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# 2015 Sustainability Goals

## 1Q 2014 Update

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### **Dow Names Breakthrough to Global Water Challenge**

### **Sochi 2014's Direct Carbon Footprint Mitigated before Opening Ceremony**

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Innovations for Tomorrow  
Partners for Change  
Smart Solutions for Today  
Responsible Operations  
Goal Updates



# 2015 Sustainability Goals

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# Dow Names Breakthrough to Global Water Challenge

Water covers two-thirds of the earth's surface, yet fresh water is a scarce and limited resource. With just one planet and a growing population, Dow is committed to minimizing our own footprint and to delivering solutions that help customers and society do the same. As part of the Company's 2015 Sustainability Goals, Dow has set targets to introduce three "breakthroughs to world challenges."

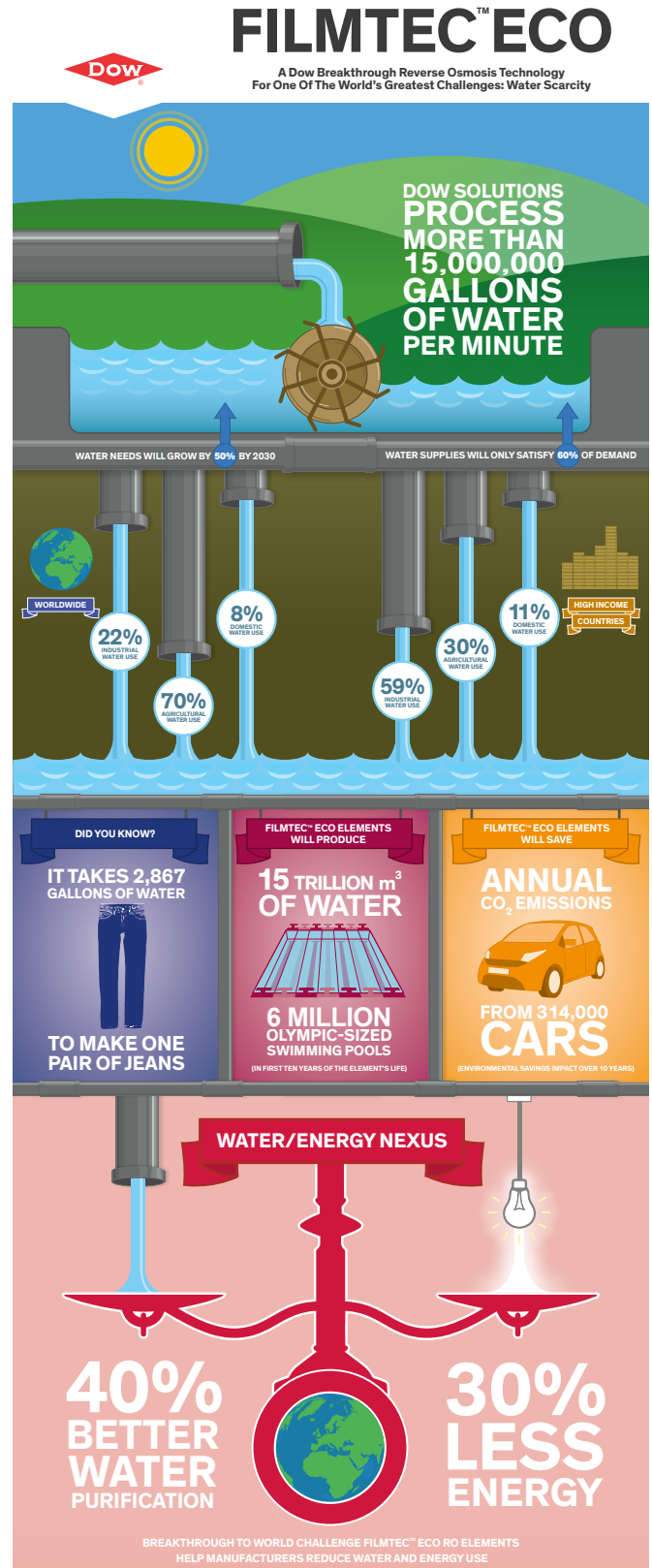
Global water demand is expected to grow exponentially by 2030, greatly outpacing supply. While consumers might experience limitations to household water consumption as a result of drought conditions, they may have less visibility to significant opportunities for water efficiency in the production of the goods and services they use every day. For example, it takes 2,867 gallons of water to make just one pair of jeans, or 39,090 gallons of water to manufacture a new car.

With large-scale, positive sustainability impact, the Company named DOW FILMTEC™ ECO Reverse Osmosis (RO) Elements as its second breakthrough technology. Fighting global water scarcity by helping to deliver 40 percent better purification with 30 percent less energy, this innovative solution has the potential to impact millions of lives by revolutionizing water treatment.

"As this new Dow technology is fully adopted, we anticipate it will deliver trillions of metric tons of clean water, billions of kilowatt-hours (kWh) of energy savings, and reduce carbon dioxide (CO<sub>2</sub>) emissions by more than a million metric tons in its first 10 years of use alone," said Neil Hawkins, corporate vice president of Sustainability at Dow. "This innovation will help deliver a more sustainable water supply to the world, addressing global water scarcity in a very tangible way."

Dow is uniquely positioned to help solve this global challenge, as its solutions are already processing more than 15 million gallons of water per minute around the world. With this market understanding, Dow scientists developed a breakthrough polymer chemistry that surpasses the last three decades of incremental change in RO technology and represents some of the most advanced water purification science available today. [Read more.](#)

**DOW FILMTEC™ ECO RO  
Technology Revolutionizes Water  
Purification, Advancing Company's  
2015 Sustainability Goals**



# Sochi 2014's Direct Carbon Footprint Mitigated before Opening Ceremony



OFFICIAL CARBON PARTNER

The Sochi 2014 Olympic Winter Games is the first Games in history to mitigate the entire direct carbon footprint of its Organizing Committee prior to the Opening Ceremony. Sochi 2014 announced on February 4th that over 520,000 metric tons (MT) of CO<sub>2</sub> equivalents had already been mitigated before the start of the Olympic Winter Games through the "Sustainable Future" program, implemented in Russia by Dow, Worldwide Olympic Partner and Official Carbon Partner of Sochi 2014.

Since March 2013, Dow has been working with its customers in Russia to implement energy efficient and low-carbon technologies in the areas of infrastructure, industry and agriculture within different regions of the country. The greenhouse gas (GHG) emissions reductions delivered to date by the groundbreaking "Sustainable Future" program have been verified to have far exceeded the estimated direct carbon footprint of 360,000 MT of CO<sub>2</sub> equivalents of the Sochi 2014 Organizing Committee. This includes emissions associated with the travel and accommodation of athletes, staff, and volunteers, the operation of the sports venues during Games time, and the Organizing Committee's activities from 2007 through the Paralympic Games' Closing Ceremony.

Sochi 2014 is also the first Olympic and Paralympic Games with a neutral carbon footprint associated with the travel of spectators and media attending the event. This footprint was estimated to be 160,000 MT of CO<sub>2</sub> equivalents. Dow worked with international experts *Offsetters* to offset the travel footprint by retiring carbon credits from a portfolio of high-quality projects from Russia, Brazil and South Korea – Host Territories of the next three Olympic Games – and a project implemented by Dow at one of its manufacturing facilities in the United States. [Read more.](#)

Dow products and innovation also played key roles to improve sustainability and performance in competition venues, infrastructure and re-engineered team equipment including:

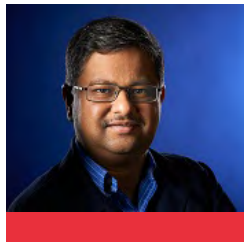
- The Bolshoy Ice Dome which relied upon on DOWCAL™ Heat Transfer Fluids, WALOCEL™ Products, industrial coatings, ENDURANCE™ Semiconductive and Insulation Materials and SPECFLEX™ Polyurethane Systems.
- The Sanki Sliding Center which relied upon POLYOX™ Water-Soluble Resins, PRIMAL™ Acrylic Resin, epoxy resins, and ENDURANCE Semiconductive and Insulation Materials.
- Dow solutions enabled infrastructure improvements in Sochi and around the region, with products and technologies used in the Coastal and Mountain Clusters, city hotels, power plants and railways.
- Dow applied its products and world-class engineering capabilities to improve equipment and develop a new, higher-performing and faster sled for the USA Luge Team.



# Innovations for Tomorrow

We contribute to the sustainability of society and our planet by developing innovative technologies for current and future markets.

## Scientist Behind Second Breakthrough to World Challenges Receives Dow's Highest Sustainability Award



Dr. Abhishek Roy, the Dow Research Scientist credited as the primary inventor of DOW FILMTEC™ ECO Reverse Osmosis Elements, has been named a recipient of Dow's prestigious Sustainability Innovator Award. With large-scale, positive sustainability impact, this technology was recently announced as Dow's second

Breakthrough to World Challenges. The solution fights water scarcity by delivering 40 percent better purification with 30 percent less energy and has the potential to impact millions of lives. FILMTEC ECO Elements require less energy to pump water through the membrane and less chemicals for cleaning, which results in significant operational savings for customers, ranging from 16 to 19 percent. Established in 2008, the Sustainability Innovator Award recognizes exceptional creativity and solutions by Dow employees that support the Company's 2015 Sustainability Goals and address world challenges.

