

# The Renewable Energy Hamburg Cluster



The Network for Future Energy Technologies

## MISSÃO TÉCNICA EÓLICA OFFSHORE

19 - 24 de Maio de 2019  
Hamburgo | Bremerhaven | Alemanha

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**Welcome to Hamburg!**

**Welcome to the Renewable Energy Hamburg Cluster!**

regulatórias do setor eólico offshore alemão.

# The Renewable Energy Hamburg Cluster

The Network for Future Energy Technologies



## Status Quo on Offshore Wind in Germany Cluster Profile, Current Developments and Highlights



# Cluster and Regional Sector at a Glance

## Cluster Key Figures

### Regional Sector

**1,466** Companies

**24,700** Employees

### Cluster

**54** Founding Members in 2010

**190** Members in 2019

**59 %** Directly located in Hamburg City



# Unique Wind Energy Landscape

2/3 of cluster members involved in wind



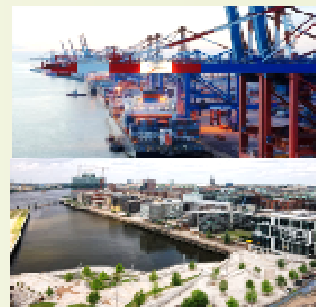
## > 10 project developers / customers for RE

- > 65 % of all German offshore wind projects managed and developed in Hamburg
- Utilities active in all fields of renewables, grid and storage projects
- Strong multinational focus (purchase)
- High level of market force that requires a high level of QM, ICT, contract terms



## 6 OEM manufacturers / suppliers for RE

- international headquarters
- product development onshore + offshore
- project management onshore + offshore
- international sales
- R&D centers
- material procurement (logistics, interfaces)
- supply(er) management

