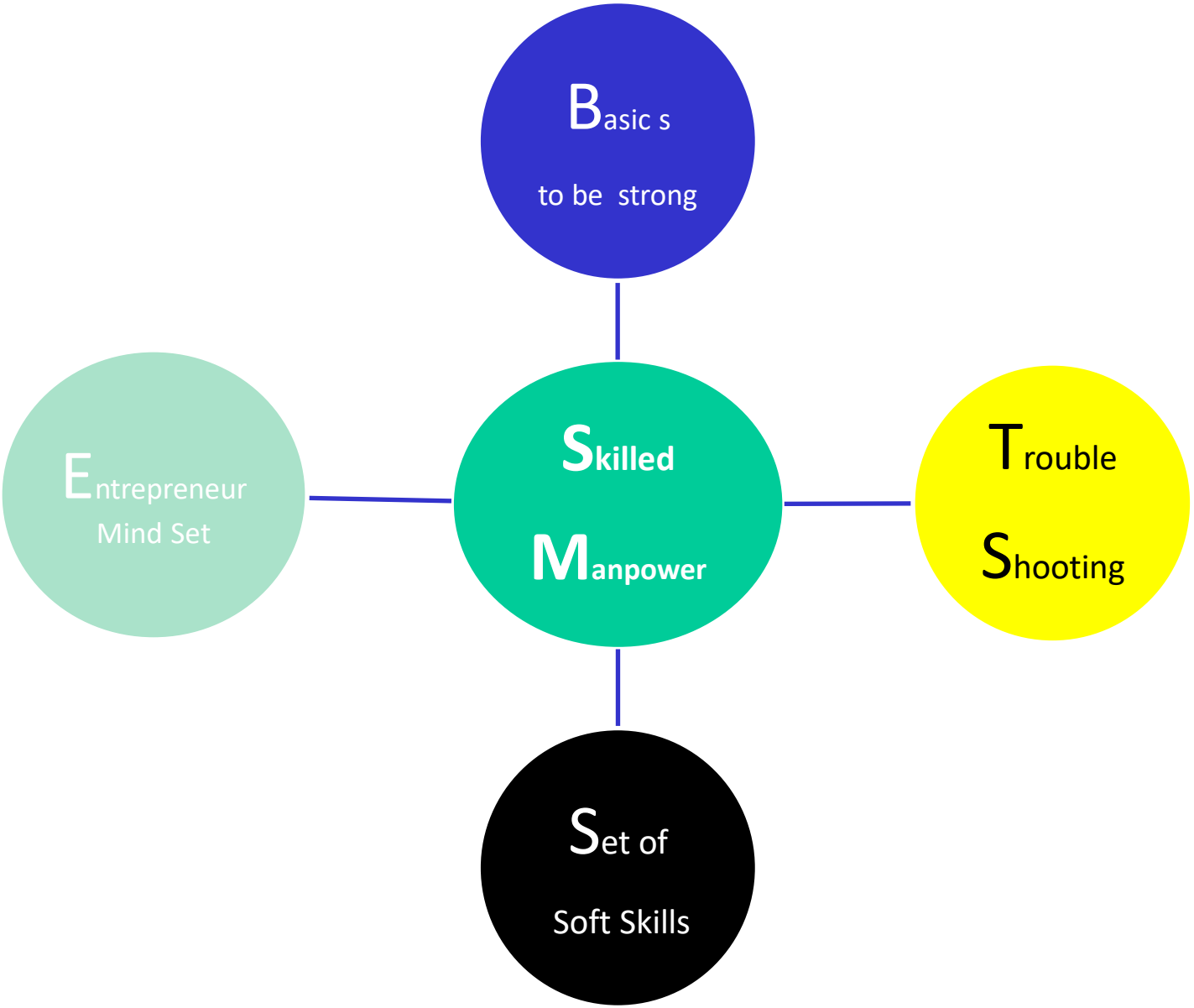
Solar Technologies – The future of Ladakh

Presentation includes

- Company Introduction
- Why Solar ?
- About Solar Technologies
- Solar Applications/Products
- Opportunities
- innovative examples

Scientech : Corporate Office

Why Solar Energy?

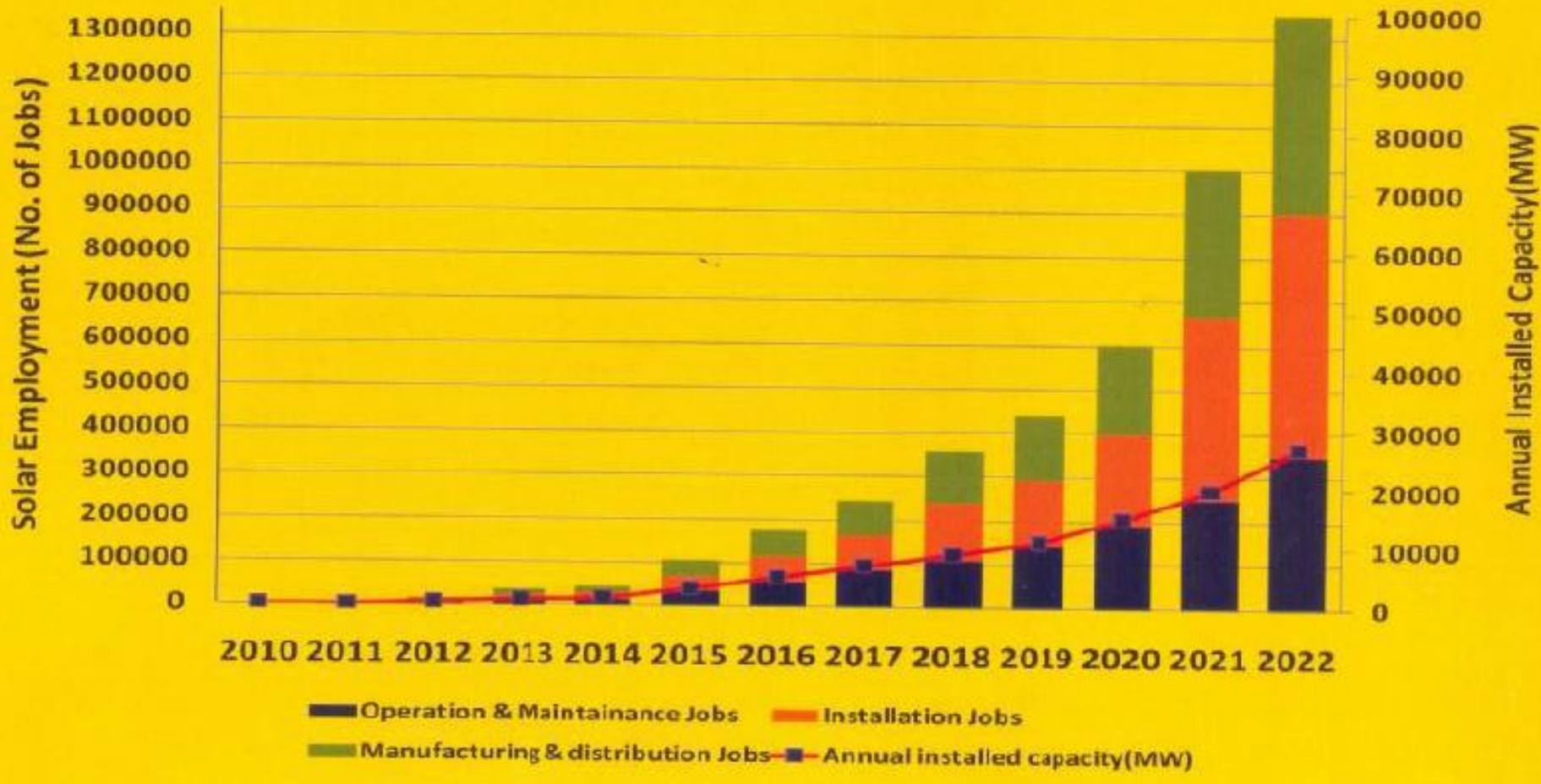

Basic s
to be strong
Entrepreneur
Mind Set
Skilled
Manpower
Trouble
Shooting
Set of
Soft Skills

Why Solar Energy?

The Government of India has set a **target** of installing of 175 GW of renewable **energy** capacity by the year **2022**

By the 2018 census 719,000 Skilled Professionals are working in India and upto 2021 target is estimated to be 1 million .

Motivation for solar skilling



Why Solar Energy?

- Net carbon Zero – Means no Petrol, Disel, LPG, CNG, Coal, etc.
- Solar is Sustainable Energy Source
- Long Life operations

Why Solar Energy?

- Solar energy is abundantly available
- 70% population lives in Villages where electricity availability is issue
- Demand of Electricity is increasing day by day

Why Solar Energy?

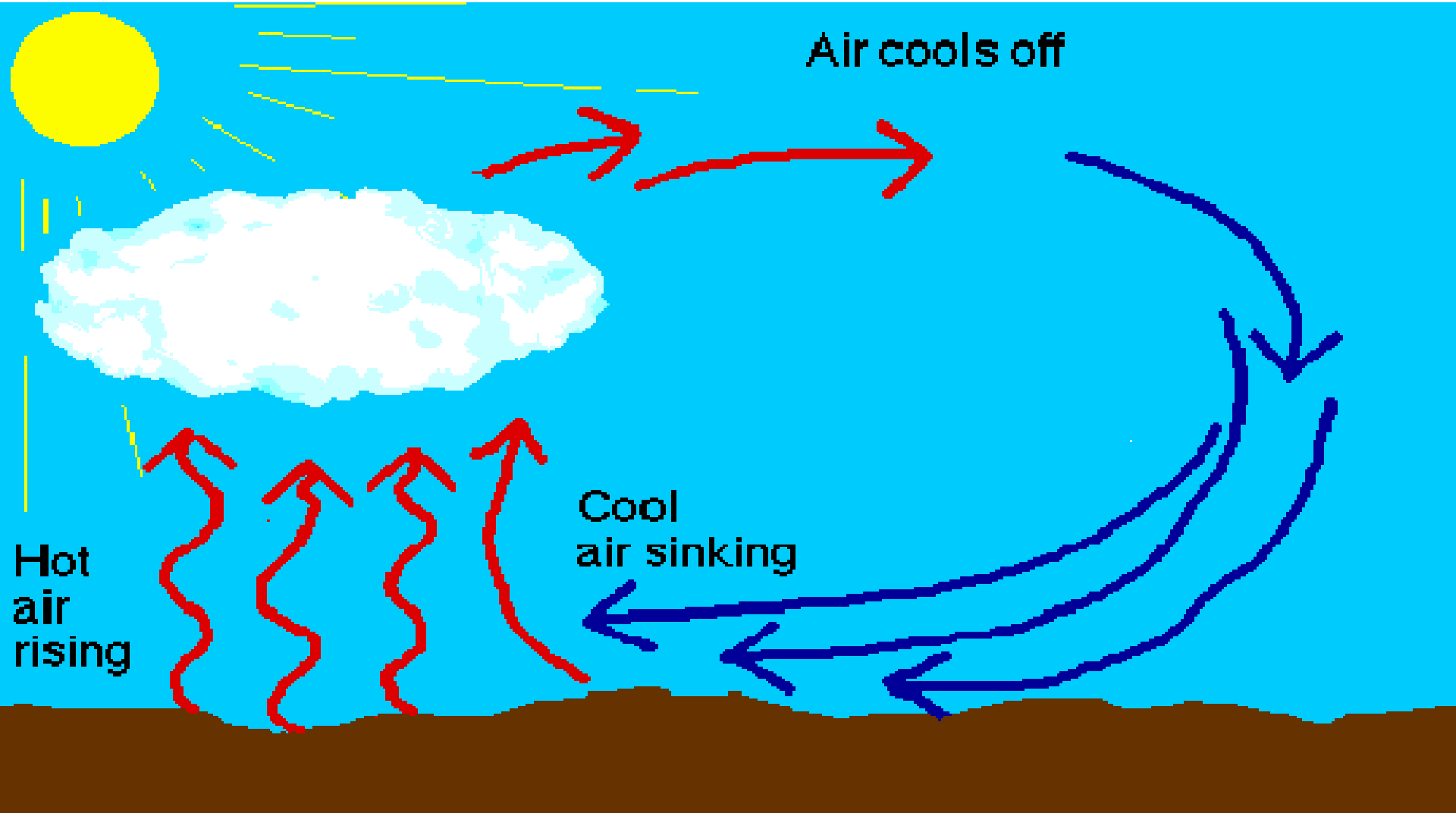
- Simple Technology – ease of starting business or get Skilled
- Government is also promoting Local through their mission “Vocal for Local”
- Good Payback or ROI
- Scalable solution

Solar Solutions can be easily provided with

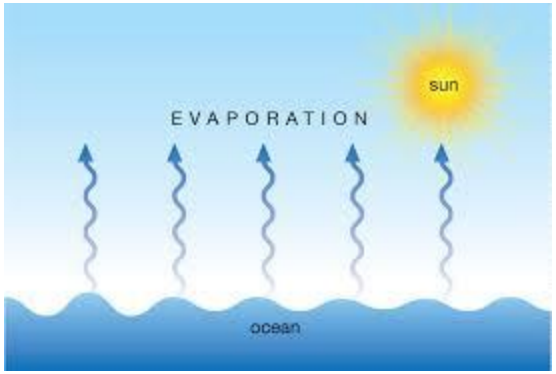
1. Affordability – Cost
2. Reliability – R& M
3. Availability – Local Manufacturing

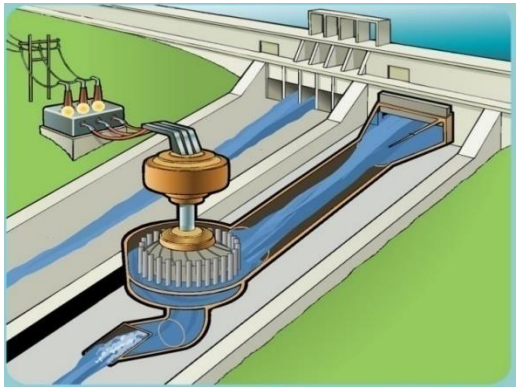
Sun is the Prime Source of Energy

Wind is generally caused by Sun



Sun is the Prime Source of Energy





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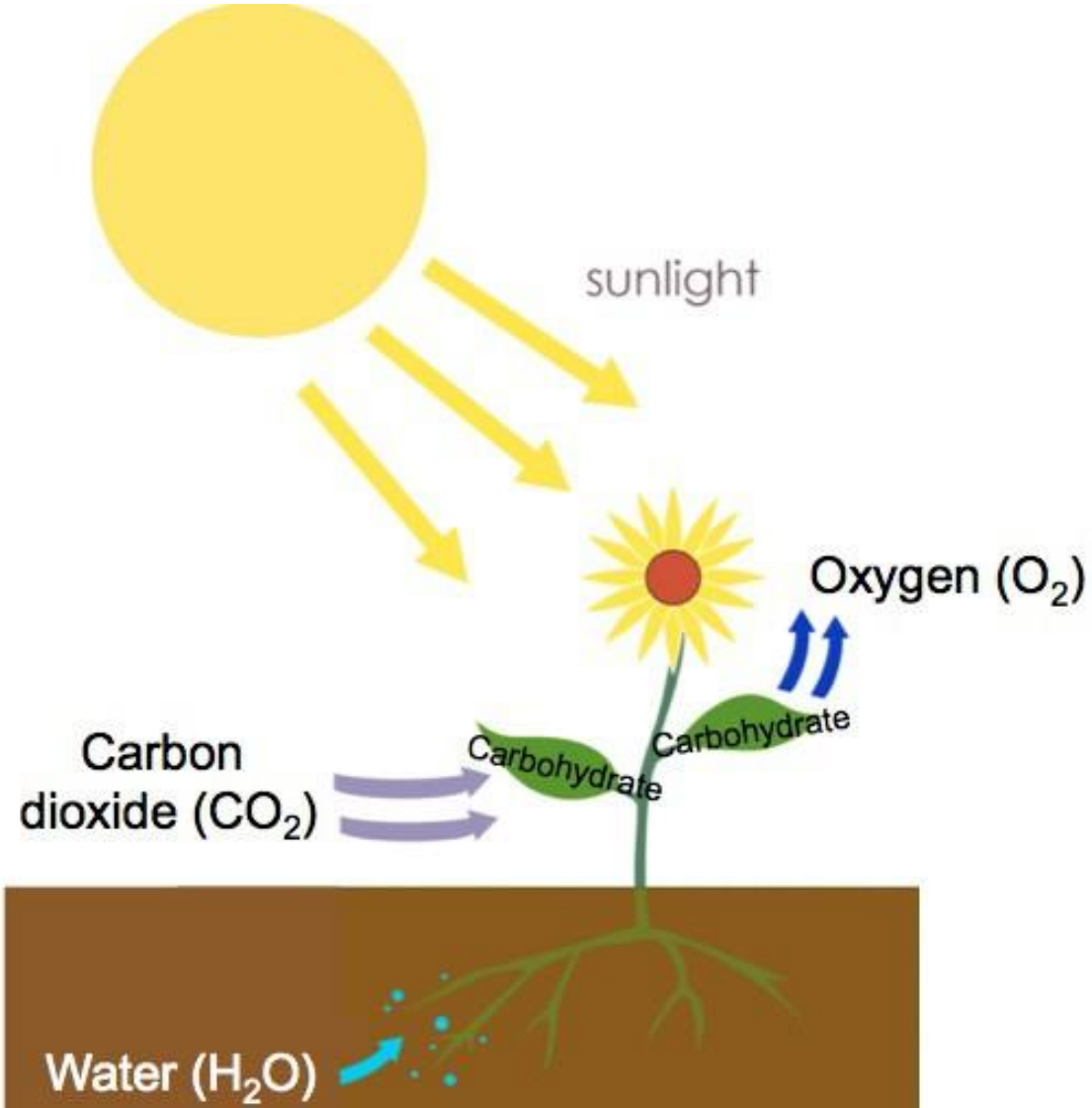


