



e-GGRT Training Webinar
Reporting of GHG Data for Subpart I
Electronics Manufacturing

U.S. Environmental Protection Agency
Greenhouse Gas Reporting Program (GHGRP)

Welcome to the e-GGRT training webinar on using EPA's electronic Greenhouse Gas Reporting Tool to report GHG data for subpart I.



This training is provided by EPA solely for informational purposes. It does not provide legal advice, have legally binding effect, or expressly or implicitly create, expand, or limit any legal rights, obligations, responsibilities, expectations, or benefits in regard to any person.

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During the course of this webinar, you will see a number of screenshots. Since this webinar was prepared before the final version of e-GGRT was available, the screenshots included in this webinar may differ slightly from the final version of e-GGRT that is made available for reporting later this year.

Webinar Overview



Subpart I Reporting

- How to report subpart I data
- Downloading and completing Subpart I Reporting Form
- Adding a subpart I module to your e-GGRT account
- Uploading completed reporting forms
- Generating, certifying, and submitting reports
- Where to get help

This webinar introduces you to the e-GGRT reporting of subpart I GHG data.

1. First, we will describe the general approach to reporting subpart I data using e-GGRT and tell you where you can download copies of the reporting forms.
2. Second, we will explain how to complete the subpart I forms.
3. Next, we will review how to add a subpart I module and how to upload your completed subpart I reporting forms to e-GGRT.
4. Then we will review the steps necessary to generate, certify, and submit the final report.
5. And finally, we will provide information on additional resources that will help you understand how to use e-GGRT, where to find other helpful resources for subpart I, and how to submit questions and comments to EPA.

Not covered in Today's Webinar



- How to register a new facility
- How to manage an account (e.g., editing facility profiles, appointing DRs/ADRs)
- How to register new agents
- How to report GHG emissions for other applicable subparts (e.g., subpart C)

For help with these and other topics, see the e-GGRT Help Site at <http://www.ccdsupport.com>

In this webinar, we will not cover other basic e-GGRT topics, such as

1. How to register a facility
2. How to manage an account
3. How to edit facility profiles
4. How to appoint Designated Representatives/Alternate Designated Representatives (DRs/ADRs)
5. How to register new agents
6. How to report GHG emissions for other subparts (including subpart C)

However, detailed information on all of these topics, including basic instructions on navigating and using e-GGRT are covered on our website www.ccdsupport.com.

Topics for Today's Q & A



- Please submit only questions regarding subpart I reporting via e-GGRT
- Questions on other topics (requirements of the Greenhouse Gas Reporting Rule, legal issues, etc.) should be submitted to ghgreporting@epa.gov

We encourage you to submit questions during today's webinar. However, we ask that you limit your questions to those related to subpart I reporting. We will answer your questions at the end of the webinar.

Other questions on the Greenhouse Gas Reporting Program should be submitted to the GHG Reporting Program Help Desk at the email address shown here. Also, at the end of the Webinar, we will provide information on other resources available to reporters.

Confidential Business Information



- All elements included in e-GGRT are required reporting elements, as applicable
- E-GGRT reflects the final rule deferring the reporting deadline for inputs to emission equations for direct emitters (76 FR 53057, published Aug. 25, 2011)
- Data elements that have been determined to be CBI and those that have no determination must be reported
- Reporting elements that have been determined to be CBI will be protected under the Clean Air Act (Sec. 114(c)) and EPA regulations (40 CFR Part 2)

Reporting Subpart I Data using e-GGRT



Reporting of subpart I GHG data:

- Step 1: Download and complete Subpart I Reporting Forms
- Step 2: Add the subpart I report module and upload completed Subpart I Reporting Form and required certifications to e-GGRT
- Step 3: Enter GHG emissions data in CO₂e
- Step 4: Review and correct validation errors
- Step 5: Generate, certify, and submit annual report

The reporting of GHG data using e-GGRT is a five-step process for subpart I. In the first step, you will need to download and complete Subpart I Reporting Forms. These forms are designed to simplify reporting of subpart I data.

In step 2, you will first add the subpart I reporting module to your e-GGRT facility and then upload the completed subpart I Reporting Form.

In step 3, you will review the GHG emissions in CO₂e using the web-form provided in e-GGRT.

In step 4, review and correct validation errors.

And finally in step 5, you will generate, certify, and submit your completed annual report.

In the remainder of the webinar, we will walk you through each of these steps.

Step 1: Downloading Subpart I Reporting Forms



- Subpart I GHG data
 - Must report using Subpart I Reporting Forms
 - Use only EPA's Reporting Forms
 - Reporting forms are available at:
<http://www.ccdsupport.com/confluence/display/help/Reporting+Form+Instructions>
 - Reporting Forms are in Microsoft[®] Excel[®]

It is important that you use only the forms provided by EPA. The Reporting Forms are required to satisfy GHG reporting for subpart I and must be uploaded into e-GGRT. The forms are available from the Website shown on this slide. They are in Microsoft Excel and, as you will see, they are designed to simplify reporting.

Please do not confuse the Reporting Form with the Optional Calculation Worksheets. The Optional Calculation worksheets are not collected by e-GGRT.

Once you have entered the required data on the Subpart I Reporting Form, you will use the e-GGRT upload function to upload the completed form into e-GGRT. We will show you how to upload the completed form later in this presentation.

Step 1: Completing Subpart I Reporting Forms



Subpart I - Electronics Manufacturing
Facility Details

Worksheet Instructions:
This worksheet should be completed by all facilities.

Version:
6-5081 R/2011 R.01

External Links:
Default Resource Page: <http://www.epa.gov/epaospr/semiconductor/subpart1.html>
Reporting Form Help Content: <http://www.epaospr.com/epaospr/semiconductor/subpart1.html/Reporting-Form-Instructions>
Optional Calculation Spreadsheet: <http://www.epa.gov/epaospr/semiconductor/subpart1.html/Optional-Calculation-Spreadsheet>

Worksheet Navigation:
1. Facility Details
2. Emissions Information for P, Hg, and Cd Manufacturing Processes
3. Emissions Information for Semiconductor Manufacturing Processes
4. Emissions Information for Facilities Employing Specific Factors (B, Recast)
5. Emissions from Chemical Liquid Deposition and Other Electronics Manufacturing Processes
6. Fluorinated Heat Transfer Fluid Information
7. Emissions Statement System
8. Table A-1.0019

1.) Enter the facility type and manufacturing information required in the table below:

Only for semiconductor manufacturing facilities								
Does facility manufacture semiconductors? [98.6(a)]	Does facility manufacture MEMS, PVA, or other [98.6(a)]	Annual Manufacturing Capacity of the Facility as Determined by Eq. 1.5 (square meters) [98.6(a)(2)]	Annual Production in Terms of Substrate Area (square meters) [98.6(a)(2)]	Does facility manufacture 150 millimeter wafers? [98.6(a)(2)]	Does facility manufacture 200 millimeter wafers? [98.6(a)(2)]	Does facility manufacture 300 millimeter wafers? [98.6(a)(2)]	Does facility manufacture wafers larger than 300 millimeter? [98.6(a)(2)]	If facility manufactures wafers smaller than 150 mm in diameter, please list the specific sizes manufactured [98.6(a)(2)]

2.) Enter the reporting model data required in the table below:

Reporting Model Issued:	Reporting Model Category:	Facility Reporting Model:	Certification that the gases you selected under 98.6(a)(2)(ii) correspond to the:	Result of calculation (under 98.6(a)(2)(ii))
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Here is the first page of the subpart I Reporting Form. As you will see, the subpart I reporting form is divided into several different parts, with the reporting forms for different types of units located on different sheets (or tabs) within this worksheet. In this Webinar, we will walk you through the main points; however, we recommend that you review the entire worksheet before you begin entering information.

In general, the reporting forms contain blue input cells, gray informational cells and black deactivated cells. You will use blue input cells to enter all data specific to your facility. The gray informational cells contain parameter names and other instructional information. As you progress through a reporting form, you will notice that some of the black deactivated cells turning blue after you have entered data. This is an indicator that you are required to enter data into those cells. Do not enter data into cells that remain black.

