

OFFSHORE WIND IN EUROPE

Key trends and statistics 2020



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Key trends and statistics 2020

Presented by



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Wind Energy in Europe 2020

Free webinar

Tuesday 4 March 2021
3:00 PM (CET)



Presented by:



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Analyst – Markets & Wind
Energy Technology



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Head of Market
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Manager

**Wind Energy in Europe 2020: Trends,
statistics and five-year outlook free
webinar**

Date: Thursday 4 March 2021

Time: 3:00 PM – 4:00 PM CET

Report publication date: 25 February 2021

Join us for the Wind Energy in Europe 2020: Trends, statistics and five-year outlook webinar. WindEurope analysts will discuss the latest developments within the European wind industry, outlining key installations in wind farms, supply chain activity, and investment trends. They will analyse how the covid19 pandemic has affected the sector and the outlook for the next 5 years. This will be followed by a Q&A session for participants.

[Register now >](#)

AGENDA

1. CONSTRUCTION
2. FINANCING
3. TRENDS AND SUPPLY CHAIN
4. POLICY & MARKET OUTLOOK

The screenshot shows a GoToWebinar interface with the following elements:

- Menu: File View Help
- Audio section:
 - Telephone (unselected)
 - Mic & Speakers (selected) with a [Sound Check](#) link
 - MUTED status with a speaker icon
 - Microphone (Logitech USB Headset) dropdown
 - Volume indicator (6 bars)
 - Speakers (Logitech USB Headset) dropdown
- Talking: section
- Handouts: section with a plus sign and expand icon
- Questions: section with a minus sign and expand icon, containing a text input field with the placeholder "[Enter a question for staff]" and a Send button.
- Webinar ID: section
- Recording status: This session is being recorded.
- GoToWebinar logo at the bottom.

Press + to expand the question box

Type your question and hit 'Send'

Got a question?

