Wind Turbine Orders Monitoring

Q2 2022 statistics

Wind EUROPE

windeurope.org

July 2022

Scope

This report summarises wind turbine orders that took place from 1 April 2022 to 30 June 2022.

WindEurope tracks announced wind turbine orders on the basis of publicly available information on commercial transactions and future deals, categorising them into firm orders, conditional orders, partnerships and framework agreements. The latter entails more than one order in a determined period with or without a specified amount of wind turbine units or capacity. Any orders which do not fit into these categories are classified as unknown.

We do not track Enercon's orders because they are not publicly available. Enercon share of installations in 2020 was about 12% for Europe and 34% for Germany.

TEXT AND ANALYSIS:

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Content

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Q2 2022 HIGHLIGHTS

- There were 3.5 GW* of orders in 12 countries in onshore and offshore wind. The total ordered capacity rose 82% compared to Q1 2022.
- Germany led with the ordered capacity (913 MW) due to the Borkum Riffgrund 3 order, followed by the UK (907 MW) and Poland (194 MW).
- SGRE received 70% of all the disclosed ordered capacity, followed by Vestas (19%), Nordex SE (9%), and GE (2%).
- There were 1.8 GW of offshore wind orders. SGRE captured almost all of the offshore orders, with Vestas supplying one floating offshore wind farm (Eolmed).
- Almost every wind turbine order announcement featured an operation and maintenance (O&M) deal.
- WindEurope tracked 21 firm orders* in Q2 2022.

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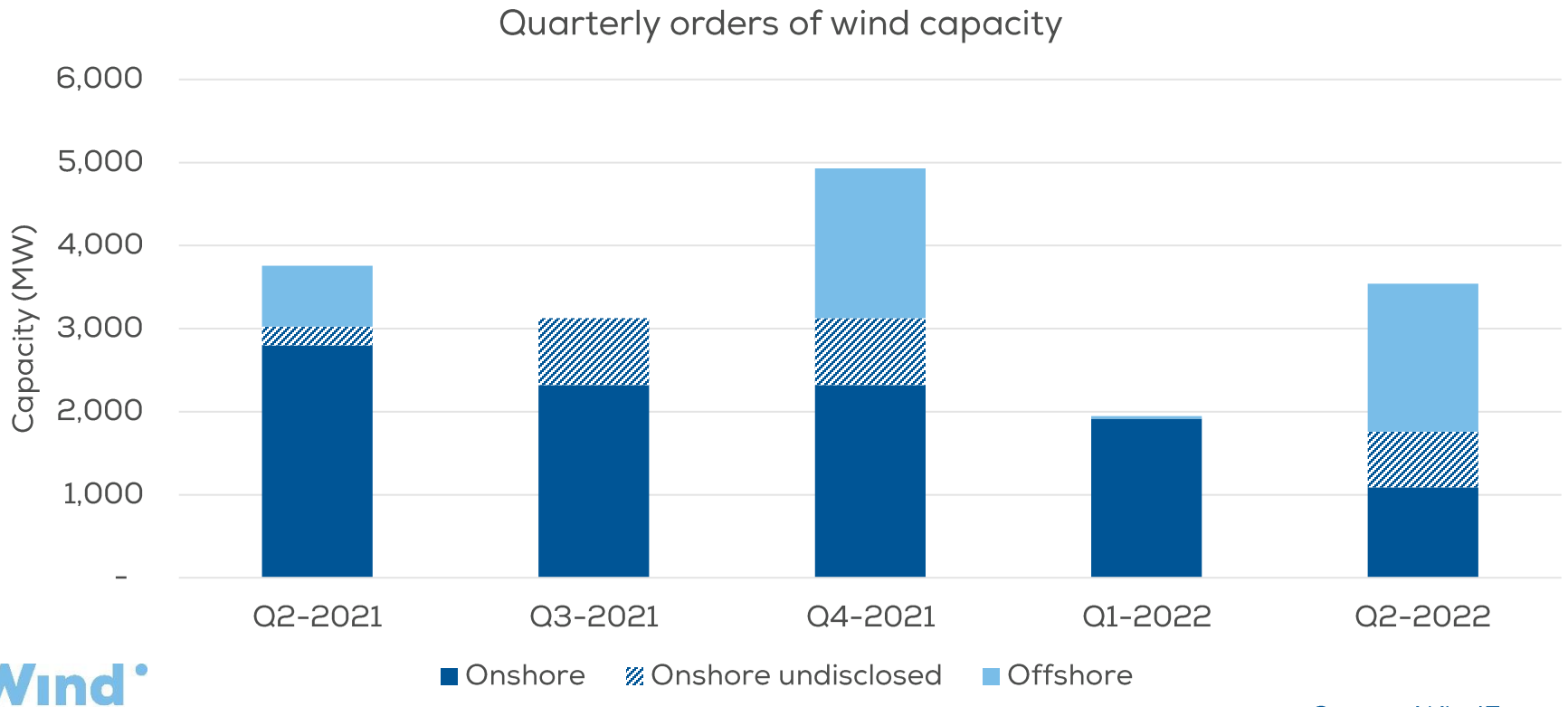
*See Methodology (slide 25) for an explanation of the methodology on undisclosed orders.