In most cases, we have provided pull down menus from which you can select the appropriate entry. In other cases, such as entering emissions, you will type the entries directly into the cell. In select cases, the reporting forms may display a message indicating the value you entered is outside the typical range. This is designed to help you identify potential data entry mistakes. However, if the value you entered is in fact valid then select "continue." The form will accept the value and allow you to move on to other entries.

Note that, for subpart I, emissions are reported at the facility level and a single facility may contain more than one "fab". For more information on the definition of "facility", please see section 98.6 of the rule.

Step 1: Completing Subpart I Reporting Forms



The screenshot shows an Excel spreadsheet titled "Subpart I Reporting Form_v13_A48 (Compatibility Mode) - Microsoft Excel". The worksheet content includes:

- Worksheet Instructions:** "This worksheet should be completed by all facilities."
- Version:** e-GGRT RY2011.R.01
- External Links:**
 - Subpart I Resources Page: <http://www.epa.gov/climatechange/emissions/subpartI.html>
 - Reporting Form Help Content: <http://www.ccdsupport.com/confluence/display/help/Reporting+Form+instructions>
 - Optional Calculation Spreadsheet: LINK TBD
- Workbook Navigation:**
 - 1. Facility Details
 - 2. F-GHG Emissions Information for PV, MEMS, and LCD Manufacturing (By Process)
 - 3. F-GHG Emissions Information for Semiconductor Manufacturing (By Process)
 - 4. Recipe Information for Facilities Employing Recipe-specific Factors (By Recipe)
 - 5. N2O Emissions from Chemical Vapor Deposition and Other Electronics Manufacturing Processes
 - 6. Fluorinated Heat Transfer Fluid Information
 - 7. Emissions Abatement Systems
 - 8. Table A-1 GWPs

At the bottom, a navigation bar shows tabs for "1. Facility Details", "2. F-GHG Emissions Information for PV, MEMS, and LCD Manufacturing (By Process)", "3. F-GHG Emissions Information for Semiconductor Manufacturing (By Process)", "4. Recipe Information for Facilities Employing Recipe-specific Factors (By Recipe)", "5. N2O Emissions from Chemical Vapor Deposition and Other Electronics Manufacturing Processes", "6. Fluorinated Heat Transfer Fluid Information", "7. Emissions Abatement Systems", and "8. Table A-1 GWPs". The "1. Facility Details" tab is circled in green. A green arrow points to the "External Links" section, and another points to the "Workbook Navigation" list.

Here in the middle of the first page, you will find links to the Subpart I Resources Web page as well as links to guidance documents designed to help you complete the forms.

On the lower part of this slide, you will see the “Workbook Navigation” box. Here you will find links to the various parts of the Subpart I Reporting Form. These links appear on each sheet of the workbook and will help you navigate through the different parts of the Subpart I Reporting Form more easily. Of course, you may also navigate between forms by selecting the appropriate tab at the bottom of you screen (circled green).

As you can see, the Subpart I Reporting Forms are separated into 7 different forms:

1. The first form is the facility details form, which must be completed by all facilities.
2. Form 2 is for reporting F-GHGs from PV, MEMS, and LCD manufacturing.
3. Form 3 is for reporting F-GHGs from semiconductor manufacturing.
4. Form 4 is for those facilities who chose to use recipe-specific emission factors for reporting GHGs.
5. Form 5 is for N2O emissions from chemical vapor disposition and other electronics manufacturing processes.
6. Form 6 is for F-GHG emissions from the use of heat transfer fluids; and
7. Form 7 is for reporting information on abatement systems and the destruction of F-GHGs and N2O.

Everyone must complete Form 1 (facility details). You will complete Forms 2 through 7 based on the types of manufacturing processes and control devices located at your facility.

The final link, number 8 on the list of available links, is to the table of Global Warming Potentials (GWPs) This table is taken directly from subpart A of the rule and has been included for informational purposes. You can not (and should not) make edits to this tab.

Step 1: Completing Subpart I Reporting Forms Part 1 – Facility Details



1.) Enter the facility type and manufacturing information required in the table below:

Does facility manufacture semiconductors? [§98.96]	Does facility manufacture MEMS, PVs, and/or LCDs? [§98.96]	Annual Manufacturing Capacity of the Facility as Determined by Eq. I-5 (square meters) [§98.96(a)]	Annual Production in Terms of Substrate Area (square meters) [§98.96(e)]
Yes	No	18600.0	14,500.0

All facilities must complete Form 1. There are several sets of questions on Form 1. The first question is shown on this slide. Here you simply indicate the types of products manufactured at your facility, the manufacturing capacity you calculated using the method in Equation I-5, and the annual production.

Note that throughout the spreadsheet the gray informational boxes contain rule citations. These are provided for your information, in the event that you need to look up the specifics of a reported data element in the rule.

Step 1: Completing Subpart I Reporting Forms Form 1 – Facility Details



Only for semiconductor manufacturing facilities				
Does facility manufacture 150 millimeter wafers? [§98.96(b)]	Does facility manufacture 200 millimeter wafers? [§98.96(b)]	Does facility manufacture 300 millimeter wafers? [§98.96(b)]	Does facility manufacture wafers larger than 300 millimeters? [§98.96(b)]	If facility manufactures wafers smaller than 150 mm in diameter, please list the specific size(s) manufactured [§98.96(b)]
Yes	Yes	No	No	100, 120

If you are a semiconductor manufacturer, then you must also complete the part of the table shown on this slide. Here you indicate the size (or sizes) of wafers you manufacture.

Step 1: Completing Subpart I Reporting Forms Form 1 – Facility Details



2.) Enter the apportioning model data required in the table below:

Quantifiable Metric used in Engineering Model to Apportion Gas Consumption [§98.96(m)(j)]	Start Date Selected under §98.94(c)(2)(i) [§98.96(m)(ii)]	End Date Selected under §98.94(c)(2)(i) [§98.96(m)(ii)]	Certification that the gases you selected under §98.94(c)(2)(ii) correspond to the largest quantities consumed on a mass basis, at your facility in the reporting year for the plasma etching process type and the chamber cleaning process type. [§98.96(m)(iii)]	Result of calculation comparing actual to modeled etch gas consumption under §98.94(c)(2)(iii) (%) [§98.96(m)(iv)]
Wafer Starts	1/1/2011	1/30/2011	Certified	4.50%

The information on apportioning factors is included in the second table on Form 1. In the first column, you enter the metric you used in your engineering model for apportioning gas consumption between recipes, process sub-types, or process types. In the next two columns, you enter the start and end dates for when you monitored gas consumption to validate the apportioning model.

In the fourth column, you must indicate whether the gases selected for monitoring correspond to the largest quantities consumed on a mass basis by your facility during the reporting year for the plasma etching and chamber cleaning process types. This certification is required by §98.96(m)(iii).

In the last column, you calculate the percent difference between the measured values for the etch gas when you performed the apportioning model verification.

Step 1: Completing Subpart I Reporting Forms

Form 2 – PV, MEMS, and LCD Processes



Part 2 - f-GHG Emissions Information for PV, MEMS, and LCD Manufacturing (By Process)

