



**AquaVentus**

**Digital Briefing:  
Green Hydrogen**

07. Oct 2022



**The Green Power Plant – North Sea**

# AquaVentus Vision in a nutshell

**Green hydrogen for the industry**  
**Domestic offshore production of**  
**1 million tons of green hydrogen**

**Implementation of new technologies**  
**From innovative products to**  
**large scale offshore electrolysis**

**Creation of new markets**  
**European cooperation through new value chains**  
**in a cross-border offshore network**



# The AquaVentus Förderverein e.V.

## The AquaVentus friends' association



Jörg Singer  
Mayor  
of Heligoland



Fabian Ziegler  
Deutsche Shell  
Holding GmbH



Sven Utermöhlen  
RWE  
Renewables  
GmbH



Christoph von dem Bussche  
GASCADE  
Gastransport GmbH



Martin Gerhardt  
Siemens Gamesa  
Renewable Energy A/S



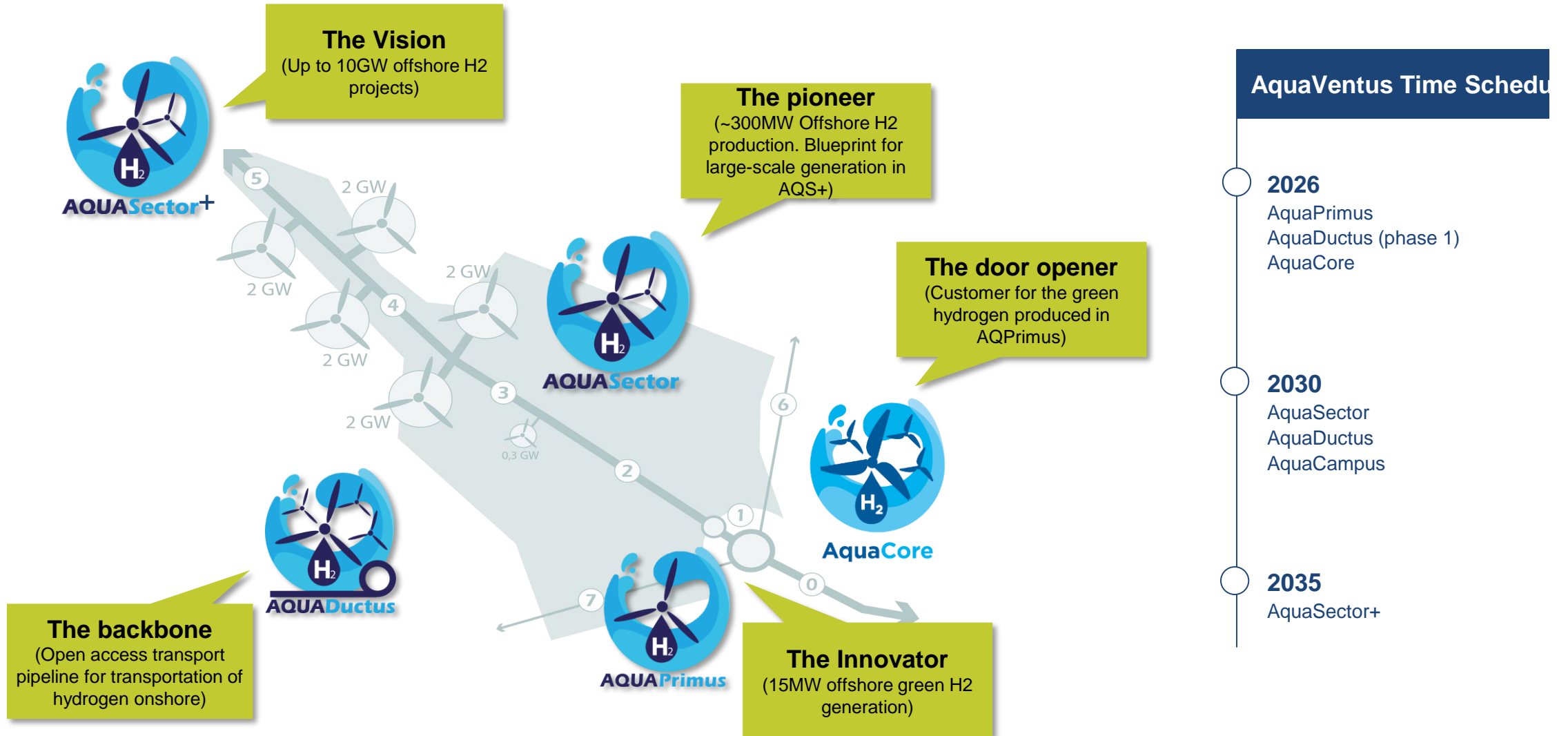
Kay Martens  
Versorgungsbetriebe  
Helgoland

> 100  
members along  
the entire value  
chain!



