



UNCTAD Conference,  
Session 2: *Development and deployment of  
renewable energy technologies*

# Avoid-Minimize-Generate AMG Approach towards 100% solar powered living in **RIGHT WAY**

**Chetan S. Solanki**

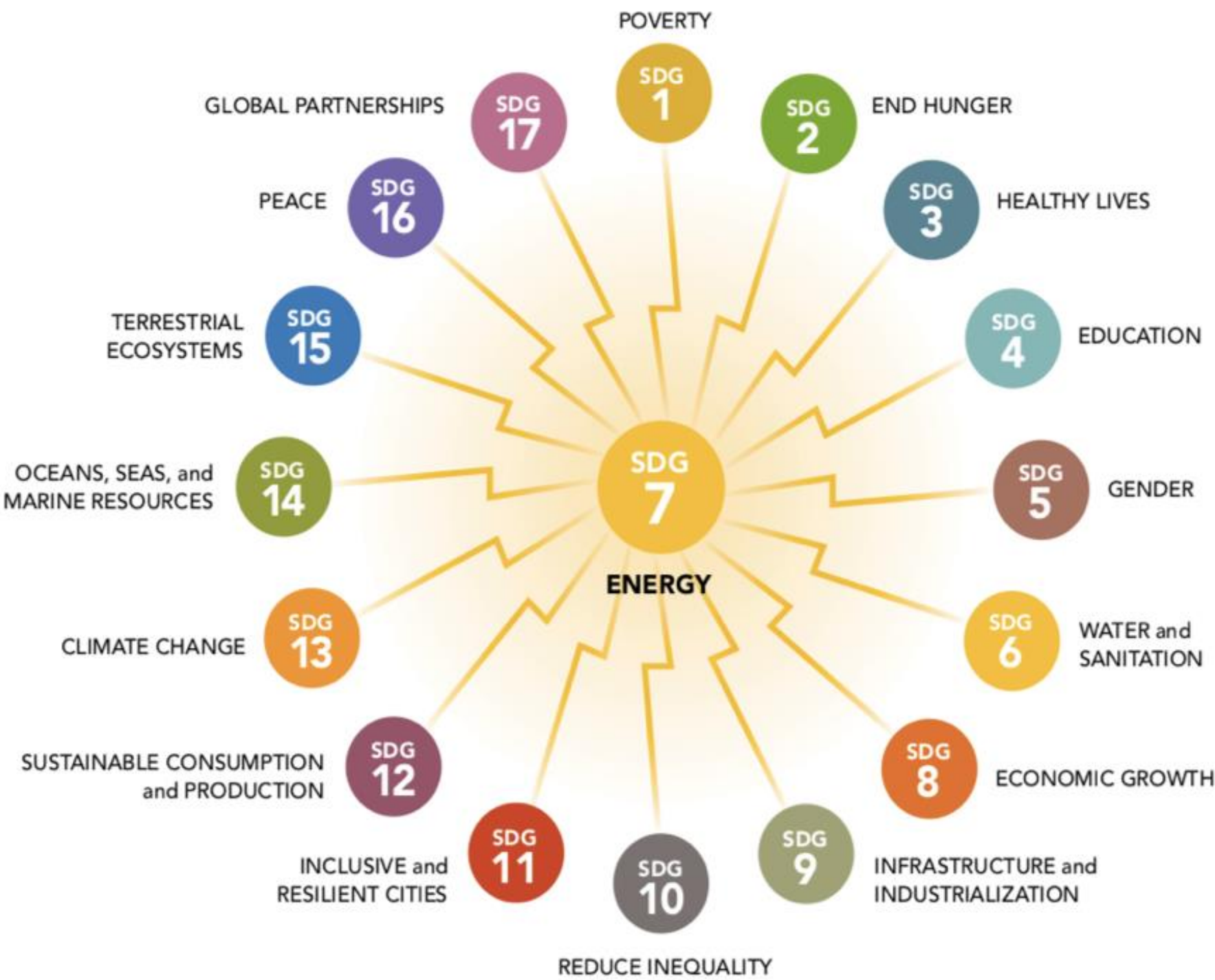
Prof. IIT Bombay, Founder, Energy Swaraj Foundation,  
& Brand Ambassador of Solar Energy, Govt. of MP, Bharat



