



COMMON  
**good**

SUSTAINABILITY THAT BENEFITS  
OUR CUSTOMERS, STOCKHOLDERS,  
PEOPLE AND PLANET

For nearly 90 years, Caterpillar Inc. has been making sustainable progress possible and driving positive change on every continent. With 2013 sales and revenues of \$55.656 billion, Caterpillar is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. The company principally operates through its three product segments – Resource Industries, Construction Industries and Power Systems – and also provides financing and related services through its Financial Products segment.

Caterpillar is a global leader, a worldwide enabler of sustainable progress. Caterpillar operates hundreds of offices and facilities around the world and has more than 118,000 employees. We serve customers in more than 180 countries. Caterpillar's global presence, product breadth and financial strength enable us to win in today's competitive marketplaces.

**FORWARD-LOOKING STATEMENTS** Certain statements in this 2013 Sustainability Report relate to future events and expectations and are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Words such as "believe," "estimate," "will be," "will," "would," "expect," "anticipate," "plan," "project," "intend," "could," "should" or other similar words or expressions often identify forward-looking statements. All statements other than statements of historical fact are forward-looking statements, including, without limitation, statements regarding our outlook, projections, forecasts or trend descriptions. These statements do not guarantee future performance, and we do not undertake to update our forward-looking statements.

Caterpillar's actual results may differ materially from those described or implied in our forward-looking statements based on a number of factors, including, but not limited to: (i) global economic conditions and economic conditions in the industries we serve; (ii) government monetary or fiscal policies and infrastructure spending; (iii) commodity price changes, component price increases, fluctuations in demand for our products or significant shortages of component products; (iv) disruptions or volatility in global financial markets limiting our sources of liquidity or the liquidity of our customers, dealers and suppliers; (v) political and economic risks, commercial instability and events beyond our control in the countries in which we operate; (vi) failure to maintain our credit ratings could increase our cost of borrowing and adversely affect our cost of funds, liquidity, competitive position and access to capital markets; (vii) our Financial Products segment's risks associated with the financial services industry; (viii) changes in interest rates or market liquidity conditions could adversely affect Cat Financial's and our earnings and/or cash

flow; (ix) an increase in delinquencies, repossessions or net losses of Cat Financials customers could adversely affect its results; (x) new regulations or changes in financial services regulations; (xi) we may not realize all of the anticipated benefits of our acquisitions, joint ventures or divestitures, or these benefits may take longer to realize than expected; (xii) international trade policies may impact demand for our products and our competitive position; (xiii) our ability to develop, produce and market quality products that meet our customers' needs; (xiv) the highly competitive environment in which we operate could adversely affect our sales and pricing; (xv) we may not realize all of the anticipated benefits from a number of initiatives to increase our productivity, efficiency and cash flow and to reduce costs; (xvi) we could incur additional restructuring charges and may not realize anticipated savings or benefits from past or future cost reduction actions; (xvii) inventory management decisions and sourcing practices of our dealers and our OEM customers; (xviii) compliance with environmental laws and regulation; (xix) alleged or actual violations of trade or anti-corruption laws and regulations; (xx) additional tax expense or exposure; (xxi) currency fluctuations; (xxii) our or Cat Financial's compliance with financial covenants; (xxiii) increased pension plan funding obligations; (xxiv) union disputes or other employee relations issues; (xxv) significant legal proceedings, claims, lawsuits or investigations; (xxvi) compliance requirements imposed if additional carbon emissions legislation and/or regulations are adopted; (xxvii) changes in accounting standards; (xxviii) failure or breach of IT security; (xxix) adverse effects of unexpected events including natural disasters; and (xxx) other factors described in more detail under "Item 1A. Risk Factors" in our Form 10-K filed with the SEC on February 18, 2014 for the year ended December 31, 2013.

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# Chairman's Message

The world's resources support seven billion people today, and will need to support nine billion by 2050. As the world's population increases, demand for resources and infrastructure will increase, too. Sustainable progress to meet these needs and support economic growth will remain absolutely necessary.

Caterpillar is uniquely positioned to be a leader in making this sustainable progress possible. Our commitment is longstanding because we know we can be profitable while also best serving our planet and its people by promoting the common good.

This is not something we discovered recently; it can be traced back to the Caterpillar Worldwide Code of Conduct first published in 1974. For 40 years, our Code has provided a common ground for our business life values. Since 2005, these have been Our Values in Action:

- Integrity: The Power of Honesty
- Excellence: The Power of Quality
- Teamwork: The Power of Working Together
- Commitment: The Power of Responsibility

I'm proud that in early 2014 we honored our longstanding commitment and recognized sustainability as another value:

- Sustainability: The Power of Endurance.

Sustainability has been included for years as a part of our value of Commitment, clearly stating our responsibility to produce sustainable solutions. Raising sustainability to a stand-alone value acknowledges both what we have done in the past and will do in the future.

For Caterpillar, sustainability is an enterprise-wide approach we apply to our own operations, as well as a guide for our suppliers, dealers and customers.



## Chairman's Message *(continued)*

We make sustainable progress possible by:

- Leveraging innovation and technology,
- Increasing productivity,
- Using resources more efficiently,
- Reducing environmental impacts and
- Contributing to the communities where we live and work.

We know that to endure, our company and operations must operate in a sustainable manner. What does this mean to our stakeholders?

To our customers, it means enduring products, services and solutions. Our brands represent long-lasting quality, and our products and solutions help our customers operate more efficiently. Through innovation, we focus on providing products that are more fuel-efficient and require less oil and fluids to operate. Our customers build the infrastructure, supply the power and transport the goods that support economic growth in developing and developed nations alike, and support Caterpillar's efforts to help make that growth sustainable.

To our stockholders, it means sustainable development strategies and leading-edge products that promote customer loyalty and ensure Caterpillar prospers for another 90 years, and longer.

To our people, it means working for a company they can be proud of, for many reasons. We have a robust risk management process that includes anti-bribery, anti-corruption and other programs and training designed to support Our Values in Action. We've reduced our Recordable Injury Frequency to a world class 0.78 level in 2013. We have strong employee training and development programs, intentional efforts to find and retain the most qualified and diverse employees, and are dedicated to diversity and inclusion.

We also invest in and support the communities where we live and work through the United Way, and generous nonprofit gift matching and volunteer programs at our facilities worldwide. We support the Caterpillar Foundation, which has invested more than \$550 million since 1952 to boost economic growth and quality of life around the world.

I encourage you to take the time to read the details presented in this report. I believe Caterpillar is second to none in our commitment to sustainable progress.



Doug Oberhelman  
Chairman & CEO  
Caterpillar Inc.



## About this Report

At Caterpillar, our sustainability practices are focused on ways to maximize the life cycle benefits of our products while minimizing the economic, social and environmental costs of ownership. Our recent results are reflected in this 2013 Sustainability Report, and build on the themes and results described in our 2012 report.

New this year is a Focus Area section that discusses and documents how selected issues related to environmental and social responsibility intersect with our business on a daily basis and affect our decision-making process. Many of these focus areas are tied to Caterpillar's long-term sustainability goals, while others represent areas where we have an organizational impact or are important to our various stakeholders.

In preparing the content for this report, Caterpillar consulted the Global Reporting Initiative G4 reporting framework to serve as an informal guideline. The reporting period is the 2013 calendar year, which is also Caterpillar's fiscal year. Caterpillar's environmental metrics for operations are consolidated based on the Greenhouse Gas Protocol (GHG Protocol) "operational control" approach. The content represents the products and operations of Caterpillar Inc. and its subsidiaries where we have a controlling financial interest. Where noted, Caterpillar's independent dealer network and supply chain are also represented. The Caterpillar brands are provided here: <http://www.caterpillar.com/brands>.



## Vision and Mission

Our vision is a world in which all people's basic needs – such as shelter, clean water, sanitation, food and reliable power – are fulfilled in an environmentally sustainable way and a company that improves the quality of the environment and the communities where we live and work.

Our mission is to enable economic growth through infrastructure and energy development, and to provide solutions that support communities and protect the planet.

Our strategy is to provide work environments, products, services and solutions that make productive and efficient use of resources as we strive to achieve our vision.

We apply innovation and technology to improve the sustainability performance of Caterpillar's products, services, solutions and operations. We believe sustainable progress is made possible by developing better systems that maximize life cycle benefits, while also minimizing the economic, social and environmental costs of ownership, as reflected in our sustainability principles.

### CRITICAL SUCCESS FACTORS

**Culture.** Create a culture of sustainability in all our business units and in all our daily work.

**Progress:** We promote our employees' awareness and understanding of sustainability. We continue to foster a corporate culture of transparency, disclosure and engagement.

**Operations.** Champion our sustainability principles and contribute to 2020 aspirational sustainable development goals.

**Progress:** The Caterpillar Production System provides the recipe for efficiency and excellence in our facilities. We actively encourage employees to conserve resources and be more efficient. Operating in a more efficient and sustainable manner will reduce impacts on people and the environment, and help us and our customers save money.

**Business Opportunities.** Identify and pursue business growth opportunities created by sustainable development.

**Progress:** We are actively embedding sustainability throughout our Caterpillar brand portfolio, our new product development process and our technologies. Our business leaders continue to drive growth in sales of products, services and solutions that help customers meet their sustainability challenges. We utilize 6 Sigma methodologies to focus our work and drive measurable benefits.

We will execute our strategy by working to meet our aspirational sustainable development goals.

# The Value of Sustainability



In 2013, Caterpillar began a transformational journey with respect to sustainability. From February through November, a “Powering the Future” team, one of our Leadership Excellence in Accountability and Development (L.E.A.D.) leadership development programs, performed an in-depth analysis of our existing sustainability capabilities and strategy. The team was comprised of Caterpillar leaders from a wide range of backgrounds and perspectives. They compared Caterpillar sustainability commitments and achievements to those of our peers and competitors. They also examined a variety of global trends and how they relate to the Caterpillar enterprise and our employees. As the team dug deeper into the various challenges and opportunities, they all reached the same conclusion: It is time to officially recognize sustainability as a core value at Caterpillar. They developed a bold recommendation for this important shift during the 2013 Strategic Planning Committee (SPC) review. Following careful consideration and approval by the Executive Office, sustainability will now be recognized as a core value at Caterpillar. We captured some of the team’s perspectives and observations from this project and they can be viewed in the online version of Caterpillar’s 2013 Sustainability Report.

For many years, Sustainability has been a key element of our strategy and values. Numerous Caterpillar employees have considered sustainability to be a value on a personal level, and it has been reflected in their contributions to their work, their communities and the environment. Significant advances toward sustainable progress have resulted from these efforts. By formally recognizing it as a core value for the enterprise, we will further embed it in our culture and make it an integral part of our DNA.

It also reflects the priorities of the next generation of leaders and the heightened focus being placed on sustainability around the world. Sustainability will no longer simply be a series of important things that we do to benefit communities, the environment and the enterprise. Sustainability will now become a major part of who we are.

We have a unique opportunity to lead in solving some of the world’s most challenging issues associated with energy, water, land, climate and quality of life. Our position as the global leader in providing the products and services needed for carefully extracting resources and developing infrastructure places us at the apex of many issues. As the population grows and migrates to urban areas, needs for sanitation, water, transportation and housing will escalate dramatically. Our capabilities associated with distributed power generation using fuels from diverse sources ranging from natural gas to renewable fuels can contribute greatly to addressing energy poverty problems around the globe. Up to 25 percent of the world’s land is now highly degraded. Our machinery can play a major role in restoring these lands to improve ecosystem health and increase land productivity.

As we work together to implement the measures needed to fully embed the value of Sustainability, we have a great foundation to build on. A strong moral compass and a strong set of values have been at the core of Caterpillar’s culture from the very beginning. The ways that Caterpillar can contribute to sustainable progress are limited only by our imaginations, and we will unleash the human capital and talent that exists throughout the organization to be effective leaders. More than ever, the world needs sustainability leadership, and we are the right enterprise at the right time to truly make a difference for the common good as envisioned by former U.S. President John F. Kennedy when he stated:

*“If not us, who? If not now, when?”*

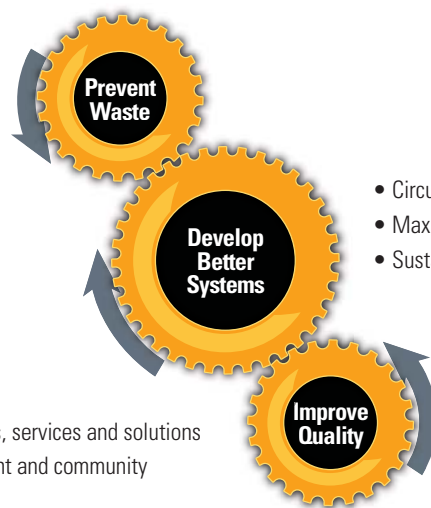




# Sustainability Principles

In 2012, Caterpillar launched three sustainability principles used to drive our commitment to make sustainable progress possible. **Preventing waste** means improving the efficiency of products, processes, services and solutions, which not only reduces cost, but also leads to environmental benefits associated with reduced materials, energy, water and land utilization. **Improving quality** applies to the quality of the processes, products, services, solutions and safety practices utilized throughout the Caterpillar enterprise, as well as the quality of the communities and the environment in which Caterpillar operates. Preventing waste and improving quality measures provide the key drivers for **developing better systems**. Keeping resources in the value chain through a circular flow of materials, energy and water is critical to maximizing total life cycle benefits while minimizing the cost of ownership.

- Materials, energy, water and land
- Impacts to people, communities and the environment



- Circular flow of materials and energy through the value chain
- Maximum life cycle benefits and minimum cost of ownership
- Sustained progress for economy, environment and community

- Safety, processes, products, services and solutions
- Life, workforce, environment and community

# External Sustainability Report Advisors & Comments

Our thanks to the advisory council of experts, who provided their comments on Caterpillar's sustainability report and progress. Inclusion below indicates the provision of feedback; not the endorsement of the contents of the report. Comments below are advisory in nature and do not necessarily reflect corporate policy.

## Luke Danielson

President, Sustainable Development Strategies Group

## Bruce M. Everett

Professor of International Business, The Fletcher School, Tufts University

## Bradley Googins

Professor, Carroll School of Management; Former Executive Director, Center for Corporate Citizenship, Boston College

## Stephanie Hanford-Hass

President, Connectivity Consulting, LLC

*"Articulating the Common Good, as Caterpillar is doing now, is a great way of demonstrating that tackling environmental challenges through technological solutions very often makes good sense, both economically as well as ecologically. It is impressive to see Caterpillar optimizing existing products in this way. However, as global environmental and social challenges grow, primarily because of climate change, I would like to see Caterpillar engage its talented workforce at a more strategic level around climate resilience, helping to secure our cities from the ground up. This would undoubtedly provide both investor and social returns."*

## Stuart L. Hart

S. C. Johnson Professor Emeritus, Cornell University; President, Enterprise for a Sustainable World

## Thomas Lovejoy

University Professor of Environmental Science and Policy, George Mason University; Senior Fellow, The United Nations Foundation

*"2013 marked the passing of an amazing freshwater ecologist, Ruth Patrick, who left this world at the age of 105. Ruth demonstrated that the numbers and kinds of species in a watershed provide the best read-out of a stream's natural conditions as well as the stresses from human activity in the watershed. In other words, biodiversity is the best measure of sustainability in ecosystem management. So when the Australia Wildlife Conservancy uses Caterpillar equipment to restore representative Australian ecosystems with their characteristic biodiversity, as it is doing in the Wongalara Reserve on the edge of Australia's Arnhem Land, it is following what has become known as the Patrick Principle."*

## Mark B. Milstein

Clinical Professor of Management and Director, Center for Sustainable Global Enterprise, Cornell University

## William R. Moomaw

Professor, Center for International Environment and Resource Policy, The Fletcher School, Tufts University

## Kevin Sweeney

Center for Responsible Business, Haas School of Business, University of California, Berkeley

## William A. Wallace

Lead Designer, Envision™ Sustainable Infrastructure Rating System; Past President and Member of the Governing Board, Engineers Without Borders – USA

*"Caterpillar is in an exceptional position to help their customers conserve resources and build up resiliency in this new harsh and changing environment. I'm curious to see what they come up with."*

## Durwood Zaelke

President, Institute for Governance & Sustainable Development

*"Caterpillar's technology genius can play a key role in addressing climate change, while helping customers become more sustainable. In addition to focusing on reducing carbon dioxide, it is important to reduce the short-lived climate pollutants, including black carbon, tropospheric ozone, methane and the hydrofluorocarbons."*





## Affiliations and Investments

### **Dow Jones Sustainability Indexes**

Included 2000 through 2012; sector leader 2006-2007-2008-2010.  
[sustainability-index.com](http://sustainability-index.com)

### **Business Council for Sustainable Energy**

Solar Turbines is a member of the board of directors of the Business Council for Sustainable Energy, which promotes clean energy technologies as solutions to economic, environmental and national security challenges.  
[Bcse.org](http://Bcse.org)

### **Business Roundtable**

Caterpillar is a member of the Business Roundtable, which supports sustainable development through its member companies in addressing a vast range of environmental, social and economic issues to help ensure a sustainable future.  
[businessroundtable.org](http://businessroundtable.org)

### **Diesel Technology Forum**

Caterpillar is a member of the Diesel Technology Forum, a leading resource and educator on the importance and unique value of diesel engines, fuels, equipment and emissions control technology.  
[dieselforum.org](http://dieselforum.org)

### **Energy Technologies Institute**

Caterpillar is a member of the Energy Technologies Institute, a U.K.-based public-private organization focused on projects that create affordable, reliable, clean energy for heat, power and transport.  
[energytechnologies.co.uk](http://energytechnologies.co.uk)

### **The Nature Conservancy**

The Caterpillar Foundation and the Nature Conservancy formed the Great Rivers Partnership project in 2005 aimed at preserving and protecting the world's great rivers.  
[nature.org](http://nature.org)

### **Opportunity International**

The Caterpillar Foundation invests in Opportunity International to provide microfinance loans, savings, insurance and training to over 4 million people working their way out of poverty in the developing world.  
[opportunity.org](http://opportunity.org)

### **Tropical Forest Foundation**

The Caterpillar Foundation began investing in the Tropical Forest Foundation in 1990. The Tropical Forest Foundation works to advance environmental stewardship, economic prosperity and social responsibility through sustainable forest management.  
[tropicalforestfoundation.org](http://tropicalforestfoundation.org)

### **U.S. Green Building Council**

Caterpillar is a member of the U.S. Green Building Council, a nonprofit community of leaders working to make cost-efficient and energy-saving buildings available to everyone within a generation.  
[usgbc.org](http://usgbc.org)

### **Woody Biomass Coalition**

Caterpillar is a member of the Woody Biomass Coalition, which provides advocacy, education, information and outreach to public and private entities to promote research, development and funding for sustainable woody biomass utilization and markets in the U.S.  
[woodybiomass.net](http://woodybiomass.net)

### **World Food Programme**

The Caterpillar Foundation invests in the World Food Programme, the world's largest humanitarian agency, to fight hunger worldwide, delivering food wherever and whenever it is needed most.  
[wfp.org](http://wfp.org)

### **World Resources Institute**

Caterpillar is represented on the board of directors of the World Resources Institute, an environmental organization that goes beyond research to find practical ways to protect the earth and improve people's lives. The Caterpillar Foundation supports the World Resources Institute to catalyze the development of smart cities, which promote infrastructure development that is economically and environmentally efficient and serves as a model for sustainable development.  
[wri.org](http://wri.org)





# Focus Areas

Caterpillar currently operates in more than 180 countries worldwide, and generates more than half its annual sales outside the United States. Operating on a global scale requires us to work within a variety of different cultures, governmental systems and economic environments. We acknowledge and respect the diversity of cultures and customs wherever we operate, and maintain a flexible business approach to best serve our customers, dealers and suppliers, while always adhering to Our Values in Action – Caterpillar’s Worldwide Code of Conduct.

As part of our work in sustainable development, we have identified a set of focus areas that intersect with our business on a daily basis and that guide our thinking as we make day-to-day business decisions. Many of these areas are associated with our 2020 aspirational, operational and product stewardship goals, while others represent areas impacting our business long-term and which are important to our various stakeholders.

These areas include:

- Workforce
- Energy & Climate
- Water Management
- By-Product Materials
- Product Stewardship
- Supply Chain & Dealer Network
- Governance & Ethics
- Economic Development
- Human Rights
- Philanthropy





## Workforce

Improving quality is a key sustainability principle at Caterpillar. Traditionally, this applies to the quality of the processes, products, services, solutions and safety practices used throughout the enterprise. However, it also applies to the quality of life for our employees, as well as the quality of life for members of the communities where we operate.

Our employees have always been the backbone of Caterpillar's success. They provide the vision, creativity and hard work required for our businesses to be marketplace leaders. That is why we are focused on providing a workplace that values safety, talent, drive and diversity, and one in which our employees can bring a variety of skills, ideas and experiences together in a supportive environment.

