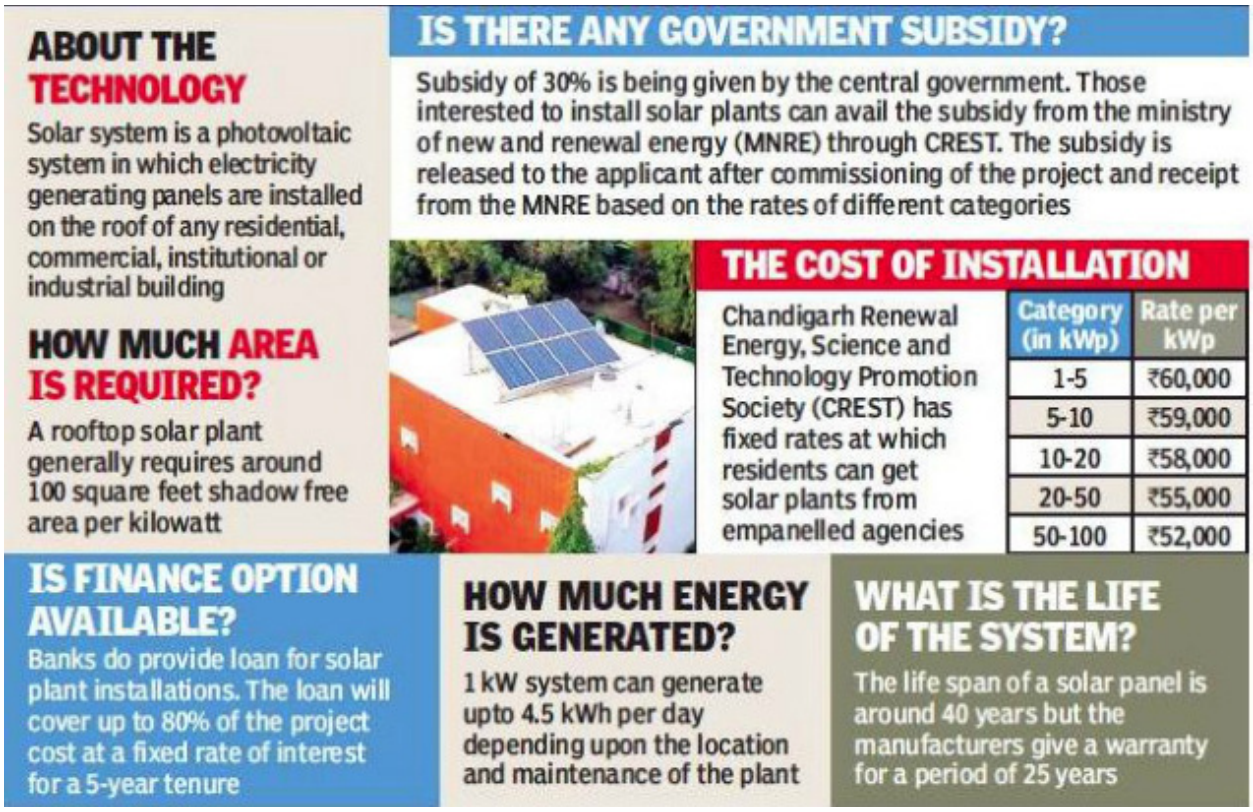
SOLAR POWERHOUSE



The **Cabinet Committee on Economic Affairs** approved phase 2 of the **grid-connected rooftop solar programme**, with a focus on the **residential sector.**
India has set an ambitious target of achieving 40 GW of rooftop solar capacity by 2022.
However, while there has been progress on **rooftop solar installations** among industries and commercial consumers, the uptake among residential consumers has been slow.
The **Phase II programme** provides for **central financial assistance** (for residential rooftop solar installations) up to **40% for rooftop systems up to 3kW** and **20% for those with a capacity of 3-10kW.**
The second phase will also focus on increasing the involvement of the **distribution companies (DISCOM).**
Raising awareness and building consumer capacity to engage with the sector are crucial for ensuring access to **affordable, reliable, sustainable and modern energy** for all and for India to achieve its rooftop solar targets.

