

HYBRID SOLAR-WIND POWERED STREET LIGHTS

A Project Study Report

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BACHELOR OF SCIENCE IN ELECTRONICS ENGINEERING

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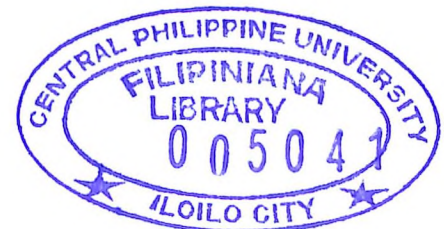
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ABSTRACT

This research aimed to plan, construct, and test a Hybrid Solar- Wind Powered Street Light, a prototype system, for Dumangas- Barotac Road. Since Dumangas- Barotac Road holds multiple records vehicular accidents at night time, it is identified with the strongest wind speed of 28 km/hr., classifying it as Zone 2 in the Wind Load Map. Additionally, Photovoltaic (PV) cells and wind generator guarantee a reputation of free, ecological and inbounded electricity source. This Hybrid Solar- Wind Powered Street Light was advanced to let students gain an understanding of how to utilize solar and wind energy and its operation. The project is composed of a photovoltaic module, wind turbine, street lamp, battery, inverter, light switch and a charge controller. Solar energy and wind are used as sources for input power. The wind power is absorbed by the wind wheel which rotates the wind generator that produces electrical energy. Current that passes along the rectifier's controller goes through voltage stabilizing effect that transfigure alternating current to direct current. Electric energy is then stocked in the battery after charging. For the solar energy, it is converted to direct current through photovoltaic effect. The stocked electric power is stored for standby or will be consumed by the load.

Testing (be more specific here, like testing of the solar panel, electric power, etc.) was done from 8:00 AM up to 6:00 PM. The solar PV output was recorded every hour as well as the wind generator system for five days. After testing, the group concluded that the solar PV and wind turbine generator has produced enough power to power up the system.