



PM Surya Ghar—Muft Bijli Yojana

For Prelims: [PM Surya Ghar—Muft Bijli Yojana](#), Renewable Energy Services Company (RESCO) Model, Utility Led Asset (ULA) Model, [Net Metering](#), [Solar Rooftop System](#), [Model Solar Village](#), [Urban Local Bodies](#), [Panchayati Raj Institutions](#), Duck Curve.

For Mains: Significance of solar power for energy security, Challenges associated with solar power

[Source: LM](#)

Why in News?

Recently, the **Ministry of New and Renewable Energy** has come up with draft guidelines for the **central financial assistance** and **payment security mechanism** for the [PM Surya Ghar—Muft Bijli Yojana](#).

- The union cabinet approved the **Rs 75,000 crore PM Surya Ghar—Muft Bijli Yojana** to benefit **1 crore families** in February 2024.

What are the Key Highlights of the Draft Guidelines?

- **Models:** The draft guidelines have been issued under the **renewable energy services company (RESCO) model** and **utility led asset (ULA) model** of the rooftop solar scheme—'PM Surya Ghar—Muft Bijli Yojana'.
 - **Renewable Energy Services Company (RESCO) Model:** RESCO **develops and owns** the rooftop solar system installed on the consumer's rooftop for **at least five years**.
 - The RESCO also makes all the **operational expenditures** required for the maintenance of the plant, as needed.
 - **Customers pay** the RESCO for the **electricity generated** and receive **net metering benefits** on their electricity bill.
 - The RESCO may enter into an **arrangement** with a **distribution company (discom)** for the sale of generated power to the grid under a [power purchase agreement](#).
 - **Utility led Asset (ULA) Model:** Under it, a **state discom** **owns** the rooftop solar systems for the project period of at least of **five years**, after which the ownership is transferred to the household.
- **Eligibility for Central Financial Assistance (CFA):**
 - **Grid-connected** rooftop solar systems on residential properties, including **roofs, terraces, balconies, and elevated structures**.
 - Installations under metering mechanisms such as **group net metering** and **virtual net metering**.
 - **Exclusions:** Households with **pre-existing** rooftop solar systems are **not eligible** under the RESCO and ULA models for the PM Surya Ghar scheme.
- **Payment Security Mechanism:** A **Rs 100 crore corpus** will be established to ensure **payment**

security, managed by a national program implementation agency.

- The creation of a payment security corpus ensures **financial stability and security** for the solar projects.

What is PM Surya Ghar-Muft Bijli Yojana?

- **About:** It is a **central scheme** to promote the adoption of **solar rooftop systems** by providing substantial financial subsidies and ensuring ease of installation.
- **Objective:** It aims to provide **free electricity** to **one crore households** in India, who opt to install roof top solar electricity units.
 - The households will be able to get **300 units** of electricity **free every month**.
- **Implementation Agencies:** The scheme will be executed at **two levels**.
 - **National Level:** Managed by the **National Programme Implementation Agency (NPIA)**.
 - **State Level:** Managed by **State Implementation Agencies (SIAs)**, which are the Distribution Utilities (DISCOMs) or Power/Energy Departments of the respective states or UTs.
- **Role of DISCOMs:** As SIAs, **DISCOMs are responsible for facilitating various measures** to promote rooftop solar adoption, including ensuring the availability of **net metres**, and conducting timely inspections and commissioning of installations.
- **Subsidy Structure:** The scheme provides subsidies to reduce the cost of installing solar rooftop systems. The subsidy is capped at a maximum of **3kW capacity**.
 - **60% subsidy** for solar systems up to 2kW capacity.
 - **40% subsidy** for systems between 2kW to 3kW capacity.
- **Additional Features of the Scheme:**
 - **Model Solar Villages:** A "**Model Solar Village**" will be developed in each district to serve as a demonstration project and promote rooftop solar adoption in rural areas.
 - **Incentives for Local Bodies:** **Urban Local Bodies** and **Panchayati Raj Institutions** will receive incentives to **promote rooftop solar installations** in their respective areas.