Name of each f-GHG emitted [§98.96(c)(1)]	Specify "Other f-GHG" Name [§98.96(c)(1)]	Specify "Other f-GHG" CAS No. [§98.96(c)(1)]	Process Type [§98.96(c)(1)]
1 CF4 (Perfluoromethane) CAS No. 75-73-0			plasma etching
2 CF4 (Perfluoromethane) CAS No. 75-73-0			chamber cleaning
3 C2F6 (Perfluoroethane) CAS No. 76-16-4			plasma etching
4 CF4 (Perfluoromethane) CAS No. 75-73-0			plasma etching
5 C2F6 (Perfluoroethane) CAS No. 76-16-4			chamber cleaning
6 CF4 (Perfluoromethane) CAS No. 75-73-0			chamber cleaning
7 CHF3 (Trifluoromethane (R23)) CAS No. 75-46-7			plasma etching
8 CH2F2 (Difluoromethane (R32)) CAS No. 75-10-5			plasma etching
9 C3F8 (Perfluoropropane) CAS No. 76-19-7			chamber cleaning
10 NF3 (Nitrogen trifluoride) CAS No. 7783-54-2			NF3 remote chamber cleaning
11 NF3 (Nitrogen trifluoride) CAS No. 7783-54-2			plasma etching
12 NF3 (Nitrogen trifluoride) CAS No. 7783-54-2			chamber cleaning
13 t-C4F8 (Perfluorocyclobutane) CAS No. 115-25-3			plasma etching
14 C2F6 (Perfluoroethane) CAS No. 76-16-4			plasma etching
15 t-C4F8 (Perfluorocyclobutane) CAS No. 115-25-3			chamber cleaning
16 SF6 (Sulfur hexafluoride) CAS No. 2551-62-4			plasma etching
17 C4F6 (1,3-Hexafluorobutadiene) CAS No. 685-63-2			plasma etching
18 C5F8 (Octafluorocyclopentene) CAS No. 559-40-0			plasma etching
19 C5F8 (Octafluorocyclopentene) CAS No. 559-40-0			chamber cleaning
20 t-C4F8O (Octafluorotetrahydrofuran) CAS No. 773-14-8			chamber cleaning
21 C3F8 (Perfluoropropane) CAS No. 76-19-7			chamber cleaning
22 Other f-GHG (specify)			
23			
24			
25			

Input and By-product Gases
Use the drop-down list to identify each fluorinated GHG used as an input gas or generated as a by-product gas for each applicable process type.

Form 2 is used to enter the information for PV, MEMS, and/or LCD manufacturing processes that DO NOT use recipe-specific emission factors. If you used recipe-specific emission factors, then you will need to complete form 4. We will discuss form 4 later in this presentation.

In the first column, you enter the names of the F-GHGs emitted from your manufacturing process by selecting from a pull down menu. If your F-GHG is not listed in the menu, then please select "other" and enter the name and CAS number in the columns shown by the green arrow.

Step 1: Completing Subpart I Reporting Forms Form 2 – PV, MEMS, and LCD Processes



Part 2 - f-GHG Emissions Information for PV, MEMS, and LCD Manufacturing (By Process)

Name of each f-GHG emitted [§98.96(c)(1)]	Specify "Other f-GHG" Name [§98.96(c)(1)]	Specify "Other f-GHG" CAS No. [§98.96(c)(1)]	Process Type [§98.96(c)(1)]
1 CF4 (Perfluoromethane), CAS No. 75-73-0			plasma etching
2 CF4 (Perfluoromethane), CAS No. 75-73-0			chamber cleaning
3 C2F6 (Perfluoroethane), CAS No. 76-16-4			plasma etching
4 CF4 (Perfluoromethane), CAS No. 75-73-0			plasma etching
5 C2F6 (Perfluoroethane), CAS No. 76-16-4			chamber cleaning
6 CF4 (Perfluoromethane), CAS No. 75-73-0			
7 CHF3 (Trifluoromethane (R23)), CAS No. 75-46-7			
8 CH2F2 (Difluoromethane (R32)), CAS No. 75-10-5			
9 C3F8 (Perfluoropropane), CAS No. 76-19-7			
10 NF3 (Nitrogen trifluoride), CAS No. 7783-54-2			chamber cleaning
11 NF3 (Nitrogen trifluoride), CAS No. 7783-54-2			
12 NF3 (Nitrogen trifluoride), CAS No. 7783-54-2			
13 c-C4F8 (Perfluorocyclobutane), CAS No. 115-25-3			plasma etching
14 C2F6 (Perfluoroethane), CAS No. 76-16-4			plasma etching
15 c-C4F8 (Perfluorocyclobutane), CAS No. 115-25-3			chamber cleaning
16 SF6 (Sulfur hexafluoride), CAS No. 2551-62-4			plasma etching
17 C4F6 (1,3-Hexafluorobutadiene), CAS No. 685-63-2			plasma etching

CF4 must be listed twice since it is used in two different processes!

Also note, that if you use an F-GHG in more than one production process, then must list the F-GHG once for each type of process. For example, this facility uses SF6 in only one process (plasma etching), but uses CF4 in both chamber cleaning and plasma etching and therefore, must be listed twice.

Step 1: Completing Subpart I Reporting Forms Form 2 – PV, MEMS, and LCD Processes



Part 2 - f-GHG Emissions Information for PV, MEMS, and LCD Manufacturing (By Process)

Name of each f-GHG emitted [§98.96(c)(1)]	Specify "Other f-GHG" Name [§98.96(c)(1)]	Specify "Other f-GHG" CAS No. [§98.96(c)(1)]	Process Type [§98.96(c)(1)]
1 CF4 (Perfluoromethane), CAS No. 75-73-0			plasma etching
2 CF4 (Perfluoromethane), CAS No. 75-73-0			chamber cleaning
3 C2F6 (Perfluoroethane), CAS No. 76-16-4			plasma etching
4 CF4 (Perfluoromethane), CAS No. 75-73-0			plasma etching
5 C2F6 (Perfluoroethane), CAS No. 76-16-4			chamber cleaning
6 CF4 (Perfluoromethane), CAS No. 75-73-0			chamber cleaning
7 CHF3 (Trifluoromethane (R23)), CAS No. 75-46-7			plasma etching
8 CH2F2 (Difluoromethane (R32)), CAS No. 75-10-5			plasma etching
9 C3F8 (Perfluoropropane), CAS No. 76-19-7			chamber cleaning
10 NF3 (Nitrogen trifluoride), CAS No. 7783-54-2			NF3 remote chamber cleaning
11 NF3 (Nitrogen trifluoride), CAS No. 7783-54-2			plasma etching
12 NF3 (Nitrogen trifluoride), CAS No. 7783-54-2			chamber cleaning
13 c-C4F8 (Perfluorocyclobutane, CAS No. 115-25-3			plasma etching
14 C2F6 (Perfluoroethane), CAS No. 76-16-4			plasma etching
15 c-C4F8 (Perfluorocyclobutane), CAS No. 115-25-3			chamber cleaning
16 SF6 (Sulfur hexafluoride), CAS No. 25319-35-3			plasma etching
17 C4F6 (1,3-Hexafluorocyclobutane), CAS No. 355-85-2			plasma etching

Process types include:

- Plasma etching
- Chamber cleaning
- NF3 remote chamber cleaning

For each F-GHG, enter the process type by selecting the appropriate process from the pull down menu. The contents of the menu is shown here in the yellow box and includes the following options: plasma etching, chamber cleaning, and NF3 remote chamber cleaning.

Step 1: Completing Subpart I Reporting Forms

Form 2 – PV, MEMS, and LCD Processes



1.) Complete the table below for each f-GHG emitted from a PV, MEMS, or LCD manufacturing process for which emissions were NOT estimated using recipe-specific factors. If two emissions calculation methods are used for one f-GHG / process type combination, please report the combination twice and select the different methods in column G.

Name of each f-GHG emitted [§98.96(c)(1)]	Specify "Other f-GHG" Name [§98.96(c)(1)]	Specify "Other f-GHG" CAS No. [§98.96(c)(1)]	Process Type [§98.96(c)(1)]	Method of Emissions Calculation NOTE: If two emissions calculation methods are used for one f-GHG / process type combination, please report the combination twice and select the different methods in this column [§98.96(d)]
CF4 (Perfluoromethane, CAS No. 75-73-0)			plasma etching	used default factors
CF4 (Perfluoromethane, CAS No. 75-73-0)			chamber cleaning	used default factors
C2F6 (Perfluoroethane, CAS No. 76-16-4)			plasma etching	used default factors
C2F6 (Perfluoroethane, CAS No. 76-16-4)			chamber cleaning	used default factors
CHF3 (Trifluoromethane (R23)), CAS No. 75-46-7			plasma etching	used default factors
CH2F2 (Difluoromethane (R32)), CAS No. 75-10-5			plasma etching	used default factors
C3F8 (Perfluoropropane, CAS No. 76-19-7)			chamber cleaning	used default factors
NF3 (Nitrogen trifluoride, CAS No. 7783-54-2)			NF3 remote chamber cleaning	used default factors
NF3 (Nitrogen trifluoride, CAS No. 7783-54-2)			plasma etching	used default factors
NF3 (Nitrogen trifluoride, CAS No. 7783-54-2)			chamber cleaning	used default factors
c-CAF8 (Perfluorocyclobutane, CAS No. 115-25-3)			plasma etching	used default factors
C2F6 (Perfluoroethane, CAS No. 76-16-4)			plasma etching	used default factors
c-CAF8 (Perfluorocyclobutane, CAS No. 115-25-3)			chamber cleaning	used default factors
SF6 (Sulfur hexafluoride, CAS No. 2551-62-4)			plasma etching	used default factors

- Methods of Emission Calculations include:
- Used default factors
 - Assumed utilization/by-product formation rates =0
 - Used BAMM

In the next column, you will need to enter the method used to calculate emissions. Remember to enter a method for each F-GHG listed! For your convenience, a pull down menu is provided. The choices of calculation method are shown here in the yellow box. Select the appropriate method for each F-GHG. If two emissions calculation methods are used for one f-GHG/process type combination, then you will need to enter the F-GHG/process type combination twice (once for each method used).

