



## Wind turbines – Sales and market development

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“Order intake in 2015 was strong, driven by improvements across all regions and especially in the US market. Our strategic efforts in China, India, and Brazil are also paying off. Moreover, we managed to expand our geographic diversity.”

**Juan Araluce**  
Executive Vice President & CSO

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## Global trends in the onshore wind energy market 2015

2015 was again a positive year for the wind power industry with an increase in onshore installations of 21 percent to 58 GW compared to 2014.<sup>1)</sup> According to MAKE Consulting, the order intake for 2015 was higher than in 2014 as well, especially in North and Latin America.<sup>2)</sup> And most importantly, Bloomberg New Energy Finance predicts the wind energy market to continue its growth. It is estimated that approx 20 percent of the new installed electricity generation capacity in 2015 was coming from wind which is furthermore expected to make up 14 percent of the projected total installed electricity generation capacity by 2040.<sup>3)</sup>

Policy decisions, particularly on a national level, continue to be a primary driver for renewable energy demand, making the market exposed to changes and some unpredictability. Notable examples historically are the developments in the USA, UK, and Poland. A general trend can be seen, nonetheless, towards applying market-based mechanisms such as auctions, renewable certificates, and renewable portfolio standards. Auctions are taking place in markets like Brazil, Russia, and South Africa. Mexico is introducing rules for an auctioning system. And European markets like Poland and Germany are preparing to enter into auction systems.

The signs for renewables and the wind power industry are positive and with its global footprint, Vestas finds itself well positioned to reap the benefits from these developments.

## Vestas' market development in 2015

Vestas' installed capacity increased from 66 GW in 2014 to 74 GW in 2015 – an increase of 12 percent.

With deliveries across 34 countries in 2015, Vestas' wide geographic diversification remains a key strategic strength, allowing it to balance out the inevitable ups and downs in any given market. Vestas' global presence in 75 countries across six continents underlines its ability to provide wind energy solutions anywhere in the world.

# 34 countries

In 2015, Vestas delivered CO<sub>2</sub> neutral wind power systems in 34 countries all over the world, and signed contracts for new orders in the same number of countries.

During 2015, Vestas continued its focus on early engagement, thereby offering more attractive cost-effective wind energy solutions to the benefit of both the customer and Vestas. By early engagement with the customer on for example site design, Vestas is able to unlock value and offer a more optimised solution.

Combined with the ongoing efforts to build closer and expand already existing customer relationships and partner with new customers in both mature and new markets to wind power, Vestas experienced growth in order intake across all regions and signed orders in a total of 34 countries in 2015. Demand for both Vestas' 2 MW and 3 MW platforms remains strong with 2015 order intake largely split equally between the two platforms.

## 2015 order intake and backlog per region

MW

	Europe, Middle East, and Africa	Americas	Asia Pacific	Total
Order intake	3,889	4,113	941	8,943
Wind turbine order backlog	3,872	3,924	936	8,732

## Europe, Middle East, and Africa

Vestas delivered 3,672 MW to the markets in the Europe, Middle East, and Africa region in 2015, up from 3,385 MW in 2014. In 2015, Vestas had an order intake of 3,889 MW in the region, while the order backlog amounted to 3,872 MW as of 31 December 2015.

The European onshore markets have proven to be stable in 2015, adding 11 GW of new installations, the same as in 2014.<sup>1)</sup> Despite the stable overall market development, Europe is still characterised by varying growth patterns on a national level due to differences in regulatory, economic, and geopolitical conditions. Combined with an increased focus on decarbonisation, energy independence, and a general demand for electricity, Europe continues to be driven by the EU member states' approach towards achieving their renewable energy targets for 2020. By demand of the EU state aid guideline, European markets are moving towards more market-based support systems, putting more focus on the development in power prices and cost of energy.

## Northern Europe

The markets in Northern Europe, home to some of the most mature wind energy markets, showed good activity levels and continued support and commitment in 2015. Markets like Finland, Germany, and Sweden were among the main drivers, while the radical policy shifts in the UK remain a challenge.

Following the record-breaking level of installations in 2014 (4.7 GW)<sup>4)</sup>, due to uncertainty regarding the impact of regulatory changes, the German onshore market experienced a decline in 2015; however, installations remained at a very high level of 3.7 GW.<sup>5)</sup> While legislation remains at a draft stage, Germany's transition process towards a market-based auction system is getting more final, with the first auctions expected to take place in May 2017. Repowering constituted approx 480 MW of German installations in 2015<sup>6)</sup>, and hence continues to be an interesting segment in Europe's largest onshore market. Vestas delivered 763 MW to the German market in 2015, while order intake amounted to 877 MW.

