

# HAMBURG MOORBURG – HYDROGEN HUB IN NORTHERN GERMANY

## REPURPOSING OF THE HAMBURG COAL PLANT

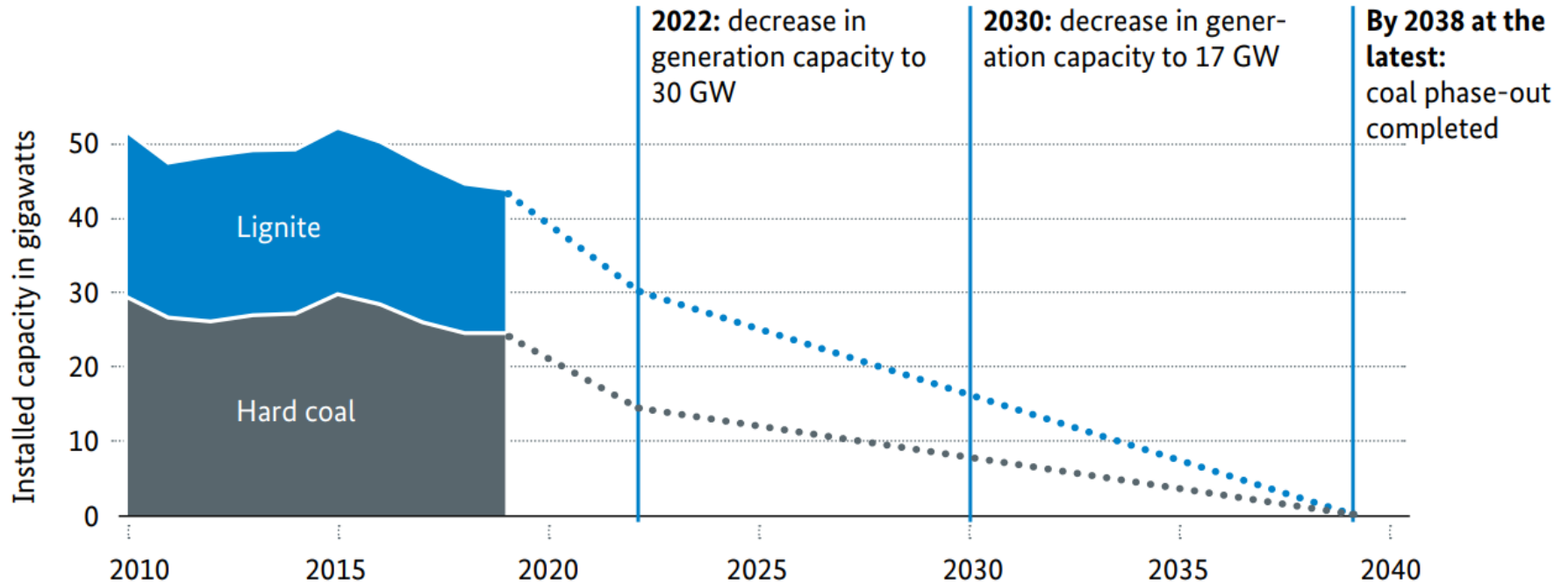
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28 April 2021

# OUTLINE

- 01 Climate and economic policy goals
- 02 Hamburg's hydrogen forecast and hydrogen activities
- 03 Moorburg – from coal-fired power plant to green hydrogen hub
- 04 Integration into the European context

# Germany's planned coal phase-out path



Federal Ministry for the Environment, Nature Conservation and Nuclear Safety 2020: Climate Action in Figures

# Climate and Economic policy goals in Hamburg

Climate Plan

Joint Hydrogen Strategy  
of Coastal Federal States



2025: 500 MW electrolysis power  
2030: 5 GW electrolysis power  
2035: Green hydrogen economy

