estimated the ranges of verification service fees and the time requirements for facility staff to perform various verification-related tasks during both intensive and less-intensive verifications, and applied these costs to each facility type that is expected to see an incremental change to verification-related costs. The annual verification cost in the on-going years is a composite of the cost expected for a typical intensive verification year and a typical less-intensive verification year, where each is weighted equally at 50%.

### ***New Reporters Subject to Process Emissions Reporting***

The existing regulation requires facilities with total emissions of more than 25,000 MTCO<sub>2e</sub> (including combustion, process, vented, and fugitive emissions) to report process emissions, but does not require those that are less than 25,000 MTCO<sub>2e</sub> to report process emissions. The proposed amendment requires facilities in the sectors with specified process emissions, but that have less than 25,000 MTCO<sub>2e</sub> of total emissions, to begin reporting process emissions annually. The incremental costs per affected facility are estimated using the approach described in the previous subsections.

To determine the number of potentially affected facilities, staff reviewed an inventory of emission sources (ARB CEIDARS 2007) compiled by ARB staff using information requested and obtained from the local air quality management districts and air quality control districts. Although it can provide a general sense of the number of potentially affected entities, this inventory may not be a precise projection of which entities may be

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<sup>1</sup> A site visit and new contract establishment is not required for less-intensive verification, which reduces labor costs associated with verification by approximately 40%-50% when compared to a year in which intensive verification is needed.



affected. Each potentially affected entity must conduct a GHG emission inventory to determine their applicability to the amended regulation. ARB staff estimated that there may potentially be between 0 to 15 (middle value 8) additional industrial facilities newly subject to GHG reporting due to this proposed provision, and these new reporters may use the abbreviated reporting option since their emissions do not exceed the 25,000 MTCO<sub>2</sub>e threshold.

### ***Oil and Gas Sector***

The upstream oil and gas industry in California is comprised of the following five industry segments (as defined by U.S. EPA):

- Onshore oil and natural gas production – 25 reporters
- Natural gas processing facilities – 5 reporters
- Natural gas transmission/compression facilities – 9 reporters
- Natural gas underground storage facilities – 2 reporters, and
- Natural gas distribution systems – 3 reporters

Incremental costs for both equipment/analysis and personnel time were estimated for each of these industry segments for each of the eight GHG calculation methodologies where ARB reporting requirements were different for those of the U.S. EPA. The remaining ten GHG emission calculation methodologies contained in this section do not require additional expenditures or personnel time.

Estimates were done for the initial year of implementation when first time costs related to set-up and equipment purchases may be larger than those in succeeding years. The additional time requirements (in person hours) were summed and multiplied by labor wage rate (BLS 2011) and the number of affected California reporters to arrive at the overall first year and subsequent year personnel cost differential.

### ***State and Local Government***

GHG reporting as specified is mandatory for any facility or entity that meets the regulation's applicability requirements. Therefore, some public agencies are subject to reporting, such as certain county or city owned sewage treatment works or landfills, local municipal utility districts or electric retail providers, some State universities, and other State facilities that emit more than 10,000 metric tons of CO<sub>2</sub>e from stationary combustion sources. The Department of Water Resources is also expected to have a reporting requirement related to imported power.

Staff has determined that the only amended rule provision that may affect public entities is the exemption of Part 75 facilities with less than 25,000 MTCO<sub>2</sub>e of emissions from third-party verification requirements. Staff reviewed the list of currently reporting entities and identified 9 electricity generating facilities operated by local government entities that belong to this category. No state agency is expected to see a noticeable incremental cost

or saving from the proposed amendments. The nine electricity generating facilities operated by local agencies are listed in Table VI-4.

**Table VI-4. List of Electricity Generating Facilities Operated by Local Government Entities That May Potentially be Exempt from Verification Requirements**

Facility Name
City of Anaheim, Combustion Turbine Generator
Imperial Irrigation District (IID), Niland Gas Turbine Plant
Modesto Irrigation District - Ripon Generation Station
Northern California Power Agency - Lodi Combustion Turbine Project No. 2
Pasadena Water and Power, Broadway
Redding Electric Utility - Redding Power Generation
Riverside Public Utilities - Riverside Energy Resource Center
City of Colton, El Colton LLC
Kings River Conservation District - Malaga Peaking Plant

Like their counterparts in the private sectors, publicly owned electricity generating facilities that emit less than 25,000 MT of CO<sub>2</sub>e are expected to see a cost saving from being exempt from verification requirements. Since the proposed exemption applies the same to affected facilities regardless of public or private ownership, the same cost applies to a local government-operated facility as to a generic facility in the “electricity generating facility, Part 75, <25K MTCO<sub>2</sub>e” category (see Table VI-2). To estimate the total costs to the affected local government entities, staff multiplied the expected incremental cost per facility for this category by 9 facilities, where the cost per facility was calculated using the approach described in the previous subsections. The cost estimation results are presented in Section D.

***Small Businesses***

Using the estimation techniques described below, ARB staff conservatively estimated there may be approximately 3 small business entities that may be affected by the proposed amendments to the regulation. The estimated numbers of affected small businesses entities by sector are summarized in Table VI-5 below.

*Small Business Description:* A small business, which is defined by the California Government Code Section 11342.610 (CGC 2012) as:

- (a) "Small business" means a business activity in agriculture, general construction, special trade construction, retail trade, wholesale trade, services, transportation and warehousing, manufacturing, generation and transmission of electric power, or a health care facility, unless excluded in subdivision (b), that is both of the following:

- (1) Independently owned and operated.

(2) *Not dominant in its field of operation.*

(b) *"Small business" does not include the following professional and business activities:*

- (1) *A financial institution including a bank, a trust, a savings and loan association, a thrift institution, a consumer finance company, a commercial finance company, an industrial finance company, a credit union, a mortgage and investment banker, a securities broker-dealer, or an investment adviser.*
- (2) *An insurance company, either stock or mutual.*
- (3) *A mineral, oil, or gas broker.*
- (4) *A subdivider or developer.*
- (5) *A landscape architect, an architect, or a building designer.*
- (6) *An entity organized as a nonprofit institution.*
- (7) *An entertainment activity or production, including a motion picture, a stage performance, a television or radio station, or a production company.*
- (8) *A utility, a water company, or a power transmission company generating and transmitting more than 4.5 million kilowatt hours annually.*
- (9) *A petroleum producer, a natural gas producer, a refiner, or a pipeline.*
- (10) *A manufacturing enterprise exceeding 250 employees.*
- (11) *A health care facility exceeding 150 beds or one million five hundred thousand dollars (\$1,500,000) in annual gross receipts.*

(c) *"Small business" does not include the following business activities:*

- (1) *Agriculture, where the annual gross receipts exceed one million dollars (\$1,000,000).*
- (2) *General construction, where the annual gross receipts exceed nine million five hundred thousand dollars (\$9,500,000).*
- (3) *Special trade construction, where the annual gross receipts exceed five million dollars (\$5,000,000).*
- (4) *Retail trade, where the annual gross receipts exceed two million dollars (\$2,000,000).*
- (5) *Wholesale trade, where the annual gross receipts exceed nine million five hundred thousand dollars (\$9,500,000).*
- (6) *Services, where the annual gross receipts exceed two million dollars (\$2,000,000).*
- (7) *Transportation and warehousing, where the annual gross receipts exceed one million five hundred thousand dollars (\$1,500,000).*

Estimation Methods: The California Employment Development Department Labor Market Information Division publishes data on the number of establishments by size category classified by the North American Industry Classification System (NAICS) (CEDD 2009).<sup>2</sup> This dataset contains estimated numbers of establishments that fall into nine “employment size categories” (e.g. number of establishments with “0-4 employees,” “50-99 employees,” “1000+ employees,” etc.) for NAICS sectors at the 2-digit or 3-digit level. The NAICS codes reported by the entities that are currently in the GHG reporting program are mapped to the 2-digit or 3-digit NAICS codes in the CEDD dataset. The size categories in CEDD data are then aggregated into two employment size categories: “less than 250 employees” and “greater than 250 employees.” The proportion of establishments that have less than 250 employees is calculated for each sector.

The estimated numbers of small business entities are calculated by multiplying the proportion of “less than 250 employees” establishments by the projected number of affected entities in each sector. These numbers are expected to overestimate the actual number of affected small businesses due to the following reasons. First, given that a business can own multiple establishments (or “facilities” in the context of GHG reporting), the actual number of affected businesses should be smaller than the number of affected establishments. Secondly, given that entities with high emissions tend to have higher outputs, leading to higher revenues, higher employment, and driving higher fuel consumption, the entities that exceed the reporting thresholds (of 25,000 MT of CO<sub>2</sub>e or 10,000 MT of CO<sub>2</sub>e) are less likely to meet the criteria of qualified small business. ARB staff anticipates that in reality, the proportions of “less than 250 employees” establishments should distribute unevenly at the different emissions levels (i.e. the “>25,000 MT of CO<sub>2</sub>e” group is less like to contain any small business entities than the “10,000 to 25,000 MT of CO<sub>2</sub>e” group or the “<10,000 MTCO<sub>2</sub>e” group), which determine the applicability of the regulation. The actual number of affected small businesses should be smaller than the estimates obtained using this approach.

Oil and Gas Production, Petroleum Refineries, and Fuel Suppliers: Per Section 11342.610(b)(3) and (9), any affected entities in the oil and gas production, petroleum refineries, and fuel suppliers sectors do not qualify for small business status regardless of their revenue and employment size. Therefore, there are no small business entities in these sectors.

Electricity Generating Facilities: Per Section 11342.610(b)(8), any electricity generating facilities and electric utilities that generate or transmit more than 4,500 MWh of electricity annually do not qualify for small business status. Staff analyzed the inventory data collected through the existing GHG reporting program to identify any electricity

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<sup>2</sup> According to the U.S. Bureau of Labor Statistics, “an establishment is a single physical location at which business is conducted and/or services are provided. It is not necessarily identical with a company or enterprise, which may consist of one establishment or more.” (US Census 2007). Examples include product and service sales offices (retail and wholesale), industrial production plants, processing or assembly operations, mines or well sites, and support operations (such as an administrative office, warehouse, customer service center, or regional headquarters). Each establishment should receive, complete, and return a separate census form. (US Census 2002)

generating facilities that: (1) generate less than 4,500 MWh of electricity annually, (2) are subject to 40 CFR Part 75 and have less than 25,000 MTCO<sub>2</sub>e of emissions (and thus will be affected by the exemption from third-party verification requirement), (3) whose parent company's entire generation capacity in State does not exceed the 4,500 MWh threshold, and (4) that are not facilities operated by state and local government entities. ARB staff found no affected electric utilities or electricity generating facility operator meeting the criteria for small business status.

*Other Facilities:* For the remaining affected industry sectors that cover one NAICS code with a homogenous product, and for which ARB staff have a complete list of no more than 10 affected facilities in the entire sector (cement production, hydrogen production, lime manufacturing, nitric acid production, and iron & steel production), ARB staff invested the time to query each facility's parent company one-by-one in the Dun & Bradstreet Selectory database (D&B 2010) to determine if they meet the number of employees criteria. It was determined that there are no affected small businesses in these sectors.

*Glass Production and Pulp and Paper Manufacturing Facilities:* For the glass production and pulp & paper manufacturing sectors, ARB staff estimated the likely proportions of small businesses in each affected sector using employment statistics published by California Employment Development Department (EDD). The threshold of 250 or less employees was used for the estimation. The approach of using state-wide proportion of <250 employees business in each industry sector should provide a conservative high estimation, as described above.

