

# GREENHOUSE GAS EMISSIONS INVENTORY

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# Overview

- **GHG Basics**
- **Methodology**
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# GHG Basics

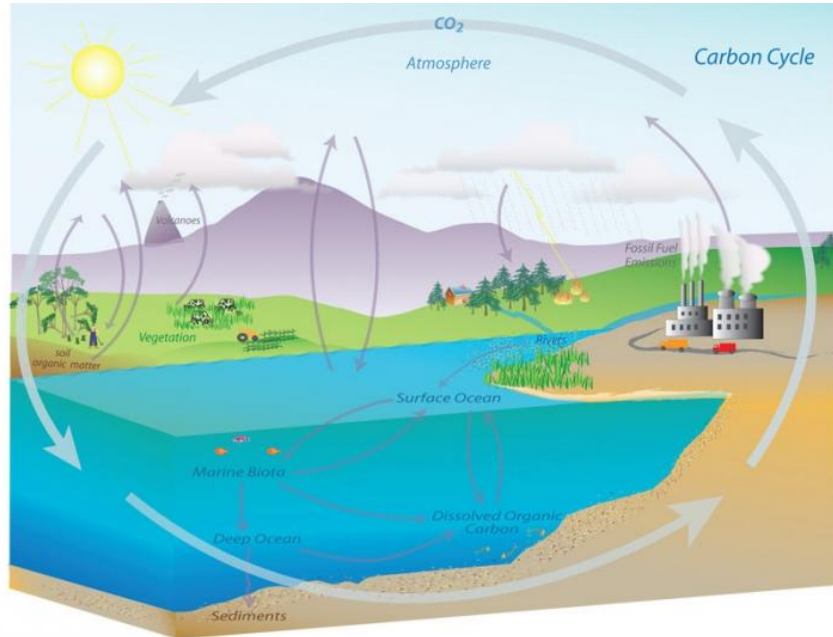
## Definition:

**Greenhouse gases are substances that contribute to climate change by trapping heat in the atmosphere. The four (4) main GHG's are: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and fluorinated gases (hydrofluorocarbons [HFCs], perfluorocarbons, and sulfur hexafluoride). (Washington State Department of Ecology).**

## Primary Sources (US):

**Electricity production, Transportation, Industry, Agriculture, Land use change.**

# GHG Basics



Source: National Oceanic and Atmospheric Administration. <http://www.noaa.gov/resource-collections/carbon-cycle>

# Methodology

## US EPA GHG Emissions Classifications:

**Scope 1:** Direct GHG emissions from sources that are owned or controlled by the entity (fossil fuels burned on-site, emissions from owned or leased vehicles, other direct sources)

**Scope 2:** Indirect GHG emissions associated with the consumption of purchased or acquired electricity, heating, cooling, or steam.

**Scope 3:** Indirect GHG emissions from sources not owned by the entity but related to the entities activities (employee travel/commuting, solid waste disposal, end use of product being handled)

# Methodology

## Washington State (Statute/Methods/Guidance):

### Chapter 70.235:

#### Requires annual GHG reporting by:

- State agencies.
- Facilities that emit at least 10,000 MT CO<sub>2</sub>e per year.
- Suppliers of liquid motor vehicle fuel, special fuel or aircraft fuel that create at least 10,000 MT CO<sub>2</sub>e per year.

### Method:

- Downtown properties & Airport properties.
- Ecology calculator tool.

