29 June/6 July 2020
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Raising the bar

Responsible Care gets a fresh look as stakeholder concerns evolve

Closing the loop and stopping the waste:
Dow's sustainability roadmap

At Dow, our ambition is to be the most innovative, customer-centric, inclusive and sustainable materials science company in the world.

Our track record speaks to this ambition. Sustainability has been the cornerstone of Dow's business since our founding and underpins each and every decision we make. Our founder, Herbert H. Dow, was famous for saying "if you can't do it better, why do it?" This quote greets employees and visitors on the wall at our headquarters, representing the challenge we pose to ourselves every day.

These principles led Dow more than 30 years ago to create a voluntary board committee focused on environmental health and safety to ensure that sustainable principles were driven from the top of the company. A few years later, Dow was among the first to create an external sustainability advisory council - comprised of representatives from business, government, academia and NGOs - to advise and challenge the company on sustainability strategies and goals.

Recent events have reminded us that without a healthy planet we cannot have a healthy society, and that our products are critical to enabling both healthy people and a healthy planet.

It is with this in mind that we feel now is the perfect time to announce our accelerated efforts to both lead the materials science industry toward a carbon-neutral world to mitigate the impact of climate change, and to eliminate plastic as a source of waste and help transition the world to recover the value of plastic through the implementation of circular economy solutions.

→ DOW'S NEW SUSTAINABILITY TARGETS

PROTECT THE CLIMATE: As part of our action plan to put us on a path to carbon neutrality by 2050, we are committed to implementing and advancing technologies to manufacture our products using less resources.
TARGET: By 2030, Dow will reduce its net annual carbon emissions by 5 million metric tons versus its 2020 baseline (15% reduction). By 2050, Dow intends to be carbon neutral (Scopes 1+2+3 plus product benefits).

STOP THE WASTE: We are committed to investing and collaborating in key technologies and infrastructure to significantly increase global recycling.
TARGET: By 2030, Dow will help "stop the waste" by enabling 1 million metric tons of plastic to be collected, reused or recycled through its direct actions and partnerships.

CLOSE THE LOOP: We are committed to working directly with our customers, brand owners and the value chain to help redesign and promote reusable or recyclable packaging applications.
TARGET: By 2035, Dow will **CLOSE THE LOOP** by enabling 100% of Dow products sold into packaging applications to be reusable or recyclable.

"Climate change and plastic waste are among the greatest technical, social, and economic issues the world has ever faced, and our products and technology are critical to addressing both. At Dow, we have a responsibility and an opportunity to lead in addressing these global challenges. A sustainable future is attainable, but only if we continue to tackle these issues head-on, hold ourselves accountable, and work together to enable new science- and technology-based solutions that directly address both climate change and plastic waste." — Jim Fitterling, Chairman and CEO, Dow

DON'T LET IT GO TO WASTE.

Q&A with Mary Draves,
Chief Sustainability Officer, Dow

Q: Why is Dow accelerating its sustainability work and commitments?

A: The world is at a critical juncture and needs environmental leadership. Challenges such as climate change, ocean waste, water scarcity and loss of biodiversity continue to worsen, and businesses are realizing that we need to do more to address them.

In fact, sustainability promises to be the business disrupter of this decade, as evidenced by:

- Customers rolling out new sustainability goals around materials production and greenhouse gas (GHG) emissions;
- Employees demanding more of employers and want to be part of the solution; and
- Investors asking for ESG transparency and placing climate change and circular economy solutions at the center of their investment strategies

With the launch of our new sustainability targets, we embrace this opportunity to drive meaningful progress, and to do so by collaborating with our value chain and industry partners, governments, NGOs, communities and other stakeholders.

Q: What areas of sustainability are most important to Dow?

A: Dow's sustainability strategy is focused on three areas that are not only critical to our business but where we believe we can make a difference: climate protection, advancing a circular economy and innovating safer materials for our world.

These areas get right to the heart of our license to operate … plus they represent substantial opportunities to grow value for Dow and society.

CLIMATE PROTECTION- Addressing climate change is critical to achieving a more sustainable future. As both a major user of energy and producer of technologies that are essential to a lower-carbon future, we have a responsibility to act.

CIRCULAR ECONOMY- As one of the world's largest producers of plastic, we want to put an end to plastic waste. We have the opportunity to take a leading role in supporting the development and implementation of a more circular economy, taking into account a product's lifecycle – from creation to use to disposal – in everything we do and create.

