GLOBAL CCS INSTITUTE

Submission to the review and update of the Strategic Plan for the GCF's second replenishment period, 2024-2027

The Global CCS Institute (GCCSI) is pleased to submit inputs to inform the review and update of the Strategic Plan for the second replenishment period of the Green Climate Fund (GCF). GCCSI is an international non-profit think tank whose mission is to accelerate the deployment of carbon capture and storage (CCS), with 140+ members from government and industry.

Does the GCF's long-term strategic vision – of promoting paradigm shift and supporting developing countries in the implementation of the Paris Agreement and UNFCCC – remain relevant and ambitious? Has the GCF set out sufficiently clearly how it will deliver its long-term strategic vision?

An opportunity for a meaningful and effective paradigm shift that is needed today can be found in combining CCS with the programmatic approach. CCS represents an important opportunity for countries to meet a large proportion of their emissions reductions. The deployment of CCS however faces significant barriers that can be overcome by the GCF's programmatic approach, creating an important paradigm shift in regions where the need for CCS is greatest.

The Green Climate Fund can play a pivotal role in developing and unlocking the investment environment for CCS. To do so, stronger policy with strong action by 2030 is crucial. Today, the Updated Strategic Plan (USP) is likely to meet less than 0.8-0.9% of needs stated in country NDCs – this number needs to substantially increase. The role of CCS is increasing in NDCs and around 80% of LT-LEDS submitted to the UNFCCC recognise a role for CCS[i].

Using the programmatic approach, the GCF is in the unique position to finance each of the key steps to deploy many countries' first-of-a-kind CCS project. Concessional financing and support derived from climate finance is essential for CCS in developing countries for several reasons. Firstly, hard-to-abate sectors represent a large part of many developing country emissions, with very few options other than CCS by which to decarbonise. Secondly, barriers to the deployment of CCS are best and most cost-effectively overcome when neighbouring countries respond collectively. Ways that the GCF's programmatic approach will reduce CCS deployment barriers are demonstrated in Table 1.

Table 1. Programmatic approach solutions to CCS deployment barriers

CCS deployment barrier	Programmatic approach solutions
Long lead times needed to identify and confirm storage sites	Countries with appropriate storage sites can import CO_2 from others in the same region
Capital intensive in the order of hundreds of millions to billions of dollars per project	Leverage blended finance for CCS projects and networks that would otherwise be unavailable
Countries with a high need for CCS have placed an insufficient value on CO_2 to justify investment in CCS projects	Help support the development of policy mechanisms that assign a sufficient value on the capture and storage of CO_2
Addressing counter-party risks	Encourage the deployment of regional CCS networks, with multiple countries taking part in the programme

The inclusion of CCS in a GCF programmatic approach will ensure the GCF's relevance through an appropriate process of connecting the economic, social and environmental needs of national entities with careful consideration of the current time, period and circumstances. The approach will also ensure

increased global mitigation ambition, introducing a much-needed and targeted focus towards financing developing country 1.5˚C objectives according to the latest scientific findings and recommendations.

Country ownership can be secured in the GCF's programmatic approach early on, as countries that wish to receive funding through 'child projects' under the programme would have ownership of the project by default. A dynamic consultation processes on CCS projects/networks with national governments and Accredited Entities (AEs) that is aligned with Nationally Determined Contributions (NDCs), Long-Term Development Strategies (LT-LEDS) and 1.5˚C mitigation ambition needs, can provide participating countries meaningful and ambitious project financing options to select from in a range of industrial sectors.

In setting a long-term strategic vision, the GCF's programmatic approach for CCS can be aligned, designed and phased across the different replenishment cycles, continually increasing country readiness and implementation up to 2027 and beyond.

What global, regional, national and subnational developments, trends, needs and opportunities relevant to adaptation and mitigation programming in developing countries should the GCF take into account in preparing for its second replenishment period? What lessons can be learned from experience to date?

What enhancements or adjustments to operational modalities, policies or institutional capacities might be required to support successful execution of the GCF's strategic vision and programming priorities?

The GCF needs to take into account the importance, effectiveness and relevance of CCS for its second replenishment period. CCS technology has been in use for more than 50 years, where today there are currently 29 CCS facilities in operation with a capacity to capture and store 40 million tonnes of CO_2 per year, which is more than the annual energy-related emissions of many countries including Denmark, Ireland and New Zealand[ii]. As demonstrated in the IPCC Working Group III report, **CCS is a key technology to achieve the Paris Agreement objectives, and drastically decreases our global emissions in a relatively short timeframe.** Working Group III also reports that *"Current global rates of CCS deployment are far below those in modelled pathways to limit global warming to 1.5˚C or 2˚C"*[iii]. To achieve net-zero emissions, CCS capacity must increase more than a hundredfold by 2050, with capacity needing to scale from 40 million tones today to multiple gigatons by mid-century.

