

# Overview

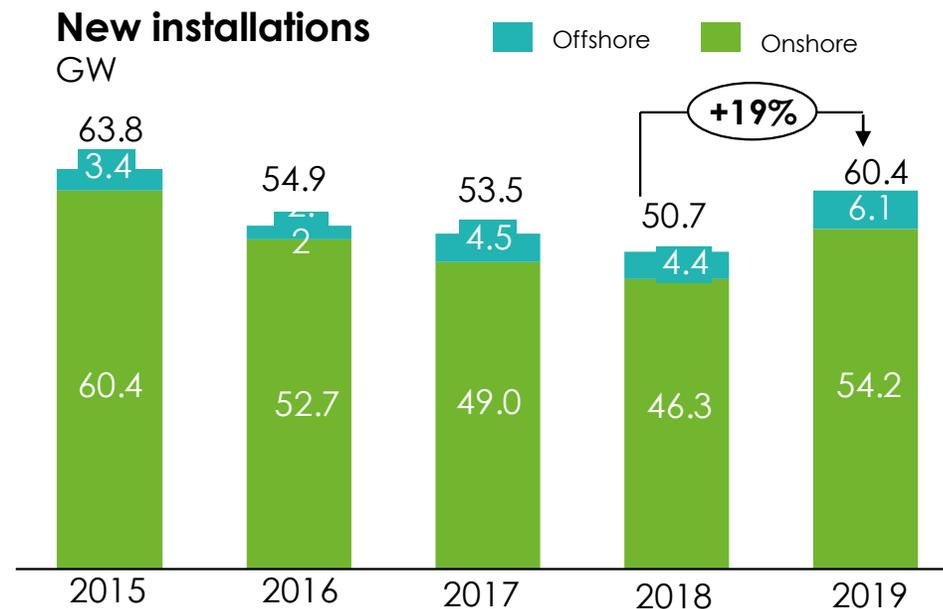
2019 saw global new wind power installations surpassing 60 GW, a 19 per cent growth compared to 2018, and bringing total installed capacity to 650 GW, a growth of 10 per cent compared to last year.

New installations in the onshore wind market reached 54.2 GW, while the offshore wind market passed the milestone of 6 GW, making up of 10% of the global new installation in 2019 the highest level to now.

Asia Pacific continues to take the lead in global wind power development accounting for 50.7 per cent of the global new installations last year, followed by Europe ( 25.5 per cent), North America (16.1 per cent), Latin America (6.1 per cent) and Africa & Middle East (1.6 per cent).

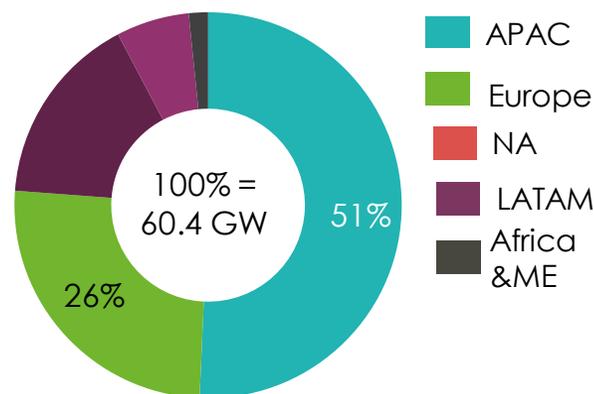
The world's top five markets in 2019 for new installations were China, the US, United Kingdom, India and Spain. Those five markets together made up 70 per cent of the global installation last year.

In terms of cumulative installations, the top five markets as the end of 2019 remained unchanged. Those markets are: China, the US, Germany, India and Spain, which together accounted for 72 per cent of the world's total wind power installation.



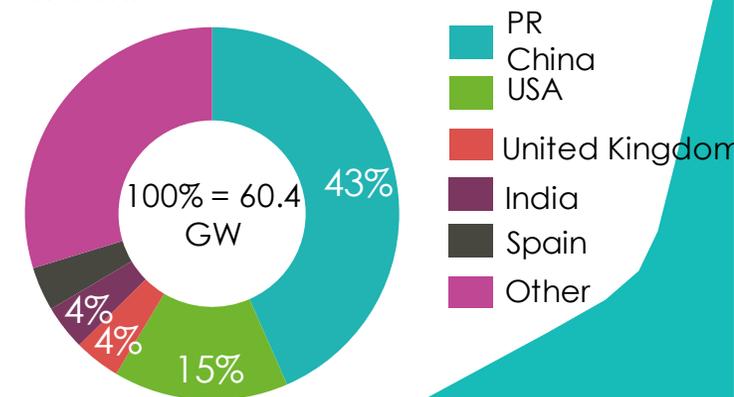
### New capacity 2019 Installed by region

Per cent



### New capacity 2019 and share of top five markets

Per cent



# Onshore Wind Market –Status 2019

54.2 GW of onshore wind capacity was added globally in 2019, representing 17 per cent YoY growth and taking cumulative onshore wind beyond the 600 GW milestone.