CONSTRUCTION ACTIVITY

Lizet Ramírez
Offshore Analyst

Offshore wind installations in Europe

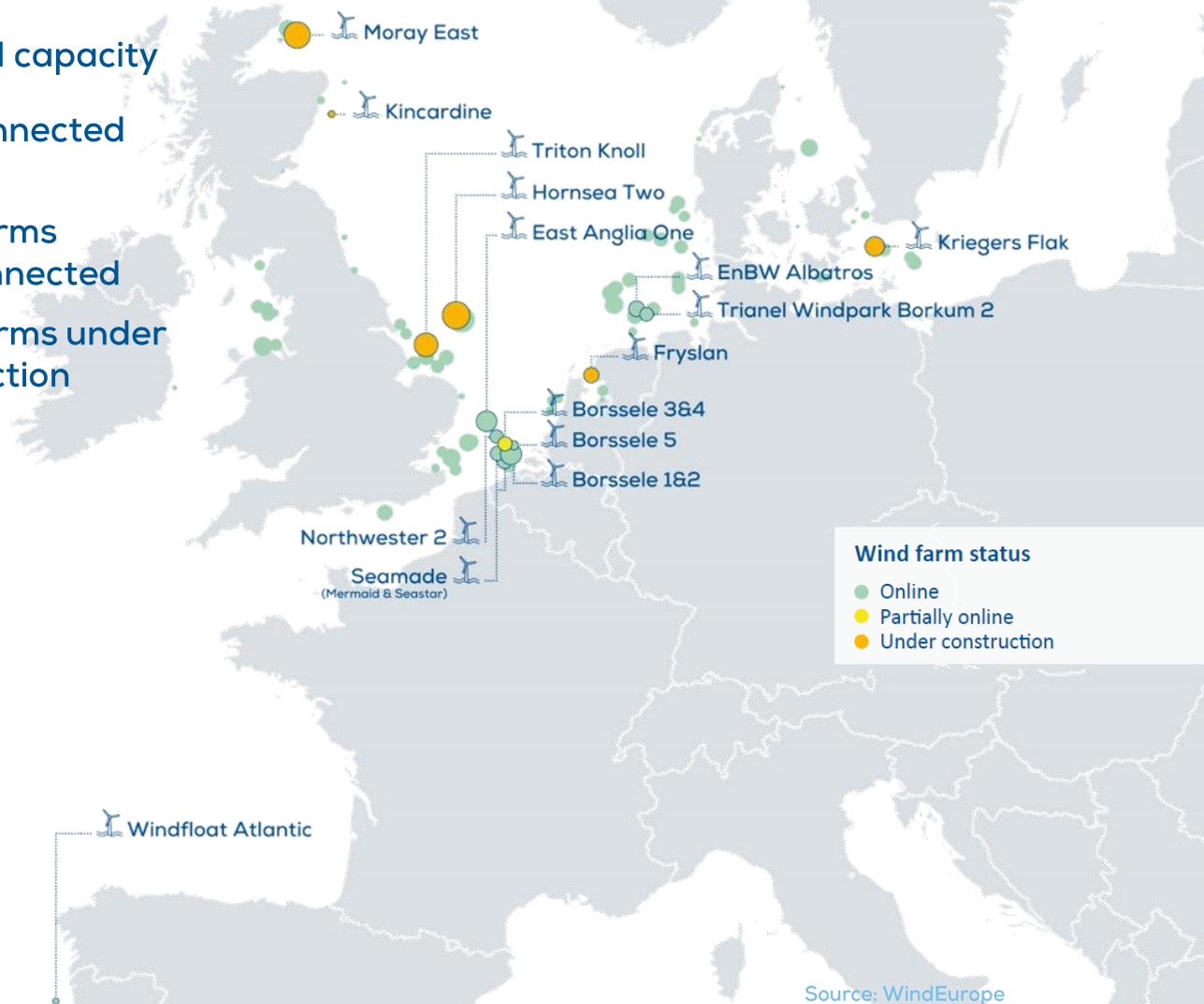
2020

2,918 MW Installed capacity

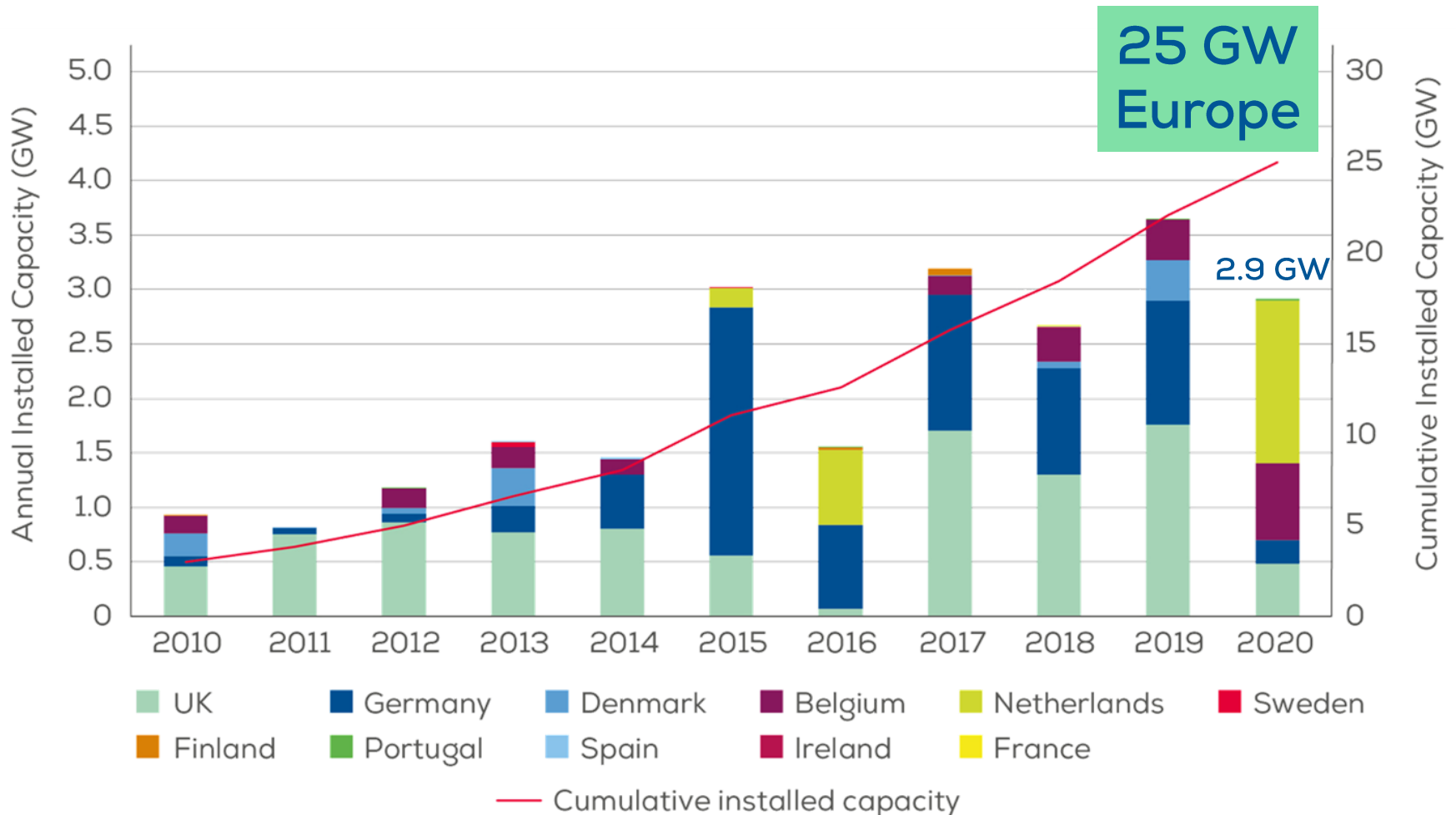
356 Grid-connected turbines

9 Wind farms grid-connected

6 Wind farms under construction

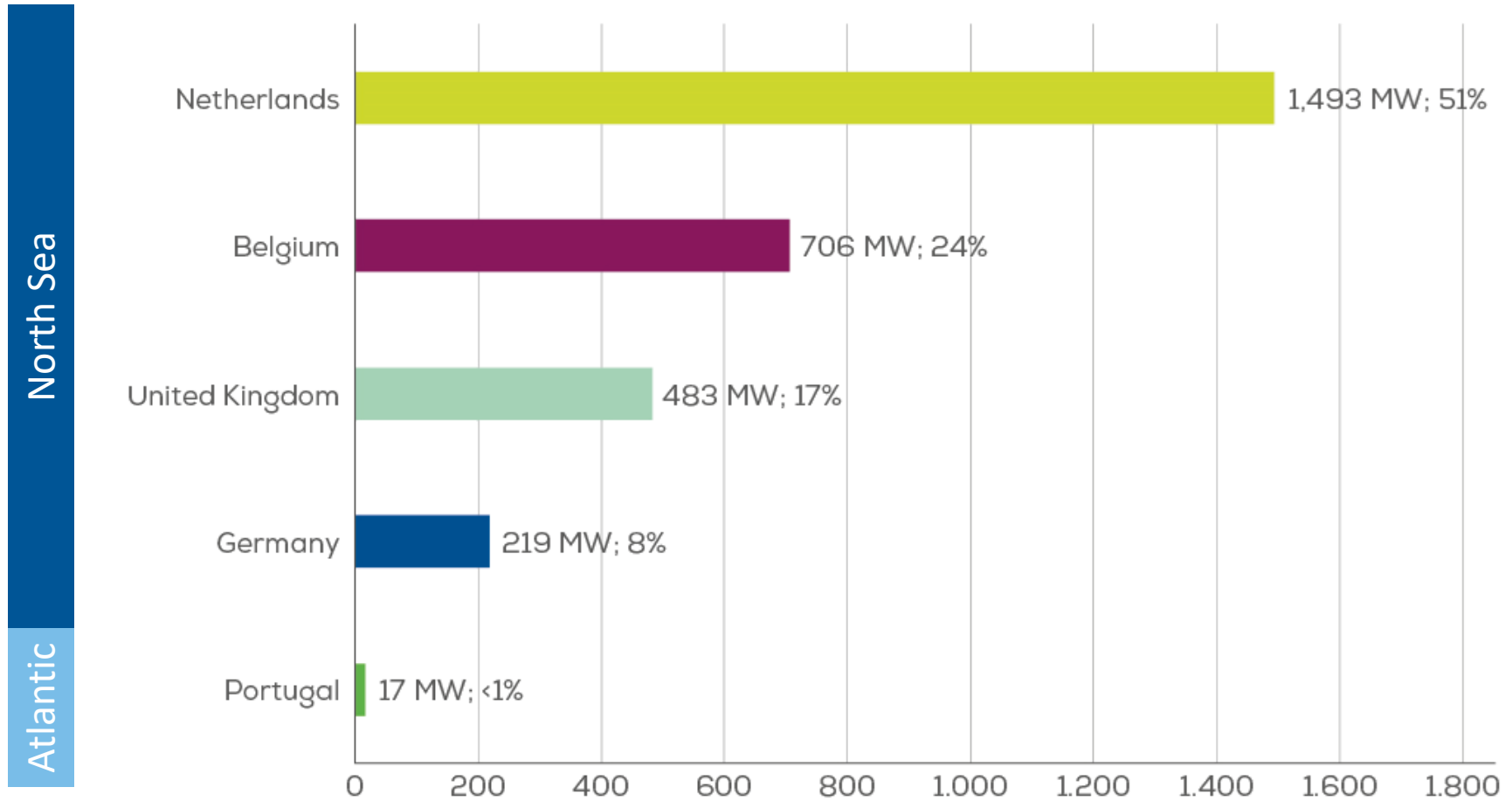


Annual offshore installations



National Breakdown

2020



Offshore wind installations in Europe

2020

Wind farms with construction activity in 2020

BELGIUM

- Northwester 2
- Seamade (see p.31)
(Mermaid & Seastar)

DENMARK

- Kriegers Flak (see p.12)

GERMANY

- EnBW Albatros
- Trianel Windpark Borkum 2

NETHERLANDS:

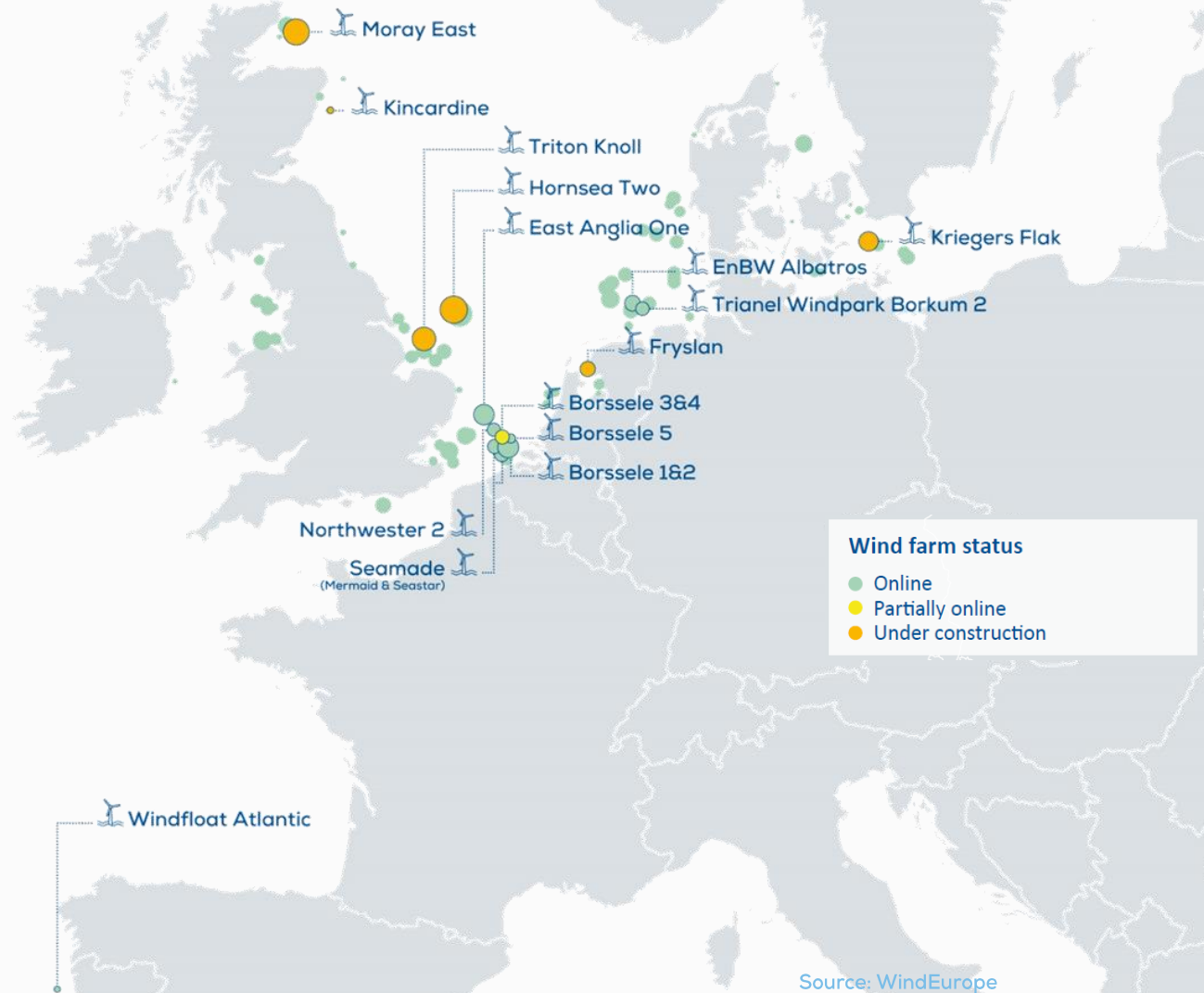
- Borssele 1&2 (see p.15)
- Borssele 5
- Borssele 3&4
- Fryslan

PORTUGAL

- Windfloat Atlantic (see p.22)

UK

- East Anglia One
- Hornsea Two
- Kincardine
- Moray East (see p.22)
- Triton Knoll



Wind farms with works at sea in 2020

With grid connection

Under construction

Activity in 2020



Borssele 1&2
Borssele 3&4
Borssele 5

Fryslan

4 wind farms
172 grid-connected
turbines
89 foundations



Seamade
Northwester 2

2 wind farms
81 grid-connected
turbines



East Anglia One

Hornsea Two
Moray East
Kincardine
Triton Knoll

5 wind farms
69 grid-connected
turbines
220 foundations

Wind farms with works at sea in 2020

With grid connection

Under construction

Activity in 2020



EnBW Albatros
Trianel Windpark
Borkum 2

2 wind farms
32 grid-connected
turbines



Kriegers Flak

1 wind farm
72 foundations



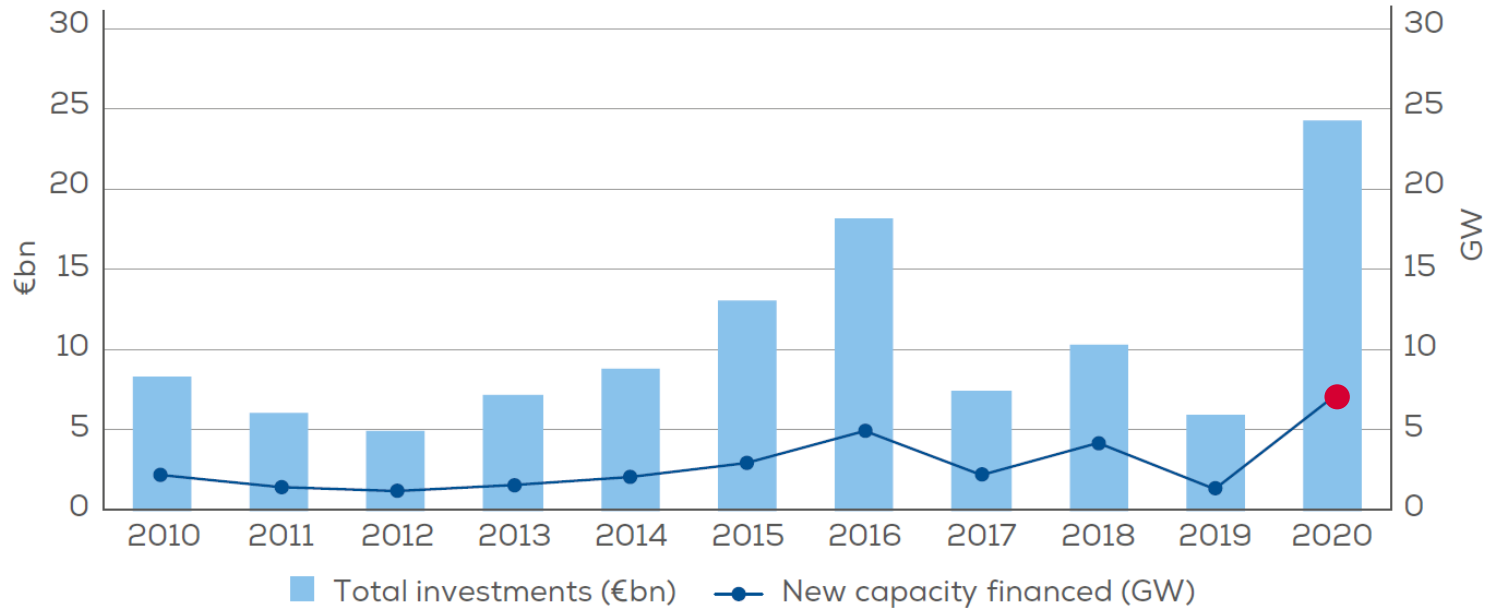
Windfloat Atlantic

1 wind farm
2 grid-connected
turbines

FINANCING ACTIVITY

Mattia Cecchinato
Offshore and Sustainability Analyst

A record €26.3bn in new assets financed



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total investments (€bn)	8.4	6.1	5	7.2	8.8	13.1	18.2	7.5	10.3	6	24.2
New capacity financed (GW)	2.2	1.5	1.3	1.6	2.1	3	5	2.3	4.2	1.4	7.1

8 Wind farms reached Financial Investment Decision (FiD)

COUNTRY	WIND FARM	CAPACITY (MW)	INVESTMENT (€bn)	COST (€m/MW)	EXPECTED COMMISSIONING DATE
France	Fecamp	497	2.4	4.9	2023
	Saint-Brieuc	496	2.3	4.6	2023
Germany	Kaskasi	342	1.4	4.1	2022
Netherlands	Hollandse Kust Noord	759	1.6	2.0	2023
	Hollandse Kust Zuid 1-4	1,500	3.4	2.3	2022/23
UK	Kincardine	50	0.4	8.3	2021
	Dogger Bank (A and B)	2,400	9.4	3.9	2024/25
	Seagreen	1,075	3.3	3.1	2023

Floating

Offshore PPAs

in 2020



31 MW



Nestlé

Race Bank



316 MW

amazon

Borkum Riffgrund 3



Amrumbank West



375 MW



BOREALIS

Seamade (Mermaid)

INEOS

Northwester 2

Norther

One auction took place in the Netherlands

Hollandse Kust (noord)

