

# Globalization of Offshore Wind

Ben Backwell, GWEC

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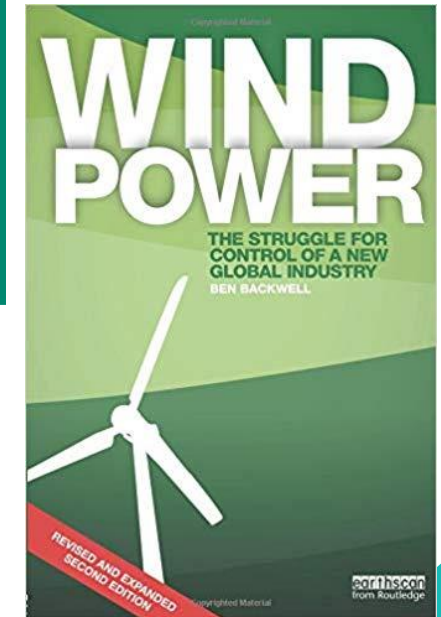
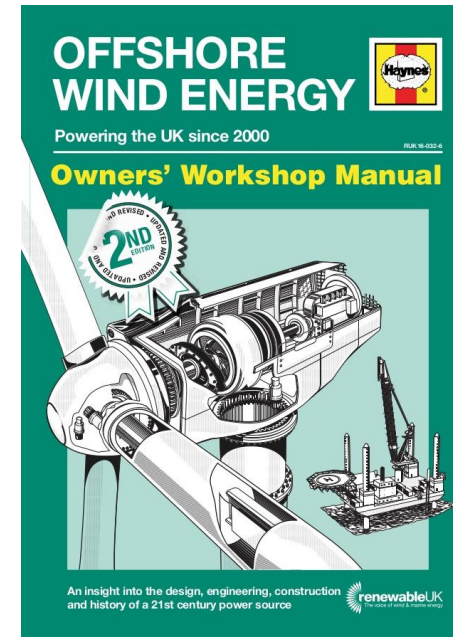


Ben Backwell - **CEO of GWEC**

Author of **Wind Power, the Struggle for Control of a New Global Industry** (Taylor and Francis , 2017) **Haynes Guide to Offshore Wind Energy** (Haynes/Renewable UK)

Former industry consultant at FTI Consulting, advised leading players in UK offshore wind market on political stake holder management, lobbying and media engagement

Former energy journalist and analyst, covering energy policy and markets for 15 years



## CO Members



## C1, C2, and C3 Members



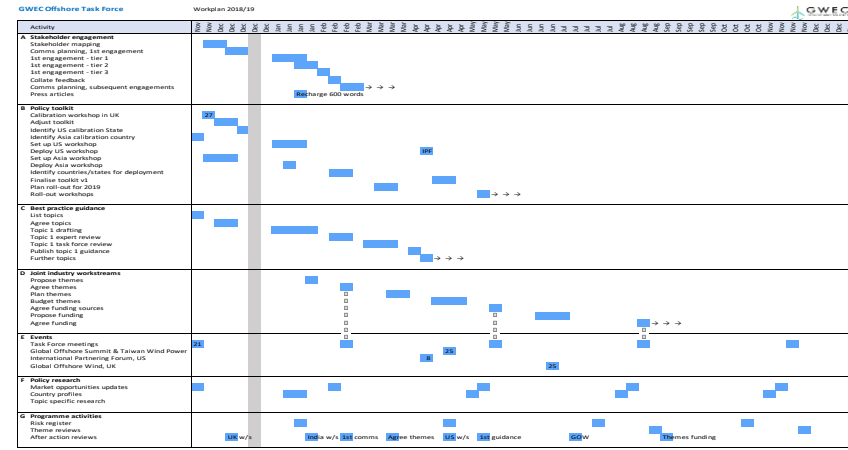
## Associations





### Initial Activities

- 1 Market intelligence
  - 2 Market readiness assessment
  - 3 Market entry opportunities
  - 4 Policy advocacy
  - 5 In-country events
  - 6 Knowledge transfer
  - 7 Skills training
- and more to come...





## Global Wind Ambassador – Henrik Stiesdal

- Designed seminal wind turbine models that shaped modern wind industry
- Built world's first full scale Offshore Wind farm
- Designed most successful offshore wind turbines in market as CTO of Siemens Windpower
- Has designed revolutionary floating wind concept with pilot set to be deployed and investment from Shell and Innogy





## Task Force Chairman - Alastair Dutton

- Former BP - developed solar, onshore wind and offshore wind projects.
- **Former Programme Manager for all the UK's offshore wind projects for the Crown Estate** which owns the UK seabed. Managed successful Round 3 and N Ireland tenders and chaired the selection panel for the site awards.
- Former Expert Advisor for Offshore Wind at the UK Department for Business, Energy and Industrial Strategy (BEIS)



# GWEC Market Readiness Assessment

- GWEC runs Market Readiness Assessment workshops
- These allow governments to benchmark themselves confidentially against other countries in a number of key areas
- And to undertake a gap analysis
- Together with industry and other stake holders, government can then decide to take appropriate actions to advance in key areas and increase their ability to build their offshore wind industries and attract investment

## Offshore Wind Market Readiness Assessment

To assess the readiness and attractiveness of new and emerging offshore wind markets wind markets for offshore wind deployment and to identify where improvements would be best focused.

