

Cap-and-Trade Program

Energy-Based Allocation

Spreadsheet Instructions

This document serves as an instruction manual to filling out the data collection spreadsheet (EB_Allocation_Data_Collection.xlsx). Please also see the data collection spreadsheet flowchart for an overview of how to fill out the spreadsheet.

To discern what data need to be collected, we have formulated three general facility types:

1. **Type 1 – Direct-Fire Only:** Facility applies 80 percent or more of its fuel consumption to power direct-fire applications such as process heaters; dryers; heating, ventilation, and air conditioning (HVAC) units; kilns; or cogeneration. In this facility, only the F_{Consumed} and e_{sold} terms will need to be calculated.
2. **Type 2 – Boiler Only:** Facility applies 80 percent or more of its fuel consumption to power steam generation units such as boilers. In this facility, only S_{Consumed} and e_{sold} terms will need to be calculated.
3. **Type 3 – Mixed:** Facility applies less than 80 percent of its fuel use to either direct-fire units or steam generation units. In this facility, all three terms (F_{consumed} , S_{consumed} , and e_{sold}) will need to be calculated.

Once the type of facility is identified, the reporter should only fill in data in the corresponding sheet. Tabs for each sheet are located at the bottom left of the spreadsheet. Note that cells filled in with green denote user-input fields. Below are the instructions for each type of facility.

At the top of the corresponding sheet you are completing, please replace “Company Name” with your company name, “Your Name” with the name of the person reporting these data, and “email@domain.com” with the reporter’s email address. Lastly, please fill in the ARB ID Number with the six digit number used for mandatory reporting.

NOTE: If you wish to report data for years 2000 through 2007, please contact David Allgood at dallgood@arb.ca.gov or 916-445-8238 for a spreadsheet that includes additional data years.

Type 1 – Direct-Fire Only

In this type of facility, 80 percent or more the fuel consumption is used to power direct-fire applications such as process heaters, dryers, HVAC, kilns, or cogeneration units. Please make all entries in the worksheet with the tab labeled “TYPE 1-Direct_Fired_Only”.

Step 1: Report total annual fossil fuel consumed at the facility

Report the total annual fossil fuel consumed at the facility in rows 7 through 10. Do not report fuel consumption of equipment that are exempt from mandatory reporting. Column B distinguishes fuel use, and in this step, report fossil fuel use. Natural gas is the default fuel type, and if your facility uses a different type of fuel, replace the text in

column B with the fuel type used. Add additional rows as necessary to report all different fossil fuels. Report *either* million British thermal units (MMBTU) *or* both volume in million cubic feet (MCF) and higher heating value (HHV). For HHV, you can either use an annual arithmetic average from fuel records or default HHV from 40 CFR 98 Table C-1, which is reprinted in the methodology document. Columns D, E, and F separate the data into years 2008 through 2010, and each entry should be the total fuel use of that calendar year.

Step 2: Report total annual biogas fuel consumed at the facility

Report the total annual biogas fuel consumption at the facility in rows 11 through 14. If the facility does not use biogas, skip this step. Column B distinguishes biogas from natural gas. In this step, only fill in the biogas rows. Column C distinguishes the units for each fuel. Report *either* fuel energy consumed in MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from measurement or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years 2008 through 2010, and each entry should be the total fuel use for that calendar year.

Type 2 – Boiler Only

In this type of facility, 80 percent or more the fuel consumption is used to power steam generation units such as boilers, and excludes equipment used for electricity generation. Please make all entries in the worksheet with the tab labeled “TYPE 2-Boiler_Only”.

Step 1: Choose either weighted mean boiler efficiency or arithmetic mean boiler efficiency

You may only choose to use a weighted mean boiler efficiency if you have unit-level fuel meters on each of your large boilers. If you choose to use the weighted mean boiler efficiency, go to step 2. If you choose to use the arithmetic mean boiler efficiency, skip to step 3.

Step 2: Report fossil fuel consumption of each boiler

Report annual fossil fuel consumption of each boiler with a fire rate greater than 15 MMBTU/hr that is not an auxiliary, backup, or emergency boiler, or is otherwise excluded from mandatory greenhouse gas (GHG) emissions reporting. Separate each entry by boiler number per column A. For each boiler, use a new row set (denoted Boiler 1, Boiler 2, etc.). For example, data for Boiler 1 should be recorded in rows 7 through 10, and if your facility has 4 boilers, you would fill out rows 7 through 34. If your facility has over 6 boilers, you may add a new set of rows for each additional boiler.

Column B distinguishes two types of fuel for each boiler: natural gas and biogas. However, in this step, fill in only the fossil fuel. If your boiler uses a different type of fuel, replace “NG” with the fuel type used, such as “Coal.” Column C distinguishes the reporting units for each fuel. Report *either* million British thermal units (MMBTU) *or* both volume in million cubic feet (MCF) and higher heating value (HHV). For HHV, you can

either use an annual arithmetic average or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years 2008 to 2010, and each entry should be the total fuel use of that calendar year.