Step 1: Completing Subpart I Reporting Forms Form 2 – PV, MEMS, and LCD Processes



1) Complete the table below for each F-GHG emitted from a PV, MEMS, or LCD manufacturing process for which emissions were NOT estimated using recipe-specific factors. If two emissions calculation methods are used for one F-GHG / process type combination, please report the combination twice and select the different methods in column G.

Name of each F-GHG emitted [§98.96(c)(1)(i)]	Specify "Other F-GHG" Name [§98.96(c)(1)(i)]	Specify "Other F-GHG" CAS No. [§98.96(c)(1)(i)]	Process Type [§98.96(c)(1)(i)]	Method of Emissions Calculation <i>NOTE: If two emissions calculation methods are used for one F-GHG/process type combination, please report the combination twice and select the different methods in this column.</i> [§98.96(d)]	Total Annual Emissions (metric tons/yr) [§98.96(c)(1)(i)]	CAS Lookup
CF4 (Perfluoromethane), CAS No. 75-73-0			plasma etching	used default factors	16	75-73-0
CF4 (Perfluoromethane), CAS No. 75-73-0			chamber clearing	used default factors		
C2F6 (Perfluoroethane), CAS No. 75-84-4			plasma etching	used default factors		
C2F6 (Perfluoroethane), CAS No. 75-84-4			chamber clearing	used default factors		
C3F8 (Trifluorooctane (R23)), CAS No. 75-46-7			plasma etching	used default factors		
C3F8 (Trifluorooctane (R23)), CAS No. 75-46-7			chamber clearing	used default factors		
CHF3 (Trifluoromethane (R23)), CAS No. 75-10-5			plasma etching	used default factors		
CHF3 (Trifluoromethane (R23)), CAS No. 75-10-5			chamber clearing	used default factors		
CF3I (Perfluoroiodoethane), CAS No. 75-78-7			plasma etching	used default factors		
CF3I (Perfluoroiodoethane), CAS No. 75-78-7			RF remote chamber clearing	used default factors		7703-54-2
NF3 (Nitrogen trifluoride), CAS No. 7783-54-2			plasma etching	used default factors		7783-54-2
NF3 (Nitrogen trifluoride), CAS No. 7783-54-2			chamber clearing	used default factors		7783-54-2

Total Annual Emissions
Enter the total annual emissions of each gas from each process type in metric tons per year.

Finally, in the column circled in green, enter the emissions of each F-GHG for each process type. Remember that emissions must be entered in metric tons of F-GHG per year.

Remember also that certain gases (e.g., CF4, C2F6, and C3F6) can be emitted as both an input gas and a byproduct gas. If you have a gas that is emitted as both an input gas and byproduct gas, remember to add the input gas and byproduct gas emissions and enter the total for that gas, but only if they are emitted from the same process type and are calculated using the same method.

The far-right hand side of the spreadsheet has column for the CAS number for the compound. This column is populated automatically after you enter a gas using the list of gases in the lookup tables built into the spreadsheet.

Step 1: Completing Subpart I Reporting Forms Form 4 - Recipe-Specific Factors



1.) Certify the recipes used at your facility in the table below.

<p>Certification that the recipes included in a set of similar recipes are similar, as defined in §98.98. [§98.96(f)(3)]</p>	<p>Certification that the measurements for all reported recipe-specific utilization and by-product formation rates were made using the International SEMATECH #06124825A-ENG (incorporated by reference, see §98.7), or the International SEMATECH #01104197A-XFR (incorporated by reference, see §98.7) if measurements were made prior to January 1, 2007. [§98.96(f)(4)]</p>
<p>Certified</p>	<p>Certified</p>

Certification that the recipes in the set are similar:

- If yes, then enter "certified"
- If no, then enter "Used Bamm"
- If only one recipe for each factor, then enter "not applicable – only individual recipes used"

As we noted previously, Form 4 is used for any manufacturing processes for which you developed and used Recipe-specific emission factors to calculate emissions.

Form 4 consists of two parts. You must complete both parts of the form if you used recipe specific emission factors. Part 1 is shown on this slide. Here you must certify:

1. The recipes you included in a set are in fact similar as defined in §98.98; and
2. You used the methods specified in the rule.

As with the other spreadsheets, you select the correct answer from the choices on the pull down menus.

Step 1: Completing Subpart I Reporting Forms Form 4 - Recipe-Specific Factors



2.) Complete the table below for each recipe used at your facility.

	Recipe Name or ID [§98.96(c)(2)]	Description of Recipe (OPTIONAL)	Recipe Type [§98.96(c)(2)]
1	Recipe A	Manufacture of product line A	individual
2	Recipe B	Manufacture of product lines B1, B2, and B3	set of similar
3			
4			
5			
6			
7			

For Recipe Type select:

- “Individual” if you have just one recipe for the Recipe-specific Factor
- “Set of similar” if you have two or more similar recipes for a Recipe-specific Factor

In part 2 of the form, you will fill out the information for each recipe for which you used a recipe-specific emission factor to calculate emissions. This slide shows the first three columns of the table. As you can see, you enter an ID or name for each individual recipe (or set of similar recipes if you are using the same recipe-specific factor for two or more similar recipes).

The second column allows you to enter a description of the recipe. However, as indicated in the table, this is an optional field.

The third column, Recipe Type, is used to indicate whether the factor is for an individual recipe or for a set of similar recipes. You will select from a pull down menu.

Step 1: Completing Subpart I Reporting Forms Form 4 - Recipe-Specific Factors



Process Type [§98.96(c)(2)]	Film or Substrate Etched [§98.96(f)(2)]	Specify "Other" Film or Substrate Etched or "Low k" Type (if applicable) [§98.96(f)(2)]	Feature types that are etched [§98.96(f)(2)]
MEMS, PVs, or LCDs: NF3 remote chamber cleaning			
Semiconductors: plasma etching	Silicide		Integrated circuit
Semiconductors: chamber cleaning - in situ plasma	Oxide		
Semiconductors: chamber cleaning - in situ thermal	Low k (specify type)		←
Semiconductors: chamber cleaning - remote plasma	Nitride		
Semiconductors: wafer cleaning			
	<div style="border: 1px solid black; padding: 2px;"> Oxide Low k (specify type) Nitride Oxynitride Phosphorus Silicate Glass Boron Phosphorus Silicate Glass Fluorinated Silicate Glass Carbide </div>		

The next few columns on this table are used to enter the process type for each recipe. There is a pull down menu to select the appropriate process for each recipe. If the process involves etching then you must enter both the name of the film or substrate and types of features etched. Select the name of the substrate from the pull down menu shown on this slide. If the type of substrate you use is not listed on the pull down menu, enter it in the adjacent column (indicated by the green arrow).

There is no pull down menu for the feature type that is etched. Enter a short description for the feature type that is etched.

Step 1: Completing Subpart I Reporting Forms Form 4 - Recipe-Specific Factors



Source of the recipe-specific utilization and by-product formation rates [§98.96(f)(5)]	Specify "Other" source, if selected [§98.96(f)(5)]
Facility measured: International SEMATECH #06124825A-ENG	
Third party measured: International SEMATECH #06124825A-ENG	
Other (specify)	



In the next two columns, you must indicate which method was used and whether you conducted the measurements at your facility. If you use a method not listed in the pull down menu, select "other" and enter the method in the space indicated by the green arrow.

