

GROWING LONG-TERM VALUE: CORPORATE ENVIRONMENTAL RESPONSIBILITY AND INNOVATION

HEARING

BEFORE THE

SUBCOMMITTEE ON CHILDREN'S HEALTH
AND ENVIRONMENTAL RESPONSIBILITY

OF THE

COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

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MAY 16, 2012
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GROWING LONG-TERM VALUE: CORPORATE ENVIRONMENTAL RESPONSIBILITY AND INNOVATION

WEDNESDAY, MAY 16, 2012

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
SUBCOMMITTEE ON CHILDREN'S HEALTH
AND ENVIRONMENTAL RESPONSIBILITY,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10 a.m. in room 406, Dirksen Senate Office Building, Hon. Tom Udall (Chairman of the Subcommittee) presiding.

Present: Senators Udall and Alexander.

OPENING STATEMENT OF HON. TOM UDALL, U.S. SENATOR FROM THE STATE OF NEW MEXICO

Senator UDALL. The Subcommittee will come to order.

Today's hearing is titled Growing Long-Term Value: Corporate Environmental Responsibility and Innovation.

First, I would like to welcome our witnesses, and I would like to give a special welcome to Mr. Brady, Global Environment Director from Intel, the largest private sector employer in the State of New Mexico.

These companies represent a cross-section of blue chip American businesses that are taking significant actions toward corporate environmental responsibility. My primary goal in this hearing is to learn from them about these key trends. The next goal is to apply that knowledge in shaping voluntary Federal partnerships that help U.S. industries become more sustainable and profitable. I am also interested in how we can increase the transparency, publication, and information sharing of corporate environmental information.

Businesses know that you cannot improve something unless you measure it. Recently, we have seen a stream of interesting reports from the business world on the topic of sustainability, innovation, and profitability. A recent MIT-Boston Consulting report found sustainability nears a tipping point. They found 70 percent of companies had sustainability on their permanent agenda. Two-thirds said it was important to competitiveness.

A KPMG international report says expect the unexpected. Water scarcity, fuel scarcity, climate change, deforestation, and food security will impact businesses in new and complex ways in coming years. PricewaterhouseCoopers' 14th annual CEO survey found

that two-thirds saw environmental responsibility as an innovation opportunity. Ernst & Young found that over 75 percent of 270 executives saw resource scarcity affecting their businesses in the next 3 to 5 years. The Business Roundtable, an association of CEOs of large U.S. businesses, recently issued a report—Create, Grow, Sustain—with 126 CEOs describing their efforts to improve sustainability while creating jobs.

The converging trend toward corporate environmental responsibility in the business world is in contrast with Congress' seemingly growing divisions. My hope is that a greater understanding of sustainability business practices will benefit all in Congress, regardless of views on any particular bill or regulation.

The Federal Government has great powers, and in America we rely on voters to ensure that power is used responsibly. But market forces can be even more powerful in many areas, so we are relying on business to exercise their market power responsibly.

To some pessimists this may sound hopeless. But our testimony today gives me optimism that the interests of business and the environment can align. Businesses need water, energy, and raw materials, and they will need them on an ongoing basis, even after those of us in this room are gone. If businesses harness market forces to reduce energy use, raw materials, emission, and wastes, they will improve their own future and future generations.

In decades past, economic growth could occur with little regard to resources like clean air, clean water, and raw materials since these were cheap and abundant. With 7 billion people on the planet and rapidly developing nations like China and India, this is no longer the case. Recently, more and more business like the ones here today are recognizing that competitive advantage, market share, and innovation lie in doing more with less.

With that, I will now turn to our Ranking Member and the distinguished Senator from Tennessee, Senator Alexander, for any opening remarks that he might have.

**OPENING STATEMENT OF HON. LAMAR ALEXANDER,
U.S. SENATOR FROM THE STATE OF TENNESSEE**

Senator ALEXANDER. Thanks, Mr. Chairman.

I first want to thank Senator Udall who—for creating this hearing, and for scheduling it at a time when we both could be here, and for allowing me to invite witnesses from two Tennessee companies who have distinguished themselves in sustainability, both Eastman Chemical and FedEx. So thank you, Tom, for your leadership.

I just left a meeting—well, let me put it this way. I do not want to be too personal about my daughter graduating, or is graduating, with an environmental management degree from Duke University, and she talks about the word sustainability a lot, and I often say to her, do not use that word with a lot of people because they do not know what you are talking about.

[Laughter.]

Senator ALEXANDER. They do in the university, and they do at the highest corporate levels, and they do in environmental groups. But it has a very broad meaning. And when dealing with business

people or potential clients, good words might be save resources and save money. I think that it what we are talking about.

I just left a meeting with a group of business leaders who are deeply concerned about our reliance on Middle Eastern oil. They were even quoting Friedrich Hyek and Adam Smith and saying their ideology would allow some mandates for flex fuel vehicles in order to break up the OPEC cartel. And so, they were looking at sustainability as a national security issue.

The words that come to my mind are that to—on the front page of USA Today is a long story entitled U.S. Energy Independence Is No Longer a Pipe Dream, and citing all of the advantages to the United States from national security to more jobs to profitable corporations for having energy independence. And the words that come to my mind for that as a strategy are really to find more and use less. In the business world I think that means to save resources and save money.

I am particularly glad that Parker Smith is here, who is the General Manager and Vice President for Eastman Chemical. He can tell me Eastman Chemical's story, but I know how excited they are to have been nationally recognized this year for their work on sustainability, and I look forward to his remarks.

I also welcome Mitch Jackson from FedEx. Fred Smith, who is the CEO of FedEx, has been a national leader in encouraging others to use electric vehicles and himself has helped his company lead the way. They have increased electric and hybrid truck fleets by 20 percent. They have improved their miles per gallon. They have saved over 53 million gallons of fuel, and in doing so they are thinking about saving resources and saving money over the long term. Their estimates are—I guess we will hear more about Eastman and FedEx's savings. I will let them tell that story.

There is one other Tennessee company that I ought to mention. Cummins Engine is not headquartered in Tennessee, but it has major operations there, and as a result of the decision by the Clinton and Bush administrations to get rid of high sulfur content in fuel for heavy trucks, new engines were required. And in that case the EPA allowed 10 years to get the job done, and over that time Cummins invented a new engine. The engine costs more, but the truckers supported it eventually because it saved them money because the engine was more fuel efficient.

So in that case, a company, Cummins, is helping other companies with heavy trucks save resources and save money.

I look forward, with Chairman Udall, to hearing from these witnesses about how we can help create an environment in which American corporations can save resources and save money. And I am glad to have these wonderful examples from Intel and Eastman and FedEx and other witnesses here today.

Thank you, Mr. Chairman.

Senator UDALL. Thank you, Senator Alexander. And let me just echo what you said. It was a real pleasure planning this with you and doing it on a bipartisan basis, and I think as a result of that we have some very, very good witnesses today.

Senator ALEXANDER. I did not mention Procter & Gamble. That was a terrible error.

Senator UDALL. Please, go ahead.

Senator ALEXANDER. They have a long and distinguished history in our State as well. This is a fine American company, and I look forward to what they have to say as well.

Senator UDALL. It sure is. It sure is. And I am excited that your daughter is so involved with sustainability. I hope to get to meet her sometime, and I hope that she is maybe tuning in. You said that she would be working, but maybe she will consider that.

Senator ALEXANDER. She is paying the rent.

[Laughter.]

Senator UDALL. Anyway, but with that, let us turn to our witnesses and start from the left with Mr. Brady. You will each have 5 minutes for a statement, and then we will have a discussion. Your full testimony will be in the record, so you can proceed however you like.

**STATEMENT OF TODD BRADY, GLOBAL ENVIRONMENTAL
DIRECTOR, INTEL CORPORATION**

Mr. BRADY. Thank you, Senator Udall, Senator Alexander. It is a pleasure to be here this morning.

My name is Todd Brady. I am the Global Environmental Director for Intel Corporation. Today, I hope to briefly convey how sustainability is integrated into our business strategy.

By way of introduction, Intel Corporation is the world's largest semiconductor manufacturer with revenues of over \$50 billion in 2011. We employ approximately 100,000 around the globe, over half of whom are located here in the U.S. In fact, three-quarters of our manufacturing capacity is here in the United States in States such as New Mexico, Arizona, Oregon, and Massachusetts. As such, we have long been stewards of the environment and are proud to often be recognized as leaders in environmental matters by external rating agencies.

Let me give you a little bit of background on Intel, and this is important as it relates to our approach to environmental sustainability. Over 40 years ago one of our co-founders, Gordon Moore, observed that the number of transistors in a semiconductor device doubles roughly every 2 years. This was later dubbed as Moore's Law and has been the driving force behind the innovation in our industry. Devices and gadgets that we could not even imagine a decade ago are now reality because of Moore's Law.

In effect, to give that a little perspective, if one were to apply Moore's Law to an automobile over the past 40 years, today's automobiles would exceed speeds of 400,000 miles per hour, have a fuel economy of 100,000 miles per gallon, and cost less than a nickel. So, amazing innovation in our industry moving forward.

How does that tie to the environment? Let me focus on three areas—first, our operations, second, our products, and then third, the application of our products to solve environmental challenges.

First, our operations. As I mentioned, every 2 years due to Moore's Law we have the opportunity to develop a new manufacturing technology. This means this is an opportunity also to insert environmental thinking into our technology development process. That process we call our design for environment process. It has worked very well for us. Over the past decade, we have invested

\$100 million, for example, in water conservation initiatives that have resulted in over 40 billion gallons of water savings.

We have reduced our greenhouse gas emissions 80 percent on a per product or per chip basis, and we recycle over 80 percent of our waste worldwide. We have recently installed 15 solar installations at facilities across the U.S., and we are also the largest purchaser of renewable energy in the United States, this past year purchasing almost \$2.8 billion kilowatt hours of renewable energy.

I now shift focus a little bit to our products. The biggest opportunity that we have in terms of growing our business and aligning that with sustainability is to create energy efficient products so that your cell phone lasts longer, your notebook lasts longer, your costs to operate our devices is less.

In 2006 we made a strategic decision to focus on energy efficient performance. The results of that have been quite significant, such that from 2007 to 2014 the next billion PCs that will be sold, they will consume half the amount of energy and yet have 17 times the computing power of the first billion PCs which were sold worldwide.

Last, let me touch on, then, the application of Intel technology, IT technology in general, on the world. And here is, perhaps, the most compelling story to align our business strategies to sustainability and that is the opportunity to integrate IT to make the world more efficient, whether that is efficient buildings, efficient transportation, efficient you name it. The applications are numerous.

In fact, a recent report by the Climate Group and Global Sustainability Initiative concludes the better use of IT technologies has the potential to reduce greenhouse gas emissions by 7.8 gigatons. That is 15 percent of the worldwide greenhouse gas emissions. And that represents a potential savings of \$950 billion.

So in short, we do believe at Intel that a focus on sustainability in business goes hand in hand, whether that is our operations, our products or applications of our products. So, investing in sustainability, we believe, is an investment in our business.

Thank you.

[The prepared statement of Mr. Brady follows:]

TESTIMONY OF TODD BRADY, INTEL CORPORATION, BEFORE THE SENATE
CHILDREN'S HEALTH AND ENVIRONMENTAL SUBCOMMITTEE, MAY 16, 2012

Thank you Senator Udall and Senator Alexander, for the opportunity to address the *Children's Health and Environmental Subcommittee* on the topic of environmental sustainability. My name is Todd Brady. I serve as the Global Environmental Director for Intel Corporation where I oversee the environmental performance of our worldwide manufacturing operations. Today, I hope to briefly convey how sustainability is integrated into our business strategy.

Introduction

Intel Corporation is the world's largest semiconductor company with revenues of \$54B in 2011. Intel employs over 100,000 employees over half of whom reside in the United States. Over three quarters of our chip manufacturing occurs in US factories located in Arizona, New Mexico, Oregon and Massachusetts. Our products are sold globally with more than three quarters of our revenues occurring outside the United States. Given this global footprint, Intel has long been an advocate for the environment, publishing our first public environmental report almost 20 years ago. We have been fortunate to receive recognition for our efforts, being regularly ranked among the corporate environmental leaders by organizations such as Forbes, Newsweek and Dow Jones. This commitment to the environment is embedded in our 40+ year history.

