ZEP paper on the Green Deal Industrial Plan and the Net-Zero Industry Act

The Zero Emissions Platform (ZEP) welcomes the proposal for the Net-Zero Industry Act by the European Commission (EC). It is a landmark political recognition of the contribution of carbon capture and storage (CCS) and carbon capture and utilisation (CCU) technologies to Europe's climate neutrality target. The Green Deal Industrial Plan is poised to provide a predictable and simplified regulatory environment and stronger incentives for net-zero industries in the EU. There is a need to act swiftly to get the proposal adopted.

ZEP looks forward to discussing the details of the proposal, its impact and its implementation with the EC, since several items require further clarification.

Europe will not reach climate neutrality by 2050 without CCS. All reliable modelling scenarios, including those from the Intergovernmental Panel on Climate Change and the International Energy Agency, consider the deployment of CCS critical to reaching climate neutrality by 2050[1,2]. Achieving climate neutrality requires a major transformation of energy-intensive and process industries, such as cement, lime, steel, waste-to-energy, and chemicals. Technologies such as CCS represent the lowest-cost route to decarbonisation whilst maintaining industrial activity, creating new jobs, and preserving existing ones. CCS can, with its non-discriminatory and open access CO_2 infrastructure, also enable carbon free fuels. The deployment of CCS will require an investible business case including the development of a Europe-wide market for CO_2 storage that covers the European Economic Area (EEA) and the UK.

A clear objective for CO_2 storage

ZEP strongly supports an objective of at least 50 million tonnes of CO_2 of annual injection capacity by 2030 for storage in the EU under Article 16 of the Net-Zero Industry Act. The objective should be neutral concerning the type of reservoir (saline aquifer or depleted field). When coupled with an investable business case along the entire CCS value chain, it could establish more policy predictability for companies, investors, and public authorities. It aligns with the CCUS Forum issue papers, namely that the deployment of CCS in Europe should be supported by clear targets for the EU and its Member States[3]. Storage capacity in the EU/EEA will need to be increased significantly compared to the current trajectory. For the objective, there is a need to clarify whether there will still be a specific 50 million tonnes per annum objective for the EU after the inclusion of the regulation into the EEA agreement, how storage in aquifers will be taken into account, how to guarantee that the most cost-efficient storage solutions are developed first, how Member States that do not allow CO_2 storage are treated, and how oil and gas licence holders in these countries will be ensured access to storage acreage across the EU.

[1] Climate Change 2022: Impacts, Adaptation and Vulnerability, Intergovernmental Panel on Climate Change, 2022.
[2] Carbon capture, utilisation and storage, International Energy Agency, 2022.
[3] A Vision for Carbon Capture, Utilisation and Storage in the EU, CCUS Forum, 2023.

The proposed objective provides robust storage ambitions in view of existing storage requirements. A value chain approach is required to deliver this objective. CO_2 capture and transport infrastructure need to be developed together with storage, to provide coordinated CCS value chains. Finally, the creation of a business case is crucial as the lack of sufficiently robust incentives is one of the reasons preventing CCS from scaling up.

Clarification is needed regarding the contribution of oil and gas licence holders

ZEP has many questions and would welcome clarifications regarding the proposed contribution of oil and gas licence holders to the EU target for CO_2 injection capacity. There is a need to clarify the methodology for the "pro-rata" calculation mentioned under Article 18, how Member States that import oil and gas and do not have domestic production are treated, if there will be a contribution threshold for small oil and gas licence holders, and what consequences and sanctions there will be in case of non-compliance or delay.

Publication of potential storage areas

ZEP welcomes the obligation for Member States to publish "areas where CO_2 storage sites can be permitted" under Article 17 of the Act. A high-quality European Storage Atlas will be instrumental to scale up the CO_2 storage capacity and the CCS value chain. The publication of areas where permitting is possible will greatly facilitate the work of storage operators and feed into the European Storage Atlas. ZEP would like to highlight the importance of ensuring, where feasible, a geographic balance in the EU regarding geological storage of CO_2. A legislative and regulatory environment that enables storage and creates incentives together with clear governance and regulatory structures at national level will also be crucial to support companies along the CCS value chain. The consultation of stakeholders in the Net-Zero Industry Act legislative process remains equally crucial.

