Comments on the ‘Identification of hydrogen infrastructure needs for the TEN-E priority corridors’ methodology (PCI/PMI 2024-2025 exercise)

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We welcome the opportunity to comment on the methodology for the ‘Identification of hydrogen infrastructure needs for the TEN-E priority corridors’.

However, before addressing the methodology, we would like to draw your attention to **important shortcomings in the current regulatory framework for the hydrogen projects of common interest and projects of mutual interest**, as established via the Trans European Networks for Energy Regulation (EU) 2022/869. Namely, it **fails to address and resolve the conflict of interest in the role of ENTSO-G** - which represents at the same time (via its members) project promoters, as it helps developing the scenarios and cost-benefit analysis (CBA) methodology against which projects are evaluated. Due to this crucial vested interest it cannot act in the best interest of all the stakeholders involved in the selection process.

Due to the current design of the process for the selection of hydrogen PCI and PMI projects, which clearly mirrors the former process for fossil gas PCI projects, although these two gases are not comparable, the EU is risking building an oversized hydrogen network that may end up as a stranded asset at the expense of limited public funds.

Particularly given the shortcomings of the TEN-E, **we expect the needs methodology to remedy these deficiencies** rather than, as currently, deepening the existing conflict of interest by relying on ENTSO-G data and on TSOs’ data provided through the Member States.

1. Introduction

While we welcome that there seems to be a more diverse pool of project promoters for hydrogen infrastructure among this year's PCI/PMI list applicants, the **heavy involvement of the fossil gas transport industry** (ENTSO-G and its members (TSOs)) **poses a risk for an oversized build-out of hydrogen infrastructure while deprioritizing important considerations for sustainability, genuine decarbonisation and efficiency**.

This is particularly problematic as it leads to a situation in which **ultimately consumers will have to pay for an outsized hydrogen network, which will also increase costs of hydrogen use for the few users for which hydrogen is actually a sensible solution**. This lack of efficiency will also channel important subsidies away from cheaper and cleaner solutions. The EU must prioritize developments of electricity grids and direct electrification of end uses as well as energy efficiency.

Thus, it is even more regrettable that the draft needs methodology was developed "*within the framework of the cooperation platform*", which **lacks inclusion of important independent and unbiased experts and other stakeholders like civil society, consumer organizations, scientists,** etc.

The following point in the methodology, "*Before determining the infrastructure projects required to achieve the EU's energy infrastructure policy objectives, it is essential to first evaluate hydrogen infrastructure needs*" is incomplete as before infrastructure considerations, there **should be a profound, independent, scientifically backed and genuine assessment of expected demand and future availability of renewable hydrogen, which is also in line with social justice, energy efficiency and environmental protection requirements,** such as being produced from additional electricity which is not needed for direct electrification. A 'filter' to **prioritize on-site/local use** of renewable hydrogen in a few selected hard-to-abate sectors should be applied, which increases energy efficiency, influences infrastructure needs, and particularly reduces the need for costly cross-country infrastructure.

2. Principles

While it is important, that as mentioned, the "*assessment will take into account the Fit-for-55 and RepowerEU aims, RED III targets*" besides the TEN-E regulation objectives, we note a **risk of an important discrepancy with** the outcome of the PCI/PMI process based on this methodology.

It is crucial to emphasize that these hydrogen targets are mere aspirations, and not based on sufficiently sound analysis, as was confirmed by the Commission in its response to the European Courts of Auditors' Special Report on 'The EU's industrial policy on renewable hydrogen'. To recall, in its report, **ECA observed that these renewable hydrogen targets were not clearly defined and are driven by political will rather than robust analyses** (par. 122). Therefore, it is unclear how exactly infrastructure needs and candidate projects may be assessed based on these targets. Particular caution is required - something the needs methodology should incorporate to at least some extent.

Furthemore, the **Commission fails to mention its latest projections concerning hydrogen production** by 2030 in the needs methodology document, although these have a very high impact on expected infrastructure needs.

In February 2024, **in its impact assessment for a 2040 climate target for the EU, the Commission assumed total production of just over three million tonnes of hydrogen by the end of the decade**, only a fraction of the Hydrogen Strategy and REPowerEU targets. Although these figures are still inappropriate when compared to the current demand and production of hydrogen – and particularly renewable hydrogen – within the EU, they are significantly lower than the Fit-for-55 and REPowerEU targets. We ask you to consider these updated volumes, as well as accurate, science-based supply and demand forecasts free from conflicts of interest.

To date, there is **no reliable data on future demand for green hydrogen in Europe**. The EU **Court of Auditors itself questioned the technical basis of the European targets** and criticised the fact that "the Commission failed to carry out rigorous analyses before setting the EU's green hydrogen production and import targets", a total of 20 million tonnes by 2030. This growing enthusiasm lacked in-depth analysis and debate on the pros and cons of green hydrogen, as well as a critical assessment of its role compared to other transition options.

Given the planned size of the hydrogen grid, aided by the PCI/PMI process, either most of this infrastructure risks idling, which should certainly not be intended and would be a costly problem, or it would be transporting hydrogen. Filling a H2 grid of this size would need **very high volumes of hydrogen which are currently almost entirely fossil fuel-based. This in turn risks increasing, rather than reducing by 55%, the EU's energy emissions** by incentivising and locking in (indirect) gas demand to convert this gas into hydrogen.

Also **blue - fossil based hydrogen** with emission abatement - is expected to increase costs for energy consumers without improving the emissions performance of hydrogen. Scientists from Cornell and Stanford University found for instance that "the greenhouse gas footprint of blue hydrogen is more than 20% greater than burning natural gas or coal for heat and some 60% greater than burning diesel oil for heat".

