Consumer Guide to GHG Accounting

What are greenhouse gasses?

Greenhouse gasses (GHGs) are gasses that trap heat when found in the atmosphere and lead to atmospheric warming that affects global climate.

What are GHG inventories?

GHG inventories identify the impact of organizations and nations on global climate change over a specific period of time in terms of greenhouse gases emitted. Organizations and nations impact climate change through activities that release greenhouse gas emissions into the atmosphere, such as burning coal to generate electricity, as well as those activities that reduce or sequester greenhouse gas emissions. Organizations also indirectly impact climate change by affecting the operations of their suppliers and customers through purchasing decisions, such as the purchase of renewable energy or product and service design.

What are the different kinds of GHG inventories?

National GHG Inventories: consist of estimations of greenhouse gas emissions for a certain period of time within a single country. These inventories leverage existing institutional data systems to rapidly develop emission estimates from a 'top down' or macro-level perspective. Many countries develop official national inventories that are submitted to the United Nations in accordance with the Framework Convention on Climate Change.

Facility GHG Inventories: are measurements of the greenhouse gas emissions directly emitted from a single facility. Facility inventories are often used in mandatory greenhouse gas regulations. For example, in the U.S. Greenhouse Gas Reporting Program, facilities that emit over 25,000 metric tons of CO_2-equivalent are required to report greenhouse gas emissions annually. If a company has some facilities in the U.S. that meet the threshold of 25,000 metric tons of CO_2-equivalent and some that do not, the company does not have to report emissions for its facilities below the threshold.

Corporate Inventories: are quantifications of the greenhouse gases an entire organization emits into the atmosphere. To complete a corporate inventory, an organization collects site-specific data from all facilities it owns or controls and uses a 'bottom-up' or micro-level approach to quantify emissions. A corporate inventory reflects an organization's 'direct' emissions that occur as a result of combustion, industrial processes and leaks of gases and, at a minimum, 'indirect' emissions associated with the generation of consumed electricity, steam or heat. Corporate inventories enable organizations to identify opportunities to reduce emissions as well as track changes over time. The Climate Registry's General Reporting Protocol gives specific step-by-step directions for calculating corporate greenhouse gas inventories.

Supply Chain Inventories: extend the concept of a corporate inventory to include all direct and indirect emissions associated with an organization's operations, products and services. A supply chain inventory is intended to expose an organization's climate risk, which can be valuable information for investors. Supply chain inventories can reveal the greatest opportunities for organizations to reduce emissions through actions such as altering material sourcing procedures. The World Resources Institute and World Business Council for Sustainable Development have developed a standard for supply chain inventory reporting.

Product Life Cycle Inventories: are also known as life cycle assessments or estimations of carbon embodied in a product. Produce life cycle inventories are the total emissions associated with a product, beginning with obtaining the raw materials that are used to develop the product, and extending to the emissions associated with disposing of the product when it is discarded. Product life cycle inventories are generally conducted to identify opportunities to reduce the environmental impact and cost of developing a product and to compare the environmental impact of similar products to each other. The World Resources Institute and World Business Council for Sustainable Development have developed a standard for product life cycle inventory reporting.

Reduction Project Inventories: are quantifications of the emissions reductions resulting from certain activities or projects, such as installing a landfill gas collection system at a landfill. Typically reduction projects are completed in order to obtain credits, which can be used to counteract emissions occurring elsewhere. These types of credits are commonly referred to as 'offsets'. In order to qualify for credit, projects must demonstrate that the resulting emission reduction or sequestration is real, measurable, permanent, verifiable and 'additional', meaning that the project is not required by law and would not have taken place without the financial rewards of the generated credits. The use of reduction credits to offset greenhouse gas emissions helps to increase the demand for reduction projects. Reduction credits can also be added to a corporate, supply chain or product life cycle inventory to demonstrate emissions reductions.

What do inventories mean to me?

The inventories described above all have unique objectives and provide different kinds of information that you can use to make educated decisions about your participation in the carbon marketplace. **National and facility inventories** relate to international,

national and sub-national policies such as the Kyoto Protocol, emissions-trading programs and carbon tax policies. The information developed from national and facility inventories enables the thoughtful participation of consumers in local and national government actions on climate change.

Corporate and supply chain inventories demonstrate the effects of an entire company or organization on climate change. These inventories can be used to understand a company's performance over time. They can also be used to understand a company's risks in the face of climate change regulation.

Product lifecycle inventories identify the greenhouse gas emissions embodied in a product or service and give consumers information through product labeling, to make low carbon purchases in the marketplace.

Finally, **reduction project inventories** help consumers understand the effectiveness of different greenhouse gas reduction projects. In addition, the presence of the offsets generated from reduction projects in corporate, supply chain or product lifecycle inventories indicates that an organization has invested in reduction projects outside of its own operations. Transparent information about where and how the offsets were generated provides even more information that consumers can use in their purchasing and investment decisions.

Where can I learn more?

National Inventories • UNFCC National Inventory Process • Intergovernmental Panel on Climate Change • U.S. Environmental Protection Agency GHG Inventory	**Supply Chain Inventories** • The Greenhouse Gas Protocol • Carbon Disclosure Project Supply Chain Report
Facility Inventories • U.S. Environmental Protection Agency GHG Reporting Program • California Mandatory GHG Emissions Reporting Program	**Corporate Inventories** • The Climate Registry • The Greenhouse Gas Protocol • International Organization for Standardization: ISO 14064-1
Product Lifecycle Inventories • The Greenhouse Gas Protocol • BSI Publically Available Specifications: PAS 2050 • The Carbon Trust • International Organization for Standardization: ISO 14040 • International Organization for Standardization: ISO 14044	**Reduction Project Inventories** • The Climate Action Reserve • Verified Carbon Standard • UNFCC Clean Development Mechanism • The Greenhouse Gas Protocol • International Organization for Standardization: ISO 14064-2 • Regional Greenhouse Gas Initiative (RGGI)