



# 'Ecomagination' at Work: GE's Sustainability Initiative

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Ecomagination is GE's commitment to address challenges such as the need for cleaner, more efficient sources of energy, reduced emissions, and abundant sources of clean water. And we plan to make money doing it. Increasingly for business, "green" is green (Jeffrey Immelt, Chairman and CEO of General Electric, in 2005).<sup>1</sup>

Ecomagination is a milestone for a number of reasons, including that it's a long-term commitment with specific targets made at the company's highest level. GE has taken this process seriously and done its homework to make sure its claims and goals are credible (Joel Makower, sustainability consultant, in 2005).<sup>2</sup>

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## Towards a Cleaner Environment

In March 2006, General Electric Company (GE), one of the largest business conglomerates in the world, announced that it had developed a prototype version of a new apparatus that could manufacture hydrogen through electrolysis.<sup>3</sup> According to the company's estimates, the hydrogen produced with this equipment would cost around \$3.04 per kilogram to manufacture – considerably less than the \$8.0 per kilogram it cost to manufacture using conventional processes in 2006.

Although the device was still at an early stage of development, it was believed that it could play an important role in the future, as in the early 2000s, hydrogen was

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<sup>1</sup> *GE Launches Ecomagination to Develop Environmental Technologies*, || [www.nema.org](http://www.nema.org), May 13, 2005. (accessed on October 31, 2006).

<sup>2</sup> *In chemistry and manufacturing, electrolysis is a method of separating bonded elements and compounds by passing an electric current through them* ([www.wikipedia.com](http://www.wikipedia.com)).

<sup>3</sup> Dollars (\$) refers to US dollars in this case study.

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increasingly being considered as a feasible alternative to traditional fossil fuels for powering automobile engines. By 2006, several major automobile manufacturers had launched, or were working on developing, vehicles that would run on hydrogen (**Refer to Exhibit 20.1 for a list of some hydrogen-powered vehicles**).

Hydrogen-powered vehicles were environment-friendly as they did not emit toxic substances, unlike vehicles that ran on fossil fuels. Besides, the use of hydrogen was also likely to reduce the pressure on the rapidly depleting global reserves of fossil fuels. However, in the early 2000s, a major limitation to the use of hydrogen was that it was considerably more expensive than traditional fuels. Therefore, if GE's apparatus caught on, it was expected to help make hydrogen-powered vehicles popular, by bringing the price of a kilogram of hydrogen down to the price of a gallon of gasoline.<sup>4</sup>

The hydrogen production project was a part of GE's 'Ecomagination' initiative, launched in May 2005. Ecomagination, promoted as GE's commitment to sustainable development, was a large-scale program aimed at making the company a more responsible corporate citizen. It covered among other things, GE's efforts to enhance its investment in developing sustainable technologies, and increase its revenues from sustainable products, while lowering emissions and improving energy efficiency at its production plants. According to GE, Ecomagination would help the company—imagine and build innovative technologies that [would] help customers address their environmental and financial needs and help GE grow<sup>5</sup>.

GE was only one of the many large companies that had invested in sustainability in the early 2000s. Notable among the others were Novartis AG, Unilever Plc., BMW AG, and energy and petroleum majors ExxonMobil Corp., Chevron Corp., and BP (formerly British Petroleum). According to analysts, sustainability initiatives were especially relevant for large companies that had a huge impact on the economy as well as the environment. However, they added that most large companies were only indulging in 'greenwash' when they talked about their sustainability efforts. But GE's results in the first year after the launch of Ecomagination seemed to indicate that it was one of the few large corporations that were genuinely committed to sustainability.

## Background

GE's origins can be traced back to 1879, when Thomas Alva Edison (Edison) invented the first successful incandescent electric lamp. Edison was an entrepreneur as well as an inventor, and had started several small businesses dealing with power stations, wiring devices, and appliances during the late 1870s and 1880s. In 1890,

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<sup>4</sup>Between January 2006 and October 2006, the retail price of one gallon of gasoline ranged from \$2.25 to \$3.0 in the US. (from [www.wikipedia.com](http://www.wikipedia.com)).

<sup>5</sup>GE Ecomagination,|| <http://home.businesswire.com>, May 17, 2006 (accessed on November 1, 2006).

he brought all these businesses together and combined them under the Edison General Electric Company (EGEC).

EGEC merged with the Thomas-Houston Electric Company<sup>7</sup> in 1892 to form GE. The newly formed GE was headquartered in New York. In 1894, Edison gave way to Charles Coffin (Coffin) as the CEO of GE. Coffin licensed out the electric bulb technology to other companies, thus consolidating GE's position in the emerging lighting industry. Coffin also created a formal hierarchy in the company and organized GE's various businesses in a systematic manner, arranging each unit around a product line. He was also credited with setting up financial control systems at GE.

GE was one of the earliest companies to introduce a benefits program for employees. In the 1920s and 1930s, under the leadership of Gerard Swope (Swope), GE launched several progressive industrial relations initiatives, setting up new policies to give employees pensions, bonuses, stock purchase options, profit sharing, and group insurance. It also became the first company to establish an unemployment pension plan, which guaranteed laid-off workers a stipend of \$7.50 per week for a period of 10 weeks after the layoff.