	Topic	Level	Objective	Gap	Target Date
1	Policy	2	4	2	
2	Stakeholders	2	3	1	
3	Legal	3	4	1	
4	Health and Safety	1	3	2	
5	Consenting	2	5	3	
6	Grid	3	4	1	
7	Offtake	2	4	2	
8	Projects	4	4	0	
9	Manufacturing	2	3	1	
10	Finance	2	4	2	
11	Construction	1	3	2	
12	Operation and Commissioning	1	2	1	

Assessment Dates		to	
Planned Review Date			

Subsequent sheets explain the separate topic rankings and how they have been derived in this assessment.

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# GWEC – World Bank/IFC Cooperation to take Offshore Global



Global Offshore Wi | GWEC – Calendar - | US Edition | South | Inbox (1,051) - ben | Vodaphone 31 Jan | REvision2019: Ren | GWEC and Wo

https://gvec.net/gvec-and-world-bank-group-announce-plans-to-cooperate-on-development-of-global-offshore-wind-markets/

**GWEC**  
GLOBAL WIND ENERGY COUNCIL

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7 March, 2019

### GWEC and World Bank Group announce plans to cooperate on development of global offshore wind markets

- GWEC will coordinate with the World Bank Group's Energy Sector Management Assistance Program (ESMAP) and the International Finance Corporation (IFC) on efforts to accelerate the uptake of offshore wind in emerging markets

The Global Wind Energy Council (GWEC) and the World Bank Group (WBG) have announced plans to work together on efforts to develop offshore wind in emerging markets. This follows the World Bank Group's launch of a new program to fast-track the adoption of offshore wind energy in developing countries, supported by funding from the government of the United Kingdom.

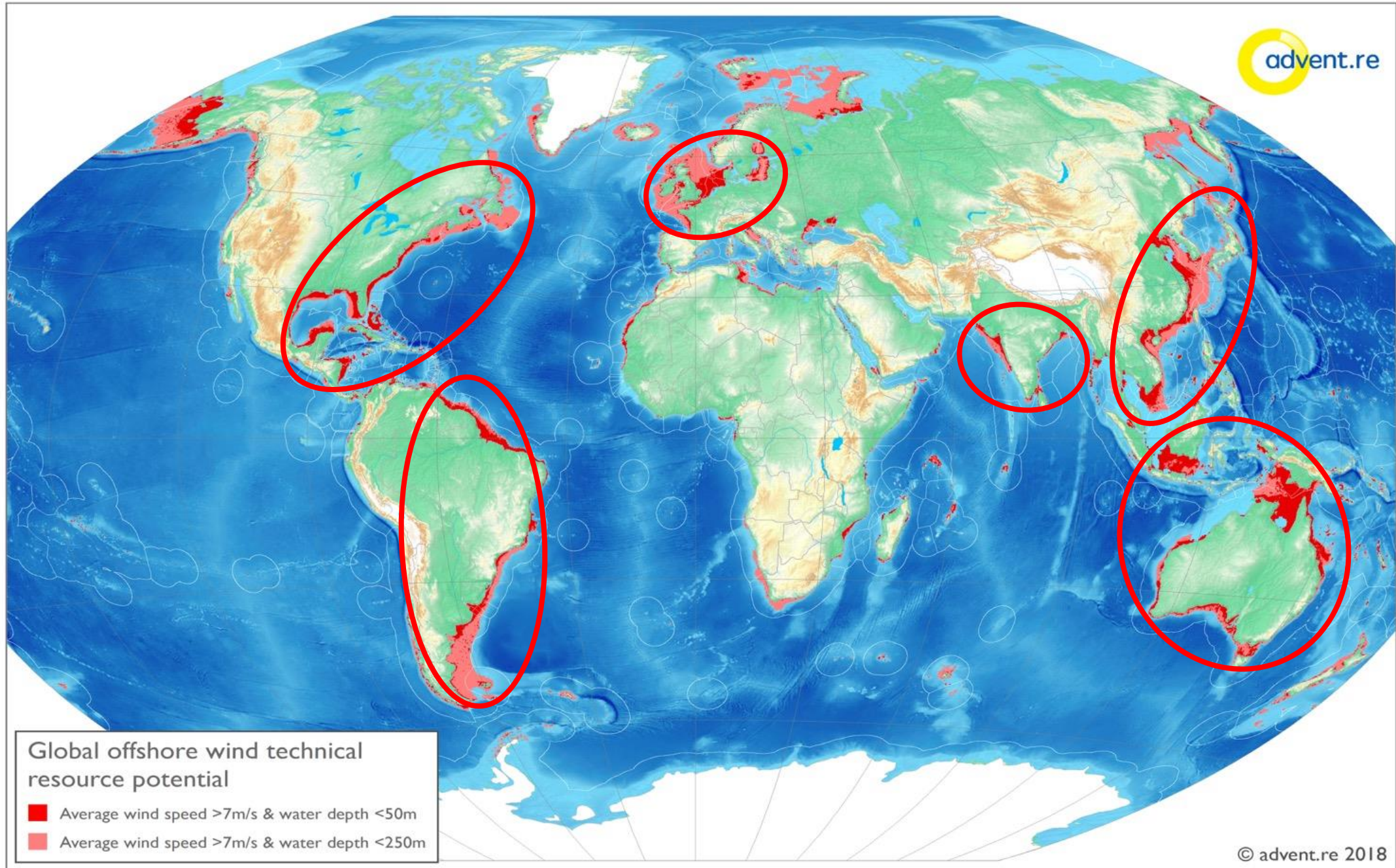
ESMAP is a partnership between the World Bank and 18 partners to help low and middle-income countries reduce poverty and boost growth, through environmentally sustainable energy solutions. The IFC is the world's largest global development institution focused exclusively on the private sector in developing countries.

