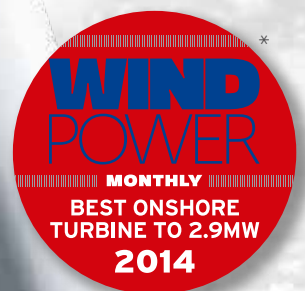


Gamesa 2.0-2.5 MW

Technological evolution

G80-2.0 MW
G87-2.0 MW
G90-2.0 MW
G97-2.0 MW
G114-2.0 MW*
G114-2.5 MW
G106-2.5 MW



GLOBAL TECHNOLOGY
EVERLASTING ENERGY



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- p. 4** Innovative evolution.
- p. 5** Global capacity for production, installation and operation and maintenance.
- p. 7** Versatility.
- p. 8** Discovering the Gamesa 2.0-2.5 MW:
 - ▶ Advantages of the new Gamesa 2.0-2.5 MW platform.
 - ▶ New features and improvements.
 - ▶ Technical specifications and services.

Economic progress & Sustainable development

These are the great challenges facing today's society. In the areas of energy management and power generation, Gamesa is tackling these challenges by developing technologies that foster energy sustainability in a clean, efficient and profitable manner.

By harnessing the best and most modern technologies in conjunction with its high industrial potential, Gamesa continues to improve the efficiency and capacity of its products and services by designing and manufacturing of ever more advanced wind turbines.

The drive behind our work to develop more efficient technologies, products and services is to ensure that Gamesa's range of offerings is the most comprehensive in terms of capabilities and the most competitive in the market. Our goal? Complete customer satisfaction.

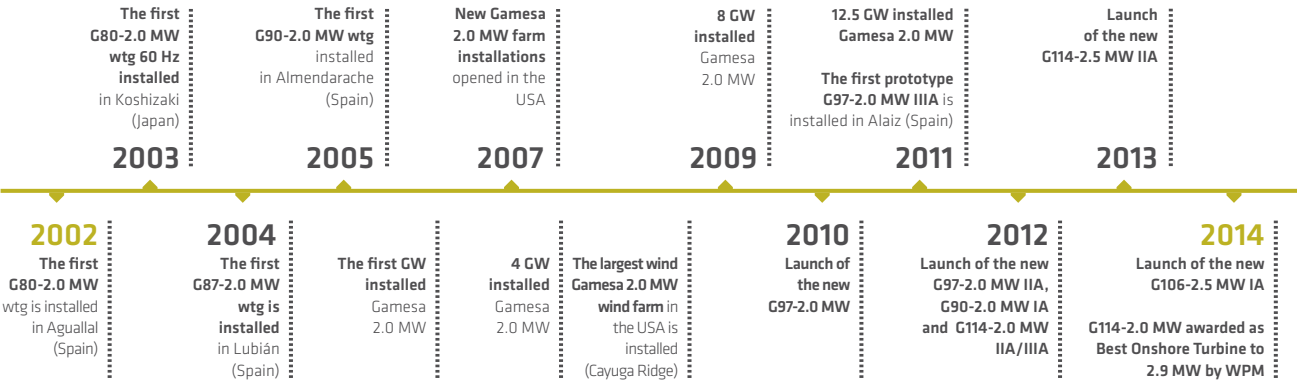
Innovative Evolution

Technology is one of the fundamental focal points of Gamesa's activities, evidenced by the substantial research and development efforts employed by the company to continually improve its Gamesa 2.0-2.5 MW platform.

