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Installation and Techno Economic Analysis of 12.5kw Solar Photovoltaic Project

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ABSTRACT

This project presents the installation and techno-economic analysis of a 12.5kW solar photovoltaic project. The design involves evaluation of the entire building total electricity demand/consumption and as well obtaining the required solar radiation this information was used to analyse the various component of the photovoltaic system, On the other hand several calculations were recorded to determine an approximate number of solar panels, inverters that comprise of the solar section of the photovoltaic system. Also, the simple payback period (SPP) and net present value (NPV) were calculated and used to assess the viability of this project. (SPP) simple payback period is 3.8 years, the (NPV) net present value calculated as 8414 JD and the SIR savings-investment ratio was calculated as 1.96. When 1W (PV) equals 2080Wh/year where the total consumption of the building is 25500kWh. Therefore 12.26kW of energy was needed to cover 25500kWh of electricity consumption. Thus, this project is seen to be more economical, environmentally friendly, conducive, and viable considering the abundance of sun radiation and cost effectiveness.

Keywords: Jordan, NPV, Photovoltaic, Sun radiation, SPP, SIR.