



# **Promoting *Energy Swaraj***

## **Localized Energy Self-sufficiency**

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# DISTRICT DEVELOPMENT DIALOGUE 2019

SCALABLE BEST PRACTICES  
LEARNINGS FROM THE FIELD

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# Energy is everything



# Energy Contradiction

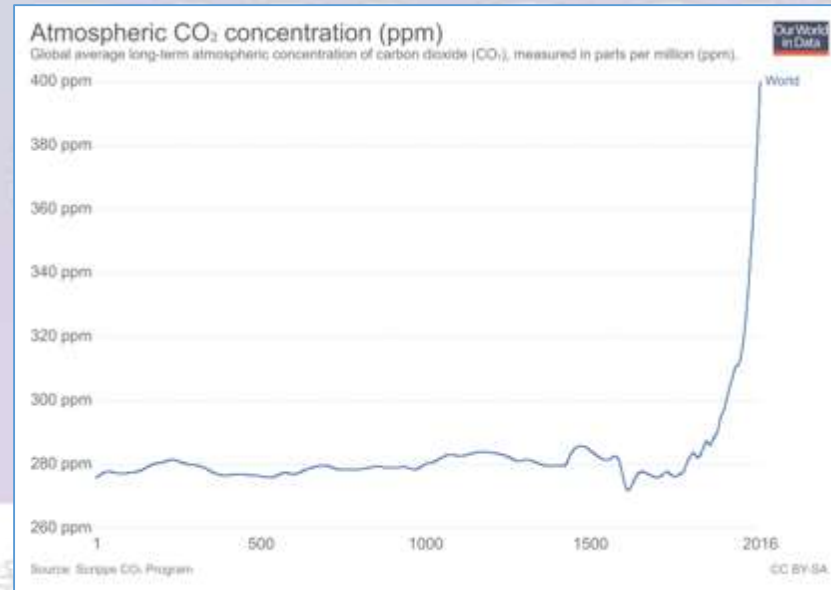
Lack of Energy  
Access to billions

- ❑ 13% of world's population without access to electricity
- ❑ 40% of world's population without access to clean cooking

