



Renewable Energy Technologies – CUTS
International

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ONergizing Rural India

Sustainable and Equitable



Reliable and affordable energy solutions

Our Journey

Advocacy

Outreach to
over 60,000
youth



2008

Policy Action

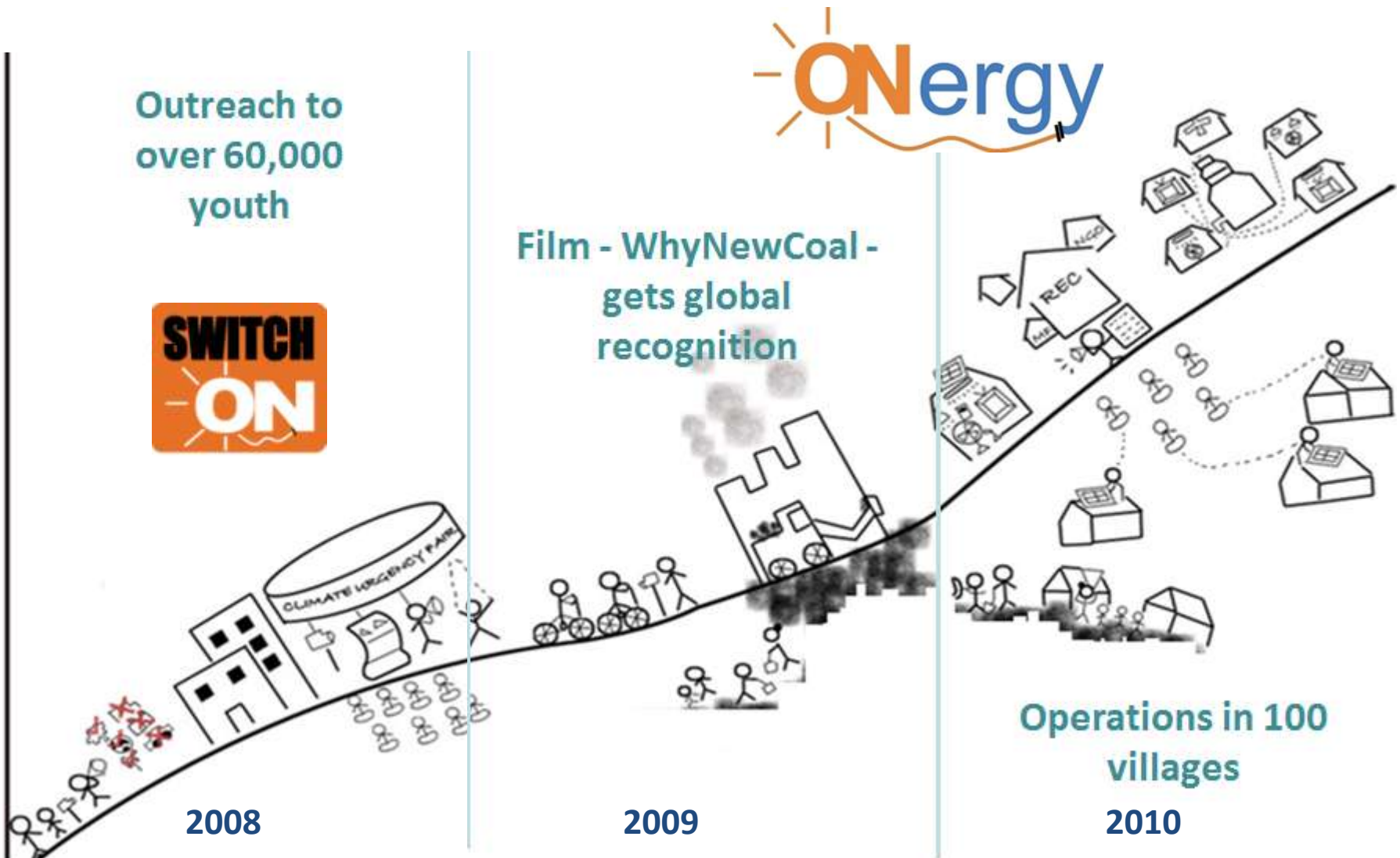
Film - WhyNewCoal -
gets global
recognition

