

California Electronic Greenhouse Gas Reporting Tool


Reporting for Subpart C and Subpart D

Stationary Fuel Combustion Sources
and
Electricity Generation and Cogeneration Units

March 8, 2012

Presentation Slides Available Here:
<http://www.arb.ca.gov/cc/reporting/ghg-rep/ghg-rep.htm>


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Outline

- When to Use Subpart C and D Modules
- Subpart C Reporting
 - Adding configurations, fuels, emissions
 - Data validation
 - Tool demonstration
- Subpart D Reporting
- Resources
- Q&A


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Training Resources

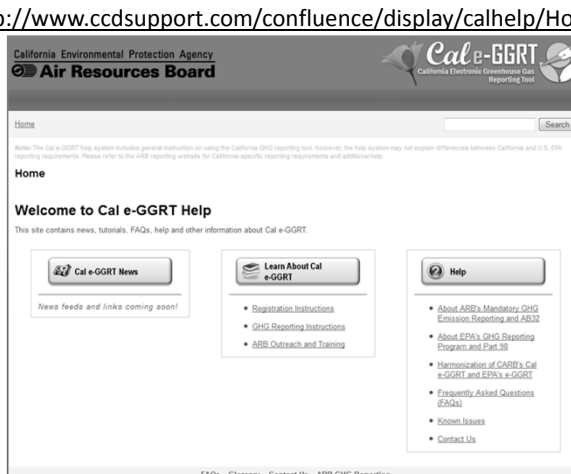
- Reporting Guidance: Applicability, Metering
<http://www.arb.ca.gov/cc/reporting/ghg-rep/guidance/guidance.htm>
- Tool Training: Registration, Subparts
<http://www.arb.ca.gov/cc/reporting/ghg-rep/tool/ghg-tool.htm>
- Cal e-GGRT Main Help Page
<http://www.ccdsupport.com/confluence/display/calhelp/Home>
- U.S. EPA Detailed Sector Training Slides
<http://www.epa.gov/climatechange/emissions/training.html>
(use as a supplement to ARB summary slides)

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Cal e-GGRT Help

<http://www.ccdsupport.com/confluence/display/calhelp/Home>



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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

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When to Use Subpart C Module

- Report all emissions from stationary fuel combustion sources under the subpart C module
- Exceptions to reporting under the subpart C module
 - Units exempted from reporting combustion emissions under 40 CFR 98.30(b)
 - Electricity generating units subject to subpart D
 - Combustion units that exhaust to a CEMS that monitors both combustion emissions and process emissions from another subpart (e.g. a cement kiln that has both process and combustion emissions measured by a CEMS will be reported under Subpart H)
 - Process units that have emissions calculated according to another subpart (this does not generally apply to all combustion located at a facility with process emissions)

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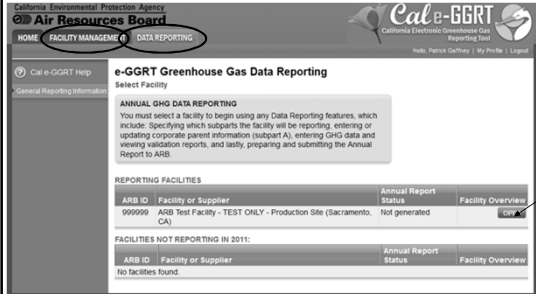
When to Use Subpart D Module

- Electricity generating units that are subject to the requirements of the Acid Rain Program/Part 75
- Non-Part-75 electricity generating units report under subpart C

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Reporting: Facility Profile and Data Reporting

- Use the Facility Management tab to enter Facility Profile data
- Use Data Reporting tab to report other data



OPEN Facility Overview to begin entering data

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Reporting: Adding Subparts

- Add or remove subparts as applicable to reporting entity
- OPEN subpart to complete data entry for each subpart

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Reporting: Adding Subparts

- Select applicable subparts

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Subpart A


- Applies to all reporters
- Includes info for electricity generators
- Report electricity and natural gas purchases

