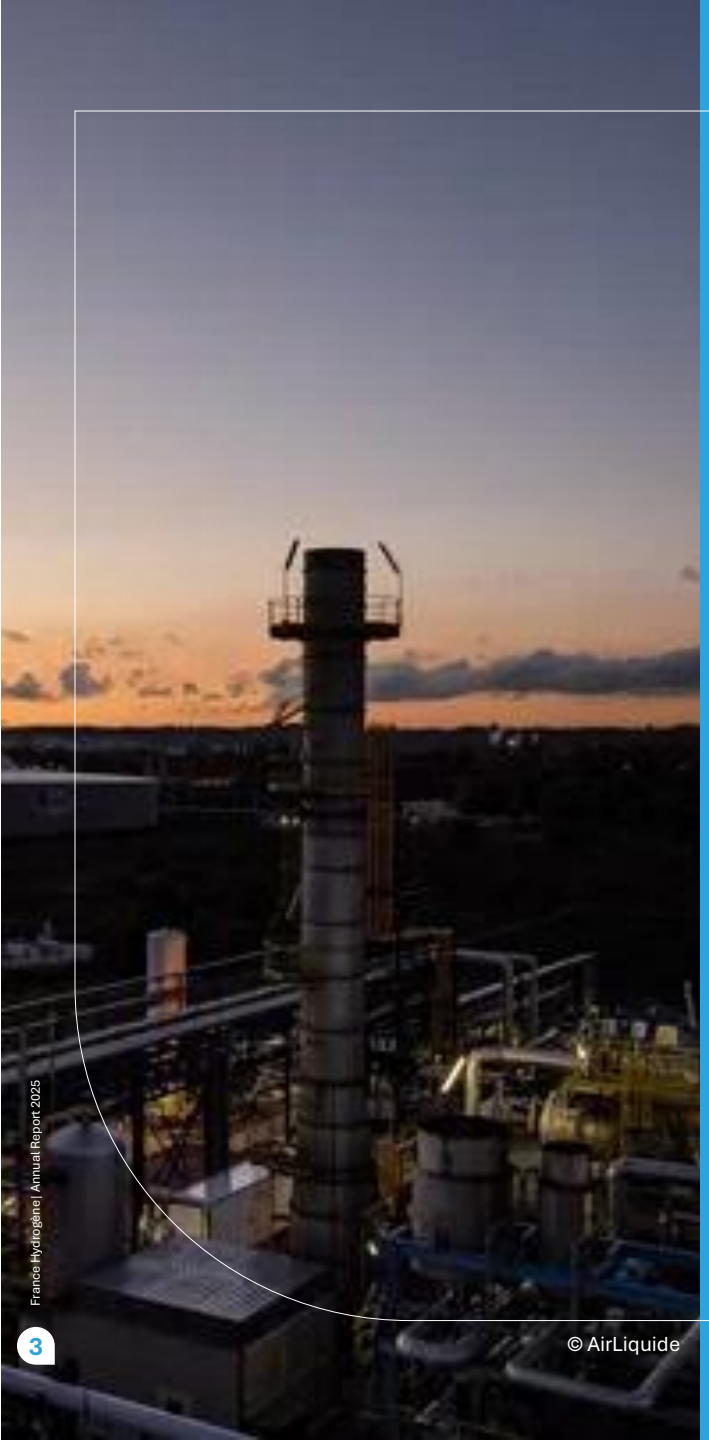
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Executive Summary

Five years after the National Hydrogen Strategy: where does the French hydrogen sector stand?

In 2020, France published an ambitious National Hydrogen Strategy (SNH) that encompassed both the development of a new industrial value chain from upstream to downstream and the roll-out of domestic low emission hydrogen production projects for mobility and industrial uses.

Five years later, France Hydrogène draws up in this report a factual inventory of the French sector taking into account the progress of public policies and funding, supply and demand, and outlines perspectives. The data is based on an analysis to date and projections up to 2035 – 2040.

SCOPE AND CONTENT OF THE REPORT

This report provides an inventory of the sector following the structure of the value chain (production, infrastructures, uses) based on data available at the end of 2025 and projections to 2035 - 2040.

It draws up an inventory of the funding announced and allocated[1] to date , establishes the dynamics of demand according to scenarios for the evolution of the regulatory framework, and details the projects for the production of low-carbon hydrogen and synthetic fuels, analyzing their state of progress, their territorial distribution, and their adequacy with sectoral needs.

It also includes an analysis of transport, storage, and import infrastructures, highlighting their key role in securing projects and their integration into the future European hydrogen market.

