

BOWE2H-Conference

Offshore Wind & Green Hydrogen in Germany: National & international innovation



2030 and beyond: Offshore Wind & Green Hydrogen: Policy & Targets

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Who we are – Foundation OFFSHORE WIND ENERGY

- was founded on initiative of the Federal Ministry of Environmental Affairs in 2005
- aims at fostering, promoting and exploring the development of offshore wind & green hydrogen in Germany & Europe
- is an independent, nationwide and nonparty think-tank
- acts as a networking & communication platform for stakeholders from politics, the economy and science
- supports offshore wind development through a broad variety of activities, such as studies, events, projects, test side preparation, consultancy
- Curatorship represents the whole range of relevant stakeholders: operators, TSOs, manufacturer, suppliers, insurance companies, investment trusts & banks, associations, federal & state ministries

The Foundation is currently conceptualizing & launching projects and initiatives on military & offshore wind, co-use, environmental impact of OWFs, skilled workforce, acceptance, offshore rescue & safety



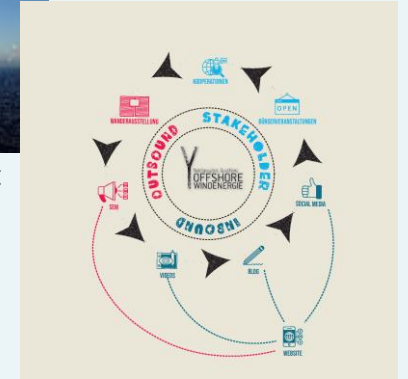
Alpha Ventus – Germany's 1st



Project OWE & Green Hydrogen



Fostering transnational cooperation on OWE & hydrogen in Baltic Sea Region



National Offshore Test Site

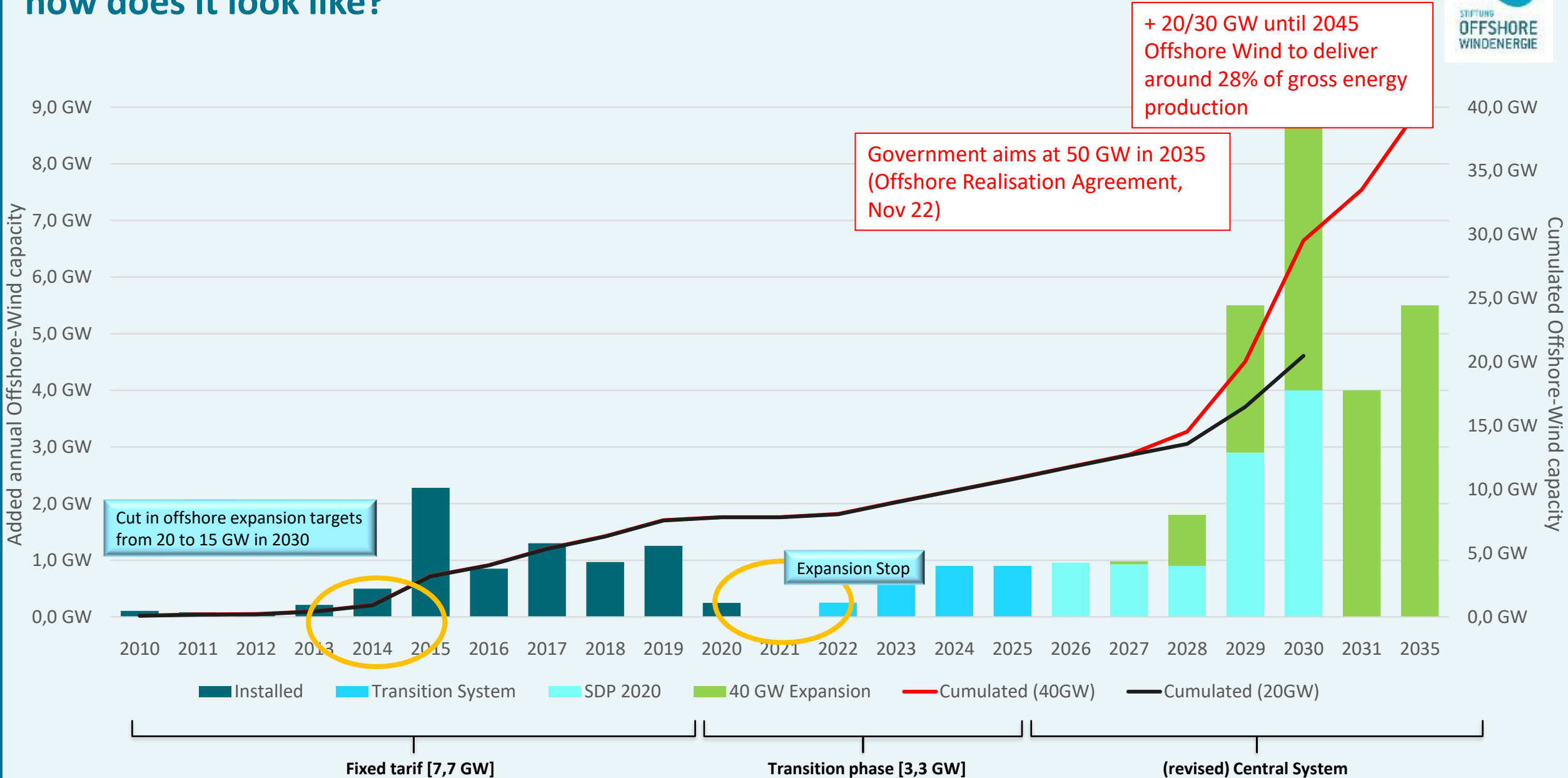


AutoFlow – drone application for rotor blade inspections



Support Project for German SMEs

New Expansion Goals: 30 GW in 2030, 40 - 50 GW in 2035, 70 GW in 2045 – how does it look like?



Amendment of Wind Energy at Sea Act (1) – General Remarks



New expansion goals legally binding since 1st Jan 2023

OWE of “paramount public interest”

Various legal measures with potential to speed up OWE expansion