We promote the health and safety of everyone on our property with policies and proactive programs that help individuals safeguard themselves and their co-workers. We develop our products, manufacturing processes, training programs and customer assistance programs to minimize safety risks. We understand and accept the uniqueness of individuals and welcome and value differences, unique talents, skills, abilities, cultures and experiences. The safety of our operations and the unique capabilities of our employees ensure the long-term sustainability of our enterprise.

To help create such an environment, we leverage our global reach, values and transformational impact.

### ***Our Global Reach***

Executing Caterpillar's strategic vision requires hiring and retaining the best people, which is why we are focused on providing employees with significant and long-term career opportunities. Our global reach provides employees with the ability to move between different business units, locations and product lines over the course of their careers. These opportunities, coupled with career development resources, make it possible to have a truly diverse and meaningful, long-term career within our organization. The long average tenure of our employees speaks to their satisfaction with career growth.

### ***Our Timeless Values***

In 1974 Caterpillar became one of the first companies to publish a Worldwide Code of Conduct. Our Values in Action – Caterpillar's Worldwide Code of Conduct – articulates our commitment to Integrity, Excellence, Teamwork and Commitment. In early 2014, we recognized Sustainability as another core value. We want to surround ourselves with talented people who love what they do, and who want to help others succeed. In addition, Caterpillar strives for a diverse and inclusive work culture that helps bring our best ideas to the forefront. The passion of our employees is infectious and inspiring, as is their emphasis on teamwork. The people of Caterpillar are called to bring integrity, accountability and courtesy to every interaction between our employees, our dealer network, our supply chain and our customers.

**Our Transformational Impact**

Caterpillar provides the opportunity for employees to feel a part of products, services and programs that make a transformational, tangible impact – not only on their own community, but also on communities around the globe. Our employees, our customers and our products play an indelible role in developing countries and creating economic growth throughout the world. Our contributions range from helping provide basic infrastructure like roads, sanitation, airports and power to developing societies; to powering missions to outer space, widening the Panama Canal and building the world’s superhighways. We play a part in some of the world’s most important transformational projects.

**SAFETY**

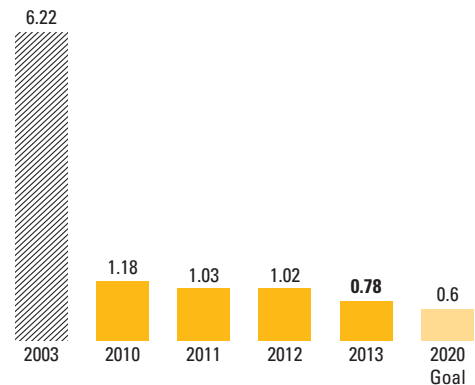
We are dedicated to the safety of everyone at Caterpillar, including our extended team of employees, contractors, dealers, suppliers and customers. Our commitment to safety begins with the engineering of our products and manufacturing processes, and extends to operator training, job site solutions and the workplace cultures that guide the way we work.

Caterpillar’s Global Health & Safety team plays a key role in providing expertise and support to Caterpillar operations worldwide. Caterpillar Safety Services supports enterprise facilities, dealers, suppliers and customers by leveraging cultural assessment tools, guiding continuous improvement processes and providing a wealth of free, industry-specific safety resources. The *safety.cat.com* site provides access to a wide range of interactive online training courses for safety, health and the environment – in full support of our vision: Safely home. Everyone. Every day.™

From 2012 to 2013, we continued to build upon a trend toward world-class standards in safety with a 24 percent reduction in Recordable Injury Frequency (RIF) and a 3 percent reduction in Lost-Time Case Frequency Rate (LTCFR).

Initiatives at many of our locations continue to drive our safety results. At our Clayton Distribution Center in Clayton, Ohio, for example, managers focused specifically on the injuries employees were experiencing in 2012. A project team analyzed the facility’s safety incidents, which revealed that more training and awareness was needed. The Clayton safety team began building a process focused on leading safety indicators and cultural changes specifically tailored to their site.

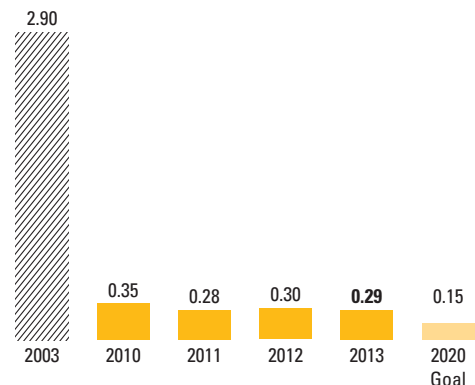
**RECORDABLE INJURY FREQUENCY<sup>1</sup>**



**0.78** Recordable Injury Frequency (RIF)  
(Recordable injuries per 200,000 hours worked)

<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.

**LOST-TIME CASE FREQUENCY RATE<sup>1</sup>**



**0.29** Lost-Time Case Frequency Rate (LTCFR)  
(Work-related injuries resulting in lost time per 200,000 hours worked)

<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.

Clayton implemented a peer-to-peer recognition system and team safety certificate program, versions of which had been successfully employed at other Caterpillar sites to better engage employees. Other safety improvements included the development of a revised matrix to document safety incidents and identify preventive measures; targeted safety messages for certain jobs and/or equipment; brief, frequent safety messaging at team and management meetings; monthly first aid/CPR training; and a renewed emphasis on providing and using employee personal protective equipment. This multifaceted approach, driven by proactive engagement indicators, resulted in the facility experiencing a 91 percent reduction in recordable injuries by the second half of 2013, while decreasing the total number of injury incidents by 36 percent over the same period.



In 2013, Progress Rail's Decoursey Car Shop, a full-service freight railcar repair and modification facility located in Covington, Ky., noticed an increase in the number of injuries. In response, the facility implemented a novel safety solution that targeted new employees who were not experienced with equipment and processes. Management upgraded the training and onboarding process for these employees by creating a "Training Pyramid" to provide targeted, hands-on training for new hires. This pyramid effectively replicates many of the common tasks and issues encountered by Decoursey employees during railcar repair. Built at a cost of less than \$3,000, the pyramid was designed to mimic tight spaces workers frequently must negotiate, and it includes a detailed review of tools and tool handling tips to reinforce the importance of preinspecting tools prior to commencing any repair work.

Tools were also a focus at Caterpillar's Thiruvallur, India, facility where off-highway trucks, large wheel loaders and hydraulic excavators are manufactured. The facility determined that design and operational issues in one machining process exposed employees to 12 separate potential injury risks. Through the process and equipment modifications, the facility reduced the identified safety risks for its machining tools by almost 100 percent. In addition, the implemented improvements reduced machining cycle time by almost 40 percent, decreasing the cost for repair and maintenance of existing equipment.

Finally, as part of a renewed safety and ergonomic emphasis at Caterpillar Brasil Ltd. in Piracicaba, Brazil, an internal team reviewed each area's workplace ergonomics. Using a Rapid Improvement Workshop, the team identified seven critical activities

where ergonomic interventions could be implemented. Most of the improvements centered on eliminating unnecessary bending and lifting, redesigning workplaces to ease physical strain and providing additional tools or transport methods to reduce push/pull exposures.

These initiatives have resulted in more than an 87 percent reduction in ergonomic risks, along with a 64 percent reduction in absentee hours and 69 percent reduction in employee-reported discomfort in 2013. Due to the success of this project, the Piracicaba facility is currently replicating the ergonomic improvements in three other work areas.

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## DIVERSITY AND INCLUSION

Diverse and inclusive work environments embrace the values and unique talents, experiences and viewpoints of employees. This approach is aligned with our strategic goal of Best Team. To achieve the Best Team goal, our global Diversity and Inclusion strategy includes:

- Defining a clear set of roles, responsibilities and accountabilities for all employees.
- Holding management at all levels accountable for results through defined diversity and inclusion metrics.
- Building sustainability by embedding diversity and inclusion into key people processes.

In addition, Caterpillar's Diversity and Inclusion initiatives are also exemplified in the work of the Caterpillar Foundation. The Caterpillar Foundation supports global endeavors that help drive economic stability, including programs for underrepresented groups, such as helping girls and women leave the path of poverty.

In June 2013, Caterpillar launched its first inclusion survey, designed to help us identify and understand opportunity areas for building a more diverse and inclusive culture. The survey results will be used to update and improve the metrics we use to drive enhanced diversity and sustain an inclusive culture throughout the company. This will be done by ensuring all segments of our employee population feel emotionally safe (or included) at work.





Caterpillar's diversity and inclusion progress has earned Caterpillar several accolades. In 2013 alone:

- *DiversityInc* magazine named Caterpillar to a pair of prestigious lists – “25 Noteworthy Companies” and “Top 10 Companies for Veterans.”
- *CAREERS & the disABLED* magazine named Caterpillar as one of its “Top 50 Employers.”
- The website HR Executive Online named Caterpillar to its list of “Top 50 Most Admired Global Companies for HR.”

### **Employee Resource Groups**

To help us embrace diversity and inclusion at Caterpillar, we have established global Employee Resource Groups (ERGs) that are open to all employees. ERGs not only help drive innovation, but also provide personal and professional development opportunities, help attract talent at recruiting events and help retain this talent through mentoring and networking opportunities. In addition, ERG members frequently reach out as groups to serve the communities where they live and work, demonstrating their support of the U.S. Armed Forces, learning institutions, charitable organizations, crisis relief efforts, and cultural and artistic programs, to name a few. Members of an ERG also help sustain an engaged workforce at Caterpillar – as evidenced by members having consistently higher responses to questions related to engagement on the Employee Opinion Survey.

## TALENT DEVELOPMENT & BENEFITS

Caterpillar makes sustainable progress possible around the world – a commitment that extends to every one of our employees. As a single company with hundreds of global locations, and serving industries as varied as transportation, mining, marine and forestry, we are in a unique position to offer opportunities and valuable rewards for all our employees. This includes learning opportunities both inside and outside of Caterpillar, tuition reimbursement programs, targeted leadership, skills or language training, and formal benefits such as medical plans that help promote the long-term health and wellness of our employees and their families.

### **Caterpillar University**

Our talent development efforts are led by Caterpillar University, which offers classes, e-learning and development opportunities to sharpen the skills of our employees, dealers and suppliers. Established in 2001, Caterpillar University recently expanded its offerings to our customers by launching [Cat.com/catu](http://Cat.com/catu).

### **Leadership Excellence in Accountability and Development**

Leadership Excellence in Accountability and Development (L.E.A.D.) is a global leadership program, designed by Caterpillar, for Caterpillar, which offers a comprehensive leadership development program, focused on educating leaders to effectively develop and guide individuals and teams to achieve business results. The objective of the program is to ensure that leaders, at all levels, are ready to lead and hold themselves and others accountable for results.

For leaders with the potential to move to higher leadership levels within the organization, L.E.A.D. has offered additional programs. The flagship program, Digging Deep, developed with Stanford University Graduate School of Business, provided leaders an opportunity to travel to growth markets such as China and Brazil, while receiving classroom instruction from the Stanford faculty.

Efforts such as the L.E.A.D. program produce graduates who personify Our Values in Action, and in 2013 helped Caterpillar be named the sixth best company for leaders by *Chief Executive* magazine.



### ***Learning Management System***

The Caterpillar Learning Management System is a common, easy-to-use repository for employees seeking Caterpillar provided learning opportunities. The web-based program can be accessed through Caterpillar's intranet and allows employees worldwide to browse the online course catalog, register for information and courses in their local language, launch web-based training, track individual learning history and review learning needs with their supervisor.

### ***Tuition Assistance Plan***

The continuing education of Caterpillar employees is an important component of providing growth and development, and one that also sustains the company's talent pipeline. We encourage employee development and provide financial assistance for this purpose.

### ***Benefits***

Healthy and engaged employees lead to a stronger, unified team. Caterpillar is committed to investing in employee programs that motivate, support and guide our workforce.

Compensation packages include a base salary plus incentive plans for achieving specified corporate and business unit results. We also provide employees with paid time off for vacation, holidays and bereavement. These policies may vary by location.

Eligible Caterpillar employees participate in a health care benefit plan with comprehensive, affordable coverage through a network of physicians, hospitals and other providers. Generally, coverage includes dental and vision benefits for employees and their families, as well as access to a variety of wellness offerings such as fitness, nutrition and weight-management programs. In the U.S., we also offer benefits such as the Employee Assistance Program and Flexible Spending Account program to help meet the needs of our diverse employees and their families.

## COLLECTIVE BARGAINING

We support the right of union employees to engage Caterpillar on matters of work hours, wages and employment conditions through the collective bargaining process. While the majority of Caterpillar's workforce is not subject to collective bargaining, we nonetheless participate in good faith negotiations to engage our unionized employee groups on their needs and concerns.

As of December 31, 2013, Caterpillar employed a total of 118,501 people, including 66,624 in international locations. In the United States, most of our 51,877 employees are at-will employees who are not subject to any type of employment contract or agreement. At select business units, certain highly specialized employees have been hired under employment contracts that specify a term of employment, pay and other benefits.

In addition, as of December 31, 2013, there were 11,284 U.S. hourly production employees covered by collective bargaining agreements with various labor unions. These include:

- The United Automobile, Aerospace and Agricultural Implement Workers of America (UAW), representing 7,460 Caterpillar employees under a six-year central labor agreement that expires on March 1, 2017.
- The International Association of Machinists (IAM), representing 1,694 employees under labor agreements that will expire on May 17, 2015 and April 30, 2018.
- The United Steelworkers (USW), representing 741 employees under labor agreements that will expire on April 30, 2015, August 19, 2018 and April 30, 2019.

Outside the United States, Caterpillar enters into employment contracts and agreements and collaborates with local works councils and unions in those countries where such relationships are mandatory or customary. The provisions of these employment agreements correspond in each case with the required or customary terms in the subject jurisdiction.

### ***Improving, Sustaining and Growing Our Business through Lean***

In 2013 Caterpillar created a new order-to-delivery organization, the Caterpillar Enterprise System Group. The Caterpillar Enterprise System Group was formed to create a holistic approach, using a Lean methodology, to achieve our company's end-to-end vision of integrated supply and demand. The Caterpillar Enterprise System Group advocates for collaboration across the company to drive waste elimination and deliver products and services based on our customer service promise.

A key focus moving forward is to build upon our 6 Sigma and Caterpillar Production System foundation and embed our Lean methodology across all functions. Lean provides a more disciplined execution, from an end-to-end perspective, that will help us achieve the next level of performance while driving improved customer responsiveness throughout the enterprise.

Lean is built on five basic principles: Built in Quality; Right Part, Right Time; Shorten Lead Time; Capital Utilization; and Manpower Utilization. The first Lean principle, Built in Quality, reinforces that every person, every stage and every process must guarantee zero defects and zero rework. From a sustainability perspective, better quality and less rework ultimately results in the use of fewer materials, less energy consumption and reduced waste.

Our Lean journey is not limited to manufacturing. All functional areas within Caterpillar execute business processes on a daily basis. Our overarching goal is simple; no matter the role, it is always our priority to provide the highest-quality products, services and solutions to our customers.



## Energy & Climate

Energy is a key requirement for sustainable progress and development around the world. Energy consumption is rising rapidly, driven by worldwide population growth, swiftly developing economies, improving global living standards and the rapidly increasing use of ever more energy-dependent technologies. Global demand for energy is expected to increase significantly over the next 20 years.

As a global energy consumer and industrial manufacturer, and a major manufacturer of energy conversion and power-generation products, Caterpillar has a fundamental interest in, and understanding of, energy needs. We are one of the world's leading technology suppliers to various energy markets and leverage our technology and innovation to meet the world's growing energy needs.

Greenhouse gas (GHG) accumulation in the atmosphere is a major concern for many in both the public and private sectors because of the potential for these gases to affect climate patterns. As a result, many governmental and intergovernmental organizations are implementing mechanisms in an attempt to reduce GHG emissions. We support intelligent, responsible public policies addressing climate and energy issues.

Additionally, we support the reduction of GHG accumulation through improved GHG management practices. Atmospheric GHG accumulation can occur as a result of inefficient or excessive fossil fuel combustion, poor waste-management practices or

poor land-management practices. Caterpillar is a leader in the development and deployment of innovations and technologies that, through our machines, assist in the prevention and mitigation of all three of these sources.

Caterpillar has established aggressive energy efficiency and GHG-reduction goals for our facilities – goals which we are exceeding. For our customers, job site fuel efficiency is strongly considered in our new-product development efforts, which contributes to reductions of GHG emissions. As a result, breakthroughs have been achieved in the development and implementation of innovations such as combined diesel and electric drives, hybrid systems, continuously variable transmissions, job site optimization technologies and services and alternative fuel utilization.

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### ENERGY ACCESS

Energy is a key requirement for sustainable progress and development around the world. As a global energy consumer and industrial manufacturer, and a major manufacturer of energy conversion and power-generation products, Caterpillar has a fundamental interest in, and understanding of, energy needs. We are one of the world's leading technology suppliers to various energy markets and leverage our technology and innovation to meet the world's growing energy needs. We believe:

- Energy sources need to be developed and used in an environmentally responsible and sustainable manner.

- There is no one single solution to providing abundant, reliable, secure, clean and reasonably priced energy on a global basis. Political and industry leadership is required to forge consensus and a commitment to providing energy and related infrastructure that address economic development, stability and environmental impacts.
- Market-based, cost-efficient energy solutions are the best way to help meet the world’s growing energy demands.
- Access to affordable and dependable energy resources is critical for energy security, economic prosperity and growing economies. Caterpillar supports balanced and comprehensive energy policies for the responsible development and utilization of all energy resources, including traditional sources of energy and expanded use of alternative energy technologies.
- When regulation is necessary, we support regulatory structures that provide a technology-neutral and level playing field that embraces competition and in which Caterpillar, our independent dealers and our customers can operate.
- We support the development and use of strategies and technologies to increase energy efficiency and reduce emissions.

***Our Operations***

Caterpillar has set targets for energy efficiency in our operations since 1998. We currently have a target for the use of alternative and renewable energy in our operations, as well as a newly revised target for reducing our energy intensity in operations. Our enterprise energy management team is instrumental in driving energy-efficiency projects and encouraging use of alternative/renewable energy options. Our current uses of renewable energy sources were achieved through facilities’ installing renewable energy sources such as biogas and photovoltaics (PV), as well as the purchase of renewable energy certificates. Our largest contribution to alternative energy consumption is the operation of Combined Heat and Power (CHP) facilities to power several manufacturing facilities. The energy management team is evaluating additional opportunities for replication of CHP at other manufacturing locations.

***Our Products, Services and Solutions***

Caterpillar collaborates with our independent dealers to deliver highly customized and site-specific solutions that result in optimized use of our equipment and an improved bottom line for



our customers. We offer training to our customer operators on how to use our products more efficiently.

Because energy is a key requirement for development, we focus our talents on reducing emissions while increasing energy access. Caterpillar leverages technology to create more efficient power-generation solutions. With distributed generation solutions utilizing diesel and natural gas engines, as well as alternative fuels, Caterpillar is well-positioned to get power where it needs to be.

Further, Caterpillar built equipment helps meet the demands of the mining and resources industries to get raw materials where they need to be to create increased access to power.

Caterpillar has implemented hundreds of distributed power generation systems all over the world, which contribute to improving energy access in the developing world while emitting minimal greenhouse gas (GHG) emissions compared to traditional power grid systems. We provide combined heat and power systems, and combined-cycle power systems that can double the efficiency of power generation when compared to the efficiency of conventional power grids. Additionally, our power systems utilize fuels from diverse sources such as gas from landfills, livestock operations, wastewater treatment operations, mine methane, flare gas, syngas, pyrolysis oil and biofuels. These systems provide energy diversity from plentiful (and in many cases, renewable) energy sources.





### ***Energy Poverty***

Nearly 1.3 billion people, close to one-fifth of the global population, do not have access to electricity. Lack of access to modern energy services hinders economic and social development, making it more difficult to provide water purification, sanitation and education. Today, the technology and natural resources exist to rapidly expand energy access, but the challenge is accomplishing this in an effective and efficient manner.

One of the biggest differences between a developing nation and a developed nation is access to energy. We support and are committed to increasing that access, helping economies grow and reducing energy poverty where it exists.

Energy diversification – such as coal in combination with carbon capture and storage, new nuclear buildouts, new natural gas reserves, plus renewable energy sources like wind, PV, tidal and others – will contribute to an energy portfolio that helps eliminate energy poverty, raise standards of living and propel economic growth with less impact on the environment. Coal is abundantly available and has the scale to meet the primary energy needs of the world's rising population and expected economic growth over the next several decades. Natural gas production, in addition, has increased 14 percent from 2006 through 2011, resulting in economic growth for many communities with recoverable reserves. Products capable of using alternative or blended fuels are also increasingly available. Eliminating energy poverty is a vision that can be achieved.

## CLIMATE POLICY

Caterpillar supports integrated carbon and climate policies that are both environmentally effective and economically sustainable. We understand that the most immediate and measureable benefits will occur through energy-efficiency improvements and corresponding greenhouse gas (GHG) emissions reductions.

