

10 MARCH 2022

FEEDBACK

**NATIONAL CONSULTATION OF LOW-CARBON  
AND RENEWABLE HYDROGEN  
MARKET STAKEHOLDERS**

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The event will begin shortly.  
Thank you for your patience.



# WELCOME TO THE FEEDBACK OF FINDINGS FROM THE CONSULTATION OF LOW-CARBON AND RENEWABLE H<sub>2</sub> MARKET STAKEHOLDERS

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To help the webinar run smoothly...



# CONTEXT AND CHALLENGES OF THE DEVELOPMENT OF H2 INFRASTRUCTURES IN FRANCE



# A FAVOURABLE CONTEXT FOR DISCUSSION OF THE DEVELOPMENT OF H<sub>2</sub> INFRASTRUCTURES

## What we learned from this first round

### NEW STRONG SIGNALS

- On the **French** national scale
- On the **European** scale
- **Interest from the market** in our consultation

### PROJECTED SUPPLY & DEMAND TO RECONCILE

- Uncertainties leading to **differences in vision between producers and consumers**

### DEVELOPING USES BETWEEN 2030 AND 2050

- **Uses** essentially **industrial** in the **medium term**
- **Air transport** as a long-term "game changer"

### TERRITORIAL DYNAMISM

- **Ten highly dynamic areas** and ecosystems identified

# LOGISTICS: A KEY POINT, CENTRAL TO ALL THE CHALLENGES

## What we learned from this first round

### CLEARLY EXPRESSED EXPECTATIONS

- Guaranteeing consumers have **secure access** to H<sub>2</sub> and a broader outlet for producers
- Access to **storage** for greater **flexibility**

### LOGISTICAL PLANNING

- An effective means to **facilitate the reconciliation of potential supply and demand**

### INTEREST IN CO<sub>2</sub> STORAGE AND CAPTURE

- **Requirements for a clear forward vision of logistics** just as important for CO<sub>2</sub> as for H<sub>2</sub>