SAFER MATERIALS- More than 96% of the world's manufactured goods are enabled by chemistry, and the potential of chemistry to bring social and environmental value alongside business value is limitless. We envision a future where every product we bring to market is sustainable.

Q: What steps is Dow taking to create a circular economy for plastics?

A: Plastic is an indispensable material for the world's consumers and a vital part of our journey toward a zero-carbon future. The environmental cost of plastics is approximately 4 times lower than alternative materials and they provide a better, more affordable, and healthier quality of life for billions of people.

At the same time, we are facing an unacceptable consequence: Too much plastic is lost to waste and is entering our oceans, clogging up our rivers, and polluting our natural environment. This cannot continue.

- Advanced recycling technologies and supporting infrastructure development;
- Mechanical recycling and offering recycled plastics as part of our product portfolio;
- Participating in key infrastructure projects alongside our partners that enable plastic recycling globally.

Our "close the loop" goal is our commitment to work directly with our customers, brand owners, and the value chain to:

- Help customers redesign and promote reusable or recyclable packaging applications where there is a clear environmental benefit.
- Ensure that 100% of Dow's packaging products are fully recyclable by 2035.

↑Mary Draves is the chief sustainability officer and vice president of Environment, Health, and Safety (EH&S) for Dow. She leads Dow's ambitious 2025 Sustainability Goals and corporate EH&S governance.

Plastic waste doesn't belong in the environment or a landfill

Innovative new collection options, reuse concepts, recycling technologies, and clean-up programs are making a difference across the globe - and proving that plastic is too valuable to waste. For more information about Dow's efforts to "stop the waste" and "close the loop" on plastics, please visit dont-waste.dow.com

Innovating to Close the Loop

In partnership with Fuenix Ecogy Group, Dow is working to produce new Dow polymers from plastic waste feedstock. The process breaks down mixed waste plastics into their original form to manufacture virgin polymers. The polymers produced will be identical to products from traditional feedstocks and can be used in the same applications. →

← Working with UPM Biofuels, a producer of advanced biofuels, Dow announced the commercialization of a plastics offering for the packaging industry made from a bio-based renewable feedstock. Dow is integrating wood-based UPM BioVerno renewable naphtha into its slate of raw materials, creating an alternative source for plastics production.

Helping bring a reliable supply of post-consumer resin innovations to customers through partnerships around the globe. For example, Dow is collaborating with Houston-based waste-optimization specialist Avangard Innovative LP (AI) to expand the company's plastic circularity portfolio to combine AI's waste collection and sortation technology with Dow's materials science expertise, application expertise and operational scale. →

← Dow initiated the "EnergyBag" pilot program in 2014. Today, in partnership with Reynolds Consumer Products, owners of the Hefty brand, the Hefty® EnergyBag® recovery program has successfully expanded. This program collects hard-to-recycle plastics from consumers at their curbsides and converts them into valuable resources, including energy, fuels, and other feedstocks.

Dow helped Kellogg's granola brand Bear Naked introduce the first fully-recyclable stand-up barrier pouch for food in the United States. The new granola packaging that's been rolled out across product lines is made from plastic film that consumers can drop off at 18,000 retail locations for recycling. →

← Dow is working with partners around the world to make polymer-modified asphalt roads with recycled plastic. Roads built from recycled plastic are often more resistant to corrosion and can reduce potholes and traffic jams. Additionally, tons of plastic is being diverted from landfills for the projects. And this is just the start; with our partners, we're working toward safer, more sustainable roads.

DON'T LET IT GO TO WASTE.

Collaborating globally and locally to Stop the Waste

Funded by Dow, Recycling for a Change enables Boomera and the NGO Fundación Avina to bring improved training, equipment, administration, and professionalism to cooperatives and workers. Within months of launching the program in Brazil's largest waste producer, São Paulo, productivity climbed to 70%, sales increased by 50%, and average monthly salaries rose above minimum wage. →

←Dow's Project Butterfly initiative in Africa unites residents, NGOs, government agencies, educators, community leaders, and manufacturers in unique partnerships to combat the crisis. The effort helps bridge the gap between recycling buy-back centers, sorting facilitators, collectors, and recyclers, oftentimes providing the first opportunity for residents to harvest waste and repurpose in a circular, renewable loop.