Energy  
is  
Everything

&

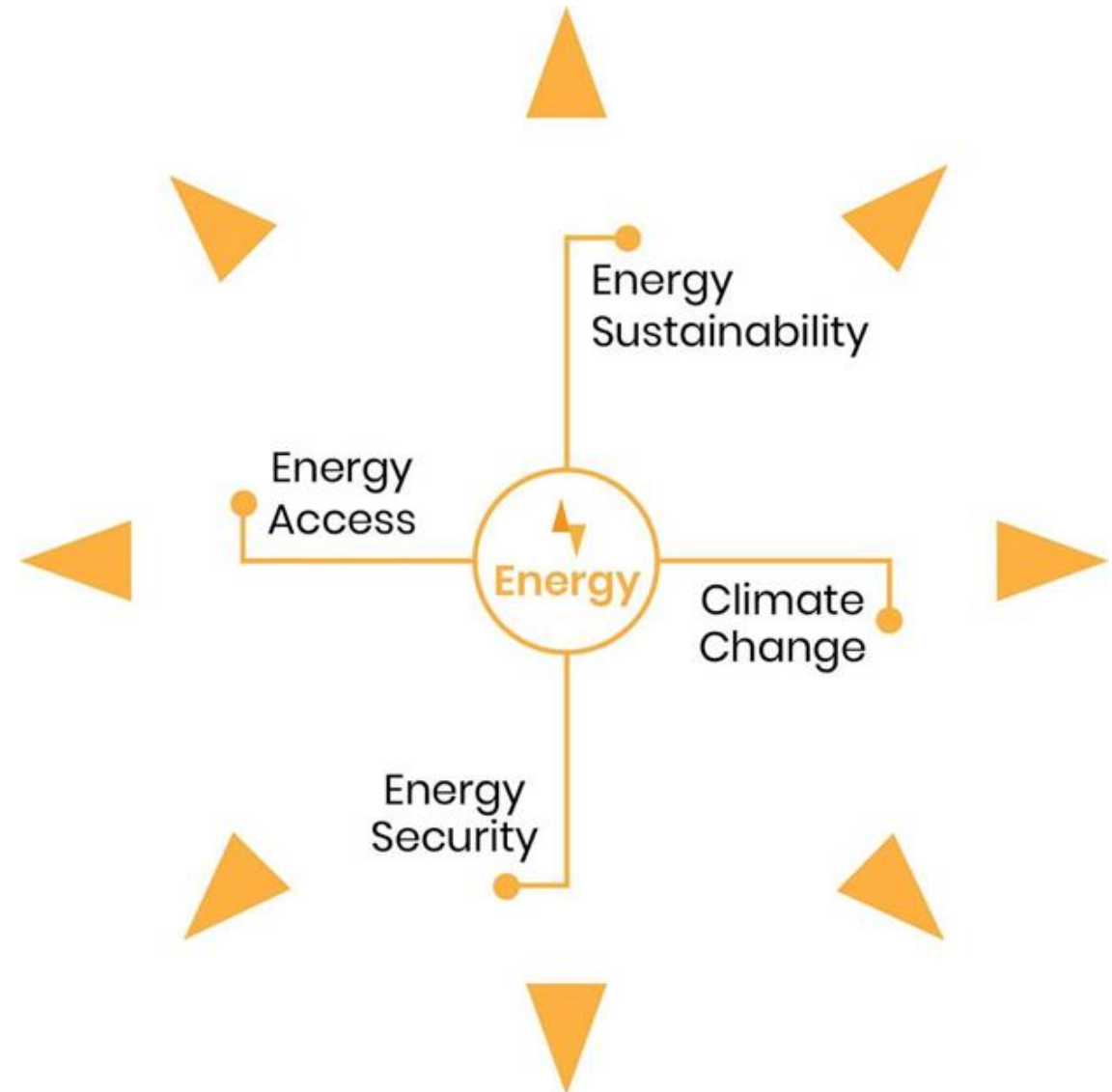
Everything  
Is  
Energy



# World is play of Energy

- ❑ Climate change is result of 'wrong' energy used in a 'wrong' way
- ❑ There is need to switch to 'right' energy used in a 'right' way at a 'right' time

