Overview

The Independent Development Trust (IDT) was approached by concerned community members on the plight of a grandmother, Ms Letta Mahlangu who looks after 18 grandchildren without much support. The family resides in Mange Village near Mkhuze, in the Jozini Local Municipality of Kwazulu Natal.

The family lives in four small structures made of mud and stones with one of them used as a kitchen. In response to this call, the IDT circulated a memorandum making the broader development community aware of the situation. Government departments, individuals and business were approached for assistance. A house has since been built by Muvoni Green Solution Group for the grandmother and her grandchildren.

Xahumba Engineering Consulting CC (XEC) was approached by the IDT to assess the house and the village in general with the view of proposing alternative solar energy solutions for the household.

An assessment was carried out by XEC engineers during September 2012 to determine the power requirements for the household as well as the village in general. The assessment was done in a form of a voluntary contribution to the Myeni household and to the Department of Rural Development in general. XEC then also undertook to assist mobilise further donations within the renewable energy industry. XEC drafted specifications for a sustainable solar energy solution and managed to secure a donation for a 2.5kW system from their associates.

The installed system

• SOLAR PANELS

The system is made up of two arrays of Photo Voltai c (PV) panels; each array consists of 8 panels hence making it a total of 16 panels.

• HOUSING

The inverter, batteries, charge controllers, and other accessories are housed inside steel box standing on the ground. The box has small fans on the sides for ventilation. The box is standing on a plinth below the solar panel structure and there is trucking that runs from the box to the panels.

• CONTROLLERS

There is one Outback controller, type FX60 that regulate the current by charging and discharging the battery bank.

• BATTERY BANK

The battery bank consists of 12 batteries giving an output of 1000AH and 24 Volts. The battery bank feeds into the inverter which converts the 24V DC from the batteries to 230V AC.

• INVERTER

A power inverter converts the 24V DC input from the regulators to 230V AC. The inverter is then connected to main existing distribution board inside house. The inverter is configured such that no operator will need to interact or operate it.
• DISTRIBUTION BOARD

The main distribution board (DB) connected to the AC side of the inverter has one incomer and outgoing breakers that feed the lights and plugs.

Xahumba Engineering and their associates Ukukhanya group have supplied the solar equipment and the installed solar system does provide sufficient energy to run all the lights, TV, Radio, Fridge and a kettle. The system will have 3 days autonomy during rainy or overcast conditions. The launch and official handover of the house and power system happened on 22nd of February 2013 in Velakukhanya Primary School Sports Grounds, Mange Village, Mkuze. The launch was attended by the first lady Ma-Ntuli Zuma, MEC Mike Mabuyakhulu, Speaker Ms Peggy Nkonyeni, Members of Parliament, IDT CEO, Mayors and councillors.