Fuel Suppliers and Hydrogen Producers
Reporting GHG Emissions

Subpart P - Hydrogen Production
Subpart MM – Suppliers of Transportation Fuels
Subpart NN – Suppliers of Natural Gas and Natural Gas Liquids
Subpart PP – Suppliers of Carbon Dioxide

March 21, 2012

Presentation Slides Available Here:
http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm
This training is provided by ARB solely for informational purposes. It does not provide legal advice and does not have legally binding effect. This training does not supplant, replace or amend any of the legal requirements in the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, title 17, California Code of Regulations, sections 95100-95157. Conversely, any omission or truncation of regulatory requirements found within this training does not relieve any entity or person of their legal obligations to fully comply with all requirements of the regulation.
Training Resources

• Reporting Guidance: Applicability, Metering
  http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance.htm

• Cal e-GGRT Main Help Page
  http://www.ccdsupport.com/confluence/display/calhelp/Home

• U.S. EPA Detailed Sector Training Slides
  http://www.epa.gov/climatechange/emissions/training.html
  (use as a supplement to ARB summary slides)

• Tool Training: Registration, Subparts
  http://www.arb.ca.gov/cc/reporting/ghg-rep/tool/ghg-tool.htm

• Cal e-GGRT Sandbox Training Site
  https://ssldev.arb.ca.gov/Cal-eGGRT/
Welcome to Cal e-GGRT Help

This site contains news, tutorials, FAQs, help and other information about Cal e-GGRT.
Outline

• Define the regulatory basis for reporting
  – Which EPA and ARB regulations pertain to your reporting subpart?

• Overview of Cal e-GGRT
  – Registration
  – Tabs (Home, Facility Management, Data Reporting)
  – Adding Subparts to define your facility reporting footprint

• Data reporting for your Subpart
### Subpart P

**ARB Regulatory Basis for Reporting**

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1/1/2012   | California Air Resources Board MRR Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, title 17, California Code of Regulations, Sections 95100-95157  
[**Preamble and Rule (PDF)**](http://www.arb.ca.gov/cc/reporting/ghg-rep/regulation/2010_regulation.htm) (261 pp, 2.6MB) |
## Subpart MM

### ARB Regulatory Basis for Reporting

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
</tr>
</thead>
</table>
Subpart NN
ARB Regulatory Basis for Reporting

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
</tr>
</thead>
</table>
| 1/1/2012   | California Air Resources Board MRR  
Regulation for the Mandatory Reporting of Greenhouse Gas Emissions,  
title 17, California Code of Regulations, Sections 95100-95157  
Preamble and Rule (PDF) (81 pp, 667K) |
Preamble and Rule (PDF) (47 pp, 376K) |
Preamble and Rule (PDF) (261 pp, 2.6MB) |
## Subpart PP
### ARB Regulatory Basis for Reporting

<table>
<thead>
<tr>
<th>Date</th>
<th>Action</th>
</tr>
</thead>
</table>
What is Cal e-GGRT Used For?

- Cal e-GGRT is the system used to report all data required by the GHG mandatory reporting regulation.

- The tool contains modules for each sector required to report.
  - Also includes modules for Fee Regulation and SF₆

- Multiple users can be associated with a single facility or entity.

- Verifiers can be associated with facilities and entities in the tool for data review purposes.
Overview of Cal e-GGRT Operation

• Registration – old and new reporters.
• Input required facility information.
• Adding subparts for reporting.
• Entering emissions data.
• Data reporting mechanisms.
  – Direct interface, XML spreadsheet uploads, spreadsheet attachments (varies by sector)
• Validation messages.
Registration

• Need an ARB Registration Code to register in Cal e-GGRT
  – New reporters must request an ARB Registration Code prior to registration. Send an e-mail request to

  ghgreport@arb.ca.gov

March 1: Registration and System Overview
A brief overview of registering in the new Cal e-GGRT system and overall system operation.
Slides: 1-per-page (color)  4-per-page (B&W)
Detailed Registration Instructions
Cal e-GGRT Tabs
Home tab
Cal e-GGRT Tabs

Facility Management Tab

**Cal e-GGRT FACILITY SUMMARY**

From this summary page, depending upon your role, you can make changes to the "Facility Profile" information, the facility's representatives Designated Representative (DR) and Alternate Designated Representative (ADR), and to your Agents if you are a DR or ADR.

<table>
<thead>
<tr>
<th>Facility Representatives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Designated Representative</td>
<td>Patrick Gaffney</td>
</tr>
<tr>
<td>Alternate Designated Representative</td>
<td>Karen Lutter</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Facility Profile</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Address</td>
<td>ARB Test Facility - TEST ONLY - Production Site 1001 I Street Sacramento CA 95814</td>
</tr>
<tr>
<td>Mailing Address</td>
<td>ARB Test Facility - TEST ONLY - Production Site 1001 I Street Sacramento CA 95814</td>
</tr>
</tbody>
</table>

Certificate of Representation Signed and Complete: No further action is required by the facility representatives.