Ref: IEA, World energy outlook, 2017



Climate change due  
to Energy Usage



- ❑ Atmospheric CO<sub>2</sub> concentration has increased from 280 to 410 ppm

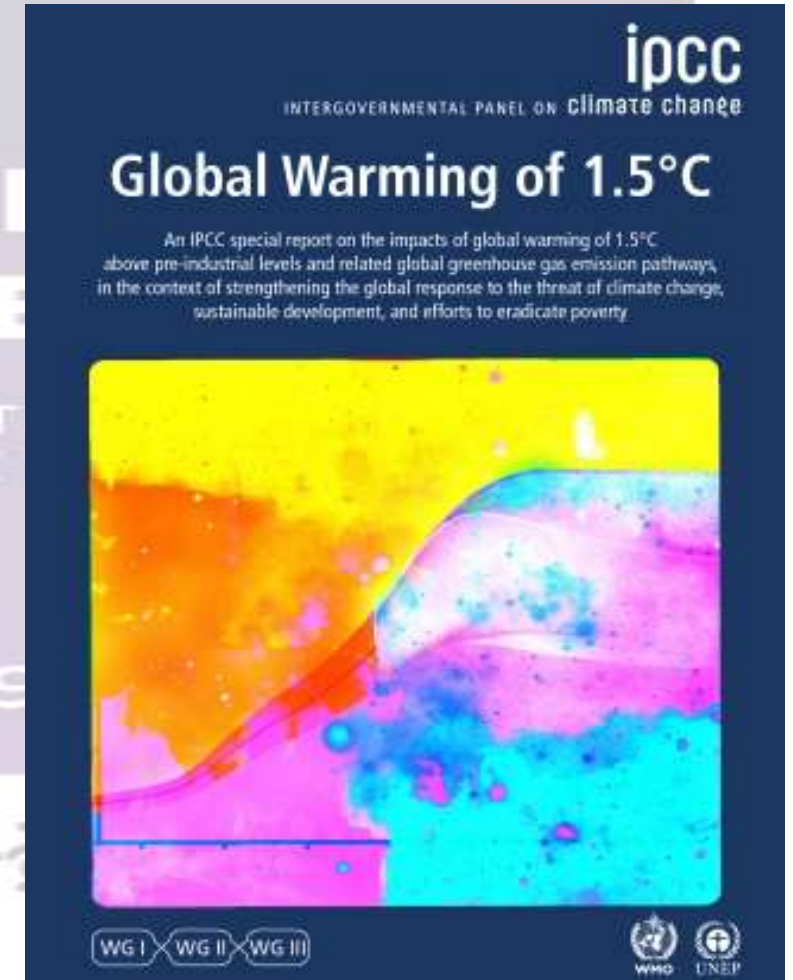
Ref: CO2.earth, 2018

CO<sub>2</sub> Concentration of last 2000 years



# IPCC 2018 Report

- ❑ The report finds that limiting global warming to 1.5°C would require ***“rapid and far-reaching” transitions in Energy***
- ❑ CO<sub>2</sub> emission would need to fall by about 45% from 2010 levels by 2030, ***reaching ‘net carbon zero’ around 2050.***



150<sup>th</sup> birth anniversary celebration, lets reflect




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# Gandhian Principles



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“Earth provides enough to **satisfy every man's needs**, but not every **man's greed**.”

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



Can we apply these principles to energy?



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Idea of  
Energy Swaraj

A localized Energy Self-sufficiency  
24x7 solar solution by locals for locals



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# *Energy Swaraj*

## Localized Energy Self-Sufficiency

### *Is it possible?*

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### *Is technology available?*

