European Grids Package

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Introduction

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  - Trade union
  - Other

* First name

Roberto

* Surname

Francia

* Email (this won't be published)

* Organisation name

255 character(s) maximum

ENTSOG - European Network of Transmission System Operators for Gas

* Organisation size
  - Micro (1 to 9 employees)
  - Small (10 to 49 employees)
  - Medium (50 to 249 employees)
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- Turks and Caicos Islands

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- Chad
- Chile
- China
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- Liberia
- Palau
- Palestine
- Panama
- Papua New Guinea
- Paraguay
- Peru
- Philippines
- Pitcairn Islands
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- Portugal
- Puerto Rico
- Qatar
- Réunion
- Romania
- Russia
- Rwanda
- Saint Barthélemy
- Saint Helena Ascension and Tristan da Cunha
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General questions

Secure supplies of clean and affordable energy are critical for European competitiveness, preparedness, security and the EU's decarbonisation efforts towards 2030 and 2050. Ensuring a well-integrated and optimised European energy grid is crucial to accelerating a cost-efficient clean energy transition. The mission letter to Commissioner Jørgensen calls to work for the production of "more clean energy" and "the upgrade of the grid infrastructure". Specifically, it is requested to "look at the legal framework on European grids with the aim to help upgrade and expand grids to support rapid electrification [and] speed up permitting" and highlights the need to "upgrade our grid infrastructure and develop a resilient, interconnected and secure energy system".

Q1: To what extent do you agree that existing EU legal framework for grids delivers on the following objectives?

	Strongly disagree	Slightly disagree	neutral	Slightly agree	Agree	Don't know
* Market integration	○	○	○	○	◉	○
* Interconnections	○	○	○	◉	○	○
* Competition / Affordability of energy prices	○	○	○	◉	○	○
* Energy security	○	○	○	◉	○	○

Please explain your reply providing, where possible, qualitative and quantitative evidence.

Previous successes do not mean that the existing legislation is sufficient for new purposes relating to hydrogen and CCS. There is a need for a more vigorous promotion of diversification in the energy infrastructure mix and for better synergies, enhancing whole energy system efficiency and resilience to avoid vulnerabilities like the one witnessed in Spain and Portugal on April 28th 2025 (national blackouts) and affordability problems due to overconcentration in a few technologies, plus other international dependencies derived from them. Further, electricity grids face strong congestion issues, which can be solved by investments in grids transporting molecules, namely hydrogen, natural gas and CCS.
The Commission, ACER and stakeholders usually recognise that the Network Codes prepared by ENTSOG have contributed to gas market harmonisation and integration. Gas interconnections have been primarily developed due to market signals, i.e. long-term bookings, and due to fit for purpose legislations (TEN-E, CEF-E, incremental chapter of the CAM NC). On security of supply, the gas industry has shown its reliability by being able to reorient the supply flows since the start of the war in Ukraine. The Madrid Forum 2024 conclusions state that “The Forum notes that the internal gas market has played an essential role in managing the gas Crisis". This was also the case before the war in Ukraine, and also for other sectors: during the summer of 2022 with low nuclear availability in France and drought and heat waves in EU27, gas played a pivotal role keeping the lights on. Competitiveness is also now a major consideration. Regarding affordability of gas prices, the European Union is a large importer of natural gas and, thus, is dependent on regional / global commodity prices.

Q2: In your view, what are the main barriers to grid infrastructure development necessary for the energy transition to happen, and at sufficient pace? [rank them from 1 (most important) to 8 (least important)]:

	1 *(most important)*	2	3	4	5	6	7	8 (least important)	Don't know
* Suboptimal transmission network planning	○	○	○	○	○	○	◉	○	○
* Suboptimal distribution network planning	○	○	○	○	○	○	○	○	◉
* Lengthy permitting	○	○	◉	○	○	○	○	○	○
* Insufficient financing	◉	○	○	○	○	○	○	○	○
* Insufficient supply chains	○	○	○	◉	○	○	○	○	○
* Inefficient use of existing infrastructure	○	○	○	○	○	○	○	◉	○
* Regulatory uncertainty	○	◉	○	○	○	○	○	○	○
Other (please specify below)	○	○	○	○	◉	○	○	○	○

Please specify:

4000 character(s) maximum

Please explain your reply providing, where possible, qualitative and quantitative evidence.

