

Is the TEN-E Regulation Fit for a Decarbonized Future? A Battle to Shape the European Energy Transition

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► Key Takeaways

- The TEN-E regulation has streamlined the planning of EU cross-border infrastructures and accelerated their development. It has been deeply rooted in a security of supply paradigm, at the expense of sustainability objectives.
- With the TEN-E revision proposal, the EC promotes its own vision of Europe's future energy system and prioritizes efficient system integration and electrification for decarbonization.
- To overcome Europe's divide on the role of gases, the TEN-E should opt for a case-by-case approach and require that all gas-related Projects of Common Interest (PCIs) be approved by the new European Scientific Advisory on Climate Change.
- Debates on gas should not overshadow what the TEN-E revision primarily aims to achieve: accelerating the electricity sector decarbonization by taking up the challenge of acceptability, financing the infrastructure investment gap and minimizing the costs for consumers.

INTRODUCTION

Energy infrastructure is the “hardware” of energy policy. Coherence between energy infrastructure policy and European Union (EU) energy and climate goals is paramount insofar as today’s decisions will impact the EU’s capacity to achieve climate neutrality by 2050. Indeed, cross-border energy networks, on average, have a life expectancy of 80-years for gas pipes and between 40- and 80-years for electricity infrastructures or equipment. Consequently, current investments determine the structure of the EU energy system for the coming decades.

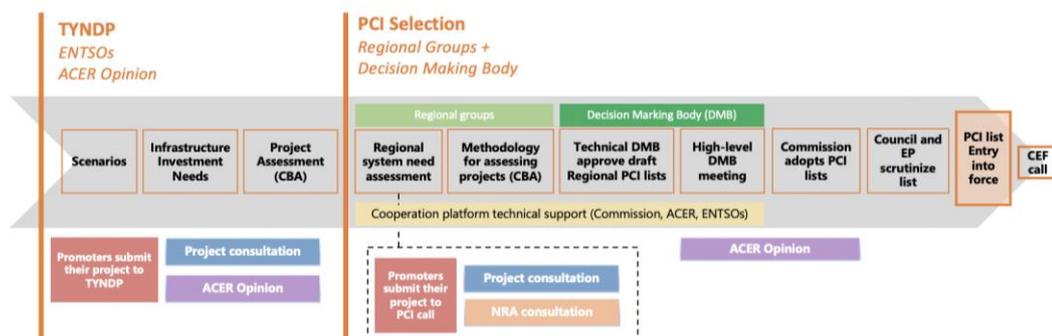
The TEN-E regulatory framework in a nutshell

At the European level, Regulation 347/2013 on Trans-European Energy Networks (the TEN-E) provides a framework to foster the “timely development and interoperability of trans-European energy infrastructure”. It was put in place to speed up the development and implementation of infrastructure projects that support EU energy policy goals, namely the functioning and integration of the internal energy market, security of supply, the promotion of energy efficiency and energy savings as well as the integration of renewable energy sources (RES).

This regulation addresses several aspects of cross-border infrastructure projects: the identification and implementation of Projects of Common Interest (known as PCIs), projects’ regulatory treatment, and eligibility criteria for financial assistance under the Connecting Europe Facility budget for Energy (CEF-E).

Under the TEN-E, a list of PCIs is established every two years: it contains electricity, gas, oil, smart grids and CO₂ network projects. These PCIs are given priority status and preferential treatment in Member States (MS). In particular, the regulation sets a 3.5-year time limit for the permitting process and establishes tools for this purpose: a single national competent authority (or “one stop shop”), cooperation mechanisms (i.e., Cross-Border Cost Allocation –CBCA– tool), and rules for increased transparency and public participation. Once labelled PCIs, projects may also apply, under certain conditions, for financial aid under the CEF-E. The PCI selection process is as follows:

PCI selection process



Source: author’s elaboration based on Regulation 347/2103.

