



STORENGY

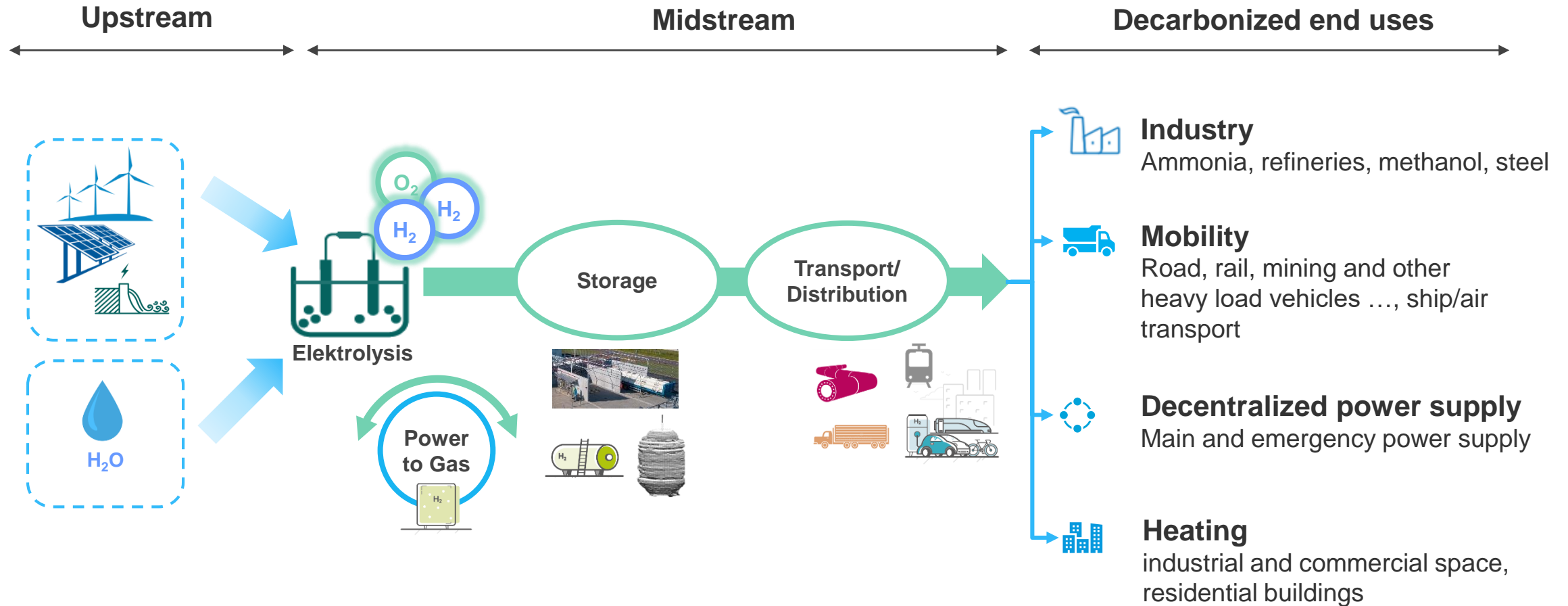
Underground storage

Contribution to a European H2 backbone

March 2021

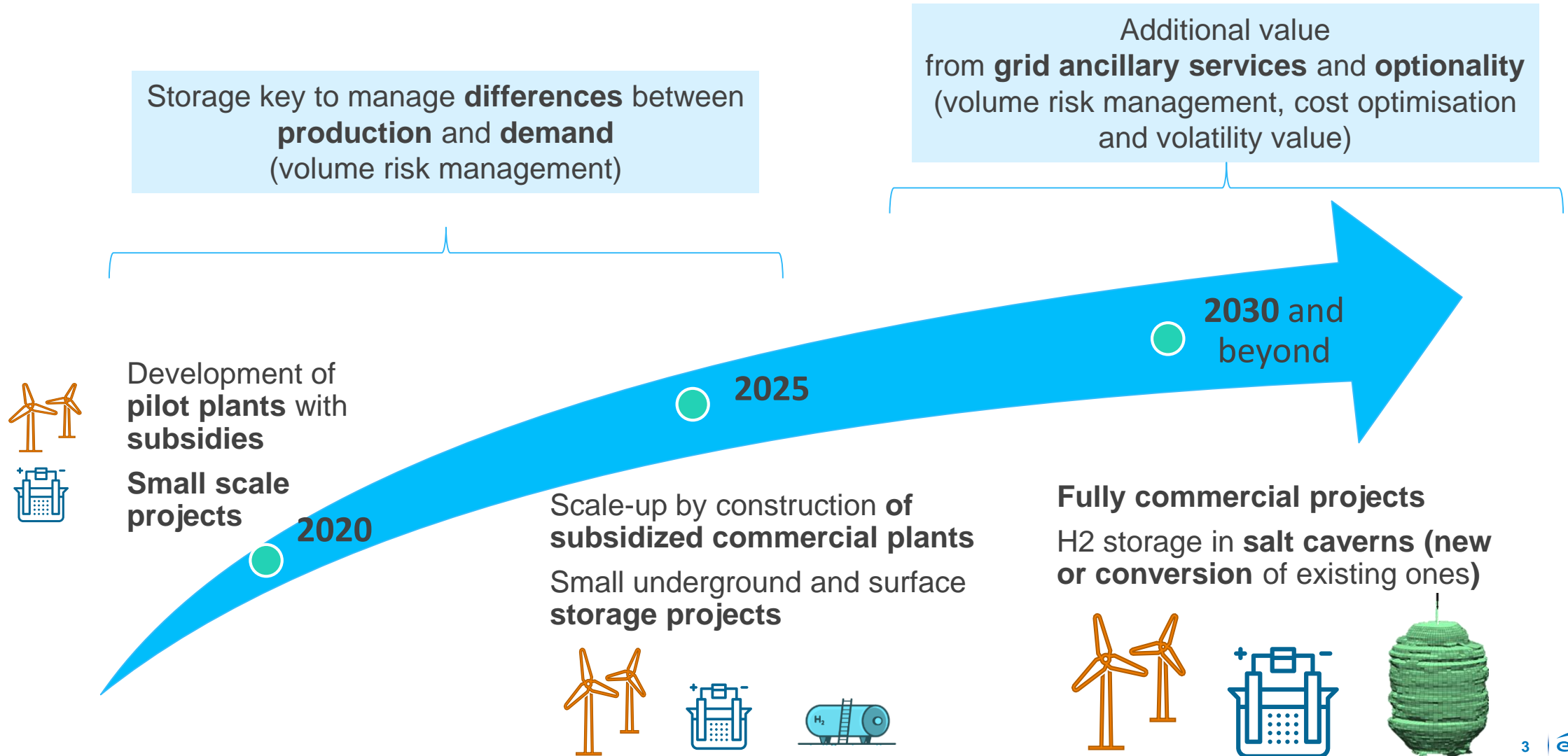
SIMPLIFIED VIEW OF THE GREEN H2 VALUE CHAIN

