

BOWE2H-Conference

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



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

Andreas Mummert

Head of Political Affairs,  
German Foundation Offshore Wind Energy

# 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

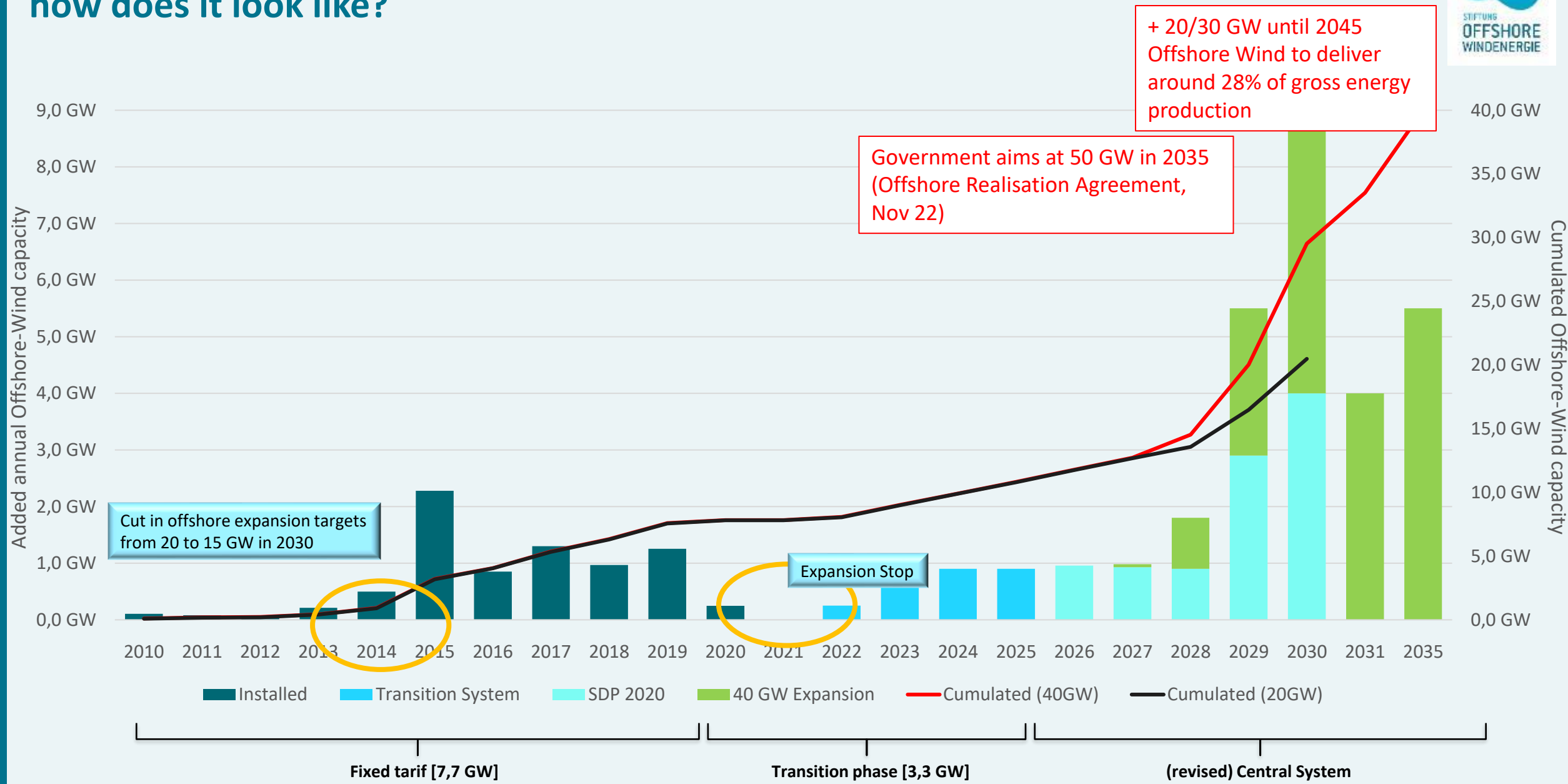


AutoFlow – drone application for rotor blade inspections



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 1<sup>st</sup> 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

Demand already higher than supply in some job categories

**Skilled Workforce**



**Cable**



**(Raw) Materials like Steel or Rare Earths**



Cost increase and difficult price predictions

95% of purchase orders go to China

Conservative estimate of 150 ha demand just from operators

**Ships**



Last on build in Germany in 2018

**Converter Stations & Substations**



**Harbours & Backcountry Infrastructure**



**Large Components**



**Geopolitics**



**Regulation & Market Design**



SME's currently with low equity; problems to invest in scale-up

# 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

# 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)**

- 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 Sites for Alternative Energy Generation in the Exclusive Economic Zone**

**Funding Guideline for Offshore Electrolysis**

“under development”

Published; finalized



# 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)



- 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 form electrolyzers should be considered for location decision

*Raise to 10 GW according to coalition agreement*

# Green Hydrogen, Offshore Wind & Offshore Electrolysis



- 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

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)

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

# Green Hydrogen, Offshore Wind & Offshore Electrolysis



**National H2 Strategy**

**National H2 Strategy**

**H2 Strategy Northern  
German States 2019**

**H2 Strategy North  
German States 2023**

**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 km<sup>2</sup> area in the North Sea for alternative energy production; 100 km off-coast
- Pipeline possible

**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





# 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 Packa

## 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

## 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...



E-Mail: [a.mummert@offshore-stiftung.de](mailto:a.mummert@offshore-stiftung.de)

Mobil: +49 (0) 152 090 44 836

Foundation OFFSHORE WIND ENERGY  
Offices in Berlin | Hamburg | Varel