

Offshore wind leadership and the EU

Giles Dickson, CEO

Our members make wind energy work

400+ MEMBERS

Wind turbine manufacturers

e.g.



GE Renewable Energy

SIEMENS Gamesa
RENEWABLE ENERGY

Vestas

Wind farm developers

e.g.



acciona
Energy

res
powering change



VATTENFALL

Power utilities

e.g.

e-on

edf
energies nouvelles

enel
Green Power

IBERDROLA
Renovables

Component manufacturers

e.g.

ABB

LM WIND
POWER

BASF
We create chemistry



Installation / logistics

e.g.

DHL
GLOBAL FORWARDING



Port of Amsterdam

Van Oord
Marine ingenuity

Financial & legal services

e.g.

Allianz

大成 DENTONS



Rabobank

Research institutes

e.g.

CATAPULT
Offshore Renewable Energy

Fraunhofer
IWES

TU Delft

DTU

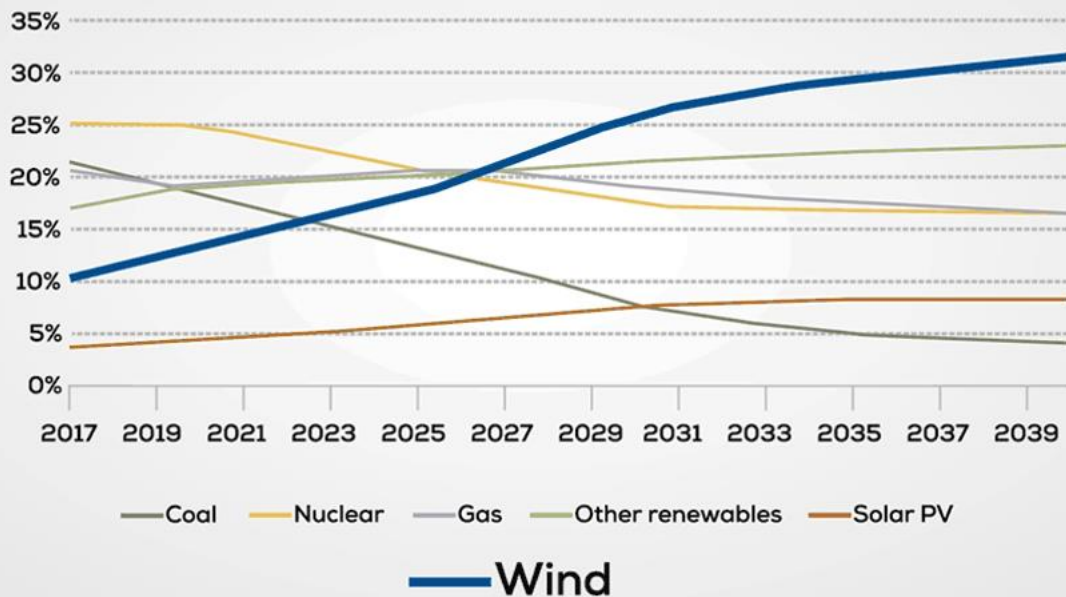
+ NATIONAL WIND ASSOCIATIONS

Wind will become the largest power source in the EU by 2027

according to IEA

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Share of electricity generation by source in the EU, 2017-2040



according to IEA

Wind power across Europe

189 GW

by December 2018

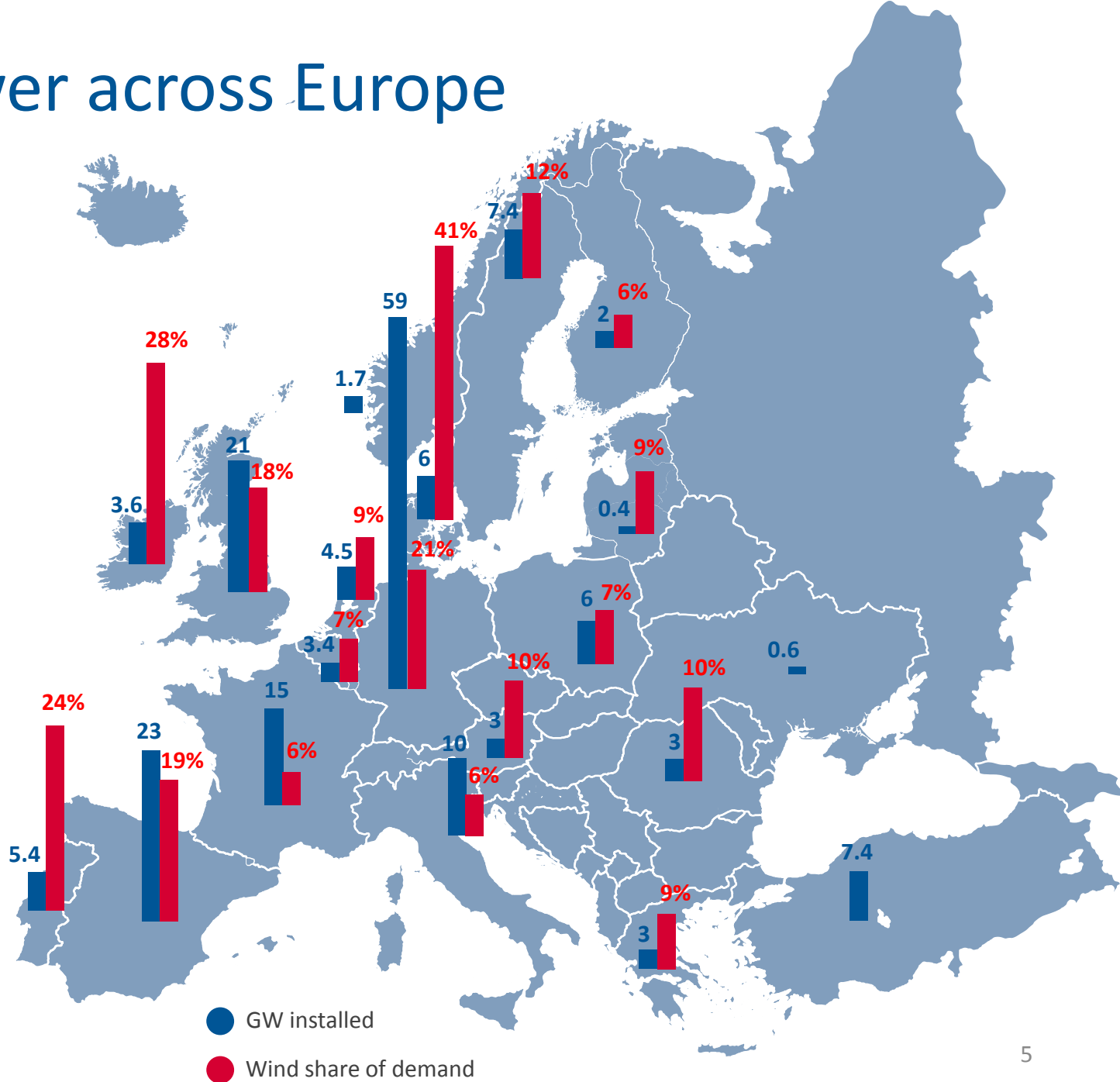
Of which:

18.5 GW

offshore

14%

of 2018 EU
power demand

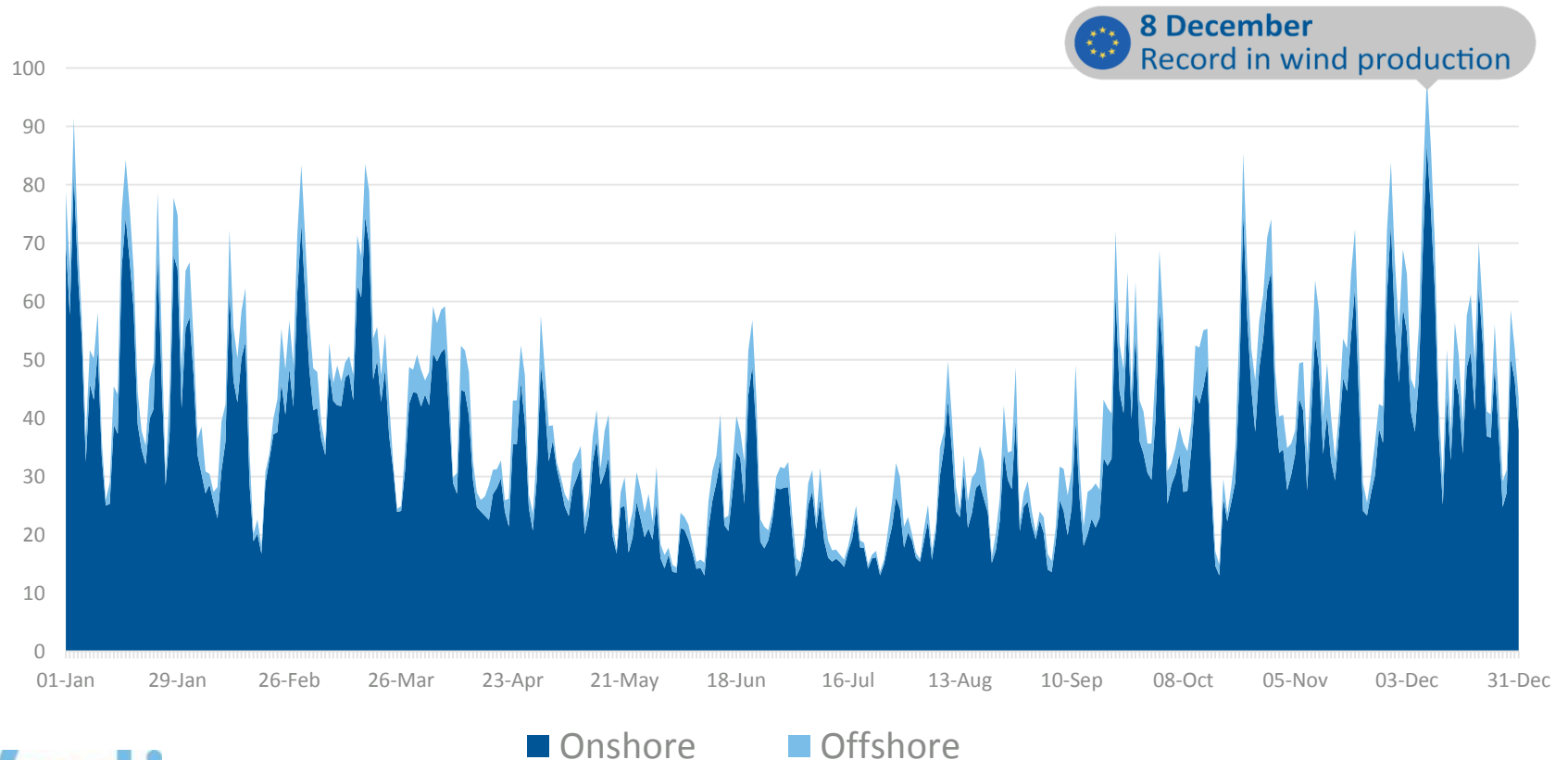


European Wind Energy Generation in 2018

Wind Energy Production
362 TWh

Onshore Wind CF
22 %

Offshore Wind CF
37 %



European offshore wind sector in 2018

18.5 GW

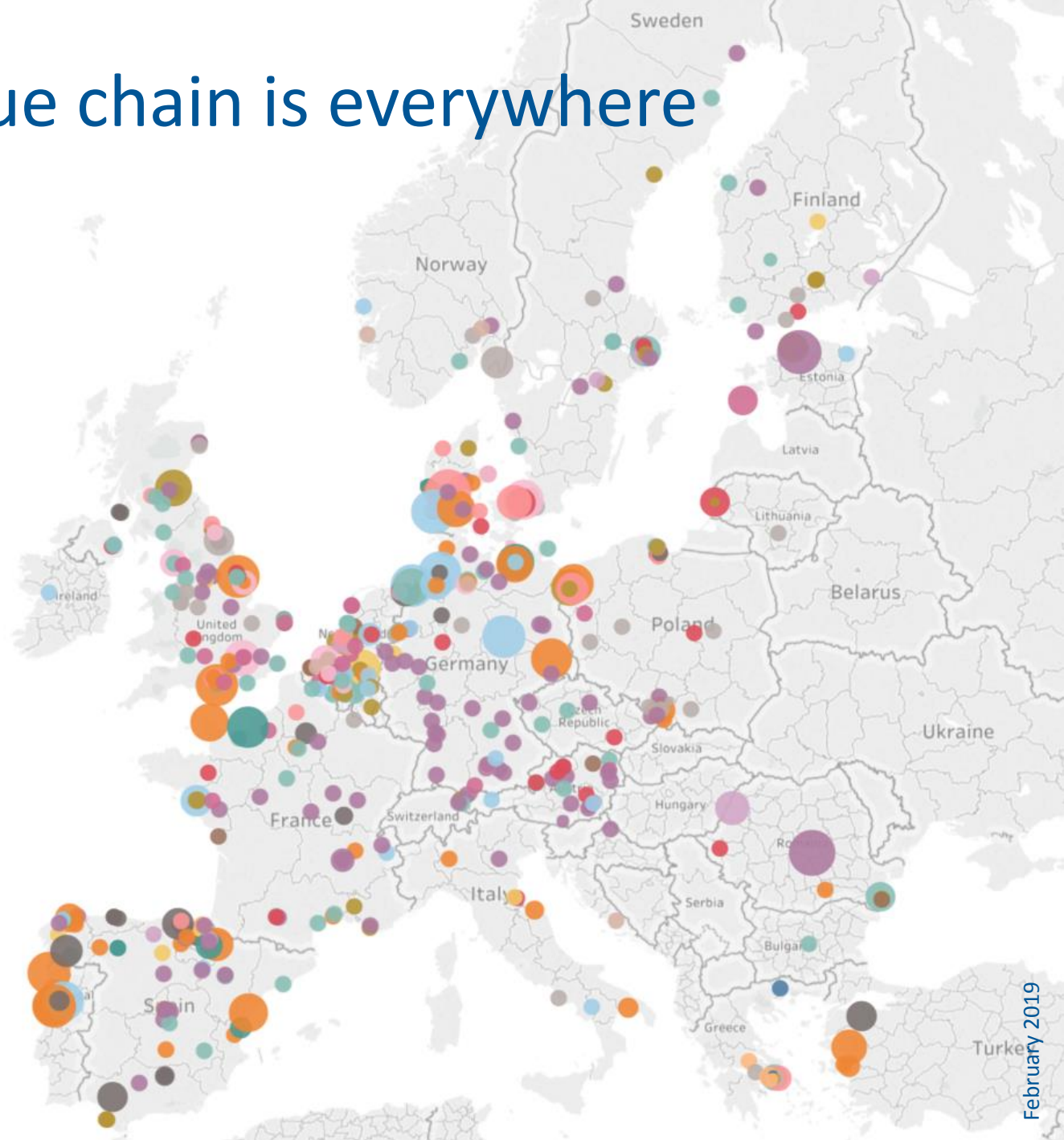
+4,500 Turbines connected

105 Sites

+40,000 Jobs

The wind value chain is everywhere

- Components
- Assembly
- Blades
- Foundations
- Gearboxes
- Nacelles
- O&M
- Other
- R&D
- Towers
- Cables
- Generators
- Logistics
- Port



