

GLOBAL ENVIRONMENTAL CHALLENGES

Jeff Immelt

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Good afternoon. My name is Susan Phillips and I'm the dean of the George Washington University School of Business, and it's my great pleasure to welcome you to this special CEO lecture by Jeff Immelt, chairman and CEO of General Electric. In a few minutes Mr. Immelt will talk about an exciting GE initiative focused on the environment. I cannot think of a better business school for this presentation. And I'm also pleased that Jonathan Lash, president of the World Resources Institute, is here with us also. Business and society are mutually interdependent. Society depends on business for wealth creation while business depends on society for an environment where it can meet its obligation to create jobs and investment. It's essential for business students to understand the symbiotic relationship between business and society, especially in terms of the ethical dimensions. Part of our academic mission at GW is to prepare students to be productive and principled members of society. We're proud to be recognized in this area. For the last several years the World Resources Institute and The Aspen Institute have honored GW's School of Business for its leadership among business schools in teaching students about environmental and social stewardship. And our faculty do research and writing about corporate citizenship and social responsibility.

We also bring guest lecturers to campus to discuss real world examples of how firms approach social responsibility. This brings me to our guest today, CEO Jeff Immelt. In 2001 Jeff was named the ninth Chairman and CEO of General Electric, the world's largest company by market value. In his 23 years with the company he has served in a number of global leadership roles in several GE businesses. Before becoming CEO, Jeff ran GE's Healthcare business. GE is a diversified group of 11 businesses with revenues of more than \$150 billion in 2004, with a portfolio of products and services that range from aircraft engines, power generation, and financial services to medical imaging, television programming, and plastics. GE operates in more than a hundred countries and employs more than 320,000 people worldwide.

Jeff holds a B.A. degree in applied mathematics from Dartmouth College and an MBA from Harvard University. He also serves on the board of Catalyst, an organization de-

voted to advancing women in business, and Robin Hood, which addresses poverty in New York City.

In 2003 *The Financial Times* named him Man of the Year. *Business Week* named him one of the top managers of 2004. Most recently *Time* magazine included him on its Global Business Influentials list. Under his leadership GE has been named the world's most respected company by *The Financial Times* and the world's most admired company by *Fortune* magazine. Clearly an impressive record. Without further ado, please help me in welcoming Jeff Immelt. Jeff.

Jeff Immelt

Thank you Dean. Thank you very much. Thank you Dean Phillips and I would like to thank George Washington for its hospitality. And to the students, I know it's exam week so as soon as this ends go back and study. I don't want to get in trouble with your parents. When I became chairman of GE I would have never imagined that I would be standing here today giving a speech focused on the environment, much less sharing a stage with such a distinguished environmental leader as Jonathan Lash. But rest assured I'm here voluntarily and I know where I am and I know who I'm standing with.

And now to let you know why GE is at George Washington today, it's to talk about innovation, about new markets, and about leadership. More specifically, I want to talk about a bold new initiative we're launching, a new way to approach the environment in energy, and how to imagine a better future. It sounds big and it is, but think big is what we do at GE and have done since our founding in 1878. More than 125 years later we're the most valuable company in the world and the leader in important technologies. *The Financial Times*, *Fortune*, and others call us one of the world's most admired companies, a real leader in innovation.

Today GE power systems create nearly one-third of the world's electricity. GE aircraft engines fly more than 660 million people each year. We are the world's largest patent producer in material science, we're an industry leader in healthcare technology, transportation, broadcasting, and household appliance. And you know, from time to time we still sell a few light bulbs.

In 2005 GE's making a new commitment to our customers around the world to define the cutting edge and cleaner power in environmental technology. We've taken a long look around and here's what we see: diminishing domestic oil supply and natural gas reserves, continued dependence on foreign sources of energy, increasingly scarce resources like water in an ever more populated world. And the signs of global climate change. This is the convergence of forces that demands a revolution in technology so that our country can stay competitive. We plan to lead that revolution and open up a new door to a new age and that requires a new *Imagination Breakthrough* that we call *ecomagination*.

Ecomagination is a new concrete commitment by GE to develop and drive technologies of the future that will protect and clean our environment, innovation to promote energy efficiency, lower emissions, reduce our use of fossil fuels, and increase the supply of usable water. *Ecomagination* is a growth strategy driven by our belief that applying technology to solving problems is great business. And *Ecomagination* is a commitment to invest billions over the next decade in creating cleaner power and water technology and to improve our own environmental performance. These are daring goals but we believe that we can improve the environment and make money doing it. We see that green is green. Now we have proved in the past that we have the will, the capabilities, and the courage to invest in innovation even during difficult times. And you know that we're serious about *Ecomagination* because we see that it is critical to our competitiveness in the future. *Ecomagination* was developed after listening to our customers. We also talked to many of the people that are in the room today—dozens of leaders and thinkers from environmental groups, government, business, and academia. You and your colleagues have all helped shape this initiative and I want to say thanks for that and we plan to keep listening.

