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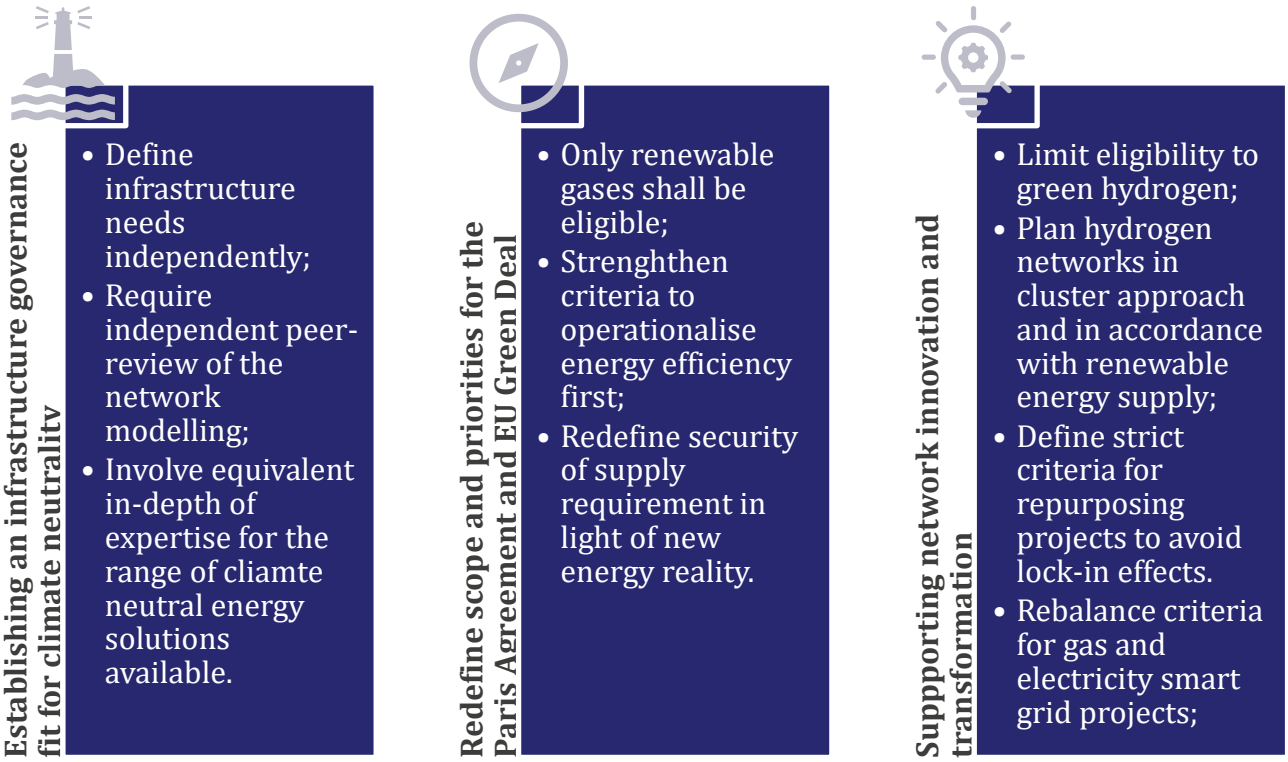
WHAT TO MAKE OF THE REVISED EU ENERGY INFRASTRUCTURE POLICY?

PRIORITIES FOR IMPROVING THE TEN-E REGULATION PROPOSAL

One year after the publication of the European Green Deal (EGD), the EU Commission released its revised rules for cross-border European energy infrastructure. Being the first energy legislation revised in light of the updated energy and climate goals, the Trans-European Networks for Energy (TEN-E) regulation sets an important precedent for the credibility of the EGD delivery.

This note assesses the Commission proposal against three benchmarks[1] and makes recommendations for how to strengthen the proposal:



[1] Set out in the E3G's briefing **Energy Infrastructure for a European Green Deal**

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Establish an infrastructure governance for a changing energy system

Why does it matter?

European energy infrastructure needs are currently identified by market actors – the transmission system operators (ENTSOs) – which have vast expertise, but that relies on decades of expanding and managing highly centralised networks. **New expertise is required to make efficient and coherent infrastructure decisions in an increasingly decentralised, interconnected and digitalised energy system**. To ensure efficient spending of EU taxpayers' money, these priorities must be based on science-based assumptions, using equivalent depth of expertise relating to all relevant energy solutions and independently taken.