SYSTEM PERSPECTIVE



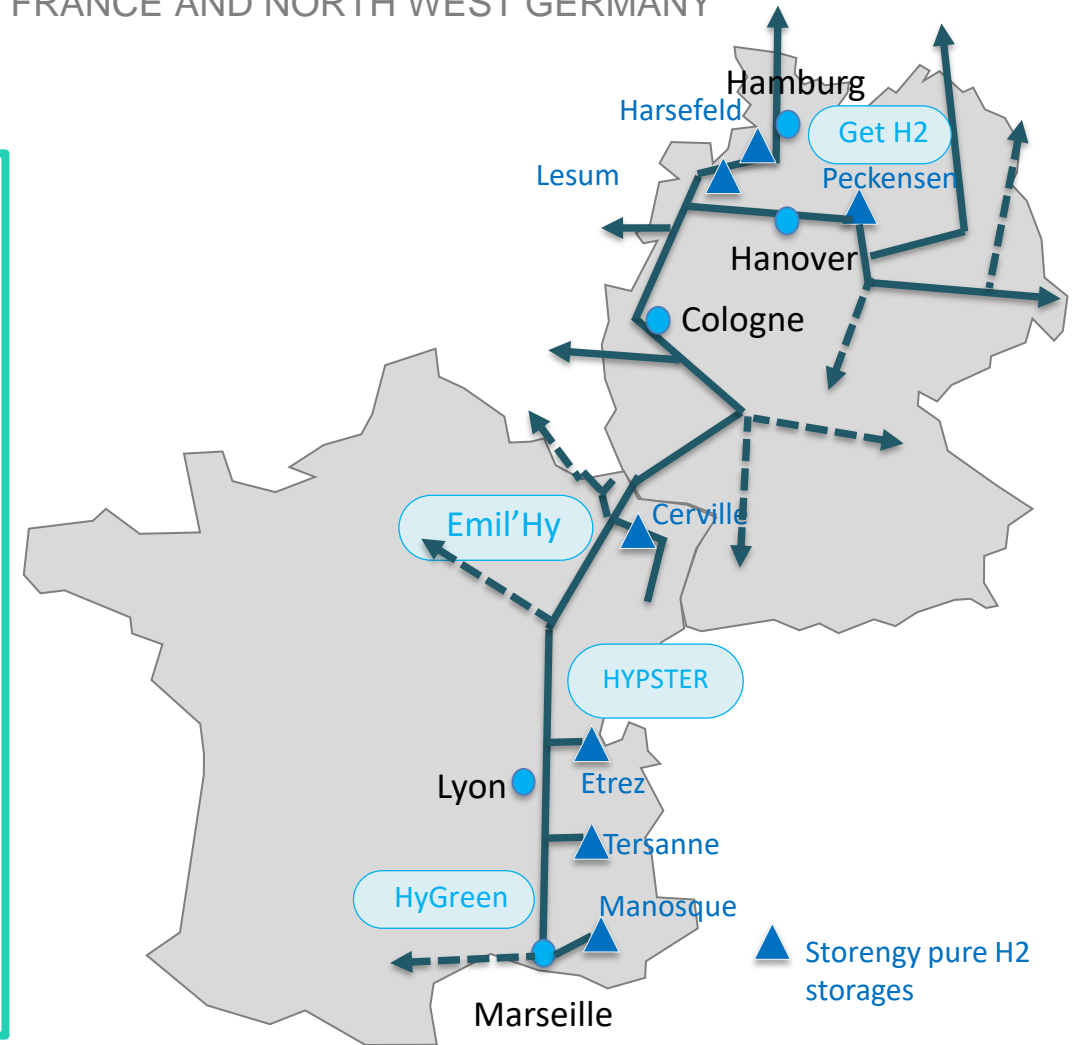