As the world's largest wind market, China grid-connected 23.8 GW of onshore wind last year, boosting its total onshore installations to 230 GW. China's onshore wind sector has gone through a crucial period of regulatory reform in the past two years. In 2018, the Chinese government introduced an auction scheme and a year later the National Development and Reform Commission (NDRC) released a new policy presenting a clear roadmap towards "subsidy-free" onshore wind. This regulation means that projects already approved until 2018 will continue to receive the Feed-in-Tariff (FiT) if they are grid-connected before the end of 2020. Starting from 1 January 2021, all newly approved onshore wind projects will reach the grid parity (currently based on the regulated price for coal power). As more than 60 GW onshore wind projects were approved before the end of 2018, GWEC expects the installation rush, which already took place in H2 2019, to continue in 2020, potentially bringing new onshore installations in China to 30 GW in 2020. From 2021, new installations of onshore wind in China will be driven by subsidy-free projects (key driver) and distributed wind.

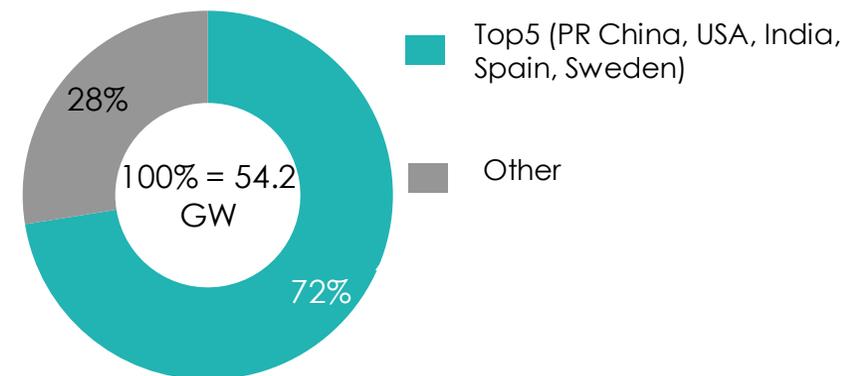
The second largest market in 2019 was the US. The 9.1 GW of new onshore installations in 2019 brings its total onshore to above the 100 GW threshold. The ongoing US onshore wind installation rush is primarily driven by the planned Production Tax Credit (PTC) phase-out as project developers have to chase the 2020 deadline to qualify for the full PTC value. Last December, the senate passed a tax extenders deal that extended PTC for another year. Thus, PTC qualification will remain as the main driver for new onshore installations in the US between now and 2024, supplemented by state RPS as well as the corporate PPAs market.

In addition to China and USA, the top five onshore wind markets were completed by India (2.4 GW), Spain (2.3 GW) and Sweden (1.6 GW).

With regards to market support mechanisms, the situation is similar to the previous year. Excluding the two largest markets, China and USA, market-based mechanisms, such as auctions, tenders, and Green Certificates were the main drivers behind new onshore wind installations in 2019. Last year, 35 per cent of new installations originated from market based mechanisms, the same level as 2018. Although onshore wind auctions in both Germany and India were undersubscribed last year, 14.5 GW of onshore wind capacity was auctioned outside China during 2019, almost the same as 2018. With China starting to bring subsidy-free onshore wind online from 2021, a new element of support for auctioned volumes globally is expected to kick-in.

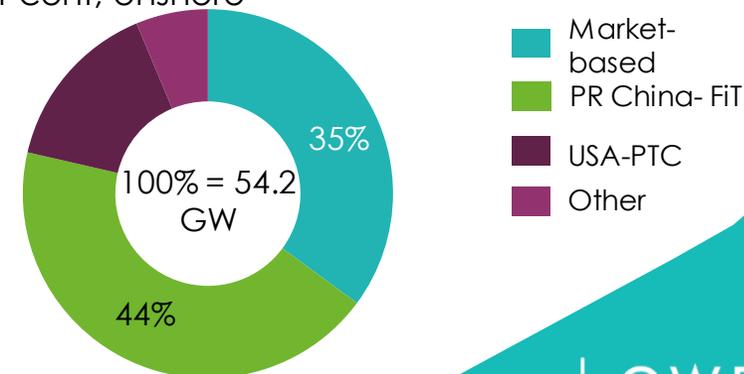
## New capacity 2019 and share of top five onshore markets

