NECP Assessment

Carbon Capture & Storage in the National Energy and Climate Plan

Austria

Criteria	Performance	Score
Implementation plan	Published its Carbon Management Strategy aimed at lifting geological CO_2 storage ban and establishing a supportive policy and regulatory framework to establish a domestic CCS value chain.	
CO_2 capture	Reports on capture volumes for different industrial and biogenic emissions. Total emissions from hard-to-abate industries to be captured estimated at 8-12 Mt between 2030 and 2050.	
CO_2 storage	Estimated both total theoretical and practical CO_2 storage capacity in depleted oil and gas fields at 465 Mt and 118 Mt respectively. Ongoing work on assessing storage capacity of individual fields. Vague statement on storage in saline aquifers.	
CO_2 transport	Conducted feasibility study with different scenarios for comprehensive CO_2 collection, transport and storage cross-country networks with interconnections to international off-takers.	
National government funding	Allocated more than €3 bln to industrial decarbonisation measures; CCS projects being eligible.	

Other relevant initiatives	• Plans to limit CO_2 storage to hard-to-abate industries with constant revaluation of eligible sectors. • Introduced climate dialogue with industry stakeholders.

BELLONA EUROPA

DISCLAIMER | *The NECP was published under Austria's previous government coalition, formed by the conservative ÖVP and the Greens. Following the federal elections at the end of 2024, the far-right FPÖ emerged as the strongest party in parliament and is presently in coalition talks with the ÖVP. Although regional factions of the FPÖ have expressed support for CCS, the party fundamentally opposes spending on climate protection measures[1]. Therefore, the future of the Austrian Carbon Management Strategy (CMS) under the incoming government remains uncertain.*

CCS IMPLEMENTATION PLAN

Austria's approach to implementing CCS is outlined comprehensively in its Carbon Management Strategy (CMS), which has been referenced in its NECP. Since 2011, the domestic geological storage of CO_2 has been restricted exclusively to research purposes. However, the government considered Carbon Capture and Storage (CCS) to become a "significant cornerstone" of Austrian climate policy and suggested revoking the ban by mid-2025, as it recognised that the initiation of CO_2 storage by the mid-2030s the latest is critical to meet its climate objectives.

The strategy proposes an elaborate action plan aimed at making the legal amendments necessary for a lift of the ban and establishing a supportive policy and regulatory framework to cultivate a domestic CCS value chain. Among the goals are fostering research, demonstration plants, feasibility studies, and first mover projects. Furthermore, a one-shop-stop shall be established to streamline all permitting procedures and manage subsidies efficiently, improving administrative efficiency, uniformity and legal certainty. Moreover, experts and stakeholders shall proactively work to improve public acceptance through engagement and transparency, focussing on the necessity of CCS for achieving climate goals.

Criteria will be developed for the prioritisation of projects of competing uses in the subsurface, such as storage of H2 or thermal energy. As domestic storage may be limited for time to come, Austria further plans to engage in international cooperation, which involves the development of uniform technical standards and market design for CO_2 transport, entering long-term contracts to secure storage abroad, ensuring non-discriminatory access to a European transport and storage network, as well as participation in transnational research and the EU's Strategic Energy Plan (STEP) for Carbon Capture, Utilisation and Storage (CCUS). Furthermore, Austria intends to engage in international exchange on best practices in the areas of sector ramp-up, subsidy and incentive design, as well as public engagement.

CO_2 CAPTURE

Austria's CMS emphasises that cost-effective emission reduction measures should remain a priority for decarbonisation, and that CCS should only be an option for hard-to-abate industries. Carbon capture should tackle emissions that cannot be avoided despite optimisation of the processes, and where there are no viable alternative processes, products or resources available for the same use case. The list currently encompasses cement, limestone, glass, pulp and paper, iron and steel, refractory materials, waste incineration, and biomass energy production. However, it is dynamic and will be periodically reassessed by a scientific advisory board to reflect technological advances and emerging alternatives.

