



## IPHE Country Update April 2023: FRANCE

|                            |  |
|----------------------------|--|
| <b>Name</b>                | Tudor FLOREA   |
| <b>Contact Information</b> | <a href="mailto:tudor.florea@developpement-durable.gouv.fr">tudor.florea@developpement-durable.gouv.fr</a> |
| <b>Covered Period</b>      | December 2022 – March 2023   |

### 1. New Initiatives, Programs, and Policies on Hydrogen and Fuel Cells

- **[Adoption of the renewable energy acceleration bill](#)**. The bill is elaborated to accelerate the renewable energies deployment. This goes through a faster permitting procedures, as well as a reorganization of national and local public services at local scale.
- **[Adoption of the nuclear acceleration bill in the National Assembly](#)**. The bill is elaborated to accelerate procedures for the construction of new nuclear reactors and the life extension of existing ones was adopted by the National Assembly on March 21<sup>st</sup>.
- **[The Economic Analysis Council's note on the reform of the European electricity market](#)**. On March 21, the Economic Analysis Council, a think tank attached to the French government, published a note on the reform of the European electricity market. In particular, the authors call for "a dynamic floor price for carbon that reflects its social cost, at least 150 €/t CO<sub>2</sub> today".
- **[The hydrogen component of the Franco-British summit](#)**. Following the bilateral summit held on March 10<sup>th</sup>, the French and British governments committed, in a joint declaration, to work together to "develop low-carbon hydrogen". In addition, a joint roadmap for the next two years is planned to set up "zero-emission shipping lanes" between French and British ports, as well as to work on the deployment of "zero-emission technologies and infrastructure". Similarly, in the aviation sector, the Jet Zero Council Sustainable Aviation Fuel Delivery Group in the UK and the Sustainable Aviation Fuels Working Group in France will "collaborate on a possible joint workshop on the opportunities to develop sustainable aviation fuel supply chains in France and the UK.
- **[The 2023 Finance Bill enacted](#)**. Inclusion of low-carbon hydrogen in the base of the incentive tax on the use of renewable energy in transport (TIRUERT) from January 1<sup>st</sup>, 2024, alongside renewable hydrogen, which has been included in the base since January 1<sup>st</sup>, 2023 (but which still requires the publication of an application decree). The use of decarbonized hydrogen, as it is or in the process of fuel manufacturing, provides an exemption to TIRUERT (renewable hydrogen counts double)..
- **[Announcement of an update of the national Hydrogen strategy](#)**. The Minister of Energy Transition, Agnès Pannier-Runacher, the Minister of Economy, Finance and Industrial and Digital Sovereignty, Bruno Le Maire, and the Minister Delegate in



## INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

charge of Industry, Roland Lescure, announced on December 7<sup>th</sup> that the French national decarbonized hydrogen strategy will be revised.

- [Call for tenders](#) open to designate the French decarbonized hydrogen GO and GT issuing body.

### 2. Hydrogen and Fuel Cell R&D Update

- [The 2023 aviation sector decarbonization plan](#). The French Minister of Transport announced on December 9 that €435 million would be allocated in 2023 to research on decarbonization of the aviation sector, to support innovation for emerging players, and to the deployment of sustainable aviation fuels. These funds are part of the France 2030 plan, whose aeronautical component - aiming to produce the first "green aircraft" by 2030 - has a total budget of €1.2 billion.

### 3. Demonstration, Deployments, and Workforce Developments Update

- [Deployment maps of buses, refuse collection vehicles and hydrogen trucks in France](#)
- [Publication of the study "Trajectory for a great hydrogen ambition in 2030 - part 2", by France Hydrogène](#). France Hydrogène published its study "Trajectory for a great hydrogen ambition in 2030", on December 7, 2022. This is an update of the "Trajectory 2030" study published in 2021, but this time based on an unprecedented collection of projects under development on the national territory, with a regional refinement. While the French national strategy (2020) was initially based on the deployment of 6.5 GW of electrolyzers, which should provide between 620 and 680 kt of decarbonized hydrogen by 2030, the France Hydrogène study shows a trajectory towards a production-consumption of 1070 kt of decarbonized hydrogen by this date. Industry would be by far the first market, with 815 kt. Two major conclusions within industry: current industrial uses are lower than initially expected, with respectively 50 kt and 20 kt of decarbonized hydrogen consumption for refineries and "conventional" ammonia. On the other hand, new industrial uses constitute the growth relay for the sector: 250 kt for the steel industry, relatively in line with previous forecasts, but especially 425 kt for the production of synthetic molecules. Of this last item, 205 kt of hydrogen would be allocated to the production of e-methanol, and 165 kt to the production of e-kerosene. 230 kt of hydrogen would be used in direct form for mobility uses.
- [Skills, professions and training in the hydrogen sector: launch of the DEF'Hy project](#). On the occasion of the HyVolution trade show held in Paris on February 1 and 2, France Hydrogène, AFPA, EIT Innoenergy, Pôle Emploi, RCO-Le Réseau des Carif-Oref and Adecco Digital France met to launch their joint project: DEF'Hy. This project consists in carrying out an in-depth diagnosis and analysis of the skills, professions and training in the Hydrogen sector.
- [One-year training courses to become a hydrogen technician are coming](#). Deliveries of "hydrogen" installations will multiply with job opportunities for specialized operating and maintenance technicians. Training today is a good decision. The AFPA's mission is to stimulate the movement. 1. Training as early as 2023 thanks to the AFPA's training incubator: in Douai and Dunkirk, the AFPA



## INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

has been chosen to set up a hydrogen training incubator. As of 2023, two classes of 12 students will take part in the experimentation of programs to prepare for the future titles of "Technician for the control and maintenance of hydrogen production and distribution installations" and "Technician for the repair of heavy multi-energy hydrogen vehicles". 2. To obtain a "hydrogen" professional title validated by the National Professional Certification Register (RNCP). After three years of experimentation, the final program and technical platform of the training courses will be presented to the RNCP commission for validation. In case of success in front of the commission, determined by the employability of the trainees, the title will become official and can be taught on the whole territory. 3. A guaranteed job that participates in the energy transition. The AFPA of Douai and Dunkirk are opening registrations for the "hydrogen unit piloting" and "hydrogen vehicle repair" programs, with start dates scheduled for December 2023. Other opportunities in hydrogen are open at the AFPA, for example in Mulhouse, Metz, Vénissieux or Albi.

- [Mike Horn is getting into hydrogen fuel cells near Grenoble](#). The adventurer has invested €10 million in Inocel, a start-up to develop hydrogen fuel cells with enormous potential. The famous explorer has just launched a start-up near Grenoble that is developing a revolutionary hydrogen fuel cell.
- [France Hydrogène and the PFA have conducted a study with the IRT System X to model the deployment of hydrogen refueling stations in France in 2026 and 2030](#). Different master plans are proposed to optimize the number, location and sizing of hydrogen stations for light and heavy duty vehicles. The modeling shows a short-term fleet of 50,000 light vehicles that will be supplied by more than 210 stations, while the fleet will reach more than 340,000 vehicles at nearly 750 stations by 2030. As for heavy goods vehicles, the fleet circulating in France will reach more than 11,000 vehicles in 2030 for nearly 170 stations.
- [Stellantis and Engie have joined forces to offer a complete hydrogen package, including vehicles and stations, for professionals](#). With three offers, for fleets of vehicles from 20 to 400 utilities. Stellantis and Engie have joined forces to deploy the renewable hydrogen sector by offering solutions for professionals, including electric vehicles equipped with a fuel cell that transforms hydrogen into electricity and a hydrogen distribution station, or even hydrogen production. Engie offers professional customers of the Peugeot and Citroën brands hydrogen refill stations adapted to the company's fleet. The partnership with Stellantis provides for the installation of the storage station and the supply of hydrogen at a "competitive" price, the two structures guarantee.
- [The Renault Master H2 Evo from GCK in detail](#). Presented for the first time at Hyvolution in Paris, the hydrogen kit dedicated to the Renault Master from GCK should start its industrialization in 2024. Specialist in retrofit, GCK continues to extend its hydrogen range. After a first offensive focused on buses, the Clermont-Ferrand-based group is completing its offer with a first fuel cell utility vehicle. Like Hyvia's hydrogen van, GCK's new vehicle is based on the Renault Master. GCK's Master H2 Evo uses a 40 kW Symbio combined with four tanks totaling 5 kg of hydrogen at 700 bar.



## INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

- [Chemours is to build a second plant in France](#). The site will make it possible to manufacture, by 2025, the electrolyzer membranes needed for the industrial production of carbon-free hydrogen. It should create 80 jobs. On Thursday 12 January, the American chemical company Chemours announced an investment of some \$200 million (around €185 million) in France for a second plant. "This is one of the most important investments Chemours has made since its creation," said the group's CEO, Mark Newman.

### 4. Events and Sollicitations

- 23 – 25 May 2023 [European days of the Energetic Transition](#), Palais des Congrès, Bordeaux
- 30 & 31 May 2023 [M2S - Mobility Solution Show](#), Toulouse
- 13 – 15 June 2023 [Hydrogen Territories Days](#), Pau

### 5. Investments: Government and Collaborative Hydrogen and Fuel Cell Funding

Open call for projects

- [demonstration and technology bricks](#)
- [territorial hydrogen ecosystems](#)
- [Launch of a new call for projects on decarbonization of industry](#). The new call for projects aims to reduce the consumption of fossil fuels in industry, with a budget of €125 million.
- [Opening of the 2023 call for projects of the Maritime Intervention Fund](#). The call for projects AAP of the Maritime Intervention Fund (FIM) has been renewed for 2023 with the same budget as for 2022, or 15 million euros.
- [Auvergne-Rhône-Alpes Region: call for expression of interest for the acquisition of light hydrogen vehicles](#). The Auvergne-Rhône-Alpes Region has launched a call for expressions of interest (AMI) from professionals for the acquisition of 400 light hydrogen vehicles. These vehicles must be either light commercial vehicles (vans) or sedans, which drive more than 15,000 km per year over a period of 4 years and refuel at hydrogen stations located in the region. It is thus specified that "each vehicle is attached to a Hydrogen distribution station guaranteeing a volume of refuelling consistent with the economic profitability objective of the operator of the said station; in this specific case the beneficiary will have to sign a refuelling contract with the company in charge of operating the station. In addition, applications for aid must be made prior to the acquisition of the vehicle.
- [Launch of a call for projects to develop the production of electric vehicles in France](#). The BPI has launched a new call for projects to support "investment projects to produce tomorrow's road vehicles and their components in France", in order to produce at least 2 million electric vehicles per year (BEV and FEV included) by 2030.



## INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

### 6. Regulations, Codes & Standards, and Safety Update

- [Decree n°2022-1761: significant reductions in aid for the acquisition or leasing of low-polluting vehicles](#). The decree modifying, as of January 1, 2023, the levels of aid for the acquisition or lease of low-polluting vehicles, was published on December 30. Revision concerning the ecological bonus aid for vehicles.