CCS projects are chronically delayed, many facilities have highly underperformed or are closing altogether, are grappling with technical issues, or failing on capture and storage rates etc, besides having captured only an extremely small amount of CO2 despite the many decades of this technology existing. **We again warn against the deployment and false hopes in CCS (and blue hydrogen) as we remind that it is misguided and dangerous to rely on this technology.**

We also **warn against excessive reliance on renewable hydrogen, which must only be used where there is no feasible alternative, produced near the site of consumption, and using additional electricity that is not needed for direct electrification.** Imports of green hydrogen in most cases entail taking advantage of lower environmental and social standards in the source countries, including hydrogen supply projects planned in protected areas, extremely dry regions and in disregard of local communities, which may lead to a colonial approach..

The methodology states that "*The main data source will be the Member States' inputs on national projections for hydrogen supply, demand, and projected hydrogen transits*." Although **Member State data** is 'significantly lower than the forecasted volumes within the ENTSOG Hydrogen Infrastructure Gaps Identification report' (in EC words) it **is still not sound enough to be a basis for this exercise**.

Member State targets on hydrogen are not all well thought through and the **needs identified by MS do not always include the best/priority/most efficient uses and transport routes of H2** (and might e.g. include hydrogen for inefficient uses like heating or local transport). Also the **data provided by some Member States is not usually independent,** as they **often use the gas TSOs' data which are at the same time those who benefit from (gas and hydrogen) infrastructure build out.**

For instance, the recent update of the Polish NECP states that the rationale for hydrogen imports and possible risks to national energy security is to be assessed in the new national hydrogen strategy, yet it a priori assumes support for the construction of the Nordic-Baltic Hydrogen Corridor. Moreover, the hydrogen demand projection of the Polish gas TSO (based on a non-binding, unverifiable and unreliable market survey) is 2-3 times higher than that in the Polish NECP.

The draft needs methodology also mentions the **ENTSO-Gs Infrastructure Gap report** as a data source for identifying hydrogen needs. **Caution is required as ENTSO-G's business is building & operating pipelines, with little interest in consumer prices or efficiency**. We thus welcome (without surprise) the observation in the needs methodology that ENTSO-G's report is forecasting much higher volumes of H2 than the Member States provided. We have long cautioned against heavy involvement of ENTSO-G and reiterate this stance once more, highlighting again that the TEN-E requirement of including such ENTSO-G data is problematic and does not lead to fit-for-purpose assessments.

3. Needs identification

It is unclear why the Commission decided to proceed with the selection process as it is, given it states that there are *'significant uncertainties about future hydrogen demand*'; And if it is not possible to rely on the report prepared by ENTSO-G, as hinted, it would be responsible to rather go back to prepare a robust analysis to support the PCI selection process. **Any sound needs identification must be based on independent, realistic, scientific assessments and projections of the future of renewable hydrogen, including costs to end users**. The selection process and future investments must be grounded in reality, not subject to political influence and vested fossil fuel industry interests.

3.1. Sustainability indicator

Although the sustainability of energy systems may involve some use of renewable hydrogen, its **production and use should be restricted and targeted** at the most needed end use applications, primarily for the replacement of current fossil-based hydrogen.

The methodology claims that '*Increasing the sustainability of energy systems involves (inter alia) low-carbon hydrogen*'. This is incorrect. So far carbon capture and storage technologies (CCS) in practice mainly serve to extract more oil and gas from ground and have not been commercially proven in other settings. There are also no successful CCS projects permanently storing substantial volumes of CO2.
There is only a theoretical potential of so-called 'blue hydrogen' as it doesn't exist in reality. Therefore **no fossil-based hydrogen is acceptable and in line with emissions reduction targets**.

In fact, the situation is the opposite. With significant methane emissions linked to the gas supply chain, **fossil-based hydrogen** with limited carbon capture has the **potential to even significantly increase our emissions** (besides the important associated impacts on the health, environment and society of the affected communities along these supply chains).

The targets set in Art. 22 and 25 of **RED III,** can also be reached via the **scale-up of renewables and local production of renewable hydrogen near the point of its consumption**, rather than via international transport of hydrogen which is still unproven at scale and expensive.

The '*firm need of each Member State to decarbonise their hard to abate sectors*' **cannot mean free reins for infrastructure development** without a) exclusion of dirty fossil based hydrogen - relying on problematic and regularly failing technologies for emission abatement (CCS) b) limiting infrastructure to only focus on specific processes (clearly identified and limited) within hard to abate sectors.

Ironically, some Member States (eg. Poland, Germany etc) lack exactly this needed prioritization and focus on hydrogen uses which have cleaner, cheaper and more efficient alternatives.

Furthermore, while it is evidently necessary for Member States to **decarbonise their hard to abate sectors, this can be partially achieved with the direct electrification and energy efficiency improvements**,which **should be considered** as an option within the needs methodology sustainability exercise.

3.2. Market integration/security of supply indicator

We **recommend that the market integration/security of supply indicators are not considered yet within the needs assessment exercise**, especially 'given the current very early stage of hydrogen market development and emerging infrastructure' as they may wrongly show that all the candidate projects are necessary. While these indicators were relevant for the selection and prioritization of gas projects when the TEN-E regulation was originally introduced, as most of the countries were already well connected to international gas networks, it is not the case with hydrogen.

As already stated, the assessment of the gap between projected hydrogen demand and national hydrogen production based solely on the plans and data communicated by Member States will lead to unreliable results.

If two Member States have the same amount of supply/production as demand - the methodology is not clear whether a need for cross-border infrastructure or for transiting is anyway assumed. This should not be assumed automatically. A genuine need should be assessed, and the methodology should describe how.