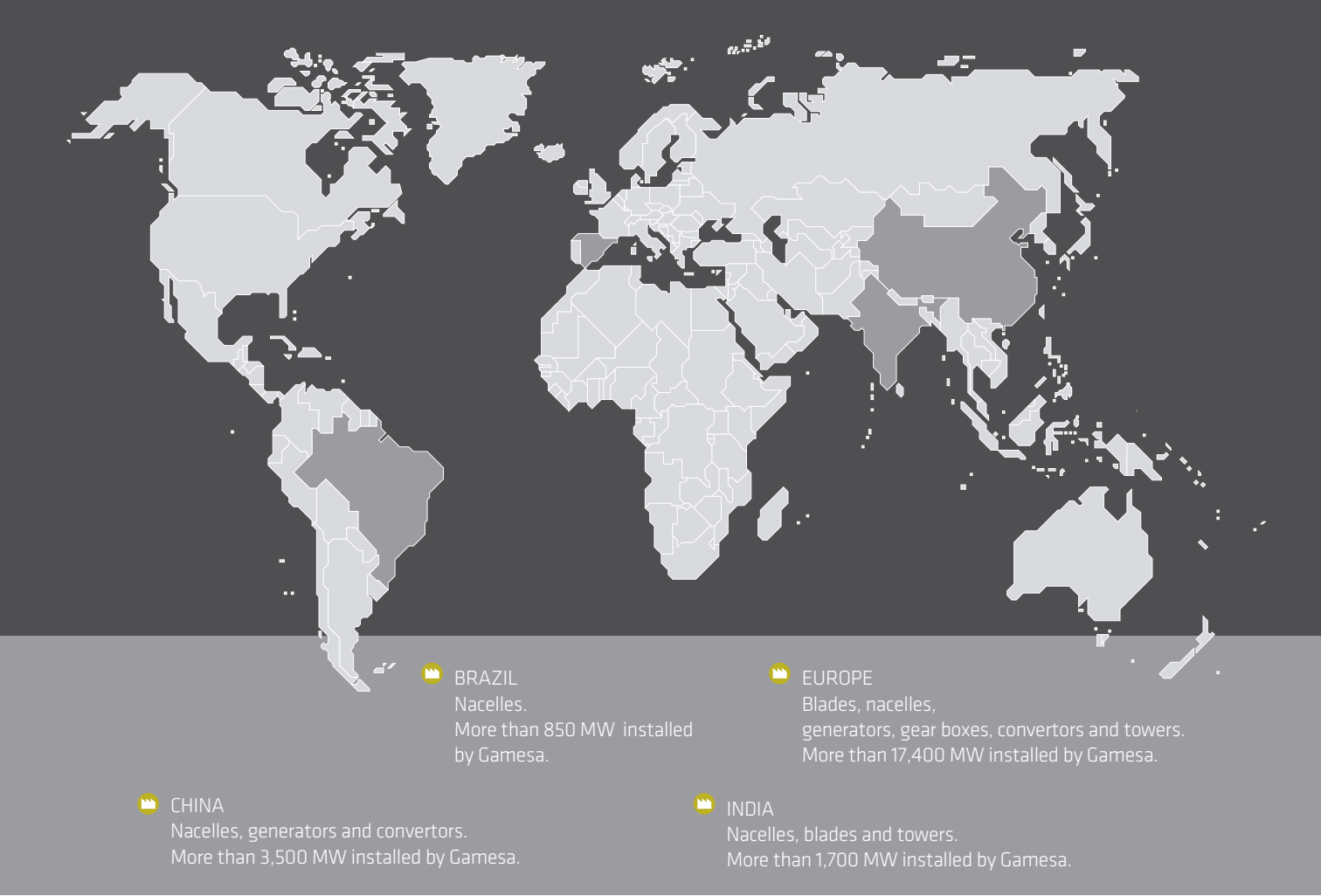
Gamesa wind turbine technology is characterized by its robustness, reliability and adaptability to all types of sites and wind conditions from the toughest, most demanding locations to those with medium to light winds. The Gamesa 2.0-2.5 MW technology has been very well received and has become an industry workhorse, as evidenced by the more than 18,600 MW of power installed in 33 countries*.

The company's significant experience base and its in-depth knowledge of market needs and demands have enabled it to develop technological improvements in this platform. The evolution and incorporation of substantial innovations in design, products and features have put the new Gamesa 2.0-2.5 MW platform on the path to leadership in the multi-megawatt segment.

As a matter of fact, the G114-2.0 MW model has recently been awarded Best Turbine Of The Year 2014 in the category of less than 3 MW by the publication Windpower Monthly.



