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Working Paper

ALIGNING PROFIT AND ENVIRONMENTAL SUSTAINABILITY: STORIES FROM INDUSTRY

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EXECUTIVE SUMMARY

Many large companies have established sustainability goals and targets, and it is becoming increasingly common for these goals to address significant environmental challenges like climate change. More efficient use of natural resources, like energy, reduces operating costs and therefore makes business sense. In response to consumer preferences, some companies are also taking steps to reduce the environmental impact of their products and services as well as their supply chains. However, despite some progress, strategies that are good for business and good for the environment are not getting to scale.

To begin to understand why this is, WRI interviewed sustainability managers from a cross-sector sample of eight multinational companies. This research showed that using a "sustainability lens" to evaluate business opportunities has helped companies grow revenue and gain competitive advantage. It also identified four main barriers preventing the improved scale-up of environmentally sound business practices. Based on the experiences of the companies WRI interviewed and WRI's own perspectives, four actions have been identified that could help overcome these barriers and better scale financially-sound corporate investment in environmental sustainability (see Table 1).

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Table 1 | **Barriers and recommendations for scaling-up corporate investment in environmental sustainability**

BARRIERS	HOW TO SOLVE THEM
Sustainability is not being integrated into long-term business strategy	Set goals that integrate environmental considerations into all stages of core business decision making
Improved sustainability is often not valued in internal capital allocation decisions	Implement internal mechanisms that ensure environmental sustainability factors are valued. Support public policies that put a stable price on externalities like greenhouse gas (GHG) emissions and other environmental risks
The goals of the sustainability team and the financial team are not well aligned	Vest the Chief Sustainability Officer (CSO) with greater authority over capital budget decisions and engage sustainability team early in project planning
Metrics are needed to account for external environmental costs	Establish and manage metrics that comprehensively indicate risks and opportunities across the corporate value chain

INTRODUCTION

History: Business action on climate change is evolving

Business action on climate change has evolved over the last 15 years. In 1998, WRI published *Safe Climate, Sound Business: An Action Agenda*, which laid out the steps that companies needed to take to be considered leaders on climate change (see Box 1). At the time, corporate climate and energy strategies were rare. Today, it is common practice among leading companies to develop an inventory of the greenhouse gas emissions from their operations using the *Greenhouse Gas Protocol Corporate GHG Reporting Standard*. More than 300 of the S&P 500 report their GHG inventory each year to the Carbon Disclosure Project (CDP). Twenty-three companies from the Fortune 100 and Global 100 have set renewable energy procurement targets representing billions of dollars in planned investments.[1] Companies have become increasingly active in supporting calls for policies that would reduce emissions, as evidenced by groups like the Corporate Leaders Network for Climate Action, which include as partners the US Climate Action Partnership (USCAP), the Business for Innovative Climate and Energy Policy (BICEP), the UK and European Corporate Leaders Group on Climate Change, the Irish Corporate Leaders on Climate Change, and the Brazilian Platform Business for the Climate (Empresas pelo Clima).

The Bad News: The response is not commensurate with the scale of the challenge

Despite progress, reports like *The Carbon Chasm*[2] highlight that business responses to climate change are not yet adequate to help avert catastrophic climate impacts. For example, in 2012 Arctic Sea ice cover reached a record low. In the United States, 2012 was also the hottest year on record,[3] and the cost of extreme weather events is expected to exceed $60 billion.[4] Meanwhile, 1,200 new coal-fired power plants have been proposed around the world.[5] In WRI's work with the private sector, we have observed that corporate responses to climate change and other environmental issues, like natural resource scarcity, often remain marginalized within companies and are not prioritized alongside other issues that are considered core to the company's strategy, like product manufacturing or marketing campaigns to attract new clients. In today's world of tight capital budgets, articulating a compelling business case for increasing investment in initiatives that would improve corporate environmental performance continues to be challenging.

The Good News: Business drivers exist to spur action

Companies are improving their responses to climate and energy challenges in light of a number of external pressures. For example, we learned in interviews and other conversations with companies that increased focus on environmental performance is partly driven by consumer preferences, especially from business-to-business customers. Also, since 2008, economic austerity has intensified the need to lower costs across the business value chain. This is reflected in company programs to reduce fuel use, limit real estate footprints, and help customers manage these costs. There are also larger "megatrends" at play that are shaping the markets to which companies must respond. The Boston Consulting Group and the World Economic Forum, among others, suggest that global forces like population growth and development are stretching the limits of the natural resources vital to so many industries and that more efficient use of these resources allows the smartest companies to gain a competitive edge, even in a weak economy.[6]

How can strategies that benefit business and the environment be scaled?

While powerful forces are creating the need for transformative change, or "next practices" (see Box 1), the question remains, why aren't "win-win" results for companies and the environment getting to scale? To help answer this question, WRI interviewed sustainability managers from a cross-sector sample of eight multinational companies (see Box 3) and collaborated with Forum for the Future, a UK-based nonprofit organization that works closely with business (see Box 4). We also explored other publicly available examples to complement our research. WRI sought to understand whether using a "sustainability lens" can help companies to grow their business and gain competitive advantage. These interviews unveiled four critical challenges companies need to address in order to create business value while reducing environmental impact.

- *Sustainability factors are not being integrated into long-term business strategy*. In many cases, sustainability factors (including climate and energy) are managed as a "siloed" function within a company and are not associated with value creation.

- *Improved sustainability performance is often not valued in internal capital allocation decisions*. Corporate investments have to compete for limited internal capital and are typically evaluated only on traditional financial criteria. Internal proponents of investments with sustainability benefits can struggle to accurately value the "extrafinancial" benefits of these projects, such as reduced exposure to energy price volatility or water risk, for example. This approach makes it harder for projects with sustainability benefits to compete for scarce internal capital.

- *The goals of the sustainability team and the financial team are not well aligned*. Financial and sustainability managers often make decisions and evaluate success in very different ways. As a result of divergent priorities, sustainability teams can find it difficult to make their case to the financial managers.

- *Metrics are needed to account for external environmental costs*. Company investments that do not factor in external costs – like environmental impacts to society, for example – may find they are making inaccurate assumptions about the cost to the company of a given investment or missing potential risks to the business.

Box 1 | Paving the way for "next practices"

WRI's *Safe Climate, Sound Business: An Action Agenda* paved the way for 15 years of work with companies on climate change, for example through the development of standards like the Greenhouse Gas Protocol and the convening of commercial buyers groups like the Green Power Market Development Group to increase demand for cost-competitive renewable energy. Beyond climate change, WRI has worked with companies to better understand the risks and opportunities associated with ecosystem services in companies' value chains through the Ecosystem Services Review and to measure and map indicators of water risk around the world through its Aqueduct project.

As more and more companies seek to implement "best practice," WRI is helping to identify "next practices." This term was coined by C. K. Prahalad to describe how companies that seize untapped market opportunities by solving big social and environmental challenges can gain a competitive advantage.

Since 2010, WRI has worked with companies including – Alcoa, AkzoNobel, Johnson & Johnson, Siemens, Staples, Target, United Technologies Corporation, and Wells Fargo – to develop strategies that can help move companies to a more sustainable trajectory. The results of this collaboration have included:

- A new sustainability Strengths, Weaknesses, Opportunities, and Threats (SWOT or "sSWOT") guide for sustainability managers to help them connect environmental challenges to the types of business imperatives that company decision makers care about (www.wri.org/publication/sswot-sustainability-swot-user-guide);

- Insights into business decision making that prevent scale-up of approaches to climate change and other environmental challenges, as described in this report;

- Three new collaboration opportunities with companies that will be pursued in 2013:

  - to understand and facilitate best-practice approaches to managing GHG emissions and other environmental impacts across a company's value chain;

  - to explore and disseminate lessons learned from successful models of aggregating industrial demand to support renewable energy markets and foster better utility-customer collaboration that promotes accelerated deployment of renewable energy;

  - to foster WRI and peer-to-peer exchanges on "hot" topics that sustainability managers are facing, such as internal capital allocation challenges.