## Top 10 Most Innovative Companies in Energy

Recognizing the company's leadership in energy and its focus on creating innovative products for consumers, Dow was recently named to *Fast Company's* annual Top 10 Most Innovative Companies in Energy for 2014, highlighting DOW POWERHOUSE™ Solar Shingles. They are a first-of-a-kind product, designed to combine the benefits of solar technology with the durability and performance of traditional roofing materials, and are currently available in 17 states across the United States. Dow shares the list with other innovative leaders including GE, Philips and Tesla Motors. The Most Innovative Companies list is *Fast Company's* most significant, high-profile editorial effort of the year. [Read more.](#)

## Texas Innovation Center will Enhance R&D Capabilities

As part of its ongoing commitment to innovation, Dow recently announced that a new research and development (R&D) facility will be built in Lake Jackson, Texas, near its largest manufacturing site in Freeport, Texas. The Texas Innovation Center will house state-of-the-art laboratory facilities and technical expertise centers to enable ongoing innovation that supports the commercialization of solutions across the various high-growth end-use markets, such as food packaging, personal care and automotive. The campus will include at least five buildings, including three four-story properties and a stand-alone amenities center with a cafeteria and fitness center. Upon completion in 2016, the Center will be house more than 2,000 people from Dow R&D, businesses, functions and manufacturing. [View on Youtube.](#) [Read more.](#)

## 2013 Annual Progress Report from Dow and The Nature Conservancy

In 2011, Dow joined forces with The Nature Conservancy (TNC), the leading conservation organization working around the world, to quantify the value of nature in business. Together, Dow and TNC set an ambitious goal: to develop and apply methods to evaluate the benefits nature provides and create a strategic way for companies to assess, incorporate and invest in nature and these benefits. Now, at the halfway point in the six-year Collaboration, the organizations have made significant progress, and are proud to launch the 2013 Dow/TNC Annual Progress Report. The Collaboration seeks to demonstrate the value of nature to business in two key ways: pursuing three pilot projects at Dow sites around the world; and building easy-to-use valuation tools that can be leveraged by a variety of organizations. [Download the 2013 Dow/TNC Annual Progress Report](#) to learn more about the highlights from Dow pilot projects in Texas and Brazil and the development of Biodiversity and Ecosystem Services Evaluation Tools. [Read more.](#)

## LinkedIn Influencer Liveris on Fueling the Innovation Ecosystem

From Silicon Valley to Research Triangle Park in the U.S., from Shanghai to Singapore, the brightest minds in business, science, and engineering come together to set in motion a virtuous cycle of production and innovation. In a recent LinkedIn Influencer post, "Fueling the Innovation Ecosystem," Andrew Liveris, chairman and CEO of Dow, explains the strategy needed to jumpstart and sustain this creative process and the economic growth that it brings. No more shuttered factories. The virtuous cycle starts when producers – advanced manufacturers – open up shop near world-class universities. Then suppliers and research and development centers move in nearby, as do other businesses. Before long, you have an entire innovation ecosystem – and it is self-sustaining. Creating the conditions for these ecosystems to arise requires collaboration – "Golden Triangle" partnerships, between business, government, and civil society. [Read more](#) or [Follow on LinkedIn.](#)



### Sustainable Concentrated Solar Power Projects in Africa

DOWTHERM™ A Heat Transfer Fluid from Dow has been selected for two major Concentrated Solar Power (CSP) projects currently under construction in Morocco and South Africa. The consortium of Acciona, SENER and TSK was awarded the Engineering Procurement and Construction contract by Saudi-based ACWA Power to build the Noor 1 160MW CSP plants in Morocco and Bokpoort 50MW CSP plant in South Africa. Concentrated solar power plants use parabolic mirrors to reflect and magnify heat from the sun onto a closed circulating loop containing DOWTHERM A Heat Transfer Fluid. The fluid collects the heat energy and transports it to a power station where it is used to produce steam, which drives turbines to generate electricity. The technology helps diversify energy supply, is capable of producing power during periods of peak demand, and reduces dependence on fossil fuels. Unlike photovoltaic solar power and wind energy technologies, CSP plants can operate in conjunction with cost-effective thermal storage technology to deliver energy on-demand, making CSP a highly flexible source of renewable energy. Today, more than 35 CSP plants filled with DOWTHERM A



Heat Transfer Fluid provide enough electrical generation capacity to meet the needs of over one million homes at a savings of close to 4 million metric tons of carbon dioxide emissions per year.

[Read more.](#)

### Dow India's Voice of Innovation Resonates in Public Forums

Dow India leaders recently participated in five key external engagements focused on innovation across multiple industries. Chandrakant Nayak held a workshop on “Fashion Ingredients Innovation.” Prem Sadhwani highlighted SILVADUR™ Antimicrobial in a session at the 4th Edition of InFashion. Ruby Thapar presented the Dow India Growth Book to the Infrastructure Executive Committee of United States India Business Council. Cyrus Jalnawala spoke at the Economic Times Manufacturing Summit. And Amit Gulati spoke at the annual signature program of the Indian Institute of Materials Management. Combined, these efforts represent the latest efforts to increase innovative and sustainable commercial solutions across India.

### Nanotechnology Center of Composites Investment

DowAksa Advanced Composites Holdings B.V. and the Nanotechnology Center of Composites, recently signed an investment agreement for 134 Million Rubles (\$4.3 Million USD). The Center stimulates the growth of nanotechnology in Russia by providing R&D, engineering, scale-up and pilot manufacturing support to Russian companies by state-sponsoring research and development projects, investing into startups in seed and venture phases, or renting space and equipment. It provides an innovation and engineering platform for start-up companies in the production of polymer composite materials for industrial sectors, such as construction, energy and automotive, which are stimulating strong global demand for high-strength, light-weight product solutions. The Center will develop revolutionary scientific applications of composite materials which will help to increase the efficiency, productivity and value-added performance benefits, including reduced emissions to help protect the environment. [Read more.](#)



### 2013's Most Influential R&D Centers in China

The Shanghai Dow Research and Development (R&D) Center was recently honored as one of the “2013 Most Influential R&D Centers in China” by the Chinese edition of *Scientific American*, a leading science magazine and the oldest continuously published magazine in the U.S. A panel, comprised of members of the magazine’s global advisory board, leading research fellows, professionals from industry associations and research institutions, and media and business leaders, selected Dow after reviewing innovation cases and supporting materials submitted by hundreds of leading companies. The criteria included R&D spending, new technology commercialization, talent development, innovation management model, industry contributions, and collaborative innovation with external partners. With over 500 engineers and scientists working in more than 80 labs, the Shanghai Dow R&D Center integrates corporate R&D expertise with its market-focused product and application development capabilities. The center is helping to set new standards in key industries in China reached an important milestone of more than 100 U.S. patent applications in 2012.

# Partners for Change

We are leaders in advancing all aspects of sustainability, openly collaborating with customers, suppliers, communities, civil society and governments.

## Sustainable Farming Program in Russia Supports Environment and Economic Health

As part of the groundbreaking “Sustainable Future” program to mitigate the carbon footprint of the Sochi 2014 Organizing Committee, Dow recently launched a new sustainable agriculture program in Russia to reduce greenhouse gas (GHG) emissions by implementing more sustainable farming practices and healthier seed crops, which will also promote better food choices for consumers in Russia. Traditional farming practices include the use of heavy machinery for deep tilling of fields each year which consume fuel, cause long-term soil erosion and lead to substantial GHG emissions. Dow Seeds, a unit of Dow AgroSciences, is deploying leading technology in Russia and engaging with local farmers to encourage low-till agriculture and other sustainable farming solutions to reduce the negative impact on the environment, while also enabling the production of healthier crops. Dow is partnering with five large farms to provide access to state-of-the-art precision agriculture and advanced expertise to optimize farm productivity of Dow AgroSciences Nexera™ hybrid canola seeds while focusing on more sustainable practices, such as reduced tillage, optimized use of nutrients and variable rate application of fertilizer. The partnership is set to last for two years, and has the potential to eliminate up to 100,000 metric tons of GHG emissions at these five farms over a 10-year span. [Read more.](#)

## 49 Employees Run 780 km for Jaipur Foot at Mumbai Marathon



Dow India employees recently participated in the 11th Standard Chartered Mumbai Marathon in support of Jaipur Foot. It is one of Dow India's marquee social projects that has improved the lives of over 20,000 people

with disabilities by distribution of prosthetic limbs, crutches and calipers. The Dow team participated in the Marathon in the "Corporate Challenge" category, which is designed to raise funds for a cause by sponsoring participating employees. Dow India employees have been active participants at the Mumbai Marathon for the last 6 years supporting the Jaipur foot initiative. For more information <http://www.jaipurfoot.org/>

