A European Strategy for CCUS

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Background

Eurogas welcomes the recent Communication from the European Commission (EC) on Sustainable carbon cycles[1] and intention to develop a legislative framework for the certification of carbon removals[2] by the end of 2022. This recent push for CCUS-dedicated ambitions and policies is a strong indicator of the renewed EU commitment toward CCUS.

The role of CCUS in the decarbonisation scenarios issued by the EC is clear[3], these technologies are crucial:

- to decarbonise hard to abate sectors, such as cement/steel/chemicals manufacturing, as the most economically viable solution[4]
- to decarbonise balancing power production capacities and enable the integration of renewable energy[4]
- to enable the production of low carbon hydrogen and low carbon ammonia[5], able to kickstart the hydrogen market in Europe, and renewable hydrogen-based fuels
- to deliver a technical solution for carbon removal from biogenic carbon capture and DAC.

While the achievement of the European Green Deal ambitions hinges on the deployment of CCUS technologies, the deployment of these technologies has only recently started to gain momentum, with recent renewed interest at global scale[5], and will have to significantly accelerate in order to meet 2030/2050 climate ambitions. Europe currently represents the second global region in terms of CCUS projects under development (35.7%) with the support of the EC's Innovation Fund[5].

Recent legislative announcements and intentions from the EC are positive but there remains scope to achieve a more integrated and coherent approach to the policy framework in Europe. Individual current/upcoming policy proposals achieve solutions for specific parts of the CCUS value chain, while the overarching policy framework remains to be defined.

Considering the ambition for the CCUS value chain as one of the key pillars of the European climate strategy, the policy framework should define a holistic and coherent approach, covering currently overlooked parts of the value chain such as CO_2 infrastructure networks and establishing policy drivers for the deployment of CCUS technologies.

In addition, in light of the recent Communication "RePowerEu"[6], the EC has emphasized the necessity of diversifying gas supplies, in particular through higher levels of biomethane. To that end, the EC has established a biomethane target of 35 bcm by 2030: this could result in large volume of CO_2 available for storage and utilization contributing to carbon removals: this further highlight the need to define an EU CCUS strategy and CO_2 infrastructure.

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[1] Communication - Sustainable Carbon Cycle, COM (2021) 800 (Dec. 2021)
[2] Certification of carbon removals, EU rules, EC (Feb. 2022)
[3] The role of CCUS on the EU road to climate neutrality, EUI, Florence School of Regulation (Jan. 2022)
[4] Is carbon capture too expensive?, IEA (Feb. 2021)
[5] CCUS in Clean Energy Transitions, IEA (Sep. 2020)
[6] REPowerEU: Joint European action for more affordable, secure and sustainable energy, European Commission (Mar. 2022)

Objective of this paper

Through this paper, Eurogas would like to put forward recommendations for the development of a European CCUS Strategy. Encompassing existing, upcoming and new elements, the recommendations aim at providing the main guiding principles suggested by the gas industry.

Recommendations

1. Establish a **rigorous and transparent carbon accounting and certification** with integration in the European policy framework.
2. Encourage a consistent approach when it comes to EU **incentives and public support mechanisms**.
3. **Enable all capturing opportunities**, especially the ones available in the **short term**
4. **Develop an EU policy framework for CO_2 infrastructure networks deployment**
5. Fully acknowledge the **co-benefits** of certain carbon capture pathways, notably in regards with CCUS using biomethane to deliver net negative emissions.
6. Define drivers e.g. **targets for the scaling-up of CCUS technologies, the volume of CO_2 being captured** and **the deployment of the CO_2 transport infrastructure**.

1. Establish a rigorous and transparent carbon accounting and certification with integration in the European policy framework

The EC should develop a policy framework for carbon removals which includes a transparent and robust certification system sufficiently flexible to accommodate new technologies and innovative long-term permanent carbon removals solutions. Accompanied by a system of monitoring, reporting and verification (MRV), the EC should ensure that certificates verify the authenticity and duration of carbon removal.