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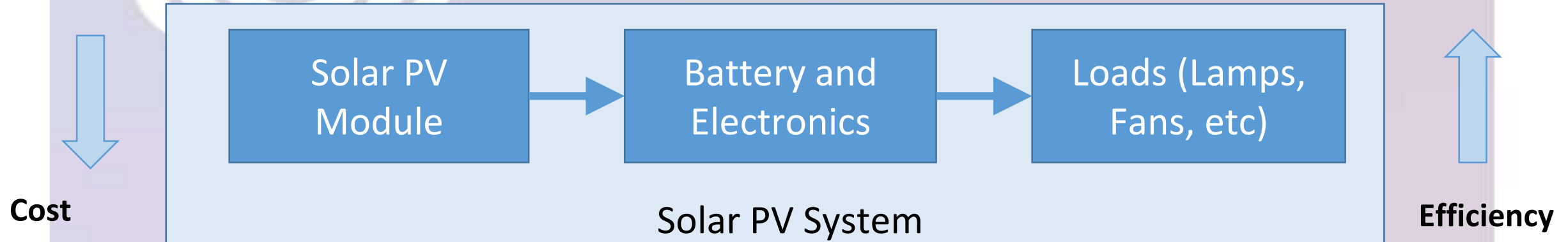
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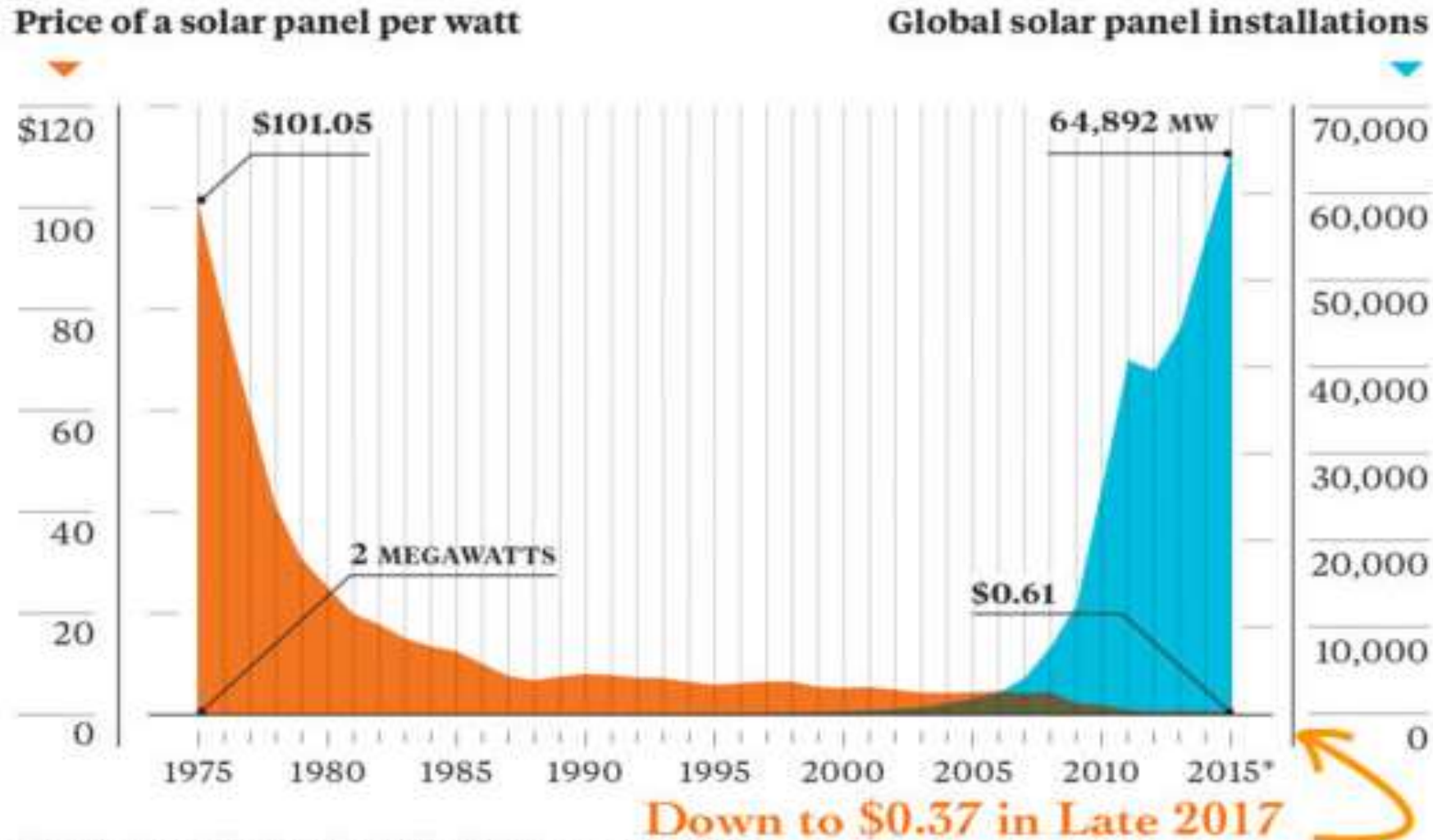
# Efficient and Cost-effective Technology

- ❑ Each block of Solar PV system (module, circuit, battery and load) is becoming cheaper and efficient
- ❑ Enhancing commercial viability of localized solar PV Solutions



Technology and cost-effectiveness of solar PV electricity is competitive or better than grid electricity

# Solar PV Module : Volumes and Pricing



\*Estimate. Sources: Bloomberg, Earth Policy Institute, [www.earth-policy.org](http://www.earth-policy.org)

The prices of the Solar PV Module have declined considerably

# Super-Efficient Appliances – DC Technology



LED – greater than  
150 lm/W



Ceiling fan – 25W ,  
1400mm



TV with satellite  
tuner – 15W, 24"