2009

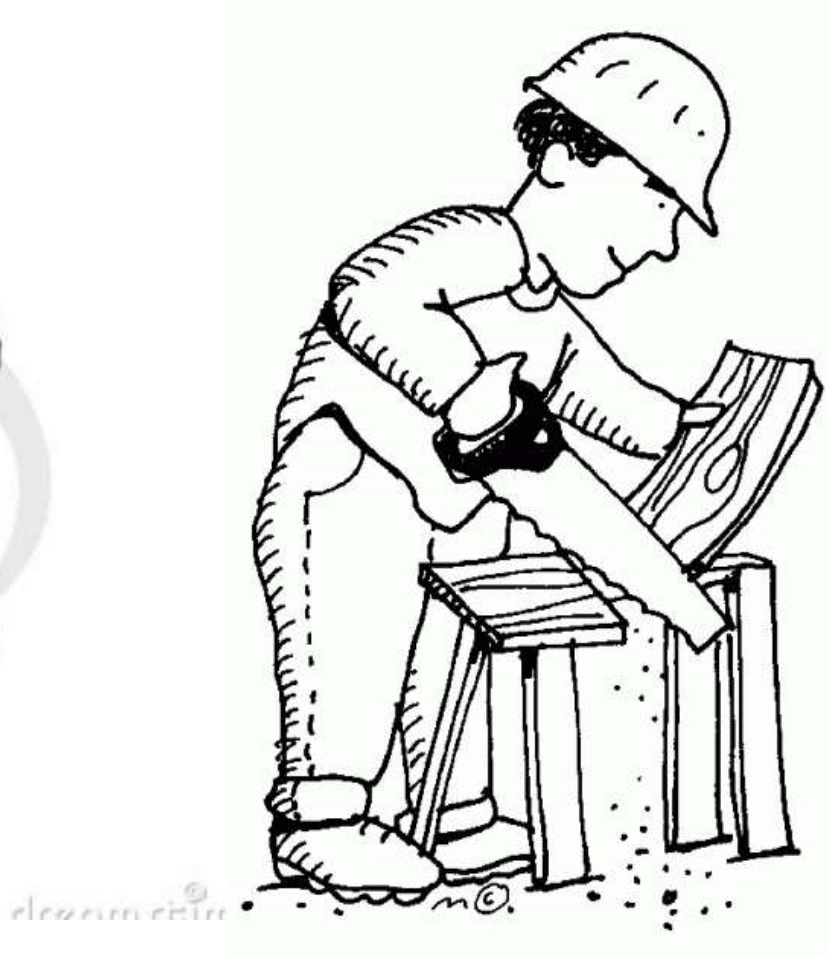
Energy Solutions

Operations in 100
villages

2010



Energy



Energy: Capacity to Do Work

Energy



Our Basic Needs



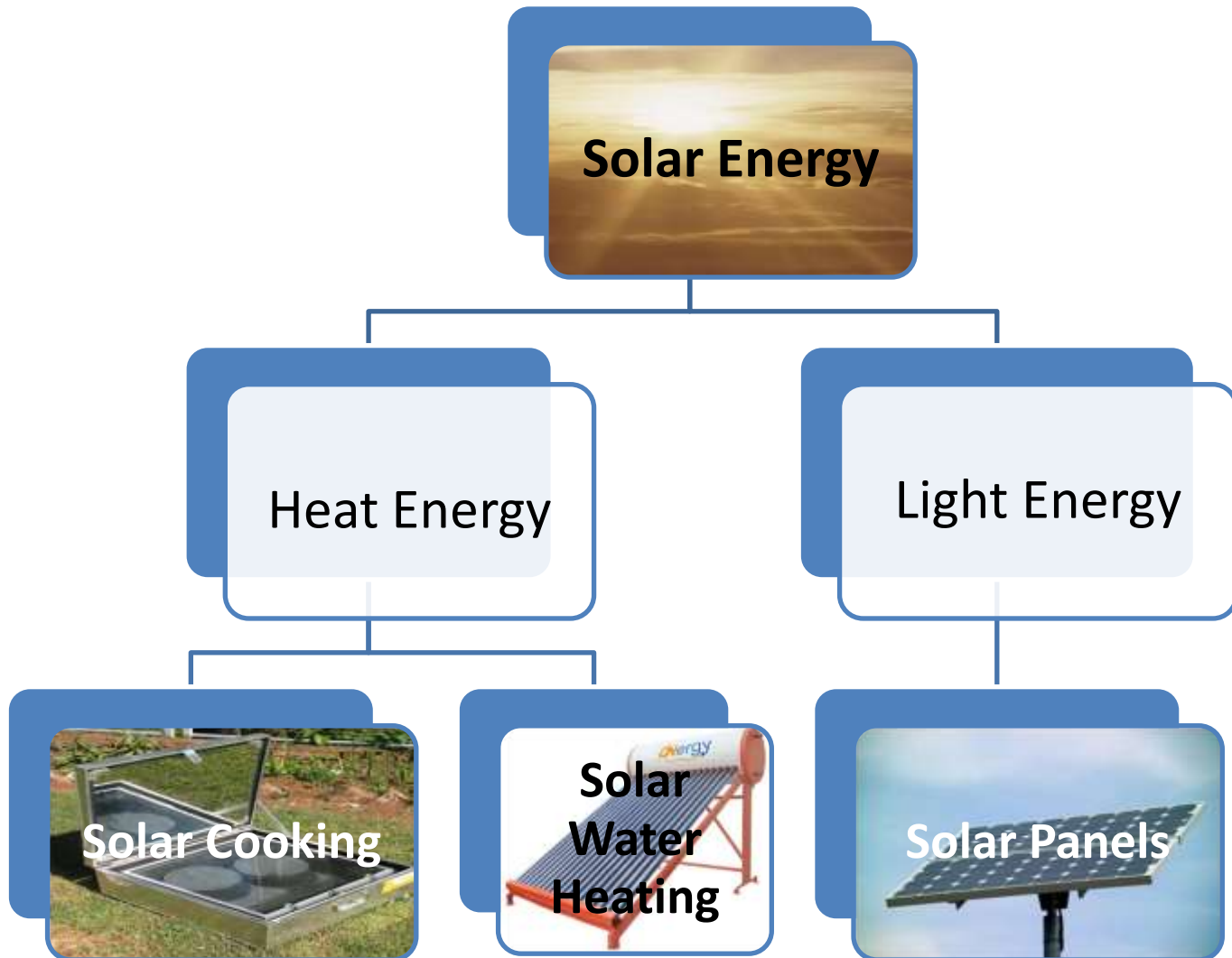
Available Energy Sources



Renewable Energy Sources



Solar Energy