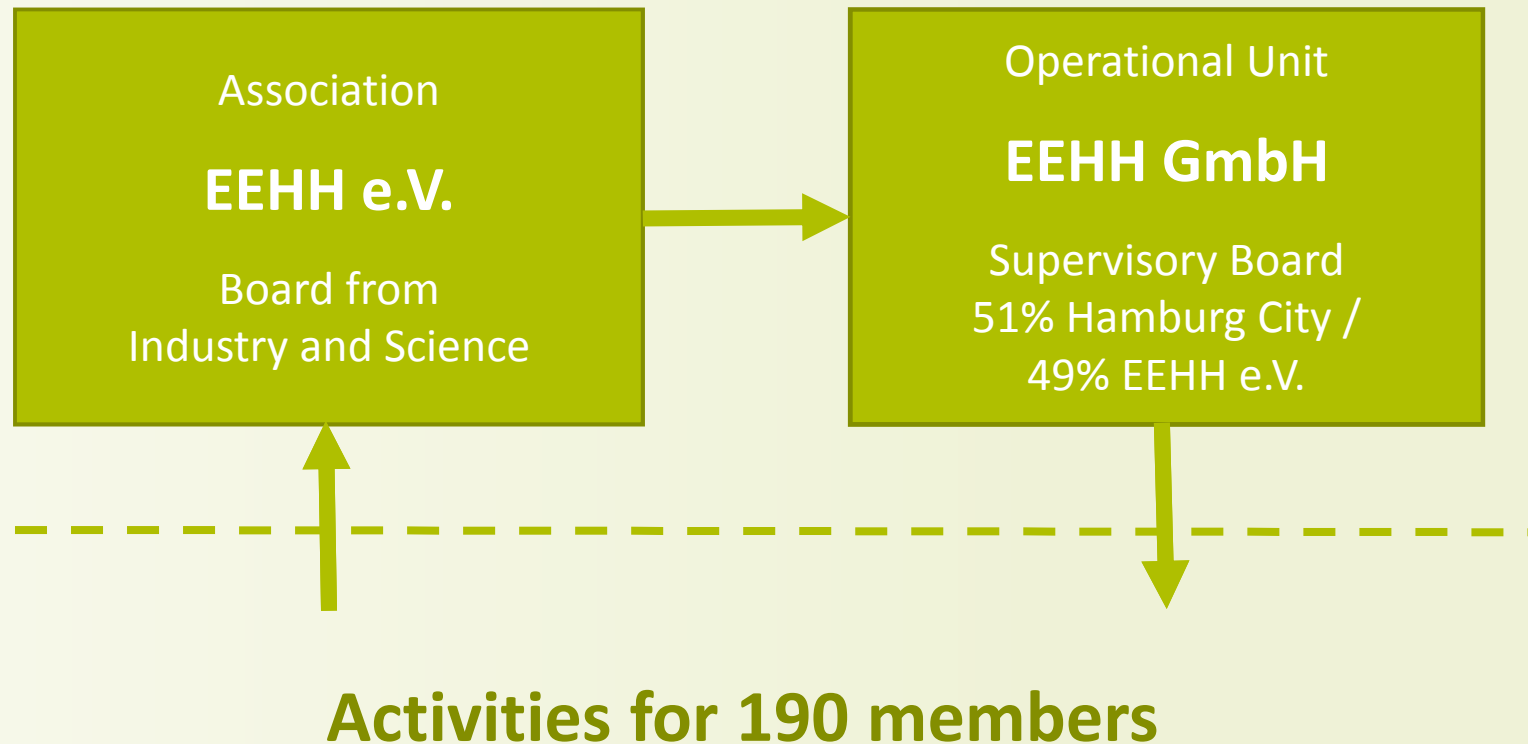


## > 100 know-how SMEs / + 5 universities in Hamburg + 3 universities in Hamburg Metropolitan area

- leading in certification (projects, techn.)
- sea law and RE law (EEG-Act, international)
- maritime logistics
- finance and insurance
- techn. services / engineering
- components, special applications

# Cluster Structure

Public Private Partnership



# Board Members of EEHH e.V.

## Representing Industry and Science



**Sebastian Averdung**  
Chairman  
