


Managing Supply Chain Greenhouse Gas Emissions

LESSONS LEARNED FOR THE ROAD AHEAD

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CLIMATE LEADERS Ironmental Protec Ion Agency

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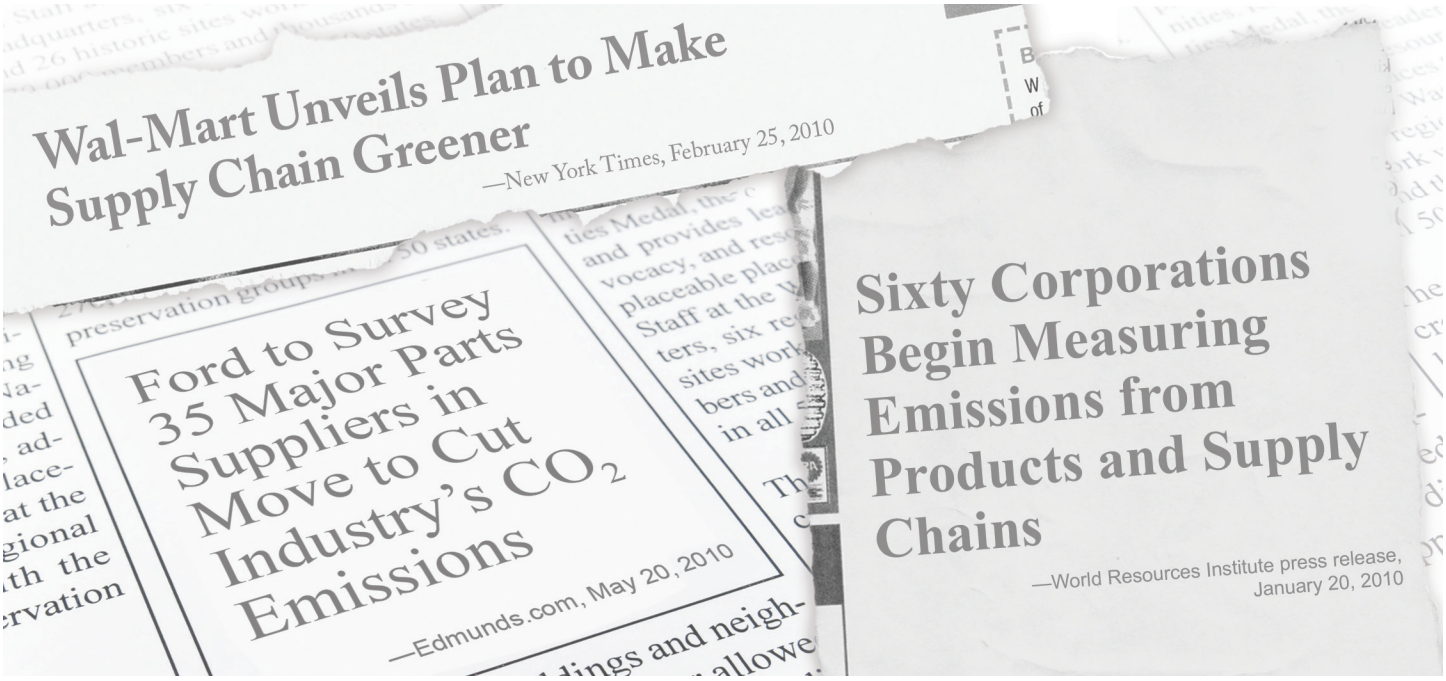


Emerging Trends in Managing Supply Chain GHG Emissions

More than three quarters of the greenhouse gas (GHG) emissions associated with many industry sectors come from their supply chains.[1] For that reason, a growing number of leading companies are engaging their suppliers about managing GHG emissions. Over the past few years, these companies have incorporated systems for reducing GHG emissions into their own business practices and are now seeking ways to drive down emissions beyond their own operations.

Some companies are asking suppliers to report emissions data directly to them, whereas others are using third-party reporting programs. In 2008, 34 multinational corporations asked suppliers to report their GHG emissions inventories through the Carbon Disclosure Project's (CDP's) Supply Chain Program.[2] The following year, 56 participating member companies asked their suppliers to report their carbon footprint to the CDP, a not-for-profit organization that collects GHG emissions information from corporations on behalf of the financial investor community.[3] In other instances, companies are collaborating with industry peers to develop shared infrastructure for their suppliers to report GHG emissions more efficiently. For example, leading consumer electronics companies developed the Electronic Industry Citizenship Coalition's Carbon Reporting System—a platform for suppliers common to multiple companies.

Some companies are making public commitments about measuring and reducing their supply chain GHG emissions. Wal-Mart, for example, received significant attention in early 2010 when the retail chain announced its intent to reduce GHG emissions from its supply chain by 20 million metric tons.[4] The same year, Procter & Gamble publicly announced the launch of its own questionnaires for collecting emissions data from suppliers.

The federal government is stepping up as well, as it responds to Executive Order 13514—Federal Leadership in Environmental, Energy and Economic Performance—issued by President Obama in October 2009. The Executive Order calls for all federal agencies to measure and reduce the GHG emissions associated with their own operations and also seeks to reduce the carbon impacts of the products and services that agencies purchase from vendors and contractors. The government is taking the first steps toward engaging key suppliers within its massive supply base by encouraging them to measure and report their GHG emissions, with the view of incorporating emissions management performance into its future procurement decisions. (The term "procurement" is used in this document to indicate an organization that purchases components from suppliers and manages supplier relationships, sometimes also referred to as sourcing, buyers, commodity managers or product managers.)

Why are companies asking suppliers to manage their own GHG emissions? What lessons do they have to share from their early efforts? And what does the future look like for measuring and eventually reducing supply chain GHG emissions?

"As part of our longstanding commitment to sustainability, Kimberly-Clark has been working on improving the energy efficiency of our operations and reducing our direct emissions of greenhouse gases for several years. We recognize that leadership in addressing the challenges of global climate change means continuing to reduce our own emissions while working with our value chain partners, customers, and suppliers, to manage greenhouse gas emissions beyond our facilities. As customers, government agencies, and other stakeholders continue to expand the scope of their interest in greenhouse gas emissions, we are building the capability to understand the GHG footprint of our supply chain."

—Jerry Zabronsky, Director Procurement Sustainability, Kimberly-Clark

EPA's Climate Leaders team interviewed Partners that are active in managing supply chain GHG emissions: Alcatel-Lucent, American Electric Power (AEP), Applied Materials, Dell, IBM, Intel, Johnson & Johnson, Kimberly-Clark, PepsiCo and Steelcase. EPA asked them how they are reaching out to their suppliers, why they are doing so, how they built internal support for their supply chain initiatives, how they are addressing challenges and how they plan to sustain and expand supplier engagement in the future. (The specific interview questions are listed in Appendix C.)

Most of the companies interviewed are, at this stage, only asking suppliers to measure and report their GHG emissions. Some have asked their suppliers to publicly report their GHG emissions and state their reduction goals. All are moving toward asking suppliers to publicly disclose GHG emissions reductions.

Why Do Companies Want Suppliers to Manage GHG Emissions?

- Alignment with sustainability commitment
- Risk mitigation
- Demand from customers and consumers

Companies are motivated to engage their suppliers on managing their GHG emissions for three primary reasons.

Alignment with sustainability commitment

As companies commit to reduce the carbon footprints of the products and services they provide, they look to their suppliers to align their efforts with the company's sustainability goals. All companies interviewed believe that they can reduce GHG emissions far more by engaging their supply chain. For most of them, supply chain emissions surpass their combined Scope 1 and 2 emissions—namely, their direct emissions and those from purchased electricity.

Some companies have corporate GHG goals that explicitly include supply chain reductions. For example, Alcatel-Lucent set a goal to reduce its carbon footprint by 50 percent of 2008 levels by 2020, including reductions in its supply chain.

Risk mitigation

Managing supply chain GHG emissions effectively can avoid damage to brand value, exposure to energy price volatility and lack of preparedness for complying with carbon regulations.

