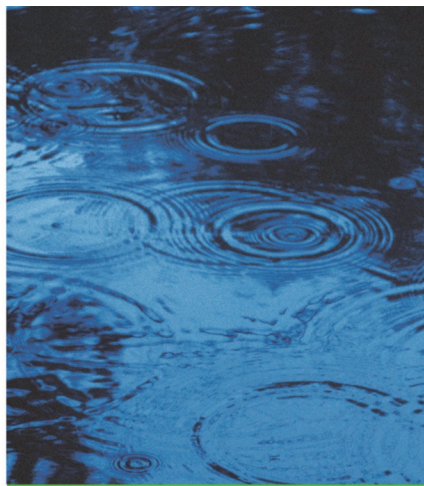# Improving business through smart energy and environment policy

Improving business through smart energy and environment policy

Businesses and public entities today face increasing pressure to develop policies that are both good for the planet and good for business. A framework developed by IBM offers businesses and other organizations a comprehensive approach to energy and environmental issues. The framework helps identify and prioritize environmental efforts by breaking down problems and opportunities into seven distinct business areas, which can then be segmented into manageable projects.

The pressure to "go green"

As global warming heats up the planet, as the price of gas and electricity soars, as a global water shortage looms, the world has begun to understand the need for energy conservation and environmental stewardship. This environmental concern has now hit the corporate mainstream. Companies are operating in a new regulatory environment, one that sets more stringent controls over energy and water consumption, greenhouse gas emissions, the use of hazardous substances and the disposal of both standard and hazardous waste. Many businesses find their stakeholders—investors, employees and customers— demanding corporate environmental responsibility. Additional pressure comes from the media and environmental advocacy groups.

Environmental opportunities and challenges

Executives interviewed for the IBM 2008 Global CEO Study report that their concern about environmental issues has doubled over the past four years, a concern that is filtering to CIOs and line of business leaders. These professionals are now being asked to quantify and reduce corporate energy use and environmental footprints, meet regulatory requirements related to the reduction of greenhouse gases, and modify IT departments to drive more energy-efficient operations.

These activities are not merely environmentally responsible: they can also drive business opportunity. According to the Global CEO Study, chief executives believe that energy and environmental activities can help differentiate their brands and burnish the reputation of their products and services. Enhanced brand image can deliver market permission (allowing companies to enter new markets where environmental concerns may be paramount) and drive customer loyalty.

But developing a smart energy and environmental policy is a complicated process. That's why many companies have yet to develop any type of comprehensive policy. Those entities that do strive to craft overall energy and environmental stewardship plans often take siloed approaches to the issue. This means they concentrate on one or two specific problems without determining how business activities—overall operations, product lifecycle management, IT, property management and other factors—interrelate.

An energy and environment framework

IBM has developed a comprehensive approach to assisting clients with energy and environmental issues. This framework helps identify and prioritize environmental efforts by illustrating how problems and opportunities can

be broken down into distinct areas and then segmented into manageable projects. These projects can be joined to form a cross-organizational program for managing energy and environmental issues.

The framework consists of the following seven business issues:

- **Strategy:** The creation of an enterprisewide energy and environment strategy can help companies address "green" issues.
- **People:** Work behaviors—especially commuting and business-travel behaviors—form a large part of an individual's carbon footprint. Companies can reduce commuting and traveling through the use of online collaboration tools. Policies that reduce employee travel and commuting time are becoming increasingly important in attracting and keeping top talent.
- **Information:** As regulations and reporting requirements compound, collecting, measuring and acting on the right information will be critical to an organization's ability to make complicated trade-offs between business alternatives.
- **Product:** Companies can design products in a manner that reduces environmental impact. For example, streamlining of product development and manufacturing means less waste created and less energy consumed.
- **Information technology:** IT is putting increasing levels of stress on power and cooling infrastructures. A thorough understanding of IT energy consumption, operations and constraints is the foundation for improvement. From this foundation, companies can devise strategies to help them improve IT efficiency and resiliency.