In responding to the challenge of reducing our GHG emissions, Caterpillar has formed cornerstone beliefs about carbon and energy-efficiency issues. Caterpillar supports intelligent, responsible public policies addressing these issues. We are:

- Investing in efficiency and emissions-reduction technologies that are important to our stakeholders and represent significant areas of opportunity for our business.
- Committing to the development and deployment of advanced technologies that capture and store GHG emissions.
- Supporting policies and mechanisms that harness the marketplace to drive innovation, mobilize investment and facilitate sharing these technologies.
- Encouraging the coordination of domestic and international programs that maximize the use of flexible, proven mechanisms to sequester carbon in soils, plants and ecosystems.

Through these activities, Caterpillar will continue making contributions to efforts designed to reduce GHG emissions.

### ***Operating in a Carbon-Constrained World***

Despite the divergent proposals under discussion worldwide, Caterpillar believes that technology and innovation play a key role in any successful strategic approach to emissions reduction. We believe that the private sector must take the lead in developing and deploying technology solutions to reduce GHG emissions. Ideally, regulatory structures should provide a technology-neutral and level playing field in which competitive solutions can be developed.

Caterpillar believes in the importance of providing energy-efficient products and technologies for our customers and our facilities, and we advocate for policy solutions that are both environmentally and economically sustainable. We work with policymakers on developing economy-wide emissions-reduction programs in the United States that work in conjunction with international efforts to reduce GHG emissions.

Business will struggle to find solutions if vastly differing approaches to greenhouse gas reduction are implemented around the world. That is why we will continue to advocate for a comprehensive, international approach that encompasses emissions-reduction commitments from all major economies.

Although a comprehensive international approach should be the goal, we realize that action must also take place at a local level. Accordingly, in addition to our advocacy for a global approach, we advocate for GHG policy change at local, regional and national levels through our Government Affairs teams and our memberships in trade and lobbying associations. At each level, we support legislation that is both environmentally effective and economically sustainable, and we encourage a constructive dialogue and a proactive approach to providing energy safely, efficiently and affordably to the billions of people who inhabit our planet.

### ***Our Operations***

Caterpillar has been a leader in setting aggressive GHG-reduction targets for our operations since joining the voluntary U.S. EPA Climate Leaders program in 2003. Through that program, we set our first reduction target – a GHG reduction of 20 percent per dollar of revenue from 2002 to 2010. Achieving that goal well ahead of schedule, we worked with the Climate Leaders program to establish an even more challenging goal – GHG reduction of 25 percent from our existing facilities by 2020. Because our company grew significantly since setting our last goal in 2006, we have now established an intensity-based goal that measures the efficiency of our growth.

### ***Our Products, Services and Solutions***

Caterpillar is committed to the success of our customers. As customers increasingly demand greater fuel efficiency and technology that helps them reduce GHG emissions, we are further motivated to help our customers achieve their emission-reduction goals. Their needs provide valuable business opportunities to Caterpillar.

We continue to invest in research and development aimed at developing products with fewer direct emissions and/or improved efficiency or productivity. In doing so, we help our customers to improve their own operations, while also driving our competitors to improve.

For our products, the majority of GHG emissions occur in the product use phase of the life cycle. Job site fuel efficiency is strongly considered in our new-product development efforts, which contributes to reductions of GHG emissions. As a result, breakthroughs have been achieved in the development and implementation of innovations such as combined diesel and electric drives, hybrid systems, continuously variable transmissions, job site optimization technologies and services and alternative fuel utilization. By developing products, services and solutions that increase customer efficiency, we also are reducing the emissions that would otherwise have been generated from the use of less efficient products or solutions. In addition, our remanufacturing and rebuild businesses result in avoided emissions.

### ***Carbon Research Investments***

Up to 25 percent of the world's land is now highly degraded due to deforestation, desertification, wetlands destruction and soil erosion, among others. The health and productivity of these lands must be restored to help feed and support the additional 2 billion inhabitants who will occupy the planet by 2050. Carbon is a crucial element for ensuring the health and productivity of vegetation, ecosystems and soils. Consequently, removing carbon from the atmosphere and incorporating it into lands where it can help restore health and productivity offers a significant opportunity for sequestering carbon. The Caterpillar Foundation supports organizations such as the World Resources Institute, the Tropical Forest Foundation and the Nature Conservancy to help improve land and ecosystem health.

Caterpillar invests in research aimed at carbon capture and storage (CCS) with the U.K. Energy Technologies Institute (ETI). We are a founding member and co-funder of the ETI, a collaboration between industry and the U.K. government to accelerate the development of technologies that address the challenges of climate change and provide affordable energy access. The use of CCS technologies could reduce emissions from fossil fuel power stations by as much as 90 percent. To accelerate the deployment of new, low carbon energy technologies, ETI has a \$100 million per year portfolio of technology development and demonstration projects across a wide energy spectrum, including distributed energy; offshore wind power; marine power technologies; energy infrastructure; transport, including heavy-duty vehicles; CCS; bio-energy and demand-side management for buildings. The ETI carbon capture and storage work includes

research on power station-scale technology, evaluating a number of technologies that absorb CO2 from the power station flue gas and then desorb the CO2 to be piped to a storage reservoir. Design guidelines for piping and pumping of CO2 and review of new CCS technologies are being evaluated as technology companies and universities develop them. In addition, Caterpillar supported ETI research to look at mineralization, although energy consumption of this technology is currently too high to justify its deployment in the short term.

## ENERGY PERFORMANCE

Operational energy intensity decreased 28 percent from 2006 to 2013. This progress represents a continued commitment to investment in more energy-efficient equipment and processes, as well as the implementation of best practices at our facilities around the world.

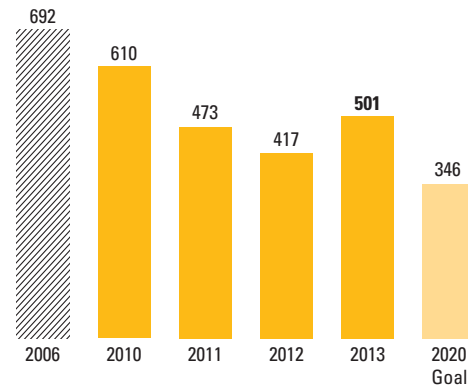
Two projects focused on compressed air illustrate our approach to operational energy efficiency. At Caterpillar’s Thiruvallur, India facility, compressed air accounted for a significant amount of the facility’s electrical consumption, but about 30 percent of that energy was being wasted through system inefficiencies. A project team saw an opportunity to meter the use of compressed air and optimize its distribution throughout the plant, allowing compressors to run for less time while delivering the same results.

After conducting internal studies to identify user and business requirements, the team focused on three areas of opportunity: 1) synchronizing compressor operations based on usage patterns and bridging gaps between supply and demand; 2) rerouting air lines to eliminate a pair of standalone compressors; and 3) reducing the pressure band in certain areas of the facility during nonworking hours to help eliminate unnecessary power consumption.

With these three process improvements, power usage at the site, typically supplied by diesel generators, was reduced by 920 kWh per day, which in turn reduced GHG emissions by more than 200,000 kg per year.

Compressed air efficiency was also an improvement at our Perkins facility in Peterborough, England, but the solution selected there differed from the one used in India. Until recently, Perkins used

OPERATIONAL ENTERPRISE ENERGY INTENSITY<sup>1</sup>



**501** Absolute gigajoules energy use/ million dollars of revenue  
(Baseline: 2006)

*<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.*

six air compressors, four of which were more than 45 years old. In 2011, when two of the four older units needed to be replaced, Perkins worked with its compressor manufacturer to demonstrate a heat-recovery system on new compressors that could be used to heat process water – a resource Perkins needed as part of the wash processes in its paint facility.

The process of obtaining the new compressors and bringing the system fully online took 18 months and required the installation of new pipework, pumps and control systems. Perkins replaced two of the older units with new compressors equipped with heat-recovery systems and also retrofitted two existing compressors with heat exchangers.

In total, utilizing heat-recovery technology in the Perkins plant has lowered gas and electricity usage by 2.4 million kWh and reduced operational costs by more than £77,000 (US\$125,000) and will realize a return on investment in less than two years. This gas and energy savings also brought a corresponding drop in Perkins’ CO2 emissions of about 478 metric tons in the same period. In addition, the new system keeps wash water at a constant temperature, minimizing daily startup time and associated power use, and diverts surplus heat to a nearby paint storage area where temperatures need to be held constant to maintain paint viscosity and integrity.

**Progress in Alternative/Renewable Energy**

Caterpillar also had significant achievements in alternative and renewable energy projects in 2013. Renewable energy sources increased from 2012 to 2013, and with the addition of alternative energy sources, we have achieved 28 percent energy from alternative or renewable sources. One of our biggest achievements was at the Building Construction Products (BCP) facility in Desford, England. In 2011, with a general goal of reducing GHG emissions, the facility worked with their local energy provider on a large-scale renewable energy project using wind turbine power. BCP worked with their energy supplier to ensure that its power source would reflect Renewable Energy Guarantees of Origin, a European certification process, and to ensure that the electricity received is generated from renewable sources.

The project had been two years in the making, but by 2013 the Desford facility was receiving 100 percent of its electricity from three offshore and two onshore wind farms, in addition to one photovoltaic source. The program’s overarching goal – to reduce GHG emissions from the facility – saw significant improvement as a result of the switch. Between 2011 and 2012, when the program began in earnest, GHG emissions from the facility were lowered by 61.5 percent. The project has been so successful that the process is being replicated at 10 additional Caterpillar sites throughout the U.K.

Another recently implemented renewable energy project is at our Product Development & Global Technology technical center, located in Mossville, Ill. There, electric vehicle charging stations were installed in the employee/visitor parking area to serve two vehicles simultaneously. In addition, electric vehicle charging stations were installed inside the plant property that allow simultaneous charging of up to two fleet vehicles. Each Level II ChargePoint station provides Caterpillar employees and site visitors with easy charging access during work hours, supporting our employees’ individual sustainability decisions. Based on the success of this charging station initiative, two Level II ChargePoint stations have been installed at our facility in Winston-Salem, N.C.

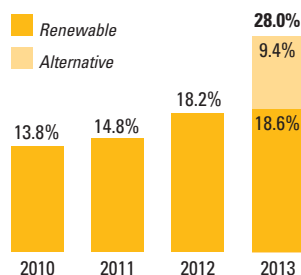
**GHG EMISSIONS PERFORMANCE**

Through 2013, Caterpillar has reduced GHG emissions intensity from our facilities by 39 percent over our 2006 baseline year. Although our GHG intensity increased from 2012 to 2013, our absolute GHG emissions decreased in that time.

A good example of our commitment to GHG reduction was a heating project undertaken at Caterpillar Global Mining in Ostrava, Czech Republic, a facility we recently acquired. The facility’s outdated heating source included a pair of gas steam boilers, pushing steam through pipes that were nearly a half-century old. There was considerable energy loss in this antiquated system and the facility recognized this was not sustainable.

In mid-2012, the facility looked at ways not only to upgrade the system, but to do it with the environment and sustainable solutions in mind. The facility’s old natural gas boilers were replaced with new heat condensing boilers, which offer a 35 percent fuel savings over the older versions. In addition, much of the old steam piping was replaced with a new hot water heating system that provided more consistent heat distribution throughout the facility with less energy loss. New automated infrared heaters were also installed. All together, these systems keep the facility’s buildings at the required temperature, helping to eliminate variations between locations and the need for manual operation.

**ENTERPRISE ALTERNATIVE/RENEWABLE ENERGY SOURCES<sup>1</sup>**

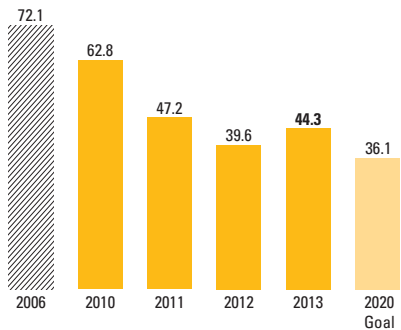


**28%** Alternative/Renewable energy  
*(Sum of renewable and alternative electrical energy use/total electrical energy use x 100)*

<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.



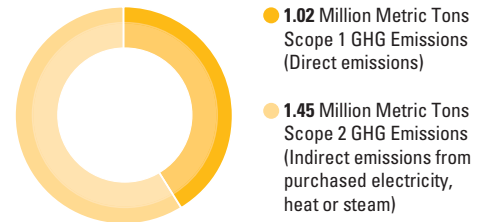
**OPERATIONAL ENTERPRISE GHG EMISSIONS INTENSITY<sup>1</sup>**



**44.3** Absolute metric tons of CO<sub>2</sub>e/  
million dollars of revenue  
*(Baseline: 2006)*

<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.

**TOTAL ABSOLUTE GHG EMISSIONS<sup>1</sup>**



**2.47** Million metric tons  
Total absolute GHG emissions

<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.

The results have been impressive to date. During the first year of operation, the new system reduced greenhouse gas emissions by approximately 500 metric tons of CO<sub>2</sub>e, thanks principally to less consumption of natural gas to power the boilers. Ostrava had a positive impact on their community and expanded its impact to the entire Caterpillar enterprise by offering information to other facilities that had the potential to replicate this solution.

Another instance of GHG reduction came from the replication of lighting projects across Caterpillar facilities. Caterpillar (Xuzhou) Ltd. in Xuzhou, China, recently replaced nearly 700 sets of metal halide lamps with new T5 high bay light fixtures. Environmental benefits of this project included energy savings of about 634,000 kWh per year and approximately 450 metric tons of CO<sub>2</sub>e. Another important benefit is realized each time the lamps are serviced; the new lamps are safer and more convenient to repair.

A similar project was undertaken at Caterpillar (Suzhou) Co., Ltd. in Suzhou, China. Electricity consumption is one of the greater contributors to GHG emissions at the facility. By analyzing electricity consumption, the facility developed reduction strategies that included employee awareness and posting electricity-saving tips, access control for electricity switches and the installation of lower-powered lamps in various areas within the facility.



# Water Management

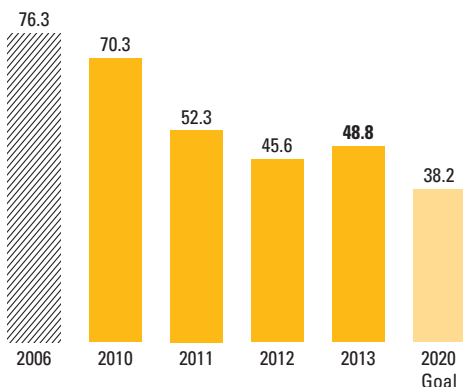
The scarcity of water resources is an issue that crosses cultures, geographies and industries. Today, water scarcity affects around 700 million people, and current trends indicate the problem will escalate. By 2025, water security could be an issue for two-thirds of the world’s population. The implications are so significant that leaders attending the 2013 World Economic Forum in Davos, Switzerland, cited water scarcity as one of the top two risks currently facing the global population. While our manufacturing operations are not as water-intensive as those of other industries, we nonetheless recognize the far-reaching economic, social and environmental implications that water scarcity may have in the future – and have taken steps to mitigate our own consumption.

As we move closer to 2020, we continue to implement conservation strategies that reduce water use, explore water-treatment technologies, introduce water-recycling processes at new and existing facilities and train employees about water resources to raise their awareness of the issue. Through 2013, these types of efforts have reduced water consumption intensity at our facilities by a total of 36 percent from our 2006 baseline intensity. Our 2013 absolute water consumption, including noncontact cooling water from foundry operations, is 4.14 billion gallons of water. While our water intensity increased from 2012 to 2013, our absolute water consumption decreased in that time.

Several 2013 projects demonstrate this ongoing commitment to water management. At the Prentiss Remanufacturing Facility in Booneville, Miss., for example, the chemical operations team identified an opportunity to decrease water usage by using a “cascading” washing system. Remanufactured products must be thoroughly cleaned before work can begin, and the team discovered that a washing process that splashed water over the parts in multiple waves consumed less water and required fewer chemical cleaners. By implementing this process, the facility was able to cut its annual water usage by 86,300 gallons.

At the Caterpillar Logistics Distribution Center in Grimbergen, Belgium, a new wastewater treatment process was installed using common reed plants for on-site sanitary wastewater treatment, rather than discharging to the city sewer system directly. The reed plants serve as a natural filtration system to

OPERATIONAL ENTERPRISE WATER CONSUMPTION INTENSITY<sup>1</sup>



**48.8** Absolute thousand gallons of water/  
million dollars of revenue  
(Baseline: 2006)

<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.

dewater solids in a small, confined area. Evaporation and the underground filtration system allow the sanitary wastewater to be treated without the addition of chemicals. Similar to constructed wetlands, water trickling through the reed bed is cleaned by microorganisms living on the root system. Construction of the reed bed was completed in December 2012. Since then, the treated wastewater has met permitted discharge limits, while enabling the facility to use an efficient method of on-site wastewater treatment.

Water conservation initiatives were considered in the earliest stages of construction planning for our new Caterpillar facility in Athens, Ga. One of the most difficult challenges facing development of the Athens site was the quantity of water required for manufacturing operations. Caterpillar worked closely with local county governments to form a solution to the facility’s water and wastewater needs. As a result, an extensive wastewater treatment system was installed to treat and recycle water from the paint system wash line, the assembly wash bays and the product distribution center wash bays. This system was designed and built specifically for the new facility to treat and recycle or reuse the process water used to wash parts. In addition, water-consumption reduction initiatives – such as water-efficient landscaping and low-flow toilets in facility lavatories – have led to an increased environmental awareness among the Athens employees.

Caterpillar Brasil Ltd. in Piracicaba, Brazil, has implemented several projects that contributed to better water-management results. Flow-controller devices were installed for taps; reused water is now utilized for fire protection systems and the cooling tower; the machine-washing process has been restructured for water-management efficiencies; and sector metering was installed for monitoring water consumption associated with specific processes. In addition, the facility implemented a new, dry process for cleaning acrylic covers of kit boxes in the logistics process that saves more than 50 thousand gallons of water per month, generates zero effluents and reduces cleaning time by 68 percent. The facility is continuing to look for opportunities to replace consumption of potable water with reused water sources. The water reuse program has increased eightfold from introduction in 2010 through 2013.

**ABSOLUTE WATER CONSUMPTION<sup>1</sup>**



- **1.42 Billion** gallons non-contact cooling water from foundry operations
- **2.72 Billion** gallons enterprise water consumption excluding non-contact cooling water from foundry operations

**4.14** Billion gallons  
Total absolute water consumption

*<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.*



## By-Product Materials

Preventing waste is an important strategy for competing in today's markets. Improving the efficiency of our products, processes, services and solutions not only reduces costs, but also creates environmental benefits by reducing our utilization of materials, energy, water and land. Throughout the past few years, we have demonstrated great improvements in recycling. Since 2009, our enterprise recycling rate has been greater than 90 percent. We are moving from a focus on percent recycled to a goal focused on reduction of all by-product materials, or prevention of waste.

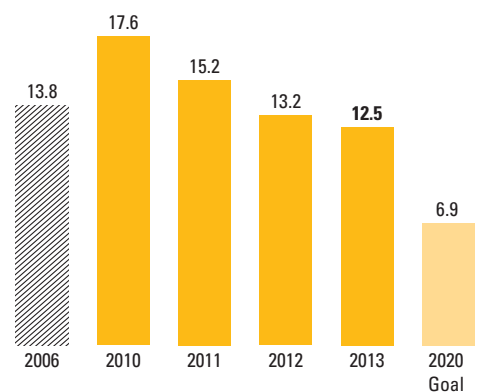
Caterpillar focuses on by-product material reduction strategies that are associated with improved efficiency and quality measures, as these offer the greatest opportunity to enhance cost competitiveness and reduce the potential for unnecessary short- and long-term impacts. Some of our by-product material reduction strategies include:

- Prevention of waste and emissions through improved efficiency and quality measures.
- Remanufacture/rebuild options for our equipment and components that preserve most of the embedded energy and materials invested in the original production.
- Reuse/recycle strategies that keep valuable materials, energy and/or water in the Caterpillar value chain and out of costly waste streams.
- Treatment/control options that reduce associated environmental impacts and that may be necessary when more efficient or cost-effective measures are not feasible.

- Disposal/discharge of waste in an appropriate and lawful manner – although this is considered as a last resort.

We continue to make gains in our efforts to prevent waste. In 2013, our by-product material intensity decreased 9.4 percent from our 2006 baseline. In 2013, we generated a total of 698,000 metric tons of by-product materials, and 93.7 percent of those materials were recycled.

OPERATIONAL ENTERPRISE BY-PRODUCT MATERIALS INTENSITY<sup>1</sup>



**12.5** Absolute metric tons of by-product materials/million dollars of revenue (Baseline: 2006)

<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.



Several Caterpillar facilities engaged in successful by-product material reduction efforts in 2013. Caterpillar Financial Services Corporation in Nashville, Tenn., launched an expanded waste removal program that built upon its recycling program in place since 2009. Although recycling eliminated the majority of building waste, composting efforts were added to help close the gap to reaching the facility’s 2020 aspirational goal. Additionally, an internal survey was deployed to help understand employee resistance to additional recycling. The survey revealed that employees needed a simpler waste-management process to boost results. Acting on this insight, a revised training program was initiated; meal container packaging in the facility dining center was replaced with compostable packaging, and new signage and sort bins for disposing recyclable, compostable and waste items were placed throughout the building. These efforts paid off. In the first six months, the facility reduced waste by 50 percent, and Caterpillar earned the distinction of being the first corporation in Nashville to have an all-building composting program – an achievement that was recognized with an award from the mayor of Nashville.