Solar Off-grid systems



Solar Home Lighting



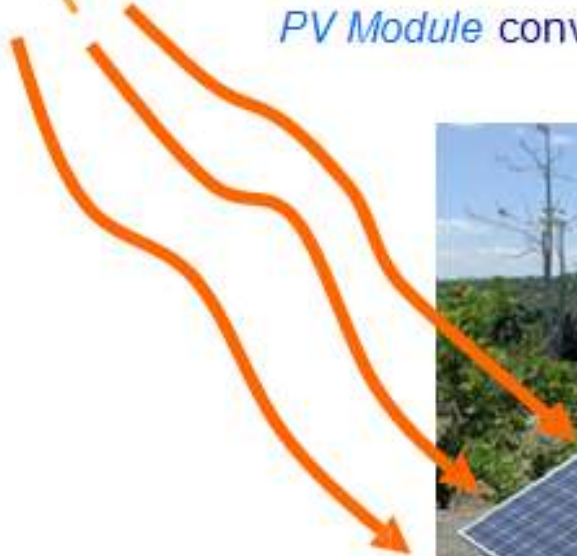
Solar Home Electrification

How it works?

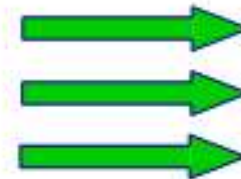
UNIVERSITY OF CALICUT

Electricity from Solar Energy

PV Module converts Solar energy into Electricity(DC)