Gas infrastructure development was not negatively impacted by significant barriers such as the ones described in the above table, especially because there was already demand and supply. For hydrogen, it will be different, as infrastructure development needs to occur at the same time (or earlier) as the development of the rest of the value chain. That is why other countries like China are investing simultaneously in demand and supply.
The most relevant barriers for H2 and CO2 infrastructure are getting means to finance today. To address this risk, de-risking mechanisms such as an intertemporal cost allocation are essential. A sound, supportive and stable regulatory framework constitutes another element substantially affecting infrastructure development (at EU level the basis for it has been set by the last Gas and H2 Package). It is imperative that Member States swiftly transpose the EU legislative package and establish appropriate regulatory frameworks to provide clarity and confidence to both promoters and investors.
Lengthy permitting processes (also caused by non-existent norms, technical prescriptions required for the implementation of the project), finding economic resources, insufficient supply, lack of whole chain support, over-regulation (RFNBO and low-carbon fuels delegated acts) of value chains and regulatory uncertainty are the main barriers for the development of infrastructure needed for production and transportation of renewable and low-carbon hydrogen. The regulatory uncertainties encompassed in the delegated acts for the production of renewable hydrogen and for low-carbon hydrogen (still under legislative process) do not bring investment confidence in the procurement of electrolysers and steam methane reformers, limiting the value chain development. For the demand side, policy views are not neutral and reduce renewable and low-carbon gases (not just hydrogen) to supportive roles, without a valid economic reason. As a result, affordability suffers, and users tend to relocate or simply stop consuming for lack of viable economic solutions. In the meantime, the need for subsidies remains for technologies that claim to be mature and whose negative externalities to the system in terms of variability, security of supply, technological dependencies are disregarded, whilst the positive ones are the main ones considered. A more technology neutral approach is needed.
ENTSOG and other stakeholders are working to address potential issues so that these barriers do not materialise. For example, ENNOH and ENTSOG presented a report on repurposing at the Energy Infrastructure (Copenhagen) Forum in 2025. ENNOH and ENTSOG were also invited to further work on possible de-risking options and to deliver a report on this topic by the next Forum. Therefore, we consider it is too early to provide clear recommendations / policy asks, however, additional funding as well as de-risking mechanisms seem necessary for hydrogen.
On transmission network planning, ENTSOG does not consider it suboptimal, e.g. as there have been successful open seasons in the past, and the ability to ensure SoS after the Russian invasion of Ukraine.

EU Infrastructure planning

Requirements for planning of transmission network development on a national and European level are included in the internal market legislation (for electricity as well as hydrogen and decarbonised gases) and the TEN- E Regulation. They require the TSOs to put forward network development plans with at least a 10-year outlook for grid development biannually. At the European level, this is done through the Ten-year network development plan (TYNDP), currently developed by ENTSO-E and ENTSO-G.

* The following questions Q3 to Q6 apply to both electricity and hydrogen, please specify the sector you are referring to when answering these questions:

- ○ Electricity
- ◉ Hydrogen
- ○ Both

Q3: To what extent do you agree with the following statements?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* The current framework in relation to the TYNDP and national transmission development plans provides for integrated and coherent planning at national and EU level	○	○	○	◉	○	○
* The TYNDP identifies all cross-border infrastructure needs	○	○	○	○	◉	○
* The TYNDP identifies all relevant projects to match the actual infrastructure gaps	○	○	○	◉	○	○
* The TYNDP should have a more top-down European approach to identify cross-border infrastructure needs, meaning going beyond a project bottom-up approach and ensuring that the planning aligns with EU and Member States' climate and energy objectives	◉	○	○	○	○	○
* The TYNDP should have a more top-down European approach to better link identified needs and priority projects of European interest	◉	○	○	○	○	○
* Projects at national level should align and support priorities of European interest	○	○	○	◉	○	○

Please explain your reply providing, where possible, qualitative and quantitative evidence.

ENTSOG is currently working on the hydrogen TYNDP before transferring this task to ENNOH in 2026, once ENNOH is fully operational. We rely on the expertise, modelling and know-how gained while elaborating the natural gas TYNDP for the past 15 years and integrating hydrogen in the modelling since TYNDP 2022. That is why we support the first three statements in the above table: the natural gas TYNDP delivered on integrated and coherent planning, on identification of cross-border needs and on matching projects and infrastructure gaps. Of course, ENTSOG improved its TYNDP process consistently during these years (see for instance our proposals regarding TEN-E revision in our answer to the Call for evidence) and it will continue for hydrogen infrastructure.
During this period of time, the process itself is designed to remain neutral and the methodology approved by the European Commission aims to ensure that projects are identified based on merit and is used as one of the inputs to ranking the projects by the EC. That is why ENTSOG disagrees with having a more top-down approach, although ENTSOG may facilitate discussions between project promoters.
The growing complexity of sector integration, as well as the increasing number of stakeholders, have made the TYNDP process increasingly time consuming. The last TEN-E revision introduced lengthy opinion /approval periods totalling up to 20 months. This can be made more efficient by reducing the regulatory approval periods by ACER, the EC and Member States for TYNDP deliverables to no longer than 4-6 weeks. This could be achieved by planning that model and Cost Benefit Analysis (CBA) Methodology updates do not occur in the same cycle, which would make the testing process of either the new model or the new CBA Methodology easier to perform. See the answer to Q29 for further context.

* Q4: The needs identification at EU level should (you can choose more than one option):

- [x] Cover cross-border projects within the EU
- [x] Cover internal reinforcements in Member States necessary for cross-border projects
- [x] Cover connections with third countries
- [ ] Cover non-infrastructure solutions (e.g. grid enhancing technologies)
- [x] Follow a cross-sectoral approach
- [ ] Other

* Q5: Do you agree with the following statement?
The frequency of the identification of system needs process (every 2-years) is fit for purpose.