- **Property:** Companies need to reduce the cost and greenhouse gas emissions of their physical assets. The process starts with determining and managing the environmental impact of physical assets and properly maintaining all property for energy-efficient operations and reduced environmental impact.
- **Business operations:** Corporations need to transform business processes to reduce environmental impact for operations end to end. Consider energy or water consumption, as a start. Understanding and controlling these costs can only be achieved once a company measures its existing use and compares it against conservation benchmarks. Through the use of "smart systems," dramatic efficiency improvement can take place.

When leveraged appropriately, "green" strategy, innovations, solutions and services can constitute a competitive edge for enterprise and for industries—making it possible to take care of business while taking care of the planet.

For more information

To learn how IBM is working with organizations around the world to help them create "green" businesses, contact your IBM marketing representative or IBM Business Partner, or visit the following Web sites:

- **ibm.com**/cio
- **ibm.com**/green

Improving business through smart energy and environment policy

Contents

The pressure to "go green"

As global warming heats up the planet, as the price of gas and electricity soars, as a world water shortage looms, everyone from regulators to the media has started taking environmental issues seriously. They call upon individuals and businesses to do the same. The need to "go green" has reached the corporate mainstream.

Companies today operate in a new regulatory environment, one that sets more stringent controls over energy and water consumption, greenhouse gas emissions, the use of hazardous substances, and the disposal of both hazardous and standard waste. World governments explore and establish mandatory energy efficiency programs to reduce power consumption. Environmental advocacy groups track companies for environmental performance and quickly uncover enterprises that "greenwash" themselves without any credible documentation of the veracity of their claims.

Business executives must also cope with stakeholder pressure to "go green." Investors have begun to differentiate between corporate stocks that just make money and those that both make money and maintain strong environmental policies. (Witness the rise in "green" investment funds.) In regions of the world where employer need outstrips the talent pool, more and more potential employees are choosing to work for companies that—along with offering appropriate compensation packages—have a strong sense of environmental stewardship and overall corporate social responsibility.

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"The CIO must proactively work to identify and promote both existing and emerging technologies to address green issues outside the data center. The aggressive application of information technology and software is key to achieving more cost-effective and energy-efficient organizations."

— Rick Ptak,
Ptak, Noel & Associates

Consumers increasingly make buying decisions based on a vendor's environmental credentials. According to the IBM study Attaining Sustainable Growth through Corporate Social Responsibility (CSR), CEOs, CIOs and line-of-business executives generally agree that customer expectations for corporate social responsibility are increasing.[1] (The environment is an obvious touchstone: climate change has become a call to action for many of the world's consumers.) What's more, 75 percent of the roughly 1,100 chief executive officers and public sector leaders surveyed for the 2008 IBM Global CEO Study say that the number of advocacy groups following and reporting on their corporate social responsibility-related activities has increased over the past three years.[2]

Governments themselves are subject to pressure to develop and implement smart environment and energy policies. While public bodies are exhorting their citizenries to "go green," many of these same citizens individually and collectively now expect their governments to mitigate their impact on the environment. Moreover, since government actions are so visible, their ability to set positive examples may enhance their credibility in regulating and pressuring organizations under their jurisdictions.

While the global financial crisis may divert some of our attention from issues of corporate social responsibility—such as energy use and environmental stewardship—a comprehensive policy to increase energy efficiency and reduce materials and waste continues to provide immediate opportunities for cost savings, profit improvement, and talent attraction and management. It is interesting to note that both crises direct our attention to the issues of trust and integrity, helping to demonstrate the growing realization of our financial interconnectedness as well as our environmental interconnectedness.

Environmental opportunities and challenges

No wonder that environment and energy policies top many executives' to-do lists. The Global CEO Study reports CEO concern about environmental issues has doubled over the past four years. As Figure 1 shows, the Asia-Pacific region has seen the most dramatic increase, with CEO attention to energy and environment issues nearly tripling since 2004.
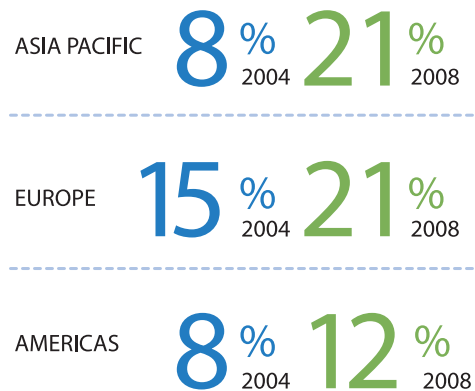
ASIA PACIFIC   **8** % 2004   **21** % 2008

EUROPE   **15** % 2004   **21** % 2008

AMERICAS   **8** % 2004   **12** % 2008

Figure 1. CEOs in each geography studied are increasingly finding environmental factors to be a top concern—and driver of change.