# INSIGHTS OF THE CONSULTATION



# MARKET STAKEHOLDERS ARE VERY FOCUSED ON THE LOGISTICAL CHALLENGES OF H<sub>2</sub>!



**133 responses** to the questionnaire



**90 potential sites** identified for H<sub>2</sub> production and/or consumption

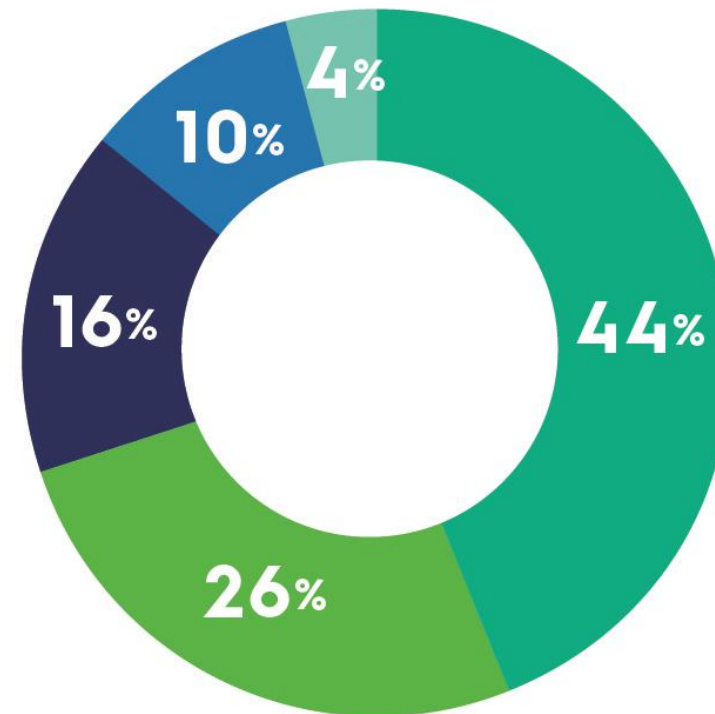


**70 two-way exchanges** sought by market stakeholders



**3 territorial workshops** organised with more than 130 participants

## TYPES OF CONTRIBUTOR TO THE H<sub>2</sub> CONSULTATION



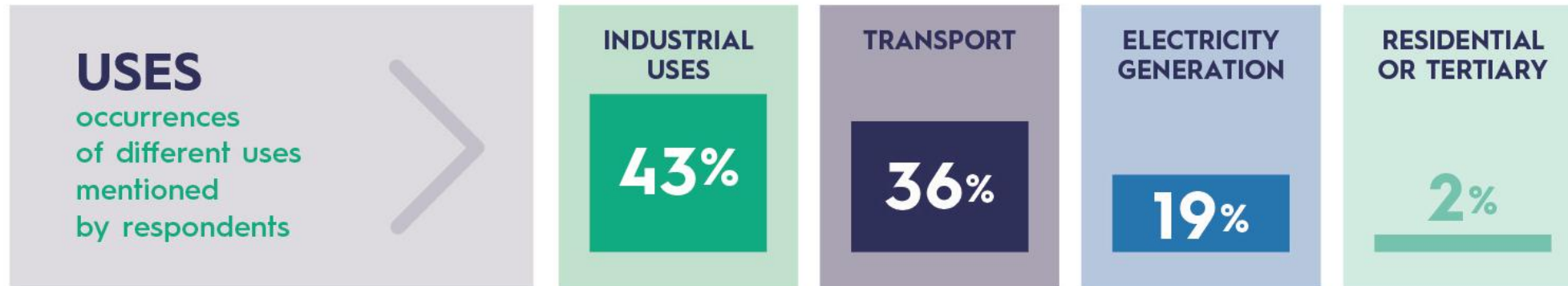
- Industry
- Energy shippers / suppliers / traders / producers / infrastructure operators
- Public / Institutional / Local authority stakeholders
- Engineering companies / consultancies / research organisations / suppliers of equipment or technological solutions
- Transporters: goods / passengers

# HYDROGEN IDENTIFIED AS A VECTOR FOR DECARBONISATION



## Low-carbon and renewable H<sub>2</sub>: central to the challenges

80% of industrial stakeholders include hydrogen in their decarbonisation strategy



## CCS/CCUS: another lever for decarbonisation

60% of industrial respondents also envisage CCUS solutions. More than 70% feel that a market consultation should be conducted to plan a possible dedicated infrastructure.



# CONFIRMED NEEDS AND A WILL TO DEVELOP THE MARKET IN STAGES



The consultation helped confirm where **needs** are located, and to identify **highly active ecosystems**



## The consensus view on a staged rollout:

- Very short term: **acclimatisation**
- Short term: **development of local ecosystems**
- Medium term: **hydrogen areas** linking local ecosystems via a regional pipeline-based transport grid
- Long term: **interconnected European pipeline-based transport grid**, incorporating storage infrastructures.

Imbalances between potential production and projected demand within the seven hydrogen production and consumption areas.

## IDENTIFICATION OF DYNAMIC ECOSYSTEMS



# SUPPLY THAT IS STILL DEVELOPING, PROJECTED OVER THE SHORT AND MEDIUM TERM...

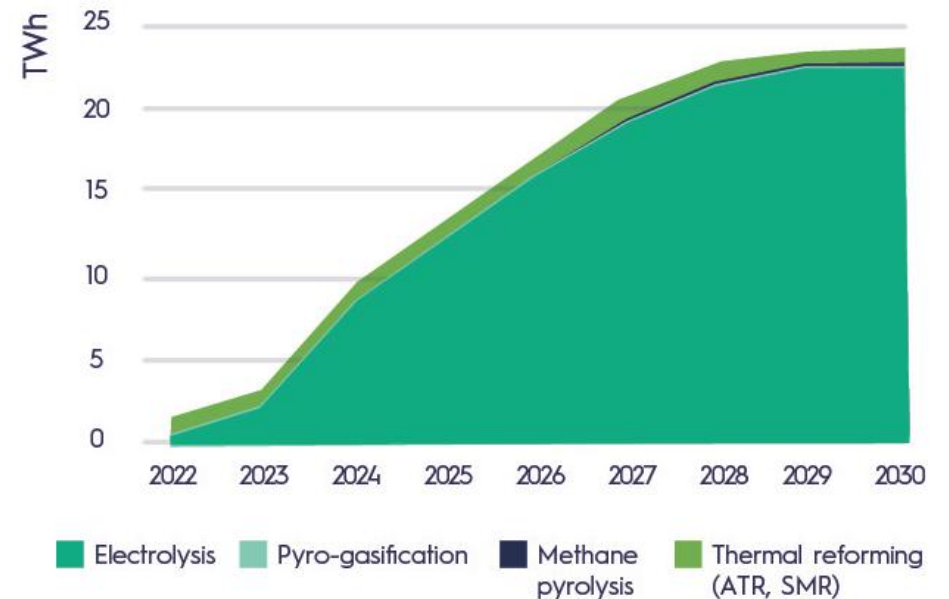
- In terms of volume, responses to the consultation **reveal an imbalance between supply and demand**

