What are the patents for wind turbine power generation

What are some patents based on wind energy technology?
They include General Electric patents for turbine control and rings/shrouds, Clipper and MRIGlobal (NREL) patents for variable speed turbines, Northern Power patents for direct drive turbines, and an early DOE patent describing wind-powered cooling towers. This report focuses on wind energy technology.

What is a patent for a wind turbine?
The patent at the head of Table 9 (US #7,004,724) is assigned to General Electric and describes a method for avoiding asynchronous loads in wind turbines. Since being issued in 2006, this patent has been cited as prior art by 86 subsequent patents, almost seven times as many citations as expected given its age and technology.

When did wind energy technology become a patented technology?
Following an initial phase marked by limited patent filings, the patenting activity in ofshore wind energy technologies experienced a notable surge starting in 2006. Subsequently, a period of consistent annual expansion persisted until 2012.

How many generations of wind energy patents are there?
This means that we trace forward through two generationsof citations starting from DOE-funded wind energy patents; and backward through two generations starting from the patents owned by leading wind energy organizations. Hence there are two types of links between DOE-funded patents and subsequent generations of patents:

How many patents are there on wind turbine rotors?
This is one of threehighly-cited WETO-funded General Electric patents at the head of Table 9,with the others describing wind turbine rings and shrouds for load management (US #6,951,443) and a method for detecting ice on wind turbine rotors (US #7,086,834).

Which wind energy companies rely most on earlier DOE-funded patents?
Out of the ten leading wind energy companies,General Electric,Vestas and Siemensare linked particularly strongly to earlier DOE-funded patents,suggesting that they build most extensively on earlier DOE-funded wind energy research.

1. A power generation system comprising. a wind power plant comprising a plurality of wind turbine generators; and a power plant controller comprising a determiner configured to determine, in response to a disturbance in the wind power plant, respective voltage references for each of the plurality of wind turbine generators based on respective locations of ...

A vertical axis wind turbine formed from an arrangement of fixed stator blades to provide fluid flow

acceleration into an arrangement of rotatable blades secured to a generator for invoking electrical power generation. The stator blades are maintained in position by use of a stator plate. Rotor blades are coupled to the generator. The amount of stator and rotor blades may be scaled in ...

New Energy World embraces the whole energy industry as it connects and converges to address the decarbonisation challenge. It covers progress being made across the industry, from the dynamics under way to reduce emissions in oil and gas, through improvements to the efficiency of energy conversion and use, to cutting-edge initiatives in renewable and low ...

In one aspect, embodiments of the invention provide a wind turbine power generation system comprising a rotor shaft coupled to an electrical generator which generates ...

2011-08-02 Publication of BE1018768A4 publication Critical patent/BE1018768A4/en Links. Espacenet; Global Dossier; ... Vehicular wind power generation device DE202008012018U1 (en) * 2008-09-10: 2009-01-08: Biedron, Ralf ... Combined vehicle generator and wind turbine - has turbine assembly positioned in air duct with inlet control vane opened ...

A wind turbine-driven hydrogen production system controlling a power converter system such that the wind turbine stays in its operable range for a longer time and thus the hydrogen production system produces hydrogen for a longer time. The wind turbine-driven hydrogen production system varies an amount of electrical current supplied to an electrolytic hydrogen production system ...

an augmented wind power generation system uses a funneling apparatus, for example a fully or partially shrouded rotor, to increase the velocity of the ambient wind--based on the physics of the "Bernoulli Effect"--across the rotor blades. Because the electrical energy that is generated from a wind turbine is a cubic function of the speed of the wind, an augmented wind generation ...

o In addition, we identified a further 62 wind energy patents (39 U.S. patents, 13 EPO patents and 10 WIPO patents) that are associated with DOE funding. These "Other DOE-

Like the Pulsed Energy Transfer patent from Mr. Arduini, this technology also has applications for tidal and wave-powered turbines, and the invention can be incorporated into the next generation of wind turbines by the turbine manufacturers, or be added to the power-generating configuration by the wind farm owner or local power company.