Sun is the Prime Source of Energy

Solar Technologies

Solar Technologies

Photo-voltaic

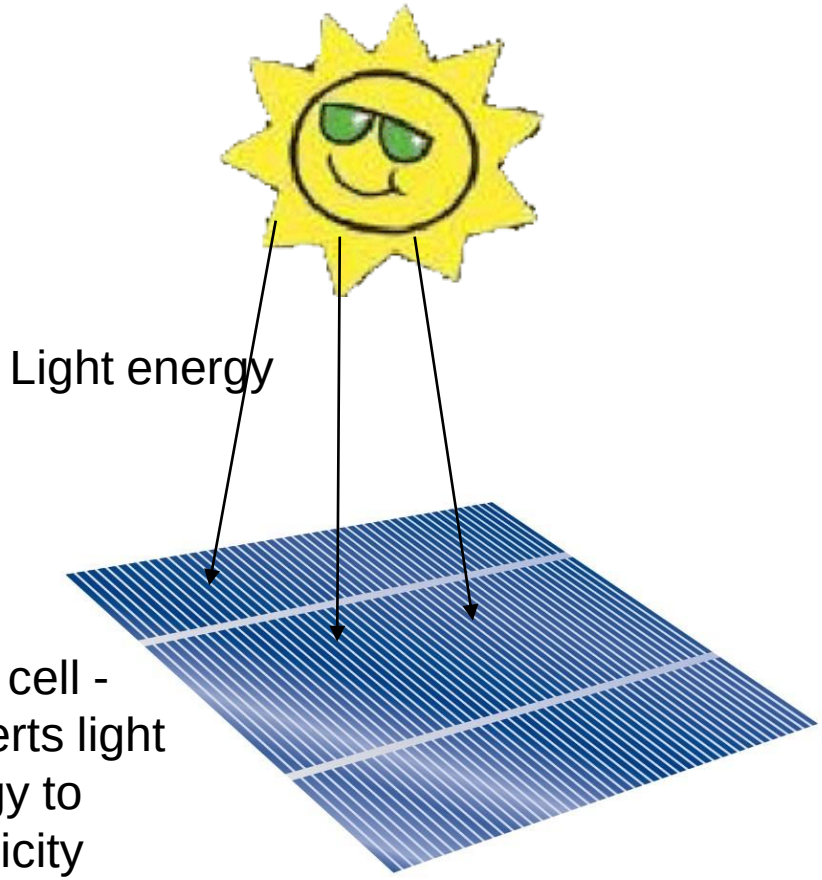
In Photo-voltaic application Light energy is converted into Electrical energy.

Thermal

In Thermal application Light energy is converted into Heat energy.

Photo-voltaic : Solar Cells

- Solar cells are converter of Energy



- Solar cells are devices that take light energy as input and convert it into electrical energy

Manufacturing of Solar Cell

Silicon is dominantly used to make solar cells

Silicon

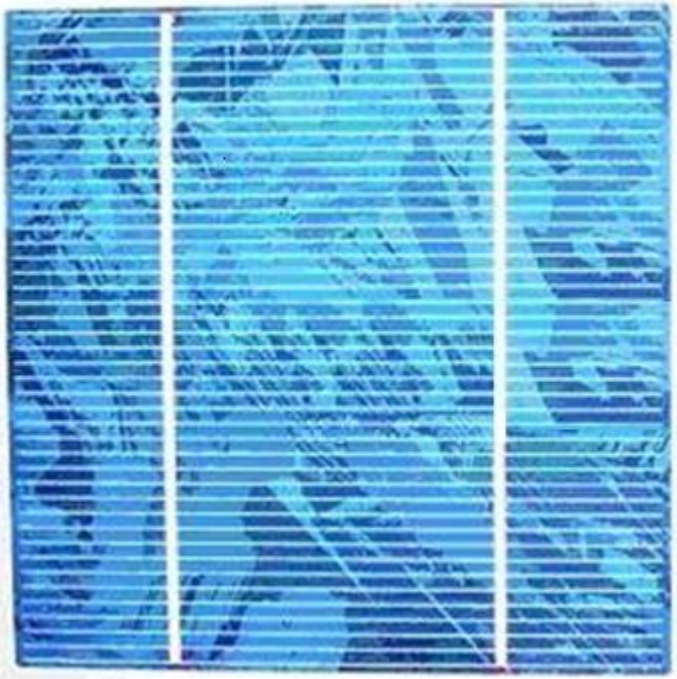
Type of Solar Cells

There are two types Crystalline Solar Cells

- Monocrystalline Solar Cell

- Polycrystalline Solar Cell

Visual Comparison



Polycrystalline Solar Panel

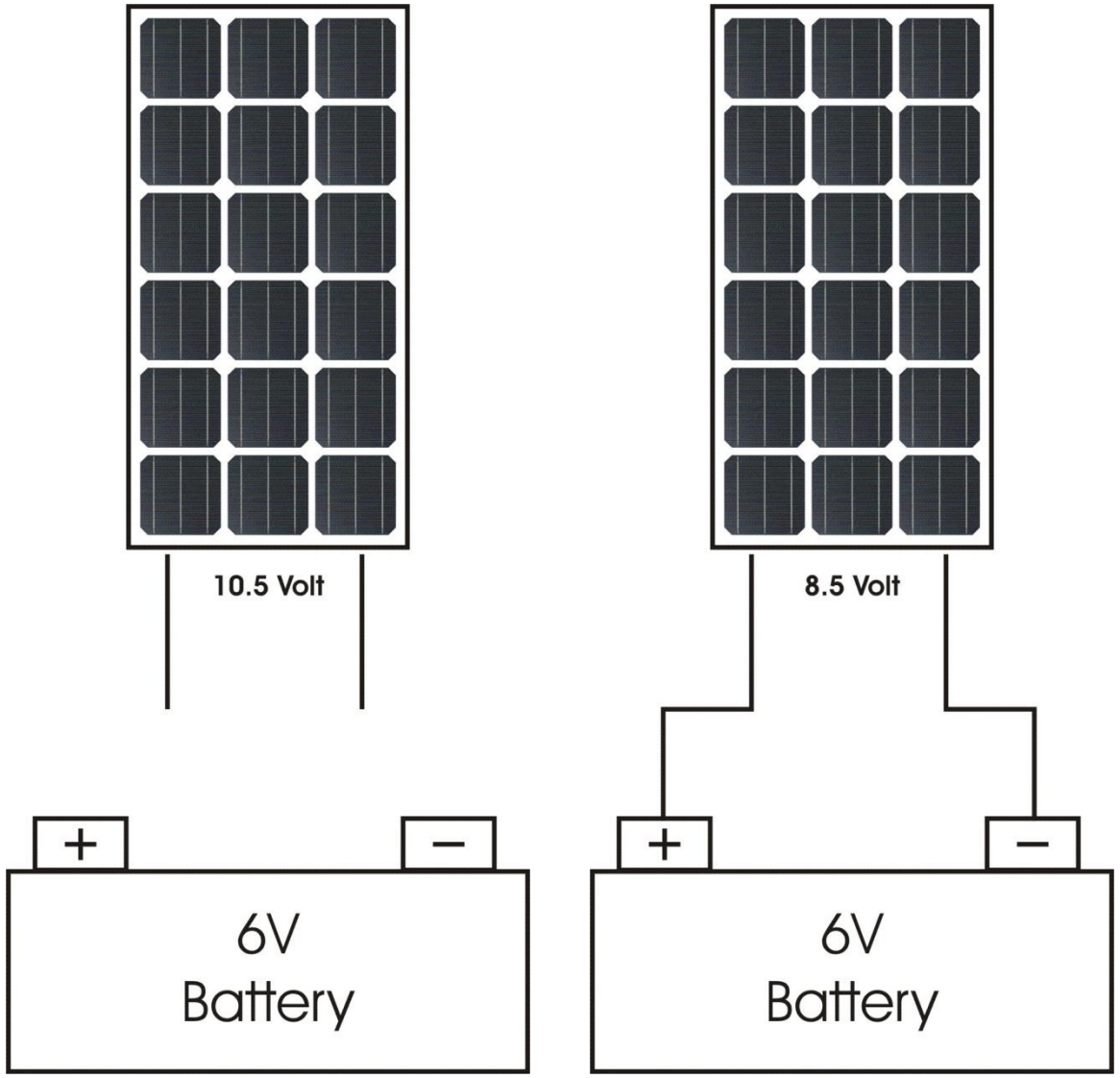
Monocrystalline Solar Panel

Solar Cell Voltage

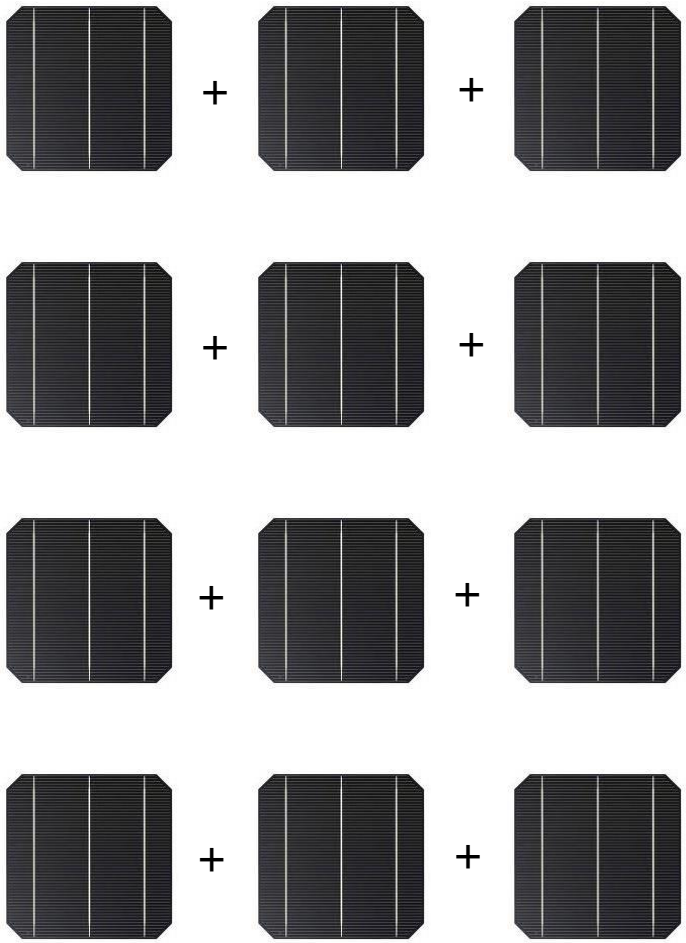
- An individual silicon solar cell has a voltage of **0.58V under 25 °C**

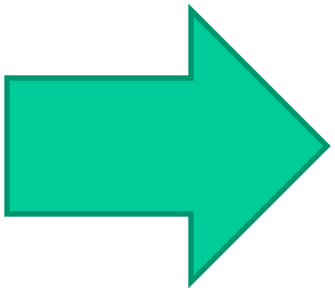
- As the PN Junction temperature Increases the cell voltage start reducing