Per cent, onshore



## New capacity 2019 by support mechanism

Per cent, onshore



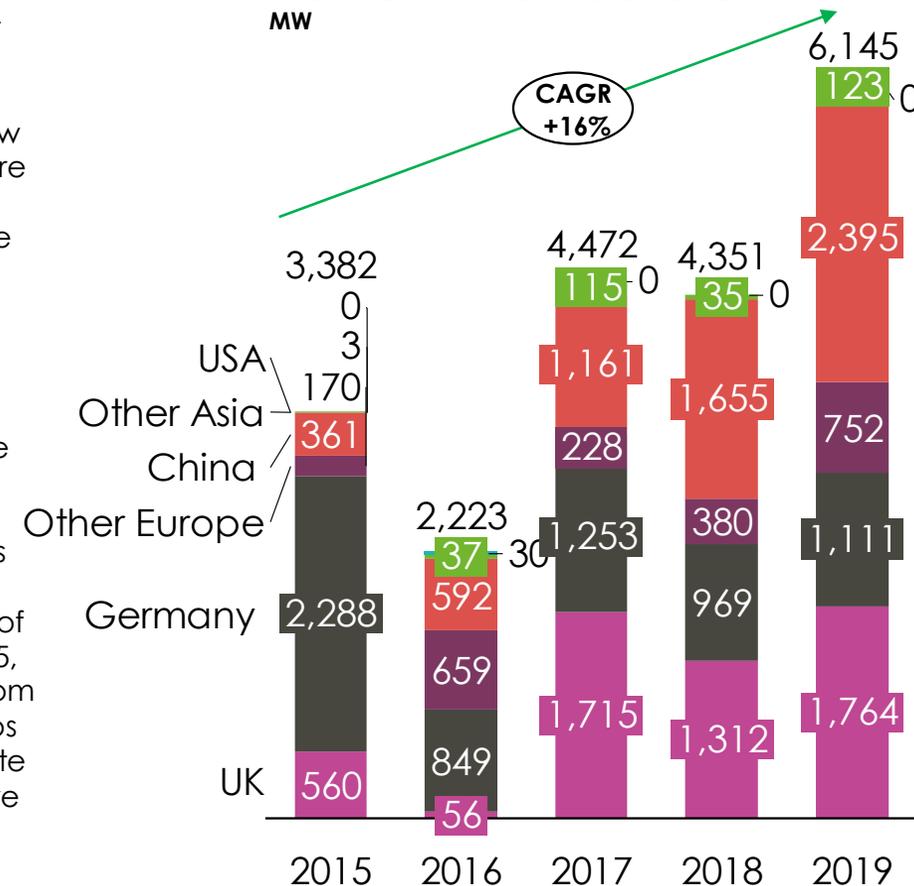
# Offshore wind market – Status 2019

With more than 6 GW new capacity installed, 2019 was the best year ever for the offshore wind industry.

- China achieved a new record in 2019 and installed more than 2.3 GW offshore wind in a single year. The United Kingdom came in second place, although as the world's largest offshore wind market in total capacity, it also had record installations of 1.8 GW in 2019. Germany took third place with 1.1 GW of new installations.
- The results from the UK CfD Allocation Round 3 announced in September 2019 showed record low strike prices ranging from £39 to £41/MWh (in 2012 prices), which is about 30% lower than the auction held in 2017. In total, more than 5.4 GW offshore wind projects were awarded.
- In The Netherlands Vattenfall won the second Dutch zero subsidy offshore wind tender, totalling 760 MW, in July 2019 (repeating the zero-priced bids of the first round in 2018 and meaning that the project will only receive the wholesale price of electricity and no further support/payment). Those results prove how offshore costs have come down through technology innovation and economies of scale.

