

NEP welcomes the opportunity to submit additional comments related to the 2030 target increase through climate legislation on top of the responses to the survey. Please see below our detailed input concerning the 2030 target setting, including some early considerations about the international framework and detailed comments related to a proposal for an EU wide certification framework for carbon removals.

## **I. Carbon Dioxide Removals (CDRs) and 2030 target setting**

### **General considerations**

The **urgency of scale up of CDR technologies and solutions** should not be understated in the discussion around re-setting the 2030 target. The science is clear that negative emissions will be needed at up to 6 gigaton scale by 2050. If we start now, CDR will require an annual growth rate of over 55%. Delaying the scale-up to 2025s will already require a sustained growth of 80% per year, whilst scale-up starting in 2030 means that CDR capacity will need to double every year ([Nemet et al., 2018](#), [Beuttler et al., 2019](#)). These timelines should be taken into account by the Commission when designing the policies to achieve both the 2050 climate-neutrality objective and in particular its intermediate targets. As the first step, the planned impact-assessed plan to increase the 2030 target should duly reflect the **environmental and societal cost of delaying action on CDRs** and aim for the highest possible threshold of emissions reductions and removals. Therefore, we would support **the highest target of 55%** as proposed by the Commission, while also welcoming the proposal from the draft report on Climate Law to **increase the target to 65%** compared to 1990.

Below, we enumerate a number of academic concepts and policy instruments we believe should be further explored in the design of the 2030 and 2050 framework:

- The **concept of separation** of emissions reductions from carbon removals should be thoroughly explored in the 2030 perspective at the latest.

- Separation would bring **benefits** for international, national, local, organisational, and sectoral planning, as well as greater **clarity over the urgency** of a faster uptake of CDRs by the 2030s and large scale deployment throughout the 2040s. As such, it would be very much in line with three concepts emphasised in the draft report on the Climate Law from the Environment Committee, namely: introduction of an EU carbon budget broken down for each economic sector, as well as introduction of a net-negative emissions objective as early as by 2051.
- **Target setting:** the 55% target (or ideally 65%) could be then disaggregated into separate targets and timescales for emissions reduction and carbon removals, including in the formulation of the EU NDC under the Paris Agreement. This would enable clear assessment of the practicality of each element including technological, financial and regulatory gaps to be addressed.
- **Formal separation** of emissions reductions and CDRs would require redesign of offsetting and carbon trading systems:
  1. Combination of negative emissions and emissions reductions in one system would increase overall abatement cost in the long term through lock-in or sub-optimal resource allocation - a separate market negative emissions should be considered instead. Additionally, the difference in accounting stringency between CDRs, nature-based solutions and emission reductions could undermine the credibility of EU ETS, if the CDRs were included.
  2. Additionally, without offsetting between removals and emissions reductions in the post-2030 perspective the carbon prices would be pushed higher, stimulating faster decarbonisation than if offsets were permitted.
  3. Enhanced clarity brought about by separation would underscore the need for early and high support for early development of a suite of CDR technologies and solutions as opposed to placing faith in sufficiently high carbon prices later in the century. *NB:* Most of the CDR options could only remove CO<sub>2</sub> from the atmosphere at a cost

averaging 200 euro/tCO<sub>2</sub> in the long-term perspective. ([EC's in depth analysis](#) accompanying Clean Planet for All).

- In terms of practical policy implications the concept of a **CDR obligation scheme** should be given due consideration. Ideally, the scheme would be based on **tradable certificates** covering gradually a full portfolio of removal technologies and practices ([Vivid Economics](#), 2019). Alternatively, it could be tested as a part of a CO<sub>2</sub> storage obligation framework (S.[Haszeldine](#), 2020) or a Carbon TakeBack obligation ([Kuijpers](#), 2020)
- The rationale for opting for an **obligation scheme** is as follows: as a **quantity instrument** it would align well with the planned certification framework for carbon removals (see point II), as well as with the concept of a separate CDR target and sectoral carbon budgets, as opposed to price mechanisms that would leave the volumes of deployed CDRs uncertain. Additionally, price mechanisms such as tax credits would not be able to incentivise capital-intensive CDR projects with long payback periods (BECCS and DACCS).

Below is a list of **key features of a hypothetical CDR obligation scheme** with focus on its relative advantages and strengths, for further consideration in relation to other policy options (such as contracting instrument like CfD, direct subsidy):

- **Set up:** Companies in the scheme would be required to secure negative emission certificates to meet their obligations:
- obligation would be set at a **fixed proportion of emissions** associated with their product, for example a certain % of the carbon content in a fuel, ramping up to 100% by 2050.
- a minimum **accounting standard** would be required to accurately measure the quantity of CO<sub>2</sub> removed, and only CDR methods which meet this standard should be covered by the obligation. (NB: while accounting for BECCS and DACCS is relatively straightforward,

their relative technological immaturity means that they would likely require additional incentives (direct grants, subsidies) on top of the obligation scheme.