The NECP projects annual emissions savings of 0,5 Mt of CO_2 by 2030 via carbon capture. Industrial CO_2 emissions to be captured are projected to range between 4,4 and 12,1 Mt per year by 2040, with an additional 1-2 Mt of CO_2 from the combustion of biomass. More detailed figures were provided in a feasibility study, commissioned by Austria's Ministry of Climate Action and Energy. As the study assumes a yearly injection rate of 5,9 Mt, Austria's domestic storage is unlikely to suffice for its captured volumes, and the country will likely rely on cross-border CO_2 transport to store their captured CO_2 outside of their territory.

Source of CO_2 to be captured	Volume 2030	Volume 2040	Volume 2050
Cement, lime, refractory material	3,4 Mt/a	3,9 Mt/a	4,0 Mt/a
Waste incineration (fossil part)	0,9 Mt/a	1,4 Mt/a	1,3 Mt/a
Other industry	3,8 Mt/a	6,8 Mt/a	4,8 Mt/a
Total	8,1 Mt/a	12,1 Mt/a	10,1 Mt/a

Table 1: CO_2 projected to be captured by source.
Source: https://www.bmk.gv.at/damjcr:0186ff45-1e58-4cc8-8f62-9ad19b7bded2/CO2Netz_Bericht_241007.pdf, *p. 35*

CO_2 TRANSPORT

The aforementioned feasibility study outlines several scenarios for a CO_2 transport network, each considering varieties in the scope of industries participating, the availability of domestic storage, and storage demand covered for CCU applications. By 2040/50, the transport network models are projected to span up to 1,400 km, connecting industrial clusters to potential storage sites or international off-takers in the most-efficient way. Cost projections suggest that pipeline transport could cost approximately €35-50 per ton of CO_2. When integrating the expenses associated with capture, transport, and storage, the total costs are expected to fall between €150-250 per ton of CO_2.