**Table VI-5. Estimated Numbers of Affected Small Business Entities**

<b>Industry Sector</b>	<b>No. of Small Business</b>	<b>Note</b>
Electricity Generating Facility	0	Based on the inventory data collected through existing GHG reporting program, no affected electricity generating facilities meet the Section 11342.610(b)(8) criteria.
Cement Production	0	Per D&B Selectory search, no affected facility qualifies for small business status.
Glass Production	1	Using CEDD data as the basis for estimation, approximately 16% of the establishments in this sector have <250 employees. Staff estimates that there may be 1 facility potentially affected by the amendments and assumes 1 small business to be conservative.
Hydrogen Production	0	Per D&B Selectory search, no affected facility qualifies for small business status.
Iron and Steel Production	1	Per D&B Selectory search, no affected facility qualifies for small business status. Staff estimates that there may be 1 facility potentially affected by the amendments and assumes 1 small business to be conservative.
Lime Manufacturing	0	Per D&B Selectory search, no affected facility qualifies for small business status.
Nitric Acid Production	0	Per D&B Selectory search, no affected facility qualifies for small business status.
Oil & Gas Production	0	Not qualified for small business per California Government Code Section 11342.610(b)(3)&(9)
Petroleum Refineries	0	Not qualified for small business per California Government Code Section 11342.610(b)(3)&(9)
Pulp and Paper Manufacturing	1	Using CEDD data as the basis for estimation, approximately 14% of the establishments in this sector have <250 employees. Staff estimates that there may be 1 facility potentially affected by the amendments and assumes 1 small business to be conservative.
Fuel Suppliers-CNG/LNG Importers	0	Not qualified for small business per California Government Code Section 11342.610(b)(3)&(9)
<b>TOTAL</b>	<b>3</b>	

#### **D. Economic Impacts of Proposed Regulation**

This section presents the results of staff’s analysis of the economic impacts of the proposed regulation. ARB staff first presents a state-wide overview of the cost impacts by affected sectors, which include all of the affected entities in the private and public sectors. The following subsections discuss the impacts on private businesses, small businesses, state and local agencies, consumers, employment, business creation and elimination, and California business competitiveness.

##### **1. Overview of State-Wide Costs by Sector**

Only the direct incremental costs of complying with the proposed rule amendments, beyond the costs that most facilities would already incur in meeting either the extant California requirements or the U.S. EPA requirements, are included in this analysis.

Using the methods described above in Section C, staff’s estimates of the cost impacts for each affected sectors are summarized in Table VI-6, which include all the affected entities in the private and public sectors.

**Table VI-6. Sector-Wide Incremental Cost Impacts**

Sector	Number of Company	Number of Reporting Entities <sup>2</sup>	Sector-Wide Incremental Costs (\$1,000) <sup>1</sup>		
			1st-Year Only	On-going Years	10-Yr Cost
Electricity Generating Facility (private business)	8	26	-	(127.32)	(1,030.0)
Cement Production	1	1	-	(8.66)	(70.0)
Glass Production	3	3	3.14	2.28	21.6
Iron and Steel Production	1	1	3.14	1.05	11.6
Nitric Acid Production	1	1	-	(8.66)	(70.0)
Oil & Gas Production	25	49	37.92	27.32	259.0
Petroleum Refineries	1	1	-	(8.66)	(70.0)
Pulp and Paper Manufacturing	1	1	3.14	1.05	11.6
Fuel Suppliers-CNG/LNG Importers	2	2	2.80	7.70	65.1
<b>Private Industry Total</b>	<b>43</b>	<b>85</b>	<b>50</b>	<b>(114)</b>	<b>(871)</b>
Electricity Generating Facility (local government entities)		9	0	(44)	(357)
<b>Total for All Affected Reporters</b>		<b>94</b>	<b>50</b>	<b>(158)</b>	<b>(1,228)</b>

<sup>1</sup> All costs are in thousands of 2011 dollars. Future costs are discounted at 5%. Numbers in parenthesis are negative, indicating a cost saving.

<sup>2</sup> As defined in the GHG reporting regulation, a “reporting entity” is a facility, a supplier of fuel or CO<sub>2</sub>, or an electric power entity.

As shown in Table VI-6, the proposed rule amendment is expected to have a net state-wide cost saving of \$158,000 annually (\$114,000 for the private industry sectors and \$44,000 for local government entities). Additional costs for training and planning during the first year only are approximately \$50,000. Using a discount rate of 5% and a time horizon of 10 years, the total net state-wide saving is approximately \$1.2 million over 10 years (\$871,000 for the private industry sectors and \$357,000 for local government entities). A 10-year time horizon is assumed for the analysis because ARB staff expects that the GHG reporting regulation may potentially be amended again between 2012 and 2022, due to potential new federal regulations or cap-and-trade program requirements.

The electricity generating, cement production, nitric acid production, and petroleum facilities with less than 25,000 MTCO<sub>2</sub>e of emissions can expect to see a net cost saving from the amended regulation due to the proposed exemption from verification requirements. The other sectors are expected to see a net incremental cost increase due to additional monitoring and reporting requirements in the proposed regulation. State-wide, most of the incremental costs are borne by the oil and gas production sector, accounting for 70% of the total costs among the cost-incurring sectors. The

incremental costs to the other sectors make up the remaining 30% of the state-wide costs.

## **2. Impacts to California Businesses**

The proposed GHG reporting regulation focuses on the largest stationary sources of GHG emissions and other sources that must be included for an effective cap-and-trade program. The specific incremental cost for a facility subject to GHG reporting can vary significantly depending on each facility's unique situation in terms of its sector designation, type and size of its fuel combustion equipment, facility complexity, emissions level, and its current monitoring and sampling practices as compared to its future requirements under this proposal.

For an individual reporting entity (which may either be an industrial facility or a fuel supplier, as defined in the GHG reporting regulation), the incremental cost per entity could range widely. Incremental costs for typical businesses (other than those in the oil and gas production sector) subject to the proposed amendments will generally be small for facilities that are already subject to current GHG reporting programs, because the bulk of the baseline costs will be incurred complying with the existing ARB reporting regulation and the U.S. EPA regulation. Some reporting entities are expected to see a net cost saving as the result of the proposed amendments. Electricity generating facilities, cement production facility, nitric acid production facility, and petroleum refineries emitting less than 25,000 MT of CO<sub>2</sub>e will experience a cost saving because they will no longer be required to obtain third-party verification services.

With the proposed amendments, ARB staff anticipates additional costs during the initial year for certain facility types, as reporters become familiar with the new requirements, update or develop GHG monitoring plans, and develop expertise with the new reporting systems and methods. However, ARB staff anticipates industry costs to decline over time as the amended GHG reporting requirements become incorporated into standard facility practices.

Costs per reporting entity by facility type are presented in Table VI-7. Because facilities within the same sector can be further categorized into more detailed facility types depending on how they are affected by the amended regulation (see Section C.1—Costs Categorization of Affected Facilities for a discussion of the facility categorization), a wide range of values for cost per entity can be expected even within the same sector.



**Table VI-7. Average Incremental Cost Impacts per Facility or per Fuel Supplier**

Facility Type	First-Year-Only Cost per Facility (\$) <sup>1,2</sup>		On-Going Annual Cost per Facility (\$) <sup>1,2</sup>	
	Mid Estimate	Range	Mid Estimate	Range
Electricity Generating Facility, Part-75, <25K MTCO <sub>2</sub> e, Private Entities	0	[0, 0]	(4,897)	[-2500, -7100]
Electricity Generating Facility, Part-75, <25K MTCO <sub>2</sub> e, Public Agencies	0	[0, 0]	(4,897)	[-2500, -7100]
Cement Production, <25K MTCO <sub>2</sub> e, existing reporter	0	[0, 0]	(8,656)	[-4900, -17600]
Glass Production, <25K MTCO <sub>2</sub> e, existing reporter	0	[0, 0]	614	[300, 1000]
Glass Production, <25K MTCO <sub>2</sub> e, new reporter	3,137	[1700, 5000]	1,051	[400, 2000]
Iron and Steel Production, <25K MTCO <sub>2</sub> e, new reporter	3,137	[1700, 5000]	1,051	[400, 2000]
Nitric Acid Production, <25K MTCO <sub>2</sub> e, existing reporter	0	[0, 0]	(8,656)	[-4900, -17600]
Oil & Gas: Onshore production- small	641	[500, 700]	499	[300, 600]
Oil & Gas: Onshore production- medium	641	[500, 700]	499	[300, 600]
Oil & Gas: Onshore production- large	641	[500, 700]	499	[300, 600]
Oil & Gas: Onshore production- very large	641	[500, 700]	499	[300, 600]
Oil & Gas: Natural gas processing	214	[100, 200]	71	[50, 200]
Oil & Gas: Natural gas transportation/compression	285	[200, 300]	285	[200, 400]
Oil & Gas: Natural gas underground storage	428	[300, 500]	428	[300, 600]
Oil & Gas: Natural gas distribution	428	[300, 500]	570	[400, 700]
Oil & Gas: Oil and Gas Production, <25K MTCO <sub>2</sub> e, existing reporter	0	[0, 0]	614	[300, 1000]
Oil & Gas: Oil and Gas Production, <25K MTCO <sub>2</sub> e, new reporter	3,137	[1700, 5000]	1,051	[400, 2000]
Petroleum Refineries, <25K MTCO <sub>2</sub> e	0	[0, 0]	(8,656)	[-4900, -17600]
Pulp and Paper Manufacturing, <25K MTCO <sub>2</sub> e, new reporter	3,137	[1700, 5000]	1,051	[400, 2000]
Supplier Type	First-Year Only Cost per Supplier (\$) <sup>1,2</sup>		On-Going Year Cost per Supplier (\$) <sup>1,2</sup>	
	Mid Estimate	Range	Mid Estimate	Range
Importer of CNG/LNG- existing reporter	0	[0, 0]	1,693	[900, 2300]
Importer of CNG/LNG- new reporter	2,803	[2100, 6100]	6,007	[3100, 8900]

<sup>1</sup> All costs are in 2011 dollars. Negative numbers indicate a cost saving.

<sup>2</sup> For industrial facilities, because the rule applicability of the GHG reporting regulation is determined on a facility basis, and the reporting program is also implemented using individual facilities as the reporting unit, all the building blocks of cost estimation are performed on a facility basis, not on a company basis. See Section VI.C.2, *Number of Affected Facilities and Companies* subsection and the description in the following page for an explanation of cost of company calculations.

As explained in Chapter VI.C.2, the boundary of “reporting entity” as defined by the regulation is the same as “company” or “business entity” for fuel suppliers and electric utilities, but not for industrial facilities. (Electric utilities operating power plants must submit a separate report for each of their power plants, in addition to the power entity report they must submit for their power transaction, imports, exports, and retail sales. A power plant is considered an industrial facility in this case.) Due to the broad coverage of the GHG reporting regulation, the diversity of facility types even within the same sector, and the complexity associated with many companies owning/operating multiple facilities in different facility type categories and in multiple sectors, it is very difficult to directly estimate the cost per company. Instead, the average cost per company is calculated by dividing the total net cost incurred by the private industry by the number of companies, which gives the weighted average of cost per company that is weighted by the number of companies in each industry sector.