Solar Cells	:	18 Nos.
Voc	:	10.44 V
Vm	:	8.5 V
System Voltage	:	6 V



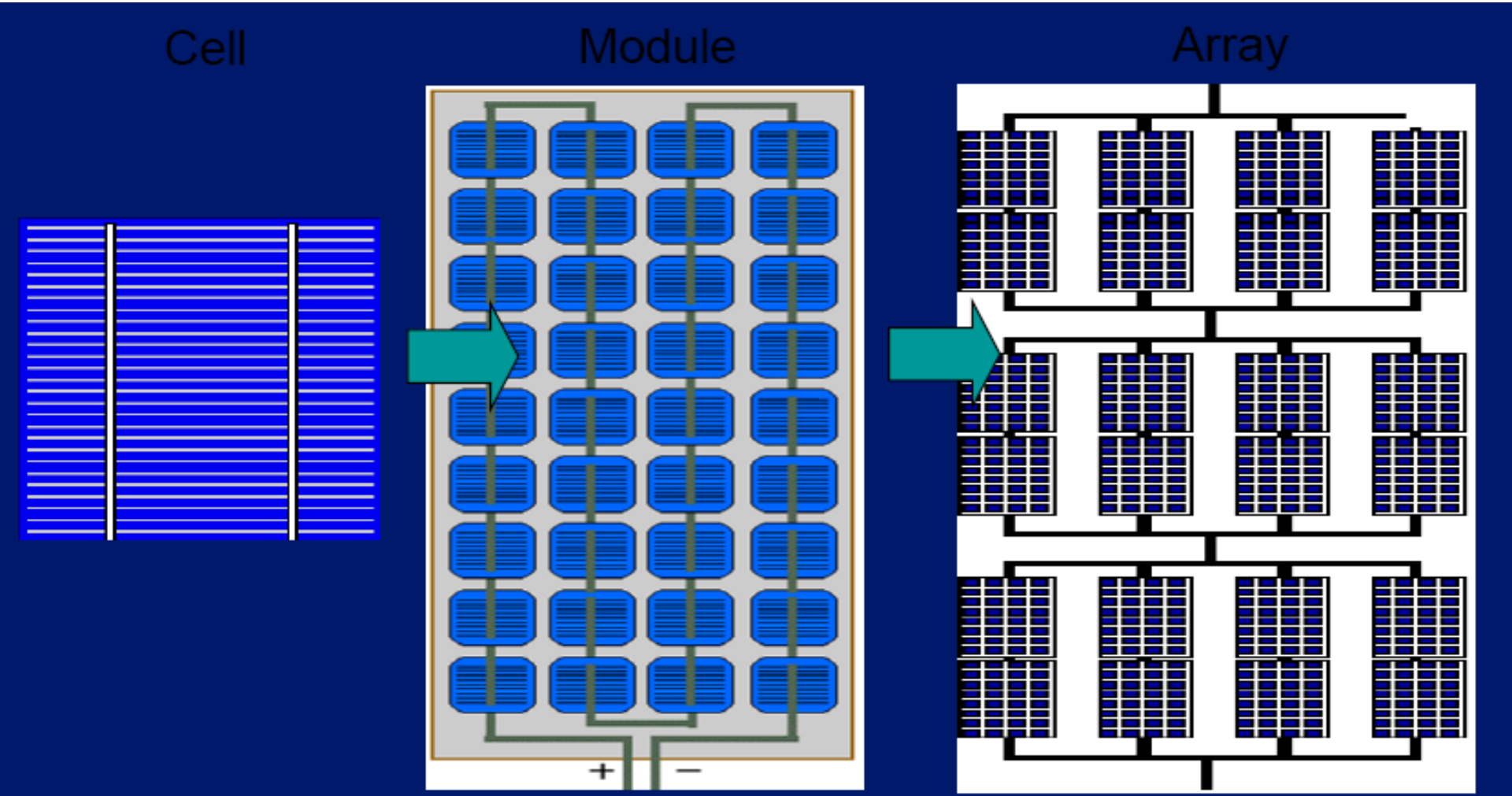
Solar PV Modules



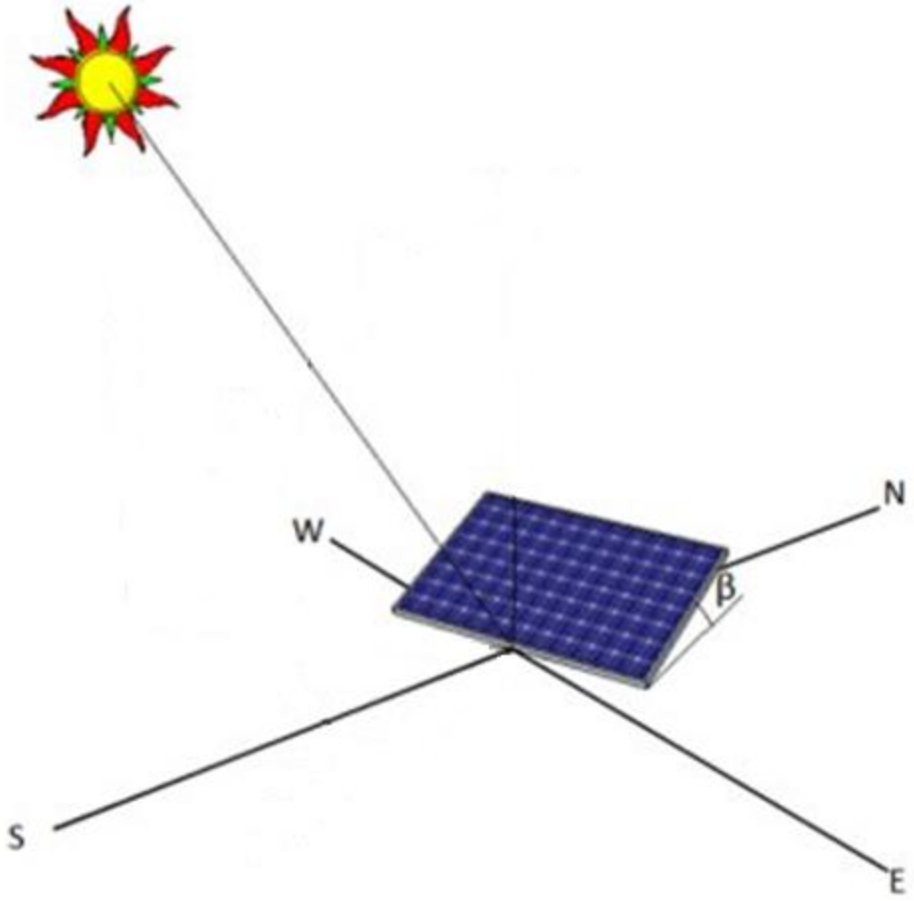


PV Array

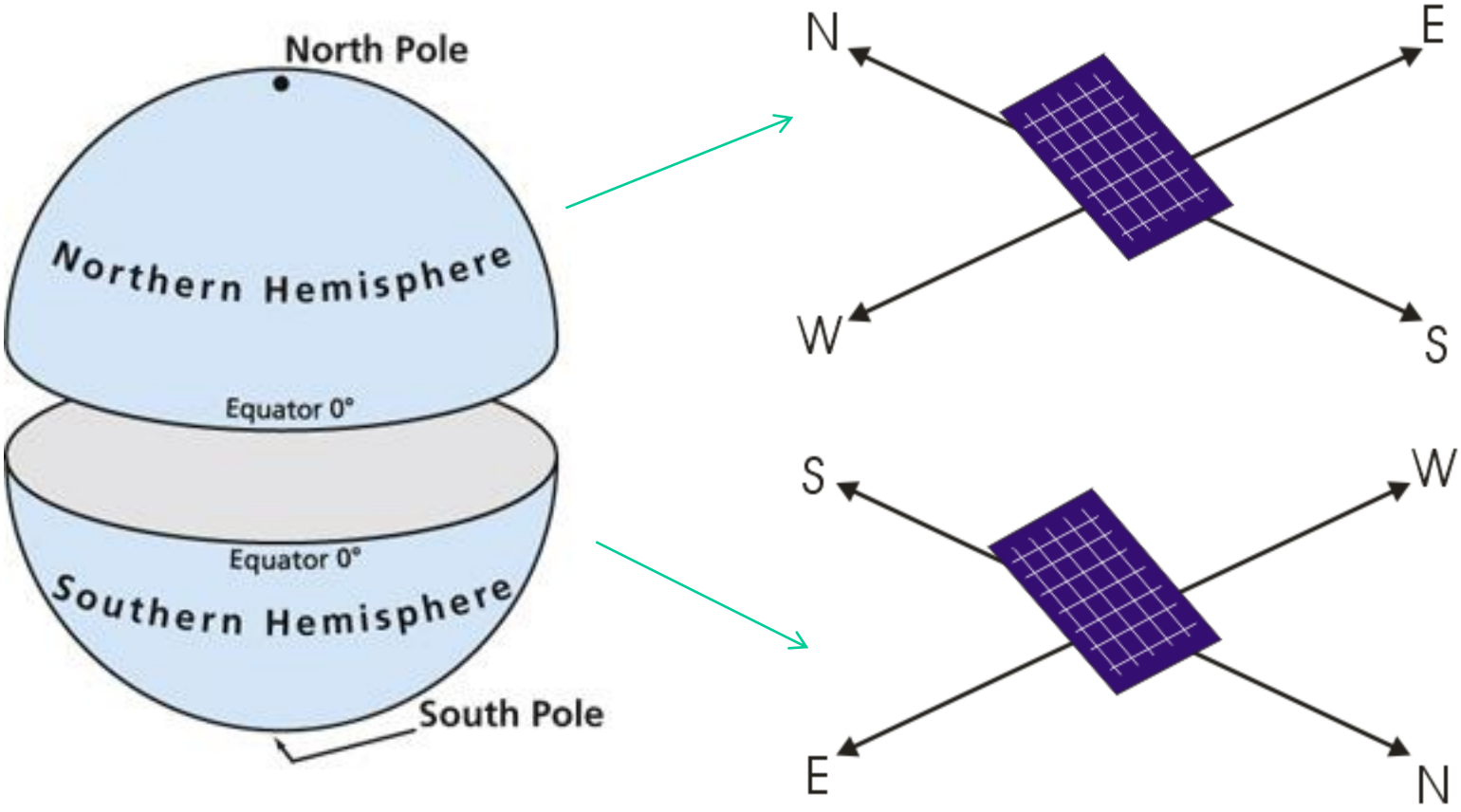
Combination of PV Modules is known as PV Array. Combination may be in series, parallel or both.

