



EUROPEAN TECHNOLOGY & INNOVATION  
PLATFORM ON WIND ENERGY

The future of Europe will be  
heavily influenced by our grasp  
of offshore technologies.

# Agenda

ETIPWind  
1,2,3

Offshore  
status

The challenge

The key

## Turbine Manufacturers



## Utilities and developers



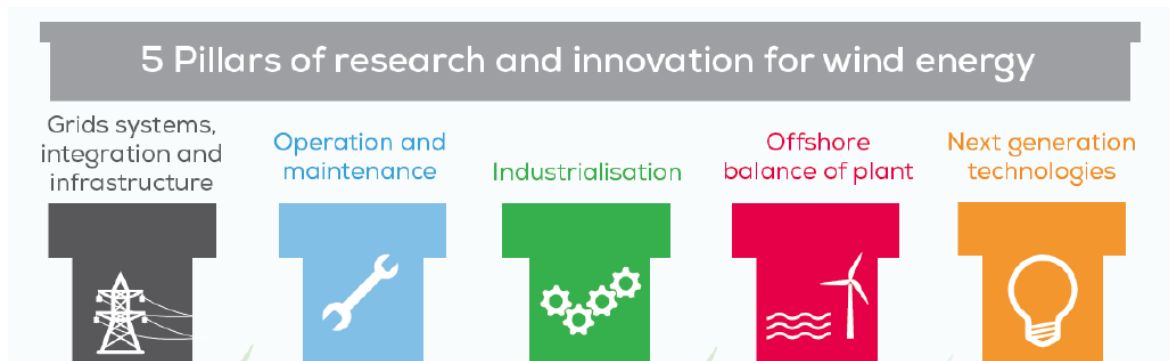
## Universities, research institutes and consultants



## Others



# Which are the best topics for ETIPWind?



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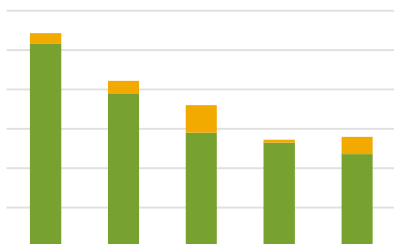
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- O &M

# What has offshore achieved



tenders (€/MWh)



- Ensuring the transition for offshore oil & gas jobs
- Employing all over Europe from Polish shipyard to Czech foundries

- From **0 MW** to **12.6 GW** are now installed
- Now attracting Oil & Gas companies (Shell, Statoil)