Box 2 | **Scaling environmental sustainability – Issues to consider**

GOALS | Integrating environmental sustainability factors into long-term strategy

- **Alcoa –** Setting and updating GHG reduction goals, linking compensation, new sustainable product innovation
- **Greif –** Using a life cycle assessment (LCA) to set business goals to expand its product offerings and reduce risks
- **Mars –** Setting long-term goals consistent with climate science
- **Siemens –** Targets for growing portfolio of environmental products

CAPITAL | Allocating internal capital for long-term financial and environmental performance

- **Citi –** Developing new finance products for energy efficiency and testing them across its own facilities
- **Diversey –** Developing portfolios of GHG-reduction projects to achieve an overall financial return that is attractive
- **DuPont –** Ensures R&D is aligned with sustainability criteria
- **Johnson & Johnson –** Providing $40 million in capital relief to GHG-reduction projects
- **UPS –** Adjusting hurdle rates to test new innovative vehicle technology and optimize portfolio

CFO | Aligning environmental sustainability and financial goals

- **AkzoNobel –** CSO and company controller sign-off on capital budget request over $5 million to ensure sustainability is evaluated and included in decision making
- **Alcoa –** CSO is one of the decision makers for large capital budget requests

METRICS | Developing metrics to account for external environmental costs

- **Natura –** Developing metrics to factor social and environmental impact of suppliers and determine true cost

Scaling environmental sustainability – issues to consider

Box 2 summarizes some of the key issues preventing environmental sustainability from being scaled. The next section of this report builds on these themes and includes insights from several company experiences based on both interviews and publicly available research. In addition, seven case studies in the Appendix further elaborate upon the themes. These case studies provide a small window into why and how companies are able to draw business value from their environmental sustainability programs. (See Box 5 for a definition of the term "sustainability.")

SUMMARY OF INTERVIEW INSIGHTS

Integrating environmental sustainability factors into long-term strategy

Several companies interviewed for this report explained that integrating sustainability factors into their long-term strategy is helping them gain access to markets, grow their revenue streams, and focus employee attention on expanding the business while reducing the company's environmental impact.

- *Providing access to markets through a demonstrated commitment to sustainability performance:* Some commercial and government customers require that their suppliers provide evidence of superior environmental performance so that they can factor this into their selection process for businesses they work with. Companies that we interviewed found that suppliers that can demonstrate improved sustainability performance can benefit from increased access to markets. **Natura** for example, selects suppliers based on their economic, social, and environmental performance. **Alcoa** has a set of long-term goals covering a range of environmental performance metrics related to CO_2 emissions, energy, waste, and water, among other impacts.[7] According to Alcoa's Chief Sustainability Officer (CSO), the company's track record in pursuing these goals has helped Alcoa gain access to attractive growth markets like Brazil.

- *Helping customers reduce emissions can drive environmental product innovation and grow revenue streams:* Several companies explained that investing in products seen as environmentally beneficial (for example, products that are energy efficient) has helped them to grow revenues by reaching a new

customer base. **Siemens** has an "Environmental Portfolio" of products that includes renewable energy technologies like high efficiency wind turbines and energy efficiency products and solutions such as drive systems, trains, and combined cycle power plants. The portfolio accounted for 42 percent of Siemens revenues in 2012 and is growing faster than the company's other business. **AkzoNobel** describes products that help the company or its customers reduce their environmental "footprint" while also creating value for the company as "Eco-premium solutions." This includes products such as exterior paints with a high solar reflectance index and ones that can neutralize nitrogen oxides.[8] The company has seen its overall share of revenue from "Eco-premium solutions" grow from 18 percent in 2009 to 22 percent in 2011. It seeks to grow this revenue source to 30 percent by 2015.[9] Following a life cycle assessment (LCA) to determine the full set of environmental risks for its current product offering, **Greif** made a significant decision to expand its business model. Instead of exclusively manufacturing new shipping containers, it has added a service whereby it remanufactures and recycles shipping containers. The LCA helped Greif identify business model changes and new service offerings that would help the company grow while also helping customers reduce their environmental impact. **Alcoa** has invested in research and development (R&D) for lighter weight materials for the automotive and aerospace sectors, which has helped these sectors to increase fuel efficiency. Alcoa has also invested in researching innovative products to help customers in the building industry improve building energy efficiency and reduce energy costs for customers. As a result, the company states it is capturing market share in each of these sectors as there is demand for these types of solutions.

- *Creating a corporate culture among employees that values environmental sustainability performance through long-term comprehensive goals:* **Mars Inc.**, a privately held company, has established climate targets for the company through its "Sustainable in a Generation" program, committing to a 100 percent reduction in fossil-fuel use and greenhouse gas emissions from its operations by 2040.[10] Mars plans to extend its commitments to its full value chain as well once data becomes available. The company estimates that approximately 85 percent of its emissions are from the goods and services it purchases, and other

Box 3 | Interview methodology

The sample of companies interviewed for this report was drawn from WRI's network of corporate contacts. The sample includes companies based in Brazil, Germany, the Netherlands, and the United States. The interviews were conducted by telephone over the summer of 2012. Company representatives were asked to discuss key challenges they perceive in pursuing their sustainability goals as well as strategies they have developed to overcome those challenges. Interviewees included:

Alcoa | World's leading producer of primary and fabricated aluminum and world's largest miner of bauxite and refiner of alumina
Interviewee: Kevin Anton, Chief Sustainability Officer

AkzoNobel | World's largest paints and coatings company and major producer of specialty chemicals
Interviewee: Diederick de Jong, Controller Sustainability & HSE

Citi | Multinational financial services company
Interviewee: Bruce Schlein, Director, Corporate Sustainability

Greif | A world leader in industrial packaging products and services
Interviewees: Scott Griffin, Chief Sustainability Officer; and Dr. Holger Buxel, sustainability consultant

Johnson & Johnson | Multinational consumer health, medical devices, and pharmaceutical company
Interviewee: Jed Richardson, Global Energy Director

Mars | Multinational food, confectionary, and pet food company
Interviewee: Kevin Rabinovich, Global Sustainability Director

Natura | Multinational cosmetics, personal care, and fragrance company
Interviewees: Rodrigo Brea, Diretor de Suprimentos; and Pedro Figaro Gattás, Analista Financeiro de Suprimentos

Siemens | Global integrated technology company
Interviewees: Ralf Pfitzner, Vice President, Corporate Sustainability; and Michael Lakota, Manager, Environmental Portfolio

indirect sources.[11] For Mars, the key to accomplishing its combined environmental and business targets has been to build a culture of sustainability performance within the company. To achieve this, Mars spent six months developing its climate change targets by examining climate science reports and speaking with climate experts to ensure that it fully understood the implications of climate change for the future of the company. Mars spent a further year and a half securing buy-in from its employees and working with each business unit to develop a mutually agreeable strategy for achieving the climate change targets. This consultation process has helped to create an employee workforce educated about the implications of climate change and how environmental criteria can be factored into decision making.[12]

Allocating internal capital for long-term financial and environmental performance

While challenges exist in securing internal capital for environmental projects, companies that we interviewed have developed methods to ensure that both financial and environmental performance are factored into these investment decisions.