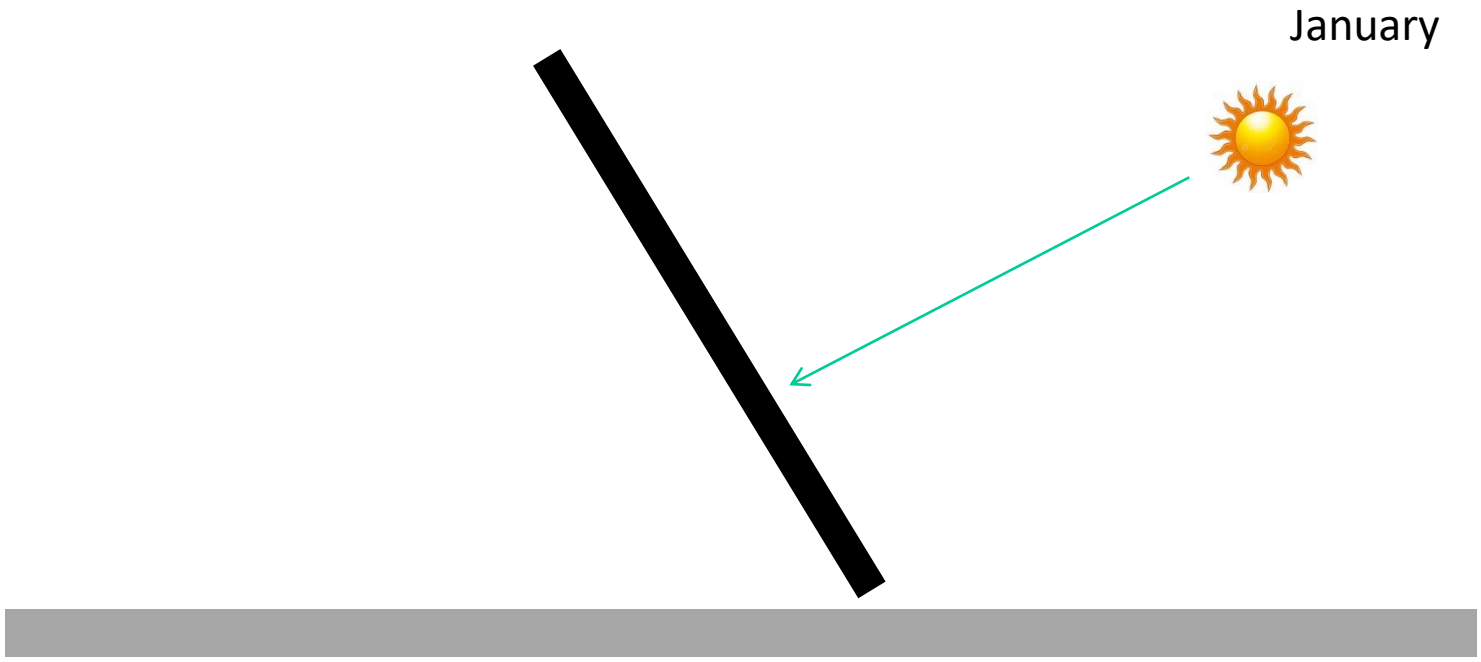


Mounting of Solar PV Modules



Northern & Southern Hemisphere of Earth

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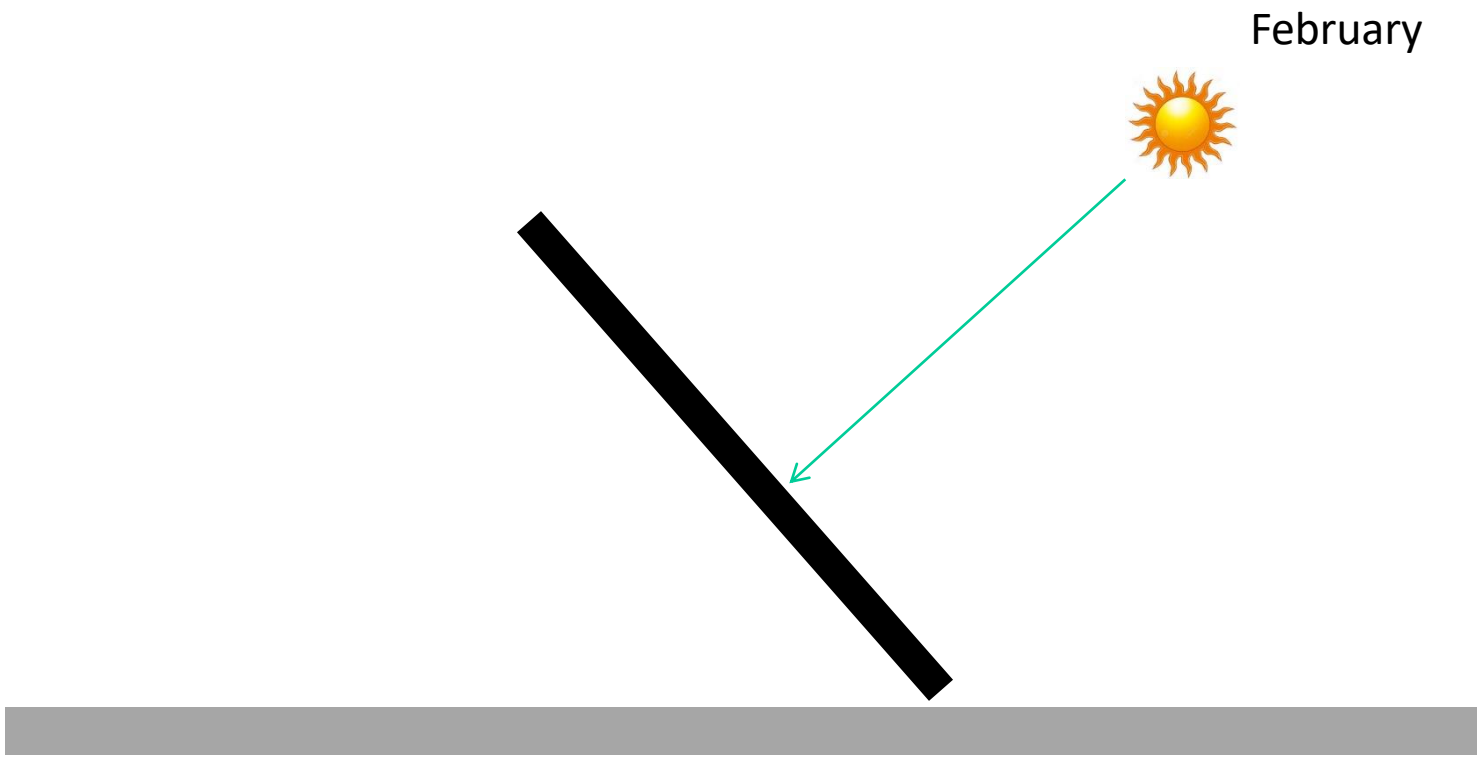
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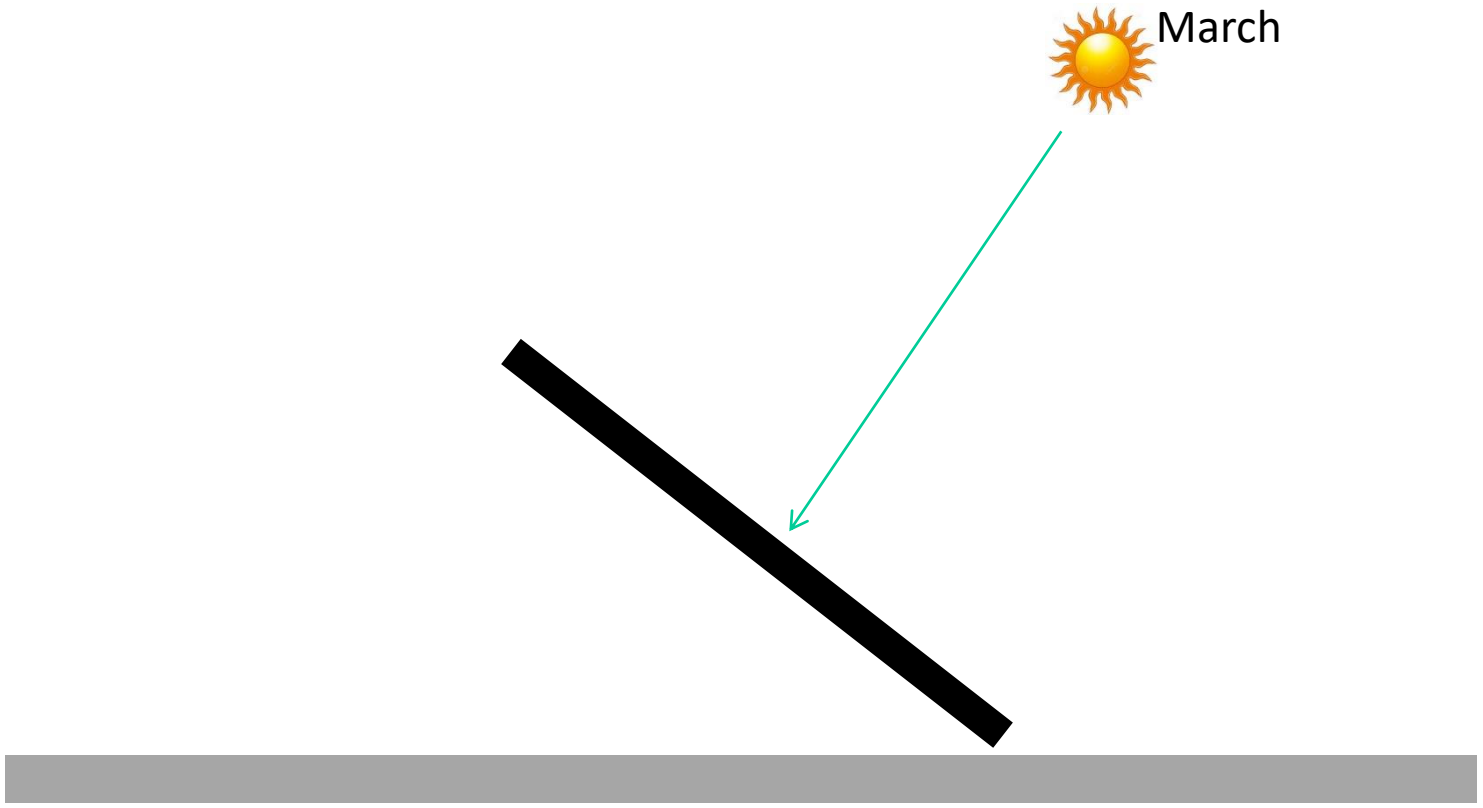
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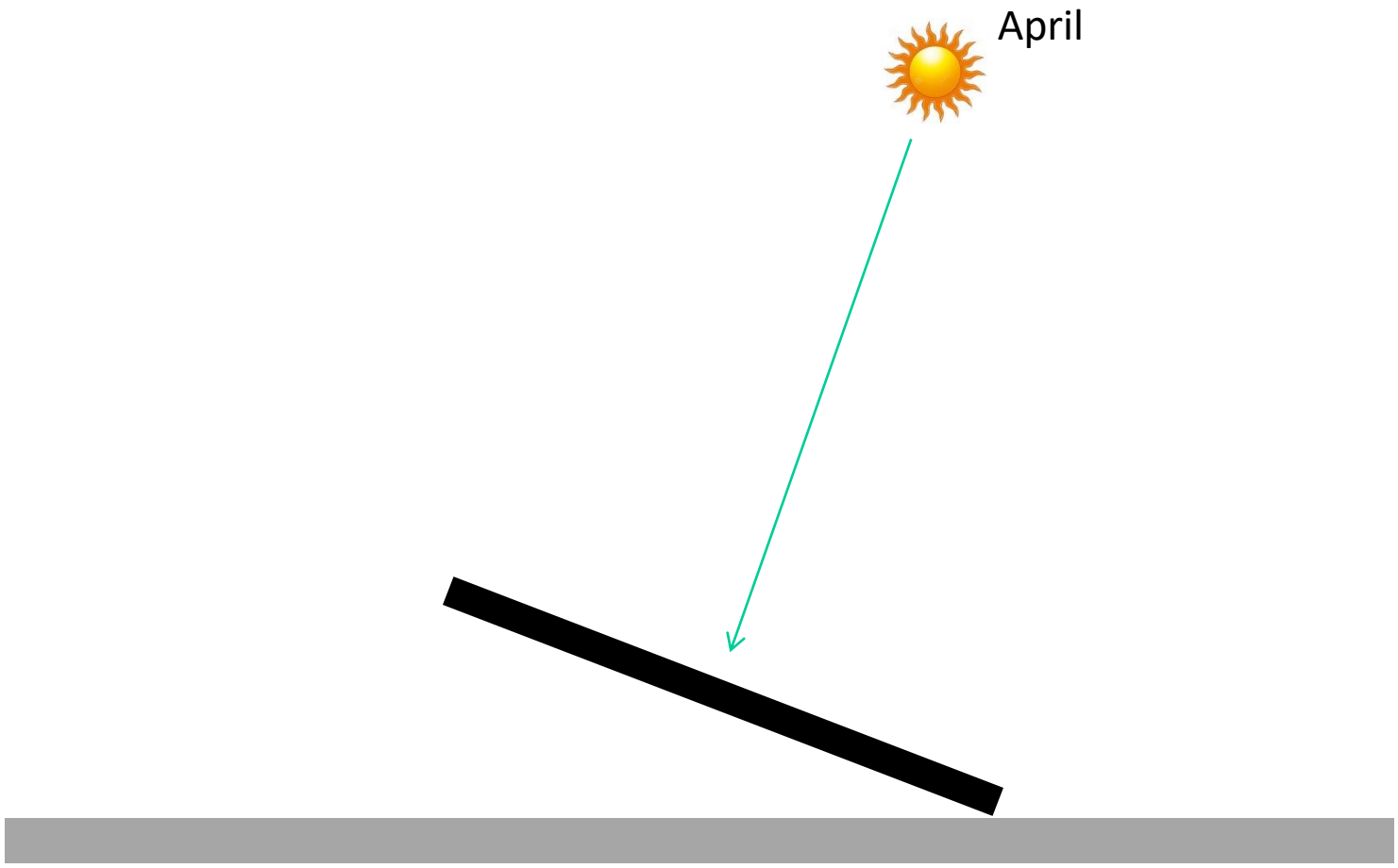
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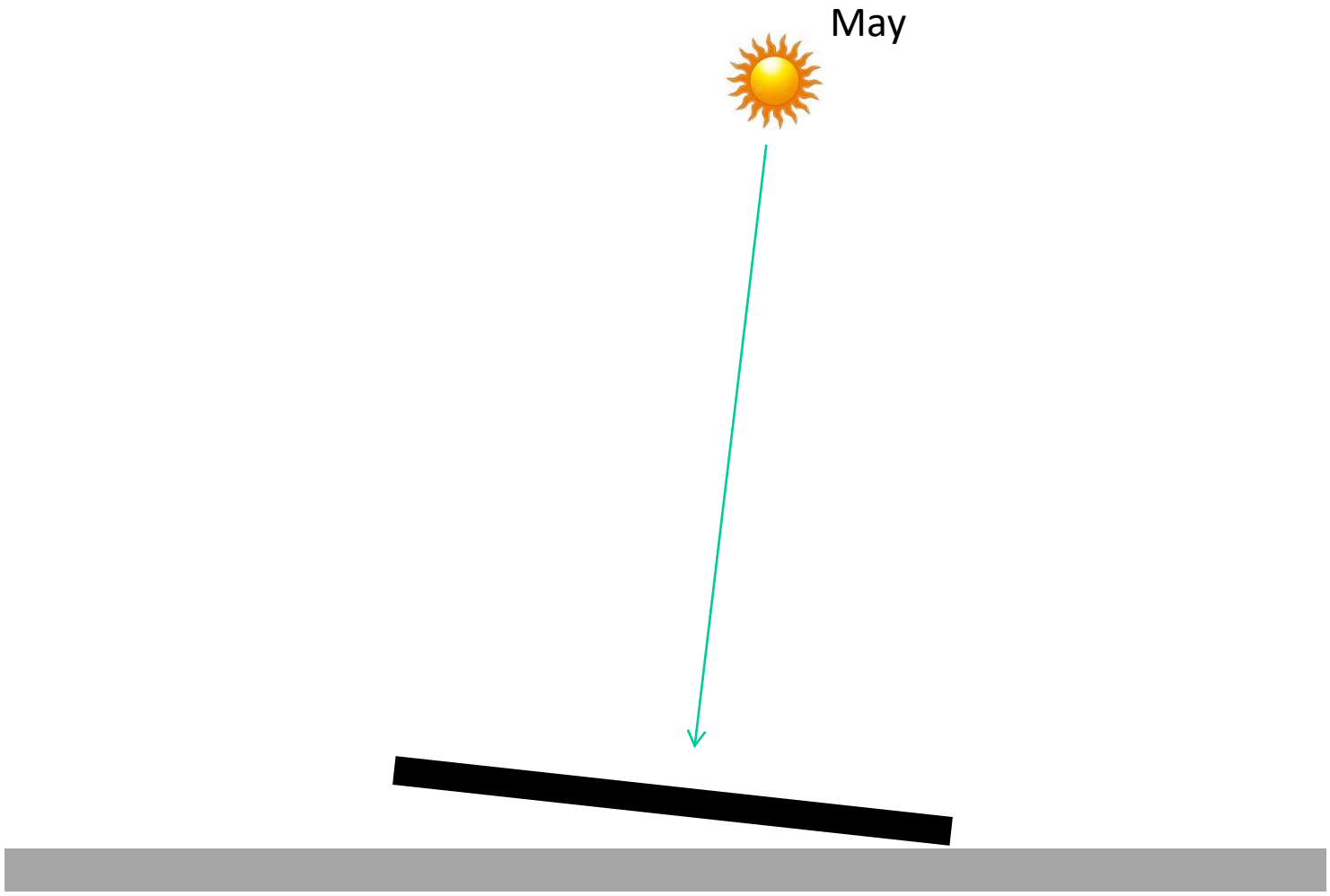
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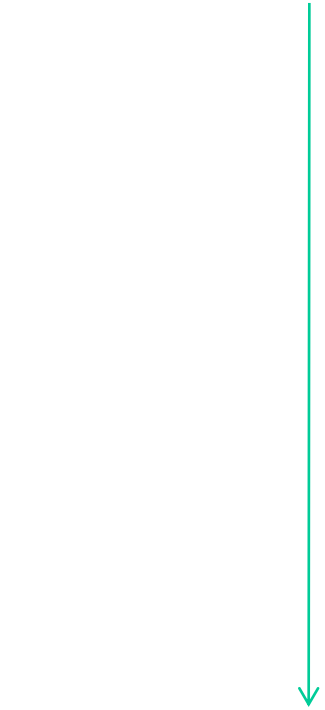
June



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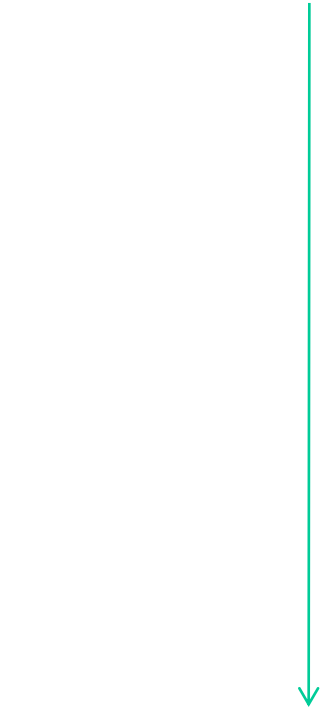