Overall, the TEN-E has streamlined the planning of European cross-border infrastructures and accelerated the selection and implementation of PCIs¹, with 437 unique projects on the 4 PCI lists and 3.7 billion euros (EUR) of funds allocated to 95 different PCIs over the 2014-2019 period under the CEF-E budget.

While criteria for the selection of PCIs (market integration and competitiveness, security of supply and sustainability) all carry equal weight in legal terms, they have not all received the same level of attention. Indeed, the TEN-E, adopted in 2013, is deeply rooted in a security of supply paradigm. It was established just after the 2006 and 2009 gas crises between Russia and Ukraine and was principally designed to remedy energy security concerns. As a result, it was initially strongly focused on improving the EU's security of gas supply and on connecting energy islands. Progressively, it has also integrated structuring projects for the electricity sector. The criteria weight for the selection of PCIs has also varied across the EU territory:

- In South and Eastern Europe, the TEN-E implementation has focused heavily on enhancing security of supply and diversifying gas supply routes in the Eastern part of Europe.
- In Western countries, it primarily aimed to better integrate electricity markets, to eliminate energy islands, and to allow the integration of RES in electricity grids.

Despite the revision of climate and energy objectives at EU-level (with, *inter alia*, the 2015 Paris Agreement, 2019 Clean Energy Package and today, the European Green Deal and the EU Climate Law), sustainability has not been a key tangible objective of the TEN-E framework. Historic priorities of the regulation and difficulties to assess gas projects' benefits towards CO₂ mitigation (focus only on the switch from coal to gas in cost benefit analyses) did not allow for a proper evaluation of sustainability benefits.² Non-governmental organizations (NGOs) claim that the number of gas projects in the PCI lists is too large, and criticize the lower numbers in the last two PCI lists for being delusory: instead of being abandoned, projects would have been clustered together, resulting in 55 gas projects in the fourth PCI list as opposed to 32 according to the European Commission (EC).³

THE NEW CLIMATE AMBITION REQUIRED A BOLD REVISION OF THE TEN-E

Over the past years, pressures to review the TEN-E regulation have been escalating from all sides. They have led the Von der Leyen Commission to initiate a revision process right from the start of its mandate.

1. Trinomics, *Evaluation of the TEN-E Regulation and Assessing the Impacts of Alternative Policy Scenarios*, February 2018, available at: <https://trinomics.eu>.

2. European Commission, Impact Assessment accompanying the proposal for the revision of TEN-E, December 2020, p. 115.

3. Friends of the Earth Europe, "Commission Support for 55 New Gas Projects Condemned", *Press release*, October 18, 2019, available at: <https://friendsoftheearth.eu>; Food and Water Europe, "4th Project of Common Interest List, Gas: Not Europe's Common Interest, A Joint Policy Brief by Friends of the Earth Europe and Food and Water Europe", January 2020, available at: www.foodandwatereurope.org.

A paradigm shift for EU energy infrastructure policy

Indeed, a number of stakeholders have been calling for a recast of the TEN-E since the mid-2010s. For instance, the Greens supported by NGOs have been campaigning against oil and gas PCIs since the third PCI list. They instrumentalized the fourth PCI list, which was almost rejected in February 2019, to raise awareness in the European Parliament (EP) and bring the TEN-E revision forward on the political agenda. Industry leaders and regulators have also been advocating for a revision of the regulation. In particular, the electricity industry calls for more focus on electricity projects. Similarly, Distribution System Operators (DSO) associations request a more meaningful inclusion of smaller-scale and decentralized smart grid projects, and wish to be further included in the governance system of the TEN-E. The gas industry also insists new rules are needed to accommodate low carbon gases such as hydrogen and biomethane. Finally, the European Agency for the Cooperation of Energy Regulators (ACER) and regulators argue that the PCI selection process is imperfect and could be better governed. They have been asking for a reduction of its discretionary component and for the strengthening of their role, with the inclusion, for instance, of a “second regulatory filter” in the PCI selection process.

