Development of a methodology to assess the lifespan of Pico PV systems

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Abstract

In the Rural electrification domain, Pico PV systems are playing a key role in increasing electricity access. Most of the energy access programs funded by Donors and managed by Development organizations are implemented using Pico PV to provide affordable & clean energy to users at the base of the pyramid. However, there is a big information gap on the lifespan of these systems, currently assumed equal to the warranty years of the product sold by supplier, that is 2 years. However, the real lifespan of these devices can be longer or shorter than the warranty period. To investigate this issue in a comprehensive manner, and estimate the real lifespan of the Pico PV devices, the project is developing a methodology and testing it in Kenya, which off late has witnessed a rapid growth in off-grid electrification by implementing Pico PV solutions.

The intended outcomes are:

a) Estimation of lifespan including deviation calculations from assumed lifespan (2 years warranty) of Pico PV systems sold in Kenya.
b) Analyzing the concept of lifespan from user point of view and when does the lifespan of a Pico PV device ends.
c) Identification of the factors that contribute to lifespan of Pico PV devices (e.g. social such as user behavior, total usage time, etc.) but also technical (in case of failure, which parts break down first).

Currently, the field studies are undergoing in Kenya and the project will finish by November 2017.

Keywords: Pico PV; Lifespan; Methodology; Warranty; User

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