## H<sub>2</sub> SUPPLY

The volumes reflect projections for the period to 2030...

- Based on projects that are already identified and even in the development phase
- Beyond that, producers have no clear picture
- Production volumes fairly well distributed across the whole territory
- The majority in the form of electrolysis of water

## GROWTH IN FORECAST HYDROGEN PRODUCTION VOLUMES, BROKEN DOWN BY TECHNOLOGY



# AND REQUIREMENTS THAT ARE CLEARLY DEFINED, OVER THE LONG TERM, FOR MAJOR INDUSTRIAL STAKEHOLDERS

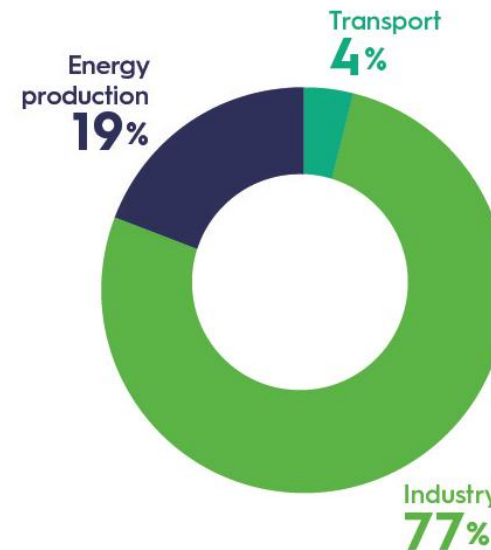
- In terms of volume, responses to the consultation **reveal an imbalance between supply and demand**

## H<sub>2</sub> DEMAND

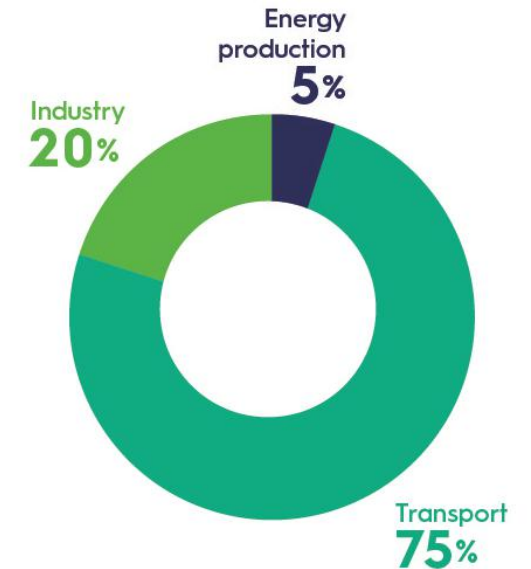
... whereas projections for demand tend to be longer-term

- That ties in with carbon neutrality target dates
- Demand is essentially driven by industry – for small stakeholders, the future picture is less clear
- In the long term, the air transport sector becomes a potential large consumer