Hamburg coalition  
agreement  
2020-2025

National Hydrogen  
Strategy

Decarbonisation of port, industry, logistics and air transport

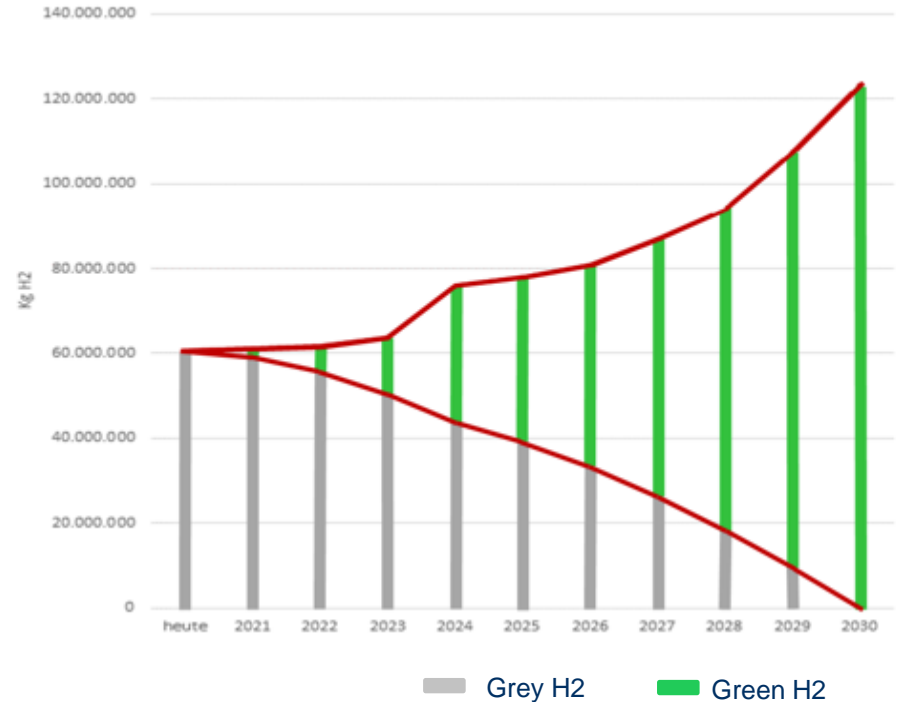
Building a competitive green hydrogen economy

# Hamburg's hydrogen forecast

## Hypotheses

- Demand is not yet foreseeable; most studies assume that demand will soon exceed supply.
- The goal is to use green hydrogen, but there will be a transition phase.
- Hamburg will have to import hydrogen due to a lack of green electricity.
- As a port city, Hamburg wants to become an import location for green hydrogen.

Hydrogen demand – Port of Hamburg



# Activities to achieve these objectives

Hydrogen Economy  
Cluster

Supporting  
infrastructure projects  
(e.g. H2 pipeline,  
network)

Feasibility study  
Moorburg

Application  
“Technology and  
Innovation Centre for  
Hydrogen Technology  
for Mobility  
Applications”

H2 import strategy

Cooperation with  
universities and  
research

Building international  
alliances

Commitment to the  
expansion of  
renewables

Supporting the IPCEI  
process

Involvement in regional  
and national  
committees (e.g.  
National Water  
Council)

# Moorburg – Coal-fired power plant



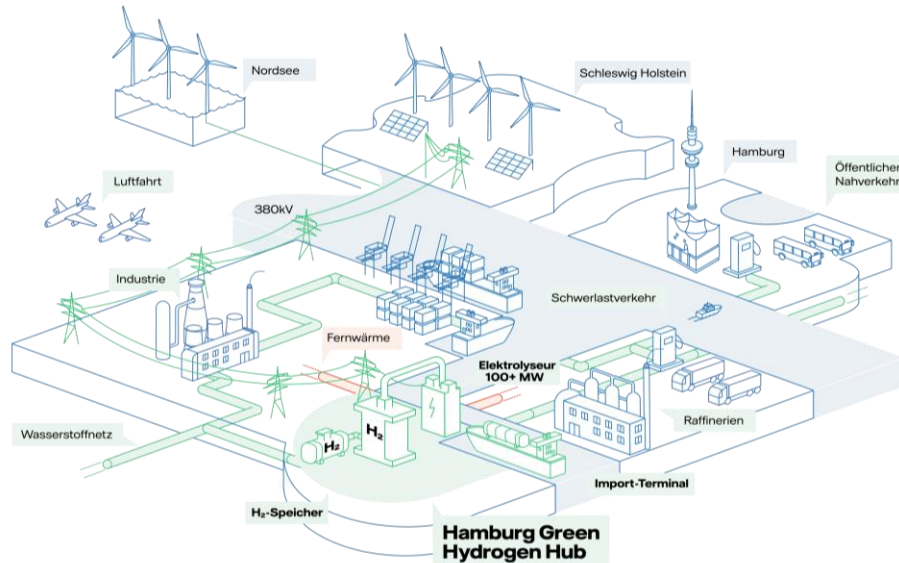
Copyright by Vattenfall

## Profile of the CHP plant

- In operation since 2015
- Capacity approx.  $2 \times 800 \text{ MW}_{\text{el}}$  supplying process steam to a neighbouring refinery
- Power production in 2019: 5.8 Mrd. kWh
- Number of employees: 190
- Located in the port of Hamburg