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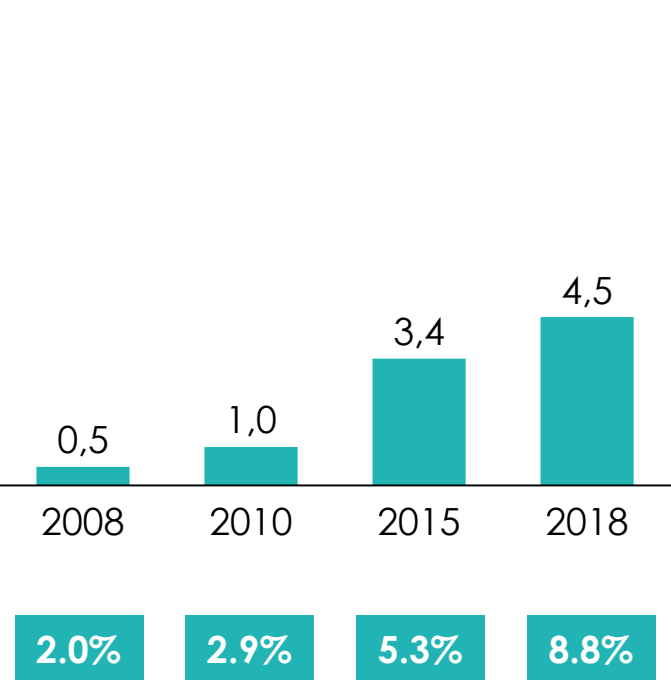
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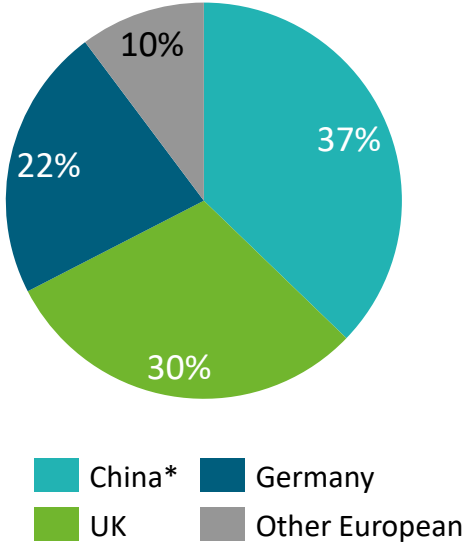


# Offshore wind growing globally

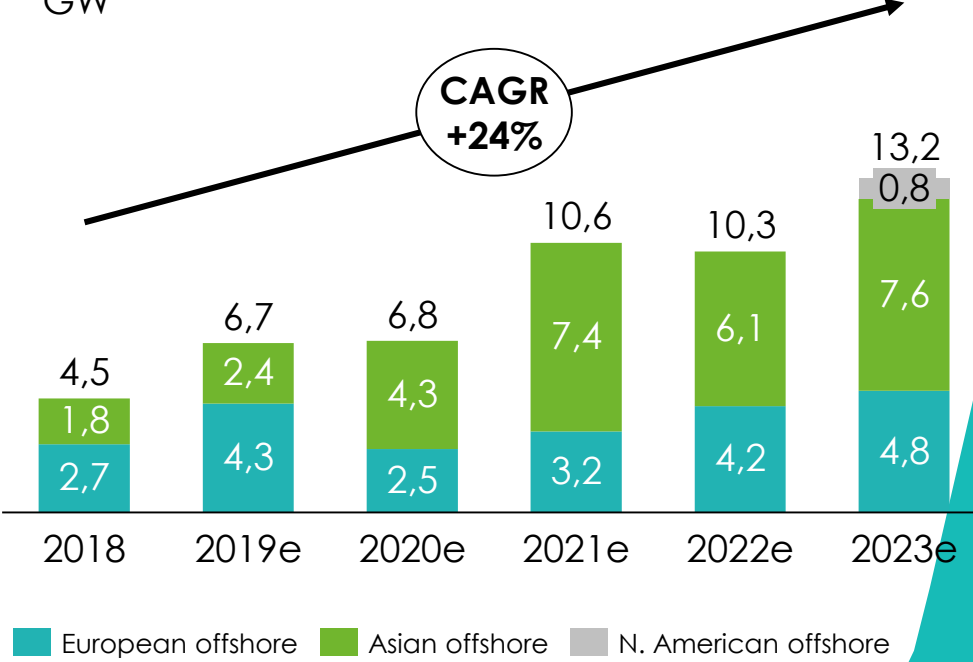
**New offshore installations and offshore share of total installations, GW and per cent**



