

ENERGY HUB

PORT OF WILHELMSHAVEN

MORE THAN LNG - OPPORTUNITIES AND CHALLENGES OF THE REGION WILHELMSHAVEN ...

Stadt
Wilhelmshaven



Landkreis
Friesland



Landkreis
Wittmund



Landkreis
Wesermarsch



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ENERGY HUB PORT OF WHV

AUTUMN 2021

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FOUNDING MEMBERS



Stakeholder process

- Detailed analysis of 12 industrial projects
- 3 workshops with partners from industry and politics
- Analysis of energy infrastructure, H2 import and H2 demand

1. Development of a **joint concept** for the Wilhelmshaven region as an energy cluster and creating perspectives for **local value-added chains**.
2. Local concept for the **integration** in the nationwide needed infrastructure and pointing out the region for the **national energy supply**.
3. Identification of the **synergy potentials** between the individual industrial projects by analysing **energy and material flows**.
4. Creating conditions for **cooperations** with other clusters and successful participation in **funding applications**.

THE STORY OF THE REGION (SPRING 2022)

Overseas



Electrolysis



Production
Electrolysis
PV & Wind



Conversion
into hydrogen
derivates



NH3
ammonia

CH4
(synthetic)
methane

CH3OH
methanol

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Wilhelmshaven

Settlement
of energy-
intensive
companies



Use
of hydrogen

CO₂

CO₂ Export



CO₂ Export
CCS & CCU



Conversion
back to
hydrogen
(green / blue)

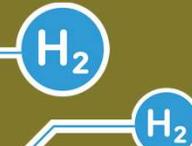


Transport
hydrogen
backbone



Storage in salt
cavern

Germany



More
than 50 %
possible



UNIQUE SELLING POINTS

OF THE REGION.

Germany's only deep-water port

Draft 18 m, good nautical access

Excellent electrolysis location

High availability of on- & offshore wind energy / relief of the transmission grid

Startpoint of hydrogen backbone

Security of supply for Germany / Northwest Europe

Salt caverns for approx. 22,5 TWH

Direct in the region Wilhelmshaven

Approx. 50 % of hydrogen demand in 2030

Local production & import

FURTHER DEVELOPMENT „ENERGY HUB“



ASSOZIIERTE MITGLIEDER



Land
Niedersachsen



Stadt
Wilhelmshaven



Landkreis
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Wittmund



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STRUCTURE / MAIN TOPICS

STATUS 01/2023

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Speaker
ENERGY
HUB

Uwe Oppitz

Alexander Leonhardt

H2-Value
chain

Energy
infrastructure

Port
infrastructure

Settlements/
Project
Support

Communication
and politics

Achim Schillak

Boris Richter

Sven Partzsch

Jan Sommer

Dr. Karl-Peter Thelen

Alexander Leonhardt

Alexander Leonhardt

Alexander Leonhardt

Alexander Leonhardt

Christine Janz

OVERVIEW STUDY (12/2022 - 03/2023)

Transformation Consulting
dena/Fraunhofer

Electrons
(grid connection,
electricity
procurement,...)

Molecules
(pipeline/storage)

Rail

Water/Waste
water

Port
Development
Plan

Industrial/
commercial
space

PKV

Communicati
on and
politics

09.05.2023

Professionals

UPDATE „DENA“ STUDY

Topics: H2-value chains | Energy infrastructures | Port infrastructures
Fact finding of projects by „Deutsche Energieagentur (dena)“

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Update of the study (12/2022 - 03/2023)



Workshop to the fact finding study
21/02/2023

WORKSHOPS

H2-Value
chain

Energy
infrastructure

Port
infrastructure

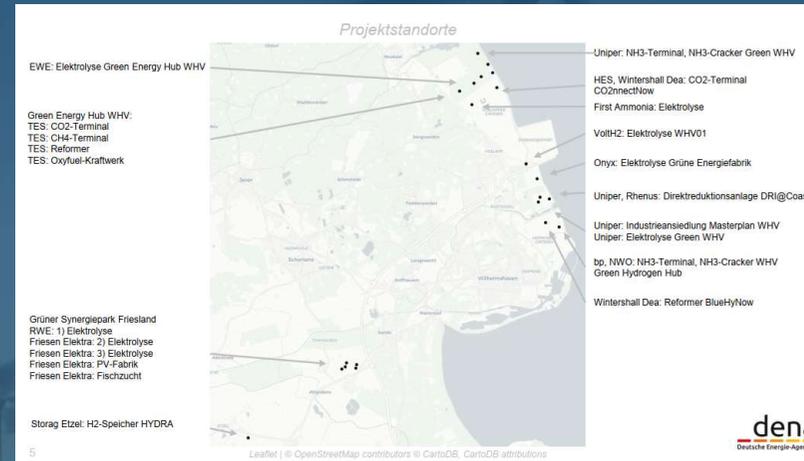
- Demand for land
- Mass flow
 - hydrogen (H₂)
 - methane (CH₄)
 - Ammonia (NH₃)
 - Carbon dioxide (CO₂)
 - Oxygen (O₂)
 - Nitrogen (N₂)
 - Water(H₂O)
- Byproducts
 - Thermal energy
 - Waste water
 - Oxygen
 - ...
- Electrical power (P) and energie (E)

Overview of existing and possible energy corridors
for CH₄, H₂, H₂O, CO₂, electricity („map“)

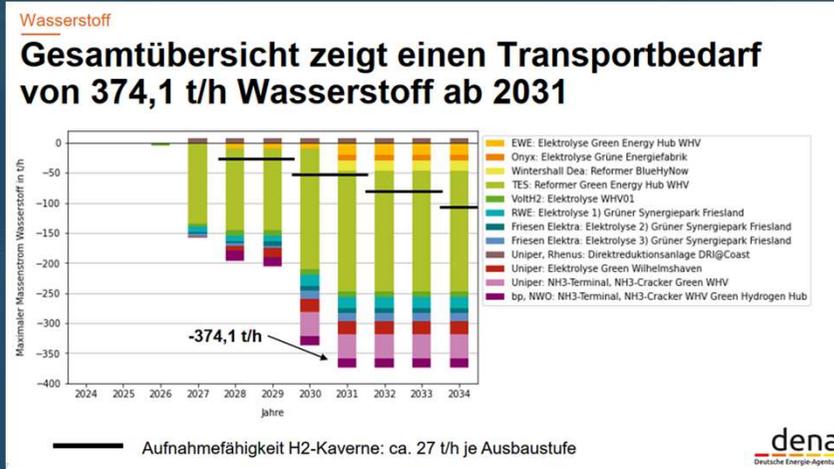
EXTRACT OF THE STUDY RESULTS

Overview scheduled projects in the area, H2 volumes 2031

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- At the moment the region has 25 project locations.
- There are 3 focused areas: one in the north & one in the south of the coastline of Wilhelmshaven, as well as one approx. 10-15 km away from the coastline.
- Various projects represents the whole spectrum of transformation incl. the complete H2 value chain: import of NH3 incl. cracker, electrolysis, storage of H2 in salt caverns, industrial settlements of oftakers. . .
- **In 2031:** the hydrogen output (import of derivatives + local production) could be **approx. 34,4 TWh**, covering between 37 - 61 % of the German demand at that time.





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THANKS FOR YOUR
ATTENTION!

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