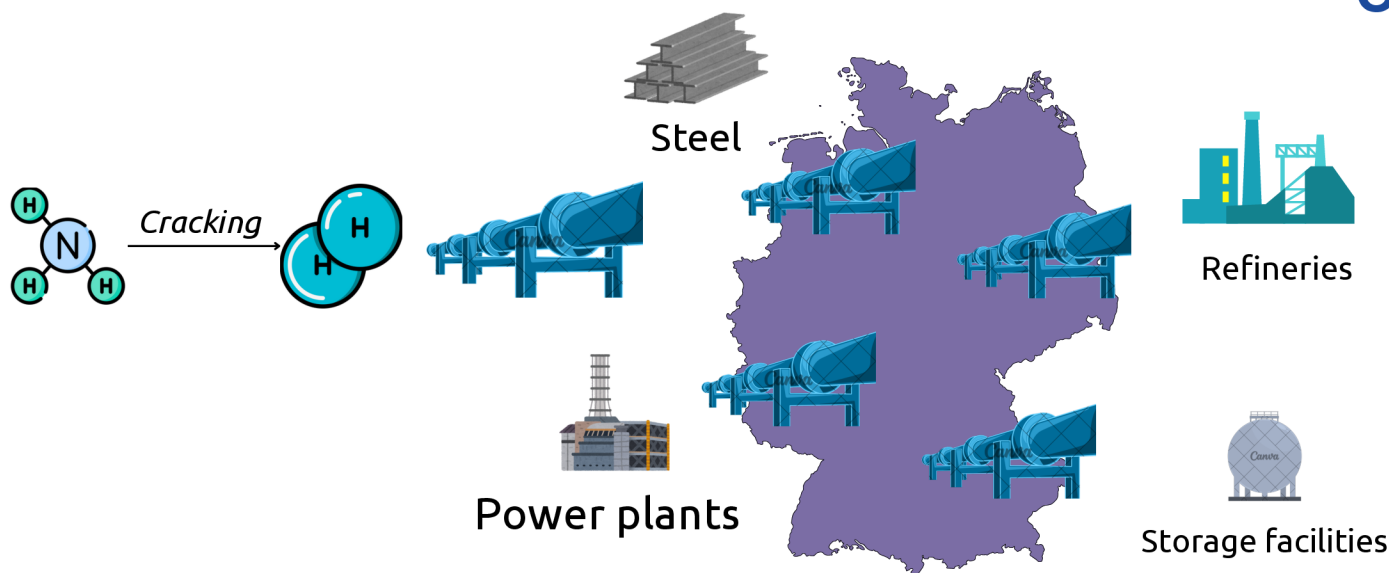


Germany greenlights to build hydrogen core network

October 31, 2024

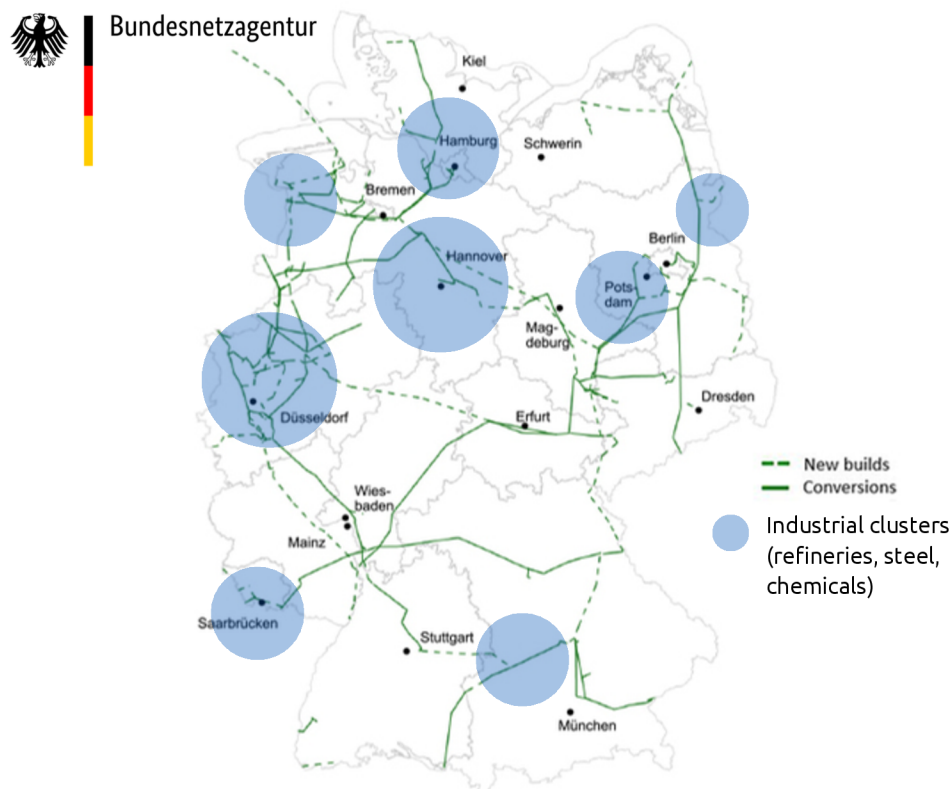


- ➔ **Germany's Federal Network Agency has approved to build the hydrogen core network across the country by 2032**
- ➔ **Hydrogen network operators will receive state support to construct and operate the hydrogen core network**
- ➔ **Hydrogen pipelines are essential for linking import hubs to consumption sites, facilitating hydrogen market uptake in Germany**

What is the hydrogen core network?



Hydrogen core network (HCN) is a set of new and repurposed pipelines that will form the basis of Germany's hydrogen infrastructure



Total length of

9,040 km including

- 1 Repurposed existing gas pipelines (around 60% of the total length)