- The US offshore sector made great progress last year. The country's total offshore wind procurement targets increased from 9.1 GW in 2018 to 25.4 GW in 2019 after New York and New Jersey upgraded their offshore targets, and more states released their offshore wind targets. Six states had selected more than 6 GW of offshore wind through state-issued solicitations as of December 2019 and more solicitations are expected to be issued in New York and New Jersey in 2020. The industry is now moving a phase of project construction planning and execution as more than 15 offshore projects are expected to be built by 2026.
- Development in the Asian offshore markets was also positive in 2019 – Taiwan connected its first utility scale offshore project to the grid. On top of the 5.6 GW offshore wind to be installed by 2025, a further 10 GW is planned to be built offshore from the island between 2026 and 2035. Positive steps were also made in Japan last year to accelerate offshore wind development and the first offshore wind auction will be held later this year.
- 2019 saw GWEC continue to provide guidance on offshore wind potential and technical development and organizing targeted lobbying activities, and we will carry out several landmark activities including the Japan Cost Reduction Study in 2020.

New offshore installation  
MW

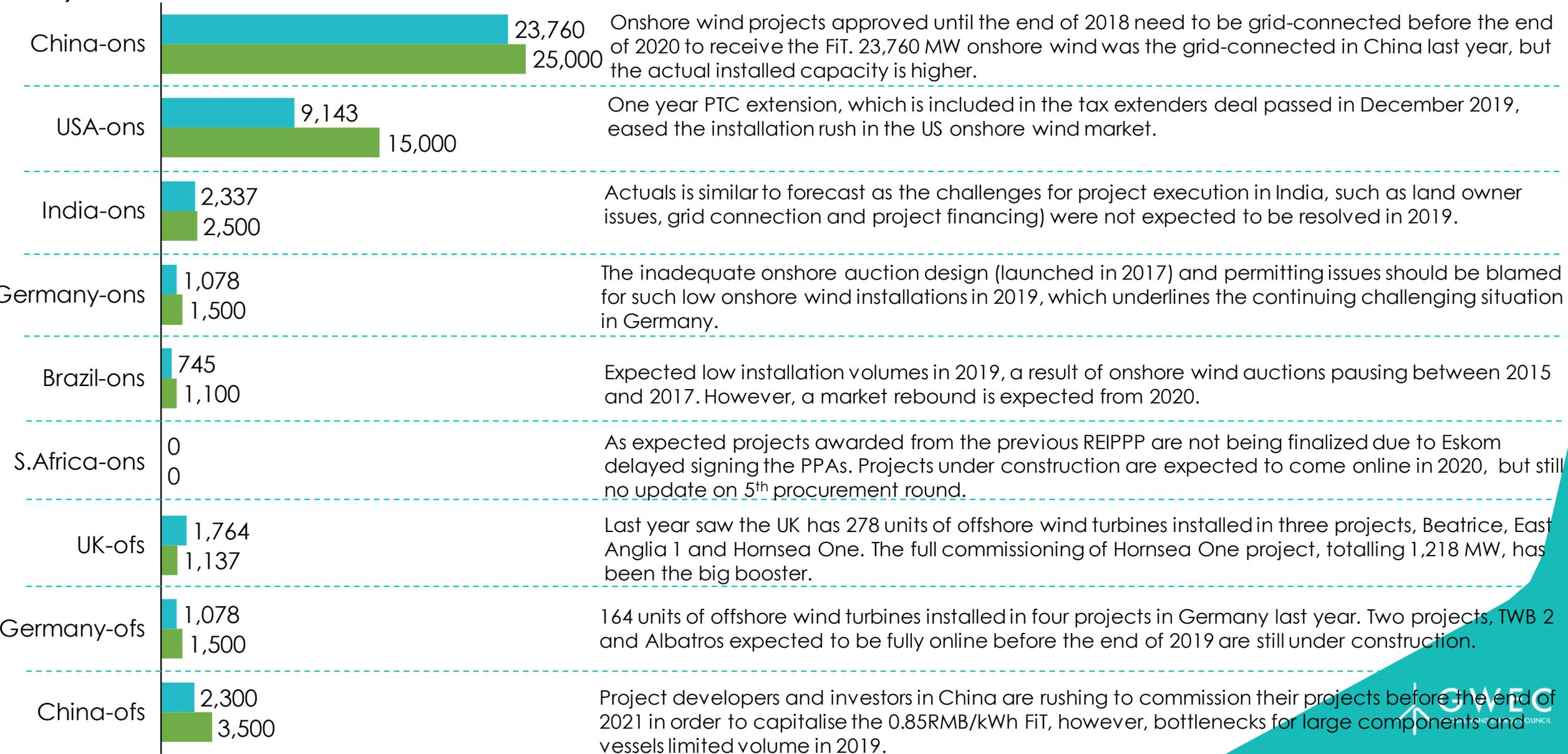


The offshore wind market has grown from 3.4 GW in 2015 to 6.1 GW 2019, bringing its market share in global new installations from 5% to 10% in just five years. GWEC Market Intelligence expects the global offshore wind market to continue to grow at an accelerated pace (for details, see Market Outlook).