**New installations 2018**  
Per cent  
100% = 4.5GW



**New installations - GWEC's Market Outlook on the global offshore market, GW**

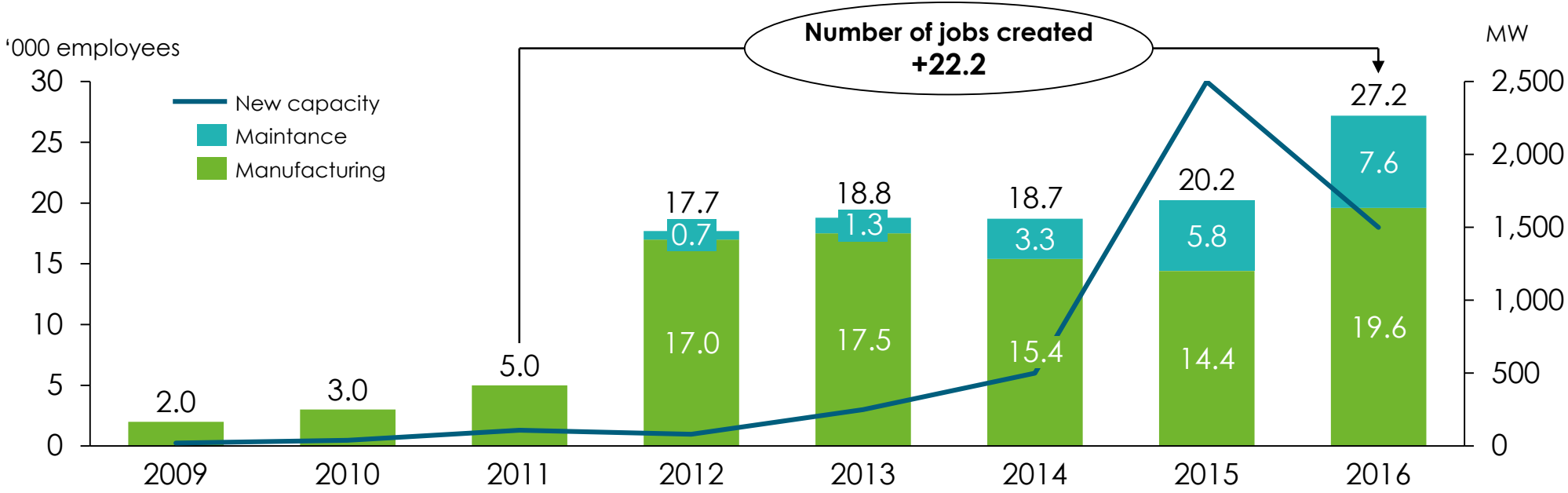


\* Preliminary  
Source: GWEC Market Intelligence

# Main drivers of growth – Consistent political support

## Example Germany

### Employment in the German offshore industry\* and added offshore capacity



**EEG\*\* 2000**

Focus to scale-up generation

**EEG\*\* 2009**

Focus on LCOE reductions

**EEG\*\* 2012**

Focus on introducing market-based options (e. g., option to chose market premium, ladder tariff, introduction of offshore auctions)

\* Defined as “gross employment” covering all employment areas within the industry (manufacturing, marketing, administration etc.) divided into either maintenance or new-build manufacturing

\*\* EEG – “Erneuerbare Energie Gesetz” – German laws regulating the support for renewables including offshore wind