ZEP welcomes the establishment of annual Member States reports on the progress of capture and storage projects and supports the "protection of trade and business secrets and other sensitive, confidential and classified information" under Article 36.

Information exchange between competent authorities

ZEP strongly supports the creation of a Net-Zero Europe Platform under Article 4 to "share best-practices for organising national competent authorities and speeding up permitting procedures". Experience with permitting of storage sites is currently being built at the national level, with a small number of Members States leading on this process. Fora fostering information exchange between national governments and competent authorities can help countries with less experience on CCS by putting them in contact with Member States that have gained significant experience in that field.

CO_2 infrastructure planning

ZEP welcomes the call on regional and local authorities to include CO_2 storage projects in zoning, spatial, and land use plans under Article 8. The CCUS Forum issue papers highlight the need for a coordinated and optimised development of non-discriminatory and open access CO_2 transport and storage infrastructure, stating the importance "to integrate the role and scope of CO_2 transport infrastructure into energy network development planning" and adding that this "could cover both

localised CO_2 grids (e.g., in coastal areas / ports) and cross-border/regional CO_2 backbone infrastructure"[4]. The role of CO_2 transport (pipelines, ships, trucks, rail…) is crucial and should be acknowledged in all planning efforts.There is a need to clarify how the agreements between emitters capturing CO_2 and the operators storing this CO_2 will be structured.

Offshore and spatial planning in seaports are essential for CO_2 storage infrastructure and require coordination with other users. Going forward, permitting procedures need to be shortened for each part of the CCS value chain, including the capture plant.

CCS technologies are included in the proposed Act's definition of strategic net-zero projects. It is crucial that this applies to all parts of the value chain: capture (regardless if this is for storage or utilisation), transport and geological storage of CO_2. Both Articles 1 and 10 should include carbon capture and multi-module CO_2 transport infrastructure alongside CO_2 storage.

The importance of CCS and CCU research and innovation

Referring to the Act, ZEP would also like to highlight the importance of strengthening the support for CCS and CCU research and innovation (R&I), given that this is the very foundation to achieve efficient and fit-for-purpose solutions. ZEP recommends following the proposals made by the SET Plan CCUS implementation working group (IWG9)[5].

Streamlined permitting and licensing processes

ZEP welcomes the eligibility of CO_2 storage projects as 'net-zero strategic projects' under Article 10 of the Act. ZEP is particularly supportive of storage projects benefitting from fast permitting and authorisation processes by competent authorities, with a maximum period of 18 months for storage sites, under Articles 12 and 13. These provisions are greatly welcome as the deployment of CCS at scale will require a significant increase in the number of available CO_2 storage sites. Referring to Articles 3, 6.6 and 6.7, ZEP would like to highlight that the defined maximum 18 months must include all procedural steps, starting from the initial submission of the draft permit-granting application, since major delays appear before this step.

The CCUS Forum issue paper clearly states that ensuring efficient permitting processes and enough permitting and licensing rounds is crucial. These provisions will ensure that storage sites become operational as quickly as possible to reach the 2030 target laid out in the Act.

It is crucial that the streamlining of permitting and licensing processes applies to all parts of the value chain: capture (regardless if this is for storage or utilisation), transport and geological storage of CO_2.

Capacity building for competent authorities

Capacity building at the level of competent authorities will be crucial to reduce existing and avoid new bottlenecks and unnecessary delays as more CCS projects come into play. This includes staff recruitment and staff training on CCS. National governments and competent authorities need to ensure that sufficient resources are built up to work on new CO_2 storage applications linked to the 50 million tonnes objective and for the strong development needed beyond 2030 to reach climate

[4] 'Towards a European cross-border CO2 transport and storage infrastructure', CCUS Forum, 2023.
[5] Recommendations on R&I by the SET Plan CCUS implementation Plan working group, 2022.

neutrality by 2050. ZEP welcomes the requirement for Member States to build up sufficient resources to enable CO_2 storage under Article 4, and would like to highlight the importance that this increase in resources includes all parts of the CCS value chain. The experience of Norwegian public authorities could be leveraged by other countries in that regard.

Public perception of CO_2 storage projects

ZEP supports the provisions under Article 14, enabling Member States to support projects regarding access to finance, administrative obligations, and public acceptance. These provisions will ensure that storage operators face as few barriers as possible. ZEP also welcomes that the Commission is enabling Member States to support projects in their public acceptance efforts.

