

High-efficiency wind turbine generator

Each of the selected projects received \$500,000 to design a wind turbine generator that can be scaled up to at least 10 megawatts to capitalize on the trend of larger, ...

Advanced power electronic systems contribute to increased conversion efficiency by minimizing losses during the energy conversion process. These systems employ techniques such as ...

The share of wind-based electricity generation is gradually increasing in the world energy market. Wind energy can reduce dependency on fossil fuels, as the result being attributed to a ...

The most likely models to succeed soon as reviewed recently are floating offshore wind turbines, smart rotors that change their pitch to changing wind directions, and ...

Wind turbines, called variable-speed turbines, can be equipped with control features that regulate the power at high wind velocities. These variable-speed turbines can optimize power output ...

The U.S. Department of Energy's (DOE's) Wind Energy Technologies Office has announced the selection of General Electric (GE) Research to receive \$20.3 million in follow ...

HAWTs have been dominating the wind energy industry for a long time due to their high efficiency and larger power output. However, VAWTs have gained attention in recent ...

Where a single turbine has an efficiency of about 50 percent, that number can drop down by up to 40 percent when that same turbine is second in line on a wind farm. To avoid the turbulence of an upwind turbine (of 10 MW ...

Maximum Efficiency of a Wind Turbine. Today's wind turbines can reach maximum values of C_p in the range of 0.45 to 0.50, which is 75-85% of the maximum theoretical value. If wind speeds are high and a turbine is ...

Direct-drive turbines simplify nacelle systems and can increase efficiency and reliability by avoiding gearbox issues. ... Turbine blades fit into the hub that is connected to the turbine's generator. Direct-Drive Rotor ... the use of wind ...

Wind Resource and Potential. Approximately 2% of the solar energy striking the Earth's surface is converted into kinetic energy in wind. 1 Wind turbines convert the wind's kinetic energy to ...

Here are eight of the most exciting of these next-gen wind power innovations. Vertical Axis Wind Turbines. Horizontal axis wind turbines are the most common turbine ...

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Overall, full power converter wind turbine generators have become increasingly popular in modern wind power projects owing to their high efficiency, grid-friendly operation ...

Superconducting (SC) wind turbine generators offer 5 to 10 times the air-gap flux density of a PM generator, and a corresponding increase in specific power and power density. Previous MW ...

The recent recognition of VAWT's has emanated from the development of interest in formulating a comparative study between the two [4], [5], [6].For analyzing the current ...

A wind turbine's hub height is the distance from the ground to the middle of the turbine's rotor. The hub height for utility-scale land-based wind turbines has increased 83% since 1998-1999, to about 103.4 meters (~339 ...

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