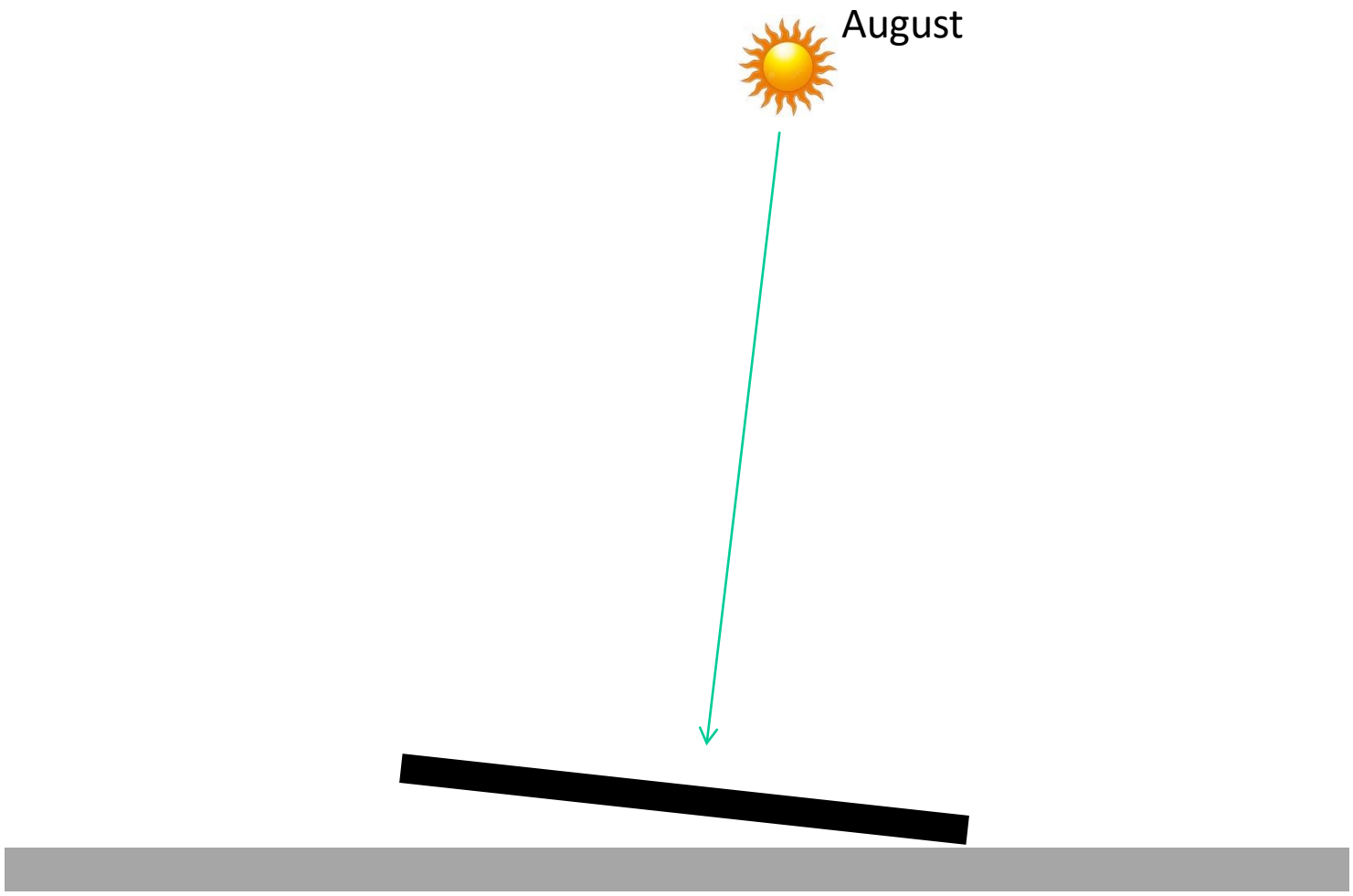
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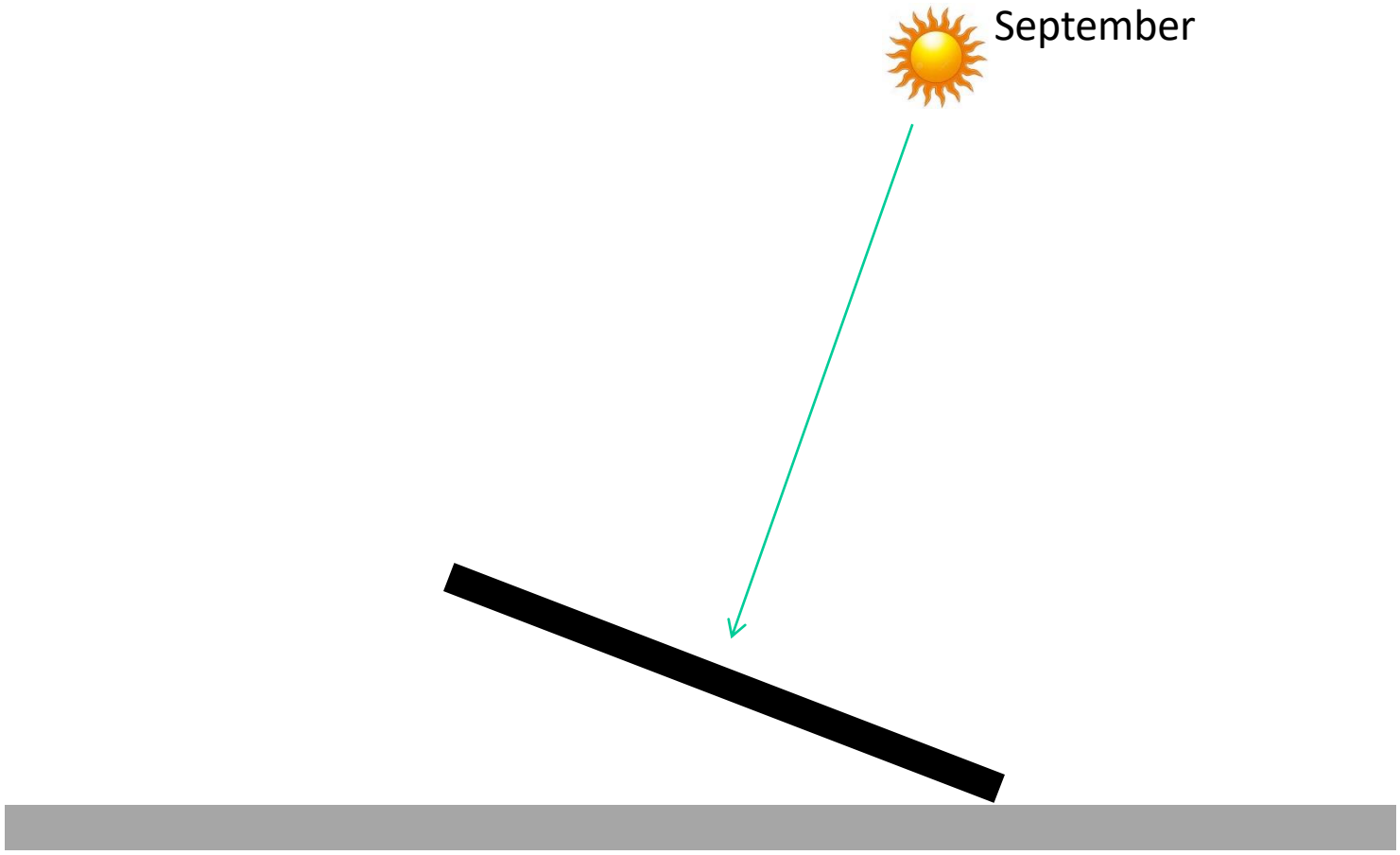
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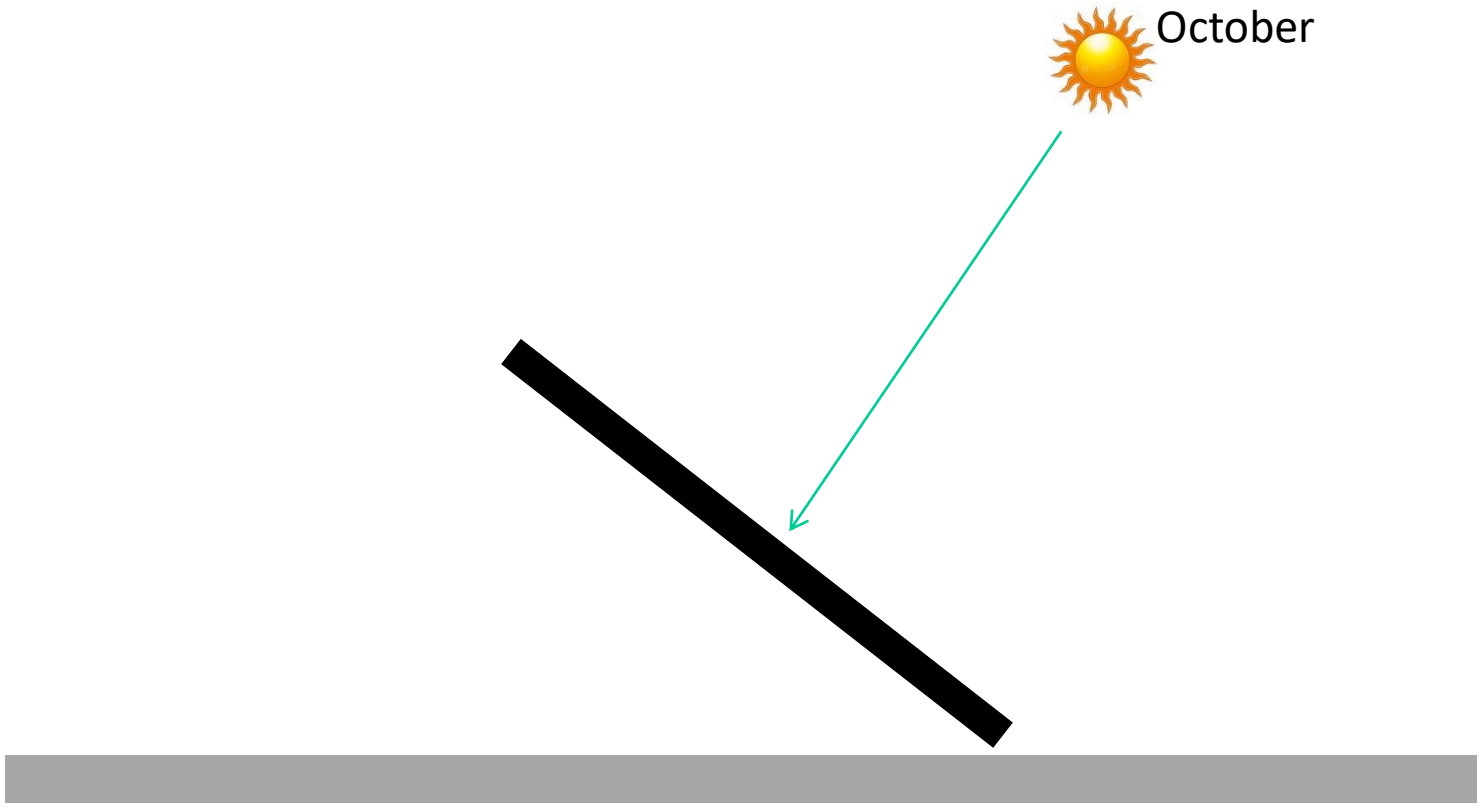
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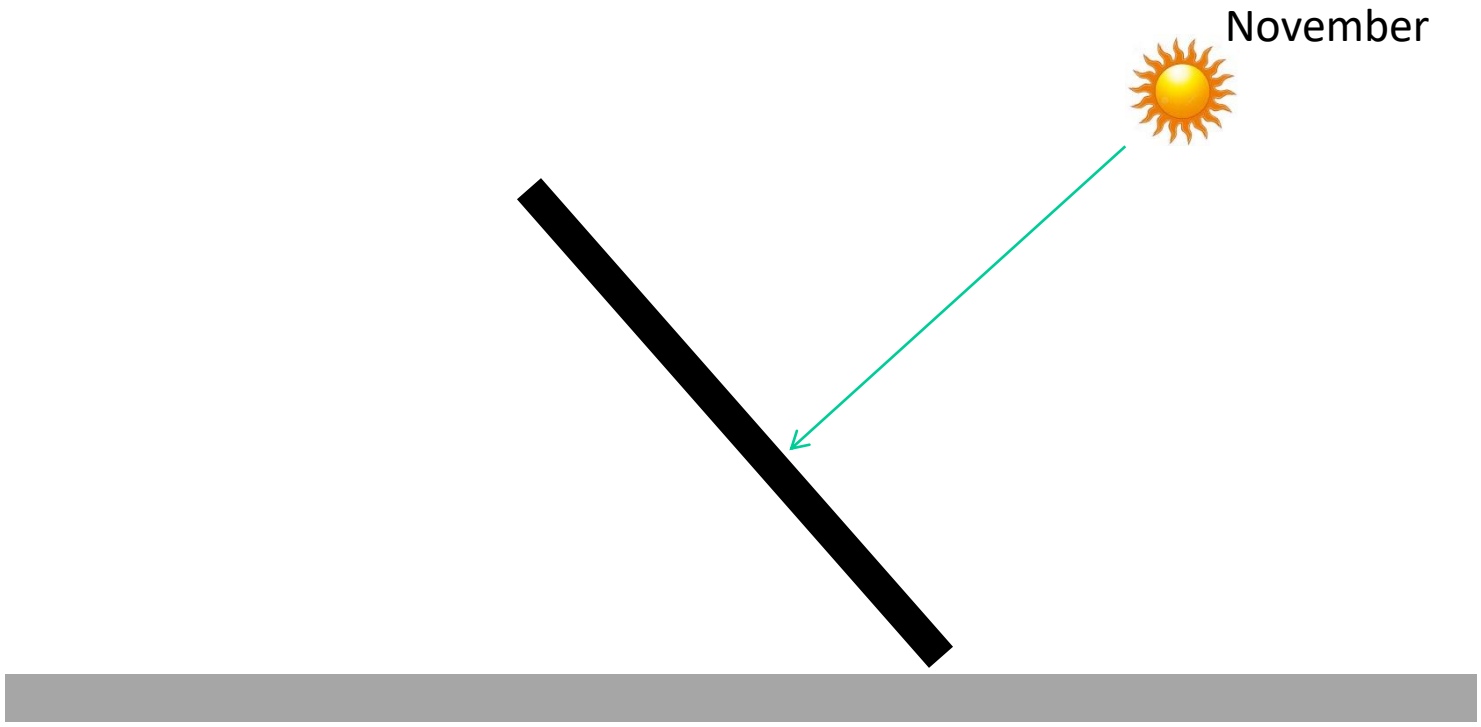
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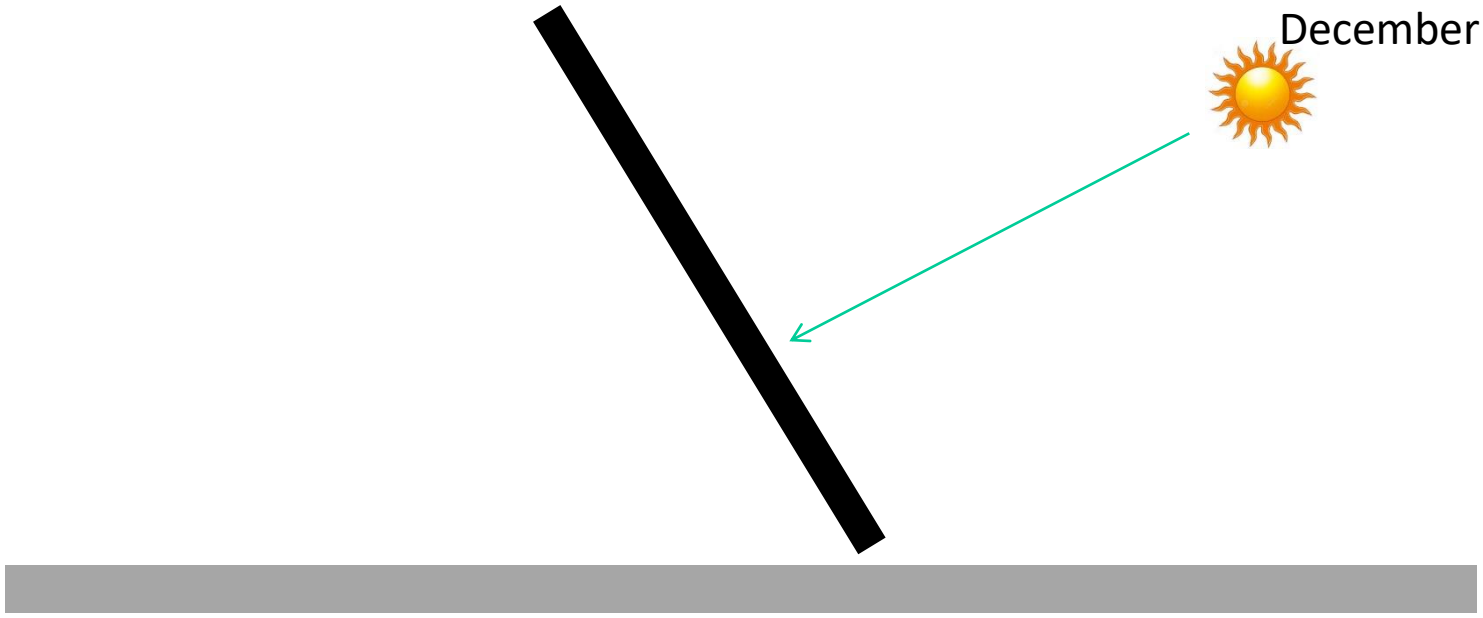

December

Solar Tracking increases the efficiency But due to cost not viable for every application

Solar PV Application/Products

- Solar lantern
- Solar Street Lights
- Solar Torch
- Solar Home Lighting System
- Solar Irrigation
- Solar battery Chargers
- Solar Power Plants – Off Grid/Grid Tied

Photovoltaic Applications

Nvis 455 6A Solar Charge Controller

सोलर LED लेन्टर्न

- उच्च दक्षता
- पोर्टेबल प्रकाश स्त्रोत
- सी. एफ. एल. के मुकाबले लगभग 30–40 प्रतिशत ऊर्जा की खपत
- ज्यादा समय तक चलने वाली एल. ई. डी.
- सुदूर ग्रामीण क्षेत्रों के लिए एक उपयुक्त समाधान

सोलर LED लेन्टर्न को कैसे बनाये ?

सोलर एल. ई. डी. लालटेन में प्रयोग होने वाले प्रमुख पुर्जे–

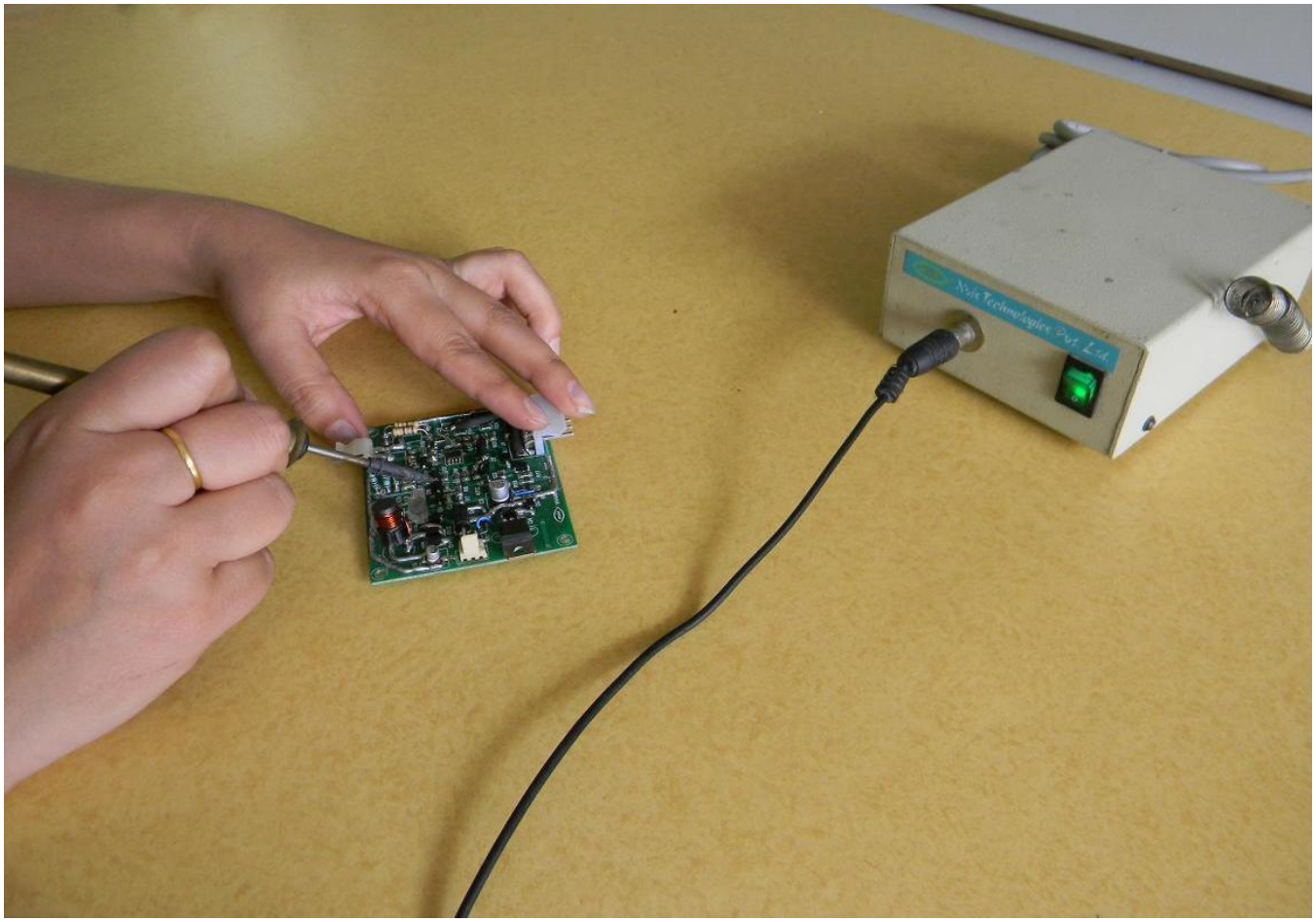
- सोलर पेनल
- बैटरी
- एल. ई. डी.
- इलेक्ट्रॉनिक सर्किट
- लालटेन केसिंग

