Official Journal
of the European Union

EN
C series

C/2024/4666

9.8.2024

Opinion of the European Economic and Social Committee

Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Towards an ambitious Industrial Carbon Management for the EU

(COM(2024) 62 final)

(C/2024/4666)

Rapporteur: **Gonçalo LOBO XAVIER**

Co-rapporteur: **Jean-Michel POURTEAU**

Referral	European Commission, 27.3.2024
Legal basis	Article 304 of the Treaty on the Functioning of the European Union
Section responsible	Consultative Commission on Industrial Change
Adopted in section	15.5.2024
Adopted at plenary session	30.5.2024
Plenary session No	588
Outcome of vote (for/against/ abstentions)	193/4/2

1. Conclusions and recommendations

1.1. The European Economic and Social Committee (EESC) believes that the Industrial Carbon Management Strategy is, in general, a very welcome and balanced document that covers many elements that are crucial for deploying Carbon Capture and Storage (CCS) and Carbon Capture and Utilisation (CCU) at industrial scale in the EU. This approach to establishing storage, logistics and transport, infrastructure and regulation/market rules for carbon management during this decade in order to build the foundations for a single market in carbon is fully justified.

1.2. The EESC draws attention to the need to meet the achievable targets for annual CO_2 storage capacity in Europe: 50 million tons by 2030, 250 million tons by 2040, 450 million tons by 2050. In the EESC's view, the EU should take efficient steps to ensure enough CO_2 storage capacity in many Member States for the good of the entire community. That is the reason that the EESC agrees that every Member State should provide an overview of their geological sites suitable for carbon storage in order to better deal with the challenges involved.

1.3. The EESC agrees that there should be better communication on targets, combined with an efficient update of the data needed for an effective decision-making process. There are various targets for the volumes of CO_2 to be captured, stored and/or reused (2030-2040-2050 milestones). The EESC suggests that there be regular updates regarding developments in this domain and technology readiness levels, as well as of CO_2 storage capacity. This will allow the entire eco-system to be better integrated.

1.4. The ESSC strongly agrees that Europe's development should also be based on a clean reindustrialisation process. Industrial carbon management must be looked upon as another opportunity for Member States to increase job quality and boost growth in a sustainable manner. The EESC draws attention to the need to tailor carbon management strategies to specific industrial sectors (such as energy, steel, cement and chemical plants), bearing in mind their unique emissions profiles and technological requirements. For this, collaboration and a partnership strategy is needed in order to foster cooperation between research institutions, academia and other public and private organisations so as to leverage expertise and resources.

1.5. The EESC maintains that it is also fundamental to identify the barriers that undermine effective implementation of existing carbon management practices in industrial settings in order to easily implement changes and define strategies.

1.6. For the EESC, it is clear that the EU needs an industrial strategy for carbon that not only delivers the Green Deal but also ensures quality jobs and a just transition for workers, as well as identifying potential labour and skills shortages. For this purpose it is likewise necessary to continue to invest in reskilling and upskilling the workforce, with twin objectives: firstly, to increase the attractiveness of a career in the industry; secondly, to combine this with sustainable knowledge in order to create a high quality and safe process and make companies in the industry more competitive and sustainable. The Member States should work with the social partners to assess the impact on employment.

1.7. The EESC endorses the Commission's move to support cross-border infrastructure projects transporting CO_2. It is important to map the physical and data flow connections between countries.

1.8. The EESC recommends that there be a clear investment plan describing each source of funding for developing CCS/CCU technologies. Any public funding should have a social conditionality mechanism geared to creating and maintaining quality jobs.

1.9. The EESC believes that carbon reduction projects should involve both carbon removal and carbon avoidance. However, it considers that carbon avoidance is currently insufficiently supported at EU level, whereas investments in carbon avoidance solutions have already yielded successful results in utilities, transport and heating. Therefore, the EESC recommends establishing a new, separate, well-designed, high-integrity and robust credit scheme for carbon avoidance with sound methodologies which have yet to be developed. The EESC considers that the credits from carbon avoidance would offer incentives to decarbonise and provide funding for zero-emission projects. At the same time, the EESC calls attention to the fact that EU Emissions Trading System (ETS) allowances should not be used as 'credits', as this could undermine the current market-based nature of the EU's carbon trading system.

1.10. The EESC feels that it should also be noted that due to carbon market prices, carbon emission avoidance can be a source of additional income. Low emitters with surplus carbon credits could sell 'unused' emissions to high emitters. This market mechanism would therefore make it possible to issue carbon credits as a form of financing for future low emission projects.