With 3.5 GW of orders, Q2 2022 was up 82% on Q1 2022 as offshore orders rose

Onshore + Offshore

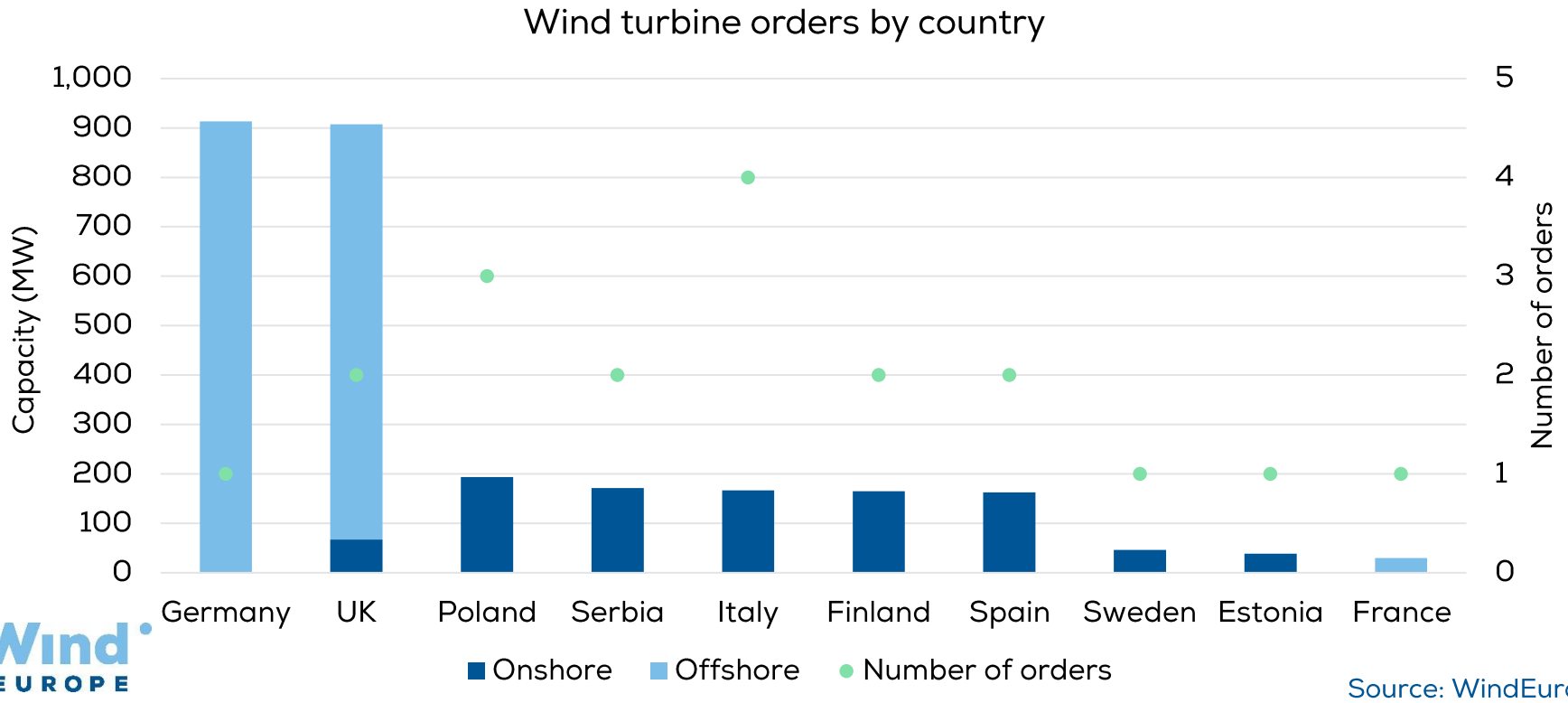


*See Methodology (slide 25) for an explanation of undisclosed orders

Source: WindEurope

Germany led because of the Borkum Riffgrund 3 order (913 MW), followed by the UK (907 MW) and Poland (194 MW)

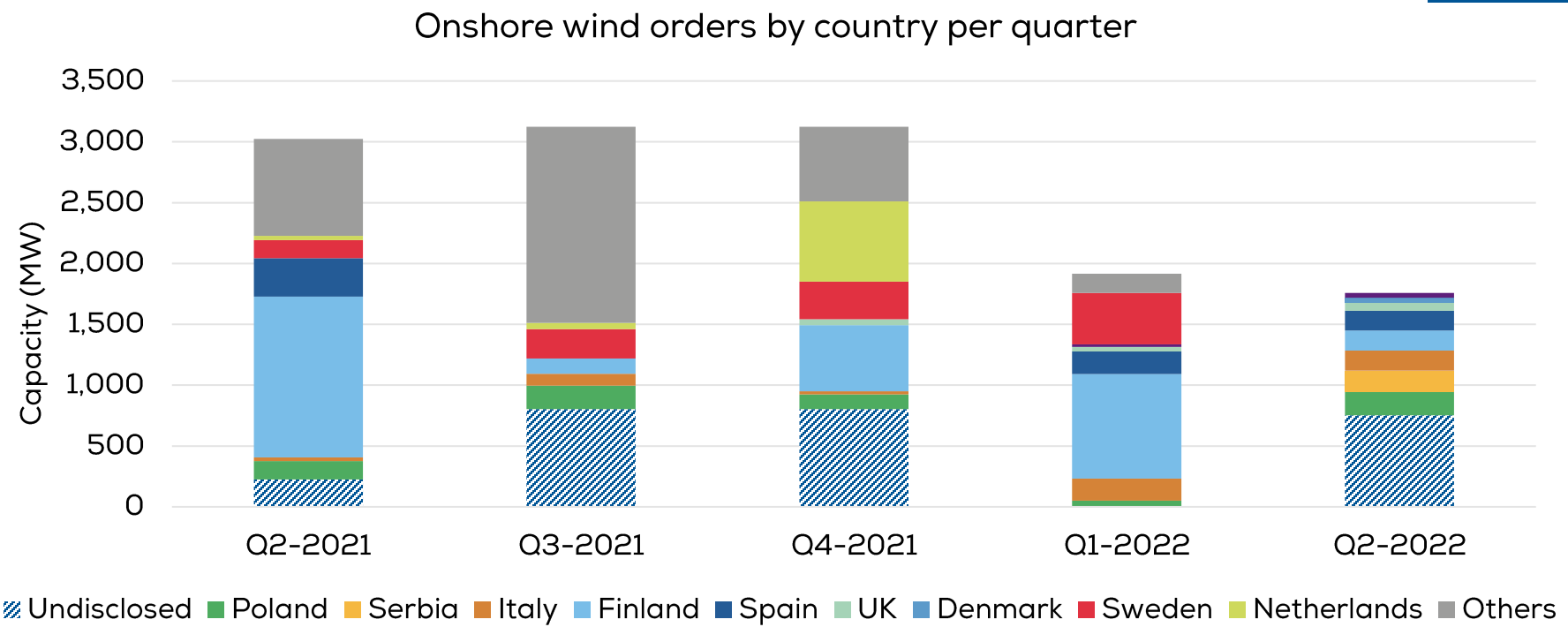
Onshore + Offshore



Source: WindEurope

Onshore orders were the largest in Poland and Serbia as orders in the Nordics fell. Overall onshore orders were down 8%

Onshore

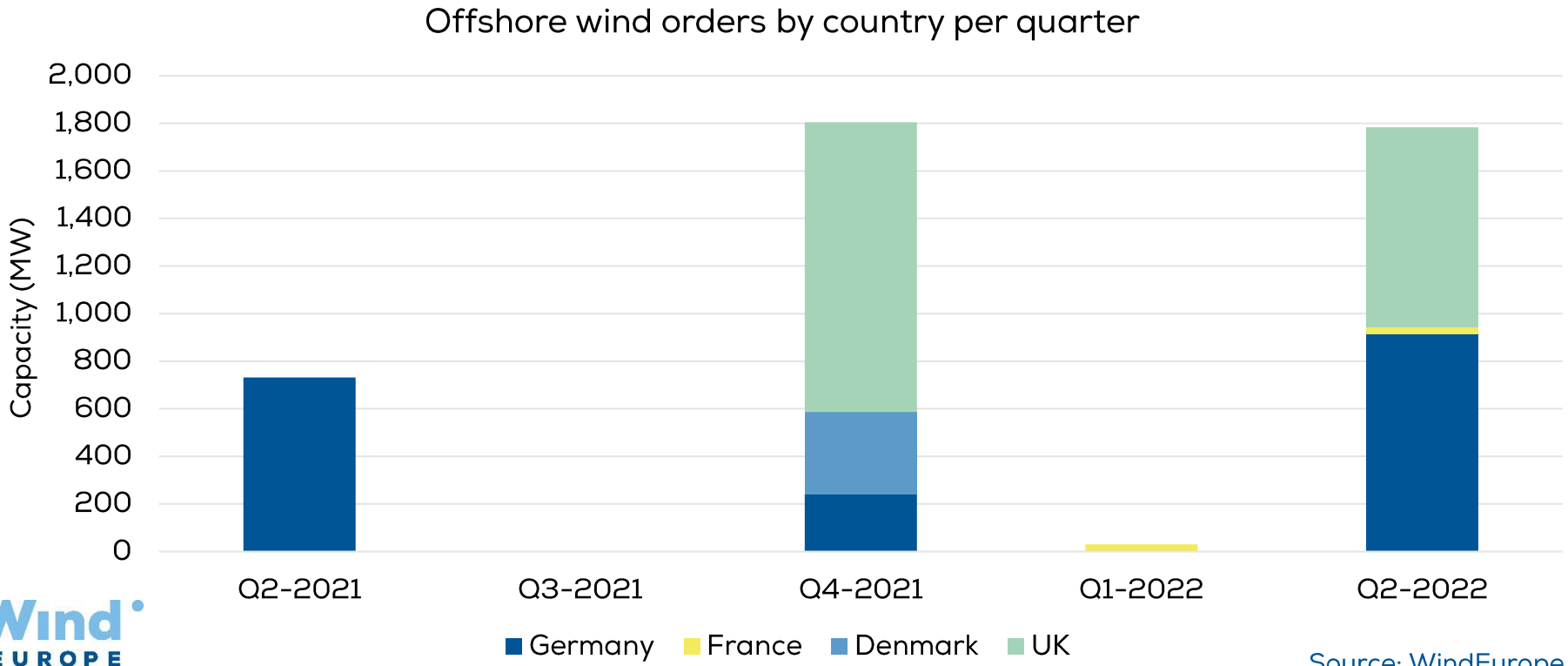


*See Methodology (slide 25) for an explanation of undisclosed orders

Source: WindEurope

Offshore wind orders rose as Ørsted and Ocean Winds signed firm orders. There was also an order for the 30 MW Eolmed floating offshore wind farm.