In 2018, the Public-Private Partnership for Plastics was launched to help the Thai government achieve their environmental goals with resources and funding from Dow and other leading companies in Thailand. Through workshops on how to segregate each type of plastic and a successful network of local authorities, communities, and recycling businesses, plastic waste sent to landfills was down 20% and the program aims to lower it to zero by 2022. →

ALLIANCE TO END PLASTIC WASTE

← Dow is helping bring together customers, brand owners, governments, waste management companies, and environmental organizations to collaborate toward solutions to this critical challenge. The Alliance to End Plastic Waste includes approximately 50 companies pledging $1.5 billion to develop and scale solutions that manage plastic waste and promote post-use solutions of plastic.

Dow is a founding investor in Circulate Capital's $106 million Ocean Fund, which invests in and supports start-ups, organizations and small and medium-sized enterprises across the entire plastic value chain, from innovations in material to advanced recycling technologies. It seeks to mobilize catalytic capital into the waste management and recycling industry to prove that investing in this sector is scalable in these countries and can generate competitive returns, while moving to solve the ocean plastic crisis. →

CIRCULATE CAPITAL

NextChem
Maire Tecnimont for Energy Transition

The Circular District: A virtuous decarbonization model

NextChem (subsidiary of Maire Tecnimont Group) presents an advanced model to face three of the greatest challenges of the future in an environmentally and economically sustainable way

↘ Planet Earth, 2025. The car is parked in front of the hydrogen distributor for refilling. The sky is clear, and the city is one of the least polluted in the world. Five years ago, it chose the path of energy transition by replacing fossil fuels with renewable energy as well as bio-chemicals and circular products. Behind the distributor, a freight train enters the Circular District: it is carrying plastic materials, partly industrial waste, including packaging from industrial, commercial and agricultural products, that are no longer usable and need to be recycled. The train is also carrying waste plastics from separate collections and dry municipal solid waste. These are still valuable resources and may be saved from incineration or landfill. All these materials are discharged and brought into an integrated system, the first of its kind and a model of excellence.

> **"Plastic waste is the oil of the third millennium"**
>
> P. Folgiero, CEO of Maire Tecnimont and NextChem

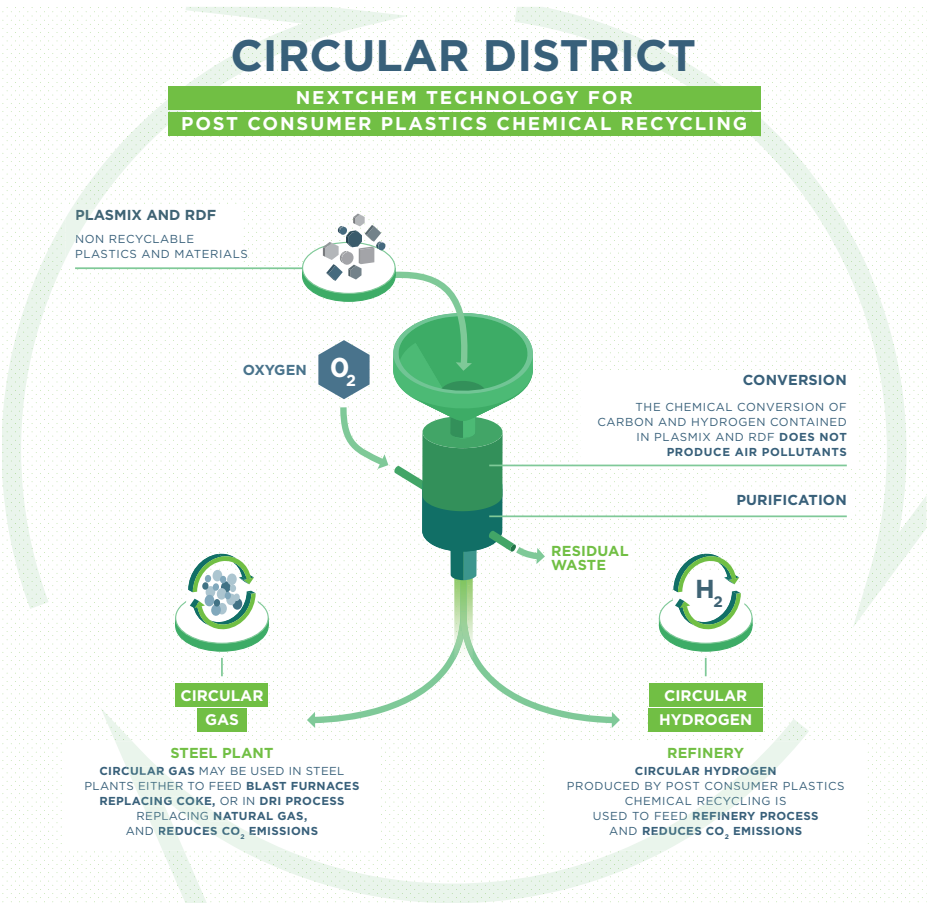
The higher-quality plastic waste is turned into new raw material, in the form of granulates which will be used to produce new plastic products. Non-recyclable plastic and dry waste enter a chemical convertor that picks up carbon and hydrogen molecules and turns them into syngas, a circular gas which will be transformed into circular hydrogen. The plant reduces CO2 emissions, limiting greenhouse effects. The energy required by the plant is generated by renewable sources, which also powers an electrolyzer that produces hydrogen from water.