In parallel, the Green Deal and its climate neutrality objective by 2050 have signaled a paradigm shift for EU energy infrastructure policy and made the revision of the TEN-E unavoidable. The net-zero emission goal by mid-century requires the development of energy infrastructures supporting a zero-emission energy system, in line with the taxonomy, through (1) incorporating decarbonization targets in infrastructure categories and project criteria and (2) directing investments towards infrastructure technologies that will allow the integration of renewable energy sources.

In light of these numerous pressures, Commissioner Kadri Simson presented a proposal in December 2020. The revision of the TEN-E Regulation is the first legislative text of the Green Deal and marks a crucial step in its implementation.

A FAIRLY AMBITIOUS PROPOSAL, BUT IMPORTANT ISSUES ARE YET TO BE ADDRESSED

With the TEN-E revision proposal, the EC has put forward an ambitious text that “sets out a forward-looking framework fit for decarbonized Europe in 2050”.⁴ It provides new guidance for the selection of PCIs: oil and natural gas categories are excluded, a mandatory sustainability criterion is added, and project promoters will have to demonstrate how their projects meet the *Do No Harm Principle*. A deeper focus is provided on electricity PCIs through new categories, such as smart electricity projects and wind offshore hybrid projects – that provide simultaneous point-to-point interconnection and connection of offshore facility to the continent. The *Energy Efficiency First Principle* is reinforced in the proposed regulation, prioritizing non-infrastructure related solutions to address identified

4. Remarks by Commissioner Simson on the Commission's proposal for a revised TEN-E Regulation at the European Parliament's ITRE Committee meeting, December 15, 2020.

gaps and further integrating electricity and gas networks planning. To this end, the governance of the Ten-Year Network Development Plans (TYNDP) is adjusted with increased oversight from the EC and ACER on the European Network of Transmission System Operators (ENTSOs). In particular, ACER will provide framework guidelines to guide ENTSOs in conducting infrastructure demand scenarios, and will approve ENTSOs' Cost Benefit Analysis (CBAs) to ensure a better assessment of projects' benefits. At the same time, provisions have been added to accelerate the development of PCIs in line with the pressing needs of the energy transition. This includes, for instance, the further shortening of permission procedures and simplification of administrative measures for projects that facilitate the decarbonization of the energy sector.

The EC uses the TEN-E to support its strategic vision for the EU energy transition. Newly added infrastructure categories and corridors echo the energy strategies recently adopted by the EC. First, the new Offshore Grid corridor supports the “Boosting Offshore Renewable Energy for a Climate Neutral Europe” communication. In particular, the creation of one stop shops per offshore wind basin signals the EC's commitment to advancing offshore wind energy in the EU energy mix. Second, the Hydrogen and Electrolysers corridors also echo the EC's ambition to intensify green hydrogen production and its integration in backbone infrastructures. Thirdly, the Smart Gas Grid category and the opening up of CEF eligibility to low-carbon and green gases confirms the EC's intention to use certain types of gases as transition fuels. Lastly, the proposal also aims to support the external dimension of the Green Deal. It introduces new provisions for Projects of Mutual Common Interest (PMI) between MS and third countries (such as the United Kingdom), provided that they contribute to reducing greenhouse gas (GHG) emissions in the EU and in neighbouring countries.

Overall, the EC's proposal is fairly ambitious. It attempts to anticipate the EU's future energy infrastructure needs and promotes the use of energy carriers that are not yet available, such as hydrogen. Natural gas is excluded but several questions remain. Which type of renewable and low carbon gases will be included in the Hydrogen, Smart Gas Grid and Electrolysers categories, and what level of hydrogen-natural gas and biomethane-natural gas blending will be promoted – decision is pending. Compatibility with the Green Deal's objective cannot be fully assessed at this stage. It will depend both on the TEN-E interinstitutional negotiations and on the Union Taxonomy second delegated act, which, as made clear in the EC's proposal, will determine which types of gases are considered transitional.