In 1965, Gordon Moore, co-founder of Intel, published an article in *Electronics* magazine noting that the number of transistors on a semiconductor chip doubled roughly every two years and that

this innovation needed to continue to meet the demands of new technologies. This prediction shortly thereafter became known as “Moore’s Law” and has held true for over 40 years. This law has driven the semiconductor industry to extraordinary achievements which today result in semiconductor chips that provide phones, tablets and notebooks with more computing power than rooms of computers only decades ago. Interestingly, the “law” is not one of physics, but one that conveys human inventiveness and costs up to \$12 billion a step and six years of engineering effort. To put this in perspective, if the automobile followed Moore’s Law, cars today would be capable of speeds of 470,000 miles per hour, get 100,000 miles to the gallon and cost 3 cents each!

I will now briefly describe Intel’s strategy as it relates to the environment. Specifically, I will highlight three primary areas: (1) reducing the environmental footprint of our operations (2) creating eco smart products and (3) using Intel technology to address critical environmental challenges.

Reducing the footprint of our operations

Approximately every two years Intel implements a new semiconductor manufacturing process technology to make faster chips with smaller feature sizes in the endless pursuit of Moore’s Law. Each semiconductor manufacturing generation is the result of many years of research and development and typically results in approximately 25% of the manufacturing tools being replaced in each fab (semiconductor chip fabrication factory). Moore’s Law inherently reduces natural resources used for construction and manufacturing. The technology to make computer chips with smaller feature sizes allows more computing capacity to be produced on each chip in

each factory. Intel has estimated that to produce the same computing power at the current technology node would have required four times as many factories just two generations before. Fewer factories require fewer resources for construction and less energy and natural resources to operate. This is the power of Moore's Law applied to sustainability.

To formalize the tie between Moore's law and sustainability, Intel created a "design for environment" process in the early 1990s, a collaborative approach among environmental, research and development (R&D) and high volume manufacturing engineering. The overarching goal of this approach was to make successful environmental performance a core responsibility of the technology development process. To achieve this, environmental goals are established during the early stages of technology development for air emissions, water conservation and waste minimization and recycling, among others. These goals are treated as equal in importance to other manufacturing goals, such as cost, process yield or throughput. The results of these efforts have been significant and because three quarters of Intel's manufacturing occurs in the US, those benefits apply directly here at home. For example, over the past decade Intel has invested over \$100M in water conservation initiatives that have yielded over 40B gallons of water savings. Greenhouse gas emissions have been reduced over 80% per chip, cut in half during a time when our manufacturing operations increased over two fold. Waste recycling stands at over 80% with less than 5% of all wastes going to landfill. Finally, Intel is the largest purchaser of green energy in the US since 2008 per the US EPA, purchasing over 2 billion kw-hrs of renewable energy each year.

Government/industry partnerships can be key in achieving such operational results. Intel was one of the first companies to participate in the Project XL initiative, working with local and federal agencies to develop an environmental permit model that provided manufacturers flexibility in a dynamic industry while ensuring environmental controls and public transparency. In 1998, Intel led the semiconductor industry to sign the first ever voluntary agreement with EPA to reduce greenhouse gas emissions. In 2010, both Intel and the semiconductor industry participants completed this agreement and exceeded the commitment to reduce GHG emissions 10% below 1995 levels.

Energy efficient products

Although Intel is the world's largest semiconductor manufacturer, the focus on environmental improvement cannot end there. In fact, when evaluating our environmental footprint, the use of our products in commerce has a potentially much larger impact than the internal manufacture of those same products. In 2006 Intel made a major change in processor architecture to emphasize energy efficiency. The new chip architecture along with software to optimize power management has resulted in dramatic improvements. For example, a new laptop computer with the latest Intel processor and with power management features enabled can use up to 26 times less energy than a four year old desktop system. Given the dramatic growth in the use of notebook and mobile computers relative to desktop computers, the potential savings are staggering. Intel technology will enable the billion PCs and servers installed between 2007 and 2014 to consume half the energy and 17X the computing capacity of the first billion computers.

In addition to energy efficiency, we have focused on reducing the environmental footprint of our products from design through disposal, which includes evaluating and minimizing the use of environmentally sensitive materials in our products. Over the past decade, Intel has worked with suppliers and customers and participated in several industry consortia to eliminate lead and halogenated flame retardants from our products. We have now shipped over 500 million lead-free products worldwide.

Using Intel technology to solve environmental challenges

Clean manufacturing and energy efficient products are important but perhaps the most compelling sustainability application of IT products is their use to address some of the world's most challenging environmental problems. For example, the development and application of "smart" technologies to manage buildings, transportation systems, manufacturing, health care, retail and many other applications has the potential to significantly reduce emissions and energy use. A recent report by the Climate Group and Global Sustainability Initiative concludes that better use of IT technologies has the potential to reduce worldwide greenhouse gas (GHG) emissions by 7.8 gigatons by the year 2020. This savings represents 15% of global GHG emissions and in economic terms translates into saving nearly \$950 billion in costs (The Climate Group, 2008).

For Intel and the IT industry, creating new technologies that enable efficiency, connect people, share ideas and enable actions that were once only available in science fiction novels are at the heart of the industry's growth. These same technologies have also had a very positive impact on the environment. Online banking saves a trip to the local bank branch office and associated auto emissions; online shopping saves emissions associated with travelling to multiple stores;

downloading music avoids the manufacture, packaging and distribution of CDs and its environmental impacts, meetings; conferences can be held virtually; companies can monitor and optimize the shipment and transport of goods real-time. The potential applications are endless.

Intel believes so strongly in the role that our technology can play in driving energy efficiency and sustainability progress in the rest of society that we founded the Digital Energy and Sustainability Solutions (DESSC) initiative. DESSC includes as members most of the leading IT brand-name companies and a number of environmental and energy efficiency groups. It focuses on raising awareness of how IT applications can improve energy efficiency and water resource management in other sectors and in working with governments to develop smart public policies that enable the growth of these IT solutions.

Communicating to the public and our employees

As companies develop their environmental strategies and programs it is critical to engage both their employees and the general public. To engage employees, we have established recognition programs, provided grant money to fund employee-driven sustainability programs, and created an internal social networking site dedicated to environmental topics. Four years ago we tied the financial compensation of all employees to the environmental performance of the company by setting environmental targets which factor into our annual employee bonus payout.

To engage the public, Intel employees volunteered over 1 million hours of service in their communities in 2011, many of those hours spent supporting environmental initiatives in their respective communities. In addition, in most areas where Intel operates, it has created community environmental groups to both review and receive feedback on its performance. Most recently, we have launched exploreintel.com a new website to be as transparent as possible in

our environmental performance by sharing information with public related to our operational environmental footprint.

In summary, for Intel sustainability and business excellence go hand in hand whether it is minimizing our environmental footprint in our manufacturing operations, creating energy efficient products or identifying sustainable applications of these products. Investing in our sustainability initiatives is investing in our business.

More information regarding Intel's environmental strategy and performance can be found at:
<http://www.intel.com/content/www/us/en/corporate-responsibility/corporate-responsibility.html>

Senator UDALL. Thank you very much.

Mr. Sauers, I see you have a product there in front of you, Tide Coldwater, and I am sure you are going to tell us about that.

Mr. SAUERS. Yes, sir.

Senator UDALL. Please go ahead.

STATEMENT OF LEN SAUERS, PH.D., VICE PRESIDENT, GLOBAL SUSTAINABILITY, THE PROCTER & GAMBLE COMPANY

Mr. SAUERS. Well, Senator Udall, Senator Alexander, thank you for inviting me to testify today. My name is Len Sauers. I am the Vice President for Global Sustainability at Procter & Gamble, and I lead the overall program here in the U.S. and around the world. P&G manufactures and markets a broad range of consumer products that are used by over 4 billion consumers every day. In October of this year we will have been operating in the United States for 175 years.

Today, I would like to talk to you about our efforts in sustainability, covering three areas—how we are improving the environmental footprint of our products, how we are improving the environmental footprint of our operations, and our program in social responsibility.

Let me begin with our products. When we began the process of improving the environmental footprint of our products, we conducted extensive consumer research to understand what consumers thought about sustainability.

Our research showed that the vast majority of consumers, greater than 75 percent, are eco-aware and want to do the right thing, but they are not willing to accept any tradeoffs such as a higher price or a decrease in performance in order to purchase a product that claims to be environmentally sustainable. Now, we call these individuals the Sustainability Mainstream Consumer, and our goal is to develop products that fulfill the needs of these consumers, that is products that enable them to be environmentally sustainable but for which there are no tradeoffs in either value or performance.

An example of such a product is Tide Coldwater, as you highlighted. We determined that in the laundry process there is a significant amount of energy used to heat water for machine laundering. So, we developed Tide Coldwater which uses proprietary technologies that enables consumers to wash in cold water but get the same cleaning performance that they expect in hot or warm.

Such a product can enable consumers to be environmentally sustainable in a meaningful way by leading to a significant reduction in energy use. If every household in the United States that uses hot or warm water today were to switch to cold, the energy savings would be 33 billion kilowatt hours per year. That is equivalent to the consumption of 4.4 million households.

Another example is Downy Single Rinse. This product is marketed in developing geographies such as the Philippines where laundry is largely done by hand. In these geographies, consumers wash their clothing in one basin and then go through a series a rinses to remove the detergent.

Downy Single Rinse is formulated with technologies that sequester the detergent, allowing the consumers to rinse in only one step.

Such a product can enable consumers to be environmentally sustainable in a meaningful way by leading to a significant reduction in water use. Since its introduction in January 2008 Downy Single Rinse has led to over 35 billion liters of water being saved.

In 2007 P&G set a 5-year goal to develop and market at least \$50 billion in sales of products such as these, products that lead to meaningful environmental improvement with no tradeoffs.

We improved the environmental footprint of our operations by focusing on driving conservation and eco-efficiency throughout our global manufacturing facilities. In 2007 we set a 5-year goal to deliver at least a 20 percent reduction in carbon dioxide emissions, energy consumption, and water use from our plants.

We are also reducing the amount of our manufacturing waste that is going to landfill. Today, about 1 percent of all raw materials that enter a P&G plant goes as disposed waste into landfills. To address this, we created a team whose job it is to find beneficial uses for that waste. Due to their efforts, 15 of P&G's 140 facilities are now zero waste to landfill.

For decades P&G has transported product in a multimodal fashion which uses multiple forms of transport. But today we are shifting toward intermodal transportation which uses containers that transfer smoothly between modes, optimizing the transportation process. Use of this approach in North America has reduced our transportation costs and improved sustainability by saving 11 million liters of diesel fuel.

P&G's corporate social responsibility program, known as Live, Learn & Thrive, focuses on helping children in need with the essentials to live, learn, and thrive. Our Children's Safe Drinking Water Program is focused on delivering safe drinking water to children around the world. In collaboration with the U.S. Center for Disease Control and Prevention, we developed a low cost technology known as the PUR Water Packets which can treat heavily contaminated water. This single packet can transform 10 liters of the most contaminated water into water that is drinkable.

We are also proud of the progress that we have made in order to optimally progress with our stakeholders. We have set up partnerships with the World Wildlife Fund. We work with the Department of Energy, along with others. We have our Supplier Scorecard, which allows us to work with suppliers around the world.

In conclusion, I would like to thank you for this opportunity to testify today. Sustainability, done right, does change things in a meaningful way. Our efforts in environmental sustainability are right for the consumer as they provide products that do not ask them to accept tradeoffs, they are good for the environment because we are addressing areas of greatest impact, and they are right for our business because they improve the top line through new products and improve the bottom line by allowing us to decrease costs.

Thank you.

[The prepared statement of Mr. Sauers follows.]

Testimony of Len Sauers, PhD
Vice President Global Sustainability
The Procter & Gamble Company

Before the
Environmental and Public Works Subcommittee on Children's Health and Environmental
Responsibility

Hearing on
"Growing Long-Term Value: Corporate Environmental Responsibility and Innovation"
Wednesday, May 16, 2012

Introduction

Chairman Udall, Ranking Member Alexander and members of the Committee, thank you for inviting me to testify today to discuss Procter & Gamble's sustainability program and its impact on the growth of our business.

I am the Vice President, Global Sustainability at Procter & Gamble and responsible for the company's sustainability efforts.

P&G serves approximately 4.4 billion people around the world with its brands. The company has one of the strongest portfolios of trusted, quality, consumer products brands including Pampers, Tide, Ariel, Always, Whisper, Pantene, Mach3, Bounty, Dawn, Fairy, Gain, Pringles, Charmin, Downy, Lenor, Iams, Crest, Oral-B, Duracell, Olay, Head & Shoulders, Wella, Gillette, Braun, Fusion, Ace, Febreze, Ambi Pur, SK-II, and Vicks. The P&G community includes operations in about 80 countries worldwide.