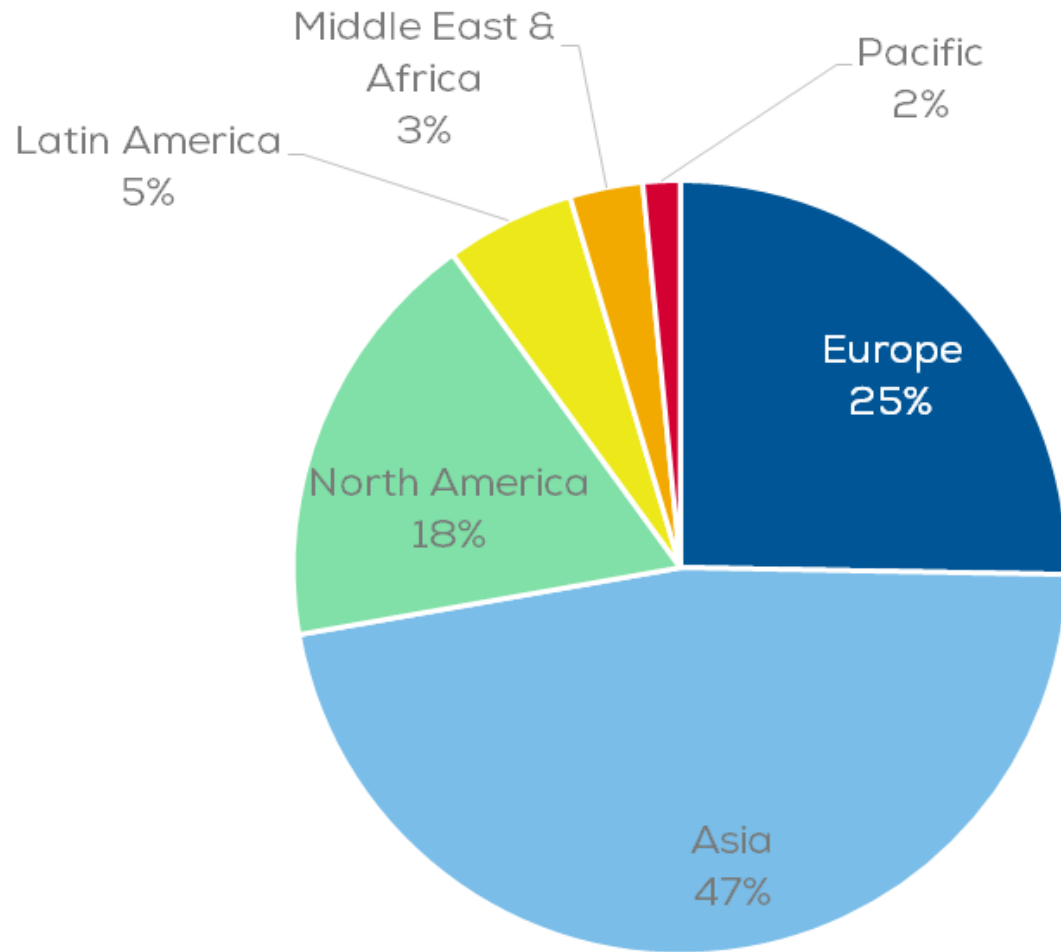
Regenerating communities



Green Port Hull
£310m invested, 1000 jobs

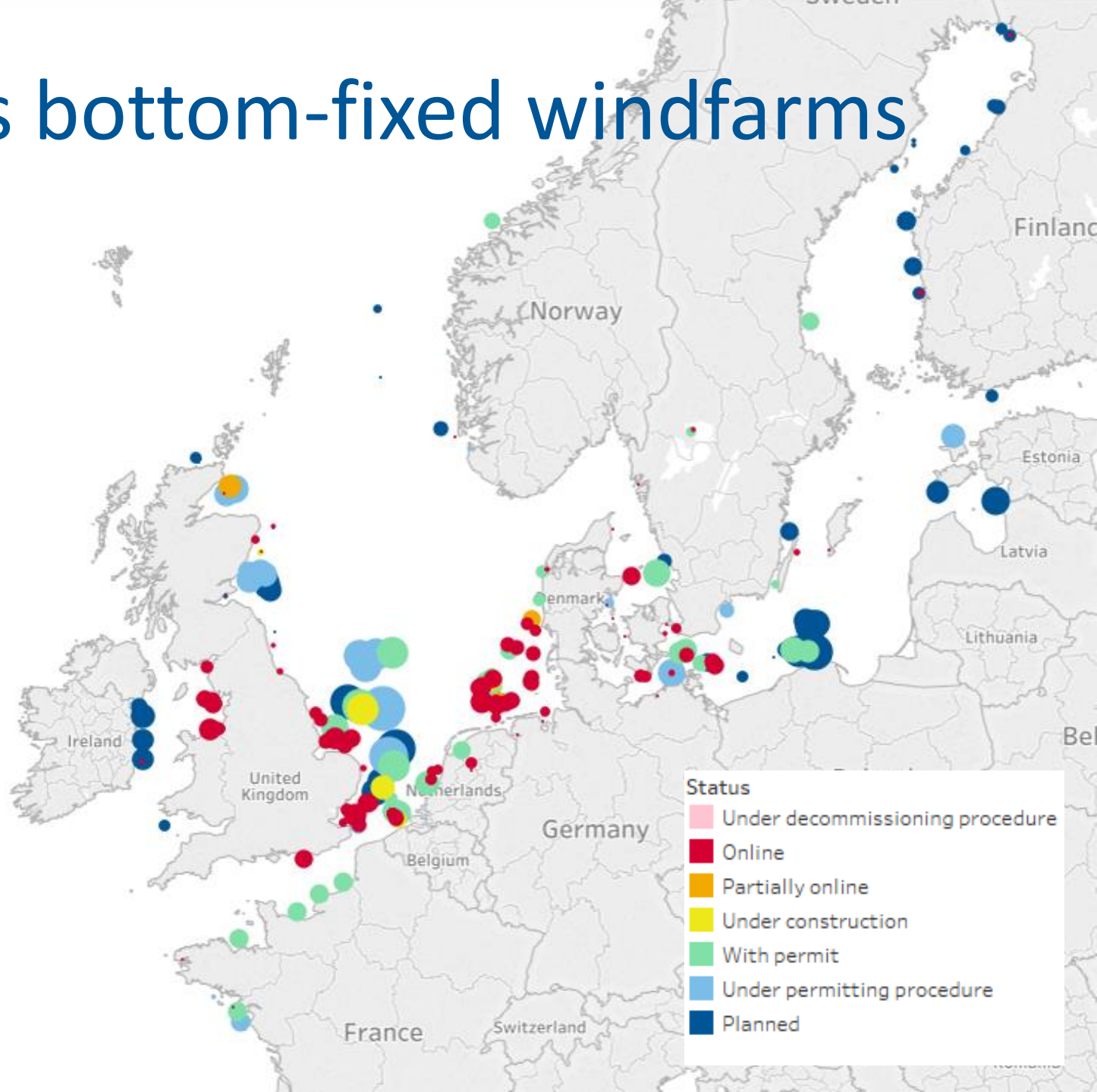
Wind energy globally

Central scenario

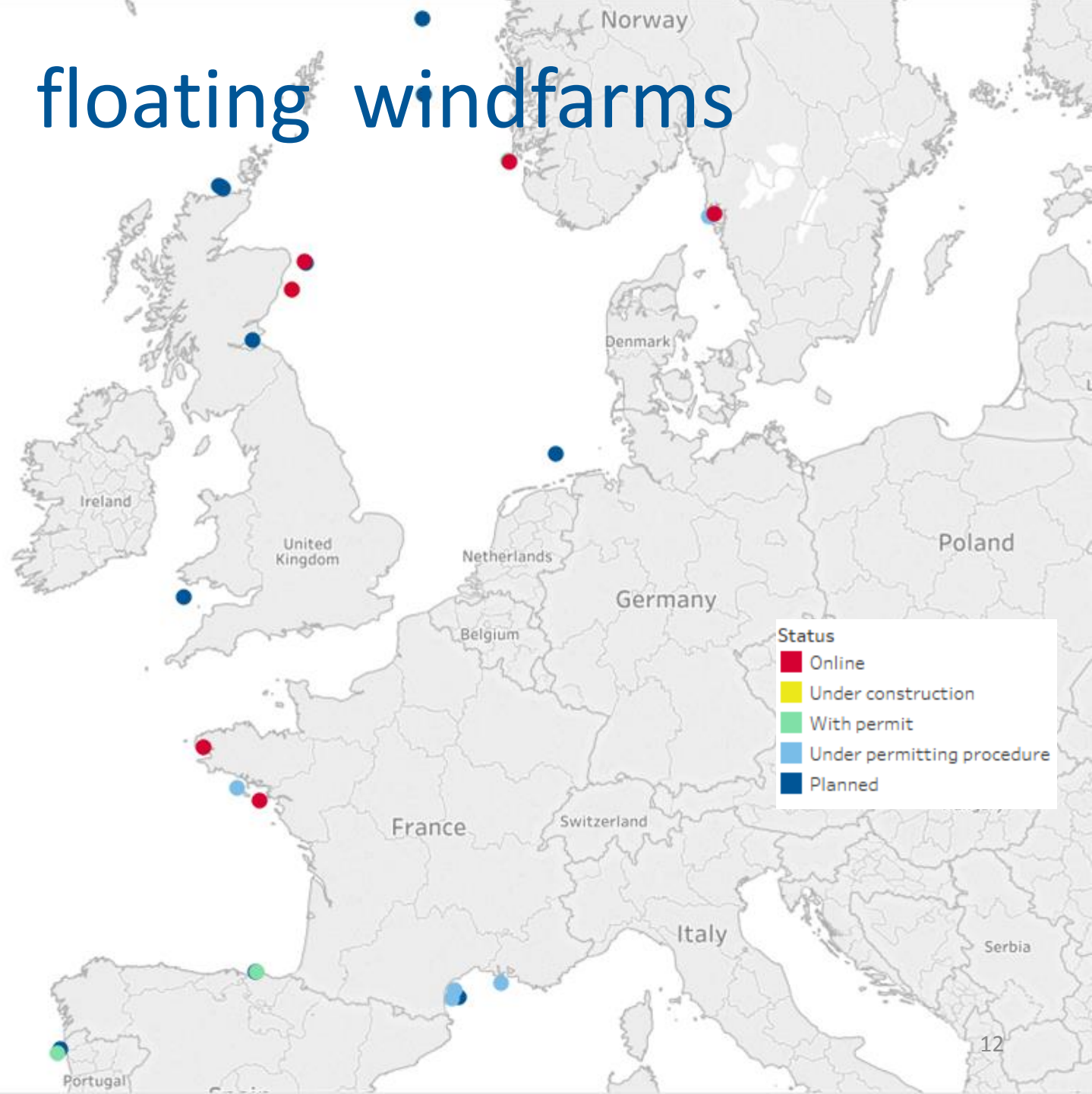


2018-2022 net additions

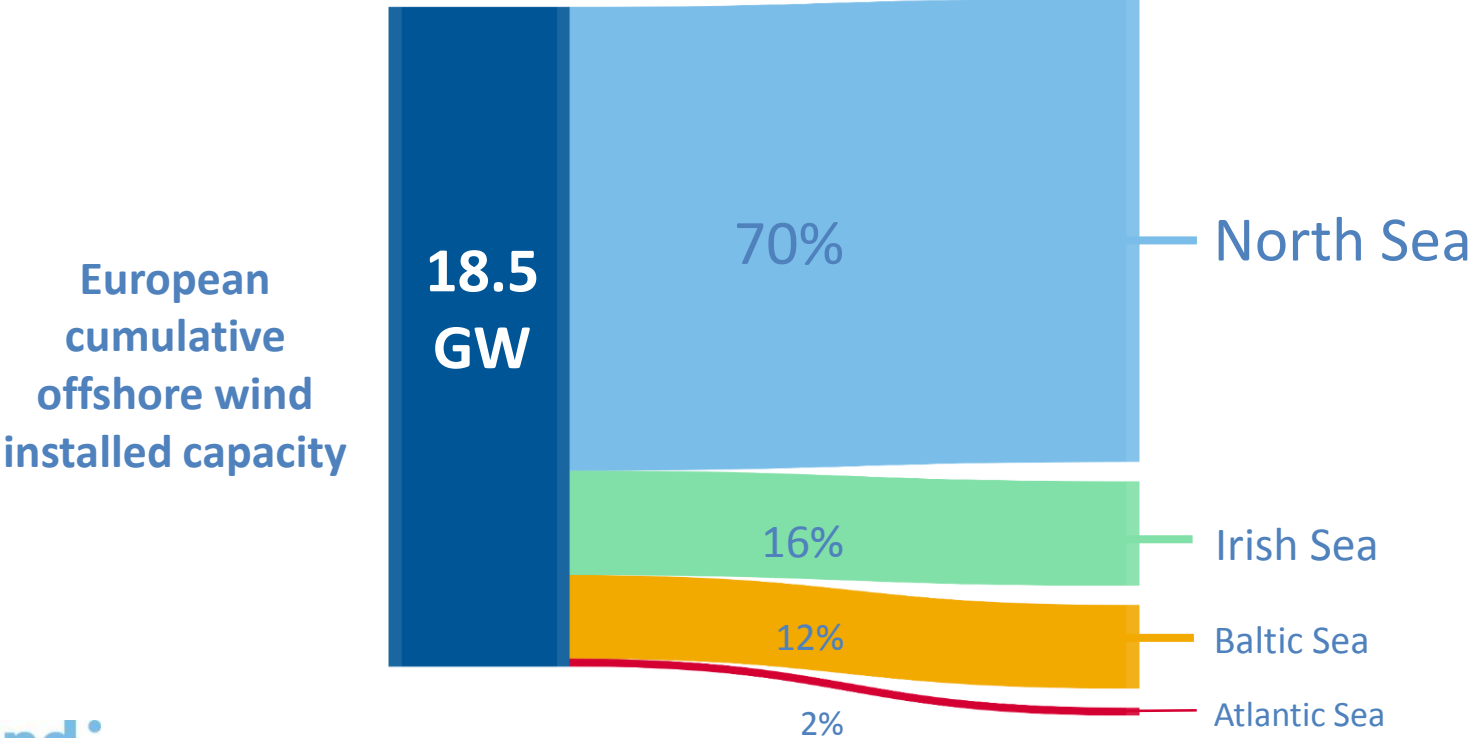