Similar efforts have been undertaken elsewhere within Caterpillar. At our Joliet, Ill., facility, a project with Waste Management led to the discovery that additional wastes could be recycled. Extra recycling bins were brought in, and a program was established to educate employees and help raise awareness. Two years later, Joliet has reduced its waste by more than 50 percent. The Joliet program went a step further by taking a comprehensive look at its industrial hazardous and nonhazardous waste. The facility initiated a closed-loop recycling process for aluminum oxide, resulting in more than 2,100 tons recycled to date. They also established on-site recycling for acetone and coolant liquids, and initiated a Sustainable Development Week to raise employee awareness.

Caterpillar Precision Seals in Toccoa, Ga., had a very specific waste problem: no feasible recycling process for more than 10 million pounds of sand core waste that comprised about 30 percent of the site’s waste each year. The sand cores were too large for potential third-party recycle companies.

A year ago, the Toccoa plant learned that a nearby cement manufacturer had purchased the necessary crushing equipment for its own use. Caterpillar entered into an arrangement with the cement company to pick up, crush and recycle its sand cores.

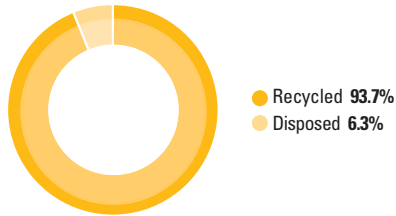


Similar results were achieved at the Caterpillar facility in Reynosa, Mexico. There, employees undertook a formal waste management review, prompted by the need to improve storage for nonhazardous solid waste. Using a 6 Sigma process, the Reynosa facility identified three main waste categories: hazardous, nonhazardous and potentially recyclable. They also identified points of waste generation and handling flows, and then installed waste control stations at key points throughout the site. This targeted approach resulted in a 39 percent drop in 2013 total waste over the prior year and a 92 percent reduction in waste costs at the facility.

Caterpillar’s High Performance Extrusions group in Oxford, Miss., was able to implement a recycling process to reuse metal working fluids used in significant quantities in the facility’s operations. This facility manufactures high-pressure hydraulic hose couplings, which involves a machining process with both water and oil-based cutting fluids that generate a large amount of liquid waste. Previously, this liquid was collected and trucked off-site to an industrial wastewater treatment facility for further processing.

In 2012, equipment was purchased and installed at the Oxford facility for the recovery and processing of water- and oil-based metal working fluids. In its first full year of operation, more than 237,000 pounds of metal working fluid was reused rather than sent to a treatment facility, which eliminated an estimated 5,700 miles of truck transportation, or roughly 1,140 gallons of diesel fuel.

**TOTAL BY-PRODUCT MATERIALS<sup>1</sup>**



Total BPM =  
**698** Thousand metric tons  
*93.7% was recycled and 6.3% disposed (sent to landfill or incineration)*

*<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.*





## Product Stewardship

Product stewardship covers the full lifespan of our equipment from the supply chain to the customer's job site. This means taking active steps to reduce possible environmental, health and safety impacts, as well as optimizing operational quality and efficiency throughout the life of the product. We accomplish this in numerous ways – engineering products to eliminate hazardous substances, utilizing more sustainable energy sources and/or extending a product's life through the use of remanufactured parts or rebuilt machines. Caterpillar also works with customers and distributors to ensure the proper disposal or recycling of end-of-life materials.

Wherever possible, we keep resources in the Caterpillar value chain through a circular flow of materials, energy and water. Our focus on developing better systems reduces our need for resources, maximizes the total life cycle of our products and minimizes the cost of ownership for our customers. Viewing our equipment through a total life cycle lens allows us to make sustainable progress for communities, the environment and the economy.

We establish and adhere to policies and practices that direct us to consider sustainability in product design, engineering and manufacturing in all of our facilities worldwide. In our operations, Caterpillar's Environment, Health & Safety Assurance framework helps ensure that we comply with applicable laws and regulations. Successfully identifying and managing environmental issues helps protect the environment we all live in and is a good business practice.

### Standards Harmonization

Industry consensus standards, including those for visibility, rollover protection structures, braking and sustainability, are needed for earthmoving equipment. We are involved on an international level to develop global standards through the International Standards Organization (ISO) and chair the technical committee for earthmoving machines. Our global standards and regulations team works closely with organizations like the ISO to enhance machine safety standards worldwide. Caterpillar also provides input to regulatory agencies to help ensure the smooth introduction of new technologies.

Caterpillar makes management and technical expertise available to regulatory bodies in advisory roles and provides technical assistance as new product standards are developed. These activities include participation and leadership roles in organizations such as the ISO, industry associations, membership in governmental and nongovernmental delegations to international bodies such as the International Maritime Organization, participation in European Union industry expertise panels and participation in federal advisory committees chartered under the Environmental Protection Agency.

## CUSTOMER SAFETY

Caterpillar's safety culture extends beyond our internal operations to include the safety and health of everyone in, on and around our products. This commitment encompasses the design and engineering of our products and extends to operator training and certification, solutions for the job site and the tools and resources to improve the workplace culture – all of which are coordinated through Caterpillar Safety Services and its website, [safety.cat.com](http://safety.cat.com).

For example, in 2013 we introduced a working at heights package for production and retrofit on large mining trucks, providing stable, secure handrails and flat walk surfaces to protect technicians while they perform certain service operations. These handrails can then be removed when the vehicle is put back into use.

Another way Caterpillar promotes customer safety is through the development and facilitation of safety leadership and training programs. Driven by a team of industry-experienced consultants, Caterpillar Safety Services provides safety-related products and training for customers that leverage cultural assessment tools, continuous improvement processes and a proven formula for delivering a sustainable culture of safety excellence: the Zero-Incident Performance (ZIP™) Process.



In 2013 we rolled out *Speak Up!/Listen Up!* for Construction, a safety training tool customized for the construction industry. Created in collaboration with 16 construction industry leaders, the program aims to strengthen communication on job sites by helping employees overcome natural anxieties associated with giving or receiving safety-related feedback. Program materials include videos, presentation materials, handouts and a facilitator's guide. Construction-focused messaging makes the material more compelling to employees in the industry, and the customization process aligns with Caterpillar's strategy to develop products and services to meet the unique needs of the industries we serve. *Speak Up!/Listen Up!* for Construction can be delivered by a customer's own trainers or facilitated by a Caterpillar safety consultant in a workshop setting.

Similarly, Caterpillar was instrumental in helping facilitate safety training and an ongoing continuous improvement process for one of our mining customers, Blaschak Coal in Pennsylvania. Although the Blaschak safety record, covering three mines and two processing sites, was better than the industry average, Blaschak wanted to make zero-incident performance a core value. Leaning on Blaschak's 30-year relationship with Caterpillar, we helped the company deliver a one-day safety Leadership Roundtable for the entire management team, from top leaders to site managers. Attendees later participated in a Supervisor Training in Accountability and Recognition Techniques (S.T.A.R.T.) Workshop that focused on their role in implementing change in the workplace. Blaschak's journey to zero continues with Rapid Improvement Workshops that empower employee-driven continuous improvement teams to address weaknesses in their safety culture by building systems that integrate safety activities into everyday processes.

For full details about how Caterpillar Safety Services meets customers at any point of need, visit [safety.cat.com](http://safety.cat.com).



**MATERIAL USE**

Caterpillar strives to provide customers with quality equipment that provides more value per dollar spent. Our remanufacture and rebuild businesses provide customers not only with an immediate cost savings, but also help us use materials more efficiently.

**Remanufactured Products and Rebuilt Products**

Caterpillar encourages sustainable business practices through our remanufacturing and rebuild businesses. This starts with durable products, many designed to be rebuilt two or three times. Through our reman and rebuild programs, components and machines are overhauled, rather than completely replaced. Reuse of parts reduces waste and minimizes the need for the raw materials necessary to produce new parts. This system is where Caterpillar is making some of its greatest contributions to sustainable development – keeping nonrenewable resources in circulation for multiple life cycles.

Our reman parts and components program provides customers an exchange system where they can return an end-of-life component (called “core”) for a remanufactured replacement. For more than 40 years, Caterpillar’s remanufactured products have provided same-as-new performance, reliability and warranty at fraction-of-new costs, as well as immediate availability that gives customers more options at repair and overhaul time.

The Cat Reman, Solar Turbines and Progress Rail Services remanufacturing programs – operating around the world – provide customers with lower-cost products, shorter downtime and quick, dependable service. Cat Reman alone operates 17 facilities in eight countries.

Rebuild programs increase the lifespan of equipment by providing customers with product updates for a fraction of the cost of buying a new machine. Rebuild programs include Cat® Certified Rebuilds, component overhauls at Cat® dealers, Solar Turbines rebuilds and Progress Rail Services rebuilds. A complete Cat Certified Rebuild includes more than 350 tests and inspections, automatic replacement of approximately 7,000 parts, and a like-new machine warranty. In addition, trained dealer service professionals perform this work using genuine equipment and parts. Caterpillar training and data provide feedback to dealers on parts to replace or reuse to achieve expected longevity of rebuilt components. Reuse of components helps us use materials and energy more efficiently.

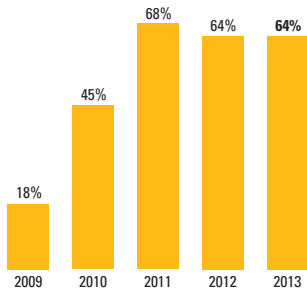


The reman and rebuild programs allow customers to maximize the built-in value of their equipment by:

- Ensuring maximum productivity
- Increasing reliability and availability
- Ensuring cost-effective performance
- Receiving a like-new warranty
- Increasing the customer’s return on their investment
- Providing the customer with a higher resale value
- Providing the lowest total owning and operating life cycle costs
- Preserving the majority of energy and materials required to make the original component or machine

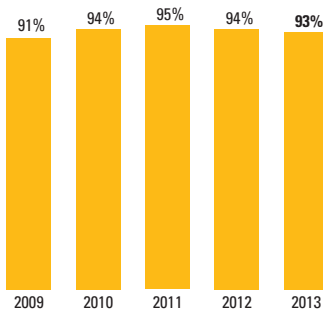
Given the significant role that reman and rebuild operations play in our sustainability initiatives, we created a new customer goal in 2013 around this area of the business. Using 2013 as a baseline year, our goal is to grow the reman and rebuild business revenues by 20 percent by 2020.

**REMAN BUSINESS GROWTH<sup>1</sup>**



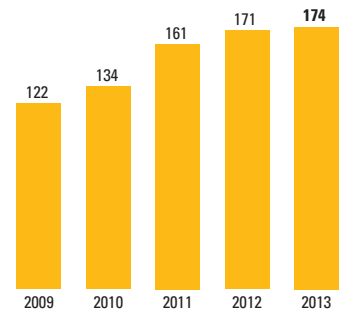
**64%** Revenue increase  
*(Baseline: 2006; future reporting will use 2013 as baseline.)*

**REMAN END-OF-LIFE  
"TAKE BACK" PERCENT<sup>1</sup>**



**93%** Actual end-of-life returns/  
eligible returns x 100

**REMAN END-OF-LIFE  
"TAKE BACK" BY WEIGHT<sup>1</sup>**



**174** Millions of pounds  
of end-of-life  
material received

<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.

One of the ways we intend to meet that goal is through our various retrofit kit offerings, available to customers through the Cat® dealer network. In 2013, for example, we expanded our offering of Dynamic Gas Blending (DGB) retrofit kits to include kits for Cat 3512C (HD) Engines used in well-stimulation applications. Extensively tested earlier in the year, these DGB kits allow for maximum substitution of diesel fuel with natural gas during high-pressure pumping operations, without compromising performance, safety and reliability.

**REBUILD BUSINESS GROWTH<sup>1</sup>**

Our rebuild revenue decreased 13 percent from 2012 to 2013.  
*(Future reporting will use 2013 as baseline.)*

<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.

Retrofit kits such as DGB are ideal for customers looking to upgrade existing equipment for fueling alternatives, or who compete in markets where power density and engine response are the primary purchasing considerations. Retrofit kits are not limited to fuel systems; in addition to fuel conversion kits, Caterpillar provides customers with kits to upgrade many types of engines, braking and hydraulic systems, emissions, lighting and instrument/cab features.

**Increasing Global Access to Reman Products**

While global customers have driven demand for reman products, not all customers can benefit from the significant cost and efficiency savings that Cat Reman products deliver. Why? Because certain countries – mostly in developing markets – fail to recognize the value of remanufactured goods for the environment and their national economy and place trade barriers around reman products.

There are typically two types of trade barriers. A tariff barrier might include excessive fees or taxes levied by a certain country that significantly increase the customer's cost of choosing a viable reman product. On the other hand, a nontariff barrier might be customs officials categorizing remanufactured goods as "used" goods, which cannot be imported under any circumstance or can only be imported after complying with special inspection, certification, licensing or other onerous requirements. Similar barriers are often faced when customers seek to export their cores and return them to Caterpillar in exchange for a remanufactured engine or component. With the durability, performance, quality and a warranty equal to that of all other Caterpillar engines and components, Cat Reman products should be treated like new, not "used," goods. Indeed, this fact has been acknowledged in a number of free trade agreements and other multinational statements such as the Asia-Pacific Economic Cooperation (APEC) Pathfinder Initiative. Countries participating in the global economy should treat reman products the same way as new finished goods are treated.

Caterpillar has worked with policymakers in several countries to open markets and expand reman options for our global customers, providing them with cost-effective, sustainable options for extending the life of their existing equipment. Caterpillar teams, including Cat Reman and Global Governmental Affairs, continue in ongoing efforts to inform and educate government regulators around the world on the sustainable benefits of Cat Reman products.

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## CUSTOMER SUSTAINABILITY

Caterpillar helps our customers improve their sustainability performance. As customers increasingly demand greater energy efficiency, we are further motivated to help our customers reduce their energy use and, as a result, greenhouse gas (GHG) emissions of our products. We collaborate with customers to deliver customized solutions that help optimize energy use, and provide training for customer operators on how to use our equipment more efficiently.

**18%** Reported revenue derived from products, services and solutions that demonstrate an improved sustainability benefit over existing offerings.<sup>1</sup>

*<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.*

With our 320E L Hydraulic Excavator, for example, Caterpillar is supplying customers with a C6.6 ACERT Engine that, along with the Cat Clean Emissions Module, meets U.S. Tier 4 Interim, EU Stage IIIB and Japan MLIT Step 4 emission standards. Even when operating in high-horsepower and high-production applications, the 320E L performs a similar amount of work as our D Series model with significantly reduced fuel consumption. The achievement is delivered through improved engine speed management, integrated engine and hydraulic electronic control strategies, introduction of advanced pump and valve technologies and optimized component selection that deliver customer value and machine efficiency. These strategies deliver class-leading efficiency in the highly competitive 20-ton market.

Customers in China are receiving similar benefits from our E Series mini hydraulic excavators, such as the 306E, which combines a higher-efficiency engine with a higher-efficiency hydraulic system. The new Cat C2.6 Turbo Engine has high-altitude capability and provides 15 percent more engine efficiency – allowing the machine to run at a lower engine speed while delivering the same productivity. In addition, a “flow sharing” high-efficiency hydraulic system provides maximum balance between machine movement, speed and engine power. A standard/power duo switch allows the engine to run with higher fuel efficiency while in standard mode, with the capability of ramping up with additional power when needed for harder applications.

Our motor grader product group is delivering efficiencies for our customers by making the Integrated Cross Slope System standard for our new 16M and 24M motor graders. The Integrated Cross Slope System helps operators easily maintain the desired slope by automating the control of one end of the blade. Field testing indicates that Cross Slope allows operators to spend up to 12.5 percent less time to achieve grade. The testing results also demonstrate up to 35 percent increase in average cross slope accuracy and up to 91 percent increase in cross slope consistency. These efficiencies translate directly into more sustainable operations. Depending on the model used and frequency of usage of the Integrated Cross Slope System, we estimate customers could save between approximately 350 to 700 gallons of fuel per month, resulting in reduced CO2 emissions.

Helping customers reduce their energy and emissions is not limited to advances in our equipment – it also extends to servicing that equipment as well. Our Filters and Fluids Group in Mossville, Ill., has developed a pair of exclusive and innovative products that address a common equipment touch point: oil and filter changes. Fluid and filter replacement is an essential part of equipment maintenance and by its very nature generates waste, increases the carbon footprint of the machine and is energy intensive. With the introduction of HYDO Advanced hydraulic oil, we now can provide a high-performance, exclusive formulation that triples the useful life of the hydraulic oil, thus reducing waste oil associated with recurring customer maintenance. In addition, a line of Cat® proprietary filters changes the entire dynamic of filter serviceability: only a filter element needs to be changed while the housing is reused, significantly reducing the amount of waste generated by filter changes. These two products provide customers with substantial savings and sustainability benefits, including reducing

an estimated 31,000 tons of CO2 for 2013, reducing overall maintenance cost for customers by as much as 40 percent and preventing the landfilling of as many as 14 million filters, projected through 2018.

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## JOB SITE EFFICIENCY

Several years ago, Caterpillar recognized that our customers are looking for us to do more to help them capture full value from their assets. We developed a new business model for delivering this value to our customers. We call this proprietary business model Collaborative Solutions by Caterpillar. This solutions business model, currently delivered by our Job Site Solutions (JSS) team, helps customers find new and innovative ways to improve their operations and be more competitive in the marketplace. JSS offers customers complete solutions that are designed to improve performance on the job site and to increase the sustainable benefits of the work performed. JSS leverages Caterpillar’s financial, technological and management expertise to tailor solutions based on the customer’s own needs, typically in the areas of safety, sustainability, equipment, productivity and financials. As a result, every solution is different and can range from a short-term consulting engagement to a multiyear fleet ownership and maintenance solution.

The results for our agricultural customers have been significant. New machines have delivered increased efficiency and reduced emissions through the latest technologies. On average, these customers have been able to reduce idle times by 20 percent, and operator-caused events, such as equipment wear and tear and safety issues, by 25 percent. Much of this success is based on the unique optimization process that JSS delivers. The JSS team does more than simply develop a solution; it implements its recommendations jointly with the customer. As a result, responsibilities are allocated according to the respective core competencies of JSS and the customer, thereby maximizing results and developing more sustainable systems.

**75%** Increase in number of machines covered by services agreements from 2012 to 2013.<sup>1</sup>

**27%** Increase in managed fleet hours from 2012 to 2013.<sup>1</sup> (Future reporting will use 2013 baseline.)

<sup>1</sup> Detailed information on this data can be found in the Goals & Progress section of this report.

Historically, customers in the mining and construction industries have been the primary focus of JSS. In recent years, the team has increasingly been applying the processes, technology and best practices learned in these industries to a broader scope of industries, including agriculture, waste, forestry and transportation and distribution centers. For example, agriculture, primarily for customers with large dairy and feedlot operations, now accounts for approximately 15 percent of total JSS volume.





## Supply Chain & Dealer Network

Our independent dealers and suppliers serve as a critical link between our company and our customers. We rely on them to collaborate with us in building and maintaining the long-standing customer relationships that have made Caterpillar successful. We value their positive contributions to our reputation and their deep commitment to the customers and communities they serve, and are proud of the outstanding relationships that we maintain with suppliers and dealers through trust, communication and shared rewards.

Our Cat® brand of products and services are distributed through a worldwide network of Cat® dealers (the Cat® dealer network), 48 of which are located in the United States and 130 located internationally. The large majority of our worldwide dealers are independently owned and operated, and many of these businesses have been in families for multiple generations. The Cat dealer network brings value to customers through unmatched service, integrated solutions, after-sales support, fast and efficient parts fulfillment and world-class rebuild capabilities. We work with our dealers to provide products, services and support solutions necessary to satisfy customer needs worldwide. Other brands in our portfolio are distributed through their respective channels that optimize customer value in accordance with their brand value propositions.

We seek long-term business relationships with suppliers that demonstrate strong values and ethics, in concert with those of Caterpillar, and that conform to all local, federal and international

laws. Caterpillar's standard forms of agreement and purchase order terms require our suppliers to represent that they will comply with all applicable laws and regulations. These include product regulatory standards, environmental and employee safety requirements, wage and labor laws, anti-corruption laws and various export regulations.

Caterpillar has also developed an Assurance of Supply Center (ASC) to support our enterprise strategy to manage a world-class supply network. The ASC focuses on understanding the current state of tools, systems and processes, and develops projects to close gaps that may obstruct an end-to-end perspective of our supply chain network. The ASC continues to develop the ability to monitor and mitigate risks surrounding our suppliers' capacity, capability and financial position, as well as monitoring the greater geo-political environment, vulnerability to any natural disasters and other risks to the source of supply. This is achieved through advanced visibility, analytics and supply chain case management services. The ASC ensures that proper orders are delivered from our supply network, enabling the enterprise to provide world-class delivery performance, high quality and low total cost to meet our customer commitments today and into the future.