Companies are keenly aware that the power of a brand is affected by a company's proven reputation for sustainability. Association with less environmentally friendly suppliers can undermine the credibility of firms that are actively seeking to differentiate their brands through environmental leadership. To protect their brands, they seek relationships with suppliers that walk the walk alongside them by taking steps to be proactive environmental stewards.

Companies also seek to insulate their supply chains from sudden spikes in energy and fuel prices, which may in turn affect the prices and availability of goods and services they procure from suppliers. With this aim in mind, leading companies are beginning to work with suppliers to ensure that they become more energy efficient, especially for emissions-intensive processes.

Proactively reducing GHG emissions throughout the supply chain can also reduce corporate risk of a negative brand image and increased costs if suppliers are unprepared to comply with federal or state regulations. Suppliers, especially those in the heavy chemical and industrial sectors, that establish the infrastructure for documenting and reporting GHG emissions are better prepared for future regulations and reporting requirements.

Demand from customers and consumers

Increasingly, business customers are asking companies to provide information on the life cycle emissions of the products and services that they procure. As Alcatel-Lucent's representatives acknowledged, sustainability metrics are fast becoming incorporated into their own customers' procurement decisions. Therefore, companies need information on Scope 3 emissions from suppliers to provide customers with a more complete picture of corporate emissions performance across the value chain. For example, Intel is being asked by computer manufacturers to provide information on the GHG emissions associated with its microprocessors, leading the company to ask its upstream manufacturing suppliers for the necessary data to respond. Because most companies make or assemble only a small portion of their final products or services, achieving an environmentally sustainable product or service often means first identifying opportunities for improvements within the global supply chain where the bulk of components that comprise the final product are produced.

Companies also understand that they can gain advantage over their competitors by improving the environmental sustainability of their products and marketing this feature to consumers. This is especially true for companies known for their consumer-facing brands, such as PepsiCo, Johnson & Johnson and Kimberly-Clark.

Shareholders, as well as current and prospective employees, are also pressuring companies to be more sustainable. Shareholder concerns are reflected in the Securities and Exchange Commission's recent guidance about corporate reporting on climate change risk management.[5]

"Business leadership is no longer limited to financial performance, but includes assuming responsibility. This responsibility extends to understanding environmental impacts and encouraging improvements within Intel's supply chain. Doing so will help us manage risk, lower environmental impacts and costs, and bring greater transparency."

—Todd Brady, Corporate Environmental Manager, Intel

Building Internal Support for Engaging Suppliers

- Develop allies in business units
- Leverage one business unit to drive change across the company
- Secure executive support and communicate resource needs

Several years ago, a company's biggest internal barrier to engaging its suppliers to manage their GHG emissions might have been convincing the CEO to support such an initiative. Today, however, most top executives are keenly aware of the risk that climate change poses to the environment and their companies, and they support initiatives to manage GHG emissions across the company and throughout the supply chain. The greater challenges often occur further down within an organization, where strategic priorities need to be translated into operational objectives.

Usually, a small team of corporate environmental, health and safety personnel are the champions for addressing GHG emissions in the supply chain. It can be challenging for them to build a broad base of support across all internal business units and within the procurement divisions, which may perceive such greening efforts as additional workload, particularly if sustainability is not part of their performance metrics.

Below are some common measures that companies have implemented within their organizations to incorporate GHG emissions management into mainstream internal business practices.

Develop allies in business units

Environment, health and safety (EH&S) staff interviewed for this report expressed the importance of developing relationships with key managers and procurement personnel in each business unit, who can be coordinators and champions for engaging suppliers on managing their GHG emissions. The magnitude of supply chain emissions can vary widely across business units, so it makes sense to focus first on those parts of the organization that can have the greatest influence on overall supply chain emissions.

Demonstrate value in managing supplier GHG emissions. By demonstrating a direct connection between reducing emissions and achieving business unit performance goals, champions can build broad internal support for greening the supply chain. For example, some companies have top-down mandates to incorporate sustainability into each business unit's practices. Asking suppliers for information about and reductions in their GHG emissions is one way to meet such a requirement.

It is critical to train procurement and other key personnel across business units on the importance of reducing the influence on climate change and how to interpret supplier GHG emissions reports. When developing a training process for staff, the best approach is to incorporate the value propositions that will resonate strongest with them.

The companies interviewed stated that it takes frequent communication with procurement personnel to encourage them to factor GHG and sustainability metrics into their purchasing decisions, just as they consider cost, quality and service. Asking suppliers for information on their GHG emissions can also be framed as generating more value from existing supplier relationships across multiple divisions or business units. For example, when supplier data is shared freely between EH&S and procurement departments, both groups can glean its full value by understanding how suppliers are taking steps to improve their efficiencies and where opportunities lie for making additional improvements from both a cost savings and an environmental standpoint.

Leverage one business unit to drive change across the company

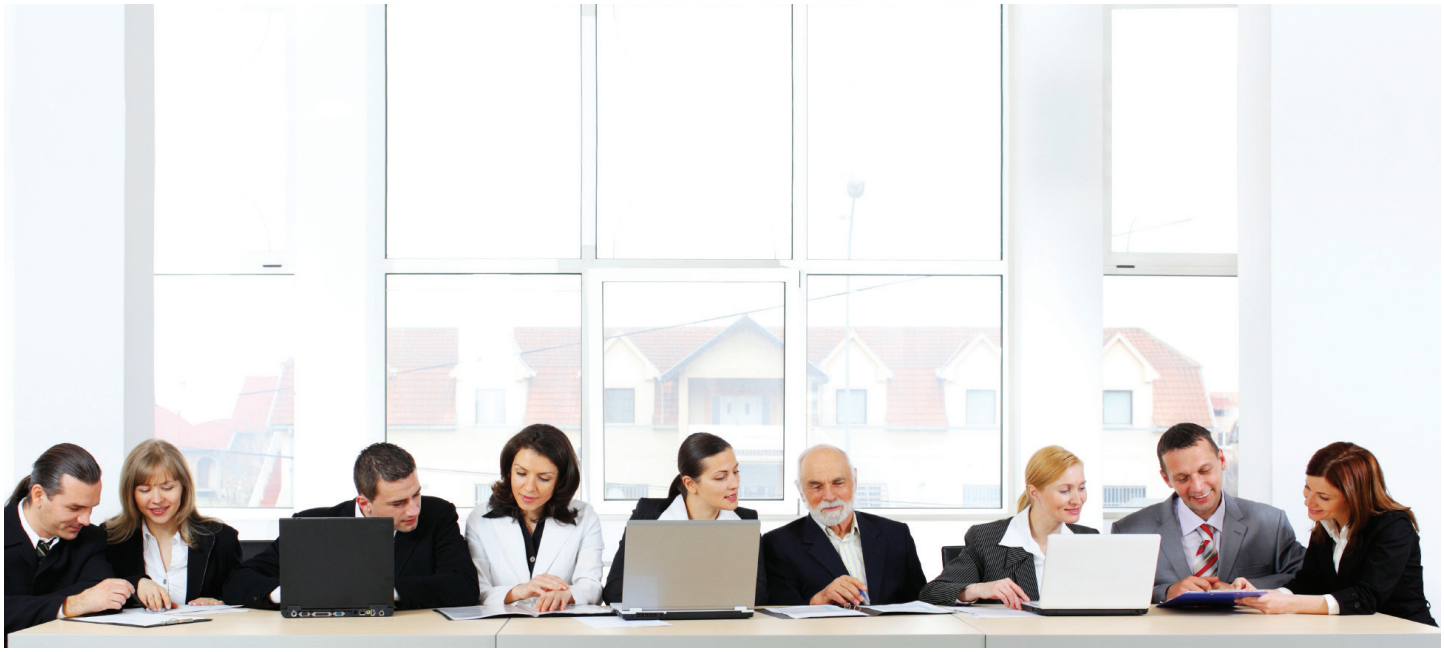
Without a sweeping edict from the top of the company, it is challenging to get all business units to move in unison to address GHG emissions in the supply chain. However, multinational corporations can use their organizational complexity to their advantage because changes can often be more easily tested within certain business units or in certain lead markets before branching out across the entire company. For instance, Kimberly-Clark is comprised of multiple business units and its global regions are managed autonomously. It solicited sponsorship from one business unit that believed in the importance of managing suppliers' GHG emissions and agreed to temporarily fund supply chain engagement across the entire company. This launched the initiative to collect GHG emissions data from suppliers for the first phase of the program. Going forward, champions for the initiative within Kimberly-Clark are using demonstrated results to build more diversified support to ensure continued funding and success.