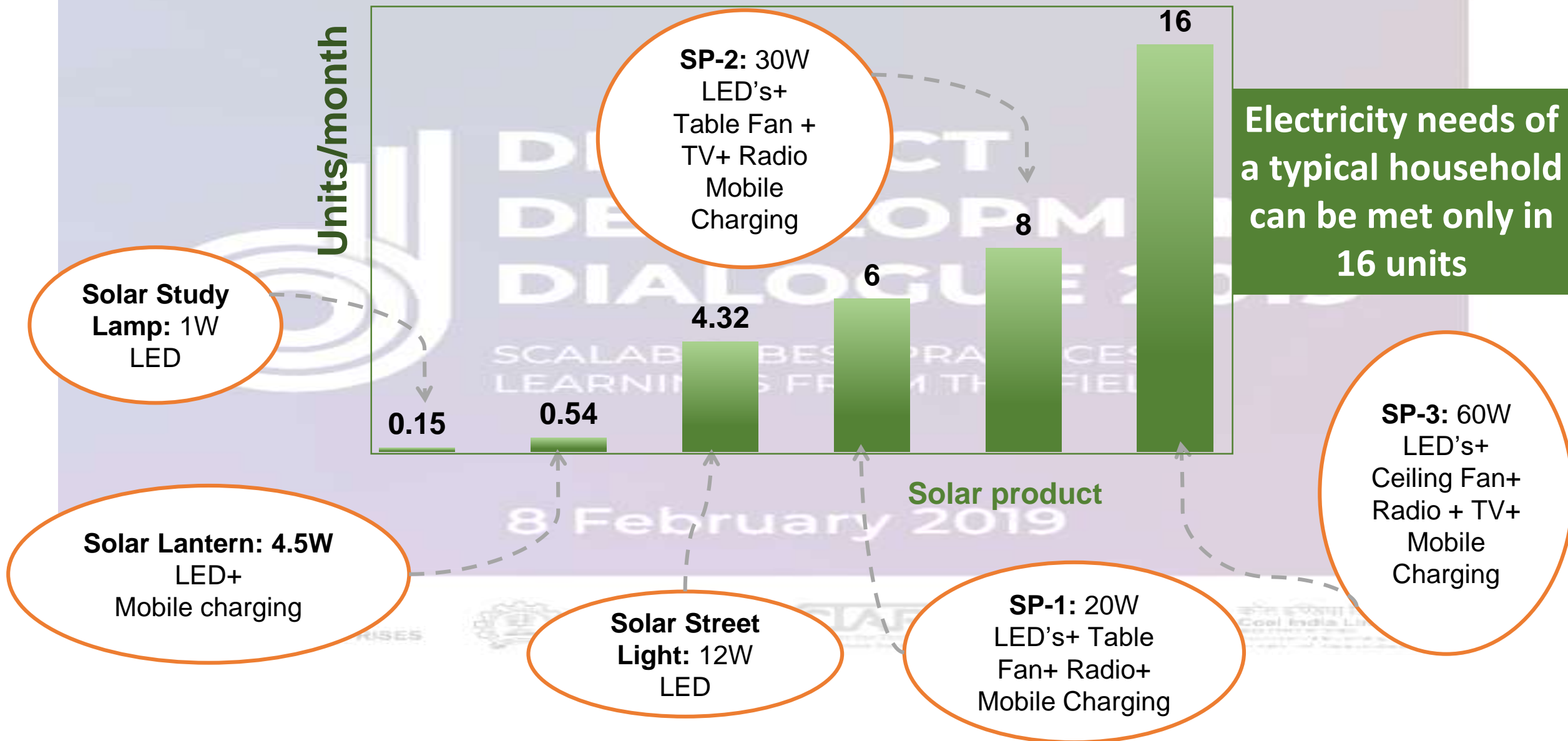
Table fan – 15W , 16"



DC-DC Adaptor

**Super-Efficient  
Devices are available,  
consuming very low  
energy**

# Lower Electricity Needs per Month





IIT Bombay. Initiative

# Solar Ujjat through Localization for Sustainability (SoULS)

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Pioneering in Localized Energy Self-Sufficiency

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# Key Concepts of SoULS Initiative

- ❑ SoULS, IIT Bombay is working to create ecosystem for Localized Energy Self-Sufficiency
- ❑ Creation of local ecosystem involves local communities in every operations of solar electricity generation and consumption



