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2kw Direct Drive Wind Power Generation System Design

Overview

What are the advantages of a direct-drive wind generator?

The generator is fully integrated in the structural design. The advantages of this design are the relative big diameter, and the load path follows contrary to the traditional designs with a main shaft hence reduces mass. Fig. 10(a) shows mechanical structures of direct-drive wind generators which have been proposed by Spooner et al .

What is a new direct-drive generator for wind turbines?

aring new direct-drive generator for wind turbines has been proposed in . The fundamental idea of the machine - the NewGen (see Fig. 4-2-7) is to reduce the stiffness demand by removing the load path fro sta or by putting the bearing.

What is the structure of a direct drive wind generator?

ical structures of direct-drive wind generators 3.1.1. Conventional StructureTraditionally the rotor of generator is connected to a shaft mounted on bearings that enable the rotation in the stator as shown in Fig. 23 The structure of Fig. 24(a) is widely used on the wi d turbine market by Enercon GmbH, whose world market share was abo.

What is a direct-drive modular PM synchronous generator for variable speed wind turbines?

A direct-drive modular PM synchronous generator for variable speed wind turbines has been discussed with attractive features. The stator module of the generator is divided circumferentially into a large number of E cores, each carrying a coil which may be wound on a bobbin and fitted prior to assembly of the generator.

How much power does a direct-drive wind turbine generate?

The total generator mass of 1.5 MW (Zephyros), 4 MW (NewGen) and 4.5 MW

(Enercon) direct-drive wind turbines are also addressed in Fig. 12. The ratios of m/T for the 1.5 MW and 4.5 MW generators, which are 46.4 and 66.5 kg/kNm, are higher than the theoretically optimized 2, 3 and 5 MW concepts.

What is a low speed megawatts wind generator?

Most of the low speed megawatts wind generators are RF machines and these RF machines seem to be the most interesting machine type for the large scale direct-drive wind turbines. When using permanent magnets (PM) for the direct-drive generators, the generators can operate with good and reliable performance over a wide range of speeds.

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