However, Charles Wilson, who succeeded Swope in 1940, undid most of his predecessor's good work, and industrial relations took a turn for the worse under his leadership. In 1948, there was a major strike, which caused a rift between the blue collar workers and the top management at the company.

By the 1950s, GE had become a major industrial conglomerate with interests in a variety of businesses. But growth brought with it its own problems. From the beginning, GE had been organized like a holding company, with a few executives at the headquarters monitoring the activities of the various businesses. But for routine monitoring, each business unit enjoyed great autonomy. Over the years, the heads of individual businesses became powerful, and began operating their units like independent businesses with little reference to GE's strategic objectives.

After Ralph Cordiner (Cordiner) became CEO in 1958, he embarked on a company-wide restructuring program to bring discipline to GE. To obtain more control over the various businesses, he strengthened bureaucracy within the company. Cordiner created a team of GE executives, outside consultants, and management experts to develop strategies to streamline the company's management practices. He was also responsible for setting up GE's management training center at Croton-on-Hudson in New York, popularly known as the Crotonville School (Crotonville<sup>6</sup>, to train future GE leaders.

GE grew rapidly in the 1960s under the leadership of Fred Borch, who became the CEO in 1964. Borch was responsible for introducing the concept of Strategic Business Units (SBUs)<sup>7</sup>, and he created 46 SBUs within the company in the late

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<sup>6</sup>The Thomas-Houston Electric Company was founded in 1879 by Elihu Thomson and Edwin J. Houston. It was a competitor to EGEC, until the merger of the two companies.

<sup>7</sup>Under the 'Number One Number Two' strategy GE had to be one of the top two players in every segment in which it operated. If any business failed to meet this criterion, it was shut down or sold off.

1960s. He also added several new businesses like computers, nuclear power, and aircraft engines to GE's portfolio.

Reginald Jones (Jones) succeeded Borch in 1972. Jones invested heavily in office automation in a bid to increase productivity, and took some strategic decisions which involved strengthening promising businesses units like plastics and divesting in the unproductive computer businesses. Under him, GE became one of the most powerful conglomerates in the world.

A significant phase in GE's history began in 1981, when Jack Welch (Welch) became the CEO. Under Welch's leadership, GE adopted its well-known Number One Number Two strateg<sup>8</sup>. Six Sigma was also launched at the company during his tenure. By the time he stepped down in 2001, Welch was one of the most visible leaders that GE and corporate America had ever had.

In mid-2001, Jeffrey Immelt (Immelt) succeeded Welch. Immelt became CEO during one of the most difficult phases in business history. Within days of his taking over, the September 11, 2001 terrorist attacks occurred. This was followed by corporate scandals at Enron Corporation and Tyco International Corporation, as a consequence of which investors began to view large corporations and their top management with a degree of distrust and suspicion.

As one of the largest corporations in the US and the world, GE too was affected by the changes in the business environment. Adding fuel to the fire was a report by Bill Gross, manager of Pacific Investment Management Co., one of the largest bond funds in the world. In his report, Gross criticized GE's opaque finances, and accused the company of inflating earnings through acquisitions and cheap debt rather than through organic growth. GE's share price fell drastically after the report was published.

Following this, Immelt instituted several changes at GE aimed at winning back investor confidence. He announced that the management would take steps to improve the quality of governance at the company. He also revised the compensation packages of all the top executives at GE to link compensation to company performance. The Ecomagination program launched in 2005 was also a part of this broad initiative.

In the fiscal year ended December 2005, GE posted revenues of more than \$149 billion (**Refer to Exhibit 20.2 for GE's annual financials**). It also ranked among the largest employers in the world, employing more than 300,000 people in its various business units. At the end of 2005, GE had six core business units, and was the biggest manufacturer of power plants, jet engines, locomotives, and medical equipment worldwide<sup>9</sup> (**Refer to Exhibit 20.3 for GE's core business units**).

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<sup>8</sup>Amanda Griscom Little,—GE's Green Gamble, Vanity Fair, July 12, 2006.

<sup>9</sup>Over the years, Crotonville became a major corporate training center. It was also the birthplace of several management techniques in strategic planning.

## Past Controversies

In all its years of existence, GE had not been known as a particularly environment-friendly company. In fact, as a large company with interests in several industrial outfits, it had for long been one of the biggest corporate polluters in the US. While the company had built up a strong reputation for delivering outstanding returns to shareholders, it had lagged behind on the social responsibility front. Over the years, GE had been criticized on several occasions for its lack of social responsibility. But, it had chosen to ignore its critics, choosing profitability and financial performance over social and environmental objectives.

One of the biggest environmental controversies involving GE related to the pollution of the Hudson and Housatonic rivers in the US. In the early 1980s, GE was accused of dumping several million of pounds of polychlorinated biphenyls (PCBs) into stretches of the two rivers from its factories located along their banks.

PCBs are chemical compounds with low water solubility and environmental degradability, and studies have shown that people exposed to them could suffer several adverse effects. The US Environment Protection Agency (EPA)<sup>10</sup> had banned their production in 1977, after the US Congress passed the Clean Water Act that year. Since most of GE's PCB dumping had been done before 1972, when the substance was not banned by law, the company contended that it was not responsible for the sediments already present in the rivers. Environmentalists, however, argued that the dangerous nature of PCBs had been well known even before the law was passed, and that GE had acted irresponsibly in dumping the chemicals in the rivers.

