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Techno economic feasibility analysis of stand-alone PV system for household at urban area of Surabaya, Indonesia

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ABSTRACT

Solar photovoltaic (PV) for electricity generation has been attractive worldwide, however, for a grid electrified households, it has not been common in Indonesia. The main considered reason for this is the unclear techno-economics aspects of PV system, under Indonesian conditions. This paper discusses a study on the solar electricity for a typical household in the urban area of Surabaya, Indonesia. The analysis is focused on a stand alone type configuration of PV system under condition of urban area of Surabaya, East Java, Indonesia. The design work utilizes the software programmes PVSYST and pvPlanner, while MS Excel 2003 for the energy and economic analyses. The economic viability of the system is assessed with LCC (the life cycle cost) analysis. A realistic economic analysis for a typical single-family house available in suburban area of Surabaya is presented. The analysis shows that, under present conditions, the solar PV system for household electrification is not economically viable in the urban areas. Even with a better financial support, solar PV system for household still less promising

Keywords: PV system, urban area, Surabaya, stand-alone, household electricity.