- (•) Yes
- ( ) No

* Q6: Do you agree with the following statement?
The frequency of the scenarios building process (every 2-years) is fit for purpose.

- (•) Yes
- ( ) No

Please explain your reply providing, where possible, qualitative and quantitative evidence.

ENTSOG supports maintaining the two-year frequency for hydrogen infrastructure assessments and scenarios building. In principle, such assessment should be conducted as frequently as feasible to leverage rapidly evolving market data, project and policy-related information, although this has proven to be practically impossible. The (scenarios, projects) data collection process and other interrelated processes (e.g. PCI/PMI selection; NDP developments) are complex and the number of stakeholders increasing; for these reasons, conducting this exercise more frequently than every two years – as currently defined – seems unrealistic.
A practical example is the 2024 infrastructure gaps identification exercise: the European Commission considered the TYNDP 2024 Scenario Report as approved and at the same time considered the underlying scenarios datasets as outdated and made its own data collection in 2024. ACER agreed with the approach of the EC in its Opinion on ENTSOG's Hydrogen Infrastructure Gaps Identification (IGI) report.
Another reason for maintaining the current 2-year frequency of the scenario-building exercise is the recent focus in practice on a central scenario, as opposed to adding several deviation scenarios, that reflect potential sector evolution. The TYNDP Scenarios Guideline document emphasises the importance of stability between scenarios as a key element of robustness. It states that stability contributes to robustness by ensuring that the choice of storylines does not unnecessarily deviate from one TYNDP cycle to the next.

* Q7: Do you agree with the following statement?
The governance framework of the TYNDP, i.e. the role of all individual involved, should be revised.

- ○ Yes
- ◉ No

Q8: In your view, how can the needs for CO2 cross-border infrastructure in the EU be reflected in the PCI/PMI selection process under the TEN-E Regulation? Are there other ways the TEN-E Regulation could support the development of future CO2 cross-border infrastructure? Please explain

While the initial ramp-up of individual CO2 projects can proceed without overarching European coordination because they are often self-contained point-to-point infrastructures, such coordination will become crucial later to connect these initial projects into an efficient, trans-European CO2 network.
ENTSOG has the expertise and technical knowledge gained during development of natural gas and hydrogen infrastructure, to help to improve PCI/PMI selection process for CO2. Furthermore, the TEN-E regulation includes CO2 networks as eligible for PCI status, which directly supports the implementation of the CCS directive by facilitating the infrastructure needed to transport captured CO2 to storage sites.
Therefore, the TEN-E regulation could also support the development of future CO2 cross-border infrastructure by allowing for better alignment of infrastructure planning. Some EU Member States lack suitable geological formations for permanent CO2 storage, making cross-border transport, potentially to non-EEA countries, essential for achieving EU-wide decarbonisation goals.

Please explain your reply providing, where possible, qualitative and quantitative evidence.

The following webpage presents the TYNDPs that ENTSOG has published: https://www.entsog.eu/tyndp# Providing an example of the expertise in practice.

Electricity network planning at national level

At a national level, transmission and distribution grid operators are obliged to establish respective network development plans (“NDP”) at least on a biannual basis, pursuant to requirements of Articles 51 and 32 of the Directive (EU) 2019/944. Plans should set out planned investment, taking into account future development of supply and demand, including renewables generation, flexibility and electric vehicles (EVs) recharging points.

Q9: Concerning the national transmission and distribution network development plans, do you agree with the following statements?

	Yes	No
* The existing legal framework for transmission network development plans is fit for purpose	○	◉
* There is a sufficient alignment between national transmission development plans between Member States	○	◉
* There is a need for better alignment between national transmission and distribution network development plans across the EU	◉	○

* If yes, please choose among the following elements those that can be improved:
  - ☐ Common scenarios
  - ☐ Alignment of frequency of the planning
  - ☐ Alignment of planning scope and outlook period
  - ☐ Common minimum features for transmission and distribution network development plans
  - ☑ Other

* If other, please specify:

ENTSOG did not want to answer questions related to electricity, so answers to questions 9-11 should not be taken into account

Q10: Concerning the distribution network development plans, to what extent do you agree with the following statements?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* The existing legal framework for distribution network development plans is fit for purpose	○	○	○	○	○	◉

* The coverage of small distribution system operators (DSOs) in the network planning is sufficient under the existing legal framework	○	○	○	○	○	◉
* There is sufficient transparency of distribution network development plans	○	○	○	○	○	◉
* The implementation of the distribution network development plans is sufficient and their objectives met	○	○	○	○	○	◉
* Distribution grid operators are equipped with sufficient capacity to properly plan distribution grids	○	○	○	○	○	◉
* There should be a stronger coordination of distribution network planning at EU level	○	○	○	○	○	◉

Other:

Transparency on electricity grid hosting capacity

Article 31(3) of Directive 2019/944 (EU) requires that distribution grid operators provide system users with the information they need for efficient access to, and use of, the system, in particular on capacity available for new connections in their area of operation, information on connection requests as well as on how the available grid hosting capacity is calculated. The EU Action Plan for Grids further strives to enhance transparency by creating a common understanding on the grid hosting capacity calculation across Europe.