In 1980, the US Congress passed another Act called the Comprehensive Environmental Response, Compensation, and Liability Act, popularly known as the Superfund law. This Act made companies retroactively responsible for the clean-up of all identified Superfund sites (industrialized areas heavily contaminated with hazardous waste that was discharged before the clean-water regulations came into force). GE, however, continued to fight the law, even going to the extent of filing a suit challenging the EPA's right to enforce the clean-up law. The suit reportedly cost GE millions of dollars. Welch was known for being especially passionate about this issue, going so far as to declare in public that living in PCB contaminated areas was in no way hazardous to health.<sup>11</sup>

In 2002, Christine Todd Whitman, the EPA Administrator at the time, issued a ruling that gave GE two options – an out of court settlement, or fines of up to \$2 billion (almost three times the estimated cost of remediation).<sup>12</sup> GE, led by Immelt, agreed to settle the matter out of court, and promised to pay for the clean-up.

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<sup>10</sup>The Environmental Protection Agency (EPA or sometimes USEPA) is an agency of the federal government of the United States charged with protecting human health and with safeguarding the natural environment: air, water, and land. The EPA began operating on December 2, 1970, when it was established by President Richard Nixon. ([www.wikipedia.com](http://www.wikipedia.com)).

<sup>11</sup><http://www.cleanupge.org/gemisdeeds.html> (accessed on November 8, 2006).

<sup>12</sup>Amanda Griscom Little,—"GE's Green Gamble,"| Vanity Fair, July 12, 2006.

However, despite agreeing to bear the costs of the clean-up, GE was pilloried by environmentalists for stalling the proceedings for several years.

In 2005, GE entered into an agreement with the EPA and the US Department of Justice to begin removing contaminated sediment in a two stage clean-up of the Hudson River at an estimated cost of around \$750 million.<sup>13</sup> The project was scheduled to begin in 2007. (An agreement to clean up the Housatonic river had been drawn up in 1999).

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## Remedial Attempts

Although GE had traditionally been a company that gave more importance to profitability than to social responsibility, the business environment in the early 2000s demanded that companies look beyond financial objectives. This was also the time when the Kyoto Protocol<sup>14</sup> was a much discussed subject, and environmental concerns were increasingly being raised at global forums like the G8<sup>15</sup> and WTO<sup>16</sup> meetings. Besides, consumers and investors had become more environmentally conscious than before, which made it all the more important for companies to consider environmental interests in all their operations.

Corporate social responsibility became a subject of greater focus at GE in 2002. In that year, a large team of GE's high-potential executives attended a training session at Crotonville on corporate social responsibility. As a part of the training, the executives visited several companies that had confronted social and environmental issues in the past, like IBM Corp., BP, Eli Lilly, and Nike Corp. They also interacted extensively with regulators, activists, and investors, who had an interest in corporate social responsibility.

During the course of their training, the executives found that although GE was highly respected for its investment value, management quality, and operations, it ranked low on the social responsibility front. If GE were to maintain its position in

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<sup>13</sup>Dr. Elizabeth M. Whelan,—Public Health Absurdities,|| The Washington Times, December 30, 2005.

<sup>14</sup>The Kyoto Protocol is an agreement made under the United Nations Framework Convention on Climate Change concerning the issues related to global warming. The countries that ratify the protocol commit themselves to reduce their emissions of carbon dioxide and five other greenhouse gases, or to engage in emissions trading if they maintain or increase emissions of these gases. The treaty was negotiated in December 1997 and came into force on February 16, 2005. As of October 2006, there were 166 signatories to the treaty, but the US Congress had not yet ratified it. ([www.wikipedia.com](http://www.wikipedia.com)).

<sup>15</sup>G8 or the Group of Eight is an annual political summit meeting of the heads of government of eight of the most powerful countries in the world. The members are: Canada, France, Germany, Italy, Japan, Russia, the United Kingdom, and the United States (from [www.wikipedia.com](http://www.wikipedia.com)).

<sup>16</sup>WTO or the World Trade Organization is an international, multilateral organization which sets the rules for the global trading system and resolves disputes between its member states. The headquarters of the WTO is in Geneva in Switzerland, and as of November 2006, the organization had 150 members (from [www.wikipedia.com](http://www.wikipedia.com)).

the global economy, immediate steps had to be taken to correct this perception about the company.

In 2002, Immelt appointed Bob Corcoran, a long-time GE employee, as the company's first vice president for corporate citizenship. GE also launched several global initiatives aimed at making the company more socially responsible. For instance, in the early 2000s, GE started conducting audits on its suppliers (especially those in the developing parts of the world) to ensure that they complied with globally accepted labor, environmental, health, and safety standards in their operations.

Immelt also restructured GE's business portfolio to include more companies operating in emerging industries. Over the early 2000s, Immelt acquired Enron Wind (one of the few successful companies in Enron's business portfolio), water management companies Ionics Inc. and Osmonics Inc., and AstroPower Inc., the biggest manufacturer of solar energy equipment in the US. In 2004, GE also invested in a new coal technology called Integrated Gasification Combined-Cycle (IGCC), which filtered out greenhouse gases and pollutants when coal was burned for energy, making the process cleaner. The filtered gases were usually sequestered' underground where they could not cause environmental pollution<sup>17</sup>.