In some companies, consumer-facing brands within business units are under more public pressure from customers and consumers to reduce supplier emissions than are business units that are more insulated from consumers. Companies can take advantage of this external pressure and use business units responsible for consumer-facing brands as the first to pilot outreach to suppliers on GHG emissions. Once successful results can be communicated across the company, other business units can be brought on board. For example, Johnson & Johnson's consumer-facing business unit, while responsible for only approximately one-quarter of the company's revenue, is helping to drive supplier engagement across its pharmaceutical and medical device divisions.

> "If a company wants to be green, it's got to buy green. Alcatel-Lucent realizes that we have tremendous leverage with our supply base and choose to use that leverage in a way that helps raise the bar for everyone. By asking our suppliers about their emissions and potential reduction targets, we bring more light to the issue of climate change, and get more and more organizations working together to reduce overall environmental impact."
>
> —Richard Goode, Director of Sustainability, Alcatel-Lucent

Secure executive support and communicate resource needs

Executive support for managing supply chain GHG emissions and a clear understanding of the resource needs is critical for any initiative to succeed. Companies interviewed articulated the need for executives to appoint a senior-level manager dedicated to work full-time on sustainability and managing supply chain GHG emissions, given the large number of suppliers and the sheer amount of emissions data that must be evaluated. They stressed that it is not feasible to establish a successful program with limited staff time. All of the companies interviewed had senior managers in place to address supply chain emissions—although, in most cases, these positions had been built over the previous three to five years as top leaders prioritized integrating sustainability measures across their supply chains. Over time, most companies had also been able to build a small team dedicated to helping the senior managers implement supplier outreach programs. For procurement groups to take GHG management seriously, it needs to be included in the procurement staff's performance metrics.



Engaging Suppliers

- Strategically choose which suppliers to engage
- Keep the questions simple
- Build trust with suppliers
- Provide training and capacity-building
- Leverage third-party programs to strengthen internal supplier engagement efforts
- Conduct pilot initiatives before scaling up

Companies are using a variety of methods to require their suppliers to manage their GHG emissions. Some companies are establishing their own internal programs, often building onto their existing infrastructure and forums for supplier engagement. Training and capacity building are key features of these company programs. Some companies hold supplier meetings or sustainability summits that include trainings on developing a GHG inventory or implementing energy-efficiency strategies. Such company programs often involve more intensive, one-on-one interaction and capacity building with a smaller number of key suppliers. A number of companies have developed questionnaires to gather GHG emissions information directly from their suppliers as part of their internal system for managing supplier data. Other companies leverage external programs to access GHG inventory data from suppliers. Some companies also provide guidance or assistance to suppliers to help them begin to reduce emissions. Over the past three to five years that companies have developed and tested their supplier outreach initiatives, those interviewed shared the following common lessons learned.

Strategically choose which suppliers to engage

Companies are choosing to engage a small number of key suppliers at first, focusing on those that comprise 75 to 80 percent of spend and those who pose the greatest risk to financial performance or brand reputation if they do not manage

their emissions. The latter may also include smaller suppliers, those that provide critical components, or those that represent other risk factors, such as energy-intensive operations that are vulnerable to rising costs from energy price increases.

Keep the questions simple

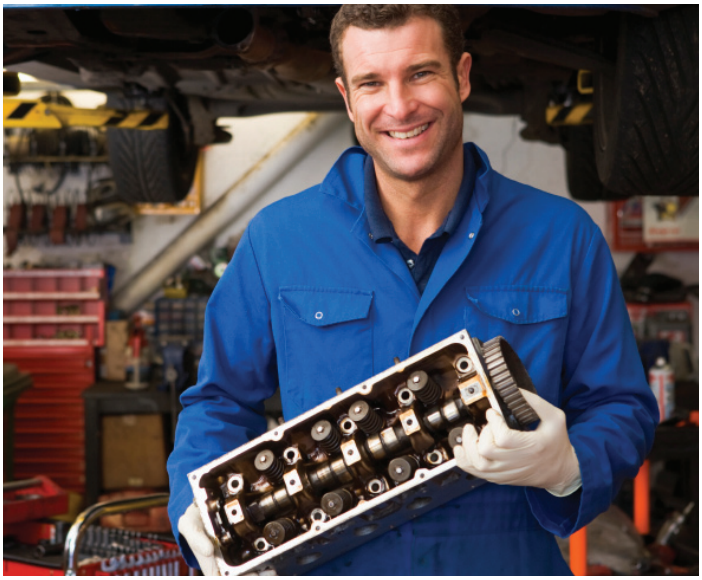
Companies often use GHG emissions questionnaires and databases to collect information from suppliers they are monitoring. They review the data for general trends and any signs of risk from specific suppliers. Companies that have done this emphasize the need to keep the information requests simple and not ask questions of their suppliers that they themselves would have difficulty answering. Some firms do not ask suppliers for quantitative data, focusing instead on qualitative questions as to whether the suppliers are measuring, reporting and taking steps to reduce emissions.

In some cases, companies use GHG emissions information from suppliers as a proxy for understanding how their suppliers are approaching sustainability more broadly. For example, Applied Materials has found that asking suppliers how they are measuring and managing their GHG emissions provides a high level indicator on how they are managing other environmental impacts, such as waste generation or water consumption. Whereas many suppliers are ISO 14001–certified, with environmental management systems in place, one company interviewed acknowledged that the certification often does not provide sufficiently detailed information on sustainability efforts. Much of this information can be gleaned by asking them for their GHG emissions.

Build trust with suppliers

The most prevalent problem encountered in gathering supply chain GHG emissions data is suppliers' concern about how their information will be used. Suppliers are sensitive about sharing their GHG inventory data with customers because emissions generated from electricity consumption—a significant portion of a supplier's emissions—can be directly linked to production costs. Suppliers worry that their customers might use the information to squeeze additional cost out of them, rather than grant them flexibility for managing savings that result from efficiencies. To build trust and assuage supplier fears, companies interviewed suggested first sharing their own success stories with suppliers to demonstrate realized and potential cost savings and consider collecting data through third-party programs that protect suppliers' confidential business information.

Demonstrate realized and potential cost savings. When building trust with suppliers, companies interviewed explained that they first needed to demonstrate how developing a corporate GHG inventory helped them identify inefficiencies and implement measures that yielded significant cost savings. Companies must manage GHG emissions within their own organizational boundaries if they are to credibly ask suppliers to do the same. For example, when PepsiCo first began developing its GHG inventory in 2005, the company discovered that the majority of its GHG emissions came from process-related energy consumption.



Since then, PepsiCo has seen a 16 percent reduction in per-unit energy use in the beverage plants and identified and began implementing more than $60 million in potential energy savings opportunities.[6] Suppliers are much more willing to overcome any skepticism on how measuring their GHG emissions will benefit their businesses if they see firsthand how other companies reaped tangible financial benefits.

Once suppliers are willing to develop their GHG emissions inventories, companies and suppliers can embark on a dialogue and partnership to see continued improvements. Companies often share their lessons learned, tools and resources to help strategic suppliers quickly gain knowledge and experience. PepsiCo now provides suppliers with access to a proprietary energy assessment tool—used by PepsiCo to improve the energy efficiency of its own operations—that advises suppliers of their top 10 to 15 energy conservation opportunities.

Partners agree that the message about managing supplier GHG emissions comes across best when approached as a partnership between the customer and its suppliers, focusing on saving money and enhancing competitiveness. Emphasis on collaboration and shared benefits is especially important because requests for emissions data often come from the same procurement personnel who may interact with suppliers as enforcers of quality and safety. Depending on the relationships that procurement personnel have with suppliers, it is important to be sensitive to how suppliers may perceive efforts from customers to engage them on managing supply chain emissions. If the relationship has traditionally not been based on collaboration, introducing a new partnership to identify efficiencies that will benefit the supplier and reduce their GHG emissions may need to be carefully introduced to build trust.

