



# Austrian Carbon Management Strategy: NEP position paper

February, 2024

*The Negative Emissions Platform (NEP) is a Brussels-based partnership of European and international organisations focused on carbon removals. Our members are primarily technology companies, but also include project developers, investors, carbon marketplaces, and buyers of carbon removals. We provide a forum in which diverse like-minded organisations actively collaborate to improve political and public recognition of carbon removals.*

## Executive summary

NEP welcomes the Federal Ministry for Finance and the Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology's public consultation on Austria's upcoming Carbon Management Strategy. This is a critical opportunity to promote the adoption of carbon removal technologies in Austria, positioning the country to achieve its climate objectives in the upcoming decades.

NEP has outlined below our key messages, categorised in the provided guiding questions in the public consultation.



## **1 Notwendige Reformschritte bzw. rechtliche und infrastrukturelle Rahmenbedingungen (EN: necessary reform steps and legal and infrastructural framework conditions)**

- Ø Set targets for permanent carbon removal for 2035, 2040 and 2045; thus aligning with the growing scientific consensus that carbon neutrality is unattainable without carbon dioxide removal (CDR);
- Ø Adopt clear definitions distinguishing between Carbon Capture and Storage, Carbon Capture and Utilisation, and Carbon Dioxide Removal;
- Ø Support permanent carbon removals with funding tools and incentives;
- Ø Lift the ban on geological storage;
- Ø Cooperate globally, in particular with neighbouring countries and the EU, on transport and logistics, as well as harmonising carbon management rules and initiatives;

## **2 Bezug und Relevanz für das Erreichen der Klima- und Energieziele der Republik (EN: reference and relevance for achieving the Republic's climate and energy targets)**

- Ø Set targets for permanent carbon removal (see above), setting Austria on trajectory to net-zero and reinforcing Austria's climate leadership within Europe and globally;



### **3** **Ökonomische Auswirkungen und standortpolitische Relevanz (EN: economic impact and relevance for location policy)**

Ø Establish financial and investment mechanisms to endorse a range of permanent CDR initiatives, e.g. R&D funding, government procurement, carbon contracts for difference, ETS-integration. Carbon removals are expected to create an industry worth between \$0.3 trillion to \$1.2 trillion annually by 2050[1]. Scaling up the sector will create economic prospects for Austria, bolstering the development of a resilient climate industry that is poised to generate substantial employment. This proactive investment stands in contrast to the potential cost of inaction[2];

Ø Conduct a mapping of Austria's CDR potential that includes a varied portfolio of CDR activities tailored to its context;

[1] McKinsey & Company, Carbon removals: How to scale a new gigaton industry (December 2023)

[2] Angela Köppl, Margit Schratzenstaller, Policy Brief: Budgetäre Kosten und Risiken durch klimapolitisches Nichthandeln und Klimarisiken (Budgetary Costs and Risks from Climate Policy Inaction and Climate Risks) (January 2024)



### **3** **Ökonomische Auswirkungen und standortpolitische Relevanz (EN: economic impact and relevance for location policy)**

Ø Establish financial and investment mechanisms to endorse a range of permanent CDR initiatives, e.g R&D funding, government procurement, carbon contracts for difference, ETS-integration. Carbon removals are expected to create an industry worth between \$0.3 trillion to \$1.2 trillion annually by 2050 [1]. Scaling up the sector will create economic prospects for Austria, by generating substantial employment. This proactive investment stands in contrast to the potential cost of inaction [2];

Ø Conduct a mapping of Austria's CDR potential that includes a varied portfolio of CDR activities tailored to its context;

### **4** **Limitationen, Anwendungsbereich und umwelt- sowie klimapolitische Mindeststandards (EN: limitations, scope of application and minimum environmental and climate policy standards)**

Ø Contribute to the standards set on the EU-level in the context of the Carbon Removal Certification Framework (CRCF) through participating in the Expert Group on Carbon Removals.

