

Is the grass greener?

What is the European Green Deal? And is it good for the environment, people and business? **Dominique Huret** talks to a key industry player to find out how one international business sees it

The European Green Deal is the most important political project of the current European Commission (EC), which has committed to achieving a net-zero economy by 2050. That is at least the view of Carolina Gregorio, Dow's sustainability policy and advocacy strategy director, when speaking to *Eco-plastics in Packaging* at a recent in-house company event.

"When the president of the Commission, Ursula von der Leyen, got the presidency she said that transforming the European economy into a more sustainable, greener and more resilient one was top of her 'to-do' list," says Gregorio. "The Green Deal is the priority for the EC, and matches Dow's own net zero 2050 goal. That remains true despite what has happened with Covid-19 and conflicts in Europe."

It is fair to say that this circular transformation towards net zero is a tremendous business opportunity for the European economy, because it has a huge dependence on raw materials and fossil fuels. The current crisis in Ukraine is already reinforcing the need to decouple the EU from imports of fossil sources.

"The Green Deal is a growth opportunity in the eyes of policy makers in Europe and we are fully subscribing to this position. We believe it is a tremendous opportunity for the industry," she adds. "If we are able to reduce the fossil dependence of the plastics industry by using alternative carbon sources, with mechanical, chemical recycling, bio-based feedstock, and also – in the future – carbon capture, and use technologies to produce new plastics from carbon emissions, we are then advancing the zero strategy and reducing plastics waste by seeing it as a valuable resource."

At the same time, the project promises to generate green jobs and companies like Dow will then be better positioned to produce products that are good for the environment, good for the business and good for the people. That's why the EU is so important in the political arena, says Gregorio.

"Now, the industries have to deliver on their promises," she states. "By 2050, all industries in Europe as a continent have to become circular and be net-zero oriented. The EU Green Deal is laying the foundations for the economic transformation and we call for material- and technology-neutral policies that can support the plastics industry transition."

It's important not to compete with other industries and sectors when it comes to the Green Deal, cautions Dow packaging EMEA marketing director Romain Cazenave. Thankfully, the Green Deal concerns all industries and all materials, whether automotive, construction or, indeed, packaging. It is neither material nor market-specific. "It is material-agnostic, so it's not about pointing out who is doing the right thing. It is about being circular and carbon neutral, with no singling out of one material or another. It is tackling every part of the economy, and plastics are part of the economy. It is not about singling out the good and the bad."

Cazenave believes that everybody needs to become circular and carbon neutral, and politics has probably started the focus on plastics because these materials were lagging behind in terms of circularity versus other materials. But he maintains that all materials need to play their part.

"No doubt, circularity and carbon neutrality are the two objectives for the plastics packaging industry," says Cazenave. "The best way is to make sure the carbon stays within the loop and stays useful in the loop for as long as possible. Of course, you could say that in landfill, you do not release carbon dioxide into the atmosphere. The carbon should stay in the loop in a useful way. How you achieve this is a much longer topic!"

For Gregorio, there are very clear trends around how to achieve these objectives. At the end of November, and after much political discussion, she points out, some revisions of the key policy in Europe for packaging and packaging waste were published. These revisions will be open for debate



Above: Carolina Gregorio was talking at Dow's Terneuzen facility in the Netherlands

for a year-and-a half between the European Council and Parliament, but must be approved within two years. As such, the end of 2024 is the target for a final review of the legislation.

Acknowledging the revision to the Packaging and Packaging Waste Directive, published at the end of November 2022, Gregorio stresses

"When the president of the Commission, Ursula von der Leyen, got the presidency she said that transforming the European economy into a more sustainable, greener and more resilient one was top of her 'to-do' list"

Carolina Gregorio, Dow

that Dow embraces recyclability as an essential requirement, as well as the mandatory recycled content targets for all plastics packages. In fact, she wants to see a bolder goal for food-contact packaging to support the industry's ambitious investment plans for circularity.

As for what these new EU policies will bring, Gregorio expects them to ultimately accelerate plastics circularity and carbon neutrality. "To be more precise for packaging, for example, it will bring the first legal definition of recyclable packaging that includes a whole value chain view, incorporating end-of-life steps in the definition," she explains, specifying that packaging waste needs to be collected, sorted, and recycled at scale.

