



## A Review on Power Generation System

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### ABSTRACT

Electricity is major requirement for daily life activities. Without electricity the domestic and industrial operation cannot be performed. But there exists several issues during these processes. However lot of research have been

made to solve issues but still there are some problems such as Lack of clean & reliable energy sources, Intraday load & need, no access to electricity, Pollution from thermal power plants, Poor pipeline connectivity & infrastructure, Inadequate last mile connectivity, Average transmission, distribution & consumer-level losses etc. In previous research SOLAR PV –WIND Hybrid power generation system approach has been used. As it is known that Renewable energy sources such as energy generated from solar, biomass, wind, geothermal, hydro power, and ocean resources have been considered as a technological option. It could help in generating clean energy. But there are certain limitations of tradition work such as solar energy is not available 24 hours. Even in winter the solar production is negligible.

**Keywords:** Solar power, Wind Energy, Hydrolic power, Nuclear power

## 1. INTRODUCTION

1.1 Electricity is considered as usually generated at a power station. It is done by electromechanical generators. That has been primarily driven by heat engines fuelled by combustion as well as nuclear fission. Different energy sources include solar photovoltaics & geothermal power. Electricity generation is known as process of generating electric power from sources of primary energy. It has been first stage in delivery of electricity to users for electric utilities in electric power industry. After those stages such as transmission, distribution, energy storage & recovery, using pumped-storage methods take place.

A characteristic of electricity is that it is not a primary energy freely present in nature in remarkable amounts & it must be produced. Production is carried out in power plants. Electricity is most often generated at a power station by electromechanical generators, primarily driven by heat engines fuelled by combustion or nuclear fission but also by other means such as kinetic energy of flowing water & wind. Other energy sources include solar photovoltaics & geothermal power.

1. Heat (thermal) energy generated from: fossil fuels; coal. Petroleum. Natural gas. Solar thermal energy. Geothermal energy. Nuclear energy.
2. Potential energy from falling water in a hydroelectric facility.
3. Wind energy.
4. Solar electric from solar (photovoltaic) cells.

5. Chemical energy from: fuel cells, Batteries.

Table 1.1 World's largest photovoltaic power stations as of 2015

<b>World's largest photovoltaic power stations as of 2015</b>			
<b>Name</b>	<b>Capacity (MW)</b>	<b>Location</b>	<b>Year Completed Info</b>
Longyangxia Dam Solar Park	850	Qinghai, China	2013, 2015
Kamuthi Solar Power Project	648	Kamuthi, India	2015
Solar Star I & II	579	California, USA	2015
Topaz Solar Farm	550	California, USA	2014
Desert Sunlight Solar Farm	550	California, USA	2015
California Valley Solar Ranch	292	California, USA	2013
Agua Caliente Solar Project	290	Arizona, USA	2014
Mount Signal Solar	266	California, USA	2014
Antelope Valley Solar Ranch	266	California, USA	pending
Charanka Solar Park	224	Gujarat, India	2012
Mesquite Solar project	207	Arizona, USA	pending
Golmud Solar Park in Huanghe Hydropower	199	Qinghai & China	2012
Gonghe Industrial Park Phase I	200	Gonghe County, China	2013
Imperial Valley Solar Project	200	California, USA	2013

## 2. LITERATURE

There are several researches made in this field in which some has been given below:

In 2003, Duane C., et al. [1] did Study of Hydroelectric Power. This study has been made From a Global Perspective to a Local Application

In 2005 M. Ravi Kumar Ps et al. [2] proposed Phase Change Material as a Thermal Energy Storage Material for Cooling of Building. This research has been published in Journal of Theoretical & Applied Information Technology, In 2008 **R. Thresher M. Robinson** [3] introduced wind energy technology. They discussed current status of wind energy technology along with research and development in future

In 2009 **European Wind Energy Association** [4] presented the economics of Wind energy.

In 2009 **S. Butterfield, S. Sheng**, et al [5] wrote on Wind Energy's New Role in Supplying World's Energy. They search the Role that could Structural Health Monitoring Play. Wind energy installations are leading other forms of new energy installations within USA & Europe.