* As of 31st, Dec 2014



Global capacity for production, installation and operation and maintenance

Gamesa is a company specializing in technologies for sustainable energy, mainly wind energy, and is one of the world leaders in the manufacture of wind turbines.

Within this sector, Gamesa manages the entire process, from the design, manufacture and installation of wind turbines, to their operation and maintenance. The over 31,200 MW installed throughout the world is evidence of the excellent performance of Gamesa's wind turbines. This optimum behavior is only possible with a full command of the technology and of the product with all its critical components.

Gamesa has the capacity to design, manufacture, operate and maintain its wind turbines. The tailor-made development of the critical components of its turbines-from the gearbox to the blades- ensures excellence in the design and the very highest quality standards. At the same time, it permits the shortest

delivery times and the fastest technical response during the maintenance period.

Research, Development and Innovation form an integral part of the company's processes and products as well as its tasks and operations all along the supply chain, ensuring customer satisfaction and the search for excellence. In addition to this high ability to innovate, Gamesa also has an impressive manufacturing capacity, having production centres that support the main wind markets. Spain and China are the global production and supply hubs, and local production capacity is maintained in India and Brazil.

Gamesa fully controls the production process and attends to the needs of its clients on all five continents, offering its customers the highest quality standards and short customer response times.

* Data as of 31st, Dec 2014



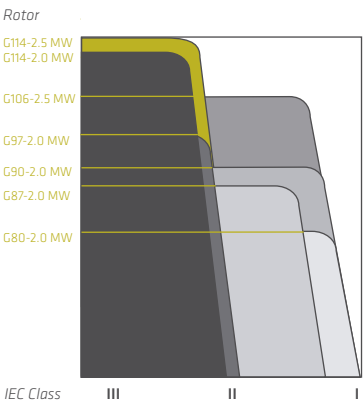
6

Versatility

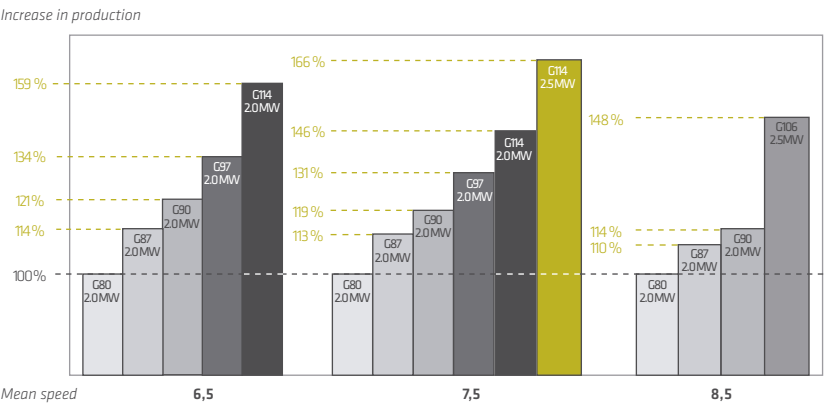
Gamesa's 2.0-2.5 MW platform offers turbines in six rotor diameters -80, 87, 90, 97, 106 and 114 meters. The availability of these different rotor diameters enables the platform to operate in IEC Class I, Class II and Class III environments,

thus achieving maximum output for specific site wind conditions. Multi-megawatt wind turbines from the Gamesa 2.0-2.5 MW platform improve competitive investment ratios per MW installed and Cost of Energy produced.

IEC Class per model



Production gain by mean speed



* NOTE: theoretical production calculated for k=2, density 1,225 kg/m3, with average speed at hub height.

Discovering Gamesa 2.0-2.5 MW

The operational improvements of the Gamesa 2.0-2.5 MW are derived from its speed control and variable pitch technology enhancements, as well as other hardware and software design upgrades. Ongoing turbine upgrades ensure that maximum energy is extracted from the wind as efficiently as possible.

- ▶ Composite materials reinforced with glass and carbon fiber for lighter blades without sacrificing rigidity and strength.

▶ The Gamesa WindNet® remote control system.
- ▶ Gamesa SMP predictive maintenance.

▶ Gamesa NRS® noise control.

▶ Solutions for optimum grid connection.