Respect business-sensitive information. In cases where firms use surveys to obtain supplier GHG emissions data, response rates can be low not only because suppliers question how their clients will use the information, but also because the suppliers worry that the information may end up in the hands of their

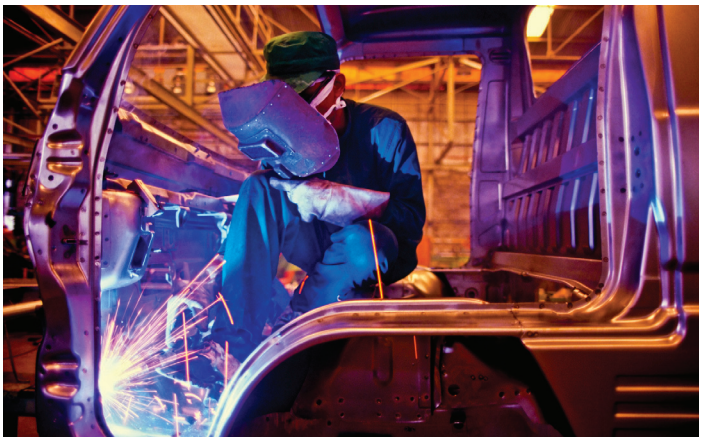
competitors. This concern can be alleviated by leveraging external programs, such as the CDP Supply Chain Program and programs that could be modeled after the Electronic Industry Citizenship Coalition's (EICC's) Carbon Reporting System, which provide suppliers with additional tools and maintain confidentiality of supplier data. CDP's program allows suppliers to choose which companies can access their data. The not-for-profit Business for Social Responsibility (BSR), which manages the EICC's reporting system, requires that companies not release supplier information without the approval of the supplier, and that companies not show other suppliers their competitors' data.

Provide training and capacity-building

Training and capacity (capability) building for suppliers are critical components of a customer-supplier relationship built around the goal of managing GHG emissions. Many companies have supplier summits that can be leveraged to include trainings on managing emissions. If resources permit, companies can also create a standing team to provide technical assistance to suppliers. For example, PepsiCo provides training through its Global Sustainability Summit, on-site training sessions, and webcasts. The company has also established "resource conservation specialists" as a technical resource that suppliers can access as they build capacity within their own organizations.

Suppliers often do not know at first how to measure and report their GHG emissions, and they fear that doing so will involve extensive resources. However, companies interviewed frequently observe that when suppliers develop a GHG emissions inventory for the first time, they find that gathering the utility bills and other necessary information for an inventory is more time-consuming than it is difficult. Though developing a GHG inventory for the first time may require dedicated staff time and resources, the cost savings that suppliers can identify by discovering where they can implement energy-saving measures can encourage them to continue on a path toward managing their GHG emissions effectively.

Provide additional assistance to smaller suppliers. Companies interviewed stressed that their smaller suppliers generally need more assistance than larger suppliers, as they have fewer resources and less in-house expertise. Spreadsheets and databases with built-in emissions calculations, such as the Climate Leaders Simplified GHG Emissions Calculator or tools similar to the EICC's smart reporting spreadsheet, can assist these suppliers.



Tailor training and capacity-building based on supply chain structure. The importance of implementing trainings and other hands-on technical assistance within a company's supply chain engagement strategy depends on the structure of the relationship that the company has with its suppliers. PepsiCo, Applied Materials, Intel and Kimberly-Clark have supplier relationships where they are major customers for some of their strategic suppliers. These close relationships with key suppliers can merit focused collaboration to ensure that they address their GHG emissions. However, in the case of a customer such as IBM, whose spend does not constitute a significant portion of a supplier's revenue, the customer's ability to leverage its influence over individual suppliers may be more limited. These examples demonstrate the importance of identifying suitable supplier engagement programs or approaches that are appropriate for the customer-supplier relationship so as to most effectively achieve a company's objectives.

Leverage third-party programs to strengthen internal supplier engagement efforts

Companies interviewed all sought third-party programs to bolster their internal supplier outreach programs. Such external programs can maximize efficient use of resources by helping companies request and analyze emissions information from suppliers and then provide suppliers with additional tools to develop their own GHG inventories and manage their GHG emissions. Some companies recommended that leveraging such programs must be tied to a company's internal commitment to measure and reduce supply chain GHG emissions effectively because no external program can single-handedly address the specific needs of any one company.

Current third-party programs generally fall into one of the following categories: 1) collaborative efforts with industry peers or programs designed for gathering industry-specific GHG emissions data; 2) broad programs that disseminate common questions across industry supply chains spanning various sectors; or 3) technical assistance and public recognition programs to help suppliers reduce GHG emissions and provide them with external public recognition for their achievements.

Build collaborative initiatives to engage common suppliers. Creating initiatives among companies in the same industry to collect data from common suppliers and help them manage their emissions can reduce reporting and data management burdens. Suppliers that are shared by many companies need respond only once, and in a single format, to a request to report their GHG emissions inventories. For example, in 2004, a group of multinational electronics manufacturers launched the EICC to help incorporate common sustainability tenets across their industry. In 2009, members of the EICC developed and piloted a common platform for suppliers to report their GHG emissions data. Through the EICC Carbon Reporting System, suppliers common to multiple customers enter their data only once and

specify which of their customers are permitted to access the information. In addition, the EICC works in partnership with Business for Social Responsibility (BSR) in China—where the majority of the suppliers are based—to help train them in managing their GHG emissions.

Using BSR as a neutral third party tasked with providing technical assistance to common suppliers, EICC members save the resources needed to train suppliers individually. Intel, as an EICC member, uses a combination of external and internal programs to effectively manage supply chain GHG emissions. From all suppliers reporting emissions through EICC, Intel looks for those that comprise about 80 percent of its spend on direct materials and capital; about 50 of Intel's top tier 1 suppliers meet this criterion. The company then engages those select suppliers through its own Supplier Continuous Quality Improvement program, which uses Intel's supplier management tools and processes to drive improvements in suppliers' performance through feedback from process assessments and site visits. Applied Materials and Dell also use the EICC Carbon Reporting System to nominate suppliers to report GHG emissions data, and the information reported helps them identify which suppliers may need additional assistance.

Another example of a collaborative industry initiative that collects information from common suppliers is the Electric Utility Industry Sustainable Supply Chain Alliance (EUISSCA), which is comprised of the 16 largest utilities in the United States. AEP nominates its key suppliers to answer the EUISSCA's common supplier questionnaire, which is comprised of 36 questions—one of which asks suppliers how they are managing their GHG emissions. On behalf of EUISSCA, CAPS Research—a global research organization jointly sponsored by the W.P. Carey School of Business at Arizona State University and the Institute for Supply Management—compiles the information for the participating utilities and develops charts, aggregates the data and makes the information available if suppliers permit it to be shared with their customers.

Leverage programs that disseminate common questions across industry supply chains: The Carbon Disclosure Project's Supply Chain initiative is the primary example of a program that sends questionnaires to suppliers as requested by participating companies in different industry sectors. Kimberly-Clark, PepsiCo, Johnson & Johnson and IBM all participate in the Carbon Disclosure Project's Supply Chain initiative and most of these companies themselves have been reporting annually to the CDP. Companies can become CDP Supply Chain members and then identify which suppliers across industry sectors should receive the questionnaire. CDP collects the requests from all nominating participants, cross-references the suppliers, accounts for multiple requests from companies intended for a single supplier and then ensures that each supplier receives only one questionnaire. Suppliers can specify whether their information can be shared with their requesting customers.