Averdung Ingenieure GmbH



**Michael Prinz**  
Deputy Chairman  
Hamburg Energie



**Ralf Skowronnek**  
Treasurer  
Marsh GmbH



**Torsten Hinsche**  
Committee member



**Dr Alexandra von Bernstorff**  
Committee member  
Luxcara GmbH



**Pieter Wasmuth**  
Committee member  
Vattenfall GmbH



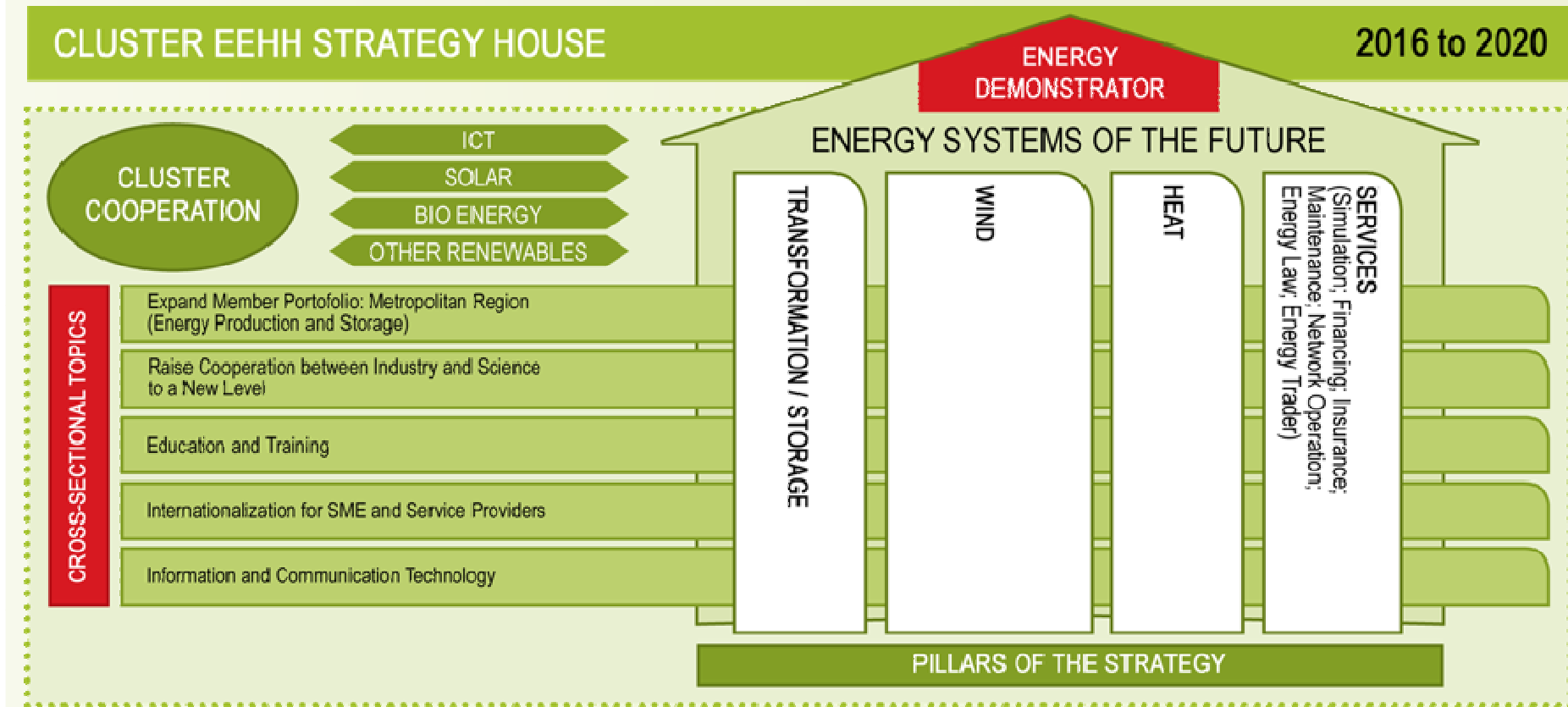
**Professor Martin Kaltschmitt**  
Associated member  
Technical University Hamburg



