

BothH₂nia



EVENT · EVENT · EVENT

BothH₂nia goes Oulu & Raahel 5.–6.5.2022

This is a presentation given at the event BothH₂nia Goes Oulu & Raahe on 5.–6.5.2022.

BothH₂nia is a network of operators interested in hydrogen. The objective of the network is to create a Nordic hydrogen cluster around the Baltic Sea, beginning with the Bothnian Bay. BothH₂nia strengthens the position of the north in the European hydrogen industry!

BothH₂nia invites all businesses, research institutes, investors, municipalities and cities to roll up their sleeves for a greener future.

Please notice that the presentation has been modified to comply with the Accessibility Directive. In case for need the original material, please contact Minna Näsman (minna.nasman@both2nia.com).



Lhyfe

Producer and Supplier of Renewable
Hydrogen

Presentation of Lhyfe

- *BotH2nia goes Oulu & Raahe -event on May 5th-6th*
- *5 May 2022*
- *Björn Santana Arvidsson, Area Manager Nordics & UK*



Lhyfe

OUR IDENTITY

Independent green
hydrogen producer

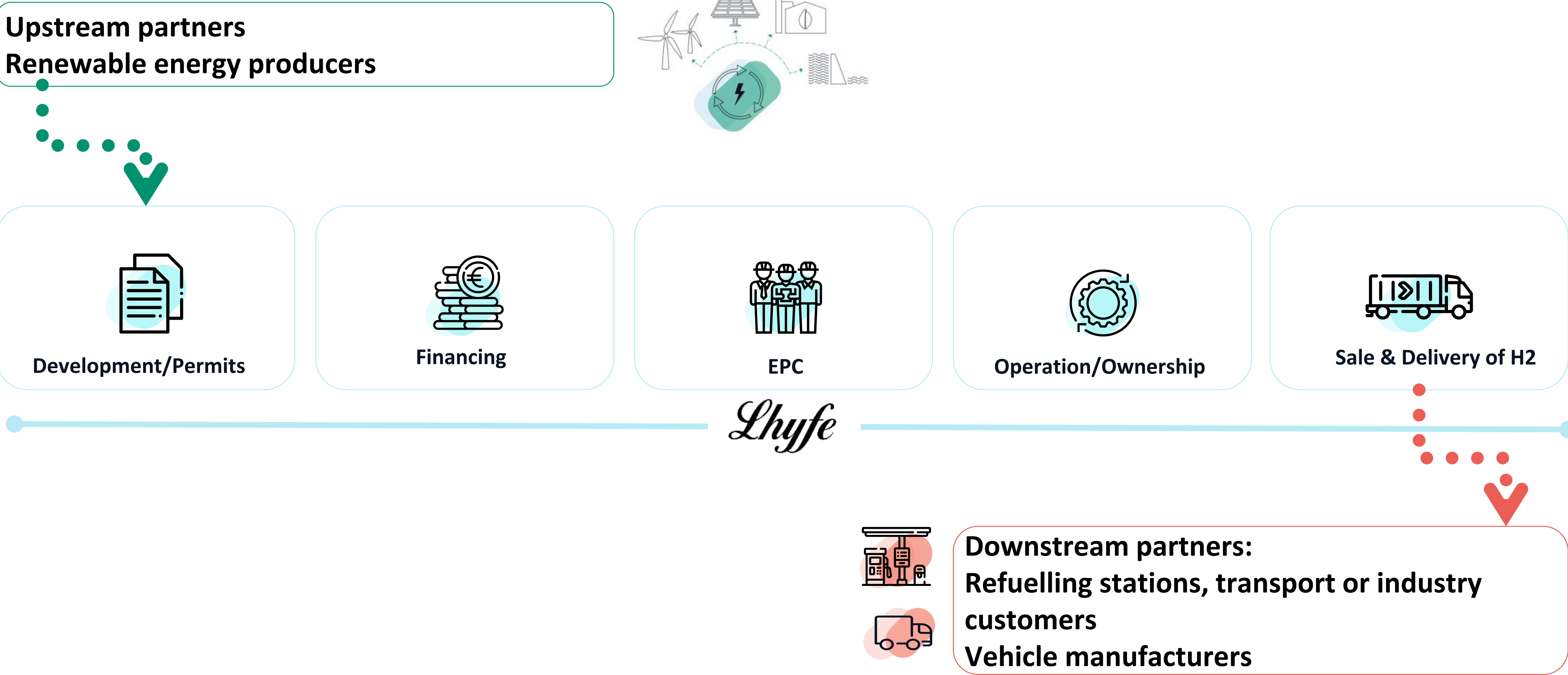
OUR MISSION

Decarbonise mobility
and industry

OUR PURPOSE

Avoid 1 billion tonnes of
CO₂ emissions

Our partners in the value chain



Three hydrogen production systems



Lhyfe box

Mobile production solution

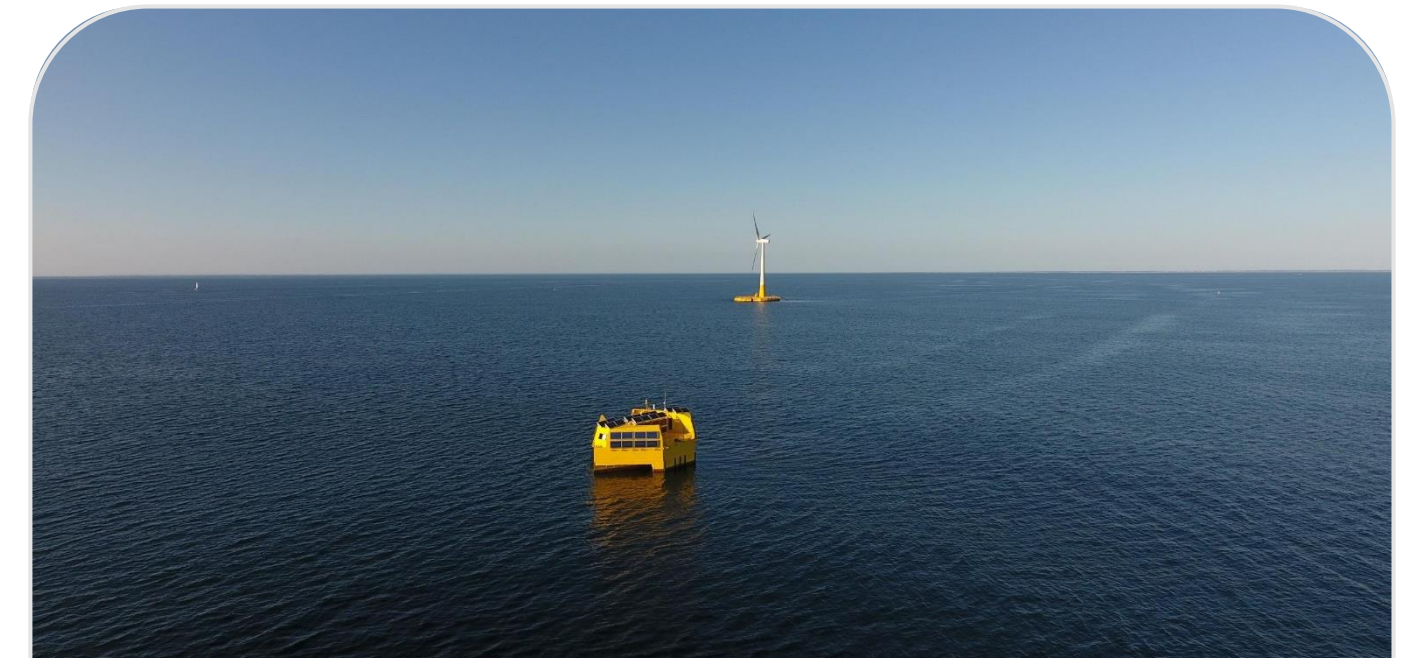
- Maximum of 200 kilos a day
- Easy-to-connect mobile electrolyser
- Powered by grid energy



Onshore

Fixed land-based solution

- 1000 to 40,000 kilos a day
- Production plant
- Supplied directly with power and water



Offshore

Fixed offshore solution

- 50,000 kilos a day
- Production at sea
- Supplied directly with power and water

First site in operation

Bouin (Vendée)

Opened
September 2021

Capacity
300-1000 kg/day H2

Energy source
Wind farm, direct conn.