Agent (for this facility) | for
---|---
Byard W Mosher | DR
Anny Huang (Pending) | DR

Remove self as Agent
Cal e-GGRT Tabs
Data Reporting Tab

e-GGRT Greenhouse Gas Data Reporting
Select Facility

ANNUAL GHG DATA REPORTING
You must select a facility to begin using any Data Reporting features, which include:
Specifying which subparts the facility will be reporting, entering or updating corporate parent information (subpart A), entering GHG data and viewing validation reports, and lastly, preparing and submitting the Annual Report to ARB.

REPORTING FACILITIES

<table>
<thead>
<tr>
<th>ARB ID</th>
<th>Facility or Supplier</th>
<th>Annual Report Status</th>
<th>Facility Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>999999</td>
<td>ARB Test Facility - TEST ONLY - Production Site (Sacramento, CA)</td>
<td>Not generated</td>
<td></td>
</tr>
</tbody>
</table>

FACILITIES NOT REPORTING IN 2011:

<table>
<thead>
<tr>
<th>ARB ID</th>
<th>Facility or Supplier</th>
<th>Annual Report Status</th>
<th>Facility Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>No facilities found.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Reporting Emissions

ARB Test Facility - TEST ONLY - Production Site (2011)
Cal e-GGRT Greenhouse Gas Data Reporting
Select Facility » Facility or Supplier Overview

FACILITY OR SUPPLIER OVERVIEW
This page allows you to add the source and/or supplier categories for which your facility or supplier will be reporting, then to access those data reporting screens using the OPEN buttons.

After data reporting is complete, you can initiate the annual report review and submission process from this page by using the SUBMIT button (or RESUBMIT for subsequent submissions if needed).

REPORT DATA

<table>
<thead>
<tr>
<th>2011 Reporting Source or Supplier Category</th>
<th>Validation Messages?</th>
<th>Subpart Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sections 95100-95108 (Subpart A)—General Information</td>
<td>View Messages</td>
<td>OPEN</td>
</tr>
</tbody>
</table>
Reporting Emissions

REPORT DATA

2011 Reporting Source or Supplier Category | Validation Messages? | Subpart Reporting
--- | --- | ---
Sections 95100-95108 (Subpart A)—General Information | View Messages | OPEN
Sections 95115, 95112 (Subpart C)—Stationary Fuel Combustion | View Messages | OPEN
Section 96114 (Subpart P)—Hydrogen Production | View Messages | OPEN
Section 95121 (Subpart MM)—Suppliers of Petroleum Products | View Messages | OPEN
Section 95122 (Subpart NN)—Suppliers of Natural Gas and NGLs | View Messages | OPEN
Section 95123 (Subpart PP)—Suppliers of Carbon Dioxide (CO2) | View Messages | OPEN
Sections 95201-95207—A3 32 Cost of Implementation Fee Regulation | View Messages | OPEN

ADD or REMOVE Subparts

SUBPART ATTACHMENTS

Uploaded File Name | Subpart | Uploaded By | Uploaded Date
--- | --- | --- | ---
Patrick Equation C-2b (HHV) Calculation Spreadsheet.xls | C | Patrick Gaffney | March 9, 2012

SUBMIT ANNUAL REPORT

If all subparts are completed and Validation Messages addressed to your satisfaction, you are ready to prepare and submit an Annual Report.

Report | Uploaded File Name | Status | Submitted Date | Certification Date
--- | --- | --- | --- | ---

VERIFICATION BODY

You may only select a verification body after the report has been generated.
Reporting: Adding Subparts

ARB Test Facility - TEST ONLY - Production Site (2011)

e-GGRT Greenhouse Gas Data Reporting
Select Facility » Facility Overview » Section (Subpart) Selection

SECTION (SUBPART) SELECTION
Please check all relevant ARB rule sections for this facility or supplier. Further information can be found in the e-GGRT Help links to the left.

EPA SUBPARTS D - AA
- 95112 (Subpart D)—Acid Rain Program EGU
  Description (SHOW|HIDE)
- 9510 (Subpart H)—Cement Production
  Description (SHOW|HIDE)
- 95116 (Subpart N)—Glass Production
  Description (SHOW|HIDE)
- 95114 (Subpart P)—Hydrogen Production
  Description (SHOW|HIDE)
- 95120 (Subpart Q)—Iron and Steel Production

GENERAL STATIONARY FUEL COMBUSTION
- 95115, 95112 (Subpart C)—Stationary Fuel Combustion
  Description (SHOW|HIDE)

SUPPLIER CATEGORIES
- 95121 (Subpart MM)—Suppliers of Petroleum Products
  Description (SHOW|HIDE)
- 95122 (Subpart NN)—Suppliers of Natural Gas and Natural Gas Liquids
  Description (SHOW|HIDE)
- 95123 (Subpart PP)—Suppliers of Carbon Dioxide
Reporting: Adding Subparts