* Q11: Do you consider additional measures necessary to reduce grid connection lead times?
Should there be differentiated approaches for different types of uses (industry decarbonisation, residential heat, charging infrastructure)?

- ○ Yes
- ○ No
- ◉ Don't know

Permitting

Directive (EU) 2023/2413 (Renewable Energy Directive – RED III), Directive (EU) 2024/1788 (Directive on Gas and Hydrogen Markets), Regulation (EU) 2022/869 (TEN-E Regulation), and Regulation (EU) 2024

/1735 (Net-Zero Industry Act) establish provisions for the acceleration of permitting procedures for renewable energy generation, storage and energy networks including CO2 assets. Whilst some RED III provisions have yet to be transposed by Member States due to upcoming deadlines, permitting procedures are perceived as one of the main cause of delays in project implementation.

Q12: In order to accelerate permitting for energy networks, storage and renewables and CO2 assets, to what extent do you agree with the following statements?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* The permitting provisions of the TEN-E regulation are cleat and easy to implement	○	○	◉	○	○	○
* Permitting procedures should be fully digitalised	○	○	◉	○	○	○
* Availability and sharing environmental and geological data (and other technical data required) should be ensured	○	○	◉	○	○	○
* One-stop shops for network permitting should be introduced	○	○	○	○	◉	○
* Environmental assessments should be simplified and streamlined*	○	○	○	○	◉	○
* Legal deadlines for permitting procedures need to be shortened	○	○	○	○	◉	○
* Deadlines for the permitting of networks should be shortened or established where missing	○	○	○	○	◉	○
* Deadlines for the permitting of Projects of Common Interest and Project of Mutual Interest should be shortened and clarified to reflect the urgency in implementing these projects	○	○	○	○	◉	○
* The permitting procedures for storage should be simplified*	○	○	○	○	◉	○
* The permitting procedures for distribution network projects and small-scale renewable projects, as well as repurposing, refurbishment and repowering should be simplified*	○	○	○	○	◉	○

* The permitting procedures for hybrid projects (combining different technologies, including storage) and other innovative solutions should be simplified	○	○	○	○	◉	○

Other:

(*) Please specify:

ENTSOG believes that simplified and shortened permitting processes would increase the pace of the energy transition. However, the permitting process is a Member States' prerogative and therefore the relevant responsibility for that simplification and streamlining exercise is rather at national level. This simplification should cover all renewable and low-carbon energy, under EU guidance and be aligned between Member States. In this view, it would be very relevant that national authorities would comply with – and possibly even anticipate – the legal deadlines to grant permitting to energy carriers, not just infrastructure. Tacit approval of PCIs' permitting processes if they exceed the 42-month period specified by the TEN-E regulation or the harmonised standards/technical prescriptions drafted by one of the European standardisation organisations would help to streamline the process.
Further requisites on national Manuals of procedures (permitting) established in the TEN-E regulation: (1) Setting a common structure for manuals and not only a list of contents; (2) ensuring their publication in English (right now it is only a recommendation, rarely fulfilled) (3) and publishing them together on DG ENER' s website.

Facilitating investments in grid infrastructure

Article 16 of the TEN-E Regulation facilitates investments with cross-border impact through a cross-border cost allocation (CBCA) framework where the relevant national regulatory authorities (NRAs) jointly agree on CBCA decision. Where there is no agreement among the NRAs, they may jointly request ACER to decide on the investment request including the CBCA.

Q13: To what extent do you agree with the following statements?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* The current cross-border cost allocation (CBCA) framework is fit for purpose	○	◉	○	○	○	○
* An investment request within the CBCA framework could also cover several projects ('bundling') to facilitate cost sharing amongst more Member States beneficiaries	○	○	○	◉	○	○

* The CBCA framework should be developed further to facilitate that investment costs are shared amongst countries, beyond hosting Member States, in proportion to the expected benefits	○	○	○	◉	○	○
* The role of involved actors (Member States, NRAs, ACER, TSOs) should be revised to facilitate the process*	○	○	◉	○	○	○

Other:

(*) Please specify:

The linkage between the CBCA and the possibility to request CEF funds for works (or any other EU financial assistance programmes) should be revised in the case of infrastructure projects. Promoters should be allowed to apply for funding and to obtain grants for works conditional to a CBCA agreement or avoiding unnecessary CBCAs in case projects show positive benefits in all involved Member States. This would save at least one year in the development of PCIs.
The CBCA process has been developed for mature markets where investments of projects compared to the overall system costs are usually insignificant and where the costs re-allocated will be covered by network users, one way or the other. It is not fit for purpose for a nascent market such as hydrogen where - through shifting costs- also significant investment risks are shifted across borders. CBCA can be a tool also for hydrogen but there need to be additional tools to address the issue of investment risks in case the market demand does not materialise to the extent expected today. For instance, an equivalent commitment via bookings could be one of these new tools.
Bundling of projects and involvement of non-hosting Member States is an option that could be explored and could make sense for the development of hydrogen supply corridors.
When considering all aspects and the dynamics between the various actors, ENTSOG is cautious about negatively impacting a process that functioned well in the past.