Tender volumes: 8 – 9 GW in 2023/24; 3 – 5 GW in 2025/26; 4 GW 2027 onwards

Possibility for authorities to exclude “non-Union” bidders from auctions

Draft from the ministry with major alterations in the parliamentary process literally “in the final mile”

Introduction of an industry price mechanism made possible

Most discussions on auction design (introduction of CfDs cancelled; qualitative criteria)



“Pre-examined” sites

- (uncapped) payment (60%)
- 4 qualitative criteria (10% each):
 - **Reconcilability with nature protection** (focusing on foundation types & installation methods)
 - **Volume of PPAs by Lol or contract**
 - **Decarbonisation criterion** focusing on share green power in production of major wind components
 - **Trainee to workforce ratio** for bidders and in bid associated companies

-> 1.8 GW in the tendering process until Aug 1st

-> “Entry rights” on 3 of 4 sites

“Not-pre-examined” sites

- sliding market premium
- “Negative bidding” in case of more than one 0-Cent-bid (150.000 Euro per MW)
- 90% of revenue for lowering electricity prices; 5% maritime nature protection; 5% nature-friendly fishery

-> 7 GW in the tendering process until June 1st

Major controversies on:

- Uncapped bidding
- Selection and definition of qualitative criteria
- Introduction of a limit per bidder
- Missing indexation

From political Agenda-setting to implementation: Obstacles & opportunities



Green Hydrogen, Offshore Wind & Offshore Electrolysis

National H2 Strategy 2020

National H2 Strategy 2023

H2 Strategy Northern
German States 2019

H2 Strategy Northern
German States 2023

EU Legislation (e.g., Decarbonization
Package, RePowerEU)



Wind Energy at Sea Act 2023

Site Development Plan 2023

Ordinance on Auctioning
Sites for Alternative Energy
Generation in the Exclusive
Economic Zone

Funding Guideline for Offshore
Electrolysis

“under development”