In 2015, Finland added as much as 379 MW in installations,<sup>6)</sup> representing an increase of 106 percent compared 2014 and almost a doubling of the total installed capacity.<sup>7)</sup> The Finnish market continues to be driven by a feed-in tariff mechanism implemented in 2011 and is expected to transition to an auction-based system as of 2018. Supported by its De-Icing and Large Diameter Steel Tower solutions, Vestas managed to cement its market-leading position in the Finnish market in 2015 with deliveries of 221 MW and an order intake of 448 MW.

1) Source: Bloomberg New Energy Finance (BNEF): Q1 2016 Market Outlook. February 2016.

2) Source: MAKE Consulting: Global Order Intake Database. January 2016.

3) Source: Bloomberg New Energy Finance (BNEF): Bloomberg New Energy Outlook 2015. June 2015.

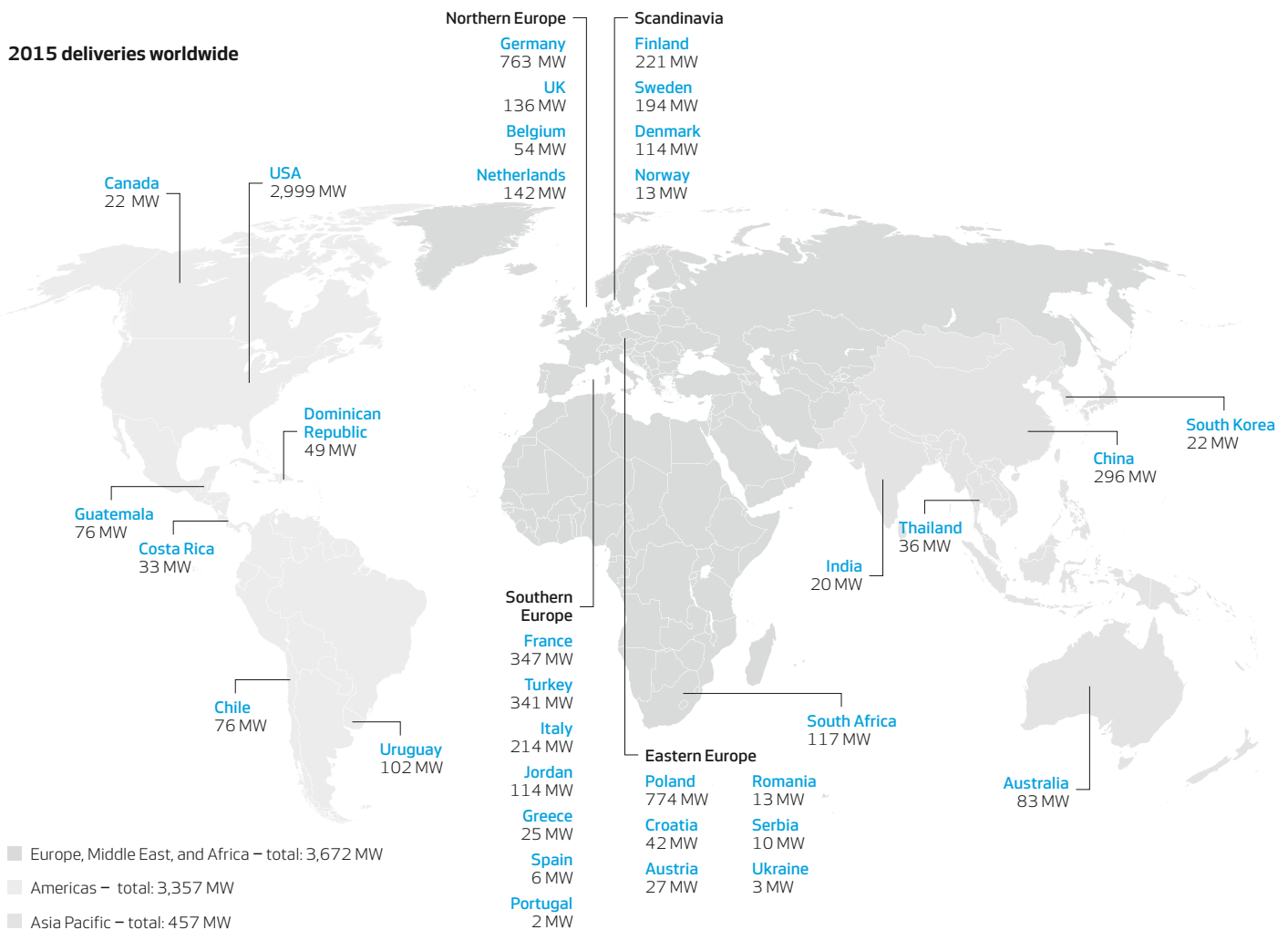
4) Source: Deutsche WindGuard (DEWI): Wind Energy Use in Germany - Status 31.12.2014. DEWI Magazin no. 46, February 2015.