Q14: To what extent other instruments or tools (beyond CBCA) should be considered or modified to facilitate financing of cross-border infrastructure?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* Inter-Transmission System Operator Compensation (ITC) mechanism	◉	○	○	○	○	○
* Sharing of congestion income	◉	○	○	○	○	○
* Common/regional regulated asset base (RAB)	◉	○	○	○	○	○

* Ex post conditionalities	○	○	○	○	○	◉

Other:

ENTSOG strongly disagrees with the proposed instruments to facilitate cross-border hydrogen infrastructure financing. CBCA is quite effective and an appropriate mechanism, as mentioned in our previous answer (although this can be improved, see our answer in Q13).
Furthermore, these new tools would create new issues. The ITC mechanism is particularly questionable. Negotiations on the ITC between electricity TSOs took a long time and seem difficult to amend, as per ACER: “The current ITC mechanism, specifically its infrastructure compensation fund, along with cross-border cost allocation and congestion income distribution, falls short in equitably sharing infrastructure cost and benefits arising from cross-border trade. To better reflect the wider EU benefits of infrastructure, including internal and cross-border flows, ACER sees the need to review existing mechanisms to share costs and benefits of electricity network infrastructure arising from cross-border trade. Failing to do so may result in lower infrastructure investments, particularly in those countries bearing the costs.” in https://www.acer.europa.eu /sites/default/files/documents/Publications/ACER-2025-ITC-mechanism.pdf

Sharing of congestion income and common/regional RAB may create over extended and complicated negotiations. An example of this is the ITC mechanism between national jurisdictions, and between TSOs each time the flow pattern changes. Who is collecting the revenues for whom? When will it be redistributed? Detailed information is needed about these two proposal to have a better understanding of them.

ENTSOG also requests clarity to assist with understanding the concept of ex post conditionalities.

ENTSOG recognises the need to propose additional financing mechanisms for cross-border hydrogen infrastructures in the form of financial guarantees provided either through the Member States (in a coordinated manner) or at European level to de-risk investments of network operators. CBCA alone is not an adequate financing mechanism as it does not address the issue of investment risks.

Furthermore, national de-risking mechanisms backed by government guarantees will be required to develop backbones and storages. An Intertemporal Cost Allocation (ITCA) mechanism is already in place in Germany, where investments are already happening.
ENTSOG supports the widespread implementation of ITCAs, backed by state guarantees, for the development of high-pressure transmission networks subject to certification and to connected underground storages. Essential design elements are state guarantees, reliable and transparent calculations based on robust demand scenarios, predictable tariff levels in the long term, clarity in cash flows and clear allocation of risks in case of under recovery.
Cross-border segments will remain exposed unless specific supranational, cross-border de-risking mechanisms are developed. EU-level instruments to complement national efforts are needed. A dedicated EU Hydrogen Infrastructure Facility could act as a guarantor of last resort — not to replace national schemes, but to reinforce them where cross-border benefits are clear and shared.

Funding the necessary grid reinforcements and adaptations will require mobilisation of significant financial resources. Grid operators, both at the transmission and distribution levels, are faced with an unprecedented increase in the volume of capital expenditure possibly affecting credit rating and access to capital.

Q15: In your view, which financial obstacles are most relevant for investments in infrastructure projects?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* Access to debt	○	○	○	◉	○	○
* Access to equity	○	○	○	◉	○	○
* Access to counter-guarantees	○	○	○	○	◉	○
* Regulatory risk	○	○	○	○	◉	○
* Access to public funding (EU/national)	○	○	○	○	◉	○

Other:

The gas transmission regulated business model represents a stable basis for access to debt and equity at reasonable conditions. Financial obstacles are however more significant for hydrogen infrastructure because hydrogen is a nascent market and therefore the inherent risk to ramp-up is larger than in a mature market like natural gas. Further, owing to the regulatory risk arising from various EU legal acts (e.g. RFNBO and low-carbon fuels delegated acts), access to debt and equity is more costly. That is why this regulatory risk should be mitigated. Further, an Intertemporal Cost Allocation mechanism and a State Guarantee and access to public funds are essential (see our answer to question 18).

Q16: If needed, what financial measures could be considered to further support transmission infrastructure? Please specify.

Gas projects can no longer benefit from access to public funds as had been the case in the past (i.e. PCI funds). However, as shown since the start of the war in Ukraine, it is still necessary to develop new gas infrastructures - mainly LNG terminals but also some transmission lines – to maintain security of supply. Natural gas continues to play a vital role in Europe's energy mix, serving as a reliable backup while intermittent renewable sources scale up, particularly important amid ongoing geopolitical uncertainties. The coming decade, especially the post-2028 period, represents a pivotal transitional phase before renewable energy systems reach full maturity across all EU regions. In many Member States natural gas remains a key energy source, maintaining a stable and secure supply.