To sum up, the EC's proposal tries to reconcile the two visions for the EU energy transition, one that is largely relying on electrification, and one that also incorporates a larger share of gas molecules. However, this has resulted in several ambiguities that have to be resolved during interinstitutional dialogues – the main issue now being the depth of the revision process.

THE TEN-E REVISION: A BATTLE TO SHAPE THE TRAJECTORY OF EUROPE'S CLIMATE NEUTRAL ENERGY SYSTEM

The TEN-E revision process embodies broader general controversies around the European model of energy transition. The role of gas in the energy transition overshadows discussions that focus on infrastructure categories and the PCI selection governance system. Negotiations are also affected by the debate on the extent to which Europe's approach to the energy transition should be integrated.

The TEN-E & the role of gas in the European energy transition

There is a general consensus at the EU level that hydrogen and green gases will be needed on a large scale to achieve decarbonization targets. Current discussions revolve around the level of CO₂ emissions for these gases and are directly linked to the debates on the EU Taxonomy.

MS from Central Europe, notably those that have coal and gas in their energy mix, and the gas industry, oppose the complete exclusion of natural gas. They stress that it is needed to facilitate the coal phase out and renewables' ramp up in a transitional phase and that it can be decarbonized. They argue that: (1) in the short run, the existing infrastructure is relevant, notably for inter-seasonal storage, or hydrogen and biomethane supply systems; and (2) in the longer run, some of the current flexible gas fired power plants could be abated with carbon capture storage (CCS) or used to burn ammonia for example and thus ensure the security of electricity supplies.⁵

Other voices worry that newly added gas infrastructure categories (Smart gas grid, Hydrogen and Electrolysers) will allow the gas industry to "smuggle in fossil gas by making it seem clean",⁶ by "blending small amounts of hydrogen into existing gas pipelines in the short term and repurposing them for hydrogen in the long term".⁷ They also call for a deeper reform of the TEN-E governance arguing that ENTSOs have an interest in overestimating infrastructure demand scenarios and promoting security of supply benefits in CBAs.

Natural gas seems to be out of the picture for the future of EU infrastructure, but a grandfathering clause could allow several projects to remain eligible to the PCI status. With the TEN-E revision, gas industry players are seeking to keep the possibility of investing into gas pipelines and to ensure that both hydrogen and low carbon gases will be eligible under the CEF budget. The industry also advocates for turning a part of the EU gas

5. Eurogas, "Policy Priorities", available at: <https://eurogas.org>.

6. M. Douo and F. Kieninger, "On the Inside: How the Gas Lobby Infiltrates EU Decision Making on Energy", Fossil Free Politics, July 2020, available at: www.fossilfreepolitics.org.

7. Corporate Europe Observatory, Food and Water Action Europe and Re:common, "The Hydrogen Hype: Gas Industry Fairy Tale or Climate Horror Story?", December 2020, available at: <https://corporateeurope.org>.

infrastructure network into a future ‘Hydrogen Backbone’, with the repurposing of existing pipes and the need to ensure that regulation allows for these investments.⁸

The EC claims that its proposal does not open a backdoor to fossil gas. It assures that the smart gas grid category will only aim to upgrade networks to integrate renewable and low carbon gases; that the hydrogen infrastructure will primarily focus on renewable hydrogen; that new and repurposed gas pipelines will only be designed for the transportation of hydrogen; and that electrolyzers will be eligible for PCI status provided that they only produce low carbon hydrogen and that the promoters can prove that their project achieves at least a 70% reduction in CO₂ emission compared to fossil fuels on a life cycle assessment basis. Finally, the electrolyzer projects are not eligible for CEF funding in the EC’s proposal.