- Initially the obligation would incentivise the most popular CDR methods that offer reliable accounting standards, such as afforestation, habitat restoration, and wood in construction. The **scope of CDRs** covered by the obligation would be **gradually expanded** as monitoring, reporting, and verification (MRV) methodologies improve for each CDR option.
- In the long term, once tradable certificates can cover a full portfolio of CDR methods, the scheme could form the basis of **a negative emissions trading scheme**.

The obligation could be imposed on a range of different entities:

- **Fossil fuel suppliers:** Imposing obligations on fossil fuel suppliers would be a practical way to spread the costs through the value chain. The costs would be shared widely across fossil fuel wholesalers who would pass on most of the obligation's cost. All fossil fuel users would then indirectly bear the cost of CDR deployment. This follows the 'polluter pays' principle. Given that the cost is widely distributed, final fuel prices would not increase significantly.
- **Wholesale distributors of agricultural products:** Alternatively, the obligation could be based on a percentage of the GHG emissions (in CO<sub>2</sub>eq) associated with agricultural activities, e.g. production of dairy or grains, which represent a significant share of remaining emissions by 2050. The benefits exist in reflecting the societal costs of these emissions in the value chain.

Overall, the benefit of **placing the obligation upstream** is that passed-through costs are spread over a wide base, limiting competitiveness impacts on any specific sector. Key strengths of an obligation scheme:

- **Revenue-neutral for the government** because the scheme creates a transfer of income between the entities obliged to meet their quotas.
- **Costs** of deployment are **shared widely** because the obligation is placed upstream, covering all emitting sectors.
- The '**polluter pays**' principle is **fulfilled** which is likely to make this a socially attractive solution.
- **Emission reductions** are **incentivised** through an increase in fuel prices as fuel suppliers pass on the obligation costs.
- **Effective in delivering a target** via specific quantities of CDRs because the policy is delivered in a quantity mechanism, so the **volume of removals** can be set and re-calibrated in accordance with evolving **carbon budgets**.

## II. CDRs and international framework

Recent research explores application of **CDR quotas under the Paris Agreement** framework. Drawing on existing equity frameworks, the CDR quotas are allocated globally according to Responsibility, Capability and Equality principles ([Pozo et al](#), 2020). Some of the conclusions of this research, which we find relevant to the separation principle are:

- **International cooperation** and incentives for the large development of CDR seem to be necessary to deliver a portfolio of CDR options including BECCS, reforestation and DACCS.
- An **international CDR supply chain** based on deeper cooperation among countries, dedicated policy instruments for early deployment of CDR options will be needed.
- Two approaches could be further explored: 1) allocating **CDRs alongside mitigation targets**, but treating them separately to be able to monitor progress and foster international co-operation. This would be accompanied by **technology-oriented agreements**, such as mandates for storing carbon. 2) Alternatively, collective action could be incentivised by **decoupling** the removal of atmospheric CO<sub>2</sub> (**effort-sharing**) from the country paying for it (**burden-sharing**). Separate accounting for negative emissions

accounting could imply creating a parallel market for CDR to incentivize the deployment of CDR strategies.

### **III. Response to the proposal for a design of a CDR certification framework**

NEP welcomes the Commission's query about establishing an **EU wide methodology to certify the credits** for different types of CDRs in agriculture and forestry (question 5.5) and in energy and industry including through BECCS and DACCS with geological storage or mineralisation (question 5.8). We assign maximum value to both of these options in the questionnaire.

In this respect, we welcome the inclusion of a proposal for a regulatory framework for the certification of carbon removals as one of cross-cutting action of the Circular Economy Action Plan (CEAP) to be delivered by 2023. The CEAP envisages the framework for both the nature-based removals in forestry and farming, and those based on increased circularity through wood in construction or mineralisation in building materials.

The Farm-to-Fork strategy specifies further that certification will be needed to remunerate farmers and foresters for carbon sequestration either through dedicated payments under CAP or certificates trading. These are important considerations that have real potential to capitalise on the carbon-removal potential of selected sectors. However, we strongly believe that the planned carbon dioxide removal **certification framework** as such needs to have **holistic scope and all-encompassing coverage**. It should cover separately every existing CDR technology, hybrid-, nature-based or circular solution, while assigning different metrics to measure their performance in order to account for different CO<sub>2</sub> removals rates in space, time and along different value chains.