- ★ Less Solar Energy
Less Electricity
- ★ More Solar Energy
More Electricity



Power generation
changes daily

Solar Energy
Input



PV Module
Conversion



Electricity
Output



Analysis of Solar Systems

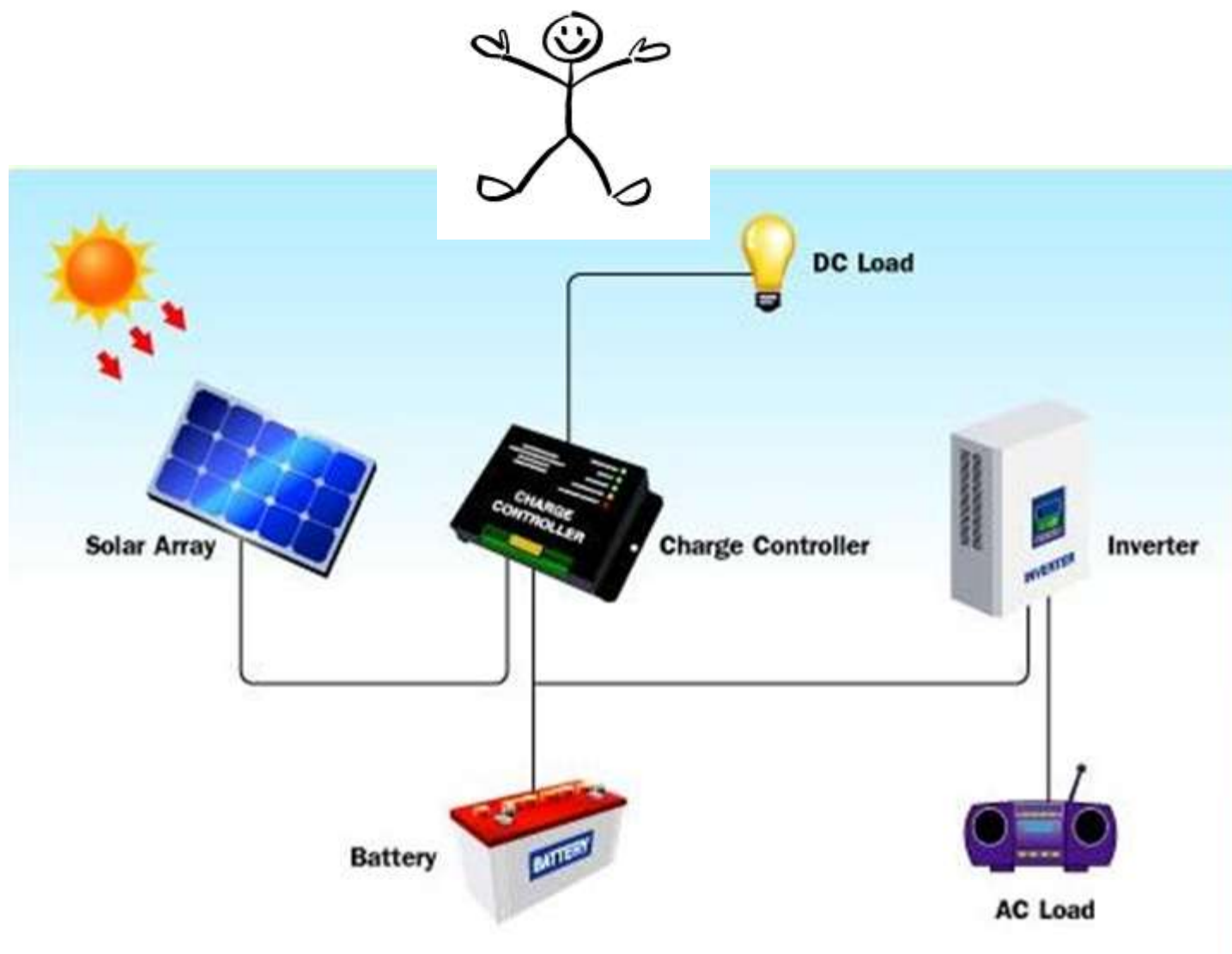
Advantages of Solar System

1. Easy and safe to operate and use
2. No monthly bill is applicable
3. Useful life span is more than 20 years.
4. There is no extra recurring fuel cost
5. Low maintenance required
6. Not easily damaged
7. Can be installed anywhere
8. No noise during operation
9. Light is cleaner, brighter & safer to use
10. User is the owner of the system
11. Easily upgraded

Disadvantages of Solar System

- High Initial Cost
- Battery life is limited, needs regular maintenance & careful use
- User needs training for maintenance and operations
- The energy produced depends on the number of solar panels
- Only small D.C appliances be powered
- Limited use of appliances in bad weather

