

European Solar and Energy Storage Solutions

Semi-direct drive wind turbine generator



Overview

What is a variable speed direct drive wind turbine?

This type of wind turbine is known as the variable speed direct drive wind turbine and was introduced to eliminate gearbox failure and transmission losses. The rotor is directly connected to the generator, implying that the generator speed is equivalent to the rotor speed.

How does a direct drive wind turbine work?

A direct-drive wind turbine's generator speed is equivalent to the rotor speed, because the rotor is connected directly to the generator. As the rotational generator speed is low, designers placed several magnetic poles in the generator to achieve the appropriate high output frequency.

Will direct drive wind turbines become the dominant technology?

However, other experts indicated that the direct drive technology will eventually become the dominant technology. They come up with three arguments. First, the costs for the offshore support structure for direct drive wind turbines is lower than for gearbox wind turbines due to overall lower weight.

What is direct drive permanent magnet synchronous wind turbine?

With the continuous progress of power electronic technology and computer control technology, large-scale wind turbine can use the technology of direct driven permanent magnet wind turbines. Direct drive permanent magnet synchronous wind turbine is characterized by low speed and high torque requirements , , .

Are direct drive wind turbine generators better than geared generators?

A quantitative comparison of DFIGs, synchronous and PM generators is listed in Table 1. It can be seen that direct drive wind turbine generators are larger in size but shorter in length compared to geared counterparts.

Are direct-drive permanent magnet generators suitable for high-power wind turbines?

Direct-drive permanent magnet generators for high-power wind turbines: Benefits and limiting determinantes. IET Renewable Power Generations, 6 (1), 1-8 Two experts were interviewed and the literature reporting on the wind turbine drive trains was reviewed. A determinant is considered relevant if it is mentioned by an expert or in one of the papers.

Semi-direct drive wind turbine generator

12.8V 100Ah



China Installs World's First 18MW Semi-Direct Drive Offshore Wind Turbine

In a significant leap for renewable energy, the world's largest offshore wind turbine, an 18-megawatt semi-direct drive unit, has been successfully installed at the coastal ...

Permanent Magnet Synchronous Generator design optimization for wind ...

Studies on the influence of Halbach array electrical machine (generator) with air gap winding designed by semi-analytical optimization approach can be found in the literature ...



Analysis of Electromagnetic Performance of Modulated ...

drive mode without gear box and drive mode with gear box. As shown in Fig. 1, the semi-direct drive wind turbine is a mechanical gearbox driven by an impeller, which transmits torque to a ...

Advanced Wind Turbine Drivetrain Trends and ...

Having all of those moving parts makes the

gearbox one of the highest-maintenance parts of a wind turbine. One alternative is to use a "direct drive" generator that can generate electricity at much lower speeds. Direct ...



Integrated semi-direct-drive wind turbine transmission chain ...

A semi-direct-drive wind turbine transmission chain and a gear box used thereby comprise a front box body (6), a rear box body (14), a main shaft (5) and a planet carrier (10), and also ...



Review of direct-drive radial flux wind turbine generator mechanical

2 Generally, direct-drive generators are mostly custom built with the rest of the wind turbine and generator design standards such as the IEC 61400-1 or national derivations ...



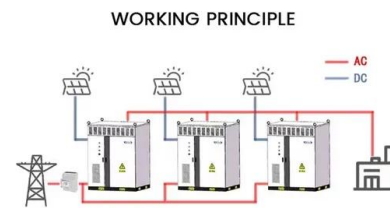
Scheme Design of Gearbox for 15MW Semi-direct-driven ...

generator, coupling and so on [15] . The drive system of wind turbine can be divided into semi-direct drive system, double-fed system and semi-direct drive system according to the drive ...



Wind turbine drivetrains: state-of-the-art technologies and ...

In addition to supporting the turbine rotor, some direct-drive configurations require the main bearing to also support the generator rotor while maintaining an appropriate generator air gap. Coupled ...



Semi-direct drive direct-current wind turbine generator unit, ...

the semi-direct-drive DC wind power generator set includes: a gearbox 100, a generator 200, a machine-side transformer 300, a rectifier 400, a reactive power compensation device 500, ...

Comparison of DDPMSG and DFIG concepts for wind turbines

Through this paper, following the classification of wind turbines in four main topologies based on their generators, different aspects of the two dominant and state of the art concepts of wind ...



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