Currently there is **no consensus on the definition of negative emissions** among different users of this concept (IPCC, the EU policy-makers, industry stakeholders). As such, the '*negative emissions*' can appear in the context of atmospheric removals and permanent storage or that of utilisation of CO<sub>2</sub> in fuels, materials and products with the associated mid to long-term prevention or delay of emissions. In this respect we welcome the efforts by the Commission to establish a definition of carbon dioxide

removals/negative emissions through an informal query among industrial stakeholders. Recent research defines a number of aspects of the definition of negative emissions such as the influence of system boundary selection on accounting ([Tanzer and Ramirez, 2019](#)), the **CO2 'negativity'** - the actual volume removed when accounting for life cycle emissions ([Fajardy and Mac Dowell, 2017](#)); or the **CO2 'efficiency'** as in proportion of CO2 removed to CO2 absorbed by the biomass when accounting for land use change emissions ([Harper et al., 2018](#)). We believe that the elaboration of a clear **NET's/CDR taxonomy** is a necessary first step to build a holistic certification framework and we remain at the Commission's disposal to contribute to this exercise.

Below we propose a list of key considerations related the future **CDR certification framework** as reflected in commercial studies and academic analyses:

- The framework should aim at assessing **a full suite of CDR technologies and solutions** regardless of their technology readiness level: wood in construction, afforestation/forest management (TRL 9), soil carbon sequestration (TRL 8) BECCS, magnesium silicate/oxide in cement (TRL6), biochar, habitat restoration, DACCS (TRL 5), enhanced weathering (TRL 3).
- **Robust CDR accounting** is needed for three reasons: 1) climate certainty, 2) inclusion of carbon removals in national inventories and their alignment with the IPCC guidelines; and 3) provision of adequate incentives to deliver results through the selected policy instruments:
  1. Establishing the certainty of climate benefits would include the assessment of aspects such as: the permanence /re-emission (in the case of soil carbon sequestration), the rate of removal (for BECCS, afforestation, biochar and, in particular, enhanced weathering), as well as the deferral factor for BECCS.
  2. While most of the CDR technologies and solutions are currently not covered by the IPCC guidelines (with the exception of BECCS and afforestation), the system is being revised now and the lack of

international guidance does not preclude Member States from including a portfolio of CDR solutions in national inventories.

3. Any scheme with tradable certificates (ideally one designed for a portfolio of CDR technologies and solutions) would require a higher level of accounting accuracy and transparency than a tax credit or simple subsidy system where allocation of a reward for removals is at the discretion of the government and does not have to be linked to strict accounting.
- The framework needs to tackle a number of **unique characteristics** of CDR technologies and solutions going beyond different levels of maturity. These include:
    1. Influence of local conditions on CO<sub>2</sub> absorption, for example the rainfall or temperature which will affect removals with biomass or enhanced weathering.
    2. Valuation of permanence and accounting for reversal. We support the use of tonne-years of CO<sub>2</sub> instead of tCO<sub>2</sub> as a metric that enables comparison between various CDRs and is best suited for a framework that promotes deployment of a portfolio of solutions. To tackle the risk of reversal we recommend mirroring the set up of accounting buffers, as applied now in national afforestation schemes.
    3. The challenge of international value chains specific to BECCS (and potentially to DACCS in the context of transboundary CO<sub>2</sub> shipping for storage) will require the introduction of split accounting for CO<sub>2</sub> removed from the atmosphere in one country and stored or used elsewhere.
  - In the initial stage we recommend establishing a **project-based accounting** with general shared principles for all technologies and solutions and **context- and project- specific accounting methodology**. The accounting would be verified by a dedicated competent authority (CA) with the mandate to guarantee certificates value.





- The CA could also be responsible for set-up and enforcement of **liability frameworks** for re-emission of stored CO<sub>2</sub> (in soils, forests, and geological storage). These considerations could to an extent mirror the **existing guidance** on liability under the CCS directive. Further learnings about applications of accounting methods in practice could be taken from few operational carbon removal marketplaces such as [Puro](#) or [Nori](#).
- We believe that a robust accounting framework and a transparent institutional set up will also **enhance long-term social acceptability of CDR solutions** and help demonstrate the ways to tackle some of the technological gaps of less mature CDRs and promote their uptake.
- In the mid- to long-term and once the certification framework matures, **a policy-based accounting** with a monitoring plan based on **predefined monitoring approaches** should be introduced, similar to MRV for the EU ETS. Such a credibility tool would be needed if an initial sectoral CDR obligation scheme was to evolve into a **fully fledged negative emissions trading scheme** encompassing engineered, hybrid and nature-based approaches.