

Beyond net: a guide on separate permanent removal targets in the EU

**How national targets for permanent carbon removals should be
implemented in the EU's post-2030 climate framework**

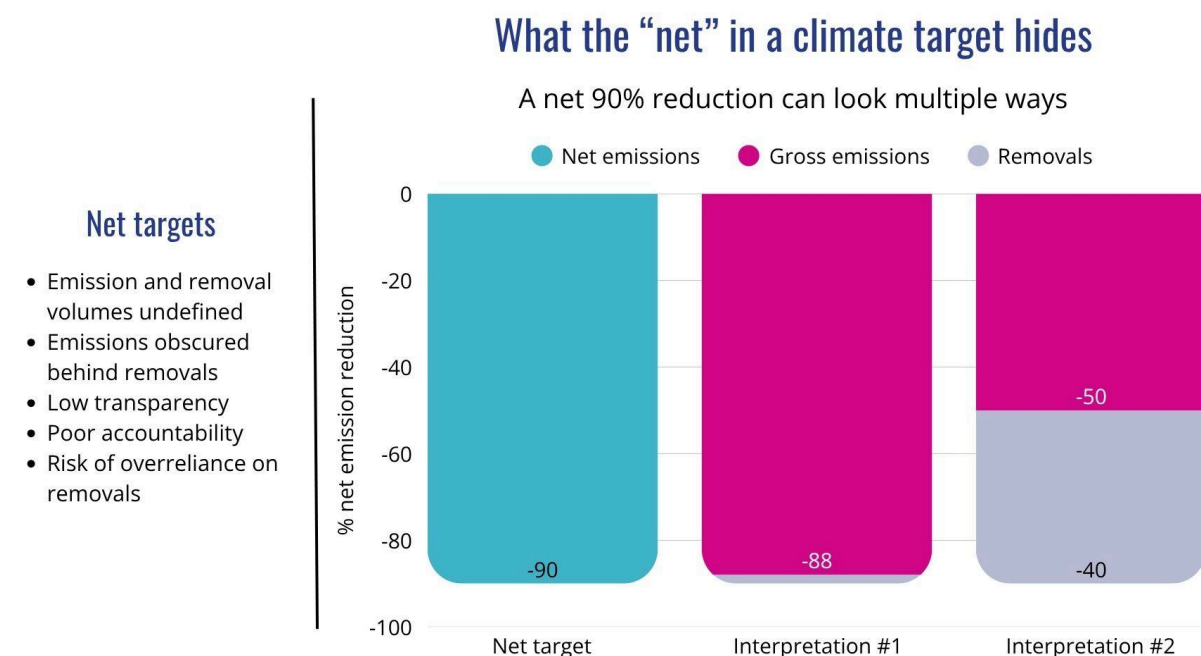
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Carbon Market Watch [strongly recommends](#) policymakers to introduce separate targets for emissions reductions, land-based sequestration, and permanent carbon dioxide removals (CDR) in EU climate law. This position is endorsed by [121 organisations and scientists](#), the majority of [stakeholders in the public consultation for the EU's 2040 climate target](#), and [recommended by the European Scientific Advisory Board on Climate Change](#) (ESABCC).

Net targets obscure real progress. Bundling emissions and removals together creates room for removals to substitute real and effective emission cuts. The graph below provides a brief overview of how net targets can be used to mask emissions and unambitious emission reductions.



To address climate change, global temperatures must stabilise and eventually return to safer levels. This requires peaking and then decreasing greenhouse gas (GHG) concentrations, meaning emissions must be drastically cut. Those emissions that prove truly unavoidable must be counterbalanced by permanent carbon removals. Separate binding targets are needed to incentivise this development and ensure permanent removals are not a diversion from emission reductions.

However, so far, no policy measures have been put forward in the EU for the concrete implementation of three separate targets. The rollout of the agreed 2040 target is a new opportunity for EU policymakers to specify the role of permanent carbon removals in the EU's climate action. This guide explains how to do this and why it should be done.

