A HYBRID (SOLAR - GRID) CHARGING STATION FOR PERI-URBAN TRANSPORTATION BASED ON ELECTRIC VEHICLES

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ABSTRACT

The aim of this work is to propose a methodology for the design of a solar-grid hybrid charging station for electric vehicles. This project seeks to encourage the use of public transport based on electric vehicles, reducing pollutants and operating costs. In order to do this, first the incident solar radiation was estimated at the location. Then, electricity demand was also analyzed using data from radio taxi companies, establishing battery charging curves for peri-urban public transport vehicles. Subsequently, the circuits were designed, conductors and protections were selected, and grounding and lightning protections were calculated according to Bolivian regulations. Finally, the techno-economic analysis was carried out, concluding the viability of the project.

Keywords: Hybrid Charging Station, Electric Vehicle, Photovoltaic Solar Energy, Distributed Generation.

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