Kavel V CrossWind,
759 MW

Prinses Amalia
120 MW

Egmond aan Zee
108 MW



759 MW capacity awarded to
CrossWind consortium
Commissioning in 2023

TRENDS AND SUPPLY CHAIN

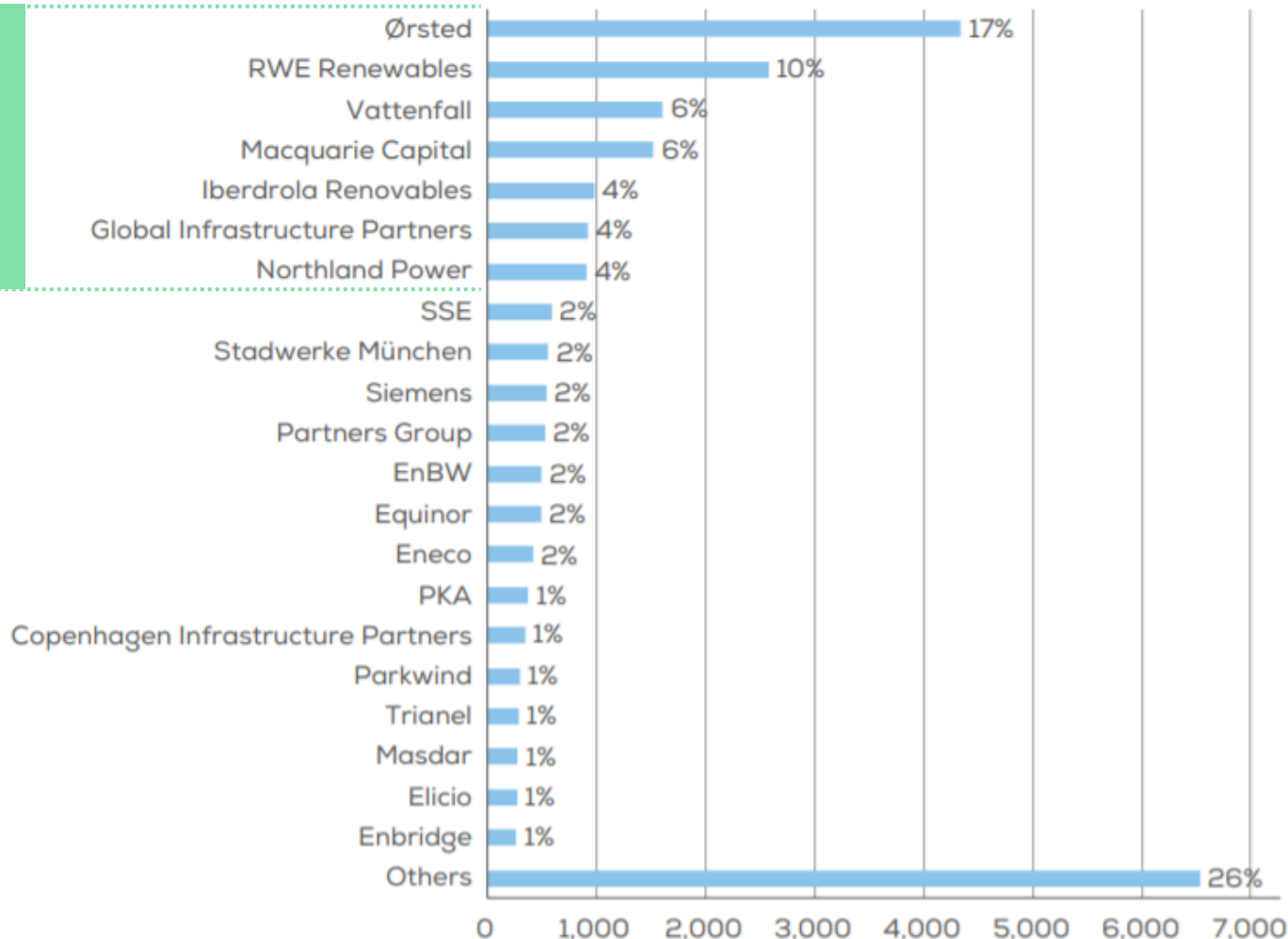
Lizet Ramírez
Offshore Analyst

Ownership of offshore wind farms

Ownership

Cumulative

51%
of the
offshore wind
capacity





BORSSELE 1&2

The Netherlands

Ørsted's first wind farm in the Netherlands

Status:

Fully Commissioned

Capacity:

752 MW

No. of turbines:

94

Owners:

Ørsted (100%)

Turbine model:

SG 8.0-167 DD
(SGRE)

Inter-array cable:

Nexans

Export cable:

NKT Group

Foundation type:

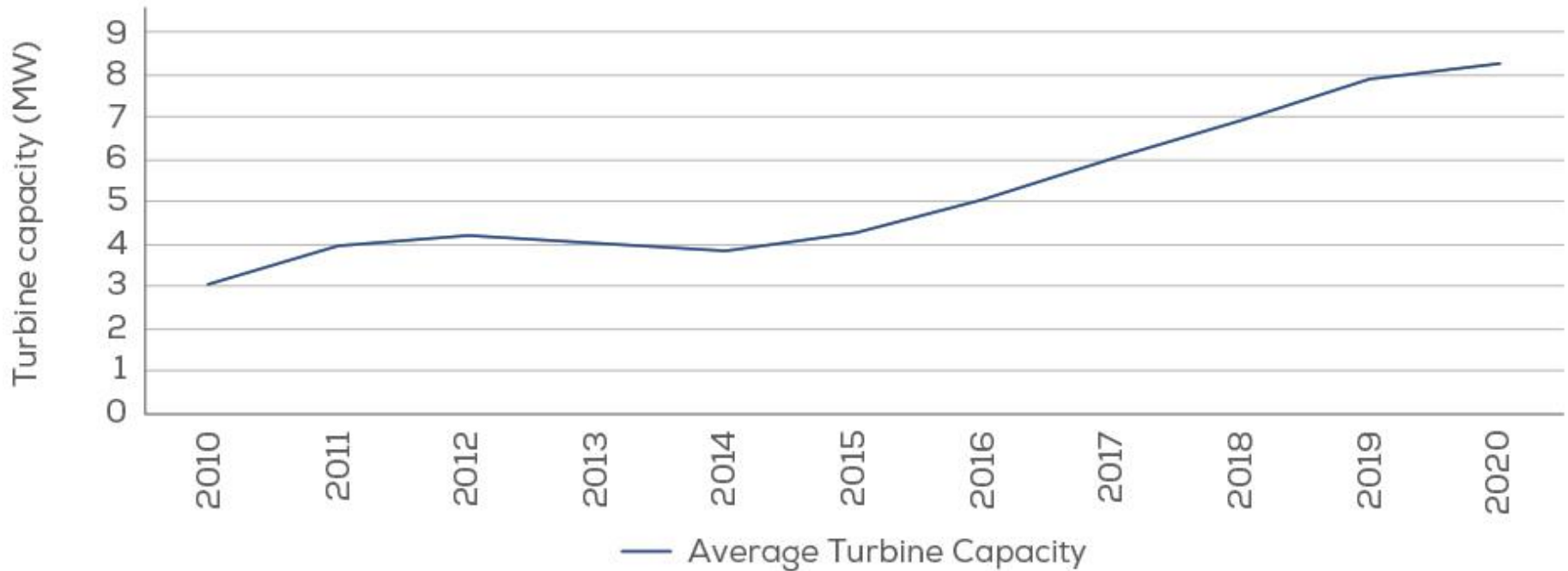
Monopiles

Foundation supplier:

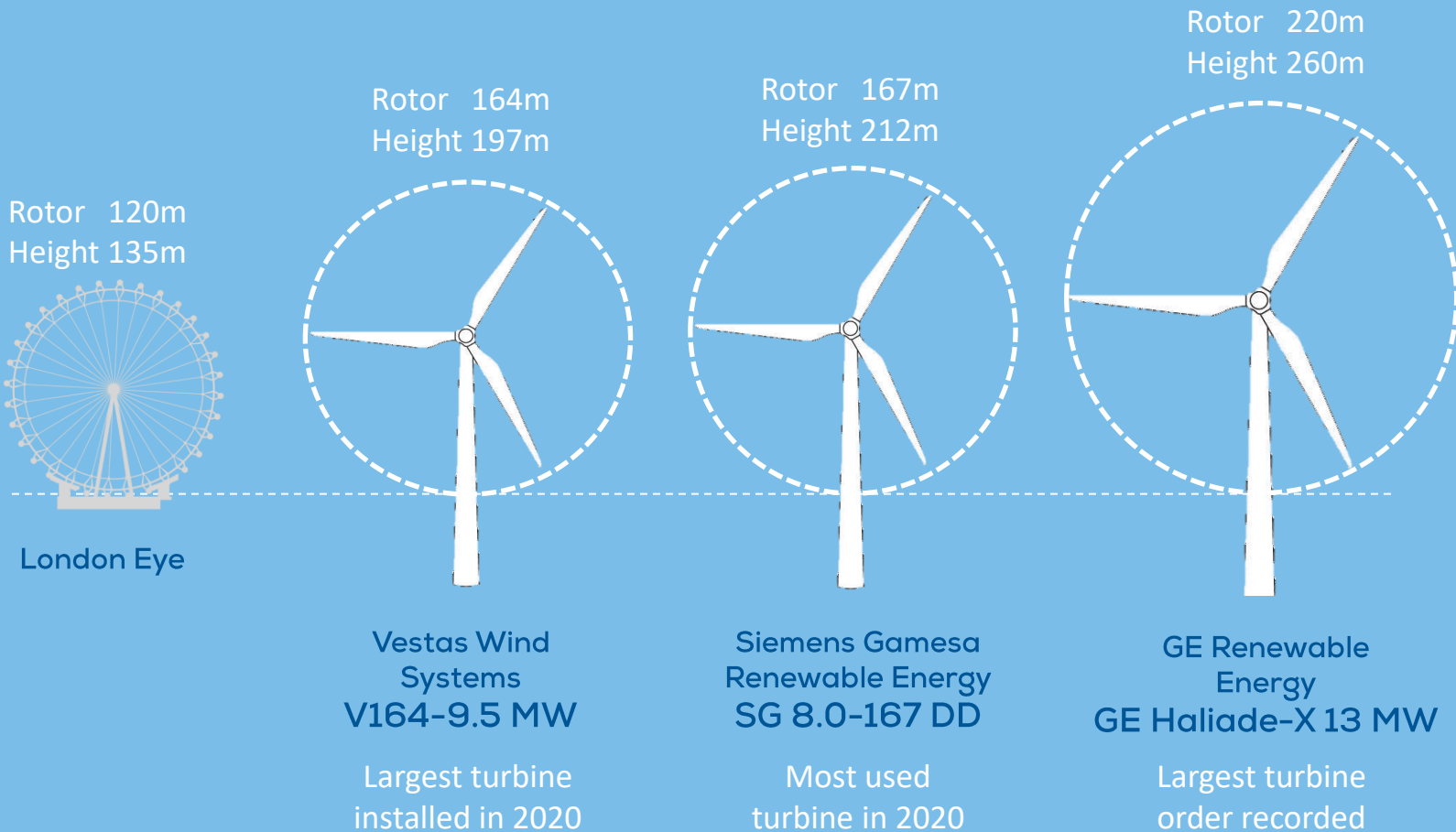
EEW (50%) & Sif (50%)

Turbines are getting larger

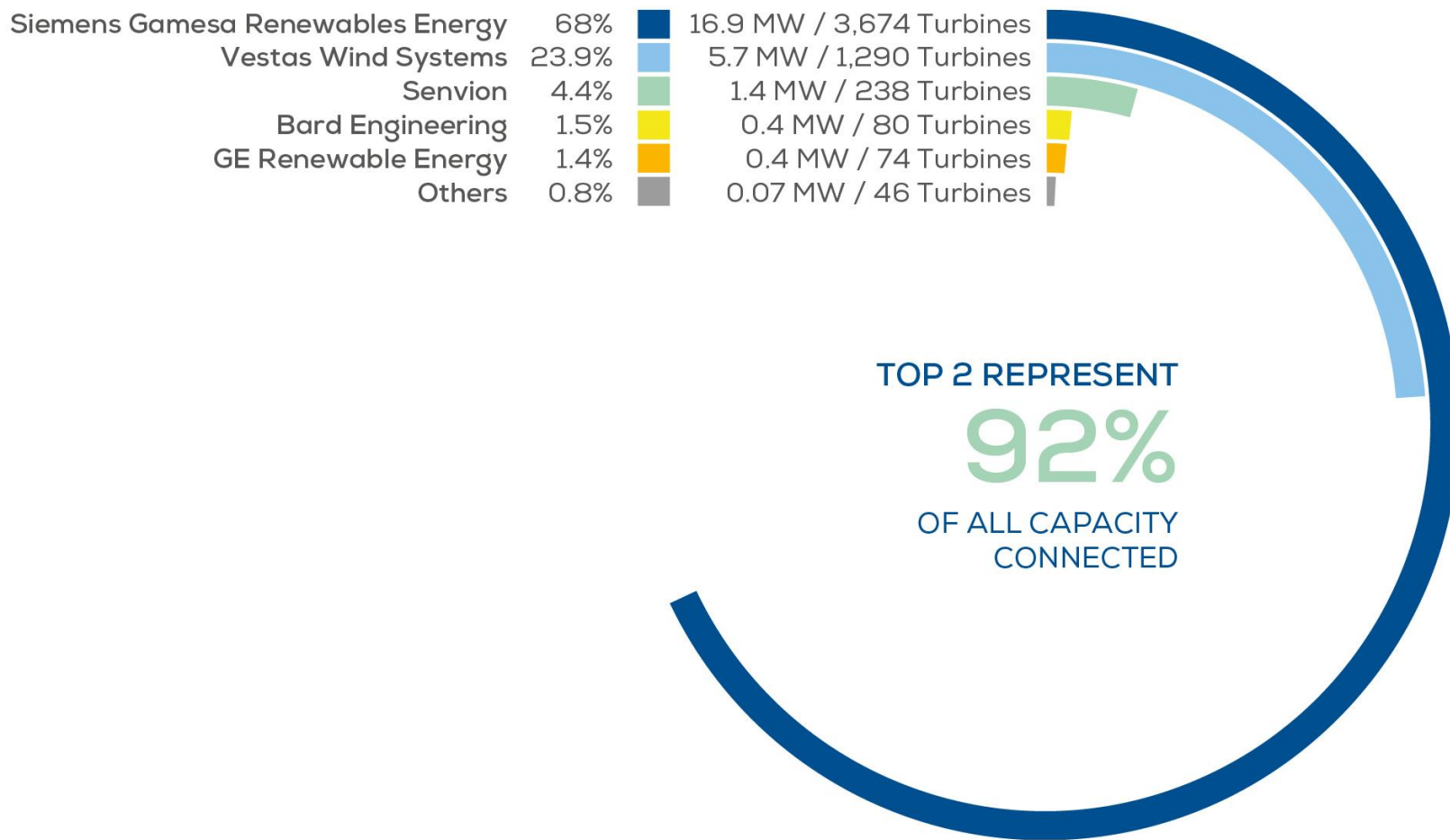
8.2 MW
average in 2020



Turbine model highlights



Two manufacturers supply nearly all operating wind farms in Europe



SEAMADE (Seastar & Mermaid)

Belgium

Largest Belgian offshore wind farm.