Offshore

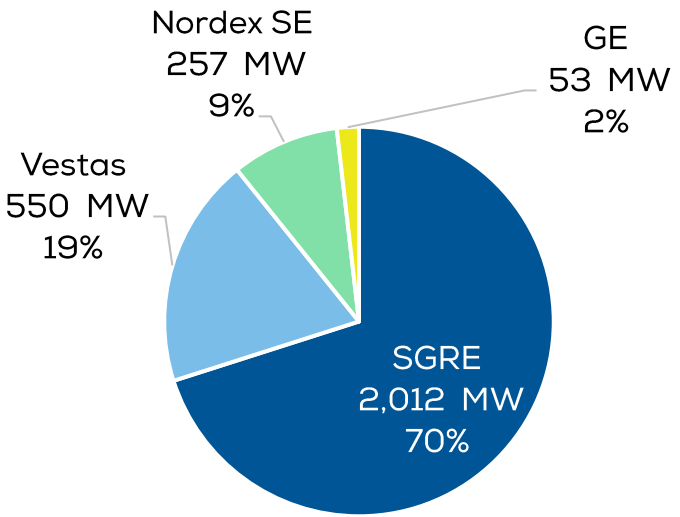


Source: WindEurope

SGRE had the most ordered capacity in Q2 2022, followed by Vestas

Onshore + Offshore

Wind turbine split by manufacturer*



Top 5 ordered turbines:

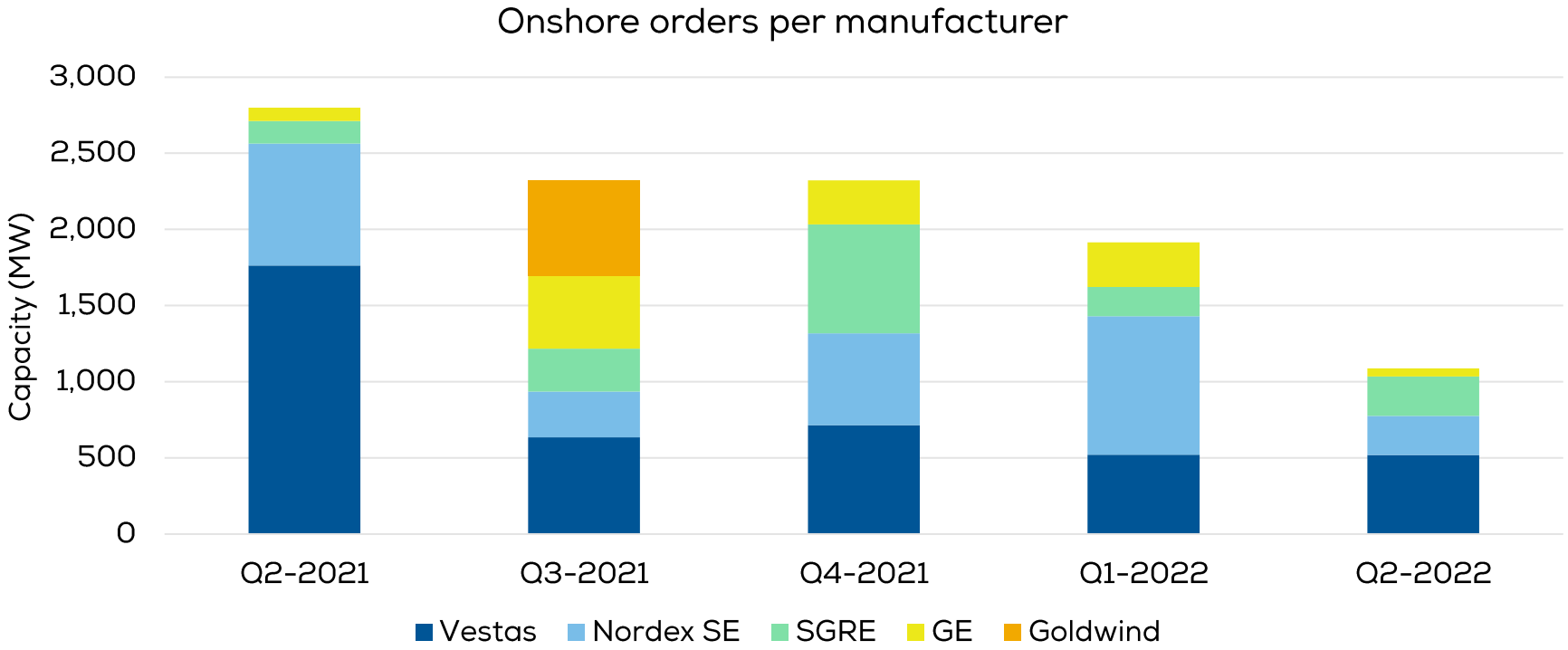
Turbine model	Ordered capacity	Number of turbines
SG 11-200	913 MW	83
SG 14-222	840 MW	60
SG 5.0-145	146 MW	29
N149/4800	106 MW	22
V136-4.2	101 MW	24

*Enercon is not included in this report due to the unavailability of data.

Source: WindEurope

Disclosed onshore orders continued downward trend. Vestas accounted for almost half of the orders, while Nordex SE orders fell