Step 3: Report stack temperature and excess dry O₂ in flue gas

For each boiler with a fire rate greater than 15 MMBTU/hr that is not an auxiliary, backup, or emergency boiler, or is otherwise excluded from mandatory GHG emissions reporting, report stack temperature and excess dry O₂ in flue gas. Stack temperature should be reported in column G and excess dry O₂ in flue gas reported in column H. These data should be reported from your most recent source test. If stack gas temperature was not required for your source test, you must take additional temperature measurements in the same conditions of the source test. If you cannot run additional tests, you need to take measurements during normal operations. If you are a seasonal operator, you need to take measurements during normal operations during the peak operating season.

Step 4: Report total annual fossil fuel consumed at the facility

Report the total annual fossil fuel consumed at the facility in rows 71 through 74. Column B distinguishes fuel use, and in this step, report fossil fuel use. Natural gas is the default choice, and if your facility uses a different type of fuel, replace the text in column B with the fuel type. Column C distinguishes the reporting units for each fuel. Report *either* MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from measurement or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years, and each entry should be the total fuel use of that calendar year.

Step 5: Choose either to disaggregate biogas fuel to each boiler or report it on a facility level

If you decide to report biogas use for individual boilers, complete steps 6 through 7. If you decide to report biogas use at a facility level, skip to step 7. If your facility uses no biogas, no further reporting is necessary.

Step 6: Report total annual biogas fuel consumption of each boiler

Report annual biogas fuel use for each boiler with a fire rate greater than 15 MMBTU/hr that is not an auxiliary, backup, or emergency boiler, or is otherwise excluded from mandatory GHG emissions reporting. As previously discussed in step 2, column A distinguishes each boiler. Column B distinguishes biogas and natural gas. In this step, only fill in the biogas rows. Column C distinguishes the units for each fuel. Report *either* MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from measurement or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years, and each entry should be the total fuel use of that calendar year.

Step 7: Report total annual biogas fuel consumed at the facility

Report the total annual biogas fuel consumption at the facility in rows 75 through 78. Column B distinguishes biogas and natural gas. In this step, only fill in the biogas rows. Column C distinguishes the units for each fuel. Report *either* MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from measurement or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years, and each entry should be the total fuel use of that calendar year.

Type 3 – Mixed

In this type of facility, less than 80 percent of its fuel consumption is used to power either direct-fire units or steam generation units. Please make all entries in the worksheet with the tab labeled “TYPE 3-MIX”.

Step 1: Choose either weighted mean boiler efficiency or arithmetic mean boiler efficiency

You may only choose to use a weighted mean boiler efficiency if you have unit-level fuel meters on each of your large boilers. If you choose to use the weighted mean boiler efficiency, go to step 2. If you choose to use the arithmetic mean boiler efficiency, skip to step 3.

Step 2: Report fossil fuel consumption of each boiler

Report annual fossil fuel consumption of each boiler with a fire rate greater than 15 MMBTU/hr that is not an auxiliary, backup, or emergency boiler, or is otherwise excluded from mandatory GHG emissions reporting. Separate each entry by boiler number per column A. For each boiler, use a new row set (denoted Boiler 1, Boiler 2, etc.). For example, data for Boiler 1 should be recorded in rows 7 through 10, and if your facility has 4 boilers, you would fill out rows 7 through 34. If your facility has over 6 boilers, you may add a new set of rows for each additional boiler.

Column B distinguishes two types of fuel for each boiler: natural gas and biogas. However, in this step, fill in only the fossil fuel. If your boiler uses a different type of fuel, replace “NG” with the fuel type used, such as “Coal.” Column C distinguishes the reporting units for each fuel. Report *either* million British thermal units (MMBTU) *or* both volume in million cubic feet (MCF) and higher heating value (HHV). For HHV, you can either use an annual arithmetic average or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years 2008 to 2010, and each entry should be the total fuel use of that calendar year.

Step 3: Report stack temperature and excess dry O₂ in flue gas

For each boiler with a fire rate greater than 15 MMBTU/hr that is not an auxiliary, backup, or emergency boiler, or is otherwise excluded from mandatory GHG emissions reporting, you need to report stack temperature and excess dry O₂ in flue gas. Stack temperature should be reported in column G and excess dry O₂ in flue gas reported in column H. These data should be reported from your most recent source test. If stack

gas temperature was not required for your source test, you must take additional temperature measurements in the same conditions of the source test. If you cannot run additional tests, you need to take measurements during normal operations. If you are a seasonal operator, you need to take measurements during normal operations during the peak operating season.