Layout



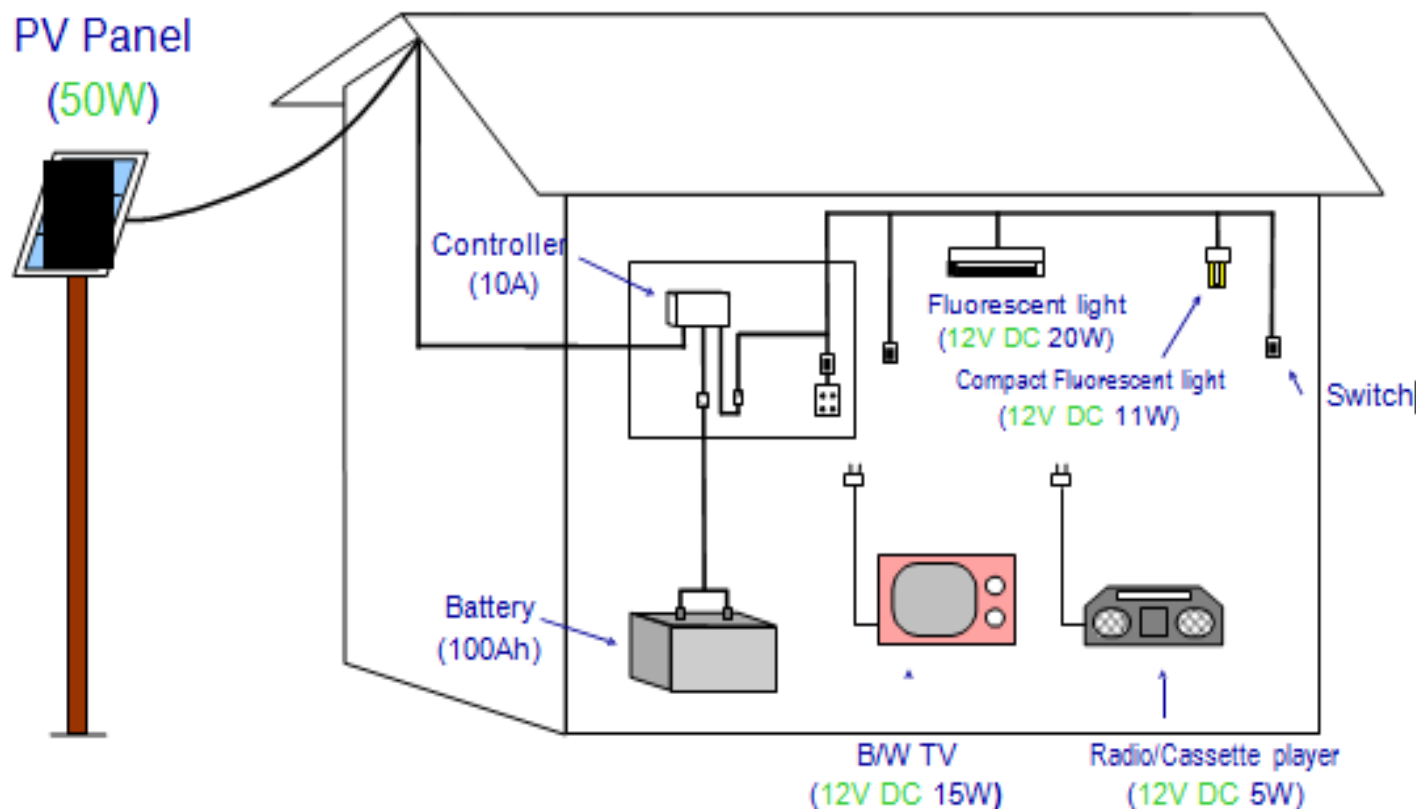
Layout

Layout of Solar Home System






SHS (Solar Home System)

- * SHS is Small, independent DC system
- * Most efficient and economical system
- * DC Fluorescent Lights are not easily available in local market



Components

Batteries

Lithium Ion Batteries	Sealed Maintenance Free Batteries	Lead Acid Batteries
 <p>www.greatpower.net</p>		
Used in Solar Lanterns	Used in Solar Lighting Systems	Used in Solar Home Electrification Systems
Capacity: 0.9 Ah - 5 Ah	Capacity: 2.8 Ah – 7.2 Ah	Capacity: 20 Ah – 150 Ah
Nominal Voltage: 3.6 Volt	Nominal Voltage: 6V-12V	Nominal Voltage: 12V – 24V
Life: 2-3 years	Life: 1.5-2.5 years	Life: 5-6 years

Components

Charge Controller



- Two indicators:
 - a. Charging
 - b. Low Battery
- Fuse provided
- Controller based on current flow.