Status:

Fully commissioned

Capacity:

487 MW

No. of turbines:

58

Owners:

Otary* (70%), Ocean Winds
(17.5%) & Eneco (12.5%)

Turbine model:

SG 8.4-167 DD(SGRE)

Inter-array cable:

JDR Cable systems

Export cable:

Hellenic Cables

Foundation type:

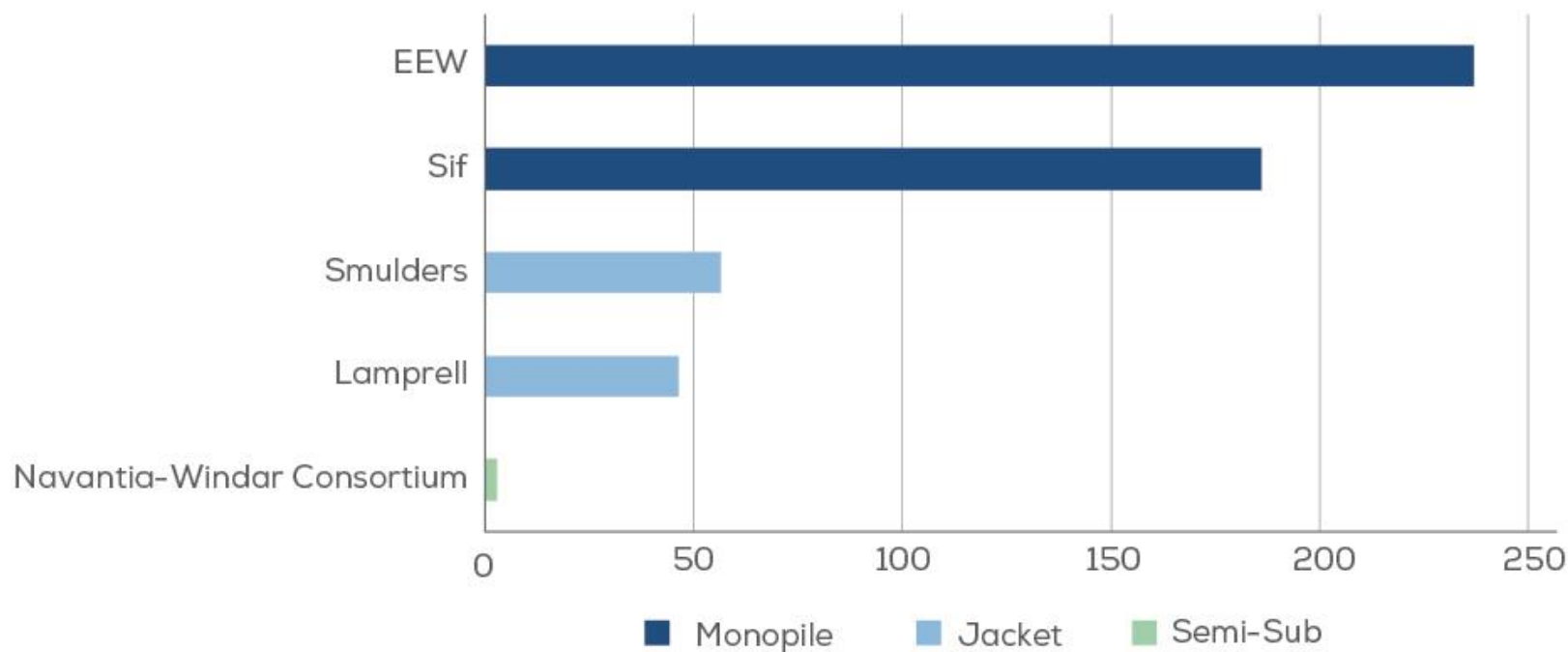
Monopiles

Foundation supplier:

Sif (100%)



Two companies supplied 423 monopiles across 3 countries





MORAY EAST

UK

DEME Offshore developed a special underwater drilling tool to cope with hard and rocky layers

Status:

Under construction

Capacity:

950 MW

No. of turbines:

100

Owners:

Ocean Winds (56.6%), Diamond Green Limited (33.4%) & The China Three Gorges (10%)

Turbine model:

V164-9.5MW
(Vestas Wind Systems)

Inter-array cable:

JDR Cable Systems (66 kV)

Export cable:

NKT Group

Type of foundation:

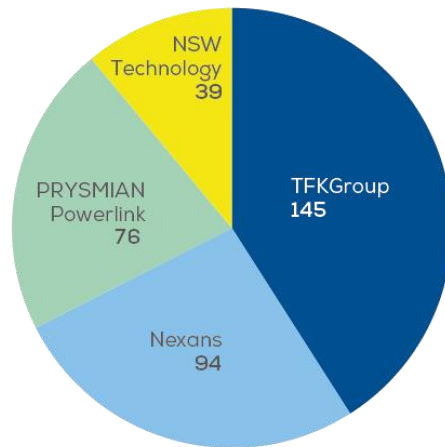
Jackets

Foundation supplier:

Smulders (55%) & Lamprell (45%)

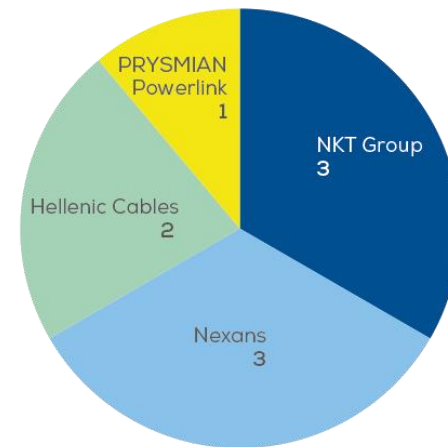
Two suppliers taking over half of 2020 cable installations

Inter-array cables



Two supply
68%
of the cables

Export cables



Two supply
66%
of the cables

Two companies installed most foundations and turbines in 2020



Borssele 3&4
© Courtesy of Van Oord

Only including turbines, foundations, inter-array cables, export cables and substations

Floating projects coming online in the next three years

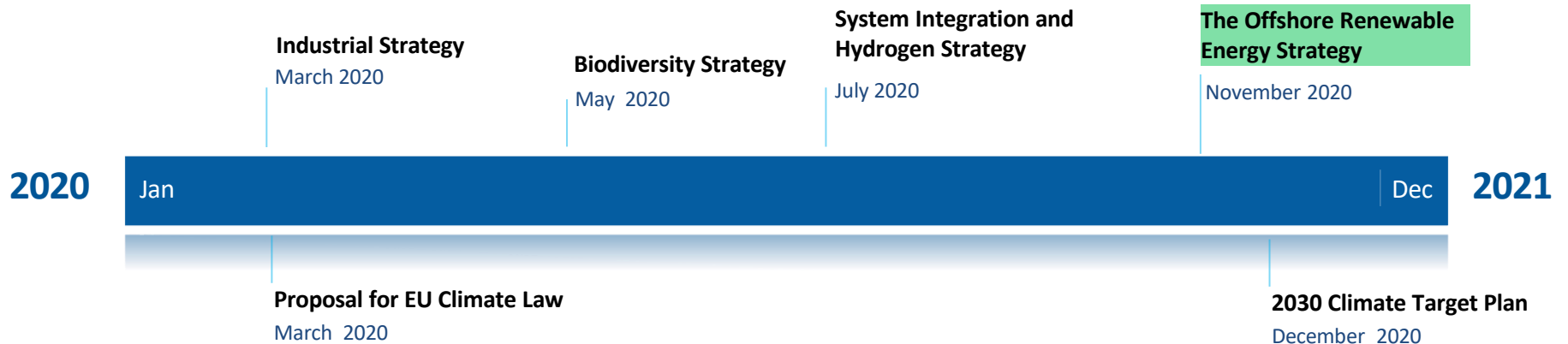
COUNTRY	WIND FARM	CAPACITY (MW)	FLOATER TYPE	NUMBER OF TURBINES	TURBINE MODEL	EXPECTED COMMISSIONING DATE
France	Éoliennes Flottantes de Groix	28.5	Semi-sub	3	V164-9.5 MW	2022
	EFGL	30	Semi-sub	3	V164-10.0 MW	2023
	EolMed	30	barge	3	V164-10.0 MW	2023
	Provence Grand Large	25	TLP	3	SWT-8.4-154 DD	2023
Norway	Hywind Tampen	88	Spar	11	SWT 8.0-154 DD	2022
UK	Kincardine	50	Semi-sub	5	V164-9.6 MW	2021

