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**Editor
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**Swami Keshvanand Institute of Technology,
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ELECTRIC POWER GENERATION USING HYBRID SYSTEM-A REVIEW PAPER

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Abstract

We sought to compare various study work on wind energy systems that have been hybridized with a PV system in this paper. The study examines typical technical difficulties with hybrid wind systems and their solutions while considering various grid connection options (off-grid and grid connected modes). A brief introduction to wind energy is addressed, as well as how wind energy may be harvested and current advancement and growth in the field. Special emphasis is placed on difficulties relating to wind and photovoltaic (Wind-PV) systems. Renewable energy technologies are well suited to off-grid services, allowing remote regions to be served without the need to construct or extend costly and sophisticated grid infrastructure. As a result, independent renewable energy systems have become the favoured alternative. Hybrid renewable energy power generating systems with an emphasis on energy sustainability. It emphasises studies on renewable energy system methodology, unit sizing, optimization, storage, and energy management.

Keywords: Hybrid Renewable Energy System (HRES), PV system and fuel cell, Renewable Energy (RE), Renewable Energy Project (REP).

INTRODUCTION

Electrical power is the most valuable commodity in today's world. Electricity has been highlighted as a critical component in starting and maintaining a development process, from a tiny village to a country. Renewable energy is becoming a more viable option for generating power as a result of increased industrialization. Renewable energy sources, on the other hand, all have disadvantages. These resources do not out-turn useful energy consistently throughout the year because of their reliance on varying sunlight hours and shifting wind speeds. However, these issues can be avoided by combining two or more energy sources. Hybrid renewable energy systems (HRES) can be deployed to generate significant amounts of energy in places where there are frequent power outages or in distant areas that are still without electricity. Solar and wind energy are considered pure, inexhaustible, limitless, and environmentally acceptable sources of energy. Such features have enticed the energy sector to expand the usage of renewable energy sources. Renewable energy systems are generally recognised for their environmental benefits, and if they are shown to be economically advantageous as well, the government and organisations will be encouraged to deploy them in appropriate areas. However, under Prime Minister Narendra Modi, our current administration is putting a strong emphasis on renewable energy sources for power generation.

A. Wind energy devices use the power of the wind to produce electricity, charge batteries, pump water, and grind grain. The movement of air masses produced by differential solar heating of the earth's surface causes wind. The intensity and direction of the wind are influenced by seasonal fluctuations in solar energy. The kinetic energy of the wind is captured in a rotor with two or more blades that are mechanically linked to an electrical generator. To improve energy capture, the turbine is placed on a tall tower. B. India has a densely populated population and high sun

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Renewable energy and sustainable development are the key technologies to offer solutions to the ever-increasing environmental pollutions and depleting conventional fuel reserves. With an aim to discuss the state of art technologies pertaining to the renewable energy domain, RTU (ATU) TEQIP III Sponsored 3rd International Conference on New and Renewable Energy Resources for Sustainable Future (ICONRER-2021) was organized by the Department of Mechanical Engineering, Swami Keshvanand Institute of Technology, Management and Gramothan, Jaipur in collaboration with Rajasthan Technical University and Department of Mechanical Engineering, Assiut University, Assiut (Egypt) from February 11 to 13, 2021. ICONRER is a series of the conference started in 2017 and it was 3rd event of that series.



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