Model	IEC	Rated Power	Grid Code	Tower Heights	Environm. Options ⁽¹⁾	Type certificate	50 Hz 60 Hz
G80	IA	2,000 kW	✓	60, 67, 78, 100 ⁽²⁾ m	✓	✓	✓
G87	IA ⁽³⁾ / IIA	2,000 kW	✓	67, 78, 90, 100 m	✓	✓	✓
G90	IA/IIA	2,000 kW	✓	55 ⁽⁶⁾ , 67 ⁽⁵⁾ , 78, 90 ⁽⁶⁾ , 100 m	✓	✓	✓
G97	IIA/IIIA	2,000 kW	✓	78, 90, 100, 104 ⁽⁷⁾ , 120 m	✓	✓	✓
G114	IIA/IIIA	2,000 kW	✓	80, 93, 125 m and site specific	✓	✓	✓
G106 ⁽⁴⁾	IA	2,500 kW	✓	72, 80, 93 m and site specific	✓	(4)	✓
G114 ⁽⁴⁾	IIA	2,500 kW	✓	80, 93, 125 m and site specific	✓	(4)	✓

(1) Different versions and optional kits are available to adapt machinery to high or low temperatures and saline or dusty environments.

(2) 100 meter IEC IIA tower.

(3) Class S, available with 78 and 90 m tower heights.

(4) Under development.

(5) Availability depending on the site.

(6) Available only for Class I.

(7) Class S.

New G114-2.0 MW

Best Onshore Turbine 2014*

- ▶ Model with the HIGHEST CAPACITY FACTOR of the market.
- ▶ MINIMUM power density.
- ▶ IMPROVED CoE.
- ▶ MAXIMUM profitability.
- ▶ TYPE CERTIFICATE available.





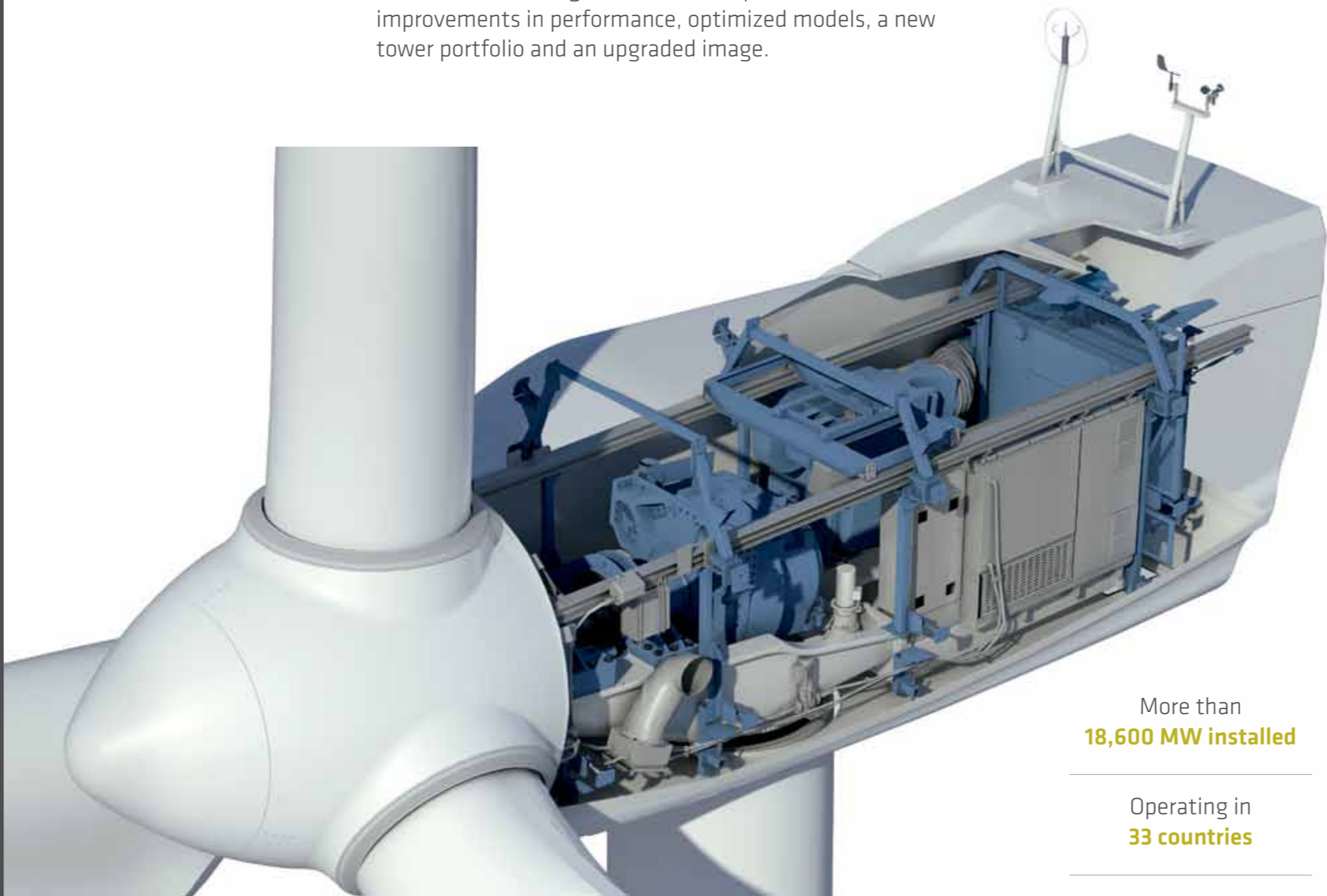
Innovative Evolution
Gamesa 2.0-2.5 MW.

