



DEPARTMENT OF
ECOLOGY
State of Washington

Washington State Agency Greenhouse Gas Reporting and Calculator Instructions

May 25, 2017

Washington State Agency GHG Reporting and Calculator Instructions

Background

In 2009, the Legislature and Governor adopted the State Agency Climate Leadership Act (RCW 70.235.050.) The Act directs state agencies, including universities, colleges, and community and technical colleges to lead by example in reducing their greenhouse gas (GHG) emissions to:

- 15 percent below 2005 levels by 2020
- 36 percent below 2005 levels by 2035
- 57.5 percent below 2005 levels by 2050

The requirements for state agencies include the following:

- Annually estimate and report to Ecology greenhouse gas emissions from agency operations
- Every other year (in even years) report actions taken in the past two years to meet their emission reduction targets.

Reporting Your Greenhouse Gas Emissions

Agencies need to report yearly to make reports consistent and comparable across agencies and with other state and federal greenhouse gas programs. **Reports are due to Ecology by July 1.**

Steps for reporting

- 1.) Download and complete the excel-based greenhouse gas emissions calculator. They can be found on our website.
- 2.) Log into your [Secure Access Washington Account \(SAW\)](#). If you do not have an account, you will need to create one and wait for an approval email from Ecology.
- 3.) Go to “My services” and select “State Agency and Academia GHG Reporting Tool” – Reporters commonly make the mistake of reporting their emissions under the wrong program, so please make sure you choose the correct tool.
- 4.) Search for your agency by name and upload your file.

Sources of Greenhouse Gas Emissions

Agencies should estimate emissions from the following sources:

- **Energy used in buildings and stationary equipment** such as a generator. This includes electricity, natural gas, propane, fuel oil, diesel, and other fuels.
- **Fuel used in vehicle fleets and mobile equipment** owned by the agency or leased from the state motor pool, including passenger vehicles, heavy-duty vehicles, off-road vehicles, ferries, boats, and aircraft.

Greenhouse Gas Emissions Calculator

Ecology provides agencies an Excel-based greenhouse gas calculator to estimate their emissions.

Universities and community and technical colleges that participate in the American College and University President's Climate Commitment (ACUPCC) can submit the ACUPCC report in lieu of using the calculator provided by Ecology. The electricity emission factor in these calculators may be from the Emissions & Generation Resource Integrated Database (eGrid) Northwest Power Pool not the Fuel Mix Disclosure (FMD) emission factor developed by Washington's Department of Commerce. This means you will need to:

- Recalculate your electricity emissions using the FDM emissions factor.
- If you are using green electricity you will need to get your emission factors from your utility and recalculate using these factors.

The sections below provide an overview and instructions for using the greenhouse gas calculator, which includes a contents and notes tab and six worksheets. The spreadsheets are locked so you can only input data into the correct cells. The unlocked cells where you enter your data are highlighted in yellow. Cells highlighted in blue are optional. Please be sure to report in the units requested.

Contents and Notes Tab

Use this space to briefly note:

- What information was gathered and from whom. This will allow you to analyze changes over time and inform others how the numbers were collected. .
- Methodologies, data accuracy, assumptions, and other helpful information.
- If you are reporting green electricity with market-based emission factors enter comments on the emission factors for CO₂, N₂O and CH₄ provided by the utility.

Worksheets

There are six worksheets in the calculator:

- **Worksheets one-three-** are for agency data.
- **Worksheet four-** will automatically generate a summary of agency GHG emissions.
- **Worksheets five and six-**contain emission factors and conversion factors for your reference.

Worksheet 1: General Agency Information

Employees

Report total number of employees. You can either calculate the average for the reporting year or report the total number of employees on a specific date.

Students, patients, etc.

If you directly serve a population and this has a direct effect on your energy consumption, report the total population you serve, such as number of students, patients, offenders, etc. You can either calculate the average for the reporting year or the give the total population on a specific date.

Agency owned space

Please report square footage for conditioned space. Conditioned space is heated or cooled using electricity, natural gas, or other forms of energy.

Worksheet 2: Building Energy Use-

All reporters complete Table one.

If you are reporting green electricity (market-based):

- Fill out **both table one and two**. You will enter the same data into **both tables**, except for the purchased energy section. In table one, all electricity purchases, whether green market or not, will be calculated using the regional emission factor. In the second table, account for your specific green power purchases, including purchases that were not green power e.g. perhaps you have a contract for green power at headquarters but not regional operations, account for both types of purchases in Table 2
- In worksheet five, enter the emission factors provided by your utility contract including values for CO₂, CH₄ and N₂O in cell C22, E22 and G22.
- Record these emission factors in the “contents & Notes” tab as well.

Worksheet 3: Fleet Energy Use

Light Duty, Heavy Duty and Off Road Fuels

Fleet reporting has been simplified to only include CO₂ and biofuel emissions. Emissions from CH₄, N₂O and HFCs are minimal yet add complexity to the data collection. It is acceptable to estimate and add one-three percent of CO₂ emissions for these GHG's; however, this calculator does not make that adjustment automatically.

Ferries

Your biofuel percentage must be entered in cell D20.

Boats

This includes fuel use for all watercraft owned or operated by your agency (except ferries.)

Aircraft

For aircraft, enter the gallons of aviation gasoline and/or jet fuel used.

Worksheet 4: GHG Emissions Summary

This worksheet contains a summary of GHG emissions by source. These numbers will be automatically generated based on the data entered into worksheets one-three. Carbon dioxide emissions associated with bioenergy sources are not included in the totals.

Worksheet 5: Emissions Factors

Emissions factors are the average emission rate of a pollutant from a unit of activity. For example, emissions of carbon dioxide per gallon of gasoline consumed.

Carbon dioxide equivalent (CO₂e)

A measure used to compare the emissions from various greenhouse gases based on their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as "metric tons of carbon dioxide equivalents (MMT_{CO₂e}).\" The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP.

MT_{CO₂e} = (million metric tons of a gas) * (GWP of the gas)

Global Warming Potential (GWP)

Global Warming Potential (GWP) is a measure of the contribution of a greenhouse gas to global warming over a specific time period relative to carbon dioxide. Carbon dioxide (CO₂) is the reference gas and has a GWP of one. Methane (CH₄) has a GWP of 25 and a given mass of CH₄ is 25 times more potent compared to the same mass of CO₂ over a 100 year time horizon. GWP is used to convert emissions of greenhouse gases into a common measure, the carbon dioxide equivalent (CO₂e), by multiplying emissions of a greenhouse gas times the GWP.

Worksheet 6: Conversion Factors

This worksheet provides conversion factors for your reference.

Contact:

Gail Sandlin, Air Quality Program

Gail.Sandlin@ecy.wa.gov

(360) 407-6860

To request ADA accommodation, call Ecology at (360) 407-6800, 711 (relay service), or (877) 833-6341 (TTY).