According to company insiders, GE always ensured that it had enough contacts in the appropriate political circles to gauge where the US Congress was heading on environmental issues, especially with regard to the Kyoto Protocol carbon emissions. This led GE to the conclusion that acquiring interests in emerging businesses made good business sense, as it would put the company in a better position to meet the challenges of the future. If and when the Congress imposed carbon emission restrictions, GE would be able to offer products that met environmental needs, thus obtaining a competitive advantage. For instance, if carbon restrictions were imposed in the US, eco-friendly aircraft engines would be in demand. Therefore, GE's investment in eco-friendly aircraft engines would prepare it to meet the need.

GE made several corporate level changes in the early 2000s. In 2002, the company added more independent directors to its board. Key board committees like the audit, compensation, and nominating committees, were made free of insiders<sup>18</sup>. Additionally, company-wide changes were made in executive compensation to make it more transparent.

Talking about GE's increased emphasis on good corporate citizenship, Immelt said,—The world's changed. Businesses today aren't admired. Size is not respected. There's a bigger gulf today between haves and have-nots than ever before. It's up to us to use our platform to be a good citizen. Because not only is it a nice thing to do, it's a business imperative<sup>19</sup>. In late 2004, GE was listed on the Dow Jones Sustainability Index.<sup>20</sup>

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<sup>17</sup>Amanda Griscom Little,—GE's Green Gamble,|| *Vanity Fair*, July 12, 2006.

<sup>18</sup>Louis Lavelle,—GE's Mile-Higher Governance Bar,|| *BusinessWeek*, November 8, 2002.

<sup>19</sup>Marc Gunther,—Money and Morals at GE,|| *Fortune*, November 15, 2004.

<sup>20</sup>The Dow Jones Sustainability Indexes, launched in 1999, are a group of indexes which track the financial performance of companies which met detailed criteria for environmental, social, and financial sustainability. At the time GE debuted on it, around 300 other companies were listed on the various indexes.

## From Imagination to Ecomagination

GE announced the Ecomagination project in May 2005. The project's name was a play on GE's corporate slogan 'Imagination at Work'. Announcing the launch, Immelt said that business was no longer a zero-sum game – things that are good for the environment are also good for business.|| He added that GE was embarking on this initiative—not because it is trendy or moral, but because it will accelerate [economic] growth.<sup>21</sup>

The broad objective of Ecomagination was to meet such environmental challenges as the need for clean water, renewable energy, and reduced emissions. According to Immelt, Ecomagination aimed to—focus our (GE's) unique energy, technology, manufacturing, and infrastructure capabilities to develop tomorrow's solutions such as solar energy, hybrid locomotives, fuel cells, lower-emission aircraft engines, lighter and stronger materials, efficient lighting, and water purification technology.<sup>22</sup>

The slogan for Ecomagination was—green is green|| (where the second 'green' referred to the color of the US dollar bills). The slogan implied that being environment-conscious would have significant financial benefits for business. GE felt that it was especially well equipped to help customers meet the environmental challenges of the future as it had a broad range of products that could cater to all their needs. The company was also clear that Ecomagination had been launched not for philanthropic purposes, but to create new business opportunities for GE.

GE worked on Ecomagination for almost year before launching the initiative. The company worked with GreenOrder, Inc. (GreenOrder), a New York-based firm, which provided business consulting on environmental strategy and marketing, to develop the blueprint for the project. GreenOrder started out by helping GE identify a clear vision and mission for the project. After this, the broad standards were laid down. GE and GreenOrder defined the standards of the project as those that—improve customers' operating performance or value proposition and significantly and measurably improve customers' environmental performance.<sup>23</sup>

GE then identified 17 products of the company that met the standards to qualify for Ecomagination projects.<sup>24</sup> Among other things, the Ecomagination products included energy conserving household appliances, wind turbines, a hybrid electric-diesel locomotive, a Lexan film that replaced conventional paint, lighting products, water infrastructure, advanced materials, a fuel-efficient jet engine, and energy generation.

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<sup>21</sup> Amanda Griscom Little,—It Was Just My Ecomagination,|| Grist, May 10, 2005. [www.grist.org](http://www.grist.org)

<sup>22</sup> Joel Makower, Ecomagination: Inside GE's Power Play,|| World Changing, May 8, 2005. [www.worldchanging.com](http://www.worldchanging.com)

<sup>23</sup> GE Taps GreenOrder to Help Create Ecomagination,|| World Wire, June 6, 2005. [www.world-wire.com](http://www.world-wire.com)

<sup>24</sup> By mid-2006, the number of products under Ecomagination had increased to 30.

**Table 20.1** Examples of GE's product claims

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If every U.S. household owning a washer not qualified by ENERGY STAR were to replace it with a GE PROFILE HARMONY washer, we could save enough water each year to fill nearly 400,000 Olympic-sized swimming pools, and consumers could save more than \$1 billion in water bills

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Through the use of GE's installed wind turbines, as much as 11.4 million tons of greenhouse gases will not be emitted each year, which is roughly equal to keeping nearly two million cars off the road

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Compared to locomotives manufactured 20 years ago, many of which are still in use, the GE EVOLUTION Series locomotive reduces pollution by producing 83% fewer particulates and 60% fewer nitrogen oxide emissions

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Source: "GE Taps GreenOrder to Help Create Ecomagination," World Wire, June 6, 2005.

