

January 2023

## Outlook for Carbon Removals Post-COP27

With over 70 side-events focused on carbon removals at COP27, the Conference would go on to be aptly dubbed the 'Removals COP' by its conclusion. This, however, should have come as no surprise. The market for carbon removal credits had attained record growth and delivery rates in 2022, with around 600,000 tonnes of purchases made in the market, a figure that was over five times higher than purchases made the previous year. This trend is set to continue into 2023 and beyond, especially as many new removal credit suppliers enter the market.

Nevertheless, it is imperative to note that many of these deals were bilateral 'pre-purchase' agreements, where suppliers and buyers enter into long-term contracts to remove CO<sub>2</sub> in the future. Additionally, the bulk of this figure was due to one mega-deal (400,000 tonnes) involving the aviation company Airbus and 1PointFive, who are developing projects using Carbon Engineering's Direct Air Capture (DAC) technology. 2022 also saw the emergence and/or expansion of a number of marketplaces dedicated to selling removal credits, notably Puro.Earth, Carbonfuture, Patch, Watershed, and Supercritical. This is both good and bad news.

The good news is that a market for removals, whether tech- or nature-based, has finally picked up and that DAC, a climate solution once thought too expensive to pursue, is seeing an unprecedented surge in demand. In part, this is due to its high permanence of removal but also to its effectiveness in addressing legacy emissions, which has made it a necessary inclusion in the IPCC's 1.5°C climate scenario. The emergence of different marketplaces is also a clear signal that a market for removal-based credits exists.

The bad news is that at least half of the pre-purchase orders (involving DAC and concrete mineralization) will take four to five years to fulfil and so they will not contribute to immediate climate action. Also, the market is still limited to a very select number of suppliers and large corporate buyers with voluntary climate targets, such as Shopify, Microsoft, Swiss Re, Stripe, and JPMorgan Chase. The development of different standards and removal methodologies also risks creating fragmentation and confusion in the market, if they are not properly aligned across different verification bodies.

Indeed, it was this latter verification and certification point that took centre stage in the lead-up to the discussions at COP27. Not only have different initiatives and standards emerged for removal methodologies in carbon markets, including by Verra, Gold Standard, CCS+ Initiative, and Puro.Earth, but governments are also exploring how to best incorporate removals into their climate policies. Earlier in 2022, the Biden administration passed the historic Inflation Reduction Act (IRA) which increased the level of tax credits for carbon removals and carbon capture and storage technologies relative to its 45Q predecessor, a move considered as a game changer for the entire industry as it expands the range of market adoption and renders more projects financeable in the US.

In November 2022, the EU put forth a proposal for a carbon removal certification framework (CRCF) that would reliably certify high-quality carbon removals and harmonise action across Europe. The CRCF is based on four key principles that ensure: accuracy of quantification of removal benefits; additionality; long-term



storage; and environmental sustainability. Throughout 2023, the European Commission will consult an expert group to develop tailored certification methodologies for the different types of removal activities. It is also worth noting that, as of yet, certified carbon removals are not included in the scope of the EU-ETS which was set up with emission reductions in mind. Introducing removals into the European compliance market can help the EU reach a net-negative target but may require fundamental changes to its structure.

COP27 was also a stage for the inauguration of other removal-focused, cross-border agreements. The Carbon Dioxide Removal (CDR) Mission launched the 'CDR Launchpad', a coalition of governments committed to advancing development of removal technologies by investing in demonstration projects and encouraging knowledge exchange across parties. First-wave participants include the EU, UK, Norway, US, Canada, and Japan and the initiative is aimed at driving costs of CDR down to less than USD 100/tonne and enabling the scale-up to the level needed for meaningful results, defined as gigatonnes removed per year globally within two decades.

The Conference also saw a number of leaders from the Global South voice their support for deploying carbon removal solutions in their respective countries, along with the passage of local legislative acts to support CDR investments in Massachusetts and California. Perhaps most critically, COP27 aimed to address key issues for the inclusion of removal solutions within the framework of Article 6, including what counts as 'removal' activities, but unfortunately fell short of addressing them in time. Some of the outstanding issues to be addressed this year at COP28 include how to monitor removals and over what timeframes, how to account for leakage and liability in case of reversals and how to ensure human and indigenous people's rights are not violated. The Article 6.4 Supervisory Board has called for more input from parties by March 2023 and will take its recommendations into COP28.

In short and on an optimistic note, 2022 and COP27 represented a major milestone for carbon removals; the ground is now set for necessary next steps to take place throughout 2023, including adopting appropriate and unified methodologies and effective supporting policies. However, it is worth noting that while action should be taken to ensure CO<sub>2</sub> stocks in the air are urgently and swiftly reduced, this should be done fairly and equitably, not at the expense of other emissions reduction and mitigation efforts. This starts with ensuring corporations and governments invest in removal activities as a complementary solution to neutralising hard-to-abate sectors and towards achieving net-zero, and even net-negative, targets. This will be an important focus of policymaking in the run up to COP28.

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