2021: Electricity from these units can no longer be marketed. The bid for an early closure of Moorburg was part of the first auction process to reduce coal-fired power generation in Germany.

# Moorburg – Hamburg’s green hydrogen hub

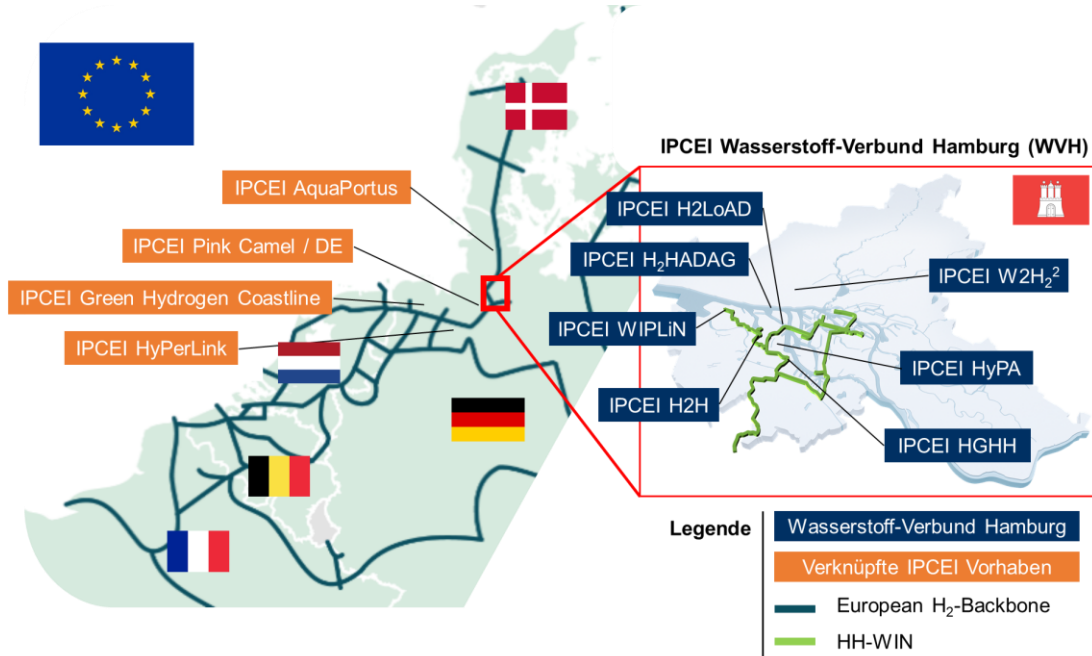


## Special locational advantages

- Connection to the 380 kV national transmission grid
- Accessibility by seagoing vessels as a hydrogen import terminal
- The focus is on an electrolyser with a capacity of at least 100 MW and on a large storage facility
- Plans for a hydrogen grid within the industrial area
- Proximity to hydrogen users in industry, logistics and mobility