Recently, an emerging public debate at the European and national level raised concerns regarding the current infrastructure governance. In particular, **it questions the ability to cope with upcoming challenges linked to the transformation of our energy system**[2] considering the vested interests embedded in the process and preventing a cost-effective transition.

What is in the proposal and how to improve it?

The European Commission recognises the "*need for more scrutiny to enhance trust in the process, in particular as regards defining the scenarios for the future, identifying long-term infrastructure gaps and bottlenecks and assessing individual projects.*" The provisions to tackle this refer to **three different processes: scenarios developments, methodology and identification of infrastructure gaps** – outlined respectively in **articles 12, 11 (and Annex V), 13:**

Art 12: Scenarios for the Ten-Year Network Development Plans (TYNDP)

The proposal enhanced the role of the Commission and the Agency for Cooperation of Energy Regulators (ACER) to improve scrutiny on the overall process. The transparency of the procedure may also benefit from this exercise, notably via the mandatory stakeholder consultation. The article also requires that scenarios must contribute to achieving the latest climate change targets.

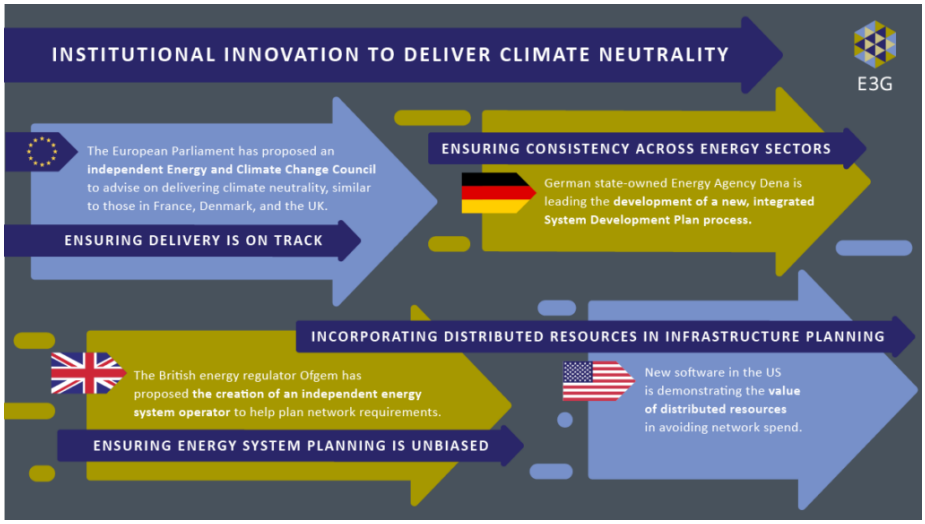
ACER will be responsible to issue "framework guidelines", which embed the energy efficiency first principle (EE1st) and compliance with the latest climate targets. **The successful enforcement of EE1st and alignment with targets is a precondition for the**

[2] In the UK, energy regulator Ofgem reviewed the way it deals with uncertainty (**here**) concluding scenarios must be more rigorous and independent of industry interests. At European level, business, public and civil society organisations have pointed out shortcomings in the current governance, for a full list see **here.**

delivery of policy consistency across the EU Green Deal package (more detail in the following section).

Beyond this, the Commission's proposal falls short in addressing the structural bottlenecks in the current approach:

> Art 12 (all points): The "framework guidelines" to be outlined by ACER can contribute to improving the accountability of the ENTSOs' joint scenarios, but the Commission is setting up an **unnecessary two-step approach**. The ENTSOs are still mandated to develop TYNDP, introducing more bureaucracy while only improving transparency and accountability marginally. **This is out of step with institutional innovation across the globe** on how to deliver infrastructure planning for climate neutrality[3] – see graph below.
>
> **How to improve this? The TEN-E revision is a once-in-a-decade opportunity to equip the Union with comprehensive and science-based analyses on the future (i.e. the scenarios) and to set out an unbiased methodology to turn them into decisions** that are key to delivering the EU climate commitments.
>
> One way could be to change this article to require an independent technical expert body (i.e. this could but does not have to be linked to the one currently discussed in the EU Climate Law[4]) to directly outline joint scenarios based on independently defined assumptions. Alternatively, having ACER in charge of defining infrastructure scenarios could still be a step forward in breaking the connection between private companies making decisions for the public interest. Still, ACER would need to equip itself with the necessary resources and expertise to map out the full range of decarbonisation solutions.



