# CHAPTER – V

# SUMMARY AND CONCLUSION

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Diversity in electricity generation is seen as a major factor in ensuring a secure supply. Recent world events impacting on energy supplies have heightened interest in safe, secure and renewable energy sources. One such source is wind power.

Need of energy is increasing day by day of the fossil fuels the main source of energy is depleting very rapidly. The increasing demand of the energy motivate the worlds scientist to search for renewable energy sources, that can provide energy need in every field. The solar energy, wind energy, ocean energy, geothermal energy, hydrogen energy and energy from biomass and biogas are renewable energy sources being tried to harness energy in different forms.

Wind power can be an excellent complement to a solar power system, when the sun does not shine, the wind is usually blowing. Wind power is especially helpful to keep batteries charged during the time of least sunlight and highest power use.

In view of this, MEDA and MNES has selected the Shivaji University Campus to install small 3 kW aerogenerator to generate electricity. Before installation we have collected the wind data at the campus and also studied the performance of 3 kW aerogenerator. The study is summarized in the following paragraphs.

In the first chapter the different conventional energy resources like fossil fuels, coal, oil, gas etc. are explained. Non conventional energy sources like solar, wind, biomass and biogas, ocean, geothermal energy etc. are explained. In this chapter I discussed, what is meant by energy crises? the national and international status of wind power and purpose of dissertation.

In the second chapter the mechanism and types of wind are discussed. The brief historical background is given. Aerodynamic theory, site selection parameters are explained. Power of wind varies according to the square of the diameter of the area swept by aeroturbine and is directly proportional to the cube of wind velocity is explained. And also different types of wind mills are explained. Environmental aspects of wind energy and applications of wind energy are discussed.

In the third chapter survey of wind data at Shivaji University Campus is given. How the anemometer is used to measure velocity of wind is explained. And data for years 1997, 1998 and 1999 and one day data is analysed. Parts of aerogenerators are explained.

The fourth chapter explains the need of energy storage devices. The schematic diagram of 3 kW aerogenerator with control panel which is installed in Shivaji University Campus, is drawn in this chapter. The electricity produced by using wind energy provided to 'Pathsanstha' and its economical view is explained.

In conclusion the Shivaji University Campus at most places is windy for some of the time. Good windy power sites are windy most of the time. Hence Shivaji University Campus is suitable for the installing wind mill to harness electricity. Hence 3 kW aerogenerator is successfully installed in the campus. The aerogenerator supplies electricity to 'Pathsanstha' free of cost.