

عنوان مقاله:

An experimental investigation of a solar photovoltaic system: economic, environmental, and performance assessment

محل انتشار:

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خلاصه مقاله:

This paper presents an experimental study of a ۱۰ kW grid-connected photovoltaic (PV) system installed on the roof of a government building located in Ilam, Iran. The purpose of this study is threefold: firstly, to assess the quality of the electrical power generated by the system; secondly, to analyze the CO₂ mitigation potential of the system; and thirdly, to investigate the economic viability of the system. The economic analysis of the system is performed considering three different scenarios. In the first and the second scenarios, it is assumed that the PV system is installed for complete self-consumption, while in the third scenario, it is supposed that the PV power plant is built to sell its generated electricity. Besides, the first and the second scenarios are based on the average retail electricity price of ۵.۷۹ cents of US dollars per kWh and ۸.۲۲ cents of US dollars per kWh, respectively, while the third scenario assumed that the government purchases the electricity generated by the power plant at a fixed rate of ۲۱.۳۳ cents of US dollar per kWh. Each scenario is assessed in two modes, with and without including greenhouse gas (GHG) emissions reductions credit.

کلمات کلیدی:

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