At P&G, we focus our sustainability efforts to innovate improvements that matter to the consumer. Our commitment begins with our Purpose where sustainability is embedded, and manifests itself in a systemic and long term approach. P&G's Purpose is to *touch and improve lives, now and for generations to come*. We don't make a profit so we can improve lives. We make a profit by improving lives. This inspires and guides everything we do. We strive to make our actions matter.

Our growth strategy is inspired by this Purpose. But we must reach and serve these consumers responsibly. It does not benefit our business to grow it today at the expense of tomorrow. Doing so fundamentally goes against our Purpose.

We define sustainability broadly. Sustainability is ensuring a better quality of life for everyone. This definition encompasses both environmental and social responsibility. Our approach to sustainability covers not only our total supply chain from raw materials to manufacturing, but also to the consumer and how we work in our communities.

We have built our sustainability program around five strategies:

- Delight the consumer with sustainable innovations that improve the environmental profile of our products.
- Improve the environmental profile of P&G's own operations.
- Improve children's lives through P&G's social responsibility programs.
- Engage and equip our employees to build sustainability thinking and practices into their everyday work.
- Shape the future by working transparently with our stakeholders to enable continued freedom to innovate in a responsible way.

In 2007, P&G established a series of five year sustainability goals in the area of product innovation, operations, and social responsibility.

Our product goal focuses on the development and marketing of at least \$50 billion in cumulative sales of "sustainable innovation products." These are products which

significantly reduce (> 10%) the environmental footprint versus previous or alternative products.

We continue to drive conservation efforts in manufacturing. We strive to reduce waste, water, energy and CO₂ through systematic conservation efforts. Our goal is to deliver an additional 20% reduction (per unit of production) in CO₂ emissions, energy consumption, water consumption and disposed waste from P&G plants, leading to a total reduction over the decade of at least 50%.

As we were nearing the end of our 5 commitments, in 2010 we announced a long term environmental sustainability vision which included the following elements:

- Powering our plants with 100% renewable energy
- Using 100% renewable materials or recycle for all products and packaging
- Zero consumer or manufacturing waste going to landfills
- Design products that delight consumers while maximizing the conservation of resources

Because it will take decades to achieve this vision, we established a series of specific 2020 goals to demonstrate we are making credible, incremental progress towards our vision. These goals include:

- Replace 25% of our petroleum based materials with sustainably sources renewable materials
- Change the way the consumers use energy in their wash cycle by achieving 70% of total machine wash loads in cold water
- Reduce packaging by 20% (per consumer use)
- Conduct pilot projects to better understand how to eliminate consumer and manufacturing waste going to landfill
- Power our operations with 30% renewable energy
- Reduce waste from manufacturing to < 0.5%
- Reduce truck kilometers (per unit volume) by 20%

Product Innovation

When it comes to product innovation, P&G is focused on delighting what we call the “sustainable mainstream consumer.” This group is about three-quarters of consumers globally. Having made a substantial investment in understanding her or his beliefs, habits, and purchasing decisions, we have learned there are three critical elements: performance + price + sustainability. This consumer has told us they will not sacrifice performance or price for environmental benefits.

Beyond the consumer insights, solid science is at the heart of our strategy. Using a disciplined scientific approach can include a Life Cycle assessment of a product. This comprehensive assessment helps us identify the opportunities to improve the environmental impact of our products. We combine two key strengths – consumer understanding and science to deliver sustainable innovations that do not require trade-offs in performance or value.

One example is helping consumers save energy and reduce their own Green House Gas emissions through the development of sustainable products. We developed Tide Coldwater, a new product technology which focuses on cold water-washing, which delivers the same cleaning performance consumers expect from hot-water washing. If every household in the United States used cold water for laundry, the energy savings would be 33 billion kilowatt hours per year which is the equivalent use of electric consumption in 4.4 million households and represents ~4% of the target that had been proposed for the U.S. under Kyoto.

Another example of product innovation was the development of Downy Single Rinse. In many developing markets, consumers often wash their clothes by hand and have to rinse their clothing several times to remove the detergent. Downy Single Rinse is formulated to allow detergent removal with a single rinse. Not only does this save water, but also saves time as it eliminates multiple trips to their water source. Not only are they saving water, but also time. Since its launch in January 2008, 35 Billion liters of water have been saved.

We have also been focusing on replacing current petroleum based materials with renewable materials. Some of the research is done internally but we also partner externally through our Connect and Develop program⁽¹⁾.

One example of our use of renewable materials is in Pantene Nature Fusion, which has piloted the use of plant-based plastic in its packaging. This innovative material made from sugarcane is a first for the mass hair care industry. It debuted in the Pantene Pro-V Nature Fusion collection in April 2011 in Western Europe and it expanded to North America in the fall 2011. The bottle (excluding cap) is made from up to **59%** plant-based plastic. Compared to traditional petroleum-based plastic, the fabrication process consumes over 70% less fossil fuels and the bottle can be recycled in traditional facilities.

Operational Improvements

Within our operations we strive to innovate and leverage our scale to make meaningful improvements that reduced our waste, water, energy, and CO₂ footprint by 20% per unit of volume over a 5 year period.

P&G manufacturing operations are very efficient. Nearly 96% of all materials leave our facilities as finished product. Of the remaining 4%, three-quarters is recycled or reused. For the materials that are currently going to disposal, we have created a team to find creative uses for these wastes with the goal to reduce by 50% the amount currently disposed. As of today, over 20 of P&G's facilities are zero waste to landfill. And in 2010 our manufacturing facility in Maine became our first in North America to achieve this goal.

- (1) Connect & Develop is P&G's version of open innovation: the practice of accessing externally developed intellectual property and allowing internally developed assets and know-how to be used by others.

We are proactively expanding our portfolio of energy sources including solar, wind and geothermal in our plants where it makes business sense. One example is the installation of a roof-mounted photovoltaic solar energy system at our Oxnard, CA facility. Over 20 years, this system is estimated to produce enough electricity to power over 3,200 homes for a year. Another is the installation of heat exchange units that capture heat for reuse at our paper plant in Mehoopany, PA reducing carbon emissions by 13,600 metric tons per year and the energy savings will be greater than the per-site energy consumption at 80% of our other facilities around the world. Finally we designed eco-efficiencies at our new paper plant facility that was constructed in Box Elder County, Utah.

For decades, P&G has transported product in "multi-modal" fashion that is using multiple forms of transport. But today, we are shifting toward "intermodal" transportation, which uses shipping containers that transfer smoothly between modes. An intermodal approach optimizes the transportation process. We have incorporated an intermodal component in North America that has reduced transportation costs and improved sustainability, saving 11 million liters of diesel fuel annually.

Social Responsibility

Our corporate cause, Live, Learn & Thrive focuses on helping children in need with essentials to live, opportunities to learn, and the skills to thrive. The cause is a reflection of our Purpose. It embodies our goal of being closer to consumers from all walks of life. Since the program's inception, we have assisted over 300 Million children.

Almost 1 billion people do not have access to safe drinking water. Half of all childhood mortality in developing countries is caused by unclean water. Four thousand children die every day from water related illnesses. That's about 1 every 20 seconds, and that's more than HIV/AIDS and malaria combined.

P&G, in collaboration with the US Center for Disease Control and Prevention, has developed a low-cost technology to purify heavily contaminated drinking water so that it meets World Health Organization (WHO) standards for safe drinking water. To date, the Children's Safe Drinking Water program and its partners have provided more than 2.5 billion liters of safe drinking water... preventing an estimated 100 million days of waterborne illness and saving more than 13,000 lives.

Stakeholder Engagement

While we are proud of the progress we have made, we know we will not be able to achieve our long term vision alone. We will need help from a wide variety of stakeholders and know that forming external partnerships will be important to enabling future progress.

To accelerate our environmental efforts, we have partnered with numerous organizations. For example, we have entered into a three year partnership with the World Wildlife Fund (WWF).

Through the US Department of Energy we participated in the Save Energy Now Program, which assisted in identifying ways to increase energy efficiency. We are also participating in EPA's Smartway program, which reduces transportation-related emissions by creating incentives to improve supply chain fuel efficiency.

In 2010, we issued our first supplier environmental sustainability scorecard. The scorecard was designed to encourage our suppliers' own improvements. The tool was intended to build better collaboration through the supply chain and accelerate innovation. In the first year, 38% of our suppliers who submitted a response to the scorecard, submitted ideas for sustainable innovation.

Conclusion

Chairman Udall and Ranking Member Alexander, I thank you for this opportunity to testify today and to highlight P&G's sustainability program. Sustainability done right drives changes that matter. Our efforts in environmental sustainability are also right for our business. Last month we announced that over the past ten years our sustainability programs have led to nearly \$1 billion of bottom-line-savings. In order to truly fulfill our Purpose of touching and improving lives, we must continue to grow responsibly and sustainably. We know that we do not have all the answers, but we are committed to being part of the solution.

Senator UDALL. Thank you very much.
Let us proceed now with Mr. Parker Smith, please.

STATEMENT OF PARKER J. SMITH, VICE PRESIDENT AND GENERAL MANAGER, WORLDWIDE MANUFACTURING SUPPORT AND QUALITY, EASTMAN CHEMICAL COMPANY

Mr. SMITH. Chairman Udall and Senator Alexander, on behalf of Eastman Chemical Company we appreciate the opportunity to testify this morning. I am Parker Smith. I am Vice President and General Manager of Worldwide Manufacturing Support and Quality for Eastman Chemical Company.

I can assure you that the topic of today's hearing, corporation environmental responsibility and innovation, are concepts that Eastman pursues every day in order to remain competitive in an industry that is truly global.

At Eastman Chemical Company we manufacture and market the chemicals, fibers, and plastics that give everyday products the strength, design, and functional characteristics desired by customers around the world. Even though our products are not household names, they are used in making everything from the packaging for your food, drinks, and personal care products to the fabric in your clothing and home furnishings, the paint on your house and automobile, and the plastics in your bicycle helmet and golf clubs.

Our extensive product line is supported by strong technical services. Customers rely on Eastman's expertise to help create innovative products that are competitive in today's challenging marketplace.

The world today is a dynamic place, and we see new entrants in our markets every year. Perhaps more than ever, people care about the legacy they leave for future generations and are ready to take action to address social and environmental concerns. Many companies see these challenges as threats. At Eastman, we see them as opportunities for which we continue to take an unconventional approach to succeeding in the marketplace. We have developed a number of transforming initiatives that do more than simply respond to the challenges. They allow us to embrace change and continue to find ways to innovate and improve.

Technology, quality, operational excellence, and customer service are just some of our strengths. Eastman people actively work to protect people and the environment and to uplift the standards of the economic, physical, and social world in which we live and work. We have been involved in making life better, healthier, and safer for people around the world. We know it takes more than bricks and mortar to make a great company, and it takes collaboration and partnerships with all sectors of the economy, both public and private.

One public partnership that Eastman has benefited from is with the U.S. Department of Energy. In 2010 Eastman signed a DOE Save Energy Now LEADER Pledge, which is now the Better Buildings, Better Plants Program, with a goal of reducing energy intensity over a 10-year period by 25 percent. The energy intensity baseline was established as 2008, the year that Eastman became an ENERGY STAR Partner. In 2008 Eastman established an

auditable measure consistent with DOE guidelines and has reduced its energy intensity by 5.3 percent.

Eastman has benefited in other ways from this voluntary Government program as well. In particular we have received valuable training and external assessments by highly skilled engineers for steam, pumping systems, and compressed air. An assessment of our river water pumping system resulted in several actionable recommendations that resulted in a savings of more than \$300,000. An assessment of our compressed air system resulted in recommendations for savings of \$294,000.

During the assessments, DOE involved our engineers. This hands-on experience enabled Eastman employees to conduct their own assessments, resulting in more savings. These internal assessments used specific knowledge from the DOE training as well as general guidelines for how to conduct assessments. In total, our internal energy team has identified more than \$3 million in savings opportunities. In fact, DOE recognized Eastman in 2011 for having exceeded the 2.5 energy reduction target of the Better Buildings, Better Plans Program in a single year.

Another public partnership that Eastman has greatly benefited from is with the Environmental Protection Agency. Earlier this year EPA named Eastman as an ENERGY STAR Partner of the Year for strategically managing and improving energy efficiency in 2011. Eastman was one of the 36 organizations selected for this honor from a total of about 20,000 partners and is only the second chemical company ever selected.