## 2014 Global Commitment to Habitat for Humanity



For more than 30 years, Dow has been a strategic partner to Habitat for Humanity International. The company will continue its commitment to the organization in 2014 by engaging more than 1,500 employees who are expected to log 10,000 volunteer hours. Dow volunteers work on Habitat construction sites, serve as board members for Habitat affiliates worldwide and share their expertise in energy efficiency and conservation to assist Habitat in creating affordable, sustainable housing. Dow's 2014 commitment involves 41 Habitat builds in 15 countries, including first-time projects in Puerto Rico and Japan. Dow also announced expanded product donations of STYROFOAM™ Insulation and GREAT STUFF PRO™ Window and Door Sealants and the recent addition of FROTH-PAK™ Foam Insulation. Dow engages a holistic approach with Habitat, contributing not only funds and energy-saving insulation products, but significant volunteer support. Dow was Habitat's first national corporate partner, and since 1983, has been instrumental in the construction of almost 41,700 Habitat homes in the United States and 26 countries. [Read more.](#)

## A Caring Company in Hong Kong

Dow was recently named as a Caring Company by The Hong Kong Council of Social Service, in recognition of its outstanding contributions in the areas of community success, sustainability, and employee welfare. The Council is an umbrella organization of over 390 agency members that provide over 90 percent of the social welfare services in Hong Kong. Through the Caring Company approach, the organization aims to promote corporate citizenship in the local business community and educate the public on the benefits and impact of corporate social responsibility. Nominations for the award are initiated by local non-governmental organizations. The judging panel consists of representatives from the government, industry associations and business community. In 2013, Dow engaged employees in local charity programs to channel their passion for improving their communities. The programs included the Campus Beautification and Green Joyful Home programs in partnership with Habitat for Humanity.

### **Making a Difference in Portugal**

Dow and other area chemical companies supporting PACOPAR (Estarreja Community Advisory Panel), recently funded grants worth 45,000 Euros to twelve projects in Estarreja, Portugal. This assistance is part of PACOPAR's annual financial support donations program and will help implement projects in educational, social support and civil protection. The projects involve infrastructure improvement and equipment acquisition for social purposes such as homes for the elderly, daycare centers and nurseries, buying educational material and adaptation of a fire-fighting vehicle. The projects were chosen from 35 applications, submitted mostly by private welfare institutions and other bodies whose mission is to provide social support in the county. To date, the Estarreja Chemical Complex companies have supported 110 projects.

### **Campaign Encourages Michigan Residents to Cut Energy Waste**

According to the U.S. Energy Information Administration, Michigan households use 123 million Btu per home, about 38 percent more than the U.S. average. To help change that, Michigan Saves, a nonprofit dedicated to making energy improvements easy and affordable, launched "Avoid Energy Drama," a campaign that shows residents how to stay comfortable in their homes without wasting energy. The public service announcement campaign, developed with support from Consumers Energy, DTE Energy and Dow Building Solutions, educates Michigan residents about energy saving solutions and motivates them to take control of their energy use. The campaign drives residents to an interactive website, [www.avoidenergydrama.com](http://www.avoidenergydrama.com), which includes tips and energy saving solutions. [Read more.](#)

### **DEMOWARE and TOP-REF Projects in Spain**

Dow Chemical Ibérica recently began its participation in two key projects approved and financed by the European Union. The DEMOWARE Consortium (Innovation Demonstration for a Competitive and Innovative European Water Reuse Sector) initiative provides assistance and support to the proposed demonstration sites meant to showcase state-of-the-art urban, rural and industrial water reuse technologies. The project is intended to show that it is possible to use urban wastewater for a second application in industry, refrigeration or processing water. The consortium has 27 partners, including companies, technology centers and universities. The TOP-REF project is a consortium engendered due to Europe's SPIRE (Sustainable Process of Industries through Resources and Efficiency) initiative, meant to promote efficient use of resources (especially energy and non-renewable resources) in energy-intensive industries. The consortium has 10 partners, including companies, technology centers and universities. The aim of the project is to identify, apply and demonstrate new process control approaches and technologies that can enhance resource efficiency and energy consumption, leading to major energy savings and lower CO<sub>2</sub> emissions.

### **The Extraordinary Things a Simple Cleaning Can Do**

Is there anything more delightful than the look, feel and smell of a clean home? The joy comes from not only the aesthetics but also from the sanctuary a well-kept home can provide against life's daily challenges. Dow understands the power of clean and is proud to once again partner with Cleaning For A Reason, a non-profit organization that offers free housecleaning services to women undergoing cancer treatments. A clean environment is especially important to women battling cancer, for both the physical and emotional health benefits. Dow support occurred in conjunction with the American Cleaning Institute annual convention, where Dow showcased innovative technologies, including bio-based solvents for more sustainable hard surface cleaners. Since its inception in 2006, Cleaning For A Reason has helped more than 12,000 women, with more than \$3.2 million in donated cleanings. Dow is honored to know that our technologies can help make a tangible difference in the lives of these women today. [Read more.](#)



### **Teacher Professional Development Critical to Student Success in STEM**

More than 200 middle and secondary teachers, representing 21 states and the District of Columbia, will participate as Fellows in the 2013–2014 National Science Teachers Association (NSTA) New Science Teacher Academy. Dow is the primary sponsor of the program. As part of its commitment to improving the quality of STEM education, Dow is supporting 155 of the 200 participants as Dow-NSTA Fellows. The participants were chosen based on several criteria, including evidence of a solid science background and displaying a strong interest in growing as a professional science educator. Numerous Dow-NSTA Fellows represent communities where Dow has a manufacturing or business presence. The year-long program focuses on science educators in the early stages of their career. Since its inception in 2007, NSTA has provided exceptional professional development learning opportunities to nearly 1,000 science teachers nationwide. To learn more about NSTA, visit <http://www.nsta.org/academy/>.



# Smart Solutions for Today

Our technologies enable our customers, and their customers, to develop more sustainable products and services.

## Cutting-edge Composite Solutions from Drive Lightweight Affordability

Transportation, infrastructure and wind industries benefit from efficient fabrication of light, strong and durable composites enabled by novel and established Dow solutions. Dow's leadership in material science, and the unique combination of epoxy and polyurethane chemistry, together with the DowAksa joint venture for carbon fiber and derivatives, was recently showcased in Paris. Dow featured advanced, more sustainable solutions for automotive mass reduction for mass production with the launch of the new VORAFORCE™ 5300 Epoxy Resin Matrix System. VORAFORCE TW 1100 Series of Polyurethane Systems was also launched for filament winding for pressure vessels, pipes and rolls. Dow also presented further developments of the new AIRSTONE™ 87 System used in producing long and durable wind blades for more affordable wind energy. [Read more.](#)

## Expanding Energy Matrix in Bahia with Biomass-Based Cogeneration Plant



Dow joined forces with Energias Renováveis do Brasil to launch a pioneering project in the petrochemical industry: a cogeneration plant using energy based on eucalyptus biomass. With this new process, Dow's largest factory in the country – located in Aratu, State of Bahia – will diversify its energy matrix using renewable energy in an industrial-scale plant, thus increasing operational flexibility and decreasing cost

fluctuations. The Company's steam-and-energy cogeneration plant will address 25 percent of the energy consumed by Dow in Aratu, replacing 150,000 cubic meters of natural gas a day and reducing greenhouse gas emissions by 33 percent. In addition to the environmental benefits related to the use of biomass, the company selected a cogeneration structure because it poses no risk of interruption in the supply. The cogeneration model also provides high conversion efficiency and reduces energy loss during transmission, since the production unit is physically near the consumption unit, thus eliminating the use of extensive transmission lines.

## Ultraclean Water

Ultrahealthy Water, a membrane-based water treatment system that removes 99.9 percent of pathogens, is being implemented in Brazil for the first time. The first plants will be operating in Jardim São Lourenço and Indaiá, and will have respective capacities of 2,400,000 l/day and 8,640,000 l/day of clean water. DOW IntegraPac™ Skids are being used in these pioneering projects. They offer compact, modular solution for water treatment systems with a simplified design that is easy to install.