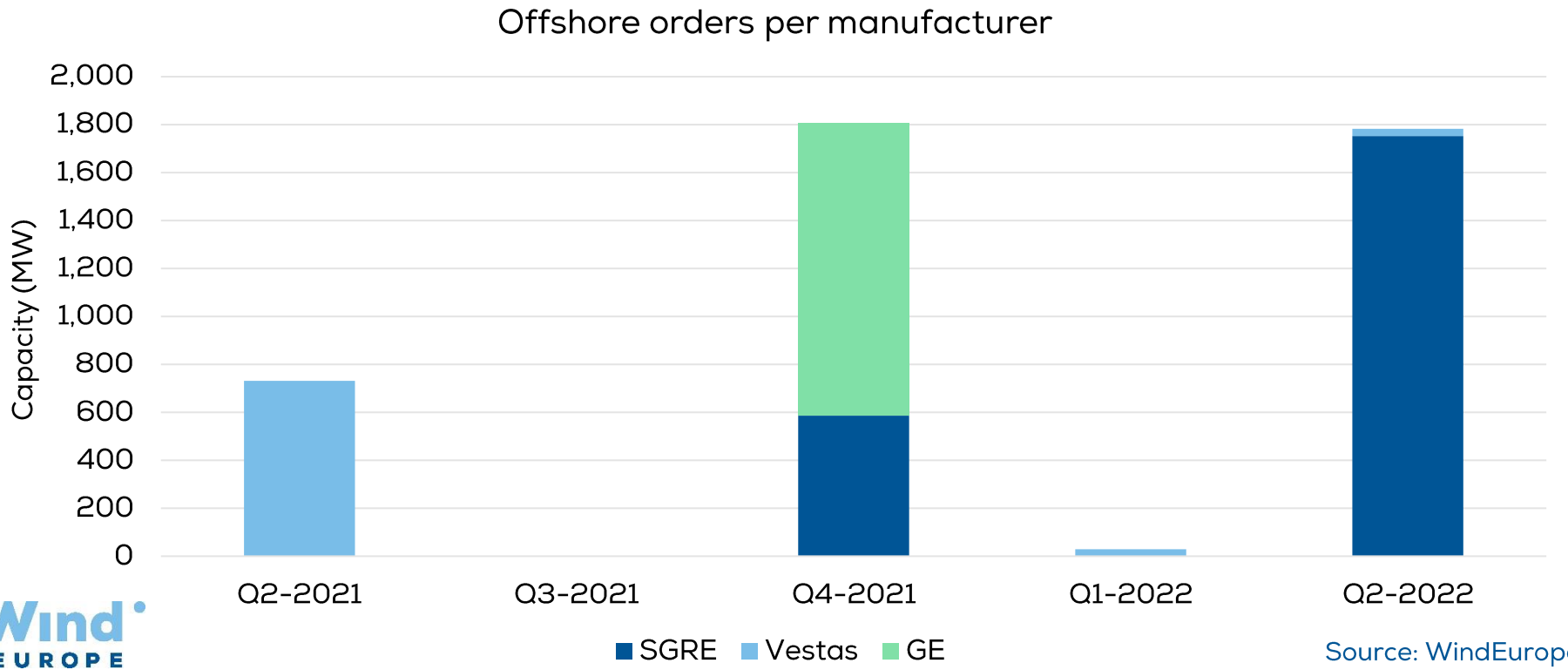
Onshore



Source: WindEurope

SGRE had the most offshore orders in Q2 2022, which was more than any other OEM in the past year

Offshore



Source: WindEurope

Ørsted and Ocean Winds were the biggest buyers in Q2 2022

Onshore + Offshore

Top 5 buyers of turbines:

Buyers	Ordered capacity
Ørsted	913 MW
Ocean Winds	840 MW
Ilmatar Energy	135 MW
Greenalia	110 MW
Ivicom	106 MW

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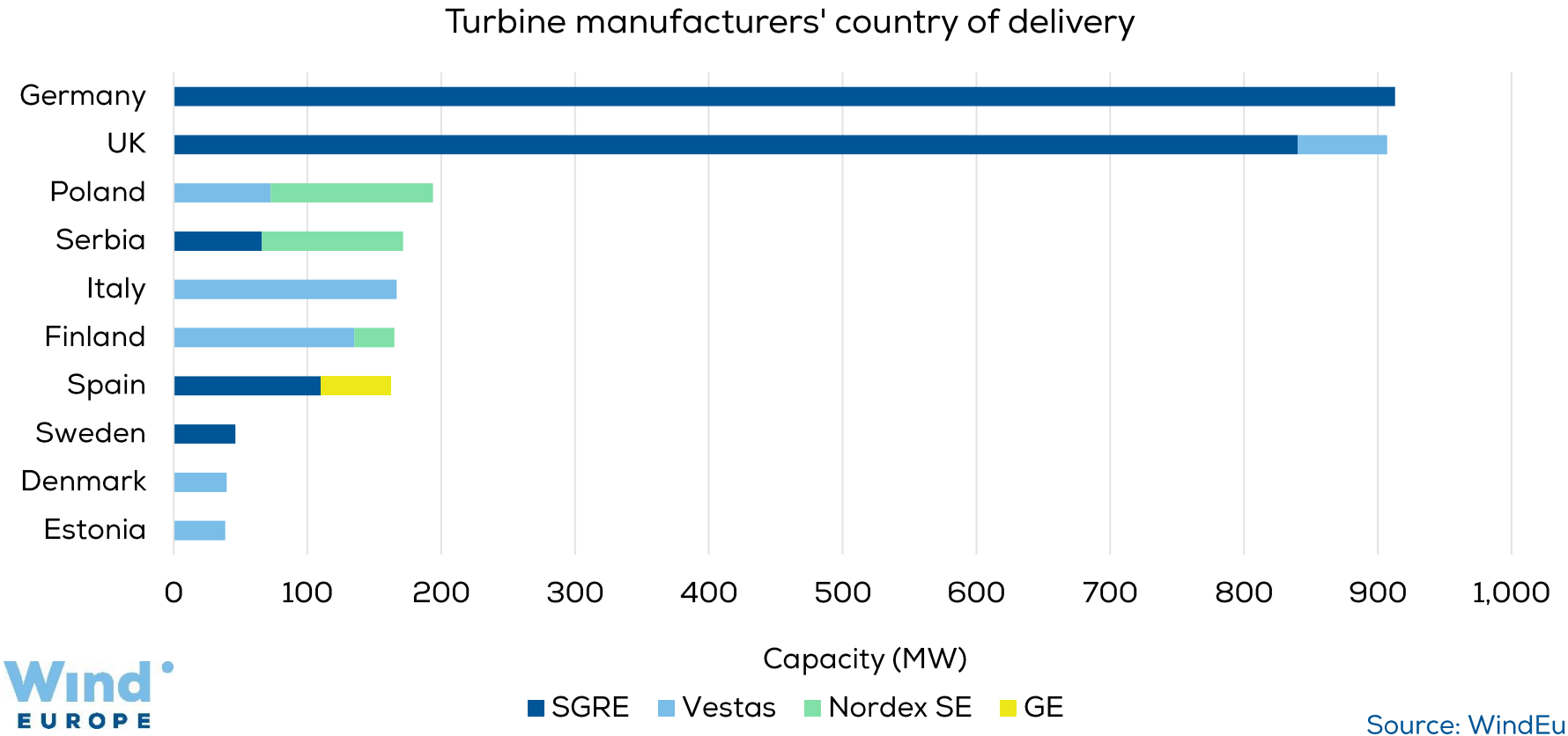
Source: WindEurope

Vestas had orders in 7 countries. SGRE followed with 6 and Nordex SE with 3.

Onshore + Offshore



Source: WindEurope

Finland and Sweden had orders for the most powerful onshore wind turbines while Poland remained the main market for wind turbines below 3 MW