What are Expected Benefits of PM Surya Ghar-Muft Bijli Yojana?

- **Economic Benefits:** Households will benefit from **reduced electricity bills** and can **earn additional income** by selling surplus power to Distribution Companies (DISCOMs).
 - A 3 kW system can generate over **300 units of electricity** per month, providing free electricity as per the scheme's objectives.
- **Solar Power Generation:** The scheme is expected to **add 30 GW of solar capacity** through residential rooftop installations, generating **1000 billion units (BUs)** of electricity over the system's **25-year lifetime**.
- **Low Carbon Emission:** It will reduce **CO2** equivalent emissions by **720 million tonnes**, contributing significantly to environmental sustainability.
- **Job Creation:** The scheme is anticipated to create around **17 lakh direct jobs** across various sectors such as manufacturing, logistics, supply chain management, sales, installation, operations, and maintenance (O&M).

What are the Challenges in Implementation of the Scheme?

- **Household Reluctance:** A significant challenge is the reluctance of households to adopt rooftop solar systems due to the availability of **free electricity** provided by several states and union territories.
- **Restricted Space Use:** Serving the **1-2 kW segment** is complicated due to **limited terrace space**, uneven terrain, shading, low property ownership, and risks like vandalism or theft of solar panels.
- **Operational Strain on DISCOMs:** The current net metering system is financially **burdensome for DISCOMs**, which already face substantial losses.
 - DISCOMs become **unpaid storage facilities** for homeowners who generate energy during the day but draw from the grid at other times especially night.
- **Storage Integration:** The **lack of a mandate for storage systems** with rooftop solar

installations could lead to grid management issues similar to the “**duck curve**”.

- The Duck Curve refers to a graphical representation of **electricity demand** from the grid on **days** when solar energy production is **high** and demand in the grid is **low**.
- **Quality Assurance Challenges:** Customers often find it difficult to assess the quality of the installed systems, making them **vulnerable to substandard service** and performance.

What are the Other Government Initiatives to Harness Solar Energy?

- [One Sun, One World, One Grid](#)
- [Pradhan Mantri Sahaj Bijli Har Ghar Yojana \(SAUBHAGYA\)](#)
- [National Smart Grid Mission \(NSGM\) and Smart Meter National Programme](#)
- [International Solar Alliance \(ISA\)](#)
- [National Solar Mission](#)
- [Solar Park Scheme](#)
- [Kisan Urja Suraksha evam Utthaan Mahabhiyan \(PM-KUSUM\)](#)

Way Forward

- **Ensure Targeted Beneficiary Outreach:** Partner with **local bodies** to develop strategies to reach the economically disadvantaged households that consume less than **200-300 units monthly**.
- **Community Solar Projects:** Encourage the development of **Community Solar Projects** that allows shared solar generation from a **central plant**, benefiting low-income and rural households who cannot install rooftop solar systems.
- **Revise Net Metering:** Explore options like **Time-of-Use (TOU) pricing**, where consumers are **charged based on the time they consume energy**, to reduce the grid strain from surplus daytime solar generation.
- **Mandate Storage Integration:** Make **storage integration mandatory** for all rooftop solar installations to enhance grid stability and optimise the use of surplus solar energy.

Drishti Mains Question:

Q. Critically examine the challenges and opportunities associated with adopting solar energy production among small households in India.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. With reference to the Indian Renewable Energy Development Agency Limited (IREDA), which of the following statements is/are correct? (2015)

1. It is a Public Limited Government Company.
2. It is a Non-Banking Financial Company.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: (c)

Mains

Q. “Access to affordable, reliable, sustainable and modern energy is the sine qua non to achieve Sustainable Development Goals (SDGs)”. Comment on the progress made in India in this regard. **(2018)**

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