**Professor Ingo Weidlich**  
Associated member  
HafenCity University

# Cluster Vision and Strategy House

Based on Current Strongholds



# Three Decades of Wind History

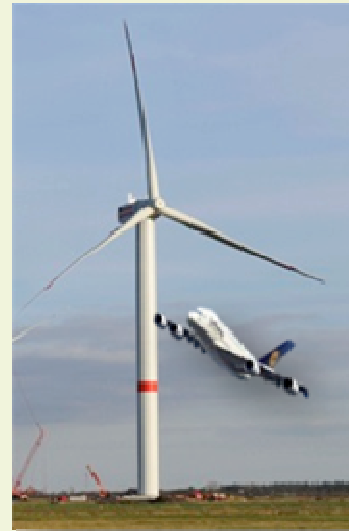
## Development through Evolution



1990: 10 x 250 kW



2008: 1 x 2.5 MW



2011: 6 + MW



2013: 6 + MW



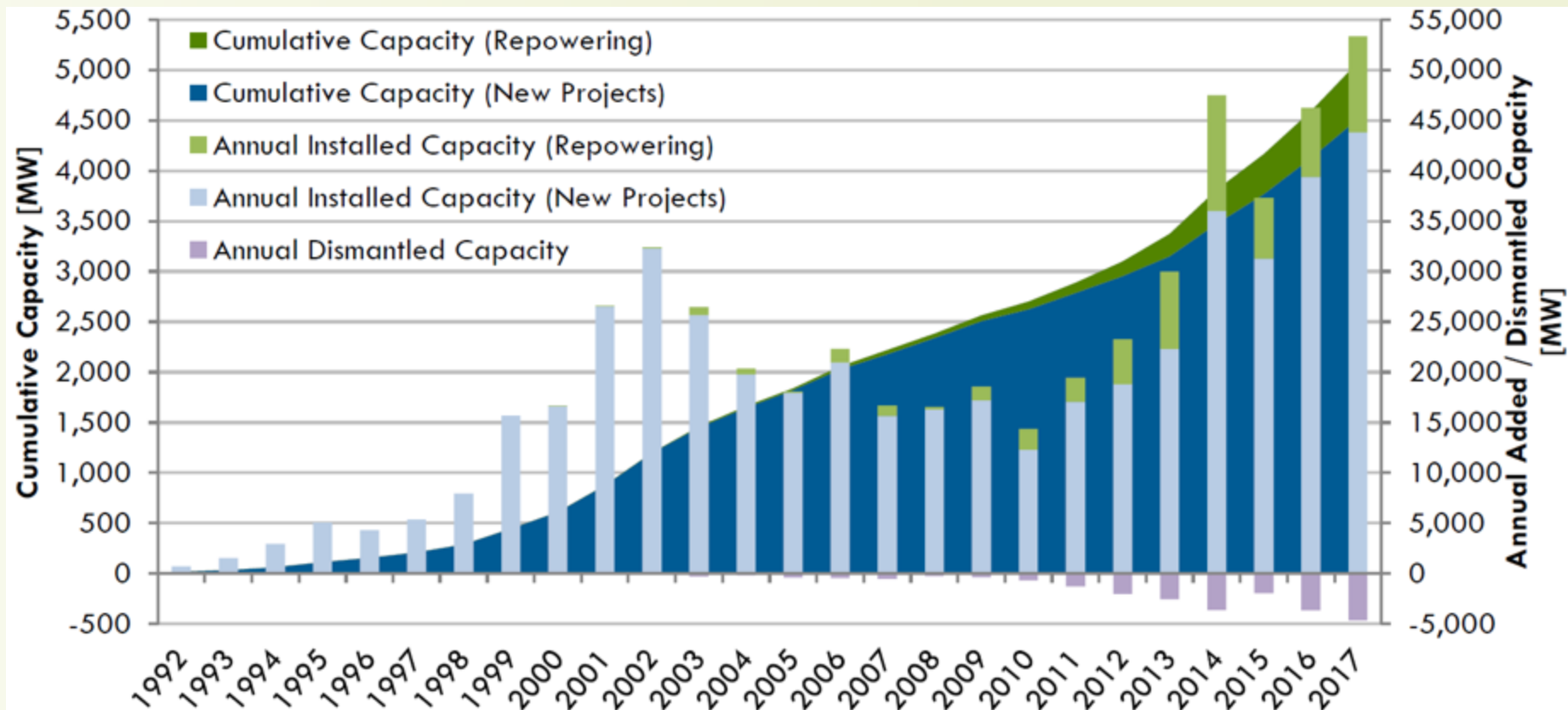
## History of Wind Energy Region

- > 30 Years of Experience
- Hamburg as international Centre
- Many manufacturing sites in North Germany
- Many service providers available



# Onshore Wind

>50 GW Onshore Wind