While environmental concerns may start with the CEO, they filter to CIOs and line-of-business leaders who are being asked to quantify and reduce corporate energy use and environmental footprints, streamline supply chains, meet regulatory requirements related to the reduction of greenhouse gases, and modify IT departments to drive more energy-efficient operations. These activities are not merely environmentally responsible: they can also drive cost savings—another universal corporate mandate. For example, according to IBM projections, $1 in energy savings can often drive an additional $6 to $8 in operational savings. In addition, "green" policies can provide competitive differentiation.

The business benefit of increasing energy and material effectiveness, along with increasing regulatory environments and pressure levied by the media, environmental advocacy groups, consumers and stakeholders, have made it necessary for today's companies to rethink their energy and environment policies.

Corporations face significant challenges in developing and implementing policies meant to conserve energy and protect the environment. But executives believe that energy conservation and environmental stewardship also present significant opportunities. (See "Green is the new black.") According to the IBM Global CEO Study, CEOs believe that energy and environmental activities can help differentiate their brands and burnish the reputation of their products and services. Enhanced brand image can deliver market permission and drive customer and employee loyalty. Because of this, as Figure 2 shows, CEOs plan to increase their investment in corporate social responsibility by 25 percent over the next three years. (Corporate social responsibility is defined, for the purposes of this paper, as the actions taken by companies that choose to manage their businesses for positive impact on society. This is accomplished through economic, environmental and social activities.)

NEGATIVE IMPACT
11%

NO IMPACT
20%

13.4%   INVESTMENT NEXT 3 YEARS

INVESTMENT PAST 3 YEARS

25 % INVESTMENT INCREASE
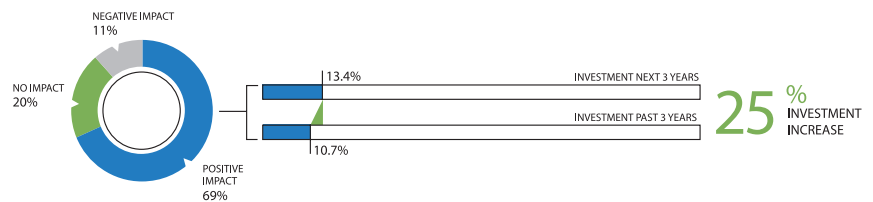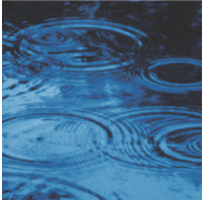
10.7%

POSITIVE
IMPACT
69%

Figure 2. CEOS are generally positive about the impact of rising corporate social responsibility expectations and they are increasing their investments in this area.

Improving business through smart energy and environment policy

But "going green" isn't easy. That's why many companies have yet to develop any type of comprehensive policy. Those entities that do strive to craft overall energy and environmental stewardship plans often take siloed approaches to the issue. This means they concentrate on one or two specific problems without determining how business activities—overall operations, product lifecycle management, IT, property management, employee commuting practices and other factors—interrelate.

Companies wishing to develop and implement smart environmental, energy and sustainability practices are often stymied by issues such as:

- Lack of a coherent, overarching energy and environment strategy
- Lack of actionable data and the inability first to measure energy use and greenhouse gas emissions and then to determine how to reduce them
- Lack of understanding of the steps that must be taken to enter new markets where issues related to energy, environment and sustainability may be paramount
- Immature supply chains that don't allow global consistency in the adherence to environmental policies
- Product engineering, manufacturing and disposal practices that are incompatible with environmental stewardship
- Travel and commuting policies that fail to consider energy use and environmental impact

As part of the U.S. Department of Energy's GridWise program, the Pacific Northwest National Laboratory wanted to ensure the health of the region's electrical grid—especially in times of heavy use. To accomplish this, the Laboratory planned to manage electrical demand through a combination of intelligent technology and financial incentives.