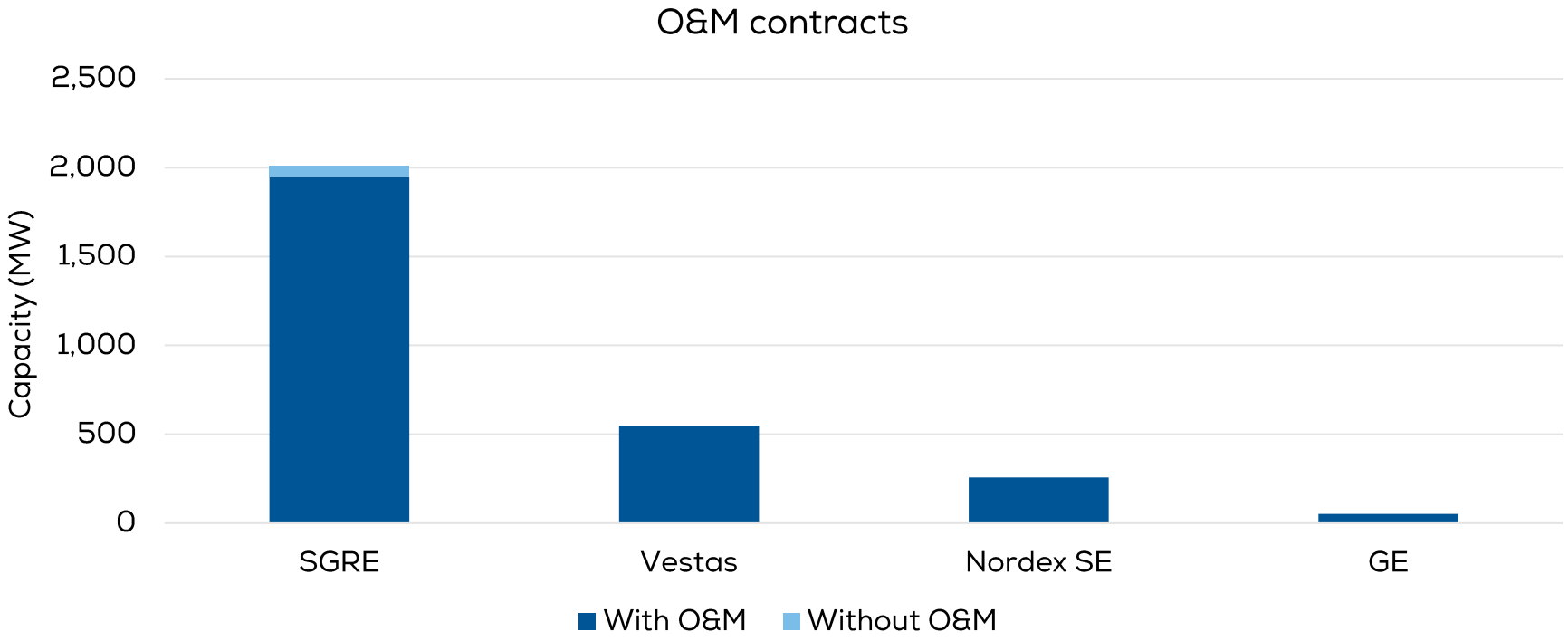
Onshore + Offshore

Onshore Offshore

	2 to 3 MW	3 to 4 MW	4 to 5 MW	5 to 6 MW	6 to 7 MW	10 to 15 MW
Germany						83 turbines
UK			15 turbines			60 turbines
Poland	33 turbines	15 turbines		11 turbines		
Serbia		20 turbines	22 turbines			
Italy	2 turbines	6 turbines	33 turbines			
Finland					5 turbines	
Spain		15 turbines		22 turbines		
Sweden					7 turbines	
Denmark		11 turbines				
Estonia			9 turbines			
Greece				7 turbines		
France						3 turbines
Total	35 turbines	67 turbines	79 turbines	40 turbines	12 turbines	146 turbines

Almost all of the ordered capacity in Q2 2022 had an Operation & Maintenance (O&M) contract

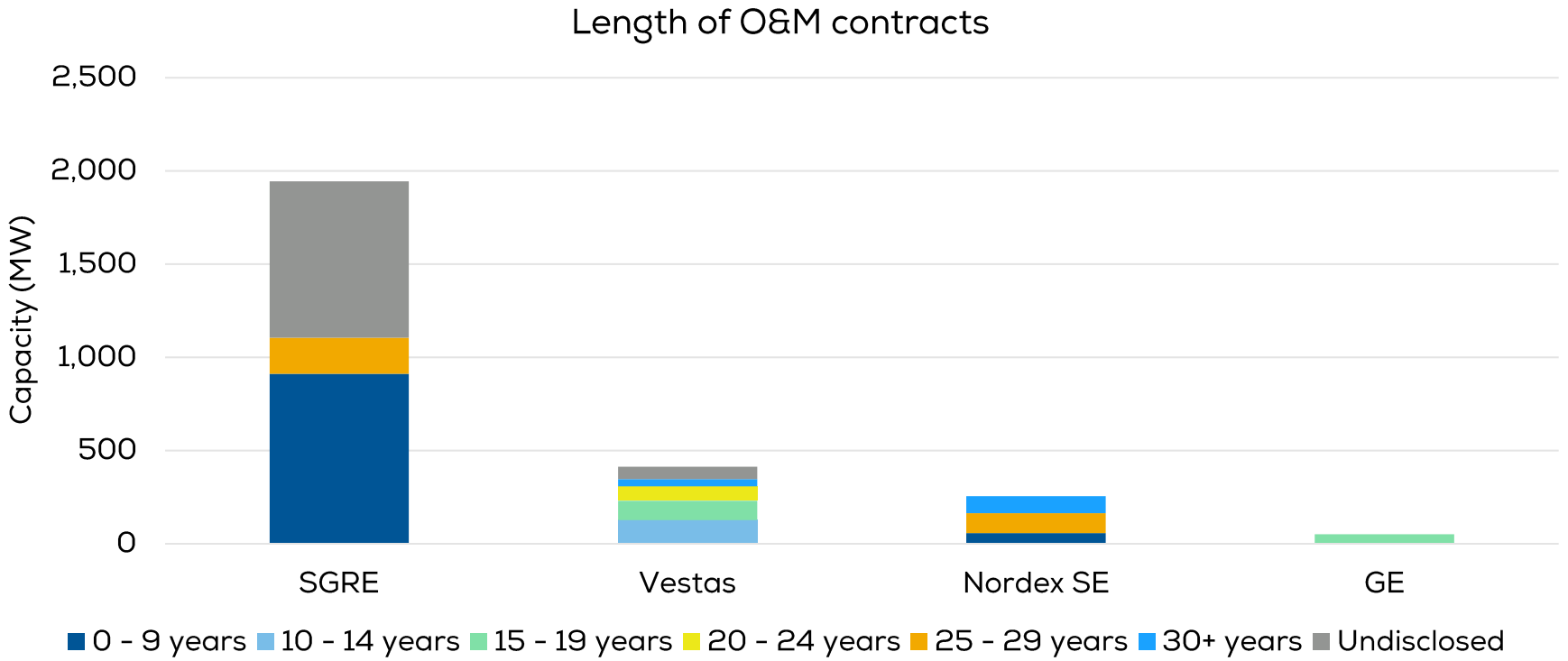
Onshore + Offshore



Source: WindEurope

O&M service agreements ranged from 5 years to a maximum 35-year contract from Vestas.

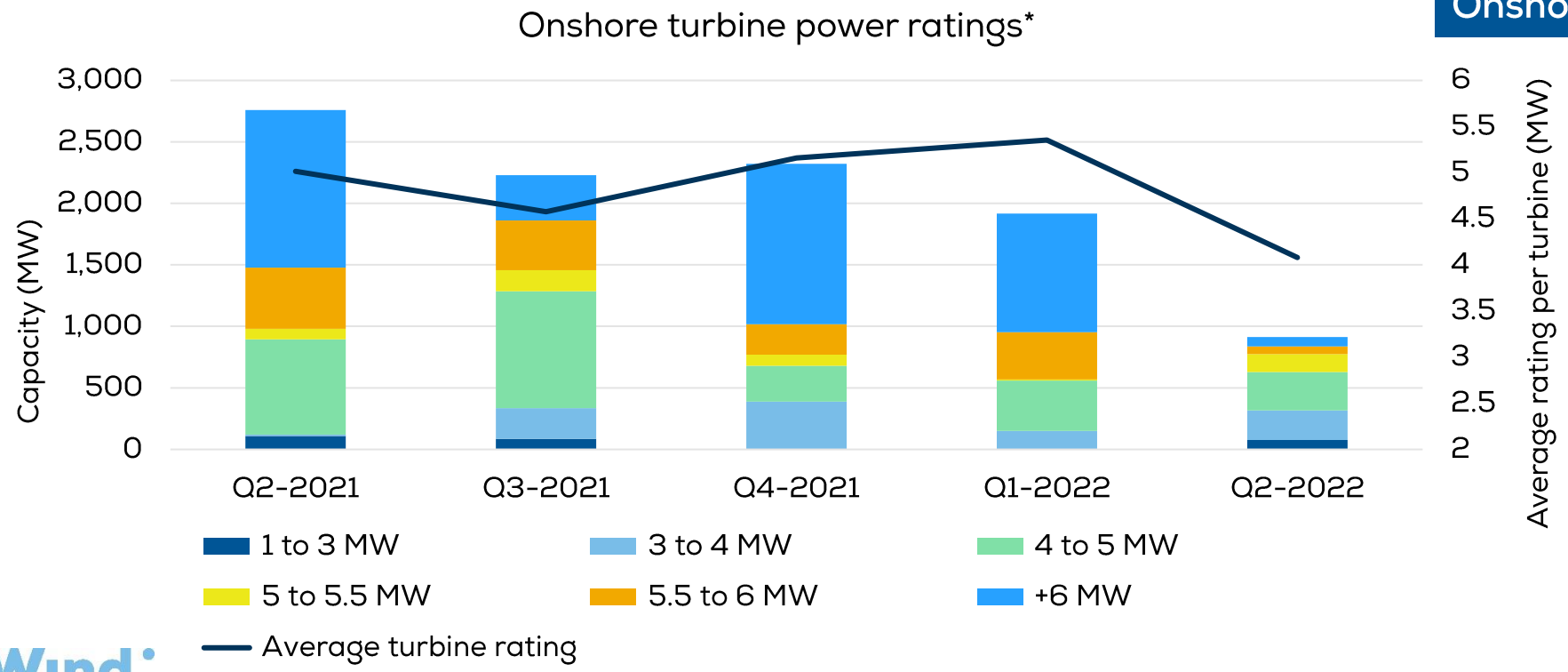
Onshore + Offshore



Source: WindEurope

The average onshore turbine size fell to 4.1 MW as orders in the Nordics decreased