Europe's bottom-fixed windfarms



Europe's floating windfarms



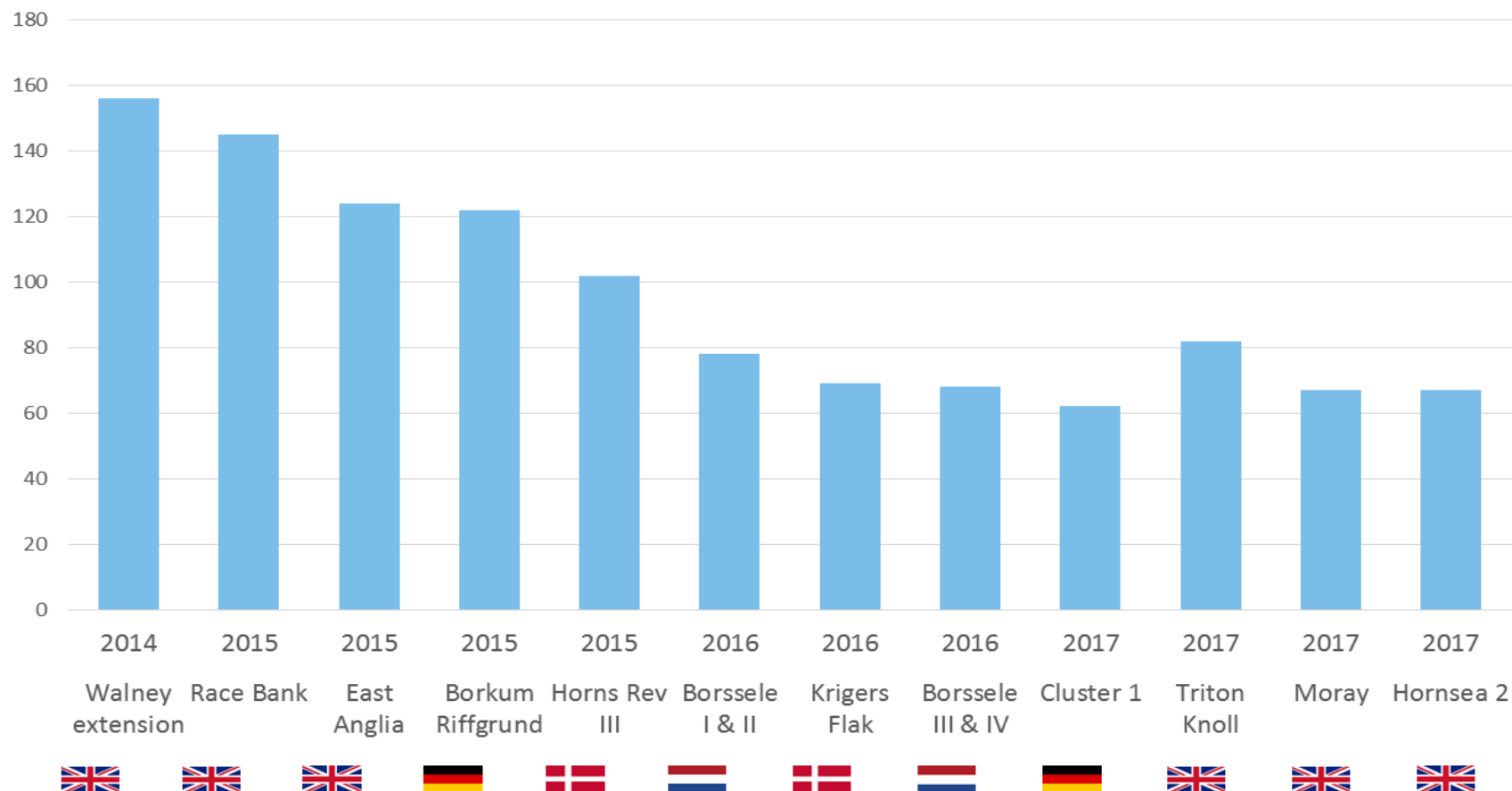
Offshore wind share by sea basin



The cost of offshore wind is decreasing

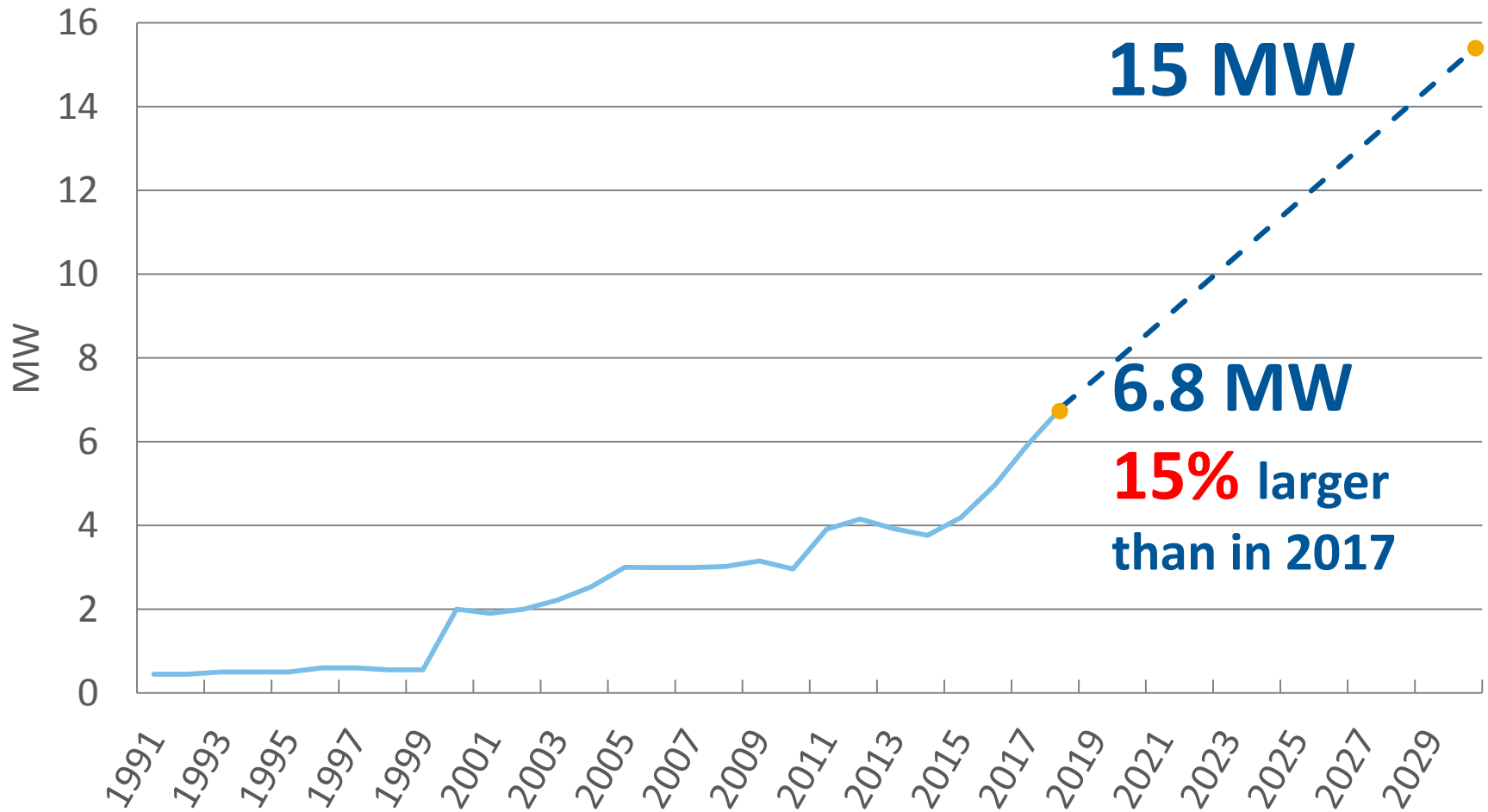
Levelised revenue of electricity, incl. transmission costs