DEADLINE TIME LEFT TO LIMIT GLOBAL WARMING TO  
**5 YRS 310 DAYS 08:42:58**  
TIVISTS | ORKNEY ISLANDS TO TRIAL ELECTRIC



**Need to rethink and redesign**

© ESF

our energy generation and consumption

# Energy Swaraj Yatra (Journey) 2020-30

Left my home for 11 years



1030 Days

2,50,000 people

43000 km

# Switch 100% on Solar following AMG approach

Adopting to  
Energy Swaraj or Energy Independence

# Two Fundamental Laws of Sustainability

*Solanki's Law*

## Law-1 - **Limit** your Consumption

In an ecosystem of finite resources, there has to be finite consumption

## Law-2 - **Localize** your Production

In an ecosystem of finite resources, there has to be distributed production

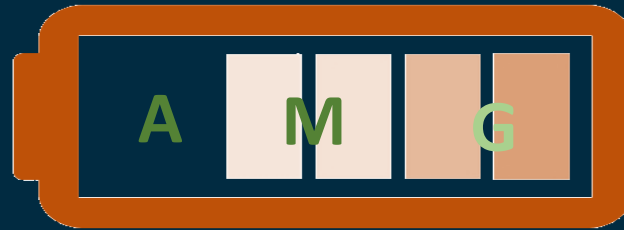


# Energy Swaraj

Energy by Locals for Locals

## 3-Step Approach

for switching 100% on solar energy



Avoid

Minimize

Generate

## Step-1: Avoid by 1/3<sup>rd</sup>

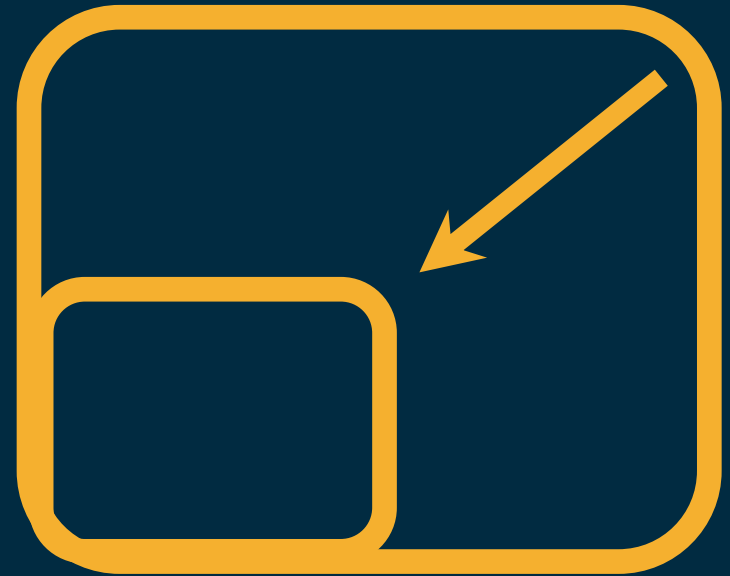
“Avoid the use of energy,  
as much as possible,  
**even if it is solar energy”**





## Step-2: Minimize by 1/3<sup>rd</sup>

“Minimize the use of energy,  
as much as possible,  
**using efficient appliances”**



## Step-3: Generate only 1/3<sup>rd</sup>

“Generate energy locally  
as little energy as possible

after following avoid and minimize step”



# 3-Steps towards 100% Solar Power

**A**void

1/3<sup>rd</sup>

**M**inimize

1/3<sup>rd</sup>

**G**enerate

1/3<sup>rd</sup>

follow AMG or else say

**OMG**

# Barriers to reach Billions : *Our approach*

## Problem

Solar solutions appears to be holistic, quick, regionally relevant, scalable solution  
But suffers from:

**Availability**

**Affordability**

**Repair-ability**



“ Not the mass production,  
but **production by masses**  
is required”

-Mahatma Gandhi

## Solution

### **Localization**

Involving local communities to generate and fulfill their own energy needs

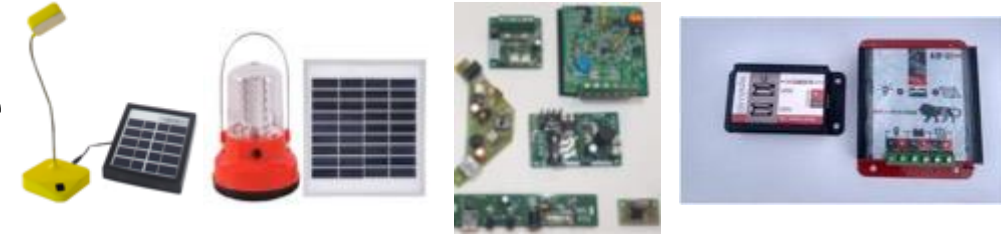
Lower operational cost,  
quick and lower cost  
maintenance, confidence  
in technology

Does localization really work for providing energy access to billions?

