

**GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES**  
**COMPARATIVE SYSTEM ANALYSIS OF RENEWABLE AND NUCLEAR ENERGY**  
**TAKING INTO ACCOUNT ETHIOPIAN REGIONAL FEATURES**

**Ashabir Tesfaye<sup>1</sup>, Avula Madhu<sup>2</sup> & Ajeet Kumar<sup>3</sup>**

Lecturer<sup>1,2</sup>, Assosa University, Ethiopia

Assistant Professor<sup>3</sup>, Guru Nanak Institute of Technical Campus, Hyderabad, India

---

**ABSTRACT**

Among installed capacity of renewable energy technologies in Ethiopia, hydropower takes the largest part. Looking to other renewable technologies that enable a low carbon energy system has a great role to meet the plan of energy needs in the country. This paper presents renewable energy resources potential of country, and review of technologies used for them and their usage in energy grid. Prospects for the use of Russian-made nuclear reactors have been assessed for construction of nuclear plant in the region. The paper also presents review results of energy costs of renewable technologies and combined gas turbine with financial cost parameters for assessing energy technologies: overnight capital cost, operating costs and levelized cost of electricity (LCOE). The findings suggest that wind energy has the lowest energy costs.

**Keywords:** *Energy costs, levelized Cost of Electricity, Renewable Technologies,*

---