NORTHSEA HYDROGEN®

OFFSHORE FARM

GREEN HYDROGEN FROM OFFSHORE WIND

November 2025

OUR CONCEPT

NORTHSEA HYDROGEN®
OFFSHORE FARM

- Harnessing the vast wind-resources **far out at sea**
- Production facility in "**island mode**" w/o requirement for grid connection
- **Offshore-Platform** including electrical and technical equipment, control center, etc. for desalination, electrolysis and storage of hydrogen
- **Scalable system** due to modular design
- Transport of hydrogen via **ship or pipeline**

What we can achieve:

- ✓ Production of green hydrogen at an **industrialized level**
- ✓ **Fast realization speed** / sprinter approach starting production as early as 2028
- ✓ Highest level of **redundancy and security** against foreign influence
- ✓ Green Hydrogen **"Made in Germany"**

WHO WE ARE

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ONP Management

- **Martin Rahtge** and his team at ONP have participated in the planning and realization of several offshore windfarms in Germany, like Merkur, Arcadis Ost 1, HeDreiht and others.

HR

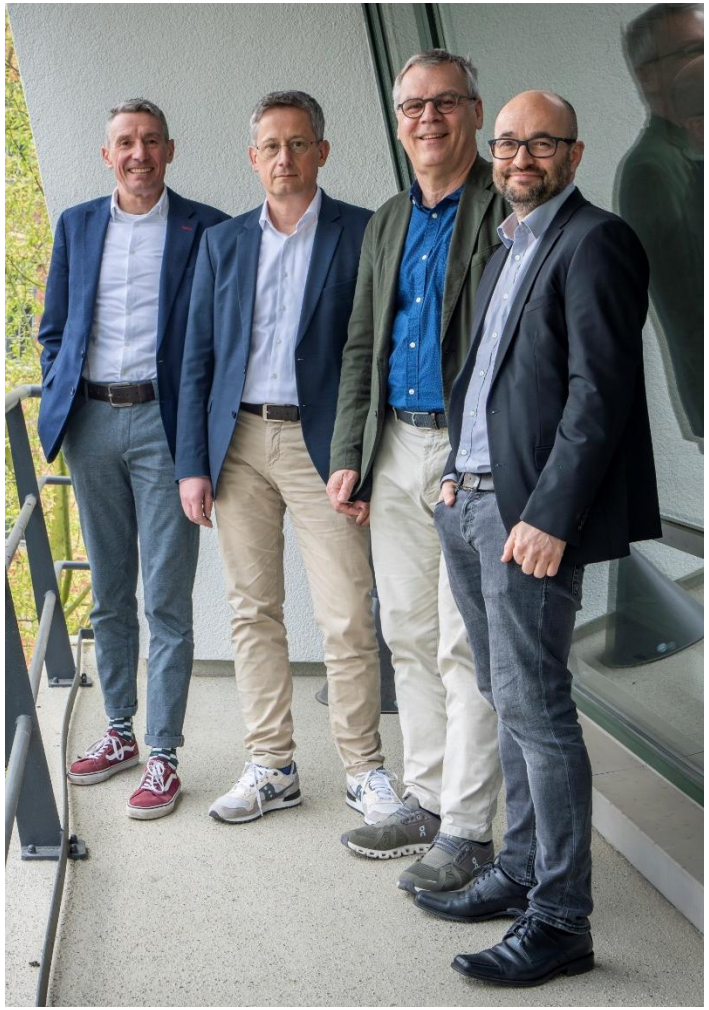
- The Rönner Group, represented by **Thorsten and Marcus Rönner**, is activly driving the development of the hydrogen platform with their experts from BVT, EnPro and Lloyd-Werft.

HF OFFSHORE

- **Captain Heiko Felderhoff** has established HF Offshore with a team of experienced maritime and logistics experts. They combine many years of experience in shipping and offshore operations.

HY5 Management

- HY5 is a boutique management office, founded by **Andreas Wellbrock**, enabling the establishment of a hydrogen economy in the north of Germany.