This voluntary EPA program is widely recognized at Eastman as a major contributor to the success of our energy program which is built on the ENERGY STAR Guidelines for Energy Management. An important part of the ENERGY STAR Program is the opportunity for interaction with other industrial partners. We participate in focus groups in the Peer Partner Network. These interactions with other partner companies have fostered sharing of best practices and implementation of novel approaches.

Eastman is recognized as a leader in the chemical industry as well. Eastman's energy efficiency efforts have a rich history with consistent improvements over time. The American Chemical Council, the premier trade organization representing the chemical industry, recently recognized Eastman with several ACC Energy Efficiency Awards, and in fact this is the 19th consecutive year that we have received such awards.

These programs have led Eastman to make significant investments in energy efficiencies. Even though most of our operating assets are located in the U.S., last year over 40 percent of our sales revenue came from outside the U.S. and Canada. Accordingly, we have to control costs here in the U.S. so we can compete globally, and one way we do this is through our Energy Efficiency Program. More than \$35 million was invested in implementing more energy efficient manufacturing processes during 2010 and 2011.

While many projects have been identified that will reduce energy use and greenhouse gas emissions, there are a number of barriers that prevent industry from full implementation. Most of these barriers can be attributed to competition for resources. Eastman, like many other industrial companies, establishes our capital expendi-

ture budget based on our expected earnings, dividends we pay our investors, and investments that will result in growth. Our investors count on growth to improve the value of their investments.

In closing, I would like to thank you for the opportunity to tell Eastman's story here today. It is encouraging that the Congress is interested in what the private sector is doing on its own to promote innovation and improve efficiency, and hopefully this dialogue will help drive public policies that meet the shared and individual goals of both the Government and the business community.

Thank you.

[The prepared statement of Mr. Smith follows:]

Eastman Chemical Company
Parker J. Smith, Vice President and General Manager, Worldwide Manufacturing Support and Quality

Statement for the Record

Senate Children's Health and Environmental Sustainability Subcommittee

Growing Long-Term Value: Corporate Environmental Responsibility and Innovation

May 16, 2012

Chairman Udall, Senator Alexander, and members of the subcommittee thank you for the opportunity to testify this morning. The topic of today's hearing, corporate environmental responsibility and innovation are concepts Eastman pursues every day in order to remain competitive in an industry that is truly global.

About Eastman

At Eastman Chemical Company, we manufacture and market the chemicals, fibers and plastics that give everyday products the strength, design and functional characteristics desired by customers around the world. Even though our products are not household names, they are used in making everything from the packaging for your food, drinks and personal care products, to the fabric in your clothing and home furnishings, the paint on your house and automobile; and the plastics in your bicycle helmet and golf clubs.

Our extensive product line is supported by strong technical services. Customers rely on Eastman's expertise to help create innovative products that are competitive in today's challenging marketplace.

The world today is a dynamic place and we see new entrants in our markets every year. Perhaps more than ever, people care about the legacy they leave for future generations and are ready to take action to address social and environmental concerns. Many companies see these challenges as threats. At Eastman, we see them as opportunities for which we continue to take an unconventional approach to succeeding in the marketplace. We have developed a number of transforming initiatives that do more than simply respond to challenges. They allow us to embrace change and continue to find ways to innovate and improve.

Technology, quality, operational excellence, and customer service are just some of our strengths. Eastman people actively work to protect people and the environment and to uplift the standards of the economic, physical and social world in which we live and work. We have been involved in making life better, healthier, and safer for people around the world. We know it takes more than bricks and mortar to make a company great – it takes collaboration and partnerships with all the sectors of our economy - both public and private.

Partnership with the U.S. Department of Energy (DOE)

One public partnership that Eastman has benefitted from is with the U.S. Department of Energy. In 2010, Eastman signed the DOE *Save Energy Now* LEADER pledge (now the Better Buildings, Better Plants program), with a goal to reduce energy intensity over a 10 year period by 25%.

The energy intensity baseline was established as 2008, the year that Eastman became an ENERGY STAR® Partner. In 2008, Eastman established an auditable measure consistent with DOE guidelines and has reduced its energy intensity by 5.3%.

Eastman has benefitted in other ways from this voluntary government program as well. In particular, we have received valuable training and external assessments by highly skilled engineers for steam, pumping systems, and compressed air.

- An assessment of our river water pumping system resulted in several actionable recommendations that resulted in a savings of more than \$300,000.
- An assessment of our compressed air system resulted in recommendations for savings of \$294,000.

During the assessments, DOE involved our engineers. This hands on experience enabled Eastman employees to conduct their own assessments, resulting in more savings. These internal assessments used specific knowledge from the DOE training as well as general guidelines for how to conduct assessments. In total, our internal energy team has identified more than \$3M in savings opportunities. In fact, DOE recognized Eastman in 2011 for having exceeded the 2.5% energy reduction target of the Better Buildings, Better Plants program in a single year.

Receipt of 2012 ENERGY STAR Partner of the Year

Another public partnership that Eastman has greatly benefited from is with the Environmental Protection Agency. Earlier this year, EPA named Eastman an ENERGY STAR® Partner of the Year for strategically managing and improving energy efficiency in 2011. Eastman was one of 36 organizations selected for this honor from a total of about 20,000 partners and is only the second chemical company ever selected. Eastman was recognized for strategically managing and improving energy efficiency during 2011.

This voluntary EPA program is widely recognized at Eastman as a major contributor to the success of our energy program which is built on the ENERGY STAR Guidelines for Energy Management.

An important part of the ENERGY STAR program is the opportunity for interaction with other industrial partners. We participate in Focus Group meetings and the Peer Partner Network. These interactions with other Partner companies have fostered sharing of best practices and implementation of novel approaches. ENERGY STAR provides helpful tools such as Portfolio Manager to help us understand building energy use. In addition, WWW.ENERGYSTAR.GOV provides tips for saving energy at home and educational resources for our children. Eastman has shared these resources with 140 schools in its Putting Children First partnership.

Recognition from the American Chemistry Council (ACC)

Eastman is recognized as a leader in the chemical industry as well. Eastman's energy efficiency efforts have a rich history with consistent improvements over time. The American Chemical Council, the premier trade organization representing the chemical industry, recently recognized Eastman with several ACC Energy Efficiency Awards – this is the 19th consecutive year Eastman has received such awards. Since 2008, we have received awards for projects that totaled

reductions of more than four and a half billion Btus and over a half a million tons of greenhouse gas emissions.

Significant Investment in Energy Efficiency Efforts

These programs have led Eastman to make significant investment in energy efficiencies. Even though most of our operating assets are located in the US, last year over 45 percent of our sales revenue came from outside the US and Canada. Accordingly, we have to control costs here in the US so we can compete globally, and one way we do this is through our energy efficiency program.

More than \$35 million was invested in implementing more energy efficient manufacturing processes during 2010 and 2011. In 2011 alone, we documented \$11.6 million in savings from energy projects. In 2012, the energy team is managing a budget of more than \$10 million that is to be spent on improving energy efficiency.

Energy Efficiency projects have an attractive economic payback and reduce our energy consumption and greenhouse gas emissions. And such projects are very low risk. They are often easily understood projects that can be readily implemented and will achieve the anticipated savings as long as energy prices remain constant or rise.

We also have an Innovation and Sustainability Council (5 executive and 2 vice president team members) that provides corporate governance on sustainability and innovation investments and is actively engaged in our energy management programs.

Eastman is committed to investing in research and development to discover innovative technologies and processes that help meet our customers' ever-changing needs.

We have set a 2015 goal that two-thirds of revenues from new product launches will come from products advantaged on assessed sustainability criteria. The criteria include materials content, energy and emissions, and toxicity. Currently, more than half of the forecasted revenues from our innovation pipeline are from sustainably advantaged products.

Our Technology Organization established a Process Efficiency Team that ranked chemical processes by energy intensity. Beginning with the most energy intensive processes, the PhD chemical engineers assigned to this work evaluated processes as if they were being completely redesigned in order to foster breakthrough ideas.

Eastman has identified and catalogued over 1000 energy efficiency ideas. The database is continually supplemented with additional ideas identified through energy surveys, external assessments, and manufacturing initiatives. Energy engineers regularly mine the database of ideas and propose the most promising one based on current energy prices and manufacturing practices, to manufacturing staff engineers and area managers.

The Challenge

While many projects have been identified that will reduce energy use and greenhouse gas emissions, there are a number of barriers that prevent industry from full implementation. Most of these barriers can be attributed to competition for resources. Eastman, like many other

industrial companies, establish our capital expenditure budget based on our expected earnings, dividends we pay our investors, and investments that will result in growth. Our investors count on growth to improve the value of their investment. These growth projects require financial and design and labor resources to implement. We also have to budget for projects to comply with environmental regulations. Those projects typically have large capital expenditures with no return. For our annual capital spend to return above our cost of capital and meet our obligations to investors, we are often limited to only implementing those energy efficiency projects that have the highest rate of return. With the new, low natural gas pricing due to shale gas production and because of our highly efficient cogeneration facilities, our cost of energy is lower, making it difficult to justify energy efficiency projects based on cost alone. As higher payback energy efficiency projects are completed first, finding energy reduction projects that can be economically justified will become increasingly more challenging.

The Results of Insight

When it comes to energy efficiency and greenhouse gas emissions reduction, the chemical industry should be seen as part of the solution. The products we make help other sectors be more efficient – from the development of lightweight material that make vehicles more fuel efficient to the discovery of bio-based raw materials that take the place of those sourced from petroleum.

Our suppliers and customers are manufacturers, too, and face similar challenges when working on energy efficiency projects. Eastman collaborates with customers to help them meet their sustainability goals. We promote sustainability practices across our value chains, and have completed cradle to gate Life Cycle Analyses or LCAs on approximately 60% of our products, comprising about 80% of our 2010 revenues. Approximately 80% of our growth pipeline is sustainably advantaged compared with market alternatives.

Eastman's customers have recognized the importance of a favorable product Life Cycle Analyses. They also understand that much of the carbon contribution comes upstream of their manufacturing process. Requests from customers have begun, and are expected to grow, to improve the carbon footprint of downstream products. Eastman strives to retain and grow our business through strategic relationships with our customers so we are taking steps to understand these concerns and to drive innovation to meet the demands.

In closing, I would like to thank you for the opportunity to tell Eastman's story here today. It is encouraging that the Congress is interested in what the private sector is doing on its own to promote innovation and improve efficiency. Hopefully, this dialogue will help drive public policies that meet the shared and individual goals of both the government and the business community. I am happy to answer any questions you may.

Supplemental Statement for the Record, May 30, 2012

**J. Parker Smith
Vice President and General Manager, Worldwide Manufacturing Support and Quality
Eastman Chemical Company**

Senate Children's Health and Environmental Sustainability Subcommittee

Growing Long-Term Value: Corporate Environmental Responsibility and Innovation

Eastman Chemical Company (Eastman) appreciates the opportunity to supplement the testimony of J. Parker Smith, Vice President and General Manager, Worldwide Manufacturing Support and Quality, provided to the Senate Children's Health and Environmental Sustainability Subcommittee, on May 16, 2012.

During Mr. Smith's testimony, Senator Lamar Alexander (R-TN) asked how much time Eastman needs to comply with the Environmental Protection Agency's (EPA) forthcoming final Clean Air Act industrial boiler regulations known as the "Boiler Maximum Achievable Control Technology" rule or "Boiler MACT". At present, the Clean Air Act provides industrial sources such as Eastman only three (3) years to comply with such rules, with the opportunity to apply for a one year extension of the compliance period (i.e. a total of 36 to 48 months). *See* 42 U.S.C. § 7412(l)(3)(A) & (B). *As more specifically described below, Eastman needs at least five (5) years to comply with the final Boiler MACT with the opportunity for a one year extension.*

Eastman is uniquely impacted by the Boiler MACT rule by virtue of having ten coal-fired units at the company's Tennessee Operations (TNO) potentially subject to the rule. Located in Kingsport, Tennessee, TNO is one of the largest, most highly integrated chemical manufacturing plants in the country. It includes more than 550 buildings covering over 900 acres including four boiler houses that cogenerate both steam and electricity, which is the most efficient use of fuel. TNO's power houses have approximately 196,000 kilowatts of generating capacity – enough to serve about 170,000 homes, or a city the size of Knoxville.