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>95114 (Subpart P)—Hydrogen Production</strong></td>
</tr>
<tr>
<td>Description (SHOW</td>
</tr>
<tr>
<td><strong>95120 (Subpart Q)—Iron and Steel Production</strong></td>
</tr>
<tr>
<td>Description (SHOW</td>
</tr>
<tr>
<td><strong>95117 (Subpart S)—Lime Manufacturing</strong></td>
</tr>
<tr>
<td>Description (SHOW</td>
</tr>
<tr>
<td><strong>95118 (Subpart V)—Nitric Acid Production</strong></td>
</tr>
<tr>
<td>Description (SHOW</td>
</tr>
<tr>
<td><strong>95150-95157 (Subpart W)—Oil and Natural Gas Systems</strong></td>
</tr>
<tr>
<td>Description (SHOW</td>
</tr>
<tr>
<td><strong>95113 (Subpart Y)—Petroleum Refineries</strong></td>
</tr>
<tr>
<td>Description (SHOW</td>
</tr>
<tr>
<td><strong>95119 (Subpart AA)—Pulp and Paper Manufacturing</strong></td>
</tr>
<tr>
<td>Description (SHOW</td>
</tr>
</tbody>
</table>

- **95122 (Subpart NN)—Suppliers of Natural Gas and Natural Gas Liquids**
  - Description (SHOW|HIDE)

- **95123 (Subpart PP)—Suppliers of Carbon Dioxide**
  - Description (SHOW|HIDE)

**AB 32 Cost of Implementation Fee Regulation**

- **95201-95207—AB 32 Cost of Implementation Fee Regulation**
  - Description (SHOW|HIDE)

**SF6 Gas Insulated Switchgear**

- **95350-95359—SF6 Gas Insulated Switchgear**
  - Description (SHOW|HIDE)

**Electric Power Entities**

- **95111—Electric Power Entities**
  - Not currently available for selection.
  - Description (SHOW|HIDE)
Data Reporting

**REPORT DATA**

<table>
<thead>
<tr>
<th>2011 Reporting Source or Supplier Category</th>
<th>Validation Messages?</th>
<th>Subpart Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sections 95100-95109 (Subpart A)—General Information</td>
<td>View Messages</td>
<td>OPEN</td>
</tr>
<tr>
<td>Sections 95115, 95112 (Subpart C)—Stationary Fuel Combustion</td>
<td>View Messages</td>
<td>OPEN</td>
</tr>
<tr>
<td>Section 95114 (Subpart P)—Hydrogen Production</td>
<td>View Messages</td>
<td>OPEN</td>
</tr>
<tr>
<td>Section 95121 (Subpart MM)—Suppliers of Petroleum Products</td>
<td>View Messages</td>
<td>OPEN</td>
</tr>
<tr>
<td>Section 95122 (Subpart NN)—Suppliers of Natural Gas and NGLs</td>
<td>View Messages</td>
<td>OPEN</td>
</tr>
<tr>
<td>Section 95123 (Subpart PP)—Suppliers of Carbon Dioxide (CO2)</td>
<td>View Messages</td>
<td>OPEN</td>
</tr>
<tr>
<td>Sections 95201-95207—AEI 32 Cost of Implementation Fee Regulation</td>
<td>View Messages</td>
<td>OPEN</td>
</tr>
</tbody>
</table>

**ADD or REMOVE Subparts**

**SUBPART ATTACHMENTS**

<table>
<thead>
<tr>
<th>Uploaded File Name</th>
<th>Subpart</th>
<th>Uploaded By</th>
<th>Uploaded Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patrick Equation C-2b (HHV) Calculation Spreadsheet.xls</td>
<td>C</td>
<td>Patrick Gaffney</td>
<td>March 9, 2012</td>
</tr>
</tbody>
</table>

**SUBMIT ANNUAL REPORT**

If all subparts are completed and Validation Messages addressed to your satisfaction, you are ready to prepare and submit an Annual Report.

<table>
<thead>
<tr>
<th>Report</th>
<th>Uploaded File Name</th>
<th>Status</th>
<th>Submitted Date</th>
<th>Certification Date</th>
</tr>
</thead>
</table>

**VERIFICATION BODY**

You may only select a verification body after the report has been generated.
**Data Reporting – Subpart P**
(Open Subpart P module to begin reporting)

**ARB Test Facility - TEST ONLY - Production Site (2011)**

**Section 95114 (Subpart P): Hydrogen Production**

**Subpart Overview**

**OVERVIEW OF SUBPART REPORTING REQUIREMENTS**

Subpart P is for facilities that produce hydrogen gas sold as a product to other entities. It includes process units that produce hydrogen by reforming, gasification, oxidation, reaction, or other transformations of feedstocks. This source category includes merchant hydrogen production facilities located within a petroleum refinery if they are not owned by, or under the direct control of, the refinery owner and operator.

