LUTW Basic Home Lighting System – Model I

The basic solar-powered LED (light emitting diode) home lighting system offered by Light Up The World consists of:

- two LED lamps
- 5-watt solar panel
- 12V/7Ah sealed lead acid battery
- charge controller

Each LED lamp contains a single diode - the highest quality currently available. Both lights are equipped with a dimmer switch, which allows them to operate in either high brightness or low brightness mode. On high brightness mode, the LED lamps have a light output of approximately 75 lumens of light at the lens. On low brightness mode, the LED lamps have a light output of approximately 20 lumens of light at the lens. The LED lamps draw an average of 1.8 watts of power on high brightness mode and 0.6 watts when used in the low brightness mode. These diodes have lumen maintenance of 70% over 50,000hrs, which means the lights will still emit 70% of their initial output after 50,000 hours of use.* As each system comes with two lamps, one of these is equipped with three meters of cable, while the other is equipped with five meters, such that they might be placed in separate rooms if desired.

* This of course is also dependent on components of the lamp other than the LED light, some of which may be incapable of maximal operation for the entire 50,000 hours of use.

The 5-watt solar panels are extremely durable and rated for approximately 80% of initial output after 20 years. Each solar panel comes with three meters of cable such that they can be mounted in the most effective locations possible. At the ends of these cables are connectors which plug directly into the charge controller, which is responsible for regulating the system and cutting it off once the

battery voltage drops to 12 volts. After shutting down, the charge controller permits the lights to operate again after the panel has brought the voltage of the battery back up to 12.4 volts. This action of the charge controller simply prolongs the lifespan of the battery, and ensures that the system is functioning at its maximum capacity.

The only part of the system that will require regular replacement is the battery. Based on the system's design, the battery may last, on average, for two years if it fully discharged everyday. 12V/7Ah sealed lead acid batteries are available in many countries.

When the system is fully charged, it can provide up to 9 lamp hours per day on full brightness (4.5 hours per lamp) or up to 28 lamp hours of light using the dim function (these estimates are based on 4.8 peak sun hours (PSH). Please contact a LUTW representative for PSH estimations for your location). The ability of the system to fully recharge also depends on the air temperature and humidity where the system is installed.

An Installation Manual and Project Implementation Manual will be sent electronically along with the system.

Groups purchasing systems for non-profit objectives may apply to LUTW for a price subsidy. For more information about subsidies, please contact Michael Fark by email at m.fark@lutw.org or by telephone at (403) 266-5004.