Using this approach, the weighted-average cost per company per year in the on-going year is calculated to be -\$2,648 (a net saving, which is calculated as -\$113,884 total private industry cost divided by 43 companies). For a “typical business,” excluding 3 potential small business entities, the average cost is -\$2,919 per company per year (a net saving, which is calculated as -\$113,884 total private industry cost, minus \$760 weighted-average glass production facility cost that is weighted by the number of facility in two facility types in the glass production sector, minus \$1,051 for one iron & steel production facility, minus \$1,051 for one pulp & paper manufacturing facility, then divide the result of subtraction by 40 companies). Similarly, the weighted-average first-year-only cost per company is calculated to be \$1,166 (a net cost, which is calculated as \$50,134 total private industry first-year-only cost divided by 43 companies). For a “typical business,” excluding 3 potential small business entities, the average cost is \$1,070 per company per year (\$50,134 total private industry first-year-only cost, minus \$1,046 weighted-average glass production facility cost that is weighted by the number of facility in two facility types in the glass production sector, minus \$3,137 for one iron & steel production facility, minus \$3,137 for one pulp & paper manufacturing facility, then divide the result of subtraction by 40 companies).

The main sources of uncertainties in the economic impact analysis are from the ranges of wage rates in the U.S. Bureau of Labor Statistics data and the ranges of the estimated time requirement to perform compliance tasks. The high estimates shown in the cost table represent the scenario in which the affected entity uses staff whose salary is high in their respective staff classifications, and the amount of time that the high-salaried staff takes in doing the compliance tasks is also on the high end of the range of estimates. On the other hand, the low estimates represent the scenario in which the affected entity uses staff whose salary is on the low side of the wage rate range, and each staff takes little time to accomplish the compliance tasks. The high and low estimates are shown here for bounding purposes, and they are extremely unlikely in reality because private businesses tend to minimize cost by maximizing efficiency. When factoring in all uncertainties in either direction, the net costs are likely to be close to the middle estimates.

### **3. Impacts to Small Businesses**

Using a combination of estimation techniques described in Section C of this chapter, staff conservatively estimated that approximately 3 small business entities may be affected by the proposed amendments. Other than their high-level industry sector designation, staff does not know exactly how these small business entities distribute among the different facility types in the affected sectors, which is the main factor for determining whether an individual entity may incur a net incremental cost or see a net incremental saving. Nevertheless, staff expects that if there are any small businesses affected by the amendments, they are more likely to be in the 10,000 to 25,000 MT of CO<sub>2</sub>e categories and are eligible for abbreviated reporting; therefore, they should incur relatively less total costs than their counterparts with emissions >25,000 MT of CO<sub>2</sub>e.

The estimation results presented in Table VI-5 show that there may potentially be one affected small business in each of the glass production sector, the iron & steel production sector, and the pulp and paper manufacturing sector. ARB staff does not anticipate there are any affected small business entities in the remaining sectors.

Since the proposed amendments apply to affected facilities regardless of small business status, incremental costs should apply the same to a small business as to a generic facility in the respective facility type. Staff estimates that a glass production facility may incur an incremental on-going annual cost of \$760 (which is the weighted-average glass production facility cost, weighted by the number of facilities in 2 facility types in the glass production sector) (lower and upper bound estimate: \$300-\$1,500), an iron & steel production facility may incur \$1,051 (lower/upper bound: \$400-\$2,000), and a pulp and paper manufacturing facility may incur \$1,051 (lower/upper bound: \$400-\$2,000). If a small business entity is a new reporter, they may incur an additional cost on training and planning for compliance with the regulation during the first year. The first-year-only cost is estimated to be \$1,046 for a glass production facility, \$3,137 for an iron & steel production facility, and \$3,137 for a pulp & paper manufacturing facility.

Using a similar approach already described in the previous section to calculate average cost per company, the annual on-going yearly cost per small business is calculated to be \$954 ( $(\$760 + \$1051 + \$1051) / 3$  companies), and the first-year-only cost is \$2,440 ( $(\$1046 + \$3137 + \$3137) / 3$  companies).

### **4. Impacts to California State and Local Agencies**

Staff has determined that the proposed amendments do not affect any GHG emitting facilities operated by state government entities (e.g., state universities and prison facilities). Nevertheless, those state government entities already subject to the GHG reporting program will continue to comply with the regulation requirements without noticeable changes in reporting practices. Using the methods described previously, we estimated that the affected local government entities will see an overall cost savings as the result of this proposal. Nine electricity generating facilities operated by local

government entities are expected to see a cost saving of \$4,900 per year (lower/upper bound: \$2,500-\$7,100 per year).

Adoption of the proposed amendments is expected to require continued funding for ARB to administer the program. The amendments will be implemented using existing ARB staffing, and no change in staffing level is needed to administer the program under the amended rule. Any ARB fiscal expenses needed for implementing the proposed amendments are already accounted for in the current operational budget that was approved as a part of the previous rule amendments.

## **5. Potential Impact on Consumers**

No noticeable change in consumer prices is expected from the amendments to the reporting regulation because the compliance costs will have only a minor impact on the affected businesses. Since no economic impacts (either costs or savings) are expected to result from the conforming amendments to the definition sections of the Fee Regulation or the Cap-and-Trade Regulation, no change in consumer prices is expected from those regulation amendments either.

## **6. Impact on Employment**

Since the incremental compliance costs associated with the amended GHG reporting regulation impose only a very small impact on California businesses, staff expects no significant change in employment due to the regulation amendments. Since no economic impacts (either costs or savings) are expected to result from the conforming amendments to the definition sections of the Fee Regulation or the Cap-and-Trade Regulation, staff expects no change in employment due to those regulation amendments either.

## **7. Impact on Business Creation, Elimination, or Expansion**

No change is expected to occur in the status of California businesses as a result of the amendments to the reporting regulation. This is because the proposed amendments are expected to impose only minor costs on businesses in California. However, should the regulation impose significant hardship on California businesses operating with little or no margin of profitability, some small businesses may be forced out of the market or decide not to expand in California. Also, in theory, some businesses could possibly decide against coming to California to avoid having to report their GHG emissions.

Staff does not anticipate there will be noticeable changes in the number of businesses created, eliminated, or expanded as the result of the propose regulation. Existing firms will likely attempt to absorb as much of the new workload as possible, and the amount of spill-over available to new companies cannot be clearly determined.

Since no economic impacts (either costs or savings) are expected to result from the conforming amendments to the definition sections of the fee regulation or the cap-and-trade regulation, staff does not expect any impact on the status of California businesses to result from those regulation amendments either.

## **8. Impacts to California Business Competitiveness**

The reporting regulation amendments would have little or no impact on the ability of California businesses to compete with businesses in other states. This is because the regulation does not impose a significant cost impact on California businesses. In addition, many of the businesses affected by the regulation are local businesses serving California clients, and may not be strongly subject to interstate competition. However, the proposed regulation could have an adverse impact on the ability of some California businesses operating with little or no margin of profitability to compete with businesses in other states. Similarly, since no economic impacts (either costs or savings) are expected to result from the conforming amendments to the definition sections of the fee regulation or the cap-and-trade regulation, staff does not expect any impact on the ability of California businesses to compete with businesses in other states due to those regulation amendments either.

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## **VII. SUMMARY AND RATIONALE FOR PROPOSED REGULATION**

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This chapter of the staff report provides a summary of each specific change to the regulations and the reason, or rationale, for the change. Any sections of the regulation without changes are not included in this summary and rationale section.

### **A. Amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions**

#### **Subarticle 1.**

#### **General Requirements for Greenhouse Gas Reporting**

##### **Summary of Section 95101, Applicability.**

This section of the regulation specifies which facilities and entities are subject to greenhouse gas emissions reporting under the regulation. It also specifies methods for determining applicability, which entities are excluded from reporting, the requirements for demonstrating lack of applicability, and the requirements for ceasing reporting if applicability is no longer met.

##### **Summary of Sections 95101(a)(1)(A) and 95101(a)(1)(B) Proposed Updates**

To clarify the applicability requirements, staff directly listed specific industry sectors subject to reporting, rather than incorporating applicability requirements of the U.S. EPA Greenhouse Gas Rule by reference. This change does not affect the numbers or types of reporters affected by the regulation.

##### **Rationale for Sections 95101(a)(1)(A) and 95101(a)(1)(B) Proposed Updates**

These amendments are necessary to improve clarity and usability of the regulation.

##### **Summary of Sections 95101(a)(1)(B)(1) and 95101(b)(2) Proposed Updates**

This amendment would require process emissions to be included in determining applicability for facilities emitting less than 10,000 metric tons of CO<sub>2</sub>e.

##### **Rationale for Sections 95101(a)(1)(B)(1) and 95101(b)(2) Proposed Updates**

This requirement was already required for larger sources, emitting over 25,000 metric tons of CO<sub>2</sub>e. The requirement was added for the smaller sources for consistency and to assist in GHG leakage and other analyses necessary for ARB greenhouse gas programs.

##### **Summary of Section 95101(c)(5) Proposed Updates**

The regulation was modified to also include importers of compressed natural gas and liquefied natural gas. This provision specifies that importers of compressed natural gas and liquefied natural gas must report pursuant to the regulation.

##### **Rationale for Section 95101(c)(5) Proposed Updates**

Staff inadvertently did not include compressed natural gas and liquefied natural gas importers in the previous amendments to the reporting regulation (ARB MRR 2010). The regulation change is necessary to correct this inequity in the reporting requirements and to ensure that all fuels that contribute to California GHG emissions are reported. It

is also necessary to ensure these importers understand the reporting requirements which apply to them.

#### Summary of Section 95101(e) Proposed Updates

The requirement to estimate and report process emissions for the 10,000 MTCO<sub>2</sub>e threshold and fugitive emissions for the 25,000 MTCO<sub>2</sub>e was added for petroleum and natural gas systems. This provision specifies that process and fugitive emissions must be estimated and reported by operators of petroleum and natural gas systems.

#### Rationale for Section 95101(e) Proposed Updates

This requirement was already required for larger sources emitting over 25,000 metric tons of CO<sub>2</sub>e. The requirement was added for the smaller sources for consistency and to assist in GHG leakage and other analyses necessary for ARB greenhouse gas programs. The fugitive emission provision was a clarification to ensure consistency with section 95151(a)

#### Summary of Section 95101(e)(2) Proposed Updates

Reference to section 95102 for onshore petroleum and natural gas production facilities has been removed from the facility type list.

#### Rationale for Section 95101(e)(2) Proposed Updates

Other industrial sectors do not directly refer to the definition section of the regulation (95102(a)). Therefore, the definition reference for offshore petroleum and natural gas systems was removed for consistency and clarity.

#### Summary of Sections 95101(h)(1) and 95101(h)(2) Proposed Updates

Previously, the U.S. EPA regulatory text for cessation of reporting (40 CFR §98.2(i)) was incorporated in section 95101(h) by reference. The U.S. EPA text has now been written directly into the provisions of the ARB regulation. These provisions do not change any existing requirements.

#### Rationale for Sections 95101(h)(1) and 95101(h)(2) Proposed Updates

This update is necessary to improve the legibility of the cessation requirements. The change does not alter the previous regulatory requirements.

#### Summary of Section 95101(h)(4)(A)-(D) Proposed Updates

This provision specifies how electric power entities may cease reporting. Revisions were made to reduce ambiguity in the existing text for cessation of reporting for electric power entities, including clarification of what information must always be reported (i.e., retail sales and pump loads).

#### Rationale for Section 95101(h)(4)(A)-(D) Proposed Updates

This provision is necessary to clarify the cessation requirements for electric power entities, which are not subject to U.S. EPA reporting. The proposed revisions do not alter the existing cessation requirements for electric power entities, but are included to clarify the requirements and to make them more explicit.



### **Summary of Section 95102, Definitions.**

This section defines all key terms used in the regulation that may not be in common use or which may potentially be ambiguous without a regulatory definition. Definitions have been edited, added, and in some cases, removed to clarify the meaning and intent of the regulation. In addition to the general changes to definitions, a subset of definitions associated with electric power entity reporting were updated, as described below. Also, with the addition of a new table to the regulation for fuel suppliers, definitions of the individual fuels were added to the regulation, also described below. Finally, with the inclusion of the full reporting requirements directly into the regulation for petroleum and natural gas systems reporting, associated definitions for this sector were added to the proposed regulation.

