



# Sustainability 2014 Summary



# Science for Human Progress

Dow Achieves Sustainability Milestone with “Breakthrough to World Challenges”

## Dow Delivers Transportation Solutions that Enable Sustainability

BETAMATE™ Structural Adhesives have been named Dow’s third “Breakthrough to World Challenge,” meeting a milestone set by the Company as part of its 2015 Sustainability Goals. A recent recipient of a 2014 R&D 100 Award and two 2014 Automotive News PACE Awards, BETAMATE™ Structural Adhesives are used to bond the body structure of automobiles during assembly, which enables improved vehicle safety and durability while optimizing weight reduction and providing greater design flexibility.

BETAMATE™ Structural Adhesives allow for the assembly of dissimilar materials where traditional joining techniques such as welding and riveting are limited in their applicability. Structural adhesives also enable increased load-bearing capability and improved static and dynamic stiffness, leading to improved safety and crash behavior, reduced vibrations and noise, optimized ride, excellent driving and handling, and enhanced durability for extended vehicle life span and long-term value. Since their introduction in 1999, BETAMATE™ Adhesives have already contributed to an estimated 23 million metric tons of CO<sub>2</sub> emission avoidance and 10 billion liters of gasoline savings.

With this “Breakthrough,” Dow delivers on a target established in 2006 as part of its 2015 Sustainability Goals, an aggressive set of 10-year targets that seeks to improve sustainability in seven core areas: Sustainable Chemistry; Addressing Climate Change; Energy Efficiency and Conservation; Product Safety Leadership; Contributing to Community Success; Local Protection of Human Health and the Environment; and Breakthroughs to World Challenges. The latter commitment identifies products and technologies that deliver significant contributions to society over time.

To be selected, each of Dow’s Breakthrough technologies were subjected to a rigorous evaluation process. The process evaluates many candidates in Dow’s business portfolio against a variety of criteria, from positive impact on millions of human lives, to minimal environmental impact throughout the product’s lifecycle.



**BETAMATE™** **STRUCTURAL ADHESIVES** **DOW**

A DOW BREAKTHROUGH ADDRESSING TWO OF THE WORLD'S GREATEST CHALLENGES:

1. ENERGY & CLIMATE CHANGE
2. SAFETY & HEALTH

**23** BILLION KG CARBON DIOXIDE AVOIDANCE

**7** BILLION METERS BETAMATE STRUCTURAL ADHESIVE APPLIED

**2.6** BILLION GALLONS OF GAS SAVINGS

**SAFETY BENEFITS:** INCREASED VEHICLE STIFFNESS, CRASH RESISTANCE, STRENGTH & DURABILITY

**1999:** BETAMATE STRUCTURAL ADHESIVES INTRODUCED BY DOW AUTOMOTIVE SYSTEMS

**BETAMATE SUSTAINABILITY**  
50 METERS OF BETAMATE APPLIED TO ONE MID-SIZE VEHICLE OPERATED FOR ONE YEAR

**10 KG** REDUCTION OF PRIMARY MASS

**17 KG** TOTAL WEIGHT SAVINGS WITH MASS DECOMPOUNDING

**0.62%** IMPROVEMENT IN FUEL EFFICIENCY

**32.6 KG** REDUCTION IN CARBON DIOXIDE EMISSIONS

**BETAMATE FLEET SAVINGS**  
100,000 VEHICLES PER YEAR OPERATED FOR 5 YEARS

**MORE THAN 16 MILLION** KG OF CARBON DIOXIDE SAVINGS

**MORE THAN 1.8 MILLION** GALLONS OF FUEL SAVINGS

**BETAMATE BONDS**  
JOINING SOLUTIONS FOR DISSIMILAR SUBSTRATES

ALUMINIUM, COMPOSITES, STEEL, MAGNESIUM

**BETAMATE WINS**  
GLOBAL AWARDS FOR INNOVATION, LIGHTWEIGHTING AND SUSTAINABILITY

AS MORE CARS ARE ADDED TO THE ROADS... AND GLOBAL ECONOMIES CONTINUE TO GROW... BETAMATE COULD IMPROVE HUNDREDS OF MILLIONS OF CONSUMERS' LIVES.

™ Trademark of The Dow Chemical Company



# Letter from the CEO

Even in today's volatile and uncertain environment, doing well by doing good is possible, especially if you set bold and ambitious goals and create a culture that carries them forward. Dow has done this very visibly over the past 20 years, regularly reporting on progress.

We have proven that when we focus our people on delivering in the long run, we are able to overcome the short-term challenges that arise even as we continue to transform our company. This effort has aligned with Dow's "north star" – our vision – to maximize long-term value for all of our stakeholders by developing sustainable solutions to address pressing global needs.

Since 1995, Dow has saved more than \$6 billion from investments in sustainability – a number that continues to grow. Our goals have led us to meaningful changes in culture and behavior as well as successes through innovation and collaboration – not just within our company but with our customers and our communities.

Through two sets of decade-long sustainability goals, Dow has continued to incorporate sustainability into our DNA – into the very fabric of our business strategy. Our 2005 targets drastically reduced our company's "footprint" through aggressive waste, water use and energy reduction targets.

In this report, we celebrate a number of milestones that demonstrate our success in reaching our 2015 goals, with one year yet to go. We have continued to reduce our "footprint" while focusing on our "handprint", the global sustainability multiplier effect of our products and solutions. We have considered our products' lifecycles, further improved efficiency and unlocked chemistry as the world's indispensable toolbox for society's use. As global challenges become more urgent and complex, demand for Dow's breakthrough solutions will only increase.

This year, Dow launched the next phase of our ambitious sustainability journey, our 2025 Sustainability Goals. In essence, these targets will incorporate the value of nature and society into all of our economic decisions. They will integrate sustainability and its full definition into everything we do.

To accomplish this, all of us at Dow are challenging ourselves to think beyond our operations ("footprint") and the impact of our products ("handprint"). With society facing unprecedented challenges, we must leverage our breadth and depth of scientific knowledge to provide solutions at the intersection of business, government and society and deliver a "blueprint" for change.

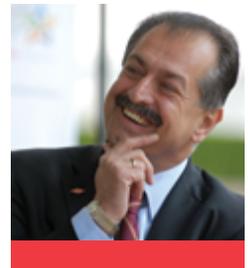
In this report, you will discover Dow's renewed commitment to the 10 principles of the United Nations Global Compact. You will also find the steps we are taking – within our own operations and through our solutions – and highlights of our progress along the way.

Dow's vision leads us to continue to deliver long-term value to society as a whole while earning the right to operate on this planet. But we realize that no one company or sector can accomplish global sustainable development alone. New levels of collaboration – often with seemingly unlikely partners – are required to drive change.

