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Renewable Energy

Sanskriti Sadana[1] and Shambhavi Verma[2]
Student, Department of Computer Science[1,2,3]
Dronacharya College of Engineering, Gurgaon, India

Abstract: *This research paper conducts a thorough exploration of renewable energy, covering its technological advancements, environmental impacts, economic considerations, policy frameworks, integration challenges, social dimensions, and future prospects. It begins by introducing key renewable energy sources including solar, wind, hydroelectric, geothermal, and biomass, and examines recent technological developments that have increased their efficiency and reliability. The paper critically evaluates the environmental benefits of renewable energy, focusing on its role in reducing greenhouse gas emissions, addressing air and water pollution, conserving land and biodiversity, and fostering sustainable development. A significant portion of the paper is dedicated to an economic analysis of renewable energy, discussing installation costs, operational expenses, government incentives, subsidies, and market dynamics compared to traditional energy sources. The paper concludes with an examination of future trends, emerging technologies, and market projections in the renewable energy sector. It emphasizes the pivotal role of renewable energy in achieving sustainability goals and mitigating the impacts of climate change, highlighting its potential as a key driver of a more sustainable and resilient energy future.*

Keywords: solar energy, Wind Energy, Biomass Energy, Geothermal Energy, Hydroelectricity

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