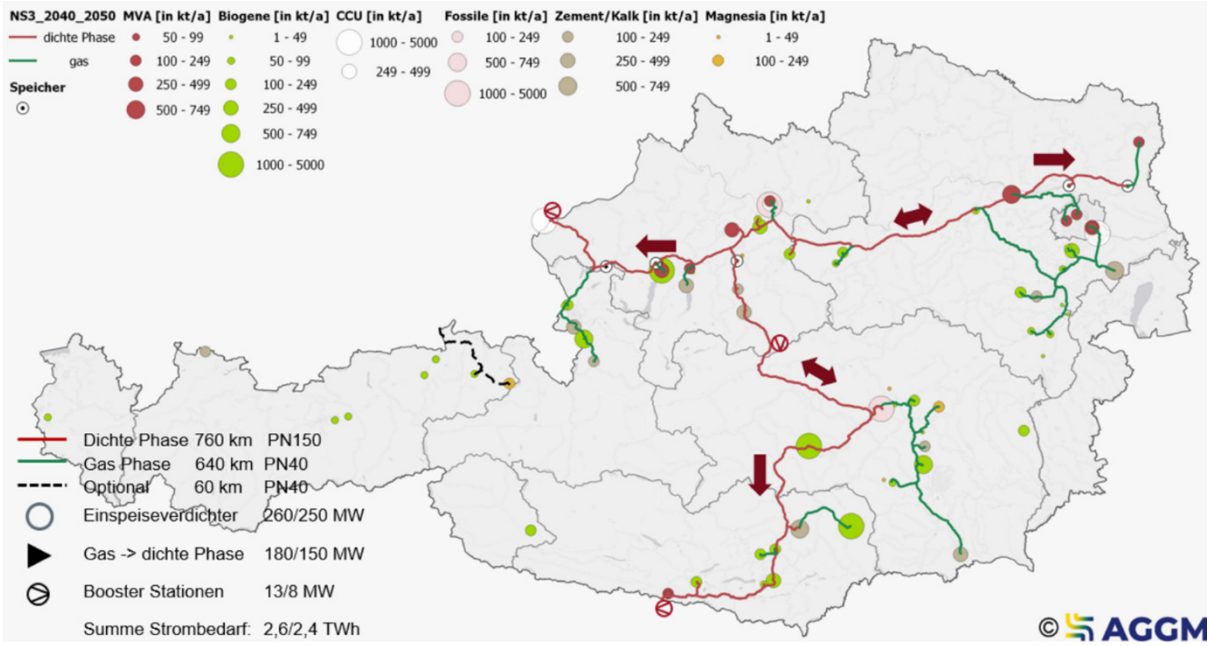

Figure 1: Scenario for Austrian CO_2 transport network in 2040/50
Source: Feasibility Study on a CO_2 Collection and Transport Network in Austria,

https://www.bmk.gv.at/damjcr:0186ff45-1e58-4cc8-8f62-9ad19b7bded2/CO2Netz_Bericht_241007.pdf, p. 58

CO_2 STORAGE

An evaluation report of Austria's Ministry of Finance identified 200 depleted oil and gas fields as well as 30 saline aquifers that may be viable for CO_2 storage. According to the CMS, the oil and gas fields alone have a total estimated capacity to store between 150 and 250 Mt of CO_2. Further detailed as-

sessments in the feasibility study estimated the maximum theoretical storage capacity across all oil and gas fields at 465 Mt. Under consideration of technological and economic constraints, practical estimations are reduced to 118 Mt. Currently, evaluations of these storage capacities are ongoing, with the largest fields assessed each having a capacity of up to 45 Mt. It is projected that those fields that can be technically and commercially developed might offer an annual injection capacity of 6 Mt, potentially commencing from 2030.

Meanwhile, the saline aquifers, which could hold storage capacities in the gigaton range, remain largely unexplored. Given the extensive exploration and development required, beginning the commercial use of these aquifers for storage before 2035 is not foreseen.

NATIONAL GOVERNMENT FUNDING

Austria's CMS recognises the financial risk of misaligned investments and stranded assets. The strategy calls for the identification of investment needs for CCS projects and the analysis of potential efficient cost-bearing systems and market structures.

The NECP itself mentions the following financial resources earmarked for industrial decarbonisation: The National Industrial Transformation Support Instrument allocates €2,975 million for the period between 2023 and 2030. This funding is intended to facilitate co-financing arrangements with EU funds, such as the Innovation Fund, and is designed to cover both investment and operational costs. The Domestic Environmental Fund provides an additional €620 million available until 2026. This fund is specifically directed towards investment costs and includes provisions for pilot and demonstration plants. CCS is listed among the eligible technologies for both funds, although its application is restricted to process emissions with no alternative abatement technology. The National Recovery and Resilience Plan contributes a further €100 million dedicated to the transformation of the industrial sector. Compared to the last draft of the NECP, the total volume of available funds has not increased.

In 2022, Austria introduced a national CO_2 price for emissions stemming from fossil energy carriers for all industries currently not covered by the EU-ETS. The price will increase by a fixed rate before it transitions to a market-based model without free allocations in 2027. This sets another financial incentive to abate emissions, in certain cases potentially via CCS, if the respective industries are included in the scope of hard-to-abate sectors eligible for the technology.

OTHER RELEVANT INITIATIVES

The NECP references the 'Climate-Neutral Industry Austria' dialogue process, which was conducted with 11 representatives from the most emissions- and energy-intensive industrial companies and the industrial associations. The initiative aims to foster long-term mutual understanding on the path to climate-neutrality. This will be achieved through continuous and occasion-specific exchange formats.