5) Source: Deutsche WindGuard (DEWI): Status des Windenergieausbaus an Land in Deutschland. Jahr 2015. January 2016.

6) Source: The Finnish Wind Power Association: Ennätöksellinen tuulivoimavuosi 2015 - tuplattu tuotanto ja jätti-investoinnit. 20 January 2016.

7) Source: The European Wind Energy Association (EWEA): Wind in power. 2014 European statistics. February 2015.

## 2015 deliveries worldwide



Despite broad and strong political support for wind energy in Sweden, the low pricing on electricity and renewable energy certificates in the Swedish market continues to put further pressure on lowering the cost of energy. With an order intake of 278 MW in 2015 – an increase of 20 percent compared to 2014 – Vestas demonstrated its ability to provide attractive wind power solutions in an otherwise challenging market.

The UK market has been driven by developers seeking to qualify for the existing support scheme that requires projects to be operational by the end of March 2017. The regulatory environment for the development of onshore wind is increasingly very challenging in the UK, as exemplified by the recent proposal to end the existing support scheme one year ahead of schedule. Vestas delivered 136 MW to the UK market in 2015, including 50 MW offshore, while order intake amounted to a total of 671 MW, of which 400 MW was offshore.

### Southern Europe

In Southern Europe, electricity demand by and large remains constrained by economic conditions, also leaving little national budgetary room for regulatory support mechanisms. However, a move towards more market-based support schemes could open up for near-term growth in these markets, recently exemplified by the 500 MW auction in Spain.

In contrast, France continues to show good movement. Driven by a feed-in tariff restoration in 2014, installations amounted to 1 GW<sup>8)</sup>

in 2015, – the same level as last year.<sup>9)</sup> Vestas delivered 347 MW in France in 2015 and managed to sign orders totalling 328 MW. The approval of a new ambitious energy law during 2015 combined with a focus on simplifying permitting processes bodes well for the future of the French renewable energy market.

Also contrasting the general trend in Southern Europe, Turkey's wind power market continues to be driven by a growing demand for electricity. With an increase of 17 percent compared to 2014, Turkey achieved another record year in terms of installations in 2015 and continued its steady growth path.<sup>10)</sup> Still being highly dependent on imported fossil fuels, Turkey is expected to continue its journey towards more renewable energy. Vestas delivered 341 MW to the Turkish market in 2015, an increase of 76 percent compared to 2014. Order intake amounted to 175 MW.

### Eastern Europe

Despite the long-term growth potential, regulatory uncertainty and geopolitical conflicts are taking their toll on the markets in Eastern Europe. Romania is struggling to get a clearer and stable regulatory framework to support its otherwise good wind resources, while Ukraine remains impacted by the Crimea conflict with Russia. Russia, on the other hand, took a step forward in 2015, addressing its challenging local content requirements by easing the rules for wind power development.

8) Source: France Energie Eolienne: Performances de l'éolien en 2015 et perspectives d'avenir. 21 January 2016.

9) According to BNEF the 2014 added installations amounted to 1.0 GW. Source: Bloomberg New Energy Finance (BNEF): Q1 2016 Market Outlook. February 2016.

10) Source: Bloomberg New Energy Finance (BNEF): Q1 2016 Market Outlook. February 2016.





Due to the uncertainty regarding the move to an auction-based support system from 2016, market activity in Poland was high in 2015, with annual installations having reached more than 1 GW by the end of the year.<sup>11)</sup> Vestas was able to benefit from the higher activity levels with deliveries up from 146 MW the year before to 774 MW in 2015 and an order intake of 344 MW. The Polish market is expected to continue to be an important market following the adaption to the new system.

#### Africa and the Middle East

While Europe generally remains stable, the markets in Africa and the Middle East offer growth potential, although from a low base. The region is characterised by good wind resources and holds an enormous potential due to the historical untapped nature of these markets. In 2015, close to 1 GW was installed in the region, approx at the same level as the year before.<sup>11)</sup> Vestas made its mark on the region by delivering 117 MW in South Africa and 114 MW in Jordan.