Today we make five commitments. First we commit to double our technical investment in energy efficient and environmentally friendly products by 2010. As a company we invest more than \$5 billion in technology annually. Our investment in environmental technologies will double to \$1.5 billion by 2010 and this will lead to a constant stream of new products flowing into this growing business field. We have a broad portfolio of *Ecomagination* products. Today we're featuring 17 of them. Powered by the strong abundant

winds found at sea, GE's offshore wind turbines could harness enough wind to generate power for millions of people around the world.

Our H system gas turbines could reduce emissions and improve efficiency of the power generating installed base by 10%.

We have a new clothes washer that could save American households more than \$1 billion in water bills annually. To the students here, maybe someday you'll become familiar with that technology called the washing machine, and you can learn that from your parents.

Our Evolution series locomotive lowers emissions, set new standards in fuel efficiency, and saves our customers nearly 200,000 gallons of fuel throughout its lifetime. The Evolution is the industry leader with a backlog of 1500 orders. This will be followed by a hybrid locomotive product that will cut energy usage by another 20%.

Our GENX engine, which will power the Boeing 787 and the Airbus A350, is 15% more energy efficient, dramatically quieter, and has lower emissions.

We have hundreds of engineers working on fuel cells and desalination and this creates a pipeline of technology that can deliver commercial products for the next decade. GE stands in the center of the markets and the technologies that can create a new future for cleaner power generation.

Our second commitment is to make our customers true partners in the *Ecomagination* program. That means targeting technologies that significantly improve operating and environmental performance. It means a full range of products to meet our customers' needs. It means a considered effort to demonstrate the value of those products in hard economic terms and providing the financing that supports that development and application of new technologies. A great example is clean coal technology. This idea has been around for decades but has been too expensive. However, our approach is to work with key customers like Bechtel, Synergy, and AEP and bring a system to market that creates value, that uses coal with low emissions and is economically competitive. Another great example is industrial water outsourcing. Here we're working with chemical plants and refineries to extend water supply, improve environmental impacts, and lower cost.

Third, we commit to improve our own environmental performance. GE is the only company listed in the Dow Jones Industrial Index today that was there at its inception. You can't maintain people's trust unless you lead by example, unless you put your own skin in the game, especially when you're asking others to. Simply put, we will do for ourselves what we want to help our customers accomplish. And we're going to invest every year between now and 2012 in order to improve the energy efficiency of our company operations by 30% and reduce our worldwide greenhouse gas emissions by 1%. And we believe that 70% of this investment will be in our own technology. Now reducing emissions by 1% may not sound like much, but GE's a growth company. And if GE were to continue to grow as we project, by 2012 our emissions would have gone up more than 40%. So what we're committing to is not only giving our shareowners the growth they expect but decreasing emissions as we do so. I think we have to. Industry and government have to take steps to develop a policy that is engaged in greenhouse gases, like carbon dioxide. There's a long road ahead to implement lasting solutions but even small steps will get us headed in the right direction.

We're taking these steps because, while being a good corporate citizen was once a business imperative, today it's just a competitive advantage. And we're included for the first time in the Dow Jones Sustainability Index, the 300 best firms on environmental, social, and financial criteria. You know, at times in the past when much less was known about how to protect the environment, we had been at odds on how to address historical contamination of waterways and other issues. And some of those disagreements continue today. We have always acted responsibly, within the guidelines of the law, and done what we believed was in the best interests of our shareowners, our communities, and other stakeholders. And we have always lived up to our commitments. And we'll continue to be led by those guidelines.

Fourth, we commit to increase our sales and profits based on this initiative. Let's be clear about this. GE's obligation is first and foremost to our shareholders. The GE stock is the most widely held security in the world. We have some five million shareholders, about 40% of whom are individuals. And we're investing in an environmentally cleaner technology because we believe it will increase our revenue, our value, and our profits. We're launching *Ecomagination* not because it's trendy or moral but because it will accelerate our growth and make us more competitive. Today our revenue of *Ecomagina-*

tion products is about \$10 billion. This number will double to \$20 billion by 2010, generating organic growth of 15%. Our revenue growth will take place across the company in Energy, Transportation, Water, Consumer Products, and Materials. It'll also help our global growth. Europe has been a leader in renewable energy. They've set clear goals: 12% renewable energy by the year 2010. China offers immense business opportunities. Of the 20 most polluted cities in the world, 15 are in China. The Chinese government has set aside \$85 billion for environmental spending. This will require substantial commitments in new power generating technology and desalination so GE investors will be rewarded by our leadership in *Ecomagination*.