# Actuals 2019 vs GWEC forecast

Actuals 2019  
Forecast Q3 2019

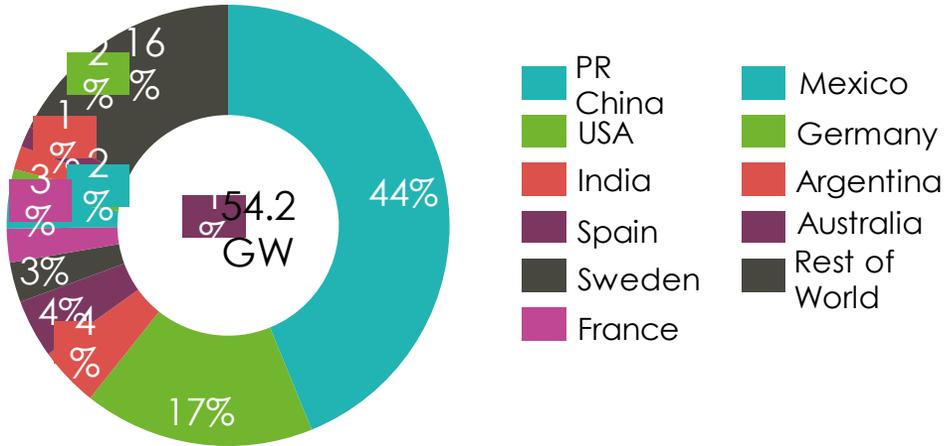
## Key markets



# Top markets 2019

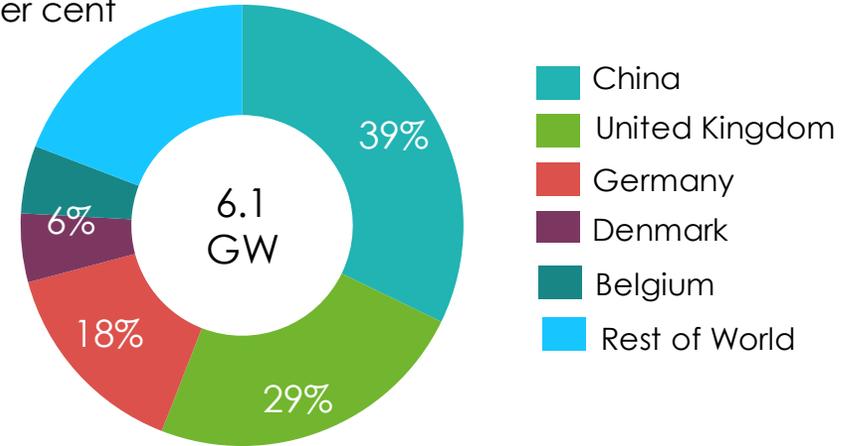
## New installations onshore

Per cent



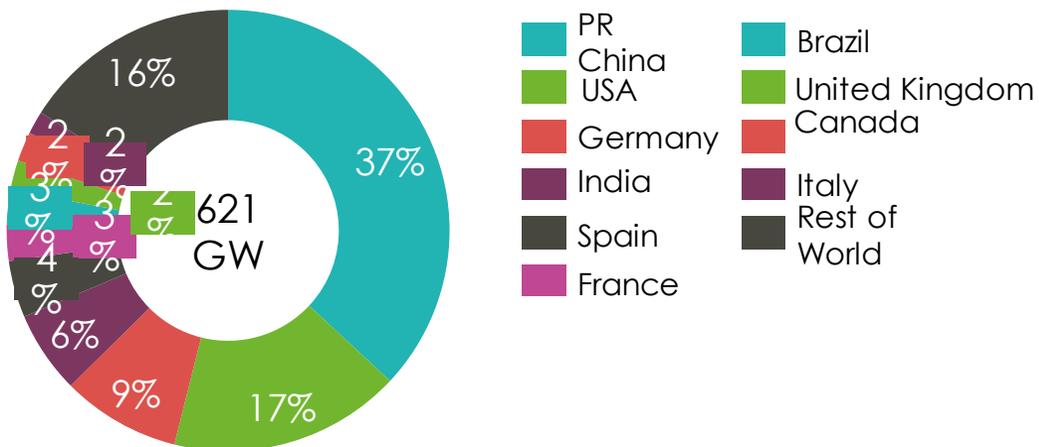
## New installations offshore

Per cent



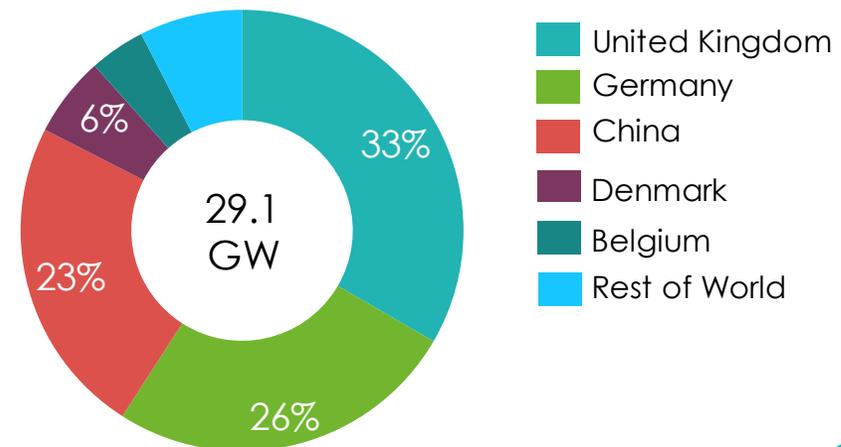
## Total installations onshore

Per cent



## Total installations offshore

Per cent



Detailed data sheet available in GWEC's member only area  
For definition of region see

# Historic development of total installations

MW

MW, onshore	New installations 2018	Total installations 2018	New installations 2019	Total installations 2019
<b>Total onshore</b>	<b>46,345</b>	<b>567,972</b>	<b>54,206</b>	<b>621,420</b>
<b>Americas</b>	<b>11,891</b>	<b>134,843</b>	<b>13,427</b>	<b>148,072</b>
USA	7,588	96,488	9,143	105,436
Canada	566	12,816	597	13,413
Brazil	1,939	14,707	745	15,452