Refer suppliers to technical assistance and public recognition programs to help them manage their emissions. Other external programs, such as EPA's ENERGY STAR, SmartWay and Green Suppliers Network, can build supplier capacity in managing emissions and improving energy and fuel efficiency. Steelcase and AEP both have many suppliers involved in the Green Suppliers Network, which uses resources from the EPA and Department of Commerce's Manufacturing Extension Partnership to provide hands-on facility assessments that identify opportunities for energy efficiency, pollution prevention and cost savings. PepsiCo asks a select group of suppliers to join the ENERGY STAR program to implement best practices in energy efficiency. Dell and Kimberly-Clark help their transportation carriers to join the SmartWay program in order to green their product transport by accessing the appropriate tools and resources. Programs that provide suppliers with public recognition for their achievements in reducing GHG emissions can spur continuous improvement by promoting healthy competition among companies to differentiate themselves from their competitors based on their environmental performance.

Other resources that can help suppliers include the U.S. Department of Energy's Industrial Technologies program and state energy conservation offices. Local utility rebate programs can also provide incentives that allow suppliers to recoup some of the upfront costs associated with improving energy efficiency and reducing GHG emissions.

Many suppliers, especially smaller ones, are unaware of such programs that could help them reduce emissions and would benefit from learning about them from their customers. Various voluntary EPA programs that address reducing GHG emissions have seen suppliers join after being encouraged to do so from their customers who are also active participants.

Conduct pilot initiatives before scaling up

Most of the companies interviewed found that they needed about three years to glean lessons learned from piloting their supplier initiatives before they had the results and information they needed to begin scaling up and solidifying supplier programs within their companies. They initially selected a subset of suppliers to begin asking them for GHG emissions information, typically reaching out to about 75 to 150 suppliers through an internal program and up to several hundred through an external program such as the EUISSCA's questionnaire. The

Carbon Disclosure Project's Supply Chain initiative sends its questionnaire to thousands of suppliers on behalf of numerous requesting companies. Companies such as PepsiCo, IBM and Johnson & Johnson saw a 10 to 30 percent increase in participation in the CDP Supply Chain questionnaire each year. Companies interviewed note that increased awareness of how to develop a GHG emissions inventory and repeated requests over the past three years have yielded a greater response rate. However, some companies note that a supplier who reports one year may not disclose its GHG emissions information the subsequent year, highlighting the need to sustain capacity-building for suppliers and increase trainings for procurement personnel to continue to communicate the value propositions for managing GHG emissions.

"Dell partners with suppliers, customers, and stakeholders to drive sustainable operations throughout our business. Ensuring sustainability in our global supply chain is an integral part of our commitment to environmental stewardship."

—Mark Newton, Director of Sustainable Business, Dell

Examples of Corporate Supply Chain Programs

The following section provides an overview of the supply chain programs for the ten Climate Leaders Partners interviewed. The programs are presented here to give other companies examples of how early movers have chosen to engage their suppliers about managing GHG emissions.

Alcatel-Lucent

Alcatel-Lucent employs a combination of direct and indirect engagement with suppliers about managing their GHG emissions. It works directly with its larger suppliers and contract manufacturers to ensure that they are measuring their GHG emissions, have a 2009 emissions baseline, and begin reporting their emissions in 2010.

Alcatel-Lucent also engages its other suppliers indirectly through its partnership with EcoVadis, a collaborative third-party platform that manages a supplier survey and database for Alcatel-Lucent, to implement a rating system that assesses suppliers' sustainability performance. Initially, it is focusing on a few hundred suppliers accounting for 75 percent of spend. Through the survey, Alcatel-Lucent began asking these suppliers in 2010 if they are measuring their GHG emissions and if they have an emissions reduction target. The survey responses allow the company to identify gaps in GHG emissions management and help suppliers develop a GHG emissions management plan. Alcatel-Lucent uses information on how supplies are measuring their GHG emissions as a proxy for how they may be accounting for and managing other environmental impacts.
For more information, visit www.alcatellucent.com/csr/htm/en/responsiblePurchasing.html.

American Electric Power (AEP)

To engage its suppliers on managing their GHG emissions, AEP works with the Electric Utility Industry Sustainable Supply Chain Alliance (www.euissca.org), a collaborative utility industry platform which, working through CAPS Research, administers a survey to AEP's top 100 suppliers based on spend. The survey asks suppliers if they have a plan for managing GHG emissions, as well as other questions related to sustainability metrics. Suppliers can elect whether or not they allow their responses to be shared with nominating utility customers.

Based on information gleaned from the survey responses, AEP strategically approaches key suppliers and helps to engage them in external programs aimed at measuring and reducing their GHG emissions, such as the Green Suppliers Network and EPA's ENERGY STAR, Climate Leaders Small Business Network and SmartWay.

For more information, visit www.aepsustainability.com/ourissues/envperformance/suppliers.aspx.

Applied Materials

Applied Materials initially focused on suppliers that are both ISO 14001 certified and represent their top spend to assess how they manage their GHG emissions. It uses a supplier Sustainability Self Assessment scorecard, which includes GHG emissions management as one aspect of the scoring system, to determine which suppliers may need additional assistance or training in managing their GHG emissions. In 2009, 75 percent of suppliers responded to the self assessment.

In addition to its own supplier questionnaire, Applied Materials leverages its participation in EICC's Carbon Reporting System to request GHG emissions data from numerous additional suppliers common to other electronics companies.
For more information, visit www.appliedmaterials.com/cs_report/supply_chain.html.

Dell

Dell requires suppliers that comprise 90 percent of spend for production-related materials to report their emissions to CDP Supply Chain and the Electronic Industry Citizenship Coalition's (EICC) Carbon Reporting System. Dell also requires key suppliers to publicly disclose their GHG emissions and GHG reduction goals as part of their quarterly performance reviews. To complement these efforts, Dell also asks its top 25 suppliers of non-production goods and services to measure their emissions and report them to the EICC Carbon Reporting System. Finally, Dell requires its logistics suppliers in the U.S. to participate in EPA's SmartWay program to reduce the carbon footprint of its product transport systems.
For more information, reference "Addressing Climate Change" in Dell's *2010 Corporate Responsibility Summary Report*: i.dell.com/sites/content/corporate/corp-comm/en/Documents/dell-fy10-cr-report.pdf#page=40.

IBM

In 2009, IBM invited 121 of its top suppliers to respond to the CDP Supply Chain questionnaire. These 121 suppliers represent approximately 80 percent of IBM's spend with production-related suppliers and also includes key suppliers in service categories such as logistics and third-party data centers. Of the suppliers that received the questionnaire, 73 percent responded. Survey responses showed that about one-third of both production and service suppliers had GHG emissions reduction plans. The response rate and current availability of emissions reduction plans indicate that many companies are just beginning efforts to develop a detailed understanding of, and management plan for, their energy use and GHG emissions inventories.

In February 2010, IBM introduced new requirements for its suppliers to develop, deploy, and sustain a management system to address their corporate and environmental responsibilities. Suppliers must measure performance and establish voluntary, quantifiable environmental goals addressing, at a minimum, energy use, Scope 1 and 2 GHG emissions, and waste management. They must also publicly disclose results associated with these voluntary environmental goals and other environmental aspects of their management systems. IBM further required its suppliers to extend the same requirements to their suppliers.

In addition, as a member of the EICC, IBM is part of the Environmental Working Group that is developing a sector-wide strategy for electronics industry suppliers to inventory, disclose and reduce their GHG emissions. The EICC Environmental Working Group has developed education modules to assist suppliers in tracking their energy use and developing their GHG inventories, and has created a system for suppliers to disclose their GHG emissions to EICC Members.

For more information, visit www.ibm.com/ibm/environment/supply/index.shtml.

Intel

Intel uses both its own Supplier Continuous Quality Improvement program and the EICC Carbon Reporting System to manage its supply chain GHG emissions. For Intel, 50 of its top production and capital suppliers that comprise approximately 80 percent of its total purchasing spend report their emissions through the EICC. Intel has also engaged these select suppliers to participate in its Supplier Continuous Quality Improvement program, which uses Intel's supplier management tools and processes to drive improvements in suppliers' performance through feedback from process assessments and site visits. Intel participates in the EICC Environmental Sustainability Work Group and will continue working with its suppliers to understand the carbon disclosure data that they must begin reporting.

In 2008, Intel asked its key suppliers to examine their operations and identify areas with the greatest environmental impacts, including those resulting in significant energy use and GHG emissions. In 2009, Intel asked these suppliers to set goals for reducing their environmental impacts and, beginning in 2010, will evaluate its suppliers on sustainability, as well as metrics based on availability, cost and quality.

