# Repowering and decommissioning of offshore wind in Europe


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# 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, equinor, res powering change, Shell |
| Power utilities | e.g. RWE, EDF renewables, enel Green Power, Iberdrola Renovables, Vattenfall |
| Component manufacturers | e.g. LM Wind Power, BASF We create chemistry, ZF, Hitachi, ABB |
| Installation / logistics | e.g. Jan De Nul Group, Port of Amsterdam, Van Oord Marine ingenuity |
| Financial & legal services | e.g. Allianz, Baker McKenzie., Macquarie, Green Investment Group |
| Research institutes | e.g. Catapult Offshore Renewable Energy, Fraunhofer IWES, TU Delft, DTU |

## + NATIONAL WIND ASSOCIATIONS

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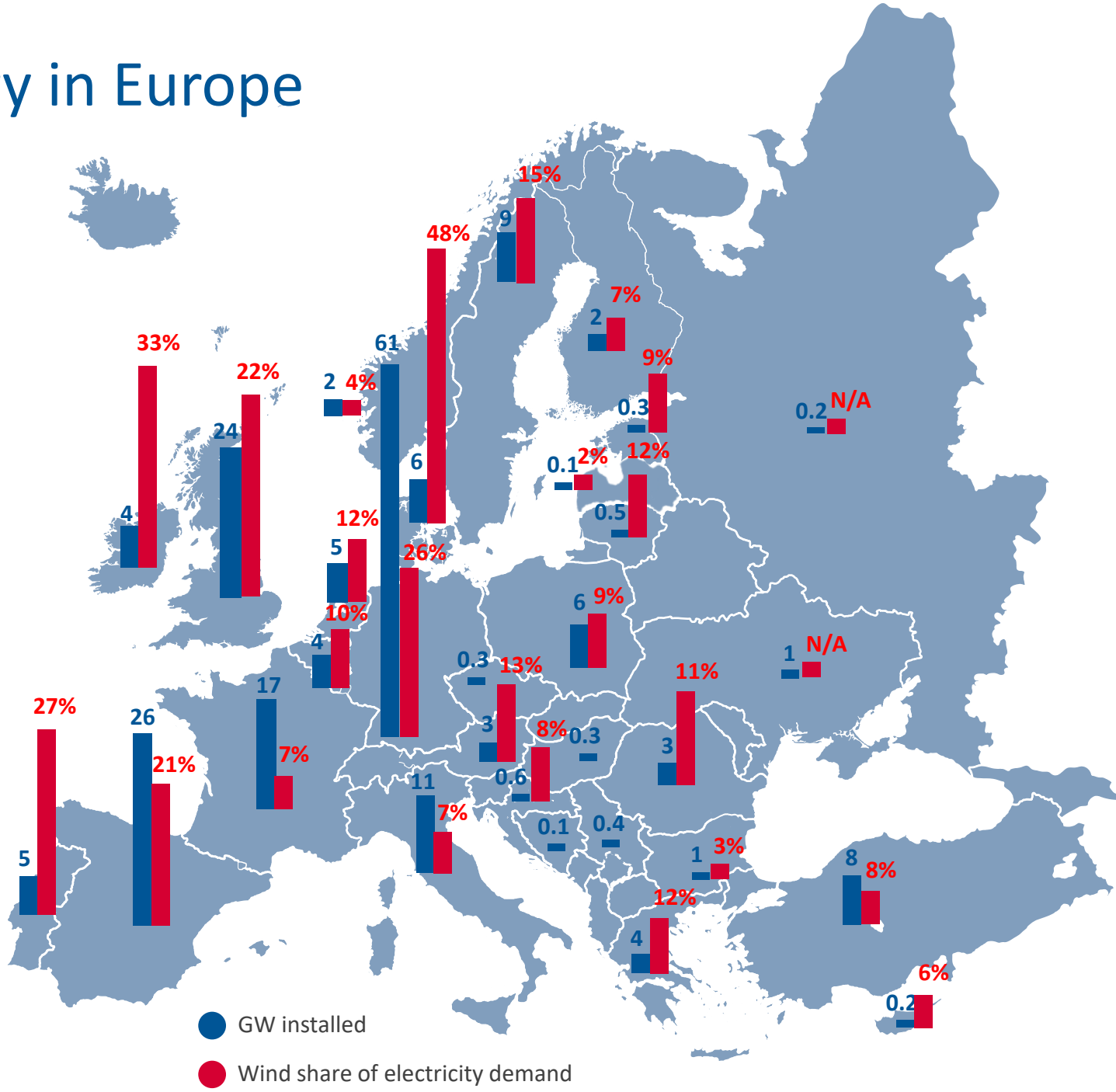
# Wind energy in Europe