# AquaVentus Project Family

## Steps towards large-scale offshore H2 generation in 2030+



# AquaVentus in context

- Security of energy supply
- System and network stability
- Defossilisation of (heavy) industry

**What needs to be done?**

**German H<sub>2</sub>-Guideline Projects**

H<sub>2</sub>Mare



Leitprojekt  
H<sub>2</sub>Mare

TransHyDe



Leitprojekt  
TransHyDE

**Large scale production**

**H<sub>2</sub>-Offshore Demonstrator**

AquaPrimus



AquaPrimus

(IPCEI qualified)

AquaDuctus



AquaDuctus



AquaSector (+)  
(up to 10 GW SEN-areas)

AquaDuctus  
(10GW pipeline in German AWZ)



AquaDuctus

# North Sea region has one of the highest harvesting capabilities for renewable energies in Europe

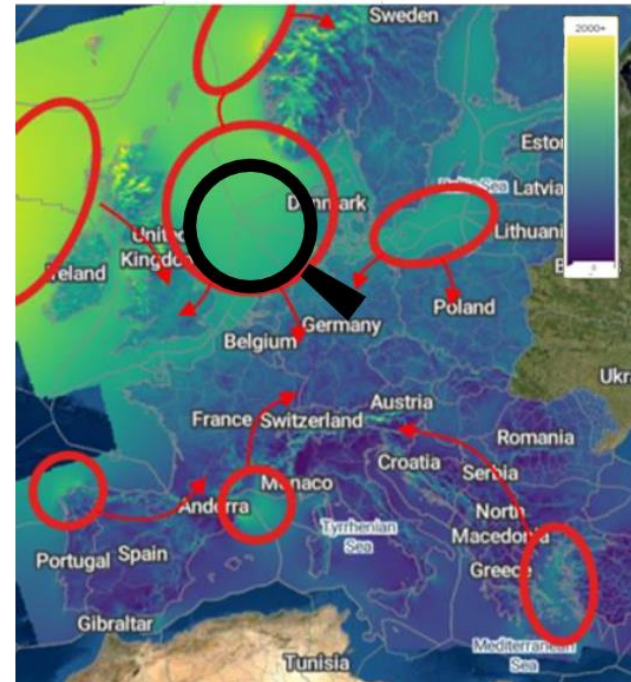
## Key Factors for successful “green systems” (selection)

- Spatially concentrated, technically easily accessible area for large-scale energy harvesting
- Highest possible number of full load hours
- Low population density in harvesting areas – avoidance of social blockades
- Environmental compatibility of energy source production
- Suiting capacity, technically plausible transport systems for electricity and molecules
- Spatial proximity to large-scale molecule users
- Use of existing assets<sup>2)</sup>

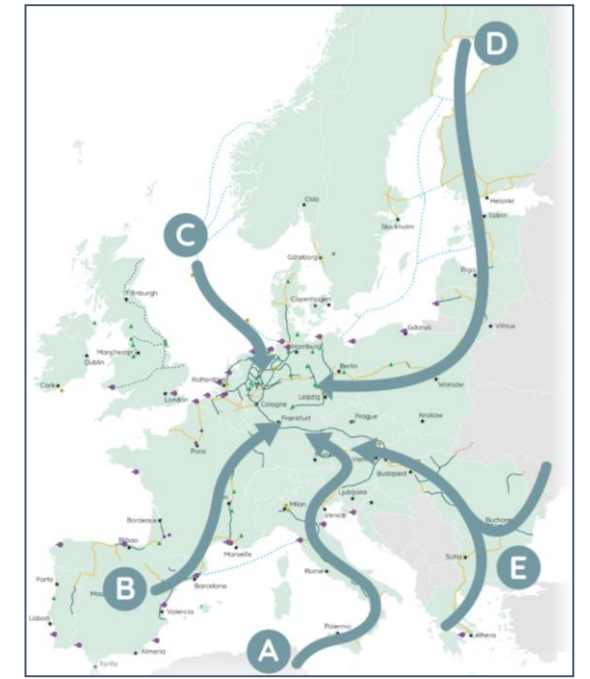
1) W/m<sup>2</sup>, average 2003-2018, at hub height 100m

2) E.g. pipelines or pipeline routes, shipyard and component infrastructure  
Source: neweuropeanwindatlas.eu, Associations, European Hydrogen Backbone Map (gasforclimate2050.eu), AFRY