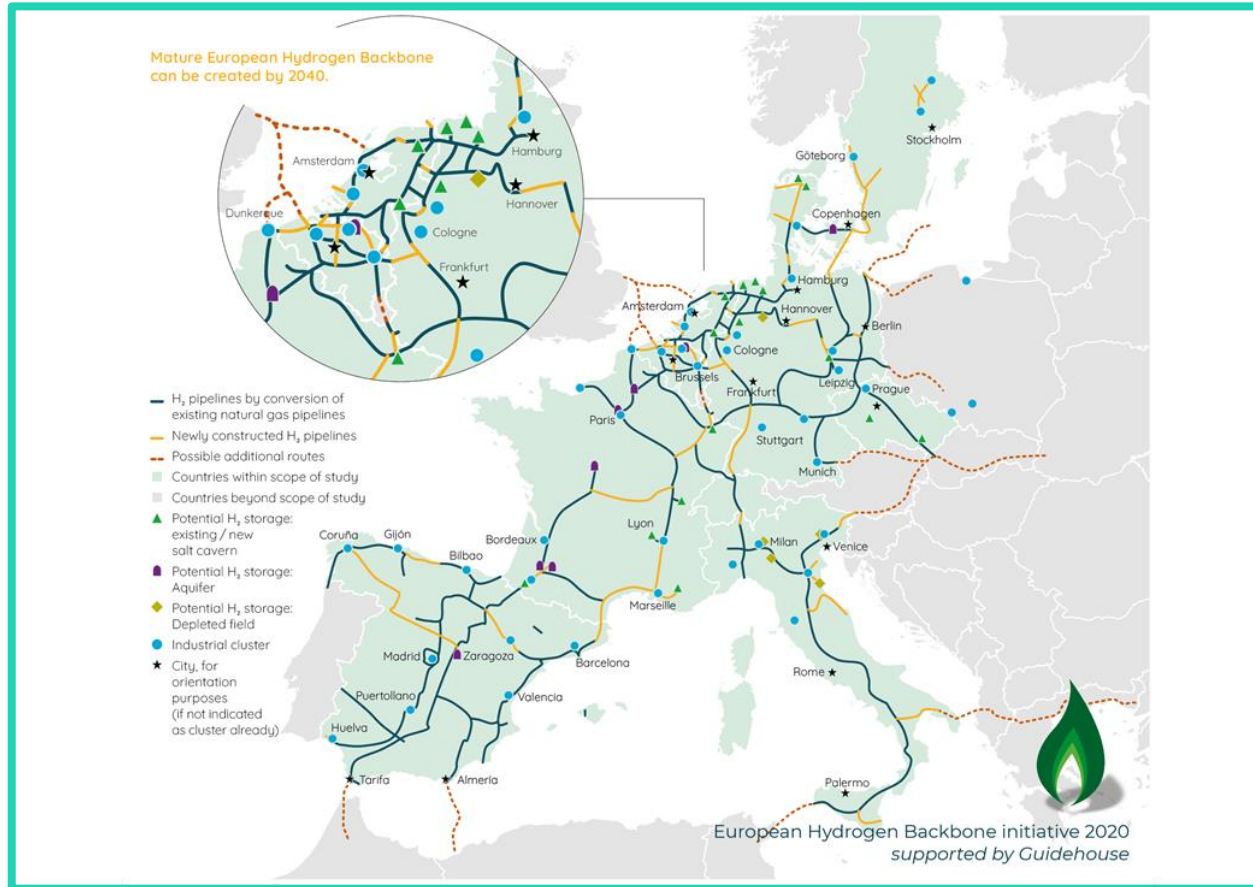
ROADMAP H2 STORAGE

