

Carbon risks & opportunities in supply chains

Creating greenhouse gas inventories through life cycle analysis

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Abstract

Increasingly, companies and brands are facing scrutiny from stakeholders on their environmental performance. Consumers, shareholders and regulators are demanding greater transparency, particularly from those entities with global and resource-intensive supply chains. In order to address this scrutiny, and identify risks and opportunities, companies are monitoring and reporting on the greenhouse gas (GHG) emissions throughout their supply chains and product portfolios.

An efficient way to begin this process is through comprehensive Life Cycle Analysis (LCA) of products. Product LCA provides a quantitative understanding of potential risks along a product's life cycle, helping to identify inefficiencies and hotspots in supply chains and develop an inventory of GHG emissions. The use of GHG inventories can inform risk assessment, identify optimization opportunities, and forecast costs of regulation associated with GHG emissions and resource consumption.¹ Understanding supply chain GHG inventories can help companies achieve three key business goals:

1. Identify key commodities and practices with the greatest sustainability challenges
2. Inform investment in 'material' sustainability issues
3. Improve corporate reputation and accountability through public performance disclosure

This paper will briefly explore the evolving landscape of these business goals, and discuss the risks and opportunities available to companies when investigating the GHG emissions of their supply chains.

Mitigating risk, maximizing performance

A supply chain GHG inventory provides a detailed account of a company's emissions upstream and downstream of their production facilities. Product LCA is a technique to assess environmental impacts associated with all the stages of a product's life, from raw material extraction through to material processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling. Life cycle emissions are all the emissions associated with the production and use of a specific product, as well as all intervening transportation, from cradle to grave.² LCA is an effective means to begin a supply chain GHG inventory, as it acts as an audit of key materials and processes, and helps to identify production inefficiencies.

LCA provides companies with a means for product traceability. The United Nations Global Compact (UNGC) defines 'traceability' as:

“The ability to identify and trace the history, distribution, location and application of products, parts and materials, to ensure the reliability of sustainability claims...”³”

Traceability allows companies to gain visibility into supply chains and identify key commodities that face impending sustainability challenges. The UNGC recommends taking a life cycle approach for a holistic means of understanding the risks with raw materials, its processing, use, and end of life; Thus, informing the necessary strategies for prevention and mitigation.⁴

Emissions that result from activities upstream and downstream of a company’s production facilities, also known as Scope 3 emissions, are typically the largest in a supply chain. Understanding these emissions can help companies plan for future regulations, resource constraints, guide procurement decisions and product design.

Cargill, the largest privately held corporation in the United States by revenue, has grown from a grain storage facility into an international producer and distributor of agricultural products, and is a provider of risk management and commodities trading services. *Cargill* employs more than 150,000 people in 68 countries.⁵ Dave Bennett, Strategic Business Development Director at *Cargill*, outlined in his presentation to the *2015 Verge Salon*⁶ in London how business value can be delivered through responsible supply chain management, resulting in revenue growth, risk mitigation and cost reduction.

Bennet explained that *Cargill* increased sales for one of its flour clients to a major retailer by US\$20 million by documenting energy efficiencies and carbon savings implemented in its wheat supply chain. For another client, *Cargill* estimated that US\$5 million in sales revenue would be lost if their malt did not meet the required sustainability standards of a major beverage customer. This assessment informed the business case for the capital expenditure needed to meet the specifications. Finally, Bennet demonstrated how *Cargill* was able to reduce fuel costs for one of its clients by US\$600,000 annually, and reduce carbon emissions by 18%, by converting its distribution fleet to use a dual fuel source of natural gas and diesel.

Developing supply chain GHG inventories for companies falls under the umbrella of measuring “material sustainability issues”, meaning issues relevant or significant to a company’s operations and financial success. Researchers from the *Harvard Business School (HBS)* found that firms with good performance on material sustainability issues significantly outperform firms with poor performance, suggesting that investments in sustainability issues are shareholder-value enhancing.⁷

To classify sustainability topics as material or immaterial to industries, HBS researchers were informed by the Sustainability Accounting Standards Board (SASB) guidelines. SASB standards are designed for the disclosure of material sustainability issues in mandatory SEC filings, such as the ‘Form 10-K’ and ‘20-F’. The HBS research findings suggest that SASB accounting standards for nonfinancial information have been successful in separating material from immaterial information for investment purposes, and that firms with superior performance on material sustainability issues outperform firms with inferior performance on material

will outperform firms with inferior performance on material sustainability issues in the future.⁸