In December 2013, Caterpillar launched the Supplier Code of Conduct. It formally expresses the values we expect our suppliers will adhere to, and was derived from Caterpillar's Worldwide Code of Conduct.

In 2013, Caterpillar’s intensive focus on supply chain management earned it a prestigious spot on Gartner’s Supply Chain Top 25 list. Gartner, an information technology research and advisory company, ranked several global supply chain networks on peer opinion, return on assets, inventory returns and revenue growth. It’s our second consecutive year on the Gartner list, and Caterpillar is proud to have moved up two spots with our 2013 ranking.

**Supplier Diversity**

Diversity within our supply base is important to Caterpillar and we strive to mirror the varied markets in which we operate. Our passion for continuous improvement is the driving spirit behind our Supplier Diversity Initiative as we strategically position

diverse suppliers (minority-owned small businesses, veteran-owned small businesses and many others) who can provide quality products and services, innovation, cost competitiveness and volume flexibility in support of our business goals.

Our goal is to provide sourcing opportunities to a wide range of diverse business types throughout our organization. Seamless integration of these businesses allows for synergies as we assist them in growth and development. In the summer of 2013, Caterpillar was recognized as one of the “Best of the Best” by Black EOE Journal, which partnered with three other diversity publications to evaluate U.S. companies on their outreach and accessibility to the African-American, Hispanic/Latino, female and veteran populations.

**Helping Fund Shark Research**

In February 2013, Caterpillar announced a multiyear partnership with OCEARCH, helping sponsor the organization’s research on global shark populations. By capturing, tagging and monitoring sharks worldwide, OCEARCH is learning more about the life and behavior patterns of these animals that play a critical role in the oceanic ecosystem.

Our global, independent dealer network is critical to helping plan the expeditions and servicing the vessel. The work our customers do are tough jobs and require equipment that can stand up to the needs of operators – from digging a mine that will produce the coal to fuel a community for years to come, to laying the foundation for the next great structure rising high above a city’s skyline. Cat® equipment can stand up to the challenging needs of our customers. Along with the equipment, our customers have the confidence in knowing that the Cat® dealer network is never beyond their reach.

The group’s current research vessel, the M/V OCEARCH, is a floating laboratory powered by two 3412 800HP turbocharged Cat® engines and three Cat® generators. In 2012, the engines were overhauled with Cat® parts, resulting in decreased fuel



consumption. The generators are energy efficient and suited to the ship’s purpose – which includes powering a 55,000-pound-capacity research platform with the ability to handle 5,000-pound sharks.

With sponsorship from Caterpillar, OCEARCH is also providing free educational materials designed to engage kindergarten through high school students in the U.S. in subjects like physics, math, biology, chemistry, oceanography, social sciences and geography. It’s based on the OCEARCH team’s research, including data collected by the Global Shark Tracker powered by Cat® products.

With Caterpillar’s help, in 2013 OCEARCH led expeditions from Jacksonville, Fla., and Cape Cod, Mass. During the Jacksonville mission, OCEARCH tagged and released Lydia, a 14 foot 6 inch mature, female great white shark weighing 2,000 pounds. In 2014, the organization plans research trips to Australia, Indonesia and the Galapagos Islands.



### Collaborating with Suppliers on Global Print Solutions

As Caterpillar has grown, the number of product offerings, manufacturing facilities, dealers and customers also has grown. Current, audience-specific and cost-effective product support and sales literature is essential to support all of these businesses and stakeholders – and that adds up to a lot of paper and space. Customer Services Support collaborated with Midland Information Resources (now Elanders Americas) to establish a global printing solution that reduces the use of materials and resources.

Elanders' solution was a regional print-on-demand service for 90 percent of Caterpillar literature. This solution eliminated

the need to store literature inventory in a 50,000-square-foot warehouse in Peoria, Ill., and then ship it to dealers around the world. Regional printing, along with the development of a streamlined automated process to combine multiple prints, has reduced literature warehouse space by 90 percent, shipping costs by an average of 80 percent for overseas facilities and has eliminated the emission of more than 600,000 kg of CO<sub>2</sub> into the atmosphere. In addition, by printing only the amount needed "on-demand," the amount of scrap paper generated annually has decreased by 6.6 million sheets or the equivalent of two fully loaded 777F Cat® trucks.





## Governance & Ethics

Caterpillar's governance structure provides leadership, accountability and transparency to company business on behalf of our employees and our stockholders. Our corporate governance framework serves the interests of stockholders with the highest standards of responsibility, integrity and commitment, and in compliance with all applicable laws. These standards are developed and implemented by our Board of Directors and global management team who oversee the company's performance and governance policies.

Caterpillar's Board of Directors currently has 12 members. This number permits a diversity of experience without hindering effective discussion or diminishing individual accountability. In 2013, Caterpillar amended its bylaws to require that each director be elected annually by a majority vote. There are currently three standing board committees: Audit, Compensation and Human Resources, and Public Policy and Governance. Each committee, solely comprised of independent directors, has a written charter. Full details on the Board and its committees can be found at <http://www.caterpillar.com/en/company/governance.html>.

While not required by law, Caterpillar has established several corporate governance policies that are meant to reflect the company's emphasis on good corporate governance. These include Guidelines on Corporate Governance Issues, a Worldwide Code of Conduct, stock ownership requirements for officers and directors, mandatory retirement ages for directors, and an officer compensation claw back policy. Caterpillar policy also requires

1) former employees of its independent auditors who were senior managers or higher to wait a minimum of three years before becoming eligible for certain management-level positions at Caterpillar, and 2) the rotation of independent audit partners in compliance with the requirements of the 2002 Sarbanes-Oxley Act.

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### ETHICS

Caterpillar's reputation is something we value as much as our products and our customers. In 1974, Caterpillar first introduced a Worldwide Code of Conduct. Our current Code of Conduct, called Our Values in Action, defines what Caterpillar stands for and what we believe in, documenting the uncompromisingly high ethical standards that our company has upheld since its founding in 1925. The Code of Conduct helps Caterpillar employees every day by providing detailed guidance on the behaviors that support Our Values in Action – Integrity, Excellence, Teamwork and Commitment.

Through our Code of Conduct, we envision a work environment all can take pride in, a company others respect and admire, and a world made better by our actions. In 2014, Sustainability became a core value for Caterpillar.

Full details on the Caterpillar Code of Conduct can be found at <http://www.caterpillar.com/company/strategy/code-of-conduct>.



### ***Corruption & Bribery***

Caterpillar believes that fair competition based on quality, innovation and overall value is fundamental to free enterprise and economic growth. Bribery and corruption can have serious social, environmental and economic consequences – impeding trade, competition, investment and economic growth; and limiting a nation’s ability to reduce poverty and improve standards of living.

In some areas of the world where Caterpillar does business, bribery and corruption are significant issues. We firmly believe that fair competition is fundamental to free enterprise. For this reason, we observe bribery, antitrust and competition laws wherever we do business, and we reinforce these messages through advocacy and periodic employee training throughout our company. We have also made enforcement of these standards part of Our Values in Action.

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## RISK MANAGEMENT

Risk is an inherent part of conducting business, and especially so on a global scale. Risk can stem from a variety of factors – from internal issues such as operational inefficiencies or personnel policies to external factors such as the competitive landscape, economic conditions or government regulation.

Caterpillar regularly identifies and monitors business risks through a robust internal management system, and engages in constructive regulation and public policy discussions that benefit employees, customers and stockholders. We manage operational, strategic, financial and compliance risk through two programs: the Business Risk Management (BRM) Program and the Caterpillar Ethics & Compliance Program.

The BRM Program helps business units identify, track and mitigate more than 50 discrete risks to the enterprise.

Each year, we conduct a comprehensive Enterprise Risk Assessment by reviewing risk information from multiple sources, including business units. To better inform our decision making, Caterpillar evaluates risks using three dimensions (Significance, Likelihood and Velocity) at the business unit and enterprise level.

The results of this BRM risk assessment are incorporated into future action plans to mitigate the identified risk and to create a “heat map” of key company risks. The heat map is shared with the global management team and the Audit Committee/Board.

Compliance risks are reviewed as part of the BRM risk assessment process and managed under Caterpillar’s Ethics & Compliance Program. These risks are anti-bribery, antitrust/competition law, conflicts of interest, customs, data protection and privacy, employee rights, employee health and safety, environmental, export controls, financial, government contracts, information security, product regulatory, product regulatory emissions, security of people and property, and technical information.

Every risk identified under the Ethics and Compliance program has an Enterprise Risk Owner who is responsible for managing efforts to mitigate the risk for Caterpillar. They help drive risk management through governance, evaluation, controls, communication and training, and compliance audits throughout the world.

Through these programs and their related discussions, Caterpillar can better evaluate risk levels and gauge the potential impact of various outcomes on our ability to achieve strategic goals. This process also provides opportunities to leverage internal tools in order to conduct scenario planning and stress testing of our strategy, goals and objectives.

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## PUBLIC POLICY

Government decisions around the world can have a significant impact on our employees, customers and stockholders. Where legal, appropriate and constructive to do so, Caterpillar will advocate for public policy outcomes that help promote sustainable business conditions for our company, our suppliers and our stockholders. The form of advocacy Caterpillar uses may differ depending on the political system and local law.

We communicate the importance of key public policy issues to our employees and other stakeholders, including dealers, suppliers and retirees. In some countries, we may encourage them to express their views to lawmakers – if this practice is consistent with local custom and citizenship rights. Our leaders will also utilize opportunities to interact with government officials directly to advocate our legislative positions.

Finally, we support many organizations and associations that champion public policies that contribute to the success and growth of the business community and manufacturing industry as a whole.

We:

- Monitor state, federal and international government affairs issues.
- Advocate and seek implementation of policies and legislation that allow Caterpillar to succeed.
- Partner with elected officials and policy makers to ensure their understanding on the key issues that impact our business such as trade, tax, infrastructure, climate and energy.

Where allowable by law, Caterpillar may make corporate contributions to campaigns, individual candidates or political action committees that support public policies that we believe will have an impact on our business. As outlined in Our Values in Action, all corporate contributions are approved by the chief executive officer and are reported annually to the Board of Directors Public Policy Committee. Full details on these contributions can be found at <http://www.caterpillar.com/nl/company/corp-overview/global-issues.html>.

Where corporate contributions are not permitted, Caterpillar employees also fund and administer the Caterpillar Political Action Committee (CATPAC). CATPAC is entirely funded through voluntary contributions by eligible U.S. employees. A Steering Committee comprised of Caterpillar nonofficers oversees all donations made by CATPAC. The Committee comprises seven to 12 U.S.-based employees who represent a diverse mix of U.S. locations and business units. CATPAC contributions go to federal and state political campaigns.



## Economic Development

The Caterpillar organization and our products support economic growth around the world, both in developed countries and emerging markets. The road to sustainable progress begins with a road, and Caterpillar's products provide critical contributions to the construction of that road. From growth economies, where new infrastructure is required, to developed areas where aging networks need improvement, our products help ensure that investments in transportation, energy, telecommunications, waste and water infrastructure produce maximum benefits. We support these investments as key enablers for sustainable development, economic growth, competitiveness and long-term job creation.

In order to promote economic development, governments have a responsibility to maintain appropriate levels of productive investment in infrastructure while providing a level playing field for suppliers. Leveraging private investment can bring additional sources of funding, provided that investment is supported by fair and predictable policies to maximize the certainty and timeliness of financial returns.

Growth-enhancing infrastructure investments, however, cannot be fully delegated to the private sector, and public financing should continue to comprise the bulk of infrastructure investment. Governments can influence the affordability of infrastructure through the facilitation of permitting, the reduction of administrative burden and the simplification of related requirements. The role of government for infrastructure financing should be based on national needs, including urbanization, commerce and trade

policy, transportation, disaster prevention and mitigation, defense and global competitiveness.

### ***Promoting Development through Advocacy***

Caterpillar believes that the best means of economic development and the efficient distribution of goods and services is the pursuit of business excellence and profit in a climate of free enterprise, free trade and unencumbered competition. Further, such international exchange promotes better understanding across borders and cultures, leading to a more peaceful world. These benefits have been demonstrated by the enormous rise in post-World War II gross domestic product and living standards in countries participating in international commerce. By contrast, many isolated countries have frequently not experienced such advantages.

Economic growth through international trade is essential for poverty reduction, but also comes with challenges. Chief among them is the need to balance economic, environmental and social policies to achieve sustainable development. When this balance is achieved, sustainable development becomes a shared objective and provides a common framework for allowing environmental and trade policymakers to engage stakeholders, analyze issues and evaluate policy more efficiently.

Caterpillar has a long history of advocating for free trade. Our interest comes not from the perspective of any one country, but from our global perspective. We believe that companies compete best in a free trade environment. When trade barriers

are removed, we can better meet our global customer needs and grow more efficiently. Our suppliers, in turn, also have an easier time satisfying our global sourcing requirements. Our employees around the world, and their respective communities, benefit from a higher standard of living, as they have access to more product choices at lower prices. Free trade also allows us to provide more and better job opportunities because open markets lead to improved competitiveness.

Caterpillar will continue to promote policies that reduce trade and investment barriers. At the same time, we will continue to speak out against protectionist policies. We believe that developed countries should adopt policies that allow the benefits of the global economy to be extended to developing countries. To this end, Caterpillar also recognizes that humanitarian and developmental assistance is necessary to fight disease, improve living conditions and combat corruption – all of which can be barriers to free trade and economic growth in the world's poorest countries.

### ***Promoting Development through Job Creation***

Our facilities in more than 180 countries provide quality jobs and opportunities for the people in those locations – not to mention the jobs also created within our extended dealer network and supply chain. The importance of manufacturing jobs to the economy – not just in the United States, but worldwide – cannot be overstated. According to the Bureau of Economic Analysis, manufacturing contributed \$1.87 trillion to the United States economy in 2012, an 8 percent increase from the year before. For every dollar spent in the manufacturing industry, another \$1.48 is added back into the economy – the highest such multiplier for any economic sector that the Bureau tracks. The Advanced Manufacturing National Program Office estimates that total hourly compensation for manufacturing workers is about 17 percent higher than workers in nonmanufacturing sectors. In addition, manufacturing jobs translate into additional jobs in other parts of the economy, with 2.2 additional jobs created in both direct support and service support capacities for every manufacturing job.

The number of jobs that Caterpillar and its suppliers bring to communities varies by site, and they often vary according to economic cycles. However, jobs at Caterpillar make a significant contribution to local employment and economic development. For example, in 2013 Caterpillar announced plans to begin manufacturing Cat® material handlers in Northern Ireland. The machines are used for moving scrap and bulk materials, as well as in forestry applications. The new operations will require 100 positions.

Northern Ireland First Minister Peter Robinson said, “The project is especially important as it has the potential to help attract additional projects from the wider Caterpillar family. This new project for Northern Ireland will also offer our local workforce the opportunity to develop key transferable skills that will add value to our manufacturing sector, bringing further economic benefit.”

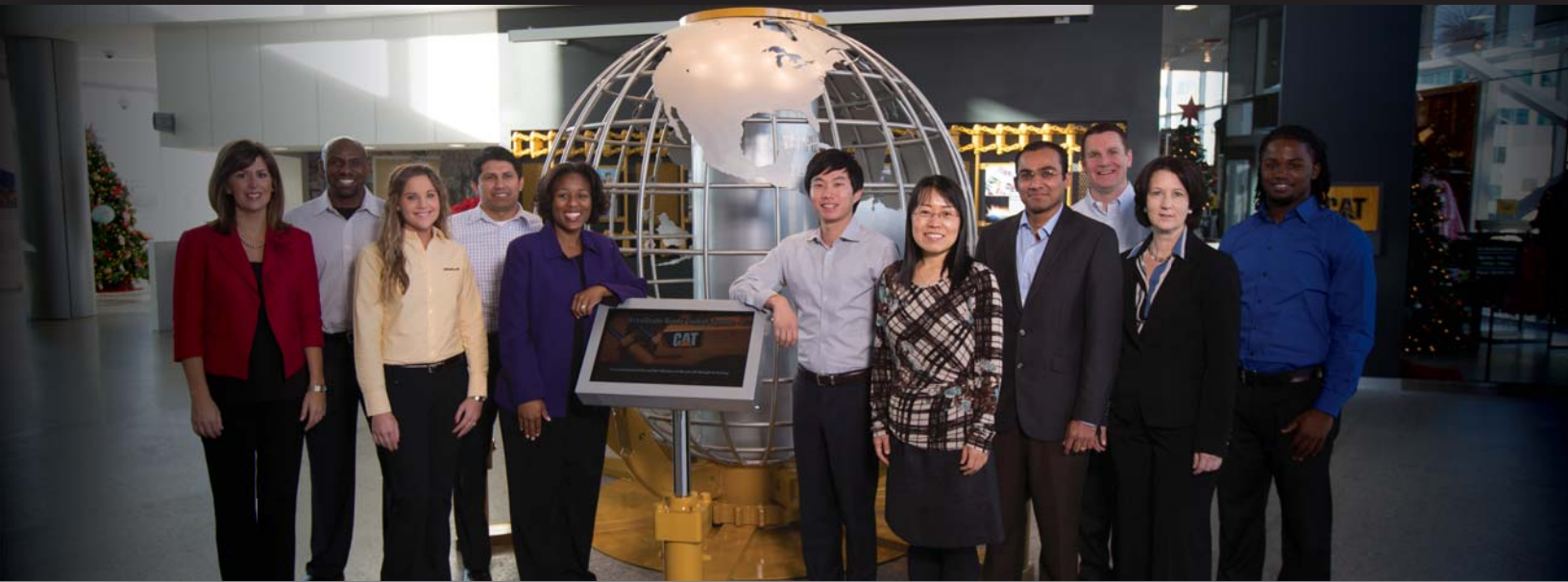
Benefits from new Caterpillar operations are also being felt in Dubai, United Arab Emirates, where the new Caterpillar Middle East Parts Distribution Center opened in March 2013. This 500,000-square-meter facility plans to employ 130 people and provides aftermarket parts support in the East Africa and Middle East regions. This opening followed two recently opened parts distribution centers, one each in Spokane, Wash., and Arvin, Calif., that will bring 150 new jobs between those two communities. In Athens, Ga., our new manufacturing and assembly facility is projected to create 1,400 new Caterpillar jobs and an estimated additional 2,800 positions in the supply base. Also in 2013, Caterpillar announced the opening of two new facilities in the Jiangsu Province of China, as well as a new powertrain facility in Wuxi – coupled with a 17,000-square-meter expansion of our existing Wuxi facility.

### ***Promoting Development through Microfinancing***

The Caterpillar Foundation aids local economic development, providing funds to individuals or groups who might not otherwise have access to traditional financial services to start small businesses. The Caterpillar Foundation has been investing in Opportunity International for more than 20 years, supporting various development efforts in more than 20 countries around the world.

The Caterpillar Foundation's investment has helped Opportunity International provide life-changing micro loans to more than 75,000 small entrepreneurs, creating 30,000 jobs and giving more than 60,000 rural families access to basic banking services. The majority of Opportunity International's clients are women, who reinvest their earnings into health care, education and their communities – helping to break the cycle of generational poverty.





## Human Rights

We believe that Our Values in Action – Caterpillar’s Worldwide Code of Conduct – effectively articulates our long-standing support for, and commitment to, human rights and the dignity of all people. These values create a work environment that recognizes the rights of our employees around the globe. Caterpillar employees and management receive regular training and participate in annual assessments to ensure that they are aware of and able to apply

the principles contained in Our Values in Action. We also maintain internal reporting mechanisms to hold employees and management accountable for failing to comply with Our Values in Action. Externally, we seek suppliers and business allies who also demonstrate strong values and ethical principles and avoid those who violate the law or fail to comply with the sound business practices we promote.



## Philanthropy

We contribute to the well-being of communities around the world. From charitable contributions to volunteerism, philanthropy has long been part of Caterpillar's culture. As Our Values in Action states:

*"As individuals and as a company, we contribute significant time and resources to promoting the health, welfare and economic stability of our communities around the world. We encourage all employees to participate in community activities that promote the common good. We believe that our success should also contribute to the quality of life in, and the prosperity and sustainability of, communities where we work and live."*

Through strategic investments and collaborations, we leverage our unique strengths to make contributions that support poverty alleviation. We collaborate across our value chain to develop programs that provide job training and increase workplace safety. In addition, our employees volunteer their time, talents and other resources to efforts that help communities.

