

Presentation of the 2035 cycle

Educational note

Description: This note summarizes the main points presented during the presentation of findings from the 2035 cycle of the “H₂, CO₂ and CH₄ Consultations: Future Perspectives” organized by NaTran and Teréga.

As energy transmission infrastructure operators, NaTran and Teréga—the two gas transmission system operators in mainland France—bear a central responsibility for planning the development of gas infrastructure.

To this end, since April 2025, the two transmission operators have been conducting a forward-looking consultation process on infrastructure needs for methane, hydrogen and CO₂.

This approach is based on:

- a scenario-based approach that makes explicit the uncertainties affecting transmission networks;
- a broad and open consultation involving network operators, industrial players, public stakeholders, professional associations and academic actors;
- the objective of informing public policies and their resilience with regard to infrastructure, in a context of technological, industrial and regulatory uncertainty.

This work aims to support reflection on the evolution of the energy system by shedding light on possible futures. It complements the various studies carried out in this field by other stakeholders, including ADEME, RTE and France Gaz.

On 2 July 2026, NaTran and Teréga organized a presentation of findings, bringing together stakeholders from the CH₄, H₂ and CO₂ sectors, with an introduction by the DGEC.

This event marks the launch of a new consultation cycle dedicated to the 2050 horizon, offering stakeholders the opportunity to continue co-constructing structuring assumptions for the development of CH₄, H₂ and CO₂ transmission infrastructure in France.

1 Scenarios for the 2035 horizon confirmed and adjusted thanks to stakeholder contributions.

In order to anticipate future needs for energy transmission infrastructure, NaTran and Teréga carried out, throughout 2025, in-depth scenario-building work on production and consumption levels for methane (CH₄), hydrogen (H₂) and carbon dioxide (CO₂) capture, storage and utilization by 2035, as well as the associated infrastructure needs.

As part of the “Future Perspectives” Consultations, these scenarios were discussed, enriched and consolidated through the numerous contributions received from stakeholders in the relevant markets.

Stakeholder contributions confirmed the robustness of the scenarios initially proposed. They also made it possible to test additional sensitivity cases that broaden the range of scenarios, particularly according to the preferred decarbonization pathways or activity levels linked to the pace of reindustrialization.

2 The methane system (CH₄): a gradual reduction in natural gas consumption and the ramp-up of biomethane production, with infrastructure resilience confirmed against these trends and the various contingencies considered

CH₄ consumption was broken down into several variants framing the scenarios developed by public authorities. The adopted scenario range is intended to take into account different speeds of implementation of decarbonization policies and to shed light on their impacts on the energy mix.

The various scenarios anticipate a decrease in CH₄ consumption ranging from 5% to 25%, depending on the scenario, by 2035 (total fossil and renewable methane consumption between 270 and 350 TWh GCV/year). This evolution is accompanied by the development of the national bioCH₄ production sector, which could reach 108 TWh GCV in 2035 in the scenario of accelerated decarbonization efforts.

Our simulations of the various contingencies at French and European scale lead to the conclusion that French gas infrastructure can ensure supply-demand adequacy for all scenarios studied by 2035, as it has done in the past. These NaTran analyses will be supplemented by the European exercises led by ENTSOG, scheduled for Q4 2026.

3 Benefits associated with the development of a hydrogen (H₂) transmission network

The H₂ consumption scenarios were revised in line with participant feedback and show a range between 0.7 and 1.1 Mt/year by 2035, consistent with PPE3.

In line with previous studies, including those conducted jointly with RTE, which demonstrated the value of hydrogen transmission networks, NaTran's modelling highlights significant benefits—around €2 billion per year—associated with the development of a meshed and interconnected French network, as opposed to a system relying solely on isolated regional hubs. It also points to enhanced use of renewable and nuclear generation, as well as additional flexibility for other European countries, compared with a system based on regional hubs. The simulations also show a significant reduction in nuclear modulation, which should help limit accelerated wear on certain nuclear power plant equipment.

Supported by these results, NaTran and Teréga present a hydrogen master plan consolidated through the consultations, as well as a proposed variant in the event of delayed sector development, which nevertheless confirms the relevance of nearly 4,000 km of infrastructure by 2035.

4 CO₂, an emerging sector generating strong interest

NaTran and Teréga are contributing to the national decarbonization pathway by developing CO₂ transmission infrastructure that will enable the development of CCS and CCU value chains. Various initiatives—connection studies, calls for expressions of interest, and others—feed into the sizing of the CO₂ master plan over the short and medium term, with infrastructure tailored to CO₂ outlet and utilization needs. The identified and projected needs imply the development of infrastructure that could reach nearly 1,800 km around 2035–2037.

For example, in 2025 NaTran launched a call for expressions of interest (CEI) for connecting industrial sites to a CO₂ network in the North-East, Normandy and Île-de-France. This CEI received a strong response, with more than 200 respondents, confirming the proposed infrastructure route.

5 Opening of the forward-looking cycle to 2050

The 2 July presentation of findings also marks the opening of a second consultation cycle focusing on scenarios for the 2050 horizon.

As with the first cycle, this work will aim to explore a range of pathways, notably incorporating varied assumptions regarding the energy mix, industrial dynamics, security of supply and technological innovation.

The objective is to contribute to a more comprehensive understanding of the energy choices to be made, in a context marked by significant uncertainty.