OFFSHORE ELECTROLYSIS

WHAT WE BELIVE IN

THE BRIGHT FUTURE OF OFFSHORE ELECTROLYSIS

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- As a **group of pioneers of offshore wind energy**, we want to use offshore electrolysis to produce green hydrogen on an industrial scale and actively shape the turning point.
- We have investigated the offshore production of green hydrogen for around five years. The results are extremely positive, so about three years ago we decided to develop the **first project company for the construction of offshore electrolysis in Germany**.
- In light of the challenges for the energy system in Germany, we have chosen a **sprinter approach** for our concept, which means the use of **existing, tried-and-tested technologies** and the ability to be approved quickly.
- With a **wealth of experience** from construction & operation of offshore wind farms, we are able to tackle the challenge of hydrogen production as an off-grid solution via **system integration of technologies**.
- Our **modular platform concept** consists of the treatment of seawater for electrolysis, hydrogen production, the use of the generated process heat and oxygen, as well as the environmentally friendly return of the brine resulting from water treatment **under one roof.**

TRANSPORT-SOLUTIONS

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- Our research has also shown that transporting hydrogen to the mainland via **pipeline is the most cost-effective way**. However, the necessary approval process and objections from nature conservation associations presents an incalculable risk for delay.
- That's why we develop solutions for **transporting the hydrogen by ship,** utilizing the h2-ready LNG terminals, for example in Wilhelmshaven or Stade. At any stage we can also connect our offshore hydrogen production to a pipeline.

PROJECT REALIZATION

WHAT WE WANT TO DELIVER

SPRINTER APPROACH

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- Develoment pipeline from a **10MW-Demonstrator** (2028) to a pre-commercial project @ 300MW (i.e. SEN-1 by 2031) to commercialization @ GW-scale from 2035 onwards
- **Integration of existing technology** (high degree of maturity) to complete solutions that can be implemented quickly with new developments gaining implementation speed
- Resolving the competition situation in using **offshore wind energy w/o grid connection** for green hydrogen
- **Establishing a home market** (local content) as a showcase for the technology export of German shipbuilding, marine technology and mechanical and plant engineering as well as a low CO_2 footprint for the supply chain
- Create a **sustainable and scalable business case**

PROJECT PIPELINE

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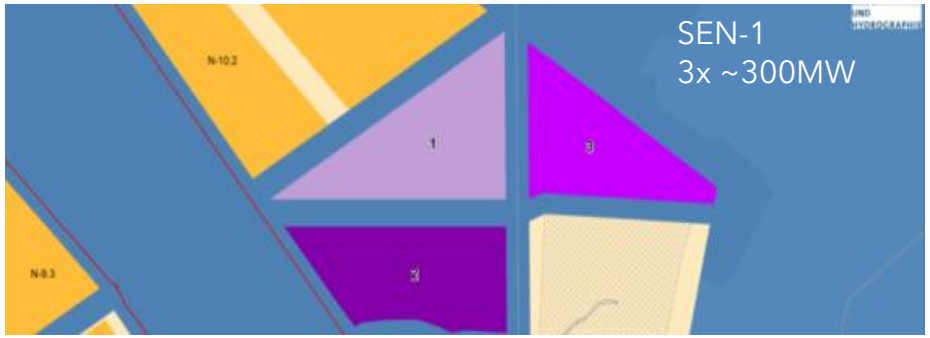