EUR/MWh¹, 2016-prices



Offshore turbines are getting larger

Yearly average of newly-installed offshore wind turbine rated capacity

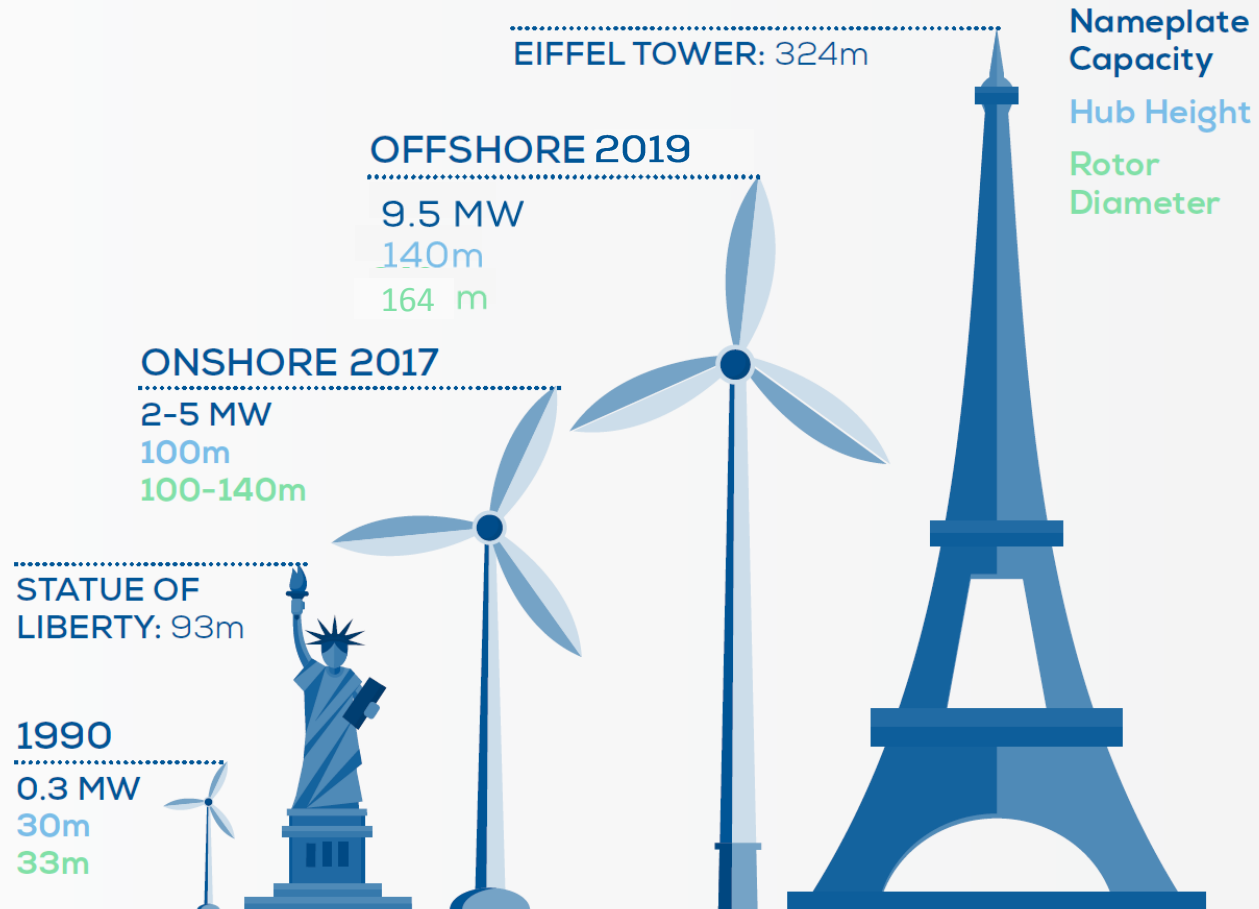


Turbines are getting larger

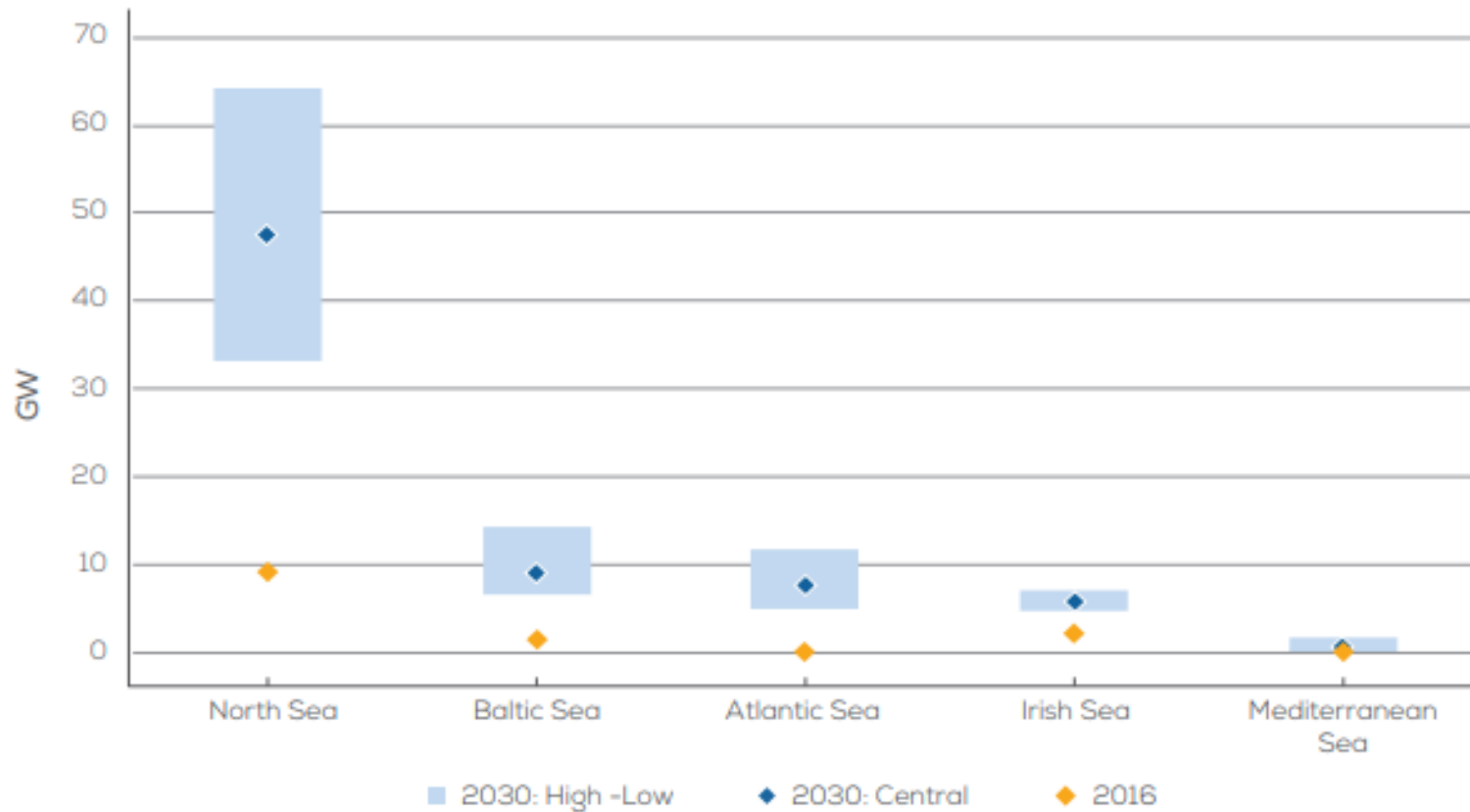
Larger blades and higher towers

Low wind speeds

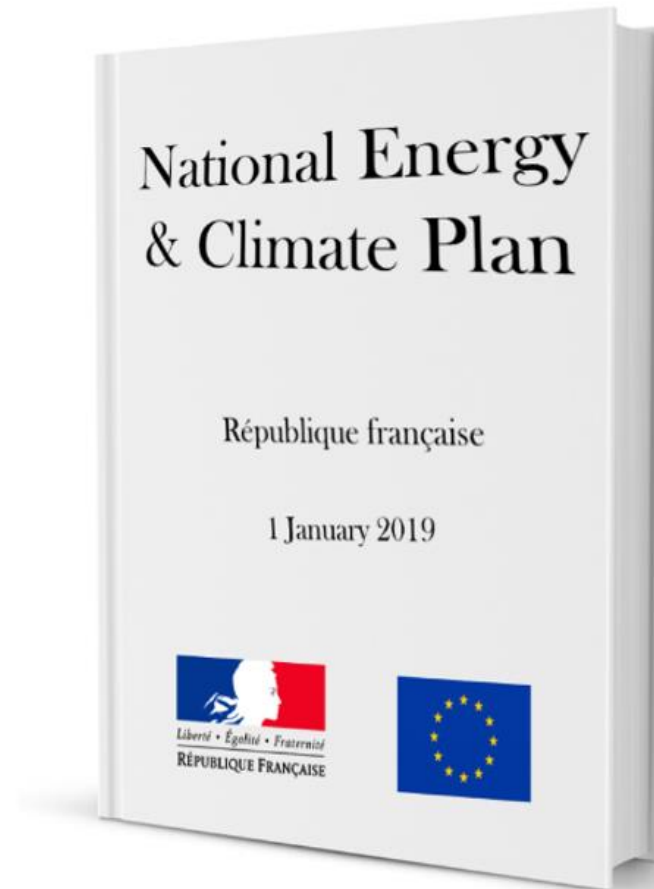
Lower energy density
(Generator to rotor ratio (W/m²))