## Key Factor: distribution of wind power density<sup>1)</sup>

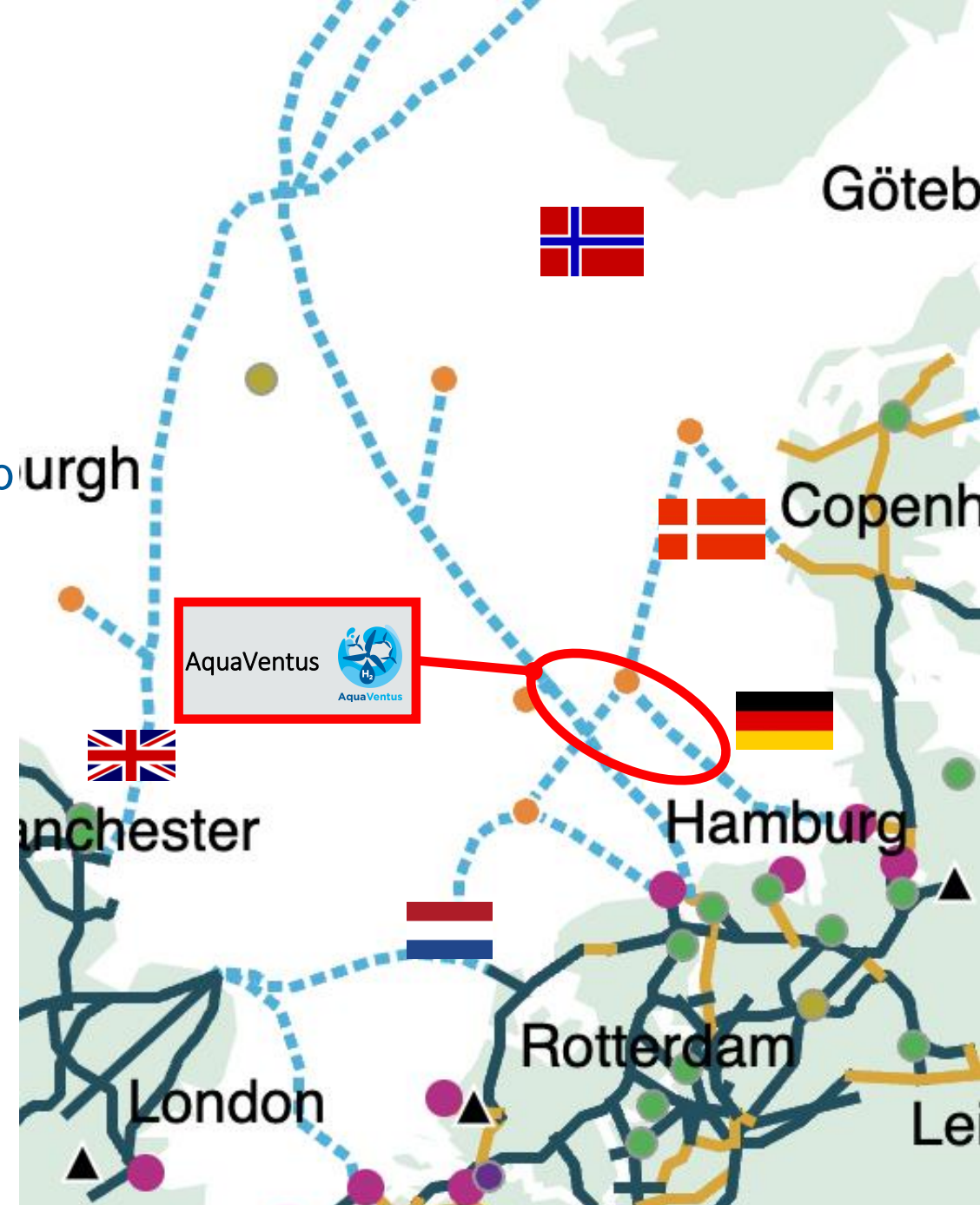


## North Sea is 1 of 5 hydrogen corridors to supply Europe



# AquaVentus in Europe

- Integration into European hydrogen network onshore and offshore
- Dogger bank hub connects North Sea Wind Power Hub Initiative by pipeline with AquaVentus
- Cross-connections make hydrogen a universal commercial commodity available throughout Europe



**"Green Power Plant - North Sea"**  
= 50 gigawatts = 5 million tons of green hydrogen offshore

Source: European Hydrogen Backbone Map (gasforclimate2050.eu)