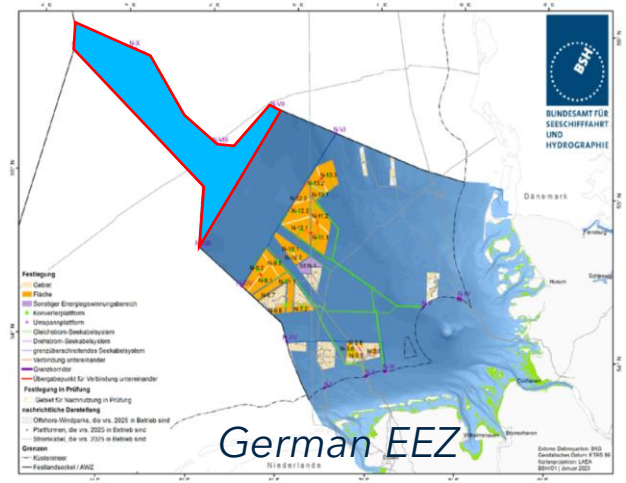

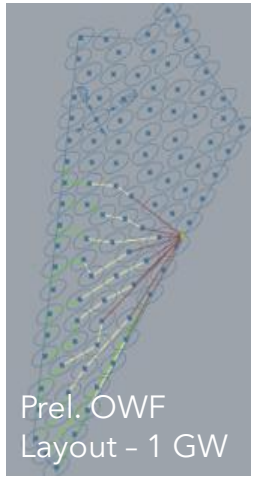

10-MW-Demonstrator (OWF Global Tech I DE)

- Desalination and electrolysis on a fixed turbine-foundation
- Testing of all components for production, storage and re-elctrification
- Provide input-data for research projects => proof of concept by 2028

300MW SEN-1 (other energy generation area)

- Tender process for 3 areas of ~300 MW each
- Pipeline transport via German H2-Backbone (AquaDuctus)
- Maturing of technical-concept under a funding-regime

GW-Scale (zones 4 & 5 of German EEZ & applicable globally)

- +20 MW turbines with >1GW installed capacity
- Pipeline or ship transport
- Commercialization of offshore-hydrogen production

KEY FIGURES

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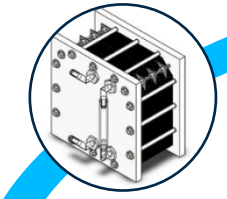
From 12MW via 300 MW up to
GW-scale offshore wind capacity

10 - 270 - 900 MW
PEM electrolyser



Up to 70.000* tons green
hydrogen yearly

Avoiding up to
630.000* tons CO_2
yearly

Transport-vessel compressed hydrogen

Length o.a.:	220m
Bredth:	32,0m
Draft (design):	8,50m
Speed:	14,0kn
Loading capacity:	~30.000m³
	~ 500t H2 @ 250bar

*1GW project-size

HYDROGEN OFFTAKE

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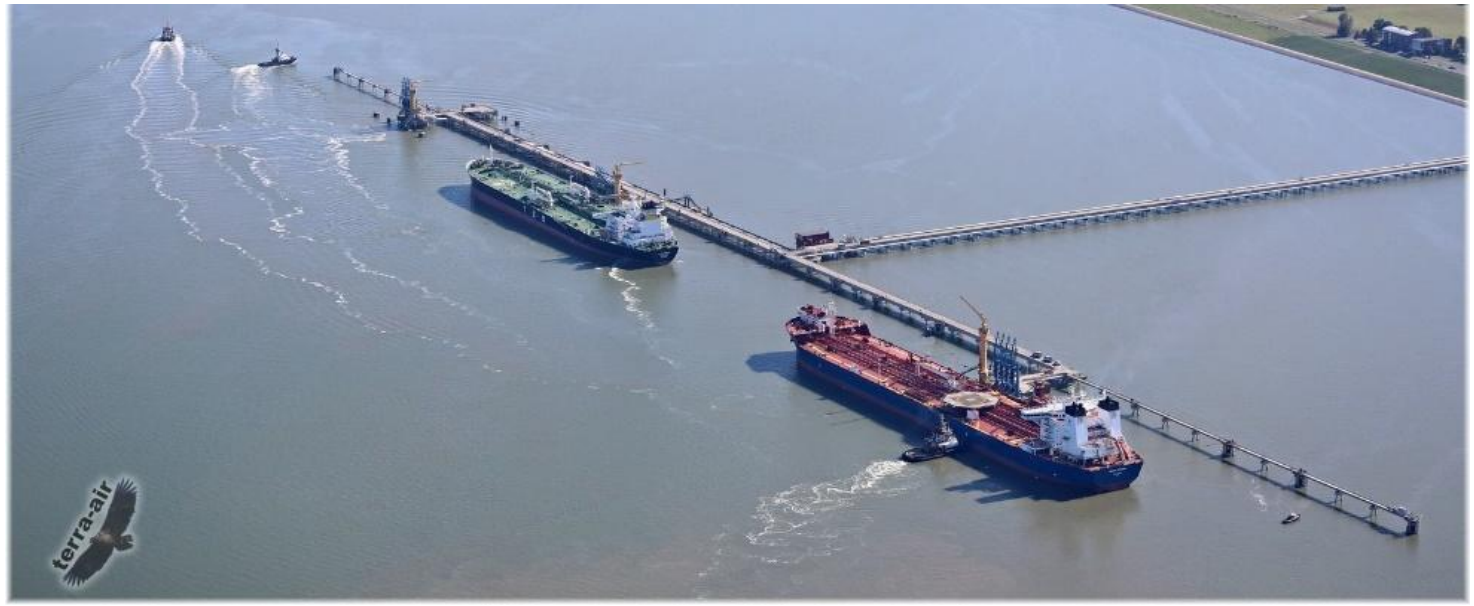
- A long-term offtake agreement will govern the sale of green hydrogen.
- H2 quantity @ port up to 70.000* tons/annum
- Hydrogen quality ≥ 99,995 %
- Place of delivery – Stade / Wilhelmshaven / any other suitable port



