

GHG Emissions Management for Dummies

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ABSTRACT

This article outlines the fundamentals of greenhouse gas (GHG) emissions management. It contains two parts:

Part I – Measuring and Reporting GHGs

- Why Report?
- How to Report
- Should you Report?

Part II – GHG Reduction Fundamental Strategies

- Eliminate
- Reduce/Reuse/Recycle
- Mitigate
- Offset

PART I: MEASURING AND REPORTING GHGS

WHY Measure GHGs

If companies want to say they are green, they need to measure their GHG inventory along with other environmental performance indicators (how much they recycle, etc.). In addition to backing up their marketing claims, if new legislation affects them they will be in a better position to manage GHG emissions. Many companies have embraced green reporting as a marketing advantage because their customers are buying green products and services over those of non-green companies.

From a legal standpoint, some industries (and US government agencies) are now required to report their 2010 GHG emissions. Similar to the annual reports required by the Internal Revenue Service, some companies

will have to begin reporting GHG emissions for 2010. (Actual reports must be filed in 2011.) In addition, any facility that emits over 25,000 tons of direct, stationary emissions will have to report.* According to the EPA estimates, less than 15,000 facilities in the US (mostly utilities and heavy industries) will be required to report. Beyond reporting emissions, many US government agencies must also reduce their emissions, according to Executive Order 13514.

HOW to Measure:

Several tools from different organizations are available to quantify your GHG emissions. The good news is that because all of these tools comply with the Kyoto Protocol, they are mostly the same, despite being from different organizations. Examples include the general reporting protocol guidelines from TheClimateRegistry.org and the ISO Standards. These *guideline* documents are analogous to the IRS guidelines for reporting your taxes. Basically, if you follow the guidelines (or have a consultant do this) you should be able to satisfy the reporting requirements.

If you are concerned only with EPA regulations, you just need to worry about your emissions from stationary combustion sources (gas-fired turbines, large boilers, etc.). However, if you want to begin to report a complete GHG emissions inventory, you will have to include emissions from your fleet (*mobile source emissions*), as well as emissions from refrigerant leaks and other *process emissions*. All of the emissions previously listed are called *Scope I* emissions because they occur from assets that your company owns.

Another category of emissions is called *Scope II*. These are classified as *indirect* because the emissions do not occur from your assets, but they do occur at the electric generator (usually owned by your utility). For many offices and light commercial businesses, *Scope II* emissions will comprise more than 75% of the GHG emissions. *In most places that require GHG reporting, Scope I and II emissions reporting are mandatory.*

A final category of emissions is called *Scope III*, which represents emissions from activities that you may not be in control of, such as emissions that occur from assets that you don't own but are related to your activities. For example, if your company assembles a product that has parts made by other companies, the emissions from these companies to

*25,000 metric tons of carbon dioxide emissions is roughly equal to the emissions from 2,300 homes or 4,600 vehicles.

make your parts would be categorized as Scope III. Another example would be the emissions from private cars driven by students to get to a university. These emissions occur because the university exists, but the university really has no control over the emissions of student cars.

Should You Report?

Unless you are a large utility in the US, a federal agency, or have enough emissions to exceed the EPA limit, most formal reporting in the US is *voluntary*. So for companies seeking a strategic advantage, many will measure their emissions and not formally report, but they will analyze the emissions data for internal improvement opportunities.

If your company wants to publically report its emissions, usually you will report your GHG inventory to a *registry*, to a non-profit entity, or even to a trading platform that keeps all of this data. When you report emissions formally, a verification step is usually required, which is performed by a third party. The verification process is similar to when a company reports its income and a third-party accountant checks the books to make sure that they are accurate.

As mentioned previously, reporting emissions is a very similar process to reporting taxes. However, beyond reporting your formal emissions, there is much more you can do, such as *marketing* your year-to-year improvement. For example, you can claim Scope III emissions progress from efforts such as recycling, setting up an employee carpool program, etc.

In addition, by incorporating reporting data into the decision-making process, you can have better accounting for future regulations (perhaps in your specific industry). Many clients have added emissions impact as a criterion for evaluating future projects (along with financial impact, ROI, etc.). In other words, projects can win or lose approval based on their impact to a company's annual emissions.

At this time it is hard to predict what future emissions reporting requirements will exist. However, it is likely that they will become more common, since the Securities and Exchange Commission, as well as several states and other industry associations, have asked some companies to begin reporting so that consumers can better identify risks associated with specific companies. For these reasons, it is worth watching to see how the legislation evolves.

PART II: GHG REDUCTION FUNDAMENTALS

Introduction

After you have measured your emissions, the next task is to manage and reduce them. GHG reduction strategies can be summarized by the following steps: *eliminate*, *reduce*, *mitigate* and *offset*. Knowing why can save you a lot of money.