Fifth and finally, we pledge to inform the public of our progress. Since our progress in developing new cleaner technologies does not affect just GE we believe that everyone has a right to know what and how we're doing. As part of our overall corporate effort to improve transparency we pledge to issue an annual citizenship report on how we're doing at meeting our own environmental goals. Any time you stick your neck out on a topic like this you run the risk of criticism on intent and cynicism on execution. But GE is different than many companies because of our technical breadth and our track record of performance. And we think this is the perfect time to launch this initiative. Energy costs are high. Since 1990 consumption of oil has increased by 50% and natural gas has almost tripled. The world's population has grown by roughly one billion people so demand will increase the strain on our resources. Americans are acutely aware of this when they fill up their tanks. There are already signs that the high price of oil is acting as a break on the economy and that it will continue to drain away confidence. At the same time there are signs that greenhouse gases do have an impact on the environment. We need to take steps today to realize our potential.

First and foremost we must have leadership both in the private sector and in government. It's time for the private sector to assume its rightful place as a major catalyst for environmental change. For too long too many people in the private sector have viewed protecting the environment as a no-win business. We believe that the growing market for environmental technology can get us where we need to be. But industry can't get there alone. We need to work in concert with the government and environmental groups to promote and reward leadership. We believe that the government can provide leadership by clarifying policy, by committing to market mechanisms, by promoting diverse energy

sources, and encouraging an American energy game plan. This starts with clarity and certainty in energy and environmental policy. Even with the technology at hand, breakthroughs of truly lasting value can only happen if government, industry, and advocates create certainty on the way forward and commit the intellectual and financial capital to find new solutions.

For a nation like ours, which has always seized new opportunities, created new markets, and developed new technologies, our failure to push the envelope on cleaner power and environmental technology is disappointing. So, too, is our failure to develop a coherent energy policy and that failure has meant as a nation that we've not realized our full potential. As a CEO I can tell you with some authority that uncertainty is the biggest impediment to investment in environmental technologies or just about any other field. For instance, to politicize the uncertain nature of the production tax credit makes wind generation more expensive than it should be. A program like this should be permanent. We cannot afford to be passive or pull in different directions. Together—public and private—we must jointly resolve to find a common approach to address these issues. There's no time to wait because tomorrow is now. We are living in a carbon constrained world where the amount of CO₂ must be reduced. And there are two ways to address that reality: head on and driven by innovation or by getting pulled into it through regulation. The burden is on us to lead and the industry must set its own aggressive and meaningful targets. We think that real targets, whether voluntary or regulatory, are helpful because they drive innovation. And of course, whatever you call them—targets, caps, or goals—they have to be realistic, they have to be consistent, and they have to be followed. But the setting of targets raises the stakes and brings forth our best. We'll do our part. We will work with our customers to establish these kinds of goals and make our core mission to provide the technology so industry can reach them in a cost effective way. Again, to deal with this challenge I believe we must have a proactive business policy or we will get a reactive government policy.

Now, market based approaches will drive environmental improvement. We believe in the power of market mechanisms to address the needs of the environment. That is, after all, what our commitment to *Ecomagination* is all about. And we think that goals supported by market incentives drive results. You don't have to look far to find good examples of market mechanisms that have dealt with emission reduction issues much more success-

fully than regulations. Take the case of sulfur dioxide where a trading system has let companies manage environmental targets at a substantial savings over inflexible alternatives. And we must drive fuel diversity. Just as no one single fuel source or technology can achieve reliable supply and stable pricing, no single fuel can provide the silver bullet on greenhouse gas emissions or ensure energy security.

We believe that any policy's best approach would be to promote energy diversity, to encourage the use of natural gas, to promote the development of renewable energy, to maintain and advance nuclear energy, and to invest in cleaner coal. U.S. policy should recognize the necessity for proven technologies in the near term and establish incentives for the development of new technologies in the longer term. Nuclear energy is a proven asset. GE has been in this business for 40 years. We've seen successful technology evolve and we believe firmly in its future. Nuclear is emissions free. It strengthens our resource diversity and by strengthening our energy security it bolsters our national security. Of course there are questions. And they need to be answered. But narrow questions must not stop the quest for broader energy answers. Nuclear energy provides 16% of America's electricity. So I agree with the President. It's unrealistic to imagine America's energy future without this proven, clean, safe domestic resource.

And finally, America should strive to make energy and environmental practices a national core competency and by doing so, create exports in jobs. In healthcare, America leads. We're the biggest market. And national organizations like the NIH have promoted innovation. This has created a quality of life for our citizens and a vibrant industry with millions of jobs and exports. Similarly, America is the leading consumer of energy. However, we are not the technical leader. Europe today is the major force for environmental innovation. European governments have encouraged their companies to invest and produce clean power technologies. The same is true for nuclear power. More than 70% of energy produced in countries like France and Finland is nuclear. And government policy that encourages this with subsidies and other incentives is giving European companies a leg up. While Europe has been a driver for innovation, China promises to be its market. And U.S. companies should be on the forefront of helping the Chinese government as it seeks cleaner ways to run its factories, transport its people, and light its cities and towns. But to do so America must act. Our government should shape technical priorities that create competitiveness in energy. Our universities provide a great backbone for this ef-

fort. For instance, GE, Exxon, Toyota, and others have a multi-year commitment at Stanford to develop low cost hydrogen fuel cells and other technologies. By combining the innovative spirit of America's entrepreneurs with a focused and forward looking policy, America can lead in the energy sector. It was precisely this combination that helped promote dramatic innovations in information technology in the '80s and '90s, that unlocked productivity across our economy. Similar investment in leadership and clean power and environmental technology will produce similar results. We're optimistic about America's ability to emerge as the leader but we must act now.