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Emission Roll-ups

- Cal e-GGRT automatically calculates emissions totals for each subpart and aggregates the subpart totals into facility or supplier totals
- Annual emissions are calculated from each applicable subpart, for each of the following GHGs (in metric tons of each gas)
 - Biogenic CO₂
 - CO₂ (excluding biogenic CO₂)
 - CH₄
 - N₂O
 - Each fluorinated GHG
- The subpart totals are rolled-up into the following facility totals
 - Total CO₂ equivalent for all sources and all GHGs with the exception of biogenic CO₂
 - Biogenic CO₂ from all sources
- Calculator DOES NOT calculate compliance obligation for cap and trade


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Emission Roll-ups

- If certain reporting elements are left blank, the roll-ups may not be performed correctly
- Cal e-GGRT does not double count emissions within each subpart
- Some required reporting fields are not used in the roll-up calculations, but you still need to enter information for these fields
- Roll-ups are calculated independently for each subpart


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Some Useful Terminology

- Total CO₂ emissions
 - Measured or calculated value of CO₂ that includes both biogenic and non-biogenic emissions
- Biogenic CO₂ emissions
 - CO₂ emissions from biomass fuels
 - Biogenic portion of CO₂ from fuels with a fossil and biomass component (i.e. MSW and tires)
- Non-Biogenic CO₂ emissions
 - CO₂ emissions from fossil fuels
 - Sorbent CO₂
 - Process CO₂
 - Fossil fuel fraction of CO₂ from fuels with a fossil and biomass component (i.e. MSW and tires)
- Fossil fuel CO₂ emissions
 - CO₂ emissions from fossil fuels
 - Fossil fuel portion of CO₂ from fuels with a fossil and biomass component (i.e. MSW and tires)


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Additional Data Reporting

- ARB requires additional data, not required by the U.S. EPA
- Report all data required within Cal e-GGRT, which is harmonized with the ARB regulation
 - Additional identification of biogenic emissions
 - Equation inputs, such as monthly HHV data or carbon content data
 - Additional information for electricity generation or cogeneration facilities

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Subpart C Reporting

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Adding a Subpart C Configuration

- Two Step Process
 1. Configuration Setup
 - Reported once for each configuration
 - Varies by configuration type
 2. Fuel Use and Emissions per Configuration
 - Reported for each fuel combusted in a given configuration
 - Varies by tier and fuel type

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Subpart C Configurations

- Subpart C offers 6 different reporting options, known as **Configurations** in e-GGRT
- The different reporting options (configurations) are provided in 40 CFR 98.36(b) – (c)
 - Single Unit Using Tiers 1, 2, or 3 [98.36(b)]
 - Single Unit Using Tier 4 (CEMS) [98.36(b)]
 - Aggregation of Units [98.36(c)(1)]
 - Common Pipe [98.36(c)(2)]
 - Common Stack or Duct (CEMS) [98.36(c)(3)]
 - Alternative Part 75 Reporters [98.36(d)(2)]

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Reporting: Subpart C Stationary Combustion

ARB Test Facility - TEST ONLY - Production Site (2011)
95115, 95112 (Subpart C) - Stationary Fuel Combustion
 Subpart C Overview

OVERVIEW OF SUBPART C REPORTING REQUIREMENTS
 Subpart C requires affected facilities to report annual carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) emissions from each stationary combustion unit. First, use this page to identify each stationary combustion reporting configuration (reporting options listed in §98.36) and then enter emissions information required by subpart C for each configuration.

For additional information about subpart C reporting, please use the Cal e-GGRT Help link(s) provided.

CONFIGURATION SUMMARY				
Configuration Name or ID	Configuration Type	Status ¹		Delete
PG Single Unit	Single Unit Using Tiers 1, 2, or 3	Incomplete	OPEN	✕
PG Boiler #3	Single Unit Using Tiers 1, 2, or 3	Incomplete	OPEN	✕

+ Add a Configuration
 Facility Overview

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Adding a Configuration

- Select appropriate configuration
- Complete descriptive information that follows

ARB Test Facility - TEST ONLY - Production Site (2011)
95115, 95112 (Subpart C) - Stationary Fuel Combustion
 Subpart C Overview - New Configuration

SUBPART C REPORTING CONFIGURATIONS
 For stationary combustion sources required to report under subpart C, Cal e-GGRT requires a facility to identify which reporting option each unit or group of units will be using to report emissions. The different subpart C reporting options are referred to as configurations in Cal e-GGRT. The individual configurations are designed to match the reporting options made available by the rule in 40 CFR 98.36.

