

California's Revised Mandatory Greenhouse Gas Reporting Regulation

Extended Abstract #65

Y. Anny Huang, Doug Thompson, David Edwards, and Patrick Gaffney
California Air Resources Board, 1001 I Street, Sacramento, CA 95814

INTRODUCTION

The California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions¹ was originally developed pursuant to the California Global Warming Solutions Act of 2006, and adopted by the Air Resources Board (ARB) in December 2007. Over the past three years, ARB staff has implemented the California greenhouse gas (GHG) reporting program established by the regulation. Over 600 facilities and entities annually submit to ARB their GHG emissions data reports, which are verified for accuracy and completeness by ARB-accredited third-party verifiers. Since the initial adoption of the regulation in 2007, there have been three significant developments. First, ARB has moved forward with developing a market-based cap-and-trade program for reducing GHG emissions. Second, at the federal level, the United States Environmental Protection Agency (U.S. EPA) has adopted a national mandatory greenhouse gas reporting rule. Third, the Western Climate Initiative (WCI), a collaboration of western states and Canadian provinces working together to tackle climate change at a regional level, has assembled common and consistent reporting requirements out of the framework of U.S. EPA's reporting regulation to facilitate a linked regional market program. Substantial revisions to ARB's current GHG reporting regulation are necessary in order to address these three developments. California has worked with WCI colleagues and stakeholders to develop requirements that maximize harmonization with the federal GHG reporting while providing the high quality data needed to support GHG control strategies that include a market-based cap-and-trade program.

To meet these goals, ARB approved a revised GHG reporting regulation in December 2010 that is scheduled to become effective in January 2012. In 2011, ARB initiated additional rounds of a formal stakeholder process that included affected industry groups, environmental groups, other California state agencies, and community advocates, while continually gathering feedback from current reporters and accredited verifiers. The revision includes changes in rule applicability, general reporting and verification requirements, and requirements specific to each industrial sector that address additional sources of GHG process emissions as well as general combustion sources and electricity generating units. It also includes other California-specific requirements for missing data substitution, demonstration of accuracy, complete facility energy accounting, and product data reporting that are necessary for supporting various elements of the cap-and-trade program and other control strategies. The regulation requires annual emissions reporting from GHG-emitting facilities, fuel and carbon dioxide suppliers, and electric power entities that together account for approximately 87 percent of the total carbon dioxide produced from California industrial, commercial, and mobile sources of emissions.

This paper provides a high-level overview of rule applicability, its timeline, verification, and the major areas of differences from the U.S. EPA's GHG reporting regulation. Due to the diversity of industry sectors covered by the regulation and the large amount of technical details it contains, the scope of this paper is limited to general requirements pertaining to general fuel combustion sources and electricity generating units, two of the most common GHG-emitting source categories in the GHG inventory. Readers that are interested in the industry-specific elements of the revised regulation should refer to the information publicly available on ARB's GHG reporting website² or contact ARB staff leads for questions.

CHANGES IN GENERAL REQUIREMENTS

Rule Applicability

The original 2007 California regulation covers seven reporting sector categories (cement plants, refineries, hydrogen plants, electricity generation, cogeneration, general stationary combustion, and electricity retailers and marketers). The revised regulation harmonizes with the U.S. EPA regulation by including those additional source categories in 40 CFR Part 98 that exist in California, and it continues to include electric power entities and geothermal power plants, which are not covered by the U.S. EPA regulation.

Similar to the U.S. EPA regulation, certain source categories including Acid Rain Program units, cement production, lime manufacturing, nitric acid production, and petroleum refineries, are subject to reporting regardless of emissions level. For other source categories, for which U.S. EPA has established an emissions threshold of 25,000 metric tons (MT) of CO₂ equivalent (CO₂e) excluding biogenic CO₂, California specifies that facilities with greater than 25,000 MTCO₂e of emissions, inclusive of all fossil and biogenic emissions, are subject to full reporting requirements. A more comprehensive inclusion of emissions for this applicability determination is critical for verifying the exemption claims of emissions without a compliance obligation under California's cap-and-trade program, as well as monitoring sustainability practices for biomass-derived fuels.

