

# GHG Emissions Accounting



Gary Otte  
761 Supply Chain Systems  
University of Wisconsin-Whitewater  
Professor Sameer Prasad  
Fall 2008

## Table of Content

I.	Introduction.....	3
II.	Literature Review.....	3-6
III.	GHG Calculation.....	6-8
	a. Purpose	
	b. Steps involved	
IV.	Potential Solutions.....	8-9
	a. Rating system	
	b. Oversight group for GHG accounting rules and standards	
	c. Group to govern auditing	
V.	Advantages of solutions.....	9
VI.	Conclusion.....	9-10
VII.	Bibliography.....	11

## **Introduction**

There are many ways for a company to go green, and GHG emissions accounting is just one of those ways. Basically it involves tracking emissions, accounting for them, and then reporting them. Applying a GHG accounting system involves many steps, and one of the most important is getting stakeholder approval to used time, effort, and money.

## **Literature Review**

Green accounting and accounting for green supply chains is a fairly new topic and method of accounting. There have been many groups involving themselves in developing green accounting systems, including environmental organizations, governments, and accounting organizations. As of now there is no mandatory requirement for a company to adopt a green accounting system. The main system/standard issued in regard to green accounting is the Greenhouse Gas (GHG) Protocol. “Overall vision is to compile all the GHG accounting and reporting standards and set up an international set of standards that every company follows.” (GHG Protocol 2004) Although there is no requirement 30 companies have tested the GHG Protocol and many large companies have added one to help in testing and improving. Some of these companies include Ford, GM, IBM, and Volkswagen. Adopting a green accounting system can be very beneficial to an organization externally and internally. There are two separate but connected parts to the GHG Protocol, which are Corporate Accounting and Reporting Standards and the Project Accounting and Protocol Guidelines. Due to the fact that the idea of green accounting is new there are also many limitations and barriers to the systems. The testing done by the experts and companies has been very helpful in determining the weaknesses.

Corporate Accounting and Reporting Standards is sort of a starting block for a company by providing guidance on how to set up an emissions inventory system. It also discusses the six greenhouse gasses to be accounted for, which are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The six greenhouse gasses mentioned are covered in the Kyoto Protocol, which is “an international agreement linked to the United Nations Framework Convention on Climate Change. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing greenhouse gas (GHG) emissions” (UNFCCC). If a company is able to adopt and successfully implement a way to account for GHG emissions it can serve many goals:

- Manage GHG risks and identify reduction opportunities
- Public reporting and participation in voluntary GHG programs
- Participating in mandatory reporting programs
- Participating in GHG markets
- Recognition of early voluntary action

The principles and practices for GHG accounting are partially based upon generally accepted accounting and reporting principles that govern ordinary accounting (GAAP). Relevance, completeness, consistency, transparency, and accuracy are the principles used in GHG accounting. These principles basically say to make sure that the information is useful in decision making, complete, does not vary, has integrity, and is also reliable.

The second part of the GHG Protocol is the Project Accounting and Protocol Guidelines. This part of the GHG Protocol provides ways for companies to calculate and account for increases and decreases in removal and/or storage. The objectives are to:

- Provide a company with a way to account for GHG reductions from GHG projects
- Increase the validity of GHG accounting by using GAAP principles
- Present options for connecting different GHG accounting systems

A key factor in implementing the Project Protocol is stakeholder consultation and successfully consulting communities that are affected by the GHG project, and making sure they are on board. Project-based GHG accounting relies on some estimates and uncertainties, which can affect the validity of the information, so it is important for companies to make sure they are using the correct estimates.

There have been many tests on GHG accounting and companies implementing these systems, but there are still many barriers and limitations involved. One barrier is at the planning and management level, which can result from the accounting scope, unable to choose which system to adopt, and how much time/money/effort to put into the project. Technical challenges are another barrier and result from differing allocation methods, possibility of different GHG accounting methods, and determining the estimates and baselines. Another barrier is the ability of a company to coordinate with its suppliers and customers. If a company is able to successfully coordinate with its suppliers and customers it should allow them to calculate the emissions associated with each. A successful GHG accounting system not only relies on the main company's data, but also the data of its suppliers and customers. Indirect emissions can further complicate the situation. Some indirect emissions include transportation-related activities, electricity-related activities, and product use and disposal.

