Contribution ID: **435** Type: **Poster Presentation**

Outdoor perfomance parameters, temperature effect and irradiance measurements in Photovoltaic home system

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Abstract content
   (Max 300 words)

Photovoltaic Home Systems (PHS) have the potential to become a major role player in reducing the fossil fuel dependence of the residential sector in South Africa. It is however imperative to understand the dynamics between the different components of the system and moreover to correctly design and size the system. This study evaluates a PHS suitable for low-income housing in South Africa. Current and voltage parameters from the photovoltaic modules, to and from the battery and to the load were carefully monitored. The system is regulated by a pulse-width modulation (PWM) regulator and the energy produced and "wasted" by the system is quantified. This paper reports on the current and voltage characteristics of the PHS under varying outdoor conditions. It also discusses the effect of irradiance, temperature and wind speed on the overall performance of the PHS. Preliminary results indicate that a correctly sized system can successfully produce the current Free Basic Electricity (FBE) of 50 kWh/month supplied by local municipalities to low-income households.

Keywords: PHS, regulator, module, load, temperature, energy output and irradiance

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yes

Level for award
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MSc

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Prof Edson Meyer

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Yes

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