**OTHER FACILITY REPORTING INFO**

<table>
<thead>
<tr>
<th>Carbon, other than CO2, collected and transferred off site (kg carbon)</th>
<th>Annual quantity of liquefied hydrogen produced (short tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.jpg" alt="Image" /></td>
<td><img src="image.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

**HYDROGEN PRODUCTION UNITS**

<table>
<thead>
<tr>
<th>Name/ID</th>
<th>CO2 (metric tons)</th>
<th>Status(^1)</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.jpg" alt="Image" /></td>
<td><img src="image.jpg" alt="Image" /></td>
<td><img src="image.jpg" alt="Image" /></td>
<td><img src="image.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

**HYDROGEN PRODUCTION UNITS (Units monitored by CEMS)**

<table>
<thead>
<tr>
<th>Name/ID</th>
<th>Status(^1)</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image.jpg" alt="Image" /></td>
<td><img src="image.jpg" alt="Image" /></td>
<td><img src="image.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>

\(^1\)A status of "incomplete" means that one or more required data elements are incomplete. For details, refer to the Data Completeness.
Reporting – Subpart P
(other facility info)
Reporting - Subpart P

(add a unit)
Reporting – Subpart P
(new unit)

Section 95114 (Subpart P): Hydrogen Production

Subpart Overview > Add/Edit a Unit

SUBPART P HYDROGEN PRODUCTION UNIT
Please identify and enter the information about the Unit below. Also, add each carbon-containing input and output material.

* denotes a required field

UNIT INFORMATION

Name or ID* Big Boy 1 (40 characters maximum)

Description (optional) SNG Unit

Type Hydrogen production process unit

UNIT PRODUCTION INFORMATION

Quantity of hydrogen produced 4500000 (metric tons)

Quantity of ammonia produced 0 (metric tons)

FUELS AND FEEDSTOCKS

ADD a Fuel or Feedstock

CONTINUOUS EMISSIONS MONITORING

Is this unit’s emissions monitored using a CEMS? Yes No

Note: Changing the answer to this question will result in losing any data, associated with this Unit for the current reporting year, as the reporting requirements will change.
Reporting – Subpart P
(adding a fuel or feedstock)
Reporting – Subpart P

ARB Test Facility - TEST ONLY - Production Site (2011)
Section 95114 (Subpart P): Hydrogen Production

CO₂ CARBON DIOXIDE (CO₂) EMISSIONS CALCULATION
Use equation P-1, P-2 and/or P-3 for each feedstock below as appropriate to calculate unit-total annual CO₂ process emissions for this hydrogen processing unit.

NATURAL GAS
Use the Equation P-1 Calculation Spreadsheet to calculate the result. Upload the completed XML exported from the spreadsheet.

If any consumption, carbon content or molecular weight (if gaseous) values are based on substitute data values

CANCEL

Upload File Name
Attached By
Date
Delete
No files found.
Reporting – Subpart P

Using Subpart P Calculation Spreadsheets

This help page provides guidance for working with the supplemental Subpart P calculation spreadsheets. The guidance provides step-by-step instructions for the following tasks:

- Selecting the Appropriate Calculation Spreadsheet
- Downloading a Calculation Spreadsheet
- Exporting XML from a Completed Spreadsheet
- General information on Using a Calculation Spreadsheet
- Using the Equation P-1 Calculation Spreadsheet
- Using the Equation P-2 Calculation Spreadsheet
- Using the Equation P-3 Calculation Spreadsheet

Specific information on each of the calculation spreadsheets is provided below:

<table>
<thead>
<tr>
<th>Calculation Spreadsheets (click to download)</th>
<th>Selection Criteria: Feedstock Type</th>
<th>Instructions (click to view)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equation P-1 Calculation Spreadsheet.xls</td>
<td>Gaseous</td>
<td>P-1 Help</td>
</tr>
<tr>
<td>Equation P-2 Calculation Spreadsheet.xls</td>
<td>Liquid</td>
<td>P-2 Help</td>
</tr>
<tr>
<td>Equation P-3 Calculation Spreadsheet.xls</td>
<td>Solid</td>
<td>P-3 Help</td>
</tr>
</tbody>
</table>
**Selecting the Appropriate Calculation Spreadsheet**

Subpart P requires a facility to report annual CO₂ emissions from each hydrogen production process unit. To calculate the annual CO₂ emissions from each hydrogen production process unit, users must use one or more of three equations based on the unit feedstock consumed during the data collection year. Users may use different calculation worksheets for different process units as required by the feedstock type for each unit. Users may use more than one calculation worksheet for a process unit if the unit has more than one type of feedstock.