The Laboratory set up two parallel studies to test its ideas. In one, the organization created a virtual marketplace that allowed consumers to trade flexibility in usage for lower costs. The second study tested "smart" appliances that could sense and respond to stress on the electric grid by temporarily curtailing electricity use.

The studies found that people far preferred the virtual marketplace—they wanted to control energy use themselves, rather than having a third party decide when to limit consumption. People trading flexibility in usage for lower energy costs saw, on average, a 10 percent reduction in their electric bills.

Developing environmental policies and programs

Leaders in boardrooms, public bodies, regions and industries now face growing pressures to become more sensitive to their organizations' energy consumption and environmental impact. Enterprises look across their organizations, trying to address these issues by improving processes. Concurrently, business executives are keenly aware that the process of becoming "green" must aid business as well as the environment.

To develop policies that are both good for the planet and good for business, corporate leaders must consider questions such as:

- Are all aspects of my business, including operations, IT and product lifecycle management, efficient and protective of the environment?
- As part of our overall strategy to increase business efficiency, are we considering that environmental stewardship and energy consumption are new business barometers?
- Does my organization maintain a public commitment to meaningful and achievable goals, with transparency in reporting corporate progress in meeting those goals?
- Are we taking a leadership position in driving energy conservation and environmental stewardship through the value chain and across our industry?
- Do we have a strategy that supports reducing costs, lowering complexity, and increasing operating and energy efficiency?
- Are we looking for ways to improve IT operations to generate more computing performance without increasing power consumption?
- Are we experiencing social and regulatory pressure and responding with verifiable energy conservation initiatives that proactively address energy and climate challenges?
- Are we pursuing the development of energy and environmental strategies and policies to improve business and brand position?

An energy and environment framework

Each of these issues can seem complicated when considered individually, perhaps overwhelming when viewed as an interrelated group. Understanding this, IBM has developed a comprehensive approach to assisting clients with energy and environmental issues.

This framework helps identify and prioritize environmental efforts by illustrating how problems and opportunities can be broken down into distinct areas and then segmented into manageable projects to be addressed. These projects can be joined to form a cross-organizational program managing energy and environmental issues.

This framework addresses the needs of various executives in developing and implementing energy and environment strategies: the CEO's need to respond to customer, government and employee expectations; the CFO's need to deal with changing cost dynamics for energy; COO's and line-of-business needs to design and implement new processes; and the CIO's need to increase computing power while managing energy consumption.

The framework presented below has grown organically from IBM's cross-industry expertise, innovative research, and experience helping enterprises to address energy and environmental challenges. IBM called upon its unique ability to bring technological innovations, business process transformation and industry expertise together into a comprehensive set of solutions and services.

As delineated in Figure 3, seven business components are addressed in the framework: strategy, people, information, product, IT, property, and business operations. These components are common to virtually any enterprise or organization dealing with energy and environment issues. Encircling these are the IBM points of credibility in uniquely addressing client needs.
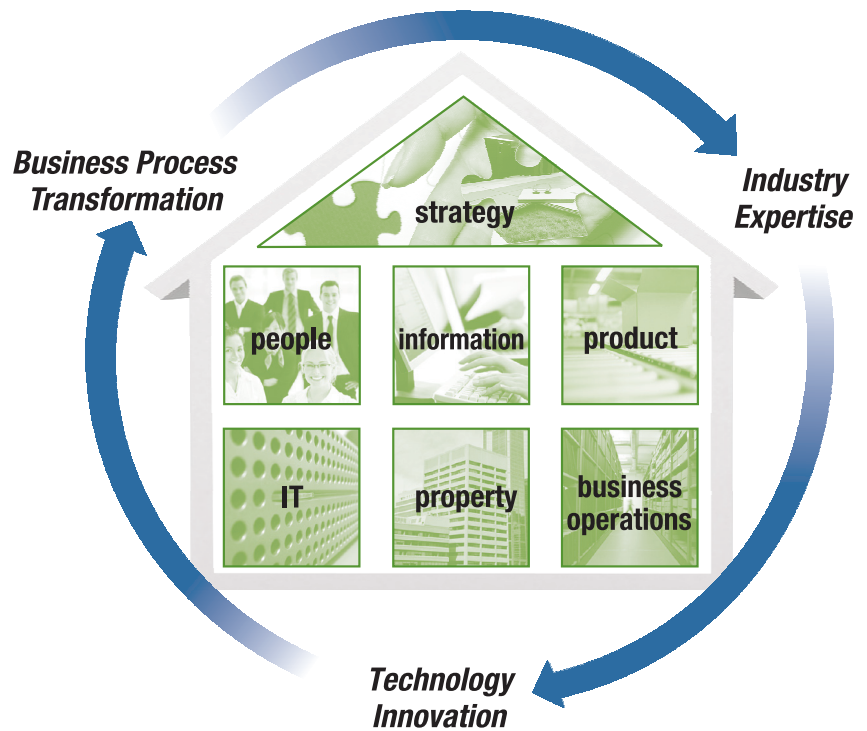