- *Managing the "capex-opex" divide:* Companies typically have one budget for capital expenses ("capex") and another for operating expenses ("opex"). These budgets are often managed separately, thus limiting opportunities to justify increasing one budget to benefit the other. **Johnson & Johnson** has established a special fund that increases its capital budget to allow for GHG reduction projects like chiller optimization and solar photovoltaic installations that also reduce operating costs. The operating budget is then reduced to reflect expected savings. This mechanism helps the company invest in projects that have higher initial costs but lower operating costs, resulting in a net benefit to the company. **Diversey** (now called **Sealed Air**) has been bundling its GHG reductions projects from across the company into one portfolio to achieve its GHG reduction targets. This method of aggregating a diverse group of projects together helps deliver an acceptable return on investment (ROI) and diversify its risk by spreading it across multiple projects. The portfolio can contain projects with a high ROI and moderate GHG reductions along with those that have a lower ROI but have high GHG reductions. Together the projects provide an acceptable ROI that the Chief Financial Officer (CFO) can approve while achieving important GHG reduction benefits that the sustainability team is happy with. For example, **Diversey** has been able to reinvest operational savings from energy efficiency and "avoidance" projects into capital-intensive projects like wind turbines and a combined heat and power fuel cell at its Racine, Wisconsin, headquarters.[13] This bridging of the "capex-opex" divide benefits the company over the long run by removing some of the internal barriers to improving long-term operational efficiency and reducing the company's exposure to volatile energy costs by reducing fuel use.

- *Prioritizing environmental performance in capital allocation:* Good ideas on environmental strategies often hit a roadblock in the capital budgeting phase as they compete for scarce capital with other company priorities. Some companies have found a way to ensure that the environment remains a priority during this process. **UPS** relaxes the "hurdle rate" – or minimum rate of return required by the company – on certain vehicles it tests as part of its "rolling laboratory" for its fleet. These vehicles have the potential to reduce fuel use and costs over time, which justifies the lower hurdle rate. This hurdle rate adjustment for new fleet technologies allows the company to build a fleet that will be responsive over the long term to environmental challenges that may arise from fossil fuel volatility.

Box 4 | Research partnership with Forum for the Future's Sustainable Business Group

Forum for the Future has convened a group of companies that are leading the way in sustainable business practice, The Sustainable Business Models Group. The Sustainable Business Models Group comes together to explore how members can create the step-change needed for a more sustainable future both together and within their own businesses. A crucial part of this work is to understand the business case behind sustainability initiatives. WRI and Forum for the Future have been sharing insights and learnings from our complementary conversations with businesses. Some of the insights in this report are drawn from Forum for the Future's research and our conversations with them. (www.forumforthefuture.org).

- *Allocating R&D investment to prioritize environmental performance:* Some companies are ensuring that sustainability factors are considered in the early stages of product and facility design. R&D expenditure at **Dupont**, for example, is informed by megatrends that it has identified as shaping its future markets, like food security and declining dependence on fossil fuels. The company set a goal in 2006 to double investment by 2015 in R&D programs with direct, quantifiable environmental benefits for their consumers and customers.[14] To qualify for this goal, R&D programs must meet the company's return on investment (ROI) hurdle rate and also must demonstrate a clear benefit in one or more of 10 sustainability criteria, ensuring that all R&D spending that is counted toward the goal drives toward innovation and product developments that provide an improvement in at least some sustainability dimensions. Meanwhile, **Citi** is using its own facilities to test promising energy efficiency finance solutions. This allows the bank to simultaneously reduce its energy consumption while also testing and refining energy efficiency finance products before they are taken to market.

Aligning environmental sustainability and financial goals

Sustainability teams and financial teams have different priorities, which can make finding common ground a challenge. For example, while sustainability teams are focused on the company's environmental goals, the Chief Financial Officer (CFO) is concerned primarily with the company's financial performance. Therefore, sustainability teams need to be able to effectively communicate how a sustainability project aligns with the company's long-term financial goals. WRI's sSWOT Guide[15] is one tool that can help sustainability teams build the case for sustainability investments that will resonate with company decision makers. Some companies interviewed for this report have found other ways to bridge this divide, measuring the favorable risk-return ratio and predictability of cash flows from projects like energy efficiency investments, which helps the CFO and sustainability teams to find common interest.

- *Aligning financial and environmental criteria in decision making:* A 2012 survey by Verdantix, on behalf of Deloitte,[16] showed that authority for sustainability decisions is increasingly being given to the Chief Financial Officer or Chief Operating Officer, allowing important integration of sustainability with financial and operational functions. **AkzoNobel** balances decision making between the CFO and CSO. Capital budget requests over $5 million at the company must be routed through both the company controller and the CSO. The CSO reviews requests against a set of environmental criteria developed by the company and has the power to reject budget requests that do not meet these criteria or do not have an acceptable explanation for why the company's sustainability factors were not considered or implemented. The CSO can ask for additional justification before consent is given for the budget request. This process helps prevent budget requests that have not integrated sustainability considerations and ensures that the company's sustainability specialists are engaged early on in project proposals. This also helps to align the company's business strategy and sustainability goals. A similar process occurs at **Alcoa**, where the CSO is one of several executives who participate in the decision-making process for capital requests. This approach helps ensure that sustainability factors are considered at all stages of project development.

Box 5 | **Defining "sustainability"**

In its 1987 report *Our Common Future*, the Brundtland Commission defined sustainable development as that which "seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future." Sustainability is a broad concept that can sometimes include social, environmental, or financial security. It is defined in various ways by different companies. In this report, we have focused on companies' environmental strategies, with a particular emphasis on climate and energy strategies.

Developing metrics to account for external environmental costs

Companies that become more sophisticated at factoring social and environmental costs into their value chain strategy may be able to reduce supply chain disruption risk. Supply chain disruptions can result in lost sales if products are not delivered to markets because of, for example, an extreme weather event. More sophisticated approaches can ensure that the social and environmental impacts of products across their life cycle are reduced, for example in response to demands from customers. Cost, quality, and compliance with various regulations are common criteria

for sourcing materials. However, some companies are also under pressure from customers and other external stakeholders to ensure that materials factor in various environmental criteria such as reduced GHG emissions or efficient use of water. At least one company we interviewed has developed an approach to ensure that a wide spectrum of estimated social and environmental costs are factored into its supplier selection process.

- *Accounting for environmental costs in supply chains:* **Natura** has instituted a program called "Strategic Sourcing Triple Bottom Line", where it works with its suppliers to put a price on externalities like carbon dioxide emissions, water use, and waste generation. This "shadow price" for each environmental impact helps **Natura** to select suppliers based on both pricing and environmental impact. This approach is improving the economic, social, and environmental performance of its supply chain while also saving the company money. The company estimates that the net benefit of this program will be BRL$1.9 million (more than US$960,000) over the next four years.

RECOMMENDATIONS

Our analysis indicates that all the companies interviewed are capturing business value from their environmental initiatives and are becoming more sophisticated at deploying mechanisms to ensure that these initiatives are prioritized in capital budget allocations. While there is reason to be optimistic about the integration of environmental considerations into business decision making, several challenges remain. These recommendations aim to help address these challenges.

- *Set goals that integrate environmental considerations into core business decision making*. This can be achieved by reflecting environmental benefits in required payback periods or hurdle rates for projects that can give the company important experience and learning with low-carbon technologies and process changes. While many companies are starting to embrace this practice, many more maintain rigid approaches to ensuring every investment can compete on the basis of short-term financial returns alone. This may cause some companies to miss good risk reduction opportunities that are in the long-term strategic interest of the company.

- *Implement internal mechanisms that ensure environmental sustainability is valued and support public policies that put a stable price on externalities like GHG emissions and other environmental risks.* A lack of clear pricing on environmental externalities is causing underinvestment in key sustainability areas. Companies can implement a variety of internal mechanisms to ensure that capital budgeting decisions reflect environmental sustainability factors. Public policies that price environmental risk can also help companies justify valuing these risks on their books, allowing them to make investment decisions that will drive better environmental performance over the long term. Well-designed policies can help create the conditions for private sector investment that benefits both the environment and companies' financial performance.

- *Vest the CSO with greater authority over capital budget decisions and engage the sustainability team early in project planning*. Giving the CSO some authority over capital budget decisions can help ensure that the aspirations to improve environmental performance, that are often enshrined in the company's sustainability goals, are integrated into how the company invests its money. Engaging the company's sustainability team, especially early on in project planning, can ensure that sustainability factors are integrated into all stages of project planning, helping to reduce long-term environmental and financial risk.