## CCTV 1's Hot Topic Program Showcases Coking Wastewater Reuse Solution in China

CCTV 1's Hot Topic Program, a primetime talk show with one of the highest ratings of all TV shows in China, recently showcased innovative coking wastewater reuse solutions from Dow. The technologies were demonstrated by Weijiao Group, a coal chemical producer. Combining cutting-edge chemical oxygen demand reduction technology, DOW™ Ultrafiltration Modules and DOW FILMTEC™ Reverse Osmosis Elements, the Company was able to solve the persistent problem of coking wastewater treatment and reuse. The successful application of Dow's multi-treatment water solutions has enabled recycling of 70 percent of the coking wastewater as the plant's circulation cooling water, advancing production processes to become a more sustainable solution with a low carbon footprint. [Watch the CCTV report.](#)



## First STYROFOAM™ Insulation with New Flame Retardant

Dow has successfully completed the conversion of its three STYROFOAM Insulation plants in Japan to the new Polymeric Flame Retardant technology. This more sustainable additive provides a fire safety solution for extruded and expanded polystyrene foams, enabling these thermal insulation materials to continue to meet the increasing demands of global energy efficiency regulations and sustainable building design. Dow Kakoh has started producing STYROFOAM Insulation containing the new Polymeric Flame Retardant. The new product has been extensively tested and has proven to maintain its flame retardant performance while having a more sustainable profile. Dow will convert all of its STYROFOAM Insulation plants in North America, Europe, Middle East, and Japan to the new technology. Dow has also made the technology available to the global extruded polystyrene and expanded polystyrene foam insulation industry through three manufacturing and marketing licensees. To date, international licensees have built commercial production capacity for the new polymeric flame retardant amounting to more than 14,000 MT at the end of 2013, which will be expanded to more than 25,000 MT by the end of 2014. [Read more.](#)

## AgroFresh and Van Amerongen Ally on Innovative Fruit Storage Technology

# AgroFresh

Food loss is a global challenge. In Europe and North America, 280 to 330 kilograms

of food is lost per capita per year alone. According to the UN Food and Agriculture Organization, nearly half of all fruit and vegetables are wasted. AgroFresh and Van Amerongen CA-Technology, an international leader in controlled atmosphere equipment, recently announced a new business alliance to market a new technology for Advanced Control Respiration that will combine new equipment and control systems with a comprehensive set of fruit quality management services for fruit storage rooms. The technology allows for broader and more comprehensive fruit quality control during storage than traditional technologies, allowing for fruits to be stored longer, under better conditions and reducing waste. AgroFresh provides a large range of science- and technology-driven solutions for better harvest and storage management, efficient disorder control throughout the supply chain, extended shelf life and the availability of safe produce for consumers. To learn more, visit [www.agrofresh.com](http://www.agrofresh.com). Read more.

## New ENFORCER™ Sport System for Artificial Turf

New ENFORCER Sport Polyurethane Backing System from Dow enables turf producers to increase yarn yield and consume less energy during production, while maintaining line speed and productivity. The low temperature catalyzed system enables energy savings and improved turf durability. Turf field owners benefit from the system with less thermal stress, resulting in an improvement of yarn durability. Tufters utilizing the new system can process polyurethane on existing equipment with minimal modifications and the innovative technology allows for easy implementation. Compared to conventional backings, polyurethanes offer several production and end-product advantages. The process is run solvent-free, so no water or solvents are used to evaporate, allowing for faster line speeds than other coating materials, and less make-up air is required to cure, leading to significant energy savings. Read more.



## Mobile Water Apps Go Global

Mobile application technology reached all the way from the U.S. to Kenya and Nicaragua when Dow Information Systems helped develop a sustainable solution for Aqua Clara International. The mobile application and new comprehensive database was created to track activities related to building, maintaining and monitoring the company's water purification technologies, while tracking water quality and health behavior outcomes in Kenya and Nicaragua.

## DOW POWERHOUSE™ Solar Shingles Now Available in Canada, Florida, New Jersey and North Carolina

Dow has appointed Canadian Energy as the exclusive authorized distributor of DOW POWERHOUSE Solar Shingles in Canada. Dow also recently announced the availability of the residential solar roofing system, to Florida, New Jersey, and North Carolina. Backed by a 20-year performance warranty, DOW POWERHOUSE Solar Shingles are a dual-functioning system offering superior aesthetics over rack-mounted solar panels and are certified as both a roofing and solar product. It is a complete turnkey package that includes a custom designed system for each home, the inverter to convert DC to useable AC electricity, the utility interconnection so that credit is obtained for the electricity generated and a web-based monitoring system that provides real-time system performance. The product delivers a roof that pays for itself, generating energy savings and increasing overall home value. For more information visit [www.DOWPOWERHOUSE.com](http://www.DOWPOWERHOUSE.com), Facebook, Twitter, Pinterest, and YouTube.



## FROTH-PAK™ Foam Insulation System Achieves Energy Star® Certification

Recently, the ICC Evaluation Service, a recognized Certification Body for the U.S. Environmental Protection Agency, announced that FROTH-PAK Polyurethane Spray Foam System has received EPA Seal and Insulate with ENERGY STAR® Certification. Certification addresses thermal resistance and surface-burning characteristics that establishes compliance with International Residential Code® and International Energy Conservation Code® requirements. The program applies to insulation intended for use in whole wall, ceiling, roof deck and floor systems sold in the United States for residential construction use. Dow understands the increasing consumer demand for more energy efficient, comfortable homes and is committed to providing the industry with solutions designed to meet and exceed today's demanding energy standards. ENERGY STAR® Certification is a symbol that is widely recognized by consumers looking to increase the energy efficiency of their homes. Read more.

# Responsible Operations

Our infrastructure has a positive impact on our Company, our communities and ourselves. Our operations are a model for others, wherever we operate.



## Susan Lewis Honored with 2014 Manufacturing Leadership Award

Susan Lewis, site director, Houston Operations, was recently named as an individual winner in the 2014 Manufacturing Leadership Awards. Lewis was selected by an expert panel of judges in the annual competition sponsored by the Manufacturing Leadership Council. She is one of just two honorees in the Next Generation Leadership category. Her award nomination chronicles her substantial achievements at Dow, from the Houston role to her earlier role as corporate director for Environment, Health & Safety (EH&S), where she focused on elevating company-wide personal commitment to EH&S performance. Lewis played a major role in developing Dow's "Live It" campaign, which successfully made EH&S the number one priority for more than 85,000 employees and contractors around the world. Under her leadership, Dow has made significant progress in eliminating injuries, preventing adverse environmental and health impacts, reducing waste and emissions, and promoting resource conservation.

## Dongguan Site Recognized for Clean Production and Safety in China

The Dow Dongguan site recently received the Clean Production Enterprise Award from Guangdong province government in China. The award recognized Dow for being a model of responsible operations for others in the community. The site has worked to reduce the consumption of resources, minimize waste, and recycle materials. Fifteen zero-to-low-cost projects including office supply optimization, ventilation improvement, fountain operating time reduction were completed. Another nine medium-to-high-cost projects included replacing natural gas with liquid petroleum gas, replacing filament lamps with light emitting diode lamps, and reducing and reusing tank cleaning water. The Dongguan site submitted the Clean Production Report with these projects to local government agencies, and after field assessment, all experts highly appraised the achievements and agreed to award Dow as Clean Production Enterprise of Guangdong Province. The site was also recently recognized by government officials for its safety practices.



## Women in Manufacturing STEP Awards

The Manufacturing Institute recently recognized 160 recipients of the STEP (Science, Technology, Engineering and Production) Awards at a reception in Washington, D.C. Among those honorees were four Dow employees: Mary Beth Heydrick, Shari Kennett, Jennifer Pfeiffer and Julie Thyne. The STEP Awards honor women who have demonstrated excellence and leadership in their careers and represent all levels of the manufacturing industry, from the factory floor to management. The Awards are part of the larger STEP Ahead initiative launched to examine and promote the role of women in the manufacturing industry through recognition, research, and best practices for attracting, advancing and retaining strong female talent. [Read more.](#)

## Continued Support for Saltholme Nature Reserve in the UK



The Dow Seal Sands site is supporting the Royal Society for the Protection of Birds conservation and education work at the Teesside Saltholme nature reserve for a

second year. Saltholme is one of the most significant wildlife and plant reserves in the North East of the United Kingdom. With a popular visitors' centre, three architect-designed hides and an adventure play area to attract younger people, the nature reserve – funded by charitable donations – is not only a haven for wildlife but an increasingly valuable resource for the local community. Part of the 2013 donation enabled the Reserve to "hire" cows needed to perform a task known as "puddling." "Puddling" creates a particular type of habitat at the water margin that in turn helps attract certain birds. The financial support given will enable the reserve to carry on its leading nature conservation work and provide a chance for Dow employees to volunteer at the reserve.

## Green Warehouse Completes 1st Phase of Construction



Green Warehouse, a project that follows a green concept with low environmental impact, completed its first phase of construction. The warehouse being built at the Guarujá, Brazil

site is a result of a partnership between Dow and Log-In. It will be 5,500 square meters in size, with capacity for 5,000 pallets of dry materials, drums, bags and non-grain cargo. The new advanced warehouse facility is expected to start operating in June 2014.

### Workplace Health Promotion Award in Italy

Promoted by the Local Health Service and the Association of Employers in Mozzanica, Italy, the “Workplace Health Promotion” program involves a network of companies engaging in initiatives over a three-year period relating to nutrition, physical activity, anti-smoking, alcohol and drug-free workplaces, road safety as well as personal and social wellbeing. The project was established to provide support to companies to become actively involved in safeguarding health in the workplace, as well as to prevent work-related risks. Dow’s site in Mozzanica was recently recognized with an award for its initiatives to improve employee health and well being in the areas of quitting smoking, promoting physical activity and nutrition.

### Champions of Inclusion Attend Sochi 2014 Paralympic Winter Games

The Paralympic Games are the premier sporting event for the world’s top disabled athletes. As a sponsor of the Sochi 2014 Paralympic Winter Games, Dow had a unique opportunity to recognize employees championing the cause of individuals with disabilities. Takahiro Kanno, Alix Adler, Antonio Ruscelli and Greg Pollock were selected as part of Dow’s Champions of Inclusion program and attended the Sochi 2014 Paralympic Winter Games. The program, sponsored by the Disability Employee Network, recognizes employees for their work as advocates for the full inclusion of people with disabilities at work and in their communities.