Figure 3: This energy and environment framework addresses organizational components commonly in place.

Strategy

The creation of an enterprisewide energy and environment strategy as part of an overarching corporate social responsibility plan can help companies address "green" issues, resulting in improved financial and environmental outcomes. Issues to be considered include the alignment of a company's environmental strategy into an overall business strategy and how environmental values may be translated into an improved brand image.

People

The impact of employee behaviors and policies on the environment is significant. Commute time and business travel form a large part of an individual's carbon footprint. The use of online collaboration tools and policies that support reduction in commuting and traveling can also have an impact on costs. Finally, companies are discovering that their environmental policies and practices can impact their ability to attract and retain top talent.

Information

As regulations and reporting requirements compound, companies and organizations will need to make increasingly complicated decisions on the trade-offs between alternative business processes, manufacturing systems, transportation methods and supply sources. Knowing what to measure, collecting reliable information and effectively measuring and acting on it will be critical. These decisions will require even more granular information and more sophisticated decision support. Optimized information collection, analysis, tiering and storage will help with speeding access to information, addressing regulatory mandates and reducing the cost of reporting.

"A strategic, top-down organizational strategic transformation must take place throughout the organization. Future sustainable organizations will have put in place a multifaceted, rigorous, and interconnected strategy directly linked to overall company strategy and goals."

— Crossing the Great Divide: Sustainability as Corporate Strategy, Stephen Stokes, AMR September 16, 2008

Product

As companies begin to understand the environmental impact of their products or services across the entire product lifecycle, they can design products in a manner that has a lower environmental impact. Streamlining of product development and manufacturing also means less material used, less waste created and less energy consumed. Concurrently, an examination of the product or service lifecycle often helps businesses find and exploit market opportunities. Finally, the need to reduce energy consumption is driving an increase in the energy-management intelligence built into certain products.

Information technology

Information technology is putting increasing levels of stress on power and cooling infrastructures. According to IBM estimates, IT kilowatt-hour usage has increased fivefold in the past five years. This IT-related energy use contributes to the establishment's greenhouse gas emissions. CIOs and IT managers view this situation as an economic and environmental crisis.

Corporations need IT energy efficiency strategies designed to help them focus their efforts. A thorough understanding of IT energy consumption, operations and constraints is the foundation for improvement. From this foundation, companies can devise strategies to help them improve IT efficiency and resiliency, address emissions, reduce energy costs and measure their success against business goals.

Property

Companies need to reduce the cost and greenhouse gas emissions of their physical assets—from office buildings to truck fleets. The process starts with determining and managing the environmental impact of physical assets and properly maintaining all property for energy-efficient operations and reduced environmental impact. Through improved maintenance and through improved tracking, deployment, location, and management of facilities and properties, reductions in environmental impact can be achieved.

Business operations

Corporations need to transform business processes to reduce environmental impact for operations end-to-end. Consider energy or water consumption, as a start. Understanding and controlling these costs can only be achieved once a company measures its existing use and compares it against conservation benchmarks. Through the use of "smart" systems, dramatic efficiency improvement can take place. Any transformation plan put into place must be communicated to key stakeholders.