Eastman quickly recognized that complying with the Boiler MACT rule in three or four years, while simultaneously complying with other EPA rulemakings underway on overlapping timeframes (e.g. Sulfur Dioxide (SO₂) National Ambient Air Quality Standards (NAAQS), Regional Haze rules, and Commercial and Industrial Solid Waste Incinerator (CISWI) rule, etc.), would be extremely challenging. Rather than potentially exposing the company to significant business risk by waiting until EPA finalized the Boiler MACT to start compliance planning, Eastman proactively committed a significant amount of time and resources into developing a coordinated response to the rule before it was finalized based on company experts' best guess as to the rule's final outcome. This effort to "hit the ground running", which included extensive technical analysis to optimize pollution control technologies, engineering, and development of detailed project and life cycle cost estimates and construction schedules, was essential to understanding the overall business risk to the company. To date, Eastman has spent approximately \$19 million and 45,000 hours just attempting to get ahead of these potential boiler requirements.

One of the key learnings that resulted from this investigation was the duration of the overall project at a site of exceptional complexity such as TNO. Given reasonable assumptions about the duration of technology selection, permit applications, detailed engineering, equipment lead times, pre-outage

fabrication and site preparation, and unit shutdowns for pollution control tie-ins and commissioning. Eastman and its engineering contractor estimated that it would take nominally between 39 and 42 months from the rule's finalization to get the first of ten potentially Boiler MACT subject units converted and in full compliance with the new rule. At best, utilizing extremely aggressive construction scheduling, each subsequent unit will require nominally four to six weeks of conversion and commissioning. While five of the ten boilers are located at one powerhouse, two are located at another distinct powerhouse and remaining three are located at yet another. Converting and commissioning these last five will also require the relocation and remobilization of a significant amount of construction equipment. Depending on the final Boiler MACT requirements, Eastman estimates that it could take as much as 60-62 months to retrofit all ten boilers, from final technology assessments based on the final rule to full compliance.

Even a 62-month compliance period is not without business risk due to the complex integration at TNO. Maintaining a reliable supply of steam to the site requires nominally fourteen steam generating boilers in service; allowing for code-required outages on the seven non-affected units in addition to the considerable downtime required for MACT compliance could potentially leave the site without enough steam capacity to continue operations. Thus, Eastman analysis concluded that converting all ten of its potentially subject units within the Clean Air Act's 36-48 month statutory compliance period will dramatically increase its business risk, if it can be done at all.

Having already demonstrated its commitment to responsible environmental stewardship by investing millions of dollars in engineering before the Boiler MACT rule has even been finalized, Congress should recognize that Eastman, like many large domestic manufacturers, is attempting to position itself to comply with all possible haste. However, the three-year compliance period in the Clean Air Act is simply not enough time to bring Eastman's TNO boilers into compliance with the final Boiler MACT rule.

The situation is further complicated by the fact that the air pollution control industry has limited resources available to engineer and manufacture the customized equipment required to comply with this rule for all sources nationwide. Likewise, a limited pool of skilled labor exists to fabricate and install these complex control systems. Combined with the concurrent timing of the Boiler MACT rule with the Utility MACT (also known as the Mercury and Air Toxics Rule, or MATS) rule, it is far from certain whether sufficient capacity exists in the domestic economy to simultaneously achieve the goals of these two rules within the current regulatory timelines. And when these strains are considered alongside the impending additional demands due to Cross-State Air Pollution Rule (CSAPR), Regional Haze rules and the SO₂ NAAQS, Eastman has doubts that the required hardware and labor will be available within the statutory deadline. Whether this increased competition for limited engineering, equipment fabrication, and installation resources results in price escalation, increased lead times for equipment and labor that companies like Eastman will be held accountable for, or off-shoring of fabrication work outside the US, the net effect will not be positive for Eastman or for the US economy as a whole.

As one of the nation's largest exporters, competing daily against foreign competitors both at home and abroad, Eastman encourages Congress to protect domestic manufacturers from this unachievable deadline by amending the Clean Air Act to allow a five year compliance period with the opportunity for a one year extension. This will balance the goals of environmental stewardship against the considerable business risk incurred by rushing the implementation of this rule.

Questions for Smith

Questions from:

Senator James Inhofe

1. If, as you state in your testimony, your customers have been asking to you to “improve the carbon footprint” of your downstream products, don’t you think Eastman Chemical Company is in the best position to determine the amount and pace of CO2 reductions to meet the needs of your customers?

An increasing number of our customers are asking for our carbon footprint information so they can assess overall improvements they may be able to claim for their product’s footprint. Our improvements carry through to their products and provide them with indirect emissions improvements. We are best positioned to determine the priorities of our own energy efficiency and emission improvement efforts based on internal rate of return, requests from strategic customers, and impact on our corporate energy and greenhouse gas intensity goals.

Carbon management is an extremely complex value chain issue. A reduction at our site may not necessarily translate to a reduction in the finished product, for instance, if it causes a downstream product to be reformulated with overall higher footprint components. Conversely, an increase in our operations could result in substantial savings elsewhere based on the product use. Managing carbon emissions in a cost effective manner requires understanding the carbon life cycle of products from cradle to grave or cradle to reuse. Developing this understanding is not a trivial exercise. It requires collection and analysis of data all along the value chain. Data must be collected, aggregated and analyzed using accepted standards or meaningful comparisons cannot be made. In addition, focusing only on reducing carbon emissions could result in other impacts such as increased water usage or risk.

Senator UDALL. Thank you very much, Mr. Smith.
And our final witness, Mr. Mitch Jackson with FedEx.

STATEMENT OF D. MITCHELL JACKSON, STAFF VICE PRESIDENT, ENVIRONMENTAL AFFAIRS AND SUSTAINABILITY, FEDEX CORPORATION

Mr. JACKSON. Thank you, Mr. Chairman, Ranking Member Alexander. It is good to see you. I am Mitch Jackson, Vice President of Environmental Affairs and Sustainability at FedEx Corporation.

At FedEx, our focus is simple when it comes to environmental sustainability. It is to connect the world in responsible and resourceful ways as we look to integrate sustainability into serving our customers.

The underlying philosophy we use is called practical environmentalism. I define it as strategic and transformational environmental stewardship that adds tangible value in the effort to be more responsible. For a business, this entails that it should be economically viable, first and foremost. It should be aligned with the strategic business objectives. It should involve and motivate team members. And it should be responsible to its communities.

The building blocks for practical environmentalism include performance, transparency, innovation, and leadership for us. As you can imagine, performance is very important in our customer service endeavors. We were the first company in the U.S. transportation logistics industry to set a goal to reduce carbon dioxide emissions in our global aviation operations by 20 percent. Currently, we have achieved 13.8 percent, so we are roughly 70 percent of the way toward that goal.

We were the first in our industry to set a goal to improve the mileage of our FedEx Express vehicles. We have currently, through our last fiscal year, achieved 16.6 percent, so we are 80 percent of the way toward that goal. We are also seeking to have 30 percent of our aviation fuel come from alternative sources by 2030. And we have six solar energy facilities; five are in the U.S., and one is in Europe.

FedEx was the first company in U.S. transportation logistics to establish a citizenship blog to inform stakeholders of our activities. We were the first to report global Scope 1, or direct, greenhouse gas emissions in our industry and to disclose climate risk to the Securities and Exchange Commission.

FedEx worked closely with the Environmental Defense Fund to bring hybrid electric vehicles to the commercial vehicle sector some years ago. We have also gone further to advocate for—and work to bring to market—all electrical vehicles. And in fact, as Senator Alexander mentioned, Frederick W. Smith, our Chairman and CEO, participates in the Electrification Coalition in that regard.

FedEx also strives to innovate with new services in the area of environmental stewardship, and we recently introduced the FedEx Carbon-Neutral Envelope Shipping Service wherein we neutralize all the carbon dioxide emissions created and emitted in the shipping of all FedEx envelopes around the world. And it is at no additional costs to our customers. And I might add, that is over 200 million shipments a year.

In addition, some of the progress in lowering aviation emissions that we have had comes from the fuel efficiency and environmental advantages of our new Boeing 777 Freighters. They are beneficial for other reasons as well. For example, they have greater range, which allows FedEx to fly direct from Asia to the U.S., and it gives our Asian customers a 2-hour later package drop-off window.

There are also major investments by FedEx in the U.S. economy, and there is an almost perfect correlation between investments in new productive assets and jobs in this country. At least partially in response to the expensing tax provisions that have been passed into law over the last decade with strong bipartisan support, FedEx has purchased a large number of these new, innovative aircraft and other capital assets that have created jobs. And in that regard, we would urge that Congress extend the expensing provisions through 2012 as many have proposed.

As mentioned, leadership is also a building block for practical environmentalism. As such, Frederick W. Smith and FedEx, the first company in our industry to do so, pushed for commercial vehicle fuel economy legislation which was enacted by the U.S. Congress in the Energy Independence and Security Act of 2007.

At FedEx, we have encapsulated these building blocks of practical environmentalism into our EarthSmart Program. EarthSmart is our commitment to connect the world responsibly and resourcefully. It is made up of three pillars—our EarthSmart Innovations, our EarthSmart at Work, and our EarthSmart Outreach.

EarthSmart Innovations seeks to inspire products and services, assets, and initiatives that deliver benefits for the environment, our customers, our team members, and business; an inclusive approach. EarthSmart at Work seeks to engage team members to understand and implement sustainable practices within the work place. And our EarthSmart Outreach program is our volunteer and philanthropic efforts in sustainable transportation, sustainable cities, and sustainable ecosystems, all things that FedEx has impact with and connects to.

In summary, our efforts and experience at FedEx as it relates to growing environmental responsibility or sustainability and innovation distill down to the following considerations. One, at a national level, maximizing successful sustainability requires everyone working together. Two, at an organizational level, sustainability should be a team sport with every working to the same plan. Three, transformation requires persistence and a plan. Four, sustainability needs to make organizational sense and offer value to the organization.

Five, performance is critical, but not sufficient on its own. Six, transparency is important for what is learned rather than what is simply reported. Seven, innovation is critical for long-term competitiveness for businesses and for the nation. Eight, innovation requires investment and public policies that support it. And the last one is that leadership is necessary on the relevant issues that we face.

Chairman Udall, Ranking Member Alexander and this Subcommittee, thank you very much for the opportunity to testify today. That concludes my testimony, and I welcome any questions you might have.

Thank you.
[The prepared statement of Mr. Jackson follows:]

Written Testimony of D. Mitchell Jackson
Staff Vice President, Environmental Affairs and Sustainability
FedEx Corporation

To The
Committee on Environment and Public Works
Subcommittee on Children's Health and Environmental Responsibility
United States Senate
May 16, 2012

Mr. Chairman, Ranking Member Alexander, and Members of the Subcommittee:

Thank you for your kind invitation to testify today on the subject of growing long-term value through corporate environmental responsibility and innovation. I commend you for the focus and attention to this complex and important subject facing businesses and the nation at large.

At FedEx, our focus is simple when it comes to environmental responsibility and sustainability - to connect the world in responsible and resourceful ways. In essence, it is to work to integrate environmental stewardship into our daily actions of serving our customers.

The underlying philosophy we use in doing so is called Practical Environmentalism. I define Practical Environmentalism as strategic and transformational environmental stewardship that adds tangible value in the effort to be more responsible. Any organization can practice it. For a business, this entails that it should be economically viable; it should be aligned with the core strategic business objectives; it should involve and motivate team members, and it should be responsible to the communities in which it operates and serves.

The building blocks for Practical Environmentalism include:

- Performance
- Transparency
- Innovation
- Leadership

As you can imagine, performance is very important to FedEx. We must exercise discipline in our day-definite and time-definite portfolio of services each and every day. However, FedEx was also the first company in the U.S. transportation-logistics industry to set a goal to reduce carbon dioxide in our global aviation operations by 20% in emission intensity by 2020. Through our fiscal year 2011, we have achieved a reduction of 13.8% from the 2005 baseline. We were also the first in our industry to set a goal to improve the mileage of our FedEx Express vehicles. Through our fiscal year 2011, we have achieved a 16.6% improvement in fuel economy since 2005. We also are seeking to have 30% of our aviation fuel come from alternative fuels by 2030. And, we have six solar-energy facilities, five in the U.S. and one in Europe. These have generated over 18 gigawatt-hours of solar electricity since we built our first solar facility in 2005. These six facilities alone reduce CO₂ emissions by an estimated 6,858 metric tons per year.