Gregorio says that the current lack of a definition generates a lot of confusion in the marketplace. Recyclability is becoming a legal requirement for packaging in Europe as of 2030, based on design-for-recycling guidelines, which will be developed with industry input. This policy review will also come with other measures such as minimum recycled content for all plastics packaging, reuse targets for some packages, and packaging waste reduction targets for each European country.

"At Dow, we embrace these new measures to incentivise industry investments in circularity and we are committed to offering circular plastics to meet rising consumer market needs," she says.

How then, can governments and industry work together to achieve net zero? And how are they already doing it?

Admitting that such objectives require collaborations across the value chain and into legislative and regulatory areas, Gregorio cites Dow's need for a raft of different technologies and innovations to be scaled up in order to achieve its own 2050 net-zero target set out in its Path2Zero strategy. Dow must look at how it manufactures its own products (Scope 1), what energy sources it uses to produce them (Scope 2), and what raw materials are used (Scope 3 upstream). Other areas include logistics and the value of products to enable lower carbon solutions (Scope 3 downstream).

"We are committed to it, and our Terneuzen 2030 flagship project is a demonstration of that commitment and the progress we are making," she says, highlighting the work going on at the Dutch facility.

The Terneuzen project is in three stages, which Gregorio details: "For 2026, in our Generation 1, we plan to construct a clean hydrogen plant where by-products from core production processes will be converted into hydrogen and the carbon dioxide will be separated, leaving clean, circular hydrogen as fuel. Before 2026, we expect to eliminate 1.4 million tonnes of carbon emissions. This represents approximately 7 per cent of the Netherlands' industry 2030 emissions reductions target. In addition, we will send some of the hydrogen to a new hydrogenation unit to recycle plastics waste."



Left to right: Packaging EMEA marketing director Romain Cazenave, sustainability policy and advocacy strategy director Carolina Gregorio, and EMEA operations vice-president Kepa Díaz de Mendibil discuss Dow's Path2Zero

Key projects

Dow is partnering with French company Valoregen to scale up France's first mechanical and chemical recycling plant under one roof. The site, in Damazan, will have the capacity to process up to 70,000 tonnes of plastics waste per year. Dow will be the main off-taker of post-consumer resins from this new plant. The project has received investment of around €17 million

(\$17.8m) and is expected to be operational and delivering recycled materials at the end of the first quarter this year.

Meanwhile, Dow and Mura Technology have committed to scaling up the advanced (chemical) recycling of plastics in Böhlen, Germany, as part of a global cooperation programme. The facility is expected to be the largest of its kind to date in Europe, and

the first of its kind in Germany.

Mura's HydroPRS advanced recycling process uses supercritical steam to convert most forms of plastics, which have previously been deemed 'unrecyclable'. Dow's support of Mura enables the latter to build on its multi-year pipeline of planned projects, the first of which will be sited in Teesside, UK, and should be totally operational in 2023.

Dow's Generation 2 is focused on the replacement of gas turbines by electrical systems. "Through collaboration with external partners, we will capture carbon and convert our cracker's gas turbines into e-motors based upon renewable power," she explains. "This will reduce carbon emissions even more, to almost 43 per cent. This collaboration with small- to medium-size businesses is expected to add nearly 4,000 temporary jobs and 400-500 permanent jobs at our Terneuzen site."

The work achieved in Generations 1 and 2 will create the basis of Generation 3, says Gregorio. At this stage, Dow plans to implement e-cracking, a new cracking technology relying on clean electricity instead of the combustion of fossil fuels. "Our plan, at some point, is to power e-cracking with renewable, low or carbon emissions-free power," she details. "This should bring carbon reductions

towards zero across our Terneuzen site.

"As sufficient renewable power becomes available for e-cracking, the hydrogen from Generation 1 can also be used as a building block to reintroduce as feedstock into the process and into our products at Dow or at industrial partners in the area, erasing the need for carbon storage. In addition, this hydrogen can be used as clean fuel for other applications in society."

Dow calls for science-based and material and technology-neutral circular and net-zero policies to stimulate industry investments in low carbon technologies and circular solutions to scale up what the company is doing with value chain partners. It also wants to see ambitious associated investment and innovation support measures to promote industry transition to a circular economy, and to net zero.