The battle for influence is now engaged: which type of hydrogen –or indeed color– will be considered suitable for the transition: grey, green, blue, turquoise, pink? This will be tackled by the Taxonomy second delegated act. What level of methane-low carbon gases blending will be considered transitional? Interinstitutional discussions are likely to adjust the EC’s proposal. Recent plenary vote on the EP’s report on a European Strategy for Hydrogen indicates that the EP backs blue hydrogen (made from fossil gas with carbon capture and storage) as a bridge towards a fully decarbonized hydrogen production.⁹ It is very unlikely that natural gas will be directly included in the revised TEN-E regulation, but several doors are still open. In addition, revision of the sustainability mandatory criterion could lead to including natural gas if combined with carbon capture and storage.

The battle for influence is now engaged

On the one hand, nine MS have recently intensified their efforts to ensure that natural gas can be considered a sustainable investment in the Taxonomy (Poland, Bulgaria, Czech Republic, Croatia, Hungary, Cyprus, Malta, Greece, and Romania). Under the TEN-E regulatory framework, they are also trying to safeguard the role of natural gas by ensuring (1) a grandfather clause until the first list under the revised TEN-E, and (2) a transitional period for retrofitting gas projects and allowing the transport blends of hydrogen/bio-methane and natural gas in the first step and renewable and green hydrogen in a second step.

On the other hand, eleven MS have recently issued a non-position paper calling to ban fossil fuels from the TEN-E (Austria, Belgium, Germany, Denmark, Estonia, Ireland, Luxembourg, Latvia, the Netherlands, Spain, and Sweden) and labelled the TEN-E revision a “litmus test” of EU’s commitment to climate neutrality. France has not signed the letter and its stance remains ambiguous: it does not position itself on the issue of gas in the TEN-E file, but it will certainly seek to help the Portuguese presidency to find a workable compromise.

8. Gas for Climate, “European Hydrogen Backbone”, available at: <https://gasforclimate2050.eu>.

9. European Parliament, Report on a European Strategy for Hydrogen, 2020/2242(INI), April 2020, available at: www.europarl.europa.eu.

Within the EP, the Rapporteur's report has led to heated debates: right-wing political groups also want to strengthen the financing guarantees for uncompleted and already approved gas PCIs, while the Greens are strongly opposed to this idea.

TEN-E revision process: A tool to support an integrated approach to the EU energy transition?

By leading the way towards carbon neutrality, the EC is also promoting an integrated approach to the EU energy transition and is gradually reinforcing its competences.

First, the EC promotes specific technologies by focusing on the development of offshore wind energy and hydrogen. In this regard, several stakeholders argue that the EC is trying to circumvent its lack of power over national energy mixes and is eroding the long-standing principle of technological neutrality. It adopts a top-down approach to the development of offshore wind energy by requiring the implementation of objectives per sea basin for 2030, 2040 and 2050 and by approaching offshore development through network building. It also delineates its approach to developing a European hydrogen market. NGOs have pointed out that the EC's narrative has recently shifted from a *cluster approach* as emphasized in its Hydrogen and System Integration Strategies, to a *backbone approach* in the TEN-E proposal. Adopting a backbone approach raises several questions. On the one hand, stakeholders point out to the uncertainties of building a European-wide hydrogen infrastructure network for a product that has not reached maturity yet and without being able to assess future demand and costs. On the other hand, a cluster approach favors the development of local networks with a deployment centered around current industrial hydrogen clusters but limits the integration of the hydrogen market at the EU level. Willingness to directly create an internal market for hydrogen may also explain the EC's change of heart and shows that integration dynamics are at the core of the EC's action.

The EC is also promoting an integrated approach

Second, the EC ensures that the PCI selection process maintains a political dimension. While several stakeholders call for a project-based technical approach to PCI lists in order to avoid a deterministic vision of the energy transition, the EC wishes to maintain a holistic approach to TEN-E infrastructure planning and is therefore reluctant to promote a process strictly based on technical assessments. This allows to promote a long-term strategic approach to infrastructure development in the EU, and to provide investors with a sense of clarity and stability. However, the EC will need to be coherent and to ensure transparency in this approach.