State of play in the current EU climate policy

Permanent carbon removals are currently inadequately governed by EU rules. [The European Climate Law](#) sets the target of achieving EU-wide net-zero greenhouse gas (GHG) emissions by 2050, and a commitment to net-negative emissions past 2050. Therefore, this establishes that EU law includes a foreseeable reliance on CDR.

In parallel, the EU has recently adopted the [Carbon Removal and Carbon Farming](#) (CRCF) Regulation, which includes methodologies to certify permanent carbon removal activities in the EU. However, it [lacks the necessary rigour to provide safe and reliable removals and risks overestimating the removal effects of certified activities](#).

The [Net-Zero Industry Act](#) set a goal of procuring 50 Mt of geological CO₂ storage in the Union (about 0.1% of the EU's 1990 emissions). But there is no provision stating how much of this capacity would be used for permanent removals, and how much for carbon capture and storage (CCS) activities, [which can never result in permanent CO₂ removals](#).

Even while serious regulation of permanent removals is severely lacking in the EU, several European countries [are already planning](#) to rely heavily on permanent CDR in their long-term and even short-term climate plans. Expectations for CDR in national plans are frequently insufficiently underpinned by assessments of what is technically, economically, or ecologically feasible. Therefore, the expected volumes of permanent CDR that these plans rely on are unlikely to materialise. Additionally, CDR methods with high biomass demand, such as Bioenergy with Carbon Capture and Storage (BECCS), [may exacerbate land-use footprints](#) and [pose significant risks to the health and biodiversity of European forests](#). The lack of adequate governance increases the risk of overstraining natural carbon sinks, such as forests and wetlands.

Lastly, the EU, instead of granting permanent CDR a dedicated space for proper development, is now considering integrating permanent removals into the EU Emissions Trading System. This [could risk the ETS's functioning, while failing to provide financing for permanent removals](#).

A separate, binding target and dedicated policy for permanent CDR, grounded in adequate assessments, [would provide a much-needed guardrail against overreliance](#) and reduce the risk of slowing genuine emission reductions. While caution is important, permanent removals need to be regulated sooner rather than later to ensure there is time to build removal capacity safely and sustainably. This way, permanent removals

can balance out residual emissions, meaning those that society deems too important to abate, and deliver net-negative emissions to return to safer temperature levels.

Setting permanent removal targets

Setting targets for permanent removals is no simple task. Multiple elements, including transparency, accountability, fairness, feasibility, financing, and environmental and social sustainability, need to be considered and combined into a coherent policy.

Policymakers must avoid shortcuts that would undermine efforts to reduce emissions, such as integrating removals into a single net target or into the ETS. Additionally, policies must address the weak governance and partly implausible national expectations that currently characterise [EU carbon removal policy and member states' planning exercises](#).

Where should permanent removal targets sit?

A central question is how targets for permanent removals can be integrated into the EU climate architecture without slowing down emissions reduction efforts or competing with objectives to protect the EU's forests and their benefits to biodiversity, soil health, and the climate. As stated above, it is problematic and counterproductive to directly integrate permanent removals in the architecture by making them contribute to net climate targets (either implicitly, as is in the EU's 2040 and 2050 targets, or explicitly by combining gross emissions reduction objectives with sequestration targets) or letting them into market-based emissions reductions instruments (such as the EU ETS).

After the revision of the European Climate Law failed to enshrine a EU-wide permanent removal target for 2040, it is now up to EU policymakers to design and agree on permanent removal targets at the national level. The post-2030 architecture, which needs to decide where and how the European Climate Law will be implemented, is currently under development. The revision of the Effort Sharing Regulation and the Governance Regulation provides a unique opportunity to conduct the necessary assessments on both the EU and member state levels and, based on these, set national permanent removal targets in EU legislation.