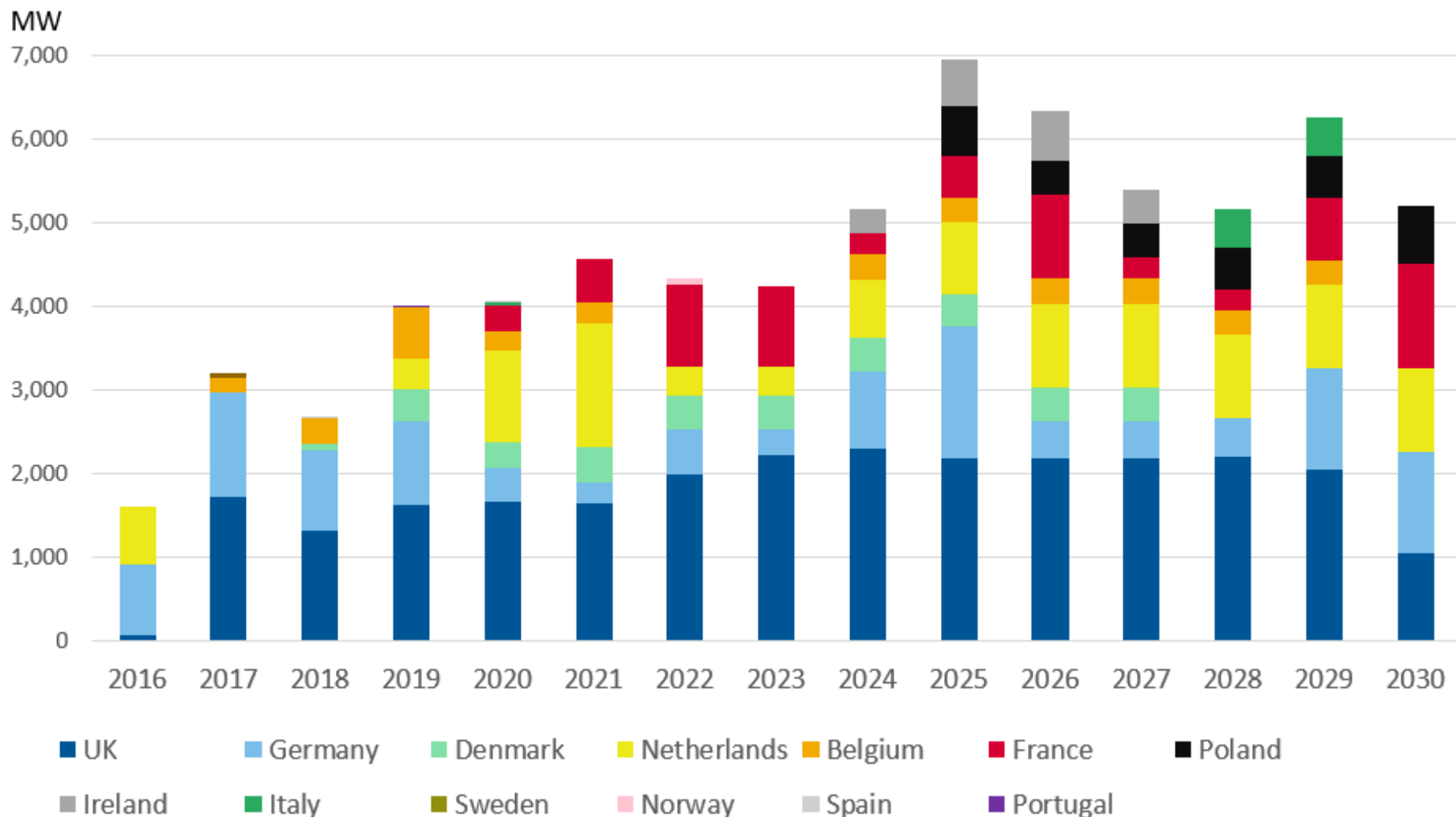
2016 and 2030 offshore wind installations per sea basin



National Energy & Climate Plans



2030 Outlook for offshore wind



Baltic Sea Declaration

15th June 2017

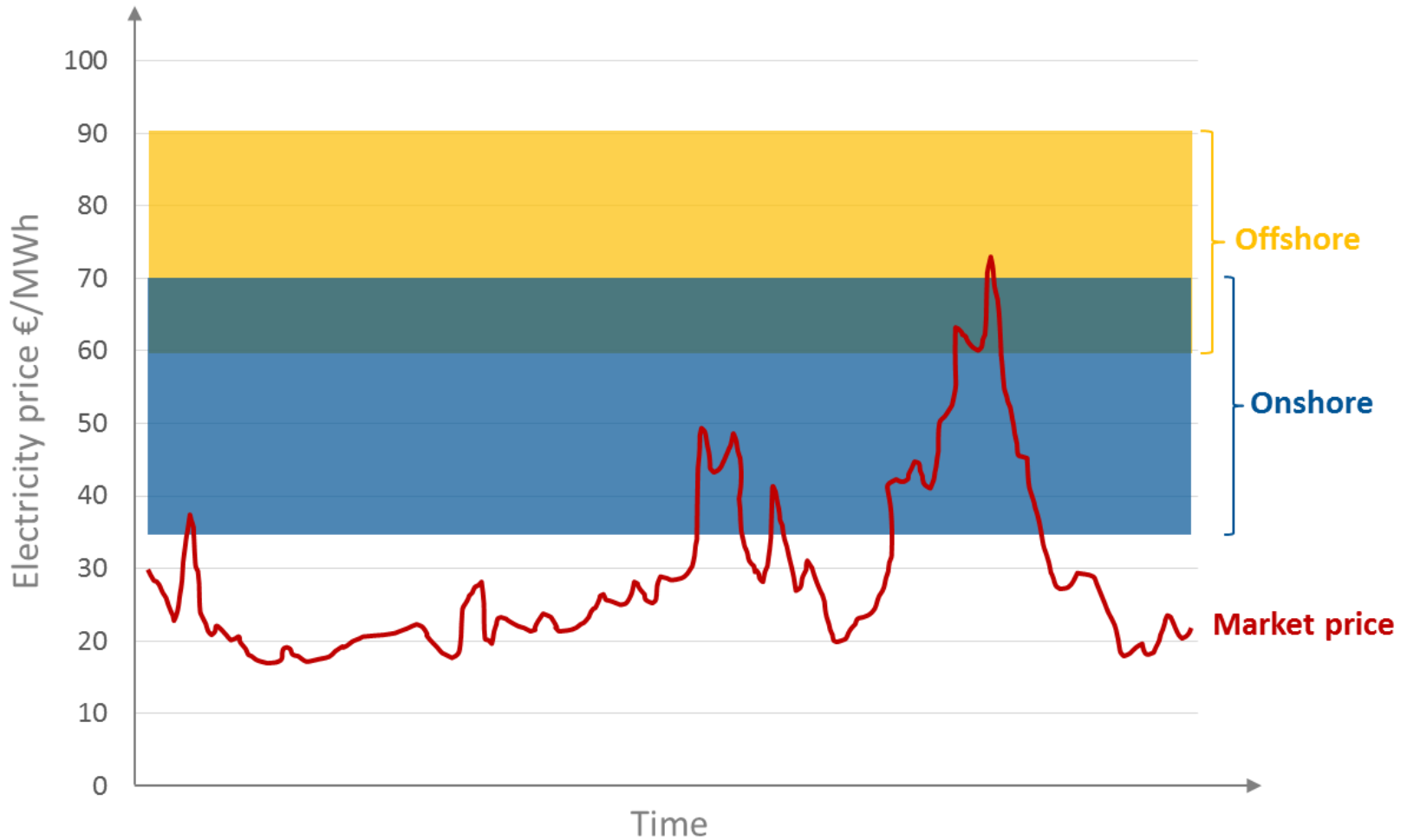


Why is regional cooperation so important?

- Continue cost reduction
- Develop supply chain smoothly – avoid stop-and-go
- Retain global leadership



Why is regional cooperation so important?