*1GW project-size

DEVELOPMENT TIMELINE Germany

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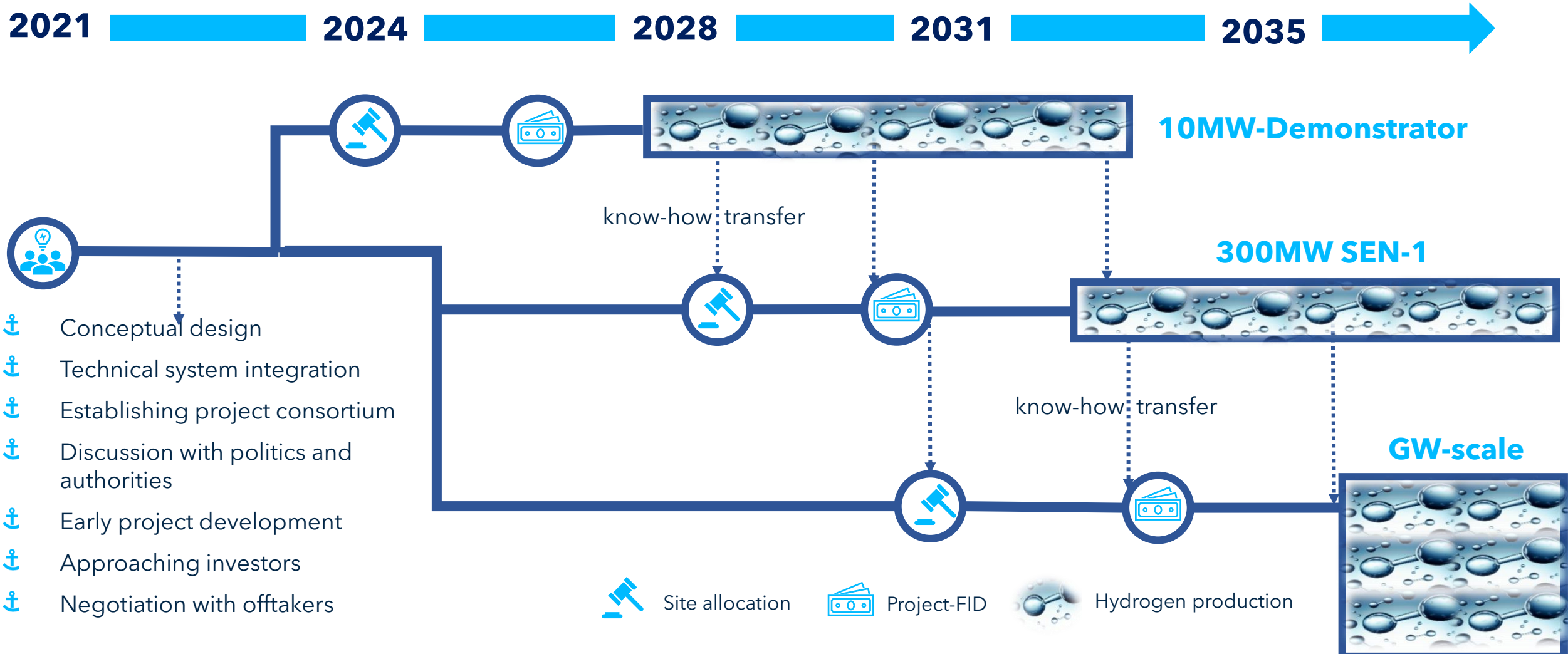

