STORY HIGHLIGHTS 2022

With this year's title of our Annual Report “Speeding up to circularity”, we are underscoring the urgency of becoming fully circular and thus increasingly independent of fossil resources. We are making steady progress on this path, such as our ambitious climate neutrality target by 2035, new innovative technologies and our ambition to work with industries and partners worldwide to make the world a brighter place. Our highlights from 2022 focus on three topics:

#CUTTINGEMISSIONS

#CRAFTINGCONNECTIONS

#CREATINGSUSTAINABLESOLUTIONS

CUTTING EMISSIONS

By 2035, we want to achieve net zero emissions for scope 1 and scope 2. How can this work and where do we save emissions?

#CUTTINGEMISSIONS #CRAFTINGCONNECTIONS #CREATINGSUSTAINABLESOLUTIONS

NOT EASY, BUT POSSIBLE

Climate neutral for scope 1 and scope 2 by 2035 – that's ambitious! But what does it mean? Scope 1 describes the emissions from our own production, and scope 2 the emissions from procurement and consumption of external energy.

These emissions are to be reduced by 60 percent down to 2.2 metric tons of CO_2 equivalent by 2030 – a major task that is not easy, but it is possible. With this ambitious target, we are one of the pioneers and accelerators towards climate neutrality in the industry.

- More sustainable manufacturing
- Renewable electricity
- Renewable steam

-100%
climate neutral by 2035

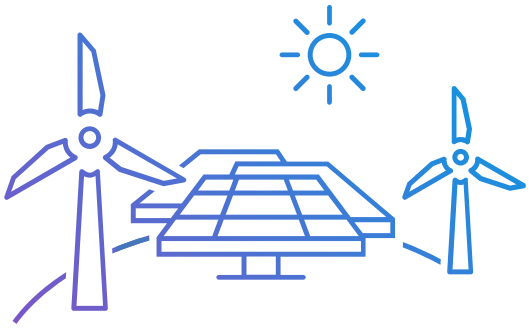
MORE SUSTAINABLE PRODUCTION, MORE CLIMATE PROTECTION

Climate neutrality by 2035 – no easy task for a global chemical company. In concrete terms, what are the levers that need to be adjusted? Take nitrous oxide, for example: this greenhouse gas is around 300 times more harmful to the climate than carbon dioxide (CO_2).

By increasing the use of highly efficient, innovative catalysts, Covestro is reducing emissions caused by nitrous oxide in its production processes. The catalysts are already being used at our sites in Shanghai, China, and Baytown, USA, thus helping us take a significant leap on our path to climate neutrality and a circular economy.

»Thats how we reduced GHG emissions in Baytown.«

Demetri Zervoudis,
Senior Vice President and Head of Performance Materials Operations of Covestro in North America



30%

of the energy demand of Covestro's largest site in Shanghai is met with power from wind and solar since 2023.

RENEWABLE ELECTRICITY

Covestro's production sites are being converted to green electricity, and Covestro is concluding supply agreements to this end. For example, onshore wind energy already covers 45 percent of the demand at the Antwerp, Belgium, production site, and 10 percent of Covestro Shanghai's electrical energy needs have so far come from solar parks.

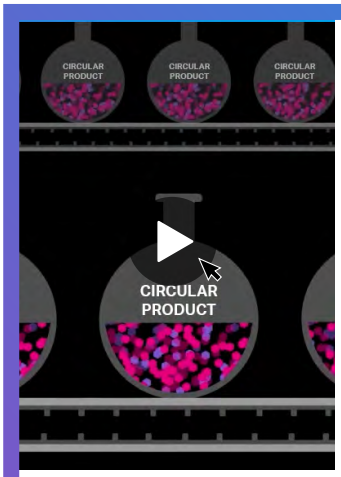
From 2023 on, the share of renewable energy to cover electricity demand in Shanghai will rise to around 30 percent. Starting in 2025, 10 percent of the electrical energy of the German sites will come from Ørsted offshore wind farms.

FULL STEAM AHEAD

Steam is an important source of energy in chemical production processes. Covestro plans to switch to renewable energy for steam generation. Heat pumps are a key technology in this endeavor: they enable the use of waste heat generated during production to produce steam. This steam can then be put to good use again. Together with Chempark operator Currenta, we are working on concrete solutions for heat recovery in Krefeld-Uerdingen, Germany.

