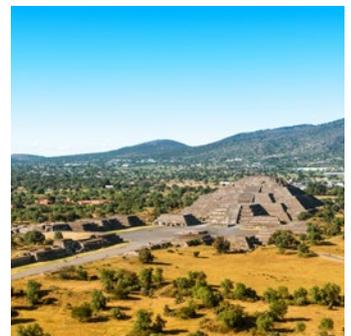


# Key Financing Principles for Carbon Capture, Utilisation and Storage

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These Key Financing Principles for CCUS were prepared in close consultation with public and private financial sector organisations, through a series of meetings held under Chatham House Rule between January-July 2020. The development process for the Principles engaged several Multilateral Development Banks, major international private banks, regional and national finance institutions, institutional investors, other investment firms and advisers.



## Key Financing Principles for CCUS

Climate change mitigation is one of the defining challenges of our time. The financial sector is integral to meeting global climate change goals and are committed to playing their part. CO<sub>2</sub> capture, utilization and storage (CCUS) is one of the few technologies available that can decarbonize both power generation and industrial sectors such as cement, steel and chemical production with verifiable emissions reductions. CCUS is also one of the most viable sources of negative emissions or CO<sub>2</sub> removal (CDR) through the capture and storage of CO<sub>2</sub> from biofuel use – bioenergy with CCS (BECCS) – or directly from the air – direct air capture (DAC). CCUS is therefore critical – according to the Intergovernmental Panel on Climate Change (IPCC) achieving international climate goals will be significantly harder, if not impossible without CCUS. CCUS is proven, with 21 large-scale commercial projects in operation today. However, CCUS deployment today is still well below where it needs to be, despite CCUS costs being comparable with many CO<sub>2</sub> mitigation technologies widely deployed today.

The Finance Sector Lead Group for CCUS, established under the auspices of the Clean Energy Ministerial (CEM) CCUS Initiative, brings together banks and other finance sector organisations to explore the barriers to large-scale investment in CCUS, including how to establish a revenue stream from CCUS projects. The Key Financing Principles for CCUS detailed in this document comprise principles and recommendations to support the establishment of a business case for CCUS and to kick-start the financing of CCUS projects globally. These principles and recommendations are for consideration by governments, industry and the financing sector who each have a unique and essential role to play in the development of a CCUS industry – no single stakeholder can realise CCUS alone. The Key Financing Principles for CCUS apply to both developed and developing countries. However, differences in countries' circumstances, including priorities, challenges and constraints, need to be taken into account when considering these principles and recommendations at a national level. The Key Financing Principles for CCUS build on the extensive work that has been done by governments, industry and the financial sector to develop financing options for CCUS.

Further detail on the status of CCUS and the necessity of CCUS in addressing climate change are provided in the CCUS Fact Sheet at the end of this document.

### Key Financing Principles

- 1. Industry, governments and the financial sector should communicate the importance of CCUS.** According to the IPCC, meeting climate change mitigation targets will be significantly harder and more expensive without CCUS. CCUS is therefore fully aligned with sustainable, green, low-carbon taxonomies. The importance of CCUS needs to be clearly communicated by governments, industry and the financial sector through policy and strategic decisions and directly to their constituents, customers, shareholders, environmental organisations, and to the broader public.
- 2. Government policies should establish a revenue stream for CCUS to facilitate private sector investment.** Governments should apply lessons learned from successful CCUS projects and policies globally as well as from analogous technology policy to establish a business case for CCUS projects and de-risk private sector investment. Renewable energy policies such as grants, feed-in-tariffs, tax incentives, mandates, etc., have successfully established revenue streams, driven investment, and reduced the costs of the targeted technologies<sup>1</sup>. Features of these policies can be replicated and tailored to achieve parallel results with CCUS.

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<sup>1</sup> Examples of policies driving major clean energy technology deployment programmes also include the 1978 US “Public Utility Regulatory Policies Act” PURPA, the feed-in tariff mechanisms enacted by several European countries to drive wind and solar-PV power, as well as for example contract-for-difference –type mechanisms.