OUR AIM

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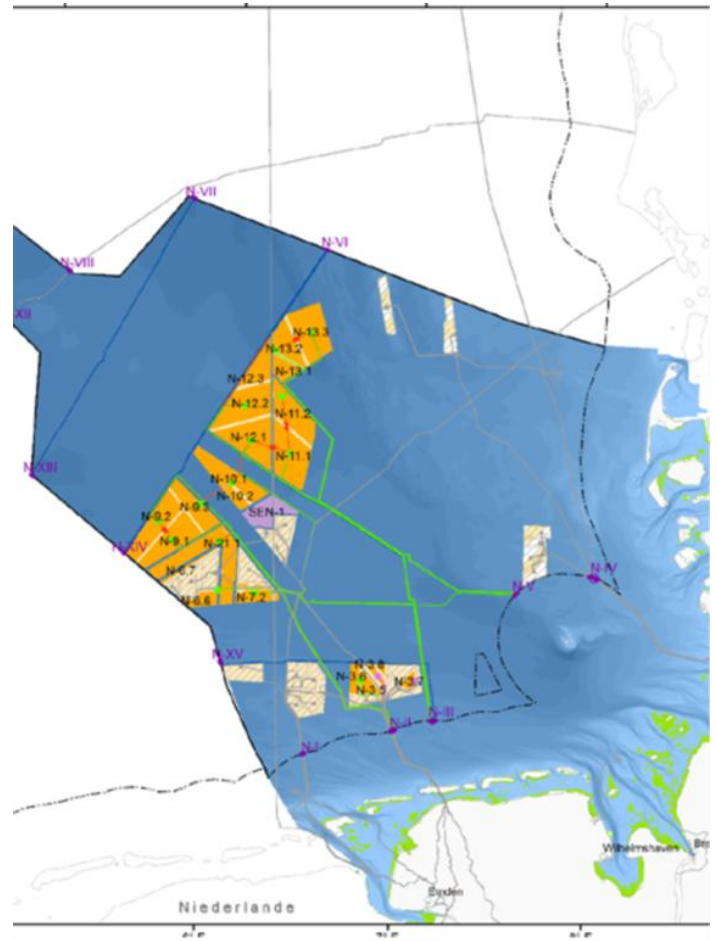
- Realize a **10MW-Demonstrator** project to go in operation by 2028 to proof the concept
- Prepare for the first seabed lease tender **SEN-1** (release expected for Q2/2025) with 3 areas of approximately the same size (300 MW).
- At the same time, we are promoting the release of **additional larger areas** in the **outer German EEZ** (so-called duckbill) for commercial offshore electrolysis projects.
- We then also want to **take part in other tenders**. At the moment 10 GW of offshore electrolysis is required in Germany alone.
- Each partner of our development team has an interest in **providing part of the added value** in the realization of our concept.
- With the transferability of our concept, we want to agree on **cooperation with partners in other offshore markets** in order to build up a project pipeline.
- We believe that the global market for **floating offshore projects** offers attractive long-term opportunities to apply our concept.