One step forward.

Advantages of the new Gamesa 2.0-2.5 MW platform

- ▶ Platform versatility: site-specific offerings to optimize energy capture & production.
- ▶ Two power outputs available: 2,000 kW and 2,500 kW.
- ▶ New, latest generation 106- and 114-meter rotors for high and medium winds which, together with the 80-, 87-, 90 and 97-meter rotors, make this the most versatile platform on the market.
- ▶ Variable pitch and speed technology maximize energy production.
- ▶ State-of-the-art blade manufacturing technology. New optimized blade profile guarantees maximum production and low noise.
- ▶ Technological solutions guarantee compliance with international grid connection requirements.
- ▶ Gamesa active yaw system ensures optimum adaptation to complex terrain.
- ▶ Aerodynamic design and the Gamesa NRS® control system minimize noise emissions.
- ▶ Gamesa WindNet®: remote control and monitoring system with web access.
- ▶ Gamesa SMP: System for predictive maintenance.

The reliability of the Gamesa 2.0-2.5 MW, backed by broad experience and proven capacity to adapt, combines with Gamesa's technological advances to provide notable improvements in performance, optimized models, a new tower portfolio and an upgraded image.



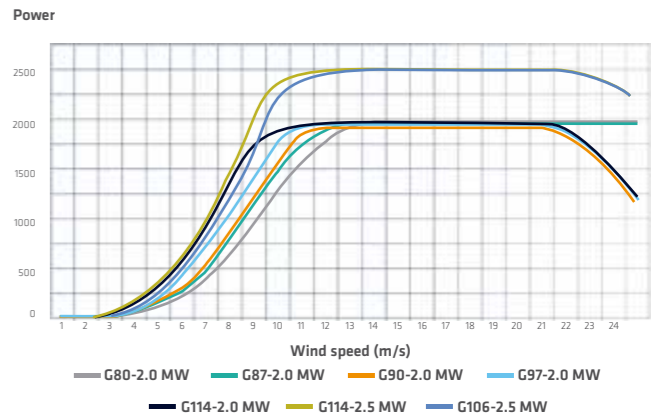
More than
18,600 MW installed

Operating in
33 countries

Established & vertically integrated manufacturing capabilities in Spain and the main wind markets:
China, India and Brazil

New features and improvements

- ▶ New 2.5 generator.
- ▶ Maximum output under any wind condition.
- ▶ Enhanced power curves.
- ▶ Reduced noise levels:
 - ▶ Aerodynamic design.
 - ▶ Gamesa NRS® control system.
- ▶ Compliance with the main international grid connection requirements.
- ▶ Gamesa WindNet®: remote control and monitoring system with web access.