After the products had been identified, GE, with GreenOrder's help, created scorecards for each. These scorecards were used to quantify and benchmark the environmental benefits of each of the Ecomagination products against competitors' comparable products, regulatory standards, and the products' past environmental performance. The scorecards also integrated these measures with product claims, which GE used in its promotions. The product claims essentially laid out the benefits that GE's customers might obtain by using Ecomagination products. Some examples of GE's product claims are given in Table 20.1.

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## Targets and Expected Benefits

With the help of the scorecards, GE was able to lay down clear targets for each of its Ecomagination products. In its media releases, GE identified 'four distinct and measurable behaviors' in Ecomagination<sup>25</sup>:

- Doubling the investment on developing cleaner technologies from \$700 million in 2004 to \$1.5 billion by 2010.
- Doubling revenues from environment-friendly products and services from \$10 billion in 2004 to at least \$20 billion in 2010.
- Achieving a 1% absolute reduction in greenhouse gas emissions by 2012 through incorporating cleaner practices at the company, and helping customers reduce emissions by offering them more environment-friendly products. (GE also planned to reduce the intensity of its emissions by 30% by 2008. The company's energy efficiency was to be improved by 30% by 2012. Both the targets were compared to 2004. In the normal course, GE's absolute emissions were forecast to increase by 40% by 2012.)
- Keeping the public informed about the progress of Ecomagination on an annual basis. These targets were developed in consultation with the Washington DC based World Resources

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<sup>25</sup>Adapted from—Ecomagination background information,|| [www.draeger-stiftung.de/HG/Internet/SD/pdf/eco\\_backgrounder\\_english.pdf](http://www.draeger-stiftung.de/HG/Internet/SD/pdf/eco_backgrounder_english.pdf), May 4, 2005.

Institute (WRI). WRI was headed by Jonathan Lash (Lash), who had been chairman of the Council on Sustainable Development in President Bill Clinton's government. WRI and the World Business Council for Sustainable Development had developed the Greenhouse Gas Protocol, which GE used to track and report internal emissions. Lash was extremely optimistic about the success of Ecomagination and described Immelt as a Visionary

He said that as a large company, GE was in a position to influence other companies to follow in its footsteps on the sustainability issue. By delivering on the commitment that they have announced GE will demonstrate that we can decouple economic growth from growth in greenhouse gas emissions, said Lash<sup>26</sup> (**Refer to Exhibit 20.4 for some of GE's Ecomagination products**).

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## Promotions

GE promoted Ecomagination widely through its advertisements and other promotion campaigns, as a part of its 'keeping the public informed' objective. To announce the launch of the project, the company took out eight-page advertising inserts in prominent American newspapers like *The Wall Street Journal*, *The New York Times*, and *The Washington Post*. The advertisements consisted of a small picture and little copy, with most of the page left blank (**Refer to Exhibits 20.5(A) and 20.5(B) for a screenshot from GE's Ecomagination print advertisements**).

GE also aired several television advertisements, the most prominent of which was the 'Cleaner Coal' spot. This advertisement featured models covered in coal dust, shoveling coal in a dingy mine. The voiceover said,—Now, thanks to emissions-reducing technologies from GE, the power of coal is getting more beautiful every day.<sup>27</sup> Another advertisement showed a baby elephant dancing in the forest to the soundtrack of—Singing in the Rain.<sup>28</sup> Some of GE's critics were of the view that these advertisements were 'gimmicky', but according to analysts, they played an important role in creating awareness about the program.

In May 2005, GE instituted the Ecomagination Leadership Awards to honor the company's customers who had—demonstrated a commitment in addressing pressing environmental challenges, such as water scarcity – while at the same time conserving energy, addressing safety concerns, and reducing overall operating costs.<sup>29</sup> In 2005, the Ecomagination Leadership Awards were given to 10 companies (**Refer to Exhibit 20.6 for the 2005 Ecomagination Leadership award winners**).

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<sup>26</sup> GE's Ecomagination: Eco-friendly?|| Environment, July-August, 2005.

<sup>27</sup> Amanda Griscom Little,—It Was Just My Ecomagination,|| Grist, May 10, 2005, [www.grist.org](http://www.grist.org)

<sup>28</sup> [www.ge.com/en/company/companyinfo/advertising/eco\\_ads.htm](http://www.ge.com/en/company/companyinfo/advertising/eco_ads.htm) (accessed on November 10, 2006).

<sup>29</sup> Ecomagination Leadership Award,|| [www.gewater.com/pdf/](http://www.gewater.com/pdf/)

## The Results

GE published its first Ecomagination Report in May 2006, to report the initiative's progress in the 1 year since its launch. According to the report, revenues from energy efficient and environment-friendly products were \$10.1 billion in 2005. Orders for eco-products also nearly doubled to \$17 billion in that year.<sup>30</sup>

In 2005, GE installed 1,300 wind turbines across the globe, and the wind energy business recorded revenues of \$2 billion – an increase of more than 180% over the revenues in 2004. Sales of GE's EnergyStar certified<sup>31</sup> household appliances also topped \$1.3 billion.<sup>32</sup>

Emissions remained flat over 2005, and because GE saw an increase in revenue, the intensity of the emissions actually decreased. In 2005, GE's emission rate was 74.26 tons of emissions per million dollars, while in 2004 it had been 82.64 tons per million dollars. The lowering of intensity was propelling the company toward its target of actually lowering total emissions by 1% by 2012.<sup>33</sup>