Involving local people in

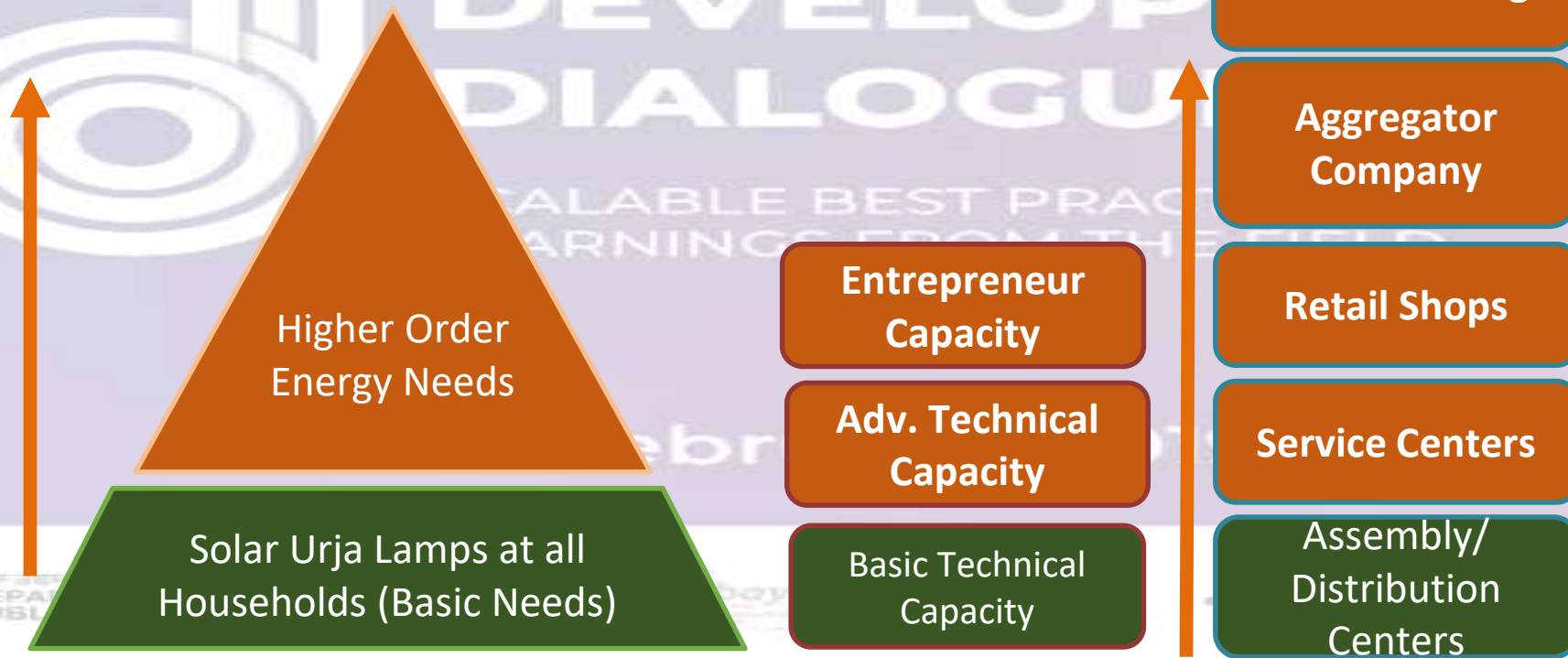
- ❑ Assembly
- ❑ Distribution and
- ❑ Repair activities
- ❑ Enterprising
- ❑ Manufacturing Activities

# SoULS Initiative - Activities

Consumer Energy Access

Local Capacity  
Building

Local Institution



These will require us to look beyond project to ensure sustainability

# Solar Urja Lamp (SoUL) Program

**4.2+ Million**

Students ALREADY have received solar study lamp

**290+ sub-districts**

where program is currently running

**7000+ Women**

Are involved in assembly, distribution and repairs























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## Solar-Marts (Smart)

Providing 24x7 Solar Off-grid Solutions  
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# Entrepreneurial Ecosystem



# S-mart : Current Progress



❑ 80+ S-Mart shops currently in operation

❑ Self funded by S-Mart **Solar didi's**  
approx. ₹30,000 initial investment

❑ 700 shops in pipeline by end of Dec 2019.