[1] McKinsey & Company, Carbon removals: How to scale a new gigaton industry (December 2023)

[2] Angela Köppl, Margit Schratzenstaller, Policy Brief: Budgetäre Kosten und Risiken durch klimapolitisches Nichthandeln und Klimarisiken (Budgetary Costs and Risks from Climate Policy Inaction and Climate Risks) (January 2024)



## **Background**

Scientific evidence has underscored that carbon neutrality is unattainable without CDR. This was recognised in the sixth assessment of the Intergovernmental Panel on Climate Change (IPCC) that said that CDR is essential in neutralising residual emissions [3]. It therefore has a unique role to play in getting the world to net-zero and averting the considerable harms posed by the climate crisis.

The CDR sector is nevertheless still in its infancy and requires substantial scaling up to meet the expected demands of the coming decades. This includes the need for sustainable funding and policies to support the sector, as well as building CO<sub>2</sub> transport and infrastructure networks requiring coordination and harmonisation of rules on the European and international level.

The Carbon Management Strategy is an opportunity for Austria to set ambitious goals in scaling up the sector, taking into account the distinctive economic and geographical conditions that are unique to the country. This would position Austria as a leader in carbon removal policy, both within the EU and on a global scale.

### **1. Clear definitions for CCS, CCU and CDR**

Carbon capture and storage (CCS), carbon capture and utilisation (CCU), and carbon dioxide removal (CDR) are often used synonymously which can lead to confusion. Distinguishing between them is therefore necessary to create certainty for all stakeholders on expectations and to clarify policymaking and investment. We suggest the following definitions:



## **Carbon Capture and Storage**

*A process in which a relatively pure stream of carbon dioxide (CO<sub>2</sub>) from industrial and energy-related sources is separated (captured), conditioned, compressed and transported to a storage location for long-term isolation from the atmosphere.*

## **Carbon Capture and Utilisation**

*A process in which CO<sub>2</sub> is captured and then used to produce a new product. If the CO<sub>2</sub> is stored in a product for a climate-relevant time horizon, this is referred to as carbon dioxide capture, utilisation and storage (CCUS).*

## **Carbon Dioxide Removal**

*Anthropogenic activities removing CO<sub>2</sub> from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical sinks and direct air capture and storage but excludes natural CO<sub>2</sub> uptake not directly caused by human activities.*

*It is vital to note that whilst emission reductions should remain the priority, there will come a point where hard-to-abate and historical emissions will need to be actively removed for the EU and the world more broadly to get to net-zero, and then to go beyond this to capture the excess CO<sub>2</sub> that is already in the atmosphere.*



It is crucial to differentiate between various sources of CO<sub>2</sub>. CO<sub>2</sub> derived from the atmosphere becomes “carbon negative” when stored (e.g., through technologies like BECCS, DACS, Biochar Carbon Removal, Biomass Carbon Removal and Storage (BiCRS), Enhanced Rock Weathering, ocean CDR, and permanent storage in materials and products), and “carbon neutral” when utilised (e.g. fuel). Conversely, geospheric CO<sub>2</sub> originating from fossil sources is carbon neutral when stored, making CCS from fossil point sources a mitigation technology rather than a CDR solution.

This diversity should be reflected in the Strategy and future policy formulation, either through distinct approaches or even separate strategies for CCS, CCU and CDR

## **2. Climate Targets**

Climate targets play a pivotal role in holding countries accountable for their commitments, offering a level of certainty and facilitating long-term planning for businesses and investors who depend on predictability. Austria stands ahead of many other EU Member States by setting a carbon-neutral target for 2040, a decade earlier than the EU's net-zero target.

To ensure the realisation of this goal, NEP urges the Austrian government to adopt further targets for 2035, 2040 and 2045, **in particular establishing a separate carbon removal target** from an emissions reduction target. Such a target would recognise the role carbon removals play in addressing hard-to-abate emissions which will need to be removed for net-zero to be reached. By distinguishing it from emission reductions, Austria would avoid mitigation deterrence, thus ensuring that cutting emissions in the first instance remains the priority.



The **carbon removal target should be further disaggregated to separate permanent carbon removal and LULUCF targets**. Supporting permanent removals is essential for sustainable net-zero and to avoid kicking the 'climate crisis bucket' down the road to future generations to resolve. A distinct target for permanent carbon removals will be the bedrock for further policies and funding that are critical to scaling up the sector. It would also be an immensely valuable market signal, giving investors a clear picture of what Austria plans to do and by when, and helping unlock the necessary investments (now) to support the sector.