The broad application of CCS is what makes it such a strong tool in the overall climate change tool-kit. This is expanded on below:

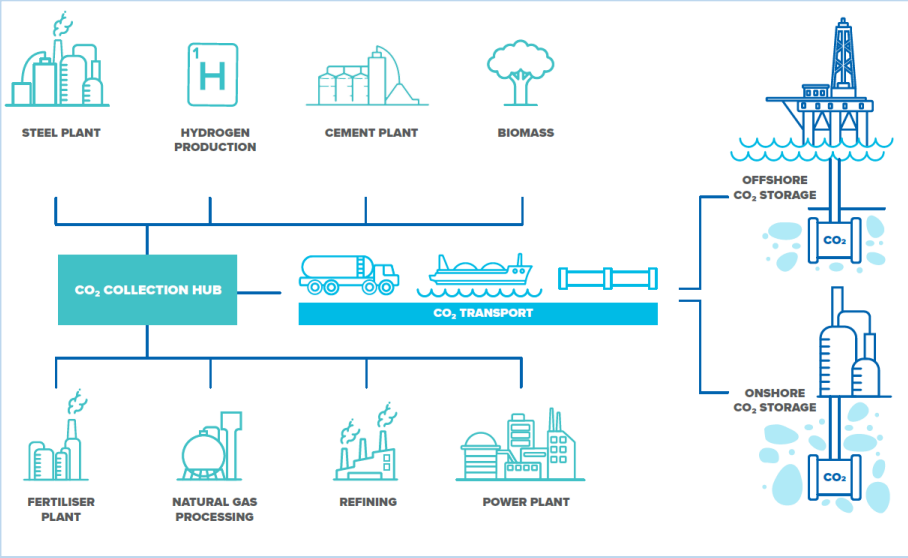
- **CCS provides one of the most mature and cost-effective options to decarbonise the cement, iron and steel, and chemical sectors** which are hard-to-abate due to their inherent process emissions and high temperature and heat requirements.
- Low-carbon hydrogen produced with CCS can enable and **accelerate the buildout of hydrogen infrastructure** required to help reach net-zero.
- Power plants with CCS can supply dispatchable low-carbon electricity and grid stabilising services that **support increased deployment of renewables.**
- CCS also provides the foundation for technology-based Carbon Dioxide Removal (CDR) solutions including **bioenergy with CCS (BECCS) and direct air capture and storage (DACS)** – two key negative emission technologies which can compensate for remaining emission sources such as aviation and removal carbon dioxide from the atmosphere.

Strengthening policy and financial support in developed country party nations, for example in the United States and Europe, has substantially improved the investment environment for CCS and we

are seeing a rise of networks for both CCS projects and innovative business partnerships. This needs to happen in the developing world as well. Many companies, cities, and financial institutions now have net-zero goals driven by demands from citizens and shareholders, and government and industry leaders alike, and are realising we simply can't achieve our net-zero goals without a healthy amount of CCS in the mix.

The GCF programmatic approach to CCS networks presents an opportunity for developing countries that face these challenges to increase their level of CCS readiness and subsequently deploy pilot projects. This approach would also increase economies of scale, and therefore GCF resources can go further. Networks provide companies of all sizes and sectors access to large geological storage resources, reducing costs and cross-chain risks. For further clarity, CCS networks are illustrated through a schematic diagram in Figure 1.

Figure 1. CCS networks



Looking even more strategically, the GCF can kick-start a cluster of a country's decarbonisation objectives by financing higher risk, lower return pilot projects, and therefore catalyse private sector investment in lower risk and higher return projects i.e. other infrastructure and pipeline requirements. Indeed, the **cost of CCS is already declining** as the breadth of deployment increases and additional policy and financial incentives are made available.

Conclusion

The programmatic approach with CCS is conducive to effective worldwide coordination and cooperation on climate mitigation and presents an opportunity for the GCF to paradigm shift to greater possibilities of financing at this critical time. The rapid deployment of CCS technologies with a view of creating CCS networks will enable the GCF to cost-effectively meet the mitigation objectives of developing countries in a range of hard-to-abate sectors, as well as carefully craft and support the global transition towards a sustainable energy economy.

GCCSI would be honoured and enthused to work with the GCF and other Party and non-Party stakeholders to further discuss and develop optimal ways forward and include CCS within the context of the GCF's second replenishment period.

[i] Detailed analyses of the CCS global project pipeline, international policy, finance, and emerging trends can be found in the Institute's latest annual Global Status Report: https://www.globalccsinstitute.com/resources/global-status-report/

[ii] There have been a number of myths in the public perception and media on CCS viability, economics and integrity. The Institute has dispelled them here: https://www.globalccsinstitute.com/wp-content/uploads/2022/06/MythBusters-Flyer_FINAL-5.pdf

[iii] More information on CCS in IPCC WGIII can be found in this briefing published by the Institute: https://www.globalccsinstitute.com/resources/publications-reports-research/ccs-in-the-latest-ipcc-report-mitigation-of-climate-change/