FROM PILOT PROJECTS TO HYDROGEN CLUSTERS JUSTIFYING LARGER SCALE STORAGE



VISION OF H2 NETWORK IN 2040 WITH UNDERGROUND STORAGE

VISION BY 2040 WITH FOCUS ON TWO MAIN AREAS: RHONE VALLEY IN FRANCE AND NORTH WEST GERMANY



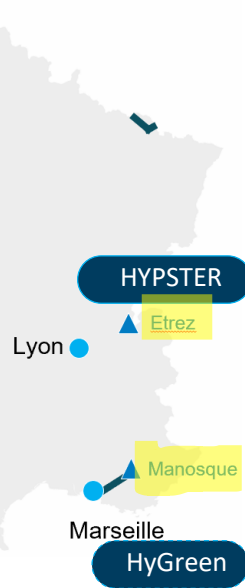
Source: GetH2 Initiative, Gas for Climate

Source: Storengy

PHASED DEVELOPMENTS - FRANCE

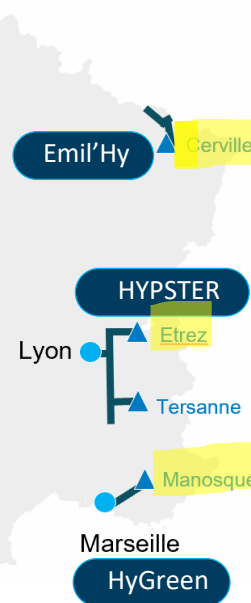
LOCAL AND REGIONAL CLUSTERS DEVELOP IN TIME INTO A LARGER SYSTEM (RHONE VALLEY)

