



NATIONAL ASSOCIATION OF  
ELECTRICAL DISTRIBUTORS

Smart Tools for Smart Distribution®

# Sustainability Performance Management Tools

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## Overview

Many sustainability tools are available to help your company communicate its sustainable development goals to internal and external audiences. With these resources, your company can assess, measure, and develop corporate sustainability initiatives that can ultimately reduce environmental impacts and improve your bottom line.

## Greenhouse Gases

The dominant focus of sustainability efforts is on greenhouse gas (GHG) emissions. These gases trap heat in the atmosphere, causing a greenhouse effect.<sup>1</sup>

Some greenhouse gases occur naturally and are emitted to the atmosphere through natural processes and human activities, while others are created and emitted solely through human activities.

In December 1997, the United Nations Framework Convention on Climate Change (UNFCCC) adopted the Kyoto Protocol in Kyoto, Japan, and it was entered into force on February 2005.<sup>2</sup>

The major feature of the Kyoto Protocol is its targets for 37 industrialized countries and the European community for reducing GHG emissions. These amount to an average reduction of 5% against 1990 levels over the 5-year period 2008-2012.

## KYOTO PROTOCOL

*An international agreement linked to the United Nations Framework Convention on Climate Change. Its major feature is binding targets for 37 industrialized countries for reducing greenhouse gas (GHG) emissions.*

The Kyoto Protocol established binding commitments for industrialized nations to reduce gases (carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons, and perfluorocarbons), as well as general commitments for all member countries.

To date, 184 parties of the UNFCCC convention have ratified the Protocol.<sup>3</sup> As of June 2009, the U.S. has not ratified the Protocol.



## Carbon Footprinting

Each year, billions of tons of carbon dioxide (CO<sub>2</sub>) are removed from the atmosphere by oceans and growing plants and are emitted back into the atmosphere through natural processes. In nature, the total CO<sub>2</sub> emissions and removals are roughly equal. However, activities like deforestation and burning oil, coal, and gas have increased CO<sub>2</sub> emissions. In 2005, global atmospheric CO<sub>2</sub> concentrations were 35% higher than before the Industrial Revolution in the 1700s.<sup>4</sup>

Carbon footprinting examines the impact human activities have on the environment by measuring the amount of greenhouse gases produced in our day-to-day lives through burning fossil fuels for electricity, heating, and transportation.

### CARBON FOOTPRINTING

*A method of assessing ecological impact by measuring the total set of GHG (greenhouse gas) emissions caused directly and indirectly by an individual, organization, event or product.*

In 2007, 38% of the general population was familiar with the term carbon footprinting. According to research conducted by the [Natural Marketing Institute](#) in 2008, 57% claimed familiarity with the term. Of those who claimed familiarity with the term, 13% used an online carbon footprint calculator.<sup>5</sup> However, carbon emissions are only one component of greenhouse gases.

## Sustainability Tool

[Natural Marketing Institute Tools](#) are utilized by many leading companies to explore marketplace trends, and identify new business opportunities within health, wellness, and sustainability markets.

### Most GHG sustainability reporting tools cover these greenhouse gases from the Kyoto Protocol:<sup>6</sup>

- carbon dioxide (CO<sub>2</sub>)
- methane (CH<sub>4</sub>)
- nitrous oxide (N<sub>2</sub>O)
- hydrofluorocarbons (HFCs)
- perfluorocarbons (PFCs)
- sulfur hexafluoride (SF<sub>6</sub>)



## Greenhouse Gas (GHG) Reporting Tools

With the increasing emphasis on measuring and reporting GHG emissions, many sustainability accounting tools are being developed and improved. This affords companies and individuals opportunities and options to assess their GHG output, as well as offering a growing base of web-based communities for best practices.

### Greenhouse Gas Protocol (GHG Protocol)

The Greenhouse Gas Protocol (GHG Protocol) is a sustainability accounting tool covering greenhouse gases from the Kyoto Protocol.

The GHG Protocol, a multi-stakeholder partnership, provides standard accounting procedures, data, and calculation tools. It is the most widely used international accounting tool for quantifying greenhouse gas emissions and serves as the basis for the most widely accepted standards for reporting emissions data.<sup>7</sup>

The GHG Protocol contains tools customized for specific industries developed with stakeholders, practitioners, and policy makers.<sup>8</sup> It also helps companies prepare for other greenhouse gas reporting initiatives.