To safeguard the environmental integrity of EU climate policies, two promising options exist. National permanent removal targets can either be set as a completely separate pillar in a new legal instrument or integrated into the Effort Sharing Regulation. Here, we focus on the latter, outlining how the Effort Sharing Regulation, alongside the Governance Regulation, could be redesigned to accommodate permanent removal targets.

Given [member states' high reliance on carbon removals to achieve climate targets](#), the Governance Regulation, which sets out reporting and assessment requirements for climate and energy planning, plays a key role in enforcing viable permanent CDR plans that do not overrely on removals. The regulation [must be strengthened](#) to ensure that member states conduct the necessary feasibility and sustainability assessments and that they transparently report their reliance on permanent carbon removals. This can be done by: 1) strengthening compliance with already existing reporting and assessment rules, 2) making explicit the reporting obligations on projected biomass, renewable energy, and land use requirements for permanent CDR, and 3) deeming projects as insufficiently ambitious and through when the projected volumes aren't backed by credible assessments confirming their feasibility, and social and environmental sustainability.

The revision of the Governance Regulation could significantly enhance the quality and thoroughness of member states permanent CDR assessments and the transparency in their climate plans. This will prove effective in the short-term, as soon as March 2027, when the National Energy and Climate Plan (NECP) progress reports are due, as well as in the draft NECPs for 2030-2040, which need to be submitted by January 2028, and in the countries' Long-Term Strategies (LTS), which have to be done by January 2029.

Building on better data, permanent removal targets for 2035 could be quantified. A space for this should already be carved out, with rules for its design and governance. The Effort Sharing Regulation must be extended to include separate permanent removal targets for member states. This would be in line with the effort-sharing logic, which distributes decarbonisation efforts, or, in this case, the procurement of permanent carbon removals, across member states. Additionally, by locating it in the Effort Sharing Regulation, the permanent removal target would be a part of a policy instrument that covers the agricultural sector, where a significant share of residual emissions will likely persist. This would ensure that, in policy-review cycles, these two can be considered together and that a reduction of residual emissions is continuously

incentivised, thereby gradually lifting the requirement on member states to procure costly permanent removals.

How should permanent removal targets be designed?

Well-designed national permanent removal targets must be binding, transparent, and regularly reviewed in accordance with the best available science. The targets should be based on detailed, evidence-grounded, and independent assessments of what each member state can realistically and sustainably supply. Therefore, crucial sustainability constraints must be taken into account, including raw materials, energy, land, and the availability of geological storage. Starting with the clear knowledge of available capacity ensures that targets drive both sufficient emission reductions and adequate levels of permanent carbon removals. Therefore, the EU-wide collective target must first be informed by these bottom-up assessments.

Next, the EU-wide permanent CDR target volume should be distributed among member states and translated into national targets. The distribution should be based mainly on the countries' differing fiscal capacities, while taking the polluter-pays principle and historical responsibility into account.

Target type

This section sets out principles for robust, permanent removal targets for member states that are effective, do not risk damaging the integrity of climate laws, and respect planetary boundaries and social foundations.

Targets should be expressed both in absolute volume (MtCO₂) and as a percentage of 1990 gross emissions to enable fair comparison over time. In the context of net emissions targets, such as the EU-wide 90% net reduction target, the percentage enhances transparency on the extent of reliance on removals to achieve these targets. But ideally, all targets should keep removals and emissions separate. A path towards net-negative GHG emissions should be integrated into the EU's nationally determined contributions and set with intermediate targets, starting in 2030 and every 5 years thereafter.