The revised California regulation also adopts a 10,000 MTCO₂e reporting threshold for facilities and suppliers of fuels and carbon dioxide. For facilities with emissions between 10,000 and 25,000 MTCO₂e, operators have the option to file an abbreviated report using simple emission calculation methods, and they are not subject to third-party verification, missing data substitution, and calibration and accuracy requirements. These reporters must count all fossil and biogenic combustion emissions, but may exclude process, vented, and fugitive emissions unless these would cause the reporting entity to reach 25,000 MTCO₂e. Inclusion of facilities in the 10,000 to 25,000 MTCO₂e range with abbreviated reporting option reduces the costs of compliance for smaller facilities while providing ARB a means of monitoring emission leakage below the cap-and-trade threshold of 25,000 MTCO₂e.

Electric power entities report all imported and exported electricity in order to verify generation sources, applicable emission factors, and exemption claims of emissions without a compliance obligation under California's cap-and-trade program. Geothermal power plants are subject to the 10,000 MTCO₂e and 25,000 MTCO₂e thresholds similar to other source categories.

With these changes in applicability, power plants and cogeneration facilities emitting between 2,500 and 10,000 MTCO_{2e} that are subject to the 2007 regulation will no longer be required to report under the revised reporting requirements. Other facilities in the 10,000 to 25,000 MTCO_{2e} range that are not subject to the 2007 regulation previously will start participating in the program as new reporters using the abbreviated reporting option. The revised California regulation also brings in certain suppliers of transportation fuels that are not covered by the U.S. EPA requirements for fuel suppliers. Reporting by fuel suppliers will substantially increase the emissions coverage of the regulation, and is necessary to support a broad cap-and-trade program that includes these sources by 2015.

Timing and Schedule

California's revised GHG reporting regulation is scheduled to become effective by January 2012. An annual reporting deadline of April 10 will apply for most facilities and fuel suppliers. The California deadline is 10 days later than the U.S. EPA deadline to allow additional time for compiling different or additional data as needed. Electric power entities have until June 1 to allow enough time for compilation of purchase and sales data for the previous year. To assist with the transition to new reporting requirements for facilities in the 10,000 to 25,000 MTCO_{2e} range, the initial reporting deadline for these smaller facilities is extended to June 1, 2013. This extension does not apply to facilities which are already reporting generated electricity under the 2007 regulation. To support overall regulatory program needs, the verification deadline is set to September 1 for all reporting entities. This shorter verification period is necessary to ensure that the verification process is completed within the time frame required to support the cap-and-trade regulation.

Because the new regulation is not in effect in 2011, the year for which emissions will be reported in 2012, the regulation provides facility operators the option of reporting under U.S. EPA requirements in the first year, since monitoring systems or procedures may not be in place to support separate California requirements. In addition, the more stringent ARB missing data substitution requirements are not to be used for 2012 reporting, but must be used for 2013 reporting of 2012 data.

Stationary Fuel Combustion Sources

Most industrial facilities have stationary fuel combustion sources. The revised California requirements for reporting emissions from these sources are based on the U.S. EPA's tiered series of emission calculation methods, with limitations applied by fuel type to ensure a high degree of accuracy for cap-and-trade compliance grade emissions quantification. In general, for common standardized fuels, which have limited variability in carbon content, lower-tier methods using default factors or relatively limited fuel testing can be used. For fuels likely to be variable in carbon content, higher tier methods would be applied to avoid significant underestimation or overestimation of GHG emissions.

U.S. EPA's regulation defines natural gas very broadly; it could include associated gas at oil production sources and other naturally occurring field gases regardless of carbon content. The revised California regulation retains use of the heating value method for natural gas as provided in the U.S. EPA regulation, but limits its use to pipeline quality gas. Natural gas outside this range would be tested for carbon content if a CEMS is not used to estimate emissions.

The U.S. EPA regulations allows use of a Tier 2 steam production method to estimate CO₂ emissions in units that produce steam, and the use of default emission factors in units with a maximum rated heat input capacity of 250 MMBtu/hr or less. To ensure more accurate emission estimation, the revised California regulation requires carbon testing or use of CEMS when coal and other solid fossil fuels are used as a fuel.

