

Design of Independent Residence System by Applying New and Renewable Technology

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The performance of an independent residence system by applying new and renewable energy technology has been studied in nowadays. This paper presents the basic analysis of design with new and renewable electrical system. If solar energy source(renewable source) is lower than the requirement, the secondary source (hydrogen) should be used in order to meet the loads, else hydrogen should be recharged by electrolyzer. PV solar panel array, fuel cell, DC/AC inverter, electrolyzer, compressor and hydrogen storage tank were mainly considered in this paper.

The size of PV array and electrolyzer were used as main variables and also, amount of hydrogen changed, excess electricity and the overall system efficiency were discussed to select the optimized unit size. The results show the simulation value and it could explain how to figure out optimization.