To communicate Intel's corporate responsibility expectations most effectively to its suppliers, Intel's commodity managers and buyers that manage top tier suppliers are required to attend an internal supplier corporate responsibility training course that covers environmental sustainability.

For more information, visit Intel's *2009 Corporate Responsibility Report* at www.intel.com/Assets/PDF/Policy/CSR-2009.pdf.

Johnson & Johnson

In 2008, Johnson & Johnson began encouraging its key suppliers to report their GHG emissions to the CDP Supply Chain initiative. By 2009, more than 80 percent

of the suppliers it approached chose to participate in the CDP. In 2010 Johnson & Johnson continued to foster participation from a larger group of suppliers. Currently, Johnson & Johnson asks its suppliers if they are publicly reporting their GHG inventories, setting GHG emissions reduction goals, and publicly reporting those goals. Rather than collecting their suppliers' GHG emissions data directly, Johnson & Johnson is setting expectations for its suppliers to publicly manage their own GHG emissions.

To help its key suppliers measure and reduce their carbon footprint, Johnson & Johnson shares with them its internal GHG management tools and resources to demonstrate how it first measured its energy use and subsequently reduced its own GHG emissions.

Additionally, Johnson & Johnson participates in the Pharmaceutical Supply Chain Initiative (www.pharmaceuticalsupplychain.org) to help identify efficiencies within the industry and drive improvements in the supply chain through collaborative efforts.

For more information, visit www.jnj.com/connect/caring/environment-protection/ and www.investor.jnj.com/2009sustainabilityreport/environment/suppliers.html.

Kimberly-Clark Corporation

Kimberly-Clark has asked its top suppliers to participate in the CDP Supply Chain initiative and EPA's SmartWay program. In 2010, it reached out to 60 of its key suppliers with emissions-intensive processes to report their GHG emissions through CDP Supply Chain. Going forward, Kimberly-Clark plans to ask more suppliers to report to CDP during the next two years, with the intent of eventually engaging suppliers that comprise a majority of spend. Kimberly-Clark also requires all of its logistics providers to participate in SmartWay to reduce the GHG emissions associated with product transport.

Kimberly-Clark's Vision 2010 calls for working with suppliers whose environmental programs are compatible with its initiatives and who can provide products and services that move Kimberly-Clark closer to its environmental goals.

For more information, visit www.kimberly-clark.com/aboutus/sus_2010/sustainability_pg44.aspx.

PepsiCo

As part of PepsiCo's approach to working with suppliers on managing their GHG emissions, it first encourages its key suppliers to report their emissions through CDP Supply Chain. PepsiCo identifies these key suppliers based on spend, impact on total value chain emissions, and long-term and strategic partnerships.

PepsiCo then focuses on a smaller, select number of suppliers to help them reduce their GHG emissions. In 2008, it began a program to engage its 12 largest domestic contract manufacturers. PepsiCo emphasized to its suppliers the benefits of energy conservation and efficiencies, asked them to join the ENERGY STAR program, set energy reduction goals and helped them develop a plan to achieve their energy reduction goals.

PepsiCo also established "resource conservation specialist" positions to provide a full-time resource suppliers can use as they build capacity to reduce GHG emissions within their own organizations. It also developed trainings via webcasts, a Global Sustainability Summit, on-site training sessions, and access to PepsiCo's assessment tool that gives suppliers their top 10 to 15 opportunities for conserving energy. In the first year of the program, suppliers achieved a 6 percent reduction in energy consumption. Now PepsiCo's program boasts more than 60 suppliers, some of who have began voluntarily training their own suppliers on how to conserve energy.

For more information, visit www.pepsico.com/Purpose/Responsible-Sourcing/Environmental-Supplier-Outreach.html.

Steelcase

To support supplier efforts to reduce their environmental impacts, including their GHG emissions, Steelcase's U.S. operations participate in the Green Suppliers Network, a program jointly sponsored by EPA and the Department of Commerce's Manufacturing Extension Partnership that provides third-party site assessments to help suppliers identify economic and environmental efficiencies and improvements. Steelcase also created its own "lean and green" program, named iFlow, to further embed sustainability into its own facilities and into the manufacturing and transportation operations across its value chain. Steelcase focuses on engaging its suppliers who are already providing data to support product sustainability certification efforts for the company and who are involved with its lean and green initiatives. These suppliers include high spend tier 1 direct material suppliers as well as finished product producers. To do so, initially, Steelcase asked 12 suppliers to participate in the Green Suppliers Network assessments and involved 30 suppliers in its iFlow program.

Steelcase is also working to reduce product lifecycle emissions by certifying its products under the new e3 "level(TM)"product certification administered by the Business and Institutional Furniture Manufacturer's Association (BIFMA). In addition, Steelcase is working with its suppliers to improve processes in order to assist in the certification of its products under the level(TM) program. Process improvements can include reductions in water and energy consumption, GHG reductions and reduced air emissions as well as other lifecycle impact areas.

For more information, visit www.steelcase.com/en/company/sustainability/pages/supply-chain.aspx.

The Road Ahead

- Expand strategic supplier engagement and increase transparency
- Move beyond measuring emissions to setting and achieving GHG reduction goals
- Emerging product standards help drive management of supply chain emissions

Whereas supply chain management has historically been based on cost, service and quality, sustainability is emerging as a fourth pillar. More suppliers are becoming aware of the need to manage their GHG emissions, and the number of engaged suppliers is increasing as a result of pilot outreach initiatives. One company observed that some suppliers now expect their customers to request information about GHG emissions. Throughout 2009 and 2010, the EPA's Climate Leaders Small Business Network saw growing interest from smaller suppliers to the food processing, packaging, apparel and furniture sectors on how to measure and reduce their GHG emissions.

Despite growing awareness among suppliers, companies still face a long road ahead for mainstreaming sustainability and carbon reductions within their supply chains. Many companies interviewed compared current methods of addressing sustainability to the ways health and safety were treated as performance measures 25 years ago. At that time, those measures were emerging as preferred practices, whereas now, companies will not work with suppliers unless they implement robust health and safety policies. Sustainability measures are still very much preferred but optional practices, and in many cases, customers will still buy products or services from suppliers that don't follow them. Yet the world is changing, and sustainability—especially measuring and reducing GHG emissions—will become a more stringent and standard requirement for suppliers in the future.

Expand strategic supplier engagement and increase transparency

As companies ask more suppliers for their GHG emissions data, they face challenges in managing the volume of data and extracting value from it. As a result, Alcatel-Lucent, for example, is currently asking suppliers only whether they are managing their GHG emissions. The company is waiting to ask suppliers for specific emissions data until it can manage the data and use

it advantageously. To reduce the data-management burden and promote transparency, some companies are asking suppliers to report their data publicly.

Move beyond measuring emissions to setting and achieving GHG reduction goals

In addition to asking suppliers to publicly report their emissions, many companies are also asking them to set and publicly report GHG reduction goals. For example, as part of Johnson & Johnson's 2015 corporate goals, the company is asking key suppliers not only to report their emissions publicly, but also to set public reduction goals either through CDP, on their own websites or through another public-facing reporting program.

Most of the companies we interviewed said they will establish requirements for suppliers to demonstrate emissions reductions within three to five years. In addition to Johnson & Johnson, IBM, Intel and PepsiCo are already asking some or all of their suppliers to set and achieve reduction goals.