**205 GW**

**15%**
of Europe's electricity demand

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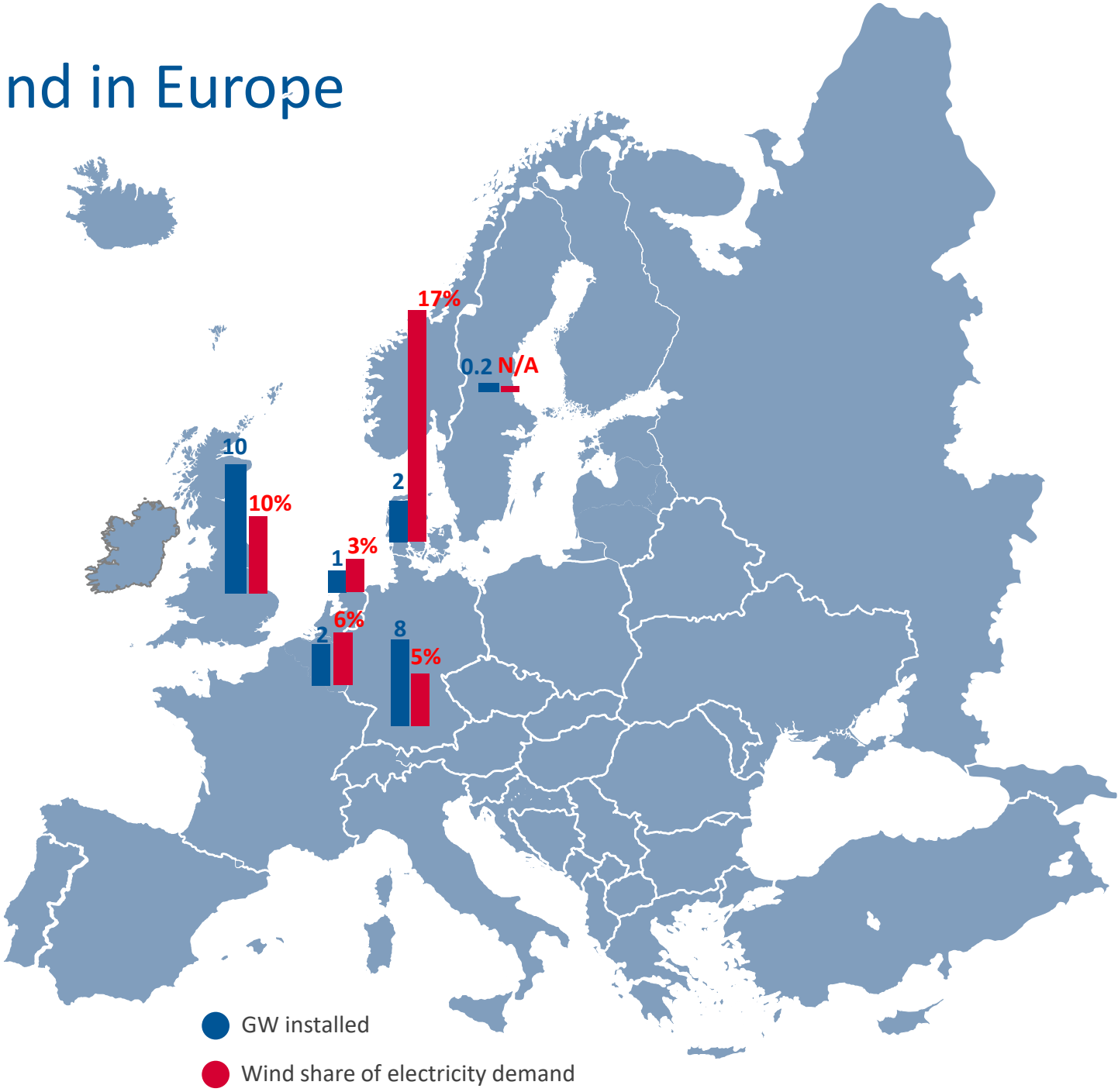
# Offshore wind in Europe