Source: Deutsche Windguard 2018

# Offshore Wind is a Large Strategic Potential

2/3 of projects planned in Hamburg

Current Target:  
approx. 15,000 MW installed power by 2030:

- Electricity production in 2030 of approx. 60 TWh
- 10-12% of electricity demand in Germany

Without alternative, no other renewable energy:

- with comparable power generation potential
- with comparative cost potential
- with over 4,500 full load hours per year (year = 8,760 flh)
- High level of public acceptance

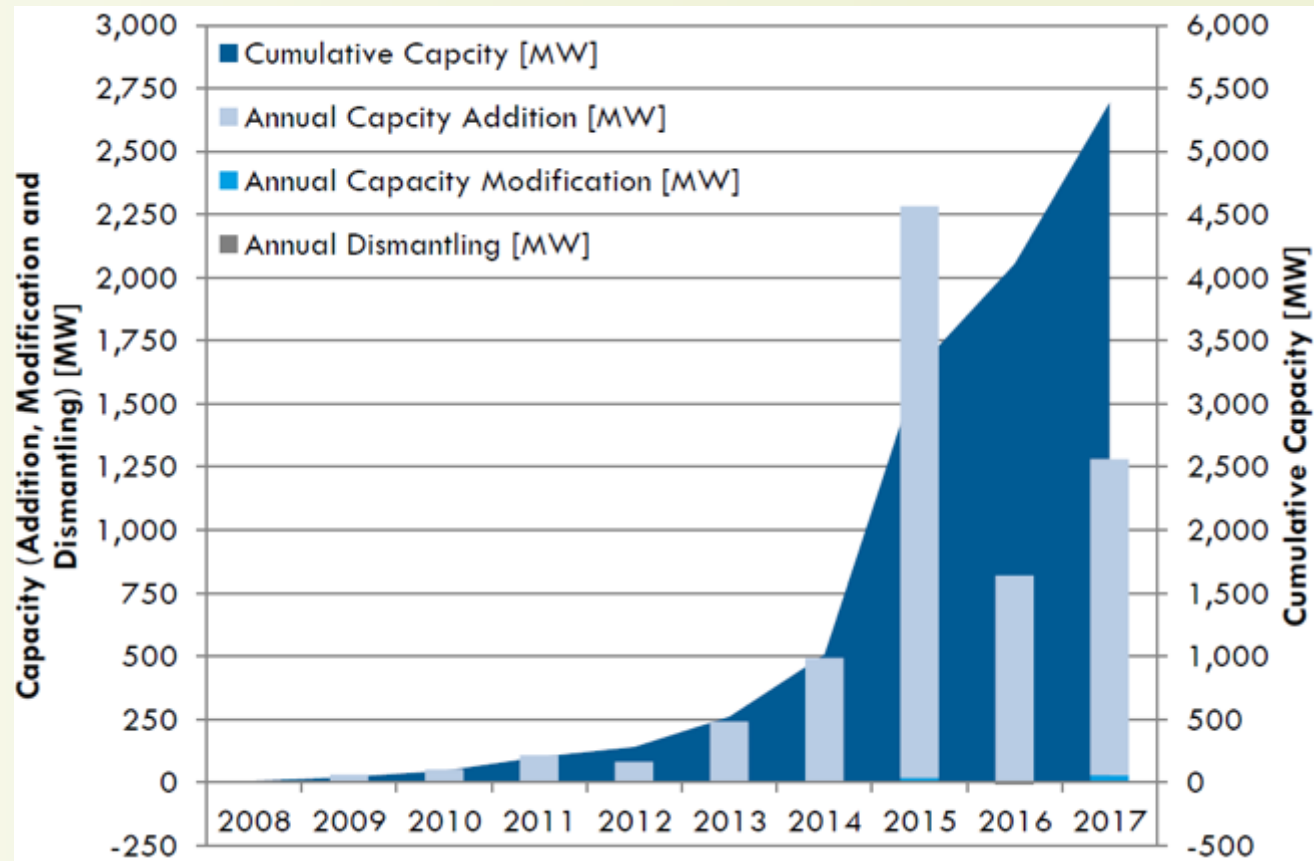
Challenge Technology and Investments:

- 2,000 - 3,000 turbines
- Turbines: 200 - 500 tons
- Investments: 40 - 60 Billion €
- 35% investment for turbines; 65% investment for foundations etc.



# Offshore in Germany

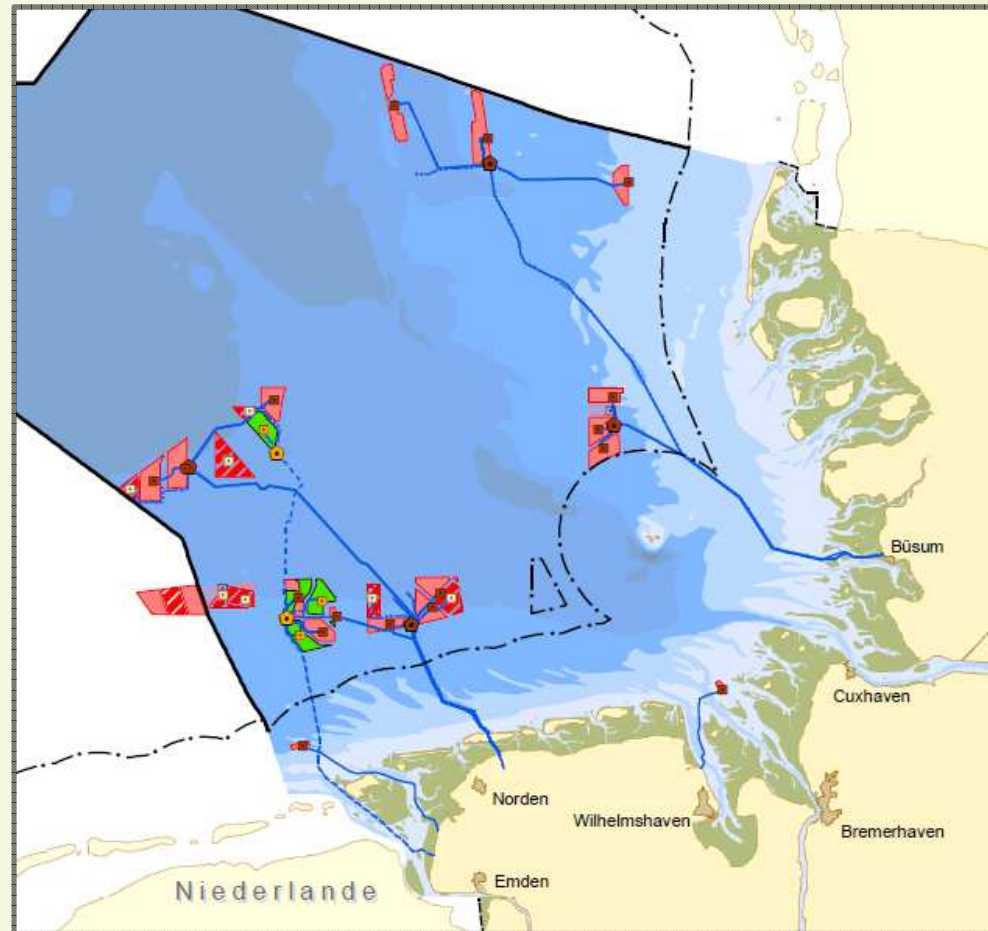
5,4 GW Until End 2017



Source: Deutsche Windguard 2018

# Offshore in Germany

5,4 GW Until End 2017



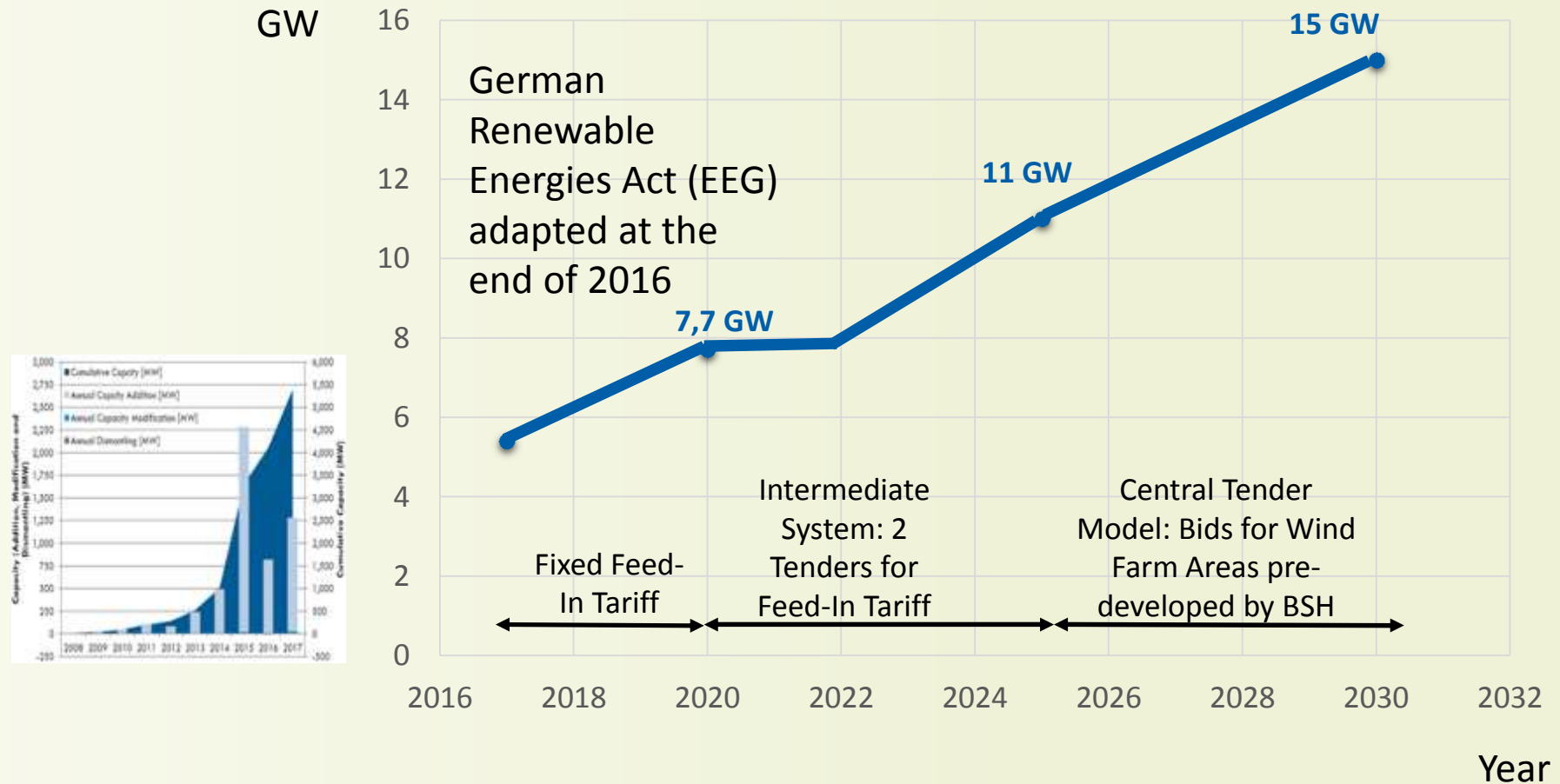
End of 2017:

- 20 offshore wind farms operational
- 5 under construction



# Current Tenders and Development Path

## Growth trajectory



A1

**A1**

Welche Quelle?

Autor; 16.01.2019

# Tender Results in 2017 and 2018

Amazing development: Zero bids!

