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Sixth Assembly of International Solar Alliance

Why in News?

- **Recently, the Sixth Assembly of the International Solar Alliance (ISA) was convened at Bharat Mandapam in New Delhi.**

What is the International Solar Alliance?

- ISA is a platform for increased deployment of solar energy technologies
- ISA was conceptualized during the 21st Conference of Parties (COP21) in 2015. as a joint effort by India and France
- ISA is a coalition of solar resource rich countries lying fully or partially between the Tropic of Cancer and the Tropic of Capricorn
- With its framework amended in 2020, all UN member states are eligible to join ISA
- Currently, 116 countries are signatories

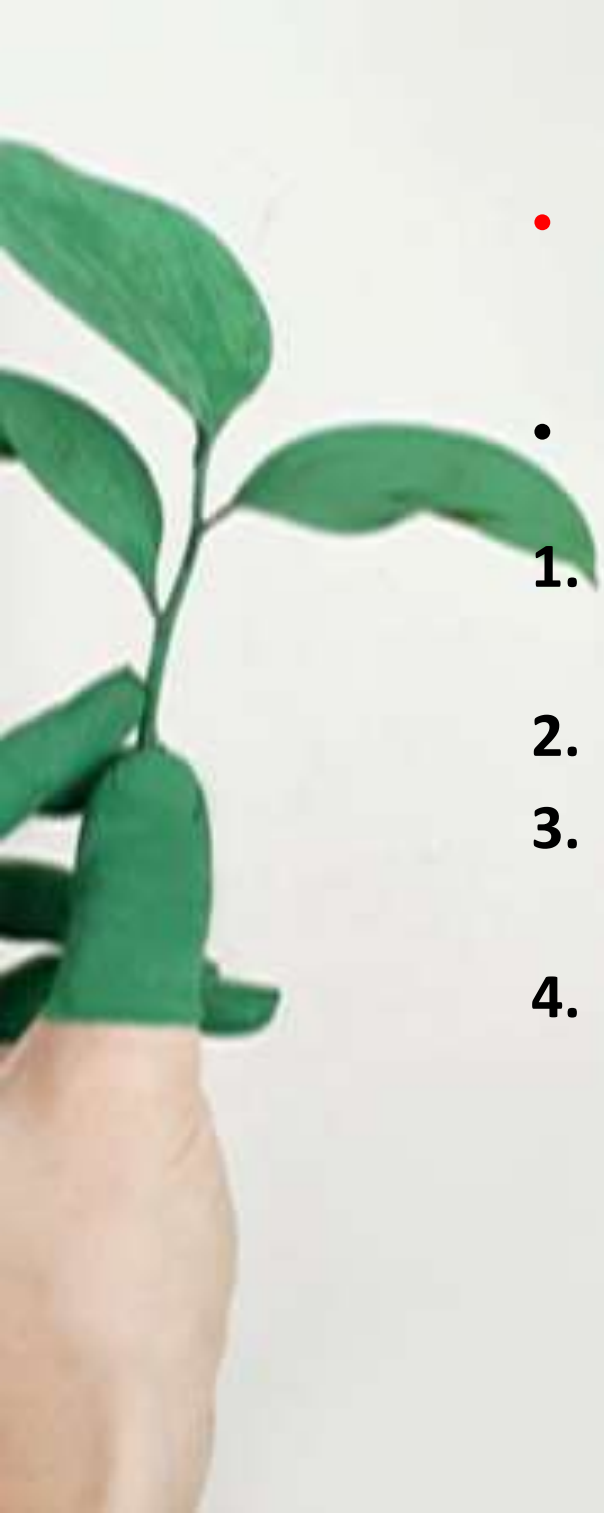
Secretariat of ISA- National Institute of Solar Energy campus, Gurugram, Haryana.

Objectives:

- The ISA's major objectives include **global deployment of over 1,000GW of solar generation capacity by 2030** and **mobilisation of** investment of over **US$ 1000 billion into solar energy**.