### Samsung Partner’s Day Innovation Award in Korea

Dow recently received the “Innovation Award” during a Partner’s Day event organized by Samsung Electronics and Samsung Partners’ Association. The Award recognized achievements in the Company’s innovative near-miss reporting system. The program is aimed at preventing occupational hazards by identifying risk elements in advance. Dow employees in Korea have contributed to improving workplace safety culture by actively sharing risk factors identified in advance to prevent injuries and incidents. To date, the project has led to reporting of 1,500 cases that identified risk factors, helping the employees at the Cheonan site achieve a zero injury/incident record in 2013. During Partner’s Day, employees shared some of these cases with other Association members.

### Diana Deese Wins American Chemical Society Award

Diana Deese, Dow Research and Development analytical technologist, has been honored with this year’s American Chemical Society National Chemical Technician Award. The award honors exemplary performance among chemical technicians, process operators and laboratory analysts. Deese has spent more than two decades developing a number of process-improving procedures and analyses for Dow. Recently, she developed several cross-sectioning analytical techniques for DOW POWERHOUSE™ Solar Shingles, which resulted in a procedure that decreased analysis time from seven days to two hours and reduced costs by 400 percent.



### Recycle for Egypt

The Dow Cairo System House team has taken the initiative to implement a domestic recycling campaign in conjunction with Recycle for Egypt that uses recyclable waste to produce finished products. Internally, employees are being educated on the benefits of recycling along with a new recycling system that segregates waste as part of the new program. Externally, the Company is cooperating with other companies in 10th of Ramadan City to increase awareness and sense of social responsibility, not only on corporate level, but also individually.



# Goal Updates

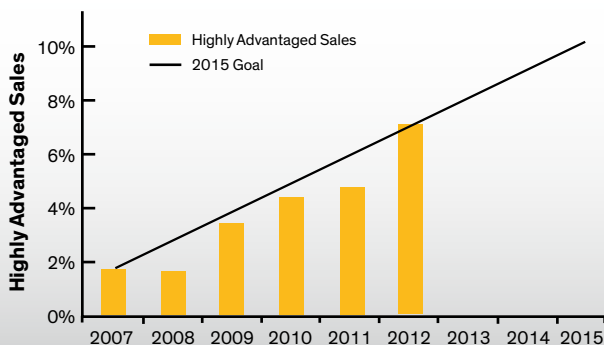
## Sustainable Chemistry

The 2015 Goal for Sustainable Chemistry is to increase the percentage of total Company sales to 10% for products that are highly advantaged by sustainable chemistry, as measured by Dow's Sustainable Chemistry Index (SCI). The SCI is updated annually and involves assessing sustainability attributes of the Company portfolio at a detailed level. In 2012, the SCI increased from 21.8 to 22.0, and the portion of Company revenue that was from Highly Advantaged products grew to 7.1%, up from 4.8% as measured for 2011 – the largest ever year-over-year increase. A significant number of opportunities have been identified towards enabling additional products to be “highly advantaged,” and the team is working to further integrate these opportunities into the business strategies. The 2013 SCI result will be disclosed in Dow's 2013 Annual Sustainability Report and 2Q Sustainability Report published in August.

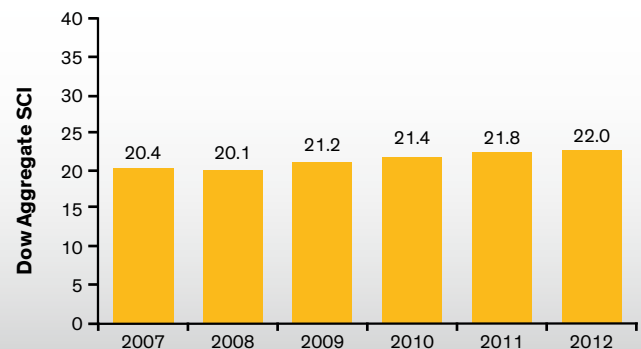
### 2015 Goal

- Increase the percentage of sales to 10% for products that are Highly Advantaged by sustainable chemistry

### Highly Advantaged Sales



### Dow Aggregate SCI



## Addressing Climate Change, Energy Efficiency and Conservation

In 1Q 2012, Dow added an absolute Greenhouse Gas (GHG) commitment to our own Climate Change goal: Maintain GHG emissions below 2006 levels on an absolute basis. Dow will find ways to grow, but without growing GHG emissions. Related to this additional metric to manage our Dow's footprint, Dow is investing in the development of a Net Impact Tracking Tool, a technique that will sharpen the Company's focus on the full life-cycle benefits of our products.

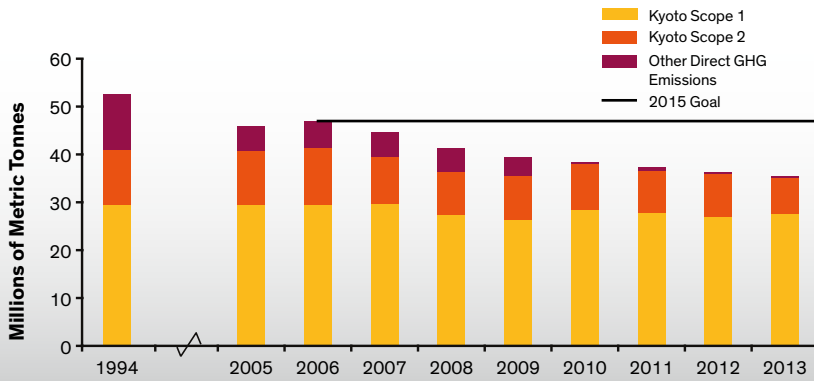
A sustainable energy future requires constant manufacturing efficiency improvement, while maximizing the contributions of products to improve efficiency and expand the availability of affordable alternatives. Energy is an enabler of global economic growth, and energy efficiency remains critical to meeting the world's energy demands. Dow's innovation engine is driving energy solutions that meet society's needs and provide a competitive advantage to the Company and our customers.

### 2015 Goal

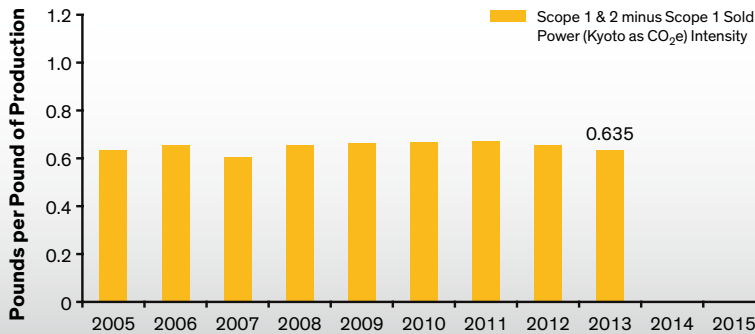
- Maintain absolute greenhouse gas emissions below 2006 levels
- Reduce our energy intensity 25%
- Use 400 MW of clean energy by 2025

## Greenhouse Gas Reduction

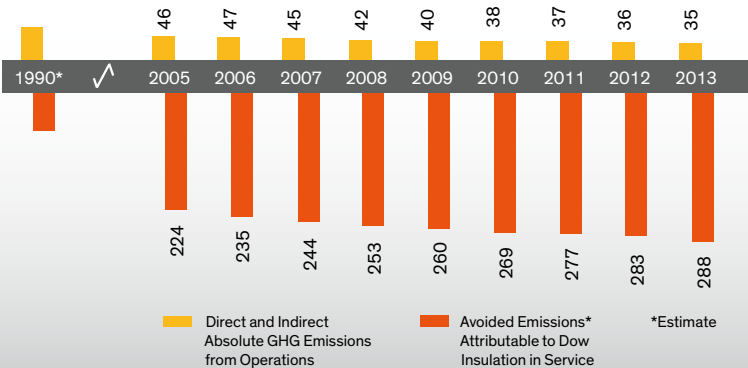
### Absolute Greenhouse Gas Emissions as CO<sub>2</sub> Equivalent



### Intensity of Kyoto GHG as CO<sub>2</sub> Equivalent



### Greenhouse Gas Emissions (million metric tons of CO<sub>2</sub>-equivalent, Kyoto and non-Kyoto)



Dow's goal is to maintain Greenhouse Gas (GHG) emissions below 2006 levels on an absolute basis for all GHGs, thereby growing the Company without increasing our carbon footprint. Dow will continue to focus on managing Dow's footprint and delivering solutions to help customers manage theirs. For example, Dow's insulation products contribute to greater energy efficiency, helping avoid millions of metric tons of GHG emissions per year.

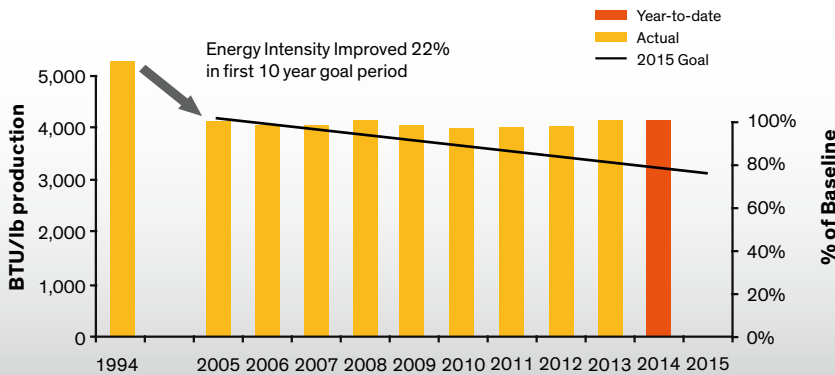
Dow's energy efficiency and chemical-management efforts have significantly reduced the Company's GHG emissions footprint. As a result, Dow has prevented over 312 million metric tons of GHG emissions from entering the atmosphere since 1990, which is equivalent to the annual emissions of more than 27 million single family homes.