- *Establish and manage metrics that comprehensively indicate risks and opportunities across the corporate value chain*. Companies that do not measure the environmental impact of their actions across the value chain may be missing important risks that should be mitigated as well as opportunities to improve their environmental performance and save money. By establishing metrics for environmental performance across the value chain, companies can better prioritize which actions will provide the most benefit to the company and its value chain partners, such as suppliers and customers.

APPENDIX: CASE STUDIES

CONTENTS

** The Alcoa case study also applies to this theme.*

Disclaimer: These case studies are based on WRI's interviews with company representatives (see Box 3) plus our own independent research. Several of these companies have provided funding to WRI in the past five years. These case studies are intended to show examples of environmental innovation from different sectors. WRI has not reviewed company practices outside the scope of the environment for this paper. Unless otherwise indicated in the footnotes, all information provided for these case studies came from our interviews with the company executives.

1. INTEGRATING ENVIRONMENTAL SUSTAINABILITY FACTORS INTO LONG-TERM STRATEGY

Alcoa

Headquartered in the United States, Alcoa is one of the world's largest manufacturers of primary aluminum, a common raw material used in many products. Alcoa has 61,000 staff in 48 countries and generated $23.7 billion in revenue in 2012. Alcoa describes itself as a long-time champion of environmental excellence in its operations and products. For example, the company's efforts to respond to climate change date back nearly 20 years. Alcoa has set long-term environmental performance goals out to 2030 in several areas. For example, they include reductions in carbon dioxide (CO_2) emissions, landfill waste, and freshwater use.[17]

PROBLEM TO BE SOLVED

To achieve its environmental goals, Alcoa needed to find a variety of mechanisms that would help it prioritize environmental performance in its decision making. As an energy-intensive company that manufactures materials and products used across industry sectors, Alcoa needed strategies that would improve the environmental performance of both its operations and its products. The company had two key priorities: it wanted to ensure that its workforce was motivated to pursue promising environmental strategies, and it wanted to ensure that the company was making investments that would improve the efficiency of its operations and meet the demands of its customers for "eco-efficient" products.

STRATEGY

Alcoa has articulated a number of strategies to ensure that environmental performance influences its business decisions. The company's Chief Sustainability Officer calculated that process updates and equipment changes intended to improve environmental performance saved the company $100 million in 2011.

Up to 20 percent of employee compensation, from the production manager to the CEO, is linked to achieving the company's sustainability goals. The company also includes its Chief Sustainability Officer among the decision makers who must approve large capital budget requests to ensure sustainability criteria are factored into new projects. In capital budgeting, priority is given to projects that will help the company learn how the proposed technology could be applied across multiple facilities. This flexibility gives the company the ability to "learn by doing" in terms of continuously improving operational performance and achieving energy savings. It also enables new technologies or process improvements to be tested that have the potential to provide environmental benefits across the company.

Alcoa also recognizes the need to help its customers achieve their environmental goals. To this end, the company has invested heavily in research and development (R&D) to meet the growing demand for lighter weight solutions. Using lighter weight materials can help reduce fuel use and also save money. Alcoa currently has the largest light metals R&D facility in the world, located just outside of Pittsburgh, Pennsylvania, and recently invested $300 million in its facility in Davenport, Iowa, to provide lightweight aluminum for the 2014 vehicle model year.

RESULTS

Since 1990, Alcoa has reduced its GHG emissions by 60 percent while also doubling its production output. The business benefits of Alcoa's strategies are being realized in the company's competitive positioning and improved market share.

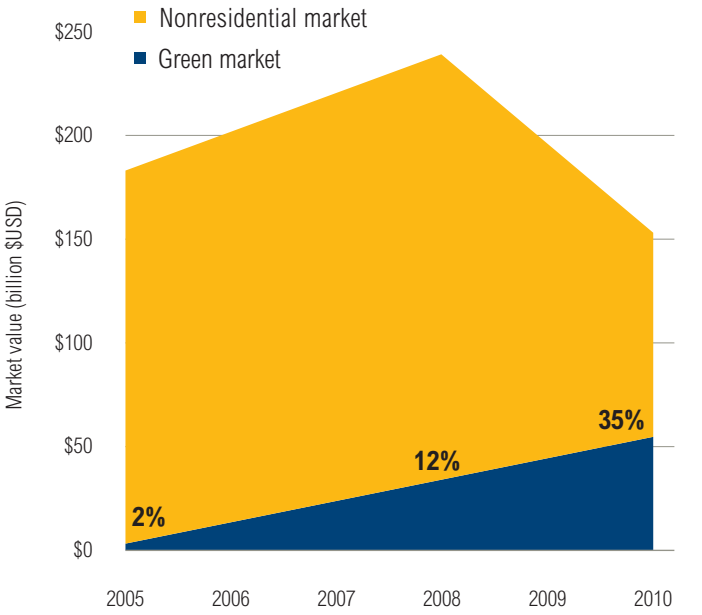
- Automotive industry. Corporate Average Fuel Economy (CAFE) standards in the United States are increasing and are predicted to reach 50 miles per gallon (mpg) in the next 10 years. One way to achieve these standards is to manufacture vehicles with lighter materials. Research has shown that aluminum outperforms magnesium and steel in life cycle assessments of both energy use and greenhouse gas emissions.[18] According to the Aluminum Association, approximately 4.22 billion pounds of aluminum were used in the transportation sector in 2009, mostly for cars and light trucks.[19] A survey commissioned by the same group found that the aluminum content of cars is expected to increase by 60 percent by 2025.[20] Through its R&D efforts and close collaboration with equipment manufacturers to include lightweight aluminum in the product design phase, Alcoa is well-positioned to help the auto industry comply with the new stricter CAFE standards.

- Aerospace industry. The carbon fiber industry created pressure for a light weight material for new airplanes. In this industry, suppliers must continually innovate in order to stay competitive. Alcoa's R&D has resulted in new technologies in smelting and refining and a new generation of aluminum lithium alloys for airplanes that are 10 percent lighter, 15 percent more fuel efficient, and can compete with carbon fiber. These lightweight materials can help the airline industry reduce emissions and fuel consumption.

- Buildings industry. The green buildings sector has grown steadily, and Alcoa is innovating new products in response to demand from this environmentally conscious sector. For example, Alcoa's Eco-clean self-cleaning coating for building exteriors breaks down nitrogen oxide (NO_x), a greenhouse gas. The company has also developed various models of operable windows, light shades, and sun shades that help improve building energy efficiency and reduce energy costs for customers. Half of Alcoa's green building products are less than five years old, illustrating the role innovation plays in the company's product portfolio. This has allowed Alcoa's buildings unit to improve its financial performance and grow market share, even while many other businesses in the sector have had to close.

- Competitive positioning. Alcoa's Chief Sustainability Officer has found that the company's environmental performance track record has enabled it to position itself positively relative to its competitors and gain access to attractive growth projects in new markets like Brazil.

Figure 1 | US green building market share of new nonresidential building construction



Source: "Green Outlook 2011: Green Trends Driving Growth through 2015." McGraw-Hill. 2010.

Greif, Inc.

Greif is a US-based industrial packaging products and services company with operations in over 50 countries. The company has 13,500 employees and had revenue of $4.27 billion in 2012. Greif operates in four business segments: Rigid Industrial Packaging & Services, Flexible Products & Services, Paper Packaging, and Land Management. The company's environmental goals include initiatives to reduce GHG emissions, energy consumption, and waste. In an effort to better position itself for future environmental challenges, Greif has expanded the focus of its business from manufacturing new industrial containers to include recycling and reconditioning the containers.

PROBLEM TO BE SOLVED

Between 2007 and 2008, some of Greif's key European customers, such as chemical giant AkzoNobel, were increasingly demanding more environmentally responsible products. Many of these customers have their own corporate sustainability programs and began asking for environmental information, such as greenhouse gas emissions data, on Greif's industrial shipping containers. It became apparent to Greif that its customers were beginning to shift their priorities from buying industrial shipping containers to seeking a "shipping solution" that could also help fulfill their environmental goals, such as reducing value chain emissions. Up to this point, Greif had focused purely on manufacturing new industrial shipping containers and needed to determine how to diversify its offering to meet the sustainability demands of its customers.