Step 4: Report the sum of the annual fossil fuel consumption of all boilers

Report the sum of the annual fossil fuel consumption of all boilers with a fire rate greater than 15 MMBTU/hr that is not an auxiliary, backup, or emergency boiler, or is otherwise excluded from mandatory reporting. Report this summation in rows 71 through 74. This summation can either be data from a sum of fuel use as measured by individual unit-level boiler fuel meters, a fuel use as measured by unit-level fuel meter that only feeds the boilers, a sum fuel use as measured by revenue meters that only feed the boilers, or a fuel use as measured by revenue fuel meter that only feeds the boilers.

Column B distinguishes two types of fuel for each boiler: natural gas and biogas. In this step, fill in only the fossil fuel. If your boiler uses a different type of fuel, replace “NG” with the fuel type used, such as “Coal.” Column C distinguishes the reporting units for each fuel. Report *either* MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from fuel records or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years 2008 to 2010, and each entry should be the total fuel use of that calendar year.

Step 5: Choose how to disaggregate biogas fuel use

Facilities are given three different ways to disaggregate biogas fuel use:

1. A facility may report biogas fuel use to boilers individually by completing steps 6 through 9.
2. A facility may report biogas fuel use to boilers as a whole by completing steps 7 through 9.
3. A facility may report biogas fuel use to the facility as a whole by skipping to step 9.

If your facility uses no biogas, skip to step 10.

Step 6: Report total annual biogas fuel consumption of each boiler

Report annual biogas fuel use for each boiler with a fire rate greater than 15 MMBTU/hr that is not an auxiliary, backup, or emergency boiler, or is otherwise excluded from mandatory GHG emissions reporting. As previously discussed in step 2, column A distinguishes each boiler. Column B distinguishes biogas and natural gas. In this step, only fill in the biogas rows. Column C distinguishes the units for each fuel. Report *either* MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from measurement or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years, and each entry should be the total fuel use of that calendar year.

Step 7: Report the sum of the annual biogas fuel consumption of all boilers

Report the sum of the annual biogas fuel consumption of all boilers with a fire rate greater than 15 MMBTU/hr that is not an auxiliary, backup, or emergency boiler, or is otherwise excluded from mandatory GHG emissions reporting. Report this summation in rows 75 through 78. Column B distinguishes two types of fuel for each boiler: natural gas and biogas. In this step, fill in only the biogas fuel. Column C distinguishes the reporting units for each fuel. Report *either* MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from fuel records or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years 2008 to 2010, and each entry should be the total fuel use of that calendar year.

Step 8: Report total annual biogas fuel consumption of direct-fire units

Report annual biogas fuel consumption of direct-fired units such as process heaters, kilns, cogeneration units, and dryers. Do not report fuel consumption of units excluded from mandatory GHG emissions reporting. Report data in rows 83 through 86. Column B distinguishes biogas and natural gas. In this step, only fill in the biogas rows. Column C distinguishes the units for each fuel. Report *either* MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from measurement or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years, and each entry should be the total fuel use of that calendar year.

Step 9: Report total annual biogas fuel consumed at the facility

Report the total annual biogas fuel consumption at the facility in rows 91 through 94. Column B distinguishes two types of fuel for each boiler: natural gas and biogas. However, in this step, fill in only the biogas. Column C distinguishes the units for each fuel. Report *either* MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from measurement or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years, and each entry should be the total fuel use of that calendar year.

Step 10: Report total annual fossil fuel consumption of direct-fire units

Report the sum of the annual fossil fuel consumption of direct-fired units such as process heaters, kilns, cogeneration units, and dryers. Do not report fuel consumption of equipment excluded from mandatory GHG emissions reporting. Report data in rows 79 through 82. This summation can either be a sum of fuel use as measured by individual unit-level fuel meters that feed each direct-fire unit, a fuel use as measured by unit-level fuel meter that only feeds the direct-fire units, a sum fuel use as measured by revenue meters that only feed the direct-fire units, or a fuel use as measured by revenue fuel meter that only feeds the direct-fire units.

Column B distinguishes two types of fuel for each boiler: natural gas and biogas. However, in this step, fill in only the fossil fuel. If your boiler uses a different type of fuel, replace “NG” with the fuel type used, such as “Coal.” Column C distinguishes the units

for fossil fuel. Report *either* MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from measurement or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years, and each entry should be the total fuel use of that calendar year.

Step 11: Report total annual fossil fuel consumed at the facility

Report the total annual fossil fuel consumed at the facility in rows 87 through 90. Column B distinguishes fuel use and in this step report fossil fuel use. Natural gas is the default choice, and if your facility uses a different type of fuel, replace the text in column B with the fuel use. Column C distinguishes the reporting units for each fuel. Report *either* MMBTU *or* both MCF and HHV. For HHV, you can either use an annual arithmetic average from measurement or default HHV from 40 CFR 98 Table C-1, reprinted in the methodology document. Columns D, E, and F separate the data into years, and each entry should be the total fuel use of that calendar year.