



**Looking Ahead:  
Strategic Moves on Greenhouse Gases for  
2008**

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The United Nation's IPCC released its report on climate change recently. The report more strongly asserts that man-made sources of GHG are increasing in the atmosphere. (A copy of the Summary for Policymakers may be found at [http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4\\_syr\\_spm.pdf](http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf).) The bottom line is that man-made emissions may be changing the climate faster than many scientists had estimated. So, what can we do about it going forward for 2008 and beyond? There are both individual choices that consumers can make and there are corporate decisions that companies can make. U.S. emissions are now over seven billion metric tonnes of CO<sub>2</sub>e, and while down slightly for 2006, are still a large part of the world's carbon footprint.

Companies, as first steps, need to inventory their carbon footprint and then create an inventory management plan. The second stage of this effort will involve measuring progress against their carbon baseline which is usually 1990 but in the US can also be 2000 and 2005 depending on the state level regime. The reason that 1990 has been chosen as the baseline is not scientific but political. It was the nearest year to the 1992 Rio Climate Convention Meeting. Getting 1990 data also presents companies with some challenges. In discussions with companies that do such measurement, they told me that they use corporate financial statements mainly to get to the 1990 numbers. That makes sense since CO<sub>2</sub> was not measured then but companies have footprints nevertheless.

The point is that measurement, monitoring and benchmarking a corporate carbon footprint is not insignificant and becomes more material as companies fall under other regulatory jurisdictions at the state, regional and federal and later international levels of governance. Harmonization of so many regimes will not be easy, and the U.S. Senate is just starting to acknowledge that conundrum.

## **Symbolic Versus Real Green Change**

For better or for worse, the United States is media mania country. The hype on green may be an important market driver for changing people's environmental consciousness and hopefully behavior, but the reality is that green costs more money. Most people do not want to spend their discretionary dollars on green investments because across the board they cost more. That includes homes and transport. Speaking to designers recently, not many consumers are electing to "go green." Moreover, we are not going to stop air travel because of climate change, and the air travel emissions trend is actually up in the U.S. and growing even more in Asia. The change for the greening of America will be incremental at best.

There are opportunities in the U.S. voluntary markets, which are now expanding internationally, to offset one's individual carbon footprint. We expect a substantial uptick in this activity in 2008. It is estimated that the voluntary emissions markets will be 100 million metric tonnes this year. (And if you are very interested in learning more about carbon footprints, my friend Ron Dembo, who runs Zerofootprint now has published a short primer on carbon footprints called "Everything You Wanted to Know About Offsetting But Were Afraid to Ask." If interested, go to [www.zerofootprint.net](http://www.zerofootprint.net)).

## **Measuring the Building Envelope: Getting Beyond Green Headlines**

One way to get buildings involved in this equation is to measure and manage the carbon footprint of buildings. Each building in the United States has such a footprint, and while most of the press attention is focused on green buildings since they are the most attractive. Their influence is more symbolic than real at the present time. There are a little more than 6,000 green buildings in the United States that are certified. The bigger market is the building retrofit market which runs into the tens of millions of buildings. In New York City, for example, there are 900,000 buildings and only 100 green buildings. The retrofit market is driven by building owners and their decision to make investments in energy efficiency primarily to reduce emissions. Higher heating and cooling as well as electricity costs are driving a new wave of green energy efficiency in this sector which dovetails with the need for greener buildings. So, that is a net positive, but the bigger market driver in the offing is to give buildings partial carbon credits for reductions in GHG emissions, which is under discussion in policy circles. That will further incent building owners to make those necessary capital expenditures. Tenants may want to be "carbon neutral" but the reality is that building owners control the building envelope and will need to make that investment. Once again it's about spending more money.

## **Process Engineering and Reengineering**

With increasing public concern for reductions in GHG emissions, many companies and organizations are pursuing greenhouse gas "footprinting" projects to estimate their own contributions to global climate change. The intelligence gathered through these inventory and tracking efforts can offer a host of strategic benefits to a forward-looking company, but choosing the appropriate tools and management approach is often outside the range of a company's in-house expertise. A "carbon footprint" exists for many different entities, such as a company, a facility, a consumer, or a manufactured product. Each of these footprints requires a different methodology to calculate, and the process can be time

consuming and difficult- especially for a non-specialist. The commonly accepted protocols or reporting programs offer a variety of tools to assist companies in their inventories and calculations, but these tools are generally limited in scope.

