

CATF Comments on the Revision of the TEN-E Regulation



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13 July 2020

The Clean Air Task Force (CATF), a climate and energy research and advocacy organization present in the US and Europe, welcomes the European Commission's climate ambition, leadership on decarbonization and innovation, and pursuit of policies to decouple greenhouse gas emissions from economic growth. CATF also strongly supports the EU's ambition to become climate neutral by 2050, and welcomes the revision of the TEN-E regulation to ensure compatibility with the EU's climate ambition. The TEN-E revision should focus on enabling the expansion of infrastructure necessary for carbon neutrality and regard infrastructure as a key multiplier in the transition to a climate-neutral economy.

As such, in the TEN-E revision priority must be given to carbon dioxide transport and storage infrastructure and clean hydrogen transport, while supporting infrastructure modernization to reduce methane emissions in the short-term.

With the revised TEN-E regulation providing key selection criteria for Projects of Common Interest (PCI), it is important to ensure the TEN-E is harmonized with climate neutrality ambition and enables the construction of tomorrow's net-zero infrastructure.

Recommended Priorities

Carbon Dioxide Infrastructure

With carbon capture and storage expected to play an essential role in the decarbonization of the EU's energy-intensive industrial sector and expected to be necessary for carbon removal and negative emissions, creating an enabling environment for carbon dioxide transportation and storage is key.

CO₂ transport infrastructure will be an important investment multiplier and can lead to economies of scale through connecting multiple sources of CO₂ which capture their emissions with multiple storage sinks. Furthermore, geologic storage of CO₂ is the only long-term storage available at the scale necessary to meet climate ambition. Carbon dioxide transportation infrastructure will also be instrumental to the scale-up of hydrogen, with the reforming of natural gas with CCS able to produce large volumes of low-carbon hydrogen.

CATF lauds the EU's hitherto support for carbon dioxide transport Projects of Common Interest (PCI) which constitute essential innovation and low-carbon infrastructure projects providing pathways for industrial decarbonization and job retention. Therefore,

CATF recommends maintaining carbon dioxide transportation as one of the 12 strategic trans-European Energy Infrastructure Priorities.

A revised TEN-E regulation should:



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- **Continue to include carbon dioxide transport and storage networks** as projects of common interest.
- **Reflect and include the full range of CO₂ transportation modalities** such as pipelines, ships, truck and train as well as connecting and/or docking facilities, allowing all European regions and industries to connect. This would allow for flexibility of siting and application diversifying the risk of just relying on a single mode of transportation.
- **Regulate non-discriminatory third-party and open access** to CO₂ transportation networks and storage.
- **Include the full infrastructure value chain of carbon capture and storage including geologic storage of CO₂** along with CO₂ transportation networks. While CO₂ utilisation is an option, geologic storage needs to be developed at scale for CCS to scale and limit the overall cost of decarbonization.
- **Include the retrofitting of pipelines** for CO₂ transport.

Hydrogen infrastructure

Hydrogen will be a key energy vector for decarbonization and its near-term scale-up hinges on the ability to create demand and infrastructure. CATF applauds the EU's aim to become a leader in hydrogen and investing in its commercialization. As stated in the recently published [A Hydrogen Strategy for a Climate Neutral Europe](#) ("Hydrogen Strategy"), "Large-scale deployment of clean hydrogen at a fast pace is key for the EU to achieve a higher climate ambition, reducing greenhouse gas emissions by minimum 50% and towards 55% by 2030, in a cost effective way" (p2). The strategy ties the success of that deployment to the rapid development of connective infrastructure: "A condition for a widespread use of hydrogen as an energy carrier in the EU is the availability of energy infrastructure for connecting supply and demand" (p14).

While the first phase of the Hydrogen Strategy (2020-2024) is primarily concerned with the production and installation of large electrolyzers to serve demand from nearby industry- and transportation-sector end-users, it notes that "[i]nfrastructure for carbon capture and use of CO₂ will be required to facilitate certain forms of low-carbon hydrogen."

The second phase (2025-2030) and the third phase (2030 onwards towards 2050) envision cross- and trans-national transport of hydrogen and carbon dioxide and thus depend heavily on the development of new infrastructure.

During the Hydrogen Strategy's second phase, "the need for an EU-wide logistical infrastructure will emerge, and steps will be taken to transport hydrogen from areas



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with large renewable potential to demand centres located possibly in other Member States” (p7). The strategy also calls for “further retrofitting of existing fossil-based hydrogen production with carbon capture should continue” (p6), with the broader target of “retrofitting half of the existing [hydrogen production] plants with carbon capture and storage” (p7). Notably, the strategy calls for specific changes to TEN-E at page 15:

In the second phase, local hydrogen networks would emerge to cater for additional industrial demand. With increasing demand, the optimisation of the production, use and transport of hydrogen will have to be secured and is likely to require longer-range transportation to ensure that the entire system is efficient through the revision of the Trans-European Networks for Energy (TEN-E) and the review of the internal gas market legislation for competitive decarbonised gas markets. To ensure interoperability of markets for pure hydrogen, common quality standards (e.g. for purity and thresholds for contaminants) or cross-border operational rules may be necessary.

In the third phase, hydrogen technologies will “be deployed at large scale to reach all hard-to-decarbonise sectors” and “[s]ustainable biogas may also have a role in replacing natural gas in hydrogen production facilities with carbon capture and storage to create negative emissions” (p7).

At each stage of the Hydrogen Strategy, success is inextricably tied to robust, integrated development of key infrastructure. This infrastructure includes: hydrogen and ammonia pipelines (new-build as well as repurposed gas lines); truck- and ship-based transport systems; long-term storage facilities for hydrogen and ammonia; and the CO₂ capture, transport, and sequestration facilities that will be essential to the production of low-carbon fossil-based hydrogen. Coordination among member states within the TEN-E context will expedite the development of these hydrogen-related PCIs.

A revised TEN-E regulation should:

- **Recognize the critical role that hydrogen-related infrastructure development will play in achieving the EU’s decarbonization objectives for 2030 and 2050**, including climate neutrality under the European Green Deal, by supporting both the supply of and demand for low- and zero-carbon hydrogen across multiple sectors of the EU and global economy.
- **Include provisions for new and dedicated hydrogen infrastructure**, consistent with the infrastructure-related recommendations in the July 2020 Hydrogen Strategy. This includes third-party access.
- **Support secure and diversified EU energy supplies, services and routes through the development of a range of hydrogen-related infrastructure**, such as multiple modalities for transporting and storing hydrogen and facilities for the transport and storage of carbon captured in the course of low-carbon fossil-based hydrogen production.

- **Regulate repurposing and retrofitting of natural gas pipeline networks for clean hydrogen transport.**

Methane

The revision also offers the Commission the **opportunity to align TEN-E with the upcoming methane strategy and the subsequent policies that will entail.** In the EU, the largest source of methane emissions in the oil and gas sector is in the transmission, storage and distribution systems. These pipelines and storage facilities are major sources of vented and fugitive methane emissions due to their age and sometimes due to how they were originally designed. **Distribution pipeline replacement and transmission pipeline replacement, taking into account the possible future repurpose for hydrogen transport or CO₂ should be considered in a revised TEN-E.** This will have the beneficial impact of reducing methane emissions from the current system in the short run, while creating a system that could be more readily repurposed for climate-beneficial uses in the future.

CATF understands that many of these actions might best occur in harmony with other efforts and activities but stresses the importance of option creation to de-risk climate strategy. CATF looks forward to engaging on forthcoming activities and dialogues with the European Commission.

Sincerely,



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