### ***The Caterpillar Foundation***

Founded in 1952, the Caterpillar Foundation has contributed more than \$550 million to help make sustainable progress possible around the world. The Caterpillar Foundation mission is to turn the spiral of poverty into a path to prosperity by investing in those proven to yield the best results – women and girls. We champion programs that support:

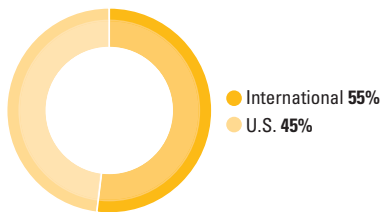
- Environment: natural resource management
- Education: early childhood, STEM (Science, Technology, Engineering and Math), leadership and workforce readiness
- Emergency: food, shelter, water, disaster relief

**IN 2013 WE LAUNCHED A VOLUNTEER TIME TRACKING SYSTEM IN THE U.S.**

**In this first year of collecting self-reported data our U.S. employees logged 17,435 hours to 343 organizations.**

In 2013, the Foundation also continued its support of the World Resources Institute (WRI) project to promote the development of sustainable cities in China, India and Brazil. Through this smart-cities initiative, WRI will partner with up to five cities on strategies to increase energy efficiency, curb greenhouse gas emissions and improve water quality, urban mobility and land use. Specific project goals include solutions that will reach 1 billion people with new public transportation options; avoid 617,000 metric tons of CO2 emissions in the transportation area; reduce nitrogen, phosphorus and ammonia water levels by 15 percent; and provide more reliable energy to 11 million industrial, corporate and residential consumers. In total, the Caterpillar Foundation expects to support this project with \$12.5 million over five years.

**2013 CATERPILLAR FOUNDATION INVESTMENTS**



**\$57.6** Million invested in 2013.

**Volunteer Hours**

The volunteer efforts of our employees distinguish our people and demonstrate that they are leaders not only in the workplace, but also in the community. Just this year, for example, Caterpillar employees earned the Bronze U.S. President’s Volunteer Service Award for logging more than 6,000 volunteer hours with the Junior Achievement (JA) program. Our people volunteered in more than 400 classrooms across seven U.S. states, with more than 2,700 volunteer hours logged with JA programs in international locations like Brazil, Indonesia, Mexico, Panama, Singapore and the United Kingdom.

To help provide us with a comprehensive view of our volunteer activities, the Caterpillar Foundation launched a Volunteer Tracking System in June 2013 to capture the time employees and retirees spend supporting their communities. Hours volunteered for any 501(c)(3) U.S. nonprofit are eligible for tracking purposes. With the insights gained from collecting this data, we will be better positioned to design future programming and maximize our volunteer impact.





### **U.S. Voluntary Contributions**

Our employees not only volunteer their time to worthy causes, they also contribute their financial resources. Caterpillar has joined with our employees to support giving in two ways – through our Caterpillar Employee United Way Appeal and through a Matching Gifts Program managed and matched by the Caterpillar Foundation.

Since the 1950s, Caterpillar has had only one corporate solicitation to employees – the Caterpillar Employee United Way Appeal. All employee contributions raised through this solicitation are distributed back to the United Way of their choice, along with a dollar-for-dollar match from the Caterpillar Foundation. The individual United Way then invests in programs in the community. This is a great way for Caterpillar employees to invest in local charities, with each local United Way helping assess community needs, identifying programs delivering measurable outcomes and working to eliminate future needs by creating long-term solutions. In 2013, a total of \$12.6 million was donated to the United Way – \$6.3 million in employee contributions, and a \$6.3 million match from the Caterpillar Foundation.

The Caterpillar Foundation is proud to offer the Matching Gifts Program to support the monetary contributions that U.S. employees, retirees and directors make to worthy causes in the areas of arts and culture, two- and four-year colleges and universities, environment and public policy. The program provides a dollar-for-dollar match on contributions between \$50 and \$2,000 per organization with no limit to the number of organizations per person. Last year the Foundation matched \$4.3 million through this program. For more details on the Matching Gifts Program, visit <http://www.caterpillar.com/en/caterpillar-foundation.html>.



### **Caterpillar Foundation Grantee Chad Pregracke Named CNN Hero of the Year**

CNN honors 10 heroes each year at the “CNN Heroes: An All-Star Tribute” award show. This year, Caterpillar Foundation grantee, Living Lands & Waters Founder Chad Pregracke, was named the 2013 CNN Hero of the Year for his work with the environment. Pregracke was awarded \$250,000, in addition to the \$50,000 for being named a Top 10 Hero, to continue his work, and he pledged a portion of that for each of the other Top 10 Heroes.

Pregracke and his 12-person crew live on a barge for nine months out of the year, traveling around the country cleaning up America’s rivers. About 90 percent of the garbage found is recycled. The rest is disposed of properly. The barge is also used as a “floating classroom,” where Pregracke and the rest of the staff educate visiting students on the harm of polluting the ecosystem. In addition, the group is also halfway to their goal of planting 1 million trees along the country’s shorelines.

The Caterpillar Foundation has invested in Living Lands & Waters for many years, and Pregracke has worked with Caterpillar volunteers through river cleanups, tree giveaways and tree planting events. About 70,000 total volunteers have helped Pregracke collect more than 7 million pounds of trash in the past 15 years.





## Goals & Progress

### ***Doing More with Less***

We announced our current 2020 aspirational sustainable development goals for operations, products, services and solutions in 2006, using that same year as a baseline. A midpoint review in 2013 revealed that we are not only on track to meet these goals, but also are exceeding our expected performance for several environmental goals related to operations, while delivering significantly higher revenues, compared to the 2006 baseline year. Simply put, we are doing more, with less water, energy, material consumption and GHG emissions. As a result, we have decided to revise our 2020 goals to better align with what we project for our business going forward.

### ***Looking Forward***

For those areas where we are on track to exceed our existing aspirational goal, we are raising the bar to challenge ourselves to achieve better year-over-year-comparisons. We also are revising several of our 2020 goals to reflect our business growth as an additional measure of progress. Absolute measures are helpful to quantify data over an extended time period. However, absolute measures are problematic when evaluating our progress on environmental improvement while also growing the business to meet customer demand. Intensity measures, defined as the environmental impact divided by the total reported sales and revenue, more accurately convey our effort to operate more efficiently while significantly growing the company and are particularly useful for business planning purposes. Put another way, we aspire to increasing profitable growth, while reducing environmental intensity.

Similarly, we are revising our product stewardship goals to better align with our customers needs. We are focusing on enhanced customer safety; improving the sustainability of our products, services and solutions offerings; leveraging technology and innovation to improve customer job site efficiency; and increasing the availability of remanufactured or rebuilt products. This change will concentrate our efforts on helping customers maximize life cycle benefits while minimizing resource consumption and cost of ownership.


### ***Key Considerations in our Revised Goals***

Among the considerations taken into account in revising our 2020 goals was better alignment with our Sustainability Principles and Strategy, launched in 2012. These principles state: when we prevent waste, improve quality and develop better systems, we necessarily improve the environmental performance of operations through the execution of our business plan.

In addition, the execution of our business plan has significantly changed our company's footprint since 2006. Today, we have more facilities, a wider product breadth and an unprecedented global footprint that continues to evolve. Therefore, we are maturing our metrics by better integrating environmental operations performance with business performance. In doing so, sustainability is not simply something we do; rather, it is a major part of who we are and how we make progress possible.

Caterpillar has set aspirational, long-term goals for its operations and product stewardship. We believe these standards affirm our determination to lead our industry to a more sustainable future.

## 2020 GOALS FOR OPERATIONS

 <p><b>Reduce our recordable workplace injury rate to 0.6 and lost-time case rate due to injury to 0.15.</b></p>	<p><b>↓50%</b></p> <p><b>Reduce energy intensity by 50 percent. (Baseline: 2006)</b></p>	<p><b>20%</b></p> <p><b>Use alternative/renewable sources to meet 20 percent of our energy needs.</b></p>	<p><b>↓50%</b></p> <p><b>Reduce greenhouse gas emissions intensity by 50 percent. (Baseline: 2006)</b></p>
<p><b>↓50%</b></p> <p><b>Reduce water consumption intensity by 50 percent. (Baseline: 2006)</b></p>	<p><b>↓50%</b></p> <p><b>Reduce by-product materials intensity by 50 percent. (Baseline: 2006)</b></p>	<p><b>LEED</b></p> <p><b>Design all new facility construction to meet Leadership in Energy and Environmental Design (LEED) or comparable green building criteria.</b></p>	

## 2020 GOALS FOR PRODUCT STEWARDSHIP

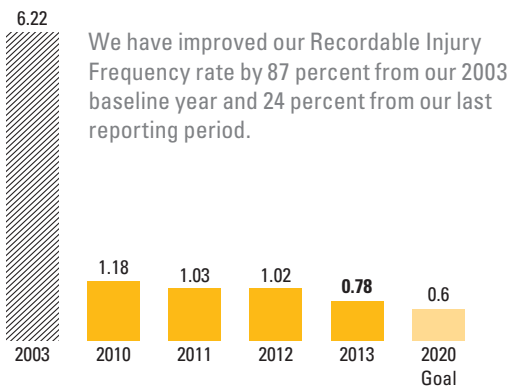
 <p><b>Safety</b> <b>Goal: Provide leadership in the safety of people in, on and around our products.</b></p>	 <p><b>Products, Services and Solutions</b> <b>Goal: Leverage technology and innovation to improve sustainability of our products, services and solutions for our customers.</b></p>	<p><b>↑100%</b></p> <p><b>Systems Optimization</b> <b>Goal: Increase managed fleet hours by 100 percent. (Baseline: 2013)</b></p>	<p><b>↑20%</b></p> <p><b>Reman and Rebuild</b> <b>Goal: Increase remanufactured and rebuild business revenues by 20 percent. (Baseline: 2013)</b></p>
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SAFETY GOALS & PROGRESS

# Vision Zero

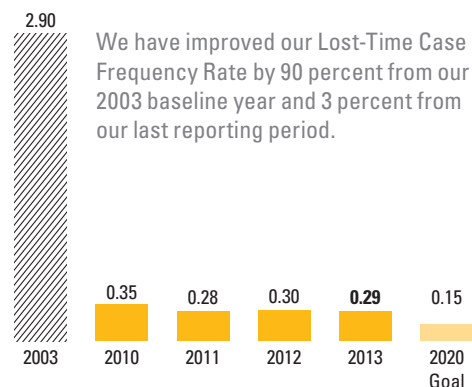
is our commitment to creating a zero-injury workplace. We continue to maintain a strong focus on personal safety and strive for zero injuries. It's not about the metrics, but about our people!

**↓ Goal:** Reduce our recordable workplace injury rate to 0.6 and lost-time injury case rate to 0.15.<sup>1</sup>



**0.78** Recordable Injury Frequency (RIF)  
*(Recordable injuries per 200,000 hours worked)*

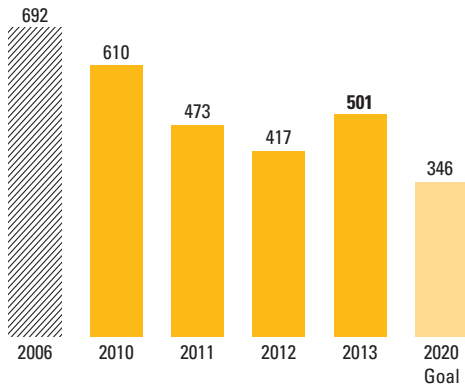
<sup>1</sup> Data prior to 2013 has been restated due to a) acquisitions, b) data updates realized from improved accuracy, c) divestitures and d) updates to goal reporting format.



**0.29** Lost-Time Case Frequency Rate (LTCFR)  
*(Work-related injuries resulting in lost time per 200,000 hours worked)*

ENERGY GOALS & PROGRESS

**↓ Goal:** Reduce energy intensity by 50 percent.<sup>1</sup>

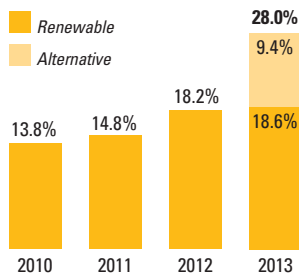


**501** Absolute gigajoules energy use/million dollars of revenue  
(Baseline: 2006)

Since 2006, Caterpillar has been working to increase its operational energy efficiency by 25 percent by 2020. Our efforts have been so successful that we actually exceeded that goal by 22 percent in 2012. This performance clearly indicated that it was time for a more ambitious goal. To this end, we have revised our 2020 aspirational goal from requiring a 25 percent increase of operational energy efficiency to requiring a 50 percent decrease of operational energy intensity from our 2006 baseline. The change in our goal structure from “efficiency” to “intensity” better aligns with our other operational intensity goals, and further embeds environmental metrics and targets in our business planning and performance processes. Operational energy intensity decreased 28 percent from 2006 to 2013.

<sup>1</sup> Data prior to 2013 has been restated due to a) acquisitions, b) data updates realized from improved accuracy, c) divestitures and d) updates to goal reporting format.

**↑ Goal:** Use alternative/renewable sources to meet 20 percent of our energy needs.



**28%** Alternative/renewable energy  
(Sum of renewable and alternative electrical energy use/total electrical energy use x 100)

Renewable energy sources increased from 2012 to 2013. In 2012, Caterpillar defined alternative energy and began internally collecting progress data for alternative energy sources. Alternative energy, per the definition below, is included for 2013. With the addition of alternative energy sources, we have achieved 28 percent energy from alternative or renewable sources.

**Renewable Energy:** Caterpillar defines renewable energy as energy resources that are naturally replenishing over a short period of time and virtually inexhaustible. Power generation examples include wind, solar, hydro, geothermal, tidal, wave, biomass and anaerobic digestion.

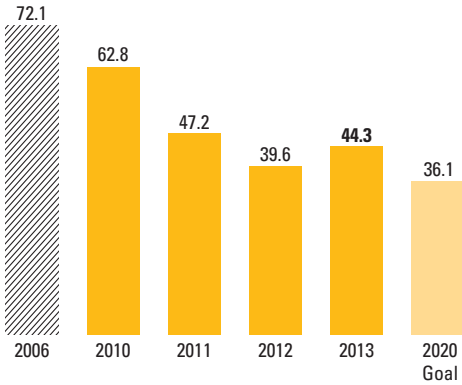
**Alternative Energy:** Caterpillar defines alternative energy as any source of usable energy that offers substantial environmental benefits compared to the conventional sources of energy that it replaces. Power generation examples include renewable sources listed above, plus landfill gas, coal mine and abandoned mine methane, combined heat and power (cogen, trigen and quadgen), coal with carbon sequestration and localized power generation. Transportation fuel examples include renewable sources listed above, plus pure methanol, ethanol blends of 85 percent or more with gasoline, pure natural gas, natural gas blends of 85 percent or more with diesel fuel, liquid fuels domestically produced from natural gas (compressed natural gas, liquefied natural gas and gas to liquid fuels), propane, coal-derived liquid fuels, hydrogen and electricity.



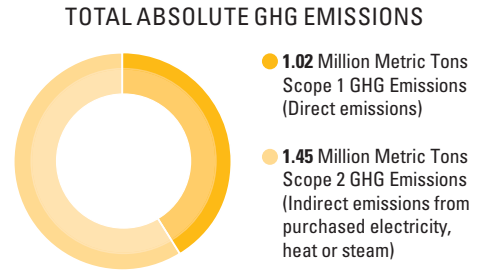
GHG EMISSIONS GOALS & PROGRESS

**↓ Goal:** Reduce greenhouse gas emissions intensity by 50 percent.<sup>1</sup>

Through 2013, Caterpillar has reduced GHG emissions intensity by 39 percent over our 2006 baseline year. While our intensity increased, our absolute GHG emissions decreased from 2012 to 2013. Our total absolute GHG emissions equaled 2.47 million metric tons for the year.



**44.3** Absolute metric tons of CO<sub>2</sub>e/  
million dollars of revenue  
*(Baseline: 2006)*



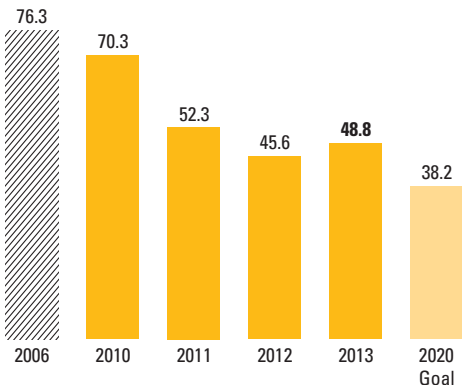
**2.47** Million metric tons  
Total absolute GHG emissions

*1 Data prior to 2013 has been restated due to a) acquisitions, b) data updates realized from improved accuracy, c) divestitures and d) updates to goal reporting format.*

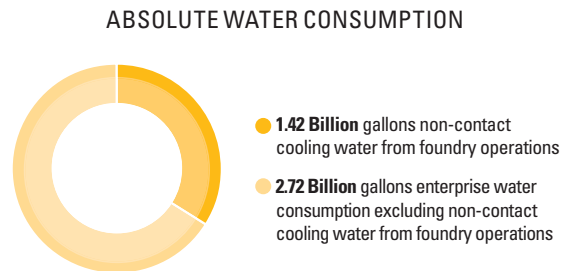
WATER GOALS & PROGRESS

**↓ Goal:** Reduce water consumption intensity by 50 percent.<sup>1,2</sup>

Through 2013, we have reduced water consumption intensity at our facilities by a total of 36 percent from our 2006 baseline intensity. Our 2013 absolute water consumption, including noncontact cooling water from foundry operations, is 4.14 billion gallons of water.



**48.8** Absolute thousand gallons of water/  
million dollars of revenue  
*(Baseline: 2006)*

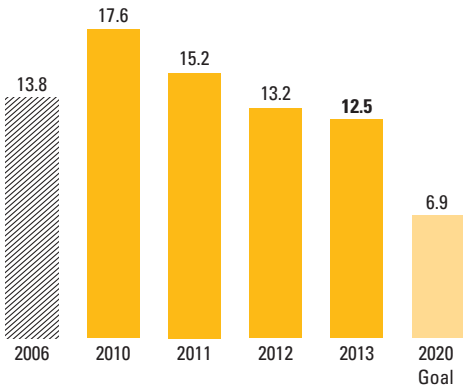


**4.14** Billion gallons  
Total absolute water consumption

*1 Water consumption intensity does not include noncontact cooling water from foundry operations.  
2 Data prior to 2013 has been restated due to a) acquisitions, b) data updates realized from improved accuracy, c) divestitures and d) updates to goal reporting format.*

BY-PRODUCT MATERIALS GOALS & PROGRESS

**↓ Goal:** Reduce by-product materials intensity by 50 percent.<sup>1</sup>

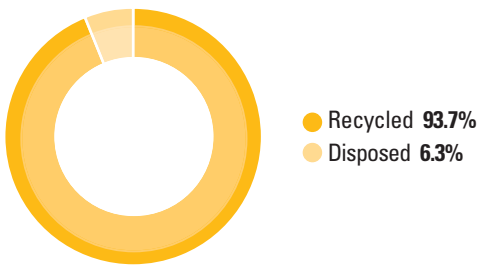


**12.5** Absolute metric tons of by-product materials/million dollars of revenue  
(Baseline: 2006)

<sup>1</sup> Data prior to 2013 has been restated due to a) acquisitions, b) data updates realized from improved accuracy, c) divestitures and d) updates to goal reporting format.

Caterpillar is transitioning away from our zero-waste aspirational goal to a goal focused on reduction of all by-product materials, or prevention of waste. Preventing waste means improving the efficiency of products, processes, services and solutions, which not only reduces cost, but also leads to environmental benefits associated with reduced materials, energy, water and land utilization. Where by-product materials are generated, we focus on remanufacturing and rebuilding and reuse and recycling. When more efficient measures are not feasible, treatment/control options can reduce associated environmental impacts and, as a last resort, disposal/discharge in an appropriate and lawful manner may be considered acceptable. The use of the term by-product materials in our updated 2020 aspirational goal reflects our focus on preventing waste, and effectively managing all that remains.

In 2013, our by-product material intensity decreased 9.4 percent from our 2006 baseline. In 2013, we generated a total of 698,000 metric tons of by-product materials, and 93.7 percent of those materials were recycled.



Total BPM = **698** Thousand metric tons  
93.7% was recycled and 6.3% disposed  
(sent to landfill or incineration)

## LEED GOALS & PROGRESS

**Goal:** Design all new facility construction to meet Leadership in Energy and Environmental Design (LEED) or comparable green building criteria.

In 2013, the following Caterpillar facilities received certification in accordance with the U.S. Green Building Council's LEED-NC (New Construction) certification process or comparable criteria:

### LEED Gold

- Caterpillar Visitors Center, Peoria, Ill.

### LEED Certified

- Zatec Solar Turbines Reman Facility, Czech Republic

**The following facilities were designed and constructed following LEED-NC or comparable criteria, but were not certified:**

- Caterpillar Tianjin Ltd., Tianjin, China
- China Proving Ground, Tongzhou, China
- Large Mining Truck Facility, Batam, Indonesia
- Logistics, Arvin, Calif.
- Logistics, San Luis Potosí, Mexico
- Mini Hydraulic Excavator & Small Track Type Tractor Facility, Athens, Ga.
- Shot Blast Facility, Victoria, Texas

**64%** Facilities completing construction in 2013 that met LEED or comparable green building criteria.

For example,

#### • **GOLD – Peoria, Ill., Caterpillar Visitors Center**

Opened in 2012, the Caterpillar Visitors Center incorporates a variety of energy and water conservation features that reduce water use by as much as 45 percent compared to a typical building and energy use by 35 percent.