Major Highlights of the Sixth Assembly of the International Solar Alliance (ISA)

- The Assembly discussed the ISA's broader strategy, emphasizing the need to focus on energy access before transitioning to renewable sources,
- The assembly announced an increase in Viability Gap Funding (VGF) for projects, raising it from 10% to a range of 35% to foster greater investments, particularly in African countries.



- **Four projects supported by the ISA were inaugurated during the assembly.**

- **These initiatives spanned across different countries:**

1. **Solarization of the Parliament of Malawi (African country)**
2. **Solarization of rural healthcare centers in Fiji**
3. **Installation of a solar-powered cold storage in Seychelles**
4. **Solarization of a school in Kiribati**

- India reaffirmed the commitment to make solar energy the primary energy source and
- emphasized that renewable energy could potentially supply 65% of the world's total electricity by 2030 and
- Decarbonize 90% of the power sector by 2050.

- **India lying in tropical belt has an advantage of receiving peak solar radiation for 300 days, amounting 2300-3,000 hours of sunshine equivalent to above 5,000 trillion kWh.**

- **Solar energy is pollution free , virtually inexhaustible supply and global distribution, solar energy is very attractive energy resource.**

Solar Energy

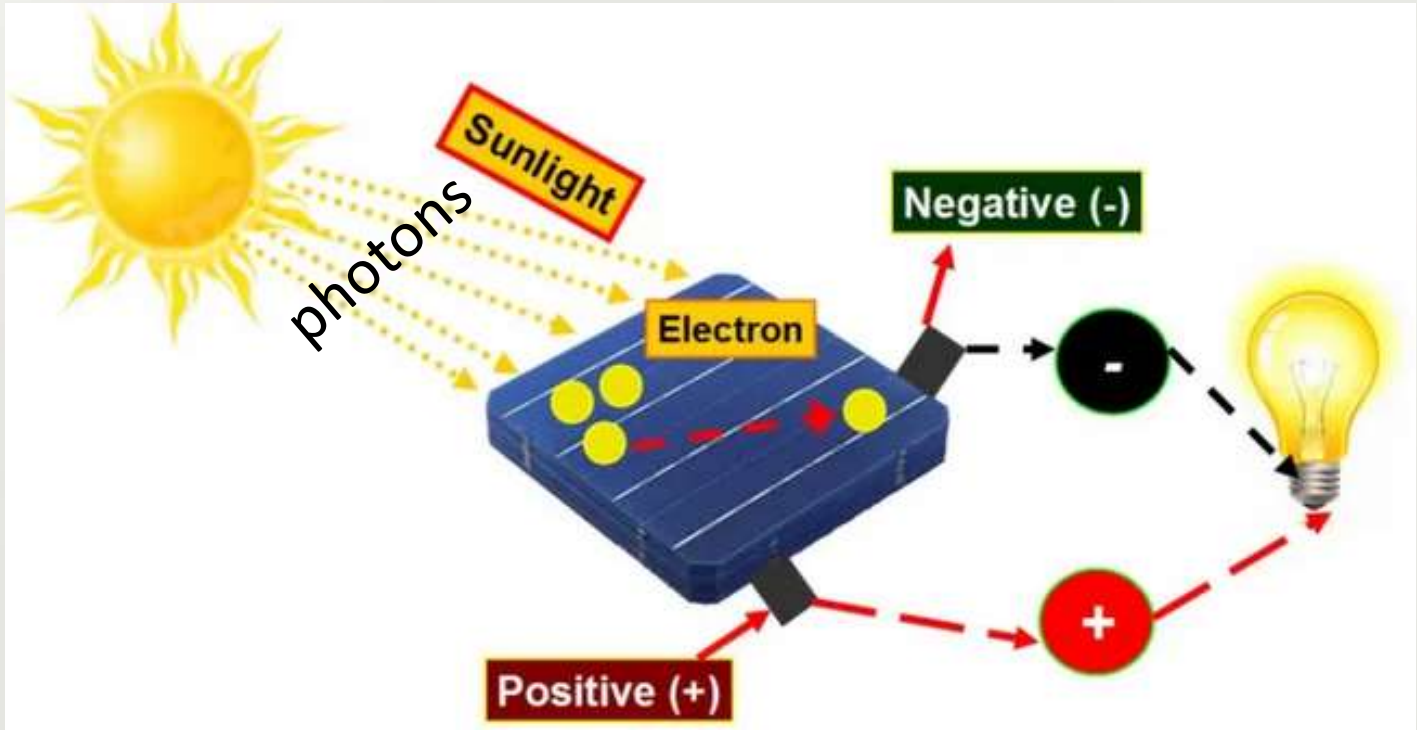
The radiation that is received from the sun and utilized in the form of electricity and thermal energy by using various available technologies like photovoltaic panels, solar heater etc.