To ensure a successful energy transition, continued access to public and EU institutional financing for natural gas transmission projects is important. Investments in sustainable infrastructure upgrades, to allow for incremental capacity based on limited incremental CAPEX rather than fully new infrastructure, for temporary increases of natural gas supply as a transitional fuel and the gradual integration of low-carbon gases should remain eligible under key EU funding instruments, such as the Connecting Europe Facility, the Modernisation Fund, and InvestEU.

The new Clean Industrial State Aid Framework (CISAF), which currently concentrates on project-specific hydrogen infrastructure investments, may benefit from a more technology-neutral approach. Allowing a broader range of solutions, including natural gas-based options where appropriate, would provide flexibility and enable the market to determine the most efficient pathways toward climate neutrality.

To meet the scale of investment required in hydrogen, electricity and CO2, the CEF budget should be significantly increased.

Q17: If needed, what financial measures could be considered to further support distribution infrastructure? Please specify.

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Q18: If needed, what financial measures could be considered to further support hydrogen infrastructure? Please specify.

Unlike gas project promoters, hydrogen project promoters have access to CEF funds. However, these funds are insufficient to develop a new hydrogen network. Additional EU public funds should be available at least in the form of a guarantee. The 4thpackage allows for an Inter-Temporal Cost Allocation mechanism. A state guarantee that shields the operators from financial risks of developing the hydrogen network must supplement the ITCA. An example of how this state guarantee is applied effectively is in Germany, via an amortisation account for the German Hydrogen Core Network. This is a mechanism to finance the initial phase of the hydrogen network development, addressing the gap between high upfront costs and lower initial revenues from grid fees. ENTSOG believes that this state guarantee should also be available at EU level for supply corridors (European Clean Hydrogen Alliance Learnbook on Implementation of Hydrogen Supply Corridors), provided that infrastructure operators would not bear any risk related to allowed revenues shortfall referred to infrastructure utilisation (volume risk).
Public funding, such as the introduction of EU-backed guarantees on volumes, could be introduced together with potential national guarantees, in particular for covering cross-border expected flows. These EU-backed guarantees on volumes could be ideally financed through ECB/EIB bonds.
Also, other measures, such as CfD/CCfDs, can facilitate the conclusion of long-term for infrastructure access, as a basis for H2 infrastructure developments.
As stated in our response to Q2, ENNOH and ENTSOG will present a report on the possible de-risking options at Energy Infrastructure (Copenhagen) Forum in 2026.

Q19: If needed, what financial measures could be considered to further support CO2 infrastructure? Please specify.

At EU level, a dedicated financing scheme should be created. CEF-E has already shown that it can help fund infrastructure development, but its limited budget may be a constraint.
Access to combined national and EU funding should be organised in a technology-neutral way and support the timely, large-scale, and cost-effective development of enabling infrastructure.
This should include options such as long-term contracts, national and European schemes. Long-term contracts between the emitters and storage should be put in place, with the CO2 transport operator between them.
Furthermore, Member States could guarantee that investments made by CO_2 network operators in agreed infrastructure will remain financially viable throughout their lifetime. State grants to finance the initial development stage of the grid, could be another option (like in Belgium and the Netherlands for hydrogen). Tax incentives could be an alternative. From a national perspective, support through IPCEI could also play a useful role.
In addition, CCfDs could offer another risk-reduction tool. These would provide stable revenues for projects that cut CO_2 emissions and help companies manage risks related to future carbon prices under the EU ETS. This would support major investments, especially in hard-to-decarbonise industrial sectors.
Importantly, all these tools should be designed to attract private investment, not replace or exclude it.

Supply chains

Constrained supply chains and a lack of skilled workforce are being cited the major hurdles hindering grid development. The 2023 Action Plan for Grids included concrete action to address the often fragmented technical requirements for grid components through a common specifications workstream, as well as the need for greater visibility on future investments planned. The Union of Skills package adopted on 5 March 2025 targets the identified gap in skills - particularly those needed for the energy transition, investing in people for competitiveness, reinforcing the Competitiveness Compass and the Clean Industrial Deal.

Q20: To what extent do you agree with the following statements?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* The current network development plans at EU and national level provide sufficient visibility for the supply chain for the purpose of investment planning	○	○	○	◉	○	○
* There is a need for better visibility to ensure sufficient investment in the supply chains	○	◉	○	○	○	○

Q21: To what extent do you agree with the following statements?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* There is a need for further harmonisation of equipment requirements within the EU, for the purpose of scaling up supply chains and their repair capacities	○	◉	○	○	○	○

Other:

Gas equipment requirements are already quite harmonised (as they have to follow specific standards) and cannot go further because there will always be national safety requirements and other types of national specificities in place to ensure adherence.

* Q22: Is there a need for additional EU action to address supply chain bottlenecks in the energy sector, following recent initiatives?

