

BALANCING DEMAND INCENTIVES WITH CLIMATE INTEGRITY: CARBON GAP'S VIEWS ON INTEGRATING CARBON REMOVALS INTO THE EU ETS

Key messages:

- Integrating Carbon Dioxide Removal (CDR) into the EU ETS creates the opportunity to drive much-needed demand for permanent carbon removals in Europe, whilst preserving its function to incentivise emissions reductions.
- To achieve these two goals, the integration should follow some **key rules**:
 - ensure the integration of CDRs does not undermine efforts on emissions abatement by **maintaining reduction ambition** through a robust cap;
 - ensure **environmental integrity** by only allowing **permanent CDR methods**, with a priority to geological storage in the short term, potentially expanding to other CRCF-aligned permanent methods if underpinned by robust methodologies and MRV criteria, with additional sustainability criteria for methods relying on biomass use;
 - to secure steady demand, **establish a sub-mandate for CDR**, requiring ETS entities to cover a growing percentage of their ETS obligations through CDR;
 - introduce design features or complementary policies into the ETS that **ensure demand for a portfolio of CDR methods**, rather than an exclusive focus on the lowest-cost methods.
- In addition, we believe it is essential that the EU recognise **the need for a sequenced approach to building a compliance market for CDR**, to continue to create stable demand for CDR units even as ETS emissions decline.
 - To complement an ETS integration, in the near to medium term, setting up a dedicated **Removal Compliance Scheme (RCS)** could help drive growing demand, namely by targeting further emissions sources currently outside of the ETS (e.g. non-CO₂ emissions from the energy and waste sectors).
 - In the longer term, further policy interventions, including consideration of a CDR obligation based on companies' financial capabilities, are likely needed to sustain large-scale demand for CDR to deliver net-zero and net negative.

Introduction: Carbon removal needs dedicated policies to drive long-term demand

Demand for CDR today is driven by a small number of firms engaging in the voluntary carbon market (VCM). While it is good to see committed actors making voluntary purchases of CDR, this current demand does not give the market long-term scale, liquidity, or predictability, making it difficult for suppliers to secure investments and plan for volumes to be delivered. A lack of mandate for CDR means many companies choose not to engage with the VCM, while even those buyers who wish to engage with CDR face barriers to entry. CDR purchases are administratively burdensome for buyers (e.g. due to due diligence, lack of standardisation in the CDR market, complex contracts, need for

insurance to address risks), meaning only the most well-resourced firms typically participate in the VCM. For these reasons, the demand side of the CDR market is severely constrained. Microsoft alone accounts for around 75% of all novel CDR¹ purchases made to date,² and fewer than 1% of companies with a science-based target have bought novel CDR.³

The effects are felt by CDR suppliers. Less than half of novel CDR start-ups have made a sale to date.⁴ According to a recent survey, European CDR startups flag access to direct funding (such as grants) and struggle in converting their leads into actual sales as their most pressing challenges⁵.

In this context, Carbon Gap calls on the EU to introduce **compliance mechanisms for CDR by 2030** as part of a policy mix to stimulate **long-term demand for permanent removals** and pave the way to reaching **net-negative emissions**. Such policies would help generate predictable demand for CDR, streamline and standardise the market for buyers and secure the EU's climate targets by supporting the necessary scale-up of CDR. Effective compliance mechanisms could galvanise CDR purchases at a much greater scale while potentially spreading the costs across the economy.

Integrating CDR into the EU ETS creates the opportunity to add a new function to the ETS – driving demand for much-needed permanent carbon removals in the 2030s and 2040s. The priority when considering such an integration should be to preserve the original function of the ETS – creating a clear, market-driven carbon price signal, incentivising cost-effective emissions reductions and providing long-term predictability aligned with climate objectives. Carbon Gap believes both can be achieved if specific rules and policy mechanisms are introduced, which we present in this paper.

While ETS integration, if done right, can effectively drive demand for CDR in the short to mid-term, the demand that can be generated through the ETS will eventually decline with emissions.

Policy interventions will be needed to sustain and grow demand to 2050 and beyond in order to enable the achievement of net-zero and net-negative at EU level. Options include (1) expanding the coverage of the ETS to generate further CDR demand, (2) changing the cap design (e.g. with a net-negative cap, requiring that ETS entities surrender more than one removal unit for each emission they

¹ We adopt the common distinction between 'novel CDR', which encompasses all engineered carbon removal methods, such as direct air capture, biochar, and enhanced weathering, and 'conventional CDR' like afforestation, reforestation, or soil carbon enhancement.

² CDR.fyi (2024). [2024 Q2 Market Update](#).

³ Smith, S. M. et al. (2024) (eds.) The State of Carbon Dioxide Removal 2024 – 2nd Edition. DOI [10.17605/OSF.IO/F85QJ](#).