So today I ask you to imagine the future—a future where cleaner, quieter aircraft engines carry us further and faster, where fuel cells power an entire neighborhood or industrial park, where new nano materials produce lightweight engines using a fraction of the fuel, where mercury free lamps illuminate our highways and streets, and where new technology brings clean drinking water to millions who have never known it. Some call these ideas impossible and our commitments ambitious but at GE we believe that ambition is the key to innovation. GE's founder Thomas Edison said, "I find out what the world needs and then I proceed to invent it." Today the world needs thousands of scientists, engineers, and dreamers who can deliver on his promise. None of us know exactly what the future holds and I certainly can't predict what product will help change the world. But I do know that there's a vast new profitable market in cleaner technology. I know that protecting our environment and building our economy go hand in hand. And I know that green is green.

Ecomagination is about what we can do right now and what we will be able to do in the future. We're working to imagine this world of tomorrow and we're confident that we will succeed. Our corporate focus is called *Imagination at Work* and we believe our ability to imagine is as limitless as our potential to achieve.

Thank you very much and now I'd like to introduce Jonathan Lash. Thank you.

APPLAUSE

Susan Phillips

Thank you very much, Jeff, for your presentation about this ambitious program. I'm pleased to hear that a corporate leader like GE is undertaking such an important step towards sustainable business practices.

Our next guest, Jonathan Lash, will offer his thoughts about GE's *Ecomagination* program. He'll also talk about the long-term perspective and leadership role that corporate and government leaders must take on behalf of society and the environment. Jonathan is president of the World Resources Institute, an independent organization that provides solutions to global problems of environment and development. WRI works with partners in more than 50 countries to expand people's access to information and decisions about the environment and the use of natural resources, building collaboration among political, business, and nongovernmental organization leaders globally.

From 1993 until 1999, Jonathan served as co-chair of the President's Council on sustainable development. He also serves on various national and international committees including the Dupont Biotechnology Advisory Panel. For two years before joining WRI, Jonathan directed the environmental law and policy program of the Vermont Law School. From 1987 to 1991, Jonathan headed the Vermont Agency of Natural Resources, having served the previous two years as Vermont's commissioner of environmental conservation. A former Peace Corps volunteer and federal prosecutor, Jonathan served as senior staff attorney at the Natural Resources Defense Council from 1978 to 1985. He's also written several books about environmental topics.

Please welcome Jonathan Lash.

APPLAUSE

Jonathan Lash

Well, thank you Jeff. That was a powerful speech and a significant message. I guess this is the environmental response and I have to say it's an extraordinary and rather unexpected moment for me as well, Jeff. A long-time environmental advocate standing with the chairman of the world's second largest company as he announces that his company

plans to grow *and* profit by helping to solve the most pressing environmental problems that humankind has ever faced. It's enough to make even a gloomy environmentalist hopeful.

It seems fitting that you are making this announcement at George Washington University before an audience that includes many GW business students. As the dean said, the Beyond Gray Pinstripes review of the business school environmental and social programs consistently ranks GW among the leaders cited for their cutting edge programs. Just the territory that you're taking GE into today.

The World Resources Institute is a global environmental think tank. We link analysis with engagement to put ideas into action. We work on problems like those that you've discussed today—water, energy, and climate—problems that will profoundly affect the future of humanity and shape tomorrow's markets. These are issues that by the end of the 20th century posed urgent threats to human well being and security. And as WRI searches for solutions we've increasingly found ourselves working in partnership with business because that is where we see an opportunity to catalyze change. We are idealists but we're pragmatic idealists. Global environmental problems like climate change cannot be solved without business. But if companies like GE become convinced that there is a business case for creating and marketing the technologies, the products, and the services that will reduce emissions of greenhouse gases, then there's hope.

GE is not the first company to take climate change seriously. WRI has worked with the World Business Council for Sustainable Development to develop a system that enables companies to account clearly and consistently for their greenhouse gas emissions. In more than 300 companies, including GE, now measure and report their emissions using that system. That's an important step. We found that companies never manage what they do not measure, but that as they begin to measure their emissions they usually go on to take steps to reduce those emissions. That is an important step.

We work with 13 Fortune 500 companies that are buying green power. Those companies are now the largest users of electricity from the sun, wind, biomass, fuel cells, and landfill gas and they're saving money doing it. That is good business.

