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# The Difference One Footprint Can Make

Greenhouse-gas studies clue in building-owners to their carbon emissions

**G**reen-building practices, which strive to reduce a building's environmental impact and enhance its occupants' well-being, are among the biggest trends in commercial real estate today. Newspapers and business magazines regularly contain mentions of green buildings, carbon emissions and global warming.

Although the science behind environmental issues is complex, commercial mortgage brokers who have a basic knowledge of carbon footprints can gain an important edge over their competition. In part, this is because property-owners hoping to attract new tenants or keep existing ones may find it easier to do so when they commit to green upgrades and energy-efficiency.

Further, brokers who are familiar with green issues are better positioned to advise clients, who likely will ask about sustainability sooner rather than later.

One tool that building-owners can use when seeking to make their property more energy-efficient is a greenhouse-gas (GHG) study, which can help them determine their carbon footprint. Owners can use such studies for internal benchmarking for energy, as well as in marketing to potential tenants.

## Defining 'carbon footprint'

When people hear the word carbon, they often think of soot and coal. Indeed, the common visuals associated with carbon are billowing industrial smokestacks, exhaust from cars, trucks and planes, and buildings' energy use.

When the word is part of the term "carbon footprint," however, it refers to carbon dioxide (CO<sub>2</sub>), a colorless, odorless gas that primarily is a byproduct of the combustion of fossil fuels. A carbon footprint is the total amount of greenhouse-gas (GHG) emissions

that a building generates. Scientists have asserted that these emissions are the primary cause of global warming. Although carbon dioxide is the primary GHG, there are six greenhouse gases, which are expressed in units of "CO<sub>2</sub> equivalent" (CO<sub>2</sub>e).

For GHG-emissions-reporting purposes, a building will generate a quantity of CO<sub>2</sub>e from sources such as electric usage, fuel oil for heating purposes, gasoline and diesel fuels, propane, and air-conditioning refrigerants. CO<sub>2</sub>e is measured in units of metric tons.

No federal or state agencies require carbon-footprint calculations for residential or commercial buildings. The U.S. Environmental Protection Agency's Final Mandatory Reporting of Greenhouse Gases Rule does require reporting of GHG emissions, however. The rule applies only to certain industries that generate a minimum of 25,000 metric tons annually. Most of these industries can be classified as heavy manufacturing (e.g., suppliers of fossil fuels, manufacturers of vehicles and engines, etc.) and emitters of industrial GHGs.

Owners of smaller buildings may choose to determine their GHG output, too.

## Who wants a GHG study

The reasons for commissioning a GHG study are as varied as the entities that request them. Users of such studies commonly include businesses, institutions, government or quasi-government agencies, and schools that want to calculate, assess and benchmark their GHG emissions proactively. Most want to:

- **Provide a perceived societal benefit;**
- **Comply with corporate directives;**
- **Position a product, service, company or institution as green or sustainable;**

- **Reap potential marketing and branding benefits;**
- **Gain a competitive advantage;**
- **Increase operational efficiency;**
- **Reduce energy consumption;**
- **Implement cost-effective processes and systems;**
- **Create internal benchmarks** for a carbon-management program; and
- **Build the perception** that the building or company recognizes climate change as problematic.

## Finding the footprint

The first step in determining a building's carbon footprint is to use a recognized protocol, such as the Climate Registry's General Reporting Protocol. The Climate Registry ([theclimateregistry.org](http://theclimateregistry.org)) is a non-profit organization that sets consistent and transparent standards to calculate and verify GHG emissions. Other protocols exist, as well.

Factors that will help determine a building's carbon footprint include its:

- **Use;**
- **Tenancy;**
- **Electric metering;**
- **Heating, ventilating and air-conditioning (HVAC) systems; and**
- **Ancillary combustion that occurs on-site** from use of kitchen cooking equipment, small combustion engines and the like.

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The building's size usually is not a factor; more important are the number of buildings, HVAC systems, electric-metering systems, readily available and independent invoicing for the fuel types, and the number of vehicles and combustion engines.

A study will analyze utility and fuel invoices, survey the building, interview building operation personnel, and collect data about HVAC equipment. Most air-conditioning refrigeration equipment contains refrigerants, and most refrigerants have what is called a global-warming potential.

With most buildings, the largest source of GHG emissions comes from electrical use. Naturally, electricity generated by solar or wind energy does not generate CO<sub>2</sub>e, and nuclear power generates minimal CO<sub>2</sub>e.

After information is collected and analyzed, it is organized into a report. The study shows an analysis of the quantity of GHG emissions, their sources and a metric comparison to similar buildings. Usually, building-owners view such a study as an initial benchmark to which future updated studies can be compared.

The cost of a carbon-footprint study depends upon the scope, tenancy and building use. A report for a 50,000-square-foot office building typically will cost \$3,500 to \$4,500. An independently electrically metered 200-unit apartment building or cooperative building likely will be in the same ballpark.

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When going green makes business sense and sustainability is the name of the game,

it is vital for mortgage brokers to increase their knowledge of greenhouse-gas audits and benchmarks. Brokers who can answer questions about green buildings may find it easier to expand their referral network and generate new business. They also could enhance customer satisfaction by helping clients improve upon the efficiency, comfort, durability and cost of their real estate investments. ●