Decarbonising hard-to-abate sectors

ZEP welcomes the reference in the Act to the crucial importance of establishing "a Union single market for CO_2 storage services that large-scale CO_2 emitters, including hard-to-abate industrial sectors, can rely on to decarbonise their operations". It is crucial that the EU market is supplemented by a Europe-wide market for CO_2 storage that covers the EEA and the UK.

Skills for net-zero technologies

For the Net-Zero Europe Platform mentioned under Articles 25 and 28 – aimed to monitor and support the deployment of a skilled workforce dedicated to net-zero technologies – it will be crucial for Member States and the Commission to nominate representatives at decision level to ensure efficient governance and real progress. The deployment of a CCS value chain across Europe will require a large number of skilled workers (engineers, welders…) working on different large-size projects. The creation of European Net Zero Industry Academies offering training programmes dedicated to the production of net-zero technologies, under Article 23, is very positive and will help ensure that the EU has the required workforce to deploy net-zero technologies at scale. Existing academic and training programmes on CCS can be leveraged for future training efforts. ZEP will explore the possibility to initiate a workstream supporting these academies.

Complementary measures

An EU strategy for CCS and CCU

President von der Leyen announced that *"the Commission will publish a comprehensive strategy on carbon capture, use and storage"* later this year during the launch of project Greensand early March[6]. An EU strategy for CCS and CCU, as highlighted by the CCUS Forum vision paper, should clearly describe the role of CCS and CCU in achieving the EU climate neutrality targets, and provide interim targets for 2030 and 2040. This strategy is a crucial enabling framework to provide companies and investors with the predictability needed to ramp up investments[7]. The main focus of the strategy should be the development and large-scale deployment of non-discriminatory, open access cross-

[6] Speech by President von der Leyen, European Commission, 2023.
[7] A Vision for Carbon Capture, Utilisation and Storage in the EU, CCUS Forum, 2023.

border European CO_2 transport and storage infrastructure. The strategy should also clearly map out the funding mechanisms that will enable the deployment of CCS in Europe and enhance public awareness and social acceptance of CCS and CCU projects.

A regulatory framework for CO_2 transport infrastructure

The CCUS Forum issue paper on CO_2 infrastructure calls for the creation of a regulatory framework for CO_2 transport infrastructure, focused on the development of non-discriminatory, open access and multi-modal CO_2 transport infrastructure.

A regulatory framework for CO_2 transport will be crucial to plan and organise the deployment of non-discriminatory, open access and cross-border CO_2 transport infrastructure across Europe in a coordinated fashion. Reaching climate neutrality requires transporting millions of tonnes of CO_2 across Europe. A robust framework to plan, coordinate and regulate the deployment of such a large cross-border network is indispensable.

Procurement and tendering rules

Trustworthy models indicate that, until 2050, annual investments in carbon capture and storage (CCS) must reach €12.3 billion in Europe to enable 1.5°C warming scenarios[8]. Sustained public investments both at the European and national levels will be necessary to make CCS economically viable and reach climate neutrality by 2050. Public tenders and public procurements can kickstart demand required along the CCS value chain. It is crucial to ramp up demand for low-carbon products and create a market for CCS-based products and services (public procurement could play a role here). National business models providing adequate incentives will also be required to ensure a robust business case for companies and investors. This is particularly relevant to address the risks along the value chain and enable the 2030 objective.

About the Zero Emissions Platform

ZEP is the advisor to the EU on the deployment of CCS and CCU – a European Technology and Innovation Platform (ETIP) under the European Commission's Strategic Energy Technologies Plan (SET-Plan), under Horizon Europe (grant agreement 101075790).

ZEP supports the European Union's commitment to reach climate neutrality by 2050, defined as net-zero greenhouse gas (GHG) emissions by 2050. To this end, CCS technologies represent readily available and cost-efficient pathways for decarbonising industrial and energy sectors in the European Union. Some applications of CCU – where CO_2 is stored in a manner intended to be permanent – can also contribute to this goal.

[8] Review of Carbon Capture Utilisation and Carbon Capture and Storage in future EU decarbonisation scenarios, University College London, 2020.