Third, the EC is progressively reviewing the role of each player in EU energy infrastructure policy. The EC is given increased oversight authority and ACER's role is strengthened in the TEN-E governance system. Although the extent of these changes does not fully reflect the dissatisfaction stakeholders shared about the role of ENTSOs in the TYNDP construction and PCI selection processes, the EC may be gradually encroaching on the competences of ENTSOs. This has initiated conflict between ACER and ENTSOs. While

ACER seeks to address TYNDP shortcomings, ENTSOG regrets the fact that ACER is using its opinion on the 2020 TYNDPs to promote a redefinition of institutional roles and governance that plays in its favor. Today, the EC and ACER lack the expertise and capability to take over TYNDP, CBA and CBCA processes. Yet, TSOs suspect that it is only a matter of time and that it will depend on the means that ACER will have in the future. Within the Council, the Portuguese presidency proposes that MS are given a say on TYNDPs and CBAs, arguing that it could help limit the controversial weight of ENTSOG.

CONCLUSIONS AND RECOMMENDATIONS

The TEN-E debates extend beyond the Brussels bubble. They reflect a broader discussion on Europe's transition to climate neutrality: can there be an integrated approach to reaching decarbonization objectives? MS from Central Europe advocate for a partial switch from coal to natural gas first; more advanced MS point to the urgency of the climate situation and the necessity to move beyond fossil fuels entirely. This split embodies a broader European divide and should be included in the reflections on differentiated integration. What is certain is that there is no one size fits all solution, and that regional approaches will be required.

- To overcome Europe's divide on the role of gases, the TEN-E should opt for a case-by-case approach and require that all gas-related PCIs be approved by the new European Scientific Advisory on Climate Change, which would take into account how the project enables to accelerate decarbonization in the short run at reasonable cost and is ultimately compatible with the climate neutrality objective by 2050. The body would consider preparatory work by ENTSOs and need resources for that purpose. This could also be applied in the framework of the Taxonomy.

The TEN-E Regulation does not sufficiently reflect the role of decentralized energy production by primarily targeting large-scale projects. However, the principle of subsidiarity prevents the EU from intervening in energy infrastructure planning at the national level. In addition, the administration and financing of smaller scale projects presents practical challenges. In particular, CO₂ infrastructure and storage projects are likely to be localized and not developed as an EU network. As a result, the TEN-E will continue to mostly include large scale projects.

- While the TEN-E proposal ensures that national competent authorities adapt their requirement for the permit granting process to gas and electricity smart grids projects and electrolyzers, additional planning instruments (for e.g., National Energy and Climate Plans) and financial tools (for e.g., the Just Transition Fund and Next Generation EU) should help MS to develop these indispensable smaller-scale projects at the national level.

Co-legislators should avoid making the TEN-E Regulation an omnibus legislation. The IEA recently underlined the essential role of electricity networks in achieving energy and climate objectives.¹⁰ Debates on gas infrastructures should not prevent discussions related to what the TEN-E revision primarily aims to achieve, namely refocusing infrastructure planning to accelerate the decarbonization of the electricity sector and meet the new 2030 climate goals. The TEN-E discussions should fully take into account that the EU electricity system will be put under severe strain by the phase out of nuclear and coal in several MS, and by the increased occurrence of extreme weather events –which, coupled with a too slow ramp up of renewable energy sources, and higher electricity demand, creates unprecedented challenges for the electricity system.

- Co-legislators must focus on accelerating the integration of RES on EU grids, of which the total capacity must reach 800 GW by 2030 to meet the EU's 2030 targets.¹¹ This includes taking up the challenge of acceptability, financing the power infrastructure investment gap (59.2 billion EUR per year between 2021 and 2030 according to the EC)¹² and minimizing the costs for the consumer through ensuring the appropriate use of cost-sharing tools and regulatory incentives.

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