POLICY & MARKET OUTLOOK

Mattia Cecchinato
Offshore and Sustainability Analyst

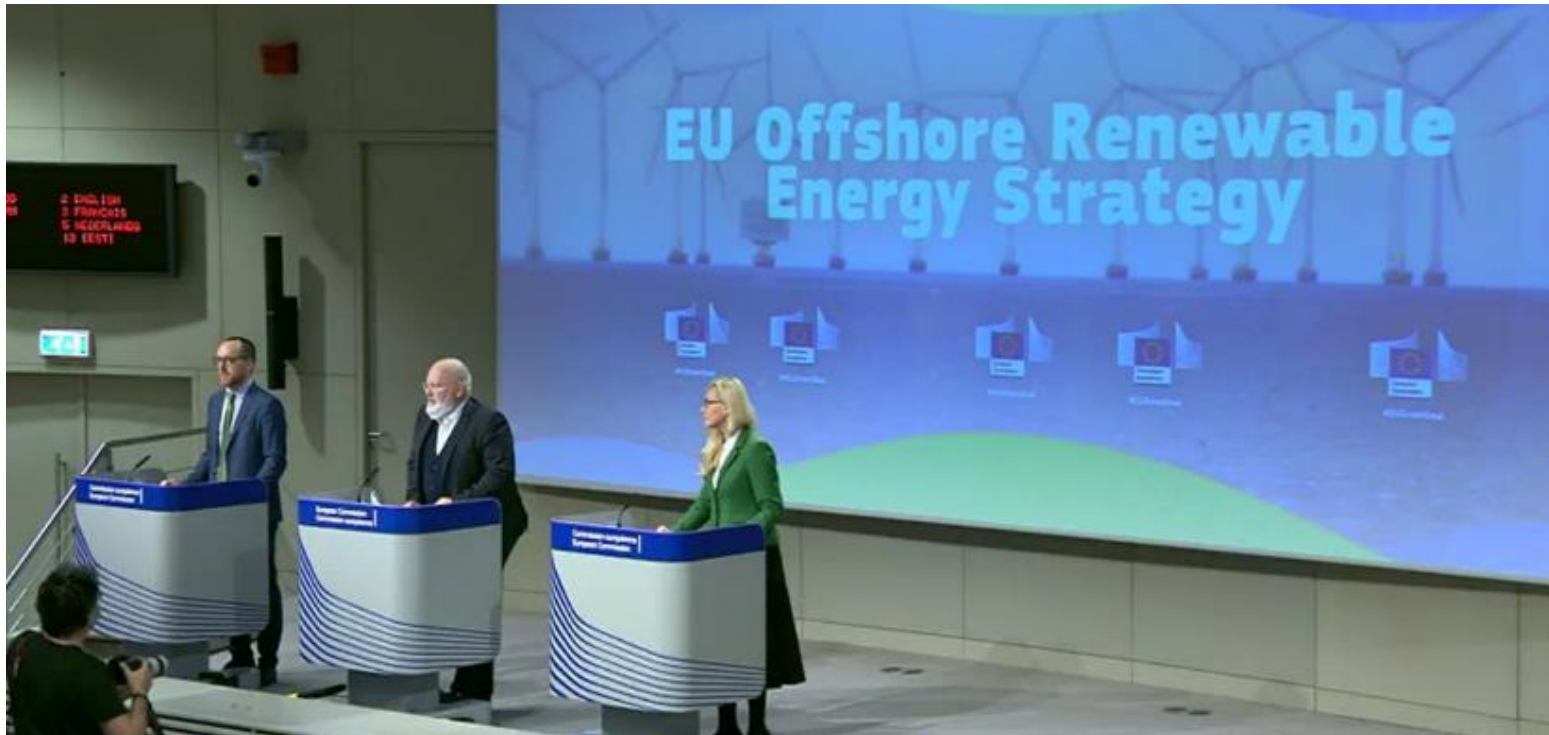
The European Green Deal

#EUGreenDeal



The Offshore Renewable Energy Strategy (ORES)

Released on
November 19, 2020



60 GW by 2030
300 GW by 2050

How to scale up?

WindEurope's in-depth analysis

1.



Maritime Spatial
Planning

2.



Grid Infrastructure

3.



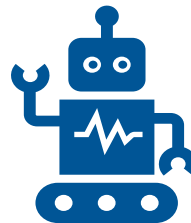
An EU regulatory
framework

4.



Private-public
investments

5.



Research and
Innovation

6.