#### National Energy and Climate Plans

The carbon removal targets should be reflected in Austria's National Energy and Climate Plans (NECPs). Considering that the majority of EU Member States have yet to establish targets for permanent carbon removals, doing so would reinforce Austria's position as a frontrunner in supporting CDR. This not only aligns with Austria's commitment to an early carbon-neutral target but also sets an example for other nations in the pursuit of comprehensive climate action.

### **3. Mapping Austrian CDR potential & portfolio approach**

The carbon removal sector is still young and growing and innovating on a rapid basis. There are already dozens of technologies that are promising CO<sub>2</sub> storage for centuries to millennia. No single solution will be enough to address the anticipated magnitude of the carbon removal sector required to achieve the climate goals. Given the diversity between countries within Europe, there will be some CDR technologies that are better suited for some EU Member States than others (e.g. access to renewable energy, geological storage, access to sustainable biomass).





Adopting a portfolio approach of CDR activities would enhance security and increase the likelihood of achieving their climate targets. By incorporating a variety of technologies, Austria can navigate the uncertainties associated with individual methods and create a resilient framework for climate action. This strategic and diversified approach positions Austria to adapt to the dynamic landscape of increase the likelihood of achieving national climate targets and contribute to the EU's overall climate objectives.

NEP recommends Austria to conduct a mapping exercise of its CDR potential that includes a varied portfolio of CDR activities tailored to its context. The mapping exercise should involve a meticulous examination of Austria's geographical, environmental, and technological landscape to identify which CDR methods align most effectively with the country's capabilities and constraints. By incorporating these considerations, Austria can develop a nuanced understanding of the most viable and impactful CDR strategies.

Furthermore, the mapping exercise should not solely focus on current technologies but should also anticipate emerging innovations in the carbon removal sector. This forward-thinking approach ensures that Austria remains adaptable to advancements in CDR technologies and can proactively incorporate new and more efficient methods as they become available.

All activities aligning with Austria's CDR potential should receive support, including access to R&D funding, state subsidies and receiving policy support, including streamlined permitting processes. This inclusive approach not only encourages the exploration and refinement of a variety of technologies but also aligns with Austria's commitment to achieving its climate targets.



## Case study 1: Swiss CDR policy learnings

*Austria has the potential to draw valuable insights from Switzerland's experience with CDR, considering the shared characteristics between the two countries, such as being landlocked, having limited available land, and a similar population size.*

*Switzerland has committed to achieving net-zero emissions by 2050. According to the Federal Council report ([Federal Council 2022](#)), it projects 12 Mt CO<sub>2</sub>eq of residual emissions in 2050 (Austria aims for net zero by 2040 with 11 Mt CO<sub>2</sub>eq). These remaining emissions will be compensated through CCS and CDR (mostly through DACCS and BECCS). Other novel CDR methods are considered as well, including biochar.*

*Switzerland will largely be relying on removals taking place outside of the country due to lack of local storage. However, it should be noted that CDR can be applied in any location due to worldwide atmospheric CO<sub>2</sub> diffusion. If CO<sub>2</sub> is removed in Norway, this results in the same atmospheric CO<sub>2</sub> decrease as if it would have been removed in Austria directly.*

*The [CCS and CDR roadmap](#) established by the Federal Council compiles a variety of initiatives and tools aimed at fostering R&D. Additionally, it sets out the actions deemed necessary to expand the scale of CCS and CDR in Switzerland by the year 2030.*

*It should be reiterated that to reach climate targets, a portfolio approach to CDR is integral. Austria should assess what such a portfolio could look like including looking at the co-benefits and risks associated with each CDR activity.*



## 4. Investment in CDR

Based on expected delivery of announced CDR projects, the CDR market size is estimated to be between \$40 billion to \$80 billion by 2030 [4]. However, achieving gigatonne scale CDR in the upcoming decades demands increased financial support from governments to bolster the sector.