Step 1: Completing Subpart I Reporting Forms Form 4 - Recipe-Specific Factors



Name of each F-GHG emitted [§98.96(c)(2)]	Specify "Other F-GHG" Name [§98.96(c)(2)]	Specify "Other F-GHG" CAS No. [§98.96(c)(2)]	Total Annual Emissions (metric tons/yr) [§98.96(c)(2)]	CAS Lookup
NF3 (Nitrogen trifluoride), CAS No. 7783-54-2			16.8	7783-54-2
SF6 (Sulfur hexafluoride), CAS No. 2551-62-4			1.75	2551-62-4
Other F-GHG (specify)			2.8	0
c-C4F8O (Octafluorotetrahydrofuran), CAS No. 773-14-8				#N/A
C4F8 (1,3-Hexafluorobutadiene), CAS No. 895-63-2				#N/A
C5F8 (Octafluorocyclopentene), CAS No. 958-49-0				#N/A
CHF3 (Trifluoromethane (R23)), CAS No. 75-46-7				#N/A
CHF2 (Difluoromethane (R21)), CAS No. 75-10-5				#N/A
NF3 (Nitrogen trifluoride), CAS No. 7783-54-2				#N/A
SF6 (Sulfur hexafluoride), CAS No. 2551-62-4				#N/A
Other F-GHG (specify)	for each applicable process type.			#N/A
				#N/A
				#N/A
				#N/A

And finally, the last columns on form 4 are used to enter the name and emissions for each F-GHG used in the recipe or sets of similar recipes. As you can see, a pull down menu has been included to help you enter the name of each F-GHG used. If your facility uses an F-GHG not listed in the menu, then select "other" and enter the name and CAS number in the spaces indicated by the green arrow.

Enter the emissions of each F-GHG gas in metric tons/year.

Step 1: Completing Subpart I Reporting Forms Form 5 - N2O Emissions from CVD and Other Processes



1.) Complete the table below for chemical vapor deposition processes at your facility that use and emit N2O.

Method of Reporting Emissions [§98.96(d)]	Source of the facility-specific N2O utilization factor, if used [§98.96(f)(5)]	Total Annual N2O Emissions from Chemical Vapor Deposition (metric tons/yr) [§98.96(c)(3)]
Developed facility-specific utilization factor	Facility measured: International SEMATECH #08124825A-ENG	0.1

2.) Complete the table below for other electronics manufacturing processes at your facility that use and emit N2O.

Method of Reporting Emissions [§98.96(d)]	Source of the facility-specific N2O utilization factor, if used [§98.96(f)(5)]	Total Annual N2O Emissions from all other N2O-using manufacturing processes (metric tons/yr) [§98.96(c)(3)]
Used default utilization factor from Table I-8		0.1

Form 5 is used for facilities who have nitrous oxide emissions from chemical vapor deposition (CVD) (shown under item 1) and from other manufacturing processes (shown under item 2). The parts of the form for CVD and “other processes” (items 1 and 2) are the same. You are reporting aggregate emission numbers for CVD and all other processes; you do not need to report emissions for separate process types that are not CVD.

In the first column, you select the method used to calculate the emissions from the pull down menu provided. You will notice that this facility used facility-specific utilization factors to calculate emissions of nitrous oxide from CVD. If, and only if, you use facility-specific utilization factors, then you will need to specify the method you used to determine the factors and certify that the conditions under which the measurements were made are representative of the facility. If the measurements were made before January 1, 2007, then you will also need to certify that the facility-specific utilization factors were determined using the correct International SEMATECH version specified in the rule. The method used is entered in the second column (as shown here circled in green). The columns for certification are not shown on this slide.

The emissions are entered in the third column. Remember to enter emissions in units of tons of N2O per year.

Step 1: Completing Subpart I Reporting Forms Form 6 - Heat Transfer Fluids



Fluorinated Heat Transfer Fluid Information

Worksheet Instructions:

This worksheet should be completed by facilities that use any fluorinated heat transfer fluids (F-HTF).

Version:

e-GGRT RY2011.R.01

External Links:

Subpart I Resources Page: <http://www.epa.gov/climatechange/emissions/subpart1.html>
 Reporting Form Help Content: <http://www.ccdsupport.com/confluence/display/help/Reporting+Form+Instructions>
 Optional Calculation Spreadsheet: [LINK TBD](#)

Workbook Navigation:

1. Facility Details
2. F-GHG Emissions Information for PV, MEMS, and LCD Manufacturing (By Process)
3. F-GHG Emissions Information for Semiconductor Manufacturing (By Process)
4. Recipe Information for Facilities Employing Recipe-specific Factors (By Recipe)
5. N2O Emissions from Chemical Vapor Deposition and Other Electronics Manufacturing Processes
6. Fluorinated Heat Transfer Fluid Information
7. Emissions Abatement Systems
8. Table A-1 GWP's

Emissions for each F-HTF must be entered in metric tons/year!

1.) Complete the table below for each fluorinated heat transfer fluid used at your facility.

Fluorinated Heat Transfer Fluid (F-HTF) Name [§98.96(c)(1)]	Specify "Other F-HTF" Name [§98.96(c)(1)]	Specify "Other F-HTF" CAS No. [§98.96(c)(1)]	Method of Emissions Calculation [§98.96(d)]	Total Annual Emissions (metric tons/yr) [§98.96(c)(1)]	CAS Lookup
FC-70 (Perfluorotripropylamine), CAS No. 338-84-1			Equation I-16 (mass balance)	18.6	338-84-1
FC-3284 (Perfluoro-n-methylmorpholine), CAS No. 382-28-5			Equation I-16 (mass balance)	1.75	382-28-5
Other F-HTF (specify)			Equation I-16 (mass balance)	0.5	#/N/A
					#/N/A

If your facility uses heat transfer fluids, then you will need to complete this form (Form 6). In the first column, you select the names of the heat transfer fluids used at your facility by selecting the name from a pull down menu. If the name of the fluid you are using does not appear on the list, then select "Other f-HTF (specify)" and then enter the name and CAS number in the two adjacent columns.

The next column shows the calculation method. For fluorinated heat transfer fluids, a mass balance method is the only option available.

Finally, in the last column, you must enter the total annual emissions for each fluorinated heat transfer fluid used. Remember that emissions must be entered in metric tons/year.

Similar to the other emission entry sheets, this one will automatically look up the CAS number.

Step 1: Completing Subpart I Reporting Forms Form 7 - Abatement Systems



1.) Does your facility have any abatement systems through which fluorinated GHGs or N2O flow?

Yes
 No



2.) Complete the table below for each abatement system or abatement system class used to reduce emissions of f-GHGs or N2O emissions at your facility.

Abatement System or Abatement System Class Name or ID [§98.96(p) and (q)]	Manufacturer of Abatement System or Abatement System Class [§98.96(p) and (q)(5)(i)]	Model Number of Abatement System (enter all relevant model numbers if reporting data for a class) [§98.96(p) and (q)(5)(i)]	Manufacturer Destruction or Removal Efficiency (DRE) (%) [§98.96(p)]	Where the default DRE value is used to report controlled emissions, enter the filename of the attachment uploaded to e-GGRT containing certification that the system was designed for f-GHG and N2O abatement. [§98.96(q)(4)]	The total number of systems for which destruction or removal efficiency was properly measured in the class for the reporting year [§98.96(q)(5)(iii)]
Class 1	Eastern Supply LLC	RGT554-56, RGT-554	98.60%	Class_1_file.pdf	3
Class 2	ABS Control Systems, Inc.	ACS-1236, ACS-R785	94.50%	Class_2_file.pdf	5
ABS001	Eastern Supply LLC	RGR554-56	99.50%	ABS_001_file.pdf	
ABS002	Eastern Supply LLC	RGR554-56	99.50%	ABS_002_file.pdf	

The last form (form 7) is for abatement systems. In question 1 at the top of the page, you must indicate whether F-GHGs or N2O flow to any abatement systems at your facility. Answer “yes” or “no” by clicking on the appropriate circle. If you don’t have any abatement systems through which f-GHGs or N2O flow, then no further information is required.