STRATEGY

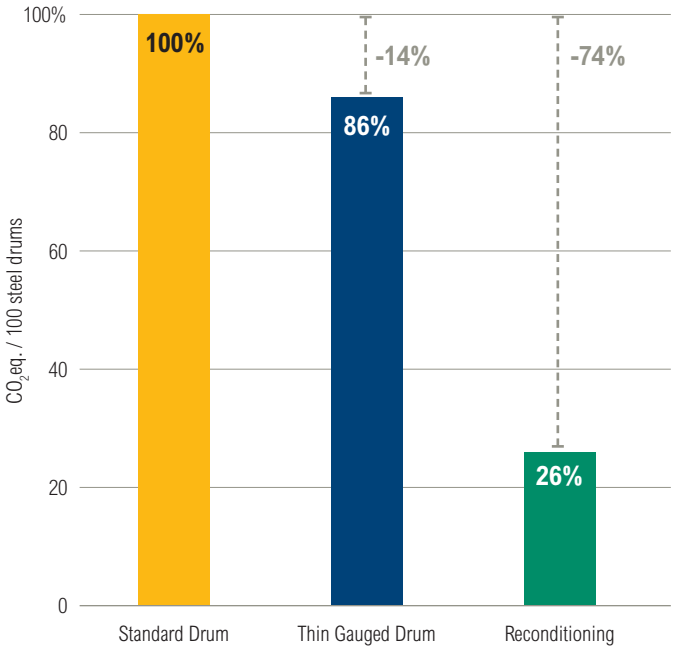
The company conducted a life cycle assessment on its products to identify areas for improvement. With support from the Institute for Energy and Environmental Research (IFEU) in Heidelberg, Germany, Greif started cradle-to-grave life cycle assessments on its products following ISO 14040/14044, which focuses on GHG emissions, and included other environmental indicators such as eutrophication, acidification, summer smog, freshwater usage, human toxicity, and depletion of nonrenewable energy sources for a more comprehensive view of its impact.

The life cycle assessment results contained valuable information that allowed the company to better understand the environmental impact of its products, and the options it had to reduce those impacts. Previously, customers had suggested that ensuring industrial shipping containers were full would be key to improving their environmental profiles because this would reduce emissions from transportation.

Greif itself had assumed that "thin-gauging"—making industrial shipping containers lighter and thereby reducing the use of materials—would be the best option to reduce the containers' environmental impact. The life cycle assessment data showed, however, that while transportation emissions are a factor in the environmental profile of industrial shipping containers, a bigger impact comes from the raw materials used to make the containers. Thus, engineering the containers to lengthen their useful life, reducing raw material inputs, proved to be a substantially more effective option for improving their environmental performance. Based on this, Greif determined that its core business should include the recycling and reconditioning of these containers.

In order to accomplish this, Greif made a series of acquisitions to broaden its expertise. In 2010, Greif created Container Life Cycle Management, a joint venture in North America between Greif and two environmentally responsible industry leaders: Drumco, a reconditioning, recycling, and remanufacturing company, and Indydrum, a reconditioning company. In 2011, Greif acquired pack2pack, a European steel and plastic drum reconditioning company. Together, these companies came together to form EarthMinded® Life Cycle Services, which is now among the largest packaging reconditioners in the world, covering the United States, Canada, and Europe.

Figure 2 | **Life cycle CO_2 comparison of standard steel drums, thin gauged drums, and drum reconditioning**



Source: Greif, Inc.

RESULTS

As a result of the life cycle assessments that helped Greif identify environmental risks in its value chain, the company has been able to develop stronger relationships with its customers. Additionally, many of its customers contract with the company across packaging types, and Greif is now able to offer a fuller suite of industrial packaging to help customers reduce their environmental footprint and meet other sustainability goals. For example, since Greif is now in the business of reconditioning industrial shipping containers; customers can return them to the company and Greif will take the added step of removing any residual contents before reconditioning them, which also helps its customers reduce their environmental risk exposure. The company reports that reconditioning growth rates have been slightly above market rates for new containers.

Siemens

Siemens is a 165-year-old integrated technology company present in about 190 countries, with business activities in the Energy, Healthcare, Industry, and Infrastructure and Cities sectors. Siemens has 370,000 employees and 188 major R&D facilities, which generated around €78 billion (US$104 billion) in revenues in 2012. Siemens' sustainability program has three categories: Business Opportunities, Walk the Talk, and Stakeholder Engagement. Growth of its Environmental Portfolio is a priority in the Business Opportunities category and contributes to the company's "One Siemens" framework of creating value.

PROBLEM TO BE SOLVED

Siemens offers products, solutions and services for energy efficiency and resource productivity to customers increasingly subject to more stringent regulatory conditions, compliance rules, and a need to cut their energy costs. The demand for ever better performance in terms of energy efficiency and greenhouse gas emissions mitigation is increasing. In response, Siemens wanted to grow its offering of products, solutions and services that have a positive environmental profile, while also growing its business and creating opportunities in emerging markets. It therefore developed its Environmental Portfolio.

STRATEGY

Siemens' intent for its Environmental Portfolio is to provide products and solutions that offer benefits in three categories:

- Customers: improve their own business success due to lower energy and resource costs, higher productivity, and profitable growth;
- Society: protect the environment and improve standards of living through use of Siemens' technologies;
- Siemens: expand in attractive markets and grow in profitability.[21]

Formally launched in 2008, the Siemens Environmental Portfolio largely consists of capital goods with long life cycles. Examples include wind turbines, highly efficient combined cycle power plants, components for biomass power plants, building technologies, efficient trains, and energy saving motors. The company uses a publically available methodology to account for the greenhouse gases (GHG) and energy savings of its Environmental Portfolio and has these results audited by a third party according to a limited assurance engagement.[22] Environmental regulations, high energy prices, and a price on carbon (in Europe) have helped to drive demand for the types of products in Siemens Environmental Portfolio. As a result, the company has focused innovation and development activities on green technologies. Products and solutions in the Environmental Portfolio must meet specific criteria. For example, the energy efficiency criterion requires products in this category to offer energy savings of at least 20 percent or at least 100,000 metric tons of CO_2-eq by the number of units sold in the use phase compared to a baseline.

Figure 3 | **Criteria for the Environmental Portfolio**

ENERGY EFFICIENT PRODUCTS AND SOLUTIONS	RENEWABLE ENERGY	ENVIRONMENTAL TECHNOLOGIES
Products and solutions with outstanding energy efficiency qualify Examples: ■ Combined cycle power plants ■ High-voltage direct-current transmission ■ Intelligent building automation	All renewable technologies qualify Examples: ■ Offshore wind farms ■ Steam turbines for solar energy	All environmental technologies qualify Examples: ■ Technologies for water treatment ■ Air pollution control systems ■ E-car charging stations

Source: Derived from "The Siemens Environmental Portfolio – Examples of Sustainable Technologies," 2012, p. 4; siemens.com/environmentalportfolio and interviews with company representatives.