Note: You cannot change the Reporting Configuration Type for a unit or group after this step without starting over. This would entail losing any emissions data for the current reporting year, if entered.

Once a configuration is added, Cal e-GGRT will allow the user to enter the required reporting elements for the configuration type selected. A facility may have multiple configuration types and/or multiple configurations of any given type.

For additional information about adding and editing a configuration and the different reporting configurations available, please use the Cal e-GGRT Help link(s) provided.

Select	Reporting Configuration Type	Calculation Methodology	Rule Reference
<input type="radio"/>	Single Unit Using Tiers 1, 2, or 3	Tier 1, 2, or 3	98.36(b)
<input type="radio"/>	Single Unit Using Tier 4 (CEMS)	Tier 4	98.36(b)
<input type="radio"/>	Aggregation of Units	Tier 1, 2, or 3	98.36(c)(1)
<input type="radio"/>	Common Pipe	Tier 1, 2, or 3	98.36(c)(3)
<input type="radio"/>	Common Stack or Duct (CEMS)	Tier 4	98.36(c)(2)
<input type="radio"/>	Alternative Part 75 Reporters	98.33(a)(5)	98.36(d)(2)

CANCEL NEXT

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Entering Fuel and Emissions Data

- Open Unit Configuration
 - Click on “ADD a Fuel”
 - Select a fuel
 - Select a Tier
 - Add other fuels as applicable
- Open Fuel Information
 - Select calculation method
 - Enter fuel use data
 - Enter HHV and other data as applicable
 - See U.S EPA training slides for complete walk-through <http://www.epa.gov/climatechange/emissions/training.html>

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Entering Fuel Information

- Open fuel
- Enter required data
- Confirm entered or calculated results

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID PG Boiler #3

Configuration Type Single Unit Using Tiers 1, 2, or 3

Fuel (Fuel Type) Natural Gas (Weighted U.S. Average) (Natural Gas)

Reporting Period 01/01/2011 - 12/31/2011

FUEL INPUT DATA FOR EQUATIONS C-1 AND C-8

Mass or Volume of Fuel Combusted Per Year (Fuel) (scf)

High Heat Value [HHV] 0.001028 (mmBtu/scf)

Fuel Specific CO2 Emission Factor [EF] 53.02 Kg CO2/mmBtu

Fuel Specific CH4 Emission Factor [EF] 0.001 Kg CH4/mmBtu

Fuel Specific N2O Emission Factor [EF] 0.0001 Kg N2O/mmBtu

CONFIGURATION INFORMATION

Configuration Type Single Unit Using Tiers 1, 2, or 3

Unit Name/ID PG Single Unit

Description of the Unit or Unit Aggregation

Unit Type RICE (Reciprocating internal combustion engine)

Maximum Rated Heat Input Capacity 55 (mmBtu/hr)

CONFIGURATION-LEVEL EMISSIONS INFORMATION

Total Biogenic CO ₂ Emissions (metric tons)	Total CO ₂ Emissions from Sorbent Usage (metric tons)	Status ¹
		Incomplete

FUEL-SPECIFIC EMISSIONS INFORMATION (for fuels combusted at this reporting configuration)

Fuel	Calculation Period	Methodology	Status ¹	Delete
<input checked="" type="checkbox"/> Natural Gas (Weighted U.S.)	01/01/2011 - 12/31/2011	Tier 1 (Equation C-1)	Incomplete	CONFIRM

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Check Results

- Results calculated by tool or user entered as applicable

CONFIGURATION-FUEL-PERIOD

Unit or Group Name/ID PG Boiler #3

Configuration Type Single Unit Using Tiers 1, 2, or 3

Fuel (Fuel Type) Natural Gas (Weighted U.S. Average) (Natural Gas)

Reporting Period 01/01/2011 - 12/31/2011

EQUATION C-1 SUMMARY AND RESULT

Equation C-1 $CO_2 = 1 \times 10^{-3} \times \text{Fuel} \times \text{HHV} \times \text{EF}$

Hover over an element in the equation above to reveal a definition of that element.