## 1st Tender 2017

Project	Owner	MW	€/MWh	Year Commiss.
He Dreiht	EnBW	900	0	2025
OWP West	Orsted	240	0	2024
Borkum Riffgrund West 2	Orsted	240	0	2024
Gode Wind 3	Orsted	110	60	2024

## 2nd Tender 2018

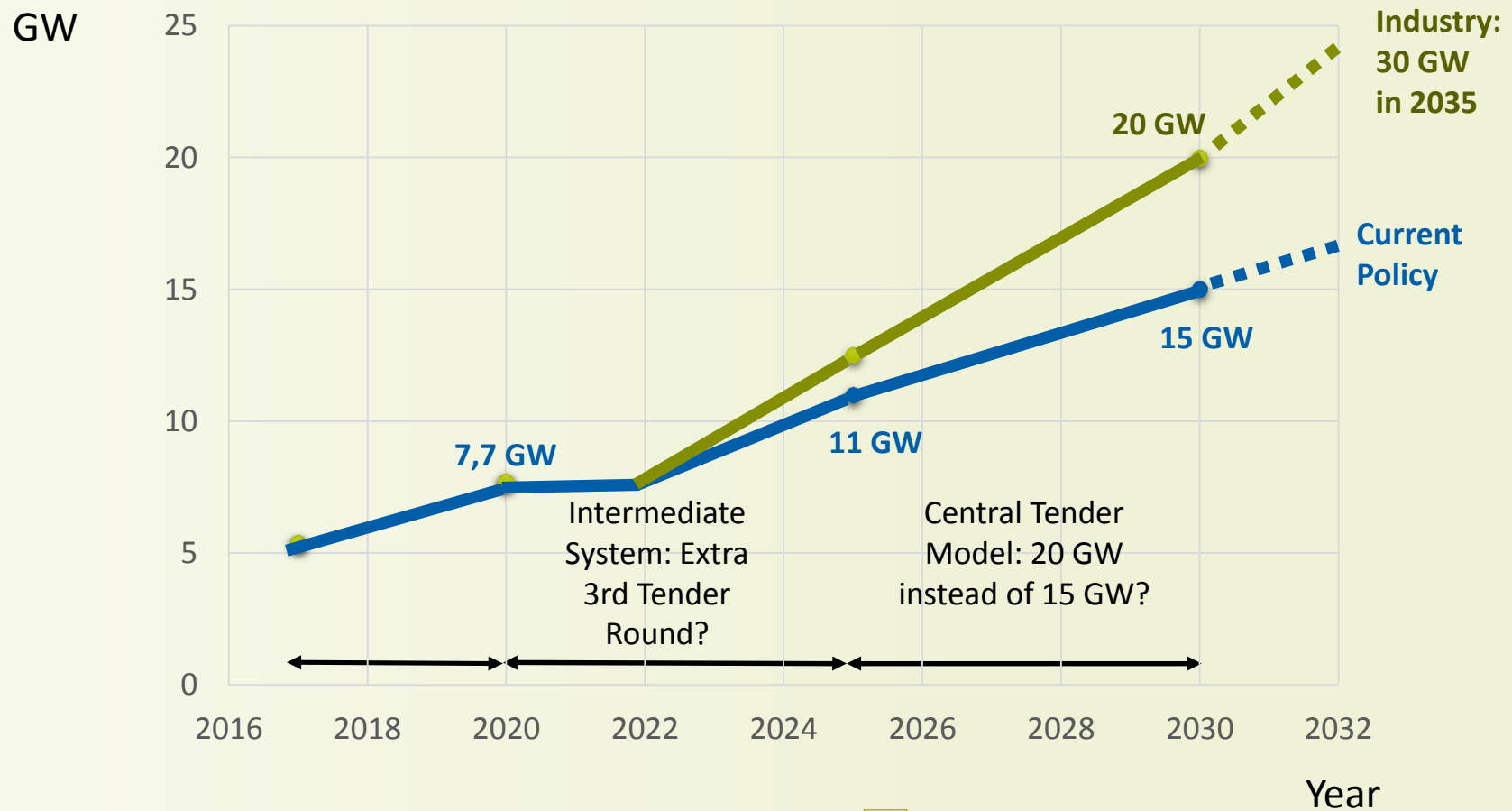
Project	Owner	MW	€/MWh	Year Commiss.
Baltic Eagle	Iberdrola	476	64,6	202?
Gode Wind 4	Orsted	132	98,3	2024/25
Borkum Riffgrund West 1	Orsted	420	0	2024/25
Kaskasi	Innogy	325	?	2022
Arcadis Ost 1	KNK / Parkwind	247	?	2021
Wikinger Süd	Iberdrola	10	0	202?