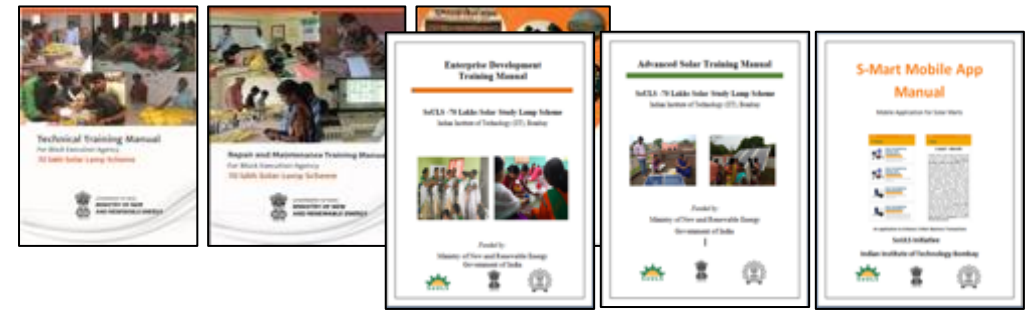


# Localization: *Core Concept*

**Technology** Open Source Hardware; Ease of Use



**Capacity Building** Locals within community  
On-site Training + Hand-holding



**Local Institution & Enterprising**

Solar Marts (S-mart) in village clusters  
Assembly and distribution centers in blocks



**Last Mile Supply Chain** Locally competitive  
Demand Aggregation; Mobile App



# Technology

- ❑ Tried and tested designs as Open Source Hardware to make it easy for **user and local entrepreneur**
- ❑ Tier 0, Tier 1 and Tier 2 products



**5** products,  
10+ variants



URL: [www.openhardware.soulsiitb.in](http://www.openhardware.soulsiitb.in)

# Local Capacity Building

□ Training as well as hand-holding

→ In 4 stages, includes 21 days training and 62 days of hand-holding

→ Quality and continuous improvement

**9000+**

Local women trained and employed  
Earning ₹ 250 Million (~3.6 Million USD)



**6** training manuals, multiple languages, +MOOCs



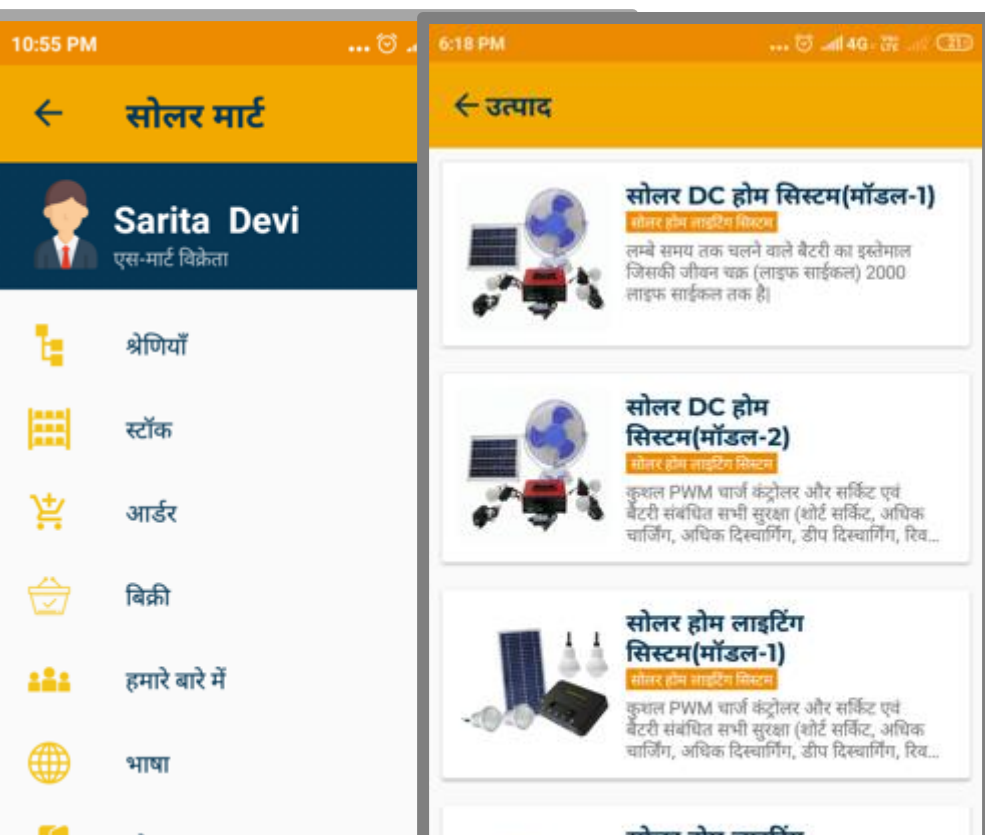
# Local Institutions & Enterprising

- ❑ Solar Marts (S-mart) at village clusters
- ❑ Local repair and maintenance centers
- ❑ Localized assembly and distribution centers