[3] E3G: **Institutions fit for delivering climate neutrality**

[4] Read more **here**

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> Art 12.3: Scenarios must build upon the latest and best view of technology costs and deployment potential of all energy solutions. It will be crucial to **define which are the "relevant stakeholders"** to consult for the framework guidelines, as well as during the scenario development process.
> **How to improve it?** **The precondition for a successful procedure is a balanced depth of expertise across all climate neutral energy solutions**, from demand to supply side, and to check for assumptions adding up to a consistent pathway to climate neutrality. This article must include technical expertise beyond the *"Union DSO entity and all the relevant hydrogen stakeholders"*, to integrate, among others, scientific knowledge from energy efficiency, demand-side, heating and consumers sectors.

Art 11 & Annex V: Energy system-wide cost-benefit analysis

Transparency is also improved for what concerns the ENTSOs methodologies, including the network and market modelling, which are responsible to work out the detailed infrastructure requirements based on the infrastructure scenarios (TYNDP). The ENTSOs are required to publish their methodology, before an extensive consultation process with (unclear) relevant stakeholders. ACER and the European Commission are tasked to provide opinions that must be taken into account to finalise the respective ENTSO methodologies, which have to be approved by the Commission. Finally, **as already required by the 2013 TEN-E Regulation[5], by December 2023, the ENTSOs will have to submit a "consistent and interlinked energy market and network model** including electricity, gas and hydrogen transmission infrastructure as well as storage, LNG and electrolysers".

Still, the structural limitation of the current modelling exercise would remain:

> Art 11.1: Because of the extensive and accurate ENTSOs' database, one might believe that they are best placed to carry out the calculation exercise. However, the Commission's proposal perpetuates the risk of conflict of interest where a limited group of companies set the criteria by which their own projects will be judged. **Existing alternative modelling**, for instance METIS[6], is already showing significant differences in final calculations compared to those from the ENTSOs.
> **How to improve it?** If the ENTSOs are to keep developing network calculation, at the very least an **independent peer-review of the ENTSOs modelling must be required** under article 11.

[5] See article 11.8 **here**

[6] METIS is a mathematical model used by the European Commission to support policy making on energy system for electricity, gas and heat. Read more about METIS **here**

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> Art 11.1: Despite the required stakeholder consultations, there is **no mandatory provision that can ensure the ENTSOs will successfully integrate assumptions and granular data on demand-side and energy efficiency solutions, prosumers, etc** in their respective and/or joint modelling.
How to improve it? To unlock energy system integration, the ENTSOs must be required to cooperate with relevant experts from the distribution side[7], demand-side and the heat infrastructure sector when developing their methodologies.

> Art 11.11: Until December 2023, the European Transmission System Operators (ENTSOs) will continue to produce separate methodologies **despite an interlinked model having been a requirement since the 2013 regulation**. This **creates a direct problem in defining reliable sustainability criteria for gas projects and risks a more costly transition** through over-built infrastructure as shown by a recent study[8].
How to improve it? Whether carried out independently or by the ENTSOs, cost-benefit analysis of the system has to be outlined based on a model that links electricity and gas infrastructure as well as other sectors. This requirement should be mandatory from the entry into force of the regulation (or by 16 November 2022) and an update of existing PCI lists should be required.

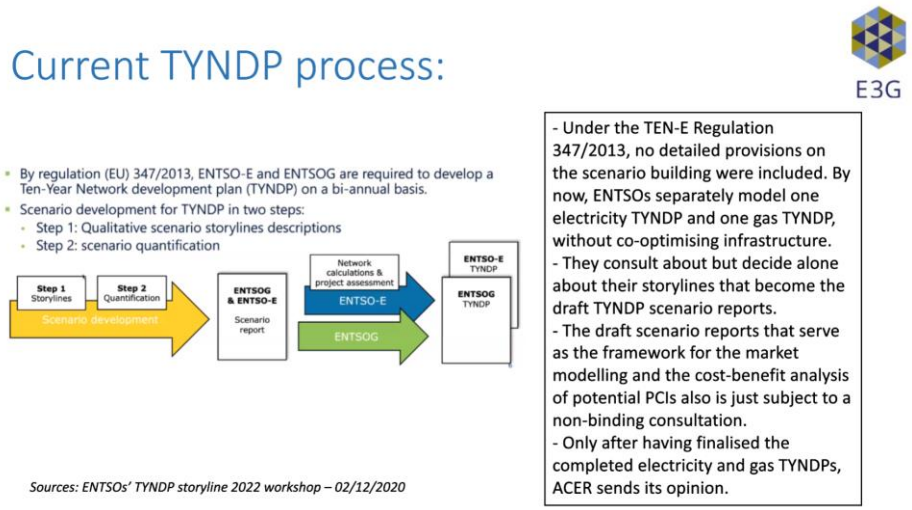
Art 13: Infrastructure Gaps Identification