**23 GW**

**3%**
of Europe's electricity demand

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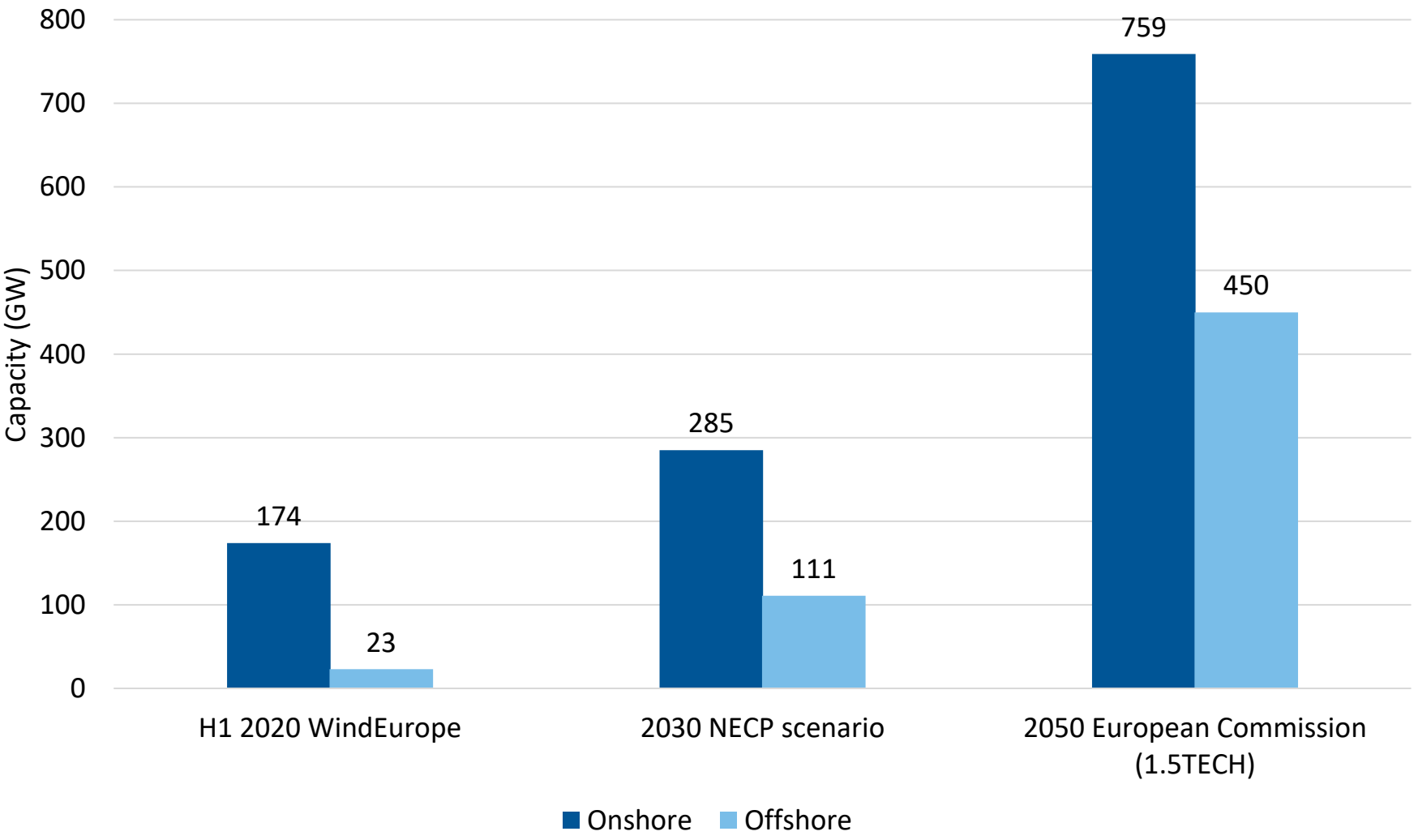
# Huge increase in wind capacity coming




EU27+UK. Source: 2030 WindEurope NECP scenario, 2050 EC long-term strategy

# Terminology:

## *Repowering vs Life-time extension (LTE)*

### Nordex wins first Spanish r…owering

*4 December 2017 by Craig Richard*

**SPAIN: Nordex will carry out its first repowe… …m reducing the number of turbines at the site from 90 to 12**

The 30MW El Cabrito wind farm currently comprises 90 330KW turbines (pic: Nordex)

The company will remove the 90 22-year-old turbines at Acciona Energia's 30MW El Cabrito project in Andalucía, southern Spain, in the second half of next year, the company said.

