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Statistical Assessment of Sustainable Energy for the Lowest Feasible Levelized Cost of Electricity

Publisher: IEEE

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I. Introduction

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II. System Components

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In the past few years, wind energy has been made known to be one of the best cost-effective sources of sustainable energy. Today's wind turbines employ trustworthy technology to provide a reliable and long-term onsite energy resource. The wind movement spins or rotates the turbine blades, harnessing the kinetic energy of the wind and transferring it to rotational motion via a shaft to power a generator. The wind turbine design is the process of determining the shape and specifications of a wind turbine in order to collect information from the environment. Our major goal in this project is to construct a 3-HAWT wind turbine that can be implemented as an energy source of nearly zero energy building, starting with a study of wind data for a recent year in the chosen site and ending with a statistical assessment to acquire the lowest feasible LCOE. The design of both the blades and indeed the shaft will be taken into account. All of our findings and conclusions are based on computed information.

III. Methodology

IV. Results of Wind Turbine Design

» Conclusion

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 **Contents****I. Introduction**

The wind energy system is a mechanism that transforms wind energy into electrical energy. The majority of turbines in use today are rather big, ranging from 500 kW to 10 MW. In order to make better use of space, most new turbines are built in clusters, which are referred to as wind farms [1].

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