Finally, the report highlights the industrial assets of the French sector—manufacturing base, skills, research and innovation—and identifies the conditions for success to transform the current dynamics into a competitive sector that creates value, jobs, and sovereignty by 2030-2040.

[1] *Formal allocation of a budget envelope to a specific use, program, or beneficiary, without implying a legal commitment or an actual disbursement of funds.*

1. HYDROGEN, A STRATEGIC LEVER FOR DECARBONIZATION AND SOVEREIGNTY

The development of a renewable or low-carbon hydrogen sector meets a threefold objective of decarbonization and industrial and energy sovereignty.

- **Decarbonization of highly emitting industries** historically consuming hydrogen—refineries, ammonia production for fertilizers—or sectors whose carbon footprint reduction necessarily relies on the use of hydrogen (steel industry, aviation, maritime, land transport);

- **Energy sovereignty by reducing our dependencies on fossil imports**—gas for fertilizer production, coal for the steel industry, oil for fuels—**and the resilience of our low-carbon electricity grid**;

- **Industrial sovereignty through the structuring of a technological manufacturing base** backed by R&D activities, the retention and **reshoring of strategic sectors, and the development of new sectors** creating value and qualified jobs.

2. FRANCE REMAINS IN THE INTERNATIONAL COMPETITION IN TERMS OF INDUSTRIAL INVESTMENTS

To date, more than **110 billion euros (€bn) of investments have been made worldwide**, including €19bn in Europe (in third position behind China and the United States)[2], and 65 countries have published a hydrogen strategy[3].

France, with a little over €2.4bn of planned industrial investments, is in second position in Europe behind Germany (€2.6bn) and just ahead of Denmark (a little less than €2.4bn). However, the public policies essential to the development of demand are still materializing too slowly: France has a final investment decision (FID) rate for production projects of 4%.

From the technological learning phase—characterized by the deployment of projects with measured capacities and the development of new industrial ecosystems—to the transition to industrial scale, the momentum is underway. **The question is therefore no longer whether hydrogen will develop.** The question is which countries will have the technological and industrial expertise to turn it into a strategic lever for competitiveness, resilience and sovereignty.

By way of illustration, hydrogen is a key component of the Chinese "autonomy" strategy, given that the country consumes one-third of the world's fossil hydrogen. Three figures outline the Chinese hydrogen sector's dynamics: 30% of global low-emission hydrogen production capacities (1,100 ktH2/year), 30 GW/year of electrolysis manufacturing capacities, and 15,000 hydrogen heavy-duty vehicles on the road in 2024.

3. A SECTOR IN TRANSITION: FROM LEARNING TO INDUSTRIALIZATION FOR THE FIRST FIVE-YEAR PERIOD OF HYDROGEN

The 2020-2025 period ends with a return to realism and industrial maturation, in a context of political delays coupled with budgetary difficulties. Yet, a whole industrial ecosystem creating jobs and value in the territories has already been structured with the support of national and local elected officials.

Indeed, France has undeniable assets to be among the world leaders in low-carbon hydrogen:

Committed local elected officials
During 2025, French regions maintained and reaffirmed their support for the hydrogen sector. This commitment was notably reflected in the launch of revision work on regional hydrogen strategies and associated roadmaps in Auvergne-Rhône-Alpes, Brittany, Bourgogne-Franche-Comté, and PACA, and the adoption in March 2025 by the Grand Est Region of its updated strategy. This momentum extends to the non-interconnected zones (ZNI) of the French Overseas Territories, with the adoption of a regional strategy in Guadeloupe and the finalization of work to adopt a territorial strategy and associated action plan in Reunion Island.

A consolidating manufacturing base
To date, 25 equipment manufacturing plants (for the production of electrolyzers, distribution stations, tanks, fuel cells for mobility or stationary applications, etc.) are in operation in France. Designed to tap into international markets thanks to the support of the "Important Projects of Common European Interest" (IPCEI) mechanism, these activities could reduce the French trade balance deficit by up to 8% by 2035 according to the consulting firm BDO[4].

Dynamic research and development
R&D projects aiming to improve or develop new technologies have been largely supported by the Priority Research Equipment Program (PEPR H2) to the tune of €83 million. Furthermore, the year 2025 was also marked by the development of natural hydrogen exploitation projects and the granting of three Exclusive Research Permits (PER) to developers.