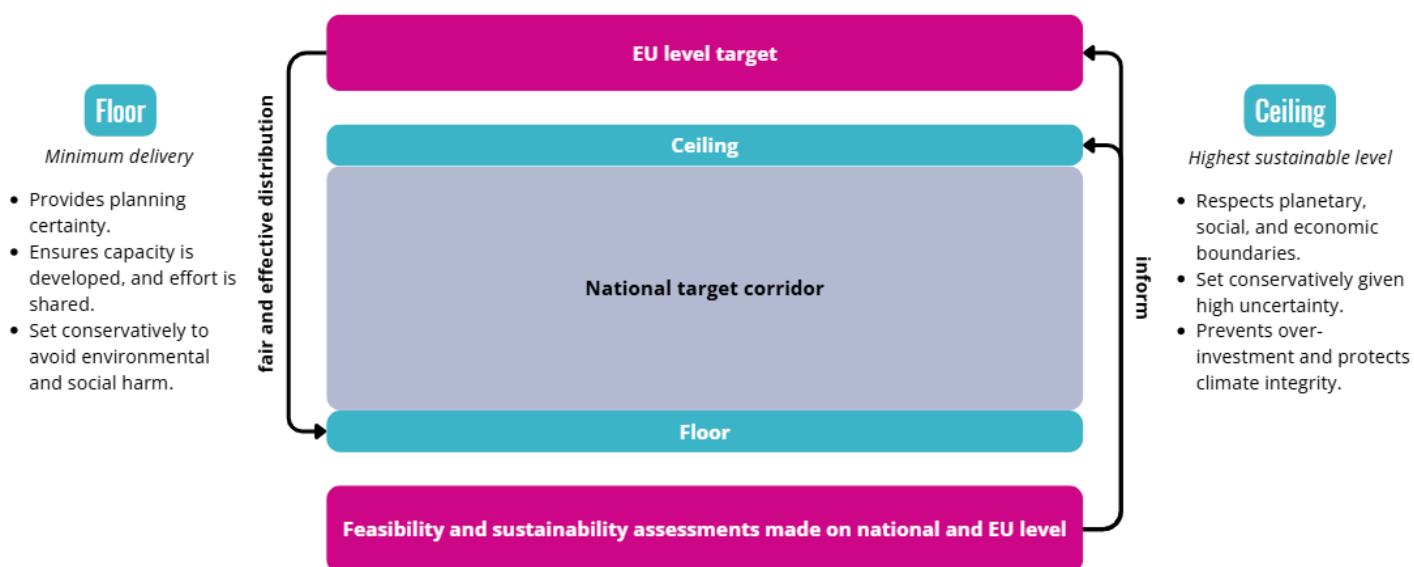
National targets should be composed of a floor and a ceiling.

A ceiling on permanent CDR should be set at the maximum level that is sustainably feasible, and that respects planetary boundaries and social and economic constraints.

The ceiling limits countries' ambition for permanent carbon removals. It can avoid overconfidence in carbon removals that may delay emission reductions. As assessments evolve and uncertainty remains high, this ceiling needs to be set conservatively. It can be broken down into separate permanent CDR methods to address their respective limits. In addition to protecting ecosystems and social integrity, this limitation can prevent over-investment in costly removal infrastructure from becoming a justification for maintaining high emission levels in hard-to-abate sectors. Once permanent CDR methods are sufficiently advanced and sustainability assessments and safeguards are robust enough, the ceiling may be raised to allow countries with sufficient resources (e.g., financing, renewable energy, geological storage sites) to contribute to a global state of net-negative emissions.

A floor would instead represent minimum delivery volumes, set to provide planning certainty. Such a floor volume ensures that some permanent CDR capacity is developed and that efforts are shared across all member states. The sum of all member states' minimum targets must equal the EU-wide target. This floor should start at a very conservative level, similar to the ceiling, to ensure the deployed permanent CDR does not cause environmental or societal harm. This floor can be raised once the high uncertainty about environmental damage and the sustainability of resource demand is addressed. This could ensure the balancing of residual emissions when all possible deep emission cuts have been exhausted.

Elements of a national permanent removal target



In the long term, the ceiling and the floor can move closer together, forming a narrow corridor for member states to deploy volumes of permanent CDR that are close to yet within the identified limits.