- 2 Newly built hydrogen pipelines and compressor stations

Relevant timeline

- Nov 2023**
German gas TSOs* submitted a proposal to Federal Network Agency
- Jun 2024**
EU Commission approves €3bn German state aid

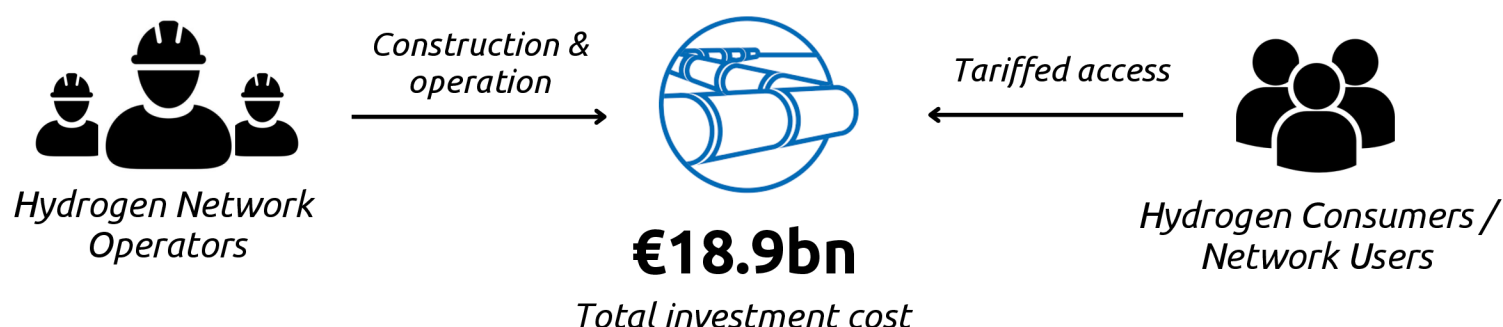
*TSO: Transmission System Operator

- Oct 2024**
Federal Network Agency approves the proposal by network operators
- 2025**
Earliest operation starts
- 2032**
Full completion and operation of hydrogen core network

How will the hydrogen core network be financed?



Hydrogen network operators (equivalent to gas TSOs) will be in charge of building and operating the hydrogen core network with the state support



How would hydrogen network operators finance the pipelines?