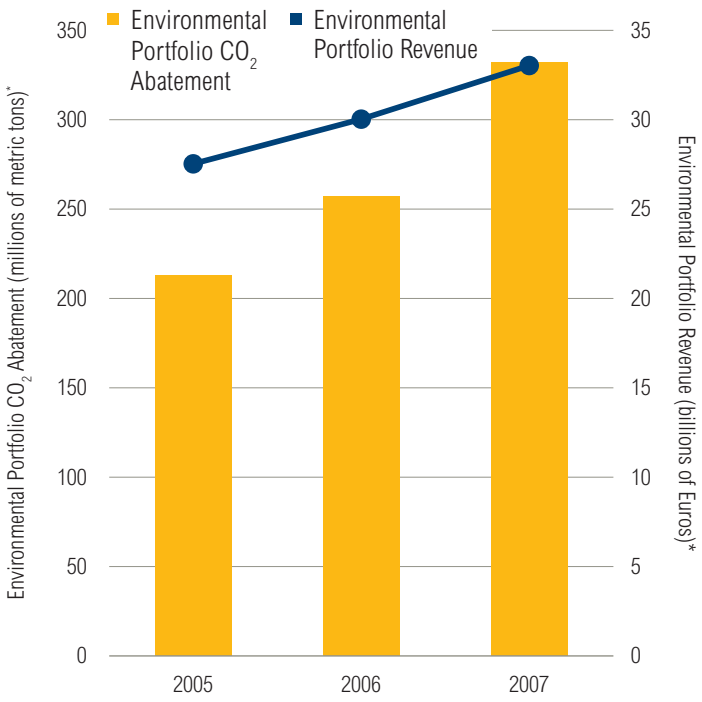
The Environmental Portfolio is anchored in the company's strategic planning process. Business units and departments are involved in an annual process of product and services selection, based on the environmental criteria as well as growth potential of the product or service. Each department in the company looks for products, systems, solutions, and services – new and existing – to be included. The Environmental Portfolio is reassessed once a year to include new or existing products that meet the qualifying criteria and to exclude ones that no longer fulfill the criteria.

Siemens monitors the progress of the Environmental Portfolio with two main key performance indicators (KPI): Environmental Portfolio revenue and customers' CO_2 emission reductions. Whereas the first KPI tracks growth, the CO_2-reduction KPI highlights the overall impact and the importance of energy efficiency and reduced emissions for customers.

RESULTS

In fiscal year 2012, Siemens reports the Environmental Portfolio generated revenue of €33.2 billion (US$44.6 billion), and including solutions installed since 2002 that are still in use, has helped Siemens' customers reduce 332 million tons of CO_2 emissions,[23] equivalent to about 40 percent of Germany's annual CO_2 emissions, according to the latest published numbers.[24] With returns that are comparable to its traditional portfolio of products, the Environmental Portfolio now accounts for more than 40 percent[25] of the company's revenue. Revenue of the Environmental Portfolio has grown around 10 percent per year since 2008 and has outpaced Siemens' overall revenue growth. Although Siemens recently announced it would sell its solar and parts of its water business, the company continues to focus strategically on green technologies, especially in the successful and growing areas of energy efficiency and wind power, which account for the large majority of the company's green revenue.

Figure 4 | **Annual Capital Allocation for Energy Reduction Projects**



* Continuing operations only (without OSRAM and solar business).

Source: Information provided by Siemens, December 2012.

2. ALLOCATING INTERNAL CAPITAL FOR LONG-TERM FINANCIAL AND ENVIRONMENTAL PERFORMANCE

Citi

Citi is a US-based multinational financial services corporation that serves consumers, companies, governments, and institutions in 160 countries. The company's revenue in 2011 was $64.6 billion. Citi's environmental sustainability is focused on reducing its operational footprint, managing environmental and social risks, and financing environmental business opportunities.[26] Its operational commitments include targets to reduce GHG emissions, waste-to-landfill, and water usage.

PROBLEM TO BE SOLVED

The buildings sector accounts for approximately 15 percent of global GHG emissions,[27] which largely result from energy consumption.[28] Improving energy efficiency in both residential and commercial buildings would help reduce this source of emissions, but financing for energy efficiency projects can be challenging. For example, in the United States, federal mortgage associations, Freddie Mac, and Fannie Mae withdrew support for Property Assessed Clean Energy (PACE) in 2010[29] because it subordinates the mortgage holder. The PACE program allowed local governments to provide a loan to finance energy efficiency or on-site renewable energy projects that would be repaid through local taxes. The barriers to PACE drove the need for new and alternative forms of credit enhancement for single-family residential energy efficiency projects, including utility on-bill repayment (OBR). In the commercial market, tight capital budgets can prevent significant investment in energy efficiency projects that are not considered to be critical investments, and there is often a bias against third-party financing. This is partly due to the higher cost of third-party capital and partly due to a lack of familiarity with alternatives that can deal with accounting concerns related to expected Federal Accounting Standards Board (FASB) rule changes that will bring capital leases back on balance sheet. Citi sees energy efficiency finance as an important growth opportunity and is exploring opportunities in the municipalities, universities, schools, and hospitals (MUSH); residential; commercial; and corporate sectors. According to McKinsey & Company there is an untapped potential of over $1 trillion in energy savings in the US economy.[30]

STRATEGY

Citi is piloting a number of new energy efficiency financing models across the aforementioned property asset classes that are designed to increase the scale of energy efficiency markets, provide a bridge to the capital markets, and reduce financing and transaction costs. For example, in the residential sector, one response to demand for improved financing options for home energy efficiency improvements is a consortium effort, called WHEEL (Warehouse for Energy Efficiency Loans), including the Energy Programs Consortium, the Pennsylvania Treasury Department, Forsyth Street Advisors, Renewable Funding, and Citi. The group is developing a US national program that builds on a state of Pennsylvania program called Keystone HELP (Home Energy Loan Program) to provide low-interest rate loans for home energy efficiency improvement projects.[31] The low interest rates are possible because the program is able to connect smaller-scale residential clean energy loans to the secondary market.

The bank is also developing energy efficiency finance solutions for the commercial market drawing on its own expertise and bringing together its facilities team with its bankers for cross-learning. The facilities team has significant experience implementing energy efficiency projects across the bank's operations through hundreds of projects at Citi properties resulting in a total estimated 10 percent absolute reduction in GHGs from 2005 to 2011. As a result, the team is attuned to the financing challenges associated with energy efficiency projects in commercial buildings that inform client-related activities.

RESULTS

Insights from the facilities team, based on its experience with Citi's own energy efficiency projects, has helped the banking team develop capacity and new finance products that address key financing challenges. The facilities team is piloting one of these finance mechanisms with Citi's own facilities, giving the bank improved understanding about the mechanisms' effectiveness so they can be refined before being deployed in the marketplace. The pilot is an energy services agreement (ESA) to finance a high efficiency tri-generation plant that will generate electricity, heating, and cooling for a critical Citi facility in Europe. Tri-gen plants are extremely efficient but often have higher up-front costs and could be well suited to an ESA agreement. For the client that is implementing an energy efficiency project, ESAs offer "off balance sheet" accounting treatment that can make it easier for companies to approve them, as they do not need to use their own capital budget. The ESA will help Citi, and subsequently Citi clients, to address some of the known energy efficiency financing barriers in such a project, especially the need for up-front capital and off balance sheet treatment. Should the approximately $15 million project be successful, Citi plans to prepare portfolios of other projects at Citi facilities and refine its energy efficiency finance offerings for the market.

Piloting these financing mechanisms allows Citi to access capital for projects that help make its operations more energy efficient and also position the company to serve the growing energy efficiency financing market.

Johnson & Johnson

Johnson & Johnson is a US-based multinational manufacturing company specializing in medical devices, pharmaceuticals, and consumer health goods. It is comprised of more than 250 operating companies, in 60 countries, and employs 128,000 people. It had $67.2 billion in revenue in 2012. Johnson & Johnson sets citizenship and sustainability goals every five years, including commitments to reduce GHG emissions, waste, and water consumption, and to improve energy efficiency and increase the company's use of renewable energy.

PROBLEM TO BE SOLVED

The Johnson & Johnson credo,[32] which was drafted in 1943, acts as the corporation's framework for sustainability and serves as the foundation for its Climate Friendly Energy Policy. This policy outlines the company's beliefs and highlights its commitment to reducing its environmental footprint. Johnson & Johnson has been accounting for and reporting on its GHG emissions since 2003. One year after committing to reduce GHG emissions, Johnson & Johnson found that reductions were not on track to reach the goal. This was, in large part, due to the fact that large emissions reduction projects were difficult to justify against other core business priorities, such as regulatory compliance and new product development. As a result, such projects would often get cut from limited capital budgets. Johnson & Johnson's energy team also concluded that GHG reduction projects have a number of advantages over other types of cost improvement projects.