An apparatus, system, and method are disclosed for power generation. A wind turbine is configured to drive an electrical generator. One or more solar panels are electrically coupled to the electrical generator to provide power from the electrical generator and/or the one or more solar panels. A base is configured for mounting the wind turbine to a structure.

What are the patents for wind turbine power generation

Tapping offshore wind energy to generate electricity is emerging as a clean and renewable source of affordable and reliable electricity. It has been on the top agenda of all wind energy producers and distributors worldwide since 2006. The filling of patent applications in the offshore wind energy field surged between 2006 and 2022. The patenting activity in offshore ...

Instead of the usual tower, nacelle, and blades as used in conventional turbines, the device has a fixed mast to capture wind energy, a power generator, and a shaft. The purpose of this paper is to ameliorate the understanding of this technology by developing a simulation model, considering parameters like wind velocity.

Modular and Quiet Wind Generator Unit The WEP system, as illustrated in FIG. 6, is constructed with an array of air jet tunnels 106, a circuit board and an electric coupler to smooth or regulate output power, a power panel generator receiving quantities of power from the modular power units 110, front and back grids and protection case that will also absorb acoustic waves to further ...

patent applications are filed with the same grant rates, which suggests no reduction in the quality of applications. Main technologies: -- Floating foundations lead in IPFs (49%), followed by transportation, installation and erection (26%). -- Combining offshore wind turbines and electrolysers is an emerging trend: the number of IPFs doubled

[0003] Distributed generation wind energy systems, particularly in the medium wind market in the range of 10-1,000 kilowatts (kW) of power generation, can make a substantial environmental ...

When the turbine of the present invention is used to generate power from wind, the turbine can be mounted on a pole or tower sufficiently high to clear any local obstacles to the natural wind flow. However, when the embodiment of FIG. 4 is used, the tower can typically be shorter than that used by conventional horizontal axis wind turbines because the turbine ...

A wind turbine with a generator includes a rotor with permanent magnets and a stator with stator coils mounted on a stator support structure. The stator support structure includes a base structure on which circular connection structures are mounted with their inner perimeter, whereby a stator base structure is connected to the outer perimeter of the circular connection structures.

The wind turbine recited in Claim 11, wherein the control of turbine speed is regulated by a controller that measures generator power output and modifies field current of the generator to load rotor to regulate rotation speed of the turbine to obtain at least 80% of maximum generator power output under all wind conditions.

A portable wind power generator capable of being stored in a folded manner includes a storage case and a power-generating system. The power-generating system is disposed in the storage case. ... 2006-11-14 Priority to US11/559,682 priority Critical patent/US7339286B1/en ... Natural Power Concepts Inc. Mobile wind

turbine US20100140949A1 (en ...

U.S. Patent No. 9,273,666 for a "Magnus Type Wind Power Generator" was issued to inventor Hamid Reza Kheirandish just last year, and it represents a new design in wind turbines that has revolving blades. The invention covered by the patent relies on what is known as the "Magnus Effect" in which a spinning object "drags" the air faster on one side than the other.

Power Generation from Wind Using Bladeless Turbine Ajay Kumar Kaviti and Amit Kumar Thakur Abstract Among other renewable energy sources, harnessing wind energy is the least expensive method. A fundamentally different approach to capture wind energy by further reducing prices is being used by Bladeless Wind Power production. The

Today, the European Patent Office (EPO) and the International Renewable Energy Agency (IRENA) have published a joint patent insight report on offshore wind energy. The new report, which summarises the results of ...

The final versions of Dutch and English windmills were relatively sophisticated machines, well suited to the tasks of grinding grain and other materials, pumping water and sawing wood. Steam power came to displace wind power in the 18th century, and windmill numbers diminished rapidly during the late 19th and early 20th centuries.

Modular and Quiet Wind Generator Unit: The WEP system, as illustrated in FIG. 6, is constructed with an array of air jet tunnels 106, a circuit board and an electric coupler to smooth or regulate output power, a power panel generator receiving quantities of power from the modular power units 110, front and back grids and protection case that will also absorb acoustic waves to further ...

[Show full abstract] turbine power generation data, segregated by atmospheric stability, in order to investigate power performance dependences at a West Coast North American wind farm. The ...