Ecomagination was a global initiative, and GE had undertaken several projects outside the US. For instance, in mid-2005, GE announced that it would build a water desalination plant at Algiers, the capital of Algeria, in partnership with the Algerian Government, the Overseas Private Investment Corporation, and the Algerian Energy Company. The plant, called the Hamma Water Desalination SpA, was to be Africa's largest seawater desalination plant, and was expected to supply potable water to 25% of the population of Algiers.<sup>34</sup>

Commenting on the progress in the first year of Ecomagination, Immelt said,— Last year, we said that 'green can be green' – that we would make money helping customers meet their environmental challenges. A year later, we know that green is green, and that it will make a difference on the bottom line for GE investors as customer interest is accelerating.<sup>35</sup>

The first Ecomagination Report was made available online, and GE announced that it would plant a tree at its jet engine testing facility in Ohio for each of the first 2500 downloads. These trees were expected to offset the effect of the carbon emissions at the plant.

According to analysts, one of the critical factors in the success of Ecomagination in its first year was Immelt's commitment to the project. Considering that GE had

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<sup>30</sup> [www.ge.com/ecoreport](http://www.ge.com/ecoreport)

<sup>31</sup> Energy Star is a US government program to promote energy efficient consumer products. It is well known for its logo appearing on many computer products and peripherals. The program was created in 1992 by the EPA.

<sup>32</sup> [www.ge.com/ecoreport](http://www.ge.com/ecoreport)

<sup>33</sup> When It Comes To Being Green, GE Walks The Walk,|| <http://ge.blogginstocks.com>, May 23, 2006 (accessed November 1, 2006).

<sup>34</sup> GE Announces Plans for Largest Desalination Plant in Africa Plant will Provide Desperately Needed Drinking Water, Media Release, [www.gewater.com/pdf/](http://www.gewater.com/pdf/) June 25, 2005 (accessed November 10, 2005).

<sup>35</sup> GE Ecomagination Revenues Cross \$10 Billion,|| [www.greenbiz.com](http://www.greenbiz.com), May 19, 2006 (accessed on October 31, 2006).

never been a particularly socially responsible company, it was not an easy task for Immelt to change the mindset of the employees. However, he persisted with it, all the while reiterating its benefits to the business.

A strong link to business objectives was another factor that contributed to the initial success of Ecomagination. Analysts applauded the fact that all the Ecomagination goals were specific and clear. GE had a clear mission and vision for the project, and its targets were aspirational as well as achievable. GE had also undertaken considerable research on identifying the products that qualified for Ecomagination, and benchmarked them against competitors' products. Therefore, the company's claims were quite definite in terms of how the products contributed to the environment, and could be backed up by research. The link to business objectives helped employees see Ecomagination as a long-term objective rather than a temporary fad.

In 2006, Immelt announced that all of GE businesses, including those that did not come under the purview of Ecomagination, would be evaluated annually on how they contributed to the environment, in addition to regular measures like return on capital.<sup>36</sup> This was expected to be a precursor to bringing more GE products under Ecomagination.

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## Outlook

Although the results of the first year prompted GE's detractors to concede that Ecomagination was not a publicity exercise to clean up GE's image, but a serious project to which the company was committed, there was still a fair amount of skepticism about its success in the long run. For instance, industry observers were interested in finding out how GE, which was one of the largest suppliers of coal-fired power plants, nuclear reactors, and jet engines, would extend the Ecomagination initiative from a few projects to a company-wide exercise. It was also observed that sustainability as a corporate strategy worked only if it was made a company-wide initiative. If it remained restricted to a few products, its impact would be limited.

However, most analysts acknowledged that Ecomagination was a bold move on GE's part. For a company that was known as a laggard on the social responsibility front, GE had made remarkable progress with Ecomagination within the first year itself. They also agreed that when an influential company like GE emphasized sustainability, it could have far reaching effects, even to the extent of influencing the national government's environmental policies. Immelt reportedly met with several members of the government during the run-up to the launch of Ecomagination. Many took this to be an indication that GE wished to influence the government's policies on the environment.<sup>37</sup>

In the future, governments around the world were expected to make environmental regulations more stringent in keeping with the Kyoto Protocol. GE was thought to

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<sup>36</sup>The Greening of General Electric, *The Economist*, December 10, 2005.

<sup>37</sup>Amanda Griscom Little,—It Was Just My Ecomagination, *Grist*, May 10, 2005, [www.grist.org](http://www.grist.org)

be preparing for this by increasing its focus on eco-friendly products. Big, long-term successful companies have been able to spot really huge changes and be on the right side of them. Immelt believes he is going to operate in a carbon-constrained world and he will have the technologies that the world wants and needs to buy, said Lash.<sup>38</sup>

On the other hand, concerns were expressed over GE's heavy dependence on emerging technologies. Some analysts cautioned Immelt against moving too fast to adopt new technologies as they believed that he could turn out to be wrong about the importance of environmental concerns. They said that if these concerns subsided in the future, or new oil resources were freed up, then GE's products might become irrelevant. They also pointed out that there had been 'sustainability booms' earlier. In the 1980s and early 1990s, several large companies like the Dow Chemical Company and E. I. du Pont de Nemours (DuPont) had invested heavily in sustainable technologies. But by the late 1990s, most of them had had to scale back their investments, as sustainable technologies grew at a much slower pace than had originally been predicted.<sup>39</sup>