National governments play a critical role in catalysing the necessary investment required to support the CDR sector. Given the expected demand for the coming decades, funding and investment is already needed now to support the sector. Timely and strategic investment is crucial to propel the development and deployment of CDR technologies.

This positioning goes beyond the need to reach climate objectives, it is also an economic opportunity for Austria to become the home of the sector. This would allow Austria to foster a robust and innovative ecosystem around CDR technologies, attracting research institutions, entrepreneurs, and industry players to establish themselves within the country.

Moreover, the economic benefits extend to job creation and the development of a skilled workforce. These jobs not only contribute to national employment but also provide a resilient foundation in the face of the broader transition to a net-zero economy.



The Austrian Government should consider some of the following funding tools:

### **a. R&D funding**

Based on expected delivery of announced CDR projects, the CDR market size is estimated to be between \$40 billion to \$80 billion by 2030 [1]. However, achieving gigatonne scale CDR in the upcoming decades demands increased financial support from governments to bolster the sector.

National governments play a critical role in catalysing the necessary investment required to support the CDR sector. Given the expected demand for the coming decades, funding and investment is already needed now to support the sector. Timely and strategic investment is crucial to propel the development and deployment of CDR technologies.

This positioning goes beyond the need to reach climate objectives, it is also an economic opportunity for Austria to become the home of the sector. This would allow Austria to foster a robust and innovative ecosystem around CDR technologies, attracting research institutions, entrepreneurs, and industry players to establish themselves within the country.

Moreover, the economic benefits extend to job creation and the development of a skilled workforce. These jobs not only contribute to national employment but also provide a resilient foundation in the face of the broader transition to a net-zero economy.



## **b. Carbon Contracts for Difference**

Carbon Contracts for Difference (CCfDs) are emerging as an effective instrument to help support companies generate revenues. This has been used in several countries in the context of renewable energy to provide the private sector with revenue certainty.

In practical terms, a government would establish a long-term contract with a carbon removal project, guaranteeing a specific price for each tonne of CO<sub>2</sub> removed and stored by the project. If the market price for CDR exceeds the agreed-upon CCfD price, the project can sell additional carbon credits or removal services at the market rate, generating additional revenue. Conversely, if the market price falls below the CCfD price, the project is still guaranteed the agreed-upon income, mitigating financial risks associated with market volatility.

This would provide a carbon removal project with a stable and predictable income, irrespective of fluctuations in the market price of carbon credits or other revenue streams. This is particularly beneficial for currently expensive permanent CDR technologies as it provides financial incentives for the project to operate and attracts long-term investment which in turn would drive down the cost of that CDR activity.

### **Case study 2: UK Contract for Difference for renewable energy**

The UK's Contracts for Difference (CfDs) scheme helps support new low carbon infrastructure. Under the CfDs, a predetermined electricity price, referred to as a strike price, is guaranteed to generators for each unit of power they produce. This mechanism ensures that generators either receive a subsidy up to the established price when the wholesale electricity price is lower or repay any excess above the set price, providing them with a consistent income based on the strike price. Since its inception in 2014, the CfD scheme has effectively attracted investments in 29.4 gigawatts of renewable energy generation with 6.4 GW currently in operation. In 2022, projects supported by CfDs contributed enough energy to power 7 million homes and reduced CO<sub>2</sub> emissions by 5,822,352 metric tons.



### **c. Government procurement**

Government procurement offers a unique opportunity to position Austria as the customer of CDR credits. This approach entails actively supporting and engaging with commercial carbon dioxide removal companies across multiple phases, ensuring the delivery of CDR. By doing so, Austria would not only demonstrate a sincere commitment to CDR but also provide crucial support for the growth and development of the burgeoning CDR sector. Much like CCfDs, procurement acts as a catalyst, furnishing long-term certainty for CDR companies, allowing them to plan effectively and scale up their operations.

The US has recently championed this tool with its 'Carbon Dioxide Removal Purchase Pilot Prize' (see case study box).

#### **Case study 3: US Department of Energy's CDR Purchase Pilot Prize**

Launched in September 2023, the \$35 million pilot prize aims to advance CDR technologies by allowing companies to vie for the opportunity to directly sell CDR credits to the US Department of Energy.