If F-GHGs or N2O flow to one or more of your abatement systems, then you must complete the table in Question 2. You can enter either information for each individual abatement system or for a “class” of abatement systems. If you report by “class”, give each class of abatement systems a unique name and enter the manufacturer and model numbers for each individual abatement system belonging to the class.

In fourth column, enter the Manufacturer DRE for the abatement system or “class” of abatement systems.

In the fifth column, enter the file name for your certification statement. Later in this presentation, we will show you how to upload the certification statement to e-GGRT.

In the last column on this page, enter the number of systems in each class for which the control efficiency was determined.

Step 1: Completing Subpart I Reporting Forms Form 7: Abatement Systems



A description of the calculation used to determine the class average [§98.96(q)(5)(i)(v)]	A description of the "Other" calculation used to determine the class average (if applicable) [§98.96(q)(5)(i)(v)]	A description of the method used for randomly selecting class members for testing [§98.96(q)(5)(v)]
Simple average of values tested according to EPA protocol		
Simple average of values tested according to EPA protocol		
Simple average of values tested with method other than EPA protocol		
Other (specify)		

Other Class Average Calculation
If "Other (specify)" was selected in column I, please specify the "Other" calculation used to determine the class average.

Scrolling to the right of this form, you will see the columns shown on this slide. Here you will enter the method you used to determine the "class" destruction efficiency and the method used to select individual abatement systems for testing. If you used a method other than those listed in the pull down menu, then remember to enter a description of the method in the cell marked with the green arrow.

Step 1: Completing Subpart I Reporting Forms Form 7: Abatement Systems



Description of Tools Associated with Abatement System					
Product Type [§98.96(p)]	Tool Type [§98.96(p)]	Model Number(s) of Tools Associated with Abatement System [§98.96(p) and (q)(5)(ii)]	The Process Sub-type or Type Associated with Abatement System (1 of 3) [§98.96(p)]	The Process Sub-type or Type Associated with Abatement System (2 of 3) [§98.96(p)] (only if needed)	The Process Sub-type or Type Associated with Abatement System (3 of 3) [§98.96(p)] (only if needed)
Semiconductors	chemical vapor deposition	V-600	chamber clean - in situ plasma	chamber clean - in situ thermal	wafer cleaning
Semiconductors	etch	V-600	plasma etching		plasma etching
Semiconductors	chemical vapor deposition		chamber clean - in situ thermal		chamber cleaning
LCD	chemical vapor deposition		chamber cleaning		chamber clean - in situ plasma chamber clean - in situ thermal chamber clean - remove plasma wafer cleaning

Again scrolling to the right in form 7 for abatement systems, the next set of columns is used to indicate the type of product, tool types and model numbers, and the process sub-types associated with each abatement system or class of abatement systems. You can include up to three different process sub-types. In each cell, you select the correct entry from pull down menus, similar to the one shown here.

Step 1: Completing Subpart I Reporting Forms Form 7: Abatement Systems



Certification that each abatement system has been installed, maintained, and operated in accordance with manufacturers' specifications. [§98.96(q)(1)]	Name of F-GHG or N2O in the effluent stream (1 of 10) [§98.96(q)(5)(i)]	Specify "Other F-GHG" Name (1 of 10) [§98.96(q)(5)(i)]	Specify "Other F-GHG" CAS No. (1 of 10) [§98.96(q)(5)(i)]
Certified	C5F8 (Octafluorocyclopentene), CAS No. 559-40-0		
Certified	NF3 (Nitrogen trifluoride), CAS No. 7783-54-2		
Certified	SF6 (Sulfur hexafluoride), CAS No. 2551-62-4		
BAMM used	C3F8 (Perfluoropropane), CAS No. 76-19-7		
BAMM used	<div style="border: 1px solid black; padding: 2px;"> <p>N2O (Nitrous oxide), CAS No. 10024-97-2</p> <p>CF4 (Perfluoromethane), CAS No. 75-73-0</p> <p>CF2F2 (Perfluoroethane), CAS No. 76-34-4</p> <p>C3F8 (Perfluoropropane), CAS No. 76-19-7</p> <p>c-C4F8 (Perfluorocyclobutane), CAS No. 195-25-3</p> <p>e-C4F8 (Octafluorocyclobutane), CAS No. 172-14-8</p> <p>C4F8 (1,3-Hexafluorobutadiene), CAS No. 685-63-2</p> <p>C5F8 (Octafluorocyclopentene), CAS No. 928-40-0</p> </div>		

And finally, the last set of columns on form 7 are shown on this slide. In the first column, you indicate whether the abatement system has been installed, maintained and operated in accordance with the manufacturer's specifications.

In the next set of columns, you enter the name of a F-GHG or N2O in the effluent stream. You can enter up to ten different types of GHGs. We have shown here only the first set of columns; however, you will see that the form actually contains another 9 sets of these three columns that are exactly the same as the first one shown here. Select the name of the GHG from the pull down list. If the name of your GHG is not listed, then select "other" and enter the name and CAS number in the columns show on the right.

This concludes our review of the reporting form. We will now review how to use e-GGRT to submit your report.

Step 2: How to Enter Subpart I Data into e-GGRT



e-GGRT Greenhouse Gas Data Reporting (2011)

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 EPA.

REPORTING YEAR: 2011 GO

FACILITIES REPORTING for 2011		Annual Report Status	Facility Overview
GHGRP ID	Facility or Supplier	Not generated	OPEN
541597	ERG Test facility (Raleigh, NC)		

FACILITIES NOT REPORTING for 2011

GHGRP ID	Facility or Supplier	Not Reporting Reason
----------	----------------------	----------------------

This review assumes you already have a registered facility in e-GGRT. To enter GHG data, first go to the “Data Reporting” tab.

Make sure the correct reporting year is selected. The current reporting year will always be shown as the default. However, if you need to enter or correct any data for previous reporting years, then you would select the correct year from the pull down menu and click on “GO”.

Next, find the correct facility from the list of registered facilities. Click on the blue “OPEN” button (identified by the green arrow) to proceed to the “FACILITY OVERVIEW” page.

Step 2: How to Add A Subpart I Module



United States Environmental Protection Agency

e-GGRT Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

Help Amanda Baynam My Profile Logout

e-GGRT Help

- How to add a subpart and report data
- General Reporting Information
- How to submit an annual report

ERG Test facility

e-GGRT Greenhouse Gas Data Reporting (2011)

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).

Facility's GHG Reporting Method: Data entry via e-GGRT web-forms ([Change](#))

CO₂ equivalent emissions (excluding biogenic) from subparts C - HH (metric tons) 0.0

Biogenic CO₂ emissions from subparts C - HH (metric tons) 0.0

CO₂ equivalent quantity from supplier categories (metric tons) 0.0

[VIEW GHG DETAILS](#)

REPORT DATA

2011 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting
Subpart A—General Information	View Messages	OPEN
Subpart C—General Stationary Fuel Combustion Sources	View Messages	OPEN
Subpart I—Petroleum Refineries	View Messages	
ADD or REMOVE Subparts		

To add a new subpart I module to your e-GGRT report, click on “Add or Remove Subparts”.

Step 2: How to Add A Subpart I Module



e-GGRT United States Environmental Protection Agency
Electronic Greenhouse Gas Reporting Tool

HOME FACILITY REGISTRATION FACILITY MANAGEMENT DATA REPORTING

McKittrick_Test
e-GGRT Greenhouse Gas Data Reporting (2011)
Select Facility » Facility Overview » **Subpart Selection**

SUBPART SELECTION
Please check all relevant subparts for this facility or supplier. Further information can be found in the e-GGRT Help links to the left.