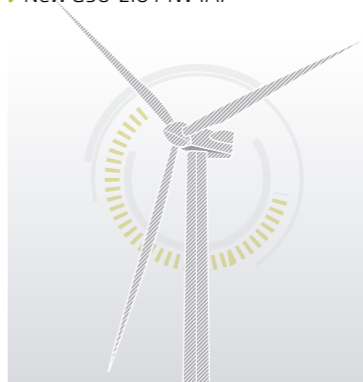


- ▶ New optimized blade profiles for the new G97-2.0 MW, G114-2.0 MW, G106-2.5 MW and G114-2.5 MW:
 - ▶ Optimized blade root with high thickness blade profiles.
 - ▶ Lighter blades through the use of fiber glass, carbon fiber and preimpregnation methods.
 - ▶ Patent on blade root profile family.

Maximum energy production and
reduced noise emissions.

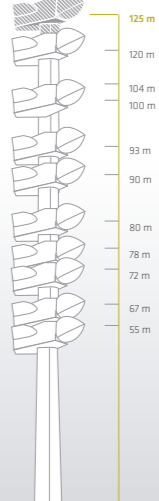
NEW MODELS:

- ▶ New **G114-2.5 MW IIA**.
- ▶ New **G106-2.5 MW IA**.
- ▶ New **G114-2.0 MW IIA/IIIA**.
- ▶ New G97-2.0 MW IIA/IIIA.
- ▶ New G90-2.0 MW IA.



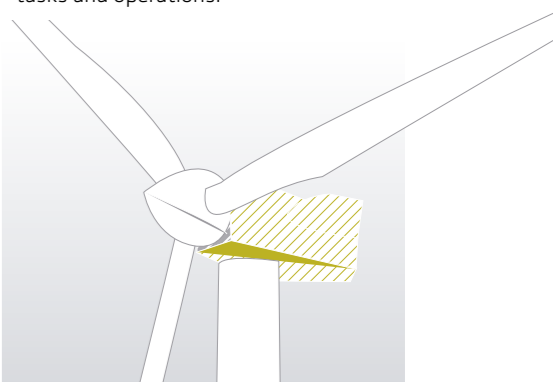
LARGE TOWER PORTFOLIO:

- ▶ New 90, 100, 104 and 120 meter towers for the G97-2.0 MW IIA/IIIA.
- ▶ New tower heights for G114-2.0 MW IIA and G114-2.5 MW IIA – 80, 93 and 125 m.
- ▶ New 55 m. tower for the G90-2.0 MW IA.
- ▶ New 72 m. tower for the G106-2.5 MW.



UPGRADED NACELLE:

- ▶ Newer, more attractive nacelle design.
- ▶ Improvements and capacity increases on key drive train components.
- ▶ Expanded space for nacelle maintenance tasks and operations.





Gamesa 2.0-2.5 MW

Gamesa 2.0-2.5 MW Technical specifications and services

Mechanical design

The Gamesa 2.0-2.5 MW platform incorporates improved and increased mechanical capacity in key wind-turbine components such as the yaw system, the framework, main axis and blade bearings.

These improvements guarantee maximum reliability of the equipment and allow larger rotors to be used to increase the power generated in medium and light winds.

Drive train

The main axis is supported by two spherical bearings that provide significant advantages since lateral loads are transmitted directly to the framework through a rack. This prevents the gear box from receiving additional, unwanted loads, reduces the possibility of breakdown and provides a longer service life.

Total lightning protection

The Gamesa 2.0-2.5 MW platform uses the “Total Lightning Protection” system, designed according to the IEC 62305 standard. This system conducts the lightning from both sides of the tip of the blade to the root, and from there, through the nacelle and the tower structure, to the foundation grounding system. This protects the blade and prevents the lightning from going through the blade bearings and main axis, safeguarding sensitive electrical and electronic elements from damage.

