

Views on removals activities under the Article 6.4 mechanism

We are pleased to provide the following views on **A6.4-SB005-AA-A09** Information note: Removal activities under the Article 6.4 mechanism Version 04.0.

Section 3. 2 Eligibility of activity types under the Article 6.4 mechanism

Statement in information note	Views
<p>“Engineering-based removal activities are technologically and economically unproven, especially at scale, and pose unknown environmental and social risks”</p>	<p>There are 18 direct air carbon capture and storage (DACCS) facilities currently in operation (IEA, 2022).</p> <p>Institute data indicates that there are 6 bioenergy with carbon capture and storage (BECCS) plants in operation today, with 56 at various stages of development with completion dates mostly in 2024 or 2025 (https://www.globalccsinstitute.com/co2re/).</p> <p>Results have shown that continuous improvements via learning-by-doing can mitigate some environmental impacts of direct air capture (Qui et al., 2022).</p> <p>Examples of research that enable the responsible scaling of engineering-based removals include The World Resources Institute for DACCS and the American Institute of Biological Sciences for BECCS.</p>
<p>“Currently these activities account for removals equivalent to 0.01 MtCO₂ per year compared to 2,000 MtCO₂ per year removed by land-based activities.”</p>	<p>This is a flawed comparison as engineered and land-based removals fundamentally operate on different infrastructure and storage timescales.</p>
<p>“These activities do not contribute to sustainable development, are not suitable for implementation in the developing countries and do not contribute to reducing the global mitigation costs, and therefore do not serve any of the objectives of the Article 6.4 mechanism.”</p>	<p>There are no scientific references in this statement and it is unclear how conclusions are being made.</p> <p>On suitability for implementation in developing countries, engineered-based removals are suitable for use worldwide provided there are geological conditions for storage. The IPCC Sixth Assessment Report Working Group 3 (IPCC AR6 WG3) states:</p> <p><i>“CCS is an option to reduce emissions from large-scale fossil-based energy and industry sources provided geological storage is available. When CO₂ is captured directly from the atmosphere (DACCS), or from biomass (BECCS), CCS provides the storage component of these CDR methods.”</i></p>



IPCC AR6 WG3 continues to say:

“The technical geological storage capacity is estimated to be on the order of 1000 GtCO₂, which is more than the CO₂ storage requirements through 2100 to limit global warming to 1.5°C, although the regional availability of geological storage could be a limiting factor. If the geological storage site is appropriately selected and managed, it is estimated that the CO₂ can be permanently isolated from the atmosphere.”

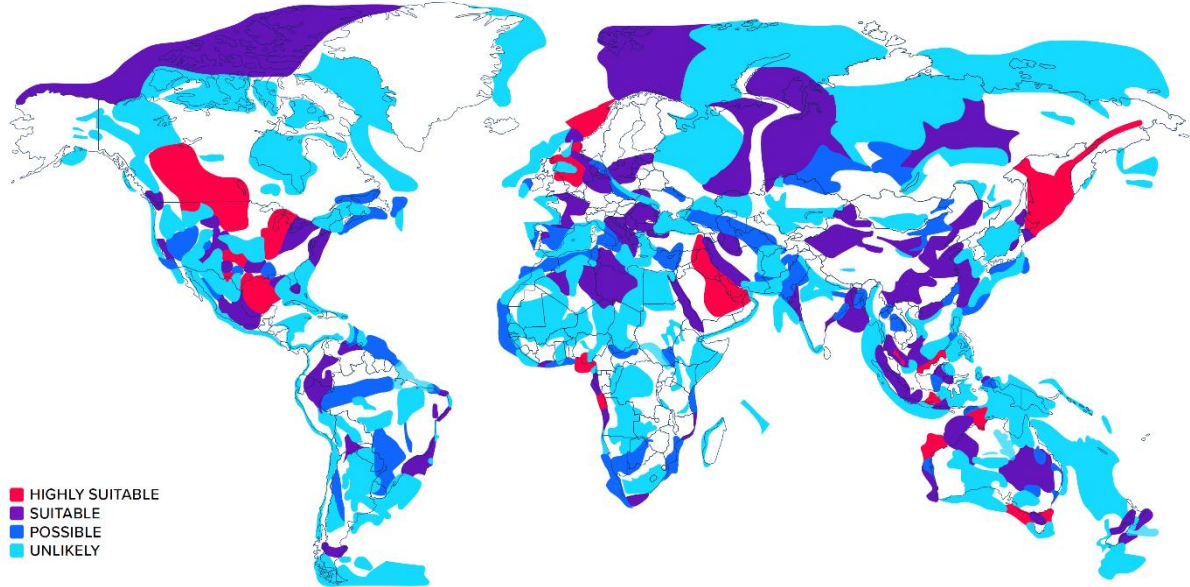
A map is provided in Annex 1 on suitable geological storage areas in the world.

Underpinned by CCS, engineered carbon removal play an key part in IPCC and International Energy Agency (IEA) net-zero mitigation scenarios. The IEA also states that these approaches are **needed to balance emissions that are technically difficult or prohibitively expensive to eliminate**, notably in the transport and industry sectors. (<https://www.iea.org/reports/ccus-in-clean-energy-transitions>).

The **IEA Net Zero (NZE) Scenario** relies on around 1.5 Gt of energy sector CDR from both BECCS and DACS, while the median **IPCC WG3** scenario sees 12 Gt of energy sector CDR in 2050, largely from BECCS and mostly to offset continued use of oil in the transport sector. (See Annex II for graphical comparison).



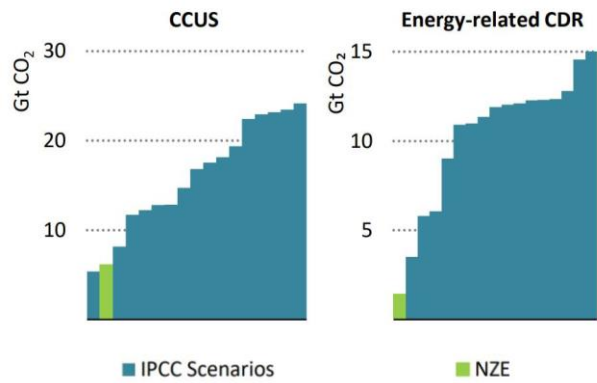
Annex I: Suitable storage regions of the world based on the Global CCS Institute's Storage Basin Assessment Database (https://www.globalccsinstitute.com/wp-content/uploads/2021/10/2021-Global-Status-of-CCS-Report_Global_CCS_Institute.pdf)





Annex II: Comparison of CCUS and Energy-related CDR for selected IPCC WG3 scenarios that achieve net zero emissions in the energy sector in 2050, and the IEA NZE Scenario in 2050

(<https://iea.blob.core.windows.net/assets/830fe099-5530-48f2-a7c111f35d510983/WorldEnergyOutlook2022.pdf>)



Note: "Energy-related CDR" refers to DACCS and BECCS.