Step 1: Eliminate Unneeded Processes

As Yoda said, “We must unlearn what we have learned.” Many green solutions involve “undoing” a solution to a problem that doesn’t really exist anymore. For example, a fax machine was a brilliant solution for the 1980s, solving the problem of quick document delivery. Today, the internet is a much better solution. Yet, although the fax machine is obsolete, many of us still have one (or three) and we pay for their electric energy, toner, paper, and replacement costs, not to mention the phone line service costs. If we eliminate the fax, we save all those costs and associated footprints. You can take this same approach to business processes; keep asking, “Do we really need this process?” If the process yields only small benefits, consider eliminating it to make your business simpler while saving emissions.

Step 2: Reduce/Reuse/Recycle

After eliminating unneeded processes, the next step is to implement the famous three “R”s. Beyond the usual recycling context, applying the reduce principle to energy consumption is one of the most cost effective ways to cut emissions. There are literally thousands of highly profitable ways to reduce energy consumption by leveraging new technologies in lighting, HVAC, and other building systems. In addition, maintenance savings or behavior modification savings (getting employees / tenants to use less energy) can be equally as valuable, yielding 15-30% savings with an almost immediate payback.

An example from a client: One of the largest cell phone providers in the US redesigned its shipping boxes for small mobile phones. The new boxes used a different type of cardboard that was stronger and thinner. By making the walls of the boxes thinner, the company was able to cut the amount of cardboard per box, which reduced its raw material consumption of cardboard. (Incidentally, reducing or recycling does reduce upstream

emissions, and you can account for the reductions.) The new boxes also took less energy to transport, and more of the boxes could fit within a given shipment from the factory to the distribution center, saving even more. Plus, employees were inspired by the project and suggested even more resource conservation ideas. They asked management to change the company's policy of providing employees with bottled water (one serving per bottle). After a switch to 5-gallon bottles located in central locations, employees felt that they were "walking the talk" of working green. This approach reduced the amount of plastic waste (which also had an upstream emissions impact).

Mitigate

After you have reduced / optimized the amount of energy / resources you are using, the next step is to mitigate the way that you use energy. If you are using fossil-based fuels, then you can move towards getting energy from "clean" sources. In many regions, you can choose to buy green power from your utility. Alternatively, you can install your own renewable power sources, such as solar and wind, on your property. However, in most traditional buildings it is unlikely that you will be able to generate enough energy to meet your consumption requirements.

Via financing vehicles such as a power purchase agreement (PPA), you can get solar on your roof at no upfront cost. With a PPA, the installation costs are financed (just like a mortgage) such that your savings (avoided annual electricity purchases from the utility) are greater than the finance payment. Many who have chosen solar installations have utilized this method to capture green benefits (employee morale, company image, etc.) while avoiding upfront costs and yielding positive cash flow, as well as reducing risk from utility price spikes.

Offset

If it is unfeasible to mitigate fossil fuel energy consumption on your property, or you can't buy green power from your utility, then you can buy an offset, which basically means that you pay the costs of someone else's mitigation efforts and you get the carbon credit portion of your investment. Although this is a relatively new market, you can buy credible offsets on the internet and immediately eliminate your carbon footprint each year. Compared to direct mitigation efforts (installing solar on your own roof), offsets are relatively inexpensive, but the downside is that you have to buy offsets each year to counterbalance your footprint—and you

are dependent on someone else's actions / credibility / costs to be sure that the offset projects actually occur and that you are not being scammed.

In the US, there are two primary offset products. One is a carbon credit, which equals one metric ton of CO₂ avoided / absorbed (as from a forestry or methane recapture project). The second product sold in the US is a renewable energy credit (REC), which represents one MWh produced from renewable energy (as from a wind or solar farm). Regardless of which offset product you purchase, they are easy to buy on the internet—but buy from a reputable brand!

In many cases, due to increased competitive forces, offsets can be less expensive than buying green power from your local utility. For example, in Texas, I can choose to pay an additional 3 cents per kWh to buy green power, or I can buy a wind REC for about 0.7 cents per kWh, getting the same result and saving 2.3 cents per kWh, about a 20% savings off my electric bill.

One more thing on RECs: They have different amounts of carbon savings for each geographic region in the US, so you might save even more. For example, a REC from California will be worth about 878 lbs of CO₂, while a REC from Michigan is worth about twice as much carbon! If they are selling at the same price, you can get more bang for your buck if you know where to look! I call this approach "REC speculation," and we talk about it in some of our classes. It has a huge savings potential for US facility managers who are trying to reduce their carbon footprint.

CONCLUSION

Reduction strategies coupled with proper GHG accounting (as discussed in Part I) can be a powerful combination and yield many benefits for your organization / building / business. Just knowing a few principles can save your organization a lot of money! You can also download a free spreadsheet to get a rough estimate of your carbon emissions and key strategies at www.FreeCarbonAudit.com.

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