# Not only North Sea suppliers

Hungary



Czech Republic



Romania

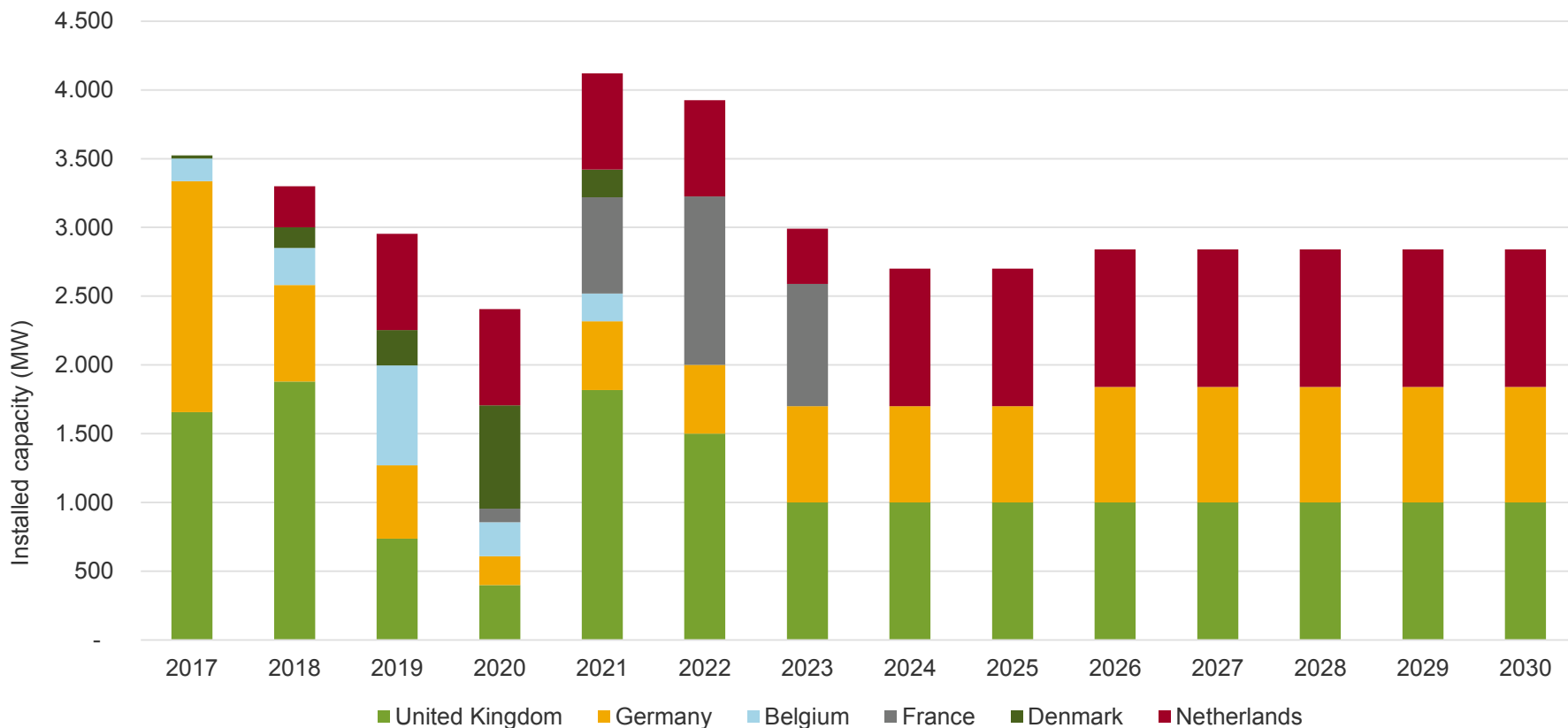


Poland



# 4 GW/year are needed to secure the 80 €/MWh target by 2030 – Best case scenario after 2024 !

Outlook for new capacity until 2030



# Today's European offshore wind sector

12.6 GW

3,589 turbines

81 sites

96,000 jobs



# European offshore wind outlook 2030

23,5 GW

5,000+ turbines

120+ sites

144,000 jobs

# The challenges we now face in R&I



**Floating** technology needs to catch up



Industry **standardisation** is a must to reduce the balance of plant costs.

- New cable concepts
- Standardised kit assembly foundations



Adaptation and verification of very large components and large structures in **real scale offshore environment test benches**

- Sliding bearings; Large gear units
- New cable and foundation concepts

A new generation of scientists and engineers needed to drive the next generation of development.

# Climate change will drive an unprecedented demand for energy

- More extreme higher and lower temperatures
  - Higher energy load
- The increase in megacities
  - Often easier to expand into the sea
  - Offshore Multi purpose platforms may be the norm
- Flooding will necessitate the creation of cheaper high stress floating structures to protect vital power, energy , water infrastructure
- Managing a more chaotic world will drive even more data connectivity and demand even more energy.

# Demand offshore energy will increase

New buildings will need foundations that can float when flooded

- Purification and treatment
- Aquaculture
- Desalination
- Vertical Farming

Increasing electricity demand

- Heat pumps
- Thermal storage

Heating and cooling

Transport

- Electric vehicles
- Electrical port propulsion

- High capacity storage is coming

Offshore hubs – interesting ! but well designed multi purpose approach vital – no quick fixes - a supplement to current plans and targets to help increase volume and decrease cost - not a slow down excuse



Chris Westra

Tennet



# Needs

- Increase visibility and need to cement and improve short medium and long term offshore binding targets
- Align funding with active government and corporate initiatives
- Europe is connected to a greater degree each day the energy business will regionalize
- The weather is going from predictable to unpredictable – Mitigating this will need a lot of energy we need a European Master Plan this forum can be a first step
  - What we need to do? Why? and how fast?

# The vision

- Offshore can deliver, particle free, CO2 free electricity to the modern coastal cities of the future.
- High cycle long term storage will start coming onstream within 10 years
- Wind / PV onshore and offshore will be among the most benign forms of power generation and too obvious to ignore.
- The sea is rising, and the climate is changing as we speak
- Now we look at structures with 25 year lifetimes we may need to look at structures with double that life time.

## Core reasoning

- Energy demand will rise dramatically as we have to adapt to climate change
- Increased energy demand will have to be met from CO2 free resources or climate extremes will increase further
- Offshore wind can deliver huge amounts of clean low risk electricity.
- Offshore R&I is developing the technologies to deliver ever cheaper, clean power while training the next generation of scientists and engineers to create solutions to enable a future Europe to thrive and survive.

**Delivery is incumbent on united goals and efforts from  
all involved**





Thank you  
#ETIPWind

[etipwind.eu](http://etipwind.eu)