Two decades into our sustainability journey, we know that capitalism can do more to make a positive difference for all of the world's 7 billion people – not to mention the 2 billion more on their way by 2050. We hope you will join us in achieving this sustainable future.

Andrew N. Liveris

**Andrew N. Liveris**  
Chairman and Chief Executive Officer  
The Dow Chemical Company



# Letter from the CSO

As a company, we have come a long way in our sustainability journey. After two decades of continuous progress, we have significantly improved our impact on the planet.

We have learned a lot throughout this journey. When we launched our first set of sustainability goals in 1995, we had much improvement to make – looking ourselves in the mirror and being honest about the steps required to reduce our energy and water use, cut down on waste and embed a culture of safety across our organization. But we delivered: our aggressive actions in these areas delivered \$5 billion from a \$1 billion investment and were priceless in preventing thousands of injuries. As we moved forward, we realized we could have a much broader impact outside our fence line, so we expanded our focus to the positive impact our products and solutions could have on the world. Our results were substantial – generating \$6 billion in economic savings from our 2005 EH&S Goals and 2015 Sustainability Goals combined.

When I take a moment to look back throughout our journey, one clear theme emerges from everything we've learned: that sustainability is just good business. Integrating sustainability into our corporate DNA has driven value in three key ways:

1. **Top-line growth.** We have seen increasing interest in Dow's portfolio of innovative, more sustainable offerings.
2. **Bottom-line growth.** We have enhanced Dow's competitive advantage by both reducing costs and building our reputation as a sustainable brand and valued collaborator.
3. **Contribution to society.** We have made a positive impact by helping address some of the most pressing global challenges, improving transparency in product safety, empowering our employees to give back to their communities around the world.

As we move forward into our next generation of sustainability at Dow, we look forward to continuing to expand our positive impact in a big way yet again – this time, seeking to redefine the role of business in society through our 2025 Sustainability Goals. To accomplish this, we will start by collaborating at the intersections of business, government and society, working to develop a blueprint for sustainable development around the world.

As you read through this year's annual sustainability report, I hope you are encouraged by all that you see. As our second GRI G4 Report, we have sought to share what is material to you, detailing our long-term vision for sustainability, the actionable and step-by-step goals we've taken to get there, the strong business and value connection we see now and moving forward, and – above all – demonstrating how sustainability is really built into our DNA.

Thank you for your interest in our sustainability journey, as we continue to track our progress to date. 2014 was an exciting year for us, and we are both excited and optimistic as we begin our next phase. As we seek to collaborate on a societal blueprint and take bold steps to make our world a better place, we hope you will join us as well. Here's to #Dow2025!



**Neil C. Hawkins, Sc.D.**  
Corporate Vice President and  
Chief Sustainability Officer  
The Dow Chemical Company



# 2014 Sustainability Overview

Around the world, we are using our science and innovation to advance human progress and grow value for Dow. Since 2006, Dow's 2015 Sustainability Goals have served as our guide – directing effort, resources and new ways of thinking that have enabled our Company to address pressing global challenges, while realizing financial, business and operational benefits from our sustainability efforts. The year 2014 marked best-ever performance on many of Dow's 2015 Sustainability Goals, some consistently achieving results better than the 2015 target itself. Integrating our 2015 Sustainability Goals into our market-driven strategy and our corporate processes has saved resources and supported the Company's actions to drive operational efficiency and growth.

## Highlights

- The most meaningful achievement is **finishing 2014 with zero fatalities** – the first time in five years.
- Dow's 2014 Environment, Health and Safety (EHS) performance achieved new records in multiple categories of Local Protection of Human, Health and Environment, including personal safety, loss of primary containment and severe motor vehicle accidents. We are nearing the ambitious 2015 performance targets on many metrics. In two areas in particular, we continue to beat 2015 targets, ahead of our 2015 deadline:
  - 10 Process Safety Incidents; surpassing the goal of 20 for the year 2015
  - 0.11 Severe Motor Vehicle Accident rate; beating the goal of 0.28 for the year 2015
- Dow reached its 2015 Sustainable Chemistry target of achieving 10 percent of sales from highly advantaged products, marking a significant improvement from the baseline performance of 1.7 percent in 2007.
- Dow signed the International Council of Chemical Association's (ICCA) revised Responsible Care® Global Charter, continuing Dow's commitment of ongoing improvement in health, safety and environmental performance.
- Dow has surpassed the target of "Breakthrough to World Challenges" as part of its 2015 Sustainability Goals. Dow's "Breakthrough to World Challenges" include: Omega-9 Oils, DOW FILMTEC™ ECO Reverse Osmosis Elements, BETAMATE™ Structural Adhesives, and Lifebuoy™ Soap featuring POLYOX™ Water-Soluble Polymers.
- Five of Dow's market-focused solutions have been honored by *R&D Magazine* as part of its prestigious R&D 100 Awards. The five award recipients include: BETAMATE™ 1630 Structural Adhesives; TRANSFORM® WG Insecticide and CLOSER™ SC Insecticide with ISOCLAST™ Active; TEQUATIC™ PLUS Fine Particle Filter; NEPTUNE™ Subsea Insulation System; and Garnet 2.0/TERAFORCE™ Resin Coated Sand Technology.
- Dow co-sponsored the "Energy Bag" pilot program for plastic waste. The Energy Bag pilot program was the first-of-its-kind pilot in the U.S. intended to divert non-recycled plastics from landfills and to optimize their resource efficiency.
- Dow has signed a long-term agreement with a new wind farm to become one of the largest industrial buyers of renewable energy. The wind farm will supply Dow's Freeport Texas Manufacturing facility with 200 MW of wind power annually, equivalent to the amount of electricity needed to power more than 55,000 homes.
- Forty exceptional master's and professional-degree students from nine University of Michigan schools and colleges were named Dow Sustainability Fellows. These graduate students become part of a growing collaborative community of scholars focused on interdisciplinary approaches to a broad array of sustainability challenges related to water, energy, transportation, built environment, climate change, food, health, and human behavior, among other topics.
- The collaboration between Dow and The Nature Conservancy demonstrates that protecting nature can be both a global business strategy and a company priority. We invite you to track our progress in the 2014 Dow/TNC Annual Progress Report.
- Dow was honored by the Human Rights Campaign for achieving a 100-percent rating on its corporate equality index – a national benchmarking tool on corporate policies and practices related to lesbian, gay, bisexual, and transgender employees.