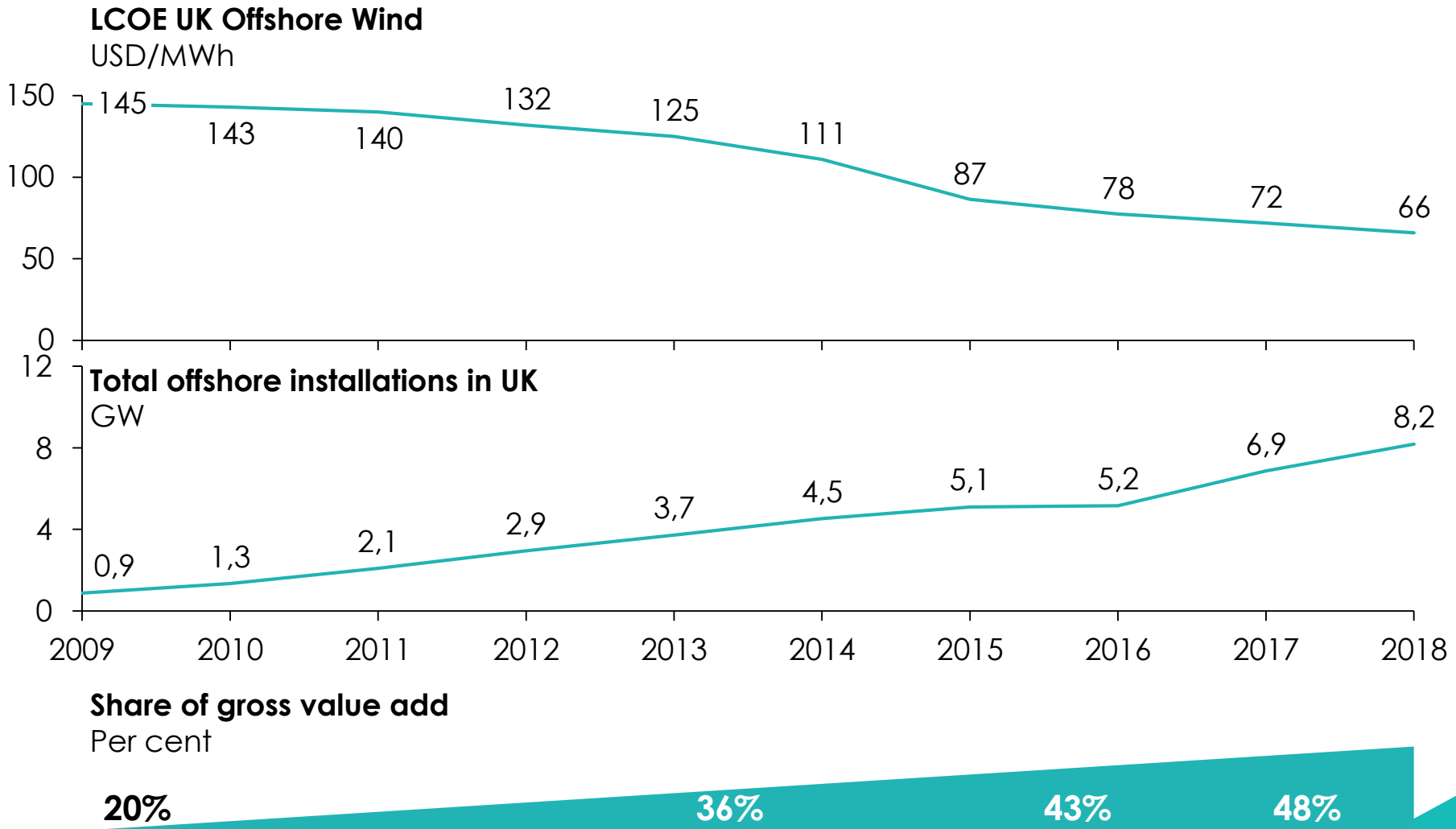
Source: BMWI/ AGEE (2016 – latest available data), Deutsche Bank Analysis

# Main drivers of growth – Supply chain growth

Average LCOE reduction per year: - 8%

Average growth of total installations per year: +23%

Increase of gross value add: +28%



\* LCOE refers to projects signed during the given year, but not the LCOE of the installed volume: time lag between project signature and installation is 4-5 years  
 Source: GWEC, BNEF H2 2018 Wind LCOE Update, Renewable UK

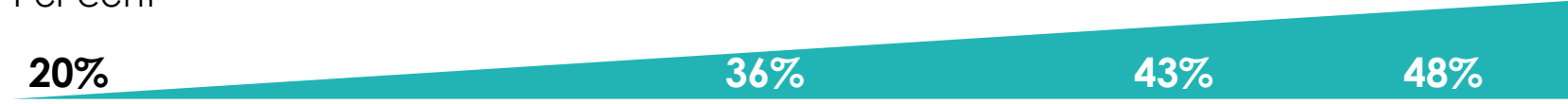
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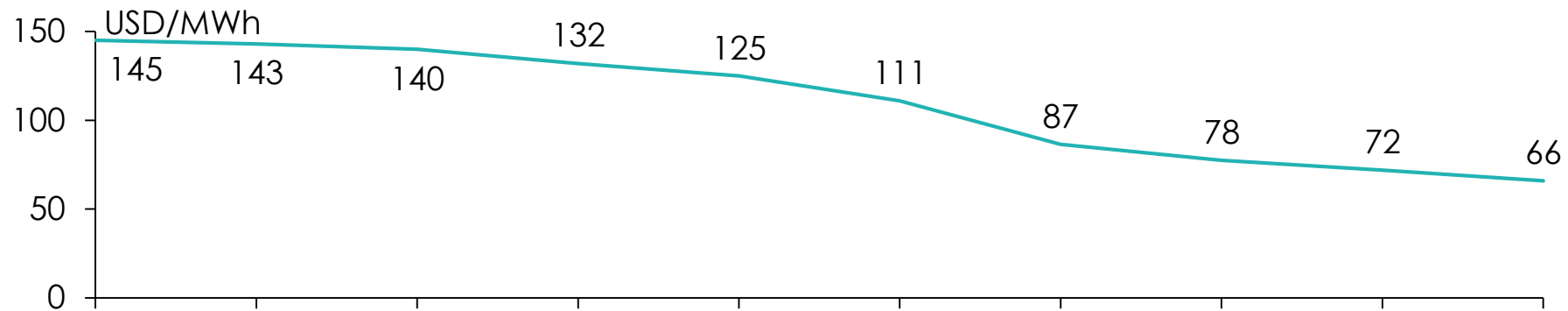
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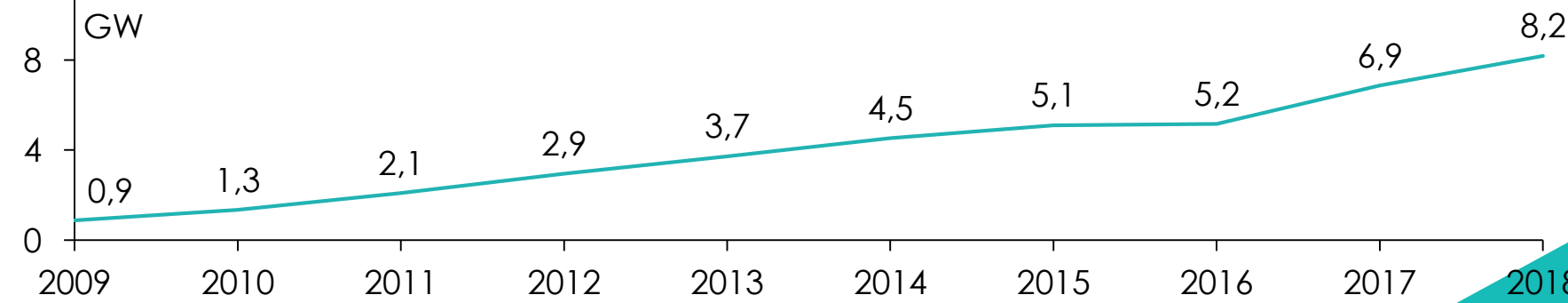
**Share of gross value add**  
Per cent