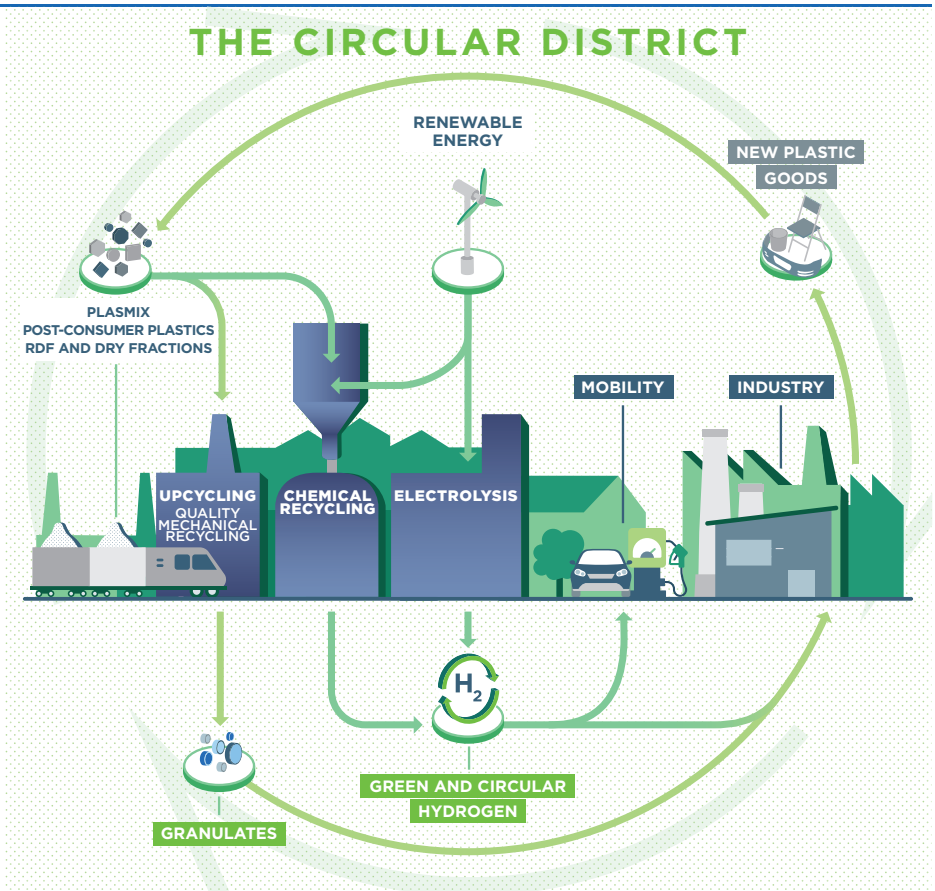
The hydrogen is injected in a bio-refiner and it is also used to power the distribution network for sustainable mobility. Today's fuel is a clever and clean source of energy, while yesterday it was rubbish. In NextChem's Circular District waste enters the process and by capturing hydrogen and CO2 it generates fuels and chemicals, reducing emissions. It is not a movie. It's neither Star Trek nor a science museum exhibit. It is a telling of what already could be reality. This is a project that can be realized within a few years in any country of the world.