### Strong 2015 Sustainability Goals Progress:

Goals	Progress
Sustainable Chemistry	<b>\$13 billion in revenue in 2014 from products highly advantaged by sustainable chemistry exceeds target by 2X</b>
Breakthroughs to World Challenges	<b>Four Breakthroughs to World Challenges surpass the target</b>
Addressing Climate Change	<b>320 million metric tons of greenhouse gas emissions reduced from our operations since 1990; signed 200 MW wind farm deal to power our Freeport Texas Manufacturing facility</b>
Energy Efficiency & Conservation	<b>110 trillion BTUs of annual absolute energy reduction since 2005</b>
Product Safety Leadership	<b>95% of Dow's revenue and 100% high priority chemicals are covered by Product Safety Assessments</b>
Contributing to Community Success	<b>Average Community Acceptance Ratings for all Dow sites surveyed increased by 25% since 2005</b>
Local Protection of Human Health & the Environment	<b>Since 2005, more than 1,300 fewer injuries and illnesses, 9,000 fewer spills, 340 fewer process safety incidents, 5 billion fewer tonne-miles of transporting hazardous materials, and 210 fewer Hazardous Material Transportation spills; more than 30% reduction of VOC, NOx and Priority Compounds emissions; more than 344 million pounds of by-product reused in manufacturing process</b>



### Challenges

- Economic conditions around the world, and in certain industries in which the Company does business impact, sales prices and volume. As a result, market uncertainty or an economic downturn in the geographic areas or industries in which Dow sells its products could reduce demand for these products and result in decreased sales volume, which could have a negative impact on Dow's results of operations.
- While we have made substantial progress on energy savings and energy efficiency during the past decade, the Energy Intensity performance of the company has lagged behind our 2015 Goal due to the profile of Dow's operations and substantial capital required for improvements. It is clear that the 2015 Goal on Energy Intensity will not be achieved by 2015.
- Strong, coherent energy policy sets the foundation for helping countries overcome some of the world's most pressing challenges. Too often, one side of the debate focuses solely on fossil fuels, while the other focuses on renewables and alternatives. This is a false choice – we need both. Meeting the world's need for clean, sustainable, affordable and abundant energy will require getting beyond partisanship and self-interest.
- Fair global trade policies help raise standards of living and increase consumer choice around the world. Free trade policies enable access to goods, services and technologies that grow domestic markets, particularly in emerging countries. Market access and fair treatment of investments facilitate access to feedstocks and enable further investment in manufacturing environments. Ultimately, this access brings growth, prosperity and product development to countries around the world.
- Dow is a company built on innovation. Education is the fundamental enabler of innovation in today's knowledge economy, and if we are to meet the challenge of preparing our youth for 21st Century jobs, we need a new generation of discoverers and innovators, scientists and engineers. Today, we face a growing gap in our ability to produce the thinkers and doers who will help our nation seize the opportunities that tomorrow will bring. To meet this challenge, Dow has created STEMtheGAP™ – a growing and constantly-evolving series of initiatives to support and advance Science, Technology, Engineering and Math (STEM) education.

# Year-end Update on 2015 Sustainability Goals

## Sustainable Chemistry

Building on the increasing sustainability momentum in our businesses since 2007, in 2014 Dow delivered 22.4 percent (\$13 billion) of sales from products that are highly advantaged by Sustainable Chemistry. This result surpasses the aggressive 10 percent target by more than twofold, and represents the realization of sustainable chemistry efforts that have been accelerated over the last seven years under the 2015 Sustainable Chemistry goal. The Company's aggregate Sustainable Chemistry Index (SCI) increased from 20.4 to 25.0 since 2007. Across the Company, these solutions have brought sustainable chemistry to life, from improving manufacturing efficiency, to applications that enable energy efficiency, waste reduction and healthier food options. Dow measures its percentage of sales "highly advantaged" by Sustainable Chemistry using the SCI. The index was developed as a tool for tracking the relative sustainability performance of its global product portfolio, and for generating product sustainability awareness and life cycle insights. Comprising a set of sustainability-related questions, the SCI spans the full cradle-to-grave product life cycle; addresses environmental, social, and economic benefits; and highlights sustainability opportunities and risks associated with Dow products.

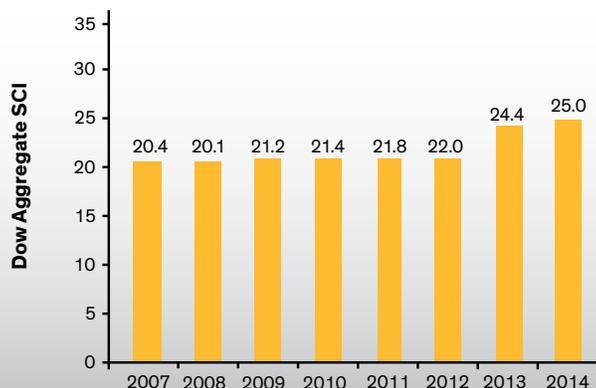
### 2015 Goal

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

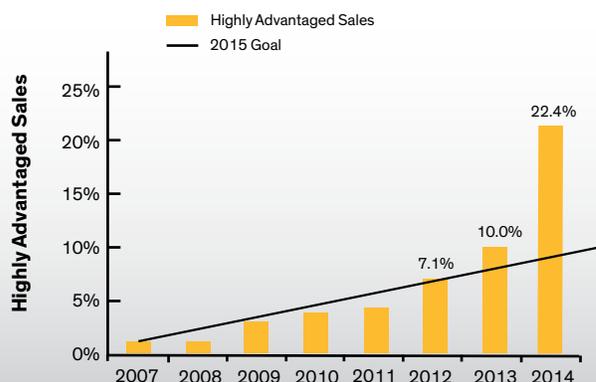
Most of the 2013 highly advantaged products remained highly advantaged for 2014, and as a group their sales continue to grow. New highly advantaged sales were achieved due to improved manufacturing efficiency – including record environmental, health and safety performance and opportunities realized in agriculture, packaging, communication, infrastructure, energy, and personal care. These accomplishments reflect Dow's winning vision and strategy which drive value by solving challenges across the globe through our scientific expertise and working jointly with our customers to develop solutions that address today's global needs and improve productivity and operational excellence.

The SCI is a powerful tool for catalyzing sustainability awareness, encouraging sustainability-driven innovation, and highlighting sustainability risk, all of which inform business strategies. Applied annually to the entire Dow product portfolio since 2007, the SCI has enabled the generation of detailed sustainability insights and has provided a sustainability indicator that is helping to position the Company for success over the long term.

### Dow Aggregate SCI



### Highly Advantaged Sales



## Breakthroughs to World Challenges 2015 Sustainability Goal Surpassed!

Dow has surpassed the target established in 2006 as part of its 2015 Sustainability Goals. Dow's "Breakthrough to World Challenges" commitment identifies products and technologies that deliver significant contributions to societal challenges over time.

### DOW POLYOX™ Water-Soluble Polymers

DOW POLYOX™ Water-Soluble Polymers used in Lifebuoy™ Soap from Unilever will deliver a positive impact on health and hygiene around the world. Lifebuoy™ Soap, the world's #1 germ protection soap, uses DOW POLYOX™ Polymers in its unique formulation, creating a soap that lasts longer, provides better value and yet still feels great on the skin.