Applicants must formulate carbon dioxide purchase agreements through a pilot project delivering third-party verified CDR. A maximum of 10 teams will be selected, each eligible for a purchase award prize of up to \$3 million.

The prize is accessible to innovations in four CDR technology pathways: DAC, biomass technologies, enhanced geological weathering and enhanced mineralisation technologies, and planned and managed carbon sinks.



#### **d. Compliance market for CDR**

The CDR sector is currently relying on private purchases under the Voluntary Carbon Market. While this approach has successfully initiated some projects, the implementation of a compliance market holds the potential to unlock significant investment and is crucial for the sector's expansion to meet climate targets in the coming decades.

At the EU level, the European Commission is actively evaluating whether and how CDR can be integrated into its Emissions Trading Scheme (ETS). This strategic move is indicative of a broader commitment to incorporating innovative solutions within a regulatory framework to address climate challenges.

Examining Austria's model, where a national Emissions Trading Scheme covers sectors beyond the EU's ETS, prompts consideration of whether the government should also explore the integration of CDR. This evaluation should carefully assess the types and quantity of CDR activities that can be incorporated, ensuring a comprehensive approach without inadvertently discouraging emissions reduction efforts.



## **5. Geological storage**

Austria currently prohibits the underground storage of CO<sub>2</sub>, which poses a hindrance to the potential advancement of CDR activities relying on geological storage, such as DACS and BECCS. NEP urges Austria to lift this ban and to establish a legal framework to support at least small-scale pilot injection activity. This move would significantly enhance CCS and CDR applications and would set Austria in a pioneering role. Such a move would align with other countries' rules on geological storage and would open more doors for Austria to scale up its CDR sector.

A crucial aspect of this transformation involves engaging with local communities that may be affected by underground storage. It is essential to raise awareness, fostering an inclusive, scientifically informed, and transparent discussion on underground storage and CDR technologies more broadly.

## **6. International dimension**

The climate crisis is a global crisis that requires countries working together. This may entail countries collaborating to harmonise rules, enhance cooperation in R&D, and increase climate commitments.

### **Transport and logistics**

In the realm of transport and logistics, Austria faces a challenge in carbon removal activities requiring geological storage, as it currently has banned underground storage within its territory and, being a landlocked country, it lacks direct access to offshore storage. Consequently, Austria must engage in collaborative efforts with European countries to develop the necessary infrastructure for the safe transportation and storage of CO<sub>2</sub>. Austria should consider setting up bilateral agreements, in particular with neighbouring countries and countries where storage sites are being developed, to facilitate CO<sub>2</sub> transport.





In the EU Industrial Carbon Management Strategy, the Commission highlighted the importance of Member States in establishing an Important Project of Common European Interest (IPCEI) dedicated to CO<sub>2</sub> transport and storage infrastructure projects. IPCEIs provide a platform for several EU Member States to combine their knowledge, expertise, financial resources, and economic stakeholders to tackle specific challenges. NEP would encourage Austria to actively participate in such an initiative as a means of closely cooperating with other EU Member States.

Separately, the EU's Trans-European Transport Network (TEN-T) presents an opportunity for the establishment of a cohesive, efficient, multimodal, and high-quality transportation infrastructure throughout the EU. This network encompasses railways, inland waterways, short sea shipping routes, and roads that connect urban nodes, maritime and inland ports, as well as airports and terminals. As part of the Trans-European Networks for Energy (TEN-E), the European Commission published in November 2023 a new list of Projects of Common / Mutual Interest. It included, for the first time, CCS projects.

The revision of the TEN-T Regulation is currently being negotiated by the co-legislation but has so far received low political support. Given potential synergies with TEN-E and the potential of such a network to facilitate CO<sub>2</sub> transport, the Austrian government should support progress in advancing on an agreement on the Regulation.

### **Carbon management strategies**

Regarding Carbon Management Strategies, various countries are progressing with their individual national plans, and the EU is set to unveil its Industrial Carbon Management Strategy in early February. Austria should explore ways to synchronise its domestic initiatives with the strategies of other countries and the EU-level strategy. This approach aims to prevent the proliferation of multiple governance systems, ensuring that countries can collaborate effectively without duplicating efforts.