Emission Type	Fuel (scf)	HHV (mmBtu/scf)	EF	Calculated Result (metric tons)
CO ₂	500,000,000	0.001028	53.02	27,252

What CO₂ result do you want to report to CARB? Use the calculated result rounded Enter my own result (value will be rounded)

EQUATION C-8 SUMMARY AND RESULTS

Equation C-8 $CH_4 \text{ or } N_2O = 1 \times 10^{-3} \times \text{Fuel} \times \text{HHV} \times \text{EF}$

Hover over an element in the equation above to reveal a definition of that element.

Emission Type	Fuel (scf)	HHV (mmBtu/scf)	EF	Calculated Result (metric tons)	Metric Tons of CO ₂ e
CH ₄	500,000,000	0.001028	0.001	1	11
N ₂ O	500,000,000	0.001028	0.0001	0	16

What CH₄ result do you want to report to CARB? Use the calculated result rounded Enter my own result (value will be rounded)

What N₂O result do you want to report to CARB? Use the calculated result rounded Enter my own result (value will be rounded)

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Biogenic Emissions

- ARB requires reporting of biogenic emissions totals

- Include all fuels for the configuration in total

CONFIGURATION-LEVEL EMISSIONS INFORMATION

Total Biogenic CO ₂ Emissions (metric tons)	Total CO ₂ Emissions from Sorbent Usage (metric tons)	Status ¹
		Incomplete

CONFIGURATION

Unit or Group Name/ID PG Boiler #3

Configuration Type Single Unit Using Tiers 1, 2, or 3

ANNUAL CO₂ FOR ALL FUELS

Total annual biogenic CO₂ mass emissions (must equal the sum of calculated annual biogenic CO₂) (metric tons)

SORBENT EMISSIONS

Annual CO₂ emissions from sorbent (metric tons)

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Uploading Required Supporting Data

- ARB requires reporting of specified additional data that may have been deferred for U.S. EPA reporting
- Complete and upload required spreadsheets provided in tool

CONFIGURATION-FUEL-PERIOD
Unit or Group Name/ID PG Single Unit
Configuration Type Single Unit Using Tiers 1, 2, or 3
Fuel (Fuel Type) Natural Gas (Weighted U.S. Average) (Natural Gas)
Reporting Period 01/01/2011 - 12/31/2011

FUEL INPUT DATA FOR EQUATIONS C-2A AND C-9A
Mass or Volume of Fuel Combusted Per Year [Fuel] (scf)
Annual Average High Heat Value [HHV] (mmBtu/scf)
Calculated Result from equation C-2b Use Equation C-2b spreadsheet to calculate the Annual Average Heat Value [HHV]. Calculation Spreadsheet link to download the Equation C-2b spreadsheet below.

Please click the Equation C-2b (HHV) Calculation Spreadsheet link to download the Equation C-2b spreadsheet below.

Uploaded File Name Attached By
No files found.

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Data Validation

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

ARB Test Facility - TEST ONLY - Production Site (2011)
95115, 95112 (Subpart C) - Stationary Fuel Combustion
Subpart Overview - Validation Report

SUBPART C VALIDATION REPORT
This report contains a complete set of validation messages for all data required by this Subpart. For additional information about Validation Reports, please use the Cal e-GGRT help links provided. Print-friendly version

FACILITY-LEVEL VALIDATION MESSAGES
Validation Type: C2 No facility level validation messages.

CONFIGURATION-LEVEL VALIDATION MESSAGES

Validation Type	C#	Unit Name	Message
Data Completeness	C125	PG Single Unit	Annual carbon dioxide emissions from combustion of all biomass fuels combined (if any of the units burn fossil AND biomass). This data element is required.
Data Completeness	C128	PG Single Unit	Annual carbon dioxide emissions from sorbent. This data element is required.