Onshore



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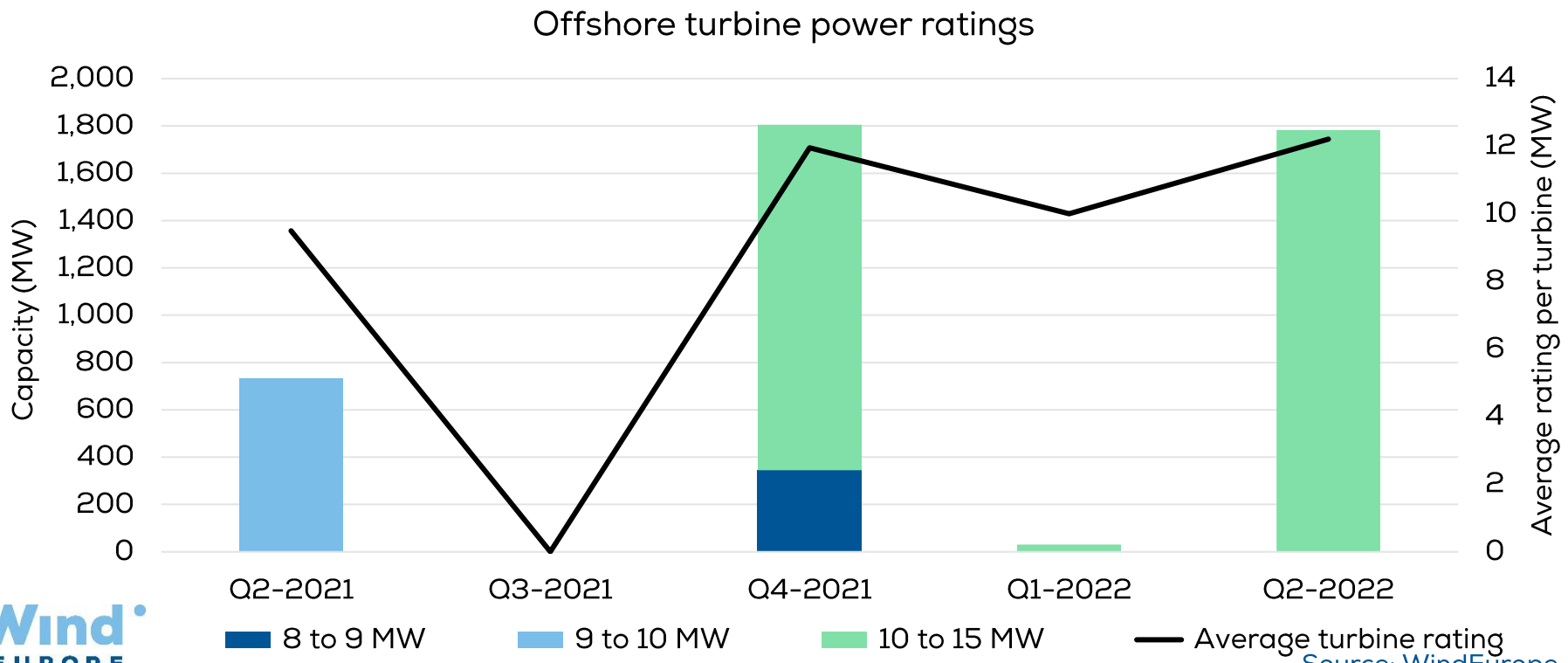
* The chart does not include information from undisclosed orders

Source: WindEurope

The average offshore power rating rose to 12 MW in Q2 2022 due to the orders of SGRE offshore wind turbines

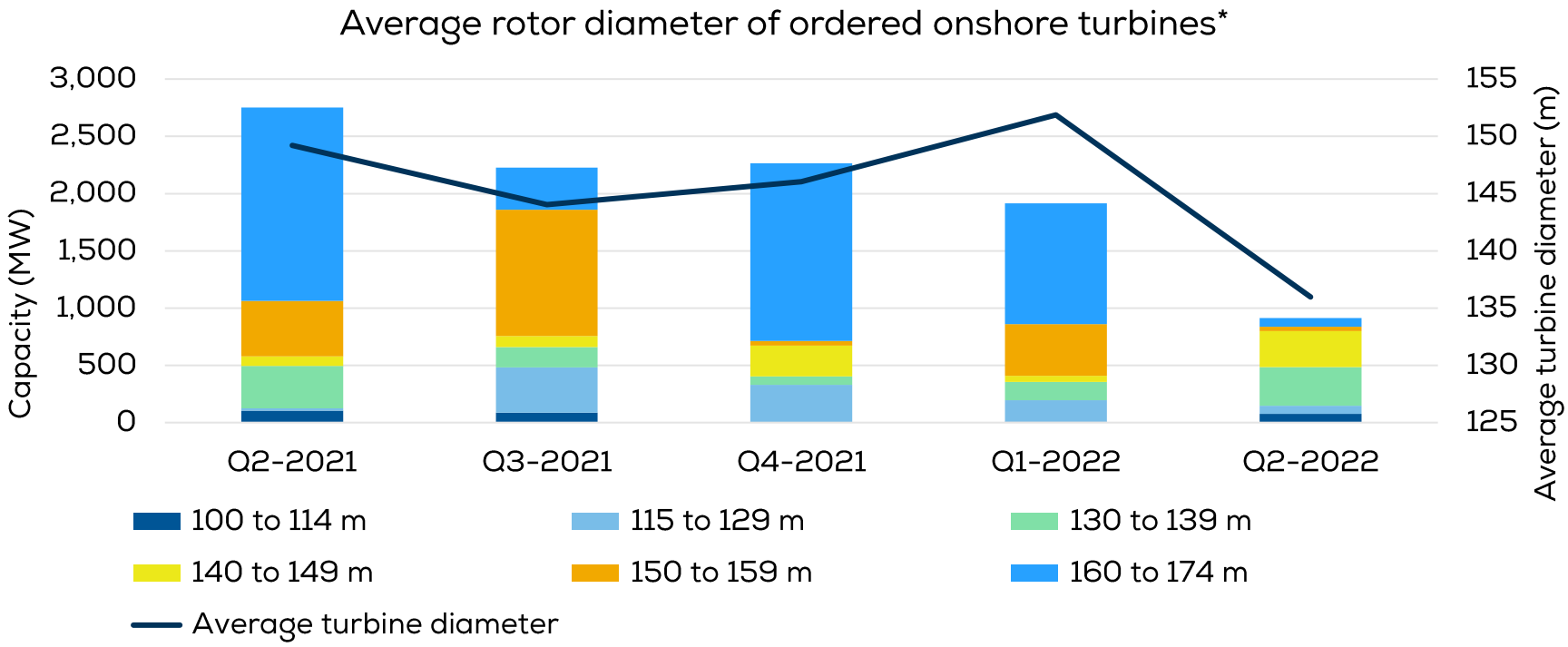
Offshore



Source: WindEurope

The average diameter of disclosed onshore turbine rotors fell to 135 meters in Q2 2022

