

THE NEEDS FOR CO₂ IN THE EU27 SOCIETY IN THE TIMEFRAME 2030–2050

VITO Study for CEMBUREAU - Summary

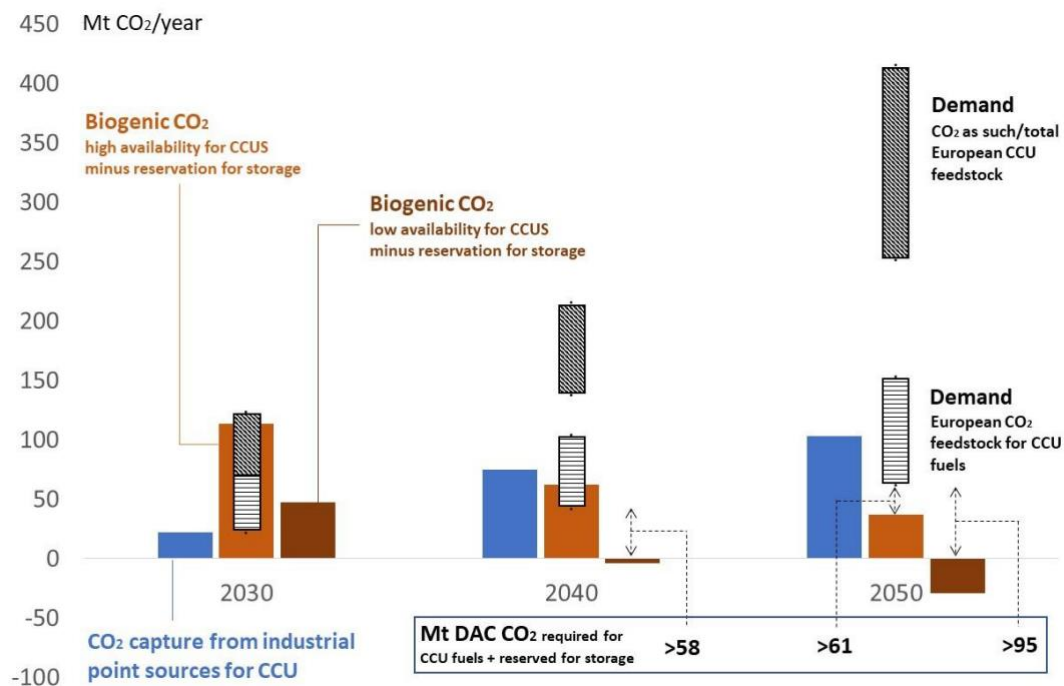
Introduction

With two thirds of its emissions process-related, one of the cement industry's main pathways to decarbonisation is carbon capture, utilisation and storage (CCUS). Carbon captured from cement plants can be used as a raw material in a variety of industrial applications.

It is therefore critical to understand what the CO₂ needs of the EU society will be in the future and see how these needs will be met by different CO₂ streams, biogenic, atmospheric or industrial. [VITO's recent study for CEMBUREAU](#) explores the European demand and availability of CO₂ from these different streams at different time horizons at a 2030-2050 horizon.

Key findings

- The European CCU market is predicted to need an annual CO₂ feedstock of between 70 and 120 million tonnes of CO₂ by 2030, increasing to 250 and 420 million tonnes of CO₂ by 2050
- The [VITO study](#) emphasises the vital role that industrial CO₂ point sources are anticipated to play in supplying the necessary feedstock for CO₂ / European CCU applications in the future. CO₂ captured from industrial point sources can contribute significantly to the supply of carbon feedstock for the production of CCU chemicals and fuels.
- The European cement industry, if dedicating 25% of its captured emissions to CCU, could supply 4-35% of Europe's CO₂ needs from 2030 to 2050.
- Conversely, the study shows that there are uncertainties surrounding the availability and deployment of Direct Air Capture (DAC) and biogenic CO₂ sources. In particular, the study draws attention to the significant energy requirements of future DAC applications, which may necessitate is 1.2 to 4 times more energy than the current electrified capture technology for point sources.
- On the availability of CO₂ from biogenic sources, the study concludes that, today, accessible CO₂ ranges between 21Mt and 63Mt annually. CO₂ sourced from direct air capture is estimated to reach 5 Mt by 2030.
- Against this background, the study concludes that capturing CO₂ from European industrial point sources will remain an important source of CO₂ supply in a variety of industrial applications.



The Role of the EU Policy

- The decision to no longer consider CO₂ emissions put to use in Renewable Fuels of Non-Biological Origin (RFNBO) as being avoided from 2041 is not justified and should urgently be reviewed¹. The benefits that CCU products brings in terms of climate mitigation and reliance on fossil fuels should be recognised.
- As part of the 2040 target setting, there is a need for a clear and detailed assessment of (i) the CO₂ needs across the different industrial applications (ii) the availability of each type of CO₂ source (industrial, atmospheric, biogenic) over the 2030-2050 period. The need for industrial CO₂ vs alternatives (BECCS, Direct Air Capture) should be clearly assessed and documented as part of the EU 2040 target plan.
- A clear framework should be developed for other types of CO₂ utilisation (e.g. CCU in chemical products)
- A recognition that the capture of unavoidable process emissions from hard-to-abate sectors and their use which replaces fossil CO₂ contributes to climate mitigation.
- The CO₂ accounting rules in the ETS Directive should be reviewed to ensure that CO₂ allowances are surrendered by the 'emitter' of the CO₂ contained in a CCU product, and not by the capturing installation.

¹ Please see CEMBUREAU [position paper](#) on Draft Delegated Act on Greenhouse Gas Savings from RFNBOs & Recycled Carbon Fuels, February 2023