**LCOE UK Offshore Wind**



**Total offshore installations in UK**



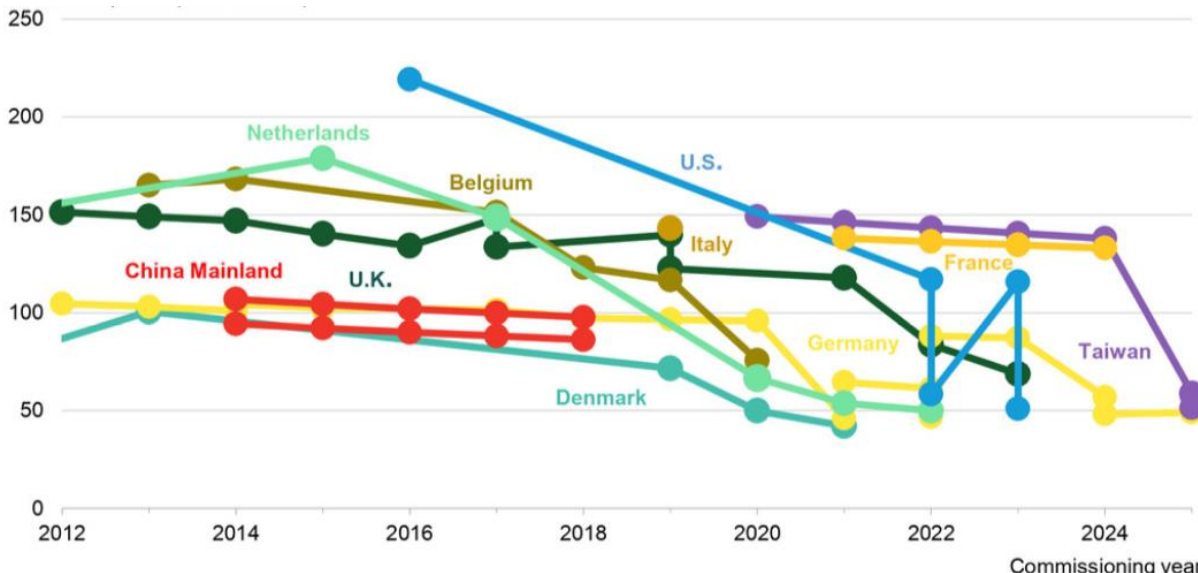
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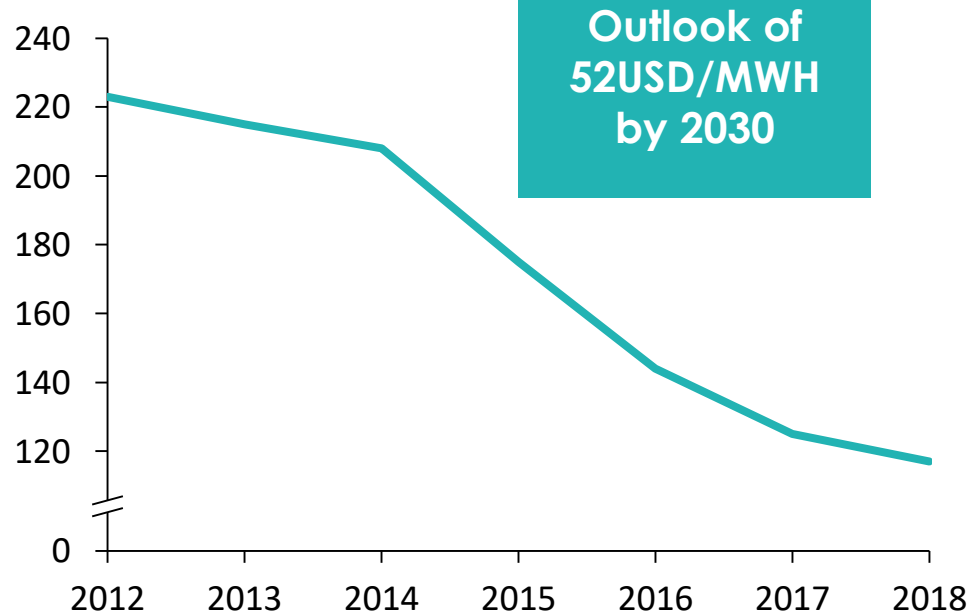