The site's 330kW turbines will be replaced with with just eight N100 3MW and four AW70 1.5MW machines.

El Cabrito will have a reduced operating cost due to the lower number of turbines, and an increased energy yield despite having a slightly lower nominal capacity, Nordex stated.

Repowering

### GALLERY: 'First' offshore repowerin… completed

*3 December 2018 by Craig Richard*

SWEDEN: Other developers have opted simply to decommission aged … farms as they reach the end of their life-cycle. Danish company Momentum, … has carried out what it claims is the first partial repowering of an offshore wind …


Bockstigen comprised five 20-year-old 550kW Wind World turbines

The developer has replaced the nacelles and blades of the five 20-year-old, 550kW Wind World turbines at its Bockstigen project with components from used V47-660kW Vestas units increasing the site's nameplate capacity from 2.75MW to 3.3MW.

LTE

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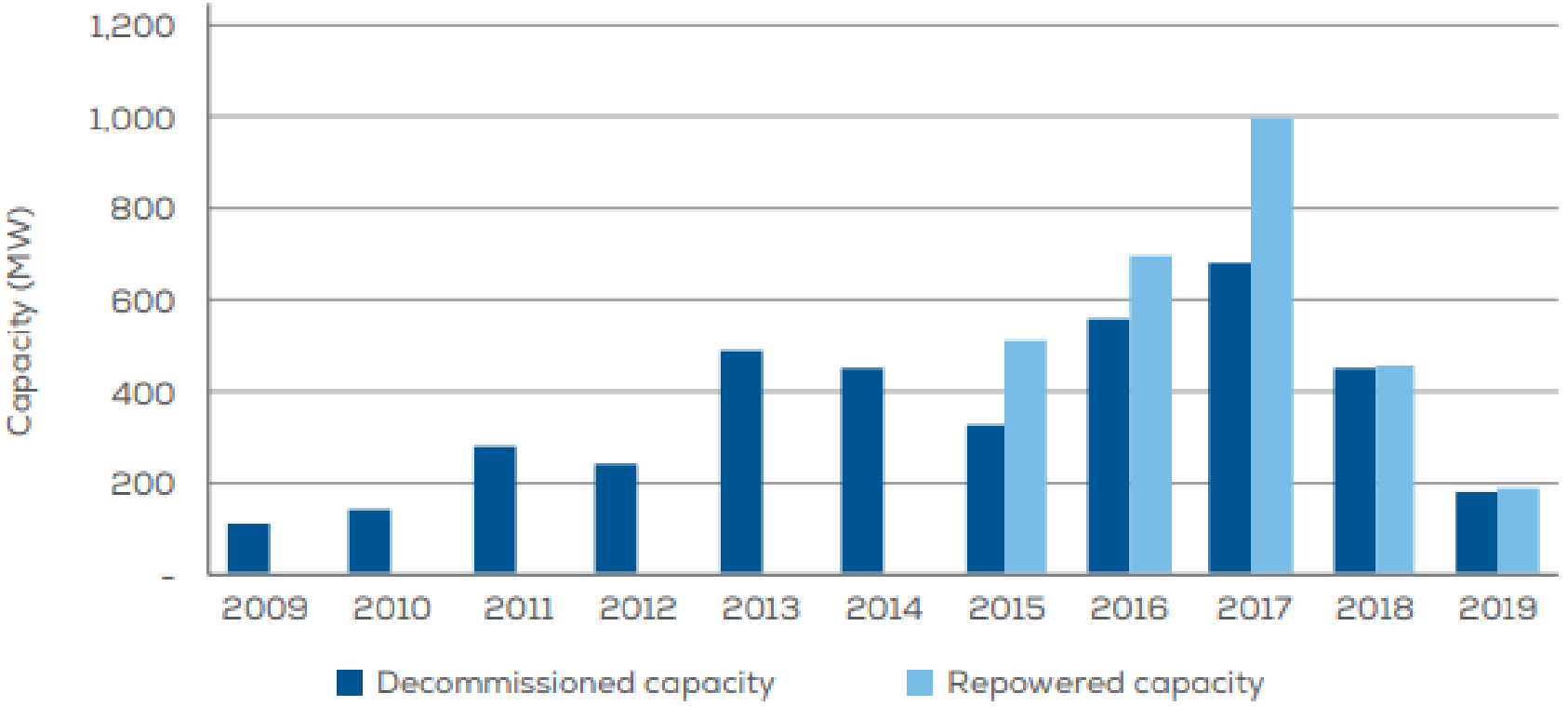
# Almost all decommissioned capacity came from onshore wind. Only 77 MW of offshore wind.

