

Hybrid System Configurations and Charging Strategies for Isolated Electric Tuk-Tuk Charging Station in South Africa

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Abstract : The success of renewable powered electric vehicle charging station in isolated areas depends highly on the availability and sustainability of renewable resources all year round at a selected location. The main focus of this paper is to discuss the possible charging strategies that could be implemented to find the best possible configuration of an electric Tuk-Tuk charging station at a given location within South Africa. The charging station is designed, modeled and simulated to evaluate its performances. The techno-economic analysis of different feasible supply configurations of the charging station using renewable energies is simulated using HOMER software and the results compared in order to select the best possible charging strategies in terms of cost of energy consumed.

Keywords : electric tuk-tuk, renewable energy, energy Storage, hybrid systems, HOMER

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