Mexico	929	4,935	1,281	6,215
Argentina	445	673	931	1,604
Chile	204	1,619	526	2,145
Other Americas	220	3,605	204	3,807
<b>Africa, Middle East</b>	<b>970</b>	<b>5,728</b>	<b>944</b>	<b>6,673</b>
Egypt	380	1,190	262	1,452
Kenya	312	338	0	338
South Africa	0	2,085	0	2,085
Other Africa	278	2,115	682	2,798
<b>Asia-Pacific</b>	<b>24,468</b>	<b>255,937</b>	<b>28,094</b>	<b>284,024</b>
China	20,200	205,804	23,760	229,564
India	2,191	35,129	2,377	37,506
Australia	549	5,362	837	6,199
Pakistan	400	1,189	50	1,239
Japan	261	3,652	274	3,921
South Korea	127	1,229	191	1,420
Vietnam	32	228	160	388
Philippines	0	427	0	427
Thailand	567.5	1,215	322	1,538
Other Asia	141	1,702	123	1,822
<b>Europe</b>	<b>9,016</b>	<b>171,084</b>	<b>11,741</b>	<b>182,651</b>
Germany	2,402	52,932	1,078	53,913
France	1,563	15,307	1,336	16,643
Sweden	717	7,216	1,588	8,804
United Kingdom	589	13,001	629	13,617
Turkey	497	7,370	686	8,056
Other Europe	3,248	75,258	6,424	81,618