**DISTRIBUTION BY USE OF HYDROGEN VOLUME REQUIREMENTS BY 2030, AS COMMUNICATED BY CONTRIBUTORS**



**DISTRIBUTION BY USE OF HYDROGEN VOLUME REQUIREMENTS BY 2050, AS COMMUNICATED BY CONTRIBUTORS**



# LOGISTICS: A KEY CONCERN FOR STAKEHOLDERS

## THE CONSULTATION HIGHLIGHTS...

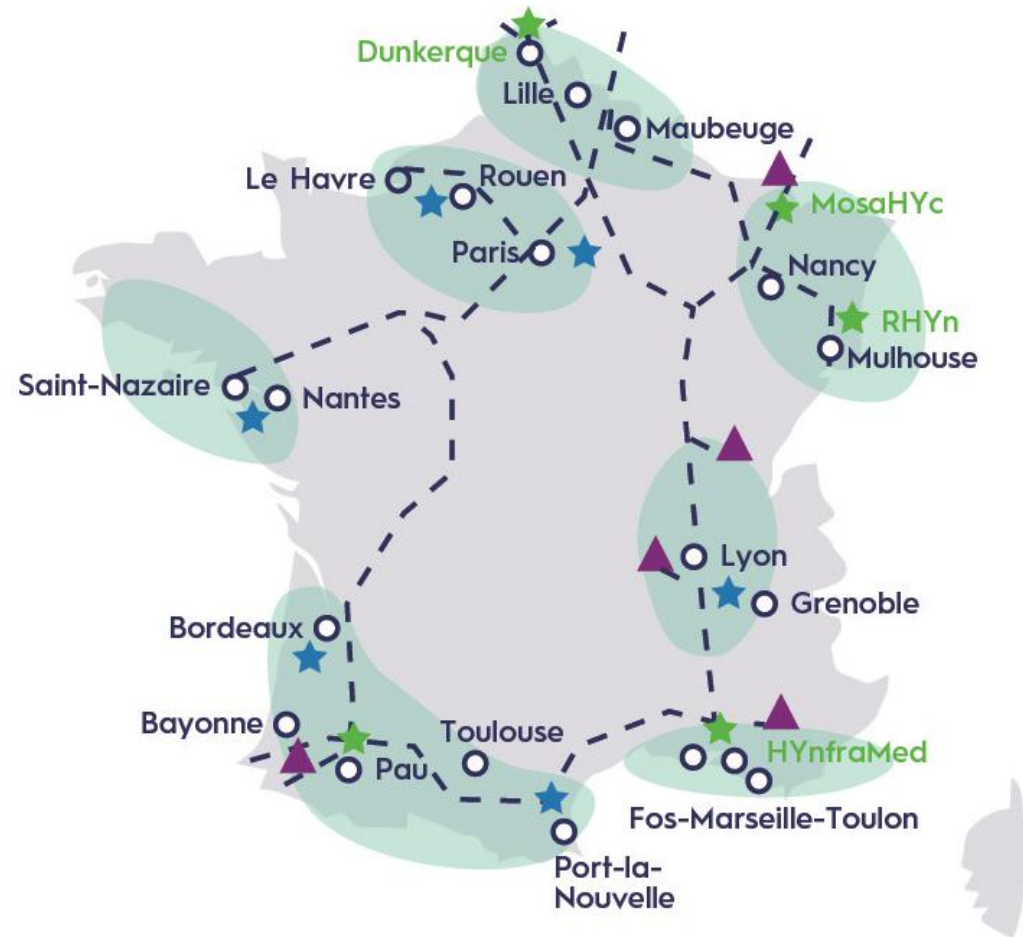
- Projected supply and demand out of sync in terms of timing or location
- Stakeholders expect access to diversified and secure supplies or expandable catchment areas
- Stakeholders want a clear forward view of infrastructure development so that this does not hold back development of the industry



## ... AND PROVIDES THE FOLLOWING INSIGHTS:

- **Very dynamic local** ecosystems
- **Infrastructures must be included** among the key elements to be considered when developing the market
  - **Enabling supply to meet demand** in an emerging market, through access to transport and storage
  - **Pooling of needs to optimise logistical costs**
- **The planning of infrastructures facilitates coordination and the emergence of projects, and speeds up development of the market**

# PRACTICAL DEVELOPMENTS IN ECOSYSTEMS



## GEOGRAPHICAL DEPLOYMENT OF H<sub>2</sub> AS AN ENERGY CARRIER

- H<sub>2</sub> production and consumption areas
- Potential exports
- Potential imports
- Potential H<sub>2</sub> storage
- H<sub>2</sub> pipelines
- Dynamic ecosystems
- Planned practical step