#### • **Certified – Zatec, Czech Republic, Remanufacturing Center**

In 2013, this Solar Turbines Remanufacturing Center became the second manufacturing facility to achieve LEED certification status in the Czech Republic. The facility successfully incorporated a high-efficiency lighting scheme, thermal insulation and low-water plumbing fixtures in order to reduce water and energy usage. The facility also utilized construction materials with up to 20 percent recycled content and recycled 75 percent of the waste generated during construction.

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## PRODUCT STEWARDSHIP GOALS & PROGRESS

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### SAFETY

**Goal:** Provide leadership in the safety of people in, on and around our products.

**Progress:** See Focus Areas for examples of our progress.

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### PRODUCTS, SERVICES AND SOLUTIONS


**Goal:** Leverage technology and innovation to improve sustainability of our products, services and solutions for our customers.

**18%** Reported revenue derived from products, services and solutions that demonstrate an improved sustainability benefit over existing offerings.

**Progress:** In 2013, 18 percent of Caterpillar’s reported revenue was from products, services and solutions that demonstrated an improved sustainability benefit over existing offerings. This revenue includes remanufacturing, component overhauls at Cat® dealers, power generation using alternative energy sources, customer job site optimization and innovative new products. While the enterprise revenue decreased from 2012 to 2013, the percentage of those revenues from these products, services and solutions increased in that time.

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### SYSTEMS OPTIMIZATION

 **Goal:** Increase managed fleet hours by 100 percent. *(Baseline: 2013)*

**Progress:** Caterpillar’s Job Site Solutions (JSS) team was formed in 2005 and has grown significantly since that time. JSS offers customers complete solutions that are designed to improve performance on the job site and to increase the sustainable benefits of the work performed. Future reporting on this goal will be conducted using 2013 results as a baseline.

**27%** Increase in managed fleet hours from 2012 to 2013. *(Future reporting will use 2013 baseline.)*

**75%** Increase in number of machines covered by services agreements from 2012 to 2013.



# PRODUCT STEWARDSHIP GOALS & PROGRESS

## REMAN AND REBUILD

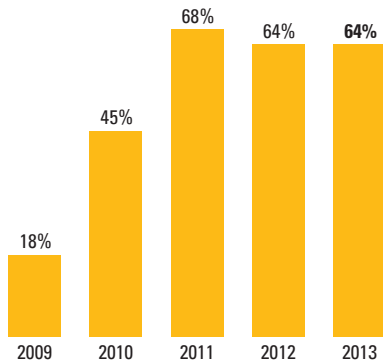
**↑ Goal:** Increase remanufactured and rebuild business revenues by 20 percent. (Baseline: 2013)

**Progress:** Our reman and rebuild businesses reduce waste and minimize the need for the raw materials necessary to produce new parts. This system is where Caterpillar is making some of its greatest contributions to sustainable development – keeping nonrenewable resources in circulation for multiple life cycles. Future reporting on this goal will be conducted using 2013 results as a baseline.

### REBUILD BUSINESS GROWTH<sup>1,2</sup>

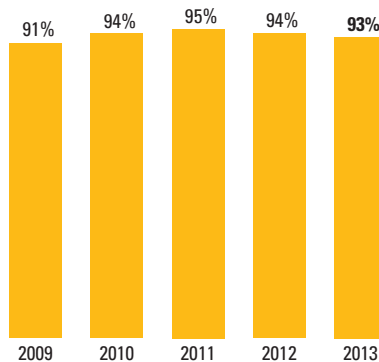
Our rebuild revenue decreased 13 percent from 2012 to 2013 (Future reporting will use 2013 as baseline.)

### REMAN BUSINESS GROWTH<sup>1,2</sup>



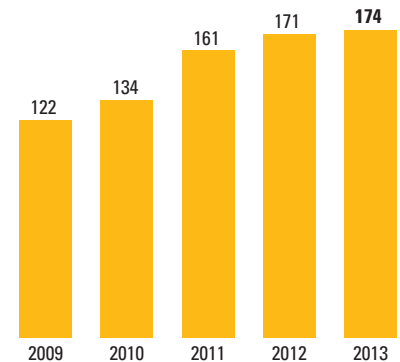
**64%** Revenue increase (Baseline: 2006; future reporting will use 2013 as baseline.)

### REMAN END-OF-LIFE "TAKE BACK" PERCENT<sup>1</sup>



**93%** Actual end-of-life returns/eligible returns x 100

### REMAN END-OF-LIFE "TAKE BACK" BY WEIGHT<sup>1</sup>



**174** Millions of pounds of end-of-life material received

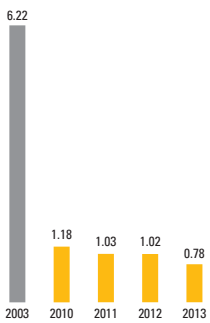
<sup>1</sup> Data does not include Progress Rail, Electro-Motive or Solar Turbines.

<sup>2</sup> Data prior to 2013 has been restated due to a) acquisitions, b) data updates realized from improved accuracy, c) divestitures and d) updates to goal reporting format.

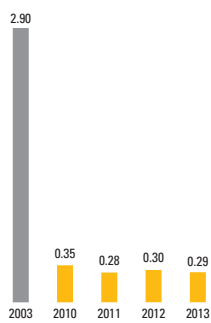
# PERFORMANCE AT-A-GLANCE

## WORKPLACE SAFETY

**Recordable Injury Frequency (RIF)<sup>1</sup>**  
(Recordable injuries per 200,000 hours worked)



**Lost-Time Case Frequency Rate (LTCFR)<sup>1</sup>**  
(Work-related injuries resulting in lost time per 200,000 hours worked)



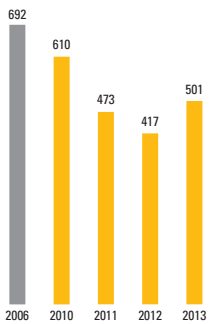
1 Data prior to 2013 has been restated due to a) acquisitions, b) data updates realized from improved accuracy, c) divestitures and d) updates to goal reporting format.

2 Data does not include Progress Rail, Electro-Motive or Solar Turbines.

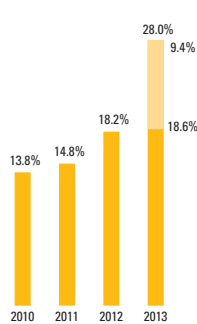
3 Water consumption intensity does not include noncontact cooling water from foundry operations.

## ENVIRONMENTAL IMPACT

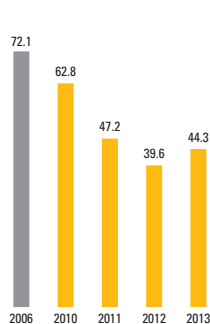
**Energy Intensity<sup>1</sup>**  
(Absolute gigajoules energy use/  
million dollars of revenue)  
(Baseline 2006)



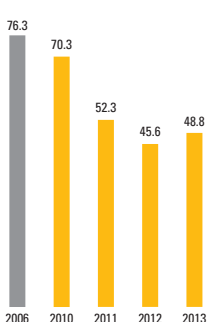
**Alternative/Renewable Energy**  
(Sum of renewable and alternative electrical  
energy use/total electrical energy use x 100)  
■ Renewable ■ Alternative



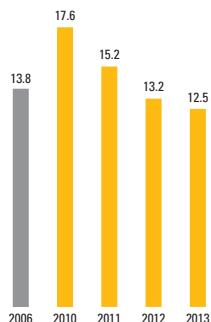
**GHG Emissions Intensity<sup>1</sup>**  
(Absolute metric tons of CO<sub>2</sub>e/  
million dollars of revenue)  
(Baseline 2006)



**Water Consumption Intensity<sup>1,3</sup>**  
(Absolute thousand gallons of water/  
million dollars of revenue)  
(Baseline 2006)



**By-Product Materials Intensity<sup>1</sup>**  
(Absolute metric tons of by-product materials/  
million dollars of revenue)  
(Baseline 2006)

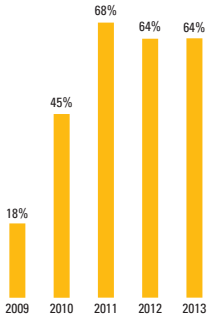


# PERFORMANCE AT-A-GLANCE

## REMAN

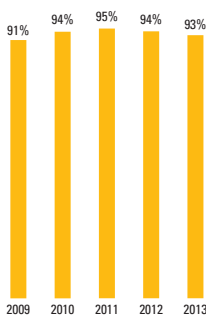
### Reman Business Growth<sup>1,2</sup>

Revenue increase  
(Baseline 2006; future reporting will use 2013 as baseline.)



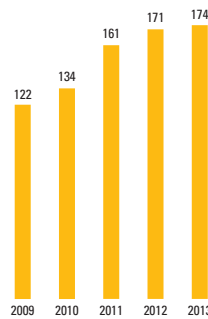
### Reman End-of-Life "Take Back" Percent<sup>2</sup>

Actual end-of-life returns/  
eligible returns x 100



### Reman End-of-Life "Take Back" by Weight<sup>2</sup>

Millions of pounds of end-of-life  
material received



1 Data prior to 2013 has been restated due to a) acquisitions, b) data updates realized from improved accuracy, c) divestitures and d) updates to goal reporting format.

2 Data does not include Progress Rail, Electro-Motive or Solar Turbines.

**OUR PRODUCT LIFE CYCLE**

# Sustainable at Every Step

**PRODUCT DEVELOPMENT**

*Optimizing the product life cycle begins on the drawing boards, where our development and engineering teams focus constantly on designing products that deliver an improved, more efficient performance.*

**SUPPLY CHAIN/LOGISTICS**

*We move thousands of supplies and parts around the world to manufacture and service our equipment during the course of its life cycle.*

**MANUFACTURING**

*In the product life cycle, our manufacturing process puts a high premium on quality, environmental responsibility and workforce safety.*



**REMANUFACTURING**

*At Caterpillar, at the end of a component or product's useful life, that component or product is still valuable. Instead of disposing of worn components and machines, Caterpillar has developed remanufacturing and rebuild businesses focused on restoring them to like-new condition to achieve another productive life cycle with minimal need for additional resources.*

**CUSTOMER APPLICATION**

*There is no better way to appreciate the ability of our products to make sustainable progress possible than when they are at work for our customers.*

**CUSTOMER OPERATIONS**

*At Caterpillar, a sustainable product life cycle includes one that provides efficient and safe equipment operation for our customers – and one in which technology is increasingly the common enabler of improved sustainability performance.*

**DEALERSHIP SUSTAINABILITY**

*Our global network of dealers plays a pivotal role in our sustainability success. They provide comprehensive knowledge and service capabilities for our products and have deep understanding of our customers' needs and opportunities. They work daily to improve efficiency and performance, ensuring life cycle benefits are maximized while resource use and costs are minimized.*





## Product Development

**Optimizing the product life cycle begins on the drawing boards, where our development and engineering teams focus constantly on designing products that deliver an improved, more efficient performance.**

The 988 family of wheel loaders celebrated a big milestone in 2013, but that doesn't mean we're resting on its 50 years of success. With more than 20,000 machines produced to date, members of Caterpillar's Advanced Components & Systems Division (ACSD), collaborating closely with the product group, are still finding ways to improve the Cat® 988 Wheel Loader.

The ACSD team collaborates with machine groups to help design or reengineer Cat® products to become more fuel efficient. Together, their work has resulted in energy savings by as much as 40 percent, simply by finding ways to put power to the ground more efficiently.

To further improve their effectiveness, the ACSD team recently adopted a new work model – a product-specific, cross-functional structure through which improved design is driven largely by customer input.

In particular, the new structure impacts how the ACSD team looks at Systems and Vertical Integration (VI) – optimizing the performance of components working together in systems. Based in part on customer feedback, ACSD prioritizes components and systems by their level of VI, which indicates the level of product differentiation. Components with a high VI are where the ACSD team now focuses the majority of their design efforts.

The ACSD team believes that efficient power systems offer Caterpillar a competitive advantage, and they are demonstrating that with the new 988K Wheel Loader. “After hearing feedback from our customers, one thing stood clear,” said Todd Tuntland, product application specialist. “They wanted a more efficient machine, especially when it comes to fuel consumption.”

ACSD and our Large Wheel Loader team decided to address fuel savings in several ways. First, they focused on how to reduce engine speed, or revolutions per minute (rpm). The introduction of Economy Mode, for example, allows operators to lock the throttle – automatically reducing engine speed without sacrificing performance. Similarly, an engine kickdown feature lowers rpms during idle operation, while a new type of hydraulic flow sharing produces maximum hydraulic flow at lower rpms. The capability to lock the throttle was maintained in the 988K for operator comfort and ease of use. Additional 988K improvements include a program-mable engine idle shutdown feature and a quieter cab.

The 988K officially debuted in April 2013. The machine's fuel efficiency is impressive – a 15 percent reduction over comparable models, with certain operations providing a 20 percent reduction. In addition, an interior redesign allows operators to monitor fuel efficiency in real time, right in the cab. In total, the integrated machines developed by ACSD, including the 988K, are projected to conserve 5.8 million gallons of diesel fuel in 2013.

Overall, it is an impressive performance – one that makes the work of our ACSD and product teams a worthwhile investment that benefits both our customers and the environment.



## Supply Chain/Logistics

**We move thousands of supplies and parts around the world to manufacture and service our equipment during the course of its life cycle. As a pair of projects in 2013 demonstrates, these add up to a significant opportunity to minimize the overall impact of our products' environmental footprint.**

At the Caterpillar Ground Transportation Operations Center – Americas (GTOC-A) in Morton, Ill., new freight optimization software has cut our CO2 emissions by 4,700 metric tons in 2013. The new software allows the GTOC-A to optimize ground shipping through dynamic load planning that determines optimal transportation modes and consolidates existing transportation movements. Through these simple methods, facilities currently managed by the GTOC-A have seen a 6 to 10 percent monthly reduction in transportation spend, fewer travel miles through load consolidation, plus improved trailer utilization costs. These improvements result in fewer trips, lower fuel consumption and fewer CO2 emissions.

Through 2013, the freight optimization program has allowed the GTOC-A to achieve some impressive results, which we expect to get even better. The GTOC-A's managed network is only half implemented; it will eventually track all inbound and outbound ground transportation in North America.

Our shipping needs, however, aren't limited to ground transportation, nor are they limited to North America. We've seen similar improvements with our management of sea containers through the new Container Cross Dock (CCD) model. Our Logistics team noticed that Caterpillar historically focused most of its overseas transport on point-to-point shipping, with an emphasis on getting materials from one location to another by a specified date. This resulted in some sea containers shipping underweighted or underutilized, since the primary driver was the delivery date.

To create a more efficient process that optimizes shipping utilization and delivery date requirements, the Logistics team created the CCD model to combine sea freight by type for better load optimization and to better coordinate the reuse of import containers for exports. The team also began better managing truck carrier usage by creating a strategic "hub and spoke" network to minimize transportation requirements between CCDs and destination facilities.

Two examples of the new model include the United Kingdom CCD in Chesterfield, Derbyshire and the Kobe CCD in Japan. In Chesterfield, Caterpillar created a CCD hub by installing automated processes such as receipt scanning, freight dimensioning, and load planning and data transmission. Similarly, in Kobe the new CCD hub installed a new management system, hired a special on-site logistics manager and redesigned internal and external processes with our logistics and supply chain teams.



The advantages of the CCD model were immediately apparent. In its first year, the average sea container weight for the U.K. CCD increased by more than 65 percent, resulting in 30 percent fewer containers being shipped and removing about 170 tons of CO2 emissions per month from the atmosphere. The results were also impressive in Japan. There, the Kobe CCD increased the average container weight by more than 17 percent, shipped 17 percent fewer containers and prevented about 140 tons of CO2 emissions from the atmosphere per month.

The CCD model has proven so successful that we are planning to replicate it at four new facilities in 2014: Savannah, Ga.; Antwerp, Belgium; Chicago, Ill.; and Shanghai, China.

**Collaborating with Suppliers**

In 2013, Caterpillar collaborated with several suppliers to investigate options for eliminating lead from sleeve-bearing coatings and reducing volatile organic compounds (VOCs) from our production process. These sleeve bearings, used for Cat® large wheel loaders, have a coating that traditionally contains lead. By working with suppliers, Caterpillar engineers have identified alternate coatings that are lead-free, improve on our high-performance quality requirements and result in a reduction in solvent use in the application process – thereby reducing the VOC emissions during production.

Our suppliers in the United States and Europe have already transitioned to the new coating, and we are currently working with suppliers in the Asia-Pacific region to do the same. By changing to a lead-free requirement of sleeve-bearing coatings for our suppliers, we are able to drive procurement globally and meet the most stringent EU Restriction of Hazardous Substances (RoHS) directives ahead of schedule.





## Manufacturing

**In the product life cycle, our manufacturing process puts a high premium on quality, environmental responsibility and workforce safety. Our focus on preventing waste, improving quality and developing better systems, improves the efficiency of our manufacturing processes and reduces utilization of materials, energy, water and land.**

In 2013, Caterpillar Work Tools in Waco, Texas, implemented the Zero-Incident Performance (ZIP™) Process to begin improving its safety culture systematically. Facility Manager John Vizner said the ZIP Process was a change from his team's previous approach to safety management, in which dozens of concurrent initiatives failed to deliver desired results.

Between 2009 and 2012 the facility's employee base rose nearly 450 percent, from 54 employees to 237, and its recordable injury frequency (RIF) grew at an even faster rate. Going into 2013 with the challenge of reducing a 9.51 RIF rate, leaders decided it was time to take a different approach to safety management, a journey to zero-incident performance.

A safety steering team was formed and tasked with guiding the improvement process. The team had representation from management, the safety department and front-line leadership.

With guidance from Caterpillar Safety Services, the Waco Safety Steering Team agreed to focus on three specific areas for improvement in 2013 – start-up meetings, safety observations and incident analysis. For each, a continuous improvement team comprised of

front-line employees developed a new or improved process during a three- to four-day Rapid Improvement Workshop.

A member of the safety steering team and foreman on first shift, Randy McLaughlin, is tasked with making sure employees have the resources needed to operate safely and efficiently. "We just like to get stuff done as fast as we can," McLaughlin said. "Now we're encouraging people to slow down, think about what could happen if you don't do things the right way. It might take a little longer, but it'll be worth it in the long run."

One by one, the solutions were deployed facility-wide, and positive results quickly followed. In just one year, the facility's Recordable Injury Frequency dropped by 60 percent, an astounding achievement. The numbers tell only part of the story, however. Behind the impressive data is an invigorated, dedicated workforce paying greater attention to hazards, communicating more openly and building workable, flexible solutions that error-proof processes; a culture of personal accountability for safety has developed.

"The metrics demonstrate obvious success, but what I really like to see is the increased interaction and engagement about safety," Vizner said. "I won't be satisfied until we get to zero, but with a rapidly growing workforce I recognize that we've made solid improvement."

*Additional examples of Caterpillar's commitment to improving manufacturing sustainability can be found in the Focus Areas – Energy & Climate, Water Management and By-Product Materials.*





## Dealership Sustainability

**Our global network of dealers plays a pivotal role in our sustainability success. They provide comprehensive knowledge and service capabilities for our products and have deep understanding of our customers' needs and opportunities. They work daily to improve efficiency and performance, ensuring life cycle benefits are maximized while resource use and costs are minimized.**

Caterpillar's global dealer network has taken a significant step forward in materials management with the introduction of the Cat® Battery Recycling Program throughout North America. The benefits of recycling lead acid batteries are obvious. The process harvests lead, acid and plastic for reuse. It minimizes our consumption of raw materials, reduces harmful waste, creates recycling jobs and protects natural resources.

Our program, together with our dealers and East Penn Manufacturing Co., is easy to administer and guarantees the proper recycling and reuse of spent lead acid batteries – safely, efficiently and properly – including the reprocessing of sulfur fumes during the smelting process for use in fertilizer production. The program accepts any type of lead acid battery – regardless of size or brand.

To engage our North American dealers in the new program, Caterpillar launched a recognition campaign and created a dedicated customer website, including a video featuring Mike Rowe of Discovery Channel's Dirty Jobs. Our dealers have embraced this program because it is a sustainable business that allows them to provide a valuable service to their customers. Their commitment and hard work resulted in recycling batteries at double the 2012

rate, with 2013 totals of 312,000 pounds of recycled lead, 35,000 pounds of recycled plastic and 17,000 gallons of recycled acid.

The program's success is being recognized throughout our value chain, and similar programs are now being explored in Australia, China, Columbia and other countries.

### ***Recycling Millions of Tons of Scrap***

The Cat® Battery Recycling Program is a great example of a sustainable solution achieved by collaborating with one of our suppliers; in addition, Caterpillar helps suppliers and customers with their own sustainability goals. Through the work of Cat® dealer Quinn Company, SA Recycling LLC (SA Recycling) is one such example.

SA Recycling operates more than 50 recycling facilities in Southern California, Nevada and Arizona, exporting 2.5 million tons of ferrous and non-ferrous materials to markets in Asia each year. SA Recycling has established itself as a sustainability leader by offering clients all types of recycling and scrap metal services and embracing sustainability throughout their operations.