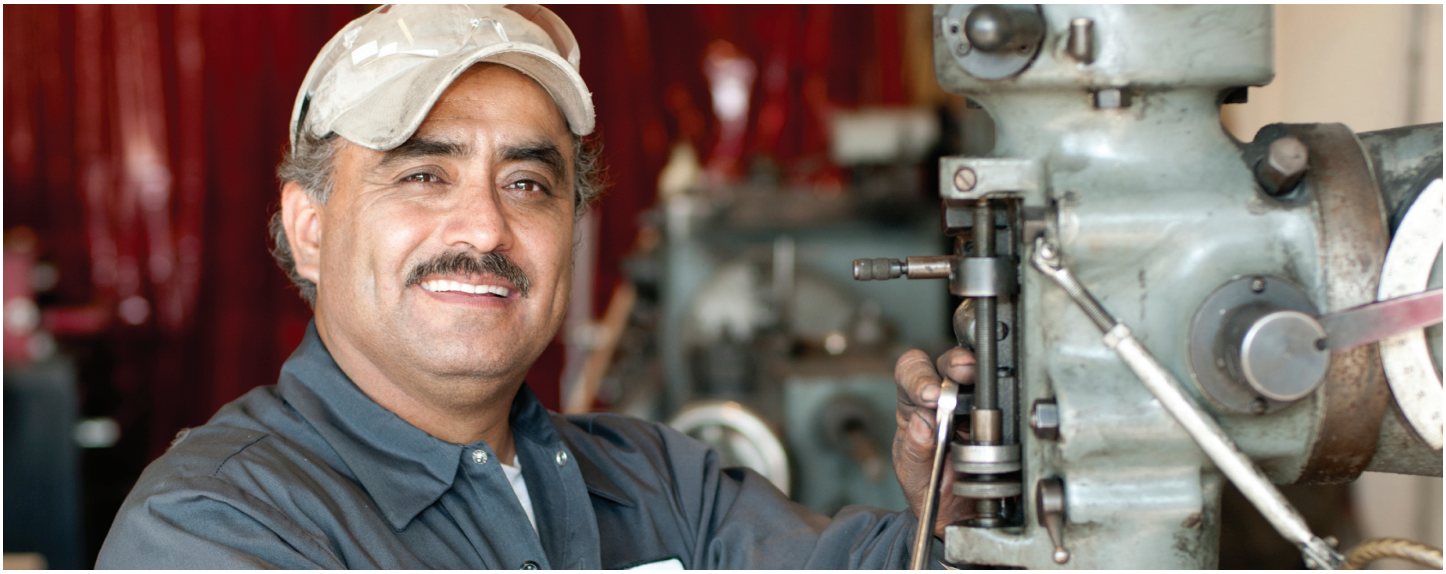
The companies interviewed indicated that they could eventually use emissions reporting and reductions as criteria for making sourcing decisions. These firms themselves anticipate being asked by customers to achieve certain GHG emissions reductions, and the large magnitude of their Scope 3 supply chain emissions will provide opportunities to make these reductions more easily achievable.

Emerging product standards help drive management of supply chain emissions

Another driver forcing suppliers to address their GHG emissions is the emergence of product sustainability standards that seek to reduce the life cycle impacts of specific products and services. These standards either require or encourage manufacturers to measure the GHG emissions of a product and also disclose whether the company has developed a corporate-wide GHG inventory and set a comprehensive GHG reduction goal. Therefore, if a company wants to sell a particular product that meets a product sustainability standard, the company may need to reduce emissions across its entire organization, beyond just reducing the emissions embedded in that particular product. For example, BIFMA e3 "level(TM)" product certification awards points for company-wide GHG emissions reductions. More industry sectors, such as the apparel, consumer electronics and building materials industries, are beginning to include corporate GHG inventories and corporate GHG reduction goals as either mandatory or optional criteria for meeting product sustainability standards.[7]

In response to growing interest in managing supply chain GHG emissions, new accounting standards are being developed. The World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) are developing a standard for Scope 3 GHG emissions accounting to include upstream

> "Steelcase has been reporting greenhouse gas emissions for our own facilities for several years. Today we look beyond our four walls to minimize our environmental impact by asking suppliers to report energy use, and thus emissions. This engagement of suppliers supports our product sustainability certifications and their Green Suppliers Network 'lean and green' assessments, and raises awareness of the need and ability to reduce emissions and operating costs throughout the supply chain—and certainly within Steelcase."
>
> —Mary Ellen Mika,
> Sustainability and Energy Manager, Steelcase



supply chain emissions, scheduled for release in early 2011.[8] With the advent of a standard for consistent accounting of Scope 3 emissions, companies will have more tools to include supply chain data in their GHG emissions inventories.

WRI and WBCSD are also developing an accounting standard for product GHG emissions to measure the emissions associated with a product throughout its life cycle. In addition, the ISO 14067 standard, which assesses the GHG emissions associated with a product's life cycle, is also under development, and the United Kingdom's PAS 2050 product standard is expected to be updated and harmonized where possible with other emerging standards.[9]

Companies interviewed stressed the need for harmonization among the various standards to promote transparency, uniformity and efficiencies in measuring GHG emissions throughout their supply chains.

Conclusion

Companies need time to build the foundations of trust, capacity and internal support to engage suppliers on managing their GHG emissions. Firms that have embarked on this journey are setting the foundation to make significant inroads in reducing global GHG emissions outside their organizational boundaries.

Companies that have not yet begun to reach out to their suppliers to understand and eventually reduce their carbon footprint can benefit from the lessons learned by leading firms that have paved the way. Appendix A provides resources to help companies along the road ahead.

"At IBM, we believe real reduction in GHG emissions can be most directly and effectively achieved when each enterprise recognizes its own accountability and takes responsibility to reduce its own environmental impact and emissions, and improve its efficiency. Acting on this belief, in February 2010, IBM established a set of additional environmental requirements for all of its first-tier suppliers. They include requirements to: develop, deploy and sustain a management system which addresses their corporate and environmental responsibilities; measure their key environmental impacts, including their GHG emissions; set voluntary goals to address their key impacts; and publicly disclose their performance. We further require our first-tier suppliers to cascade these same requirements to their suppliers, and so on. IBM's own experience has shown that reducing energy use and improving environmental performance benefit both the planet and the company's bottom line. Lastly, IBM supports transparency and disclosure, and has been publicly disclosing relevant information about its environmental performance for two decades via the publication of its Annual Environmental Report. We expect these new requirements will help our suppliers achieve benefits similar to those we have experienced at IBM."

—Jay Dietrich, Corporate Environmental Affairs Program Manager, Climate Stewardship, IBM

Appendix A: Resources

Many valuable resources are available to assist companies with managing their supply chain GHG emissions.

Governmental Resources

EPA's Climate Leaders (www.epa.gov/climateleaders) provides GHG accounting tools and technical guidance that can be used by all industry sectors. Small Business GHG Management Tools help small and medium-sized suppliers develop a GHG emissions inventory and inventory management plan.

ENERGY STAR (www.energystar.gov): Through its partnerships with more than 15,000 private and public sector organizations, ENERGY STAR delivers the technical information and tools that organizations and consumers need to choose energy-efficient solutions and best management practices.

- **Buildings & Plants** (www.energystar.gov/index.cfm?c=business.bus_index): ENERGY STAR qualifies top-performing commercial buildings and manufacturing plants and provides an innovative energy performance rating system that businesses have already used for more than 96,000 buildings across the country. ENERGY STAR's Portfolio Manager (www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager) allows companies to track and assess energy and water consumption across an entire portfolio of buildings. Buildings & Plants Partners measure, track and benchmark the energy performance of their facilities. They develop and implement a plan for improving energy performance, receiving recognition for exceptional energy and cost savings.
- **Small Businesses** (www.energystar.gov/smallbiz): ENERGY STAR offers tools and resources to help small businesses improve their financial performance by reducing energy waste and energy costs.
- **Products** (www.energystar.gov/index.cfm?fuseaction=find_a_product): ENERGY STAR qualifies products in more than 60 categories that use less energy, save money and help protect the environment.

EPA's Combined Heat and Power Partnership (CHP) (www.epa.gov/chp) promotes the use of combined heat and power to reduce the environmental impacts of power generation, increase a facility's operational efficiency and decrease energy costs. The Partnership works closely with energy users, the CHP industry, state and local governments and other clean energy stakeholders to facilitate the development of new projects and to promote their environmental and economic benefits.

EPA's Green Power Partnership (www.epa.gov/greenpower) supports the organizational procurement of green power by offering expert advice, technical support, tools and resources. Green power is electricity produced from a subset of renewable resources, such as solar, wind, geothermal, biomass and low-impact hydro. Partnering with EPA can help an organization lower

the transaction costs of buying green power, reduce its carbon footprint and communicate its leadership to key stakeholders.