Water source
Sea water

Users



Experience accumulated:

1. Salt water as feed – yes doable!
2. Direct connection to three wind turbines, 3 km from the site (own cable). Knowledge how to integrate, operate without impacting each other. Grid connection also in place to secure supply capacity and enable further learnings by having a combined solution.
3. Optimisation of the green hydrogen production based on availability of green electricity and offtake forecasts. Employing Lhyfe advanced software to optimise efficiency, to stretch beyond what equipment suppliers were/are capable of.
4. Optimisation of electricity sourcing.



Experience implemented:

1. Salt water as feed if available, avoid using scarce resources.
2. Direct connection to intermittent power supply. Large scale being engineered for up to 600 MW of hydrogen production (1 GW offshore wind)
3. Further refinement of the Lhyfe advanced software to continuously improve design and operation of the equipment/plants to ensure lowest possible LCOH.
4. Implementation of strategic electricity sourcing and grid services, to create benefits for customers and Lhyfe.

First offshore pilot site Le Croisic (Loire Atlantique)

Opening
September 2022

Capacity
400 kg/day of H2

Energy source
**Offshore wind turbine,
direct conn.**

Water source
Sea water



First industrial site Skive (Denmark)

Opening
2022

Capacity
**5,500-12,000 kg/day
of H₂**

Energy source
**Solar power/wind
farm, direct conn.**

Water source
Network

Users





DB: First renewable hydrogen high-speed train

Lhyfe box

Located in a test zone in Germany

190 kg/day of H₂

Quantity of hydrogen produced



Lhyfe works with clients with wide-ranging needs



Local authorities

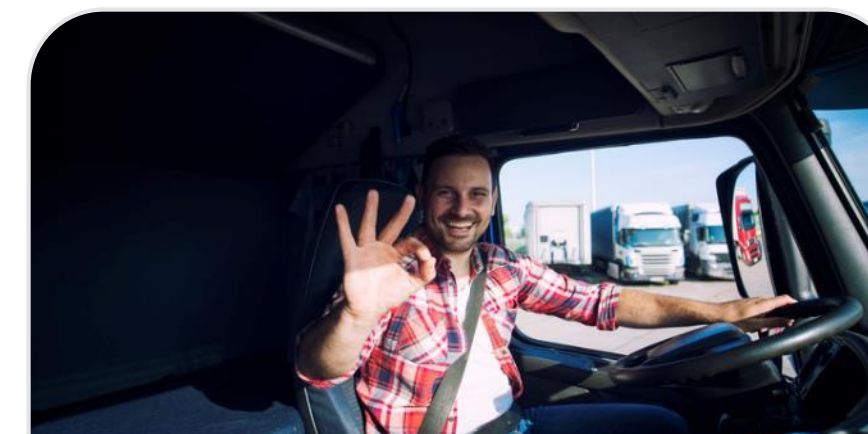
who have made the choice to offer environmentally friendly public transport to citizens



Industry

whose process requires the use of hydrogen and/or who are opting for a clean alternative to existing fuels (gas, petcoke etc.)

- Steel
- Chemical
- Paper
- Etc.



Transport and logistics providers

who want a real solution to improve their environmental impact

- Heavy vehicles
- Trains
- Buses
- Cars
- Ferries
- Space rockets...



Fuel distributors

who are diversifying their offering at the pump (electric, hydrogen, etc.)