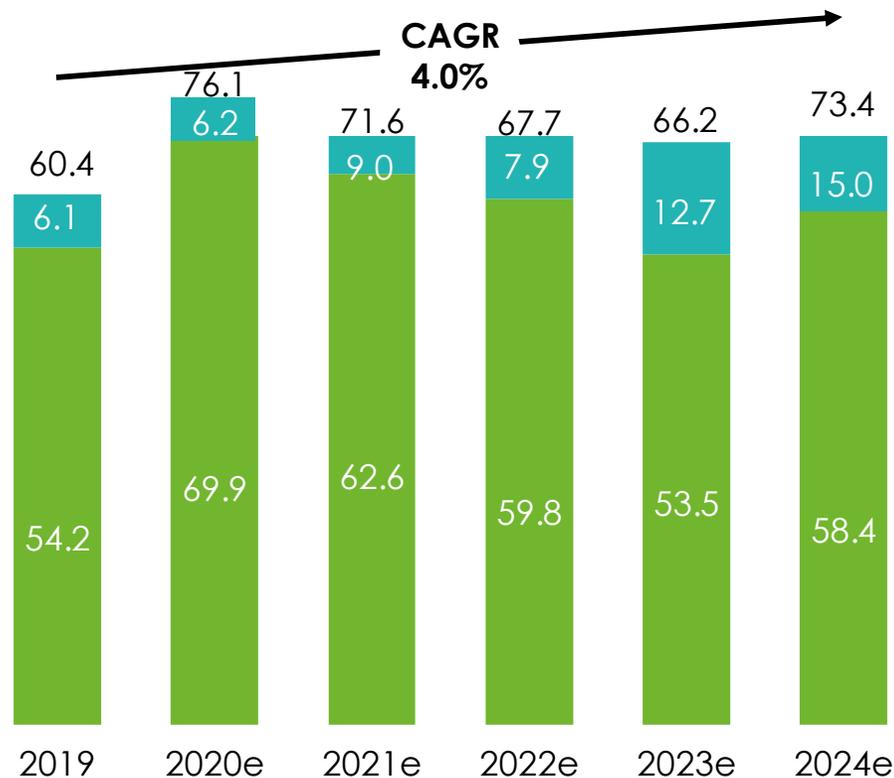
MW, offshore	New installations 2018	Total installations 2018	New installations 2019	Total installations 2019
<b>Total offshore</b>	<b>4,351</b>	<b>22,997</b>	<b>6,145</b>	<b>29,139</b>
<b>Europe</b>	<b>2,661</b>	<b>18,280</b>	<b>3,627</b>	<b>21,907</b>
United Kingdom	1,312	7,963	1,764	9,727
Germany	969	6,382	1,111	7,493
Belgium	309	1,186	370	1,556
Denmark	61	1,329	374	1,703
Netherlands	0	1,118	0	1,118
Other Europe	0	302	8	310
<b>Asia-Pacific</b>	<b>1,690</b>	<b>4,687</b>	<b>2,518</b>	<b>7,202</b>
China	1,655	4,443	2,395	6,838
South Korea	35	73	0	73
Other Asia	0	171	123	291
<b>Americas</b>	<b>0</b>	<b>30</b>	<b>0</b>	<b>30</b>
USA	0	30	0	30

# Global wind energy market to grow on average by 4 per cent each year (pre-COVID-19)

## New installations outlook

GW

■ Offshore ■ Onshore



- The market outlook for the global wind industry remains positive. The CAGR for the next five years is 4.0 per cent.
- GWEC Market Intelligence expects that over 355 GW of new capacity will be added. That is 71 GW of new installations each year until 2024.
- At the beginning of the five-years forecast period, market growth will continue to be driven by government support mechanisms, such as FIT, PTC, auction programs and national or state level renewable targets.
- 2020 is likely to see a new installation record, considering the ongoing installation rush in the world's two largest markets, China and the US, driven by the phase out of government support mechanisms and the incentive to chase 100% PTC value respectively.
- From 2021 onward, although the PTC will remain as the main driver for installations in the US where the one year PTC extension which passed the senate last December is most likely to generate a new rush in 2024, the rest of world is expected to operate based on tenders or on other market mechanisms.
- In Europe, Latin America, Africa & Middle and South East Asia, market-based mechanisms including wind-only, hybrid, technology-neutral auctions will continue to dominate, but issues related to market design in countries like Germany and India have to be resolved in order to allow accelerated growth.
- With wind increasingly improving its cost-competitiveness, bilateral agreements (e.g. in the form of corporate PPAs) will not only maintain momentum in mature markets like the US, Brazil, Mexico, Chile, Argentina and the Nordic markets, but also make breakthroughs in growing emerging markets over the coming years as barriers to access are removed (as in the case of South East Asia).
- In China, starting from 2021, the subsidy-free era is going to kick-in for onshore wind, faster than anyone could have expected.
- Following the sharp drop of the LCOE and the speeding-up of the global energy transition, the investment climate for offshore wind has become very positive. With a CAGR of 19.5%, more than 50 GW offshore is likely to be built in the next five years.