Even though there are barriers, still the benefits of GHG accounting can greatly outweigh the costs and barriers. There is a potential reduction in costs throughout the

supply chain. Implementing GHG accounting helps to promote better communication between a company and its suppliers, which can help each other to reduce costs. A reduction in manufacturing costs is possible due to using supply chain management tools in combination with environmental accounting. Being a leader and implementing GHG accounting before it becomes widespread can garner more respect and confidence from the community and customers. In other words it can enhance the public image of the company. There is also a possibility of increased sales, because more and more people are taking into account whether or not a company is implementing green strategies. With the increased sales a company can gain a competitive advantage and possibly turn it into a sustainable competitive advantage. Another benefit of GHG accounting is a better understanding of the environmental affects of the company.

### **GHG Calculation**

After a company has set its baselines and estimates it is ready for the calculation stage. “Calculating GHG emissions involves five steps:

1. Identify GHG emission sources
2. Select a GHG emissions calculation approach
3. Collect activity data and choose emission factors
4. Apply calculation tools
5. Roll-up GHG emissions data to corporate level.” (GHG Protocol 2004)

Identifying the GHG emission sources involves identifying the sources and then combining them into categories. The main categories are stationary combustion, mobile combustion, process emissions, and fugitive emissions. Stationary combustion involves objects that stay in position, such as furnaces and boilers. Mobile combustion involves sources that are

moving such as semi-trucks and trains. A process emission involves emissions from day-to-day process such as carbon dioxide and methane. Fugitive emissions involve emissions that are accidentally let go through leaks in cracks and joints. After the sources are identified a company should also separate them into direct or indirect, which involves three different scopes. Scope 1 emissions are direct GHG emissions from sources that are owned and controlled by the company, such as combustion from boilers. Scope 2 emissions are indirect emissions from processes that use purchased electricity, or in other words brought in. Other indirect GHG emissions are Scope 3, and it involves things such as the extraction of raw materials, product use, and activities that involve transportation. The scope 3 emissions are optional to report. After a company has identified its emission sources it must select a calculation approach. “The most common approach for calculating GHG emissions is through the application of documented emission factors.” (GHG Protocol 2004) This method involves applying calculated ratios to a measure of activity, such as labor hours, parts produced, and hours running. There are also other techniques for calculating, such as direct monitoring and fuel use data, but these can be expensive and not applicable to some companies. After the data has been gathered a company must then apply calculation tools such as cross-sector or sector specific. Cross-sector involves stationary and mobile combustion, and sector-specific involves calculating emissions in specific sectors of the economy, such as pulp and paper and office based organizations. After steps 1-4 have been completed and are completed to the best of the ability of members involved the data and information must be gathered from all facilities or business units. Once the data and information has been gathered it must be combined and should only include the relevant information, and then submitted to corporate. If the report

contains information that isn't relevant and the report is too long it could just be a waste of time, but if there isn't enough information then corporate will also have wasted its time.

The report should be reliable and sufficient enough for decision-makers to be able to make a confident decision.

### **Potential Solutions**

After looking at and considering the barriers and limitations, I have come up with some possible solutions. These solutions include developing and instituting a rating system, organize an oversight group to develop and implement standards, and an oversight group to govern the auditing of GHG accounting and set auditing rules. The first of these, a rating system, could be used to effectively compare a company to industry averages, their estimates, previous years, and also individual companies. For these comparisons a company must use the same system from year to year and a competitor must also use the same system. Based on these comparisons and percentages a company would receive a grade. The grade could be on a scale from 1-10 (1 being bad and 10 being good), or the grade could be related to a word rating system. A word rating system would be similar to the one used in normal auditing.

