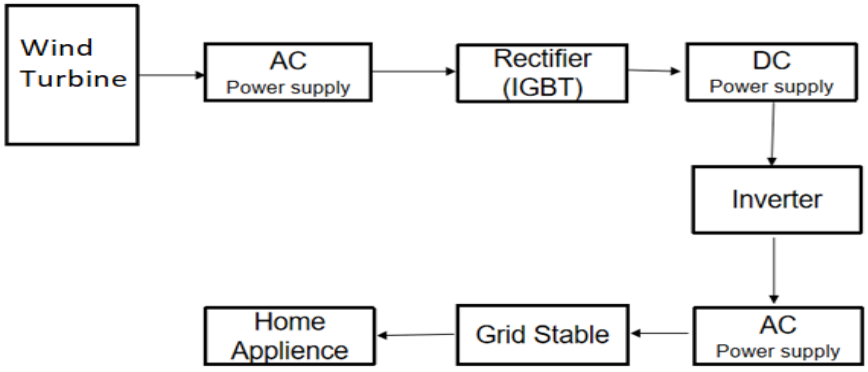
Diary No.: 23202/2022-CO/L

TITLE: Power Converter and Control of Wind Energy Conversion System for Maximum Power Extraction

INTRODUCTION:

We know wind energy is most important renewable energy sources for producing electricity, because of its cost is very low as compared to other conventional kind of energy sources. Wind power greatly increases in the electric power systems and it is anticipated to keep constant growth in the upcoming years. To convert wind energy to electrical energy we put a system to work between Wind Energy and Electrical energy. Wind Energy as an input and Electrical Energy is output. In wind energy conversion system power is converted from pulsating AC to pulsating DC and then DC is converted into AC. In this project we discuss the most important and favourable renewable power source origin, wind energy, from that we can say that the power electronics is convert from being a small energy source to be provisional as an important power source in the energy system and the general power converter chorography from the simple converters for starting up the turbine to advanced power converter chorography, where the whole power is flowing through the converter. Wind Energy conversion system is very prevalent in the era of electrical power. The combination of Wind energy conversion system (WECS) with the is a challenging type in research areas. Several DC-to-DC converter control plan have been applied in assign renewable energy tackling with the energy short and eco problem. We use here duel-loop control, one for voltage in outsider loop and current in inner loop. As the current and voltage presented in looping, we are trying to balancing it. From that we got Active and reactive energy via managing to axis power components, for the given strategy where, active power can be managed via be in control of modulation of the PWM converter and (DC) duty cycle ratio of the boost converter for the second point.

BLOCK DIAGRAM:



Block diagram of proposed system

APPLICATIONS:

1. Electrical energy production: With the help of wind turbines, the kinetic energy can be converted to mechanical energy and converted to the electrical power. And we can use that energy as we want.
2. Pumping water: Wind energy can be used to bring out water from the earth using wind power, which are turbines useful for pumping up to three hundred liters per hour, which can be fulfilled our requirements for farms.
3. Home appliances**:** We can use maximum power for home appliance.

CONCLUSION:

By using maximum power point tracking theorem and PWM techniques the power conversion and extraction of wind turbine is controlled. In rectifier and inverter using the methodology of continuous pulse width modulation (CSPWM) and sinusoidal pulse width modulation (SPWM) maximum power is extracted and stabilized efficiently. Wind energy system extracted maximum power by controlling the wind turbine rotational speed.

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