It was also thought that GE's work culture was not one that adapted easily to innovation and product breakthroughs. The Six Sigma driven company culture was extremely metrics-oriented, and worked well for incremental improvements and execution of plans. But when it came to new products with relatively uncertain results, the effect might not be the same, thought analysts.<sup>40</sup>

GE, however, claimed that innovation was embedded in the very foundations of the company. Edison had reportedly said,—I never perfected an invention that I did not think about in terms of the service it might give to others ... I find out what the world needs, then I proceed to invent.<sup>41</sup>

GE was apparently doing the same thing in predicting a need for environment-friendly products and proceeding to develop them through Ecomagination. Talking about the potential of Ecomagination, Lorraine Bolsinger, vice president of Ecomagination at GE said,—We're off to a good start and see even more opportunity – but we still have a long way to go.<sup>42</sup>

### Exhibit 20.1: Hydrogen-powered vehicles

Company	Product(s)
BMW AG	750hL, BMW H2R
Mazda Motor Corporation	RX-8
DaimlerChrysler AG	F-Cell
General Motors Corp	Hy-wire
Hyundai Motor Company	Tucson FCEV
Honda Motor Company	Honda FCX

(continued)

<sup>38</sup> Amanda Griscom Little,—It Was Just My Ecomagination, *Grist*, May 10, 2005, [www.grist.org](http://www.grist.org)

<sup>39</sup> The Greening of General Electric, *The Economist*, December 10, 2005.

<sup>40</sup> The Greening of General Electric, *The Economist*, December 10, 2005.

<sup>41</sup> Imaginative Energy? <http://www.halo-energy.com/analysis.htm> (accessed November 3, 2004).

<sup>42</sup> GE Ecomagination Revenues Cross \$10 Billion, [www.greenbiz.com](http://www.greenbiz.com), May 19, 2006 (accessed on October 31, 2006).

**Exhibit 20.1: (continued)**

Company	Product(s)
Ford Motor Company	Focus FCV
Nissan Motors	X-TRAIL FCV
Toyota Motor Corporation	The Highlander FCHV and FCHV-BUS
Morgan Motor Company	LIFECar

This list is not exhaustive

Many of these vehicles were at the prototype stage as of late 2006. Source: [www.wikipedia.com](http://www.wikipedia.com)

**Exhibit 20.2: GE annual income statement**

For the years ended December 31 (In millions of US dollars [\$])	2005	2004	2003
<b>Revenues</b>			
Sales of goods	59,837	55,005	49,963
Sales of services	32,752	29,700	22,391
Other income	1,683	1,064	602
<b>GECS earnings from continuing operations before accounting changes</b>			
GECS revenues from services	55,430	48,712	39,930
Total revenues	149,702	134,481	112,886
<b>Costs and expenses</b>			
Cost of goods sold	46,169	42,645	37,189
Cost of services sold	20,645	19,114	14,017
Interest and other financial charges	15,187	11,656	10,460
<b>Investment contracts, insurance losses and insurance annuity benefits</b>			
Provision for losses on financing receivables	3,841	3,888	3,752
Other costs and expenses	35,271	33,096	26,480
Minority interest in net earnings of consolidated affiliates	986	728	308
Total costs and expenses	127,573	114,710	95,275
<b>Earnings from continuing operations before income taxes and accounting changes</b>			
Provision for income taxes	(3,854)	(3,486)	(3,845)
<b>Earnings from continuing operations before accounting changes</b>			
Earnings (loss) from discontinued operations, net of taxes	(1,922)	534	2,057
Earnings before accounting changes	16,353	16,819	15,823
Cumulative effect of accounting changes	–	–	(587)
Net earnings	16,353	16,819	15,236

Source: [http://www.ge.com/ar2005/cfs\\_e.htm](http://www.ge.com/ar2005/cfs_e.htm) (accessed on November 9, 2006)

**Exhibit 20.3: GE's Six Core Business Units**

1.	Commercial finance
2.	Consumer finance
3.	Healthcare
4.	Industrial
5.	Infrastructure
6.	NBC universal

Adapted from [www.ge.com](http://www.ge.com)