We also work with a group of 10 companies in the northeast including GE to find innovative approaches to reducing emissions and to build the business arguments for doing so. All of those actions—measurement, reporting, and reduction targets—are significant. They drive innovation. They help companies learn what it takes to reduce emissions and they position companies for the future. But what GE has announced today goes beyond measuring, reporting, and managing their own emissions. They do measure and report their emissions. They have today committed to reduced emissions while continuing to grow. That will drive innovation. They've promised to report publicly on their progress. That will create accountability. But they are going beyond improving their own efficiency and managing their own emissions. They've also announced that their business strategy will be built upon developing and marketing products that will enable their customers to become more efficient and significantly reduce pollution and greenhouse gas emissions. That is both important and powerful and unique. GE will demonstrate that it is possible to thrive in what Jeff was quoted in *The Wall Street Journal* this morning as calling it a carbon constrained world. That sounds like the sound of the ice that has blocked progress on global warming beginning to break. During the last 25 years industrialized countries have decoupled economic growth from growth in energy use. GE is a global leader in power generation technology and they've played a significant role in that achievement. By delivering on the commitment that they have announced today GE will demonstrate that it is possible to decouple economic growth from growth in greenhouse gas emissions. Not just in their own plants, not just in the electrical utilities sector, but in all of the sectors in which they compete. That, my friends, is a big deal. It is leadership. It is an important model that will affect practices globally. It will create real reductions in greenhouse gas emissions and it should send a message to policymakers. I also believe it is very smart strategy.

It is WRI's business to track global environmental trends. The problems which GE has today said they will engage are growing more urgent. That means that GE will be selling what businesses and nations will want and need: more secure water and energy supplies, clean air, and a safe climate. I have to say, Jeff, that what you're doing is not only visionary, but in the absence of coherent national policies regarding emissions reductions and encouraging clean energy use, it's just plain gutsy. Although GE is taking a leadership role in the private sector there is an urgent need for government policy that sends clear signals to companies and citizens to reduce emissions now and in the fu-

ture. I believe that the McCain-Lieberman bill would be a good start. During my lifetime the economy of the United States has grown about tenfold—the greatest outpouring of wealth in the history of the earth. At the same time we have reduced our output of various pollutants in absolute terms. Much more wealth, less pollution. Obviously, controlling pollution didn't kill growth. Nor did it restrain technologies. Indeed, in most cases it stimulated technology. The companies that moved early to develop technology and clean up their own processes have consistently reaped economic rewards.

I know that there are many GE employees here today and thousands of others will hear your announcement this afternoon. Let me end with a message to the people of GE. Your chairman has very publicly set a huge challenge for you and for your company. I hope you feel both proud and energized by that challenge. I also hope that you feel a sense of responsibility to lead, to persuade, to teach, and to create change.

Thank you very much.

APPLAUSE

Susan Phillips

That was terrific. Thank you. Jonathan, Jeff, thank you so very much for sharing your ideas and your work with us today. It's been a real pleasure. And in the fine traditions of the academic world, Jeff Immelt has offered to answer a few student and maybe even faculty questions. So I would invite the students and faculty we ask to think about some questions, to step to the microphone. Jeff.

Q&A

Jeff: So this is the oral exams, dean?

Dean Phillips: This is the oral exam.

Jeff: Yeah, great, great.

Q: Hi. My name is Kristen Diesen. I'm a doctoral student at the engineering school here, studying environmental and energy management. I

think one of the current challenges to the widespread use of renewable energy and energy efficient technologies is the initial cost to consumers. How does GE plan to make their *Ecomagination* technologies more cost effective or otherwise attractive to consumers who may not be inclined to purchase them just for their environmental benefits?

Jeff:

You know, I think when we studied the evolution of wind energy or any other energy source that I could talk about in the renewable space, we always compare it with conventional fossil fuels in terms of cost effectiveness. So when we studied wind originally, we studied it at large scale—3½ megawatt—that ultimately it could be effective at generating in the four to five cent per kilowatt hour range, which, depending on the pricing of natural gas or coal, can be competitive in a utilities grid vis-à-vis the sources and uses of renewable energy. So when I talk about *Ecomagination*, what I really mean is that in our laboratories, in our thinking technically, our assumption is that people aren't going to pay big penalties for these products or for the electricity they generate. In fact, what I think is just given innovation, given some time, given some customers who want to work progressively along that area, we think ultimately many sources of renewable energy in scale can generate electricity in a cost efficient way. We view the role of government and things like production tax credit as stimulus to that effect. In other words, you can't wake up one morning and achieve the lowest marginal cost that morning. But given time, given the right incentives to help us get there, we think over time every source ought to be within the bandwidth so that the utility can invest in fuel diversity and not penalize people from a cost effectiveness standpoint at the same time.