Measure, manage, monetize

Once supply chain GHG inventories have been developed, strategies to reduce emissions can be devised. In 2013, the value of the globally-traded carbon market was US\$43bn, with a volume of 9.3 Gt CO₂e. In 2015, it is expected that volumes traded on global carbon markets will continue to grow steadily to 10.3 Gt CO₂e, and to 10.9 Gt CO₂e by 2016.⁹ Significant environmental benefits can be achieved if corporations divert some of these carbon market investments into sustainability initiatives within their own supply chains, also known as “insetting”. Insetting can be defined as:

“A partnership / investment in an emission reducing activity within the sphere of influence or interest of a company (outside WBCSD Scopes 1 and 2), whereby the greenhouse gas (GHG) reductions are acknowledged to be created through partnership and where mutual benefit is derived.¹⁰”

While the emissions and reductions associated with “carbon offsetting” are distinct activities, with no interaction between the program participants other than a financial transaction, carbon insetting involves discussion and partnership with key stakeholders to establish emission reduction opportunities. Insetting initiatives in supply chains may take the form of joint investment in efficiency projects.¹¹

By incorporating carbon insetting into broader corporate strategies supply chains can become more efficient. With international carbon markets set to grow, increased supply chain efficiency will mean a more competitive price of goods and services. Tristan Lecomte, co-founder and president of *Pur Projet*, an organization that focuses on the regeneration and preservation of ecosystems, told businesses at *Davos* in 2014 that:

“Insetting is a way to help companies to regenerate the ecosystem that they depend upon ... to make the offsetting strategy more legitimate, more linked with the business.¹²”

Development of carbon reduction programs are allowing companies to increase commercial success through energy efficiency initiatives. The shipping company *International*[®], in collaboration with *Gold Standard*, developed the first marine-based methodology for generating carbon credits for the shipping industry.¹³ By upgrading their vessels to have a biocide-free hull coating, carbon credits can be generated from the reduced fuel consumption and in turn the reduced emissions. This technology’s environmental credentials were established in accordance with ISO14040 and ISO14044, and were independently validated by *The Swedish Environmental Research Institute*. The generated carbon credits can be sold, or used internally to move towards carbon neutrality. In either case, this methodology increases incentives for corporations to invest in energy efficiency and emission reduction initiatives. As Trevor Solomon, *Intersleek*[®] Business Manager at *International*[®], explains:

“...Based on the 100 existing ships which have already converted from a biocidal antifouling to *Intersleek*[®] there is an estimated \$3.6M worth of carbon credits potentially available to ship owners and operators....¹⁴”

Many publicly traded companies operating in the United States have incorporated an internal carbon price in their business strategies. For example, *ExxonMobil* is assuming a cost of \$60 per metric ton by 2030, *BP* currently uses \$40 per metric ton, and *Royal Dutch Shell* uses a price of \$40 per ton.¹⁵ Companies reporting to the *Carbon Disclosure Project (CDP)* refer to an internal carbon price as part of the process to identify efficiency opportunities, and risks, and guide capital investment decisions. Companies with internal targets for GHG emissions reductions also use an internal carbon price to assess the projects in which they are making investments.

The *Wal-mart* affiliate, *ASDA*, was one of the first U.K. retailers to embed a shadow cost of carbon in all their carbon mitigation investment decisions. *Wal-mart Stores, Inc.*, stated in their 2013 CDP disclosure that:

“If comprehensive carbon pricing systems were applied across all of our markets and covered the entire retail industry, and we assume a price of USD \$18 per ton, the potential direct cost to *Walmart* is approximately \$104 million, based on our Scope 1 emissions... While this additional cost is primarily seen as a risk, *Walmart's* early action on emission reductions represents a competitive advantage over other retailers that have not performed such projects.¹⁶”

By developing a supply chain GHG inventory and adopting a shadow carbon price, companies can begin to factor in future costs of carbon regulations, and develop strategies to reduce these costs. By monitoring the success of these strategies and utilizing an internal carbon price, companies are able to put a dollar value on emission reductions and make the business case for future optimization initiatives.