Since 2003, Dow has reported to the Carbon Disclosure Project (CDP), a not-for-profit organization working to understand the risks and to drive GHG emissions reduction from business. In 2013, Dow reported on its 2012 GHG performance and commitment to being a solution provider to the Climate Change challenge. The report scored 90 out of a possible 100 points, highlighting Dow's commitment to strong governance and complete disclosure through transparent Emission Reporting.

Avoided emissions resulting from the use of Dow products are important contributions to reduce the overall footprint of human activities. A Life Cycle Assessment documented that emissions saved by Dow insulation products are about seven times greater than total Company direct and indirect Kyoto and non-Kyoto GHG emissions. This calculation was made by quantifying the GHG emissions at all stages of the life cycle of the Dow insulation product and comparing these with the GHG emissions savings from the use of the insulation products in buildings and pipe systems. The estimated GHG avoided emissions for 2013 from the use of Dow's insulation products is 288 million MT CO<sub>2</sub>e. From 2005 through 2012 the avoided emissions have steadily increased from 224 million MT CO<sub>2</sub>e per year.

## Energy Intensity

### Energy Intensity Performance 1994–2015



By 2015, Dow has a goal to achieve an additional 25% improvement in Energy Intensity, with average Energy Intensity for the year 2005, adjusted for mergers and acquisitions, used as the basis for calculating performance. Dow's goal for Energy Intensity for the full year of 2014 is 3,220 BTU/lb, or 77.5% of the value in 2005. Dow's actual performance through 1Q 2014 was 4,124 BTU/lb, which is 99.3% of the 2005 baseline.

Dow has reduced annual energy use by 20% since 2005; however, we do not expect to achieve the level of performance we anticipated when our Energy Intensity (BTUs/lb produced) goal was established. Dow's products can lead to significant energy reductions for our customers,

and virtually every industry becomes more efficient through what we make and do. However, the Company is shifting toward higher-value, more technology-driven specialty products that are by nature more energy-intensive, and operating rates have also been reduced to match demand, resulting in less efficient asset use.

## Product Safety Leadership

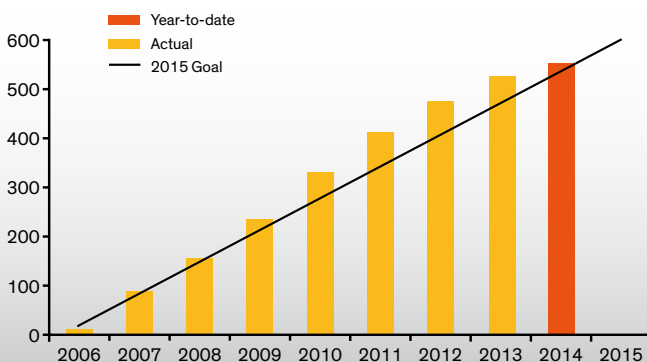
At the end of 1Q 2014, 551 Product Safety Assessments (PSAs) were posted to Dow's product safety website, which now account for more than 90% of Dow's annual revenue. Additionally, all of Dow's 216 High Priority chemicals are now covered by a PSA. We are on track to meet our 2015 Goal to have a Product Safety Assessment publically available for applicable Dow products.

PSAs are written for the lay public and cover topics such as basic hazards, exposure potential and risk management measures. They complement other product safety, handling and stewardship documents, which are part of the product responsibility package offered by Dow to strengthen relationships with communities and customers. Dow is dedicated to providing the public with accurate information and building trust as it uses technology to develop better products, and this holistic approach enables Dow customers and the communities in which Dow does business to stay informed about the Company's products and the plants that produce them.

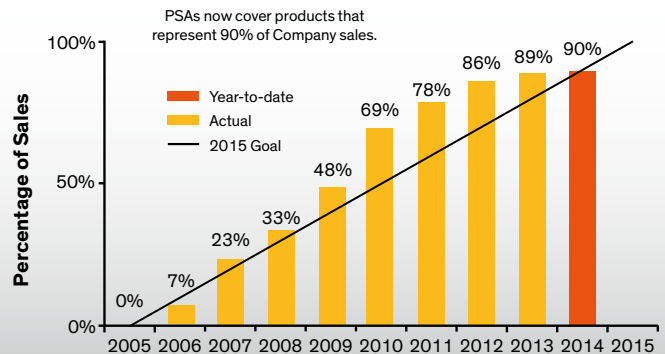
### 2015 Goal

- Publish Product Safety Assessments for all products

### Cumulative Product Safety Assessments



### Sales Covered by Assessments



### Third-Party Review of Product Safety Assessment Process

Dow committed to, by 2015, make publicly accessible safety assessments for its products globally, and in doing so address relevant gaps in hazard and exposure information. Dow continues to take appropriate action based on the assessments. Dow retained Risk Sciences International at the University of Ottawa in Canada (“RSI”), to evaluate the robustness of Dow’s product safety assessment processes.

RSI focused primarily on two aspects of Dow’s product safety decision making:

1. The various business processes that support product safety decision-making
2. The organizational, technological and scientific capacity to meet Dow’s 2015 Sustainability Goals

RSI found that Dow’s product safety assessment process is generally sound. RSI concluded that Dow has world-class scientific expertise and the capacity to achieve excellence in product safety assessment, including state of the art practice in toxicology, exposure assessment and risk characterization. RSI identified a few potential improvements, to enhance and ensure consistency in the quality of product safety assessments and decision-making across Dow’s portfolio of products and their many uses.

In response, Dow has chartered several projects to evaluate and, as appropriate, address these recommendations. Many improvements are already being implemented. Dow is currently providing comprehensive cross-functional training on the improvements and systems to key employees in all functions and businesses.

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## Breakthroughs to World Challenges

### Dow Breakthrough Addresses Water-Energy Nexus



Each individual’s global water-energy “splashprint” is much higher than most people think. Consider that it takes 2,867 gallons of water to make one pair of jeans or 1,500 gallons to make a desktop computer. The 2030 Water Resources Group reports that by 2030, global water requirements are expected to grow by 50 percent, and analysts are predicting that available water supplies will satisfy only 60 percent of demand.

Dow recognized that two critical needs – clean water and on-demand energy – are intimately intertwined and developed breakthrough polymer chemistry that is the most advanced water purification science available today.

Recently, Dow named DOW FILMTEC™ ECO Reverse Osmosis (RO) Elements as its second breakthrough technology. Why is it a Breakthrough? To significantly impact water security, any solution needs to address both water purification and the energy required to treat the water – and the product helps to deliver manufacturers 40 percent better water purification while using 30 percent less energy.

The announcement marked another milestone in delivering three Breakthrough to a World Challenge solutions as part of the Company’s 2015 Sustainability Goals. The first breakthrough technology, Omega-9 healthy oils, was announced in 2012. The technology was also recently recognized with a Bronze Edison Award in the Energy/Sustainability and Commercial Resource Management category.

### 2015 Goal

- Achieve at least three breakthroughs that will significantly help solve world challenges

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## Contributing to Community Success

Second quarter 2014 will be a time of great activity for Contributing to Community Success, with two site re-measures occurring, one in Plaquemine, Louisiana, and the other in Aratu, Brazil. Surveys are being fielded in April and early May, with implementation workshops planned at both locations for May. Dow’s site in Zhangjiagang, China, will be re-measured in 3Q 2014.

The Community Success Process Guide and instructional video were completed in 1Q 2014 and will be formally launched to all Dow sites around the world in 2Q 2014. These resources outline the steps needed for any Dow site to implement a robust Community Success process, regardless of its location, size or reach. The Guide is available now on the intranet to all Dow site leaders.

These activities are leading us strongly into the culminating year for our 2015 Sustainability Goals. To date, seven of 10 major Dow sites have completed their re-measures, all showing positive improvement on the important “Quality of Life” aspect.