- ○ Strongly disagree
- ○ Slightly disagree
- ○ Neutral
- ○ Slightly agree
- ◉ Strongly agree
- ○

Don't know

* Q23: Is there a need for additional EU action in the field of skills for the energy sector, following recent initiatives, such as the Union of Skills?

- Strongly disagree
- Slightly disagree
- (•) Neutral
- Slightly agree
- Strongly agree
- Don't know

Digitalisation and resilience

Digitalised and resilient grids are essential from a security of supply perspective. Actions were put forward also as part of the Action Plan for Grids adopted in 2023. By the end of 2025, a common Technopedia Platform operated by the ENTSO-E and the EU DSO entity should materialize, providing an overview of existing grid enhancing technologies. Enhancing the security and resilience of cross-border energy infrastructure projects is crucial for ensuring a reliable supply of energy. It is also a key priority of the current Commission mandate, especially in the context of emerging risks such as climate change impacts and malicious attacks on critical energy infrastructure.

Digitalisation

* Q24: Do you agree that there is a need for additional EU action concerning visibility and quantified benefits of innovative, digital and grid enhancing technologies?

- Strongly disagree
- Slightly disagree
- Neutral
- (•) Slightly agree
- Strongly agree
- Don't know

* Q25: In your view, should there be further measures to increase the efficiency of the existing grid?

- (•) Yes
- No

* If yes, please specify:

-

Security and resilience

Q26: To what extent do you agree with the following statements?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* The current EU legal framework, beyond the TEN-E Regulation, sufficiently addresses resilience and security criteria for cross-border infrastructure projects including recent and emerging risks such as climate change impacts	○	◉	○	○	○	○
* Projects of common interest (PCIs) and Projects of mutual interest (PMIs) should be subject to additional security criteria to reduce exposure and/ or enhance readiness against physical and cyber risks	◉	○	○	○	○	○
* The existing EU legal framework for grids, beyond the TEN-E Regulation, allows to avoid non-trusted actors' participation in critical cross-border infrastructure projects	○	○	◉	○	○	○

Other (please specfy):

As Europe advances toward an integrated energy system in which hydrogen plays an important role, the repurposing of existing natural gas infrastructure emerges as a practical and cost-effective option to accelerate the deployment of hydrogen networks and markets. This transformation requires a robust set of criteria to ensure that repurposing decisions are technically sound, do not compromise energy security, and support broader market and policy objectives. A multi-step evaluation framework necessary to assess the suitability of existing gas infrastructure for hydrogen transport, encompassing technical feasibility, security of energy supply, and economic efficiency within the context of EU regulations and market integration principles. Stakeholder engagement throughout the process is also an important consideration.
The EU Gas Regulatory (Madrid) Forum in 2025 called on the Commission to base its long-term security of supply strategy on a thorough impact assessment including future energy demand trajectories, based on range-based projections. The Forum took note of ENTSOG's initiative to develop, in cooperation with ENNOH and other relevant stakeholders, a mid-term infrastructure assessment framework, with special attention to flexibility options and security of supply provided by gas infrastructure to the electricity system in the context of the energy transition and sector integration. The Forum invited ENTSOG to present the framework at the next Forum meeting. However, we do not think it is appropriate to increase the administrative burden of project promoters with additional criteria. SoS and cyber security are major issues that are tackled via other instruments.
The current EU legal framework has been developed in a context where major risks (geopolitics, RES

variability, climate change) were only partially present. Its revision in view of a framework based on actually interlinked electrons and molecules infrastructure developments, including cross-border interconnections and storages, should be seriously taken into consideration, so that EU energy system can be planned in the most efficient and secure way.

Flexibility

Pursuant to the existing EU regulatory framework, distribution network development plans shall provide transparency on the medium and long-term flexibility services needed and consider alternatives to grid development (such as flexibility, demand response or innovative grid technologies). There is also ongoing work between TSOs, DSOs, ACER and the Commission following up on the most recent revision of the Regulation (EU) 2019/943 on the internal market for electricity in 2024, mandating the regulatory authorities or dedicated authorities to conduct biannual assessment of flexibility needs. The relevant methodology, explaining inter alia the link to the network planning should be adopted in Q3 2025.

* Q27: In this context, do you agree that the existing framework is sufficient for considering flexibility needs in network planning and development

- (●) Strongly disagree
- ( ) Slightly disagree
- ( ) Neutral
- ( ) Slightly agree
- ( ) Strongly agree
- ( ) Don't know

Simplification

Q28: In view of simplifying the PCI/PMI selection process, to what extent do you agree with the following statements?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* The current frequency of the PCI /PMI selection process (every 2 years) should be decreased e.g. every 3 years	( )	(●)	( )	( )	( )	( )
* Project with PCI/PMI status should not be required to reapply for each PCI/PMI process, provided certain conditions are met (e.g. sufficient maturity, progress)	( )	( )	( )	( )	(●)	( )
* The application process should be further simplified	( )	( )	( )	( )	(●)	( )

Please specify your reply providing, where possible, qualitative and quantitative evidence.