The second solution involves developing an oversight group to manage and issue standards relating to the accounting of GHG emissions. This group would be similar to FASB, and they would set standards and rules similar or in conjunction with Generally Accepted Accounting Principles (GAAP). One of the issues they would deal with would be setting baseline and estimation rules. As of now, there is no organization governing how a company should set its baselines and estimates and if a company chose to do so they could set these so that their emissions look better. Another goal of this group would be to

work on finding ways to make implementing a GHG accounting system cost effective so that most companies could have one. This group could work in accordance with FASB to make it mandatory for the larger companies to use GHG emissions accounting. The third and last solution involves developing a group either connected with the previous group mentioned or separate, that would be in charge of governing and setting rules for auditing GHG accounting. This group would set rules that would be similar to Generally Accepted Accounting Standards (GAAS).

### **Advantages of Solutions**

If these solutions are implemented the possible advantages definitely outweigh the costs, time, and effort put in. Overall a company would have an easier time implementing a GHG emissions accounting system. It would be easier because there would only be one system and set of rules and standards that a company would have to worry about.

Easier communication between customer and supplier is another advantage of the solutions. A company could easily compare GHG accounting stats with different suppliers and determine which one is the most “green”. It would also be easier for a company to compare to its competitors to see where it stands in the industry. Once it becomes mandatory GHG emissions accounting also helps to promote the green strategy that is prevalent in society.

### **Conclusions**

In conclusion, GHG emissions accounting is a very important part of going green for a company or organization. It is important to keep track of what you are emitting and how much you are emitting, and GHG accounting is the best way to do so. GHG accounting allows a company to compare how they are doing from year to year and to also

compare to the industry. There are barriers and limitations as of now, but there are always problems when implementing a new system. Once a GHG accounting system is adopted by the company it is generally easy to maintain, and it is also easy to report because the data and information can be incorporated into the normal financial statement releases.

## **Bibliography**

Bartelmus, Peter. "Environmental and natural resource accounting" [eoearth.org](http://www.eoearth.org). Revised September 17, 2008; Retrieved December 4, 2008.  
< [http://www.eoearth.org/article/Green\\_accounting](http://www.eoearth.org/article/Green_accounting)>

Deloitte. Accounting for emission rights. Deloitte Development LLC. 2007  
<[http://www.deloitte.com/dtt/cda/doc/content/Deloitte\\_Accounting\\_Emissionright\\_Feb07.pdf](http://www.deloitte.com/dtt/cda/doc/content/Deloitte_Accounting_Emissionright_Feb07.pdf)>

Imerito, Tom. "The New Accounting". E-The Environmental Magazine. Sept/Oct. 2006, Vol. 17 Issue 5, pg 22.

Power Economics. "Tracking greenhouse emissions" Jan2002, Vol. 6 Issue 1, p6, 1/3p.

The Greenhouse Gas Protocol. A Corporate Accounting and Reporting Standard. World Resources Institute and World Business Council for Sustainable Development. March 2004.  
< <http://www.ghgprotocol.org/files/ghg-protocol-revised.pdf>>

The Greenhouse Gas Protocol. GHG Protocol for Project Accounting. World Resources Institute and World Business Council for Sustainable Development. November 2005.  
<[http://www.ghgprotocol.org/files/ghg\\_project\\_protocol.pdf](http://www.ghgprotocol.org/files/ghg_project_protocol.pdf)>

United Nations Framework Convention on Climate Change (UNFCCC)  
[http://unfccc.int/kyoto\\_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php)

Wilkerson, T., Cash, R., 2003. GreenSCOR. Developing a Green Supply Chain Analytical Tool. LMI Government Consulting. Retrieved November 16, 2008, from LMI.org.  
<<http://www.lmi.org/logistics/Documents/greenSupply/GreenSCOR%20White%20Paper.pdf>>

Wilkerson, T., Ramaswamy, M., 2008. Applicability and Limitations of Supply Chain Management Methods to Greenhouse Gas Accounting. LMI Government Consulting. Retrieved November 16, 2008, from LMI.org.  
<<http://www.lmi.org/logistics/Documents/greenSupply/SCM%20Methods%20for%20GHG%20Accounting.pdf>>

Wilkerson, T., Shafer, J., 2008. Barriers to Greenhouse Gas Accounting in the Supply Chain. LMI Government Consulting. Retrieved November 16, 2008, from LMI.org.  
<<http://www.lmi.org/logistics/Documents/greenSupply/GHG%20Accounting%20Barriers.pdf>>