Favourable state loans

- 1) Below market rates
- 2) 30-year payback period (until 2055)



Revenue from network tariffs

A ramp-up tariff at all entry and exit points of the hydrogen core network from 2025

The investment costs of the hydrogen core network will be gradually covered by increasing tariffs charged to network users in two phases

Phase 1

Network tariffs will be capped since there will be few users during the initial market uptake, leading to revenue losses for the network operators

Phase 2

As more hydrogen consumers connect to the network, higher tariffs will be charged to offset the losses in the first phase

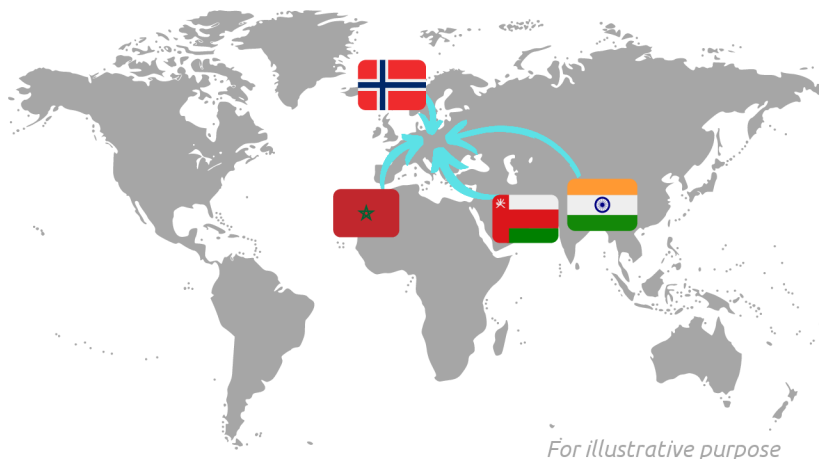
Federal Network Agency will review the ramp-up tariff at least every three years to ensure it remains effective in balancing the costs by 2055

Pipelines enhance, not replace, global hydrogen import



Hydrogen core network will connect major hydrogen import hubs in Europe (e.g., Netherlands, Belgium, Northern Germany) to consumption locations across Germany

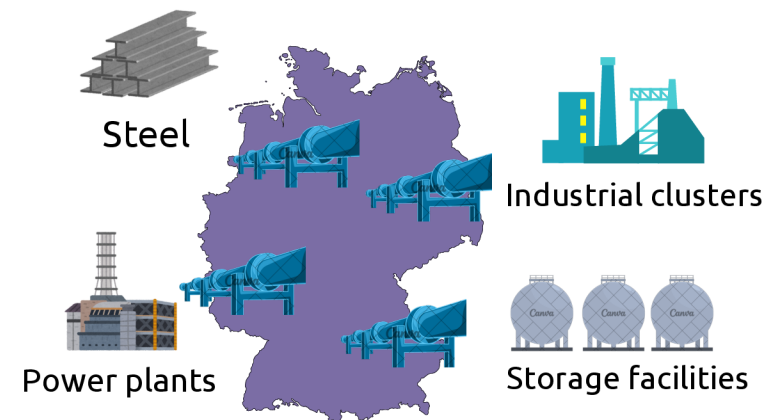
Overseas



For illustrative purpose

Germany to import 50-70% of its hydrogen demand in 2030

Domestic



Long-distance hydrogen transportation between regions

**Distribution pipelines connecting to final consumers do not form part of the hydrogen core network*

Hydrogen core network will link with interconnected networks developed by other European countries, forming a wider European Hydrogen Backbone



Netherlands started construction of its 1200 km national hydrogen pipelines in October 2023



Spain approved its plan for national and cross-border hydrogen network project (H2Med) in June 2024

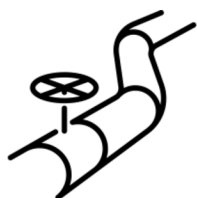
Hydrogen pipelines are crucial to kickstart the hydrogen market



Hydrogen pipelines, along with ammonia crackers, will be the key infrastructure to connect overseas green molecules producers and hydrogen consumers in Germany



Overseas hydrogen transport will likely take the form of **ammonia**, which **requires conversion back to hydrogen upon arrival at ports**



Hydrogen pipelines will link import corridors and industrial end-use sites, starting from the ones located closer to ports



Long-distance (> 100 km) network between regions will allow Germany to supply large volume of hydrogen across the country



Our take is that...

Involving midstream players, such as **port authorities, traders, and transmission network operators**, from the project development stage is crucial to ensure smooth hydrogen delivery to end users