# Main drivers of growth – Bids and LCOE continue to decrease

**Levelized offshore wind bids, USD/MWh by year of commissioning**



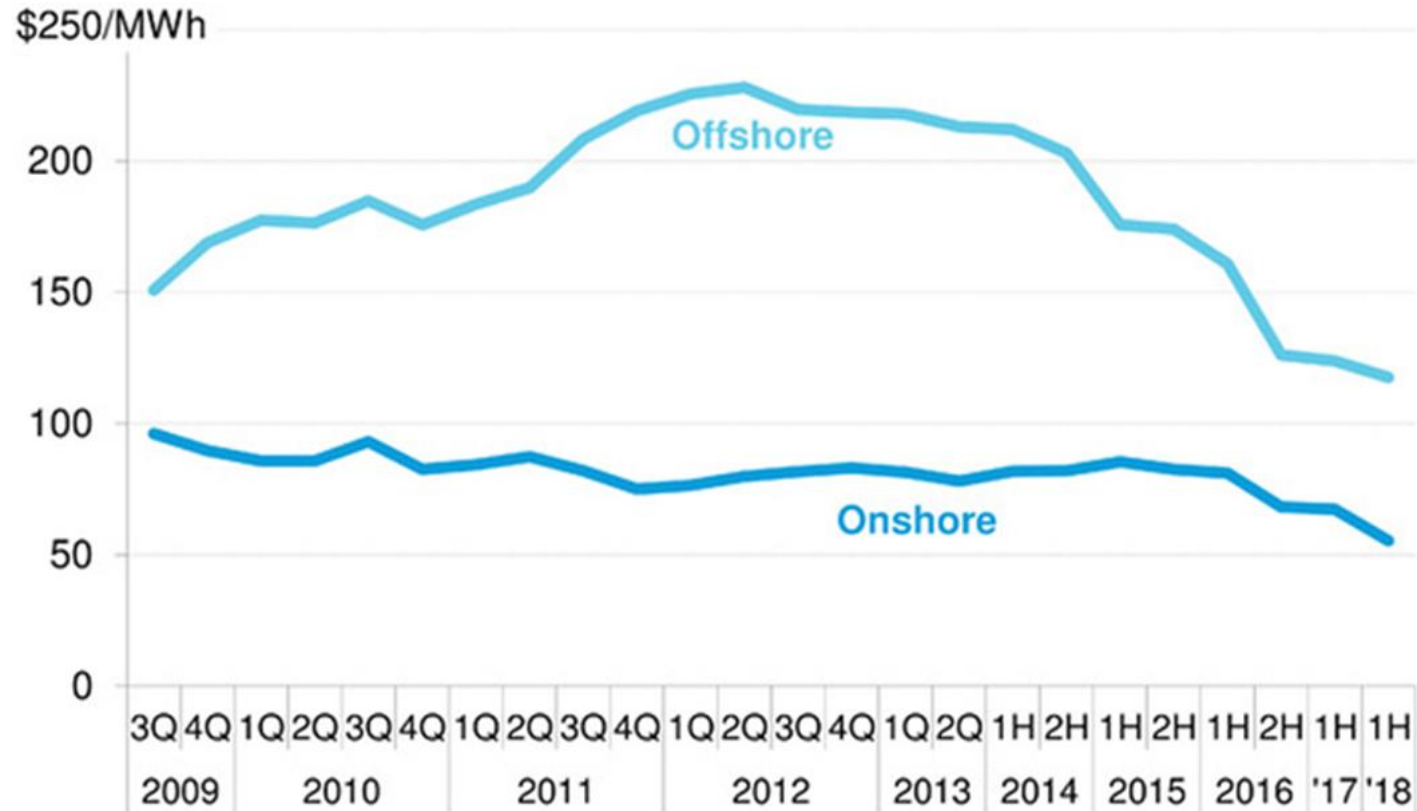
**Levelized cost of electricity offshore wind USD/MWh**