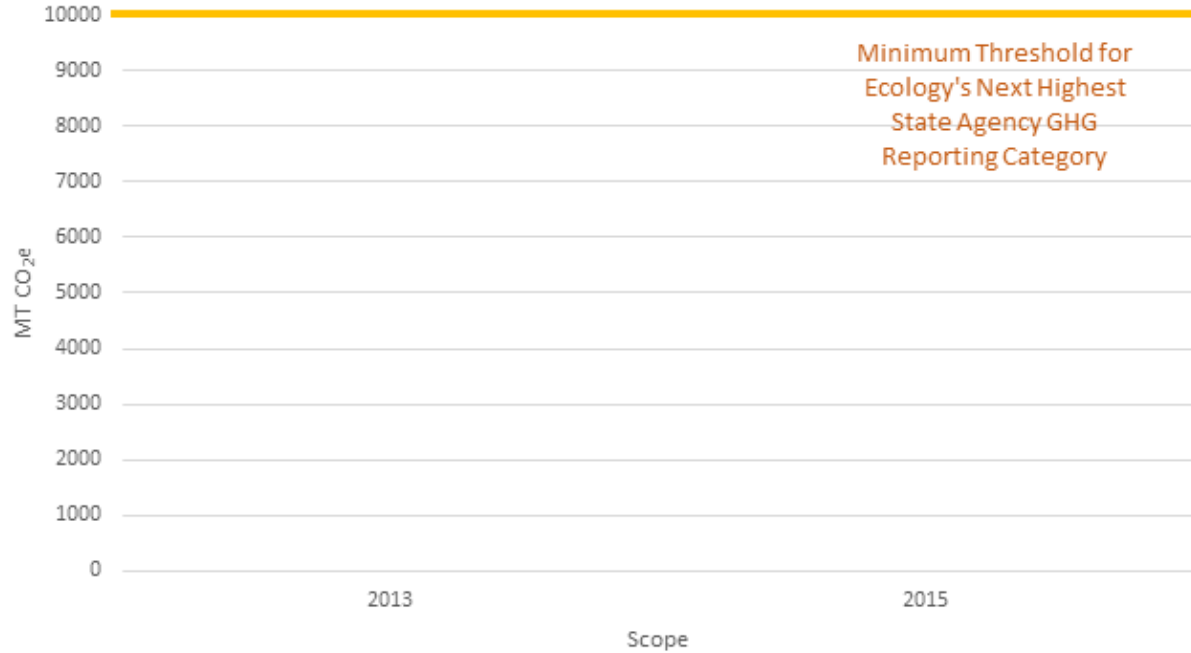
# Results

## Scope of study:

- **Scope 1 Emissions (per Ecology mandate)**
  - **Port-owned vehicles, motorized equipment, boats.**
- **Scope 2 Emissions**
  - **Port-owned buildings.**