# Integration into the European context

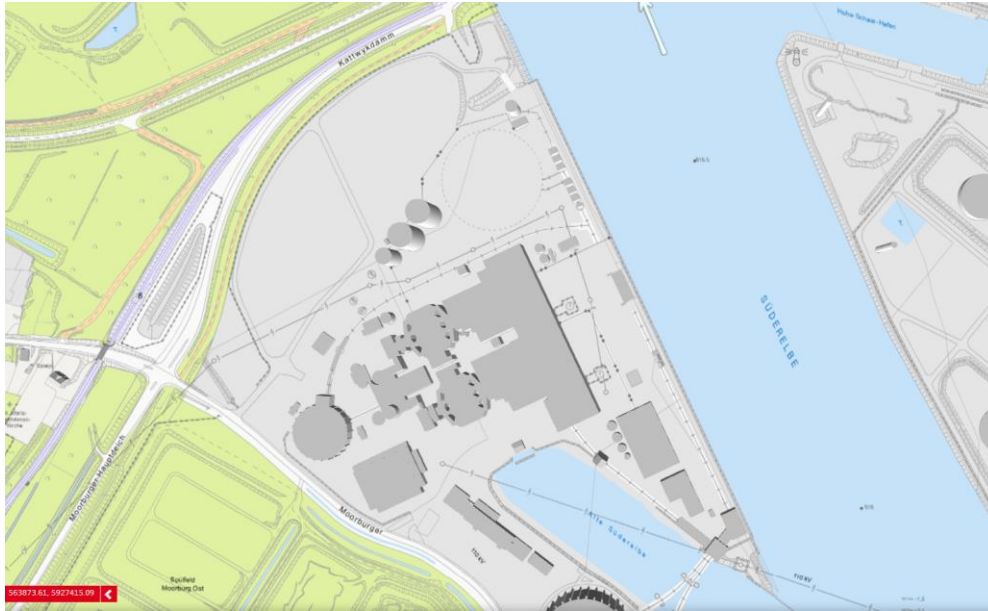


- Based on the high industrial density, on-site acceptance is possible
- Here too there is a wide range of projects
- HH-WIN – the planned transport pipelines in Hamburg – will enable all projects at the site to be integrated into the European hydrogen framework

Graphic modified from Hydrogen Backbone: OGE Publikation Backbone Szenario 2035

# Governance

The Free and Hanseatic City of Hamburg has four specific levers to control the conversion and further development of the Moorburg site:

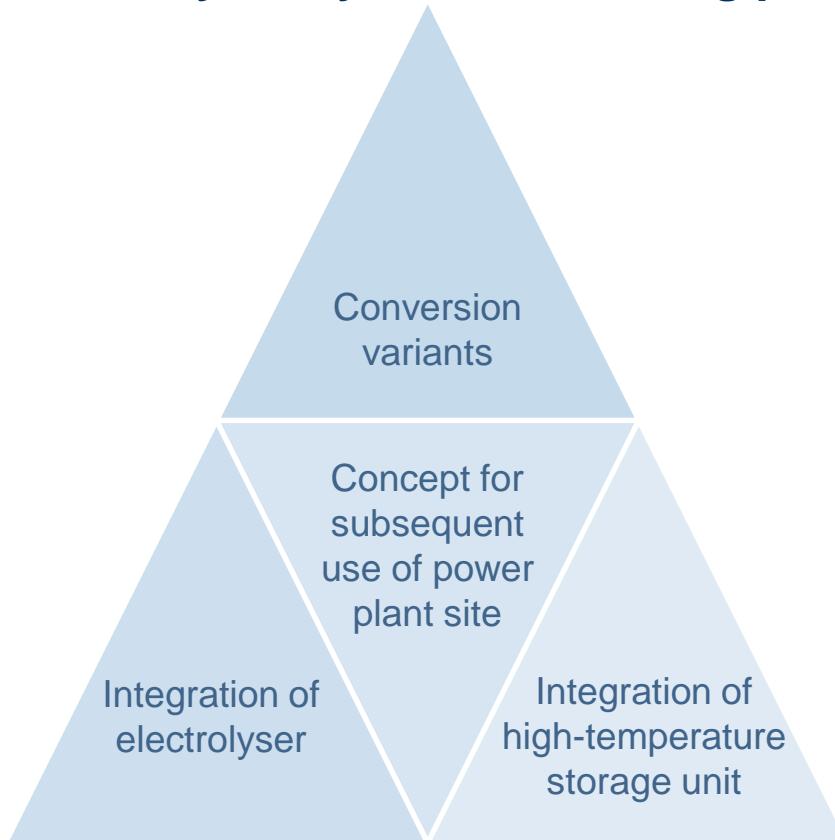


- Its co-ownership of the operating property
- Its public companies
- Its financial support
- Its close networking with industry and transport and logistic companies

Thank you for your attention

# Back-up

# Feasibility study at the Moorburg power plant site



## Content

- Energy function
- Availability of green electricity
- Needs assessment
- Infrastructural integration
- Subsequent use of existing buildings and technical facilities
- Consideration open to all technologies