

Position on carbon capture and storage/utilization



Key messages

- An important part of our approach to meeting our GHG emissions reduction targets includes employing carbon capture and storage (CCS) to reduce emissions from hard-to-abate manufacturing operations where no other suitable technical or economical solution exists today.
- Investments in carbon capture and storage technology must be made with urgency. Accelerating these projects will require supportive government policies, subsidies, transparent and timely permit processing, and improved community awareness and education to provide the certainty required for investment.
- In the long term, we believe in the potential of carbon dioxide (CO₂) utilization as an alternative to permanent storage. We are exploring opportunities to develop and commercialize technologies that will utilize CO₂ to make high-value products.

Introduction

LYB is committed to reducing greenhouse gas (GHG) emissions from our global operations and value chain and to delivering solutions that advance our customers' climate ambitions and support society's transition to a low carbon world. Our goals are to 1) achieve net zero scope 1 and 2 GHG emissions from our global operations by 2050; 2) reduce absolute scope 1 and 2 GHG emissions 42% by 2030 (relative to a 2020 baseline); 3) reduce absolute scope 3 GHG emissions 30% by 2030 (relative to a 2020 baseline); and 4) procure a minimum of 50% of electricity from renewable sources by 2030 (based on 2020 procured levels).

Globally, our combined scope 1 and 2 annual emission footprint is approximately 23 million metric tons, with approximately 75% of these emissions from North American operations and 25% from Europe. Scope 1 and 2 emissions from other regions of the world represent less than 1% of our total. Our pathway to reach net zero scope 1 and 2 GHG emissions in our global operations includes four critical levers:

- **Energy efficiency:** optimizing our use of energy in all our manufacturing processes to lower our energy footprint, reduce GHG emissions, and reduce operational costs.
- **Renewable electricity and electrification:** sourcing electricity from renewable electricity projects primarily through power purchase agreements and electrifying processes to reduce our reliance on fossil fuels.
- **Hydrogen:** increasing the use of hydrogen in our fuel mix used onsite for energy to replace other more carbon intensive fuels.
- **Carbon Capture and Storage / Utilization (CCS/CCU):** reducing direct emissions by enabling the capture and storage or reuse of CO₂ from our operations.

This position document addresses key aspects of one of these levers, carbon capture and storage / utilization.

Why does CCS matter to LYB?

1. We have committed to reaching net zero scope 1 and 2 GHG emissions in our global operations by 2050 with ambitious interim targets defined in line with the latest climate science.
2. Carbon capture is an important reduction lever in our approach to reaching our targets, both as a necessary enabler to produce low-carbon hydrogen as a replacement for other more carbon intensive fuels and to enable greenhouse gas emissions reductions from hard-to-abate sectors, where no other suitable technical or economical solution exists today.
3. Longer-term, LYB believes in the potential of valorizing captured CO₂ by bringing it back into the value chain and using it to manufacture high-value chemicals that could replace current fossil-based feedstocks and support the global transition to net zero.

What do we need? LYB's position.

Capturing, storing, and ultimately valorizing CO₂ requires collaboration across the value chain, including the development of necessary infrastructure.

Government support is required to accelerate CCS deployment. The viability of CCS projects relies on government support from guarantees, subsidies, financial instruments, and market-making policies for low-carbon products. Governments need to create a stable financial investment framework, clarity around permitting procedures, and timely environmental permit reviews and approval processes to provide the certainty needed to drive investment.

CCS infrastructure is also a critical element for the development and deployment of low-carbon hydrogen based on methane reforming or other technologies based on renewable energy, as the steam methane reforming process produces hydrogen gas from natural gas while also producing CO₂ that can be captured and stored. Because of this, we support policies that promote the development of CCS infrastructure and the connection of industrial facilities to CO₂ storage facilities.

Multinational agreement on storage and transport infrastructure is also important to the long-term success of CCS. LYB supports CCS market functions based on non-discriminatory principles and development of cross-border transportation and storage infrastructure. The legal framework for CCS transport infrastructure should encompass all different means of transportation, including pipelines, barges, and trains, with the goal of achieving the lowest possible system costs for CCS.

Finally, improved community awareness and education is needed to help increase public understanding and acceptance of CCS as a necessary lever to help industry decarbonize. We support public outreach and education on CCS, including on how CCS fits into the broader context of decarbonization efforts.

About us

We are LyondellBasell (LYB) – a leader in the global chemical industry creating solutions for everyday sustainable living. Through advanced technology and focused investments, we are enabling a circular and low carbon economy. Across all we do, we aim to unlock value for our customers, investors and society. As one of the world's largest producers of polymers and a leader in polyolefin technologies, we develop, manufacture and market high-quality and innovative products for applications ranging from sustainable transportation and food safety to clean water and quality healthcare. For more information, please visit www.lyb.com or follow [@LyondellBasell](https://www.linkedin.com/company/lyondellbasell) on LinkedIn.