For each process unit with a **gaseous** feedstock, users should calculate annual CO₂ emissions using Equation P-1 via the Equation P-1 Calculation Worksheet. Equation P-1 is provided below:

**Equation P-1**

\[
CO_2 = \left( \frac{k}{\sum_{n=1}^{44} \frac{F_{ndstk_n \times CC_n \times MW}}{MVC}} \right) \times 0.001
\]

For each process unit with a **liquid** feedstock, users should calculate annual CO₂ emissions using Equation P-2 via the Equation P-2 Calculation Worksheet. Equation P-2 is provided below:

**Equation P-2**

\[
CO_2 = \left( \sum_{n=1}^{44} \frac{F_{ndstk_n \times CC_n}}{12} \right) \times 0.001
\]
### Reporting – Subpart P

**Equation P-1:**

\[
\text{CO}_2 = \left( \sum_{n=1}^{12} \frac{44}{12} \times \text{Fdistk}_n \times \text{CC}_n \times \frac{\text{MW}}{\text{MVC}} \right) \times 0.001
\]

<table>
<thead>
<tr>
<th>Facility Name:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporter Name:</td>
<td></td>
</tr>
<tr>
<td>Unit Name/ID:</td>
<td></td>
</tr>
<tr>
<td>Reporting Period:</td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td>Unit Type:</td>
<td>Hydrogen Production Process Unit</td>
</tr>
</tbody>
</table>

#### Input Data

<table>
<thead>
<tr>
<th>Month</th>
<th>[Fdistkn] = Volume of the gaseous fuel and feedstock used in month n (scf at standard conditions of 68 °F and atmospheric pressure) of fuel and feedstock.</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td></td>
</tr>
<tr>
<td>February</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td></td>
</tr>
</tbody>
</table>

**Version:** Cal e-GGRT RY2011.R.01

**Today’s date:** 3/18/2012

**FOLLOW THE INSTRUCTIONS ON THE NEXT TAB (DATA EXPORT GUIDANCE) FOR INSTRUCTIONS ON HOW TO EXPORT YOUR DATA**
**Reporting – Subpart P**

**Equation P-1:**

\[
\text{CO}_2 = (\sum_{n=1}^{12} \frac{44}{12} \cdot F_{\text{stdk}} \cdot C_{\text{C}} \cdot \frac{\text{MW}}{MVC}) \times 0.001
\]

**Input Data**

- **Facility Name:**
- **Reporter Name:**
- **Unit Name/ID:**
- **Reporting Period:**
- **Comments:**
- **Unit Type:** Hydrogen Production Process Unit

**Month**

- January
- February
- March
- April

- [Fstdk] = Volume of the gaseous fuel and feedstock used in month n (scf at standard conditions of 68°F and atmospheric pressure) of fuel and feedstock
- [Cc] = Average carbon content of the gaseous fuel and feedstock, from the results of one or more analyses for month n (kg carbon per kg of fuel and feedstock). If measurements are taken more frequently than monthly, use the arithmetic average.

---

California Air Resources Board
Reporting – Subpart P

Guidance for Exporting Data to XML

1. Enter all data for each worksheet within the workbook where indicated.
2. Save your workbook.
3. Export Excel data to XML.
   - For Excel 2003, select the menu Data / XML / Export.

Equation P-1:

\[ CO_2 = \left( \sum \frac{44}{12} \right) \times \text{PCH}_n \times CO \times \frac{MW}{MVC} + 0.0001 \]

Input Data:

- Facility Name:
- Reporter Name:
- Unit Name ID:
- Reporting Period:
- Comments:
- Unit Type:
- Hydrogen Production Process Unit
Additional Information for Hydrogen Producers who also report as Suppliers of Carbon Dioxide

- Does your facility capture and sell CO$_2$?
- If you are required to report under Subpart PP (Suppliers of CO$_2$)- there is the possibility of double-counting “transferred CO$_2$” emissions.
- Use the provision in 95114(g) to subtract emissions that are reported using other calculation methods from your facility total.
- ARB will issue guidance on this topic.
Reporting – Subpart MM

Section 95121 (Subpart MM): Suppliers of Petroleum Products

OVERVIEW OF SUBPART MM REPORTING REQUIREMENTS
Subpart MM requires uploading an XML file. Please use the MM spreadsheet to create your XML and upload the file here.

SUBPART MM SUMMARY INFORMATION FOR THIS FACILITY

1) DOWNLOAD FORM
   - Suppliers of Transportation Fuels Calculation and Reporting Tool

2) UPLOAD COMPLETED FORM
   - [Browse] [Upload]

Uploaded File Name   Attached By   Date    Delete
No files found.
Reporting – Subpart MM

Reporting Form Instructions

This help page provides guidance for using Reporting Forms and Cal e-GGRT to report GHG emissions and other required information for a subpart.

For each applicable subpart from the list below, users must report their facility's total emissions of each applicable GHG directly into Cal e-GGRT and submit required supplemental data and information using Excel-based Reporting Forms which may be downloaded as described below. The Reporting Forms are meant to provide reporters with a simple and straightforward means for reporting required data and information for the subparts listed below and DO NOT ASSIST REPORTERS IN CALCULATING EMISSIONS:

- Subpart A - General Information
- Subpart Q - Iron and Steel Production
- Subpart S - Lime Manufacturing (CEMS users only)
- Subpart V - Nitric Acid Production
- Subpart W - Oil and Natural Gas Systems
- Subpart Y - Petroleum Refineries
- Subpart MM - Suppliers of Petroleum Products
- Subpart NN - Suppliers of Natural Gas and Natural Gas Liquids
- SF6 Gas Insulated Switchgear
- Electric Power Entities