### BETAMATE™ Structural Adhesives

BETAMATE™ Structural Adhesives are an enabling technology for optimized steel structures and dissimilar material assembly, where traditional joining techniques such as welding and riveting are limited in their applicability. Since their introduction in 1999, BETAMATE™ Adhesives have already contributed to an estimated 23 million metric tons (MT) of CO<sub>2</sub> emission avoidance and 10 billion liters of gasoline savings.

### DOW FILMTEC™ ECO Reverse Osmosis (RO) Elements

FILMTEC™ ECO RO Elements are a breakthrough in polymer chemistry that surpasses the last three decades of incremental change in RO technology, representing some of the most advanced water purification science available in the fight against global water scarcity. Delivering 40 percent better purification with 30 percent less energy in industrial operations, Dow anticipates that as the new technology is adopted it will deliver trillions of metric tons of clean water, billions of kilowatt-hours (kWh) of energy savings, and reduce CO<sub>2</sub> emissions by more than a million metric tons in its first 10 years of use alone.

2015 Goal

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

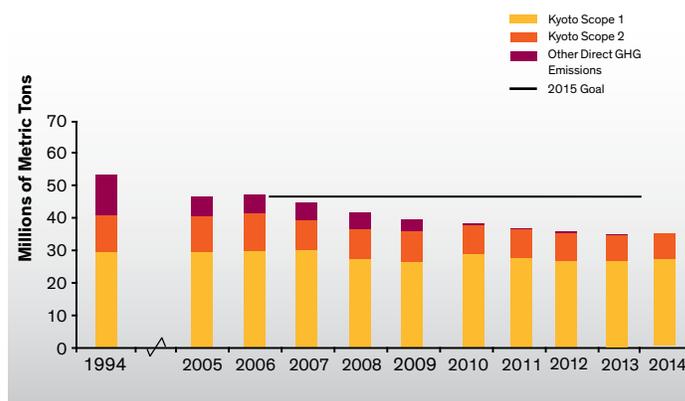
### Omega-9 Oils

Omega-9 Oils play a critical role in enhancing nutrition and lifestyle. Nutrition experts correlate trans and saturated fats in diets as contributing to increased risk of heart disease and Type 2 diabetes. Derived from NEXERA™ Canola and Sunflower Seeds from Dow, Omega-9 Oils have zero trans fat and are among the lowest in saturated fat. Since 2005, the use of Omega-9 Oils has eliminated more than 1.5 billion pounds of trans and saturated fat from the North American diet.

## Addressing Climate Change

Dow's goal for addressing climate change 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. While the revenue of the Company increased from \$49 billion in 2006 to \$58 billion in 2014, our GHG emissions were reduced from 47 million to 35 million metric tons per year, more than 12 million metric tons per year below 2006 levels. Dow's energy efficiency management efforts have significantly reduced the Company's GHG emissions footprint. As a result, Dow has prevented more than 320 million metric tons of GHG emissions from entering the atmosphere since 1990. We will continue to focus on managing Dow's footprint and providing solutions to reduce GHG emissions and save energy. For example, Dow's insulation products contribute to greater energy efficiency, helping avoid millions of metric tons of GHG emissions per year.

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



Dow is now regularly reporting on a target to increase the use of clean power to exceed 400 megawatts (MW) equivalents by 2025. At the end of 2014, Dow has approximately 266 MW that are either from low carbon or from renewable sources. Additionally, Dow has identified future prospects that could yield more than 200 megawatts of clean power. This goal is helping the Company pursue opportunities to incorporate economically-viable, clean-technology energy alternatives into its operations. Examples of projects that help increase Dow's clean power portfolio include:

- Dow's Pittsburg, California, facility utilizes solar energy to supply a portion of the facility's power
- Electricity from captured landfill gas is being used as a partial source of power to Dow's Midland, Michigan, headquarters

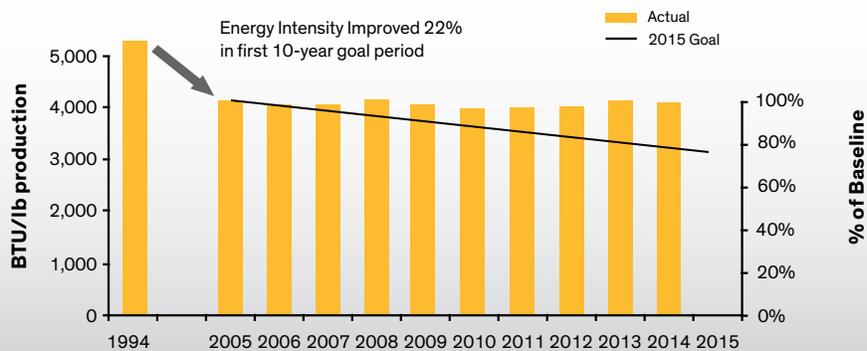
- Dow joined forces with Energias Renováveis do Brasil to launch a pioneering project in the petrochemical industry: a cogeneration plant using energy based on eucalyptus biomass

Dow's Energy business has signed a long-term agreement with a new wind farm, currently under development in South Texas. The wind farm, to be complete in first quarter 2016, will span nearly 35,000 acres and will supply Dow's Freeport Texas Manufacturing facility with up to 200 MW of wind power. As a direct result, Dow is the first company in the U.S. to power a manufacturing site with renewable energy at this scale, and will become the third-largest corporate purchaser of wind energy in the United States. For more information about the wind farm, please see page 20.

Dow will continue to quantify the impact of our products both in the supply chain, before Dow operations, and during the use phase by our customers and ultimate end users. This assessment is being accomplished with an Impact Tool that quantifies the energy and GHG profile of products and helps convey the benefits by communicating a ratio of burden compared to benefit. For example, we report in EN17 that the ratio of benefit throughout the life of the line of STYROFOAM™ insulation is seven times the GHG emissions involved in the manufacturing and construction phases of making homes and other applications more energy efficient.

Dow has reported to the Carbon Disclosure Project (CDP) since 2003. The CDP is a not-for-profit organization working to understand the risks and to drive GHG emissions reduction from business. In 2014, Dow reported on its 2013 GHG performance and commitment to providing solutions for the climate change challenge. The report scored 85 out of a possible 100 points. This excellent result highlighted

### Energy Intensity Performance 1994–2015



Dow's commitment to strong governance and complete disclosure through transparent emissions reporting.

More information about addressing Climate Change can be found in the [2014 Sustainability Report](#).