Supply and value
chain

Regional Cooperation



North Seas Energy
Cooperation



- **July 6, 2020**


Joint Statement of North
Seas Countries and the
European Commission

- **September 30, 2020**

Offshore Wind Declaration
signed by the 8 Baltic States

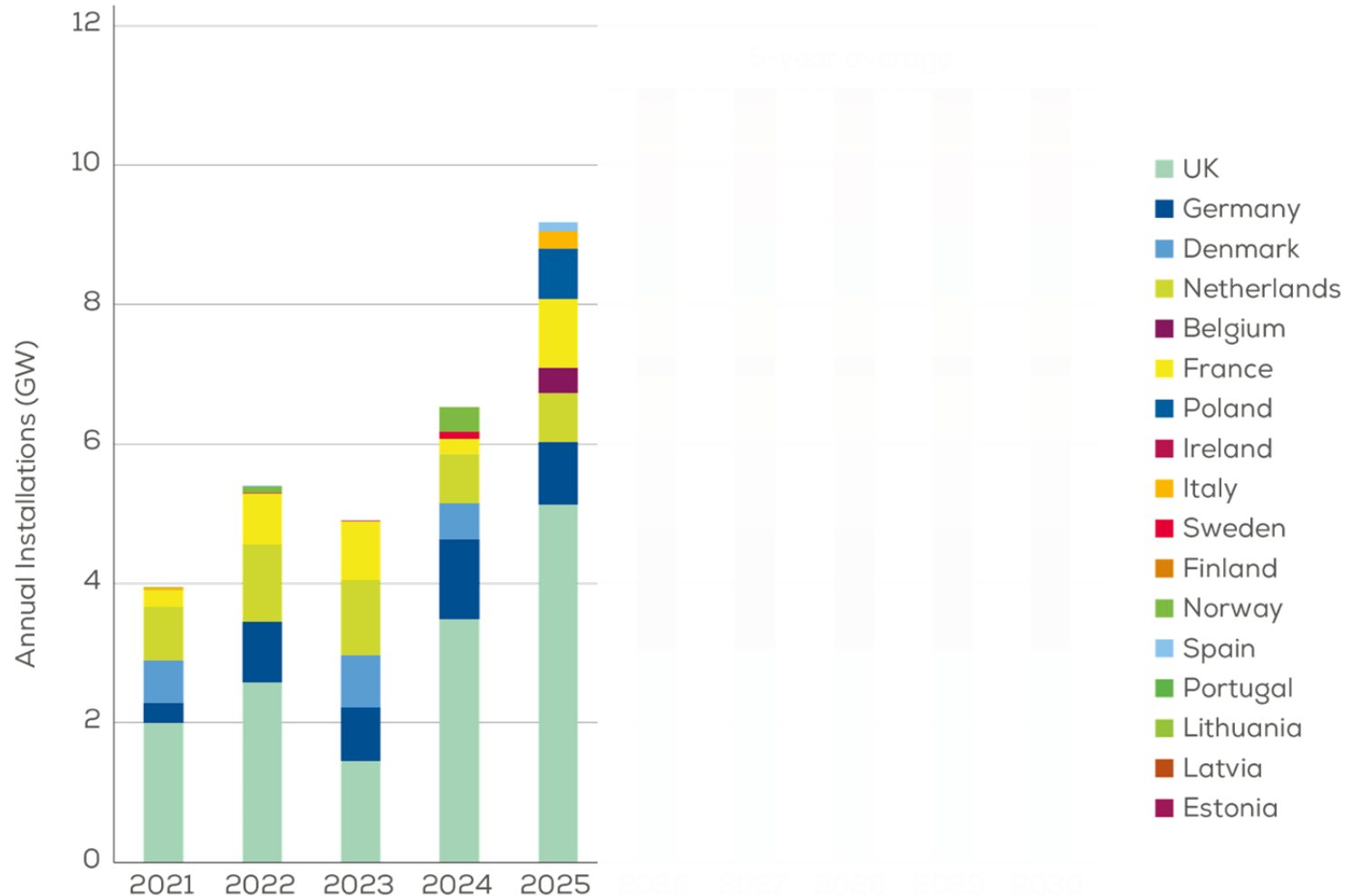


Wind farms coming online 2021/2022

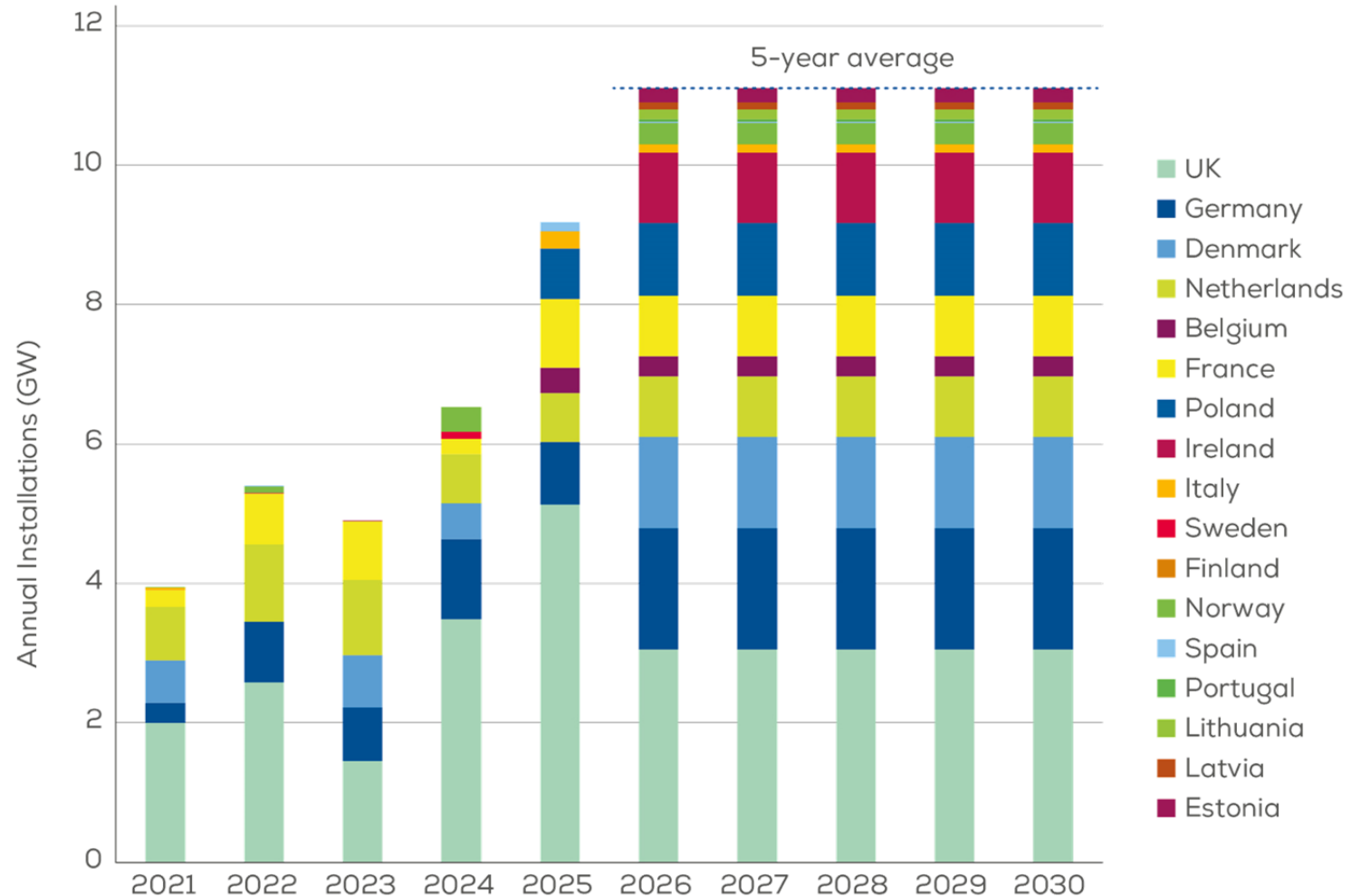
Interactive tools 

COUNTRY	WIND FARM	FOUNDATIONS INSTALLED IN 2020	TOTAL NUMBER OF FOUNDATIONS	TURBINE MODEL	TYPE OF FOUNDATION
Netherlands	Fryslan	89	89	SWT-DD-130 4.4 MW	Monopile
UK	Hornsea Two	29	165	SG-8.0-167 DD	Monopile
	Moray East	100	100	V164-9.5 MW	Jacket
	Kincardine	1	5	V164-9.6 MW	Semi-Sub
	Triton Knoll	90	90	V164-9.5 MW	Monopile
Denmark	Kriegers Flak	72	72	SG 8.4-167 DD	Monopile

Offshore Outlook to 2025



Europe needs to install a constant 11 GW to deliver 111 GW



New markets



Offshore Wind Act. The 1st phase will allocate 5.9 GW this year with a fixed price CfD to pre-developed projects. The 2nd phase will include two auctions in 2025 and 2027, both for 2.5 GW of capacity.



Approved the **Marine Planning and Development Management (MPDM) Bill** and **fast-tracked at least 3.5 GW** worth of projects. It also committed to a higher offshore target: 5 GW by 2030.



New Institutional framework for offshore wind energy is expected this year. EU focus on the Mediterranean Sea basin



Offshore Wind Energy Roadmap had consultations this year and the framework aims to speed up permitting process and allow a first auction in the Canary Islands this year

Takeaways

2020

1. Record €26.3bn for financing new offshore wind assets
2. Offshore wind industry resilient
3. Installations increase in the next five years and need to sustain 11 GW after 2025 yearly to meet 2030 targets
4. Clarity in regulatory framework for existing and new markets is critical

Q&A

policy@windeurope.org

Wind[•]
EUROPE

Learn more about
wind energy

windeurope.org



WindEurope, Rue Belliard 40
1040 Brussels, Belgium

Did you miss something? Recording will be available

The screenshot shows the top navigation bar of the Wind Europe website. The menu items are: About wind, Policy, Newsroom, Wind EUROPE (logo), Events, Data & Analysis (expanded), and Membership. The expanded 'Data & Analysis' menu includes: Statistics, Market Trends & Policies, Interactive Data, Thematic Reports, and Workshops & Webinars. Below the navigation is a large banner with an aerial view of a wind farm and a close-up of a tower under construction. The banner text reads: 'Don't miss our upcoming free webinars for 2020 annual statistics' with a 'Register now' button. A mouse cursor is pointing at the 'Workshops & Webinars' menu item and the 'Register now' button.

Wind energy today

15%
of Europe's electricity

cheaper
than other energies

300,000
jobs in Europe

benefits
local communities

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