#### Americas

Vestas delivered 3,357 MW to the markets in the Americas region in 2015, up from 2,323 MW in 2014. In 2015, Vestas had an order intake of 4,113 MW in the region, while the order backlog amounted to 3,924 MW as of 31 December 2015.

With the US market being the dominant driving force in the Americas region, the Production Tax Credit (PTC) once again stole the headlines for the region as a whole in 2015. Despite economic weakness across some of the Latin American markets in the second half of 2015, leaving the sub-region in a state of uncertainty, these markets have increased in importance. Amounting to 4 GW, the added capacity in Latin America makes up 7 percent of the total added onshore installations in 2015. In the whole Americas region, the added capacity in 2015 represents 14 GW in total, an increase of 19 percent compared to 2014.<sup>11)</sup>

In the USA, an extension of the PTC was approved in December 2015, which had as its main element a two-year extension of the scheme in its current form followed by a three-year phase-down period. The extension and phase-down plan gives the industry the longer-term certainty that it has been looking to achieve. Together with wind energy's natural competitiveness against other power generation sources, the PTC extension agreement would help ensure a solid future for wind energy in the USA.

Following the plan set out in 2014, Vestas obtained qualification status in the Brazilian market in late 2015, thereby deemed to be compliant with the local content rules securing the important financing terms from the Brazilian Development Bank (BNDES) for its customers. Despite the uncertainty caused by the economic weakness, Vestas expects the underlying drivers for renewable energy to remain intact in the Brazilian market – a market in which Vestas secured orders of 385 MW in 2015, showcasing its reignited efforts in the market in accordance with the local strategic plan.

Driven by demand for energy security and diversity of supply, the potential in the remaining Latin American markets is strong. In 2015, Vestas increased its presence in these markets with an order intake of 652 MW, compared to 390 MW in 2014. Activity was mainly seen in Mexico and Uruguay, but also in Chile where renewable energy sources, mainly wind and solar, won the entirety of new electricity contracts in its 2015 power auction.

#### Asia Pacific

With a total of added installations in 2015 of 32 GW representing an increase of around 35 percent compared to 2014,<sup>11)</sup> activity levels in the Asia Pacific region were high. According to the International Energy Agency (IEA), the growth level of electricity demand in Asia Pacific will be higher than in any other region of the world.<sup>12)</sup> While China and India remain the dominant driving forces, the remaining markets in the region are also expected to grow due to increased electricity demand, limited domestic energy resources, and a wish to be more energy independent from imported fossil fuels.

In 2015, according to preliminary data, China had a record year in terms of installations of around 30 GW,<sup>13)</sup> confirming its position as the largest global wind energy market and continued support for renewable energy. Part of the development in 2015 could also be attributed to the planned Chinese feed-in tariff reduction to begin in 2016, creating a rush in the market for securing subsidies under the previous scheme. It remains to be seen how the change to the feed-in tariffs will impact the current level of installations going forward. In light of the high level of installations, grid curtailment remains a challenge for the Chinese market.

As a testament to the progress of implementing the new local strategic initiatives launched in October 2014, Vestas gained good momentum in the Chinese market in 2015, more than doubling the order intake level of 2014 to 556 MW and delivering 296 MW. Vestas thus continues to show commitment to its China strategy by focusing entirely on the relatively smaller but still attractive segment of the market addressable for Vestas.

The Indian market is back on track. With the two main incentive schemes, Generation Based Incentive and Accelerated Depreciation, reintroduced in early 2013 and late 2014, respectively, and the 2014 newly elected government's positive stance on wind power, India has set the course to meet its ambitious wind energy target of 60 GW installed capacity by 2022. At the end of 2014, India's total installed capacity amounted to approx 22 GW, thereby indicating a large potential towards 2022.<sup>14)</sup> Despite the high ambitions, the Indian market continues to be a challenging market to operate in. Launched in 2014, Vestas continues the implementation of its new local Indian strategy and as part of the execution of the Group's strategic plan, Vestas took an important step forward in 2015 by announcing its plans to build a new blade facility in the country. Once completed, this new blade facility is expected to improve Vestas' competitiveness in the Indian market by for example reducing lead times and in general creating a closer proximity to the market. Vestas secured orders of 74 MW in the Indian market in 2015.

After almost two years of complete standstill due to uncertainty of the political commitment towards renewable energy, Australia's two major political parties agreed on a new Renewable Energy Target (RET) in 2015. Although at a lower level, the new RET will give much needed clarity for the future of the Australian wind energy market. Historically, Australia has proven to be a Vestas stronghold, and with a market share of approx 50 percent based on total installed capacity as of 2015,<sup>15)</sup> Vestas is welcoming the new RET resolution.

