

## 2008 to 2013 Emissions Summary Mandatory Reporting for Greenhouse Gas Emissions

This document provides a summary of greenhouse gas (GHG) emissions reported under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (MRR) from 2008 to 2013 by each sector. This document also provides a question and answer section that describes the information found in this document. Table 1 below shows reported facility and entity emissions for each sector from 2008 to 2013 in metric tons of carbon dioxide equivalent. The MRR data supports the Cap-and-Trade Program and AB 32 Cost of Implementation Fee Regulation. The MRR program includes a subset of the statewide GHG emissions sources. The statewide GHG inventory is a separate program.<sup>1</sup>

**Table 1: 2008 to 2013 Reported Facility and Entity Emissions in metric tons carbon dioxide equivalent (MT CO<sub>2</sub>e)<sup>2</sup>**

Source Category*	2008	2009	2010	2011	2012	2013
<b>California Facilities</b>						
Cement Plants	8,745,004	5,930,929	5,625,902	6,221,403	7,054,289	7,382,978
In-State Electricity Generation**	64,329,165	60,788,291	56,139,488	45,203,967	56,008,282	54,208,347
Other Combustion Sources***	10,522,295	9,226,370	9,077,145	9,819,263	11,257,856	11,276,608
Refinery and Hydrogen Plants	36,724,823	34,393,790	34,754,066	34,212,970	33,755,850	33,860,983
Oil and Gas Production	11,349,054	11,237,758	10,972,797	14,591,066	15,214,740	16,498,686
<b>Total Facilities</b>	<b>131,670,341</b>	<b>121,577,137</b>	<b>116,569,398</b>	<b>110,048,669</b>	<b>123,291,017</b>	<b>123,227,603</b>
<b>Electricity Imports and Fuel Suppliers</b>						
Electricity Imports	NA	NA	NA	47,185,380	44,914,722	41,725,470
Transportation Fuel Suppliers	NA	NA	NA	171,483,351	165,598,476	165,651,446
Natural Gas, NGL, and LPG suppliers****	NA	NA	NA	97,946,795	106,567,159	107,028,496
CO <sub>2</sub> Suppliers				738,074	770,632	712,478
<b>Total Electricity Imports and Fuel Suppliers</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>317,353,601</b>	<b>317,850,989</b>	<b>315,117,890</b>
<b>Grand Totals</b>	<b>131,670,341</b>	<b>121,577,137</b>	<b>116,569,398</b>	<b>427,402,270</b>	<b>441,142,007</b>	<b>438,345,492</b>

\* Facilities are categorized in identical source categories across all years, which may cause shifts in emissions between categories compared for previously posted 2008-2010 data.

\*\* Category includes cogeneration power plants. Out-of-state electricity generation sources were excluded from the 2008-2010 historic data to maintain consistency with the current version of MRR, which does not require reporting by out-of-state electricity generators.

\*\*\* Other combustion sources represent facilities with primarily combustion emissions, although they may also include relatively small amounts of "process" emissions, which are typically GHG emissions resulting from chemical reactions (versus fuel combustion or fugitive emissions).

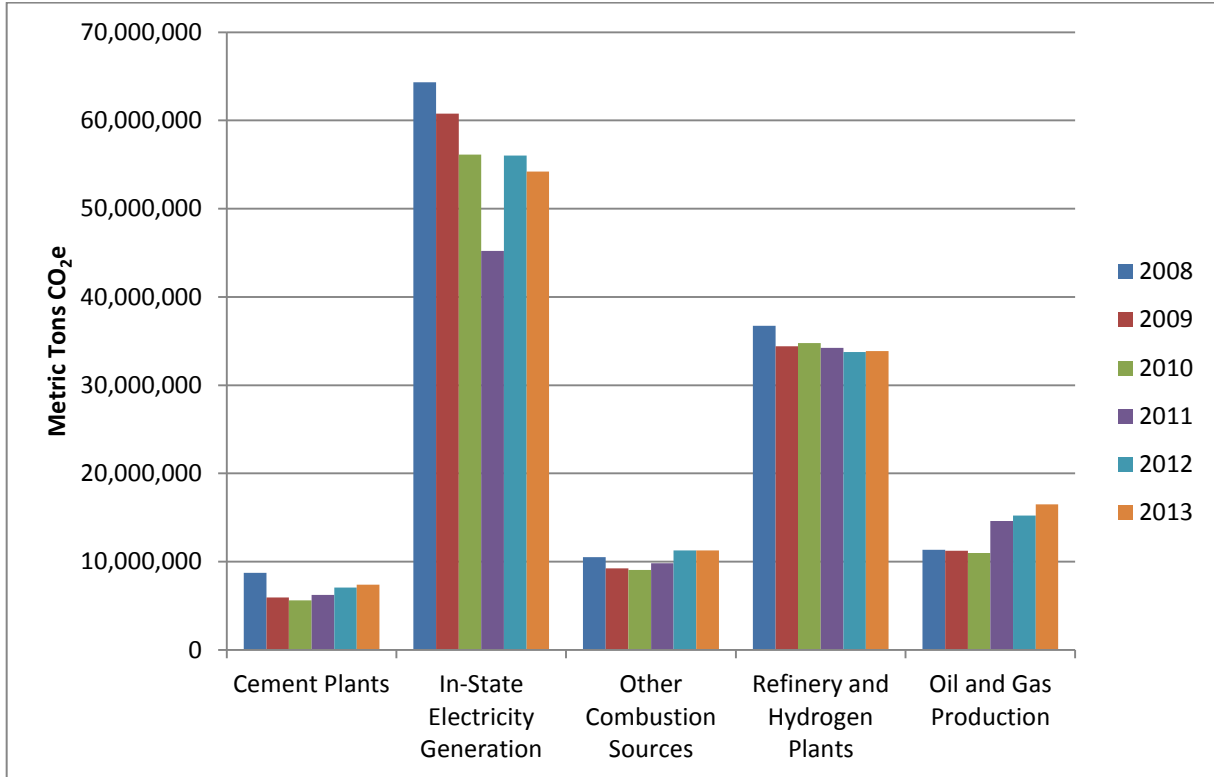
<sup>1</sup> GHG Inventory Program page - <http://www.arb.ca.gov/cc/inventory/inventory.htm>