# PRACTICAL DEVELOPMENTS IN ECOSYSTEMS



## DUNKIRK

Dynamic ecosystem and opportunities linked to the decarbonisation of industry

## MosaHYc

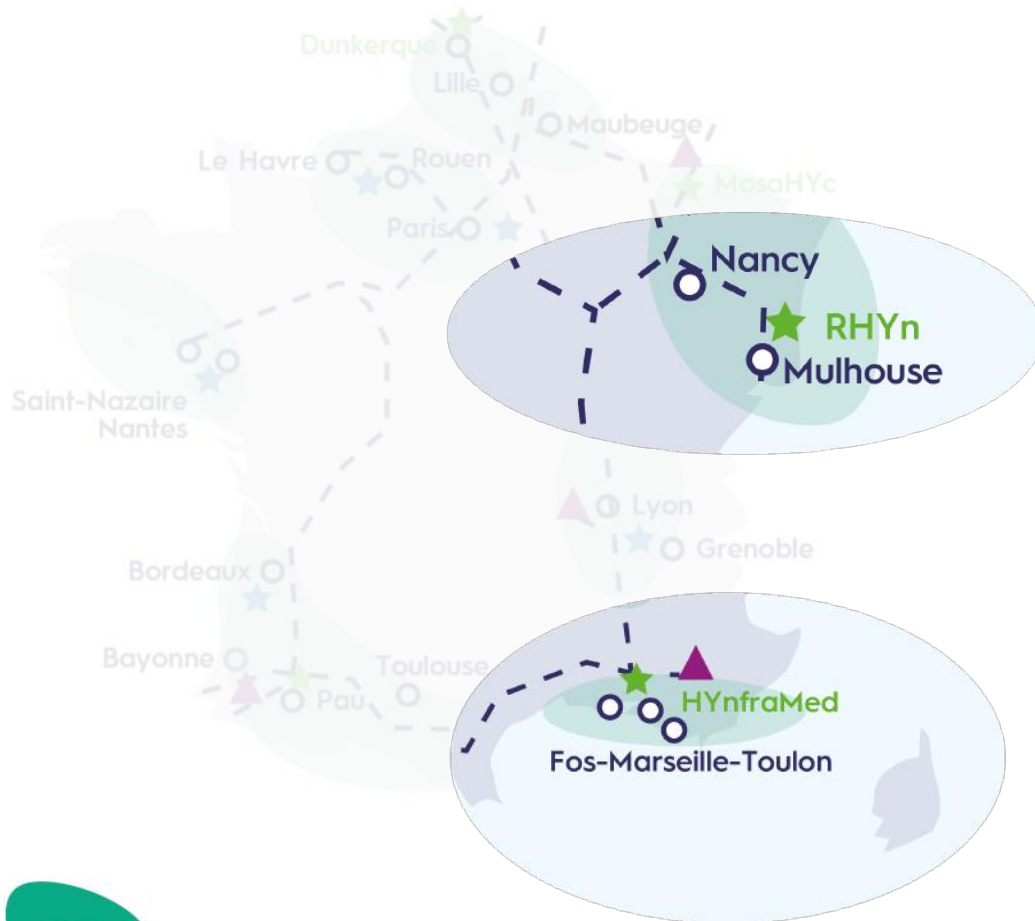
- Speeding up the development of a cross-border H<sub>2</sub> hub between Völklingen, Perl (Sarrelouis), Bouzonville and Carling (Moselle)
- Conversion of two existing pipelines to 100% H<sub>2</sub> transport.