One notable initiative on the ground is the "Carbon2ProductAustria" (C2PAT) project, where cement producer Lafarge, oil and gas company OMV, energy company Verbund and chemicals producer Borealis are collaborating on the development of a carbon capture facility. The goal is to capture nearly all of the 700,000 tons of CO_2 annually emitted by Lafarge's cement plant in Mannersdorf by 2030.[2]

Another initiative is the CCUpscALE project, a collaboration between RHI Magnesita and technology provider MCI Carbon – the first carbon capture facility for refractory material production. This pioneering project is set capture 50,000 tons of CO_2 by 2028.[3]

RECOMMENDATIONS

Since its draft NECP, Austria has made great progress in formulating a comprehensive strategy addressing essential components for effective CCS deployment. Recognising the current limitations of CCU technology in offering significant climate benefits, Austria is committed to developing both domestic storage capabilities as well as a transport network providing access to storage sites abroad. Bellona highlights the need for the following measures.

1 SET UP A NATIONAL AND REGIONAL WORKING GROUP TO DEVELOP AN IMPLEMENTATION PLAN FOR CCS DEPLOYMENT

It is imperative for the incoming government to continue acknowledging the necessity of CCS for Austria's climate policy. Given the recent political shifts, fortifying the legal and regulatory framework promptly is essential. Incorporating CCS goals in legislation could ensure the necessary support for CCS initiatives to contribute towards Austria's climate goals.

2 STRENGTHEN REGIONAL COOPERATION

Foster closer ties with neighbouring countries such as Slovenia, Italy, and Hungary, all of which are advancing CCS projects.

3 INTRODUCE DEDICATED CCS FUNDING SCHEMES

While there are several funds available to support industrial decarbonisation measures, Austria should nevertheless establish funding schemes earmarked for CCS deployment. Particularly in the early stage, CCS technologies require substantial upfront investments. Targeted financial support would enable CCS to effectively contribute to Austria's climate goals, tackling emissions that cannot otherwise be addressed.

4 ENSURE THE ENVIRONMENTAL INTEGRITY AND CLIMATE BENEFITS OF BECCS/BIO-CCS:

Develop and adhere to robust accounting rules, certification standards, liability frameworks, and sustainability requirements for BECCS/Bio-CCS to guarantee its environmental integrity and net climate benefits. This includes comprehensive Monitoring, Reporting, and Verification (MRV) systems that account for all greenhouse gas emissions—both direct and indirect—across the entire value chain, domestically and internationally where applicable. These systems should employ conservative estimation methods and ensure that biomass sourcing prioritises sustainability, minimises lifecycle emissions, and achieves a net-negative balance.

FURTHER RESOURCES

Feasibility Study on a CO_2 Collection and Transport Network in Austria: https://www.bmk.gv.at/dam/jcr:0186ff45-1e58-4cc8-8f62-9ad19b7bded2/CO2Netz_Bericht_241007.pdf

Austrian Carbon Management Strategy: https://www.bundeskanzleramt.gv.at/dam/jcr:7fc71c2b-3f98-4893-bd8c-5d1a2f9f89e7/103a_1_bei_nbf.pdf

Evaluation Report of the Government on the Geological CO2 Storage Ban: https://www.bundeskanzleramt.gv.at/dam/jcr:8ffbae69-ad45-43f7-b99d-253e878c7131/103a_2_bei_NB.pdf

CONTACT

Behnam Lot
Policy Advisor, Industrial Decarbonisation
Bellona Europa

Phone
Mobile: + 49 (0) 157 501 40 863

Online
Email: behnam@bellona.org
Website: www.eu. bellona.org

Hanna Biro
Policy Advisor
Bellona Europa

Phone
Mobile: + 32 (0) 467 754 344

Online
Email: hanna@bellona.org
Website: www.eu.bellona.org

Bellona Europa is an international, independent and non-profit organisation that meets environmental and climate challenges head on. We are solutions-oriented and have a comprehensive and cross-sectoral approach to assess the economics, climate impacts and technical feasibility of necessary climate actions. To do this, we work with civil society, academia, governments, institutions, and industries.