The Circular District Model has been created by NextChem, a subsidiary of Maire Tecnimont Group, a leader in the oil & gas sector. NextChem was born two years ago to face the energy transition challenge through the engineering of industrial solutions for decarbonization and green chemistry. NextChem's model intends to provide a response to challenges in the years ahead: First, decarbonization, aiming at keeping Earth's temperature within limits; second, circular economy, aiming at turning waste into new resources usable in production processes, reducing extraction of raw materials and natural resources; and third, sustainable mobility.

The model is a viable means to transform a traditional refinery into a modern bio-refinery. It can also enable green recovery of industrial brownfield sites, mostly petrochemical and steel plants, which must start or consolidate their path to energy transition, giving a future and a chance to their business with a sustainable outlook.

NextChem's model is based on existing and validated technologies. For Eni, NextChem is developing the first two plants for hydrogen and methanol production from chemical conversion of plastics and dry wastes at the





Venice and Livorno refineries in Italy. A third plant is also under evaluation with Eni, to be located in Taranto, producing circular syngas to be used partly to produce hydrogen for refinery use and partly, in the form of CO, to feed the steel plant either in the blast furnace or the Direct Reduced Iron process. An agreement was signed on June 25 between Eni and NextChem to initiate the assessment for this third industrial initiative, strengthening the partnership for the technological development of the Circular District. NextChem's technology for syngas and hydrogen production from waste is based on a partial oxidation process, followed by a purification phase that avoids air pollutants. The circular gas obtained can be used as is within steel direct production processes for its carbon reduction properties, replacing natural gas or coke. This allows reduced GHG-related emissions, with a competitive cost. Circular gas can be also used as a basis to produce circular hydrogen, methanol, or several chemicals that are building blocks for the chemical industry.

The other piece of NextChem's Circular District is the technology which allows physical recycling of plastic waste: a proprietary technology named MyReplast, installed at an industrial plant in Brescia, Italy. This plant, with a capacity of 40.000 metric tons/year and a 95% efficiency, produces quality recycled polymers, which can replace fossil fuel-derived polymers to produce new plastic goods.

In the Circular District, green hydrogen can be produced through electrolysis from renewable resources. Maire Tecnimont Group is a front runner in the application of electrolysis technology for green hydrogen production, the most sustainable version of hydrogen, with zero CO2 emissions. NextChem's proposal designs a model for the future, which is feasible today, with proven technologies and economically sustainable. It is a modular proposal that could be integrated into existing sites and assets.

"Energy transition is a challenge which requires a visionary approach but also resilient and secure solutions," says Pierroberto Folgiero, CEO of Maire Tecnimont Group and NextChem. Maire Tecnimont, on its path of Green Acceleration, wants to provide its engineering know-how to equip traditional chemical plants to meet the Energy Transition challenge. This is why Maire Tecnimont has created NextChem: to offer to the market specialized expertise for industrial engineering in the green chemical field. "Our intuition was to start from our core skills in plastics and chemical products. We tried to understand how we could break chemicals down and build them up again with non-fossil feedstock, with biological, renewable or circular origin. We tried to fill the gap between the cost of fossil-based products and the cost of bio-based products, because we believe that green investments should be profitable," continues the CEO. "We have to create a business case to be attractive for green capital. We have seen epochal changes in investors' minds. Initiatives that were unthinkable a few years ago, today are possible. We have to turn green mobilization into industrialization; turn new concepts into facts and numbers, and those numbers have to be positive."

NextChem has implemented the refinery of the third millennium that uses waste as the oil of the future: the new bio-refinery is very similar to the conventional one, but it can produce fuels and chemicals starting from waste while capturing hydrogen and CO2. Considering that today the earth's population produces over two billion tons of waste every year, and that could double in the next thirty years, we are talking about one of the biggest available oil reserves of the planet.

During the post-Covid-19 period, energy transition will be necessary to relaunch the economy, help traditional and heavy industry recovery, and create new jobs. "The next period will be extremely challenging," says Fabrizio Di Amato, founder and chairman of Maire Tecnimont, which has more than 9.000 employees and offices in about 50 countries. "The current discontinuity due to the global pandemic calls for concrete actions to be taken to react to shocks and turn them into opportunities. Therefore, both private and public sectors worldwide have the duty to relaunch the economy by driving a 'global green new deal', and I am happy to say that we have already seen encouraging signs in this direction in several countries. Priorities need to be set, boosting infrastructures, green and digital ones, while ensuring a leaner bureaucracy to catalyze projects' development and attract investments. In this frame, Maire Tecnimont's mindset in circular economy is perfectly fit to be an agent of change and industrial enabler to support this much required energy transition, by combining our technological know-how with entrepreneurial spirit."