2. Hydrogen Council (2025) Global Hydrogen Compass 2025. https://compass.hydrogencouncil.com/
3. IEA (2025) Global Hydrogen Review 2025. https://www.iea.org/reports/global-hydrogen-review-2025
4. BDO (2024) Impact socio-économique de la filière hydrogène. https://www.france-hydrogene.org/bdo-et-france-hydrogene-publie-letude-impact-socio-economique-de-la-filiere-hydrogene/

A low-carbon electricity grid
France is the largest producer and exporter of low-carbon electricity in Europe, with an export balance of 92 TWh in 2025. Achieving the 8 GW of electrolysis planned by the revised National Hydrogen Strategy (SNH 2) in 2035 would require between 40 and 60 TWh, thus massively participating in the electrification effort.

Anticipated skills and training needs
To ensure the presence of the necessary skills and jobs for the sector, hydrogen was able to benefit from the "Skills and Professions of the Future" (AMI CMA) call for expressions of interest, whose projects will allow the training of 50,000 people. The training offer has also expanded in universities or schools as well as within companies .

Hydrogen production projects in their early stages
Between 2020 and 2025, electrolysis projects that entered into operation represent 50 MW in France. This corresponds to 8% of the European project portfolio (618 MW) in operation, which increased by 57% between 2024 and 2025. This capacity is going to dramatically increase. In 2026, 300 MW of electrolyser capacity should entered into operation, notably with a 200 MW electrolyzer, which will multiply the capacity by 6 and the size of the largest electrolyzer in operation in France by 10.
The absence of new final investment decisions (FID) taken for low-carbon hydrogen production projects in France in 2025 reflects less a halt in industrial dynamics than a change in the nature of the projects entering the decision phase.
The first wave of investment focused on small-scale installations (under 20 MW) and enabled manufacturers and developers to test technologies, establish supply chains and prepare for industrial-scale production. The upcoming phase corresponds to a second generation of highly capital-intensive industrial projects (~300 MW) that require in-depth technical-economic and environmental studies, complex financial arrangements associating public and private players, as well as a stabilized and clear regulatory framework.
Several signals foreshadow a new wave of investments over the coming years: the transposition of the Renewable Energy Directive - RED III (IRICC in France), the adoption of the Low-Carbon Delegated Act, the recognition of low-carbon electrolytic hydrogen in the European Hydrogen Bank, and the launch of the first tranche of the Support Mechanism for Hydrogen Production by Electrolysis (MSP).
The France Hydrogène database reports a portfolio of projects spread across all market segments representing an annual production of 1.1 MtH2 by 2035.
The current period thus corresponds to a transition phase. The scale and speed of the FID momentum by 2030 will depend on meeting three decisive conditions: the continuity of public support, the implementation of demand-structuring policies, and the coherent planning of infrastructures.

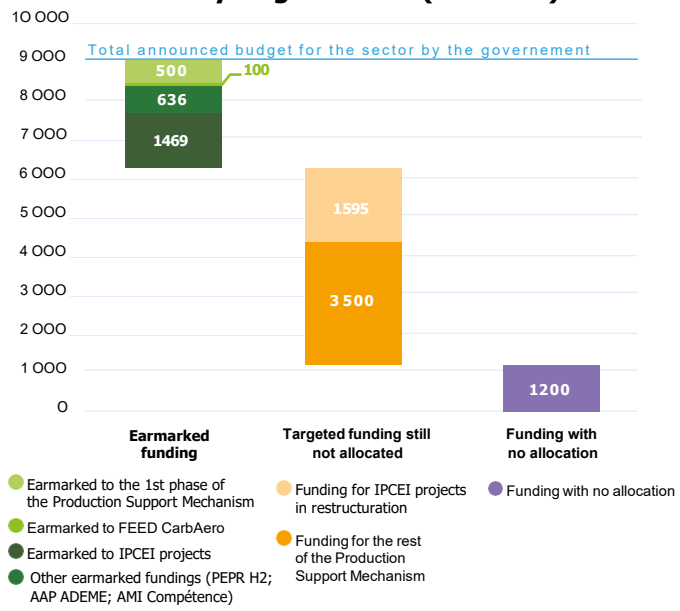
4. KEY CONDITIONS FOR SUCCESSFULLY SCALING UP TO AN INDUSTRIAL LEVEL

Funding: preventing a stall.

In 2020, the Government announced a €9bn envelope to achieve the SNH objectives. **Five years later, only 50% (€4.3bn) has been allocated** to various operators or ministries to finance calls for projects or mechanisms: Important Projects of Common European Interest (IPCEI) (€3.2bn); ADEME Call for Projects (€512m); MSP (€500m); FEED Carb Aero (€100m); Priority Research Program and Equipment H2 (PEPR H2) (€83m); "Skills and Professions of the Future" Call for Expressions of Interest (€41.5m).
Announced in 2020 with €4bn in funding, the MSP was supposed to be the most important support mechanism for the hydrogen sector. Five years later, only €500m has been secured and the first call for tenders was launched in December 2025. By way of comparison, the UK government managed to allocate £2 billion for the first tranche of their production support mechanism (entitled Hydrogen Allocation Round) and launch the second tranche between 2024 and 2025.