Feasibility study under way for a grid of 100 km – 60,000 tonnes/yr – Go-live date 2026



# PRACTICAL DEVELOPMENTS IN ECOSYSTEMS



## RHYn

- Chalampé: a significant hydrogen consumption area in France A number of low-carbon hydrogen consumption and production projects announced in the area for industry or H<sub>2</sub> mobility
- Potential interconnections over time with Germany and Switzerland

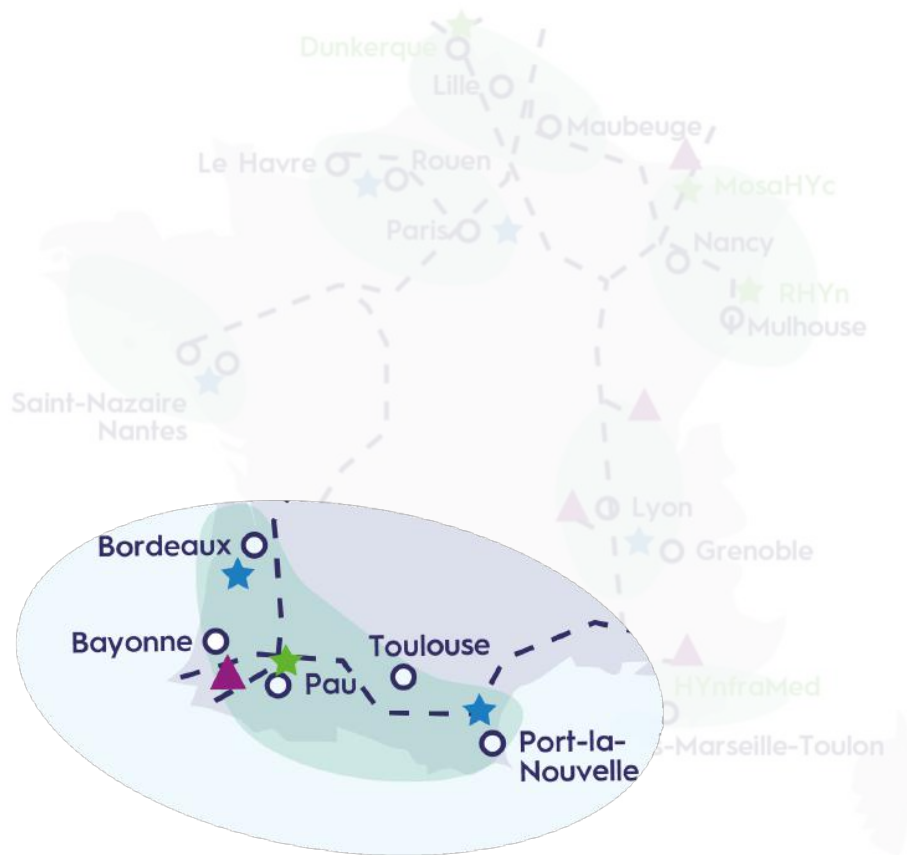
> Decision to launch a project for the development of a grid through pipeline conversion

## HYnfraMed (South region)

- Dynamic ecosystem between Fos Sur Mer and Manosque, structured around a large number of projects in the development stage Proximity of hydrogen infrastructure and storage projects

> Feasibility study launched in partnership with stakeholders in the area for a shared hydrogen transport grid in the area from Fos to Manosque

# PRACTICAL DEVELOPMENTS IN ECOSYSTEMS



## LACQ HYDROGEN

- Reindustrialisation and decarbonisation of the Lacq Basin
- First link in the European hydrogen backbone, with CH<sub>4</sub>/H<sub>2</sub> pipeline conversion and geological hydrogen storage
- France/Spain transnational approach

## HYGÉO

- Feasibility study launched into the re-use of a salt cavern for geological hydrogen storage
- Partnership with complementary stakeholders in the hydrogen value chain

## PYRÉNÉES H<sub>2</sub>

- Creation of the first hydrogen ecosystem for transport and industry within the Lacq Pau Tarbes territory
- Centralised renewable hydrogen production and distribution across different industrial sites and 3 transport filling stations



## AND NEXT?



Create **a new impetus** in **reconciling supply and demand**



**Facilitate exchanges** and **support** exercises to plan the **development of H<sub>2</sub> and CO<sub>2</sub> infrastructures**



**Organise new workshops** in 2022: **Nantes-Saint Nazaire & Vallée de Seine**



**Go more deeply into certain technical subjects** together with **consumers and producers**



**The exercise will be repeated** to keep up to date on changing needs



## 2022 WORKSHOPS



Territorial workshops conducted in 2021



Territorial workshops to be conducted in 2022



**Together,  
let's imagine the future H2 market**



# FOR FURTHER INFORMATIONS CONTACT US

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