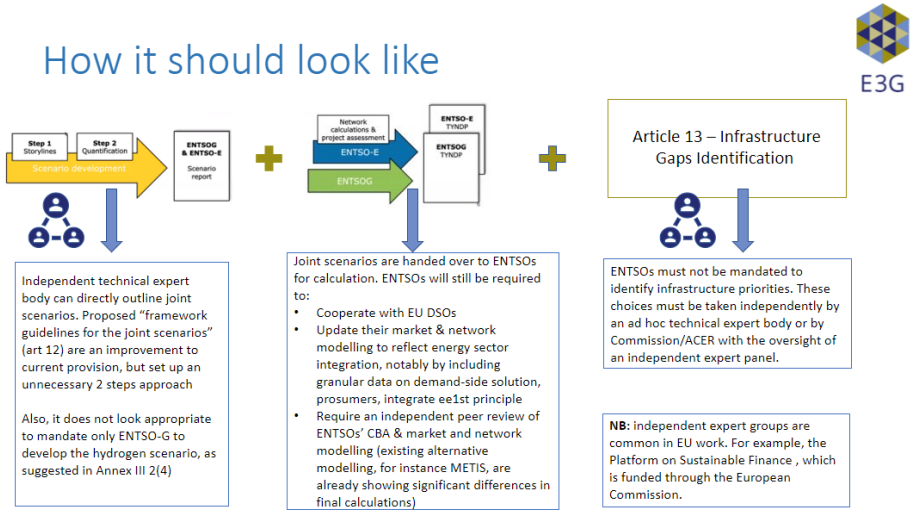
To conclude, **the precondition for a successful revision of infrastructure planning is that infrastructure needs will be independently defined**. The Commission's proposal falls short in addressing this fundamental change as it still mandates the ENTSOs to identify infrastructure priorities (as set out in art 13).

> Art 13 (all points): **These choices must be taken independently by an ad hoc technical expert body** or by Commission/ACER with the oversight of an independent expert panel (like the one currently discussed in the EU Climate Law). Such independent expert groups are common in EU work; for example, the Platform on Sustainable Finance, which is funded through the European Commission.

[7] see recent innovative examples from the US **here**

[8] To overcome limitation in the existing criteria and allow for a better computation of sustainability indicators on all aspects (CO2, non GHG emissions, impact of renewable integration and renewable gas integration), the study recommends to use an interlinked gas, heat and electricity model. Read more **here**





Redefine scope and priorities for the Paris Agreement and EU Green Deal delivery

Why does it matter?

The European Commission revised the TEN-E eligible categories to align its infrastructure policy with the EGD objectives, ensuring the support and acceleration of its delivery. At the release of the proposal, Commissioner Simson said: *"[the] proposal prioritises electricity grids, offshore energy and renewable gases, while oil and natural gas infrastructure will no longer be eligible for support."*[9] To succeed, some substantial changes – including those outlined in the previous section – will be needed.

[9] Press release, 15th December 2020: **Commission proposes revised rules for cross-border energy infrastructure in line with the European Green Deal**

The revised TEN-E Regulation is also the first energy legislation being negotiated under the European Green Deal project. With the release of the "Fit for 55%" package and the gas market reform, 2021 will be a critical year to assess the credibility of the new European growth strategy. **The TEN-E Regulation will be an important stress test for all co-legislators and, most importantly, it will set an important precedent in view of the upcoming energy negotiations.**

What is in the proposal and how to improve it?

By excluding oil and fossil gas from the eligible categories under this legislation, policymakers give a clear signal for future infrastructure needs to deliver a climate-neutral economy[10]. This should be protected. In addition, the inclusion of the energy efficiency first principle in the "framework guidelines" and the infrastructure gap identification is another positive improvement in light of the objective to ensure policy consistency across the EU Green Deal package.