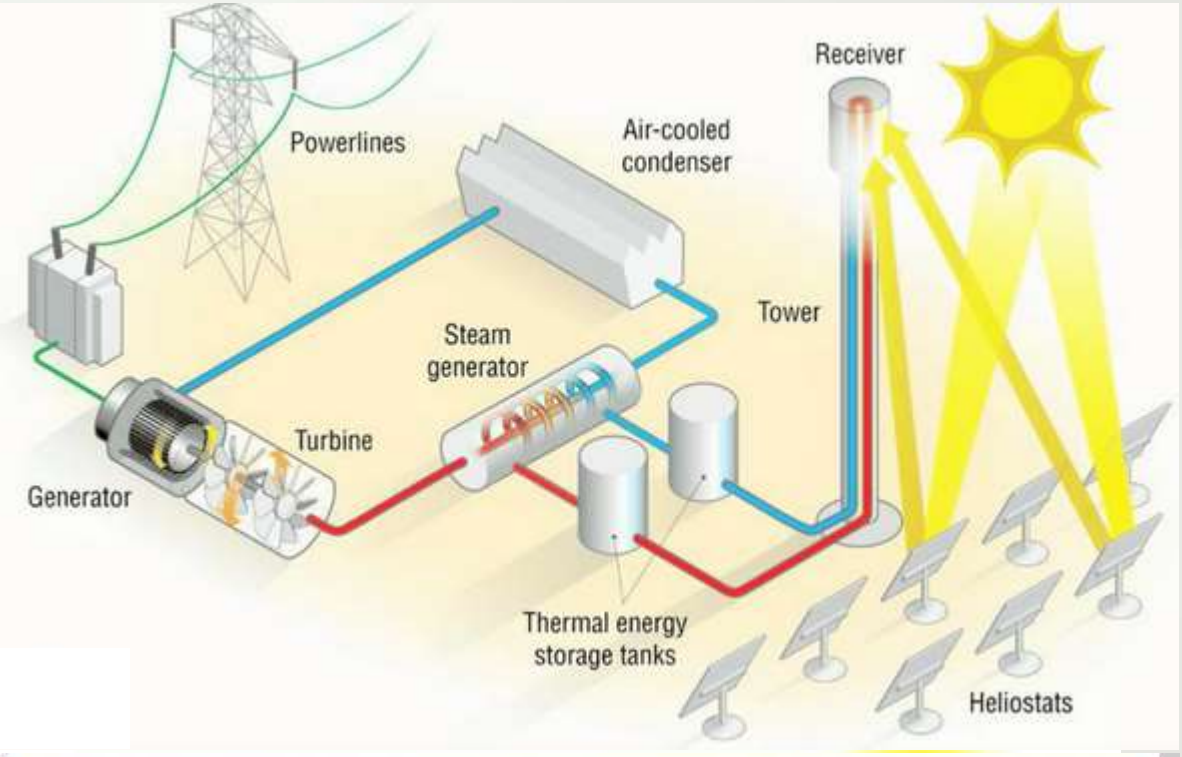
Methods to produce electricity from the sunlight