Communication is key

Consumers are increasingly conscientious about how products are made and what they are made of, e.g. the growing concern over chemical content in products, the sustainable sourcing of agricultural commodities, and the environmental impact of product manufacture.¹⁷ In today's world, consumer expectations are high, and switching costs are low, making brand loyalty a key challenge to be addressed by communication and marketing campaigns.¹⁸

In June 2014, *Forum for the Future*, an established sustainability thought leader, surveyed 3,000 people across Europe and the US to find that 70% of consumers would consider switching to brands that demonstrated superior environmental credentials, and 90% would stop buying products if they learned of a company's irresponsible or deceptive business practices. Other survey research has found that 74% of Americans want brands to explain how purchases impact the environment,¹⁹ and 48% of Americans claim that corporate environmental reputation impacts their purchase decisions.²⁰

HAVAS Media & Accenture surveyed 30,000 people across 60 countries and found that mothers are highly engaged with sustainability, with 64% actively buying sustainable brands and 70% saying they would buy more of a brand if they were aware of its positive impacts.²¹

According to *The 2014 Aspirational Consumer Index*, published by BBMG and GlobeScan, more than one-third of consumers globally (38%) identify as *Aspirationals*, defined by their love of shopping, desire for responsible consumption, and their trust in brands to act for the good of society. The index reports that 95% of *Aspirationals* believe that we need to consume less to preserve the environment for future generations, and 95% encourage others to buy from socially and environmentally responsible companies.²²

By mapping supply chains and developing product LCA, companies are better equipped to answer the questions and concerns of the growing number of environmentally concerned consumers. Beyond “green washing”, brands can now present data driven environmental performance reports, and utilize this data in marketing strategies and product labels, to drive sales and educate consumers.

Conclusion

Product LCA allows companies to gain a holistic understanding of their supply and production chains, and identify processes and commodities with the highest risk and greatest potential environmental impact. The cross-section of quantitative findings provided by product LCA helps to develop supply chain GHG inventories,

and inform optimization strategies to improve an entire corporation. By implementing carbon insetting strategies throughout the corporate ecosystem companies are able to invest in the sustainability of their own supply chains, mitigating potential risks and preparing for future costs of regulation.

We are living in a time when corporate environmental performance is being scrutinized, brand loyalty is fickle, and GHG emissions are finally becoming a business line item. Companies must address these 21st century challenges with 21st century strategies. It is clear that product LCA and supply chain GHG inventories need to be part of that arsenal.

References

1. GHG Protocol, 'Product Life Cycle Accounting and Reporting Standard', p.9
2. Ibid. GHG Protocol
3. United Nations Global Compact 'A Guide to traceability: A Practical Approach to Advance Sustainability in Global Supply Chains', page 6 (2014)
4. Ibid UNGC, p.23
5. 'The Largest Private Companies', Forbes.com (2014)
6. VERGE Salon: Supply Chain Transparency and Traceability, London, Tuesday, April 28th, (2015)
7. M. Khan, G. Serafeim, A. Yoon 'Corporate Sustainability: First Evidence on Materiality', Harvard Business School, (2015)
8. Ibid, Harvard Business School
9. 'Global Carbon market to reach record volumes by 2016', February (2014) <http://www.commodities-now.com>
10. R. Tipper, N. Coad, J. Burnett, 'Is "Insetting" the New "Offsetting"?', Ecometrica Press, April (2009)
11. Ibid p.3
12. T. Smedley, 'Forget carbon offsetting, insetting is the future', January (2015) <http://www.theguardian.com>
13. T. Solomon, 'Amongst Challenges Shipping Marks a New Sustainability Milestone', The Gold Standard, <http://www.goldstandard.org/amongst-challenges-shipping-marks-a-new-sustainability-milestone>
14. Ibid
15. Carbon Disclosure Project, 'Use of internal carbon price by companies as incentive and strategic planning tool: A review of findings from CDP 2013 disclosure', p.2 (2013)
16. Ibid p.6
17. Shelton Group, Eco Pulse, March (2013)
18. IBM Consumer Products Study, (2014)
19. 'Local, sustainability and GMOs: How americans navigate the changing grocery aisle', Cone Communication: Research & Insights, (2014)
20. Eco Pulse 2013, Shelton Group, (2013)
21. HAVAS Media & Accenture, The Consumer Study: From Marketing to Mattering, (2014)
22. BBMG & Globescan, 'Meet the Aspirational: shifting sustainability from obligation to desire', (2014)



CoClear is a New York consultancy that specializes in interactive life cycle analysis.

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