With regard to transparency, FedEx was the first company in the U.S. transportation-logistics industry to establish a Citizenship Blog, to report global Scope 1 (direct) greenhouse gas emissions in 2008, and to disclose climate risks to the Securities and Exchange Commission. We did this because it gives information to our stakeholders on what we are doing and why it is important. It is similar to our customer service wherein we move our customers' goods and provide tracking information during shipment and verification of delivery.

Concerning innovation, FedEx worked closely with the Environmental Defense Fund (EDF) to bring hybrid-electric vehicles to the commercial vehicle sector. We have also gone further to advocate for, and work to bring to market, full electric vehicles. In fact,

Frederick W. Smith, Chairman and CEO of FedEx Corporation, participates in The Electrification Coalition - a nonpartisan, not-for-profit group of business leaders committed to promoting policies and actions that facilitate the deployment of electric vehicles on a mass scale.

FedEx also strives to innovate with new services in the area of environmental stewardship, such our recently introduced FedEx Carbon-Neutral Envelope Shipping, wherein FedEx neutralizes the carbon emissions created and emitted in shipping our customers' FedEx Envelopes around the world through investments in projects that reduce greenhouse gas emissions - all at no additional costs to our customers. These projects include generating renewable electricity from biogas in the United States, the Netherlands, China and Thailand, a reforestation project in Tanzania, and generating renewable energy from a wind farm in Turkey.

In addition, some of the progress referenced in lowering aviation emissions comes from the fuel efficiency and environmental advantages of our new Boeing 777 Freighters, a recent innovation. It is important to note they are beneficial for other reasons too. For example, their fuel efficiency translates to greater range, which allows FedEx to fly direct from Asia to the U.S., thereby giving Asian customers a two-hour later package drop-off timeframe. They are also major investments by FedEx in the U.S. economy, and there is an almost perfect correlation between investment in new productive assets and jobs in this country. At least partially in response to the expensing tax provisions that have been repeatedly passed into law over the last decade with strong bipartisan support, FedEx has purchased a large number of these new, innovative aircraft, and other capital assets, that have created jobs. And in that regard, we would urge that Congress extend the expensing provisions through 2012 as many have proposed.

As mentioned, leadership is also a building block for Practical Environmentalism. As such, FedEx was the first company in the U.S. transportation-logistics industry to push for commercial-vehicle fuel-economy legislation, which was enacted by the United States Congress in the Energy Independence & Security Act of 2007. In fact, Frederick W.

Smith, and General P.X. Kelley (Ret.), 28th Commandant of the U.S. Marine Corps, co-chaired Securing America's Future Energy (SAFE) Energy Security Leadership Council's report, *Recommendations to the Nation on Reducing U.S. Oil Dependence*, which called for first-ever fuel economy standards for commercial vehicles in 2006. And, in January 2007, FedEx testified before Congress, asking to "set fuel efficiency standards annually for medium and heavy-duty vehicles. This would help stimulate the production of hybrid electrics within the medium-duty vehicle sector, such as our pickup and delivery fleet, and alternatives for improved fuel efficiency in the heavy-duty vehicles."

At FedEx, we have encapsulated these building blocks of Practical Environmentalism into our EarthSmart program. EarthSmart is our commitment to connect the world responsibly and resourcefully by integrating innovative, more sustainable practices into the way we work and the services we offer our customers. It is made up of three pillars:

- EarthSmart Innovations
- EarthSmart @ Work
- EarthSmart Outreach

EarthSmart Innovations is the pillar that seeks to inspire products and services, physical assets and initiatives that go beyond their obvious impacts to set new solutions for environmental stewardship and deliver clear and tangible benefits for the environment, our customers, our team members and our business. It is intended to encourage our design teams to build in and evaluate the sustainable benefits of the products, services or programs they work on.

EarthSmart @ Work seeks to build a culture of environmental sustainability through education and innovation, to engage team members across the enterprise to understand and implement sustainable practices at work, at home, and in the community; and to promote behavior change in the workplace as it relates to environmental sustainability efforts.

EarthSmart Outreach is our volunteer and philanthropic efforts with the company's focus on environmental sustainability in three key areas: Sustainable Transportation, Sustainable Cities, and Sustainable Ecosystems.

In summary, our efforts and experience at FedEx as it relates to growing environmental responsibility, or sustainability, and innovation distill down to the following considerations:

1. At a national level, maximizing successful sustainability requires everyone working together: businesses, government and non-governmental organizations.
2. At an organizational level, sustainability should be a team sport, with everyone working to the same plan.
3. Transformation requires persistence and a plan.
4. Sustainability needs to make organizational sense and offer value if it is to remain sustainable – it should be related to the mission of the organization.
5. Performance is critical, but not unilaterally sufficient for the current challenges.
6. Transparency is important for what is learned, not for what is simply reported.
7. Innovation is applied inspiration, and is critical for long-term competitiveness.
8. Innovation requires investment, and public policies that support it.
9. Leadership is necessary on relevant issues for the organization.

Chairman Udall, Ranking Member Alexander, and Members of the Subcommittee, this concludes my testimony today. Thank you for the opportunity to appear before you and respond to any questions you may have.



Natural Gas: Senate Environment and Public Works Committee Response

Inquiry:

Following Mitch Jackson testifying before the Senate Environment and Public Works Committee on May 16, 2012, Senator James Inhofe submitted the below follow-up question for the record:

"I'm glad to see that FedEx has voluntarily been converting part of their fleet to run on Natural Gas. As I've said for a long time – the case for Natural Gas Vehicles is very strong on its own so I'm not surprised to see your company taking advantage of this great resource. Can you discuss some of the price advantages that will drive the use of CNG and LNG as a transportation fuel?"

Dated June 10, 2012, response is requested for the hearing record by COB July 24, 2012.

Response:

FedEx is beginning to examine natural gas in our U.S. fleet as part of our efforts to increase U.S. energy independence. Reducing dependence on foreign oil is an economic issue and a matter of national security.

Natural gas cost is not just about the price of the fuel itself but also about refueling availability and availability, operation and comparative cost of engines that use natural gas.

- Natural gas economics and technology look promising and availability of natural gas for refueling is becoming more commonplace, but is still limited and available only in certain transportation corridors.
- Heavy-duty truck manufacturers are also advancing engines that can run on liquified natural gas, without the use of diesel, to a commercially and economically viable stage. However, given the current, early stage of this new engine development, we do not have specific economics as to natural gas engine production pricing.

As such, we are optimistic about natural gas potential but there are important related factors that make it difficult to quantify the long-term economic advantages of natural gas vehicles at this time. We have a handful of compressed natural gas pickup and delivery vans in Japan and Europe right now, and are looking at options for our U.S. fleet. And, as mentioned, we are also examining options for liquefied natural gas in our U.S. heavy-duty long-haul fleet.

But there is no one solution; we need to use the right vehicle for the right purpose. All-electric and hybrid-electric vehicles are proving to be promising for short-haul, urban transportation, making efficient use of the start-and-stop driving conditions through regenerative braking. We are active in worldwide trials of cutting-edge all-electric and hybrid-electric vehicles for urban and suburban transportation. We are also making great progress in decreasing fuel use through practical measures like investing in more efficient conventional vehicles and matching the right size vehicles to more efficient routes.

We seek to decrease petroleum use across the board and to maximize U.S. production of domestic energy. There are a wide variety of technologies that can help with improving efficiency and decreasing dependence on foreign oil through expanded domestic production of oil and natural gas, and promoting the use of alternative fuels in transportation including electrification of light duty vehicles and the use of natural gas for heavy-duty vehicles.

Senator UDALL. Thank you very much, Mr. Jackson, and thanks to all of the witnesses. I think that what you have done here is really bring to life that term sustainability and showed us concrete ways that you are moving in your companies and in the industry.

My first couple of questions are to the entire panel. Do you see corporate environmental responsibility or sustainability as an increasing trend that is here to stay in your company and in the industry? And how much profitability is your company deriving from sustainability efforts, and how much are you tracking that performance? And anybody can jump in on that that wants.

Mr. Smith, go ahead.

Mr. SMITH. Chairman Udall, yes, Eastman Chemical does believe that sustainability is here to stay. We have a very robust sustainability program. We have a sustainability officer. We believe that the way we approach sustainability definitely gives us a competitive advantage.

Consumers have told us through our businesses that they are very much interested in products that come from renewable resources and all the things that support sustainability. So, we believe that it is strategic to our company to embrace that, and we have done that.

Senator UDALL. Thank you.

Mr. SAUERS. I would agree, especially from the fact that sustainability is now a path to improving and increasing a company's business. You know, we integrate it into our business and to increasing top line sales; we integrate it into the business to help address the bottom line. The eco-efficiency, the conservation measures that we have put into place have saved P&G about \$1 billion in costs over the past 10 years.

So, I think when you can show that sustainability builds the business, companies want to do it, corporations want to do it, and that will continue the trend forward.

Mr. BRADY. Yes, I would echo that, and perhaps provide another proof point. About 4 years ago we built sustainability metrics and targets into our employee bonus program. So, all of our employees, their compensation is tied to our sustainability performance in one way or the other. So clearly, sustainability is integrated, I think, more and more into the day-to-day business and operations because it does provide the benefits which the other panelists have talked about.

Senator UDALL. Mr. Brady, one of the things you mentioned in your opening was about trying to make products last longer, and that is clearly a part of a sustainability effort. Could you talk a little bit more about that?

Mr. BRADY. Sure. Certainly, consumers want products that, when we say last longer, that have longer battery life, more usability for the consumer. So anything we can do to make our products more energy efficient has a direct benefit to the consumer.

If you take a data center, which all of our smart phones and notebooks as they are talking over the Internet are backed up by a data center, the chips which we have today use almost one-tenth of the power of chips just a few years ago. Buying the most recent products, implementing those products, has a direct savings not only to the consumer but to those who are powering the infrastruc-

ture behind the Internet, behind technology, for the broader economy.

Senator UDALL. Mr. Jackson, do you want to jump in?

Mr. JACKSON. Yes, Mr. Chairman, thank you. I think that I agree with my fellow panelists here that I think sustainability is here to stay, I think much like quality was back in the 1980s, how it changed the way business was really approached, what they did each and every day.

I think what is very encouraging in the trends that I am seeing now help to show that we are starting to integrate innovation into it as well, that we focused originally on efficiency improvements and the like, and that gets you so far, but now I think companies are starting to think how are you going to be able to innovate and find new ways to do what you have done in the past and still meet the mission of your companies. For us, emissions are equal to fuel. And so when we improve in that respect, we are actually saving on the bottom line as well.

So, I think it has got a bright future ahead.

Senator UDALL. Thank you very much.

And I am going to go now to Senator Alexander. But just before I do, I wanted to recognize, we have our reporter here from the Albuquerque Journal. Michael Coleman is over at the press table, and I wanted to welcome him.

We are seeing this trend, as Senator Alexander knows, where more and more newspapers are not putting reporters in Washington and are in fact pulling them out. But the Albuquerque Journal still has a very capable young man that is here, and I welcome him here today.

And with that, let me turn to Senator Alexander.

Senator ALEXANDER. Thank you, Senator Udall. And welcome to the Albuquerque Journal as well.

Dr. Sauers, how long does that little package for clean water, how long does it take to make the water clean?

Mr. SAUERS. Thirty minutes, sir.

Senator ALEXANDER. And can you buy that at outdoor stores?

Mr. SAUERS. You can buy it online. I believe Target has it, Target stores have it online. But this is largely for the developing world. It is part of P&G's philanthropic program.

Senator ALEXANDER. What about Boy Scouts in the United States?

[Laughter.]

Senator ALEXANDER. I mean, you cannot drink the water out of the creeks in the Smoky Mountains. You need something.

Mr. SAUERS. We could make it available to them if they are interested.

Senator ALEXANDER. But you do not now make it available to campers and hikers in the United States?

Mr. SAUERS. When we first came out with it, we tried to develop a business model where we could make money in the way that you just described and found that we could not do that. That is why we turned it into a non-profit, philanthropic program.

Senator ALEXANDER. So it is non-profit?

Mr. SAUERS. It is non-profit.

Senator ALEXANDER. Do you give it away in Africa?

Mr. SAUERS. Very much so. Yes, we partner with UNICEF and about 70 other partners to distribute these in the developing world. We have delivered over 3 billion liters of safe drinking water through this program. It is also useful for disaster relief. When disasters happen, the first thing that is lacking is safe drinking water.