Innovation and commitment to sustainability: two sides of the same coin

By Bob Maughon

Our world is changing. We are facing some of the biggest sustainability challenges in our time. It's been projected that by 2050, our global population of 9.8 billion people will need 35% more food, 50% more energy and 40% more water. By that point, global carbon emissions will need to be on track toward our aspiration of net zero emissions. Real actions are needed to address these critical issues. We are in a unique position in that we have the ability to solve these concerns.

Bob Maughon, Executive Vice President Sustainability, Technology & Innovation, Chief Technology and Sustainability Officer, SABIC

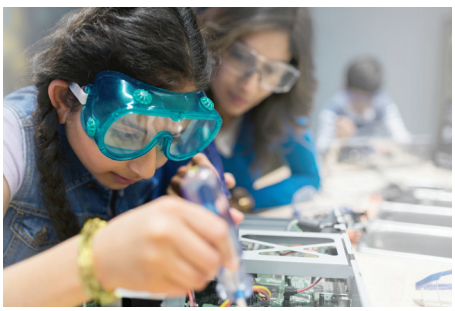
Embedding sustainability across our business

Sustainability and innovation have always been central to SABIC's business; the two are integrally intertwined. In order to achieve a more sustainable global society, true innovation is required. By embedding innovation and sustainability into our business DNA we have created new technologies and solutions, adopted processes that have transformed our governance and operational efficiency, diversified our workforce and collaborated with our suppliers and partners to improve supply chains and operations for the good of both society and planet.

As a result, we are taking steps to embed sustainability across our entire business. The changes to our business to date have certainly been revolutionary but the process has been evolutionary because change on this scale cannot be completed overnight. We have a comprehensive internal governance structure in place to ensure sustainability is a major consideration across our business. We have also implemented a series of sustainability committees and councils that sit across different levels of our business and feed directly into our global board of directors.

We have also adapted our business structure to allow for this shift. Recently, we moved our sustainability department to sit as part of the technology and innovation function to accelerate the adoption and development of new sustainability solutions across our organization.

As we move forward, I would like sustainability to be further embedded into the decision-making processes across businesses. In doing so, sustainability should be fundamentally embedded into the financial systems, and decisions should be further balanced based on financial and sustainability risks and targets. For example, it's one thing to calculate the carbon emissions and make plans to offset or develop investment scenarios resulting from the emission impact, but actually integrating the emissions impact/risk within the budget and capital prioritization and allocation processes is key to driving revolutionary change.



▲ SABIC's global CSR initiatives focus on science and technology education, environmental protection, health and wellness, and water and sustainable agriculture.

Investing in people and communities

The changes we have implemented would not be possible without our most valued asset: our people. We recognize diversity of experience, knowledge and ideas – as well as an inclusive and collaborative atmosphere – makes our company more creative, innovative and ultimately, sustainable. As our world and our industry changes, we need to attract people who fully understand the sustainability challenges and who are able to apply this knowledge to the development of new technology and innovations.

Coupled with our employees, we also have a responsibility as a global business to support people and communities around the world. SABIC's corporate social responsibility (CSR) program aims to bolster and help build healthy, resilient communities across the globe. We invest in social and environmental initiatives that benefit people and the planet, while supporting sustainable business development at scale.

The COVID-19 crisis has further expanded our CSR efforts in 2020, where we are collaborating with social organizations, health authorities and local bodies by making monetary and material donations to help overcome this pandemic, totaling approximately US$44 million to date. Our donations

are also providing materials that are high in demand to manufacture: sanitizers, medical equipment, preventive products and supplies, for frontline medical and healthcare workers.