Published; finalized

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EU Legislation (e.g., Decarbonization
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- Main goal: Establish H2 as an option in decarbonisation
- Situation today: H2-demand: 55 TWh
- 2030
H2-demand: 90 – 110 TWh
Capacity of electrolyzers: up to 5 GW
H2-production: up to 14 TWh/a
- 2035 – 2040
Capacity of electrolyzers: up to 10 GW
H2-production: 28 TWh



at Sea Act 2023

Development Plan 2023

on Auctioning
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EU Legislation (e.g., Decarbonization
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- currently in the making (up for discussion in cabinet in May)?
- Last draft circulated in Feb 2023
- Security dimension underlined due to new situation (e.g., war in Ukraine)
- Develop Germany to lead market for hydrogen (especially for electrolyzers)
- Major focus on a strong domestic green hydrogen market
- 4 areas of action:
 - (1) secure supply of Green H2
 - (2) expand H2 infrastructure
 - (3) establish H2 applications (industry, traffic, energy, heat)
 - Create good investment conditions
- **Midterm goals:** developing EU hydrogen backbone, promoting cross-border projects and infrastructure, e.g. energy islands, of electrolysis, long-term import contracts
- **Short term:** the potential of wasted heat from electrolyzers should be considered for location decision

Raise to 10 GW according
to coalition agreement

Green Hydrogen, Offshore Wind & Offshore Electrolysis

National H2 Strategy

National H2 Strategy

H2 Strategy North
German States 2023

H2 Strategy Northern
German States 2023

EU Legislation (e.g., Decarbonization
Package, RePowerEU)

- Most important single act for Offshore Wind in Germany
- Revised last with an intensive debate around the new auctioning design
- Could set a **binding target for offshore electrolysis** which does not exist so far
- Includes an “ordinance directive” for the Ministry of Economic Affairs to shape an ordinance for tendering 500 MW of grid-beneficial electrolyzers between 2023 - 28

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EU Legislation (e.g., Decarbonization
Package, RePowerEU)

- Site planning instrument for offshore wind in Germany defining use of areas
- Sets out areas for alternative energy production / offshore hydrogen production
- Revised SDP sets out a 95,4 km² area in the North Sea for alternative energy production; 100 km off-coast
- Pipeline possible

Wind Energy at Sea Act 2023

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Raumordnungsplan für die deutsche ausschließliche Wirtschaftszone in der Nordsee und in der Ostsee - Kartenteil Nordsee