Senator ALEXANDER. Well, you are experts on the business model, but I know from experience that is handy in the outdoors in the United States.

Mr. SAUERS. Well, if you have some Boy Scouts in Tennessee that would like some, I will give them to you.

Senator ALEXANDER. Well, we might have an older Boy Scout who would like to have some.

[Laughter.]

Senator ALEXANDER. Mr. Jackson, FedEx has really led the way in an option of electric trucks. By 2020, or 2025, do you have any estimates of how rapidly you will incorporate electric vehicles into your fleet?

Mr. JACKSON. Senator Alexander, it is hard to say at this time how many we will have at that time because of the work that we have underway currently. I can tell you that we are adding—we have got 47, or 43, that are currently operating on the roads, and over the next couple of months we are almost tripling that number. We are in the very early stages of electric vehicles.

What is most encouraging for us, though, is that they are meeting the range requirements that we are looking for, around a 100-mile range on the battery pack—

Senator ALEXANDER. So, the problem is the cost of the battery?

Mr. JACKSON. The cost of the battery pack. And that is where a lot of work is being put forward underway right now to try to bring that cost down.

Senator ALEXANDER. So, would you agree that probably an appropriate role for the Federal Government in electric vehicles might be to emphasize research on how to make better, how to make cheaper batteries?

Mr. JACKSON. Absolutely. It is the critical issue with respect to mainstreaming electric vehicles.

Senator ALEXANDER. What is the cost of the—I mean, can you give us any cost? I know in a car, like a Leaf, you know, it adds \$10,000. It takes it from a \$20,000 car to a \$30,000. What about a FedEx truck?

Mr. JACKSON. For a FedEx truck, what we are seeing on electric vehicles is it between two and three times the cost of a conventionally powered vehicle.

Senator ALEXANDER. And how much of that is the cost of the battery?

Mr. JACKSON. Virtually all of it.

Senator ALEXANDER. Yes.

Mr. JACKSON. But we do get about 70 to 80 percent savings on the operational side of it, so it is a good opportunity.

Senator ALEXANDER. Well, in a way it is similar to the Cummins story I was mentioning, the new Cummins engine that costs more for heavy duty trucks to get rid of the sulfur in the fuel, but truckers recouped the cost quick enough so that over time it saves them money.

Mr. JACKSON. Absolutely.

Senator ALEXANDER. Mr. Smith, you mentioned Eastman saving, it sounded like several million dollars a year because of your environmental practices. Would you think that is right? Or does it cost you money, or does it make you money, those things you mentioned?

Mr. SMITH. Well, it costs us money up front, but ultimately it saves us money. We, in particular at the Kingsport site, we are a very energy intensive facility. We generate our own power. So, we target things like steam leaks and insulation, ways to save electricity and things like that.

As part of our energy management program, we have developed project lists and do extensive evaluations of those to determine, you know, which would have the best paybacks. Because we generate our own power, we are advantaged for that reason. And it is fairly cheap.

So, it is a challenge at times for us to be able to, you know, we look at our internal rate of return, and we want to make sure that the projects that we take on, that they do have an appropriate payback for the company—

Senator ALEXANDER. Well, one of the purposes of the hearing is to try to understand Federal policies that might help or inhibit your environmental goals or your sustainability or your profitability so that you can afford to do the things that you want to do.

You have got a boiler at Eastman, I know, and the EPA has been back and forth with the Congress on what is called the Boiler MACT Rule which, I, for one, think is too severe. It does not give enough time to companies like Eastman and many other companies in the country, and Congress is at fault for really not giving the EPA enough authority to devise a rule that would make sense.

Do you have any estimate of how much, I mean, on the other side of the ledger while you might be saving money from some of your sustainability practices, on the other side of the ledger, how much would the Boiler MACT Rule, as it is currently constructed, cost your company?

Mr. SMITH. Yes, sir. We are evaluating several alternatives there. But ultimately, we are looking at somewhere between \$200 million and \$300 million with respect to Boiler MACT. And there are some other regulations as well, the Haze regulations and the SO₂ regulations. That is one of the challenges for us. These regulations and ultimately the technology that it is going to take to do this is potentially applicable to many of those regulations. But they are coming at us at different times, and they have different deadlines for implementation—it would be much more efficient and cost effective to be able to evaluate concurrently.

Senator ALEXANDER. Would it help if you had a longer period of time to implement the regulations?

Mr. SMITH. Yes, sir, absolutely.

Senator ALEXANDER. And in terms of the boiler, what would be a reasonable period of time?

Mr. SMITH. Well, as I recall, the Boiler MACT gives us I think 5 or 6 years from time of implementation. That gives us time to do it—

Senator ALEXANDER. I think it gives you 3. And what we are trying to do is get it up to 5.

Mr. SMITH. Oh, well, we need the 5, then.

[Laughter.]

Senator ALEXANDER. Well, I want to make the point that there are companies who have these challenges who are trying to do the right thing, on the one hand, and we want to create an environment that makes it easier for you to be a company that can promote a better environment, sustainability, improve the quality of life here, and make money.

So, I would appreciate it if you want to submit any extra comments to the Committee about that after the hearing, I would be glad to help you.

Mr. SMITH. OK. Thank you very much.

Senator ALEXANDER. Thank you, Mr. Chair.

Senator UDALL. Thank you, Senator Alexander.

A couple of questions for Mr. Brady on Intel and Intel practices in New Mexico.

Intel does much of its production in Arizona and New Mexico and these are places where water is scarce. What are Intel's strategies for water conservation in the West, and how successful have they been?

Mr. BRADY. Yes, that is an area where we put quite a bit of emphasis, and as you mentioned, because of where those manufacturing facilities are located. So, in New Mexico, for example, and this is common at other facilities in arid regions, we will take—well, first let me explain.

To make a semiconductor, a semiconductor is about the size of your fingernail when it is all said and done. And on that semiconductor are—can be upwards of a billion transistors. Those are the things that are turning off and on, you know, millions of times per second and make your computer or your cell phone, whatever your device is, work.

To manufacture that semiconductor, you literally build it up like you would a skyscraper, and with each layer you have to clean off the surface of that silicon. And you do that with what we call ultra-pure water. So, that is where the water use in semiconductor manufacturing comes from.

And so what we do, one of our strategies is to make that ultra-pure water but then reuse it over and over again in our facility. So, it may only be used once in cleaning off the wafer, but then it can be reused in facility systems which do not require the same kind of purity as that manufacturing operation does.

The second thing we attempt to do is to work with our communities, to partner with our communities and see what their needs are. For example, in Arizona where I am located we actually take the water from our facility, clean it, and re-inject it into the groundwater to bank away that water for future use. And so that is another thing that we do.

But the key is, the key is to look for opportunities to recycle and then also partner with the local communities for what makes sense there.

Senator UDALL. I understand that Intel did a pilot project in New Mexico to share environmental data with the community. Can you

describe that effort and how it has been received and what Intel's next steps are in that area?

Mr. BRADY. Sure. This was a new—in fact, New Mexico was our trial location, if you will, our pilot location to be as transparent as possible in our environmental performance and operations. What we did was to create a Web site whereby we give the public real time feedback as to what is going on at our plant, how the pollution control equipment is operating, what our emissions are, et cetera, in an effort to engage the community.

There is even—they are the most boring Web cams you have ever seen in your life, but they sit on the roof of our facility, and they look out over the stacks of our facility so you can literally, you know, visually monitor what is coming out of our stacks at any time, if you are so engaged or so inclined to do so.

But it actually has been very well received by the community in being transparent and open as possible. And it has been such a success there in New Mexico that we are in the process of proliferating that now to other locations around the globe.

Senator UDALL. There were people that were close to the plant that were very interested in this. I mean, you are talking about how it was boring, but the fact is that a variety of groups were saying, what are you emitting, and what are you doing? And so, you put this kind of transparency process into place that is, I think had a level of acceptance in New Mexico, and it sounds like you are now taking it to your other work stations in other places.

Mr. BRADY. That is exactly right. We have a community environmental working group there in New Mexico, and they were the ones who helped us to design that Web site. And so, we added features that they were interested in based on feedback from the community.

Senator UDALL. Great. Your testimony shows the incredible innovation cycle in the computer chip industry driven by Moore's Law. And I think you talked about that in your opening. Could you spend a bit more time describing how that ties in with environmental benefits for other industries and society at large? And how that in turn drives Intel's innovation?

Mr. BRADY. Sure. The opportunity there is, as IT innovation moves forward very rapidly, there are numerous opportunities to use that IT equipment to make the world more efficient. Imagine buildings which are smart that know whether somebody is in the room or not and can adjust the air conditioning load, for example, the lighting on and off. We have seen some of these applications, predicting the transportation and opening roads so one way or the other, depending on the transportation load.

These are opportunities for investment which can drive efficiency across society as a whole. And we think it is an opportunity also for the Government for investment in research in how one can better use IT to improve our efficiencies.

Senator UDALL. Thank you for those answers.

Senator Alexander.

Senator ALEXANDER. Mr. Brady, do you know about how much of our, the United States' electricity, is consumed by computer use?

Mr. BRADY. It is about 2 percent.

Senator ALEXANDER. About 2 percent. Will computer use, will that percent go up or down? We will have more computers but more innovation. Do you have a guess?

Mr. BRADY. Well, our argument would be that because it consumes 2 percent, you can now use that 2 percent to try to drive down the 98 percent. So, arguably, even if you were to increase to 3 percent or 4 percent, if we can shrink that 98 percent of the pie, we can get an overall net benefit. That is the idea.

Senator ALEXANDER. I see.

Dr. Sauers, does Procter & Gamble use our national laboratories either for to make a profit or a product or to improve sustainability? And is there anything we can do to create an environment so that you can use them more easily?

Mr. SAUERS. The Los Alamos National Laboratory has been very instrumental working with Procter & Gamble to help design and improve the efficiency of our manufacturing facilities. It has led to significant cost savings for the company. It has been a great partnership between us.

Senator ALEXANDER. You use the computers? Is that what you use?

Mr. SAUERS. It looks at—it makes reliability estimates for our plants and helps us improve the reliability of the manufacturing process so that the lines run more efficiently and run more often.

Senator ALEXANDER. Someone mentioned earlier the similarity of the focus on sustainability today to quality in the 1980s. And in thinking about what an appropriate Federal Government response might be to create an environment where corporations would be more likely to consider sustainability, it made we think of the Baldrige Award for quality.

It was named for Malcolm Baldrige who was, I guess, President Reagan's Secretary of Commerce. And it was not much of a Government program. It simply gave a prize, or an award, to the company that put in place systemic quality improvement based upon, I guess, many of the ideas of Mr. Deming and the Japanese during that period of time.

But it captured the imagination of the corporate world in America. I worked for a while with David Kearns in the first Bush administration; he had been the CEO of Xerox, and Xerox had won the Baldrige Award beforehand, and during the 1980s Xerox, in a variety of ways, was able to recapture the copying market from the Japanese, and he attributed that focus to it.

Do any of you have a comment on whether some sort of prize for innovation like the Baldrige Award for quality could be created for sustainability? And if it were created, would it be worth doing?

Mr. SAUERS. Well, I would say any time a corporation can receive recognition for the good work that they are doing in an area, I think that would be appreciated very much. I also know that it would be appreciated and a good sign to the employees of a corporation.

I know, for Procter & Gamble, we believe innovation is going to solve all of the issues of sustainability that we face today, and those ideas are going to come from our own people. So, we do a lot of effort to equip and educate them on sustainability, and the company receiving, you know, an award, awards like that would help,

I think, bring to them a certain satisfaction that their efforts are being appreciated.

But at the end of the day I think you are going to find that most corporations are going to continue to work very, you know, urgently and diligently in this area for its ability to build the company's business on the top line and the bottom line.

Senator ALEXANDER. It seems to me, and I wonder if this is true with Mr. Smith, Mr. Jackson, and Mr. Brady, I mean your top line and bottom line is very instructive. That is to say that while all of these companies are striving to be good citizens, you are in business. And your job is to make money for your shareholders, or you would not be here for 175 years, you would not be here for 1.75 years.

And if you are able to create a new product, that goes to the top line. That helps pay for overhead. That, by itself, probably increases your net income. And if you go to the bottom line by reducing costs through innovation, that also increases your net income. So, would you say that the main driving force for sustainability is top line and bottom line?

Mr. SAUERS. I would. For Procter & Gamble, certainly. And it is a trend that I see with my colleagues here at the table and as I work with sustainability leaders in other corporations, too.