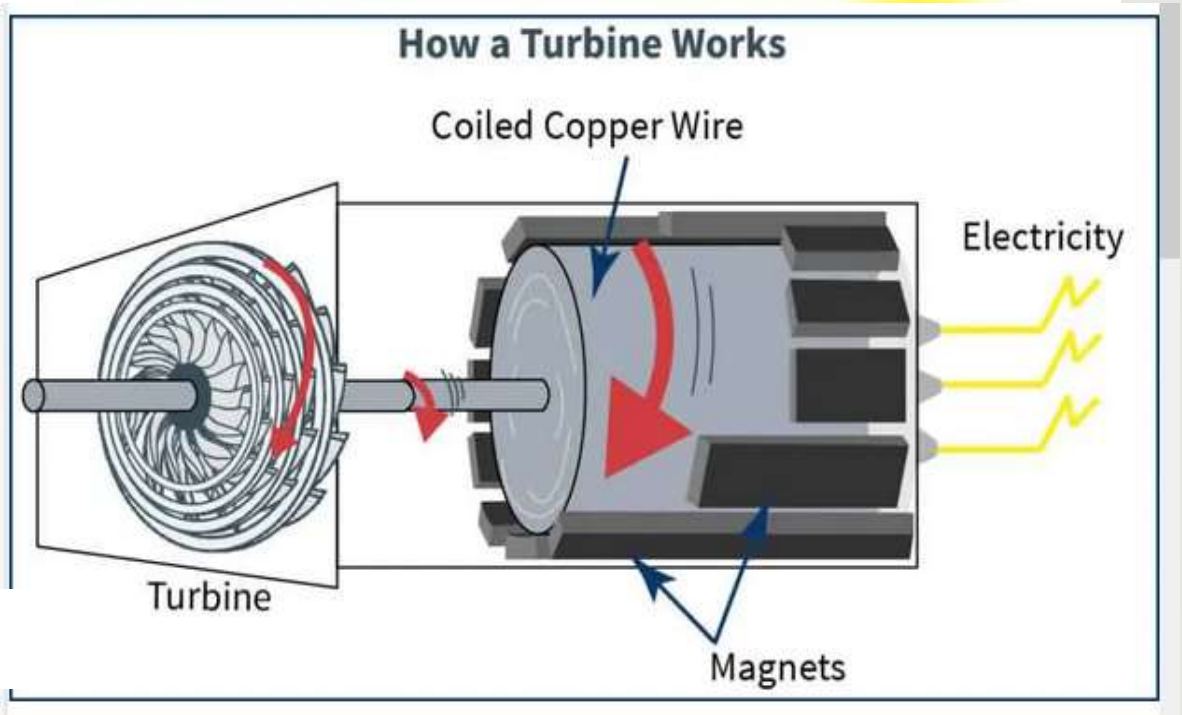
1. Photovoltaic Electricity:

2. Solar-Thermal Electricity :

- **Solar Photovoltaic: Solar photovoltaic (SPV) cells convert solar radiation (sunlight) into electricity.**
- **As a PV cell exposed to sunlight, photons are absorbed by the solar cell.**
- **When enough photons are absorbed by the negative layer of the photovoltaic cell, electrons are freed from the negative semiconductor material.**
- **When the two layers are connected to an external load, the electrons flow through the circuit creating electricity.**







Solar-Thermal electricity

Solar collectors capture and concentrate sunlight to heat a fluid which in turn generates electricity.

Commonly used fluids are synthetic oil, molten salt, and pressurized steam.

the hot steam generated is used to rotate the turbine to generate electricity.

Challenges in adoption

- India's solar system is largely built over imported products.
- Indian domestic manufacturers aren't technically and economically strong to compete with foreign companies.
- Land availability in India for solar plant is less due to high population density.
- India's solar waste is estimated to be around 1.8 million by 2050 also needs to be tackled.

Government initiatives

Ministry of new and renewable energy is the nodal agency to tackle India's renewable energy issues.

National Solar Mission is a major initiative of the Government of India

The Indian Renewable Energy Development Agency (IREDA) is a Non-Banking Financial Institution under the administrative control of this Ministry for providing term loans for renewable energy and energy efficiency projects.

National institute of solar energy is created as autonomous institution under MoNRE

Establishment of solar parks and ultra major solar power project

Renewable purchase obligation for large energy consumer customers.

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