औज़ारो की सूचि

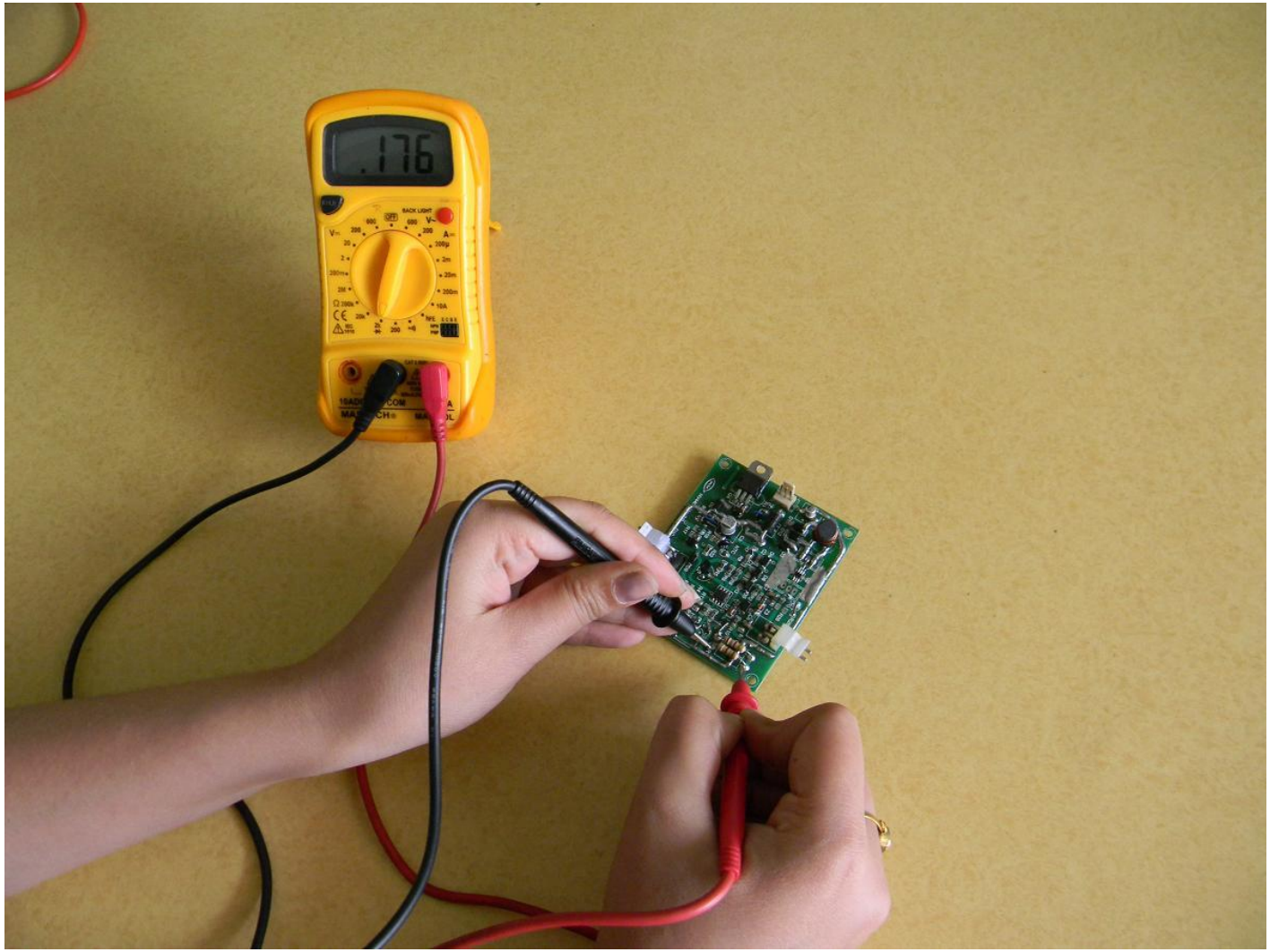



सोलर एल. ई. डी. लालटेन बनाने की विधि

पी. सी. बी. मे सारे कम्पोनेंट सॉल्डर कीजिए



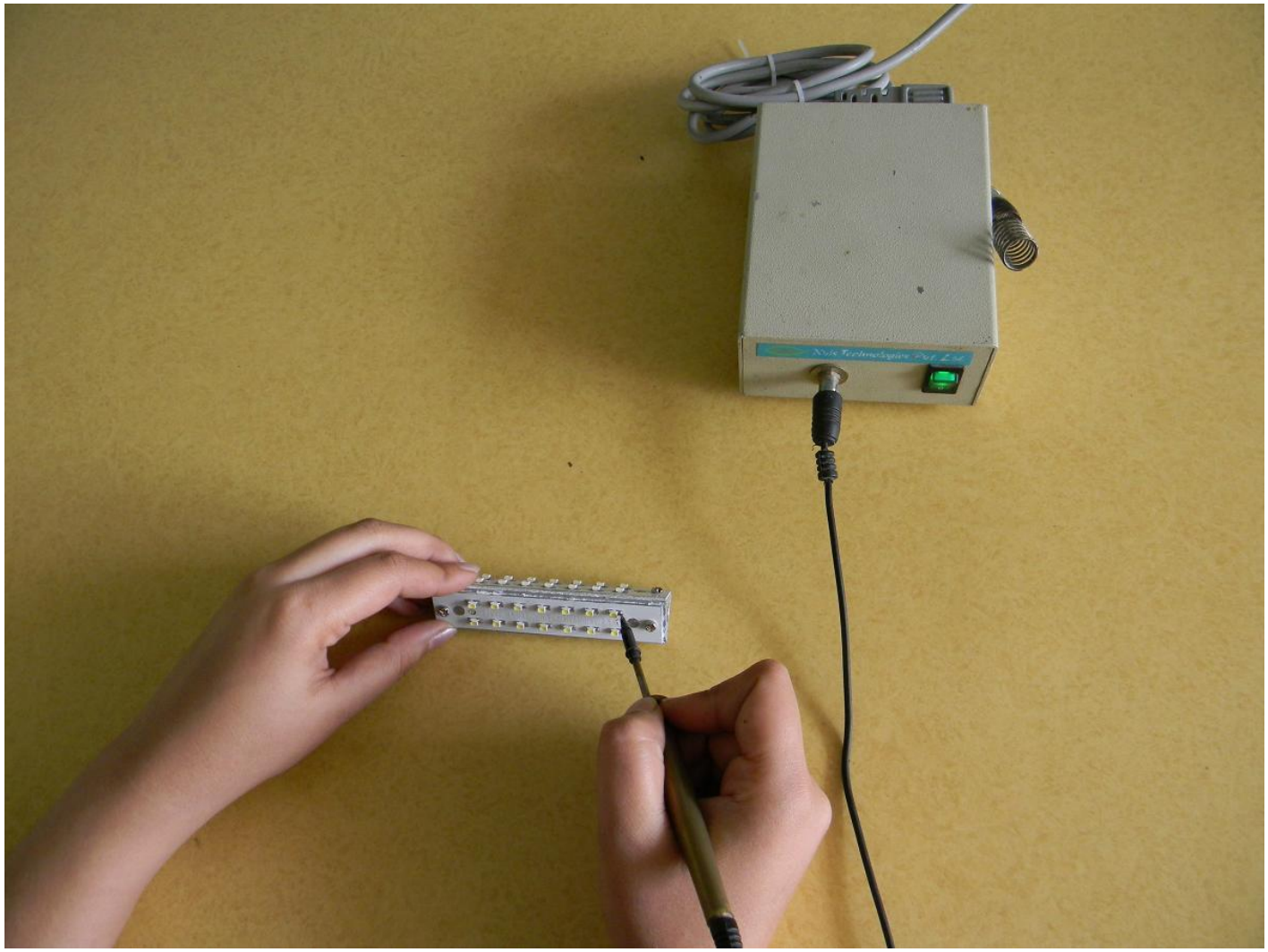
पी. सी. बी. को अच्छी तरह से चेक कीजिए



बैटरी को लालटेन केसिंग के निचले हिस्से में फिट कीजिए

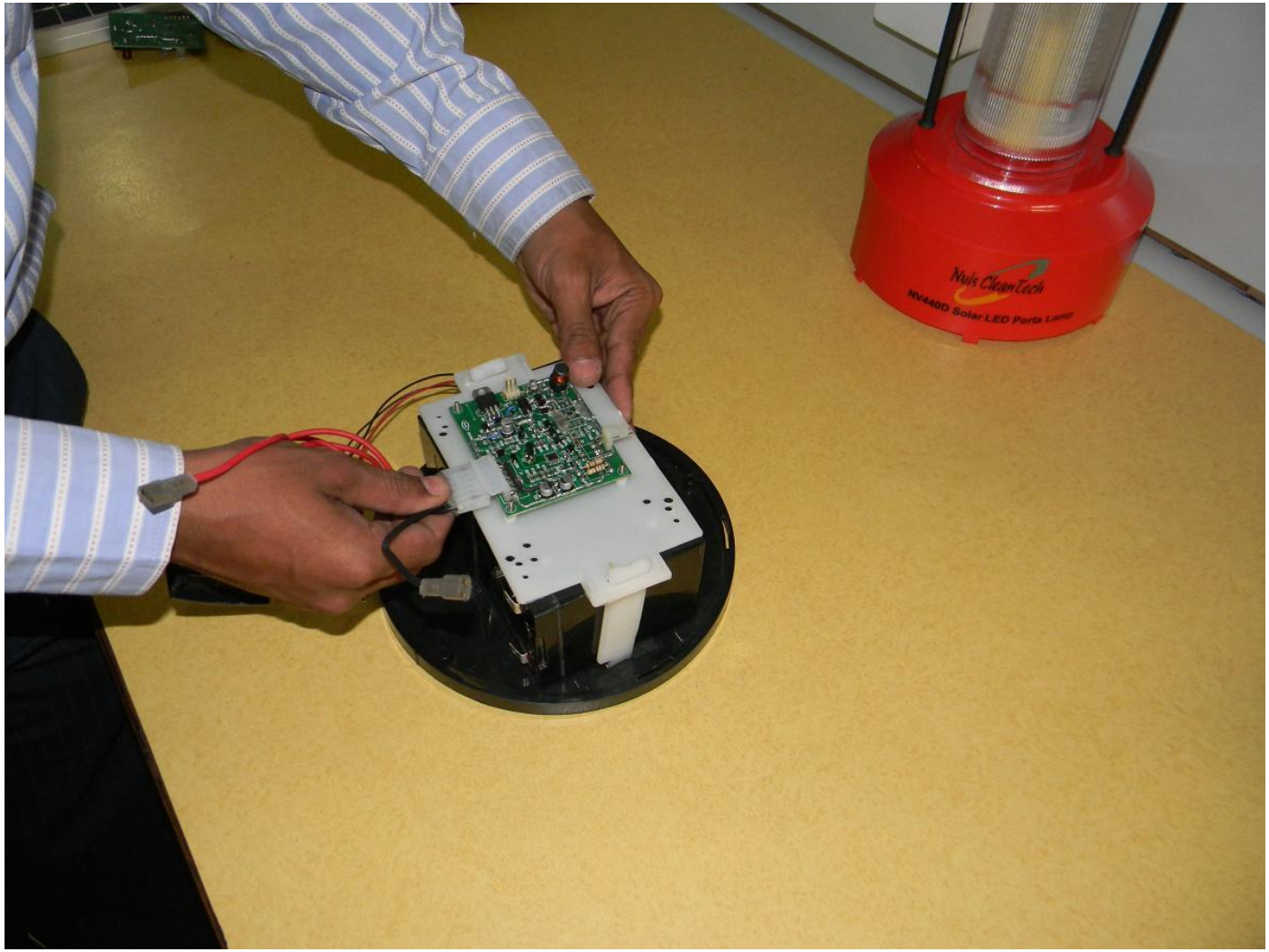
अब इलेक्ट्रॉनिक सर्किट को बैटरी के साथ लालटेन केसिंग में फिट कीजिए

एल. ई. डी. को एल. ई. डी. पी. सी. बी. के ऊपर सॉल्डर कीजिए



एल. ई. डी. पी. सी. बी. को लालटेन केसिंग के ऊपरी हिस्से में फिट कीजिए

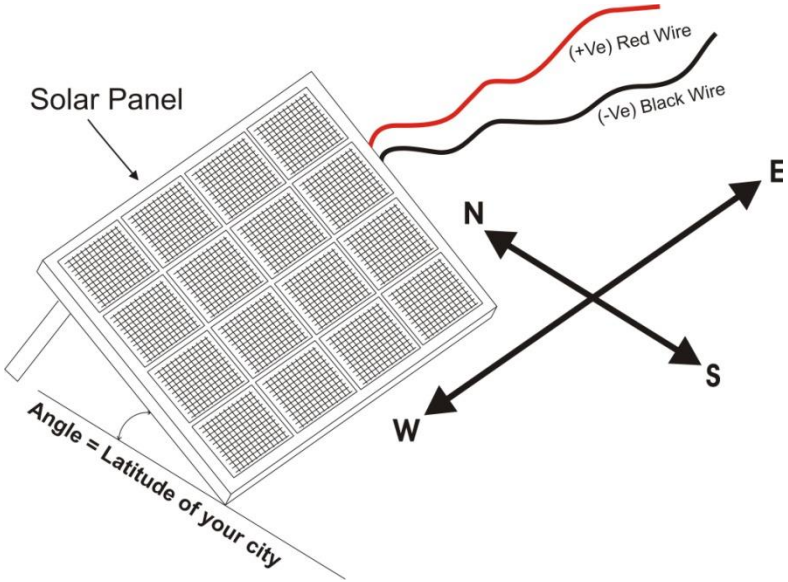
बैटरी एवं एल. ई. डी. पी. सी. बी. के वायर इलेक्ट्रॉनिक सर्किट से जोड़ दीजिए