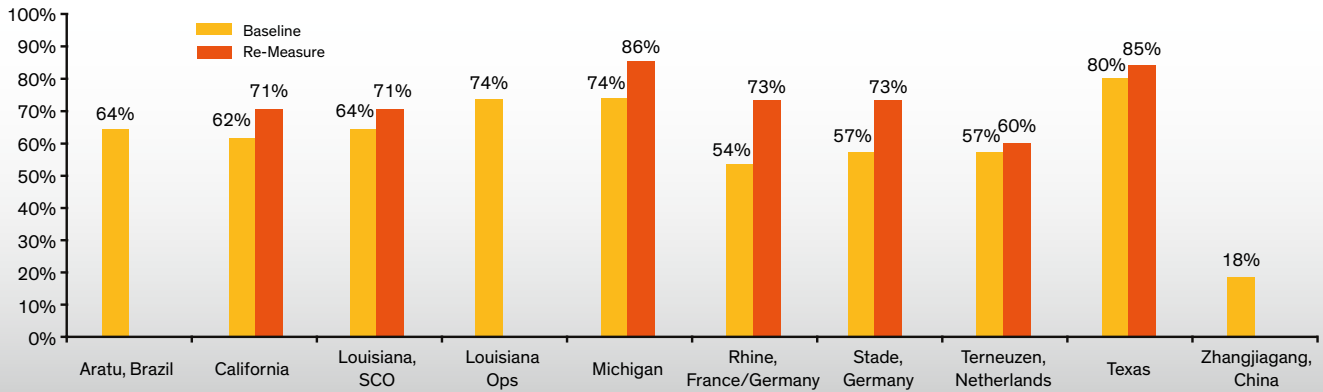
The table on the following page shows global site progress to date.

### 2015 Goal

- Achieve individual community acceptance ratings for 100% of Dow sites where we have a major presence



## Community Acceptance Ratings



## Local Protection of Human Health and the Environment

Dow leads the way across virtually every facet of environment, security, health and safety performance. In 1897, Dow was one of the first companies to introduce innovative protection equipment for workers. Today, Dow engages its neighbors through Community Advisory Panels. Dow's "Vision of Zero" is a leadership attitude and a corporate culture that is committed to zero accidents, zero injuries and zero excuses.

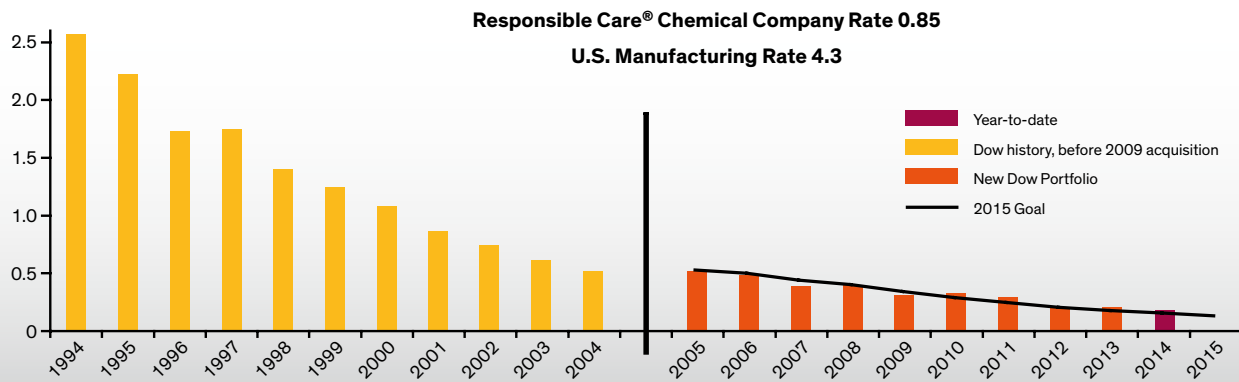
Dow announced 2015 goals to achieve on average a 75% improvement of key indicators for Environmental Health & Safety (EH&S) operating excellence from a 2005 baseline. These indicators include personal injury/illness of Dow employees and contractors, loss of primary containment incidents, process safety, severe motor vehicle accidents, emissions and transportation-related incidents.

During the first 10-year goal period, the Company reduced the rate of injury and illnesses per 200,000 hours of work time by more than 80%, and during the 2005 to 2015 timeframe, the goal is to achieve a similar reduction in the rate. Excellent progress is being made as Dow workers are now 24 times less likely to experience an injury or illness than the U.S. manufacturing rate reported for 2012.

### 2015 Goal

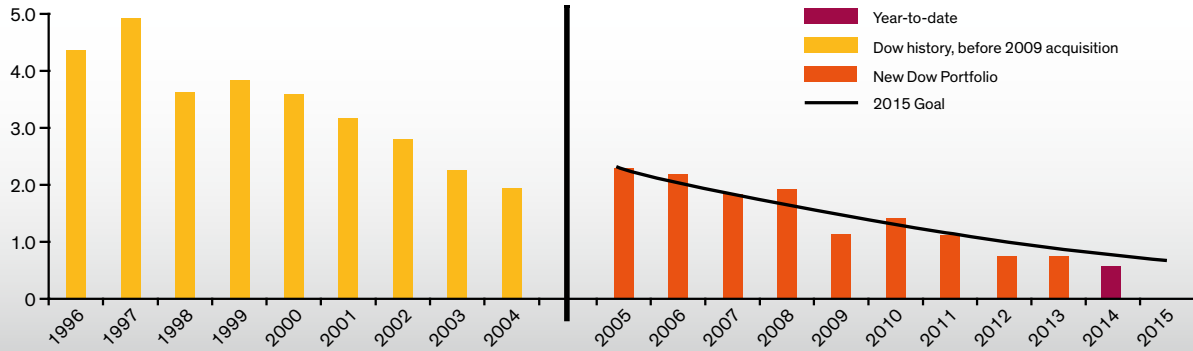
- Achieve on average a 75% improvement in key indicators for Environment, Health & Safety operating excellence from a 2005 baseline

## Injury and Illness Rate



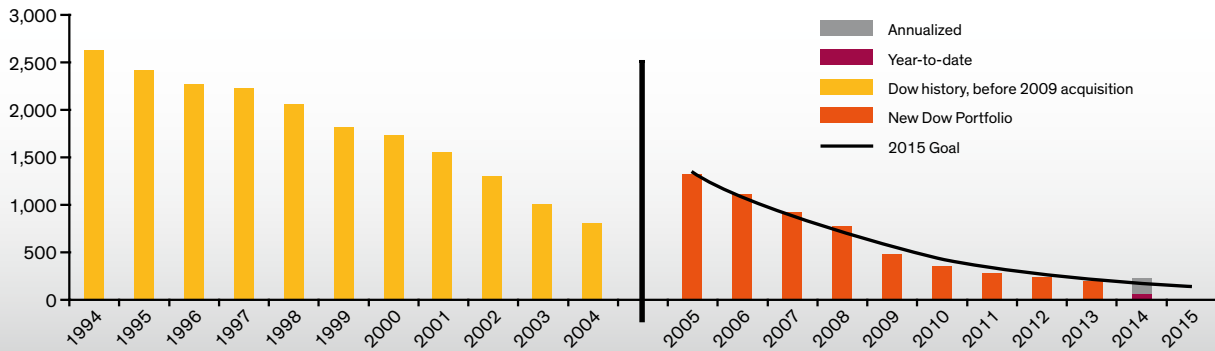
At the end of 1Q 2014, the Injury and Illness rate was 0.18 per 200,000 hours of work. This is a 10% improvement compared to 2013. The 2015 Goal of 0.12 per 200,000 hours is a 75% improvement from 2005.

## Injury and Illness Severity Rate



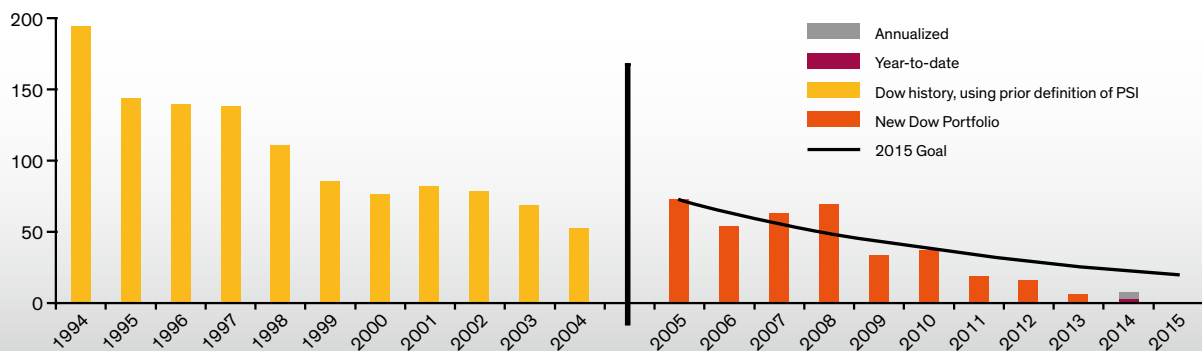
At the end of 1Q 2014, the Injury and Illness Severity rate was 0.56 per 200,000 hours of work. This is 25% better than our performance in 2013 and is on track towards the 2015 Goal of 0.67 per 200,000 hours. The 2015 Goal is a 70% improvement from 2005.