For example, they can:

- be low risk;
- provide operating cost savings;
- improve energy reliability and performance enhancements;
- result in lower life cycle operating costs; and
- provide significant energy and emissions reductions.

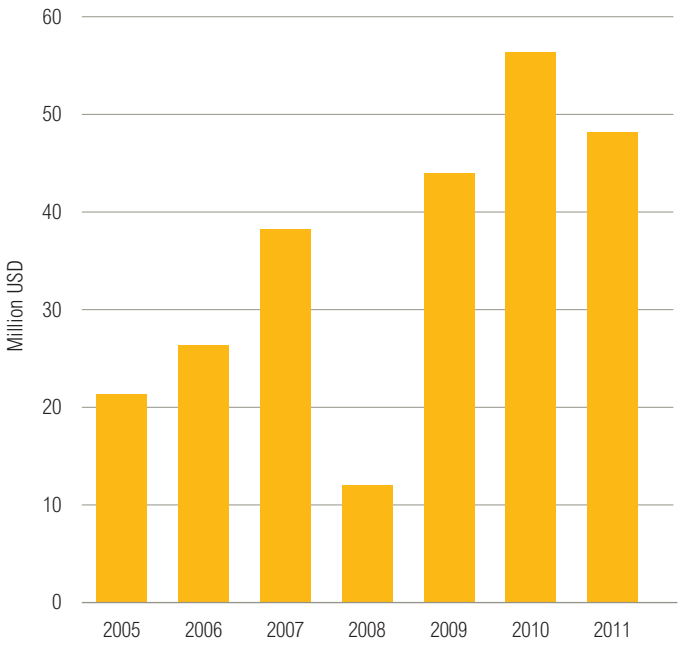
The energy team needed to develop a strategy that would allow GHG reduction projects to attract the necessary internal capital.

STRATEGY

The team began to identify opportunities to overcome budgeting barriers. With the support of the Chief Financial Officer, the team devised a strategy to make capital available for emission reduction projects. The resulting Capital Relief Fund annually allocates $40 million across business units to cover the capital costs for investments in GHG reduction projects. The Fund allows business units to make capital investments in energy projects that otherwise would not be able to compete for limited capital budget dollars on traditional measures.

Johnson & Johnson has learned that the GHG reduction projects generally have a more predictable return than other cost improvement projects and are helping to reduce the company's risk exposure over time. Since the risk return profile of these projects is attractive, the Capital Relief Fund requires an after-tax internal rate of return (IRR) of 15 percent. The required return, on occasion, has been lowered for projects that allow the company to reduce its energy risk and test new technologies, such as solar photovoltaic projects. To further justify energy projects, Johnson & Johnson also encourages project champions to identify external financial incentives. Rebates, grants, and tax credits from governments around the globe have been helpful in allowing some marginal energy projects to meet Johnson & Johnson's minimum financial hurdle.

Figure 5 | **Annual Capital Allocation for Energy Reduction Projects**



Capital Relief Fund projects undergo a specific process in order to guarantee energy reductions, environmental benefits, and cost savings for the company. The team requesting funding support must complete a one-page application and financial pro forma that provides a brief description of the project, forecast capital and project expenses, expected IRR, estimated electricity and/or fuel savings, and expected GHG reductions. The projects are developed at the sites or business unit level, then submitted to the CO_2 Committee, which includes energy, engineering, and finance representation. The Committee reviews the technical, environmental, and financial aspects of the proposed projects to ensure they are in line with best practices and standards internally and externally. Once a project is fully vetted, the Committee approves it for capital relief. Business units are responsible for managing the projects, determining implementation schedules, and allocating resources to implement the projects. The projected energy cost savings are deducted from future operating expenses, incentivizing business units to be accurate in reductions estimates and to achieve the reductions through effective project management, while guaranteeing a return on investment to the corporate office. As projected cost savings are generally conservative estimates, there is almost always a financial benefit for the company beyond the environmental benefits.

RESULTS

While the use of the Fund increased steadily between 2005 and 2007, it experienced a drop in use in 2008, as a result of other business priorities. However, in 2009 it was determined that there were more financially sound projects in the pipeline than the $40 million budget. Based on the historical financial success of the Fund, Johnson & Johnson's Finance Committee agreed to allow business units to exceed the $40 million cap to enable all viable projects to be completed rather than delayed until the following year. This also allowed the company to take advantage of time-restricted incentive programs and realize immediate environmental benefits. The Capital Relief Fund has been allowed to go over its $40 million budget every year since 2009.

Despite tough economic conditions, the Capital Relief Fund has performed well. Projects under the Fund have had an average expected return of around 19 percent. Furthermore, projects' expected returns have generally increased since the inception of the Fund, as business units have gained expertise in energy efficiency improvements. The Fund has allowed the company to learn and take advantage of improved energy savings technology. For example, in 2012 Johnson & Johnson began implementing a chiller optimization program, which it named "Project Cold", with large emissions reductions and attractive financial returns based on the availability of new advanced control technology and web-based continuous monitoring systems. This type of project would not have been possible just a few years ago.

While the Fund has had an overall positive performance, Johnson & Johnson has also had some projects that have not achieved their expected returns, such as in cases where government grants have not been conferred as expected or energy prices have declined. However the company has found that the risk of projects underperforming against expected savings has generally not been an issue, and has been outweighed by the benefits of the successful projects that have been implemented. All projects are used as a learning experience to prove new technologies and determine the most effective means of reducing CO_2 emissions. Johnson & Johnson also has found that many energy projects have a water savings component, providing an additional benefit to reducing long-term operating risk. For example, their chiller optimization program (Project Cold) not only saves energy but also saves water. Improving the efficiency of the chilled water system reduces water use through less cooling tower evaporation. The company is beginning to measure this water savings benefit, which will strengthen the business case even further for these projects.

As a result of the GHG reduction projects supported by the Fund from 2005 to 2011, Johnson & Johnson has reduced its GHG emissions by over 138,000 metric tons, equivalent to the electricity use of approximately 21,000 homes or 600 railcars of coal.[33] Overall, the company has reduced its absolute emissions by 5 percent between 2010 and 2011, thanks in part to the success of the Fund despite an increase in sales. The company has renewed its GHG reduction target, committing to reduce absolute carbon emissions by 20 percent from 2010 levels by 2020 without the use of voluntary renewable energy credits or carbon offsets. It will continue to rely on the Capital Relief Fund to ensure viable projects are funded and implemented.

3. ALIGNING ENVIRONMENTAL SUSTAINABILITY AND FINANCIAL GOALS

AkzoNobel

AkzoNobel is in the global paints and coating industry and a major producer of specialty chemicals, with brands such as Dulux, Sikkens, International, and Eka. The company is headquartered in the Netherlands, with operations in more than 80 countries and 55,000 staff. Offering a wide range of products, AkzoNobel revenues in 2011 were approximately €15.7 billion (or US$20.3 billion). For several years, AkzoNobel has factored sustainability into its strategy and management processes, from its choice of materials to its production of eco-efficient projects, to realize its "Tomorrow's answers today" vision. The company lists its key focus areas as "Creating Value from Eco-premium Solutions," "Creating a Talent Factory," and "Carbon Management through the Value Chain."

PROBLEM TO BE SOLVED

AkzoNobel's leadership and its sustainability team realized that the further along a project was in the planning process, the fewer options there were to improve the sustainability profile of the project. The sustainability team was often consulted too late in the process, when only incremental changes could be made. Furthermore, by the time projects went to the Board for final decision making, only the final plan was being presented, omitting reference to opportunities that could have improved performance over the long term. The sustainability team refers to this as the "asymmetry of information" problem. This has prevented the company from learning about how sustainability factors could have been better incorporated into past capital projects to achieve a better financial result over the long run. The company wanted to learn lessons from past investments so it could improve decision making in the future as well as ensure that sustainability factors were being evaluated at the earliest phase of project planning.