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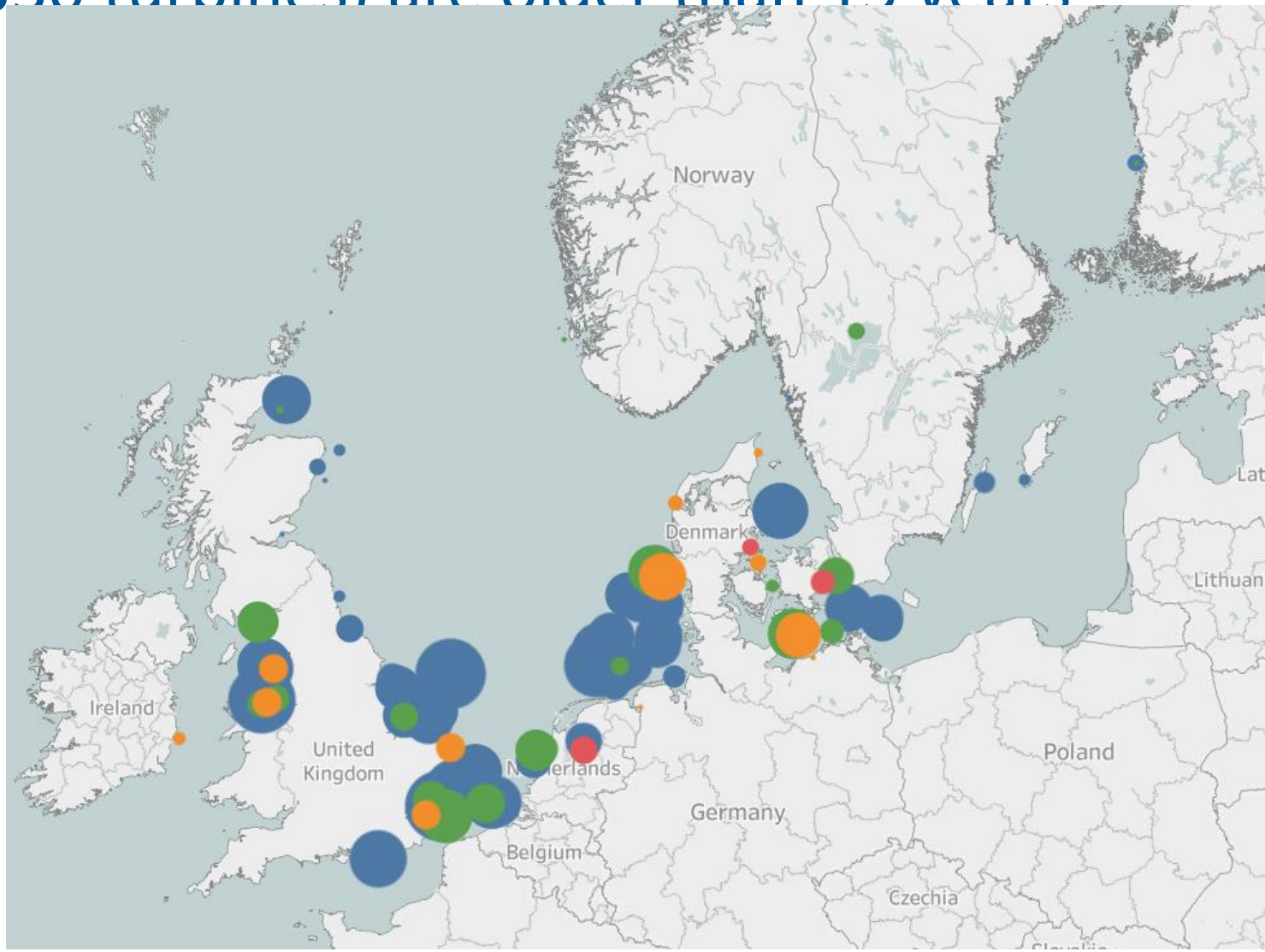
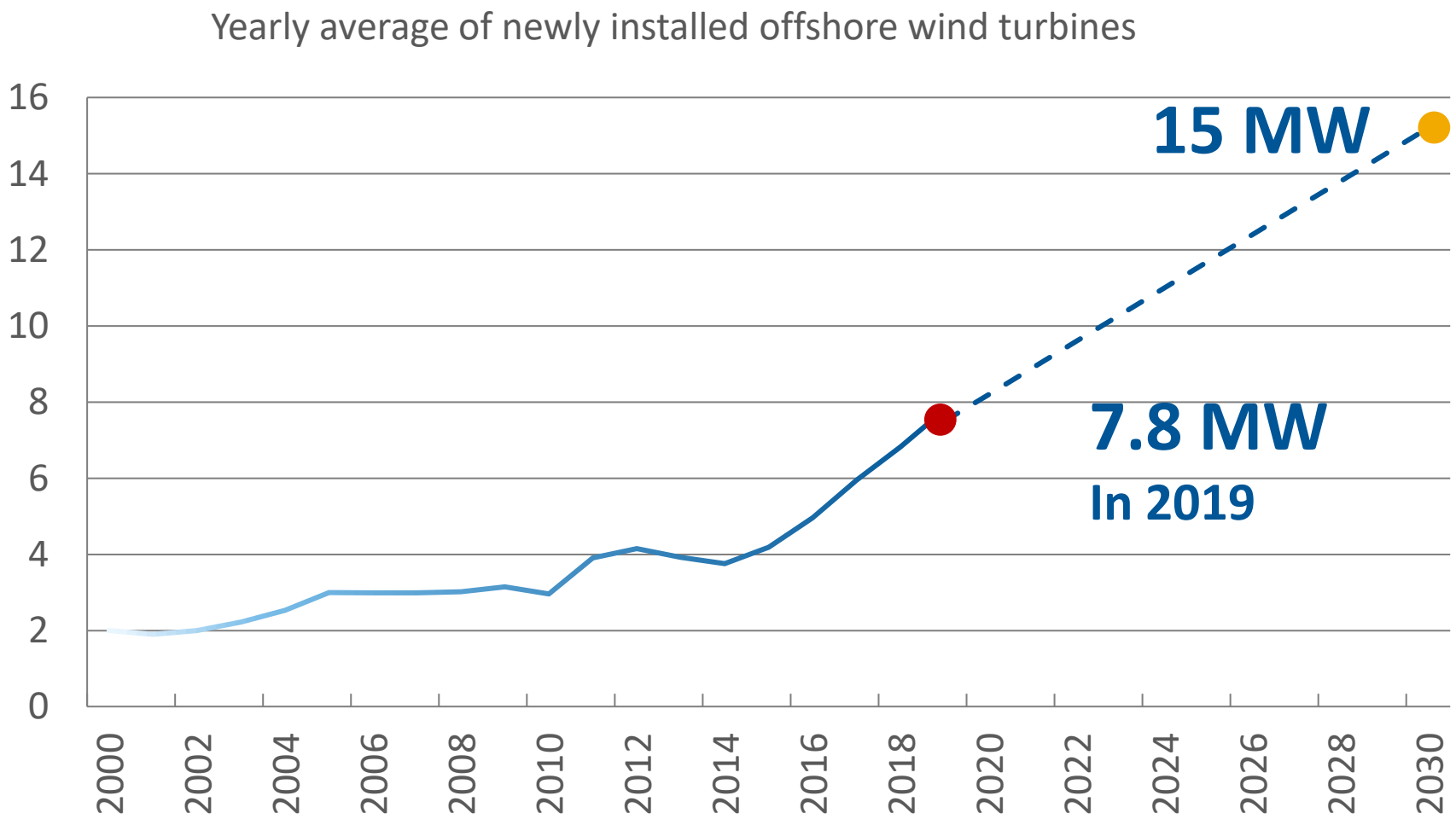
# Only 16 offshore projects were decommissioned so far

# 700 MW (330 turbines) are older than 15 years



# Offshore turbines are getting larger

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