We introduced, in a different industry, the Evolution engine which went into the rail industry in 2005, the end of 2004, 2005. And when we introduced that product it lowered emissions of a rail engine in that industry. It also cut fuel use by 10%. So from a customer standpoint, you know, it's not that attractive to have to buy a new fleet of locomo-

tives, but in this case they can pay for themselves very rapidly because of the fuel efficiency at the same time they get emissions reduction. So we're very mindful of cost effectiveness and we're not in the business of making hoola-hoops. We're not in the business of hobbies. We're in the business of making things that are economically justifiable. And that ultimately I think is what's going to make this a viable strategy.

Q: Hi Mr. Immelt. My name is Mark Stearic. I'm on the faculty here at George Washington University in the School of Business and I'm also the director of the environmental and social sustainability initiative. We have a number of our stakeholders here as well—students, faculty, administrators, and even some alums, and several other members of the audience are in the NGO community and they—business and government representatives—have provided us with excellent classroom experiences and onsite project sites and programs for our students. And so I am very pleased to be part of this particular program. I'd like to ask you more of an internally oriented question. It seems today that you have really tried to set out a very expansionary vision. And as we all know, in many organizations, especially larger ones, that's a very good first step of trying to implement a new program, especially one as broadly cast as this. What I'm interested in is identifying how you might, say, immediately after this session or tomorrow morning, continue to advance your company's *Ecomagination*. That is, try to build in all of these various initiatives into your organization's culture. As you know, in addition to vision, typically you need training, you need motivation systems, incentives. You need basically a way to continue the excitement from a program launch like this one. So I'm wondering, especially related to energy efficiency and renewables, which quite a number of our stakeholders are very interested in, what kinds of internal motivating programs do you have in mind to begin as soon as possible to advance energy efficiency and renewables and how might business schools like this one assist you?

Jeff:

Well, something like this, you know, like we didn't wake up last Wednesday and show up here today. We've been looking at it for a year, studying it, researching it, thinking about the themes that tie together. And so really to answer your question I would say externally, in terms of approach to customers, we have inside the company very well funded technical breakthroughs. We call them *Imagination Breakthroughs*, things like coal gasification, 3½ megawatt wind, the hybrid locomotive, GE-NX engine. So all the things I talked about have all been germinating inside the company for six months, a year, two years, are well funded with technical teams, so we have the technology portion that's very vibrant inside the company. Then you match that with customers. So we have identified customer partners who are a very big part of this. In other words, I'm here, I'm a businessperson, you know, I sell things, I make things. We do it in a reputable way. We build our reputation. But I'm nothing without customers. So we try to partner with customers and we have everybody working on that.

The third leg of your question really is internal environmental standards. We're a 125 year old company. We can test a lot of the things we do—Steve Ramsey traveled with me today, he runs EHS for the company. So we immediately have initiatives inside the company that help us link with that. So we train our people, we have funded technical programs externally, we have funded customer programs externally, we have funded programs internally so that we can use our own evolving technology and our own site. So we rarely think, you know, introduce initiatives like this. We might do one every other year or every third year, every fourth year, every fifth year. We tend to stick with the things we've developed.

In terms of what you can do in the business school environment is keep providing good product, in your case, which is the kids. I view people in business school and the product development business just like I am, and I think continuing to have good students but students that are looking to solve the problem—in other words, I thought the

young lady's question, the first question, is at the nub of the whole question, which is the extent to which environmental and energy policy is about tradeoffs we're never going to get anywhere. The extent to which environmental policy becomes an excuse as to why we can't compete with the Chinese anymore, we can't get anywhere. This debate's a loser. The extent that we can make innovation the bridge between where we are today and where we can be in a cost effective way, in an environmentally friendly way, then we win. And that's the initiatives we drive inside the company and that's what's so important that a new generation of leaders that you're training in this school can't view it as a zero sum game. Can't be. Because if we view it as a zero sum game we are never going to get anyplace. It's got to be a maximization game and innovation has to be the edge that helps us get there, that helps us get there.

Q: How you doing? Grant Halloran. I'm an MBA student studying environmental policy and management. My question was you're starting to see more and more companies design product that kind of take into consideration the end life cycle of the product where the products are designed so they can be easily broken down and recycled. Herman Miller's initiating such a practice, Nike is starting to recycle their shoes to make certain flooring and stuff like that. Is GE considering any practices where they might, with some of their products, be able to introduce design and engineering so that the product can be broken down and limit virgin resources.

Jeff: You know, we're a small player in the end use market in areas like appliances where things like design for recyclability is a bigger factor. Where we tend to play in a bigger space is in materials. We're big in the plastics business and in the advanced materials business and that's where the notion of recycling products takes on a bigger resonance. And one of the *Ecomagination* products is a Plastics product that can have redesign, can be recycled, and can evolve to having a longer life. And again, the challenge in recycling, similar to the chal-

lenge we talked about before, is economics. In other words, the extent to which that there can be a real chain that can be recycled back into products in a way that extends economic life just like it extends life for materials and then you've got a winner. The extent to which it becomes a cost tradeoff issue, then it's not going to be as resilient as it needs to be. I've been around our Plastics business for 20 years—we were talking about recycling 20 years ago. And we've evolved only so far. Only in a miniscule range. Because, again, we have to attack the economics of this system at the same time we attack the ideas of what is possible.