FUEL-LEVEL VALIDATION MESSAGES

Validation Type	C#	Unit Name	Message
Data Completeness	C146	PG Single Unit	Natural Gas (Weighted U.S. Average) Annual carbon dioxide emissions from combustion of the specified fuel. This data element is required.

Subpart Overview

Validation Types: Cal e-GGRT generates a variety of validation types, defined below:
• Data Completeness: data required for reporting is missing or incomplete.
• Data Quality: data is outside of the range of expected values. The value you have provided is outside the ARB estimated range for this data element. Please double check this value and revise, if necessary. If you believe it to be correct, please submit the value as is.
• Screen Error: a data value or combination of data values prevents Cal e-GGRT from continuing to the next page. Typically, this will not appear on the Validation Report, but instead will be displayed on the data entry page at the time the error was created.

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Reporting Electricity Generating Unit

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Electricity Generation Reporting

- Section 95112 includes reporting requirements for electricity/thermal generation information. It does not have a counterpart subpart in 40 CFR Part 98.
- Data fields for section 95112 can be found in Subparts A, C, and D.
 - Facility-level energy input-output and energy disposition → Subpart A
 - Unit-Level fuels, emissions, and basic information:
 - Non-Part-75 EGU → Subpart C
 - Part 75 EGU → Subpart D

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Facility with Electricity Generating Units

Subpart A:

- General information about the electricity generating facility
- Upload a simplified block diagram (pdf preferred)
- Facility-level energy input-output
- Energy disposition

The screenshot shows the 'ELECTRICITY GENERATION' section of the Cal e-BGRT form. It includes a question 'Does this facility have the capacity to generate electricity?' with 'Yes' and 'No' radio buttons. Below are sections for 'ELECTRICITY GENERATING UNIT BASIC INFORMATION' (with fields for CEC ID, EIA ID, FERC QID, Total Facility Nameplate Generating Capacity, Facility Type, and Facility's Energy Disposition), 'COGENERATION/GENERATION OPERATOR' (with a 'Browse' button and an 'UPLOAD' button), and 'DISPOSITION OF GENERATED ELECTRICITY (IF APPLICABLE)' (with 'ADD End-User Disposition' and 'ADD Retail Provider/Market Disposition' options). There are also fields for 'Generated electricity used for other on-site industrial processes' and 'Generated thermal energy used by on-site industrial processes'.

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Electricity Generating Units

Subparts C & D:

- Additional data required for EGUs
- Only appears if selected
- Report only applicable fields
- See regulation for full requirements

The screenshot shows the 'ELECTRICITY GENERATING UNITS' section of the Cal e-BGRT form. It includes a question 'Does this Configuration have the capacity to generate electricity?' with 'Yes' and 'No' radio buttons. Below are sections for 'ELECTRICITY GENERATING UNITS BASIC INFORMATION' (with fields for Nameplate Generating Capacity, Prime Mover Technology, and Type of Thermal Energy Generation), 'ENERGY GENERATION INFORMATION' (with fields for Gross Generation, Net Generation, and Total Gross Thermal Output), 'OTHER ENERGY INPUTS DATA' (with a field for Other Steam Used for Acid Rain Program EGU), 'SUPPLEMENTAL FIRING INFORMATION (IF APPLICABLE)' (with a field for Fuel Type and Annual Mass or Volume of Fuel Combusted), and 'GEOTHERMAL AND HYDROGEN FUEL CELL INFORMATION (IF APPLICABLE)' (with a field for Geothermal Steam Utilized and a text box for Hydrogen Fuel Cell Fuel Utilized).