#### 2015 Goal

- Maintain absolute greenhouse gas emissions below 2006 levels
- Use 400 MW of clean energy by 2025

### Energy Efficiency and Conservation

Related to Dow's absolute GHG metric added in the first quarter of 2012, Dow is developing a Net Impact Tracking Tool. This technique will sharpen Dow's focus on the full life-cycle benefits of Dow products. A sustainable energy future requires constant manufacturing efficiency improvement inside the Company, while maximizing the contributions of Dow products to improve efficiency and expand 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 Dow and Dow's customers.

Dow's efforts in Energy Efficiency and Conservation have significantly reduced the Company's energy consumption. The Company's manufacturing energy intensity, measured in BTU per pound of product, has improved approximately 39 percent since 1990, saving the Company more than 6,000 trillion BTUs. Dow's portfolio transformation, coupled with global economic conditions, has impacted the scale and speed of anticipated energy intensity reductions. Since 2005, annual absolute energy use has been reduced by 110 trillion BTUs. The Company's cumulative energy savings since 2005 is about \$412 million. Dow expects additional energy efficiency progress from ongoing projects that will see results after 2015. By 2015, Dow has a goal to achieve an additional 25 percent improvement. The average Energy Intensity of year 2005, adjusted for mergers and acquisitions, is the basis for calculating performance against this target. Dow's goal for Energy Intensity for the full year of 2014 is 3,220 BTU/lb, or 77.5 percent of the value in 2005. Dow's actual performance in 2014 was 4,102 BTU/lb, which is 98.7 percent of the 2005 baseline.

#### 2015 Goal

- Reduce our energy intensity 25% by 2015 from a 2005 baseline

For more information on this and other Dow Energy initiatives visit [www.dow.com/energy](http://www.dow.com/energy)

## Product Safety Leadership

At the end of 2014, 579 Product Safety Assessments (PSAs) had been posted to Dow's product safety website.

Dow's published PSAs now cover products accounting for over 95 percent of Dow's revenue. Additionally, 100 percent of Dow's 185 High Priority chemicals are now covered by a PSA. Since the second quarter of 2014, the number of High-Priority Chemicals has decreased due to divestitures and the discontinuation of several High-Priority chemicals. We are on-track to meet our 2015 Goal to have a PSA publically available for applicable Dow products.

## Third-Party Review of Product Safety Assessment Process

Dow committed, by 2015, to 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

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.

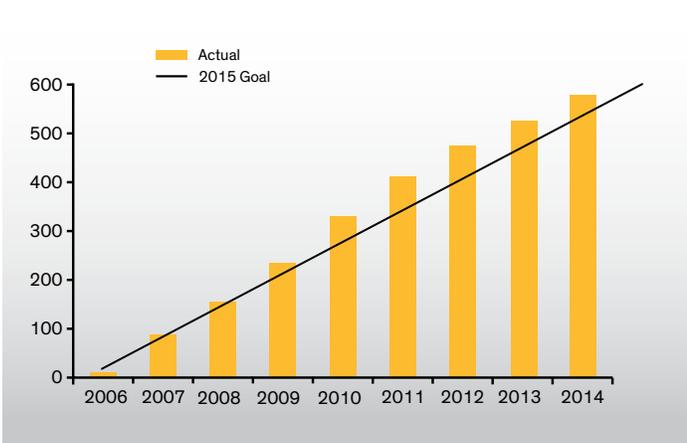
RSI found that Dow's product safety assessment process is generally sound. RSI concluded that Dow has world-class scientific expertise and the capacity to achieve excellence in product safety assessment, including state of the art practice in toxicology, exposure assessment and risk characterization. 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 functions and businesses.

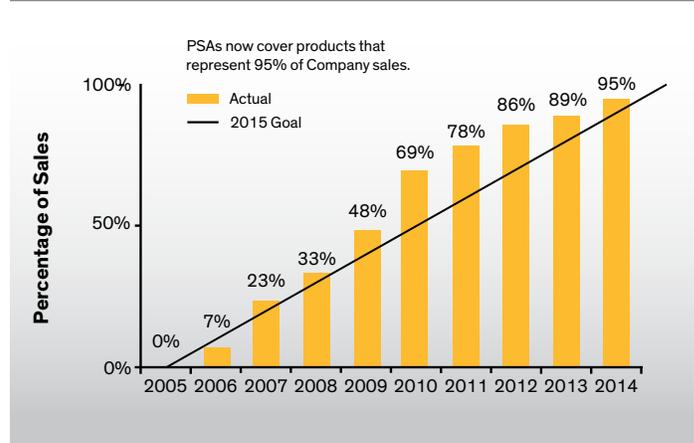
*2015 Goal*

- **Publish Product Safety Assessments for all products by 2015**

### Cumulative Product Safety Assessments



### Sales Covered by Assessments



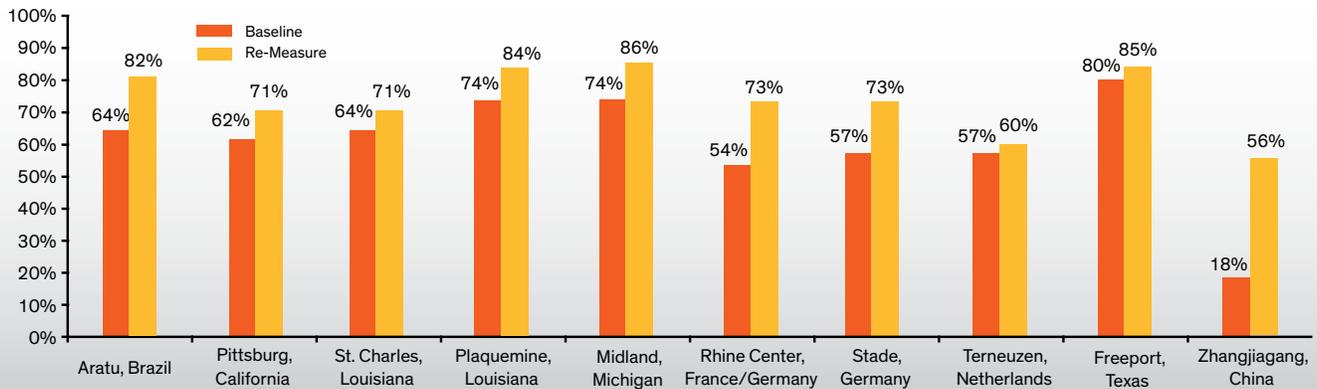
## Community Success

Community outreach has been an essential element of operations at Dow since our founding in 1897. The Company’s mission has always centered on being a good neighbor and a trusted partner, making sure we leave a positive impact on every community in which we operate.

Dow believes effective community engagement occurs through collaboration, conversation and transparency with stakeholders on many levels. We understand that our “rightful role” will be different in every community, and our activity should be based on solid data and well defined parameters. We encourage our partners to think of us as solution-oriented collaborators who work proudly with them side-by-side to identify and implement long-term solutions to community challenges.