## Sustainability Tool

*GHG Protocol's Calculations Tools* are presented in Microsoft Excel spreadsheets with these step-by-step guidance documents:<sup>9</sup>

- Overview (includes specific business sectors)
- Analytical approaches for determining GHG emissions
- Collecting activity data and selecting emission factors
- GHG emissions sources and their sector specific scopes
- Quality control and program-specific information

## GHG Protocol Objectives:<sup>10</sup>

- Help companies prepare a GHG inventory representing a true and fair accounting of emissions through the use of standardized approaches and principles
- Simplify and reduce the costs of compiling a GHG inventory
- Provide business with information used to build an effective strategy to manage and reduce GHG emissions
- Increase consistency and transparency in GHG accounting and reporting

The GHG Protocol provides separate calculation tools for each industry sector and different tools for input of different data types like:

- >> Direct emissions like fuel use on-site and in company-owned mobile emissions sources
- >> Indirect emissions like purchased electricity
- >> Indirect sources like employee commute and business travel

Greenhouse gases are usually reported on a yearly basis, so typical data inputs include utility expenditures and fleet mileage over a year.<sup>11</sup>

The spreadsheets for each business sector carry out emissions calculations. The GHG Protocol's tools use emission factors based on data from the [Intergovernmental Panel on Climate Change \(IPCC\)](#).

## EMISSION FACTORS

*Amounts of greenhouse gases emitted by a set amount of business activity, used in measuring a company's emissions calculations.*

## GHG Online Tools/Communities

Since the public's interest in GHG accounting and reporting tools is expanding, many new online tools are being developed and quickly growing in popularity. These online tools include:

- [OpenEco](#) is a web application and online community for reporting, analyzing, and comparing GHG emissions. OpenEco was developed by Sun Microsystems in partnership with Natural Logic.
- [California Air Resource Board's GHG Tool](#) supports mandatory reporting.
- [The Climate Action Registry Reporting Online Tool \(CARROT\)](#) is the California Registry's greenhouse gas emission calculation and reporting software, which provides high-level aggregated emissions data.

## Sustainability Tool

[The Climate Registry Reporting Tools](#) is the North American standard for reporting GHG inventories. It prepares companies for new mandatory greenhouse gas reporting standards, like [California's AB 32 legislation](#).

It's a collaborative effort between more than 40 states, provinces, and tribes in the U.S., Canada, and Mexico.<sup>12</sup>





## Energy Use

The [ENERGY STAR® Portfolio Manager](#) is an interactive energy management tool. Using it, building owners, managers, and operators can track and assess energy and water consumption securely online.<sup>13</sup>

Portfolio Manager enables users to benchmark their building’s performance against all commercial buildings in the U.S., using data from the U.S. Department of Energy (DOE), Energy Information Administration, and the 2003 Commercial Buildings Energy Consumption Survey (CBECS). It also allows comparisons with specific building categories, like warehouses, schools, and offices.<sup>14</sup> In addition, users can assess progress toward energy management goals and identify strategic opportunities for savings.<sup>15</sup>

### Energy Star Portfolio Manager can:<sup>16</sup>

- Track multiple energy and water meters for each facility
- Customize meter names and key information
- Benchmark facilities relative to past performance
- View percent improvement in weather-normalized source energy
- Monitor energy and water costs
- Share building data with others inside or outside of the organization
- Enter operating characteristics, tailored to each space use category within a building

## Sustainability Tool

[ENERGY STAR® Portfolio Manager](#) helps prioritize investments, identify under-performing buildings, verify efficiency improvements, and receive U.S. Environmental Protection Agency (EPA) recognition for superior energy performance.

Portfolio Manager also calculates financial performance, environmental performance, water use, and GHG emissions. The tool allows users to consolidate energy and water data and track key consumption, performance, and cost information portfolio-wide.

## Did you know?

Through NAED’s partnership with Energy Star, NAED member distributors can benefit from linking their business with this powerful brand for energy-saving products. The program provides access to marketing materials, the ability to use the Energy Star logo in promotions and online, access to a network of organizations pursuing energy upgrades, and a listing on the “store locator” on the Energy Star website.<sup>17</sup>

To learn more and sign up for the NAED Energy Star Partner Program, go to NAED’s website, [www.naed.org](http://www.naed.org).

## Solid Waste & Recycling

The [Northeast Recycling Council, Inc. \(NERC\) Environmental Benefits Calculator](#) and the [U.S. EPA Recycled Content \(ReCon\) Tool](#) are two well-regarded sustainability accounting tools for measuring solid waste reduction and recycling.