Onshore



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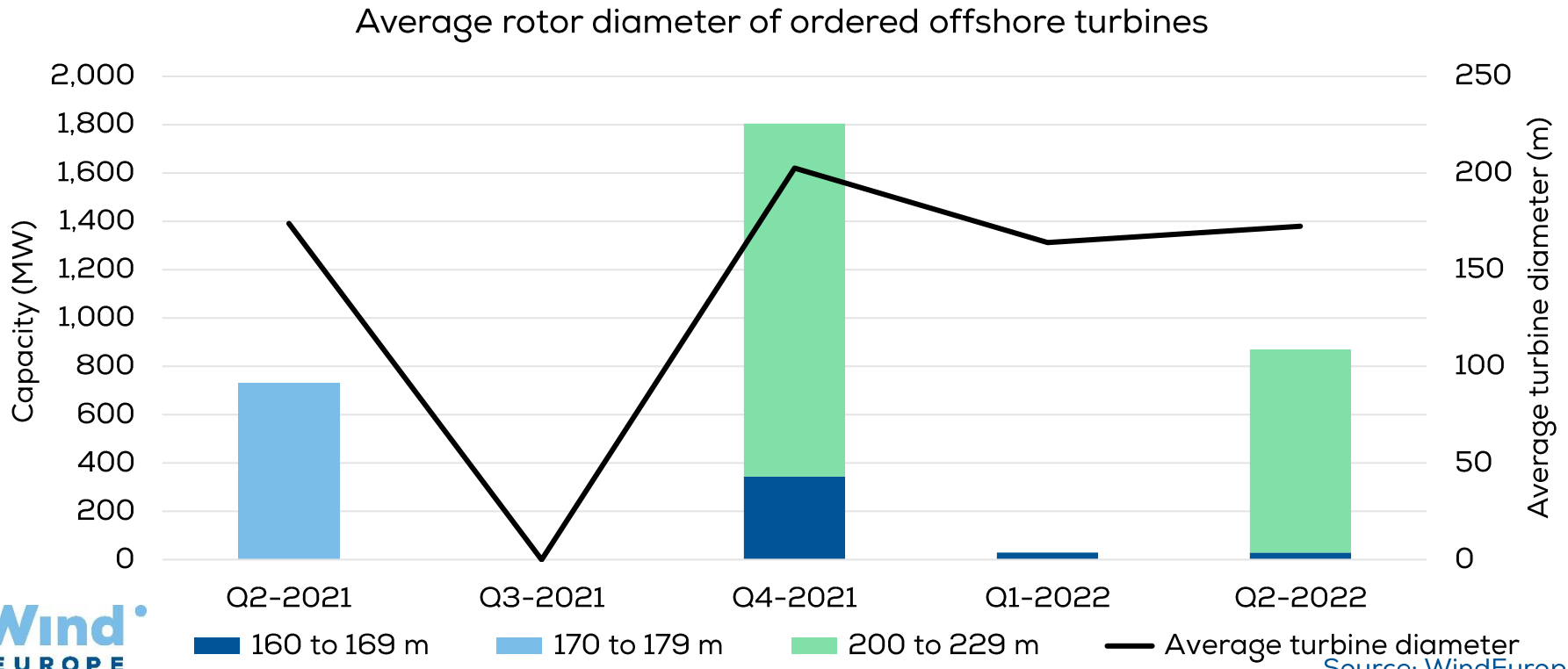
* The chart does not include information from undisclosed orders