In April 2025, the long-awaited revised hydrogen strategy was finally published. It reaffirms the government's support for the development of a French hydrogen sector and sets out the priorities:
Maintaining and relocating strategic industries consuming hydrogen (steel industry, fertilizers, refining), notably through the support of the French Hydrogen Production Support Mechanism;

Overview of public funding for the hydrogen sector (€ million)



- The use of low-carbon hydrogen for heavy and intensive transport;
- Structuring a synthetic fuel production industry for the maritime and aviation sectors;
- Structuring a natural hydrogen industry;
- Positioning the French hydrogen ecosystem internationally, notably through the creation of an equipment export support mechanism endowed with a €100m envelope.

The funding of the export support mechanism as well as a scheme dedicated to the emergence of the natural hydrogen sector (€50m) could be ensured by a targeted reallocation of currently suspended funds, initially allocated to abandoned or struggling projects, representing up to €1.6bn.

Finally, it should be emphasised that this public funding is part of an investment strategy, with **an estimated economic multiplier effect of nearly €4 in returns for the State for every euro invested, according to the consulting firm BDO[5]**, and expected benefits in terms of industrial sovereignty, economic competitiveness and the decarbonisation of the French economy.

Demand assessment for 2030-2035 reflects delays in deploying regulatory mechanisms.

Current technical and economic conditions and the absence of suitable carbon pricing generate a lack of competitiveness that hinders the natural development of the market.

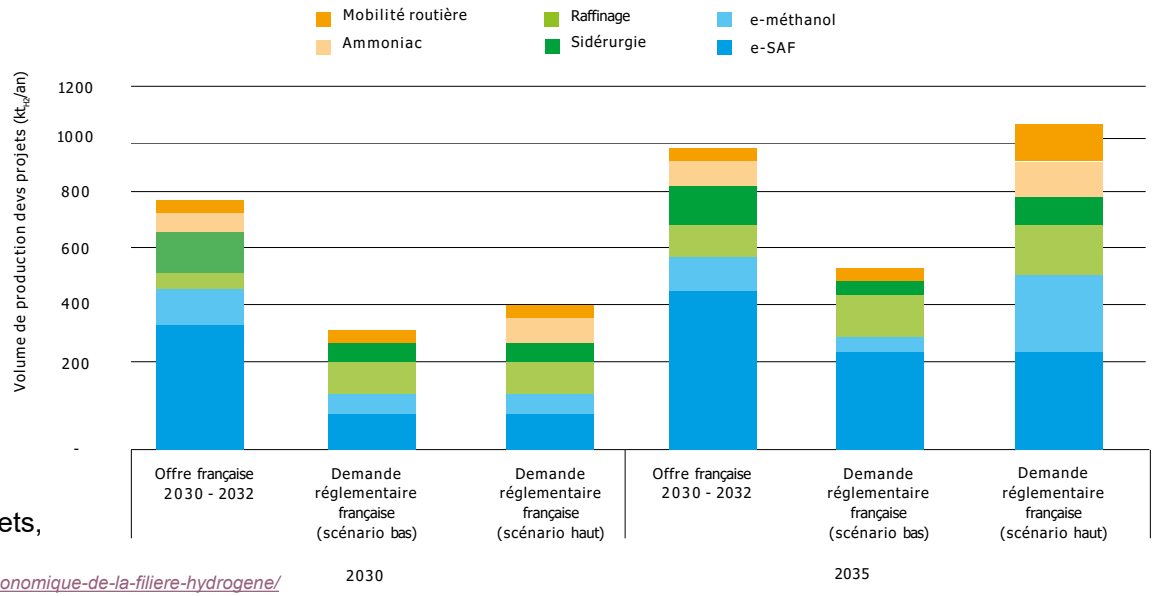
By 2030, the imbalance between hydrogen supply and demand is mainly explained by the delay in the deployment of demand support policies (see the graph opposite). This delay has led to the postponement to 2030-2032 of several structuring industrial projects, notably in the synthetic fuel and steel sectors. Furthermore, under current public policies, covered demand represents only 40% of the SNH 2 objectives for 2035. The rapid adoption of appropriately sized demand-creation tools is therefore a necessary condition for projects to materialize.