STRATEGY

Early in 2010, AkzoNobel's leadership took steps to ensure sustainability was being factored into early decision making for capital allocation for investments in infrastructure, plants (new facilities and upgrades), and eventually into decisions around mergers, acquisitions, and divestitures.
Properly understanding sustainability investment decisions and the results they achieved proved important for the learning curve for sustainability decision making. The company realized that keeping track of lessons learned could create many opportunities to improve social and environmental performance and save the company money. By reflecting the step-by-step processes that existed for decision making in its financial control processes, AkzoNobel identified the opportunity to implement similar processes for sustainability quality control.

AkzoNobel implemented a program called the "Sustainability Assessment of Investments". This initiative has changed the company's decision-making process for capital investment decisions by developing criteria for business groups to analyze sustainability impacts when making a capital budget request over US$5 million. Sustainability considerations and solutions that were analyzed but not implemented due to up-front costs are also tracked. This allows AkzoNobel's leadership to fully understand all the sustainability considerations and solutions that were evaluated and the extent to which sustainability concerns were acted upon. The Chief Sustainability Officer has the power to veto capital budget requests that are found to have insufficiently addressed sustainability considerations. Both the company controller and the Chief Sustainability Officer now sign off on capital allocation requests, providing an incentive to business units to undertake a high quality financial and sustainability analysis to ensure that their projects are approved.

The Sustainability Assessment of Investments is now a standard procedure at AkzoNobel and comprises four steps.

1. High level review, which considers raw materials' sustainability (upstream and downstream), as well as toxicity and biodiversity issues.

2. Alternatives available, including analyzing available renewable energy and energy efficiency opportunities, preparedness to comply with anticipated legislation, as well as potential water and health and safety risks.

3. Specific questions, relevant to each business unit such as water, legislative, biodiversity, and waste issues that are business specific. For example, Performance Coating projects should address how they are using water sustainably.

4. Completion of a comprehensive form for each capital budget request. This also summarizes findings of the sustainability analysis and provides an eco-efficiency analysis – that is, an analysis that summarizes the project and life cycle impacts. In this final phase, this analysis results in all sustainability criteria being "mapped" on a spider chart that shows how the project performs. A description of alternatives that were ruled out along the way is also provided, allowing a comprehensive format for review.

The results of this analysis are summarized in a chart that shows the project and life cycle impacts of any new project so that all new capital budget requests can be compared to each other on sustainability risk as well as financial risk.

RESULTS

As a result of the assessment, the sustainability team now plays a role in the very early planning process of large capital projects and is able to ask questions such as:

- Is this the right business to invest more money in, and how manageable are the social and environmental risks that it involves?

- Where can AkzoNobel site the facility to improve access to sustainable transport options for product distribution and minimize the company's carbon and water "footprint" (rather than looking at the cheapest location)?

- Where should AkzoNobel site a new facility so it has access to more renewable energy sources?

- What are the cleanest sources of power generation that can be used at the company's facilities? How can the options be evaluated in the most transparent manner?

Finally, AkzoNobel recognizes that by assessing sustainability considerations early, the positive social and environmental improvements can be much greater than if one waits until the final stages of a project and then tries to make changes on the margin. By using a standard assessment to evaluate sustainability decisions, the company intends to be able to learn from past decisions, including understanding the negative business impacts of not incorporating sustainability components in decision making.

4. DEVELOPING METRICS TO ACCOUNT FOR EXTERNAL ENVIRONMENTAL COSTS

Natura

Founded in 1969, Natura is a Brazilian company and brand leader in cosmetics, fragrances, and personal care. Company revenues were BRL5.5 billion in 2011 (approximately US$3 billion). Natura operates in seven countries – Argentina, Brazil, Chile, Colombia, France, Mexico, and Peru – and has distribution of its products to four others: Bolivia, Guatemala, Honduras, and El Salvador. It has been listed on the São Paulo Stock Exchange since 2004. The company does not have retail stores but instead sells its products through a network of almost 1.5 million resellers, the "Natura Consultants."

Natura accounts for its greenhouse gas (GHG) emissions using the GHG Protocol. It has established relative and absolute GHG emissions reduction targets for its scope 1 and 2 emissions and has set reduction targets for emissions from its products (which are part of scope 3).[34] Natura has a Climate Neutral Program in place, conducts life cycle assessments (LCA) of its products, and discloses environmental data about its products on packages.

PROBLEM TO BE SOLVED

In accordance with its commitment to sustainability, Natura wanted to find a way to drive environmental performance through its supply chain and engage its suppliers in a program aimed at improving their social and environmental contribution.

STRATEGY

Natura has established several focus areas for its overall sustainability program: water, sustainable entrepreneurship, climate change, solid waste, quality in relationships (sales force, society and communities, and increasing transparency and public participation), and socio-biodiversity in the Amazon region. Its supplier engagement program is called "Strategic Sourcing TBL" and was developed in partnership with the management consulting firm A. T. Kearney. The program aims to account for suppliers'

- economic costs (prices);
- CO_2 emissions;
- waste generation;
- water used;
- employee education (investment amounts in lower and higher education);
- employee training (hours of training);
- work safety (accident rates);
- social inclusion (hiring rates of disabled people, compensation values, and hiring of apprentices);
- direct investment in society (for example, in the communities in which suppliers are based, on health, education, environment, and so on); and
- other social benefits.

The performance of suppliers in these areas is quantified and included as part of the "Supplier Development Program." It also allows Natura and suppliers to establish common strategies to improve suppliers' performance with a "triple bottom line" (TBL) approach.

On a quarterly basis, suppliers complete a questionnaire to account for and evaluate their socioenvironmental performance and progress. The results of the questionnaire are then used by Natura to measure and internalize the various socioenvironmental costs and benefits to society of the materials used by Natura. Natura bases its supplier selection on a "shadow price" that includes the price provided by suppliers as well as the socioenvironmental costs and benefits determined from the quarterly basis survey. As a result, Natura's selection of suppliers is based on the overall total lowest cost, including the cost to society, which does not necessarily correspond to the lowest initial price of the suppliers' product offerings. The assumed value of the suppliers' socioenvironmental performance relates both to the part of the production sold to Natura and to the overall production of the supplier, ensuring that suppliers are recognized for taking a comprehensive approach to social and environmental performance.

Evaluation of suppliers by Natura is undertaken annually by a multidisciplinary team. The project quantified a value for each externality in order to address questions such as "How much does a ton of CO_2 emitted cost in terms of environmental damage or public health costs?"; "What is the social value of one year of education for a given individual?"; "How much does the society gain when a disabled person is employed?" The figures were based on assumptions and studies currently available.

RESULTS

The Strategic Sourcing TBL program was launched by Natura in 2010. Initially as a pilot, it engaged 50 of the largest suppliers in the company's supply chain. These suppliers were trained in Natura's methodology and were assisted in data collection. Some data was not available and some had never been measured by the suppliers. Currently the program includes 110 suppliers that represent approximately 50 percent of the total supply chain spending. Natura plans to increase supplier participation levels over time. Each supplier is assessed on specific issues it should focus on, based on its response to the questionnaire used by Natura. Performance is again measured in the following period. The company estimates that the socioenvironmental benefits of picking suppliers who are high sustainability performers was worth over BRL$500,000 in 2011 (more than US$250,000), BRL$1.8 million in 2012 and expects it to be over BRL$1.9 million (more than US$900,000) per year over the next four years.

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22. There currently are no international standards that define "green" products or the reporting of the corresponding revenues and greenhouse gas reductions. Siemens has instead developed its own standard for quantifying and reporting on its Environmental Portfolio based on the principles of the WRI-WBCSD Greenhouse Gas Protocol. Since 2007, the results have been verified annually by an independent auditor under a limited assurance engagement. The independent assurance report can be found at www.siemens.com/environmentalportfolio.
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