In 2010 **Eric H.** et al [6] Investigated the Hydroelectric Generator: Clean, Powerful Alternative Energy. Through this project, two hydroelectric generators were created which operated quietly, effectively, & continually.

In 2011 **Joseph K.**, et al [7] did research on Promoting re latest able power & power efficiency in Central Africa: Cameroon case study. Central Africa owns important re latest able power potential. This important potential is still suffering from poor development.

In 2011 **Parson Brinckerhoff** [8] wrote Electricity Generation Cost Model. This research provide information for following to update of cost assumptions for this Technical inputs for DECC Livieliest Electricity Cost Model to Current state of technology & any expected future changes.

In 2012 **Naveen Kumar Sharma** [9] discussed the solar energy in India: Strategies, policies, perspectives & future potential.

In (2012) **Chiyembekezo S. K., et al.** [10] did research on potential of Small-Scale Hydropower for Electricity Generation in Sub-Saharan Africa. The importance of electricity such as small hydropower is increasing

In 2012 **Dennis Woodford, P** et al [11] presented the power electronics for wind energy application. With attention now focutilized on damaging impact of greenhouse gases, wind energy is rapidly emerging as a low carbon, resource efficient, cost-effective sustainable technology in many parts of world

In 2013 **J. Godson**, et al., ([12]) has made research on Solar Pv-Wind Hybrid Power Generation System.

In 2013 **G.K. Singh** [13] stated the solar power generation by PV (photovoltaic) technology. They provided a review on this topic. Different forms of solar energy are solar photovoltaic, solar heat, and solar thermal electricity. In this research the proposed SOLAR PV –WIND Hybrid power generation system.

In 2013 Xiaobo y., et al. [14] proposed the Hydro Power Integration with direct current Power Plant Technology. The Renewable power technologies & sources have possible to offer solutions to longstanding energy issue being faced by developing countries like as India.

In 2013 Yogesh Murthy [15] provided a Review on Power Electronics Application on Wind Turbines. This paper is reviewing power electronic applications for wind power systems.

In 2014 Subhash Chander Swami, et al. [16] wrote on Power Generation from Waste Sources of Thermal Plant. There is increasing interest related to environmental issues of emissions.

In 2014 Shahrouz A., et al. [17] provided a Review of Re latest able power Supply & power Efficiency Technologies. Electricity consumption could comprise an increasing share of global power demand during next two decades.

In 2016 Belqasem A. [18] proposed the Recent Trends in Hydroelectric Power Technology.

This paper traces an overview of hydroelectric power & history of hydroelectric power

In 2016 Bhushan D. Agarkar et al. [19] presented a Review on Hybrid solar/wind/ hydro power generation system. They studied various re latest able power resources & which could be utilized for development of electricity

In 2016 Deepak K., et al. [20] discussed the environmental sustainability of run of river hydropower projects. They provided a study from western Himalayan region of India. This research paper presents a public perception cum data collection study on environmental impacts of small & huge RoR hydropower projects located in western Himalayan region of India

In 2016 Kasongo Hyacinthe et al. [21] wrote a Review Paper on Solar Photovoltaic Systems.

A comprehensive review of solar photovoltaic systems has been carried out to explore their application in future generation systems

In 2017 Deepak Purohit, et al. [22] provided a Review Paper on Solar Energy System. The plant which converts solar energy to light energy from sun into electrical energy is called a solar power plant process.

### 3. RESEARCH SCOPE

It would increase reliability and consistency of electricity production. According to proposed model there is no need to depend only on wind and sun. Proposed model would be capable to produce electricity in absence of wind and sun. This system would reduce consumption of fossil fuels and production of greenhouse gases. System is good for remote application: satellites, rural hospital equipment in developing counties, telecommunication equipments, etc. It would reduce the loss of electricity due to power line resistance because it can be sited where the electricity is used. System reduces water consumed in electrical generation processes by displacing electrical demand.

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