

## Optimal Planning and Design of Hybrid Energy System for Taxila University

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**Abstract :** Renewable energy resources are being realized as suitable options in hybrid energy planning for on-grid and micro grid. In this paper, operation, planning and optimal design of on-grid distributed energy resources based hybrid system are investigated. The aim is to minimize the cost of the overall energy system keeping in view the environmental emission and minimum penetration of conventional energy resources. Seven grid connected different case studies including diesel only, diesel-renewable based, and renewable based only are designed to perform economic analysis, operational planning and emission. Sensitivity analysis is implemented to investigate the impact of different parameters on the performance of energy resources.

**Keywords :** data management, renewable energy, distributed energy, smart grid, micro-grid, modeling, energy planning, design optimization

**Conference Title :** ICEETA 2017 : International Conference on Electrical Engineering: Theory and Application

**Conference Location :** Rome, Italy

**Conference Dates :** May 04-05, 2017