Leading through example

Companies seeking to "go green" rightly look to partner with environmentally responsible businesses to procure technological products, services and solutions. In addition, companies need to partner with an enterprise known for its expertise in energy conservation, energy efficiency and environmental stewardship. IBM's environmental policy (which was first issued in 1971), along with its supporting programs and results, demonstrate the company's leadership and expertise in these areas. For example, between 1990 and 2007, IBM's annual energy conservation actions saved 4.6 billion kilowatt hours of electricity consumption. This avoided nearly 3.1 million metric tons of CO_2 emissions (equal to 45 percent of the company's global CO_2 emissions) and saved more than $310 million in energy expense. IBM has also voluntarily reported its environmental performance annually for the last 17 years.

New data center saves power, aids corporate expansion

The kika/Leiner Group, a top-five European furniture retailer, was undergoing a business expansion across Europe and the Middle East. Corporate executives worried that the company's aging data center would be unable to support this growth. The retailer wanted a new data center, one that could support the expansion while providing energy efficiency and a compact footprint.

A new-generation data center met the company's business goals for both energy consumption and improved data center operations. The data center reduced power consumption by up to 40 percent. It also offered improved security and reliability, and a lower total cost of ownership—all of which proved important in supporting kika/Leiner's expansion plans.

Consider just three IBM recent initiatives:

IBM Project Big Green: Announced in May 2007, Project Big Green is a $1 billion initiative to dramatically reduce energy use by IBM and its clients. The initiative includes new energy-efficient IBM products and services and a five-step approach to energy efficiency in the data center. This approach can sharply reduce data center energy consumption, transforming companies' technology infrastructures and providing energy savings of up to 42 percent.[3] In June 2008, Project Big Green was expanded to include core software offerings that enable clients to extend their energy efficiency efforts beyond the data center.

Carbon Management Best Practices: IBM and the Carbon Disclosure Project have launched a research project focused on the best practices employed by companies to gather and handle carbon dioxide-related data. The project seeks information from businesses that have extensive experience in measuring and managing greenhouse gas emissions. By getting insight into current actions, IBM and the Carbon Disclosure Project plan to craft a series of best practices related to CO_2 management and reporting. The research will focus on proactive CO_2 management programs, how the economy affects CO_2 management, and how well companies understand issues surrounding greenhouse gas emissions.

The Global Intelligent Utility Network Coalition: In 2007, IBM founded the Global Intelligent Utility Network Coalition, a group of utility companies working with IBM to accelerate the adoption of smart grid technologies and business solutions throughout the world. An intelligent utility network fundamentally transforms the way power is generated, distributed and used, adding intelligence throughout the grid to dramatically reduce outages and faults, improve responsiveness, handle current and future demand, increase efficiency, and manage costs.

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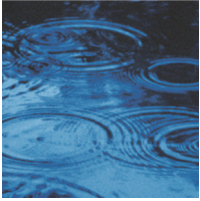
"There are profound opportunities to benefit from changes in the industry and how business models will be challenged."

— Electric utility CEO

IBM's environmental policy calls for the company to be an environmental leader in all its business activities. For example, IBM is committed to doubling its own computing capacity by 2010, without increasing power use. In house, IBM deploys data center energy-management techniques to diagnose, measure, manage, virtualize, cool and build servers. The company has a global energy program and objectives by which its physical properties are built and managed. In its business operations, IBM has programs to conserve resources, prevent pollution, evaluate suppliers for their environmental stewardship, and develop manufacturing processes that are protective of the environment. The company has a host of video conference and collaboration tools and work-life balance programs that enable its employees to reduce travel and related CO_2 emissions. IBM's longstanding product stewardship program has enabled the company to develop and offer products with a wide range of environmental attributes, ranging from energy efficiency to the use of environmentally preferable materials and finishes.

The company also excels in end-of-life IT product management and recycling. Over the past four years, IBM's Global Asset Recovery operations have collected and reused more than 4.6 million machines while limiting the amount of product waste these operations have sent to landfills to less than 1 percent of the total waste they processed. What's more, IBM Research has been instrumental in supporting IBM's environmental efforts. It has invented numerous environmentally smart products beyond the scope of its usual business. For example, bringing unique skills from its vast experience in semiconductors and nanotechnology to the important field of alternative energy research, IBM Research has made advances in photovoltaics technology. These types of advances could deliver up to five times the efficiency of current solar farm technology.