For certain standardized (mostly liquid) fuels, use of default emission factors is permitted when combusted in units with a maximum rated heat input capacity of 250 MMBtu/hr or less, except where fuel heating value analysis is routinely performed, as stated in the U.S. EPA rule. California has also retained an option for lower-tier methods for *de minimis* sources within specified limits. This option is provided so reporters are not unnecessarily burdened with collecting analytical data for very small emission sources.

Facility Energy Balance

ARB built upon the energy data elements currently collected from all facilities under the 2007 regulation and revised those reporting requirements to include a complete facility energy balance. Facility energy accounting is not required by the U.S. EPA regulation, but it is essential for understanding how facilities utilize and waste energy. It has been included to inform future policy decisions affecting carbon-cost distribution among the covered sectors, support distribution of free allowances and evaluation of sector benchmarks, and provide data to support other energy efficiency and combined heat and power programs. Indirect energy usage also provides a more complete picture of the emissions footprint of the facility. As facilities consider changes that would affect their emissions, the relative impact on total (direct plus indirect) emissions by the facility level should be monitored.

For the purpose of reporting energy balance, operators may exclude electricity passed through the facility (electricity generated outside the facility and delivered into the facility with final destination outside of the facility). Operators also have the option to exclude electricity consumed by operations or activities without any emissions, energy outputs, or product outputs, and that are neither a part of nor in support of operations or activities that are covered by the regulation.

Electricity Generation and Cogeneration Units

In addition to California's stand-alone power plants, many industrial facilities have electricity generation or cogeneration units on-site. For California reporting, emission calculation methods for these sources are consistent with the specifications for stationary fuel combustion sources. Operators are also required to report information about their energy generation and on-site use. For electricity generating facilities, operators are required to report the dispositions of generated electricity and generated thermal energy. At the unit level, operators are required to report net and gross electricity generation and total thermal output. To complete the facility energy balance at facilities already subject to GHG reporting, operators with on-site renewable energy generation systems greater than 0.5 megawatts are also to report basic information on such systems, including nameplate capacity and electricity sold to the grid or other end users. This is necessary to complete the facility energy balance and ensure fair accounting of energy efficiencies among facilities in the same industry sector. In addition, a new category,

“bigeneration,” which refers to electricity generating units that simultaneously produce electricity and steam from the same fuel source but do not utilize waste heat, is added for clarity and to distinguish from cogeneration activities.

Verification

The verification process ensures that the reported data meets the accuracy and completeness requirements of the regulation. Modifications to the 2007 version of the regulation were made to improve the transparency of the verification process and synchronize the verification program with the requirements of the cap-and-trade program. Starting in 2012, third-party verifiers will verify product data quantities (e.g., tons of glass pulled, tons of clinker produced, barrels of oil produced) in addition to the emissions data. This step was added to the verification process to support the allocation of allowances in the cap-and-trade program. Modifications to the petition process and the addition of an assigned emission level were completed to support the deadlines associated with the allowance surrender and the distribution of emissions allowances, respectively, in the cap-and-trade program. Biomass-derived fuels verification was added to the regulation to ensure use of biomass-derived fuels meets the requirements of the reporting and cap-and-trade regulations. The accreditation process was modified to allow ARB to evaluate the quality of the ARB-accredited verifiers in a more critical manner and establishes the criteria to become an offset project verifier. Finally, an addition to the conflict of interest requirements allows for local air districts to play a greater role in the verification process, while still adhering to the standards of the regulation. The overall changes are designed to improve the operational consistency and transparency of the verification program, which will ensure the overall accuracy and completeness of the reported data.

SUMMARY

The California GHG reporting regulation has been revised to support a market-based program for reducing GHG emissions, harmonize with U.S. EPA’s GHG reporting rule, and align with WCI requirements for a linked regional program. The revised California regulation uses U.S. EPA’s regulation as the foundation and modifies the requirements as necessary to ensure consistently high quality data for cap-and-trade. This paper provides a high-level overview of the regulation’s applicability and timeline and describes major difference between the California and the federal rules for stationary fuel combustion sources and electricity generating units.

REFERENCES

1. Title 17 of California Code of Regulation, Article 2, Subchapter 10, Sections 95100 to 95133. Regulation development documents available at: <http://www.arb.ca.gov/regact/2010/ghg2010/ghg2010.htm>
2. California Air Resources Board, Mandatory Greenhouse Gas Emissions Reporting website at: <http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm>