

# Understanding Your Carbon Footprint

## A How-to Guide for Businesses

- Better understand and quantify your carbon footprint/ greenhouse gas emissions inventory.
- Develop a strategy for improving your environmental impact.



## What is a greenhouse gas (GHG)?

- A GHG has the ability to absorb and emit thermal radiation.
- Earth's atmosphere naturally contains many of these gases. By absorbing heat, GHGs help keep the Earth warm.
- The use of fossil fuels increases the amount of GHGs in the atmosphere in the form of carbon dioxide (CO<sub>2</sub>), water vapor, methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O).

## Where to begin:

When calculating GHG emissions for your organization, it is important to determine what emission sources will be included. Direct and indirect emissions are characterized as either scope 1, 2 or 3 emissions.

**Scope 1 GHG emissions** are direct emissions from sources that are owned or controlled by the company

*example: emissions resulting from on-site fossil fuel combustion and fleet fuel consumption*

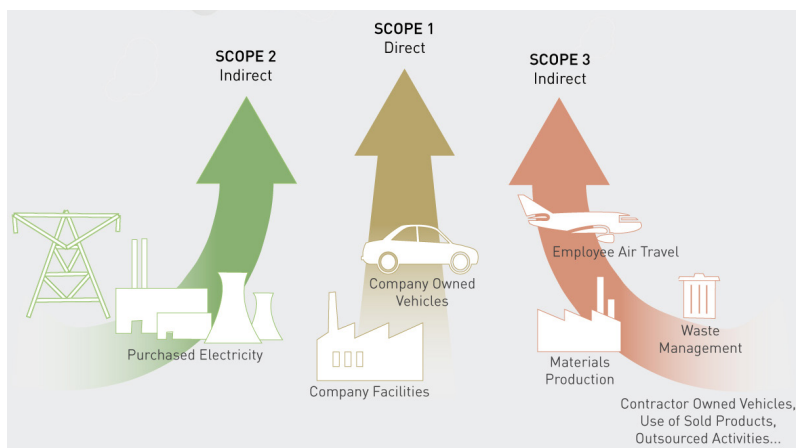
**Scope 2 GHG emissions** are indirect emissions from sources that are owned or controlled by the company

*example: emissions resulting from the generation of electricity purchased by the company*

**Scope 3 GHG emissions** are from sources not owned or directly controlled by the company but related to company activities.

*example: emissions resulting from employee travel and commuting, contracted solid waste disposal and wastewater treatment, supply chain activities*

## GHG Emissions



[www.greenfleet.com.au/About-us/Why-Offset-Emissions](http://www.greenfleet.com.au/About-us/Why-Offset-Emissions)



New York State  
Pollution Prevention Institute

## Product life cycle emissions

include Scope 1 – 3 emissions and are all the emissions associated with the production and use of a specific product, from cradle to grave, including emissions from raw materials, manufacture, transport, storage, sale, use and disposal.

### Next Steps:

Once you have determined which emission sources will be included in your GHG analysis, publicly available tools can be used to generate and interpret—as well as communicate to customers—useful data. The chart below includes a useful selection of these, albeit, nonexhaustive.



RELEVANT LIFE-CYCLE	Scope 1, 2, 3	Scope 1, 2, 3	Scope 1, 2, 3	Scope 3
	<ul style="list-style-type: none"> <li>● Distribution</li> <li>● Manufacturer</li> <li>● Materials</li> </ul>	<ul style="list-style-type: none"> <li>● Distribution</li> <li>● Manufacturer</li> <li>● Materials</li> <li>● Use</li> </ul>	<ul style="list-style-type: none"> <li>● Distribution</li> <li>● Manufacturer</li> <li>● Materials</li> <li>● Use</li> </ul>	<ul style="list-style-type: none"> <li>● End of Life</li> </ul>
RATIONALE	Give your emission numbers meaningful context.	Get more nuanced data—breakdown your emissions by fuel type and vehicle technology.	Compare your emissions to national, state-level, and regional averages.	Factor in the impact of existing and possible alternative waste streams.
	Understanding how your GHG emissions compare to other industrial or everyday activities can make it easier to communicate your impact to business partners, customers, and others.	The environmental impact of GHGs is usually caused by a mix of activities. Breaking down your business's emissions into its root causes can dramatically ease your efforts to reduce your overall GHG impact.	Not surprisingly, GHG emission rates vary between geographic locations. For example, New York State differs significantly from national averages in many categories. It can be helpful to see how your performance compares to other businesses locally and further afield.	Most people don't appreciate the amount of GHGs that are emitted through a business's waste streams. A sustainable waste program can lead to large reductions in what you emit.
TOOL(S)	<a href="#">U.S. EPA Greenhouse Gas Equivalencies Calculator</a>	<a href="#">GREET (Argonne National Laboratory)</a>	<a href="#">U.S. EPA Emission Factors for Greenhouse Gas Inventories</a>  <a href="#">U.S. EIA State Profile and Energy Estimates for the U.S.</a>  <a href="#">U.S. EIA State Profile and Energy Estimates for New York State</a>	<a href="#">U.S. EPA Waste Reduction Model (WARM)</a>

### Want to learn more about understanding your carbon footprint with NYSP2I?

- Visit the NYSP2I website ([www.rit.edu/affiliate/nysp2i](http://www.rit.edu/affiliate/nysp2i)) to read case studies about companies that have quantified GHGs.
- Contact **Kim Bawden** at [krbp2i@rit.edu](mailto:krbp2i@rit.edu) or **(585) 475-7039**.