In 2005, this mindset led us to design and implement our Contributing to Community Success process as part of our 2015 Sustainability Goals. Today, a decade after the global pilot program was first implemented, the results are in: average Community Acceptance Ratings for all Dow sites surveyed increased by 25 percent, signaling that Dow is truly recognized as playing a positive role in improving these communities. A deeper look at the process and results is as follows.

### Community Acceptance Ratings



#### 2015 Goal

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



## Local Protection of Human Health and the Environment

In our 10-year goal period from 2006 to 2015, we have challenged ourselves to achieve breakthrough improvements in traditional environmental, health and safety metrics. We are building upon the improvements accomplished in the 1995-2005 Dow goal period. For eight improvement goals, we have already achieved a performance superior to our target for the end of 2015.

Additional Local Protection of Human Health and the Environment metrics are reported starting on page 125 in the section describing Dow's approach to managing the environment.

2015 Goal

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

Key Performance Metric	2014	2013	Reduction over 2013	Comment
Process Safety Incidents	10	7	Increased	This is an increase from the seven incidents experienced in 2013, but remains significantly below the 2015 Goal of 20.
Severe Motor Vehicle Accident Rate (accidents per million miles)	0.11	0.14	-21%	Best-ever year, outperforms the 2015 Goal target of 0.28.
Injury/Illness Rate All Reportable Incidents (per 200,000 hours of work)	0.19	0.20	-5%	There were 178 people injured (Dow employees and contractors) in 2014, 10 fewer than the year before.  The non-fatal Injury/Illness rate for average U.S. Manufacturing in 2013 was 4.0, which is 33 times higher than Dow's 2015 Goal of 0.12.
DAWC Days Away from Work Cases (per 200,000 hours of work)	0.046	0.050	-8%	2014 marks a year with zero fatalities for Dow.  We reduced more serious incidents where the injury caused the employee to miss work by 6%.
Leaks of Hazardous Material (During Transportation)	36	25	Increased	When we started reporting on this goal in 2005, there were 56 annual events. Reduction improves safety and reduces the risk to the environment.
Nitrogen Oxides Emissions (metric tons)	17,111	18,304	-7%	NOx emissions were reduced 39% since 2005.
Volatile Organic Compounds Emissions (metric tons)	8,832	9,031	-2%	VOC emissions were reduced 37% since 2005.
Priority Compound Emissions (metric tons)	312	352	-11%	Priority Compounds emissions were reduced 55% since 2005.
By-Product Synergy (million pounds)	344	322	NA	We outperformed the 2015 Goal target to exceed 300 million pounds. The 2015 goal was met in 2011 (four years early), and by-product synergy continues to increase.

Find information about our ongoing implementation of the 2015 Sustainability Goals each quarter at our [Reporting Center](#).

Dow's 2015 Sustainability Goals are managed by the Sustainability Program Management Office (PMO), providing annual updates on progress to the Sustainability Team and the Environment, Health, Safety and Technology (EHS&T) Committee of the Board of Directors. The Sustainability PMO reports to Neil Hawkins, Corporate Vice President and Chief Sustainability Officer.

# Awards and Recognitions during 2014

Dow consistently receives recognition from customers, industry trade groups, non-governmental organizations, government regulatory agencies and the news media for the Company's best practices and performance in sustainability and environmental, health and safety. The following awards are a sampling of the recognition earned by Dow in 2014.

## 1Q 2014

- Dow was named to *Fast Company's* annual Top 10 Most Innovative Companies in Energy for 2014, highlighting DOW POWERHOUSE™ Solar Shingles.
- Dow's Shanghai Research and Development (R&D) Center was 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.
- Dow was named as a Caring Company by the Hong Kong Council of Social Service in recognition of our outstanding contributions in the areas of community success, sustainability, and employee welfare.
- Dow's Dongguan site received the Clean Production Enterprise Award from the Guangdong province government in China.
- Four Dow employees – Mary Beth Heydrick, Shari Kennett, Jennifer Pfeiffer and Julie Thyne – were recognized by the STEP (Science, Technology, Engineering and Production) Awards by the Manufacturing Institute at a reception in Washington, D.C.
- Dow's site in Mozzanica, Italy, was 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.
- Dow received the "Innovation Award" during a Partner's Day event organized by Samsung Electronics and Samsung Partners' Association.
- Diana Deese, Dow R&D analytical technologist, has been honored with this year's American Chemical Society National Chemical Technician Award.
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- Led by Dow in partnership with Cannon Group companies, Afros, Crios, and Federchimica, the ENER-ICE project was selected as one of the six "Best of the Best" Environment and Information projects in 2013 within the LIFE Environmental Program of the European Commission.
- DOW FILMTEC™ ECO Reverse Osmosis Elements was presented with the Bronze Edison Award for the product in the Energy/Sustainability and Commercial Resource Management category.
- Dow's recyclable Polyethylene (PE) Stand-Up Pouch received the prestigious Environmental Stewardship Award at the Global Plastics Environmental Conference.
- Dow Texas Operations was honored by the Texas Chemical Council with a Sustained Excellence in Caring for Texas Award.
- Dow Brazil was recognized in the Golden Category in the Einstein Awards for Corporate Health, an initiative created by the Center for Preventive Medicine at the Albert Einstein Hospital in São Paulo, Brazil.
- Dow was honored by the American Chemistry Council with two Responsible Care® Energy Efficiency Awards for innovative energy-efficiency projects at Deer Park, Texas, and Midland, Michigan, sites.
- Dow was recognized by the National Business Group on Health with its Best Employers for Healthy Lifestyles® Global Distinction Award in Emerging Markets for the company's global commitment to employee health and the results of employee health programming in China.
- Dow receives special recognition in the national Responsible Care® Award competition for the Company's "Summer Spike" safety program in the Netherlands.

## 2Q 2014

- Dow's Jaipur Foot Initiative received the prestigious 2014 da Vinci Award in the Prosthetics/Orthotics/Controls category.
- Dow received the AmCham Shanghai Corporate Social Responsibility Partnership Award for our success in working with Junior Achievement China to advance sustainability education in China.
- Dow AgroSciences has garnered recognition from key community partners for its outstanding commitment

- Dow's St. Charles Operations was recognized with an Award of Honor for outstanding safety performance by the South Louisiana Chapter of the National Safety Council.

