

## Governing Large-Scale Carbon Dioxide Removal: Are We Ready?

### Summary For Policy-Makers

In 2015, Parties to the UNFCCC agreed to limit global temperature increase to well below 2°C above pre-industrial levels, and **to pursue efforts to limit the increase to 1.5°C**. In 2018, the IPCC Special Report on Global Warming of 1.5°C warned:

1. The impacts of warming at 2°C would be **significantly worse** than those at 1.5°C;
2. **All pathways with limited or no overshoot of 1.5°C project the use of carbon dioxide removal (CDR)** on the order of 100–1000 GtCO<sub>2</sub> over the 21<sup>st</sup> century.
3. If the current national climate plans [Nationally Determined Contributions or NDCs] do not improve dramatically, **the world will need to rely heavily on CDR options that are as yet unproven at scale** to meet the 1.5°C limit. Even with improvements in current policies and the NDCs to reduce emissions, significant - if not substantial - CDR will be needed.

While the idea of removing some CO<sub>2</sub> from the atmosphere isn't new, the scale now being proposed has **never been previously attempted**. Is the international community prepared for governing CDR at this level? What are the governance gaps and challenges, and how might they be addressed?

C2G2 and Climate Analytics have released a report addressing these questions. Its key finding is that there are many rules and practices already in place with direct applicability to large-scale Carbon Dioxide Removal, primarily within the UNFCCC, but they are far from sufficient for the scale of activity the IPCC says is needed to limit temperature rise to 1.5°C.

The report focuses on three CDR approaches: Afforestation and Reforestation, Bioenergy with Carbon Capture and Storage (BECCS); and Direct Air Capture with Carbon Capture and Storage (DACCS). Its findings include:

1. **The scale of Carbon Dioxide Removal needed to limit global warming to 1.5 C depends on the speed of emissions reductions.**

The longer it takes to reduce emissions, the more carbon dioxide removal will be needed. If Parties bring forward new and updated NDCs by 2020 that are substantially more ambitious in the reductions they deliver for 2030, this can reduce future reliance on CDR to a scale that may be economically feasible and limit potential risks to sustainable development.

- If the international community succeeds in ratcheting up NDCs only modestly, an extremely large contribution from CDR will be needed; if NDCs are ratcheted up only marginally, limiting temperature rise to 1.5°C or well below 2°C will be out of reach;
- A broad portfolio of CDR options will be required to satisfy the overall need for CDR, to avoid running into limitations inherent in any single CDR option;
- CDR activities and technologies will need to be rolled out sooner rather than later, as delay in deployment creates substantial future risk.

## **2. A number of existing provisions under the UNFCCC, the Kyoto Protocol and the Paris Agreement address governance aspects of Carbon Dioxide Removal.**

Provisions under the UNFCCC, the Kyoto Protocol and the Paris Agreement address the reporting and accounting of CO<sub>2</sub> removals. The IPCC has also provided relevant guidance.

The Paris Agreement provides a valuable opportunity to address a number of governance challenges that have not been adequately addressed through existing provisions and legacy issues, or that have arisen due to the scale of CDR that is now required.

## **3. Despite existing provisions, many key governance gaps and challenges remain for large-scale CDR and will need to be addressed.**

Although there are existing provisions and guidance under the UNFCCC, the Kyoto Protocol and the Paris Agreement, many key governance challenges remain:

- The scale and speed of implementation required, and the associated challenges for research and development, as well as for monitoring deployment;
- The substantial incentives that will be needed to scale up potential CDR options (sufficient incentives do not exist under the UNFCCC or other legal frameworks);
- The trade-offs between, and interactions with, a range of Sustainable Development Goals (SDGs) that may follow from large scale implementation of CDR; and
- The risks to the climate system and to the SDGs if CDR options are not implemented at the pace or scale required, or if large amounts of removed carbon dioxide were later released back into the atmosphere.

## **4. Priority gaps on mitigation, information, accounting, knowledge and incentives can be addressed in the near-term, both inside and outside of the UNFCCC process.**

A number of governance gaps, if addressed now, can help support informed decision-making on the necessary scale and portfolio of CDR options and lay the ground work for upscaling relevant options. These can be found in the box below:

### PRIORITY GOVERNANCE GAPS TO ADDRESS IN THE NEAR TERM

- Narrow the mitigation gap to reduce possible future reliance on CDR options;
- Improve inventory data and information management systems;
- Put in place robust accounting rules;
- Create incentives to accelerate research, investment and implementation;
- Engage the research community in scoping specific CDR options and necessary incentives;
- Improve public awareness of potential CDR options, risks and trade-offs in planning processes;
- Improve international collaboration and cooperation.