

# Recent Developments and Future Role of Hydropower, Solar and Wind Energy Resources in India

Aditya Chauhan<sup>1</sup>, Ganesh Panday<sup>2</sup>, Sachin Chauhan<sup>3</sup>, Jagdish Singh Mehta<sup>4</sup>

<sup>1,3,4</sup>Department of Mechanical Engineering, Graphic Era Hill University, Bhimtal Campus, Nainital, Uttarakhand, India

<sup>2</sup>Department of Chemistry, Graphic Era Hill University, Bhimtal Campus, Nainital, Uttarakhand, India

---

## ABSTRACT

Energy is the primary and most universal measure of all kinds of work by human beings and nature. Non-conventional sources of energy is one of the areas of emerging technologies which have higher priority with reference to national needs. The present review article deals with the study of developments in hydropower, solar and wind energy and their role as alternative energy resources. Renewable energy sources currently supply somewhere between 15 to 20 percent of world's total energy demand. New renewable energy sources (solar energy, wind energy, modern bio-energy, geothermal energy, and small hydropower) are currently contributing about two percent. The most important application for new alternative energy resources, such as wind, solar, hydro electric power, is in the area of electric power generation. Wind power can be generated from the energy potential of on-shore wind flow on a cost-competitive basis, but only at a low-load factor of about 20%. Solar thermal energy, on the other hand, is an economically feasible option mainly for water heating. Hydro power is developed by allowing water to fall under the force of gravity. Infact the generation of Hydro power on a large scale became possible around the beginning of the twenieth century only with the development of electric power transmission.

**Key words:** Renewable energy resources, Hydro, Wind, Solar, Electric power

\*\*\*\*\*