

Vestas[®]

Building on 55 GW of **experience**

Track record as of 31 December 2012



Wind. It means the world to us.[™]

Proven technology



Proven technology. For Vestas, it is more than a saying – it is something we live by.

With more than 30 years in the wind industry, Vestas has more experience than anyone else in making wind work for our customers. We also take advantage of an unmatched track record: Together with our customers, Vestas has installed 55 GW of wind power capacity in 73 countries. That is more than 20 per cent of all turbines installed globally – and over 15 GW more than our closest competitor.

Every day, Vestas leverages this vast global experience to continuously improve the performance of our customers' wind power plants. We do this through the constant monitoring and performance diagnostics of the world's largest fleet of wind turbines.

The constant stream of data from nearly 25,000 wind turbines enable Vestas to meticulously plan and carry out service inspections, thereby reducing wind turbine down-time to an absolute minimum. The data is monitored across 140 to 500 and more signals including temperature, pressure and log data. Combined with information from service visits, the comprehensive data creates a complete picture of turbine health.

The ongoing monitoring enables Vestas to optimise the performance of our customers' wind power plants on a number of parameters:

- it ensures that our accelerated lifetime simulations on key components are as realistic as possible
- it ensures that the most significant CtQs (critical-to-quality) are thoroughly managed throughout manufacturing
- it optimises turbine performance in micro-siting and site layouts
- it enables us to accurately forecast and model operational expenditures, annual energy production and the overall business case
- through ongoing condition monitoring, it allows us to implement predictive maintenance, thereby minimising lost production.

Our 55 GW of installed capacity is the backbone of Vestas' unrivalled experience and expertise. When combined with one of the industry's largest testing facilities comprising of 50 test rigs and 150 engineers who are committed to continuously improving the quality of our products even further, Vestas can truly offer our customers proven technology.

We have the data to back the claim: In 2012, the Lost Production Factor – the share of available wind not harvested by Vestas wind turbines – fell below 2 per cent across the fleet. Meanwhile, the consumption of warranty provisions in relation to revenue was the lowest ever. This is what we mean by proven technology. For our customers, it means business case certainty.



Track record by **turbine type***

Turbine type	Quantity	Total MW
Other	34,001	22,907
V80-1.8 MW [®]	1,016	1,829
V80-2.0 MW [®]	3,269	6,538
V90-1.8 MW [®]	1,414	2,545
V90-2.0 MW [®]	4,873	9,716
V90-3.0 MW [®]	2,730	8,190
V100-1.8 MW [®]	1,057	1,911
V100-2.0 MW [®]	16	32
V100-2.6 MW [®]	51	133
V112-3.0 MW [®]	523	1,569
Total	48,950	55,370

* Delivered Vestas wind turbines as of 31 December 2012.

Track record by **country***

Country	Quantity	Total MW	LI**
Argentina	62	89	2012
Aruba	10	30	2009
Australia	805	1,681	2012
Austria	254	447	2012
Azerbaijan	2	2	2009
Belgium	138	311	2012
Brazil	163	292	2012
Bulgaria	119	309	2012
Canada	1,374	2,315	2012
Cape Verde	39	28	2012
Caribbean Islands	2	0	1991
Chile	68	124	2012
China	3,205	3,878	2012
Costa Rica	71	51	2002
Croatia	21	48	2008
Cuba	4	4	2005
Cyprus	47	93	2012
Czech Republic	54	84	2012
Denmark	5,013	2,781	2012
Dominican Republic	14	25	2011
Egypt	124	79	2004
Finland	52	60	2012
France	814	1,560	2011
Germany	6,315	8,386	2012
Greece	770	1,044	2011
Hungary	49	105	2010
India	4,441	2,799	2012
Iran	37	16	2004
Israel	3	0	1993

Country	Quantity	Total MW	LI**
Italy	2,542	3,116	2012
Jamaica	33	39	2010
Japan	379	510	2008
Jordan	5	1	1996
Kenya	6	5	2009
Latvia	1	1	2002
Lithuania	6	18	2007
Luxemburg	13	9	1999
Malaysia	1	0	1995
Mauritius	1	0	1986
Mexico	72	132	2012
Morocco	84	50	2000
Netherlands	1,321	1,590	2012
Netherlands Antilles	10	30	2012
New Caledonia	20	5	1999
New Zealand	231	346	2011
Nicaragua	22	40	2012
North Korea	2	0	1986
Norway	45	70	2012
Pakistan	28	50	2012
Peru	1	0	1995
Philippines	20	33	2008
Poland	372	770	2012
Portugal	371	670	2012
Puerto Rico	13	23	2012
Republic of Ireland	565	590	2012
Romania	219	544	2012
Russia	3	1	1998
Slovakia	4	3	2003

Country	Quantity	Total MW	LI**
South Africa	3	4	2010
South Korea	104	166	2008
Spain	2,918	4,039	2012
Sri Lanka	5	3	1999
Sweden	1,381	1,951	2012
Switzerland	17	25	2010
Taiwan	50	86	2008
Thailand	1	0	1996
Turkey	243	604	2012
USA	12,392	10,982	2012
Ukraine	28	84	2012
United Arab Emirates	1	1	2004
United Kingdom	1,324	2,093	2012
Uruguay	20	39	2012
Vietnam	3	6	2011

Total	48,950	55,370	
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* Delivered Vestas wind turbines as of 31 December 2012.

** Latest installation.

Experienced worldwide.

With installed turbines in 73 countries around the world, we have considerable experience in all the key disciplines – engineering, transportation, construction and operations & maintenance. Our projects have covered every kind of site, from high altitude to extreme weather conditions, onshore and offshore. Since 2005 alone, this full-scope expertise has enabled us to build more than 250 turnkey projects in 20 countries.



Offshore track record by **country***

Country	Quantity	Total MW
Belgium	55	165
Denmark	102	197
Japan	2	1
Netherlands	128	247
Portugal	1	2
Sweden	11	13
United Kingdom	282	784
Total	581	1,409

* Delivered Vestas wind turbines as of 31 December 2012.



On-track with the offshore game-changer

After pioneering the offshore wind industry in the early 1990s, Vestas is currently developing the next generation wind turbine for offshore. With an output of 8 MW, the V164-8.0 MW™ has the potential to become a game-changer within offshore wind power in terms of power generation and low cost of energy.

Development of the V164-8.0 MW™ turbine is progressing as planned. The first blade and a

prototype hub are already undergoing testing, while testing of the drivetrain will commence at the beginning of 2013.

Vestas expects to install the first prototype of the V164-8.0 MW™ in the second quarter of 2014. Depending on customer demand and market conditions, serial production of the game-changing offshore turbine could begin as early as 2015.

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