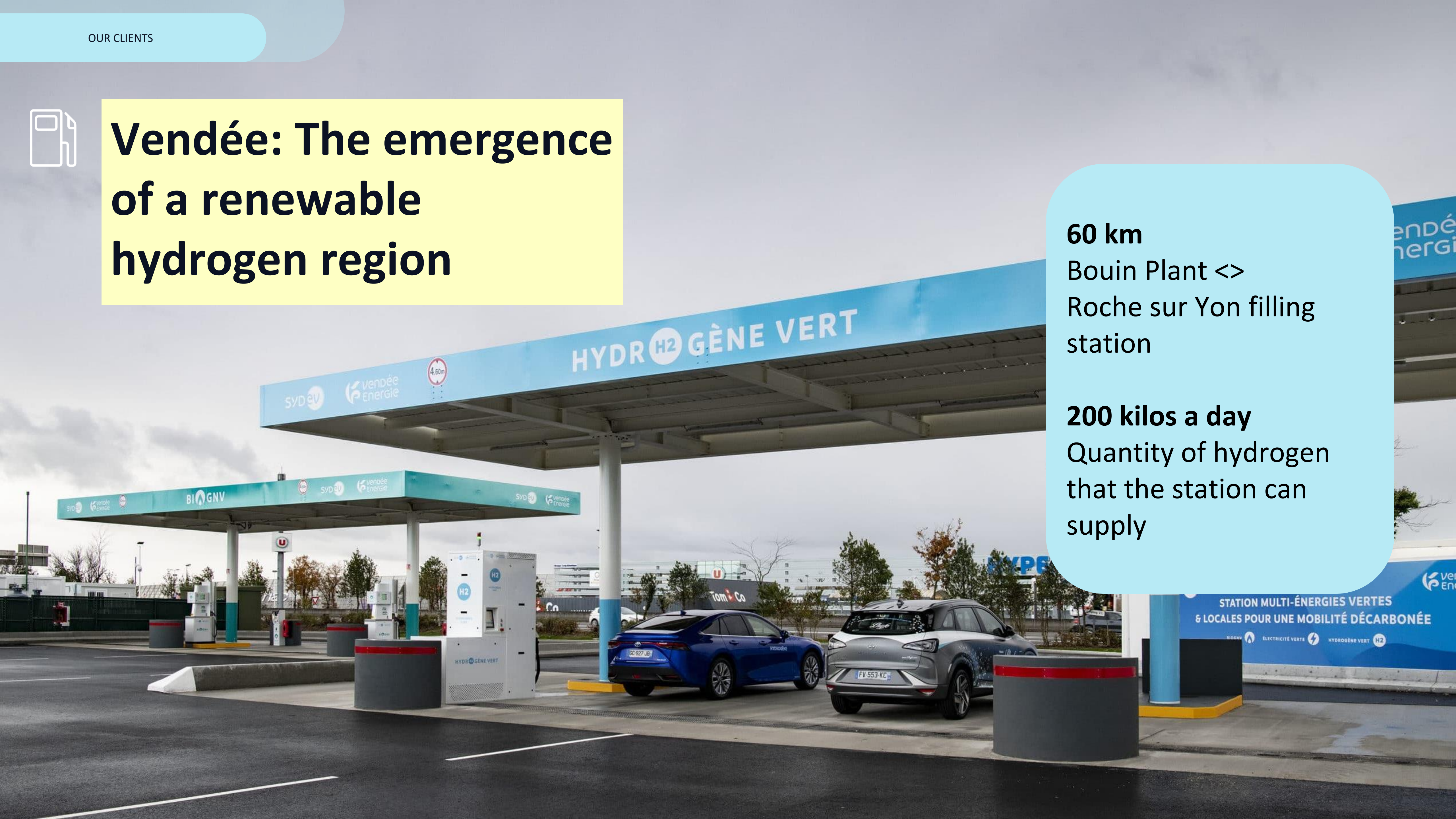
Vendée: The emergence of a renewable hydrogen region

60 km

Bouin Plant <>
Roche sur Yon filling station

200 kilos a day

Quantity of hydrogen that the station can supply





Lidl: Hydrogen forklifts to save time and space

One minute charge time for each forklift, for an autonomy of at least one day

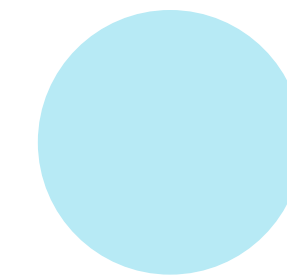
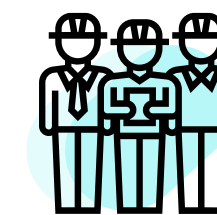
50 forklifts in 2021

130 in 2022



A committed international team

Making this change that we all know is necessary happen NOW requires energy and courage – and the good news is, our team has plenty.



Every member of our team is fully engaged in our mission and convinced of the positive impact of our everyday battle.



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Lhyfe



[@Lhyfe_hydrogen](https://twitter.com/Lhyfe_hydrogen)



Lhyfe

Thank you for your attention

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