These certificates should be fully tradeable: tradability of Carbon Dioxide Removal (CDR) certificates will enhance the business case for investing in carbon removals, since market participants will be able to create value and achieve a better understanding of the value that different CDR solutions provide in meeting climate targets. The EC should develop an EU-wide certification system in order to facilitate and maximise exchanges and trading of carbon removal certificates.

Carbon removal should be recognised across the EU policy framework in due course, especially as part of the EU Emissions Trading Scheme.

2. Encourage a consistent approach when it comes to EU incentives and public support mechanisms

As underlined by the EC[7], CCUS technologies are currently at an early stage of commercialisation and are not available at competitive prices. Their development will involve addressing economic exposures across the value chain. EU funds will therefore be necessary to kick-start the investment, until economies of scale and resilient systems are achieved. Multiple sources of funding already exist at the EU level for CCUS: the Innovation Fund, the Connecting Europe Facility (CEF), the Recovery and Resilience Facility (RRF), the Just Transition Fund and Horizon Europe. Carbon contracts for difference, incentivising deployment of decarbonised products such as green steel, cement and low carbon

[7] In-depth analysis in support of the Communication "A Clean Planet for all - A European long-term strategic vision for a prosperous, modern, competitive and climate neutral economy", EC (2018)

hydrogen, also support the deployment of CCUS. Such funding instruments should continue to target both CCUS technologies as well as projects, connecting infrastructure and storage facilities.

Furthermore, enabling private sector investment should be a key element of the EU CCUS strategy. In that way, the EU needs to set up policy instruments enabling the creation of a sustainable and viable market that would incentivize the private sector to invest in such technologies.

Therefore, the EC should define a consistent approach that triggers both public and private investments in CCUS, for instance through EU general funds or carbon contracts for difference.

3. Enable all capturing opportunities, especially the ones available in the short term

According to recent figures published by the IEA[5], CO_2 captured is projected to rise to around 35 Mt in 2030 and 350 Mt in 2050. It is crucial to have a framework that supports all capturing technologies while acknowledging differences in efficiency and readiness levels. Indeed, a framework taking into account all capturing opportunities would entitle the variation of capturing CO_2 costs depending on many factors (e.g the concentration of CO_2 in the gas stream from which it is being captured, the plant's location, energy and steam supply).

On top of enabling all capturing opportunities, it is important that the EC take-into-account the timeframe in its policy framework in order to enable an efficient deployment of CCUS technologies in light of the role some of them could play in the shorter term. Under these circumstances, specific consideration should be given to the role that could be played by CCUS technologies to kickstart the hydrogen market, for example by supporting its launch through the development of low carbon hydrogen.

4. Develop an EU policy framework for CO_2 infrastructure networks deployment

Transport of CO_2 from industrial clusters or other emitters to storage facilities will require the development of new CO_2 infrastructure networks, including pipelines and shipping. Such infrastructure is therefore a precondition to enable the large-scale deployment of the CCUS technologies and therefore a prerequisite to meet EU Green Deal objectives and recently announced EU biomethane target[6]. As the CO_2 grid remains under-developed, the EC needs to develop a policy framework to promote the deployment of such infrastructure, including as part of the proposed CCUS Strategy. The recent TEN-E revision delivered on key aspects of the CCUS infrastructure, for example, by acknowledging CO_2 storage, but more needs to be done as the scope of TEN-E is limited to supporting PCI projects, which represent only a share of the total market to be deployed. The 'Hydrogen and Decarbonised Gas Markets' Package, supporting the deployment of a dedicated hydrogen network, could be used as a blueprint for CCUS.

A coherent approach to CO_2 infrastructure planning and permitting should take in account issues such as:

- cross-border coordination, so that Member States without access to CO_2 storage have a storage solution available in neighbouring countries, and the need for Member States to ratify the London Protocol;
- a clear and proportionate approach to address transport and storage liability issues;
- consistent and streamlined carbon accounting, including the development of carbon removal certificates (CRCs);
- an approach to standardisation of relevant elements of the CCUS value chain, including shipping, CO_2 quality specifications, and pipeline interconnections.

These priority issues should be integrated into the scope of a European CCUS Strategy. At the same time, the interaction between new CCUS intergovernmental agreements within Europe and broader EU policy should be clarified in order to avoid complexity in the development of cross-border CO_2 transport policy frameworks.

To support such a development and manage project risks, the return on the investment carried out by the private investors shall be guaranteed over time through national grant backed by EU funding or mechanisms to guarantee revenues in case of successful operation, as it is the case for gas infrastructures. Likewise, we believe that policy framework should mitigate the risks borne today by the storage operators and manage them through more efficient and fair allocation between the users. Moreover, the EC could foresee an EU capital funding to offer the protection to investors against specified remote high impact low probability risks, and provide a finite, limited response to these events.

5. Fully acknowledge the co-benefits of certain carbon capture pathways, notably in regards with CCUS using biomethane to deliver net negative emissions.

The use of biogas and biomethane can result in significant negative carbon emissions when coupled with CCUS, making cost-efficient emission reduction available[8]. The European Commission, the IEA and Industry agree that biomethane production and consumption in Europe is expected to grow significantly in future. Recently, the EC put forward[6] a biomethane target of 35 bcm in 2030; although this target is considered conservative, such a target would result in a large volume of biogenic CO_2 available for storage and utilisation.

In light of this growing role, co-benefits of BECCUS should be properly acknowledged.

The EC's Fit-for-55 package proposals fails to include new incentives for installations seeking to capture emissions of CO_2 from biogenic sources, such as biomethane, organic waste or biomass. As the capture and storage of such emissions would lead to carbon removals, they should be better recognized in existing EU policy frameworks.

In that way, the EC should provide several incentives regarding biogenic CO_2 including:

- Recognition and quantified ambition for biogenic CO_2 in addition to fossil CO_2 in EU policies such as the industrial ETS.
- Promoting support and funding for research and innovation in biogenic CO_2 utilisation technologies, including carbon contracts for difference.

6. Define drivers e.g. targets for the scaling-up of CCUS technologies, the volume of CO_2 being captured and the deployment of the CO_2 transport infrastructure

Eurogas welcomes the EC initiative to set targets in its Sustainable Carbon Cycles Communication. However, these targets only cover a portion of the CCUS value chain and remain non-binding. Binding drivers should be defined, and they should adequately consider all types of captures and encompass the deployment of the necessary CO_2 infrastructure.

In conclusion, Eurogas advocates for the definition of an EU CCUS Strategy, which would define a consistent EU approach for the consideration of CCUS, covering all types of captured CO_2 and a regulatory framework for the deployment of a needed EU CO_2 infrastructure. Also, carbon capture projects and their infrastructure can be common projects between Member States and third-party countries projects: it is paramount to have a legislation to frame regional cooperation.

[8] European Carbon Neutrality: The Importance of Gas, DNV-GL for Eurogas (June 2020)

Annex – What is covered by current legislation

Legislation	What does it cover?	What is missing?
CCS Directive	Geological storage of CO_2	
London Protocol	Cross-border transportation of CO_2 for sub-seabed storage	
TEN-E	CO_2 infrastructure, cross-border networks, storage, only for PCI/PMI projects	Non-PCI/PMI project, CO_2 transport equipment
ETS, ETS MRR	Incentives for CCUS projects in ETS funds	Recognition of carbon removal through certification yet to be developed
Taxonomy	Recognition of CCU/CCS as technology that deliver a net reduction of GHG	
EC Communication Carbon Cycle and Certification (2022)	Regulation framework for certification of carbon removals: definition of intentions, targets and actions	Only an EC communication: non-binding
IED & BREFs	BREF "*Emissions from Storage (EFS)*" addressing storage and transfer/handling of liquids, liquefied gases & solids, regardless of the sector/industry – addresses emissions to air, soil & water.	A dedicated BREF for carbon capture and storage/use
TEN-T	Funding for cross-border transportation projects	Shipping of CO_2. Transport equipment.