Q: Hi. My name is Carl Schlemmer. I'm a second year MBA student concentrating in environmental resource management and policy. My question relates to supply chains. Environmental issues like supply chains have become global. As a result, to evaluate the impact and effectiveness of GE's *Ecomagination* initiative it is important to understand how GE plans to incorporate its supply chain into the initiative. With that said, will GE require suppliers to be more environmentally conscientious or will GE plan to work to facilitate better practices among suppliers?

Jeff: You know, we have very strong environmental standards. We have a formal compliance program inside the company that every employee signs called *The Spirit and the Letter*. And as part of that policy is outreach to our suppliers to make sure that they adhere to the same standards that we adhere to. So again, that is a very important factor. But I think one of the things that people need to keep in mind, because a big part of the environmental debate really centers on Mexico, China, India, places in the developing world and this whole notion of global manufacturing. And what I would tell you is that our facilities in Mexico, India, and China all have six sigma certification, all meet ISO standards, all meet our highest environmental standards, all gets exported. So multinationals tend to export their environmental practices once they're set and we adhere to that in a very rigorous and

rigid way. But I would also tell you that our country has evolved in the industrial age for almost a hundred years. So we've had invention, we've had environmental impact, we're trying to catch up to that. Countries like China are trying to go through that hundred year time period in 10 years, 15 years. And so the Chinese recognize the need to improve environmental performance of their capabilities because their citizens want the same thing as American citizens want. And so I think this notion that other developing parts of the world aren't going to aspire to have similar environmental standards to what exist is just not true and, you know, it's not where it needs to be. It's not exactly the same place as the United States. But I see the right activity in Mexico, China, and India which are three of the biggest outsourcing positions in the world. I see that same impetus to drive change that I see in this country and other places and so ultimately when I talk about *Ecomagination* products, I think a big market for our *Ecomagination* products will be China, will be India, will be Mexico because in many ways their needs are even more profound than ours and they have a shorter time window with which to catch up to those standards and I think that's what we'll see.

Q: Hi. I'm Vijay Krishna. I'm a doctoral student in human resource development and a research assistant at the ??? Initiative at GW. Actually we discussed about your initiative to get values and virtues into everything that GE does. And last time we're discussing with our class how this initiative is going to have a lot of impact on the learning organization policy. I was wondering how this initiative is going to have an impact on the espoused values and the values in practice and what kind of learning environment would really contribute for you to help achieve this particular thing. And like today I feel that GE, the word GE to me appears through a green part ???. And so I was just wondering how the internal practices would be molded to make it more of a learning ???.

Jeff:

Well, we've aspired throughout our history to be both a great and a good company. I wouldn't say that it's been written necessarily that way but over our history our approach has been to be a great company from a standpoint of great for investors, a good investment, growing our revenue and earnings and that's very important. This is not the Jeff Immelt Company, this is the GE Company. We've got five million shareowners, we're the widest held security in the world and I work for those people. I'm a big shareowner myself but I don't own a majority stake of GE, okay. It is very widely held and that's who my responsibility is to. So we want to be a great company but we also know that reputation's important, maybe today more important than ever before and so we think this initiative is very much consistent with being a great and a good company. But we also feel like our Health-care business does that. We also believe our Consumer Finance business does that. We also believe that other businesses that aren't directly a part of this initiative today fit in to that broadest tapestry of kind of what it means to be a company. You know, businesses survive for 125 years, like GE, because we solve the world's toughest problems. I mean, we survived for 125 years because we listen to markets, we listen to customers, and we go back to our laboratories or our business practices and say you know what, god, really, if you could make coal, if you could take coal—of which there's a bunch of coal—and you could find a way to have the same emissions as natural gas you've got a game. And you've got a game in China, you've got a game in Pennsylvania, and with oil at \$50 a barrel, man, it sells, okay. It sells. And so we go back and that's what coal gasification is. Now today it's 10% or 15% too expensive and there's some things we have to resolve but you know what? It's in the bandwidth of things I've seen in my 20-year plus career, it's in the bandwidth of things we know how to do. If we put smart people and capital and customers as partners and a little bit of government help in between—if you link those four things together we can do coal gasification. So I think it's, you know, I believe in great and good because I believe that's what the company stands for. But one of the things I want everybody to leave here today,

I really want you to leave here arm in arm as saying good business is good more broadly. And that this world of tradeoffs, if you live in a world of tradeoffs, if you want to see who's guilty, if you came here today to punish the guilty, you came in the wrong room. You came in the wrong room. If you came here today to say we've got to break through this world of tradeoffs and think about a different way and that innovation is the bridge, innovation is the bridge, then that's what GE stands for. Now I would say we stand for that in CT scanners and we did it in 1920 and we do it today and I think that's the history of this company that I'm lucky enough to lead.