Happy coexistence



Happy coexistence



Thames sailing barge Kitty and Thanet Wind Farm off Broadstairs, Kent

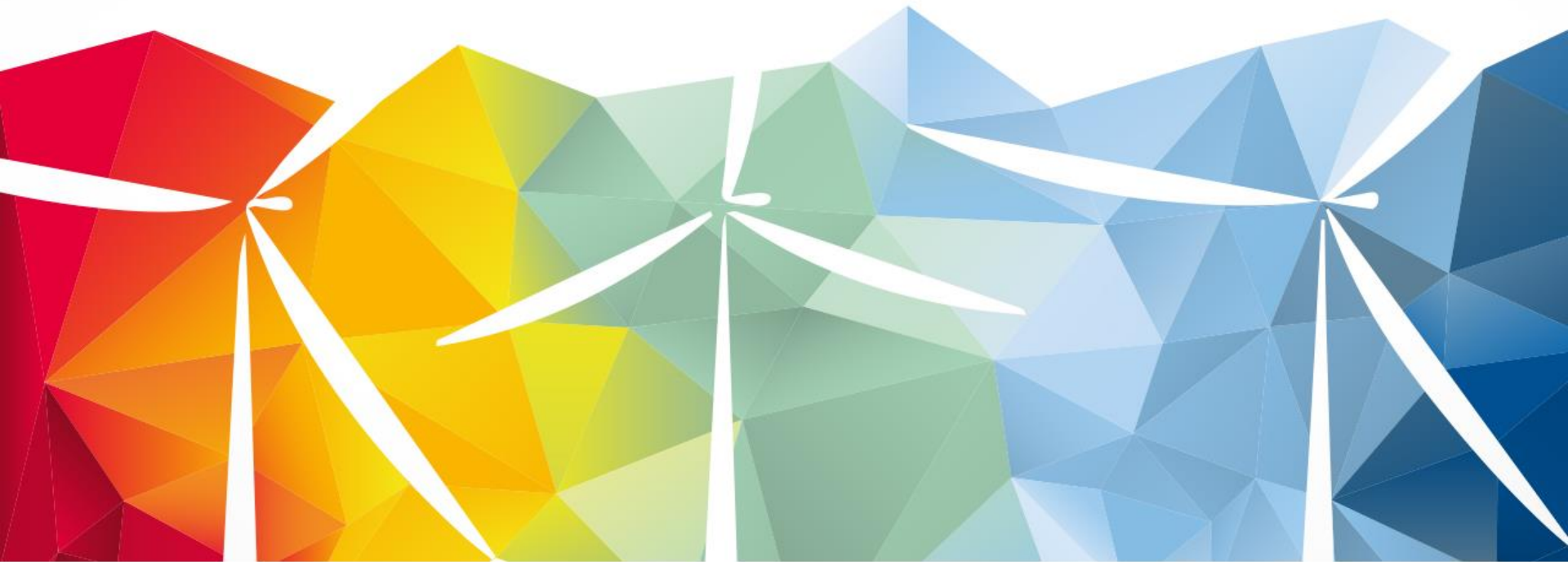
Happy coexistence



IN 2019 JOIN US IN BILBAO, SPAIN

2-4 April 2019

Bilbao Exhibition Centre (BEC)



Wind[•]
EUROPE

**CONFERENCE
& EXHIBITION
2019** 2-4 APRIL
BILBAO

NATIONAL
PARTNER:



REGIONAL
PARTNERS:

