

## A STUDY OF USE OF SOLAR ENERGY IN SOCIETY BASED ON STATISTICAL METHODS

Prakash S. Chougule<sup>1</sup>, Tejaswi S.Kurane<sup>2</sup>, Shaeen R. Mujawar<sup>3</sup>  
Namrata N. Savant<sup>4</sup>

*Associate Professor<sup>1</sup>, Assistant Professor<sup>2,3</sup>, Research Student<sup>4</sup>  
Department of Statistics ,Rajarshi Chhatrapati Shahu College, Kolhapur(MS) ,India*

### ABSTRACT

*Solar energy has experienced phenomenal growth in recent years due to both technological improvements resulting in cost reductions and government policies supportive of renewable energy development and utilization so it is inexhaustible freely available and clean source of energy generation. In this paper we study the data collected through questionnaires contains several attributes and the collected data are analyzed by applying various statistical tools and techniques our study shows that the power (in Watt) of solar panels in rural area is not identical to urban area and maximum number of user take benefit of subsidy for use of solar energy.*

**KEYWORDS:** *Solar Energy, Renewable Energy , Graphical Representation, Testing of Hypothesis, Level of significance*

### INTRODUCTION

We all know that our natural resources such as petroleum, coal, and others are going to end someday. Hence, saving our natural resources is the biggest concern we all are going through. One of them is saving electricity and using alternatives like Solar Energy that are long-lasting as well as cheaper in comparison. Solar energy is the best alternative one can use to generate electricity in our daily lives. It is radiant light and heat from the Sun that is harnessed using a range of ever evolving technologies such as solar heating, photovoltaic, solar thermal energy, solar architecture, molten salt power plants and artificial photosynthesis It is an important source of renewable energy and its technologies are broadly characterized as either passive solar or active solar depending on how they capture and distribute solar energy or convert it into solar power.[1] Active solar techniques include the use of photovoltaic systems, concentrated solar power and solar water heating to harness the energy[2]. Passive solar techniques include orienting a building to the Sun, selecting materials with favorable thermal mass or light-dispersing properties, and designing spaces that naturally circulate air. The large magnitude of solar energy available makes it a highly appealing source of electricity[3]. The United Nations Development Programme in its 2000 World Energy Assessment found that the annual potential of solar energy was 1,575–49,837 exa joules (EJ). This is several times larger than the total world energy consumption, which was 559.8 EJ in 2012. In 2011, the International Energy Agency said that "the development of affordable, inexhaustible and clean solar energy technologies will have huge longer-term benefits[4]. It will increase countries' energy security through reliance on an indigenous, inexhaustible and mostly import-independent resource, enhance sustainability, reduce pollution, lower the costs of mitigating global warming, and keep fossil fuel prices lower than otherwise. These advantages are global. Hence the additional costs of the incentives for early deployment should be considered learning investments; they must be wisely spent and need to be widely shared"[5].

### Solar Heating

Being an excellent tool for heating, solar thermal collectors allow people to harness PV for heat and energy. Rather than converting solar light into electricity, these solar installations use the heat generated by the sun to increase the temperature of water or fluid flowing through pipes in the collector. One can easily use hot water for swimming pools, showers, laundry, and other applications later. In case of prolonged cold temperatures or cloudy weather, the heating system has a traditional gas or electric utility connection that heats the water.