This is a good starting point, but these proposals must come with teeth to crank up fast and effective results. We outline our thinking on the risk of prioritising gas-related infrastructure in the next section.

On the energy efficiency first principle

Regarding the EE1st, the responsibilities and criteria to enforce the principle are still too vague and must be clarified. The EE1st principle goes beyond the scope of efficiency measures only, but aims at mainstreaming demand-side considerations across different areas and the energy system as a whole. It is unclear how this will be enforced considering only supply-side stakeholders are involved in the EU infrastructure planning process.

> **How to improve this?** Annex V should require to develop joint scenarios for infrastructure planning as soon as reasonable. They must integrate assumptions not only on gas and electricity but also heat networks and **objectives for network operation on energy efficiency**. Relevant expertise from each sector must participate in this process.

> **How to improve this?** Art 12 and Annex V should **require joint infrastructure planning to demonstrate how the cost-effectiveness of investments has been**

[10] This is in line with previous positions taken by the European Commission claiming that the Union will reach a shock-resilient gas network thanks to the ongoing PCIs projects. This has been confirmed more recently by a **study**, concluding that most of the 32 gas projects in the 4th PCI list are already not necessary for security of supply in light of the EU's legally adopted decarbonisation measures. If built, they will represent €29 billion worth of investments, likely to come out of public funds or re-financed via the consumer.

calculated, to fully anticipate any redundancy of assets, to avoid stranded assets in the long term, to prefer extending and developing the use of existing assets before new investment.

On the "security of supply" definition:

The Commission's proposal also leaves unsolved the **outdated definition of security of supply**, which does not currently capture all the challenges related to energy security in our days and in the way up to 2050.

> **How to improve this?** Art 4.3 (all): **Energy security is no longer a problem limited to physical supply** – as outlined in the Foreign Affairs Council conclusions adopted in January 2021[11]**.** Indicators to measure it should take into account other options beyond delivering energy security: reducing energy demand, improving network efficiency, reflect new challenges related to cybersecurity, climate impacts and system balancing. A renewed definition of energy security should be integrated under each category listed in article 4 point 3. It could read: "energy security, including through efficiency and interoperability of transmission and distribution networks in day-to-day operation, system flexibility, cybersecurity, avoidance of congestion, and integration and involvement of network users."

Support network innovation and transformation for climate neutrality

Why does it matter?

Network innovation and transformation is an essential element to deliver our long-term decarbonisation objective. This becomes even more relevant with the updated 2030 target, where an increased ambition corresponds to a faster decrease in fossil fuel consumption. Considering the short timeframe and the big social implications of these choices, provisions must **focus on delivering the infrastructure needed for a climate-neutral economy.**

A debate on the future role of gas is unavoidable in light of the updated climate targets. Alternative gases will play a crucial role in the future energy mix and the TEN-E regulation offers one of the **first opportunity to outline provisions that could contribute to an orderly and efficient transition away from fossil fuels**. However, beyond renewable energy and energy efficiency, solutions compatible with net-zero emissions currently still are low in supply and maturity.

[11] January, 2021: **Council conclusions on Climate and Energy diplomacy**

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What is in the proposal and how to improve it?

The Commission's proposal moves in the right direction, but **two new categories re-introduce the risk of prioritising non-aligned infrastructure:** hydrogen and smart gas grids.

On hydrogen projects:

The Commission's proposal introduces **a hydrogen category that directly relates to the existing gas network in Europe.** The biggest emissions savings and cost reductions potential however lie with renewable electricity-based hydrogen. As such, the **TEN-E would be more effective if it included hydrogen as a solution related to renewable electricity and in support of the electricity system**.

The TEN-E proposal also deviates from the EU's Hydrogen Strategy released last year. The Commission opens up to low-carbon hydrogen (or blue hydrogen) as a transitional technology instead of focussing on green hydrogen. It also refers to the creation of a hydrogen backbone to be delivered via new and repurposed networks and to be planned by ENTSO-G, whereas both the Hydrogen Strategy and recent evidence suggest that a clustered approach is more sensible[12] and that the need for a backbone has not been established yet[13].