FACILITY SUBPARTS

- D—Electricity Generation
Description (SHOW | HIDE)
- E—Adipic Acid Production
Description (SHOW | HIDE)
- F—Aluminum Production
Description (SHOW | HIDE)
- G—Ammonia Manufacturing
Description (SHOW | HIDE)
- H—Cement Production
Description (SHOW | HIDE)
- I—Electronics Manufacturing
Description (SHOW | HIDE)
- K—Ferroalloy Production
Description (SHOW | HIDE)
- L—Fluorinated Gas Production
Description (SHOW | HIDE)
- N—Glass Production
Description (SHOW | HIDE)

GENERAL STATIONARY FUEL COMBUSTION

- C—General Stationary Fuel Combustion (Standard Reporting)
Description (SHOW | HIDE)

LANDFILL SUBPARTS

- HH—Municipal Solid Waste Landfills
Description (SHOW | HIDE)
- TT—Industrial Waste Landfills
Description (SHOW | HIDE)

SUPPLIER SUBPARTS

- LL—Suppliers of Coal-based Liquid Fuels
Description (SHOW | HIDE)
- MM—Suppliers of Petroleum Products
Description (SHOW | HIDE)
- NN—Suppliers of Natural Gas and Natural Gas Liquids
Description (SHOW | HIDE)
- OO—Suppliers of Industrial Greenhouse Gases
Description (SHOW | HIDE)

A new page opens showing all of the Part 98 subparts. Select subpart I by clicking on the check box. Scroll down to the bottom of the page and click the blue “save” button.

Note that unselecting a subpart will cause all data that had been previously added in a subpart to be deleted. To prevent accidental deletion, a warning message will appear after un-checking a subpart. However, do be careful when adding subparts not to uncheck boxes by mistake.

Step 2: How to Access the Subpart I Module



McKittrick_Test
e-GGRT Greenhouse Gas Data Reporting (2011)
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).

Facility's GHG Reporting Method: Data entry via e-GGRT web-forms (Change)

The Annual Report has already been prepared. Any changes you make to report data will not be reflected in that version. After making changes to report data you must choose GENERATE/RESUBMIT below, then click GENERATE REPORT for those changes to be included in an updated version of the Annual Report.

REPORT DATA

2011 Reporting Source or Supplier Category	Validation Messages?	Subpart Reporting
Subpart A—General Information	View Messages	OPEN
Subpart I—Electronics Manufacturing	View Messages	OPEN

[ADD or REMOVE Subparts](#)

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

SUBMIT ANNUAL REPORT

Report	Uploaded File Name	Status	Submitted Date	Certification Date	
2011 Annual Report v1		Generated with errors			GENERATE / SUBMIT

The new subpart I module will now appear on the Facility Overview page. To access the subpart I page, click on the blue open button on the right side of the screen (indicated by the green arrow).

Note also that subpart A is automatically included in the list of subparts for reporting. Data reporting for subpart A is required for all facilities.

Step 2: Submitting Subpart I Reporting Forms



The screenshot displays the EPA e-GGRT web interface. At the top, there are navigation tabs: HOME, FACILITY REGISTRATION, FACILITY MANAGEMENT, and DATA REPORTING. The user is logged in as 'McKittrick_Test'. The main heading is 'Subpart I: Electronics Manufacturing (2011)'. Below this, there is an 'OVERVIEW OF SUBPART REPORTING REQUIREMENTS' section with detailed instructions. A 'Subpart I: View Validation' button is visible. The 'SUBPART I SUMMARY INFORMATION FOR THIS FACILITY' section contains two main actions: '1.) DOWNLOAD FORM' with a link to 'Subpart I Reporting Form' (indicated by a green arrow) and '2.) UPLOAD COMPLETED FORM' with a 'Browse...' button and an 'UPLOAD' button (indicated by a second green arrow). A table at the bottom shows 'Uploaded File Name', 'Attached by', 'Date', and 'Delete' columns, with 'No files found' listed.

The subpart I page opens. As you can see, copies of the most recent versions of the reporting forms are also available by clicking of the “Subpart I Reporting Form” link (indicated by the green arrow in the center of the slide).

Under the link to the reporting forms is the upload function (indicated by the second green arrow). Click on “browse” button, select the correct file with your completed reporting form, and then click on the blue “upload” button.

Step 2: Submitting Subpart I Reporting Forms



McKittrick_Test
Subpart I: Electronics Manufacturing (2011)
Subpart Overview

OVERVIEW OF SUBPART REPORTING REQUIREMENTS
Subpart I requires affected facilities to report emissions of fluorinated GHGs from plasma etching, chamber cleaning, and wafer cleaning; nitrous oxide emitted from chemical vapor deposition and other electronics manufacturing processes; and emissions of fluorinated heat transfer fluids at the facility level. If you are subject to other subparts (e.g. Subpart C) you should return to the Facility Overview page, select the appropriate subpart(s), and complete the data reporting requirements of each subpart. To satisfy the Subpart I reporting requirements you will first download the Subpart I reporting form(s). Use the link provided to access the form(s) and find instructions for completing those forms. Next, you will upload the completed form and e-GGRT will validate the data contained within it. Use the "View Validation" link to review any issues found in your reporting form. If necessary, make any revisions necessary to your reporting form and upload the revised reporting form.

For additional information about Subpart I reporting, please use the e-GGRT Help link(s) provided.

Subpart I: View Validation

SUBPART I SUMMARY INFORMATION FOR THIS FACILITY

1.) DOWNLOAD FORM
↳ Subpart I Reporting Form

2.) UPLOAD COMPLETED FORM

EPA has finalized a rule that defers the deadline for reporting data elements used as inputs to emission equations for direct emitters. See 76 FR 53957 (published August 25, 2011). In accordance with the rule, e-GGRT is not currently collecting data used as inputs to emission equations. If you choose to report these inputs to EPA by including them in a file uploaded to this page, please note that the inputs may be subject to public release.

Uploaded File Name	Attached By	Date	Delete
Subpart I Reporting Form_v14.xls	Alexis McKittrick		

Remember:

- Use only EPA prepared Reporting Forms
- Download new reporting forms every year
- Upload only completed Reporting Forms and Subpart I Certifications
- Do not upload any other documents or data to e-GGRT

After a short time, the Web page will refresh with the uploaded file listed here and the date the file was uploaded. Check to make sure you uploaded the correct files. If the wrong file was uploaded, you can use the delete function to delete the uploaded document.

Some things to remember when uploading forms:

- (1) Use only the EPA subpart I forms.
- (2) Download the most recent version of the subpart I forms every year. We anticipate the forms may be revised for the next reporting year based on any potential amendments to the rule or on feedback from reporters.
- (3) Upload the Subpart I Reporting forms once they are completed. Do not upload any "draft" forms or partially completed forms.
- (4) Upload any required subpart I certifications using this same method.
- (5) Do not upload any other documents or data to e-GGRT using this function.

Step 3: Enter GHG Emissions

2.) UPLOAD COMPLETED FORM

3.) UPLOAD SUPPORTING FORMS

SUB PART I EMISSIONS SUMMARY

GHG name	CAS Number	Unrounded Total Emissions (metric tons)	Rounded Total Emissions (metric tons)
FC-70	338-84-1	10	10
MyCustomGas	55-5-5	6	6
C2F6	76-16-4	4	4
CF4	75-73-0	2	2

Note that below the reporting form upload area, you can also similarly add your supporting documentation (such as abatement system certifications) using the “Upload supporting forms” area, highlighted with a green arrow here.

Next, in step 3, you must review the GHG emissions, provided in metric tons of CO₂e, for the subpart I facility. This information is automatically populated from your reporting form and summarized in the table highlighted with a green circle. If any emissions information looks incorrect, correct your reporting form and upload a new version. You will have to delete the existing reporting form from e-GGRT before you can upload a new one.

You have now completed the entry of your subpart I data.

Step 4: Validation Checks



The screenshot shows the EPA e-GGRT interface for a facility named 'McKittrick_Test'. The main heading is 'Subpart I: Electronics Manufacturing (2011)'. Below this, there is a section titled 'OVERVIEW OF SUBPART REPORTING REQUIREMENTS' which explains the reporting process. A green arrow points to a link labeled 'Subpart I: View Validation' which is accompanied by a yellow warning triangle icon. Below the overview, there are sections for 'SUBPART I SUMMARY INFORMATION FOR THIS FACILITY', '1.) DOWNLOAD FORM', and '2.) UPLOAD COMPLETED FORM'. A table at the bottom shows an uploaded file named 'Subpart I Reporting Form_v14_CLF.xls' attached by 'Alexis McKittrick'.