The most widely used standard accounting method for company-wide GHG emissions, the WRI Greenhouse Gas Protocol, suggests estimating (1) direct emissions, (2) emissions from direct energy use, and (3) indirect supply chain emissions, with a focus on the first and second categories. Only emissions in the first two categories are under the direct control of a company, therefore few organizations are pursuing the broadest scope boundaries by including their supply chain emissions in their emissions footprint. This approach is acceptable for organization-level inventory and tracking programs, but it cannot sufficiently calculate the emissions associated with the production of a specific product.

Different methodology is required to calculate the GHG footprint of an individual product. The most common approach is based upon comprehensive environmental life cycle assessment (LCA) methods, which are designed to track total emissions across the entire supply chain. Life cycle assessment experience suggests that when only direct and energy-use emissions are used to calculate a product or service's footprint, as is commonly the case, a large proportion of emissions are missed.

Companies such as EcoSynergy, a new silicon valley company that measures and calculates GHG emissions, are offering solutions to this problem. For example, there are claims that the average direct emissions for the manufacturing sector are only 14% of the average total supply chain emissions for the item being produced. Direct emissions plus sector energy inputs are only 26 percent of the average total supply chain emissions. Thus, the majority of a product's emissions occur upstream in the supply chain. However, calculating supply chain emissions over the whole lifecycle of a product using traditional LCA is difficult and costly, and it is subjectively limited to the first or second tiers of suppliers, or to only the primary materials in a finished product. EcoSynergy has developed a unique software tool based on a proprietary, scientific method for calculating the environmental impact of companies and their products by SKU, brand, and category. Their technology combines the advantages and accuracy of both company-wide inventories and product-level life cycle analysis into a powerful, efficient emissions intelligence tool. Using Carnegie Mellon University's world renowned economic input-output life cycle assessment data ([www.eiolca.net](http://www.eiolca.net)), EcoSynergy's methodology incorporates a standardized set of boundaries for calculating environmental impact. The software calculates a product's GHG footprint, from cradle to sale, using a combination of user input data and published emissions information from over 3,000 industries of non-durable goods. (For more information on EcoSynergy, please contact company CEO, Andy Leventhal at [Andy@EcoSynergyInc.com](mailto:Andy@EcoSynergyInc.com))

### **What's McKinsey Up to in the Green Space**

I was recently invited to a McKinsey briefing in New York where they released their new report "Reducing U.S. Greenhouse Emissions: How Much at What Cost." The report was sponsored by Shell, PG& E, DTE Energy, Honeywell, National Grid, NFRC and Environmental Defense. The report offers economically sensible approaches that Fortune 1000 companies can implement to reduce GHG. The goal is a 28 percent reduction by

2030. McKinsey estimates capital costs for this effort at \$1.4 trillion while, not insignificant, is very reasonable. They target buildings and appliances, transportation, industrial processes, agricultural and forestry and alternative energy.

The bottom line is that the U.S. economy was founded on cheap energy and our infrastructure, our homes and buildings and our transport was built out in an era of cheap energy. That ended in 2004 with the continuous rise of fossil fuel prices. Essentially, what was too costly to implement before has now become economic. The environmental market driver is just gravity. Environmental management of both NO<sub>x</sub> and SO<sub>x</sub> reductions has mainly fallen on the energy industry. That is now going to change to economy wide implementation of greenhouse gas reductions. Energy efficiency is now the low hanging fruit that is an essential means to achieve major greenhouse gas reductions.

What has been missing to drive this market and economic transformation is the price of carbon. Through both state level and later federal mandates, that is about to change. Verification, management and enforcement of reductions in greenhouse gases are about to unleash a wave of unprecedented engineering and technology solutions that cannot be predicted. Break through technologies will abound. These economic forces and greening of the United States and later global economy will be unleashed through price discovery in carbon markets coupled with long term goals for significant greenhouse gas reductions of possibly 25 percent by 2020 and 80 percent by 2050. The missing link and key element that is about to be revealed through market-based solutions is “the price for carbon.” Not the \$2 per ton in the voluntary markets today, but \$30 to \$50 per ton through government mandated markets. McKinsey's study did not even attempt to look beyond today's technology to achieve significant reductions, 28 percent by 2030 (Incidentally, they looked at only solutions of less than \$50 per ton according to their calculations.). We can do better because waste to watts, rising miles per gallon standards, and the true greening of America will cost money, create new jobs, and transform a post-industrial economy into an engine of green economic change. That's my holiday message; we are just getting started and need to start the heavy lifting of implementing greenhouse reducing measures on a more massive and rapid scale in 2008!

Peter C. Fusaro has been pioneering carbon markets for almost two decades. For 2008, he will continue his popular “Introduction to Carbon Market” Seminars in Houston, New York, Washington DC and Atlanta ([www.pgsenergy.com](http://www.pgsenergy.com)).



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