Overall, the hydrogen provisions must be in line with realistic expectations of the hydrogen developments, both in terms of timescale and volumes. Regular reviews of the regulation could open the opportunity to increase ambition if hydrogen deployment accelerates. To this end, several things must be improved:

- **Criteria for hydrogen projects must clearly refer only to renewable hydrogen** and its contribution in industry, shipping and aviation sectors as well as for grid balancing purposes as immediate priority applications. If other use cases emerge as necessary and supply scales more quickly than expected these can be added later on.

  How to improve this? Art 4.3(d) shall integrate the provisions outlined above. Besides, the option of combining hydrogen from fossil gas with carbon capture leaves uncovered significant upstream methane emissions through leakage. If not excluded, these should be fully accounted for in project appraisal and reporting.

[12] Agora: **No-regret hydrogen infrastructure for Europe**

[13] The **European Hydrogen Strategy** says: "Local hydrogen clusters, such as remote areas or islands, or regional ecosystems – so-called "Hydrogen Valleys" – will develop, relying on local production of hydrogen based on decentralised renewable energy production and local demand, transported over short distances"

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- Hydrogen deployment will be necessary where no cheaper or more efficient decarbonisation options are available. **This means the priority for TEN-E must be first to deliver the supply to services and sectors that have no other solutions available**. Eligibility should be conditional on measurable regional industrial strategies towards climate neutrality.
  How to improve this? Annex I.3: an industrial cluster approach would be more appropriate to meet the hydrogen demand with production on-site[14].

- Conversion of existing gas pipelines should be acceptable only where they offer solutions meeting the above criteria. **The precondition is to identify where the demand is likely to be coming from** to avoid unnecessary investments and the risk of a lock-in effect.
  How to improve this? The "hydrogen readiness" test is not sufficient. **When repurposing is an option, the project must come with measurable and transparent indicators to ensure delivery of the public interest case**, i.e. a transition to climate-neutral energy supply. Annex II.3 and Art 4.3(d) shall require the project to present a strategy for full conversion with adequate measurable milestones, and the cost-benefit analysis should reflect the full cost and demand impacts of conversion from fossil gas to hydrogen (including connected end-use appliances). **The risk of non-delivery of transition to 100% renewable hydrogen should rest with the project promoter and not with the consumer** (through regulated asset base).

- Hydrogen PCIs are required to be part of the latest TYNDP for gas, developed by the ENTSO for Gas. This is inconsistent with the long-term direction of travel, where only renewable (or green) hydrogen – produced with renewable electricity – is compatible with the climate neutrality goal.
  How to improve this? Annex III.2(4) shall **at the very least require that hydrogen planning are part of the joint exercise between ENTSO-E and ENTSO-G**. Still, evidence shows that **priority should be given to hydrogen networks that are developed and optimised in accordance with renewable energy supply** and the electricity grid to ensure long term sustainability[15]. Consideration could be given to allowing the joint application of electrolyser, renewable energy and grid projects in this context.

On smart gas grid projects:

The benefit of smartening gas grids is limited to the consumer, as price differentials are much lower than with electricity. If included nonetheless, **beyond the requirement to prove its climate added-value, the following needs to be improved:**

[14] See the **existing example** between Western Germany and the Netherlands

[15] Artelys: **What energy infrastructure to support 1.5°C scenarios?**

- The wording “low carbon gases” implies the possibility to transport fossil-based gases, and therefore this would not be in line with the overarching objective of excluding fossil fuels from the proposed TEN-E regulation.
  How to improve this? Art 2.9 (and Annex I.13) shall limit t**he definition of “smart gas grids” only to renewable gases**.

- Accordingly, the projects should only facilitate the integration of renewable gases (i.e. sustainable biomethane) and renewable hydrogen into transmission networks.
  How to improve this? Art 4.3(f) (and Annex II.2) **should exclude projects that allow for the blending of these gases with fossil gas or fossil hydrogen** by deleting every reference to “low carbon” gases.

- **There is a clear imbalance in requirements between criteria for the electricity smart grids and gas smart grids**. The former is also more limited compared to the criteria required for hydrogen transmission projects, where electricity smart grids need to prove that at least 20% of electricity is RES, while for hydrogen transmission it is only 10%. Criticisms of the eligibility criteria for electricity smart grid projects have already been raised in the past by demand-side industries[16].
  How to improve this? Requirements under Art 4.3(b)) and Art 4.3(f)) must be rebalanced to reflect an equal treatment between the two categories.

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[16] SmartEN **TEN-E Consultation response**