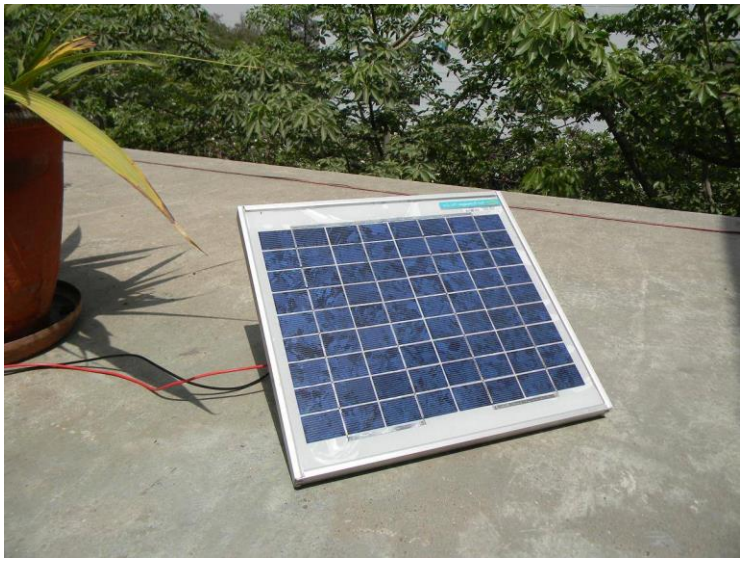


लालटेन केसिंग में बाहर की तरफ लगे हुए स्विच, चार्जिंग सॉकेट, फ्यूज, बैटरी चार्जिंग एवं बैटरी लो इंडीकेशन इलेक्ट्रॉनिक सर्किट से जोड़िए

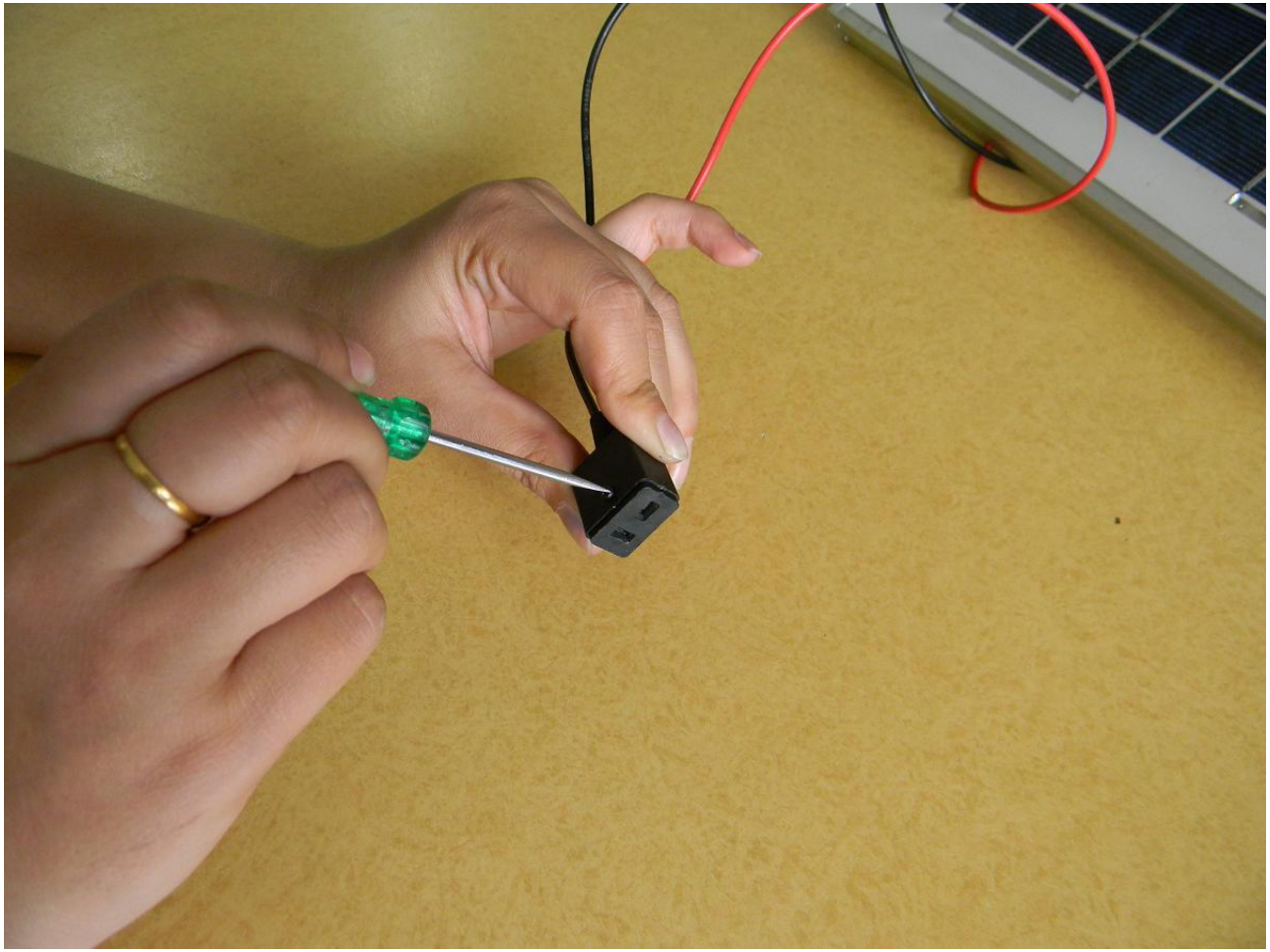
लेन्टर्न के सभी हिस्सों को आपस में जोड़ दीजिये ।
अब आपका लेन्टर्न तैयार है ।

सोलर पेनल को छत पर इस प्रकार स्थापित करें कि दोपहर के समय सूर्य की किरणें पेनल पर सीधे पड़े





सोलर पेनल से वायर जोड़कर घर के अंदर लाऐं एवं इन वायरों को चार्जिंग पिन में जोड़िए



अब आपका लेन्टर्न उपयोग के लिए तैयार है।

Solar LED Torch

Solar garden Lamp

On-Grid Vs. Off-Grid System

On Grid

- Reduces your electricity bills
- Generates a passive income
- Guaranteed long life span
- Reduces your carbon use

Off Grid

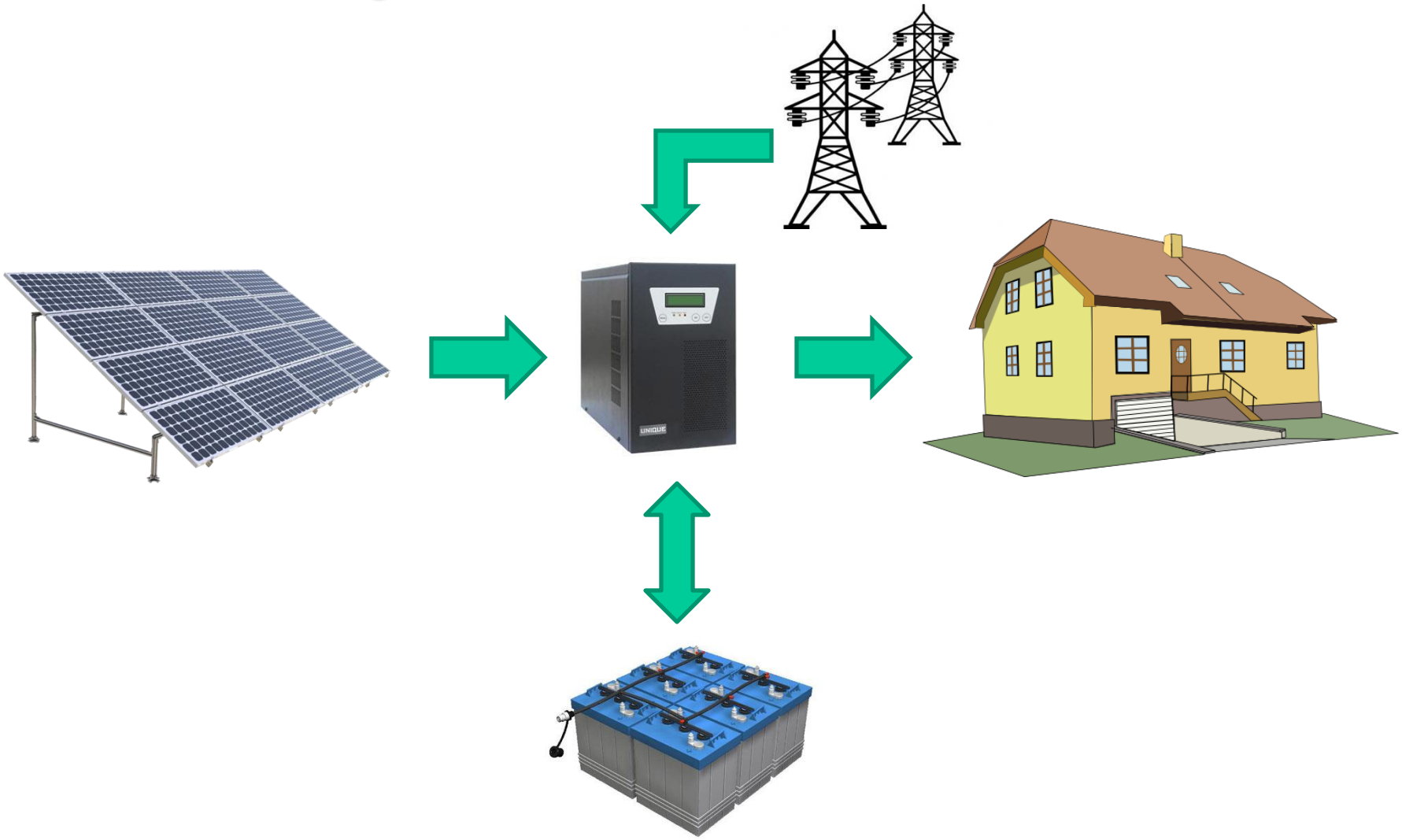
- Brings electricity to remote areas
- Provides electricity during power cuts
- Uses batteries to store power (these are expensive and need to be replaced every 1-5 years)

Requirements

- Existing grid infrastructure
- Grid company permit

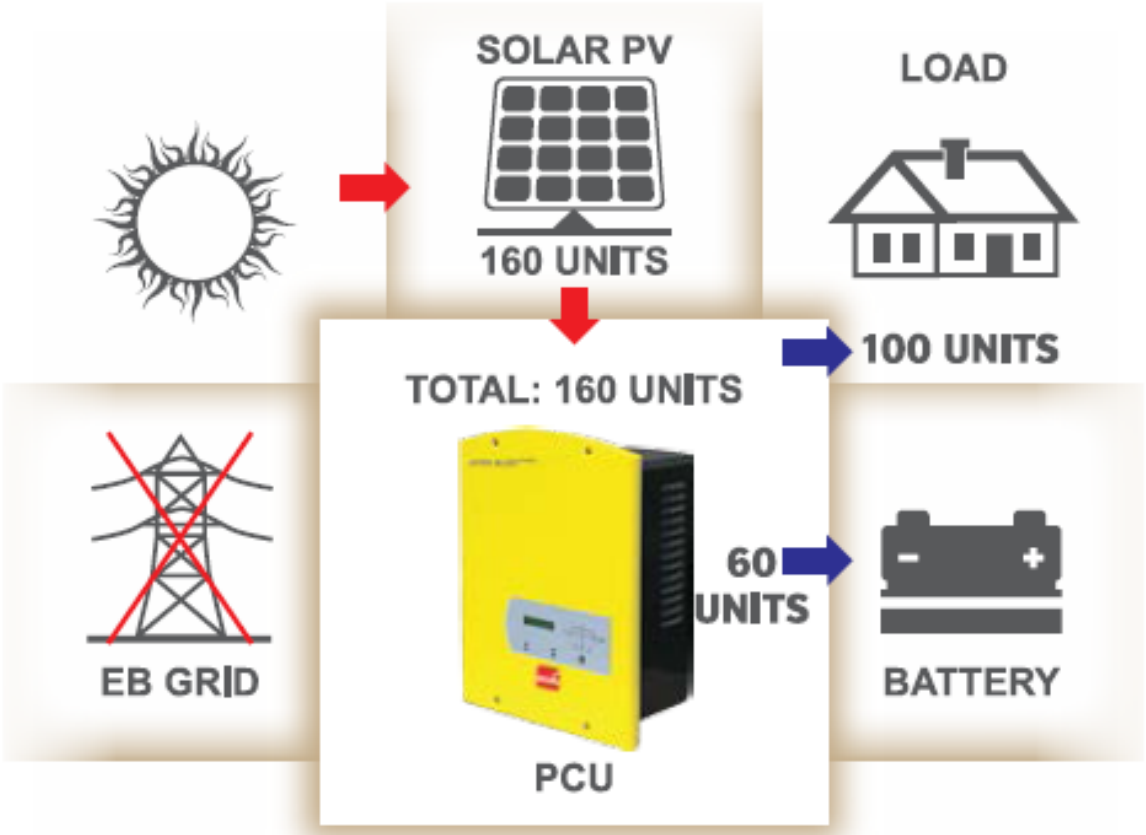
- Detailed planning process
- Larger upfront investment

Off-Grid System consists of



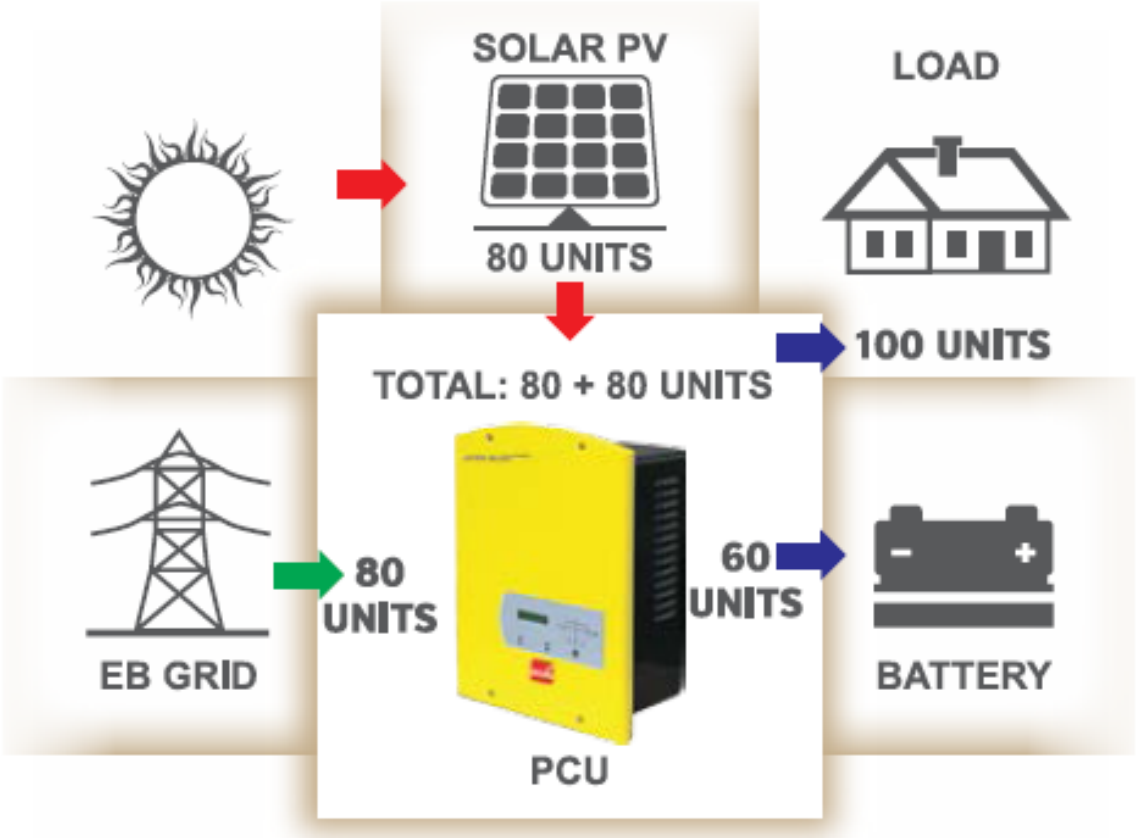
Off-Grid System

Case 1: PV energy more than connected load.
EB Grid power not required.
Battery not fully charged.