Q: Hi. Thanks for being here today. I'm Miranda Anderson. I'm also an alumna of GW's MBA program in environmental management and sustainability. Question about your comments about federal policies and I applaud your bravery to stand up in front of live television and encourage our government to build policies around energy. And there are lots of examples where that has worked. Recently Starbuck's pushed the FDA to test and approve recycled content hot cups instead of just throwing up their hands and saying, "Well, we'd like to use recycled hot cups but the FDA won't let us," they actually got their supply chain and pushed the government to do the testing and create the policy. So to the extent possible can you tell us what your plans are in GE to work with the government on federal energy policy and other environmental policies where we can lead as a country.

Jeff: Just to recap, I mean, I think the four principles that we're kind of trying to stand behind are certainty, market mechanisms, fuel diversity, and thinking about energy as a national competence in terms of building that inside the country. You know, we are not, we don't want to position ourselves as a regulator, we don't want to position ourselves as above necessarily the industries that we serve. I think what we try to do is shape policy around those four areas and what I would tell you is that the energy policy, the energy bill hits on many of those activities. It hits on fuel diversity, it discusses in some areas the ele-

ments of certainty. It really does try to capture some of those aspects. But again, I think that there's even more and there's even kind of more presence that can be felt. I would just make two comments. One would be I go back to the analogy, I made remarks on healthcare. You know, we can sit and debate as a country whether our healthcare is too expensive, there's waste and it's 14% of the GDP but I'd tell you something that's irrefutable, totally, totally a fact. America leads in healthcare. We're the technical leader, we create jobs, we create exports. This is the definitive leader in the world. Now we can do the same thing in energy. I mean, we're the biggest market, we have the most to lose, we have the most to gain. But we haven't taken that same position and so that's one of the things I think we need to think about. I think the most controversial area, and again, I'm a business guy, I come back, I'm not running for anything, I'm not looking for funding from anybody in this room today, I fund myself and I'm a business guy. I love my job and I love my company. Carbon constraints aren't going to go away. Whether it's Republicans or Democrats, no matter how bills evolve or things like that, it's not like the null set is going to be the outcome. There is going to be something that exists over time and I always encourage us as a company and the customers that we love dearly and we work with to be proactive versus reactive because if you're not a part of the debate, if you don't think about work and go, it's not like you're going to get nothing forever. We're going to get something we'd like even less than anything we can think of as an outcome and so I think businesspeople just have to think about the world a little bit in those terms.

Susan: One more question, this is the last question.

Q: Last question? Well, I'm glad I made the cut.

Jeff: You guys have got to study for exams.

Same Q: My name is Brian Katz and I'm a graduate fellow in the MBA program, concentration on finance. Let me first start off by saying that I think

this is probably something to reiterate what you've heard over the past few days is this is a phenomenal initiative on behalf of GE. For individuals in business to understand their overall situation with the environment, to respect that. I, for one, drive a hybrid—it was a choice that I made to do. My question is more on the aspect of how this is going to affect the earnings mix. Obviously this seems to be more of a manufacturing initiative as opposed to a financial initiative or towards the media side of GE. How do you foresee this affecting the earnings mix of GE?

Jeff:

You know, we believe, we kind of talk about the industrial set of the company as being a global infrastructure company. So if you think about GE, a big chunk of our industrial business is in energy, transportation, household products, materials, healthcare. And the *Eco-magination* initiative really connects a lot of the dots around that. So that's on the technical side. On the global side, you know, half our sales are outside of the United States and I've said publicly that I believe more than half of our growth over the next decade is going to come in developing markets, so China, India, Southeast Asia, the Middle East. And this is whether it's desalination . . . I mean, the northern half of China has no water. The Middle East—big water issues. So it's very much focused on the industrial infrastructure of the company and the global nature of the company. Financial services will play a role in the project finance base. It's not directly associated with financial services but it will play a role. But again, we think \$10 billion to \$20 billion over five years, that's 15% organic growth, that's roughly twice the target of the company so we're here today because really we think this is a great marketing approach and we think it's good for business.

I want to thank you, Dean, for the great hospitality that you've offered here today at George Washington. I want to thank everybody for coming today. Again, this is a first step, not a last step. And I think it's something that is energizing us inside the company as a way to be a

great and good company, which we think is very important for our global strategy. So thanks very much for your hospitality.

APPLAUSE

Susan Phillips

Thank you so much. That was terrific.

Thank you, both Jeff and Jonathan, for coming to campus today to discuss *Ecomagination* and corporate social responsibility. We look forward to following GE's progress and to contributing to the development of future ethical business leaders. Thank you all very much for coming and this concludes our program.

APPLAUSE

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