Rooftop Solar Capacity:
Rooftop solar installations as opposed to large-scale solar power generation plants can **be installed on the roofs of buildings**.

As such, they fall under **two brackets**: commercial and residential. This simply has to do with whether the solar panels are being installed on top of commercial buildings or residential complexes.
Since the **market for residential rooftop solar power** is nascent, there are opportunities to learn from more mature consumer durable markets.
For example, RWAs can tie up with vendors to **organise demonstration** programmes, so that consumers can **observe, operate and understand** how the system works.

Potential of Rooftop Solar Capacity:
The **Ministry of New and Renewable Energy** has pegged the market potential for **rooftop solar at 124 GW**.
However, **only 1,247 MW** of capacity had been installed as of December 31, 2016. That is a little more than 3% of the target for 2022, and 1% of the potential.

- **Imports of cheap solar panels** are continuously placing a downward pressure on prices and so this scenario could change in the future. Commercial applications of rooftop solar are already viable in most states.
- The Programmes will have **substantial environmental impact** in terms of savings of **CO2 emission.**
- Considering average energy generation of **5 million units per MW**, it is expected that addition of 38 GW solar rooftop plants under Phase-II **by year 2022** will result **in CO2 emission reduction** of about 45.6 tonnes per year.
- The programme has **directed employment potential.**
- Besides **increasing self-employment**, the approval is likely to generate employment opportunity equivalent to 9.39 lakh job years for skilled and unskilled workers for **addition of 38GW capacity** under Phase-II of the scheme by the year 2022.

Issues that are underlying in Installation of Rooftop Solar: One of the major problems with rooftop solar and what affects solar energy generation in general is the **variability in supply**.

- Not only can the efficiency of the solar panels vary on any given day depending on how bright the sunlight is, but the **solar panels also produce no electricity during the night.**
- Many states have **adopted a net metering policy**, which allows disaggregated power producers to sell excess electricity to the grid.
- However, the subsidised tariffs **charged to residential customers** undermine the economic viability of installing rooftop solar panels. The potential profit simply does not outweigh the costs.
- Urban residential electricity consumers are **still hesitant** to consider rooftop solar power for their homes.
- This is because they **don't have enough information about it**, according to a 2018 study by the **World Resources Institute in five cities** of Bengaluru, Chandigarh, Chennai, Jaipur and Nagpur.

- For **residential urban consumers**, one of the **key barriers** to installing rooftop solar systems is that **they do not know who to contact to understand the processes to be followed and permissions required.**
- There is **no single source to access information**, evaluate benefits and disadvantages, and examine if any government support (such as a financial subsidy) is available.
- Most of the technical information **provided by various sources**, including the government, tends to be Internet-based.
- The study shows that **less than 20% of respondents rely on the Internet** to make a decision concerning rooftop solar systems.
- A significant majority of consumers **seek face-to-face discussions and recommendations from friends and family.**

Way Forward to achieve 40 GW of rooftop solar capacity by 2022:

Performance-based incentives will be provided **to DISCOMs** based on RTS capacity achieved in a financial year over and above the base capacity, i.e., cumulative capacity achieved at the end of previous financial year.

Devising **simple, well-designed and creative ways** to disseminate **information** is important to help consumers make informed decisions on issues like:

On the amount of **shadow-free roof area needed** for generating a unit of electricity and pricing; **operating** the system, **after-sales maintenance** and support; and **reliable rooftop solar vendors**.

The **DISCOMS** like local electricity linesmen, electricity inspectors, and other nodal officials in the electricity department also have key roles to play.

Objective information must be put out through various avenues, so that it is **accessible to all segments of the population** and in **local languages.**

Information kiosks can be **set up in public institutions** like banks to offer information on the technology, as well as on practical issues such as guidance on selecting vendors.

A **robust feedback mechanism** can be put in place for consumers to share their experiences with others.