The Green Suppliers Network (www.greensuppliers.gov/gsn/home.gsn) is an industry-government partnership that uses resources from the EPA and the Department of Commerce's Manufacturing Extension Partnership to provide hands-on facility assessments that identify opportunities at suppliers for energy efficiency, pollution prevention and cost savings. The *Lean and Clean Advantage* system targets and eliminates the root causes of waste, resulting in cost savings for suppliers and their customers.

EPA's Landfill Methane Outreach Program (LMOP) (www.epa.gov/lmop) promotes the use of landfill gas as a renewable, green energy source. LMOP forms partnerships with communities, landfill owners, utilities, power marketers, states, project developers, tribes and non-profit organizations to overcome barriers to project development by helping them assess project feasibility, find financing and market the benefits of project development to the community.

EPA's SmartWay (www.epa.gov/smartway/index.htm) program is a voluntary, public-private partnership that works to reduce GHG emissions, fuel consumption, criteria pollutants and operating costs associated with ground freight transportation.

The Department of Energy's Industrial Technologies Program (www1.eere.energy.gov/industry/) provides a variety of programs that identify opportunities for integrating energy-efficiency measures into industrial facilities.

The Department of Commerce's Sustainable Business Clearinghouse (www.trade.gov/competitiveness/sustainablemanufacturing/Resource_clearinghouse.asp) was created to provide U.S. companies with a central portal for information on programs and resources that can assist them in enhancing their competitiveness and profitability in environmentally sustainable ways.

Non-Governmental Resources

LMI's GAIA Sustainable Supply Chain Maturity Model (www.lmi.org/Logistics/Documents/GAIA_Sustainable_Supply_Chain_Maturity_Model.pdf) provides companies with a framework to assess the maturity of their own organizations and programs for engaging suppliers on managing their GHG emissions, based on industry research.

The Carbon Disclosure Project (www.cdproject.net/en-US/Pages/HomePage.aspx) and its **CDP Supply Chain Project** (www.cdproject.net/en-US/Programmes/Pages/CDP-Supply-Chain.aspx) initiative are programs for voluntary, public reporting of corporate GHG emissions inventories. The flagship Carbon Disclosure Project focuses on emissions disclosure by large corporations, whereas CDP Supply Chain serves its member companies by collecting emissions inventories from their suppliers.

> "At AEP, we strive to educate and sponsor our suppliers in activities which will enable them to grow in their sustainability. A more sustainable supplier is able to produce their product while minimizing effects on the planet's water, air, land and energy resources."
>
> —Mark Bueltmann, Manager of Sustainable Supplier Development, AEP

WRI/WBCSD Product and Supply Chain Protocol Standards (www.ghgprotocol.org/standards/product-and-supply-chain-standard): The forthcoming GHG Protocol standards will provide a standardized method to inventory the emissions associated with individual products across their full life cycles and of corporate value chains, taking into account impacts both upstream and downstream of the company's operations. By taking a comprehensive approach to GHG measurement and management, companies can focus attention on the greatest opportunities to reduce emissions within the full value chain. WRI and WBCSD developed the GHG Corporate Protocol Standard, which is widely used to account for corporate-wide GHG emissions.

For insight into how the electronics industry sector piloted an initial approach to engaging its suppliers on managing their GHG emissions, see the 2010 Business for Social Responsibility report, commissioned by the Electronic Industry Citizenship Coalition: **"A Practical Approach to Greening the Electronics Supply Chain: Results from the 2009 EICC Carbon Reporting System Pilot Initiative."** (www.eicc.info/documents/BSR_EICC_A_Practical_Approach_to_Greening_the_Electronics_Supply_Chain.pdf).

Appendix B: Companies Interviewed

Climate Leaders thanks the following Partners, who provided their time and an inside look at their companies' operations as we interviewed them for development of this document. Their willingness to share their lessons learned with other Partners and the public demonstrates the importance they place on engaging suppliers to manage GHG emissions.

Alcatel-Lucent

Richard Goode, *Director of Sustainability*

Larry Bernson, *EH&S Manager*

American Electric Power

Mark Bueltmann, *Manager of Sustainable Supplier Development*

Applied Materials

Bruce Klafter, *Managing Director of EH&S*

Martin Gothberg, *EH&S and Sustainability*

Dell

Sarah Gibson, *Global Environmental Programs Manager*

Jannie Bailey, *Senior Program Manger, Global Citizenship*

Steve Bagnaschi, *Senior Logistics Manager*

Michelle Mosmeyer, *Sustainability Communications Manager*

IBM

Jay Dietrich, *Corporate Environmental Affairs Program Manager, Climate Stewardship*

Intel

Ted Reichelt, *Principal Environmental Engineer*

Tim Higgs, *Senior Technologist*

Johnson & Johnson

Tom LaVake, *Manager of Worldwide EH&S*

Patrick McCrummen, *Senior Director of Corporate Citizenship*

Kimberly-Clark

David Spitzley, *Product Sustainability Manager*

Jerry Zabronsky, *Director Procurement Sustainability*

PepsiCo

Rob Meyers, *Group Manager, Environmental Sustainability and Resource Conservation*

Steelcase

Mary Ellen Mika, *Supply Chain Sustainability & Energy Manager*

Lynn Zimmerman, *Senior Environmental Engineer*

Dave Jonas, *Senior Environmental Engineer*

Angela Nahikian, *Director of Global Environmental Sustainability*

Karen Gray, *Senior Supply Chain Analyst*

Kari Allen, *Engineer*

Appendix C: Interview Questions

1. How are you engaging your suppliers to encourage them to measure and reduce their GHG emissions?

2. What are your primary motivations for engaging your suppliers to manage their GHG emissions?

3. How did your initiatives to engage your suppliers about GHG emissions start? Did you have to overcome any internal barriers to make this happen?

4. Have you found engaging suppliers on GHG emissions to be different from engaging them on other issues, such as product quality or workplace safety? What challenges have you experienced specifically with engaging suppliers on managing their emissions?

5. Do you have short-term and/or long-term goals for reducing GHG emissions in your supply chain? How do you plan to sustain supplier engagement to achieve continuous improvement in emissions management?

Endnotes

[1] Y. Anny Huang, Christopher L. Weber, and H. Scott Matthews, "Categorization of Scope 3 Emissions for Streamlined Enterprise Carbon Footprinting," *Environmental Science & Technology*, Vol. 43: No. 22 (2009): 8509. http://pubs.acs.org/doi/full/10.1021/es901643a.

[2] Carbon Disclosure Project, "CDP Supply Chain Report 2009," www.cdproject.net/CDPResults/65_329_201_CDP-Supply-Chain-Report_2009.pdf.

[3] Carbon Disclosure Project, "CDP Supply Chain Brochure 2011," www.cdproject.net/en-US/Programmes/Documents/CDP_SupplyChain_2011_US.pdf.

[4] Stephanie Rosenbloom, "Wal-Mart Unveils Plan to Make Supply Chain Greener," *New York Times*, February 25, 2010, www.nytimes.com/2010/02/26/business/energy-environment/26walmart.html.

[5] See "Communicating Your Corporate Climate Risk," a Climate Leaders webinar, April 20, 2010, http://epa.gov/climateleaders/events/apr202010webinar.html.

[6] PepsiCo annual sustainability report, 2009.

[7] For more information, see the apparel industry's Eco Index system, www.ecoindexbeta.org/, the Green Electronics Council's EPEAT system, www.epeat.net/default.aspx, and the Business and Institutional Furniture Manufacturers Association's sustainability standard, "Level," http://levelcertified.org/.

[8] See the Greenhouse Gas Protocol Initiative's website for updates on the Scope 3 standard, www.ghgprotocol.org/standards/product-and-supply-chain-standard.

[9] For updates on the standards, see the ISO website, www.iso.org/iso/catalogue_detail.htm?csnumber=43278, and the British Standards Institution website, www.bsigroup.com/Standards-and-Publications/How-we-can-help-you/Professional-Standards-Service/PAS-2050.