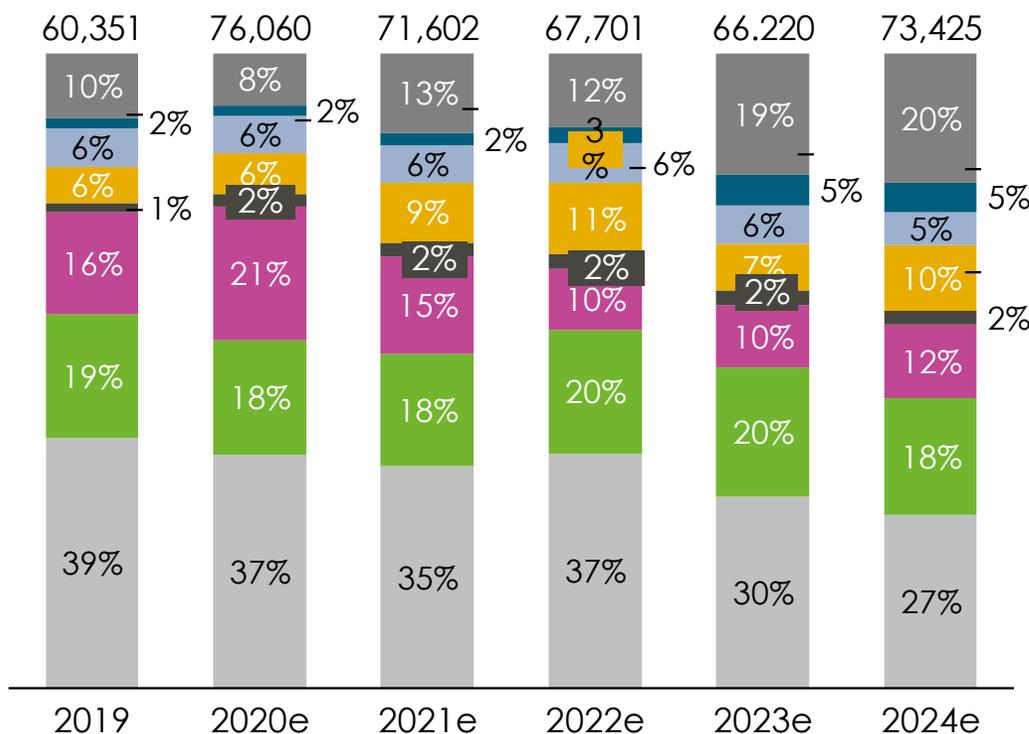
GWEC's Market Outlook represents the industry perspective for the expected installations of new capacity for the next five years.

The outlook is based on input from regional wind associations, governmental targets, available project information and input from industry experts and GWEC members. An update will be released during Q2 2020 and will take into account COVID impacts.

# Developing markets and offshore to take larger share in global market

## New installations outlook by region

MW and per cent, onshore and offshore



### Offshore Wind

The size of the global offshore market is expected to grow from 6 GW in 2019 to 15 GW in 2024, bringing its market share in global new installations from today's 10% to 20% by 2024. In Asia, China is set to become a big contributor in the next five years, followed by Taiwan and Japan. In the US, the first utility scale offshore installations (>800 MW) are expected towards 2023 when offshore wind will become a truly global business.

### Africa/Middle East

Steady volumes, around 1.45 GW/year, are expected to be delivered from Africa/Middle East in the next three years (2020-2022), and the annual market size is likely to double, primarily due to increased volume from South Africa, the largest market in Africa, and expected installations from Saudi Arabia in Middle East.

### Asia excl. China

With challenges related to project execution and market design expected to be addressed in the next 2-3 years, India will continue to be a large driver in this region. Vietnam is a market to watch in South-East Asia considering its near-term installation rush, improving policy environment and growing economy and power demand. More volume could be unlocked if governments in places like Indonesia and the Philippines follow through on recent positive policy pronouncements.

### Pacific

The majority of demand in this region in the next five years will come from Australia, although small scale project work including repowering is expected in New Zealand. New solutions like hybrid projects and microgrids will continue to generate opportunities in this region while improving renewables integration.

### Europe

As an established market, the EU-28 onshore market is expected to remain stable with annual installations expected at a level of 11-12 GW in the next five years. Increasing growth is also expected from European markets exclude from the EU-28, such as Turkey and Russia, as governments continue to execute their auctions and tenders.

### Americas

In Latin America, it is a mixed picture in terms of government support and economic stability on a country level, however, a stable annual installation of 4 GW is possible, chiefly driven by the recovery of the Brazilian market and the demand from the private market. For the next five years, the PTC will remain as the main driver for the US market, although corporate PPAs and state-level RPS will continue to drive growth.

### China

2020 is going to be the best year yet for Chinese onshore wind as more than 50 GW awarded projects are chasing the grid-connection deadline of 31 Dec 2020 in order to qualify the previously approved FIT. Installations from 2021 onward will be mainly driven by subsidy-free onshore wind, but new installations are unlikely to go down somewhat until the previously approved project pipelines run their course.