Controlled brake system

The joint action of the primary aerodynamic brakes and mechanical emergency brake (located at the output of the high-speed axis of the gear box) with a hydraulic control system, allows controlled braking that prevents damage due to excessive transmission load.



Designed for simple maintenance

Gamesa's global response offers a wide range of operational and maintenance options. Gamesa turbines come with maintenance service, a two-year warranty on components, availability and power curves - all standard.

But Gamesa's commitment to its customers does not end there. The company has developed a wide range of maintenance services which offer great flexibility in long-term operation and maintenance contracts (up to 15 years, extendable) and provide maximum coverage to guarantee optimum availability - helping to pave the way to financing.

Through detailed analysis of its extensive operational experience, Gamesa also continuously adapts its equipment to the most demanding connection grids and environmental surroundings.

Gamesa WindNet® Real-time Operation and Monitoring

The new generation SCADA wind farm system entirely developed by Gamesa, allows remote operation and the monitoring of the wind turbine, its meteorological mast and electrical substation in real time. Gamesa's WindNet® innovative, modular design is based on TCP/IP architecture. Control features include active and reactive power, voltage and frequency regulation tools and environmental options to optimize production while complying with current regulations.

Accessible anywhere through a Web browser, Gamesa WindNet® is simple to use and intuitive. It features the Report Generator and Information Manager analytical tools, as well as TrendViewer, an advanced tool to illustrate key data trends.

Control system: Maximum output under any wind condition

Dual powered generator, speed and power controlled by IGBT converters and electronic PWM control (Pulse Width Modulation).

Advantages:

- ▶ Active and reactive power control.
- ▶ Low harmonic content and minimum losses.
- ▶ Increased efficiency and production.
- ▶ Improved useful life of the machine.

On-Line Condition Monitoring System for Predictive Maintenance (SMP)

Predictive maintenance system for premature detection of potential deterioration or faults in the main wind-turbine components.

Advantages:

- ▶ Fewer large correctives.
- ▶ Improved reliability, availability and useful life of the machine.
- ▶ Integration with the control system.
- ▶ Risk mitigation provides preferential conditions in negotiations with insurance providers.

Noise Reduction System® Minimum Noise Emission

New aerodynamic design of the blade tip and mechanical components design minimize noise emissions.

In addition, Gamesa has developed the Gamesa NRS® noise control system, which makes it possible to program the turbine to reduce noise emissions according to such criteria as the date, time or wind direction.

This achieves compliance with local regulations and enables maximum production.

Optimum electrical grid connection and stable production

Gamesa's Doubly Fed wind turbines, adopting Active Crowbar and DAC converter technologies, guarantee compliance with today's most demanding grid code requirements as well as future electrical grid and wind farm configurations, by offering full support for voltage-drop and dynamic active and reactive power regulation.

The DFIM Technology (Doubly Fed Induction Machine) in combination with Gamesa WindNet®, the new SCADA System developed by Gamesa, allows the regulation of active and reactive power via the injection of rotor currents with variable amplitude, frequency and phase.

Specifically, the injection of currents with variable amplitude allows the system to control the reactive power by varying the power factor, whereas the injection of currents with variable phase allows the system to control the active power.

With less than 25% of the generated power passing through the converter, the DFIM Technology guarantees that the harmonics generated are minimized.

Dynamic regulation of reactive power on the wind farm

The on-site power measurement equipment monitors the high-voltage active and reactive power data at the output of the substation transformer and send them to Gamesa WindNet® via the control unit of the substation.

Gamesa WindNet® dynamically calculates and corrects the power factor in accordance with the reference values of the System Operator.

Gamesa WindNet® actuates on both the reactive power regulation capability of the turbine and, where available, other equipment in the substation such as capacitor banks and FACTS systems.

Fulfillment of grid code requirements

REQUIREMENT	GAMESA FULFILLMENT ⁽¹⁾
Voltage ride-through	Low voltage ride-through capabilities covering the most important grid codes.
Reactive regulation ⁽²⁾	Up to Cos phi 0.95 (cap) - 0.95 (ind) in output terminals of the turbine.
Active regulation	±10% ΔP* and capacity to participate in primary regulation.
Operational frequency range	47-53 (50 Hz) 57-63 (60 Hz)
Operational voltage range	±5% in normal operation and ±10% in specific periods.
Remote control	Control via Gamesa WindNet® of the active and reactive power with different set-point options and the possibility of dealing dynamically with the commands for operations of the grid operator.