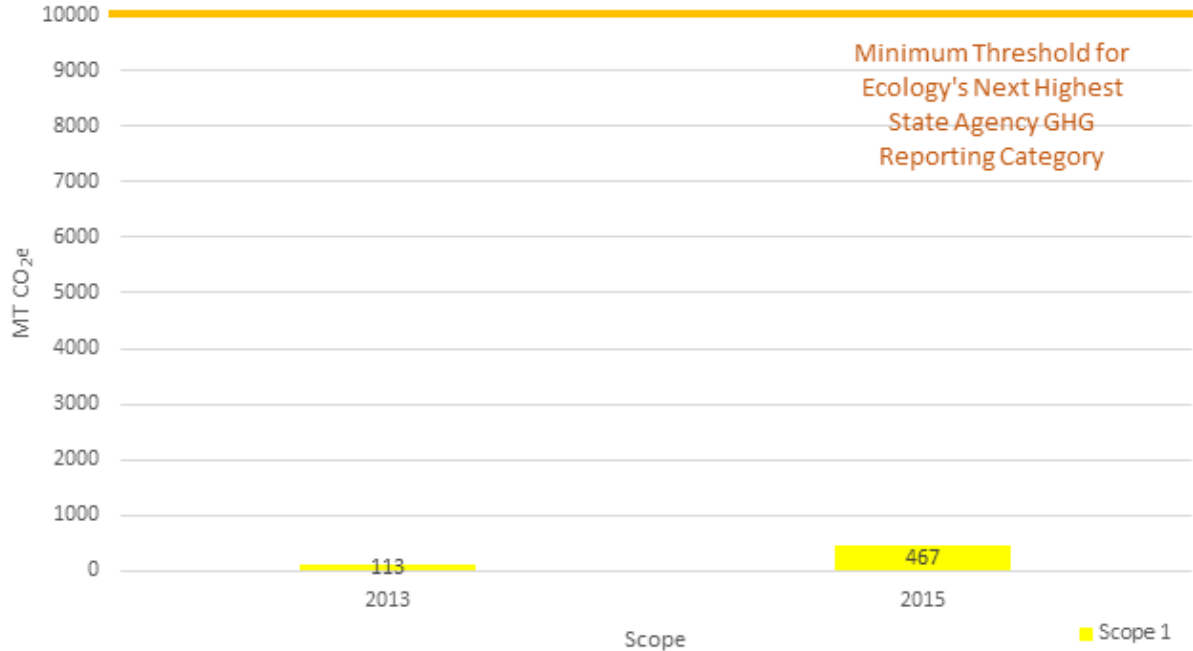


# Results

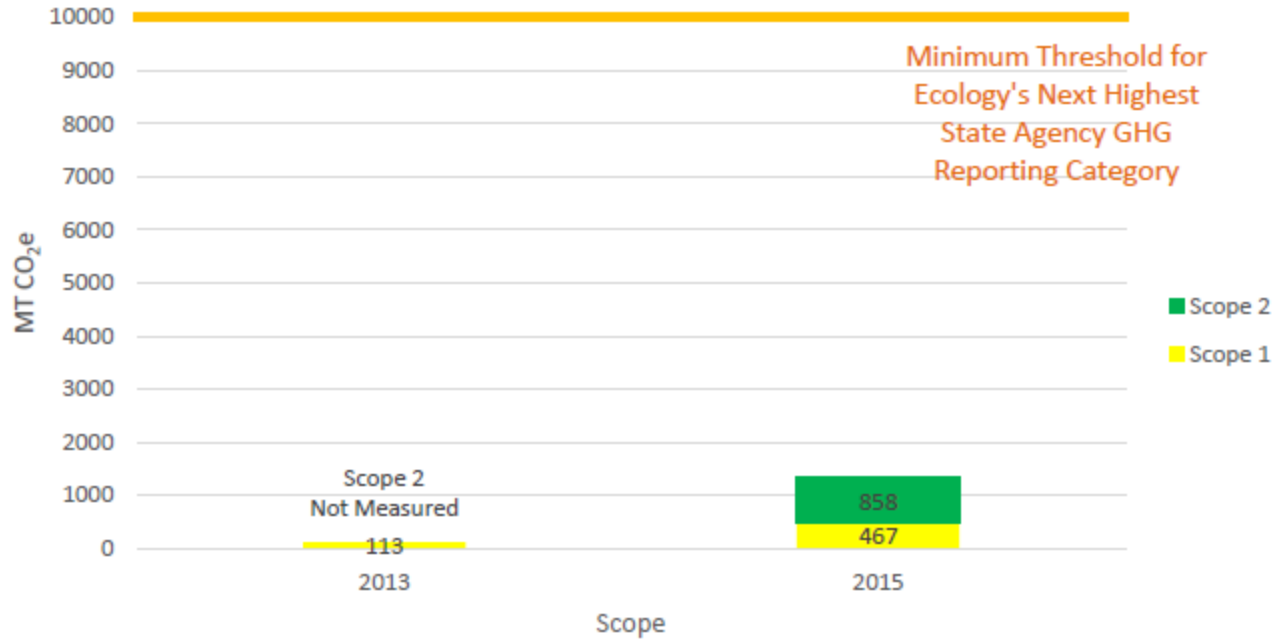




# Results



# Results



# Results: Scope 1 & 2 Port-wide

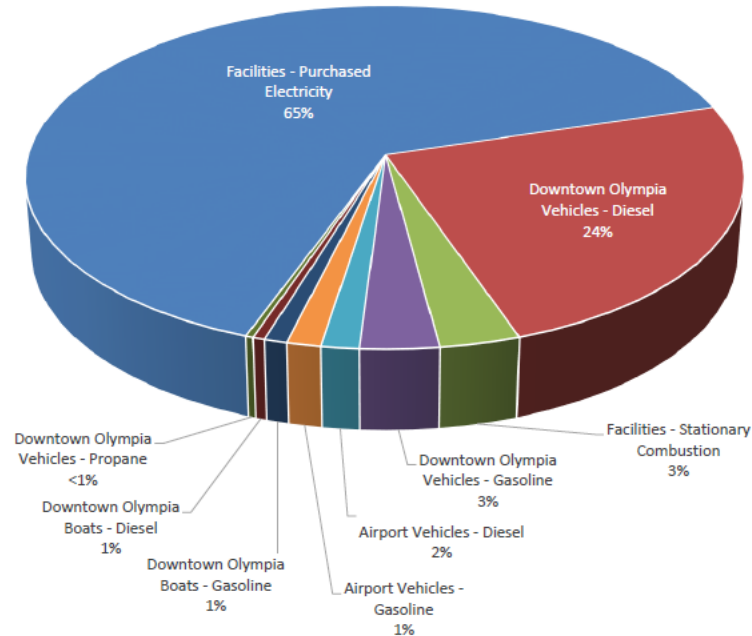


Chart 1: Port of Olympia 2015 GHG Emissions Summary

# Next Steps

## 1. Identify opportunities for GHG reduction.

### Scope 1:

- **Replace older vehicles with more fuel efficient vehicles.**
- **Determine if total number of Port-owned vehicles could be reduced.**

### Scope 2:

- **Work with tenants on energy use reduction strategies.**
- **Work with developers to encourage construction of energy efficient buildings (LEED, Green Globes, etc.).**

## 2. Develop reduction targets and action plan to achieve targets.

# Questions/Discussion