### 3Q 2014

- Five of Dow's market-focused solutions: BETAMATE™ 1630 Structural Adhesives; TRANSFORM® WG Insecticide and CLOSER™ SC Insecticide with ISOCLAST™ Active; TEQUATIC™ PLUS Fine Particle Filter; NEPTUNE™ Subsea Insulation System; and Garnet 2.0/TERAFORCE™ Resin Coated Sand Technology, have been honored by *R&D Magazine* as part of its prestigious R&D 100 Awards.
- Dow Thailand won 2014 Asian CSR Award in the Environmental Excellence category for the "Dow Chemical for Sustainable Industry" program.
- Dow and Preferred Sands, LLC were recognized with the 2014 Polyurethane Innovation Award at the annual Center for Polyurethanes Industry (CPI) conference in Dallas, Texas.
- The National Safety Council named Dow's Cathy White as one of its Rising Stars of Safety in 2014.
- The American Industrial Hygiene Association selected Dow's Adam McLeland as one of only 35 young professionals to participate in its prestigious 2014 Future Leaders Institute.
- Dow was named for 14th time to Dow Jones Sustainability World Index -- tying for the longest-standing representation in the chemical category since the list's inception.
- Dow was honored with the 2013 Supplier Excellence Award from Texas Instruments, which recognized the Company for its outstanding performance as a supplier of chemical mechanical planarization technologies and consumables.
- For the sixth consecutive year, Dow was the recipient of the 2013 TRANSCAER® National Achievement Award, a result of the Company's commitment to safety and security and for extraordinary support of the TRANSCAER® (Transportation Community Awareness and Emergency Response) principles.

### 4Q 2014

- Dow was recognized as a Top 100 Global Innovator by Thomson Reuters for the fourth consecutive year.
- Dow was recognized with the Best Open Innovator Award at Innovation 2014, one of the most renowned innovation conferences in Europe.
- Dr. Jaime Curtis-Fisk, Dr. Melinda Keefe and Dr. Beth Lorsbach were among 10 women honored with the Women Chemists Committee of the American Chemical Society's 2015 Rising Star Award.
- Dow has been honored with the "2014 Innovative Company in China" award by the China Petroleum and Chemical Industry Federation and *China Chemical Industry News*, a leading industry newspaper.
- Dow won the China Sustainable Package Technology Award for PacXpert™ Technology at the 5th annual China Packaging Innovation and Sustainability Forum held in Xiamen, Fujian Province, China.
- For the fourth consecutive year, Dow was chosen by Guia Exame de Sustentabilidade (Sustainability Assessment Guide) as one of the most sustainable companies in Brazil.
- Dr. Cheryl Teich, Engineering Solutions' Reaction Engineering Expertise Area Leader, was elected president of the American Institute of Chemical Engineers (AIChE), and Dr. Alan Nelson, global R&D director for Performance Monomers, will join her on the AIChE board of directors.
- Erica Ocampo, sustainability manager for Dow Packaging & Specialty Plastics, was selected as one of 13 winners in the 2014 Leadership Development Challenge hosted by the Corporate Eco Forum of which Dow is a corporate member.
- Dow was honored by the Human Rights Campaign for achieving a 100 percent rating on its corporate equality index -- a national benchmarking tool on corporate policies and practices related to lesbian, gay, bisexual, and transgender employees.
- Dow Thailand received the silver-level 2014 Corporate Social Responsibility Excellence Recognition Award from the American Chamber of Commerce in Thailand for the fourth consecutive year.

More information is provided in the [Awards and Recognitions](#) section on [dow.com](http://dow.com)

# Dow Co-Sponsors “Energy Bag” Pilot Program for Plastic Waste

## Collaborative pilot program demonstrates a recycle-to-energy alternative that creates value from non-recycled plastic packaging



Every day, Americans generate over four pounds of waste per person. Despite the proliferation of recycling programs during the past three decades, more than half of all U.S. trash (135 million tons) still ends up in landfills.

Through a collaborative effort to explore an alternative for plastic waste, Dow co-sponsored the [Energy Bag Pilot Program](#) which demonstrated that certain plastics like juice pouches, candy wrappers and plastic dinnerware that are not easily recyclable under traditional models can be converted into synthetic crude oil for fuel.

### The Program:

Dow, along with the Flexible Packaging Association, Republic Services, Agilyx, Reynolds Consumer Products and the city of Citrus Heights, California joined forces during 2014, to drive a collection pilot program intended to divert non-recycled plastics from landfills and to optimize their resource efficiency across the lifecycle. From June to August, approximately 26,000 households in Citrus Heights were provided with purple bags – known as “Energy Bags” – in which participants were asked to collect plastic items not currently eligible for mechanical recycling, so they could instead be diverted from the landfill and converted into energy. Collected items included juice pouches, candy wrappers, plastic pet food bags, frozen food bags, laundry pouches, and plastic dinnerware.

The purple Energy Bags were collected from homes during the community’s regular bi-weekly recycling program, sorted at the recycling facility and sent to a plastics-to-energy plant. Using its patented thermal pyrolysis technology, which is complementary to current mechanical recycling programs, Agilyx converted the previously non-recycled plastics into high-value synthetic crude oil. The crude oil can be further refined and made into valuable products for everyday use such as gasoline, diesel fuel, jet fuel, fuel oil, lubricants, and can even be transformed back into plastic.

### The Results:

Due to the commitment and support from the citizens of Citrus Heights, the results of the pilot show the potential for positive, long-term environmental results, including reduced landfill trash, more local energy resources and less fossil fuel energy dependence.

During the three-month program, there were six collection cycles, resulting in:

- **Nearly 8,000 purple Energy Bags** collected
- Approximately **6,000 pounds** of typically non-recycled items diverted from landfills
- **512 gallons** of synthetic crude oil produced from the conversion
- **30 percent** citizen participation
- **78 percent** of citizens said they would be likely to participate if given another chance



There are currently four commissioned commercial-scale pyrolysis plants operating in the U.S. with more planned, as well as numerous plants outside the U.S.

The pilot program proved that resource recovery of non-recycled plastics is a viable municipal process and brings us one step closer to reducing plastic waste by converting it to energy.

Learn more about the program and the impact it had on the Citrus Heights community by visiting our [Energy Bag website](#).

<sup>1</sup> Environmental Protection Agency, <http://www.epa.gov/epawaste/nonhaz/municipal/>

<sup>2</sup> Environmental Protection Agency, [http://www.epa.gov/epawaste/nonhaz/municipalpubs/2012msw\\_fs.pdf](http://www.epa.gov/epawaste/nonhaz/municipalpubs/2012msw_fs.pdf)

# Dow to Become One of the Largest Industrial Buyers of Renewable Energy

## Dow Accelerates Sustainability with New Wind Farm Agreement for Texas Facility

As a part of Dow's Energy Plan and its 2015 Sustainability Goals, Dow has taken another step towards reducing its own carbon "footprint." Marking milestone progress, Dow's Energy business has signed a long-term agreement with a new wind farm, currently under development in South Texas by a subsidiary of Bordas Wind Energy, LLC, a joint venture between MAP® and Enververse, LLC. The wind farm, to be complete in first quarter 2016, will span nearly 35,000 acres, and will supply Dow's Freeport Texas Manufacturing facility with up to 200 megawatts (MW) of wind power, equivalent to the amount of electricity needed to power more than 55,000 homes.