Components

Lighting

Features			
	Light Emitting Diodes (LEDs)	Incandescent Light Bulbs	Compact Fluorecents (CFLs)
Life Span	More than 5000 hours	100-1000 hours	5000 hours
Watts of electricity used	6 - 8 watts	60 watts	13-15 watts
Durability	Very Durable - LEDs can handle rough use	Glass or filament can break easily	Glass can break easily
Heat Released	Very Less	High	Medium

Components

Other loads



- Appliances with lowest power consumption are given preference
- Appliances that run directly on 12 or 24 Volts DC



Inverters



- Used to Convert DC Power to AC Power
- Any appliance can be used with a solar home system
- Choose Appliances that consume less power

ONergy Product Offerings

**Home Electrification
Systems**



**Solar Portable
Light**



**Solar Home
Lighting**



**Solar Inverter
Solution**



Solar Street Light



**Solar Water
Heaters**

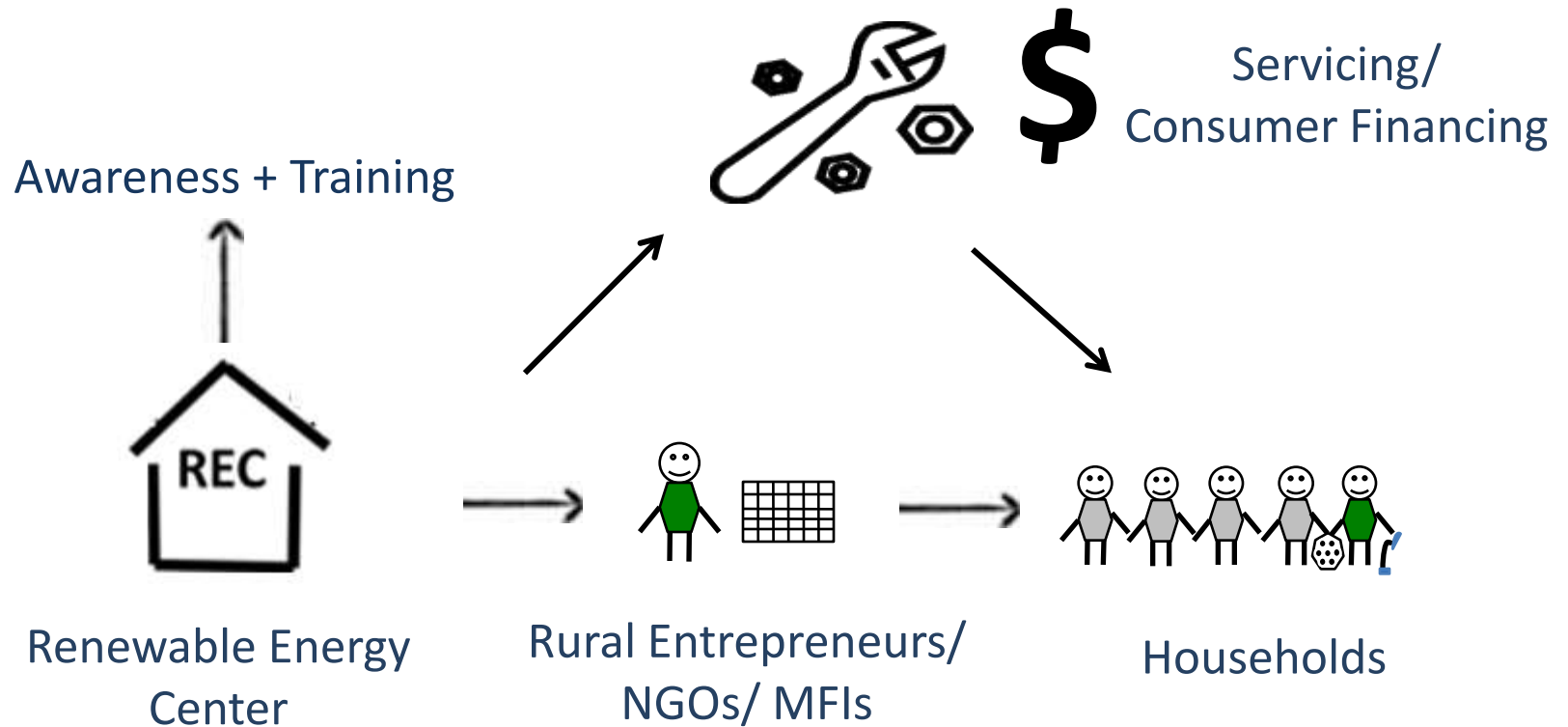


Product Description

Individual Equipments							
Item	Price Range	Details/queries about performance	Pay-back period	Lifespan	Warranty/	Government Subsidy	
Solar Lantern	1500 – 3000	LED – 100-150 lumen. CFL – 150 – 300 lumen	1 year	2 years	6m – 1yr	No	
Solar lamp	650 - 2000	LED – 30 – 100 lumen	1 year	2 – 5 years	1yr	No	
Solar Mobile/camera/other equipments Battery Charger	500 - 2000	Charging directly through panel or through battery. Available in different sizes			1 yr	No	
Solar Fan	800 - 1500	12W - 18W		2-4 years	6 months	comes along with solar home system	
Solar Water Heater	16000 above	Temperature - 60-70 degrees	2.5 yrs	10 yrs	1 yr	Rs. 50/litre	