# Offshore Wind Sector: More Is Possible...

After „Zero Bids“ - more is possible...

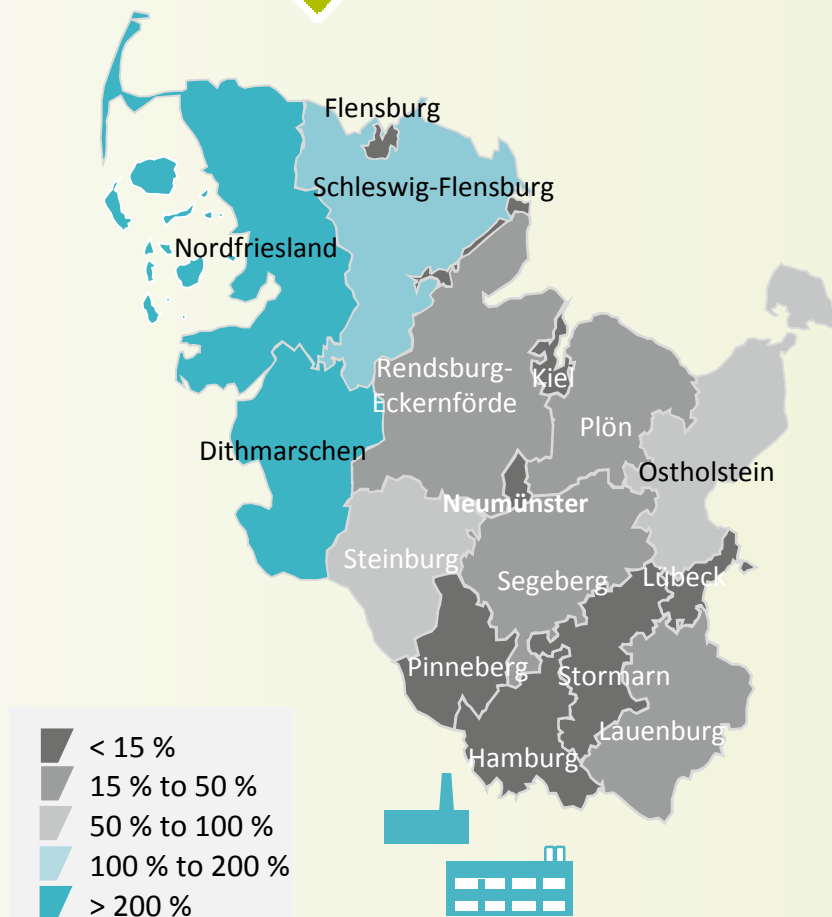


A3



# NEW4.0 – Imbalance of Generation and Load

## Project geography



- >10% of Wind power in Schleswig-Holstein could not be fed into the grid
- Economic loss: 300 Million € net worth of wind power
- Due to bottlenecks in HV Transmission System to the south of Germany

Transmission Grid Enforcement necessary and planned in national grid expansion plan

Source: NEW 4.0

# NEW 4.0 – 60 Partners, 8 Working Groups

## Project Partners





# NEW 4.0 – Some Examples

## Realised projects



Stadtwerke Flensburg

2 MW Power-to-Heat  
added to existing  
cogeneration facility  
to increase flexibility,  
Flensburg



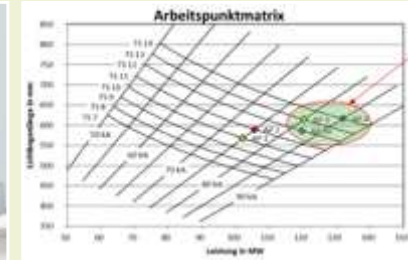
Eisenbahnbauverein  
Hamburg

Ice storage for  
heating of 450  
existing living  
apartments,  
Hamburg



Trimet AG

20 MW  
flexibilisation for  
load shifting at  
aluminium  
electrolysis,  
Hamburg



ArcelorMittal

+/- 10 MW  
Time shift at  
electric arc steel  
melting furnace,  
Hamburg

# The Renewable Energy Hamburg Cluster



Dedicated to Renewables



**Thank you for your attention!**

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**www.eehh.de**