**Exhibit 20.4: Some ecomagination products**

- GE's EVOLUTION Series locomotive is one of the cleanest diesel-electric locomotives ever built. Its 12-cylinder engine generates the same 4400 horsepower as its 16-cylinder predecessor. Compared to locomotives built 20 years ago – many of which are still in use – it produces 83% fewer particulates and 60% fewer nitrogen oxide emissions while delivering as much as 10% lower lifecycle costs to customers and higher fuel efficiency.
- GE produces some of the world's most powerful, energy-efficient, cleanest and quietest aircraft engines. GE pioneered the use of composite materials in jet engines. These blades are used in the GE90-115B aircraft engine, the world's most powerful engine. The next generation of engine – the GENx engine – will extend this technical breakthrough to both the composite blades and fan case. With advanced compression and combustion technology, this engine will achieve dramatic gains in fuel efficiency and durability, with significantly lower emissions than any engine in its class.
- GE has developed a reusable wire coating for automotive and other uses that is halogen-free, thereby reducing dioxin production during manufacturing. GE's NORYL wire coating is up to 25% lighter than current alternatives, which could reduce vehicle weight and help improve gas mileage.
- GE is leading efforts to develop cleaner coal technologies. The world has nearly 200 years of coal reserves compared to about 40 for oil and 70 for natural gas. GE's Integrated Gasification Combined Cycle (IGCC) technology converts coal into a cleaner-burning fuel, which is then burned in a gas turbine combined cycle system to generate electricity. Compared to conventional pulverized coal plants, the process emits less than half of the sulfur dioxides, nitrogen oxides, mercury and particulate matter. If all conventional coal plants operating in the U.S. today had been built with GE's IGCC Cleaner Coal technology, the result would be an annual reduction of nearly 320 million tons of carbon dioxide.
- GE provides custom filtration and separation solutions for diverse industries, from beverages to manufacturing to pharmaceuticals. GE's advanced membrane technologies help companies reclaim 21 billion gallons of wastewater each year, conserving water and cutting pollution.
- GE's desalination technology removes salt from brackish or sea water and creates fresh water for drinking, irrigation and industrial use. GE's current installed desalination platforms reclaim more than 2 billion gallons of water a day for a variety of purposes – enough to meet the daily water required by more than 150 million people.
- The GE PROFILE dishwasher with SMARTDISPENSE technology will save detergent by releasing just the right amount throughout the wash cycle. If every dishwasher in the U.S. could be replaced with a GE dishwasher with SMARTDISPENSE technology, it would have the potential to save more than 750,000 tons of dishwashing detergent from being washed down the drain each year.

- GE offers some of the world's most energy-efficient household appliances and lighting products. GE has been named the ENERGY STAR® Partner of the Year by U.S. environmental and energy officials for its commitment to energy-efficient products. GE's compact fluorescent lighting offers energy savings of 70–75% and lasts up to ten times as long as incandescent bulbs. If every household in the U.S. replaced one 100-watt incandescent light bulb with a GE compact fluorescent bulb equivalent in light output, we would save enough energy over the bulbs' lifetime to power more than one million U.S. homes for an entire year.

Adapted from “Ecomagination Background Information,” [http://www.draeger-stiftung.de/HG/internet/SD/pdf/eco\\_backgrounder\\_english.pdf](http://www.draeger-stiftung.de/HG/internet/SD/pdf/eco_backgrounder_english.pdf), May 4, 2005.

### Exhibit 20.5(A): A Screenshot of One of GE's Print Ads

**ecomagination™**

Imagine if we suddenly discovered a new resource. An inexhaustible resource. A readily available resource. One that could help solve the problems of an energy-hungry world. At GE, we think we've discovered just that. It's imagination. But maybe it's more appropriate to call it ecomagination. We're putting ideas into action by creating some very forward-looking technology that does the job with greater fuel efficiency, lower emissions, and reduced noise. At the same time, we provide services to help upgrade our customers' existing technologies for better environmental performance. Maybe, in time, we can help make the water a little clearer, the trees a little happier, the sky a little bluer, and the world a little closer to the way it was made. Just imagine it.



Source: [http://www.ge.com/en/company/companyinfo/advertising/print\\_ads.htm](http://www.ge.com/en/company/companyinfo/advertising/print_ads.htm).

### Exhibit 20.5(B): Text Extracts from the Ecomagination Ad Campaign

Imagine if we suddenly discovered a new resource. An inexhaustible resource. A readily available resource. One that could help solve the problems of an energy-hungry world. At GE, we think we've discovered just that. It's imagination. But maybe it's more appropriate to call it Ecomagination. We're putting ideas into action by creating some very forward-looking technologies that does the job with greater fuel efficiency, lower emissions and reduce noise. At the same time, we provide services to help upgrade our customers' existing technologies for better environmental performance. Maybe, in time, we can help make the water a little clearer, the trees a little happier, the sky a little bluer, and the world a little closer to the way it was made. Just imagine it.

Can technology and the environment peacefully coexist? Ecomagination answers yes with the Evolution Series locomotive. Who would have dreamed that a 415,000 lb. diesel locomotive could have an environmental conscience? The Evolution locomotive is designed to be more fuel efficient and more powerful while it exceeds stringent EPA emissions standards, making the air cleaner and clearer for all. No small technological feat. This is the 'little' engine that could. And will.

- Are we letting one of the world's cleanest and most renewable power sources slip through our fingers? Here's where we apply a little Ecomagination. GE Energy is one of the world's leading suppliers of wind energy products. Not only is wind energy renewable and easy to harvest, but one GE wind turbine can produce enough electricity for about 400 homes each year. Well worth a few bad hair days.

Source: Pat Murphy, "Ecomagination – You Heard it Here First," [www.energy-bulletin.net](http://www.energy-bulletin.net), May 9, 2005.

#### Exhibit 20.6: 2005 ecomagination leadership award winners

1.	Agrium Redwater
2.	Auburn University
3.	Canbra Foods Ltd.
4.	Cinergy Corporation
5.	Ford Motor Company
6.	INCO, Port Colborne Refinery
7.	The International Group, Inc.
8.	International Truck and Engine Corporation
9.	Karl Schmidt Unisia
10.	Shamrock Environmental Corporation

Source: "Ecomagination Leadership Awards," [www.ge.com](http://www.ge.com).

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