Source: WindEurope

The average diameter of offshore turbine rotors rose to 172 meters in Q2 2022

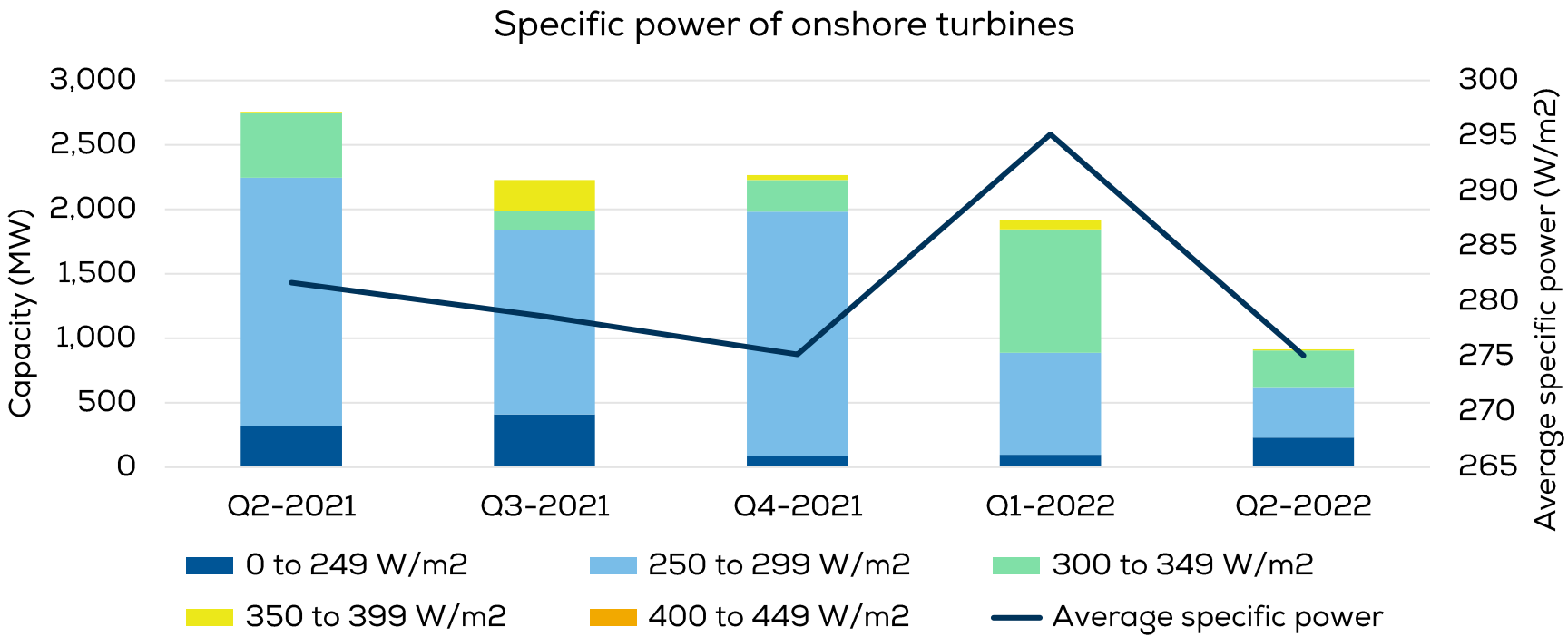
Offshore



Source: WindEurope

The average specific power** of onshore turbines fell in Q2 2022 to 275 W/m²

Onshore

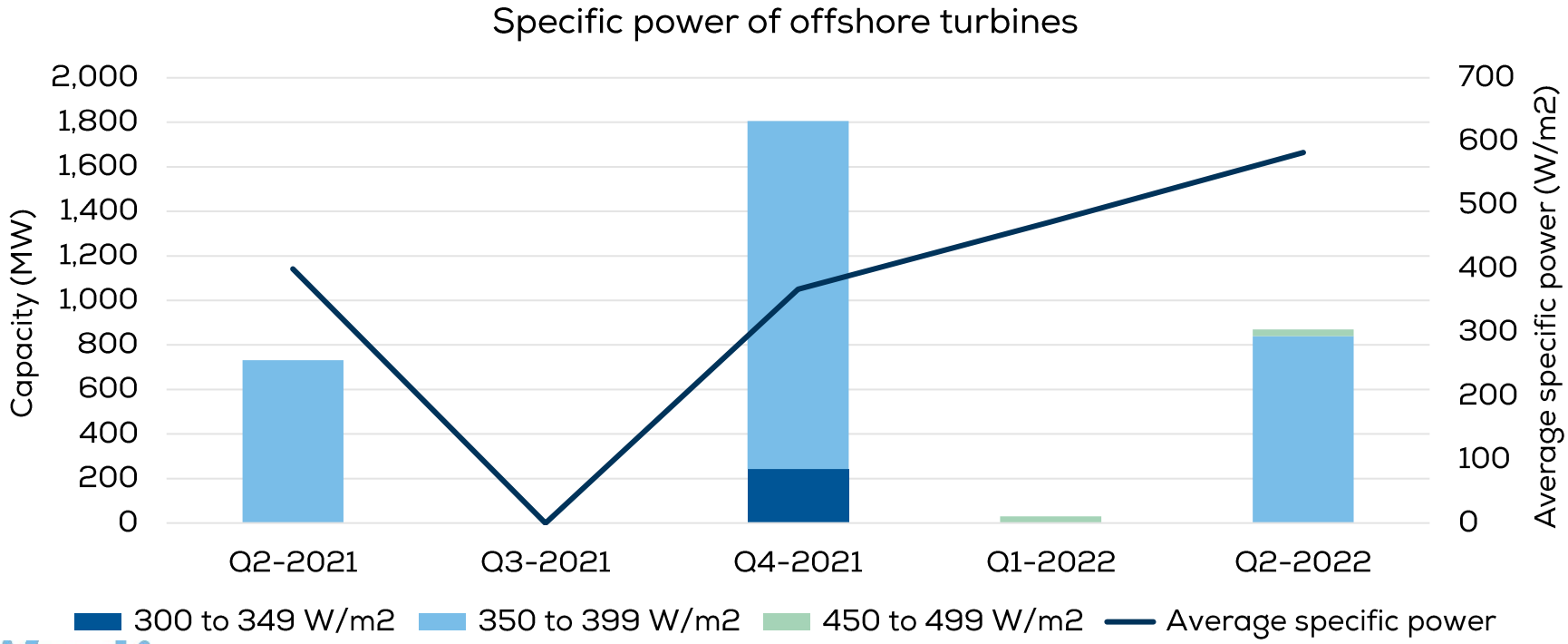


**See annex (slide 24) for an explanation of the concept of specific power

Source: WindEurope

The average specific power** of offshore turbines rose in Q2 2022 at 583 W/m²

Offshore

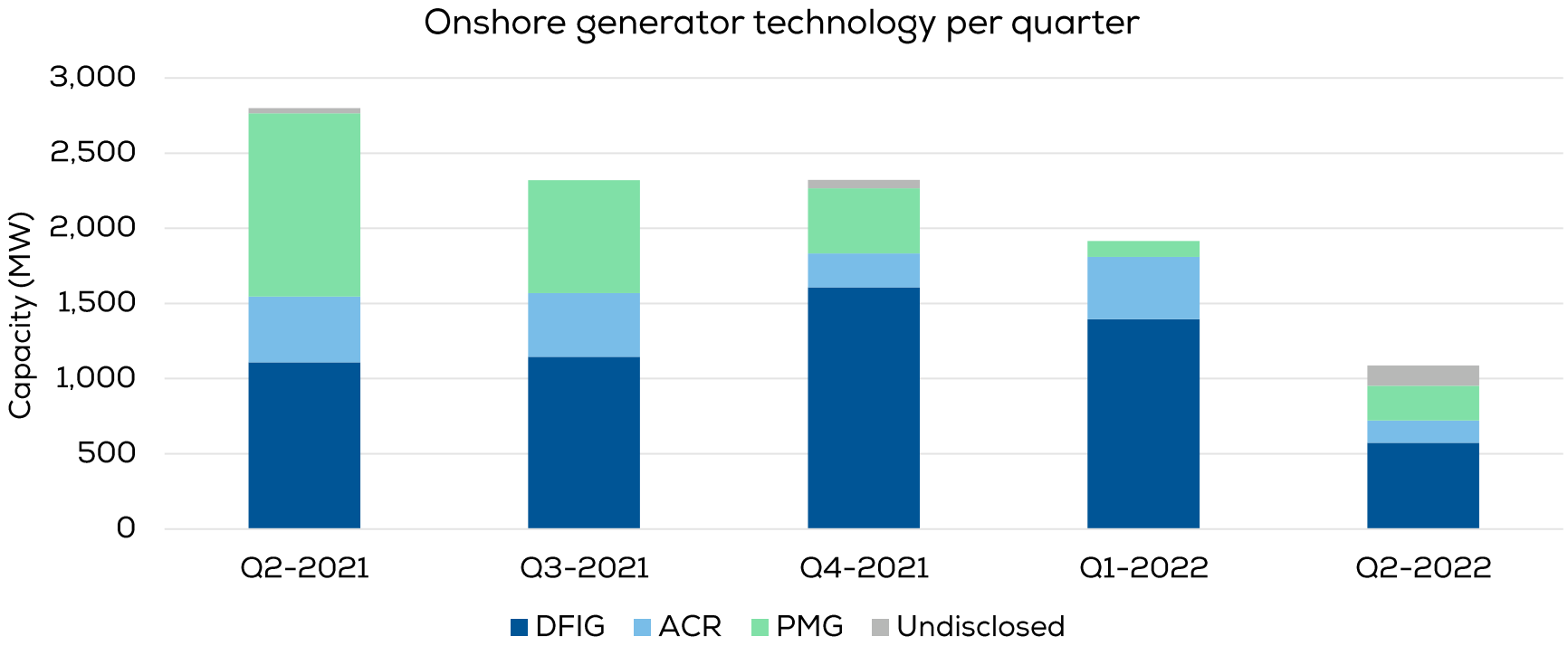


**See annex (slide 24) for an explanation of the concept of specific power

Source: WindEurope

Doubly-fed induction generators (DFIG) were the preferred generator technology for onshore turbines in Q2 2022.

Onshore



DFIG Doubly-fed induction generators
ACR Asynchronous with cage rotor
PMG Permanent Magnet Generators

Source: WindEurope

SPECIFIC POWER:

The relation between generator capacity and rotor area can be referred to as specific power (W/m^2). Lower specific powers lead to greater capacity factors for the same wind conditions. Thus, the evolution of specific power is a factor worth monitoring.

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Methodology

WindEurope counts wind turbine orders on the basis of publicly available deals and distinguishes between firm orders, conditional orders and framework agreements. From Q2 2022, undisclosed orders are estimated by deducting the known orders from the total capacity reaching a Final Investment Decision (FID) for the quarter. This change in methodology means that Q1 2022 undisclosed figures have been restated.

All types of orders are tracked but analysis per country and company is carried out on firm orders alone, unless specified. We do not track Enercon's orders because they are not publicly available. Furthermore, we do not track small-scale turbines (i.e., those smaller than 100 kW).

Orders are tracked by relying on:

- offshorewind.biz
- rechargenews.com
- renewablesnow.com
- renews.biz
- windpowerintelligence.com
- windpowermonthly.com
- cleanenergypipeline.com

Results are then cross-checked with companies' officially released information on their websites:

- GE www.ge.com/renewableenergy
- Nordex Acciona www.nordex-online.com/en
- Siemens Gamesa Renewable Energy https://www.siemensgamesa.com/en-int
- Suzlon Wind Energy A/S www.suzlon.com/
- Vestas www.vestas.com/

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