⁴ Smith, S. M. et al. (2024) (eds.) The State of Carbon Dioxide Removal 2024 – 2nd Edition. DOI [10.17605/OSF.IO/F85QJ](#).

⁵ Akeret, O. et al. Surviving in a Nascent Market: Unveiling Key Challenges and Strategies for European Carbon Removal Startups. <http://hdl.handle.net/20.500.11850/653111> (ETH Zurich, 2023).

cause), and (3) creating demand-side policies outside of the ETS. We examine possible new demand sectors and additional demand-side policies in an upcoming Carbon Gap report focused on the dynamics of a Removal Compliance Scheme (RCS).

1. Key rules for effectively integrating CDR into the EU ETS

The European Commission is currently exploring a potential integration of permanent CDR into the EU ETS alongside alternative compliance options for CDR. If such an integration is to take place, it should respect the following rules:

- **Avoid mitigation deterrence by preserving the integrity of the EU ETS cap and trajectory.** The inclusion of CDR units in the EU ETS must not dilute the system's core function of driving down gross emissions. To avoid mitigation deterrence, the gross emissions cap must continue to decline unchanged, preserving the trajectory of reductions set by the Linear Reduction Factor. While the cap trajectory post-2030 remains uncertain, the Commission should make it clear that any integration of removals will complement, not substitute, emissions reductions, thereby safeguarding the environmental integrity and ambition of the system.
- **Carefully pick the eligible CDR methods.** The EU ETS covers fossil-derived emissions from energy and industrial processes. These emissions should primarily be addressed through permanent CDR methods using geological carbon storage, such as Direct Air Carbon Capture with Storage (DACCS) and bioCCS, to respect the "like-for-like" principle of carbon flows. Other permanent CRCF-aligned methods could be included over time to ensure support for a wider mix of CDRs, but only if the underpinning methodologies are robust enough and the monitoring and liability criteria allow for appropriate fungibility across methods. Temporary nature-based CDRs should be excluded from the ETS and supported through other mechanisms.
- **Ensure growing demand for CDR.** While the EU ETS can enable a market for CDR, it does not on its own guarantee sustained demand. To make CDR units in the system investable and bankable, integration into the ETS should include a dedicated sub-mandate that requires a growing share of compliance obligations to be met with high-quality removals over time. This sub-mandate would provide long-term visibility and predictability for project developers and investors, helping to scale permanent CDR in line with climate neutrality goals.
- **Ensure a balanced and sustainable CDR portfolio.** Recent research has shown that ETS integration without controls is likely to generate a CDR portfolio that favours the cheapest methods first and often leads to an overrepresentation of biomass-based CDRs⁶. There is thus a need for design features within the ETS or complementary policies that ensure that a diverse and sustainable portfolio of CDRs is available to meet ETS-related CDR demand, including stringent

⁶ CONCITO & CATF, [The Balancing Act: Risks and Benefits of Integrating Permanent Carbon Removals into the EU ETS](#) (2024).

eligibility criteria or supply controls to specifically restrict the flow of biomass-based methods. Moreover, since methods like DACCS are unlikely to be deployed at the prevailing ETS price in the near to medium term, **additional measures** are needed to encourage their deployment. Different policy options are available and should be evaluated by the Commission, including (1) direct subsidies to the cost of CDRs, such as Carbon Contracts for Difference (CCfDs) and grants, or (2) eligibility rules setting out which CDR methods can be used for ETS compliance and in what ratio. Alternatively, the CDR portfolio within a compliance market could be managed more proactively by establishing an **intermediary body** that procures and then releases a desirable portfolio of CDRs into the market.

- **Ensure sustainable biomass use.** Biochar and BECCS rely on biomass feedstocks, making it essential that crediting frameworks for these methods ensure sustainability is central to their design. While the EU Renewable Energy Directive (RED) methodologies provide a strong baseline by identifying key risks such as the cascading use principle, they alone are insufficient to ensure sustainable biomass use – a concern already acknowledged by the European Commission in the development of the biochar methodology. To avoid incentivising unsustainable biomass sourcing, such as diverting land from food production or degrading forest ecosystems, credits should only be issued when biomass use adheres to **strict sustainability criteria that go beyond the RED**, ensuring that feedstock origin, type, and volumes are transparently accounted for. Requiring more stringent criteria would ensure that reliance on biomass-based CDR credits does not come at the expense of biodiversity, land-use integrity, or food security and that the additional climate benefit of the biomass-based removal can be proven.
- **Restrict integration to ex-post units.** Including only CDRs that have already been delivered by the supplier and retired from the corresponding registry at the moment of the purchase will ensure more accurate accounting and further limit mitigation deterrence.