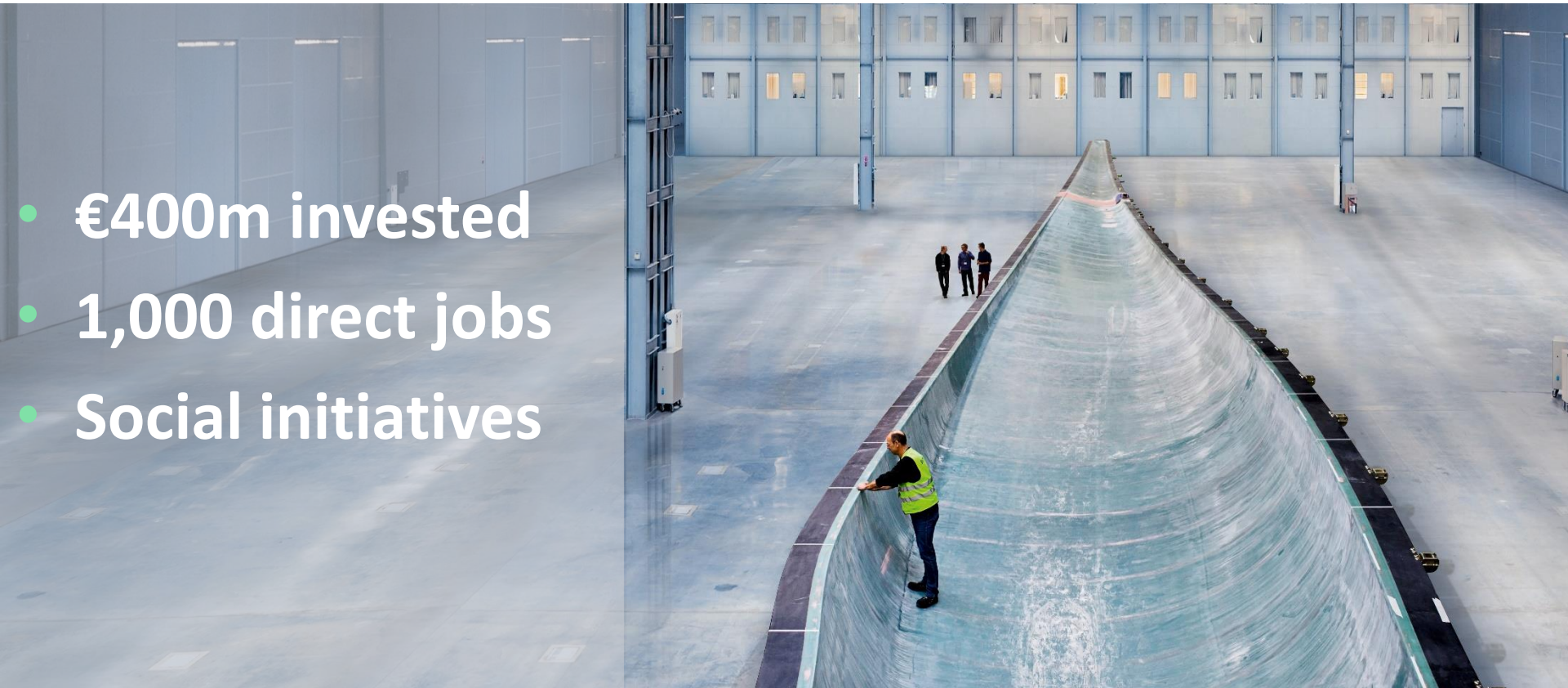


Find out more at: windeurope.org/confex2019

BACK UP

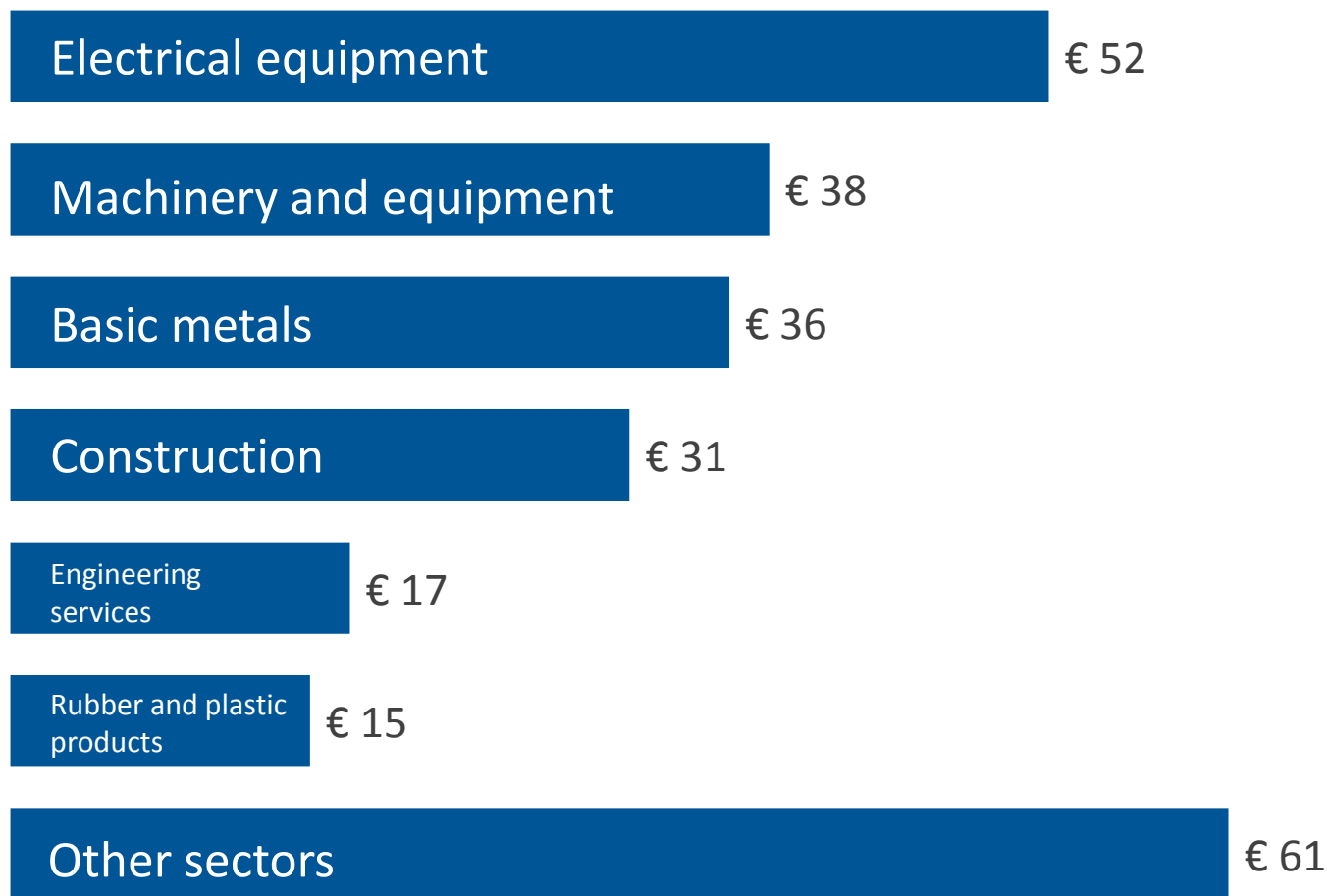
Green Port of Hull

Siemens Gamesa blade factory



- €400m invested
- 1,000 direct jobs
- Social initiatives

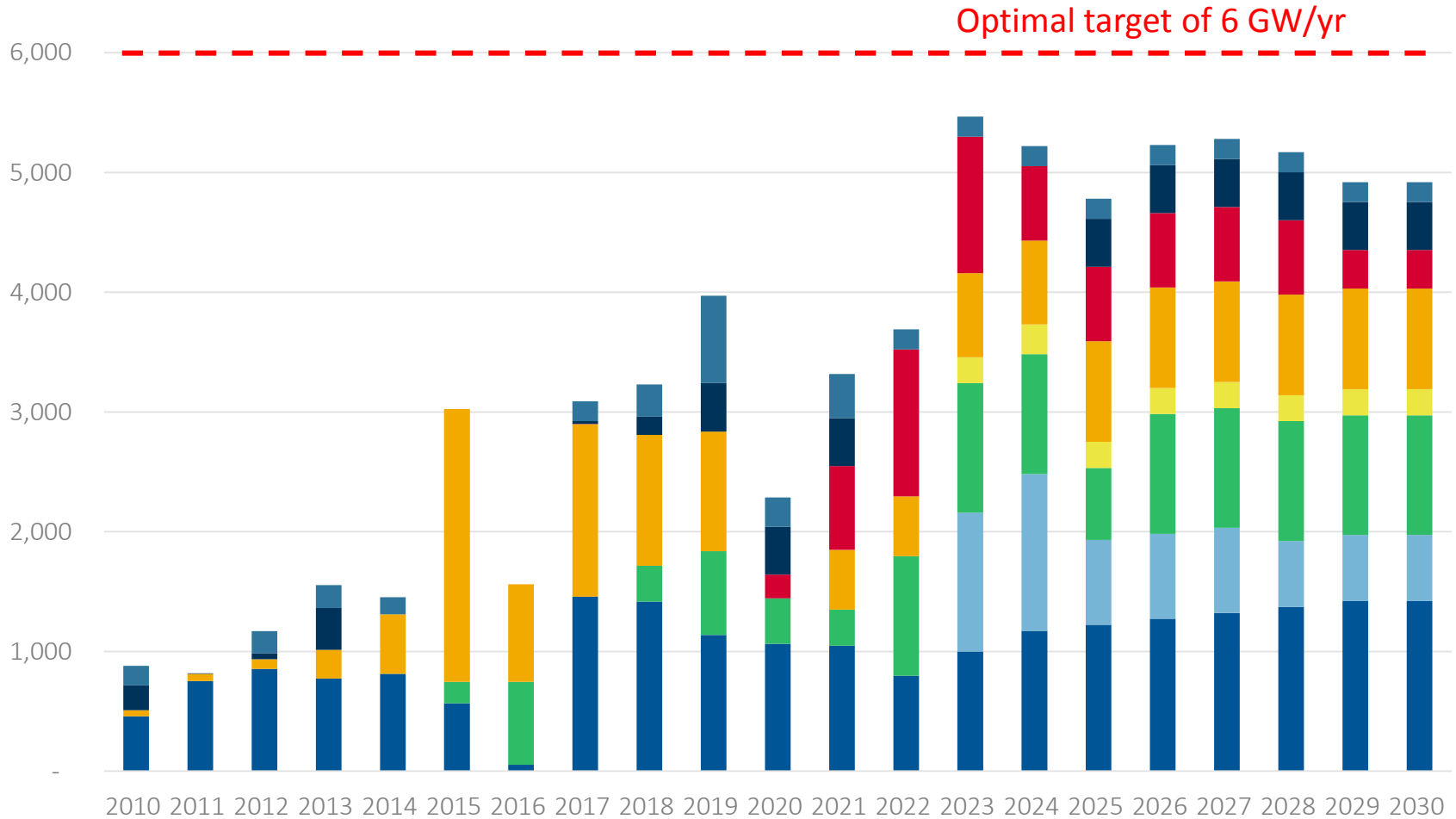
Contributing to other sectors



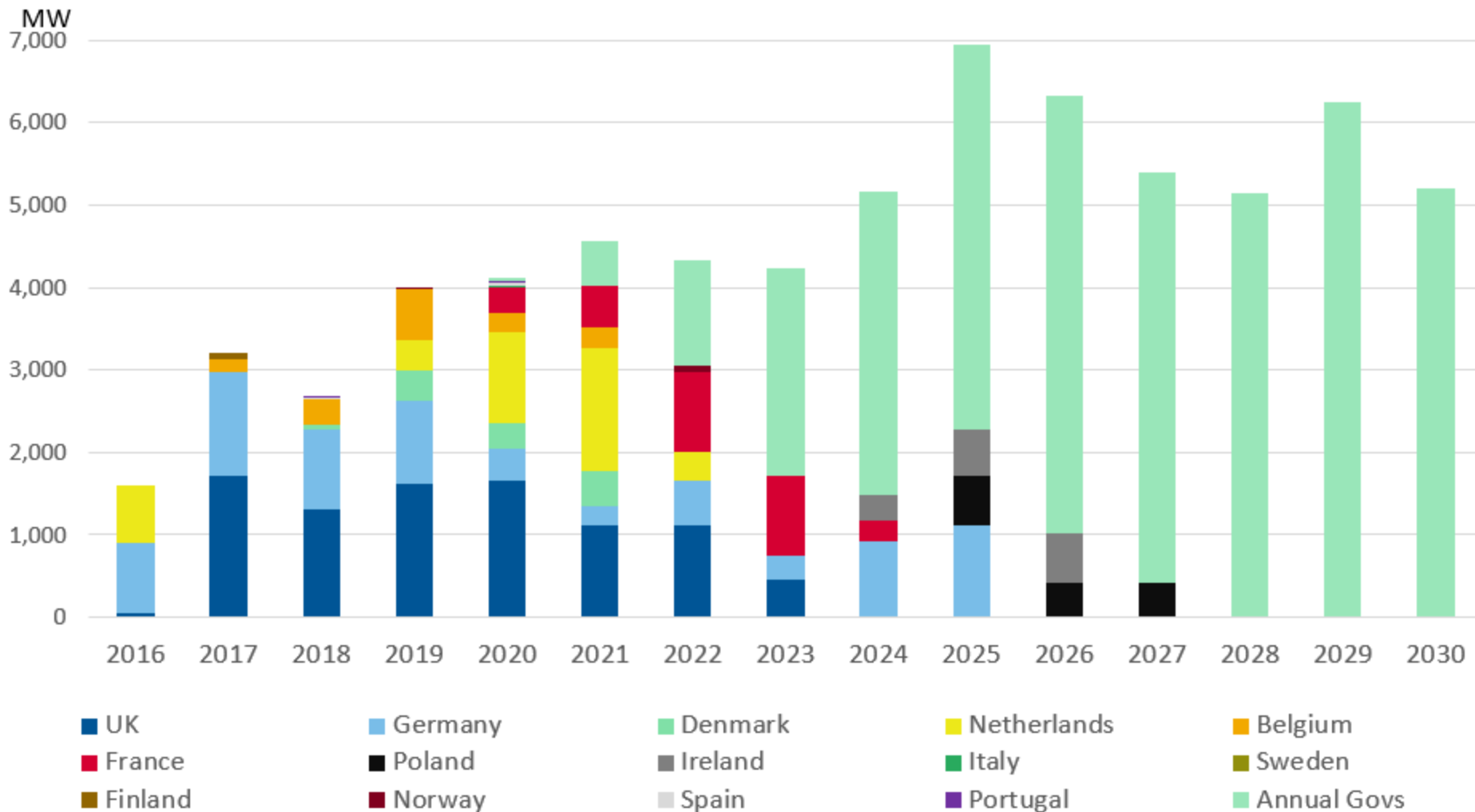
€250
for other
sectors

€1000
earned by
wind

Offshore outlook to 2030



2030 Outlook for offshore wind



Offshore capacity factors are increasing

Offshore wind farm	Capacity factor	Duration	COD
Hywind floating	65%	Last 3 months of 2017	2017
Dudgeon	65%	Last 3 months of 2017	2017
Walney phase II	45%	2017	2013
Anholt 1	49%	2017	2013
Sheringham Shoal	41%	2017	2012

Source: <http://energynumbers.info/uk-offshore-wind-capacity-factors>

**POPULAR
MECHANICS**

The First Floating Wind Farm Is Ridiculously Efficient

gtm:

World's First Floating Offshore Wind Farm Achieves 65% Capacity Factor After 3 Months

ars TECHNICA

Scotland's floating wind farm is showing how powerful offshore wind can be