Vestas delivered 457 MW to the markets in the Asia Pacific region in 2015, compared to 544 MW in 2014. In 2015, Vestas had an order intake of 941 MW in the region, where also a 126 MW order in Thailand and orders of 122 MW in South Korea contributed positively. The order backlog amounted to 936 MW as of 31 December 2015.

11) Source: Bloomberg New Energy Finance (BNEF): Q1 2016 Market Outlook. February 2016.

12) Source: International Energy Agency (IEA): World Energy Outlook 2015. November 2015.

13) Source: News on the homepage of the Chinese Wind Energy Association (CWEA) dated 18 January 2016.

14) Source: Global Wind Energy Council (GWEC): Global Wind Report 2014. March 2015.

15) According to the Global Wind Energy Council, total installed capacity in Australia by end 2014 amounted to 3.8 GW (Source: Global Wind Energy Council (GWEC): Global Wind Report 2014. March 2015) and with added installations in 2015 (Source: Bloomberg New Energy Finance (BNEF): Q1 2016 Market Outlook. February 2016), total capacity by end 2015 is around 4.1 GW. At the end of 2015, Vestas had installed 1.9 GW in Australia.



# VESTAS FACTS

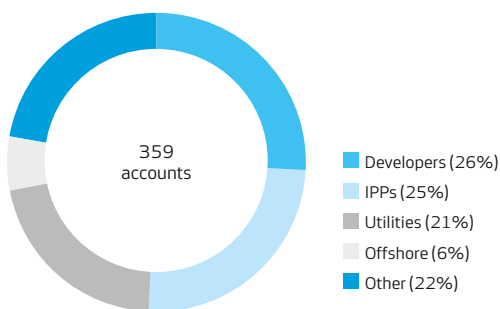
## Customer relations

Vestas maintains its focus on its key account management programme and has expanded the programme in 2015. The largest customers now cover 48 percent of Vestas' order intake, an increase of 5 percent compared to last year.

With a diverse set of offerings encompassing both products and services, Vestas has broad access to all relevant segments and markets and an undisputed global ability to target value driving growth. Vestas directly or indirectly serves a broad base of customers, including but not limited to utilities, developers, independent power producers, pension funds, and large corporations.

## Customer segmentation based on order intake 2015

Percent



Vestas measures its customer relationships through an annual survey. The most recent survey took place from 7-27 January 2016, and included more than 1,000 respondents in 46 countries, representing more than 500 customers.

Overall, the customers' perception of Vestas improved from 2014 to 2015. Overall satisfaction increased from index 77<sup>16)</sup> to 78, and the same increase as was also seen within the overall reputation index. The net promoter score increased from index 39 to 40 on a scale from -100 to +100.

The survey also shows that the share of Vestas' customers, based on the respondents, who prefer Vestas as one of their top two partners increased from 89 to 92 percent, once again testifying to the fact that Vestas has succeeded in building solid and trust-based relationships with its customers.

## Global presence



In 2015, Vestas installed wind turbines for the first time in Guatemala and Serbia. As per 31 December Vestas has installed 56,860 wind turbines in 75 countries around the world.

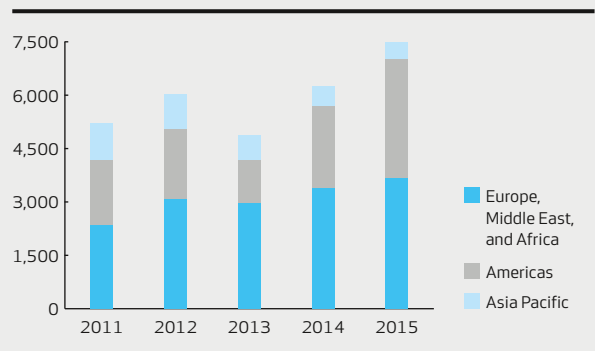
All the Vestas turbines generate more than 145 million MWh of electricity per year, enough electricity to e.g. supply over 80 million European people's residential electricity consumption and reduce carbon emissions by more than 75 million tonnes of CO<sub>2</sub>.

# + 20%

In 2015, Vestas delivered wind power systems with an aggregate capacity of 7,486 MW – an increase of 20 percent compared to 2014.

## Deliveries per region

MW



16) The reported overall satisfaction index for 2014 (70) has been adjusted in connection with the transition to a new calculation method in 2015.