The general process for reporting under each of the listed subparts is essentially similar.
# Reporting – Subpart MM

<table>
<thead>
<tr>
<th>Subpart</th>
<th>Reporting Form</th>
<th>Tool</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>W - Petroleum and Natural Gas Systems</td>
<td>Petroleum and Natural Gas Systems Activity Data Workbook.xls</td>
<td>n/a</td>
<td>XLS</td>
</tr>
<tr>
<td>W - Petroleum and Natural Gas Systems</td>
<td>Petroleum and Natural Gas Systems Calculation Tool.xls</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
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<td>MM - Suppliers of Transportation Fuels Calculation and Reporting Tool</td>
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Once all applicable Reporting Forms have been saved to your computer, open each file and enter the required information according to the general help provided below and the instructions provided within each Reporting Form. Always remember to save each completed Reporting Form when finished.

### Reporting Forms General Help

The guidance provided in this section applies to all reporting forms. Additional subpart-specific guidance is provided within the reporting form(s) for each subpart.
### Reporting - Subpart MM

#### Calculations and Reporting

<table>
<thead>
<tr>
<th>Blendstock, Distillate Fuel Oil or Biomass-Derived fuel</th>
<th>Reported Emissions</th>
<th>[Product] Annual volume of product &quot;I&quot; produced, imported, or exported by the reporting party (barrels)</th>
<th>[EO] Product-specific CO\textsubscript{2} emission factor from Table MM-1 (metric tons CO\textsubscript{2} per barrel)</th>
<th>[CO\textsubscript{2}] Annual CO\textsubscript{2} emissions that would result from the complete combustion or oxidation of each petroleum product or natural gas liquid &quot;I&quot; (metric tons)</th>
<th>[Fuel] Volume of the fuel combusted (gallons per year)</th>
<th>[HHV] Default high heat value of the fuel from Table C-1 of Subpart C (mmBtu per gallon)</th>
<th>[EF\textsubscript{CO2}] Fuel-specific default emission factor for CO\textsubscript{2} from Table C-2 of Subpart C (kg CO\textsubscript{2} per mmBtu)</th>
<th>[EF\textsubscript{CH4}] Fuel-specific default emission factor for CH\textsubscript{4} from Table C-2 of Subpart C (kg CH\textsubscript{4} per mmBtu)</th>
<th>[EF\textsubscript{N2O}] Fuel-specific default emission factor for N\textsubscript{2}O from Table C-2 of Subpart C (kg N\textsubscript{2}O per mmBtu)</th>
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<tbody>
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</table>

#### CO\textsubscript{2} Emissions

\[
\text{CO}_2 = \text{Product} \times \text{EO} \quad \text{(Eq. MM-1)}
\]

#### CH\textsubscript{4} and N\textsubscript{2}O Emissions

\[
\text{CH}_4 \text{ or } \text{N}_2\text{O} = \frac{1}{10^{13}} \times \text{Fuel} \times \text{HHV} \times \text{EF} \quad \text{(Eq. C-8)}
\]
# Reporting - Subpart MM

**Calculations and Reporting**

<table>
<thead>
<tr>
<th>Blendstock, Distillate Fuel Oil or Biomass-Derived fuel</th>
<th>Reported Emissions</th>
<th>[Product] Annual volume of product ( T ) produced, imported, or exported by the reporting party (barrels)</th>
<th>[EF(_T)] Product-specific CO(_2) emission factor from Table MM-1 (metric tons CO(_2) per barrel)</th>
<th>[CO(_2)] Annual CO(_2) emissions that would result from the complete combustion or oxidation of each petroleum product or natural gas liquid ( T ) (metric tons CO(_2))</th>
<th>[Fuel] Volume of the fuel combusted (gallons per year)</th>
<th>[HHV] Default high heat value of the fuel from Table C-1 of Subpart C (mmBtu per gallon)</th>
<th>[EF(_{CH_4})] Fuel-specific default emission factor for CH(_4) from Table C-2 of Subpart C (kg CH(_4) per mmBtu)</th>
<th>[EF(_{N_2O})] Fuel-specific default emission factor for N(_2O) from Table C-2 of Subpart C (kg N(_2O) per mmBtu)</th>
<th>[EF(_{CO_2})] Fuel-specific default emission factor for CO(_2) from Table C-1 of Subpart C (kg CO(_2) per mmBtu)</th>
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</tbody>
</table>

*California Air Resources Board*
Guidance for Exporting Data to XML

1. Enter all data for each worksheet within the workbook where indicated.
2. Save your workbook.
3. Export Excel data to XML.

For Excel 2003, select the menu Data / XML / Export.