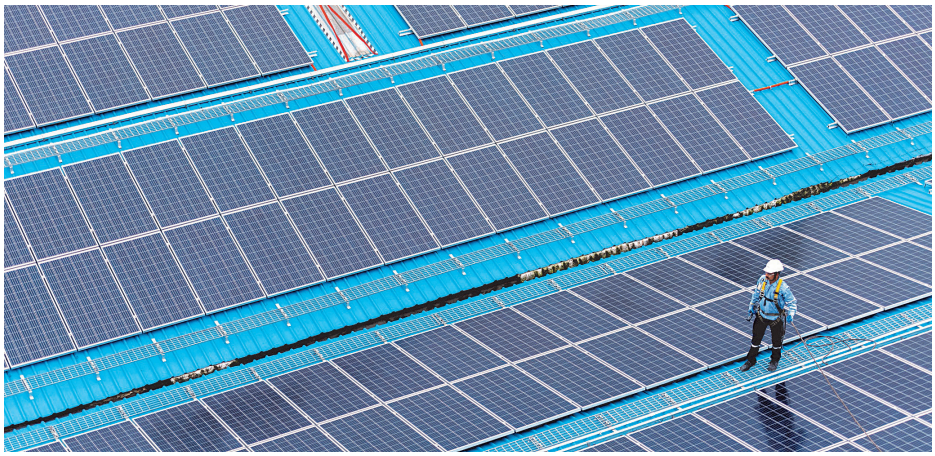
Sustainable product innovation

When it comes to product innovation, our main driver is to create more sustainable products and solutions for our customers, which is driving towards a circular economy, lower carbon emissions and increasingly deploy renewable resources. Recently, we introduced our TRUCIRCLE™ portfolio and services, an important milestone on our journey towards closing the loop on plastic waste. Our TRUCIRCLE offering is our umbrella for circular solutions that span design for recyclability, mechanically recycled products, certified circular products from feedstock recycling of plastic waste streams and certified renewables products from bio-based feedstock.

Despite the great strides we have been taking as a business, we acknowledge that no one company can drive true global change alone. SABIC's position in the value chain gives us unparalleled opportunities to work with upstream and downstream partners, including waste handling and conversion, direct material customers, OEMs, brand owners and retailers to develop innovative solutions that advance sustainability across many industries. We are working together with our peers in the petrochemical industry, experts outside the industry and global policymakers to advance sustainable business practices and reduce our global carbon footprint.

For example, we are collaborating with a wide range of customers and partners across the value chain to close the loop on used plastic. We are working with a range of partners to considerably increase our supply of certified circular polymers through the construction of our first semi-commercial plant, situated in the Netherlands. The project relies on value chain collaborations and innovations on an unprecedented scale.

Ultimately, we believe our culture of innovation will benefit the end-consumer. Consumers are increasingly taking into account the environmental impact of their purchases, wanting to purchase products that align with their values but are often reluctant to sacrifice their quality of life. They see the impact of plastic waste being discarded in the environment, but also enjoy the benefits of plastic products, particularly in food, healthcare, home care, and personal hygiene applications. We want to give manufacturers access to more sustainable materials so that they can give the end-consumer more confidence about buying products with plastic packaging, with the knowledge that the material can be recycled and repurposed.



▲ Solar panels at the SABIC compounding plant in Vadodara, India

Value chain collaboration

There are still many challenges ahead on our journey towards closing the loop on used plastic– including multiple variations in waste management from state-to-state let alone country-to-country – but we are on the journey towards transforming our industry and society into a circular economy and are working together with players across the value chain to bring about this change.

SABIC is also closely involved with several global alliances and frameworks that span the entire value chain and are working to drive systemic change. We are a founding member of the World Plastics Council and the Alliance to End Plastic Waste, working with members to support infrastructure development to manage waste and increase recyclability and supporting the UN and the G20 in their efforts to prevent marine litter and a member of The Ocean Clean Up, which is collecting plastic waste from our oceans. We are founding members also in the World Economic Forum Collaborative Innovation for Low Carbon Emitting Technologies Platform, working across the petrochemical industry to bring forward breakthrough solutions to reduce our industry carbon footprint. Through continuous engagement and collaboration, we strive to solve global challenges and shape an exciting new world that uses our finite resources wisely.

Over the coming years, the global chemicals industry needs to evolve and to innovate in response to the increasing impact of climate change and a society that rightly demands higher environmental standards. We also need to work together and align our aims and objectives. Industry-wide changes need to be made in consultation with governments, industry bodies and other companies to ensure we are working together to transform the entire value chain in a lasting, meaningful way.

While there is no doubt that this level of change is challenging, it also creates fertile ground to embrace new opportunities. We are already seeing huge benefits from our sustainability efforts. We foresee even greater developments as we begin to use our understanding of the global challenges and solutions and increasingly equate environmental, business and financial risk factors. We are transforming everything we do, the way we do it and our stakeholder relationships and are working towards a sustainable, circular future for our business, our people and the planet.

Scan the QR code to learn more about SABIC's commitment to sustainability by reading our Sustainability Report 2019.