## Loss of Primary Containment Incidents



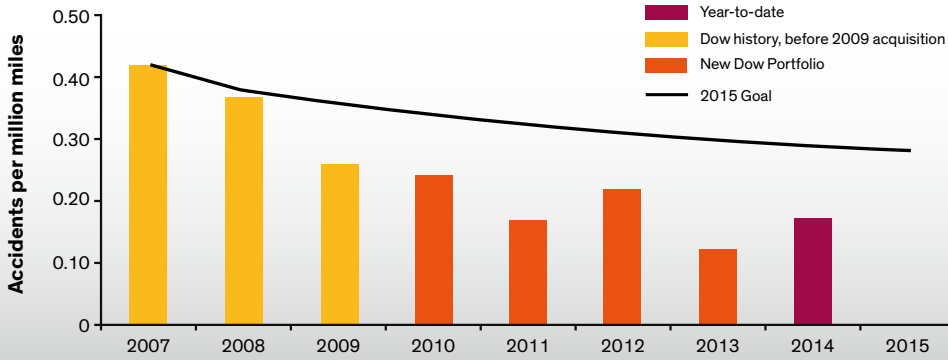
At the end of 1Q 2014, the company had experienced 55 Loss of Primary Containment incidents. When annualized, the implied total of 220 would be an increase from the 186 incidents experienced in 2013. The 2015 Goal of 130 or fewer incidents is a 90% reduction from 2005.

## Process Safety Incidents



At the end of 1Q 2014, the company had experienced two Process Safety Incidents (PSIs). When annualized, the implied total of eight would be an increase from the seven incidents experienced in 2013, but remains significantly below the 2015 goal. The goal in 2015 is to be experiencing less than 20 PSIs. PSIs are classified in terms of the Center for Chemical Process Safety and American Chemistry Council PSI definitions.

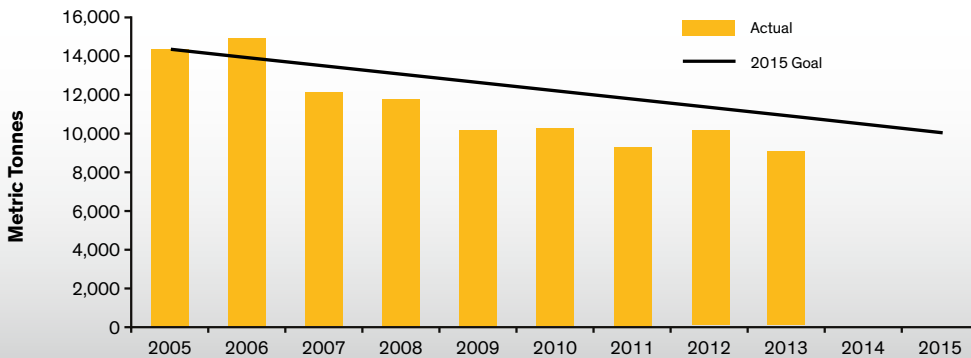
## Severe Motor Vehicle Accident Rate



At the end of 1Q 2014, the Severe Motor Vehicle Accident (MVA) incident rate was 0.17 accidents per million miles driven. This remains better than the target for 2015. Severe MVA was not measured in the heritage Rohm and Haas Company. The 2007–2009 values represent the heritage Dow population.

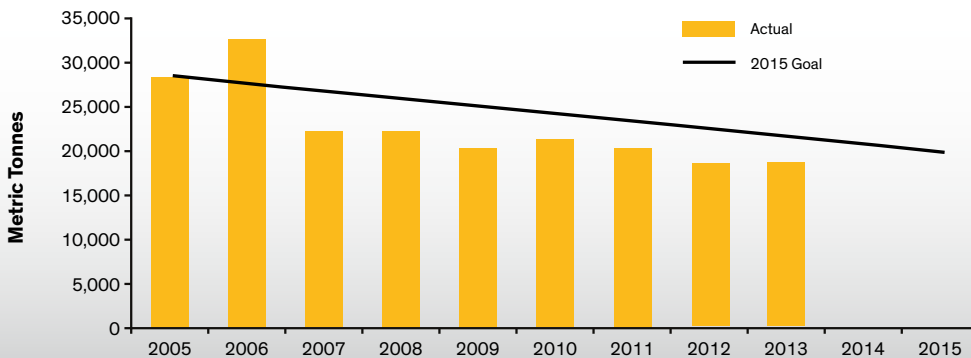
This quarter, Dow is providing an update for metrics that target achieving a 30% reduction in emissions levels by 2015. In each case, the results are better than Dow's goal line as of the end of 2013.

## VOC Emissions



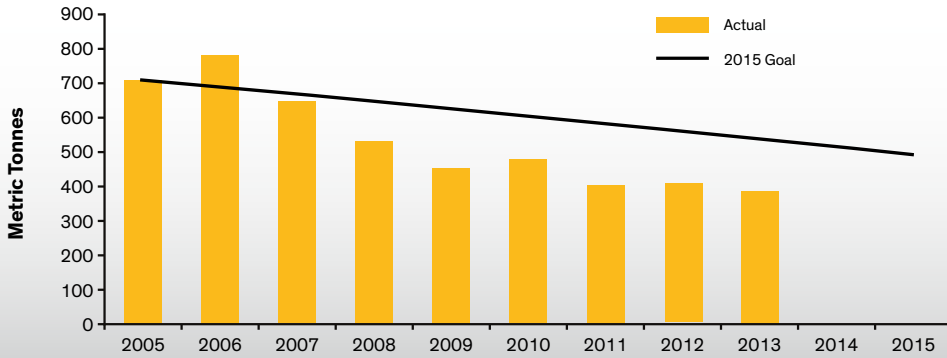
Volatile organic compounds (VOCs) are organic chemicals with high vapor pressures and react photochemically with the atmosphere. The VOCs total is down by 36% when compared to 2005.

## NOx Emissions



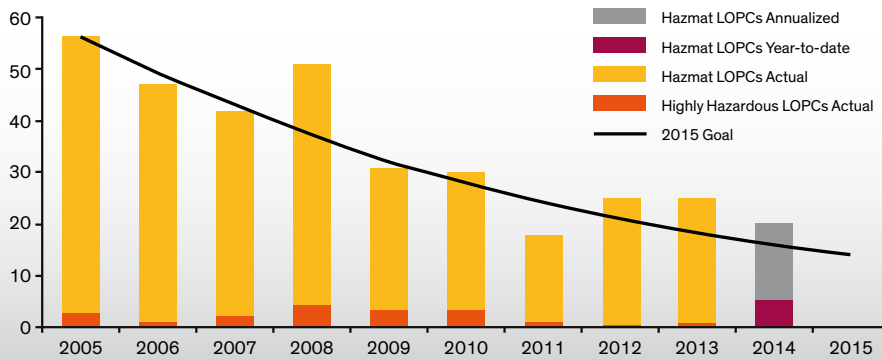
Nitrogen oxides (NOx) are produced during combustion, especially at high temperature, and contribute to acid rain. The NOx total was reduced 34% since 2005.

## Priority Compound Emissions



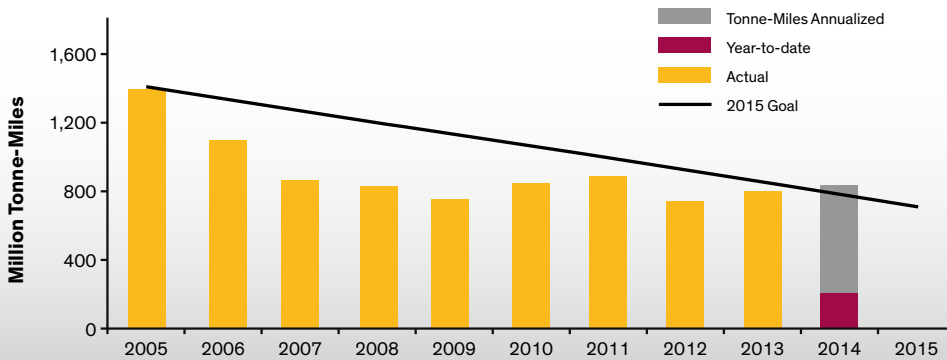
Priority Compounds are a category of chemicals defined by Dow. Priority Compounds are comprised of chemicals with persistent, bioaccumulative, and toxic hazards, and chemicals with carcinogenic, mutagenic, and reproductive hazards. The Priority Compounds total is down by 46% when compared to 2005.

## Hazmat Transportation LOPC Count



At the end of 1Q 2014, Dow had experienced 5 Hazmat Transportation Loss of Primary Containment (LOPC) events. Our 2015 Goal to reduce all Hazmat Transportation incidents to 14 or less is a 75% improvement from 2005.

## Highly Hazardous Material Tonne-Miles



By reducing the number of tonne-miles of Highly Hazardous materials, Dow reduces the chance of in-transit incidents that could impact communities and areas through which Dow's products travel. Supply chain redesign is a long-term effort and changes in sourcing points sometimes take multiple years to implement.

Annualized figures indicate that we would experience about 847 million tonne-miles shipped via road and rail. The goal for 2015 is to reduce these shipments to less than 705 million tonne-miles, which would be a 50% reduction from the baseline in 2005.



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## Science for a Sustainable World

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We only have one planet, with limited resources. So everything we do and how we do it matters. Dow is committed to minimizing our own footprint and to delivering solutions that help our customers and the rest of society do the same. The world needs solutions for big challenges like energy, climate change, water, food, housing and health. And Dow has some of the world's best scientists and engineers dedicated to solving world challenges through innovation. When we do that, it's not just good for the planet, it's also good for business.

Dow remains committed to continuously improving its performance and publicly reporting its progress. Please visit [dow.com](http://dow.com) for the latest Dow sustainability, business and performance news, and to share your comments or submit questions.



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