Equation P-1:

\[ \text{CO}_2 = \frac{1}{12} \times \frac{44}{\text{F}_{\text{H}_{2}O}} \times \text{CC}_\text{N} \times \frac{\text{MW}}{\text{MVC}} \times 0.001 \]
Reporting – Subpart NN

There are six Supplier Types:

- Publicly Owned Natural Gas utility (LDC)
- Public Utility Gas Corporation (LDC)
- Intrastate Natural Gas Pipelines (LDC)
- Interstate Natural Gas Pipelines
- Natural Gas Liquid Fractionator
- Liquefied Petroleum Gas Consignee
Reporting – Subpart NN

Section 95122 (Subpart NN): Suppliers of Natural Gas and Natural Gas Liquids

Subpart Overview

OVERVIEW OF SUBPART REPORTING REQUIREMENTS FOR LOCAL DISTRIBUTION COMPANIES (LDCs)

Subpart NN requires affected natural gas LDCs to report the quantity of CO2 that would result from the complete combustion or oxidation of the annual volume of natural gas provided to end-users on their distribution systems. First, enter fuel supply and Greenhouse gas (GHG) data required by Subpart NN. Next, enter the natural gas volumes supplied to residential, commercial and industrial consumers and electricity generating facilities. For additional information about Subpart NN reporting, please use the Cal e-GGRT Help link(s) provided.

Supplier Type* Publicly-owned natural gas utility (LDC) CHANGE

GHG SUMMARY

<table>
<thead>
<tr>
<th>Product</th>
<th>CO2 (metric tons)</th>
<th>Status*</th>
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</thead>
<tbody>
<tr>
<td>Natural Gas, Biogas, Non-exempt Biomethane</td>
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<td>Incomplete</td>
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NATURAL GAS VOLUMES BY END USE CATEGORY (MSCF)

<table>
<thead>
<tr>
<th>Residential Consumers</th>
<th>Commercial Consumers</th>
<th>Industrial Consumers</th>
<th>Electricity Generating Facilities</th>
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</thead>
</table>

* depicts a required field

Facility Overview

1 A status of "Incomplete" means that one or more data elements that are inputs to one of this subpart’s equations are incomplete. As a result, Cal e-GGRT is unable to perform the necessary calculation(s). For details, refer to the Equation Completeness validation messages in your Validation Report by clicking the "View Validation" link above. Note: If there are no validation messages for this subpart you will not
Reporting – Subpart NN

Section 95122 (Subpart NN): Suppliers of Natural Gas and Natural Gas Liquids

Subpart Overview

OVERVIEW OF SUBPART REPORTING REQUIREMENTS FOR INTERSTATE NATURAL GAS PIPELINES

Interstate NG Pipeline facilities are required to provide CARE with a list of their customers. Download and complete the Interstate Natural Gas Pipeline Customers spreadsheet below.

Supplier Type: Interstate natural gas pipelines

1.) DOWNLOAD FORM

Interstate Natural Gas Pipeline Customers

2.) UPLOAD COMPLETED SPREADSHEET
Reporting – Subpart PP

Section 95123 (Subpart PP): Suppliers of Carbon Dioxide

SELECT SUPPLIER CLASSIFICATION
As a supplier of carbon dioxide (CO2), please select below the classification that describes your facility. This will enable Cal e-GGRT to tailor the subpart screens to properly include those reporting requirements germane to your facility.

* denotes a required field

SUPPLIER TYPE

- Capture Facility: A facility with production process units that capture a CO2 stream for purposes of supplying CO2 for commercial applications or that capture and maintain custody of a CO2 stream in order to sequester or otherwise inject it underground. Capture refers to the initial separation and removal of CO2 from a manufacturing process or any other process.

- Extract Facility: A facility with CO2 production wells that extract or produce a CO2 stream for purposes of supplying CO2 for commercial applications or that extract and maintain custody of a CO2 stream in order to sequester or otherwise inject it underground.

- Importers or Exporters: An importer or exporter of CO2 (into or from California) that is not also a Capture Facility or Extract Facility.
Reporting Subpart PP

Section 95123 (Subpart PP): Suppliers of Carbon Dioxide

SELECT CALCULATION METHODOLOGY
As a supplier of CO₂, please select the classification that describes your facility. This will enable Cal e-GGRT to tailor the subpart screens to properly include those reporting requirements germane to your facility.

* denotes a required field

CALCULATION METHODOLOGY
Please select the calculation methodology you will use to estimate quantities of CO₂:

- Flow Meters with no segregation
- Flow Meters with segregation
- Streams that deliver CO₂ to containers

Use equation PP-1 or PP-2 for each meter (Cal e-GGRT aggregating at the facility level using equation PP-3a.)

Use equation PP-1 or PP-2 for each meter (Cal e-GGRT aggregating at the facility level using equation PP-3b.)

Use equation PP-1 or PP-2 for each stream (Cal e-GGRT aggregating at the facility level using equation PP-3a. CO₂ concentration measurement required.)
Reporting - Subpart PP

Section 95123 (Subpart PP): Suppliers of Carbon Dioxide

Overview of Subpart Reporting Requirements
This subpart consists of facilities with production process units that capture a CO₂ stream for purposes of supplying CO₂ for commercial applications or that capture and maintain custody of a CO₂ stream in order to sequester or otherwise inject it underground. Facilities with CO₂ production wells that extract or produce a CO₂ stream for purposes of supplying CO₂ for commercial applications or that extract and maintain custody of a CO₂ stream in order to sequester or otherwise inject it underground and importers or exporters of bulk CO₂.

