

# **ABC OTTMARSHEIM**

ADEME/NEDO Joint Seminar

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## HYNAMICS IN A NUTSHELL

As producer and distributor of low-carbon and renewable hydrogen, Hynamics is:

01

- A wholly owned subsidiary of EDF, created in 2019,
- key player in the Hydrogen Plan,
- major contributor to the Group's raison d'être.





02

A company committed to the decarbonation of the two most  $CO_2$  emitting sectors, mobility and industry, in France, Germany and the UK.











03

An industrial player with an integrated offer: producer, investor, operator and maintainer of production assets.





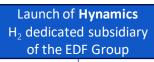








## INDUSTRIALISATION OF THE HYDROGEN VALUE CHAIN BY EDF





2000s



2018



2019

2021



2025



2026-2027



2028+

#### R&D start on H<sub>2</sub>

- Structuration of a R&D hydrogen team by EIFER (Karlsruhe, Germany)
- EIFER is a 50/50
   partnership
   between the
   Karlsruhe Institute
   (KIT) and EDF

#### Setup of a test platform I

- Implementation of an electrolysis test platform by EDF R&D
- Help to test and qualify the different electrolysis technologies
- Propose power supply scenarios using a variety of electricity sources, representative of current and future electricity mixes.

#### Commissioning of 1 MW stack I

- First project in commercial operation in Auxerre for heavy duty applications
- 3 others projects under construction from 1 to 2 MW for the mobility sector (e.g., Belfort)
- All the projects are based on 1
   MW stacks, current stack generation

#### Com. of 5 MW stack

- Project in the South of Paris based on **5 MW stacks**, **next stack generation** showing the hydrogen sector industrialisation
- Final investment decision approved, project just started construction

#### Com. of multi-5 MW stacks

- Commissionning of 50 MW+ projects in France for the chemical industries (fertilizers, polyamids)
- First industry projects highly supported by the French government
- Integration of several 5 MW stacks to reach the target capacities and prepare the efuels development

- > Pragmatic approach of the EDF group linked to the electrolysis technology industrialization
- > Two mains sectors addressed:
  - 1. Heavy duty mobility sector which starts beginning to stand on its own with the legal framework implementation
  - 2. Industry sector which drive the hydrogen sector industrialization and still required public support to reach the parity with the fossil-fuel based solution



## "ABC OTTMARSHEIM" PROJECT...

#### FERTILISER INDUSTRY DECARBONIZATION SOLUTION











#### **Partners**





#### LAT Nitrogen and Hynamics are developing the ABC Ottmarsheim project:

France's first low-carbon ammonia and fertiliser production project

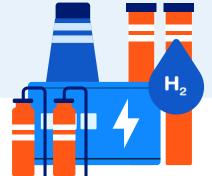
#### **Key figures**

- 50 MW of electrolysis
- 36,000 tonnes of lowcarbon ammonia produced per year
- 340 GWh by year of natural gas reduction
- 15% of the site's H<sub>2</sub>
   needs decarbonised
- >48,000 tonnes of CO<sub>2</sub> avoided per year.
- 2026: target for commissioning

#### **Challenges & prospects**

- Reducing dependence on fossil natural gas: sovereignty over lowcarbon hydrogen.
- Around 10% of the hydrogen produced is offered to additional offtakers in the vicinity.
- The proximity of Germany and Switzerland also offers opportunities for crossborder collaboration







# ...WELL-ALIGNED WITH NATIONAL & EUROPEAN H<sub>2</sub> STRATEGIES

In the context of the global energy market disruption caused by Russia's invasion of Ukraine, the crisis reveals a **triple dependency of the agricultural sector to the Russian and Ukrainian commodities**:



- **Natural gas: 39.2%** from Russia (2021)
- ❖ Fertilizers: 46.5% from Russia/Ukrain and Belarus (2022)
- Wheats: 33.6% from Russia/Ukrain (2021)
- > REPowerEU Action Plan (05/2022) includes strong support for accelerating H<sub>2</sub> infrastructures to improve EU sovereignty.
- > By ensuring a local production, fertilizers will be made available for EU farmers and risk of import shortage will be reduced

# The French strategy for the development of low-carbon hydrogen (09/2020) is a priority area of investment for France, given :



- 1 environmental issues
- 2. economic issues
- 3. energy sovereignty issues
- 4. technological independence issues

#### **Project highly supported by the French government:**



"It was important for me to visit the site to see the progress and the implementation of projects already supported by our country as part of the Major Projects of Common European Interest (PIIEC)"... "With 1.5% of French emissions coming from the ammonia sector, this project is strategic for the decarbonization of French industry and will help to reduce the carbon footprint of agricultural production."

Press release (30/08/2023)



A Ottmarsheim, dans le Haut-Rhin, l'entreprise Borealis / LAT Nitrogen produit de l'hydrogène pour décarboner son activité, la production d'engrais.

C'est un projet stratégique que nous soutenons avec @RolandLescure.

Bravo à l'ensemble des équipes pour leur engagement. Translate post



Mrs. Pannier-Runacher, publication on X, 30/08/2023



## ...WITH MULTIPLE POSITIVE EFFECTS FOR THE REGION

01

Around **50 kilotonnes**of CO<sub>2</sub> per year will
be avoided thanks to
the ABC Ottmarsheim
Project

02

Circa 100 jobs created
(including indirect jobs),
while preserving jobs in
the fertilizer and
agricultural sectors,
characterized by a strong
network of SMEs and
self-employed workers.

03

Reduce dependence on Russian gas and preserve the sovereignty of fertilizer production in France. 04

electrolyser capacity of
50 MW, the ABC
OTTMARSHEIM project
covers almost 1% of
France's target of 6.5 GW
by 2030, and offers a
significant opportunity
for future "gigafactories"





# HYNAMICS

Thanks for your attention



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www.linkedin.com/company/hynamics-groupe-edf/