THE KEY ADVANTAGES

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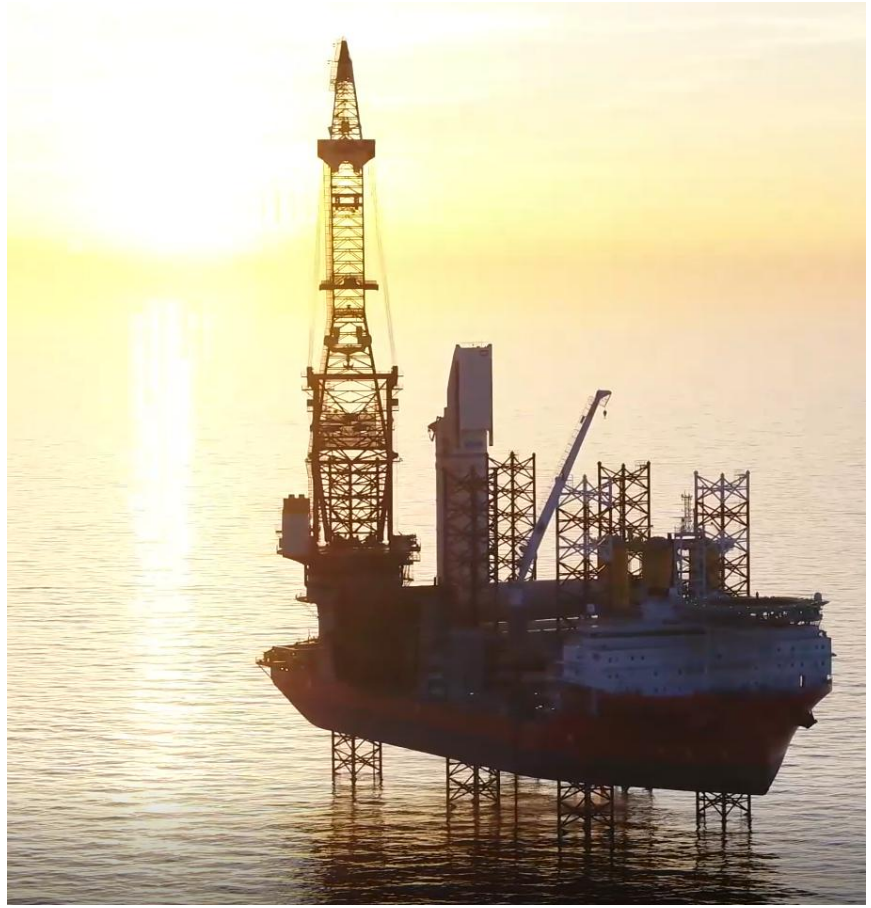
- Solid **development-path** from 10MW to 300MW to commercialization
- **Isolated solution (off-grid)** solves the bottleneck situation in grid connection systems and accelerates the energy transformation (parallel development of electricity and hydrogen)
- This **Sprinter approach** is a game changer and enabler with which green hydrogen “Made in Germany” is to be produced offshore on an industrial scale as early as 2035 (energy sovereignty)
- **Ship-based transport** is the fastest solution, ensuring high flexibility and security of supply for green hydrogen
  (local content)
- After connecting the offshore electrolysis to a collection pipeline, the possibility of transporting the hydrogen by ship as a back-up solution remains in analogy to (n-1) **security** and providing **redundancy**
- The **concept is transferable** to other offshore markets that want to establish a domestic hydrogen production
- Our **concept is scalable**, ready for globalisation and can even be used for floating offshore wind farms at a later stage



THE HYDROGEN FUTURE STARTS NOW!

WHAT´S IN IT FOR YOU?

LET´S TALK!

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NorthH2 Projektgesellschaft mbH
Am Lunedeich 156, 27572 Bremerhaven
Andreas Wellbrock (Managing Partner)
Cph: +49 172 754 6336
a.wellbrock@northseahydrogen.de