»We can use heat pumps to take waste heat from our processes and reuse it in production. This helps us reduce greenhouse gas emissions.«

Maria Carrascosa Mas, Circular Economy Coordinator for NRW, Germany, of Covestro



FROM CRADLE TO GATE

We want to make it as easy as possible for our customers to opt for sustainability, which is why we are continuously expanding our portfolio of climate-neutral production. In 2022, we reached major milestones on this path – for example with variants of the plastic polycarbonate and the rigid-foam raw material methylene diphenyl diisocyanate (MDI) that are climate-neutral[1] from the cradle to the factory gate. At the beginning of the manufacturing process at suppliers, vegetable residues are added and mathematically assigned to the products by means of a certified mass-balance approach. In some cases, renewable electricity is also used. As a result, no CO_2 emissions are generated on balance within this part of the value creation cycle.

[1]Carbon neutrality is the result of an internal assessment of a partial product life cycle from raw material extraction (cradle) to the factory gate (of Covestro), also known as cradle-to-gate assessment. The methodology of our LCA, for which an external audit and certification will soon be available, is based on the ISO 14040 and 14044 standards. The calculation takes into account biogenic carbon sequestration based on preliminary data from the supply chain. No compensation measures were applied.

CRAFTING CONNECTIONS

How can we shape a sustainable future together? The path to the circular economy needs a strong will within the company and joint efforts with global partners and industry.

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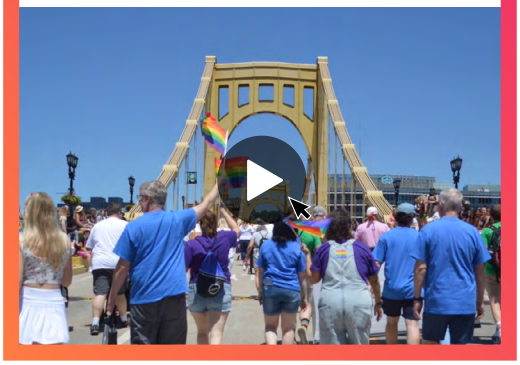
BOOSTING INNOVATION

Innovation is part of our identity at Covestro. As there is great potential in our employees worldwide, we always encourage them to develop, drive forward and implement new solutions. For example, we regularly recognize successful innovation projects at our regional Innovation Celebrations. In 2022, our colleagues again took part in the events in North America and Asia-Pacific. In addition, globally outstanding research successes were honored with the "Covestro Science Medal" at the largest trade fair for plastics and rubbers, "K 2022".

COLORFUL TOGETHER

When we talk about diversity, equity and inclusion at Covestro, we are talking about our 18,000 employees in 21 countries worldwide. We are dedicated to maintaining a discrimination-free work environment in which every colleague can develop freely, regardless of their origin, religion, age, sexual orientation or gender identity. Our journey is far from over, but we are on the right track. In 2022, we continued to educate, discuss and show solidarity at our sites around the world – **because we are 1 and we are colorful**.



MEETING THE INNOVATORS

Innovations are the key to a more sustainable society and economy. Behind innovations are pioneers who are researchers, inventors or developers in search of solutions for the future.

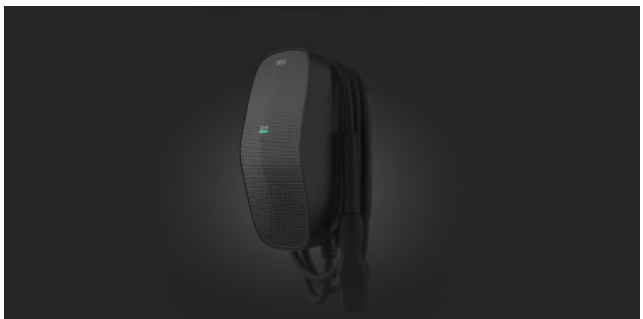
Covestro works with innovators at suppliers, customers, Original Equipment Manufacturers (OEMs), start-ups, designers, universities and other partners to promote the use of alternative raw materials and renewable energies, but also to develop efficient recycling technologies.

FROM TARP TO BAG TO TARP TO ...

New kinds of collaborations are needed to truly have a circular economy for materials. The collaboration between bag manufacturer Freitag, tarp manufacturer Heytex and material manufacturer Covestro is an example of what such a circular future can look like. Whereas Friday's bags were previously made by classic upcycling of old truck tarps, this idea is now being brought to the next level – and closing the circle along the way.