### Northeast Recycling Council (NERC) Environmental Benefits Calculator

This Excel spreadsheet generates estimates of the environmental benefits from a business's waste management actions, based on the tonnage of materials that are source-reduced, reused, recycled, landfilled, or incinerated (including waste-to-energy plants).<sup>18</sup> The estimates are average figures based on "typical" facilities and operating characteristics existing in the United States. This tool was created by the [Northeast Recycling Council \(NERC\)](#), an organization of ten states united for environmentally sustainable materials management.

This state-specific data uses statistics such as energy consumption and GHG emissions to contextualize area-specific environmental benefits.<sup>19</sup> Each input section of the worksheet provides data and instructions for navigating through the sites to find a state's data.

Users (any state, region, county, town, institution, college or business) are limited to U.S. entities only because its data inputs and conversion factors are based on U.S.-specific data and technologies. Environmental savings presented in the calculator are compared to state-specific data.<sup>20</sup>

This tool incorporates U.S. Environmental Protection Agency (EPA) data and is customizable. The waste calculator has been recently updated in 2008 using the latest GHG and electronic waste data. It also incorporates another powerful tool, [EPA's Waste Reduction Model \(WARM\)](#), which examines GHG impacts of waste streams.<sup>21</sup> Further, the calculator requires users to input the estimated tonnage for their business' source reduction, reuse, recycling, landfilling, and incineration/waste-to-energy.

The NERC Calculator is based on per-ton figures of estimated energy use and emissions from several life-cycle assessment studies. The estimates are average figures based on "typical" facilities and operating characteristics existing in the United States. The Excel spreadsheet automatically generates 15 tables from input data. Each table is presented on a separate page with descriptive charts.

## Sustainability Tool

### [NERC Environmental Benefits Calculator](#)

estimates the environmental benefits from a business's waste management actions, based on the tonnage of materials that are source-reduced, reused, recycled, landfilled, or incinerated (including waste-to-energy plants).<sup>22</sup>

Among the calculator's features are the environmental benefits of computer recycling, an energy savings comparison chart, and an emissions savings comparison chart. After entering a company's specific source reduction, reuse and recycling information, plus state-specific data from the web, the calculator produces detailed graphs and tables analyzing the environmental benefits of the recycling program.<sup>23</sup>



### U.S. EPA Recycled Content (ReCon) Tool

This tool helps companies and individuals estimate life-cycle greenhouse gas (GHG) emissions and energy impacts from purchasing and/or manufacturing materials with varying degrees of post-consumer recycled content. ReCon is available both as a web-based calculator and as an Excel spreadsheet.<sup>24</sup>

The ReCon tool illustrates that it takes more energy (and GHG emissions) to produce goods from virgin materials, distribute it to a consumer, and then recycle it, than it would to produce the same goods from recycled material.<sup>25</sup>

The ReCon tool requires users to enter data on purchases (in pounds) for a number of materials (cans, plastic, cardboard, etc.) and a baseline percentage of post-consumer recycled content of those goods. The tool then asks for an estimate for potential increased recycled content for the same goods.<sup>26</sup>

The tool produces an output table showing GHG emissions reduction and energy savings. It applies material-specific GHG emission and energy factors to calculate the GHG emissions and energy consumption for each scenario. Then it shows the benefit of choosing one scenario over another.<sup>27</sup>

### Water Use

To reduce water use, companies must establish a baseline, set reduction goals, and select the water conservation approach best suited to their business.

Systematic means of evaluating water use include measuring water used in the supply chain to manufacturer products, in everyday business operations, and by end users while using the products.

### The environmental impact of business water use can be classified into these categories:<sup>28</sup>

- **Supply Chain:** water used or polluted to manufacture the products a business purchases
- **Operational:** water used or polluted directly by a business in its own operations
- **End user:** water used or polluted by the consumer while using products

## Sustainability Tools

[U.S. EPA Recycled Content Tool](#) examines GHG impacts of waste streams.<sup>29</sup> The calculator requires users to input the estimated tonnage for their businesses' source reduction, reuse, recycling, landfilling, and incineration/waste-to-energy.

[Water Footprint Calculator](#) defines the water footprint, or impact, of a business as "the sum of the water footprints of the business output products. The supply-chain water footprint of a business is equal to the sum of the water footprints of the business input products."<sup>30</sup>



## Endnotes

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