This requires the government and the European Union to establish a regulatory framework that provides incentives, giving industry clarity up to 2040, without relying on public funds (high-scenario):

- At national level, **ensuring the IRICC is appropriately scaled** (for refining, land transport, marine e-fuels) and establishing a contract for difference for e-SAF, self-financed through contributions from the aviation sector.
- At the European level: **the creation of industrial pilot markets for low-carbon steel and fertilizers based on targeted obligations to incorporate low-carbon products**. Three criteria govern the selection of these end markets, with a very limited price impact (≤1–2%), substantial induced hydrogen volumes, and a capacity to pass additional cost on to relevant stakeholders. Their implementation could create demand corresponding to 80% of the sector's needs by 2030.

Conversely, a poor calibration of French and European demand policies would not drain sufficient domestic demand to create a base of industrial projects aligned with the objectives set out in the NHS 2 (low scenario).

Comparaison offre-demande en hydrogène décarboné pour les principaux secteurs d'usages à 2030 et 2035



5. BDO (2024) *Impact socio-économique de la filière hydrogène.* https://www.france-hydrogene.org/publication/synthese-de-letude-bdo-impact-socio-economique-de-la-filiere-hydrogene/

Furthermore, **a significant portion of French projects is intended to meet growing European demand**, particularly in synthetic fuels and the steel industry. This export dimension, strategic for valorizing French industrial potential, is not integrated into the demand modeling exercise presented in this report, which is deliberately focused on domestic outlets. It nevertheless helps to explain the apparent discrepancy between projected production capacities and estimated demand in France by 2030.

Ultimately, demand policies are one of the keystones of public action to confirm the sector's scaling up and contribute to achieving our climate and industrial objectives.

Infrastructure planning: an opportunity to be seized.

Hydrogen infrastructure planning is a key condition for scaling up to an industrial level. It is decisive for triggering final investment decisions, controlling project costs, and securing the supply of industrial sites. Having transport, storage, and distribution capacities in advance reduces risks between producers and consumers and allows investments to be pooled. This planning must also make it possible to valorize the flexibility of electrolyzers and storage and limit the costs associated with modulating the low-carbon production fleet.

Finally, hydrogen infrastructures condition France's positioning on the European market. The development of corridors connecting production zones, ports, and major industrial hubs promotes the integration of the energy system and opens up export and import opportunities. In a complementary manner, the planning of distribution infrastructures that will serve manufacturers far from major corridors and main hubs will be crucial.

5. A MAJOR GEOPOLITICAL AND ECONOMIC CHALLENGE: A SURGE IS NECESSARY NOW

In 2035, the hydrogen ecosystem in France could represent more than 66,600 jobs and contribute €13bn to the country's Gross Domestic Product (GDP) according to the BDO-France Hydrogène study published in January 2025. The challenge for France is therefore to secure this success by engineering a rapid surge. Five years after the launch of the SNH, the French sector has reached a decisive milestone. The phase that is opening up is therefore no longer one of demonstration, but of scaling up to an industrial level. The decisions taken over the next two years will condition France's ability to transform its assets into sustainable leadership, within an increasingly tense geopolitical context.

The 2026–2027 period constitutes a critical decision window. Without continuity in public action, without sufficiently robust demand signals, and without coordinated infrastructure planning, the risk is that of falling behind industrially in favor of countries that have already initiated large-scale deployment. Conversely, coordinated work between the industry, France, and the European Union can ensure the transition to an industrial scale.
Several priorities stand out:

- **Secure the continuity and clarity of support**, in particular the MSP, and also by reallocating funds earmarked but not disbursed towards operational schemes (e.g., export support mechanism, natural hydrogen mechanism).
- **Structure demand through ambitious policies at the national and European levels**, by implementing targeted regulations such as green pilot markets capable of creating predictable outlets (notably via the Industrial Accelerator Act), temporarily compensating for the competitiveness differential of low-carbon products, and securing private investments.
- Strengthen and stabilize the regulatory framework to ensure competitive low-carbon hydrogen production, notably to **facilitate industy's access to competitive renewable and nuclear electricity** within the framework of long-term supply contracts or recognize the complementarity between low-carbon hydrogen production vectors.
- **Plan hydrogen and electricity infrastructures in advance** to reduce industrial risk, optimize production costs, strengthen the resilience of the energy system, and position France as a strategic hydrogen corridor within the European market.

Alongside direct electrification, the hydrogen sector revitalizes our territories with skilled jobs, secures the supply of strategic industries, and limits CO_2 emissions from our transport and our food systems. Ultimately, it reconciles sovereignty and decarbonization.