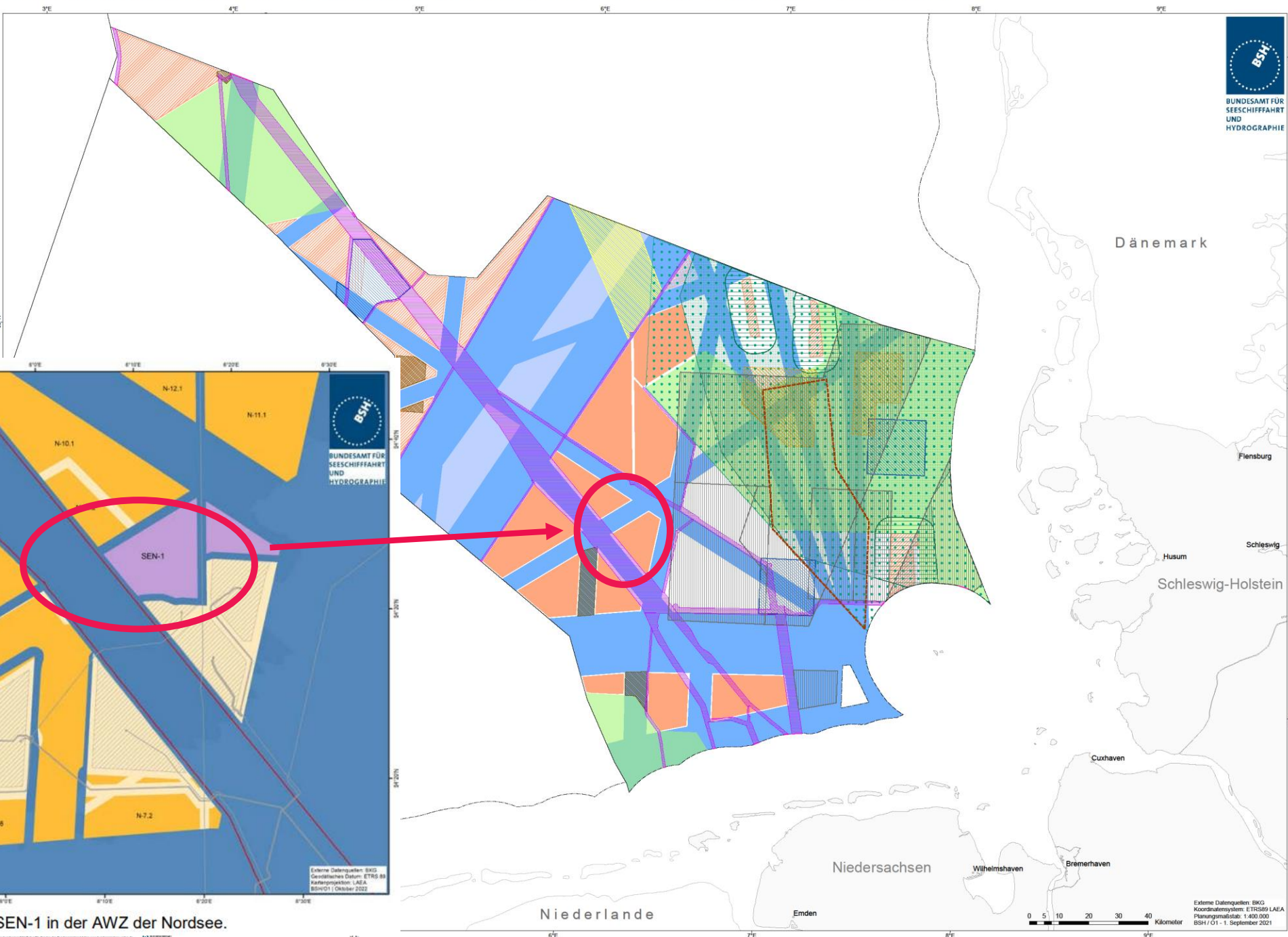


Abbildung 7: Sonstiger Energiegewinnungsbereich SEN-1 in der AWZ der Nordsee.

Green Hydrogen, Offshore Wind & Offshore Electrolysis

National H2 Strategy 2020

National H2 Strategy 2

- Went into force in Oct 2021
- Sets out qualitative criteria for alternative energy area tender
- But no financial support scheme

H2 Strategy Northern German States 2019

H2 Strat Germa

- Key point paper under market consultation in Jan 2023 (followed by a further consul.)
- Dual tender system planned (for site and support scheme)
- After industry feedback: division of area planned
- Currently not clear if first auction in 2023

EU Le Pack

Wind Energy at Sea Act 2023

Site Development Plan 2023

Ordinance on Auctioning Sites for Alternative Energy Generation in the Exclusive Economic Zone

Funding Guideline for Offshore Electrolysis

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Status Quo – some major remarks



- Offshore wind must play an important role to provide electricity for electrolyzers in domestic market
- Germany aims at enhancing a German (offshore) hydrogen production, yet it is no subject of debate that it will also have to import hydrogen and its derivatives
- No expansion/production target currently set for the offshore electrolysis, which leads to various chicken-egg-problems (especially concerning transport options)
- Strong factions of “all-electric fans” & “H2 apologists” in Germany & in the offshore sector
- Offshore electrolysis also intensively debated
- *Foundation has assigned a study on location criteria for electrolyzers to support the discussion (published in May 2023 ([here](#) in German))*
- Debate has seen a swap in favor of offshore electrolysis since Russia’s invasion of Ukraine
- Indicators: size-up of SEN-1 area, regulatory enabling of pipeline, tendencies in National H2 strategy, interest in cross-border cooperation

Thank you for your attention!

Happy to get in touch...



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