(1) Valid for new machines.
(2) Options to be defined in every order.

* The increase in power will depend on the existence of wind resources or previous commands from the O.S. to reduce power.



80

87

90

97

114

106

114

G80-2.0 MW

G87-2.0 MW

G90-2.0 MW

G97-2.0 MW

G114-2.0 MW

G106-2.5 MW

G114-2.5 MW

ROTOR

Diameter	80 m	87 m	90 m	97 m	114 m	106 m	114 m
Swept area	5,027 m²	5,945 m²	6,362 m²	7,390 m²	10,207 m²	8,825 m²	10,207 m²
Rotational speed	9.0 - 19.0 rpm	9.0 - 19.0 rpm	9.0 - 19.0 rpm	9.6 - 17.8 rpm	7.8 - 14.8 rpm	7.7 - 14.6 rpm	7.7 - 14.6 rpm

BLADES

Number of blades	3	3	3	3	3	3	3
Length	39 m	42.5 m	44 m	47.5 m	56 m	52 m	56 m
Airfoils	NACA 63.XXX + FFA-W3	DU + FFA-W3	DU + FFA-W3	Gamesa	Gamesa	Gamesa	Gamesa
Material	Pre-impregnated epoxy glass fiber	Pre-impregnated epoxy glass fiber	Pre-impregnated epoxy glass fiber	Pre-impregnated epoxy glass fiber + carbon fiber	Fiberglass reinforced with epoxy or polyester resin	Fiberglass reinforced with epoxy or polyester resin	Fiberglass reinforced with epoxy or polyester resin

TOWER

Type	Modular	Modular	Modular	Modular	Modular	Modular	Modular
Height	60, 67, 78 and 100 m	67, 78, 90 and 100 m	55, 67, 78, 90 and 100 m	78, 90, 100, 104 and 120 m	80, 93, 125 m and site specific	72, 80, 93 m and site specific	80, 93, 125 m and site specific

GEAR BOX

Type	1 planetary stage 2 parallel stages	1 planetary stage 2 parallel stages	1 planetary stage 2 parallel stages	1 planetary stage 2 parallel stages	1 planetary stage 2 parallel stages	2 planetary stages 1 parallel stage	2 planetary stages 1 parallel stage
Ratio	1:100.5 (50 Hz) 1:120.5 (60 Hz)	1:100.5 (50 Hz) 1:120.5 (60 Hz)	1:100.5 (50 Hz) 1:120.5 (60 Hz)	1:106.8 (50 Hz) 1:127.1 (60 Hz)	1:128.5 (50 Hz) 1:102.5 (60 Hz)	1:129.7 (50 Hz) 1:103.8 (60 Hz)	1:129.7 (50 Hz) 1:103.8 (60 Hz)

GENERATOR

Type	Doubly-fed machine	Doubly-fed machine	Doubly-fed machine	Doubly-fed machine	Doubly-fed machine	Doubly-fed machine	Doubly-fed machine
Rated power	2.0 MW	2.0 MW	2.0 MW	2.0 MW	2.0 MW	2.5 MW	2.5 MW
Voltage	690 V AC	690 V AC	690 V AC	690 V AC	690 V AC	690 V AC	690 V AC
Frequency	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz	50 Hz / 60 Hz
Protection class	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54	IP 54
Power factor	0.95 CAP - 0.95 IND throughout the power range*	0.95 CAP - 0.95 IND throughout the power range*	0.95 CAP - 0.95 IND throughout the power range*	0.95 CAP - 0.95 IND throughout the power range*	0.95 CAP - 0.95 IND throughout the power range*	0.95 CAP - 0.95 IND throughout the power range*	0.95 CAP - 0.95 IND throughout the power range*

* Power factor at generator output terminals, on low voltage side before transformer input terminals.





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