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Subpart D Units

- Overall functionality closely mirrors the reporting configurations in Subpart C
- Fuels and emissions data fields are mostly the same as in U.S. EPA's e-GGRT
- The only major difference is in how the CO₂ emissions number is entered. Users have to hand-typed the CO₂ number into Subpart D.
- Section 95112 data fields are identical to those in Subpart C

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Key Reporting Dates

- See **Key Dates** webpage for specific dates applicable to reporting year
- <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

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GHG Reporting Contacts

Subject Matter	Contact
GHG Mandatory Reporting (General)	Dave Edwards, Manager 916.323.4887
Reporting Requirements, Stationary Combustion, Other Sectors (cement, glass, pulp and paper, etc.)	Patrick Gaffney 916.322.7303
Reporting Tool Registration and General Questions	Karen Lutter 916.322.8620
Electricity Generation and Cogeneration Facilities	Anny Huang 916.323.8475
Electricity Retail Providers and Electricity Marketers	Wade McCartney 916.327.0822
Fuel and CO2 Suppliers - Transportation Fuels, Natural Gas, LPG, CO2	Byard Mosher 916.323.1185
Petroleum Refineries, Hydrogen Plants, Oil & Gas Production	Byard Mosher 916.323.1185
Greenhouse Gas Report Verification	Renee Lawler, Manager 916.322.7062
Chief – Greenhouse Gas Emission Inventory Branch	Richard Bode, Chief 916.323-8413

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)
- Email reporting tool questions to: ghgreport@arb.ca.gov

Reference

- Selecting a Subpart C Tier
- Facilities that qualify for abbreviated reporting under §95103(a) may use any method in 40 CFR 98.33(a) to calculated GHG emissions. For 2012 (and later) emissions reported in 2013 (and later), facilities must follow the tier selection shown here. For 2011 emissions data reported in 2012, reporters may use the methods allowed by 40 CFR 98, subpart C (see §95103(h)), and are not required to follow §95115(a) and (c).

The flowchart starts with the question: "Does the unit meet the Tier 4 requirements?" If YES, it leads to "Use Tier 4 to determine CO2 emissions." If NO, it asks "Do the emissions from the fuel qualify as de minimis under 95103(i)?" If YES, it says "You may use any reasonable method as specified in 95103(i)." If NO, it asks "Is the fuel providing less than 10% of the annual heat input to a unit that is $\leq 250\text{ MMBtu/hr}$?" If YES, it says "You may use any method allowed by 98.33(b) in 40 CFR 98, subpart C." If NO, it asks "Is the fuel pipeline quality natural gas (defined in 95102) or a distillate fuel (defined in 95102) listed in Table 1 of 95115?" If YES, it says "You may use Tier 2, except you may use Tier 1 when the fuel supplier is providing pipeline quality natural gas measured in therms (or Btu). Distillate fuels include Kerosene, Kerosene-type jet fuel, Fuel Oils Nos. 1, 2, and 4, and Diesel Fuel Oils Nos. 1, 2, and 4." If NO, it asks "Is the fuel not a distillate fuel listed in Table 1 of 95115?" If YES, it asks "Is the unit $\leq 250\text{ MMBtu/hr}$?" If YES, it asks "Are HHV data available for the fuel at the frequency needed?" If YES, it says "Tier 2 is the minimal tier allowed." If NO, it says "You must use Tier 3 or 4." If NO to the first question, it asks "Is the fuel a biomass fuel listed in Table C-1 of subpart C?" If YES, it asks "Are emissions from the fuel subject to a compliance obligation, or is the fuel premixed with a fuel with a compliance obligation?" If YES, it says "You must use Tier 3 or 4." If NO, it says "You must use Tiers 3 or 4 as specified in 98.33(a)(3) and (4) of 40 CFR 98, subpart C, subject to the limitations in 98.33(b)(4) and (5) requiring the use of Tier 4." If YES to the biomass question, it asks "Are HHV data available for the fuel at the frequency needed?" If YES, it says "Tier 2 is the minimal tier allowed." If NO, it says "You may use Tier 1."

Acknowledgement

- Components of this slide presentation were taken or adapted from the U.S. EPA training program titled “e-GGRT Training Webinar on Reporting GHG Data for Subparts C&D” David Jacobson, U.S. EPA, GHGRP
- Full EPA slides are available here: <http://www.epa.gov/climatechange/emissions/training.html>