Target scope

The policy instrument should support a diverse mix of removal methods rather than concentrating risk in a single technology or feedstock, given wide variation in cost, maturity, and sustainability. Each planned tonne of carbon removed must be backed by a rigorous assessment of energy and biomass demand, land use, and environmental and social risks before it is included in a target.

Governance and compliance

The targets must be legally binding for member states. To ensure compliance, a financial penalty mechanism must be put in place that automatically triggers in the event of underdelivery below the floor or transgression of sustainability levels beyond the ceiling. Binding targets can be phased in, starting with indicative targets (which could, for example, initially take the form of Key Performance Indicators) until 2035, which then become binding from 2040 onward. This would give time to address the lack of impact assessments, foster innovation, and establish robust definitions of residual emissions.

A trading facility should be set up for permanent carbon removal credits to incentivise overachievement of the floor target, and allow EU-wide trading between member states of credits exceeding the floor target. However, if countries are close to their delivery ceiling and sell CDR credits, these domestically deployed permanent removals must still count toward their own ceiling limit.

Targets must be revisited on a defined cycle, informed by updated science and real-world delivery data, with the possibility of reducing reliance on CDR if emissions fall faster than expected.

Who should pay for permanent removals?

The cost of procuring permanent carbon removals will have to be carried by public and private actors. While it is important that the governance of permanent CDR, a public good, remains in public hands, a part of the costs to clean up atmospheric emissions, which private companies and individuals have disproportionately profited from financially, must be borne by the private sector. High-polluting companies should be

held responsible for financing the removals necessary to counterbalance residual emissions and clean up historical emissions in the atmosphere.

This can be done in two ways. First, targets for member states can be set, based on fair allocations, as outlined above. Member states can then implement progressive taxation and tax high-polluting companies to finance the deployment of permanent CDR and purchase removal credits from other countries, traded through a removals trading facility. As a second option, an EU-wide permanent removal target can be split into two. One part could be achieved through member states' contributions to national targets. The other part would be translated into an EU-wide removal obligation on polluters. This obligation would make high-emitters responsible for deploying removals themselves or for buying removal credits to fulfil their targets based on their emissions or revenues. For this second option, strong accounting rules are crucial to ensure the same removal is not counted toward both the company and the member state targets.

Conclusions

Altogether, the principles and ideas presented here would ensure that permanent CDR targets function as genuine climate tools that are sufficiently ambitious to drive action, sufficiently bounded to prevent abuse, and sufficiently flexible to evolve as science and technology progress and circumstances change.

Setting separate permanent carbon removal targets for member states is not a matter of picking a number. It requires resolving tensions between ambition and feasibility, between providing industry with long-term certainty and avoiding lock-in to costly removal pathways, between collective EU-level targets and the unequal capacity of member states to deliver.

Each design choice involves a difficult balance to strike. A ceiling needs to be designed to keep pressure on emissions reductions and avoid lock-ins while giving some room for member states to be ambitious and harness the benefits of removals. The floor must be high enough to ensure delivery, but grounded in what is actually achievable given competing demands on land, energy, and biomass. Feasibility assessments must be rigorous to reduce risks, but conducted in time to inform the target-setting cycle. Allocating obligations between member states, accounting for historical responsibility, fiscal capacity, and the uneven dispersal of geological storage, adds another layer of complexity that will require sustained political negotiations. None of this is simple, but

the difficulty of designing efficient and plausible targets is not an argument for deferring this goal. It is, instead, an argument for starting the process now.

Contact

Daniel Orth

Policy Expert - Carbon Removals

daniel.orth@carbonmarketwatch.org



Author

Daniel Orth
Policy Expert on Carbon Removals

Editors

Greta Hirschberg
Communications specialist

Layout

Greta Hirschberg
Communications specialist

Cover Design

Magdalena Zawieracz
Communications specialist

Image source

Canva images

CONTACT

Daniel Orth
[**daniel.orth@carbonmarketwatch.org**](mailto:daniel.orth@carbonmarketwatch.org)



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