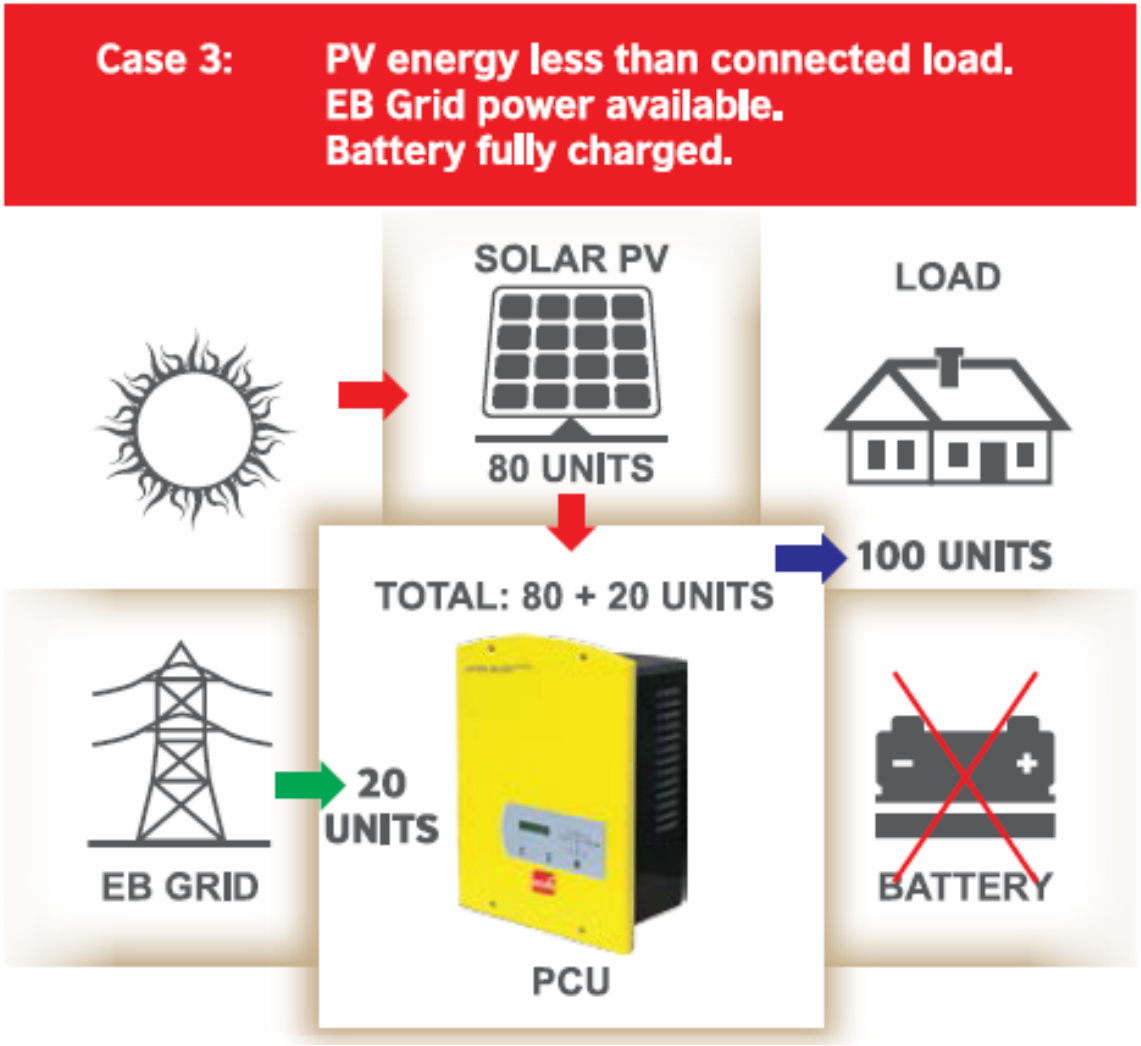


Off-Grid System

Case 2: PV energy less than connected load.
EB Grid power available.
Battery not fully charged.



Off-Grid System



Net Metering Concept

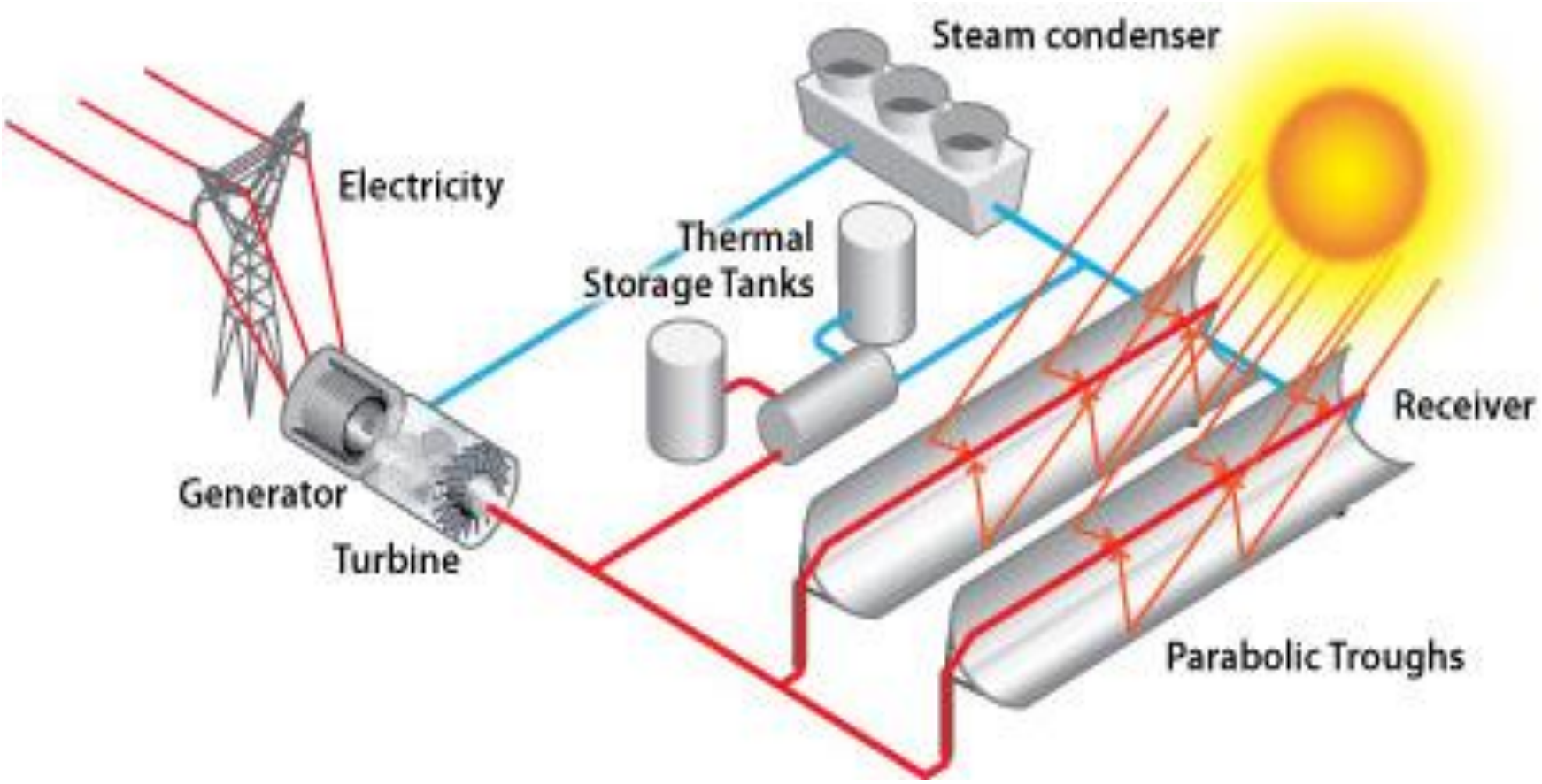
Nvis 451 Solar Water Pumps

Solar Thermal

In Solar Thermal we use the heat generated by Sun. This heat can be used directly or can be converted from one form to another form.

Solar Thermal Applications

Burning the paper using magnified glass


Steam condenser
Electricity
Thermal
Storage Tanks
Receiver
Generator
Turbine
Parabolic Troughs

Thermal Applications

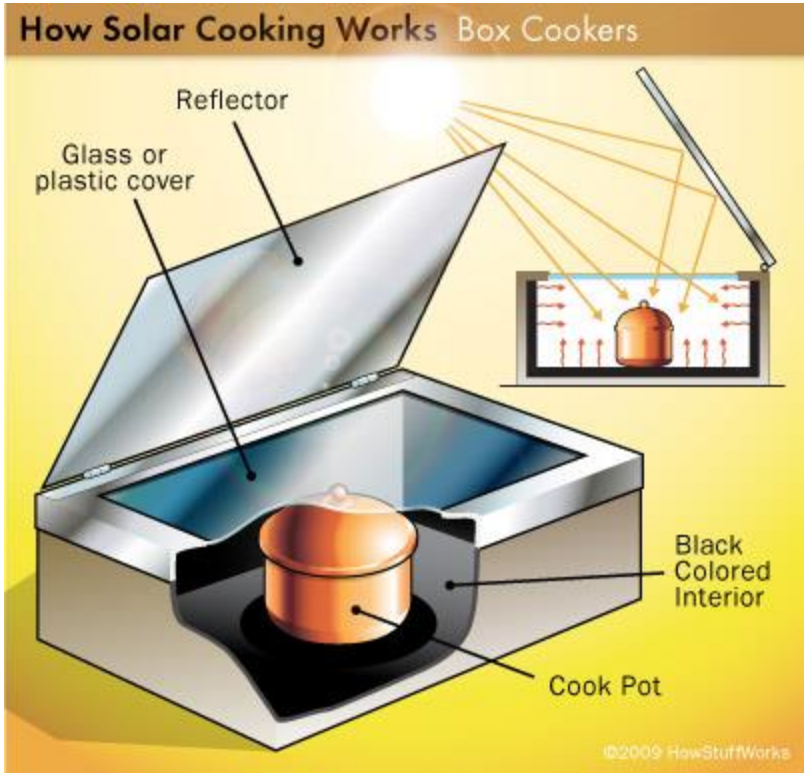
Solar Dryer

Solar Water Heaters

Solar Cookers

Solar Thermal Products

Solar Cooker



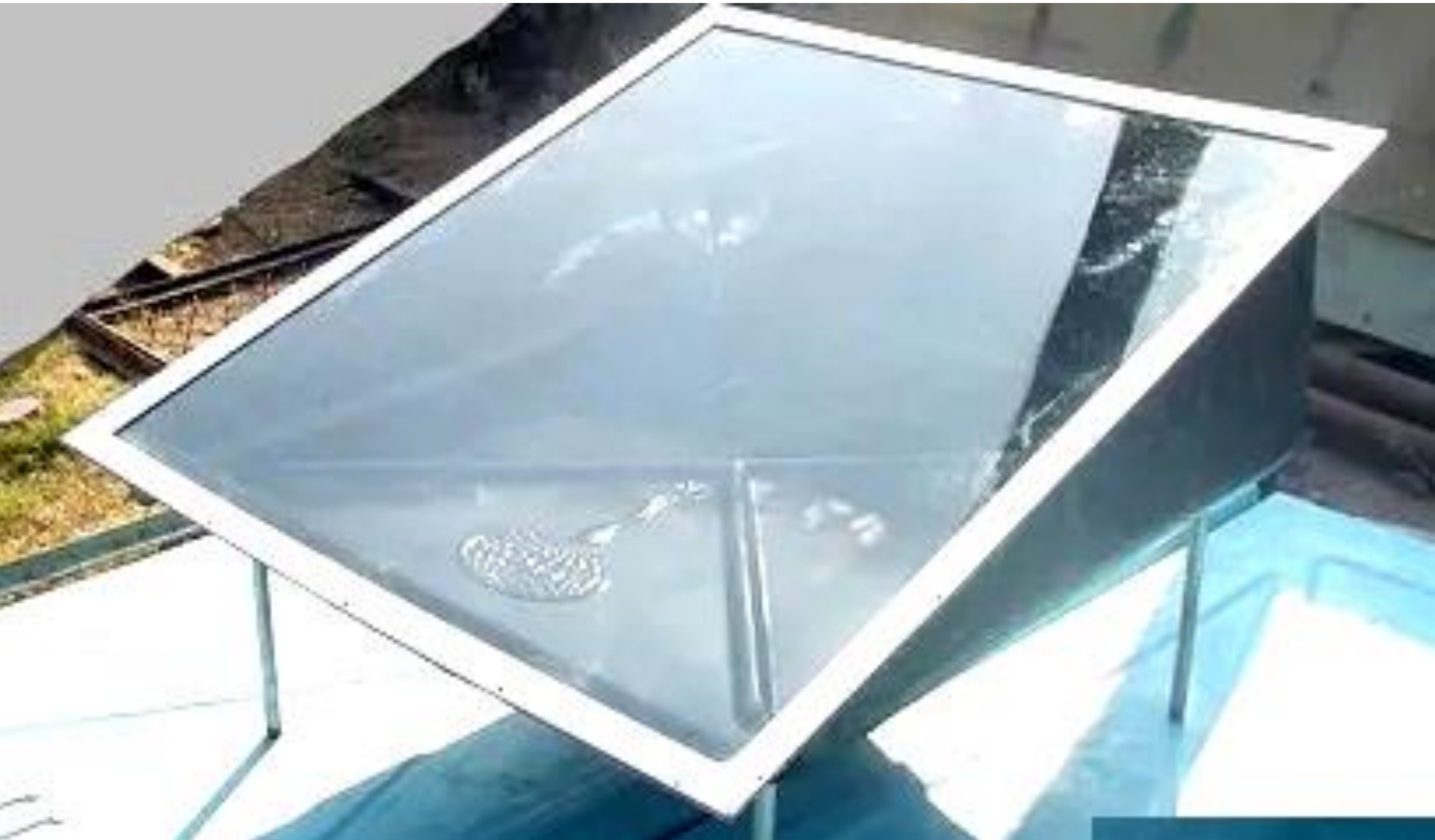
Solar Thermal Products

Solar Water Heater

ETC Type

FPC Type

Nvis 690T Solar Distillation System



Solar Parabolic Concentrator Nvis 592T

Parabolic Solar Concentrator concentrates sunlight to a single point. When this point is focused on the bottom of a pot, it can heat the pot quickly to very high temperatures which can often be comparable with the temperatures achieved in gas and charcoal grills. Parabolic solar collector uses a parabolic-shaped reflector to direct sunlight to a small area in order to generate heat for cooking. They are able to reach high temperatures, which allows them to be used for grilling and frying

Nvis 454 Solar Air Heater

Nvis 454 Solar Air Heater converts energy from the sun into usable heat in a solar air heating system. This energy can be used for domestic and commercial hot air heating, space heating or even air conditioning. For many years the evacuated tube has been used to heat the water but it has never been used for the generation of hot air.

Features

- High quality vacuum tubes to minimize heat loss
- Durable and strong outer body
- Generates hot air without electricity or any other fuel
- Compact size, low height & lightweight
- Efficient performance in winters

Nvis 681 Solar Crop Dryer

Solar Thermal Applications

To dry our foods

Potato Chips

Chilly, Coriander, etc.

Solar Business Opportunities

Retail of Solar products

- Solar Street Lights
- Solar Home lighting System
- Solar lantern
- Solar Street Lights
- Solar Torch
- Solar Home Lighting System
- Solar Irrigation Solutions
- Solar Power Plants – Off Grid/Grid Tied
- Solar Cooker
- Solar Water Heater
- Solar Crop Dryer
- Solar Air heater

…….and many more

Be a Distributor of all Solar solutions

Manufacturing of Solar Solutions

- Cottage Industry
- Develop Innovative Solutions

EPC Services

- **Erection of Power Plant**
- **Procurement of System raw Material**
- **Commissioning of Power Plant**

- **Energy Auditor**
- **Site Survey expert**
- **Technical Consultancy**
- **Repair & Maintenance (Service Technicians)**

Some innovative Products

Thermal Applications

Fresnel Lens based Solar Cooker

Ultra Portable Solar Cooker

6.3 kW Solar Power Plant Installed at our Campus Indore

Jugaad Tracking!

How Scientech can Support

We are Solar Training Products Manufacturer so can provide

- **Technology Training**
- **Internship**
- **Apprenticeship**

Thank You

Please feel free to contact for any query

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