**340+** S-Marts are up and running

600 S-Marts to open by Dec. 2019





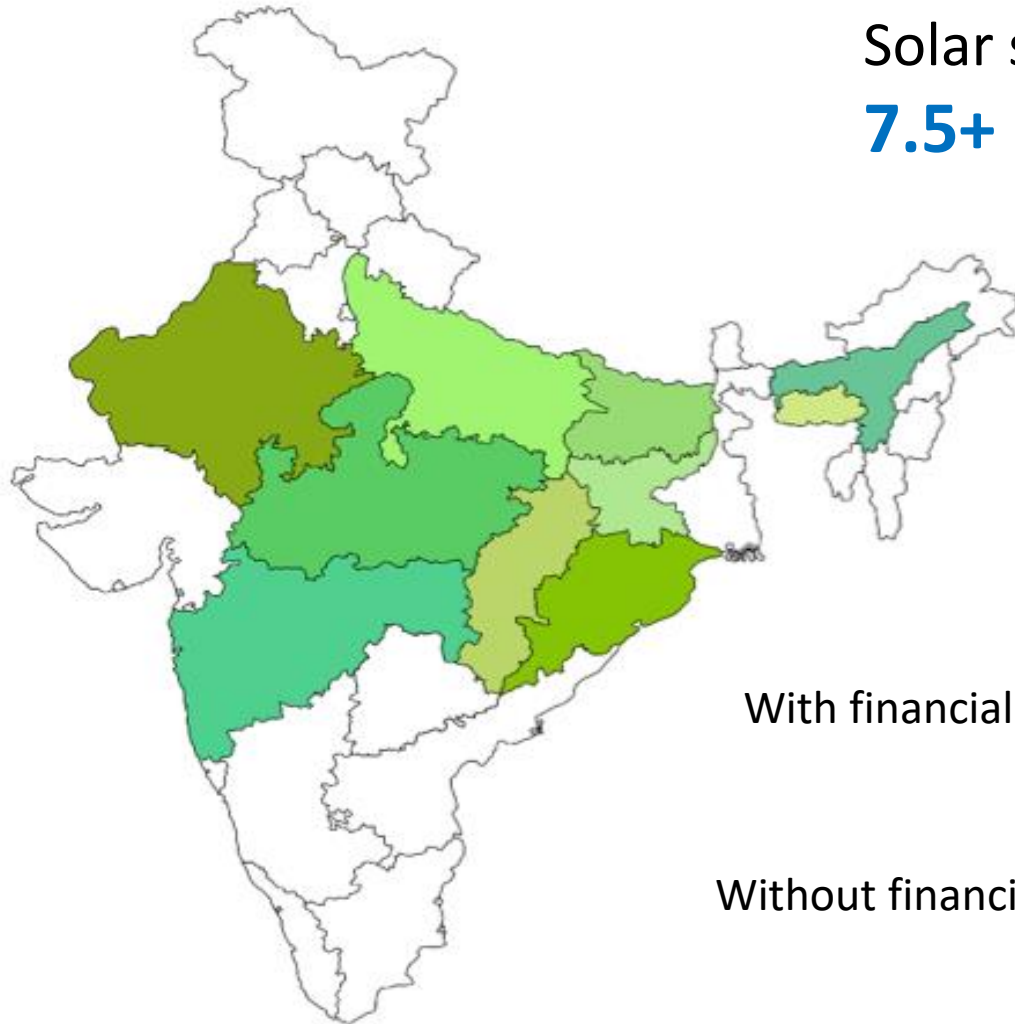
# Last Mile Supply Chain

- ❑ Localized demand aggregation
  - Cost-effective products
  - Better quality control
- ❑ S-mart Mobile App has been developed
- ❑ Vendor meets organized for entrepreneurs



70+ solar product exposure  
to local entrepreneurs

# SoULS Program: *Reached to Millions*



Solar study lamp solution provided to **7.5+ Million households**, involving local communities

States in India	10
Blocks / sub-districts	317
Villages covered	40,000

With financial support

Without financial support

Locals trained	9062
Local Assembly Centers	246
Local Repair Centers (SRCs)	1626
<b>Local Solar Marts (S-Marts)</b>	<b>343</b>



# Summary

- ❑ ‘Wrong energy’ or carbon based energy is cause inequity and climate change
- ❑ ‘Right energy’ or solar energy is the solution
- ❑ Adoption of solar energy has to be done in ‘right way’ by adopting to **AMG approach**
- ❑ Adopting to Energy Swaraj or Energy Independence is useful in **jobs, skill development, local economy and climate change mitigation**

Thank you very for attention

Energy Literacy is the First Step Towards Climate Correction!

Register for

**Energy Literacy Training**

Read more

[www.es-pal.org](http://www.es-pal.org)