Senator ALEXANDER. Mr. Smith, Mr. Jackson, Mr. Brady, is your work with the sustainability primarily to be a good citizen, or is it an integral part of improving your top line and bottom line?

Mr. SMITH. For Eastman Chemical, it is both. But it is an integral part of what we do. And I would agree with Dr. Sauers' comment about voluntary—about programs, we have seen that with our Partner of the Year Program where our customers have embraced, you know, the work that we are doing around energy management, and it certainly drives innovation and new products and things like that. I would also mention that Eastman Chemical was a Baldrige Award winner in 1994. Thank you.

Mr. JACKSON. Senator Alexander, you were spot on in that assessment. It is one of the reasons that we focused on performance and innovation with respect to that practical environmentalism concept that I mentioned. You know, efficiency gets you to a certain extent, but you need to be innovating as well to find new solutions and new ways of doing things and bringing new products to market.

And I think you mentioned Malcolm Baldrige. I was talking about quality earlier in relation to that with respect to sustainability because I think one of the things that Malcolm Baldrige brought is it brought a process. So, you were measuring quality and the like, but it brought a process that they were measuring as well.

So, it was not so much just solely about data but what you were actually, how you were doing it and what you were doing as well. It certainly made an impression upon us, and we won the Malcolm Baldrige Award in the 1990s as well. But think in that respect, in drawing that parallel, I think you are correct.

Mr. BRADY. Yes, I would echo the comments of the panelists. The voluntary programs are embraced by a large number of industry participants. I know, historically, we have participated in the

project Excel Initiative as well as recently Performance Track which, although not an award program per se, was a voluntary program that enabled manufacturing flexibility here in the U.S. in exchange for transparency and other initiatives.

So those, I would definitely support those types of initiatives to be brought forward by the Government.

Senator ALEXANDER. Thanks, Mr. Chairman.

Senator UDALL. Thank you, Senator Alexander. I think some fascinating questions there.

And since you brought up the Baldrige Award, some of the award ceremonies I have been at and heard executives talk about building in a continuous improvement process into their practices, and I was wondering, has sustainability gotten that deep into the company that you try to encourage employees to come forward and give you information about how you could be more sustainable and make recommendations? Have you seen those kinds of practices been pushed down into the rank and file of the company?

Mr. BRADY. I will start the comments. We have certainly seen that and have tried to implement programs to encourage that with our employees. So, we have an Environmental Excellence Awards Program where we recognize employees who have done activities each year and recognize them at a very high level within the company.

We also issue what are called Sustainability in Action Grants where we ask employees to submit ideas that we then fund. Our energy conservation is largely a grassroots by our engineers bringing forward ideas which again then are evaluated and funded. So, it is critical to engage your employee base to reach your sustainability goals.

Mr. SAUERS. And I would echo that, too. I think what has helped at Procter & Gamble is the executive sponsor for sustainability. At P&G it is our CEO, Bob McDonald. He sets a tone for the corporation that this is very important, which helps motivate our employees.

We also have a specific training program for our employees on how they can bring sustainability to life in their individual jobs. And we have celebrations, such as Earth Day, held at all of our—we have 140 sites around the world, so each site has Earth Day events which then educate the employees and allow them bring forward at that time.

Mr. JACKSON. We, at FedEx—the Employee Engagement Program is very, very important, and it comes out into two of the EarthSmart pillars that I mentioned, EarthSmart Innovations and EarthSmart at Work.

So, with EarthSmart at Work, it is about finding sustainable practices within the workplace itself. The innovations program is about the assets and the services that we provide and use for our customer service, which is part and parcel, pardon the pun, of our business each and every day. We have an Enterprise Sustainability Council that is made up of 12 of our senior executives across the enterprise that helps steer the course on that.

But that team member engagement is paramount. We have got to have the team members actually bringing solutions to the table

for us instead of the sustainability department trying to push initiatives down in a one-way manner.

Mr. SMITH. I would echo those same comments for Eastman. We have a sustainability officer who is a member of our executive team, and we do a lot of things to better educate our employees about what our sustainability efforts are all about. We have Earth Fair Day, we had an energy fair, we do Earth Fair activities.

We also have set a goal that by 2015 two-thirds of our revenues from new product launches would come from products that are advantaged by assessing against our sustainability criteria. So, a lot of effort goes on with that. Our technologies folks are very much engaged in developing new sustainable products. Thank you.

Senator UDALL. Senator Alexander.

Senator ALEXANDER. Well, first, thanks, Tom. I would like to thank the witnesses for coming today. This has been a very useful discussion. Your answers have been crisp and insightful, and you obviously know what you are talking about. So, your companies are great leaders in this country in a whole variety of ways. I know the Chairman joins me in thanking you for coming and for giving us this information.

And I would, and I am sure that he will say this, but I would urge you if, when you go home, you think well, I wish I had said this, or I wish I had suggested that, I hope you will send it in to us because ideas like that sometimes have their way of getting into law or not getting into law, whichever you would prefer. So, I invite you to do that.

I only have one more question, which is, is there a single thing you could, I mean, it seems to me our goal should be in the Federal Government not to order you to do a bunch of things but to create an environment in which you are more likely to succeed in your goals of improving sustainability and increasing your top line and lowering your bottom line to use, or increasing your top line and your bottom line to use Dr. Sauers' point.

So, can you think of a single thing that we could do that would help you do that, a policy that we might implement? Or can you think of one we are implementing that interferes with your ability to do that?

Mr. JACKSON. Well, Senator Alexander, I think for us, as I mentioned in my testimony, one of the things that helps with respect to innovation and the public policies that support it has been the accelerated depreciation for capital expenditures because it has allowed us to bring some of these new, innovative technologies to market very soon, or in a very rapid manner.

So, that, along with, if I could have the liberty to also mention what you have mentioned which is the battery technology studying as well, those would be critical, I think, in doing so.

Senator ALEXANDER. So, your first point, really, was you bought a lot of big airplanes that use less fuel. Right?

Mr. JACKSON. Absolutely. And actually, it is a win-win because what it allows us to do is it allows us to fly direct to and from Asia which gives better customer service options for our Asian customers in moving goods back to the U.S. which we know is a critical economic issue for us at well.

Mr. SAUERS. I would add to that the comment I made that innovation, in our mind, will solve all of the issues of sustainability going forward. So, in general, anything that better enables a corporation like Procter & Gamble to innovate in a responsible way will be very helpful. So, your R&D Tax Credit, you know, good TSCA reform that leads to innovation that can occur in a responsible way, predictable regulations, all of those kinds of things would be very helpful.

Mr. BRADY. As a large U.S. manufacturer, as I mentioned before we have about three-quarters of our manufacturing here in the U.S. even though less than a quarter of our products are sold here, so manufacturing flexibility is key for us. So, as new regulations are put into place, focusing on flexibility for manufacturers, streamlining processes is critical.

Mr. SMITH. I would like to add to Mr. Brady's comments. That is a great comment. For us in manufacturing, a balanced approach. We believe we need a comprehensive energy policy and as we consider environmental regulations and things like that, those all go hand in hand, and we just need to make sure that we have a balanced approach as we deal with those issues. Thank you.

Senator ALEXANDER. Thank you, Mr. Chairman.

Senator UDALL. Thank you, Senator Alexander. I just have a couple of questions about reporting and indexes and those kinds of things, and it is to the whole panel.

What are the benefits to companies in participating in the Dow Jones Sustainability Index process and being included in the index? And what are the benefits to these indexes, and what are some of the problems with them?

Mr. SAUERS. Well, P&G is part of the Dow Jones Sustainability Index, the FTSE4Good Global 100. Those kinds of indexes have a lot of credibility. There is transparency on the ratings and rankings, and we find great value being part of those and being ranked highly on those. It certainly helps with shareholders, investors, and our employees and consumers because it shows, in an independent fashion, that P&G is trying to be responsible in this area.

There are other ratings and ranking systems that are less transparent in, you know, how they rate and rank companies. Those, at times, can lead to confusion for others because you can be rated very low in one ranking and very high in another. So, anything that could drive standardization across those ratings and rankings would be helpful.

Senator UDALL. What would you recommend to drive the standardization?

Mr. SAUERS. Well, there are some efforts that are just beginning right now on global reporting standards and such. And I would continue those programs. P&G is part of those right now. But those kinds of things would be helpful on which metrics are measured, how they are measured, the degree of importance that are put on each metric, those kinds of things.

Senator UDALL. Yes.

Mr. Brady.

Mr. BRADY. Yes, I would agree. We are also regularly ranked and rated in these different metrics. I think the benefit is that one can

benchmark your performance relative to other companies. So, that is useful to see what other companies are doing, how you can improve, how you are doing relative to your peers.

I would also agree with Mr. Sauers that the—when you are ranked No. 5, the question from the CEO is, why are we not No. 1? And so, my advice would be could we come up with a relative ranking system because in reality there is very little difference between No. 5 and No. 12 or No. 3. But that does tend to get our executives' attention, and perhaps that is one of the benefits of a ranking system.

Senator UDALL. Mr. Jackson.

Mr. JACKSON. Thank you, Mr. Chairman. It is interesting. I think that some of the challenges with some of the rating systems that we have out there is that they primarily focus on only one of the four pillars that I mentioned earlier, and that is transparency. Maybe, to a lesser degree, around performance, but often never around innovation and leadership with a few exceptions.

One of the ones that we have recently seen that we were intrigued by and were pleased to have been included in was the Maplecroft Climate Innovation Leaders Index because, again, a lot of that focus was around performance and innovation.

But as I had mentioned earlier with respect to transparency, transparency in reporting information for information's sake can or cannot be helpful. It depends on what the issue is. But if the information is actually leading to improvements and innovations in the operations that are occurring, that are applicable not only within the four walls of an enterprise but outside the four walls as well to, in some cases, society at large, then you have real benefit from some of these systems. But they need to expand beyond their limited scope and evaluation procedures now.

Mr. SMITH. My comment would be that I would just emphasize that a standard approach would certainly be, in our eyes, very helpful and beneficial.

Senator UDALL. So, you would like to see what Dr. Sauers talked about, move to more standardization on these sustainability indexes?

Mr. SMITH. Yes.

Senator UDALL. And that could be very helpful for all of you.

Mr. SMITH. Yes.

Senator UDALL. Thank you very much.

Let me just, in closing here, thank all of you today for your excellent testimony, and I think we had a very, very interesting discussion. And it was great having Senator Alexander here for the entire hearing.

Here are my takeaways, very brief, from the hearing today. No. 1, I think we learned a lot about how businesses are making decisions that are good for the bottom line and also good for the environment. No. 2, we should consider this information as we further look at voluntary Federal partnership programs for businesses to improve their environmental responsibility. And No. 3, the discussion about corporate reporting of environmental and sustainability information, I think, was very valuable, and I think you made some very good points in terms of standardization.

Committee members will have 2 weeks to submit any additional written questions to our witnesses, and responses will be included in the record.

And Senator Alexander, I do not know if you have any closing comments, but if you do not, the Committee is adjourned. Thank you.

[Whereupon, at 11:12 a.m., the Subcommittee was adjourned.]
[An additional statement submitted for the record follows:]

STATEMENT OF HON. JAMES M. INHOFE,
U.S. SENATOR FROM THE STATE OF OKLAHOMA

I would like to thank Senator Udall and Senator Alexander for holding this hearing examining private sector innovation and sustainability. I would also like to thank the witnesses for being here—your companies and others like you are important employers of many hardworking Americans and key in maintaining and improving our way of life.

Today the Subcommittee on Children’s Health and Environmental Responsibility is looking into the nexus between sustainability and profitability in the private sector as the best place to make cost effective environmental improvements. However, what efforts are successful for one company may not work for another company. For example, FedEx has on its own been converting part of their delivery fleet to run on natural gas fuels such as CNG and LNG because of its price advantage. One recent article quoted CEO Fred Smith as stating it could result in a 40 percent reduction in fuel costs. This is, of course, without the Government stepping in and dictating to them what to do.

Improving efficiency and the wiser use of our resources is instinctive for businesses. For example, not so long ago, Tide “released a new cold-water detergent with advertisements touting the substantial energy savings from not having to use hot water.” This company responded to demands for energy efficient products that save consumers money and probably claimed market share as a result.

As some of these companies present here today demonstrate, mandates and command-and-control style regulations that kill jobs and hamper economic growth aren’t necessary and cause more harm than good. Private sector innovation without the heavy hand of the Government can simultaneously protect the environment and create jobs.