Source: GWEC, BNEF H2 2018 Offshore Market Outlook, BNEF LCOE Database Jan 2019



# LCOE for offshore falling more dramatically than for onshore



Source: Bloomberg New Energy Finance

# Governments to support offshore growth

## Legal challenges

- Certainty of legal processes and decisions, e. g., use of technology, safety rules
- Reliable processes for Environmental Impact Assessments

## Robust permitting

- Transparent and reliable permitting process
- Alignment of federal, regional and municipal authorities on responsibilities and processes
- Permitting suited for project life time of 25 to 30 years

## Grid availability

- Long-term grid planning to guide installation planning and timelines
- Sufficient grid access and grid lines to evacuate offshore wind energy



# Offshore wind in Japan – Status and Outlook

## Policy

- Government approved bill to designate wind zones for offshore development.
- Bill is expected to be in effect in April 2019, designating zones could take up to 10 months
- Tenders could take place by mid 2020
- Structure for contract award currently being decided by committee
- Current FIT very high by global standards

## Industry

### TEPCO

- Plans to develop 6 to 7GW renewables with focus on offshore wind in Japan and outside of Japan
- MoU with Ørsted to work jointly on offshore projects, esp. Choshi (200 MW, COD 2025)

### Northland Power, EON

- Establishing Tokyo offices to work on projects, other developers are doing the same

### J-Power

- MoU with French utility Engie for offshore wind projects, incl. floating, other global investments

### MHI-Vestas

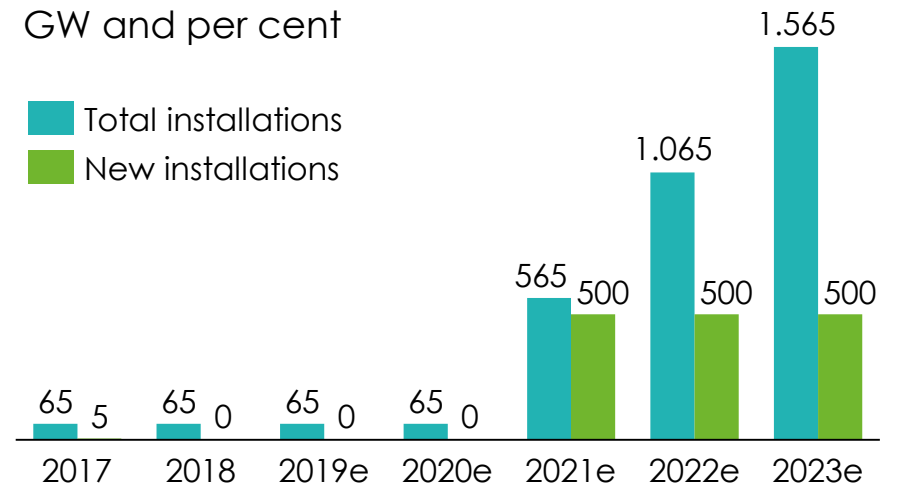
Strong presence through Mitsubishi. So far sales and manufacturing have been concentrated in Europe/Taiwan. SGRE, Senvion also active

Source: GWEC Market Intelligence, Press

**Large feasible potential for fixed bottom offshore**

**Key market to develop floating offshore**

## New offshore installations and total installations, GW and per cent



# Key Issues for Japan - 1

## Cost

- Current FiT is equal to €290/MWh since 2014
- Huge gap between Japan and international prices
- Need to work to avoid “Japan cost” that will limit industry development and discredit technology and provide arguments for fossil and nuclear industry, as well as create unsustainable fiscal burden
- Price digression path needs to be set sensibly

## Policy & Regulation

- Setting an ambitious target will give strong signal to industry and incumbents
- Zone designation is positive move – important to keep to timeline
- Contract award through auction/beauty contest?
- Other criteria – “harmonized development” with local governments, local content (?) – transparency is key
- Awarding body – how METI manages this is decisive. Functional committee structure with professional staff is essential

# Key Issues for Japan - 2

## Permitting and Stakeholder Management

- Management of EIA process for onshore has been extremely slow (3-4 years for relatively small projects)
- Need for single dynamic agency managing overall process
- Perceived veto ability of stakeholders at different stages
- Stakeholders must be managed effectively and buy in achieved

## Grid

- Current system is first come first serve – will not work for Offshore Wind
- Grid expansions will be necessary, current interconnection between regions is limited
- Need for effective unbundling and national TSO with strong mandate from government

## Turbines, supply chain, ports

- Turbines need to be robust to deal with typhoons, earthquakes
- Local supply chain needs to be developed
- Port development needs to take place

## Offshore wind – two scenarios...

- Offshore wind is a golden chance for Japan to create economical zero carbon energy and increase its energy independence
- But to achieve this, it needs to let the wind industry build and grow
- The danger is that too much complexity is created, which will keep volumes small, prices high and allow incumbent energy interests to prevail
- But if the government has the courage to seize the opportunity and get the right frameworks in place, offshore wind can be built quickly, economically and at large scale, helping to create economic growth, employment and new skills.

**This is too good an opportunity for Japan to miss!**

# Thank you!

For more information please contact:

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