- 3. The financial sector, industry and governments should work together to facilitate CCUS investment and help mitigate the risks of CCUS deployment.** No single stakeholder can provide the investment necessary and accept all risks associated with establishing a CCUS industry. CCUS projects in operation today are true public-private partnerships with investment shared and risks assumed by the appropriate risk owner. As the sector is being established, high levels of government support may be required however the private sector need to play their part. The role of the private sector will increase over time as the sector matures.
- 4. Industry, the financial sector and governments should work together to establish a pipeline of CCUS projects.** Support mechanisms should shift focus from individual projects to the establishment of a CCUS industry. Government policies and incentives should be repeatable and support a portfolio of projects. Industry and the financial sector should identify prospective projects and determine the interventions and support required to bring them to operation. Pre-commercial investment is required to characterise and confirm viable storage locations globally.
- 5. The financial sector should ensure CCUS is part of their climate change strategies and is eligible for sustainable finance.** More and more shareholders are demanding the financial sector invests sustainably, in line with environmental, social and governance (ESG) standards and goals. Given CCUS can achieve significant and verifiable CO<sub>2</sub> emissions reductions, as demonstrated by numerous operational projects, financial institutions should include CCUS in their climate change strategies and ensure its eligibility in sustainable investment policies and mechanisms.
- 6. The financial sector should strive to accelerate the development of novel financing approaches to CCUS.** The finance sector is actively looking for new financial mechanisms and business models for CCUS projects. These efforts, in partnership with governments and industry, should continue and expand to find ways of addressing the specific investment requirements and characteristics of CCUS projects.
- 7. Governments should consider CCUS as part of their Nationally Determined Contributions (NDC) under the Paris Agreement.** CCUS is necessary to meet Paris Agreement targets and therefore governments should consider including it in their current and future NDCs as well as in their Information to facilitate Clarity, Transparency and Understanding (ICTU) that detail their NDC commitments<sup>2</sup>. Furthermore, collaboration and cooperation on CCUS deployment should be aided via mechanisms enacted under Article 6 of the agreement. Including CCUS under Article 6 will encourage novel CCUS financial and cost-sharing mechanisms that benefit both developed and developing countries, helping to meet their NDCs.
- 8. Governments should utilize existing development and climate institutions to advance CCUS in developing countries.** Governments should encourage existing climate change and development institutions, such as multilateral development banks and climate change funds, to work with developing countries to identify and advance low-cost CCUS investment opportunities.
- 9. Governments should consider CCUS investment as a means of creating and preserving sustainable jobs and providing a low-carbon stimulus to the economy.** CCUS investment benefits broad segments of the economy including power generation, cement, steel and chemical production and can provide regional low-carbon stimulus through investment in CCUS hubs and clusters. Jobs created and preserved through CCUS investment are for the long-term, forming part of sustainable growth trajectory and a decarbonized future.
- 10. Industry, governments and the financial sector should consider CCUS investment as a means of driving innovation and supporting broader industrial development.** Investment in CCUS research, development and demonstration leads to spill over benefits across industry and the broader

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<sup>2</sup> In line with the COP-24 Katowice Rulebook.

economy including, but not limited to catalysis, material science, process engineering and energy efficiency. Investment in CCUS performance improvement and cost reduction has already led to the deployment of innovative low-carbon technologies and processes in power generation as well as cement, steel and chemical production.

## CCUS Fact Sheet

- **CCUS is critical to meeting climate change goals.** The IPCC Fifth Assessment Report (AR5) found that without CCUS, only 50% of the climate change models used could achieve 450ppm, commensurate with a 2°C climate target. The International Energy Agency (IEA) Sustainable Development Scenario for limiting temperature rises below 2°C requires 750 million metric tons (Mt) of CO<sub>2</sub> to be captured and permanently stored per year by 2030 – approximately 20 times the volume of CO<sub>2</sub> stored annually today – increasing to 2.8 billion metric tons by 2040.
- **Addressing climate change without CCUS will be more expensive.** The IPCC AR5 found that achieving a 2°C climate target without CCUS will cost on an average of 138% more than with CCUS.
- **CCUS technology is proven today.** 21 large-scale CCUS projects are in operation today, securely storing almost 40 Mt of CO<sub>2</sub> per year. Large-scale CCUS projects have been successfully and safely operating since 1996 for climate change purposes, and since the 1960's in association with oil production.
- **CCUS costs are competitive with mitigation technologies that are widely incentivised and deployed today.** CCUS can be deployed today from as low as USD 20/tCO<sub>2</sub>, in specific industrial sectors such as natural gas production and processing. The IEA estimates that over 500 MtCO<sub>2</sub> per year of CCUS is available today for below USD 50/tCO<sub>2</sub>.
- **CCUS is critical to industrial decarbonization.** According to the IEA, CO<sub>2</sub> emissions from industry represents approximately one quarter of total global emissions and can be some of the hardest emissions to mitigate. CCUS is one of the most cost-effective, and in some cases only, solutions available to achieve significant emissions reductions in many industrial sectors such as cement, steel and chemical production.
- **CCUS can remove CO<sub>2</sub> from the atmosphere leading to negative emissions.** CCUS can generate negative emissions by capturing and storing CO<sub>2</sub> from the combustion of sustainable biofuels (BECCS) or directly from the air (DAC). The IPCC considers such CO<sub>2</sub> removal (CDR) technologies as a means of offsetting hard or expensive to reduce CO<sub>2</sub> emissions elsewhere in the economy which is especially critical in scenarios that overshoot global atmospheric CO<sub>2</sub> concentration targets.
- **Investment in CCUS is well below other CO<sub>2</sub> mitigation technologies.** Investment over the last 10 years amounted to around USD 10 billion, less than 0.5% of the USD 2.9 trillion investment in renewable technologies over the same period.
- **Policy mechanisms are available with demonstrated success in generating CCUS investment and driving CCUS deployment.** Economy-wide policies are driving CCUS project development today, from the CO<sub>2</sub> tax on offshore emissions in Norway to the 45Q tax credit in the United States.