As a direct result, Dow is the first company in the U.S. to power a manufacturing site with renewable energy at this scale, and will become the third largest corporate purchaser of wind energy in the United States. As one of the largest industrial energy consumers in the world, Dow has consistently been on the forefront of new energy technology improvements. Dow is on track to meet its 2025 renewable energy goal as part of its Sustainability Goal commitments.

"Dow is always looking for win-win solutions – good for the environment and good for business," said Jim Fitterling, vice chairman of business operations at Dow. "By entering into this agreement, Dow is taking a serious approach to our future energy needs in Texas and cost-competitive wind energy is a great opportunity."

"Adding large scale renewable energy to Dow's manufacturing process is just one smart move that we can make to secure a future of sustainability, growth, and long-term competitive advantage," said Seth Roberts, global business director of the Energy and Climate Change portfolio at Dow. "This decision also serves as a systemic hedge against both energy and power price volatility, while improving our overall carbon footprint." This new wind deal results from Dow's long-term COAT vision and strategy as outlined in the [Dow Energy Plan](#), a four pillared, global approach to Energy and Sustainability:

- Conserve by aggressively pursuing energy efficiency and conservation.
- Optimize, increase and diversify domestic hydrocarbon resources.
- Accelerate the development of cost effective clean energy alternatives.
- Transition to a Sustainable Energy Future.



As a business and sustainability leader, Dow recognizes that today's unprecedented challenges also represent a tremendous opportunity for those who dare to envision a different future. Under Dow's Sustainability Goals, Dow commits to continuing to reduce our own footprint, including securing 400 MW of clean power by 2025.

A significant percentage of the world's wind turbine blades are made using Dow materials and Dow innovations. For example, Dow AIRSTONE™ Systems include epoxy and other thermoset systems for infusion, hand wet layup, tooling and adhesives. DOW ENDURANCE™ family of insulation materials for medium voltage underground power cables have a history of close to 30 years in-ground service, and are developed to last for many years. DOW UCON™ GL-320 Lubricant is a next-generation gear lubricant developed specifically for demanding applications in wind turbines and other gearboxes.

Dow and the science of applied chemistry will continue to make a difference in how we enhance energy sources, optimize use and minimize energy losses. We are committed to making uncompromising products that will leave the environment better than we found it. To view the full spectrum of Dow's innovations which enable renewable energy, please visit our [website](#).

# Dow Launches 2025 Sustainability Goals to Help Redefine the Role of Business in Society

In 2015 Dow announced a strategic set of commitments designed to redefine the role of business in society. Dow's 2025 Sustainability Goals use a global lens to magnify the Company's impact around the world, driving unprecedented collaborations to develop a societal blueprint that will facilitate the transition to a sustainable planet and society. Through harnessing Dow's innovation strengths, global reach, and dedicated employee population, the Company has set bold and aggressive sustainability targets designed to develop breakthrough product innovations, positively impact the lives of 1 billion people, and deliver \$1 billion in cost savings or new cash flow for the Company by valuing nature in business decisions.

"At Dow, by combining the 'Human Element' with our passion for science – we constantly strive to deliver long-term value with sustainable, global solutions," said Andrew N. Liveris, Dow's chairman and chief executive officer. "Our 2025 Sustainability Goals will help redefine the role of business at its intersection with society. They will be our guide as we work to improve the well-being of humanity with solutions that are good for business and good for the world."

## Dow's seven 2025 Sustainability Goals are as follows:

**Goal 1: Leading the Blueprint** – Dow leads in developing a societal blueprint that integrates public policy solutions, science and technology and value chain innovation to facilitate the transition to a sustainable planet and society. To develop the blueprint, Dow will engage in 100 significant dialogues across the public and private sector and establish 10 new collaborations. The initial blueprint will be published year-end 2017 and will be updated throughout the goal time frame, considering world progress towards sustainability and emerging challenges.

**Goal 2: Delivering Breakthrough Innovations** – Dow delivers breakthrough sustainable chemistry innovations that advance the well-being of humanity. By 2025, Dow's product portfolio will have a six-fold net positive impact on sustainable development. Dow products will offset three times more carbon dioxide than they emit throughout their life cycle and save three times more energy than they use throughout their life cycle.

**Goal 3: Advancing a Circular Economy** – By 2025, Dow will work with other industry leaders, non-profit organizations and governments to deliver six major projects that facilitate the world's transition to a circular economy, where waste is designed into new products and services.

**Goal 4: Valuing Nature** – Dow applies a business decision process that values nature, which will deliver business value and natural capital value through projects that are good for the Company and good for ecosystems. Dow will generate \$1 billion by 2025 in the form of cost savings or new cash flow as measured by net present value, a measure of future cash flows discounted to the present day.

**Goal 5: Increasing Confidence in Chemical Technology** – Dow increases confidence in the safe use of chemical technology through transparency, dialogue, unprecedented collaboration, research and the Company's actions. By 2025, Dow will work with non-profit, businesses and government partners to develop new, cutting-edge predictive modeling capabilities and integrate them into 100 percent of our new product assessments. We will also improve on the understanding of chemistry's potential and will develop and implement new predictive modeling capabilities.

**Goal 6: Engaging Employees for Impact** – Dow people worldwide directly apply their passion and expertise to advance the well-being of people and the planet. By 2025, Dow employees worldwide will apply their talents to positively impact the lives of 1 billion people. Dow employees will give 600,000 hours to support students and teachers in science, technology, engineering and math (STEM) education. Dow volunteers will complete 700 sustainability projects around the world.

**Goal 7: World-Leading Operations Performance** – Dow maintains world-leading operations performance in natural resource efficiency, environment, health and safety. By 2025, Dow will reduce its freshwater intake intensity at key water stressed sites and its waste intensity footprint by 20 percent. It will also obtain 400 megawatts of power demand from renewable sources and strive to eliminate unplanned safety events.

Dow's 2025 Goals, the Company's third set of sustainability-related Goals since 1995, build upon our previous decade-long commitments. Dow's 2005 Environment, Health & Safety Goals resulted in \$5 billion in safety, waste, water and energy savings after a \$1 billion investment. Dow's 2015 Sustainability Goals provided more sustainable products and solutions addressing global challenges in food, energy, sustainable water supplies and improved personal health.

For more information, visit [dow.com](http://dow.com).



The Human Element  
at Work.

# REDEFINING THE ROLE OF BUSINESS IN SOCIETY

Dow combines the power of science and technology to help address many of the world's most challenging problems. Together, the elements of science and the human element can solve anything.

Dow is proud to introduce its 2025 Sustainability Goals, which seek to redefine the role of business in society by unlocking the potential of people and science, valuing nature and collaborating courageously. **#Dow2025**