Supplier Type: Capture
Calculation Methodology: Flow Meters with no segregation

Miscellaneous Information
Total Annual CO₂ Transferred to End-Use Applications (metric tons) | Types of Equipment Used to Measure CO₂
0 | OPEN

Flow Meters
Flow Meter Name/ID | CO₂ (metric tons) | Status | Delete
ADD a Flow Meter

Facility Overview
Reporting Subpart PP

Section 95123 (Subpart PP): Suppliers of Carbon Dioxide

MISCELLANEOUS INFORMATION FOR SUPPLIERS OF CARBON DIOXIDE
- Each type of equipment used to measure the total flow of the CO2 stream
- The number of days for which substitute data procedures were used to determine the mass or volume, concentration and density
- The annual quantity of CO2 transferred to one or more end-use application

TYPES OF EQUIPMENT USED TO MEASURE THE TOTAL FLOW OF THE CO2 STREAM

<table>
<thead>
<tr>
<th>Id</th>
<th>Equipment Type</th>
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</table>

ADD a Type of Equipment

Please provide the aggregated annual quantity of CO2 your facility transferred to each of the following end-use categories (enter zero if none):

- Food and beverage
- Industrial and municipal water/wastewater treatment
- Metal fabrication, including welding and cutting

(metric tons)
Reporting - Subpart PP

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<thead>
<tr>
<th>Category</th>
<th>Units</th>
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<tbody>
<tr>
<td>Cleaning and solvent use</td>
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<tr>
<td>Fire fighting</td>
<td>(metric tons)</td>
</tr>
<tr>
<td>Transportation and storage of explosives</td>
<td>(metric tons)</td>
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<tr>
<td>Enhanced oil and natural gas recovery</td>
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<tr>
<td>Long-term storage (sequestration) within California</td>
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<tr>
<td>Research and Development</td>
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<td>Other/unknown</td>
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Please provide the aggregated annual quantity of CO₂ your facility imported into California and exported out of California:

<table>
<thead>
<tr>
<th>Description</th>
<th>Units</th>
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<tbody>
<tr>
<td>CO₂ imported into California</td>
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<tr>
<td>CO₂ exported from California for purposes other than geologic sequestration</td>
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</tr>
<tr>
<td>CO₂ exported from California for the purpose of geologic sequestration</td>
<td>(metric tons)</td>
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</tbody>
</table>

Please provide the number of days for which substitute data procedures were used to measure the following:

<table>
<thead>
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<th>Description</th>
<th>Units</th>
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</thead>
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<tr>
<td>CO₂ mass or volume</td>
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<tr>
<td>CO₂ concentration</td>
<td>(days)</td>
</tr>
<tr>
<td>CO₂ stream density</td>
<td>(days)</td>
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</table>

(CANCEL)  (SAVE)
Data Validation
Reporting: Validation Messages

- Tool provides data validation
- Most messages must be cleared before report submittal
- Clicking on message brings you to where the issue occurred
Key Reporting Dates

• See **Key Dates** web page for specific dates applicable to reporting year
  
  • [http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep-dates.htm](http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep-dates.htm)

  • Actual Reporting Dates may differ from dates specified in the regulation if the specified dates fall on a Saturday, Sunday, or Holiday

• **Key Dates** page is updated annually with required submission dates
For More Information

• GHG Reporting Website
  – http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm

• See website for:
  – Regulation reporting guidance and fact sheets
  – Reporting tool information
  – “Clean” copy of the regulation
    (no underline/strikeout)
  – Sector specialist contacts

• Email reporting tool questions to: ghgreport@arb.ca.gov
<table>
<thead>
<tr>
<th>Subject Matter</th>
<th>Contact</th>
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</thead>
<tbody>
<tr>
<td>GHG Mandatory Reporting (General)</td>
<td><strong>Dave Edwards</strong>, Manager</td>
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<tr>
<td>Reporting Requirements, Stationary Combustion, Other Sectors (cement, glass, pulp and paper, etc.)</td>
<td><strong>Patrick Gaffney</strong></td>
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<td>916.322.7303</td>
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<tr>
<td>Reporting Tool Registration and General Questions</td>
<td><strong>Karen Lutter</strong></td>
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<td>Electricity Generation and Cogeneration Facilities</td>
<td><strong>Anny Huang</strong></td>
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<td>Electricity Retail Providers and Electricity Marketers</td>
<td><strong>Wade McCartney</strong></td>
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<td>Fuel and CO2 Suppliers - Transportation Fuels, Natural Gas, LPG, CO2</td>
<td><strong>Byard Mosher</strong></td>
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<td>Petroleum Refineries, Hydrogen Plants, Oil &amp; Gas Production</td>
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<td>Chief – Greenhouse Gas Emission Inventory Branch</td>
<td><strong>Richard Bode</strong>, Chief</td>
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