



SG 4.5-145
New SGRE turbine with the best-in-class
LCoE >4 MW



First onshore launch of SGRE. Medium-wind design covering a broad range of sites

SG 4.5-145: low technological risk based on Siemens Gamesa's broad know-how of wind turbine technology

Siemens Gamesa,
your trusted
technology
partner

One of the key aspects to Siemens Gamesa's success is the continuous development of new and advanced products adapted to the business case of every customer. We strive to provide the best technological solutions for each project, while driving down the LCoE.

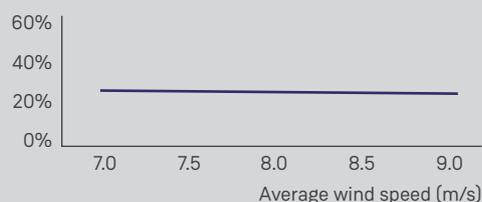
For this reason, we offer an optimized, streamlined catalog of proven solutions

adapted to every type of site and condition, backed by:

- Our reputation as a trusted and stable partner (+87 GW installed worldwide).
- A proven track record spanning over 35 years that makes Siemens Gamesa a benchmark for wind projects.
- The recognition of the wind power sector.

Swept area increase

21%

AEP increase SG 4.5-145 vs. SG 3.4-132 (preliminary)

28%

New SG 4.5-145 wind turbine

The SG 4.5-145 is the first Siemens Gamesa onshore product launch and the first proposal of the Siemens Gamesa 4.X platform. Exemplar of a new generation of turbines, it is based on the operational experience accumulated by the company in the wind power market, and on the application of proven technological solutions. This new model fits into our catalog with a clear objective: to complement the product offer in the markets in which our clients require solutions with nominal powers greater than 4 MW, and with an excellent Cost of Energy. Given these premises and based on a design optimized for medium-wind speeds, its modularity and flexibility enable it to adapt to a wide range of sites.

Proven Siemens Gamesa technology

The knowledge acquired through our latest products, specifically in the optimization of design and industrialization processes, has been a key factor in the development of the SG 4.5-145 turbine. Siemens Gamesa has adopted proven technologies into this model, such as the combination of a three-stage gearbox (two planetary and one parallel) and a doubly-fed induction generator, greatly reducing technological risks. The inclusion of an optional premium converter also allows for compliance with the most demanding grid connection requirements.

It also has a new 71-meter blade made of fiberglass reinforced with epoxy resin, and integrates the aerodynamics and noise reduction know-how. This is how, thanks to the incorporation of DinoTails® Next Generation technology, the SG 4.5-145 turbine guarantees a high production of energy and reduced noise emission levels.

Greater efficiency and profitability

The SG 4.5-145 model includes control technology and strategies, which optimize the efficiency of the wind turbine depending on the site conditions. It offers a flexible power rating from 4.2 MW to 4.8 MW depending on the noise, temperature and electrical requirements of the project. With an increase of 21% of the swept area and 28% of AEP over the SG 3.4-132 wind turbine, this new model will become a reference in the market for its high levels of efficiency and

profitability. The first SG 4.5-145 prototype installation is planned for the first quarter of 2019, and the Type Certificate is expected for the second quarter of 2019.

Technical specifications

General details	
Rated power	4.5 MW
Wind class	IEC IIB
Flexible power rating	4.2-4.8 MW
Control	Pitch and variable speed
Standard operating temperature	Range from -20°C to 35°C ⁽¹⁾
Rotor	
Diameter	145 m
Swept area	16,513 m ²
Power density	254.35 W/m ²
Blades	
Length	71 m
Airfoils	Siemens Gamesa
Material	Fiberglass reinforced with epoxy resin
Tower	
Type	Multiple technologies available
Height	90, 107.5, 127.5, 157.5 m and site-specific
Gearbox	
Type	3 stages
Generator	
Type	Doubly-fed induction machine
Voltage	690 V AC
Frequency	50 Hz/60 Hz
Protection class	IP 54
Power factor	0.9 CAP-0.9 IND throughout the power range ⁽²⁾

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

⁽²⁾ Power factor at generator output terminals, on low voltage side before transformer input terminals.

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10/2018

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