In step 4, review the validation checks to determine whether all of the data is entered correctly. Notice the warning sign on the right side of the screen indicates that one or more of the validation flags were triggered. If we click on the “view validation” link we will be taken to the validation report, which will show the validation flags that have been triggered.

Completeness entries will be shown for the data fields that currently have no information entered. To resolve these errors the user will need to enter information into each of the relevant fields.

Step 5: Generate, certify, and submit annual report



The screenshot shows the EPA e-GGRT web interface. At the top, there are navigation tabs: HOME, FACILITY REGISTRATION, FACILITY MANAGEMENT, and DATA REPORTING. The user is logged in as 'Mark, Alexis Wickstock'. The main content area is titled 'McKitterick, Test e-GGRT Greenhouse Gas Data Reporting (2011)'. It includes a 'FACILITY OR SUPPLIER OVERVIEW' section with instructions on how to add source and/or supplier categories. A table on the right shows CO2 equivalent emissions for various subparts: 1,550.0 for subpart C-HH (metric tons), 0.0 for biogenic CO2 emissions from subparts C-HH (metric tons), and 0.0 for CO2 equivalent quantity from supplier categories (metric tons). Below this is a 'REPORT DATA' section with buttons for 'ADD', 'REMOVE', and 'VIEW MESSAGES'. At the bottom, there is a 'SUBMIT ANNUAL REPORT' table with columns for Report, Uploaded File Name, Status, Submitted Date, and Certification Date. The table shows a '2011 Annual Report' with a status of 'Ready for review' and a 'GENERATE/SUBMIT' button. A green arrow points to this button.

Enter data for all applicable subparts before generating the report.

Once you have entered **ALL** of the information for your facility and reviewed and resolved (where necessary) the validation checks, you are ready to submit your report.

Return to the Facility Overview screen (shown on this slide). Near the bottom of the page, click “GENERATE/RESUBMIT” (as shown by the green arrow). Remember that you must enter data for all of the applicable subparts before you generate and submit the report. After you click on the “Generate/Resubmit” button, E-GGRT will automatically generate your annual report. Your report may take from 1 to 10 minutes to generate depending on the volume of data you entered. E-GGRT generates a HTML and XML version of your report. A public version of your report is also generated from which all of the potential confidential business information has been removed. Please review these reports to ensure they are accurate.

Once you are satisfied the report is accurate, you must certify and submit the report by following the on-screen directions.

Once the report is certified and submitted, the Facility Overview screen will be updated to show when your report was signed and submitted.

If you need to change data that you have already submitted, upload a new subpart I form, update the entries in the data entry screens. After completing your changes, click “GENERATE/RESUBMIT” to re-submit your report with the new information. You can then re-certify and submit your report.

Help with E-GGRT



Additional information on e-GGRT can be found at www.ccdsupport.com

We hope this overview of e-GGRT and the subpart I forms has provided you with a greater familiarity with navigating and entering information using the e-GGRT reporting tool. More information on e-GGRT can be found at www.ccdsupport.com, including:

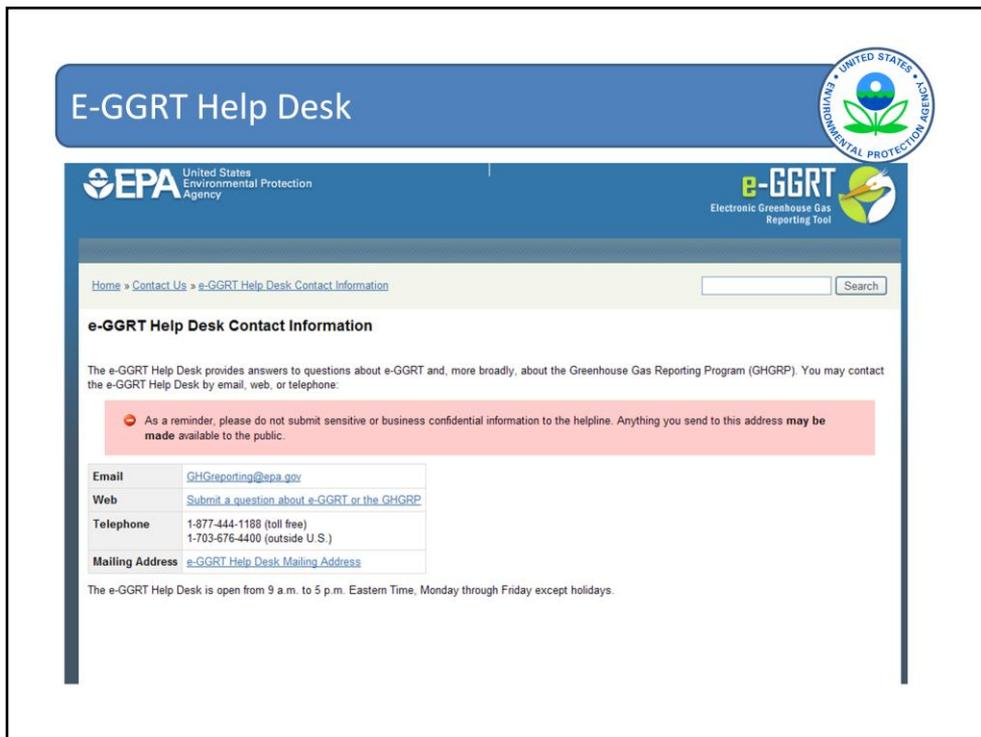
1. Latest news on e-GGRT (including any recent updates, planned maintenance periods, etc);
2. Information and training materials (including registration instructions, reporting instructions, outreach and training materials)
3. Help using e-GGRT (including frequently asked questions (FAQs), lists of known issues, and e-GGRT Help Desk contact information).

Answers to Frequently Asked Questions

A screenshot of the EPA's GHGRP Frequently Asked Questions (FAQs) website. The page has a blue header with the EPA logo and the text "United States Environmental Protection Agency". Below the header, there is a search bar and the title "GHGRP Frequently Asked Questions (FAQs)". The main content area is titled "Welcome to the Greenhouse Gas Reporting Program's FAQ Site" and includes a search bar. Below this, there are six category buttons, each with a question mark icon and a brief description: "GHGRP Rule Notices", "Data Publication", "e-GGRT", "Rule Subparts", "XML Reporting", and "Subpart W". A green arrow points to the "e-GGRT" button, and another green arrow points to the "Rule Subparts" button. At the bottom of the page, there is a link: "Alternatively, view the entire list of FAQs by clicking [here](#)."

Answers to common questions can be found on our FAQ site:
<http://www.ccdsupport.com/confluence/display/fag/FAQs>

Answers to many questions can be found on the GHG Reporting Program's FAQ site, including answers to common questions on (1) e-GGRT and (2) subpart I.



If you have other questions not already covered by an FAQ or encounter problems when using e-GGRT, you can submit questions or comments in writing via email or the web.

You can also contact the help desk by phone using the telephone numbers shown here.

Please be as specific with your questions as you can. If you have encountered a problem using e-GGRT, please provide the e-GGRT version number, the name of the browser you are using, the steps to reproduce the problem, and screen shots when appropriate. However, please do not send sensitive or confidential business information to the help desk! Anything you send to the help desk may be made available to the public!

Help with Subpart I



- GHG Reporting Rule Information and Help
<http://www.epa.gov/ghgreporting/reporters/index.html>
- Subpart I Information:
<http://www.epa.gov/ghgreporting/reporters/subpart/i.html>
- Copy of the slides for this and other webinars
<http://www.epa.gov/ghgreporting/reporters/training/index.html>
- Questions
GHGReporting@epa.gov

If you have further questions on the Greenhouse Gas Reporting Program, then our GHG Reporting Program website has a lot of information to help you understand the rule.

To make it easier to locate information related to subpart I, we have set up web-pages for each subpart. The subpart I web page contains links to valuable resources, including up-to-date rule information and technical assistance materials. The subpart I web page also provides information on any proposed and finalized revisions to subpart I and includes links to all relevant Federal Register notices, such as the Electronics Manufacturing Flexibility Rule and the 2011 and 2012 amendment notices.

Copies of these presentation slides, as well as slides for other training webinars, are available on our training website page.

Questions?