### **Rationale for Section 95102 Proposed Updates**

This section is necessary to ensure that those subject to the regulation are able to understand and interpret the regulation correctly, and to avoid ambiguity and improve compliance with the regulation. ARB staff has attempted to include all key terms used in the regulation, including terms in the previously referenced U.S. EPA regulation, which are usually included without modification to support consistent interpretation of the state and federal regulation. Deletions, additions, and modifications from the current version of the reporting regulation are necessary to ensure clear interpretation of terms related to the other amendments to the regulation in this rulemaking.

### **Summary of Section 95103, Greenhouse Gas Reporting Requirements.**

This section contains the reporting requirements for all facilities subject to this regulation, including abbreviated reporting, reporting and verification schedules, accuracy specifications, and other requirements. The specific revisions proposed are listed below.

### **Summary of Section 95103(a) Proposed Updates**

A clarification to include fugitive emissions in the reporting requirements for determining the 25,000 MTCO<sub>2e</sub> reporting threshold was added.

### **Rationale for section 95103(a) Proposed Updates**

This clarification was made to ensure reporters who have fugitive emissions include them when determining their emissions threshold for applicability and in their emissions data report.

### **Summary of Section 95103(a)(3) Proposed Updates**

For specified industrial sectors emitting less than 25,000 metric tons of CO<sub>2e</sub> per year, the requirement was added to calculate and report process emissions. This requirement is already required by sectors emitting more than 25,000 metric tons CO<sub>2e</sub>. This change affects facilities involved in glass production, hydrogen production, iron and steel production, pulp and paper manufacturing, and petroleum and natural gas production (subarticle 5 of this regulation).

#### Rationale for Section 95103(a)(3) Proposed Updates

To maintain consistent reporting across sectors, it is necessary to include process emissions for certain facilities emitting less than 25,000 metric tons (MT) of CO<sub>2</sub>e. Process emissions can be a significant fraction of the overall CO<sub>2</sub>e emissions for some sectors, so their previous exclusion would create a discontinuity between the less than 25,000 MT CO<sub>2</sub>e and the greater than 25,000 MT CO<sub>2</sub>e facilities. In order to determine applicability (under the current requirement) process emissions must be computed, so the requirement does not substantially add to the reporting workload. The inclusion of the process emissions also provides data to better monitor GHG emissions leakage to out of state sources, which is necessary to provide more rigor in support of the cap-and-trade program.

#### Summary of Section 95103(a)(6) Proposed Updates

This provision has been amended to clarify that geothermal facilities must report data specified in section 95112(e).

#### Rationale for Section 95103(a)(6) Proposed Updates

This change simply clarifies the existing requirement for geothermal facilities to make it more explicit. It is necessary to ensure geothermal facilities understand their reporting obligations.

#### Summary of Section 95103(f) Proposed Updates

A clarifying term was added to this section to ensure it was clear that only reporting entities above 25,000 MTCO<sub>2</sub>e are subject to verification.

#### Rationale for Section 95103(f) Proposed Updates

This change is necessary to clarify the interpretation for which reporting entities are subject to verification.

#### Summary of Section 95103(j)(2) Proposed Updates

Clarifications have been added to this provision to specify the information that is required by reporters using forest derived wood and wood waste.

#### Rationale for Section 95103(j)(2) Proposed Updates

The proposed update is necessary to clarify that the required information relates to the supplier and not the consumer of the fuel.

#### Summary of Section 95103(k) Proposed Updates

The meter calibration requirements for covered emissions, covered product data and for data that is neither covered emissions or product data have been clarified. Language was added to explicitly indicate that all meters are subject to  $\pm 5$  percent accuracy, but meters that measure covered emissions and product data were subject to the additional requirements of this section. Clarifications were also added to indicate which meters are exempt or partially exempt from the requirements of 95103(k)(1)-(11).

#### Rationale for Section 95103(k)

During the implementation of the current reporting regulation, stakeholders expressed concerns about the interpretation of the requirements in section 95103(k) for both emissions and product data. The amendments described above clarify which types of meters are subject to the requirements section 95103(k)(1)-(11) and which meters must just meet the U.S.EPA requirements.

#### Summary of Section 95103(k)(1) Proposed Updates

The term “flow meter and other measurement device” was inserted, and language was inserted describing the term “meter or measurement device.”

#### Rationale for Section 95103(k)(1) Proposed Updates

These changes are necessary to maintain consistent language throughout the section, and to clarify that a “meter or measurement device” consists of multiple components, and the measurement accuracy requirements in the section apply to the “meter” rather than to each individual component of a meter.

#### Summary of Section 95103(k)(2) Proposed Updates

The term “flow meter and other measurement device” was inserted in this provision.

#### Rationale for Section 95103(k)(2) Proposed Updates

These changes are necessary to maintain consistent language throughout the section.

#### Summary of Section 95103(k)(4) Proposed Updates

The term “flow meter and other measurement device” was inserted in this provision. In addition, this provision was modified to add a requirement of a recalibration of a flow meter or other measurement device immediately upon the device being deemed out of calibration.

#### Rationale for Section 95103(k)(4) Proposed Updates

These changes are necessary to maintain consistent language throughout the section. The requirement to recalibrate a meter or other measurement device immediately upon the device being deemed to be out of calibration was inserted to ensure the device is operating within the  $\pm 5\%$  accuracy range at all times.

#### Summary of Section 95103(k)(6) Proposed Updates

The terms “flow meter and other measurement device” and “field accuracy assessment” were added to this provision.

#### Rationale for Section 95103(k)(6) Proposed Updates

These changes are necessary to maintain consistent language throughout the section. The term “field accuracy assessment” was inserted in reference to new voluntary procedures in subparagraph B of section 95103(k)(6).

#### Summary of Section 95103(k)(6)(A) Proposed Updates

Language was inserted allowing for flow meters or other measurement devices to have alternative calibration methods approved by the Executive Officer in the event that OEM guidance is not available and methods specified in 40 CFR §98.3(i)(2)-(3) are not applicable to a particular device.

#### Rationale for Section 95103(k)(6)(A) Proposed Updates

The section was updated to provide reporting entities with the option to request approval of an alternative calibration procedure in the event that the required calibration methods specified in section 95103(k)(6) are not viable for a particular flow meter or measurement device. Requiring Executive Officer approval of alternative calibration procedures is necessary to ensure that any alternative calibration method will guarantee measurement within the  $\pm 5\%$  accuracy range. These changes are necessary to provide additional flexibility to reporting entities while also ensuring accuracy.

#### Summary of Section 95103(k)(6)(B) Proposed Updates

This new provision sets forth an option to allow an operator to perform a “field accuracy assessment” for mass and volume measurement devices. The field accuracy assessment is a voluntary procedure by which operators can confirm that meters and other measurement devices are continually measuring within the  $\pm 5\%$  accuracy range in years between successive calibrations. The provision allows for field accuracy assessments to be conducted using OEM guidance, standard industry practice, engineering analysis, or using portable calibration instruments with the as-found condition recorded to ensure the device is measuring within the  $\pm 5\%$  accuracy range. Performing a field accuracy assessment reduces the risk that a reporting entity will lose multiple years of data in the event of a failed calibration.

#### Rationale for Section 95103(k)(6)(B) Proposed Updates

Full calibrations of metering devices are required on a multi-annual schedule, in most cases every three years. This provision is necessary to provide an option for reporting entities to assess and document that meters and other measurement devices are operating within the  $\pm 5\%$  accuracy range during years between full calibrations. According to the section 95103(k)(10), a failed calibration of a particular meter requires the operator to prove data accuracy by other means back to the previous successful calibration or field accuracy assessment. In the absence of a documented annual field accuracy assessment, the operator must demonstrate accuracy going back multiple years to the last successful calibration event. Failure to demonstrate accuracy may result in the invalidation of the data. The field accuracy assessment procedure enables reporting entities to manage data risks associated with failed calibrations by providing an annual “confirmation” that meters are operating within the  $\pm 5\%$  accuracy range.

#### Summary of Section 95103(k)(6)(C)

This new provision describes the options and consequences for a reporting entity that fails a calibration in cases of just performing calibrations or in the case of performing calibrations and the field accuracy assessment. If a meter fails calibration, the data back to the original calibration is deemed invalid and the reporter must demonstrate, by other means, that the data was accurate up to a certain point. If a meter fails calibration, but has a valid field accuracy assessment, then the data is invalid until the last valid field accuracy assessment.

#### Rationale for Section 95103(k)(6)(C)

This new provision clarifies the consequences if a meter fails calibration and describes steps that need to be taken to demonstrate accuracy. It was added to ensure reporting entities are clear on the measurement accuracy requirements.

#### Summary of Section 95103(k)(7) Proposed Updates

This provision was modified to clarify exemptions to the specified requirements in section 95103(k). The section describes instances when financial transaction meters and upstream ethanol and additive meters used for ensuring proper blendstock percentages are exempt from specified calibration requirements in section 95103(k).

#### Rationale for Section 95103(k)(7) Proposed Updates

The changes made to this provision are necessary to clarify that meters that are used as a basis for third-party financial transactions or used for ensuring proper blendstock of finished gasoline products must be designed, installed, and maintained in a manner that ensures highly accurate data out of necessity for purposes other than GHG emissions estimation. In addition, the changes are needed to inform reporting entities of which circumstances will exempt certain meters from the more stringent calibration requirements.

#### Summary of Section 95103(k)(9) Proposed Updates

This provision describes the process for submitting calibration postponement requests for devices that cannot be calibrated without operational disruption. Requirements were added to require that dates and results of field accuracy assessments be included in the postponement request.

#### Rationale for Section 95103(k)(9) Proposed Updates

Requiring disclosure of a meter's field accuracy assessment schedule and results in the postponement request provides evidence that the meter is being operated and maintained in a manner ensuring performance within the acceptable accuracy range. Therefore this information is necessary for ARB staff to evaluate a calibration postponement request.

#### Summary of Section 95103(k)(10) Proposed Updates

A provision was added to this section requiring that, in the event a device fails a calibration, recalibration, or field accuracy assessment, the operator must demonstrate by other means that measurements meet the accuracy requirements going back to the last instance of successful calibration or field accuracy assessment of the device.

#### Rationale for Section 95103(k)(10) Proposed Updates

This provision is necessary to clarify the requirements for demonstrating data accuracy in the event of a failed calibration or field accuracy assessment. The new provision requires that accuracy be demonstrated back to the last successful field accuracy assessment or calibration. This provision allows operators to mitigate the risk of data loss due to a failed calibration by performing annuals field accuracy assessments.

#### Summary of Section 95103(k)(11) Proposed Updates

This provision was revised to clarify that inventory, stock, or tank drop measurement methods must be demonstrated to be accurate to  $\pm 5\%$  annually for covered product data.

#### Rationale for Section 95103(k)(11) Proposed Updates

This revision is necessary to clarify that inventory, stock, and tank drop measurement methods are applicable for measuring covered product data if they are accurate annually to  $\pm 5\%$ .

#### Summary of Section 95103(l) Proposed Updates

This provision was amended to indicate that covered product data is subject to the material misstatement requirements, while other reported product data is only subject to conformance.

#### Rationale for Section 95103(l) Proposed Updates

This revision is necessary to ensure that only covered product data is subject to the material misstatement evaluation.

### **Summary of Section 95104, Emission Data Report Contents and Mechanism.**

#### Summary of Section 95104(a) Proposed Update

This provision specifies what information must be included in the GHG emissions data reports. The amendments add a requirement for reporting entities to indicate whether they qualify for small business status pursuant to California Government Code Section 11342.610.