The key? Using thermoplastic polyurethane (TPU) as the material for the truck tarps. The advantage? TPU can be completely recycled, so the tarp becomes a bag, the bag a tarp, the tarp a bag – and so on.

ELECTRIFYING PARTNERSHIPS



If all charging stations worldwide were made from Makrolon® RE instead of fossil-based materials, a total of

450,000

metric tons of CO_2 emissions could be saved from 2022 to 2030.

With our products, we contribute to creating a sustainable living environment for the long term – for example with electric mobility. For the expansion of electric mobility, significantly more charging stations are required. EVBox is the first manufacturer to use the more sustainable plastic Makrolon® RE from Covestro for its Livo wall box.

Makrolon® is produced with the mass-balance approach using biowaste and residual materials and partly with renewable electricity. It therefore also has a small carbon footprint. Another plus is that customers can use it directly as a substitute for its fossil-based counterpart.

CREATING SUSTAINABLE SOLUTIONS

What solutions do we offer to support the shift toward a circular and climate-neutral future? What are the future markets and opportunities to drive sustainable growth and how does Covestro come into play?

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ENERGY SOURCE OF THE FUTURE

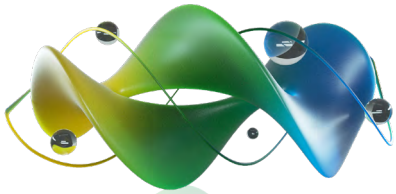
Much of our hope for the climate transformation rests on hydrogen. For Covestro, it is both a valuable raw material and an energy source of the future. And yet green hydrogen is still in short supply. International partnerships, for example with the Australian company Fortescue Future Industries, promise to help in this regard. Up to 100,000 metric tons of the valuable molecule are expected to find their way to Covestro's production facilities soon. The reward for the efforts? Up to 900,000 metric tons fewer CO_2 emissions per year.

CIRCULAR AND INTELLIGENT

To make the circular economy a reality, the raw-material base of the chemical industry needs to be completely converted to alternative non-fossil or recycled materials. In order to make it clear which products contain such alternatives, Covestro now marks them with "CQ." Products with this label currently contain at least 25 percent of alternative raw materials. In the long term, all products are to be available in a climate-neutral version. In addition, innovative approaches and solutions for recycling will also be highlighted with the CQ label. The CQ label thus helps customers to quickly find the most sustainable materials and solutions in our portfolio.

UNLOCKING THE FULL RECYCLING POTENTIAL

In principle, plastic waste can be recycled over and over and reused for new products. In this way, raw materials can be put to optimal use and fossil resources conserved. That is why innovative recycling processes are a priority at Covestro: the company has now bundled these technologies under the name "Evocycle® CQ." Together with partners from all areas of reclamation, the aim is to tap the recycling potential for Covestro products along the entire value chain.



Each year, the EU alone produces 40 million used polyurethane mattresses – stacked on top of each other, this would be 900 times higher than Mount Everest. Thanks to Covestro's innovative chemolysis technology, the two principal raw materials of the PU foam can be recycled

100%

SOMETHING IS SPINNING!

How can we get more energy from wind? By producing larger and cheaper rotor blades that last longer and can thus generate more electricity, for example.

How can this be done? With materials from Covestro! At its Wind Technology Center in Leverkusen, which opened in 2022, Covestro works with customers to research innovative materials and processes for the wind energy sector. Chemical development and practical application go hand in hand – creating sustainable solutions for a better climate.

THE IMPACT OF POLYURETHANE SOLUTIONS:

–8% Blade manufacturing costs (pultrusion and infusion resin)

–30% Maintenance and repair costs (leading edge protection coating)

–2.4% Levelized Cost of Energy (LCOE)

LET'S KEEP IT WARM

Buildings are a major contributor to rising greenhouse gas emissions. Heat escapes due to a lack of insulation, resulting in more heating being used than necessary. This is where methylene diphenyl diisocyanate (MDI) comes into play.

Excuse me? MDI is used in large quantities worldwide as a raw material for the production of rigid polyurethane (PU) foam, a very effective insulating material for buildings. Covestro is a world leader in the production of MDI. Using MDI can reduce the heating or cooling requirements of buildings by up to 70 percent, which reduces CO_2 emissions and is easy on the wallet at the same time.