Title (en)

METHOD AND DEVICE FOR SPEED-VARIABLE POWER ELECTRONIC ADJUSTMENT OF A GEARLESS WIND POWER PLANT

Title (de)

VERFAHREN UND VORRICHTUNG ZUR DREHZAHLSTELLBAREN LEISTUNGSELEKTRONISCHEN REGELUNG EINER GETRIEBELOSEN WINDKRAFTANLAGE

Title (fr)

PROCEDE ET DISPOSITIF POUR REGULER LA VITESSE DE ROTATION D'UNE EOLIENNE SANS MULTIPLICATEUR, AU MOYEN DE DISPOSITIFS ELECTRONIQUES DE PUISSANCE

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Application

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Abstract (en)

[origin: WO03008802A1] The invention relates to a method and device for speed-variable power electronic adjustment of at one or more gearless wind power plants, in particular off-shore wind power plants located near the coast, which are coupled to form a set by means of a capacitive direct voltage intermediate circuit (2), comprising a wind turbine with a generator unit (1) consisting of a synchronous generator (6) and a field regulator (8). According to the method, the torque of the synchronous generator (6) and the subsequent turbine rotation speed are electronically adjusted to the prevailing wind conditions by means of a modular control device (20), in order to achieve a maximized wind power plant power conversion. The electrical generator power PG is determined and compared to a predetermined power range. Depending on the comparison, a selection is made between two control modes, and a reference power PG* corresponding to the maximized power conversion is determined. Said reference power is compared to the electrical generator power PG, and a reference power IE* which is proportional to the power differential is generated and supplied to the field regulator (8). Said field regulator removes the capacitive direct voltage intermediate circuit (2), dependent on the reference power IE*, and controls and supplies the power to the energizing field. A change in the energizing field produces a torque and a change in the speed of the synchronous generator (6), which results in equalisation of both power values.

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