The solar panel installation at their Anaheim location – one of the largest solar installations in the city – provides the facility with a half-megawatt of energy, enough to power 120 homes. SA Recycling also is one of the industry leaders in stormwater management. Their on-site process involves reducing stormwater exposure where possible, and the filtration and testing of stormwater runoff in order to confirm it is managed properly



and acceptable to discharge into a catch basin. Finally, at SA Recycling's Terminal Island location they installed a regenerative thermal oxidizer (RTO), which significantly reduces volatile organic compound (VOC) emissions from the facility's material shredders. That RTO, to the company's knowledge, is the only one of its kind being used on a material shredder – or it will be until SA Recycling installs a similar unit at its Anaheim facility.

SA Recycling has embraced sustainability, and they also turn to Quinn Company, their longtime Cat® dealer, for ways that they can make even more of an impact. Since 2007 when the recycler purchased 42 Cat® products, Quinn Company has been supporting SA Recycling growing their operations as well as reducing their environmental footprint.

With the recent addition of two 988K Wheel Loaders and four Material Handlers, including new 322D and 330D machines, Cat® products now comprise more than 95 percent of SA Recycling's 400-plus equipment fleet. What's more, Quinn Company has regularly collaborated with SA Recycling to help them select new equipment or rebuild existing equipment in ways that support the company's sustainability focus. The new D-Series Material Handlers have high fuel efficiency, reduced engine emissions that meet EPA Tier 3 standards and the option of using biodegradable hydraulic oil – innovative Caterpillar technology that allows the use of oil that is fully decomposed by microorganisms. Even when SA Recycling needed help at several locations meeting new California Air Resources Board (CARB) emission standards, Quinn Company stepped in to provide compliance support and equipment upgrades where needed to help the company meet the CARB requirements.

But if you ask George Adams, CEO of SA Recycling, about his company's relationship with Caterpillar and Quinn Company, he'll tell you it simply comes down to quality, reliability and service. "The difference is that we rebuild our Cat® equipment and keep on using it," said Adams.

### A Sustainability Role Model for Dealers

When Caterpillar wanted to conduct a Facility Planning training/workshop at a Cat® dealer facility in 2013, we decided to add a day dedicated solely to sustainable facility planning and construction. That decision made it only natural that we would select Cat dealer Cashman Equipment to host the event. In 2009, when Cashman's new corporate headquarters opened, it was the largest LEED-certified industrial campus in the entire state of Nevada.

LEED stands for the U.S. Green Building Council's Leadership in Energy and Environmental Design, and requires that certified buildings meet a stringent set of construction, sourcing and environmental standards. In achieving a LEED Gold certification, Cashman set the standard for sustainability in Cat® dealerships.

At the workshop, representatives from eight dealerships spent the day learning about planning processes and sustainable dealer practices. MaryKaye Cashman, chairman of the board and CEO of Cashman Equipment, welcomed the attendees and shared her commitment and passion for sustainability. Presentations and discussions were led by Dr. Tim Lindsey, Caterpillar global director of sustainable development; Curt Carlson, vice president of design, SH Architecture, Las Vegas, Nev.; Jerry Zupancic, corporate facilities manager, Cashman Equipment; and Mike Rabe, Caterpillar market professional for dealer and customer facility planning.

Though Cat dealerships have no obligation to pursue LEED guidelines, we encourage them to explore this process and support their efforts to balance business and environmental concerns.



## Customer Operations

**At Caterpillar, a sustainable product life cycle includes one that provides efficient and safe equipment operation for our customers – and one in which technology is increasingly the common enabler of improved sustainability performance.**

### ***Delivering Improvement through Fuel Efficiency***

Our new 336E H is a hydraulic hybrid excavator system that captures then reuses energy that would otherwise have been wasted – lowering operating costs without sacrificing power or productivity. The 336E H takes fuel efficiency to an even higher level through three technologies that 1) conserve fuel using engine power management, 2) optimize performance using restriction management via the patented Cat® Adaptive Control System (ACS) valve and 3) reuse captured energy via the hydraulic hybrid swing system. S.T. Wooten Corporation, working in North Carolina, is benefiting from cost reductions that are a result of fuel savings as their hybrid purchase helps to widen the roads in preparation for the 2014 U.S. Open Championships. Operators are impressed with the machine's cycle-time speed, power and how quietly the machine works in their truck loading application. They are also realizing an approximate 27 percent reduction in fuel consumption versus what a standard 336E might experience in a similar application. Strack, Inc. – another contracting firm – has reported a fuel consumption savings of up to 40 percent in their underground utility application. Caterpillar's hydraulic hybrid excavator system technology is proving the value to diverse customers in diverse sets of applications.

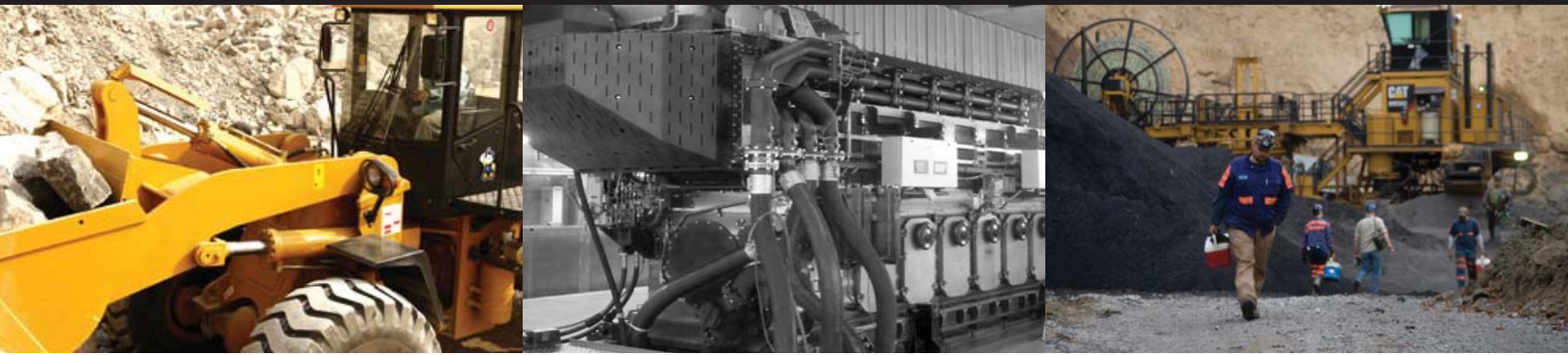
Our investments in technology that meets U.S. EPA Tier 4 emissions standards have been among the most significant in Caterpillar history. This technology will soon make its initial impact on passenger rail, thanks to an agreement between Electro-Motive, our Progress Rail subsidiary; and Metrolink, the Southern California Rail Authority, for up to 20 low-emission F125 Series passenger locomotives. The purchase makes Metrolink the first passenger railroad in the U.S. to purchase new transit locomotives that comply with Tier 4 standards. Delivery is slated to begin in 2015.

The EMD F125 is a 4,700 horsepower locomotive that can travel at speeds of up to 125 mph using a turbocharged, 20-cylinder Cat C175-20 Diesel Engine. By meeting Tier 4 standards, the EMD F125 reduces emissions over Tier 0 locomotives by up to 85 percent.

### ***Delivering Improvement through Fuel Diversity***

Delivering customer value through greater operational flexibility and lower fuel costs is at the heart of our Caterpillar natural gas strategy. Dynamic Gas Blending™ technology, for example, has led to the first-ever dual-fuel engine – utilizing both diesel and natural gas – for select Cat® 3500 Series engines. In production since July 2013 on land drilling, production and well-service applications, the DGB™ system allows an engine to run on diesel and natural gas simultaneously, with gas substitution rates of up to 70 percent. In North America the DGB™ dual-fuel technology





is available as a retrofit kit. Exported engines are available with DGB™ dual-fuel capability from the factory, along with retrofit kit offerings. The customer benefits are clear: DGB™ can lower fuel costs by more than 50 percent compared to traditional diesel operation, while providing equivalent performance, as well as the flexibility to run on a wide variety of fuels – from associated gas to liquefied natural gas (LNG).

In June 2013, we shipped our first MaK dual-fuel engine, the M 46 DF, from our Rostock, Germany, facility. Building on its marine engine legacy, Caterpillar Motoren designed the M 46 DF to operate with up to 99 percent gas substitution, as well as 100 percent marine diesel oil (MDO) or heavy fuel oil (HFO), without sacrificing engine operational reliability, efficiency or serviceability, and still meeting IMO II emission standards. The M 46 DF shares the same footprint as its predecessor M 43 C, providing the opportunity to retrofit M 43C engines without significant changes to engine room or the exhaust gas system.

The SEM branded 650B Wheel Loader from Caterpillar (Qingzhou) Ltd. operates on LNG, providing attractive value and alternate fuel options for our customers in this market. LNG is not only less costly than many other forms of fuel, but has a much higher storage density than compressed natural gas – making it more suitable as an alternative to diesel fuel without sacrificing durability or productivity. Following pilot tests, the SEM branded 650B LNG-powered Wheel Loader entered production during the second half of 2013.

### ***Delivering Improvement through Better Environmental Performance***

The Cemex Lyons limestone quarry, featured in our 2012 Sustainability Report, continues to reap the benefits of a site-specific fleet and management services support system, developed in collaboration with the Caterpillar Job Site Solutions (JSS) team

and Cat® dealer Wagner Equipment Co. The solution was designed to help the quarry meet challenging environmental regulations while increasing the fleet's efficiency and productivity. To date, Cemex has seen significant increases in safety and reductions in the site's environmental impact.

The site is using nearly 8 percent less equipment while operating at a significantly higher level of productivity. In addition to meeting Tier 4 emissions standards, site equipment has improved fuel efficiency by more than 20 percent. The solution also has helped the quarry reduce its dust emissions considerably. Finally, less traffic, more reliable equipment, ergonomic and safety features and better operator training have contributed to overall safety improvements.

For its contribution to projects like the one at Cemex, the JSS team was awarded our 2012 Chairman's Sustainability Award in the Product/Service/Solution category. The award recognizes excellence in three aspects of sustainability performance: economic, environmental and social. The JSS team was cited for taking a collaborative approach, working directly with customers and dealers to provide solutions that deliver significant improvements in fuel consumption, safety, productivity and emissions benefits.

### ***Delivering Improvement through Safety Enhancement***

Keeping people safe on the job site where our machines are used is a key priority for customers in every industry, and that often depends upon an alert, focused equipment operator. This is why we often prioritize the mitigation of operator fatigue by incorporating features like ergonomic seating and controls, and reduced vibration and sound. Now, technology is providing us with another tool.



In 2013, we signed a multiphase strategic agreement with award-winning Australian technology company Seeing Machines, which specializes in vision-based operator interfaces for vehicles. The two companies will work together to integrate the Driver Safety System (DSS) with the existing Cat® MineStar™ technology suite.

Using a powerful dashboard-mounted camera to track a driver's head and eyes for signs of distraction or drowsiness, DSS detects distraction, drowsiness or microsleeps and alerts the driver both with sound and seat vibration. It also tracks data on distraction and fatigue, allowing sites to build a comprehensive view of their operating team and make adjustments that can help make the entire operation safer.

"Going forward, we see even closer integration between what in-cab fatigue monitoring can deliver in both intervention alerts and analytics to improve safety and performance," said David Edwards, safety solutions manager in the Caterpillar Global Mining organization.

### ***Delivering Improvement through Autonomous Technology***

Fortescue Metals Group is experiencing the sustainability benefits of autonomy and technology at its Solomon iron ore operations in the Pilbara region of Western Australia. For the last several years, Fortescue, Caterpillar and Cat® dealer WesTrac have worked together to fully implement all the productivity-and safety-enhancing capability sets of our Cat® MineStar™, including the Command for hauling autonomous solution.

Twelve Command for hauling Cat 793F CMD Trucks began operation in 2013, with plans for up to 45 autonomous trucks over the next few years. In addition, the remaining Cat® MineStar™ capability sets are being utilized across the equipment fleet, including support equipment and light vehicles. The Solomon mine is the first project of its kind for Caterpillar, using Cat® MineStar™ for both autonomous and manned machines.



Autonomous technologies enable equipment to work without human operators – a major advancement in keeping people out of danger zones and, in some cases, out of the job site environment altogether. When complementing manned operations, autonomous systems reduce the interaction between heavy equipment and people through collision avoidance technology. These precision technologies also can deliver more efficiency, resulting in less fuel, emissions and materials over the life of the machine.

The implementation of the system at Solomon was consistent with Fortescue's drive for greater productivity, lower costs and a safe operating environment. It also helps contribute to the company's goal of providing new opportunities to local people with a variety of skill sets.



### ***Delivering Improvement through Efficient Operation***

A powerful new web-based application that is an enabler to dealer Condition Monitoring services is helping our customers operate more efficiently and meet their production goals – and their sustainability goals as well.

Cat® Equipment Care Advisor (Cat ECA) combines Caterpillar and dealer expertise with field-tested best practices and fleet performance data from around the world. This enables dealers to make detailed, proven recommendations on how to find and fix equipment problems before they become costly failures.

Cat ECA is a game-changer in terms of efficiency and effectiveness. It helps customers keep machines running, avoid repairs and failures, boost productivity and lower their costs.

This proactive approach to maintenance helps reduce waste because fluids, filters and components are changed only when necessary. And well-maintained equipment runs more efficiently, burns less fuel and lasts longer, so we're helping to preserve the raw materials required to manufacture new machines.

### ***Delivering Improvement through Machine Monitoring***

In mining, Cat® MineStar™ is a recognized leader, offering integrated technologies and services designed to meet the unique needs of mining customers. It helps customers deliver on the lowest cost per ton and provides value in the key areas of equipment management, productivity, safety and sustainability. Recently, Caterpillar introduced a new framework of technologies and services – called Cat® Connect – to help customers in other industries monitor, manage and enhance their operations, which will, in turn, improve their bottom line.

“Using connected data from technology-equipped machines, customers now have the ability to get a true view of what’s going on at their job site,” said Caterpillar Technology & Solutions Manager John Carpenter. “They can monitor everything from the productivity of their machines to fuel consumption and maintenance needs to the overall availability of their fleet regardless of brand or type.”

According to Carpenter, Cat Connect gives customers the flexibility to find the right combination of technologies and services to meet job site requirements. “With Cat Connect, customers have the ability to choose just one solution or multiple solutions to help monitor, manage and enhance operations – regardless of the size and complexity of their operation and regardless of whether it’s a piece of Cat® equipment or one of our competitors.”

Cat Connect offers improvement in four areas – equipment management, productivity, safety and sustainability.

**Equipment Management** helps customers increase uptime and reduce operating costs by monitoring fuel burn, location and utilization of machines, as well as health and maintenance issues like hours and fluid contamination.

**Productivity** monitors production and manages job site efficiency by using technology to measure payloads and cycle times to optimize production and reduce loading and hauling costs. It also utilizes grade and compaction control technologies so operations get done faster with more accuracy and less rework.

**Safety** increases job site awareness to keep people and equipment safe. This includes on-board camera systems and object/proximity-detection systems that significantly increase the operator’s range of vision, contributing to a safer job site.

**Sustainability** means monitoring fuel-burn and carefully managing resource consumption, customers can reduce operating costs and improve job site efficiency while protecting the environment in which they operate.

Currently, Cat Connect leverages connectivity to more than 250,000 Cat® machines globally.



## Customer Application

**There is no better way to appreciate the ability of our products to make sustainable progress possible than when they are at work for our customers. From helping to generate alternative forms of energy to moving earth and other materials in a responsible manner, our customers apply Caterpillar's products and services in a myriad ways to provide solutions that help raise standards of living, conserve natural resources and protect the environment. Here are a few examples from 2013.**

### ***Generating Energy Efficiently***

Markham District Energy Inc. (MDE) is committed to deploying a combined heat and power (CHP) strategy that is widely recognized as a highly efficient and socially responsible way to meet local energy needs. With the help of two new Cat® gas generator sets, the energy company is delivering an additional 7 megawatts of electricity and 7 megawatts of thermal energy to meet the needs of this Ontario community. The project has been the first in North America to employ the Cat CG260 Series of high-efficiency gas generator sets.

### ***Turning Agricultural Waste into Biogas***

Cattle manure and corncobs are the "power" behind an anaerobic digester renewable energy project by AgriReNew in Stockton, Iowa. The project, funded by Cat Financial, uses the manure from a 2,400-head feeding operation to produce biogas. The biogas is combusted in a Cat® 3516A+ Engine to produce up to 1.0 megawatts of electricity. Hot water is also recovered from the engine to support facility operations.





***Powering Homes with Landfill Gas***

Cat® equipment plays a key role in Waste Management, Inc. using landfill gas as a fuel source to power about 257,000 homes each year. Waste Management has designed, built and now operates 72 distributed power generation plants that use this renewable form of energy. In each case, these plants rely on Cat® products to produce energy – currently totaling 281 Cat® generators and 27 Solar™ Turbines gas turbines.

***Assessing the Potential of Biodiesel Fuel***

Sometimes, Caterpillar expertise is as invaluable as our equipment. Glencore – a leading producer and marketer of commodities – specifically sought out our engine and fuels expertise when their Coal division set out to assess the potential of using biodiesel fuel for their mobile Cat® equipment fleet in New South Wales and Queensland, Australia. Caterpillar employees worked with Glencore Coal on a feasibility analysis that tapped our expertise in engine performance using alternate fuels, as well as fuel characteristics, handling, storage and contamination control. This collaboration has led to a successful implementation in which some traditional diesel fuel has been displaced with renewable biodiesel fuel. So far, no measurable downtime for Glencore’s equipment can be attributed to the use of biodiesel.





## Remanufacturing

**At Caterpillar, at the end of a component or product's useful life, that component or product is still valuable. Instead of disposing of worn components and machines, Caterpillar has developed remanufacturing and rebuild businesses focused on restoring them to like-new condition to achieve another productive life cycle with minimal need for additional resources.**

Remanufacturing returns an end-of-life product to like-new condition or better and serves a dual purpose – keeping our customer's equipment in the value chain by extending operational life, while helping us reduce waste and the consumption of raw materials necessary to manufacture new equipment and parts. As in most every part of our business today, technology is serving as a means to enhance our performance, and Cat Reman, Solar Turbines remanufacturing and Progress Rail Services remanufacturing businesses are no exception.

Our Solar Turbines Remanufacturing Center in Zatec, Czech Republic, was designed from the beginning to set a benchmark for sustainable manufacturing. In fact, in February 2013, it became the second manufacturing facility in the Czech Republic to receive Leadership in Energy and Environmental Design (LEED) green building certification. But where the Zatec Remanufacturing Center has made real strides is in using cutting-edge technology to process materials. For example, the Zatec Remanufacturing Center uses a specially designed, state-of-the-art cleaning and paint stripping system to minimize airborne pollutants and chemical exposure, creating a safer work environment for our employees.



In addition, a new type of machining process allows the Zatec Remanufacturing Center to reduce cycle times by 30 percent, yet improve component quality. Other process improvements include a twin-chamber coating furnace that improves operator safety and cycle time, plus grinding operations that have been brought in-house to utilize equipment that includes a safer, automated deburring process.

Technology is also yielding process improvements at Cat Reman in Mississippi. Here, we have greatly improved the cleaning process of components by adopting technology that



allows parts to be cleaned with laser light rather than chemicals. Conventional cleaning involves chemical solvents that create a variety of environmental hazards and wastes and is subject to strict regulation. The new laser cleaning technology is not only cost effective but increases cleaning quality, cuts the cycle time on products by as much as 50 percent, and allows Cat Reman Salvage Development to clean certain parts without a full disassembly of the product. In addition, an air filtration system installed to extract the dust and fumes generated by laser cleaning improves working conditions for employees.

Laser cleaning even allows Cat Reman Salvage Development to resurrect parts from scrap. Certain cylinder heads used in oil field applications are made with a chemical-resistant paint that can't be cleaned using a traditional process. But effective laser cleaning allows Caterpillar to put these components back into the value chain and extend their product life cycles.

**Cat® Certified Rebuild Upgrade for 785, 785B, 789, 789B Off-Highway Trucks**

Caterpillar has expanded the Cat® Certified Rebuild portfolio to include Cat Certified Rebuild Upgrade (CCRU) for 785, 785B, 789 and 789B Large Off-Highway Trucks.

Cat Certified Rebuild is a program to extend the life of existing equipment, taking older machines and rebuilding them into like-new condition with a like-new warranty. With Caterpillar's newly developed CCRU, we've taken that process to the next level by creating a program that upgrades the entire machine to a next-generation model. This creates the same like-new condition as the Cat Certified Rebuild, as well as incorporating the technological advancements and productivity gains of the later C-Series model of these trucks.

The CCRU uses the same Genuine Cat® parts that were used during C-Series production, ensuring Genuine Cat quality and reliability. In addition, Caterpillar's Vital Information Management System (VIMS) technology increases the efficiency of the truck, ensuring customers get the most out of every load and saving them both time and money. This program provides the customer an excellent option to maximize the useful life of the machine, improve operational performance and reduce emissions all at the same time.

Stan Bruner, Caterpillar Emissions Solutions says, "Incorporating modern technology into our popular Cat Certified Rebuild program is a great way to modernize the customer's asset, providing the operational, technological and emissions advancements of the next generation."