ZEP input on the revision of the Trans- European Energy Infrastructure (TEN-E) regulation

The Zero Emissions Platform (ZEP) is a European Technology and Innovation Platform (ETIP) under the Commission's Strategic Energy Technology Plan (SET-Plan), and acts as the EU's technical adviser on the deployment of Carbon Capture and Storage (CCS), and Carbon Capture and Utilisation (CCU).

Input on the upcoming TEN-E regulation

ZEP supports the European Union's commitment to climate neutrality by 2050, defined as net-zero greenhouse gas (GHG) emissions by 2050. To this end, carbon capture and storage (CCS) and carbon capture and utilisation (CCU) technologies play a crucial role. These technologies represent a readily available, cost-efficient pathway for the decarbonisation of industrial and energy sectors in the European Union. As shown by several modelling scenarios [1, 2], large volumes of CCS will be needed for the EU to achieve climate neutrality by 2050.

As geological storage sites are not evenly distributed among Member States, the development and large-scale deployment of cross-border, European CO2 transport and storage infrastructure is crucial to reach the European Union's objective of net-zero GHG emissions by 2050. This infrastructure will enable clean, competitive energy and industrial sectors, early large-scale clean hydrogen and not least the delivery of significant volumes of carbon emission reductions and removals[3].

CO2 transport and storage infrastructure is crucial to link CO2 industrial emitters to storage sites and Europe is well positioned to develop cross-border, shared CO2 transport and storage infrastructure. Connecting a capture site to storage requires the transportation of CO2 either via pipeline or by other modalities such as ship, barge, truck, and rail. In some instances, investments to retrofit existing natural gas pipeline networks into CO2 pipeline networks can be advantageous and cut initial costs of infrastructure. In this respect, the European Taxonomy for Sustainable Finance has included the retrofit of gas pipelines for low-carbon gas transportation as a sustainable investment in a net-zero economy. Additionally, to future-proof the regulation on EU Taxonomy, there is a need to introduce a threshold with the minimum relative amount of CO2 aimed for geological storage, in relation to the amount of CO2 aimed for utilisation that can be transported in a CO2 pipeline. A separate paper on this will be issued.

[1] European Commission, 2018. A Clean Planet for all A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy.
[2] IPCC, 2019, Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development, page 134
[3] Zero Emissions Platform, Identifying and Developing European CCS Hubs, 2016

Clear signals from policymakers will be needed to support and incentivise the deployment of CO2 infrastructure. Large public investments will be needed in the initial stages, underpinned by a favourable European level policy framework designed to support industries, energy companies and member state governments.

Revised TEN-E guidelines should include:

- All CO2 transport modalities – pipeline, ship, barge, truck, and train – should be included in a revised regulation, allowing for all European regions and industries to connect to the European infrastructure, and thus be eligible for funding under CEF. This should (as is the case in the European Taxonomy for Sustainable Finance) also be harmonised in relevant pieces of legislation connected to the TEN-E regulation such as the EU ETS and other funding programmes.
- In the revised TEN-E regulation, CO2 storage should also be included as an essential component of a CCS project and part of the CO2 infrastructure. CO2 storage is a key element to deliver real climate change mitigation.
- Repurposing and retrofitting of natural gas pipeline networks for the transport of CO2 and low-carbon gases (such as clean hydrogen) should be included in revised TEN-E guidelines.
- In order to create a level playing field and the conditions for long-term investments for CO2 emitters across Europe, at the least non-discriminatory third-party access to cross-border CO2 transport and storage infrastructure should be regulated.
- Once cross-border CO2 infrastructure is in place, the production of early volumes of low-carbon hydrogen from natural gas with CCS can initiate, paving the way for a clean hydrogen economy. Hydrogen infrastructure is essential to deliver the climate neutrality objective under the EU's Green Deal. Therefore, a revised TEN-E regulation should include provisions for the development of a new and dedicated hydrogen infrastructure. This will support the production and transportation of hydrogen, supporting EU's decarbonisation pathway.
- As the revised TEN-E regulation will drive the selection of the next Projects of Common Interest (PCI), it is vital to ensure that the next PCI lists are in compliance with climate neutrality by 2050, creating opportunities for cross-border CO2 and hydrogen infrastructure projects to be further developed and scaled up.

A revised TEN-E regulation should drive the transition towards a climate neutral economy, capitalising on the potential and opportunities of large-scale decarbonisation of European industrial and energy sectors.