2. Supportive policies will be essential for success

- **Establish an EU CDR public purchasing function.** Setting up a public purchasing programme as early as possible is key to front-loading CDR demand and creating a market for permanent CDR. At its core should be a dedicated **EU Removals Fund** which could be combined with Member State and private money to expand the impact of the scheme. **Phase 1** of the programme could focus on technology development, allocating funds through competitive tendering to highly innovative projects requiring early funding. **Phase 2** could involve an expanded scope and use reverse auctions to allocate funds to more mature projects while driving cost reduction. In tandem, these two phases would offer a pipeline of CDR supply to meet ETS demand over time. Purchasing programmes can be highly effective in supporting innovation while also crowding in private funding and shaping market behaviour. The US DOE's CDR Purchase Pilot Prize has

supported 24 projects directly through prize money while also accompanied by a Voluntary Carbon Removal Purchasing Challenge, encouraging private companies to support the effort by making their own purchases and notifying the government.

- **Consider setting up an intermediary body to support a CDR market.** An intermediary body, such as a Carbon Clearing House, could help provide key functions to support the creation and governance of an effective market for permanent CDR in the EU. As mentioned above, the intermediary could play a role in managing the CDR portfolio released into the market, ensuring it is sufficiently balanced and applying quantity controls to specific methods. As part of this new role, the intermediary could also be involved in purchasing or procuring CDRs, in line with the point above, entering into multi-year contracts with suppliers to build certainty, and releasing the resulting CDRs into the ETS. Further analysis and policy development is needed to understand how such an intermediary could operate and what its mandate might be.

3. What is needed next? The role of a Removal Compliance Scheme (RCS)

As highlighted above, an ETS integration, if done right, can effectively drive demand for CDR in the short to mid-term. However, the declining size of the ETS conflicts with the need to grow demand for CDR over time to help reach the EU's climate goals. Moreover, the ETS is likely to only support CDR methods with geological storage, focusing on bioCCS and DACCS. As a separate mechanism focused on CDR, introducing an RCS would bring the advantage of not modifying the ETS and its current objectives, while driving sustained, long-term demand for permanent CDR in the EU. An RCS could also be more flexible, for example by incorporating new sectors or CDR methods over time.

How an RCS would work

The RCS would place an annual obligation on private entities to remove and permanently store carbon in line with the EU's climate goals, aiming to pursue the following **main objectives**:

- Mobilise large-scale private finance to pay for CDR, with a focus on permanent methods;
- Create a predictable market for removals, enhancing transparency about the scale and price at which CDR will be demanded;
- Promote a wider portfolio of CRCF-aligned permanent CDR methods, going beyond DACCS and bioCCS, rewarding performance and the respect of high-quality monitoring, reporting and verification criteria;
- Have the long-term goal to contribute to a net-negative economy.

Possible scenarios

We consider two main possible scenarios for CDR demand creation in the EU:

1. ETS integration done right and RCS as a key complement

In this scenario, CDRs are integrated into the EU ETS but subject to the guardrails outlined above. Given our expectation that the scale of demand from the ETS alone is unlikely to provide the demand volumes needed for EU climate neutrality, a separate RCS would create supplementary demand from new sectors and funding sources.

2. Standalone RCS without ETS integration

Alternatively, the EU could choose to keep the ETS strictly focused on emissions reductions and maintain its current exclusion of CDR, thereby avoiding concerns over potential weakening of the carbon price signal. In this case, a standalone RCS would operate entirely independently from the ETS.

Conclusions

Among the two scenarios, we consider Scenario 1, **a carefully calibrated integration of CDR into the EU ETS, supported by a dedicated RCS**, the most effective and politically feasible pathway. This option would build on existing regulatory mechanisms (ETS), avoiding the need to create an entirely new market system from scratch. By allowing only a limited, quality-controlled use of permanent removals within the ETS, it can address concerns around environmental integrity and carbon price dilution, while still unlocking a role for removals where they are most needed: to balance residual emissions in hard-to-abate sectors. At the same time, a dedicated RCS ensures predictability and volume certainty for CDR developers, de-risking investment and accelerating scale-up. This dual-track approach is more likely to gain broad support across member states, industry, and civil society, as it offers a pragmatic middle ground; it strengthens the ETS, rather than undermining it, while also providing a clear and credible policy home for permanent removals.

Useful resources

- Carbon Gap [response to public consultation](#) on UK ETS
- Carbon Gap's policy brief: [Introducing an EU Pilot Procurement Programme](#)
- Carbon Gap's paper: [Envisioning a carbon removal strategy for Europe](#)

Contacts

For further information, please contact:

- Matteo Guidi, Associate Policy Lead matteo@carbongap.org
- Francesca Battersby, Senior Policy Analyst francesca@carbongap.org

About us

[Carbon Gap](#) is an independent, Brussels and UK-based non-profit organisation supporting Europe's unique opportunity to lead the responsible deployment of carbon dioxide removal (CDR) to fight climate change through independent and science-led advice.

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