1.11. Lastly, there are CCS/CCU projects that are clearly geared towards carbon removal. Carbon avoidance is another path to decarbonisation and the EESC believes that this is very relevant. The EESC calls for a balanced and reasonable approach that can combine the best of two complementary worlds: carbon avoidance and carbon removal.

2. **General comments**

2.1. At a time of great change and major challenges, there is no doubt that Europe needs a strong policy to help its industry recover. Successive reindustrialisation plans have not been successful in their aims and now Europe faces a critical situation which, aligned with the objectives and targets of the EU Green Deal strategy, requires an immediate response.

2.2. The requirements of the green and digital transition, including its social dimension, make it even more urgent to take action; European industry and policy now need to combine innovation, performance and competitiveness with sustainability. The targets have been defined and the European Climate Pact, launched by the European Commission as part of the European Green Deal, aims to help the EU meet its goal of becoming climate-neutral by 2050.

2.3. The challenge is real: industrial activities contribute significantly to carbon emissions globally, with the EU being one of the major industrial hubs. To this end, despite efforts undertaken to reduce carbon emissions to date, industry has a major role to play in the process and extreme efforts are needed to achieve the targets proposed by the EU.

2.4. There are various targets for volumes of CO_2 to be captured, stored and/or reused (2030-2040-2050 milestones). The EESC suggests that there be regular updates regarding developments in this domain and technology readiness levels, as well as regarding CO_2 storage capacity.

2.5. Particular attention needs to be paid to meeting the achievable targets for annual CO_2 storage capacity in Europe: 50 million tons by 2030, 250 million tons by 2040, 450 million tons by 2050. In the EESC's view, the EU should take efficient steps to ensure enough CO_2 storage capacity in many Member States. That is the reason that the EESC agrees that every Member State should provide an overview of their geological sites suitable for carbon storage.

2.6. Carbon capture is a necessary tool for reaching Europe's climate targets and maintaining industrial competitiveness. At the same time, it is vital that the scope of CCS utilisation not be overstretched and that it be targeted at the most hard-to-abate sectors. This is necessary to avoid locking in to prolonged fossil fuel use where alternatives exist, assuming that these are sufficient to meet demand. In many cases, electrification, energy efficiency measures and renewable fuels are more cost-effective options for decarbonisation. Utilising CCS requires investment and energy. Transitioning away from fossil fuels in industrial processes should therefore be the default option, and carbon capture targeted at those uses where alternatives are not viable.

2.7. To get things done, the EESC calls for a balanced approach, bearing in mind developments in the process and data gathered under current policies. At the same time, a review of existing EU policies relating to carbon management in industrial sectors, including emissions trading schemes and carbon pricing mechanisms, is absolutely necessary. It is also vital to identify barriers that undermine effective implementation of current carbon management practices in industrial settings.

2.8. To combine a competitive industry with sustainability, educated human resources are needed, with strong guidance and alliances (workers, companies, social partners in general). The EESC has been very vocal in pointing out the need to continue investing in reskilling and upskilling the work force, with twin objectives: firstly, to increase the attractiveness of a career in the industry; secondly, to combine this with sustainable knowledge to make companies in the industry more competitive and sustainable.

2.9. It is common sense for the entire eco-system to be involved in outlining the strategies and measures for implementing ambitious industrial carbon management in the EU. Organised civil society can and must be involved.

2.10. The EESC believes that leading by example is very important and therefore calls for better communication and knowledge-sharing, highlighting examples of successful carbon management initiatives in the EU.

2.11. In the same vein, the EU must encourage and promote research and development projects on carbon capture, utilisation and storage technologies focused on industry, with a view to making them more cost-effective and scalable.

2.12. The EESC also draws attention to the need to tailor carbon management strategies to specific industrial sectors, bearing in mind their unique emissions profiles and technological requirements. To this end, collaboration and a partnership strategy is needed in order to foster collaboration between research institutions, academia and other public and private organisations so as to leverage expertise and resources.

2.13. The EESC believes that each Member State should shape its own strategy aligned with EU principles, but the EU should coordinate to see if there is a suitable level of commitment and good practices must be shared.

3. **Specific comments**

3.1. The EU Green Deal has set ambitious targets to reduce greenhouse gas emissions: - 55 % by 2030, and climate neutrality by 2050. In order to reach these goals, especially for CO_2 emissions, technologies known as CCS (Carbon Capture and Storage) and CCU (Carbon Capture and Utilisation) should be deployed to deal with 'hard-to-abate' emissions, i.e. where emissions reduction through energy and process efficiency would not be sufficient to meet mitigation targets.

3.2. It is necessary to make a clear distinction in the regulation between CO_2 originating from fossil fuels (i.e. CO_2 that used to be in the ground in coal, natural gas or oil deposits) and biogenic CO_2 (i.e. CO_2 already in the atmosphere and sequestered in biomass through photosynthesis). Capturing fossil-based CO_2 can mean that emissions are avoided, but capturing biogenic CO_2 can generate an actual net positive impact for climate through permanent carbon removal by means of technological sinks and long-term removals by using it in products such as polymers; this can also provide a sustainable source of CO_2 for chemicals, polymers and fuels.

3.3. Note that, in addition to geological formations, there might be other technologies providing permanent carbon storage, such as mineralisation.

3.4. In addition to storage, CO_2 is a crucial raw material that is needed in, for example, the chemical industry and in beverages. An important part of a European carbon management strategy should be to replace industrial CO_2 demand with circular and sustainable sources of CO_2. The use of circular carbon should be incentivised.

3.5. Whereas the capture and storage of fossil-based CO_2 is already recognised in the Emissions Trading System (ETS) directive, there are currently no incentives for the capture of biogenic CO_2. Therefore establishing incentives for biogenic CO_2 capture, storage and use should be a priority. One option is to link biogenic CO_2 capture to the ETS by, for example, generating new allowances through removals.

3.6. Many manufacturing industries emit CO_2: oil and gas power stations, coal/lignite-fired power stations, iron- and steel-making plants, cement-making plants, the chemical industry, biomass and waste-fired power stations, and fertiliser plants. Although they are currently working on new carbon-free processes, these sectors (generating 20 % of global CO_2 emissions in the EU) will rely strongly on carbon removal technologies to drastically reduce their CO_2 emissions. Decarbonising industry is not only necessary for fighting global warming, but also a crucial step towards phasing out our reliance on fossil fuels.

3.7. In the CCS process, CO_2 is separated from industrial sources then separated out through various sub-technologies: absorption, adsorption, membranes, high temperature looping and, more recently, direct air capture (where CO_2 is separated directly from the air). The CO_2 is then compressed to be transported onwards, mostly via pipelines but possibly also by trucks, trains or ships. The last step is storage in geological sites on- and off-shore: in saline formations (for example at Norway's Sleipner in the North Sea, since 1996) or unmineable coal seams. Monitoring how carbon dioxide behaves in geological strata is then essential to ensure the permanence of this form of emissions reduction.

3.8. The first steps of the CCU process are the same as those of CCS, but the ultimate aim is not to store CO_2 permanently. Instead, the carbon dioxide captured is converted into valuable substances or products such as the following: chemicals and polymeric materials (plastics, concrete), alcohols, and hydrocarbons and derivatives. Given the considerable potential attached to CCU, there is growing interest in various related fields (e.g. it could constitute a lever to decarbonise the aviation and shipping sectors with synthetic fuels).

3.9. As regards the deployment of transport infrastructure, health and safety rules related to working conditions specific to this domain should be defined, enhancing constructive dialogue between social partners.

3.10. Creating new jobs in CCS/CCU technologies will require appropriate training via vocational education and training (VET) and the upskilling of workers, engineers, as well as national training schemes.

3.11. To implement these CCS/CCU projects, all stakeholders must be involved early in the process: industrialists, public authorities, civil society, NGOs and unions. This will be crucial for social acceptance. It will be necessary to bring together policy-makers at local and national levels with companies and societal players such as trade unions, environmental NGOs and representatives of local communities, so as to engage in transparent dialogue on the stakes and benefits of CCS/CCU projects. Such change within industrial companies affected by CCS/CCU requires a just transition where no one is left behind. Respectful social dialogue with unions should ensure that proper training is offered to workers who need reskilling.

3.12. The EESC believes that public awareness campaigns need to ensure that people understand what is at stake but also to share knowledge and provide an overview of current CO_2 emissions.

3.13. The EESC notes the absence of an energy-efficiency approach to carbon capture technologies. Actually the cost of this energy-intensive process should not be underestimated and should be aligned with the REPowerEU Plan.

3.14. The current EU Emissions Trading System intends to lower all emissions by measuring them. In CCU technologies, the captured carbon is reused, so should not be counted twice (first where it is initially emitted, then where it is re-emitted in a new process).

4. **Financial frameworks**

4.1. Currently CCS/CCU costs are high and for businesses it is not viable without tax credits, public funding or loans. Cost reductions can be achieved when technologies are widely implemented and transport infrastructures (pipelines) deployed. Cost estimates vary greatly with the uncertainty of the future price of CO_2.

4.2. Funding earmarked for CCS/CCU should be labelled as such in detail and placed in perspective in relation to overall funding for the Green Deal Industrial Plan.

4.3. Initial cost estimates for reaching the 2030 targets: EUR 3 billion investment needed for developing storage sites; between EUR 6 and 9 billion needed for transport infrastructure; and from EUR 13 to 103/tonne needed for the capture of CO_2 from point source ([1]). The EESC recommends that there be a clear investment plan describing each source of funding for developing CCS/CCU technologies. Any public funding should have a social conditionality mechanism geared towards creating and maintaining good quality jobs. The EESC therefore welcomes any schemes that can channel innovation and resources towards this critical change. This includes:

— Innovation Fund (taxes from ETS) with EUR 25 billion dedicated to CCS/CCU

— Connecting Europe Facility for the transport network

— Recovery and Resilience Facility to help investments in clean technologies

— Just Transition Fund for regions facing social challenges

— Horizon Europe for R&D

([1]) Commission Communication COM(2024) 62, paragraph 5.1; Investing and funding, page 19.

4.4. One issue in funding CCS/CCU is that it is required to cover the different parts of the entire value chain: emission source, capture, transportation, storage and usage. Another issue lies in the viability of business cases for these processes, depending on the carbon price in the EU's ETS.

4.5. The bulk of investment needed to implement these new and clean technologies to capture and reuse carbon is expected to come from the private sector in the coming years. However, European and Member State funding must play a critical role in leveraging private investment and in attracting many innovative projects.

5. **Carbon trading and carbon avoidance**

5.1. The EESC believes that the EU Emissions Trading System (ETS) and international carbon markets can play a key role in reducing global greenhouse gas (GHG) emissions cost-effectively. The EU ETS under the Fit for 55 package has recently been strengthened to cover additional economic sectors, including buildings, road transport, maritime shipping and aviation. Article 6 of the Paris Agreement already provides a legal basis for the use of international carbon markets, through the use of international trading of emission allowances in line with robust accounting rules. Industrial carbon management should benefit from such carbon pricing mechanisms and trading.

5.2. The EESC notes that there are several legislative initiatives that could be used to support sectoral actions contributing to carbon removal and carbon avoidance. One good example is the Carbon Removal and Carbon Farming (CRCF) Regulation, establishing the first EU-wide voluntary framework for certifying carbon removal, carbon farming and carbon storage in products generated in Europe. Regarding transport, the EU is currently discussing a harmonised mechanism to account for GHG emissions of transport services called the CountEmissionsEU Regulation; this must also be taken into consideration.

5.3. The EESC believes that carbon reduction projects should involve both carbon removal and carbon avoidance. However, it believes that carbon avoidance is currently insufficiently supported at EU level, whereas investments in carbon avoidance solutions have already yielded successful results in utilities, transport and heating. Therefore, the EESC recommends establishing a new, separate, well-designed, high-integrity and robust credit scheme for carbon avoidance with sound methodologies which have yet to be developed. The EESC considers that the credits from carbon avoidance would offer incentives to decarbonise and provide funding for zero-emission projects. At the same time, the EESC calls attention to the fact that EU ETS allowances must not be used as 'credits', as this could undermine the current market-based nature of the EU's carbon trading system.

5.4. The EESC considers that it should also be noted that due to carbon market prices, carbon emission avoidance can be a source of additional income. Low emitters with surplus carbon credits can sell 'unused' emissions to high emitters. This market mechanism makes it possible to issue carbon credits as a form of financing for future low emission projects.

5.5. Moreover, in the ETS there are currently incentives (a reduced number of free allowances and high carbon prices) for high emitters to reduce their emissions. However, the rules for trading carbon credits among companies are still not very well known: they are clear and it is easy to transfer ownership. These rules should be extended in order to encourage low emitting entities to further reduce their emissions and receive funding for the reduction in emissions. Clarification should be promoted.

5.6. The EESC considers that EU and Member State funding should play a role in leveraging private investment and attracting many innovative CCS/CCU and carbon reduction and avoidance projects.

Brussels, 30 May 2024.

The President
of the European Economic and Social Committee
Oliver RÖPKE