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## Localized Manufacturing

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# DURGA – A PV module manufacturing

❑ Durga Energy-Dungarpur Renewable Energy Technologies Pvt. Ltd-  
factory **owned and operated by tribal women**

❑ Annual Production Capacity of 2 MW

❑ Solar panel manufacturing in sub watt range of (2.5 watt to 40 Watt)

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4 more module manufacturing plants planning is at advanced stage







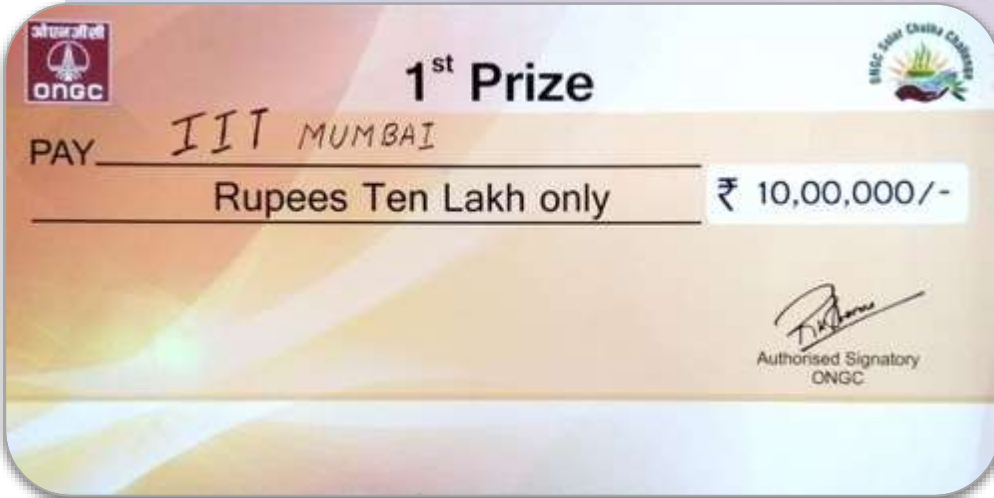
# Solar PV Cooking

Received ONGC  
National Award





# ONGC Solar Chulha Competition



Honourable Minister Shri Dharmendra Pradhan trying cooking on Solar Chulha





# सोलर चाय ठेला



## SOLAR CHAI

prepared on

### SOLAR PV COOK-STOVE



24 x 7

Convenient



Control over  
Temperature



Cost effective



Clean



Compact







# DISTRICT *Ganani* DEVELOPMENT Global Solar Yatra (GGSY) DIALOGUE 2019

Promoting Localized Energy Self-Sufficiency  
for Sustainability

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# GGSY Vision

The Gandhi Global Solar Yatra is designed to  
promote  
**localized energy self-sufficiency for sustainability**  
by  
creating awareness and sensitizing communities  
towards  
**viability of 24x7 decentralized solar solutions**



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# Student Solar Ambassador Workshop

2<sup>nd</sup> Oct-18

- ❑ Young generation will be affected more seriously from climate change
- ❑ **“Student Solar Ambassador”** workshop is designed to sensitize young minds and give hands on training to make their first solar device, a solar study lamp
- ❑ On 2<sup>nd</sup> Oct. 2018 **Guinness World Record** Event was organized, more than 132,000 students got training



# GGSY Objectives

*Hands-On training for  
more than*

***1 Million***

*Students Solar Ambassadors  
across the globe on*

***2<sup>nd</sup> October 2019***

Every Solar Ambassador takes **pledge of non-violence to environment**



It is expected that

❑ about **3 to 5 Million students** will make their lamp on 2<sup>nd</sup> Oct. 2019

❑ More than **180 countries** will join the Movement

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# Support so far

- ❑ MNRE, MEA, MoC is supporting GGSY
- ❑ The 2<sup>nd</sup> Oct. event is official part of GoI 150<sup>th</sup> celebration of Gandhiji's birth anniversary ([www.gandhi.gov.in](http://www.gandhi.gov.in))

- ❑ ISA is supporting GGSY

- ❑ Started Interaction with UN, World Bank for promotion



# Funding required

- ☐ Carry on the activities of SoULS
- ☐ Promoting Energy Swaraj



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Thank you!

# Be a part of Global Movement

[www.ggsy.in](http://www.ggsy.in)

Time to bring Energy Swaraj for Sustainability and mitigating climate change