<sup>2</sup> MRR GHG Reported Emissions Data - <http://www.arb.ca.gov/cc/reporting/ghg-rep/reported-data/ghg-reports.htm>

\*\*\*\* Natural gas, natural gas liquids (NGL), and liquefied petroleum gas (LPG) suppliers represent total reported natural gas delivery emissions. Emissions associated with the combustion of this delivered natural gas are also included in the reported facility emissions.

Figure 1 below shows an annual comparison of total GHG emissions for facilities by sector shown for 2008 through 2013 from Table 1. These annual totals represent total reported emissions from facilities located in California, including stationary combustion from non-biomass and biomass fuels, process, and fugitive emissions.

**Figure 1: Comparison of Facility Reported Emissions: 2008 to 2013 (MT CO<sub>2</sub>e)**



\* In-State Electricity Generation category includes both electric and cogeneration power plants

## Information About 2013 Reported Emissions

The following questions and answers provide information related to the 2013 GHG emissions reported by facilities and entities subject to the Mandatory Reporting Regulation.

Question: How do total statewide GHG emissions for 2013 compare to previous years?

Answer: Total 2013 statewide GHG reported emissions decreased by approximately 2.7 million metric tons of CO<sub>2</sub>e, or 0.6 percent. The statewide reduction is attributed mostly to a decrease in emissions in the electricity sector. The reasons for these decreases are discussed in questions related to the electricity sector below. Some sectors showed emissions increases, such as cement plants and oil and gas production. For cement plants, this was due to increased production.

Question: Why did in-state electricity generation emissions decrease in 2013?

Answer: The emissions decreases for in-state electricity generation are due to efficiency improvements and decreases in cogeneration activity. More specifically, for standard power plants, in-state electricity generation has increased slightly, but there was an overall decrease in statewide emissions. For cogeneration power plants, electricity generation decreased slightly, but the thermal output decreased by a little over 10 percent.

Question: Why are the MRR 2013 greenhouse gas emissions associated with imported electricity used to calculate a compliance obligation under the Cap-and-Trade Program lower than they were in 2012?<sup>3</sup>

Answer: Reported emissions from electricity imported to California that result in a compliance obligation under the Cap-and-Trade Program decreased by approximately 4.4 MMTCO<sub>2</sub>e from 2012 to 2013.<sup>4</sup> There are several factors that contributed to this decrease. Some of the emission reduction is due to increased renewable electricity imports as projects that help California's utilities meet the Renewables Portfolio Standard came online.<sup>5</sup> As a result, non-emitting renewable sources are a larger fraction of total imports in 2013 compared to 2012.

Changes in emission factors account for more than half of the reduction in reported emissions.

- In 2012, imports from Powerex were reported as unspecified. In 2013, imports from Powerex were reported using its asset-controlling supplier

<sup>3</sup> <http://www.arb.ca.gov/cc/reporting/ghg-rep/reported-data/2013-ghg-emissions-data.xlsx> - column P

<sup>4</sup> <http://www.arb.ca.gov/cc/reporting/ghg-rep/reported-data/2013-ghg-emissions-data.xlsx>

<sup>5</sup> Between June 2012 and December 2013, 861 megawatts (MW) of new out-of-State RPS-eligible generation came online that provided electricity to California. The largest of these out-of-State facilities are Mesquite and Arlington Valley Solar (170 and 127 MW, respectively, Arizona), and Quality Wind (142 MW, British Columbia). Source: California Energy Commission, list of California RPS Eligible Facilities, available at [http://www.energy.ca.gov/portfolio/documents/rps\\_certification.html](http://www.energy.ca.gov/portfolio/documents/rps_certification.html), accessed on June 29, 2015.

(ACS) emissions factor,<sup>6</sup> which is much lower than the default emission factor for unspecified electricity imports.

- Similarly, the ACS emission factor for the Bonneville Power Administration was lower for 2013 than for 2012.

A smaller factor contributing to the reduction in reported emissions is that some imported hydroelectric power was reported under MRR as unspecified electricity prior to 2013, but was documented as specified electricity in 2013. In addition, in-State renewable generation also increased in 2013, helping to reduce the need for electricity imports and the associated emissions.<sup>7</sup>

Question: Are the detailed data available that were used to develop the summary data and graphs?

Answer: Yes. Detailed spreadsheets with the emissions data for individual reporting entities are available on the Mandatory Reporting website, found here: <http://www.arb.ca.gov/cc/reporting/ghg-rep/reported-data/ghg-reports.htm>

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<sup>6</sup> <http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep-power/acs-power.htm>.

<sup>7</sup> Between June 2012 and December 2013, 3,158 MW of in-State RPS generation came online. The largest of these in-State facilities are Ocotillo Express LLC (265 MW), AV Solar Ranch 1 (250 MW), and California Valley Solar Ranch (250 MW). California Energy Commission, *supra*, footnote 5.