#### Rationale for Section 95104(a) Proposed Updates

This provision is added to collect information about small business entities that are covered by the GHG reporting program. This provision is necessary to help ARB assess the economic impacts of the GHG reporting program, the cap-and-trade program, and the fee regulation.

### **Summary of Section 95105, Record Keeping Requirements,**

#### Summary of Section 95105(d)(6) Proposed Updates

This provision specifies how verifiers need to evaluate electric power entities for covered emissions, the RPS adjustment and qualified export reporting requirements.

#### Rationale for Section 95105(d)(6) Proposed Updates

As previously written, the regulation could have been interpreted in such a way to require verification of data beyond the scope of the reporting needs. The amendments to this provision are necessary to ensure that reporters and verifiers understand GHG inventory requirements for electric power entities.

**Subarticle 2.**  
**Requirements for the Mandatory Reporting of Greenhouse Gas Emissions from  
Specific Types of Facilities, Suppliers, and Entities**

**Summary of Section 95111, Electric Power Entities.**

Section 95111 describes the reporting requirements for electric power entities. Electric power entities include importers, marketers, retail providers and asset controlling suppliers who are involved in electricity transactions.

**Summary of Section 95111(a)(5) Proposed Updates**

This provision specifies requirements for asset-controlling suppliers. It has been amended to remove the specific references to Bonneville Power Administration in this section. This section was also amended to clarify that the asset-controlling supplier must be identified on the physical path of NERC e-Tag as the PSE at the source of generation to ensure that the power originated from the asset-controlling supplier.

**Rationale for Section 95111(a)(5) Proposed Updates**

The text referring to Bonneville Power Administration (BPA) was removed to ensure equitable treatment of all asset-controlling suppliers. Clarifying language, regarding the source of generation listed in the physical path table of NERC e-Tags, was added to ensure that power claimed from an asset-controlling supplier source originated from the asset-controlling supplier. This change also supports the requirement that electricity from an asset-controlling supplier must be separately reported in the annual emissions data report.

**Summary of Section 95111(a)(8) Proposed Updates**

This provision was amended to clarify the reporting requirements of wheeled electricity. In the current reporting regulation, wheeled electricity needed to be reported by the first point of receipt outside of California. The term ‘outside of California’ was removed to indicate that reporting for wheeled electricity needs to occur at the first point of receipt.

**Rationale for Section 95111(a)(8) Proposed Updates**

This revision is necessary to ensure the correct point of receipt is reported for wheeled electricity in the emission data report of an electric power entity.

**Summary of Section 95111(b)(2) Proposed Update**

A description of the specified source emission factor data sources was included. It was clarified that the specified source emission factor is based on data from the year prior to the data year.

**Rationale for Section 95111(b)(2) Proposed Updates**

This revision is necessary to clarify the data used to calculate the specified source emission factor.

#### Summary of Section 95111(b)(3) Proposed Updates

This provision specifies how GHG emissions are calculated for Importers of electricity supplied by specified asset-controlling suppliers. It has been amended to remove specific references to Bonneville Power Administration and its system emission factor, and to clarify that asset-controlling suppliers may be any entity which meets the requirements of this section and the regulation, and which is recognized by ARB. The proposed changes are intended to describe the asset-controlling supplier registration process, rights, and obligations in the regulation, to ensure identical process and equitable treatment for any asset-controlling supplier, and maintain a separate list of authorized asset-controlling suppliers on the ARB website. The revisions also indicate that the asset-controlling supplier system-specific emission factor is calculated based on data from two years prior to the reporting year.

#### Rationale for Section 95111(b)(3) Proposed Updates

Upon approval of the regulation in 2010 there was one asset-controlling supplier recognized by ARB, Bonneville Power Administration (BPA), which was specifically named as an asset-controlling supplier in Section 95111(a)(5). However, the regulation does not limit the number of asset-controlling suppliers that may register for approval with ARB. Since adoption of the regulation, additional stakeholders have expressed interest in being recognized as asset-controlling suppliers and submitting reports that would subject them to the full requirements of the regulation. To ensure equitable treatment of all asset-controlling suppliers, ARB proposes to remove BPA's currently published emission factor and require an annual calculation of all asset-controlling suppliers' system emission factors. The proposed changes are necessary to describe the asset-controlling supplier registration process, rights, and obligations in the regulation, to ensure identical process and equitable treatment for any asset-controlling supplier, identify the asset-controlling supplier system emission factor method, and maintain a separate list of authorized asset-controlling suppliers on the ARB website.

#### Summary of Section 95111(b)(5) Proposed Updates

A minor language change was added for more consistency with the cap-and-trade regulation and the equation was added under the correct variable description.

#### Rationale for Section 95111(b)(5) Proposed Updates

These changes were made to correct small errors found in the current reporting regulation.

#### Summary of Section 95111(c) Proposed Updates

This provision was amended to remove the text "GHG Emissions Data Report" from the title.

#### Rationale for Section 95111(c) Proposed Updates

This amendment is necessary to avoid having redundant language.

#### Summary of Section 95111(c)(4) Proposed Updates

Language was added to ensure completeness in retail provider emissions data reports.



#### Rationale for Section 95111(c)(4) Proposed Updates

The purpose of this provision is to ensure that all electricity imported by either the retail provider, or by another entity on behalf of the retail provider, is reported. Language regarding imported electricity was added to ensure retail providers reported all imports, including imports on their behalf. Also, the text, “or exporters,” was added so as to be consistent with the use of both “importers” and “exporters” in tandem, as is done in other areas of the regulation.

#### Summary of Section 95111(d)-(e) Proposed Updates

This provision has been amended to remove the text “GHG Emissions Data Report” from the title.

#### Rationale for Section 95111(d)-(e) Proposed Updates

This amendment is needed to reduce redundancy.

#### Summary of Section 95111(f) Proposed Updates

This provision was amended to clarify the requirements for asset-controlling suppliers. Additional language in the first paragraph was added to clarify who may apply for the asset-controlling supplier designation. Specific references to Bonneville Power Administration have been removed. Application requirements in sections 95111(f)(1) and (5) have been added. The application requirement additions for asset-controlling suppliers include general business information, specific reporting requirements, and an attestation indicating that their data report is accurate and complete. It was also made explicitly clear that asset-controlling suppliers must report and verify on an annual basis.

#### Rationale for Section 95111(f) Proposed Updates

The original regulation did not limit the number of asset-controlling suppliers that may register for approval with ARB, but additional clarification and process provisions are necessary to ensure reporting entities interested in applying for asset-controlling supplier designation understand the process for doing so. In fact, the revisions to this provision were added in response to stakeholders that have expressed interest in being recognized as asset-controlling suppliers.

#### Summary of Section 95111(g) Proposed Updates

This provision was amended to add subsection requirement (M) to the *Registration Information for Specified Sources and Eligible Renewable Energy Resources in the RPS Adjustment*, which would require an electric power entity to provide the serial numbers of their Renewable Energy Credits (REC) as part of the registration process.

#### Rationale for Section 95111(g) Proposed Updates

This revision is necessary for ARB to track and ensure the RECs used for the RPS adjustment are correctly tied to the electricity that is reported under this article.

## **Summary of Section 95112, Electricity Generation and Cogeneration Units.**

### Summary of Section 95112 Proposed Updates

This provision specifies the requirements for electricity generation and cogeneration units. The section has been amended to require reporters who report energy data using engineering estimation to demonstrate accuracy of their chosen estimation approach.

### Rationale for Section 95112 Proposed Updates

The additional requirements are necessary to provide sufficient data quality for the state-wide inventory without the full metering and 5% accuracy requirements that are placed on data used for calculating cap-and-trade covered emissions. It gives a standard for reviewing engineering estimations, which should not be prescriptive due to the large variations in facility set-up, and still helps reduce costs to facility operators.

### Summary of Section 95112(a)(4)(B) Proposed Updates

This provision has been modified to point readers to the definition of “particular end-user” in section 95102.

### Rationale for Section 95112(a)(4)(B) Proposed Updates

This provision is needed to point readers to the definition of “particular end-user” to assist correct reporting. This is important to clarify questions received during implementation of the existing regulation from reporting entities and accredited verifiers.

### Summary of Section 95112(a)(5)(A) Proposed Updates

This provision has been amended to point readers to the definition of “particular end-user” in section 95102.

### Rationale for Section 95112(a)(5)(A) Proposed Updates

This provision is needed to ensure readers look to the correct definition of “particular end-user” to assist them in reporting correctly.

### Summary of Section 95112(a)(5)(B) Proposed Updates

This provision was amended to clarify that steam directly used for power production is not included in the calculation of thermal energy used for supporting power production.

### Rationale for Section 95112(a)(5)(B) Proposed Updates

This provision is necessary to clarify what inputs go into calculating thermal energy for supporting power production.

### Summary of Section 95112(b) Proposed Updates

Rule language has been added to this provision to clarify that the aggregation criteria in sections 95115(h) and 95112(b) take precedence over U.S. EPA’s unit aggregation criteria in 40 CFR §98.36(c)(1)-(4) and (d)(1)(i). Rule language was also added to allow facility operators to aggregate all the units that are integrated into an electricity generation system. For other electricity generating units that are not a part of an electricity generation system, aggregation is limited to units of the same type.

#### Rationale for Section 95112(b) Proposed Updates

These changes are necessary to clarify the rule requirements and allow the operators to aggregate units and report the entire system as one configuration in the reporting tool. The change is made in response to questions and feedback from reporting entities and accredited verifiers. The change is necessary because often times in an integrated system, the units that combust fuel are not the same units that generate electricity and steam, and the units that generate electricity and steam do not necessary consume any fuel. It is often difficult to report steam output if there is no one-to-one relationship between fuel combusting unit and steam generation unit. The implementation of this provision will also streamline data analysis for ARB staff when working with the state-wide inventory data.

#### Summary of Section 95112(b)(1)(B) Proposed Updates

The spelling of “primer” has been changed.

#### Rationale for Section 95112(b)(1)(B) Proposed Updates

This change is needed to correct a typo in the term “primer.”

#### Summary of Section 95112(b)(3) Proposed Updates

This provision was amended to point readers to the definition of “total thermal output” in section 95102, and to indicate that “steam used to drive a steam turbine generator for electricity generation” is also excluded from the quantity to be reported under this subparagraph.

#### Rationale for Section 95112(b)(3) Proposed Updates

These amendments are necessary to assist in correct reporting and to clarify that steam used to drive a steam turbine generator for electricity generation should be excluded from the “total thermal output” quantity.

#### Summary of Section 95112(b)(5) Proposed Updates

The 40 CFR §98.36(b) reference has been changed.

#### Rationale for Section 95112(b)(5) Proposed Updates

This change is needed to correct a typo in the reference to 40 CFR §98.36(b).

#### Summary of Section 95112(b)(7)

This provision was amended to add reporting requirements for separate reporting of heat input from primary fuels and supplemental fuels.

#### Rationale for Section 95112(b)(7)

The new reporting requirement is necessary for the purpose of compiling the state-wide emissions inventory and calculating the carbon intensity of electricity generated in-state.

#### Summary of Section 95112(b)(8)

This provision specifies requirements for reporting heat input. It has been amended to require reporting of additional heat input that is not already account for by direct fuel consumption. In addition, the provision has been amended to add two additional data items for bottoming cycle cogeneration unit: input steam to steam turbine and the output of heat recovery steam generator.

#### Rationale for Section 95112(b)(8)

The amendments are necessary to capture a complete energy balance of the electricity generation system for understanding system efficiency and carbon intensity of in-state electricity. The two additional data items for bottoming cycle cogeneration system are necessary for ARB staff to calculate the carbon intensity of in-state electricity for inventory purpose.

#### **Summary of Section 95113, Petroleum Refineries.**

##### Summary of Section 95113(l)(1) Proposed Updates

This provision was amended to add calcined coke reporting requirements. In addition, calcined coke is considered a covered product data because the reported data is used for the allocation of allowances under the cap-and-trade regulation. The voluntary reporting of 2011 and 2012 product data for calcined coke was added. If a reporting entity chooses to report their 2011 and 2012 product data in by April 10, 2013, they must get the reported data verified.

##### Rationale for Section 95113(l)(1) Proposed Updates

The revision is necessary to ensure petroleum refineries received their correct allocations under the cap-and-trade program.

##### Summary of Section 95113(l)(2) Proposed Updates

This provision was amended to delete a requirement related to previous data years. The deleted text is no longer needed.

##### Rationale for Section 95113(l)(2) Proposed Updates

This revision is necessary because the deleted text is no longer applicable.

#### **Summary of Section 95114, Hydrogen Production.**

##### Summary of Section 95114(i) Proposed Updates

This provision was amended by adding language to prevent double counting of emission in cases where a hydrogen production facility captures CO<sub>2</sub> and then sells the CO<sub>2</sub>.

##### Rationale for Section 95114(i) Proposed Updates

As the regulation is currently written, emissions from hydrogen plants CO<sub>2</sub> may potentially be reported under two separate components of the regulation. The revision is necessary to prevent this double-counting of the CO<sub>2</sub> emissions by requiring the subtraction of "transferred CO<sub>2</sub>" for hydrogen plants that also are subject to reporting as a Supplier of CO<sub>2</sub>.

##### Summary of Section 95114(j) Proposed Updates

Text has been added to this provision to clarify product data reporting requirements for hydrogen plants and to specify that hydrogen produced is to be reported as both liquid and gaseous components, and to indicate if the hydrogen is produced as part of an integrated refinery operation.

#### Rationale for Section 95114(j) Proposed Updates

In order to ensure that the cap-and-trade program can correctly allocate emissions allowances based on reported product data in this sector, and to evaluate leakage, it was necessary to amend this reporting requirement to include the quantities of both liquid and gaseous hydrogen produced, rather than just the liquefied hydrogen, as previously written. The type of hydrogen operation (stand-alone versus integrated into a refinery) is also needed for cap-and-trade allowance allocation.

#### **Summary of Section 95115, Stationary Fuel Combustion Sources.**

##### Summary of Section 95115(c)(2) Proposed Updates

This provision was modified to clarify that Tier 1 can be used to calculate CO<sub>2</sub> if fuel is measured in either therms or million Btu.

##### Rationale for Section 95115(c)(2) Proposed Updates

As originally written, only therms were identified for use with Tier 1. This caused ambiguity for reporters who had data in units of million Btu (MMBtu). A therm is simply 10,000 btu, therefore data measured as either therms or MMBtu is acceptable under the regulation. This change is necessary to improve clarity and to ensure consistency in terminology with the U.S. EPA GHG regulation.

##### Summary of Section 95115(c)(4) Proposed Updates

This provision was modified to indicate that non-pipeline quality natural gas must use a Tier 3 and Tier 4 calculation method.

##### Rationale for Section 95115(c)(4) Proposed Updates

This clarification is necessary to ensure accurate data is reported for non-pipeline quality natural gas.

##### Summary of Section 95115(e)(3) Proposed Updates

Typographical errors were corrected for the equation used for calculating emissions from a biomethane and natural gas mixture. These revisions do not affect any reporting requirements. A term in the equation was mislabeled, and a description of a term was provided that is not used in the equation.

##### Rationale for Section 95115(e)(3) Proposed Updates

The corrections are necessary to clarify the equation and ensure accurate use of the calculation procedures.

##### Summary of Section 95115(h) Proposed Updates

The edited text conforms with the amended text in section 95101(a)(1)(A)-(B). The rule change limits unit aggregation to units that belong to the same source category (as defined by the various subparts in 40 CFR Part 98), such that Subpart C units cannot be aggregated with units that belong to other subparts. The rule change also limits aggregation of Subpart C units to four unit types: boiler, reciprocating internal combustion engines, turbine, and process heater. In addition, it requires that facility

operators that choose to aggregate units using U.S. EPA's common stack provision to still report fuel use (in MMBtu) by fuel type for State-wide inventory purposes.

#### Rationale for Section 95115(h) Proposed Updates

The first rule edit in this paragraph is necessary to match the references to the amended text in 95101(a)(1)(A)-(B). Other changes to the rule text that limit unit aggregation to units that belong to the same source category and unit type were made to ensure that the state-wide GHG inventory collects information in sufficient details to delineate the emissions by unit types and fuel types. These changes do not affect the overall emissions reported through the GHG reporting program.

#### **Summary of Section 95119, Pulp and Paper Manufacturing.**

##### Summary of Section 95119(d) Proposed Updates

A clarification was provided for reporting product data for pulp and paper production to specify that product data are to be reported as "air dried" tons.

##### Rationale for Section 95119(d) Proposed Updates

This minor clarification is necessary to ensure consistent reporting by specifying that paper product data is reported with a standard "air dried" 6 percent moisture content, as defined in section 95102 of the regulation.

#### **Summary of Section 95120, Iron and Steel Production.**

##### Summary of Section 95120(a) Proposed Updates

This provision was amended to correct a reference to the U.S. EPA GHG reporting regulation.

##### Rationale for Section 95120(a) Proposed Updates

This amendment is necessary to correct a minor ambiguity in the text. The section numbers referenced in the text clearly referred to the U.S. EPA regulation, but the amendment makes the reference more explicit.

##### Summary of Section 95120(d) Proposed Update

This provision was amended to remove the term "primary" from iron and steel products.

##### Rationale for Section 95120(d) Proposed Update

This amendment is necessary to ensure consistent terms are used when collecting product data for the allocation of allowances.

#### **Summary of Section 95121, Suppliers of Transportation Fuels.**

References to U.S. EPA Tables MM-1 and MM-2, showing fuels subject to reporting, were removed from the regulations and the those fuels subject to reporting were directly inserted into the ARB regulation as new Table 2. The proposed updates include both text edits to the sections shown (which remove the U.S. EPA references), as well as the addition of Table 2 and associated references.

#### Rationale for Section 95121 Proposed Updates

These proposed revisions, which affect several subsections, improve the legibility and ease of use of the regulation because it is no longer necessary to reference an outside document to determine which supplied fuels must be reported. The change also simplifies the previous ARB language which included certain exceptions to the U.S. EPA tables, which are now more efficiently addressed by the addition of the ARB Table 2.

#### Summary of Section 95121(a)(2) Proposed Updates

The section was modified to make it clear that fuels which have a final destination outside of California are not subject to reporting.

#### Rationale for Section 95121(a)(2) Proposed Updates

This change was necessary to make it more explicit that fuels exported outside of California are not subject to reporting. The change does not alter any existing requirements.

#### Summary of Section 95121(b)(1) Proposed Updates

This provision was modified to better emphasize that emissions are based on fuel removed from the rack.

#### Rationale for Section 95121(b)(1) Proposed Updates

The edit is needed to clarify that emissions are to be based on fuel removed from the rack. The change does not alter any existing reporting requirements.

#### Summary of Section 95121(d) and Table 2 Proposed Updates

This provision was amended to reference newly added Table 2, which is a restatement of what was included in the incorporated provision from 40 CFR Part 98. Staff has included Table 2 to directly specify which fuels must be reported, rather than relying on a provision from 40 CFR Part 98 which was incorporated by reference.

#### Rationale for Section 95121(d) and Table 2 Proposed Updates

This amendment is needed to refer to the new table which is added to section 95121. Table 2 is needed to allow reporting entities to know which fuels to report under this provision.

### **Summary of Section 95122, Suppliers of Natural Gas, Natural Gas Liquids, and Liquefied Petroleum Gas, Compressed Natural Gas, and Liquefied Natural Gas.**

#### Summary of Section 95122(a)(3) Proposed Updates

In the previous version of the regulation, importers of compressed natural gas and liquefied natural gas were omitted. In the amended version of the mandatory reporting regulation, they have been added. This provision specifies which GHGs importers of compressed natural gas and liquefied natural gas are required to report.

Rationale for Section 95122(a)(3) Proposed Updates

These revisions are necessary to provide consistency in reporting for suppliers, including the complete suite of potential fuels with the addition of compressed natural gas and liquefied natural gas.

Summary of Section 95122(b)(9)-(10) Proposed Updates

Related to the item above, the edits in these two sections provide the specific methodologies which must be used in estimating emissions associated with imports of compressed natural gas and liquefied natural gas.

Rationale for Section 95122(b)(9)-(10) Proposed Updates

The methods provided for the newly added fuels are needed to ensure consistent reporting and are based on existing U.S. EPA methodologies included in the ARB regulation.

Summary of Section 95122(d)(5) Proposed Updates

This provision was modified to discriminate between natural gas and natural gas liquids reporting requirements.

Rationale for Section 95122(d)(5) Proposed Updates

This clarification is needed to ensure natural gas and natural gas liquids are reported correctly in this article.

Summary of Section 95122(f) Proposed Updates

This section was removed and moved, with modification, to section 95156(d).

Rationale for Section 95122(f) Proposed Updates

This deletion was needed to ensure the correct reporting entities were reporting this product data.

**Summary of Section 95123, Suppliers of Carbon Dioxide.**

Summary of Section 95123(b) Proposed Updates

The reference to the U.S. EPA rule was updated to reflect the correct section.

Rationale for Section 95123(b) Proposed Updates

This provision is needed to ensure suppliers of carbon dioxide are directed to the correct U.S.EPA rule citation.

**Subarticle 4.**

**Requirements for Verification of Greenhouse Gas Emissions Data Reports;  
Requirements Applicable to Emissions Data Verifiers**

This subarticle includes additions and modifications to the existing verification requirements of the current ARB GHG reporting regulation. These additions and



modifications are summarized below, and an explanation of their necessity is also included. Provisions which have been retained and are not modified are not described below.

### **Summary of Section 95130, Requirements for Verification of Emission Data Reports.**

This section clarifies the existing requirements for verification of emission data reports.

#### **Summary of Section 95130 Proposed Updates**

This provision was amended to resolve an inconsistency between the verification applicability requirements specified in section 95103(f) and section 95130 of the regulation.

#### **Rationale for Section 95130 Proposed Updates**

This change is necessary because section 95103(f) specifies that verification is required by facilities meeting certain requirements. Section 95130 included wording that was inconsistent with these requirements. Specifically, 95130 required verification by certain facilities emitting less than 25,000 metric tons of CO<sub>2</sub>e that are not subject to abbreviated reporting. The proposed revision to section 95130 now accurately reflects staff intent, and the requirements triggering verification are confined to section 95103(f).

### **Summary of Section 95131, Requirements for Verification Services.**

This section clarifies the existing requirements for verification services.

#### **Rationale for Section 95131 Proposed Updates**

Changes are needed to clarify the sector specialty provisions for verification services and the emissions data report modifications provision. In addition, changes are needed to the verification provisions for product data to support the cap-and-trade program.

#### **Summary of Section 95131(a)(2) Proposed Updates**

This provision describes the requirements for verification teams to include accredited sector specific verifiers as part of the verification team.

#### **Rationale for Section 95131(a)(2) Proposed Updates**

These changes are necessary to remove redundancies due to the addition of definitions of sector specialist verifiers in Section 95102(a).

#### **Summary of Section 95131(b)(3) Proposed Updates**

This paragraph describes the requirements for site visits performed by verification bodies as part of full verification services.

#### **Rationale for Section 95131(b)(3) Proposed Updates**

The term “sector specialist” was changed in this paragraph in order to be consistent with the proposed newly defined term “sector specific verifier.”

#### Summary for 95131(b)(7)(B) Proposed Updates

This provision addresses requirements for the sampling plan. It has been modified to remove the requirement that any single product data component needs to be included in the sampling plan.

#### Rationale for Section 95131(b)(7)(B) Proposed Updates

These changes are necessary to provide consistency with the new treatment of product data reporting in section 95103(k).

#### Summary for 95131(b)(9) Proposed Updates

Emissions data report modifications are required, where possible, subject to this provision. It has been amended to clarify that failure to make required report modifications will result in an adverse verification statement.

#### Rationale for Section 95131(b)(9) Proposed Updates

These changes are necessary to clarify and add consistency with the existing definition of “adverse verification statement” in section 95102(a). The change clarifies that an adverse verification statement will result if a reporting entity does not make corrections to reported data errors, when required.

#### Summary for Section 95131(b)(10) Proposed Updates

This provision addresses findings of material misstatement. The requirement to evaluate material misstatement of single product data components was removed.

#### Rationale for Section 95131(b)(10) Proposed Updates

The requirement to evaluate material misstatement of single product data components was removed in order to ensure consistency with the proposed text to evaluate material misstatement based on “total covered product data” in paragraph 95131(b)(12).

#### Summary for Section 95131(b)(12) Proposed Updates

This provision and subparagraph have been updated to reflect evaluation of “total covered product data.” Additionally, the equation to determine material misstatement has been divided into two equations: one for emissions data and the second for product data.

#### Rationale for Section 95131(b)(12) Proposed Updates

The changes are needed to support the cap-and-trade program’s direct allocations which are based on “total covered product data” summed for each facility or supplier and not based on individual “single product data components.”

#### Summary of Section 95131(i)(1)(C)(3) Proposed Updates

This provision applies to verification of biomass-derived fuels and specifies which information from biomass-derived fuels is considered an omission in the evaluation for material misstatement.

Rationale for Section 95131(i)(1)(C)(3) Proposed Updates

Amendments to this provision are needed to improve clarity in the regulatory text. The changes do not alter the original regulatory intent or requirements.

**Summary of Section 95132, Accreditation Requirements for Verification Bodies, Lead Verifiers, and Verifiers of Emissions Data Reports and Offset Project Data Reports.**

Summary of Section 95132(b)(5)(B) Proposed Updates

The citation for the cap-and-trade regulation is corrected in this paragraph.

Rationale for Section 95132(b)(5)(B) Proposed Updates

The citation for the cap-and-trade regulation is corrected in this paragraph and is necessary for clarity.

Summary of Section 95132(c) Proposed Updates

All references to “offset project verifiers” were changed to the proposed newly defined term “offset project specific verifier” which appears in section 95102(a).

Rationale for Section 95132(c) Proposed Updates

These changes are needed for consistency with the proposed newly defined term “offset project specific verifier.”

**Summary of Section 95133, Conflict of Interest Requirements for Verification Bodies for Emissions Data Reports.**

This section provides for conflict of interest disclosure and evaluation required for ARB-approval of verification services.

Summary of Section 95133(b) Proposed Updates

Updates in this section include changing the time-frame to 5 years for consistency with other provisions of the regulation and removing redundancy from the regulation text.

Rationale for Section 95133(b) Proposed Updates

The term “non-verification” was deleted, as there is no need to categorize verification services versus non-verification services in this context. The high conflict services are clearly described in this paragraph.

Summary of Section 95133(c) Proposed Updates

This paragraph was reorganized to clarify the original intent: verifications performed outside of ARB jurisdiction are excluded from the financial assessment. These services must be disclosed, but are not part of the conflict of interest evaluation of non-verification services.

#### Rationale for Section 95133(c) Proposed Updates

These changes are needed to clarify ARB's intent and improve consistency in verifier application of the provision.

#### Summary of Section 95133(e) Proposed Updates

Text in this section regarding conflict of interest submittal requirements for accredited verification bodies was edited to provide for internal consistency with references to "reporting entities and related entities" as well as "verification bodies and related entities."

#### Rationale for Section 95133(e) Proposed Updates

These edits are needed to provide for internal consistency and to reflect a common interpretation.

#### Summary of Section 95133(e)(1)(B) Proposed Updates

This provision clarifies that verification bodies are permitted to perform verification services for the reporting entity, outside of the jurisdiction of ARB, so long as the verification body discloses this information to ARB.

#### Rationale for Section 95133(e)(1)(B) Proposed Updates

These edits are needed to provide for internal consistency and to reflect a common interpretation.

#### Summary of Section 95133(e)(1)(C) Proposed Updates

This provision provides for disclosure of services provided by the verification team, verification body and related entities to the reporting entity and its related entities. Language consistency was improved, as well as keeping time-frames consistent throughout subarticle 4 of the regulation.

#### Rationale for Section 95133(e)(1)(C) Proposed Updates

The scope of disclosure is clarified as including activities of the verification body. The term "non-verification services" is deleted to improve clarity in this context and "services other than ARB verification services" is added in its place. The time frame of 3 years is changed to 5 years for consistency with other provisions in this section. The scope of disclosure is extended to the reporting entity's related entities to ensure consistency with other provisions in this section. Reference to "accounting of GHG emissions or electricity or fuel transactions" did not provide clarity and has been deleted. Reference to "related to GHGs or electricity transactions" is unneeded and is deleted, since a broader scope is consistent with the context in this section.

#### Summary of Section 95133(f)(4) Proposed Updates

Edits were made to this provision to clarify that the scope of conflict of interest determination includes the reporting entity's related entities and the verification body's related entities. "Related entity" is defined pursuant to section 95133(b)(2).

#### Rationale for Section 95133(f)(4) Proposed Updates

These edits were necessary to clarify that the scope of conflict of interest determination includes the reporting entity's related entities and the verification body's related entities.

#### Summary of Section 95133(g)

This provision describes ongoing requirements for monitoring conflict of interest situations. These edits were made to clarify that the scope of conflict of interest monitoring includes the reporting entity's related entities and to clarify that financial disclosure is required.

#### Rationale for Section 95133(g) Proposed Updates

These changes are necessary to provide improved rigor to conflict of interest monitoring requirements.

### **Subarticle 5. Reporting Requirements and Calculation Methods for Petroleum and Natural Gas Systems**

#### **Summary of Sections 95150-95158 Proposed Updates.**

The current ARB regulation included U.S. EPA requirements incorporated by reference which spanned several U.S. EPA rule packages for 40 CFR Part 98, resulting in some confusion by reporting entities in understanding their reporting obligations. In order to improve the clarity of this subarticle, ARB has proposed to insert directly into the regulation the majority of the incorporated text, and to no longer simply rely on incorporation by reference. As such, this subarticle has been modified to specifically list out the requirements from the U.S. EPA rules in the ARB regulation. For the most part, these requirements are identical to those incorporated by reference in the 2010 revisions, but in some cases the equations have changed and these changes are discussed below. Additionally, for those specific provisions which are different from the U.S. EPA text, ARB staff will provide more detailed summary and rationale below.

#### Rationale for Sections 95150-95158 Proposed Updates

The amendments to sections 95150-95158 specifically list out the provisions of the U.S. EPA's 40 CFR Part 98 and are necessary to reduce confusion, improve clarity, and ensure that reporting entities are fully aware of their reporting obligations under the ARB reporting regulation. The rationale included in the ARB MRR 2010 ISOR still apply to these provisions.

#### Summary of Section 95150(a)(2) Proposed Updates

The language "associated with a single well pad," which is included in the U.S. EPA's most recent rule update was not added to these amendments. Instead, the language "associated with a well pad" was used.

#### Rationale for Section 95150(a)(2) Proposed Updates

This provision is needed to ensure the facility boundaries, for purposes of the cap-and-trade program, are sufficient to collect the required emissions for onshore petroleum and natural gas production facilities.

#### Summary of Section 95152(c) Proposed Updates

One additional reporting requirement was added for the onshore petroleum and natural gas production industry segment. This industry segment is now required to report emissions related to equipment and pipeline blowdowns using the methods found in section 95153(g). Additionally, the reporting requirement for equipment leaks was changed for this industry segment. Previously reporters used the methods in section 95153(p) which requires equipment population counts and use of a default emissions factor. This reporting requirement has been deleted and reporters are now required to use the methods found in 95153(o) - Leak detection and leaker emission factors. Reporting requirements were also added for hydrocarbon liquids dissolved CH<sub>4</sub> and CO<sub>2</sub> (section 95153(v)). The requirements added in section 95153(v) replace the storage tank requirements in 95153(h).

#### Rationale for Section 95152(c) Proposed Updates

The requirement to report GHG emissions from equipment and pipeline blowdowns is necessary to provide a more complete emissions accounting for this sector. Use of the leaker screening methodology (95153(o)) is necessary to provide operators with actionable information to address and fix leaking components and to provide more accurate emissions data reporting to support the statewide greenhouse gas inventory program. Inclusion of the emissions methodology for hydrocarbon dissolved CH<sub>4</sub> and CO<sub>2</sub> is necessary to capture the emissions that occur when produced hydrocarbons are brought to atmospheric pressure and the dissolved GHGs escape as produced hydrocarbons are transported from the production field to refinery.

#### Summary of Section 95152(e) Proposed Updates

Language was added to require reporting of flaring emissions for the onshore natural gas transmission compression industry segment.

#### Rationale for Section 95152(e) Proposed Updates

This provision is necessary to ensure the reporting of flares from the industry segments in this subarticle are accurately accounted for.

#### Summary of Section 95152(f) Proposed Updates

Language was added to require reporting of flaring emissions for the underground natural storage industry segment. Language was also added to require reporting of equipment and pipeline blowdown emissions.

#### Rationale for Section 95152(f) Proposed Updates

This provision is necessary to ensure the reporting of flares from the industry segments in this subarticle are accurately accounted for. The inclusion of equipment and pipeline blowdown emissions is necessary to provide a more complete picture of GHG emissions from this industry segment for the greenhouse gas inventory.

#### Summary of Section 95152(g) Proposed Updates

Language was added to require reporting of flaring emissions for the LNG storage industry segment. Language was also added to require reporting of equipment and pipeline blowdown emissions.

#### Rationale for Section 95152(g) Proposed Updates

This provision is necessary to ensure the reporting of flares from the industry segments in this subarticle are accurately accounted for. The inclusion of equipment and pipeline blowdown emissions is necessary to provide a more complete picture of GHG emissions from this industry segment for the greenhouse gas inventory.

#### Summary of Section 95152(h) Proposed Updates

Language was added to require reporting of flaring emissions for the LNG import/export industry segment.

#### Rationale for Section 95152(h) Proposed Updates

This provision is necessary to ensure the reporting of flares from the industry segments in this subarticle are accurately accounted for.

#### Summary of Section 95152(i) Proposed Updates

Language was added to require reporting of flaring emissions for the natural gas distribution industry segment. Language was also added to require reporting of equipment and pipeline blowdown emissions.

#### Rationale for Section 95152(i) Proposed Updates

This provision is necessary to ensure the reporting of flares from the industry segments in this subarticle are accurately accounted for. The inclusion of equipment and pipeline blowdown emissions is necessary to provide a more complete picture of GHG emissions from this industry segment for the greenhouse gas inventory.

#### Summary of Sections 95153(a)-(b) Proposed Updates

The natural gas driven pneumatic device venting and natural gas pneumatic device venting sections from the 2010 version of the reporting regulation were modified to metered and non-metered natural gas pneumatic device venting. The equations in these sections were modified to reflect this change.

#### Rationale for Section 95153(a)-(b) Proposed Updates

These changes were needed to conform to the most up-to-date equations used to calculate emissions for these sources.

#### Summary of Section 95153(c) Proposed Updates

Equation 4 of Calculation Methodology 3 was changed to agree with the emissions calculation methodology adopted by the Western Climate Initiative (WCI) in their *Final Essential Requirements for Mandatory Reporting (Second Update)*, (WCI, 2011). A term is included in order to correct volume measurements for the amount of H<sub>2</sub>S present in gas entering and exiting the AGR unit.

Rationale for Section 95153(c) Proposed Updates

This change is necessary to provide for a more accurate emissions estimate.

Summary of Section 95153(d) Proposed Updates

Equation 5 in section 95153(d) was corrected by removing the conversion term 1,000cf/Mcf.

Rationale for Section 95153(d) Proposed Updates

This change is necessary to ensure an error was corrected in the regulation.

Summary of Section 95153(e) Proposed Updates

The equations used to calculate the well venting for liquids unloading was modified.

Rationale for Section 95153(e) Proposed Updates

These changes were needed to conform to the most up-to-date equations used to calculate emissions for these sources.

Summary of Section 95153(g) Proposed Updates

The title of this section was changed from “Blowdown Vent Stacks” to “Equipment and Pipeline Blowdowns” and text in 95153(h) was edited slightly to indicate that this method applies to pipelines as well as equipment. The equations were also modified to reflect the most up-to-date method.

Rationale for Section 95153(g) Proposed Updates

This change is needed to ensure this methodology includes all equipment blowdowns and blowdowns of pipelines. This change will provide a more accurate reflection of emissions occurring when equipment and pipes containing natural gas are vented to the atmosphere. The equation changes were needed to conform to the most up-to-date equations used to calculate emissions for these sources.

Summary of Section 95153(h) Proposed Updates

The calculation methods, except for the method describing unclosed gas-liquid separator liquid dump valves, were removed and replaced with the methods described in section 95153(v).

Rationale for Section 95153(h) Proposed Updates

This provision is necessary to ensure the reported emissions data is of sufficient quality for the cap-and-trade program. Additionally, the deleted methods prevented the potential for double counting of emissions.



#### Summary of Section 95153(j) Proposed Updates

An additional equation was added to clarify the calculation method for well testing, venting and flaring.

#### Rationale for Section 95153(j) Proposed Updates

The equation changes were needed to conform to the most up-to-date equations used to calculate emissions for these sources.

#### Summary of Section 95153(l) Proposed Updates

The original title of this section (Flare Stacks) was modified to read “Flare stack or other destruction device emissions.” Section 95153(l)(1) was added to clarify that this method applies to all destruction equipment...flares, incinerators, oxidizers, and vapor combustion units,” not just flares.

#### Rationale for Section 95153(l) Proposed Updates

This provision is necessary to ensure a more complete accounting of these emissions for greenhouse gas inventory purposes.

#### Summary of Section 95153(m) Proposed Updates

An additional equation was added to clarify the calculation method for centrifugal compressor venting.

#### Rationale for Section 95153(m) Proposed Updates

The equation changes were needed to conform to the most up-to-date equations used to calculate emissions for these sources.

#### Summary of Section 95153(n) Proposed Updates

An additional equation was added to clarify the calculation method for reciprocating compressor venting.

#### Rationale for Section 95153(n) Proposed Updates

The equation changes were needed to conform to the most up-to-date equations used to calculate emissions for these sources.

#### Summary of Section 95153(o) Proposed Updates

A requirement to use the leak detection and leaker emission factors method by the onshore petroleum and natural gas production industry segment was added. Changes were also made to the determination of the mole fraction of CH<sub>4</sub> and CO<sub>2</sub> in the GHG<sub>i</sub> term in Equations 25 and 26.

#### Rationale for Section 95153(o) Proposed Updates

This provision is necessary to ensure an accurate measurement methodology is applied for leak detection and leaker emissions factors for the onshore petroleum and natural gas production industry segment. The modification to Equations 25 and 26 is necessary to allow for experimentally determined mole fractions of CH<sub>4</sub> and CO<sub>2</sub> in the

feed natural gas. The existing regulation only allows the use of default factors, which may lead to inaccuracies.

#### Summary of Section 95153(p) Proposed Updates

Changes were made to the determination of the mole fraction of CH<sub>4</sub> and CO<sub>2</sub> in the GHG<sub>i</sub> term in Equation 27.

#### Rationale for Section 95153(p) Proposed Updates

The modification to Equation 27 is necessary to allow for experimentally determined mole fractions of CH<sub>4</sub> and CO<sub>2</sub> in the feed natural gas. The existing regulation only allows the use of default factors, which may lead to inaccuracies.

#### Summary of Section 95153(v) Proposed Updates

This section replaces the reporting requirements in 95153(h) for the onshore petroleum and natural gas production industry segment. Text was added to describe a flash liberation test or vapor recovery system method.

#### Rationale for Section 95153(v) Proposed Updates

This methodology is necessary to quantify emissions from GHGs CH<sub>4</sub> and CO<sub>2</sub> dissolved in crude oil and condensate which are emitted as the produced hydrocarbons acclimate to atmospheric pressure and are stored and moved from the production field to the refinery.

#### Summary of Section 95153(w) Proposed Updates

Language was added to this section to indicate that the vapor recovery system method may include emissions from crude oil condensate and produced water.

#### Rationale for Section 95153(w) Proposed Updates

This change is necessary to allow reporting entities who use this method to only perform one test to obtain the information required for section 95153(v) and (w).

#### Summary of Section 95153(y) Proposed Updates

An additional equation was added to clarify the calculation method for onshore petroleum and natural gas production and natural gas distribution combustion emissions.

#### Rationale for Section 95153(y) Proposed Updates

The equation changes were needed to conform to the most up-to-date equations used to calculate emissions for these sources.

#### Summary of Section 95154(f) Proposed Updates

The requirements for using best available monitoring methods (BAMM) were added. For the 2012 data year, BAMM will be accepted. Beginning for 2013 data, BAMM will no longer be an acceptable method.

#### Rationale for Section 95154(f) Proposed Updates

The provision is necessary to ensure the collection of accurate data for the cap-and-trade program beginning in 2013.

#### Summary of Section 95156 Proposed Updates

Modifications were made to this section to improve upon the allocation of allowances for petroleum and natural gas systems sector. Specific additions include: reporting requirements for cogeneration, steam and other sources located within the facility boundaries of an onshore petroleum and natural gas facility; adding reporting requirements for MMBtu of associated gas produced at thermal and other than thermal operations; adding the reporting of dry gas; adding product data reporting requirements for natural gas fractionators and natural gas processors; and adding voluntary reporting requirements for 2011 and 2012 data for associated gas, dry gas and operators of a natural gas liquid fractionating or processing facility.

#### Rationale for Section 95156 Proposed Updates

These provisions are necessary to support the cap-and-trade program, specifically the allocation of allowances process. The addition of the product data requirements from natural gas fractionators and processors is to reflect an omission from the previous regulation. Voluntary reporting of 2011 and 2012 product data for certain products may be necessary for reporting entities to receive their full allocation of allowances under the cap-and-trade program.

#### Summary of Section 95157 Proposed Updates

In order to maintain the order of subarticle 5, this section replaced the existing section 95157 (which moved to section 95158). The proposed section 95157 includes activity data that needs to accompany each emissions data report from this subarticle.

#### Rationale for Section 95157 Proposed Updates

This change is necessary to ensure reporters have a clear understanding of the activity data reporting requirements and to maintain as much congruency in the reporting order when compared to U.S. EPA.

#### Summary of Section 95157(a) Proposed Updates

This section explains which industry segments are subject to this section.

#### Rationale for Section 95157(a) Proposed Updates

This change is needed to ensure the correct industry segments report the correct supporting data.

#### Summary of Section 95157(b) Proposed Updates

This section explains the supporting requirements for offshore petroleum and natural gas production.

#### Rationale for Section 95157(b) Proposed Updates

This change is needed to ensure the correct supporting data is reported for offshore petroleum and natural gas production.

#### Summary of Section 95157(c) Proposed Updates

This section explains the reporting requirements for each of the other industry segments in subarticle 5.

#### Rationale for Section 95157(c) Proposed Updates

This section is necessary to ensure the correct supporting information to the emission calculations are reported correctly.

#### Summary of Section 95157(d) Proposed Updates

This section indicates that annual throughput must be reported for each industry segment.

#### Rationale for Section 95157(d) Proposed Updates

This provision is necessary to ensure the correct throughputs are reported.

#### Summary of Section 95157(e) Proposed Updates

This section requires onshore petroleum and natural gas production to report their best available estimates for certain parameters.

#### Rationale for Section 95157(e) Proposed Updates

The provision is necessary to ensure the reporting entity accurately reports the data required in this section.

#### Summary of Section 95158 Proposed Updates

This section was the former section 95157 in the 2010 reporting regulation. Other than the section name change, the language in this section did not change, except to no longer refer to the U.S. EPA rule.

#### Rationale for Section 95158 Proposed Updates

This provision is necessary to ensure that reporters clearly follow the reporting requirements. Aside from deleting the reference to the U.S. EPA rule, no changes were made to the language in the section.

### Summary of Appendix A Proposed Updates

The appendix was added to ensure the correct emission factors for subarticle 5 were used. The tables represent the most up-to-date emission factors and were modified to include only emission factors relevant for the State of California.

### Rationale for Appendix A Proposed Updates

The appendix is necessary to ensure reporters use the correct emission factors and report accurately.

## **B. Conforming Amendments to the Definition Section of the AB 32 Cost of Implementation Fee Regulation**

### **Summary of Section 95202, Definitions.**

This section defines all key terms used in the Fee Regulation that may not be in common use or which may potentially be ambiguous without a regulatory definition. Definitions have been edited, added, and in some cases, removed to conform to the definition amendments of the mandatory reporting regulation. These amendments clarify the meaning and intent of the regulation. These definition amendments do not alter any existing requirement under the Fee Regulation.

### Rationale for Section 95102, Proposed Updates

This section is necessary to ensure that those subject to the Fee Regulation, the Cap-and-Trade Regulation, and the reporting regulation are able to understand and interpret the regulations consistently and correctly, and to avoid ambiguity and improve compliance with the regulations. Deletions, additions, and modifications from the current version of the Fee Regulation are necessary to ensure consistent interpretation of terms across all three regulations. These definition amendments do not alter any existing requirements under the Fee Regulation.

## **C. Conforming Amendments to the Definition Section of the Cap-and-Trade Regulation**

### **Summary of Section 95802, Definitions.**

This section defines all key terms used in the Cap-and-Trade Regulation that may not be in common use or which may potentially be ambiguous without a regulatory definition. Definitions have been edited, added, and in some cases, removed to conform to the definition amendments of the mandatory reporting regulation. These amendments clarify the meaning and intent of the regulation. These definition amendments do not alter any existing requirement under the Cap-and-Trade Regulation.

## Rationale for Section 95802, Proposed Updates

This section is necessary to ensure that those subject to the Fee Regulation, the Cap-and-Trade Regulation, and the reporting regulation are able to understand and interpret the regulations consistently and correctly, and to avoid ambiguity and improve compliance with the regulations. Deletions, additions, and modifications from the current version of the Cap-and-Trade Regulation are necessary to ensure consistent interpretation of terms across all three regulations. These definition amendments do not alter any existing requirements under the Cap-and-Trade Regulation.

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