ENTSOG disagrees with the first proposal – to stay aligned with the scenarios building and TYNDP processes, the PCI/PMI selection process should stay biennial.
TEN-E processes would be substantially improved if the process to renew a PCI/PMI is streamlined: when no significant changes arise, already selected PCI/PMI should follow a “fast-track” procedure. This simplification guarantees that projects with EU relevance undergo a full scrutiny (initial, subsequent - in case of significant context evolutions - or under the form of a fast-track screening, if sufficient for validating the previous selection), while it can save considerable efforts and costs both for promoters and involved stakeholders (EC, ACER, ENTSOs, MSs representatives etc). This improvement can also provide stability to PCI/PMI lists, and allows projects to develop further. It would also ensure that initiatives with the possibility to request funds or other benefits stemming from PCI/PMI recognition can maximise these resources (both monetary or under other means, e.g. permitting, visibility, incentives etc.).

Q29: In view of additional simplification measures, to what extent, do you agree that there is potential for simplification in the following areas?

	Strongly disagree	Slightly disagree	Neutral	Slightly agree	Strongly agree	Don't know
* TYNDP process: Scenario building	○	◉	○	○	○	○
* TYNDP process: infrastructure gap identification	○	◉	○	○	○	○
* TYNDP process: Project assessment	○	◉	○	○	○	○
* Offshore network development planning process	○	○	○	○	◉	○
* PCI/PMI project monitoring and reporting	○	○	○	○	◉	○

Please specify your reply providing, where possible, qualitative and quantitative evidence.

Regarding the TYNDP infrastructure gap identification (IGI): this builds on the scenarios report and is performed according to a cost-benefit analysis methodology (CBA), IGI methodology, and based on modelling tools developed for this purpose. Updates to the CBA and to modelling tools should occur at least every five years (Article 11(13) of the TEN-E regulation). In cycles where new CBA and models are introduced, additional time is required due to the added complexity of integrating modelling for sectors other than hydrogen. Such a TYNDP cycle cannot last for the standard 2 years, in practice.
According to the latest TEN-E revision, review and approval periods by ACER, Member States (MS) and the EC add up to a maximum of 20 months:
-3+3 months for the CBA: ACER and MS opinions, EC approval (every five years at least);
-3+3 months for the scenarios report: ACER and MS opinions, EC approval;

-3+3 months for the IGI report and within 6 months of the scenarios report approval by the EC: opinions from the ACER, MS and EC;
-2 months for the Draft TYNDP: ACER opinion;
While some of these periods can overlap, as is the case of CBA and scenarios, others like those for scenarios and IGI, should not run in parallel. When they do, like it was the case for TYNDP 2024, ENTSOG had to initiate work based on preliminary documents rather than wait for final approvals, which would have delayed the process significantly.
Moreover, running simulations (IGI, PS-CBA) while still discussing assumptions and developing methodology prolongs the process by leading to a suboptimal (high) number of simulations, reviews, model (re)configuration and additional internal approval work. The process can be improved in two ways:
(1). By planning modelling tool and methodology updates not to occur in the same TYNDP cycle and;
(2). By simplification: reducing institution approval / opinion duration from 3 months to between 4-6 weeks each. While it can be understood that more complex modelling and assumptions require more complex review, ENTSOG finds that by respecting point (1), such institutional review periods could be reduced.
For instance, during the 2024 cycle, waiting for final approval of the scenario report and the CBA before starting work on IGI would have caused major delays in meeting TYNDP deadlines and, subsequently, the PCI/PMI process. Specifically:
- The EC approved the final Scenarios 2024 report on 14 January 2025;
- The updated CBA received formal approval on 14 February 2025 and was published with final edits by ENTSOG on 28 February 2025;
- Despite this, the hydrogen IGI report was submitted to ACER for review on 10 March 2025 because work had already commenced in autumn 2024 based on preliminary results and ongoing exchanges through the Cooperation Platform involving the EC, ACER, and ENTSOG.
Had ENTSOG delayed work until receiving final approval for scenarios and CBA, it would have delivered the IGI report and Project-Specific CBA results during autumn 2025, instead of spring 2025, at which stage the EC indicated they were required for the PCI/PMI process.
A simplification of the offshore network development process can be achieved by taking all relevant transmission infrastructure operators early on board. Therefore, at least ENNOH should be included in the task that is currently developed and published by ENTSO-E. In addition to a simplification, this could also optimise the quality of the planning results.
Additionally:
- The TYNDP scenarios building process should exploit as much as possible activities performed at national level (i.e. scenarios jointly built by TSOs at national level), with benefits in terms of consistency and efforts savings;
- The same methodology, already approved by EC and used for assessing projects in the TYNDP process, should be directly used to evaluate projects submitted for PCI/PMI selection process;
- On PCI/PMI monitoring and reporting: re-submitting a PCI/PMI can be used as a moment for monitoring projects advancements and reporting updates, relevant also to confirm or re-assess PCI/PMI status (without adding additional yearly requirements).

Contact

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