Solar pumpset		Available in different sizes. However, this has not been successful				Subsidy available – different schemes	
Home Power Systems							
Solar Home Power system DC	10000 above	Run time in hours	2-3 yrs	10 yrs	5 yrs	30 - 40%	
Solar run Home Power System AC/ solar inverter based system	50000 above	Capacity 200W and above. Runs current loads and appliances	3-5 yrs	10 yrs	5 yrs	30%	

Business Model

Value Chain



Competitive Advantage

Building an ecosystem



Small Product

- Unbreakable
- Waterproof
- 10-20 Times Brighter than Kero
- Battery Life - 3-5 Years

Sun King

- Price - Rs 850

Sun King Pro + Mobile Charge

- Price - Rs 1600



Financing Scheme – Pay As You Go

1. Make a small initial payment (10-20%). Sign contract and system is installed.
2. No fixed monthly charge.
3. Buy energy credits, and pay only based on usage. Higher usage will lead to free electricity faster.
4. System will not work unless you purchase energy credits.
5. 80% of payments for energy are credited towards permanent unlock code. Higher top-up values will lead to lower total costs.

Bank Financing Model

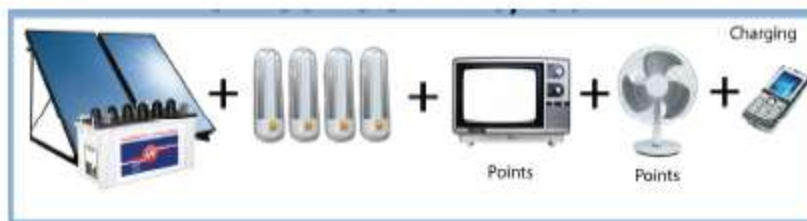
SELCO 40C



- Price - Rs 9990
- Down Payment -
Rs 2498

EMI - 169 for 5 yrs

SELCO 75C



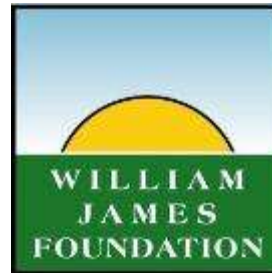
- Price - Rs 17170
- Down Payment -
Rs 4293

EMI - 293 for 5 yrs

Partners and Supporters



Awards and Recognition



IIM-Calcutta

Media



Hindustan Times

The Telegraph
calcutta, india

THE
HUFFINGTON
POST

THE TIMES OF INDIA

rediff.com

Los Angeles Times

Your Story.in
Where Entrepreneurs connect



Let's ONergize Rural India