2025



Two projects involving two storage sites (Etrez and Manosque)

2030



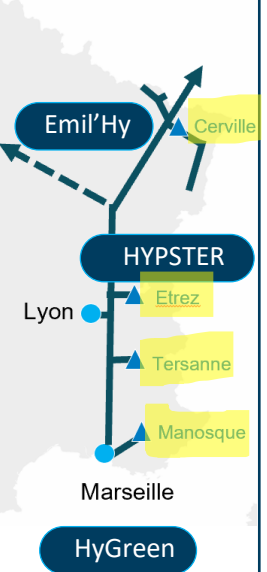
Three storage sites in parallel to transportation development in the Rhone valley

2035



Conversion of additional caverns and creation of new ones
Extension of transportation

2040



Four H2 storage sites connected to the European backbone

PHASED DEVELOPMENTS - GERMANY

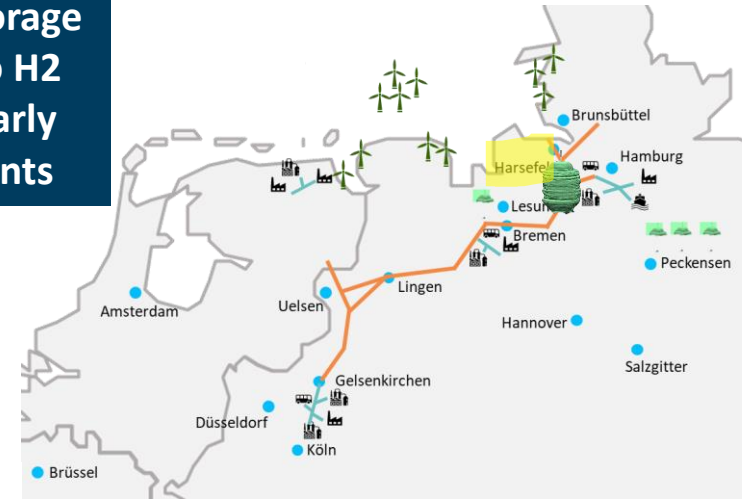
DEVELOPMENTS AROUND INDUSTRIAL CLUSTERS IN THE NORTH WEST OF GERMANY

2023



Harsefeld storage site close to H2 network, early developments

2026



„Super“ electrolyser



Storengy salt cavern storage sites turned to H2

>2030

Harsefeld and Lesum close to H2 network, further developments

2030



Largest potential on a third storage site Peckensen



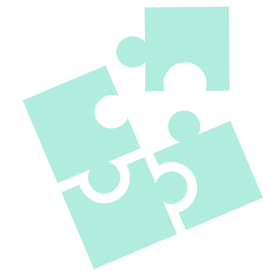
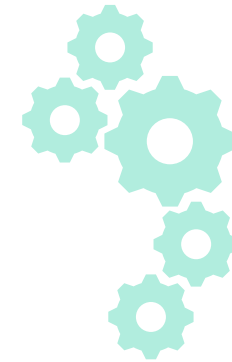
EMERGENCE OF A H2 BACKBONE

CHALLENGES, HURDLES AND ENABLERS

To supply H2 at scale to hard to abate sectors, we need to move from small scale / isolated projects to a larger system including underground storage.

This requires the development in a **synchronized** manner of:

- ✓ End user needs and commercial markets
- ✓ Connecting H2 infrastructures (pipes and storages)
- ✓ H2 production facilities
- ✓ Significant renewable electricity capacity, intermittent by nature
- ✓ A supply chain to deliver on equipment and technologies
- ✓ A range of new skills and competences for all involved ...



This will depend on:

- ✓ **Appropriate technical regulation** (mining law, HSE ...)
- ✓ **Adequate economic support schemes** especially in the early years
- ✓ **Commercial partnerships** inside the value chain (despite competition and unbundling rules?)
- ✓ **Coordination between countries** on standards, regulations, investment ...

CONTACT DETAILS

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