"IBM has taken a lead in the area of carbon management, particularly across government organizations. Its long history of running consulting projects, planning and supporting the delivery of solutions and its ability to work across areas such as estates management, procurement and IT, made it the perfect choice to help us meet our challenging target."

— David Young, Executive Director of Strategy and Performance, Natural England

How IBM can help

IBM's research, innovation and experience in the fields of energy conservation and environmental stewardship, coupled with demonstrated environmental leadership both in house and in helping clients address energy and environmental issues, has created the company's unique, overarching view of the challenges and opportunities that arise in the quest to "go green." IBM is the leader in delivering innovative, end-to-end, results-oriented environmental solutions and services to corporations, governments, institutions and entire industries. IBM's business and industry experts have helped clients think through complex environmental issues to arrive at answers that deliver business results.

IBM does this because it thinks that corporate social responsibility and environmental stewardship are among the most important issues facing the world today.

IBM's point of view is a simple one: industry and business expertise coupled with technological advances can and must address issues of environmental stewardship and energy conservation. These issues must be addressed across corporations, across industries and across geographies. Only the companies that meet these environmental challenges will thrive in an arena where "green" is not only a laudable goal, but an imperative.

IBM's industry-oriented, multi-faceted offerings can provide enterprises with a competitive advantage, one that draws on IBM's experience and capabilities across hardware, software, industry-specific solutions, business solutions, business services and research. With decades of leadership in environmental

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Improving business through smart energy and environment policy

stewardship and technology innovation, a global talent pool of unmatched business and technical skills, specific industry process expertise, and a proven ability to solve complex challenges, IBM is uniquely positioned to offer clients:

- A holistic approach to IT infrastructure efficiency, business process transformation, and the development of new products and services to address energy and environment issues and opportunities
- Depth of experience based on nearly four decades of IBM environmental leadership and results gleaned from in-house management and from aiding thousands of clients in making their own businesses more protective of the environment
- Solutions and services based on IBM's deep business and process knowledge and unmatched capabilities for technological innovation

When leveraged appropriately, energy and environmental strategies, innovations, solutions and services can constitute a competitive edge for enterprises and for industries. Your business can do well while doing good.

Green is the new black

To meet growing corporate social responsibility expectations, British retailer Marks & Spencer has embarked on a £200-million, five-year plan (known as Plan A) that impacts almost every aspect of its operations.

Through this effort, launched in 2006, the retailer—known for its clothing, home products and grocery arms—wanted to engage customers in solving "green" issues.

Marks & Spencer gave customers free reusable shopping bags. The bags were deployed "for life." (If a bag wears out, the retailer will replace it for free.) When this initiative was in its fifth week, the company began charging shoppers for plastic bags. It donated the proceeds of plastic-bag sales to environmental charities.

Very quickly, customers began reevaluating their need for plastic shopping bags. The fee, though quite small, made people stop to think about their impact on the environment.

But the retailer's initiative extends far beyond the checkout line

Behind Marks & Spencer's 35,000 products sit more than 20,000 factories, farms, fisheries and forests, and an estimated 500,000 workers in the developing world. Through its recently established online supplier exchange, the company strives to simultaneously improve both efficiency and sustainability. For instance, farmers who create biogases from farm waste are now selling the retailer their green electricity along with their beef.

Since launch, the expected 40 million British pounds a year cost of Plan A has plummeted to zero as M&S has found new ways of saving money from green initiatives. Now each pound invested in Plan A change is paid for by a pound saving elsewhere in the company.

About the author

This paper was written by Ellen Johnson. Ms. Johnson is a senior marketing manager for IBM Global Business Services. She is also part of an extended team of IBM professionals working to help clients understand and improve their impact on the environment. Vik Chandra, Gail Jarrett, Christine Kinser, Diana Lyon, Christopher Spaight, Amy Stenard, Scott Stockwell, Andrew Verdesca and Graham Whitney also contributed to this paper.

For more information

To learn how IBM is working with organizations around the world to help them create "green" businesses, contact your IBM marketing representative or IBM Business Partner, or visit the following Web sites:

- **ibm.com**/cio
- **ibm.com**/green

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IBM Global Financing can tailor financing solutions to your specific IT needs. For more information on great rates, flexible payment plans and loans, and asset buy-back and disposal, visit:

ibm.com/financing

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