

PM Surya Ghar – Muft Bijli Yojana



Introduction

In the quest for energy security and environmental sustainability, India has turned its gaze toward its most abundant resource – the sun. Launched in February 2024, the PM Surya Ghar – Muft Bijli Yojana is a flagship initiative aimed at revolutionizing the residential energy landscape. With a substantial financial outlay of ₹75,021 crore, the scheme seeks to solarize 10 million (1 crore) households, offering them free electricity and a chance to contribute to India's green energy goals. As the nation navigates global energy volatilities, this mission emerges as a cornerstone of "Urja Atmanirbharta" (Energy Self-Reliance).

Core Features and Objectives

The PM Surya Ghar Yojana is designed to be more than just a subsidy scheme; it is a structural reform of the rooftop solar (RTS) ecosystem.

- Financial Assistance (Subsidy)** – The scheme offers a highly attractive subsidy structure to make solar affordable for the middle class –
 - ₹30,000 for systems up to 1 kW.
 - ₹60,000 for 2 kW systems.
 - ₹78,000 for systems of 3 kW or higher capacity.
- Target** – The primary objective is to reach 10 million households, providing them with up to 300 units of free electricity every month.
- Digital Integration** – A National Portal has been established to provide a end-to-end paperless experience—from application and technical feasibility to subsidy claims.
- Model Solar Villages** – The scheme aims to develop at least one 'Model Solar Village' in every district to act as a catalyst for local adoption.

Significance – Why Rooftop Solar Matters

The significance of this scheme spans economic, environmental, and strategic dimensions –

- Energy Security** – Recent tensions in West Asia have highlighted India's vulnerability to global oil and gas price shocks. Distributed solar power reduces our dependence on imported fossil fuels.
- Economic Empowerment** – Households save thousands annually on electricity bills. Furthermore, the scheme creates a massive market for over 11,000 registered vendors, boosting local employment and the MSME sector.
- Grid Optimization** – By generating power at the point of consumption, rooftop solar reduces transmission and distribution (T&D) losses and helps discoms manage peak daytime loads.
- Climate Commitments** – It is a vital component in meeting India's Panchamrit goals, specifically the target of achieving 500 GW of non-fossil energy capacity by 2030.

The Hurdles – Challenges in Implementation

Despite a strong start—scaling from 700,000 homes in 2023 to nearly 3.8 million by 2026—several challenges persist –

- The "Duck Curve" and Grid Stability** – Solar generates excess power in the afternoon when demand is low, but demand peaks at night. This "Duck Curve" stresses existing grid infrastructure.

2. **Financial Access** – While categorized under "Priority Sector Lending," many banks remain hesitant to offer paperless, digitised loans for solar assets. The lack of a resale market for used solar panels adds to the perceived credit risk.
3. **Discom Resistance** – Many State Power Distribution Companies (Discoms) perceive rooftop solar as a threat to their revenue from high-paying residential consumers. This often leads to "implementation friction," such as delays in net metering approvals.
4. **Cost of Domestic Content** – To claim the subsidy, consumers must use Domestic Content Requirement (DCR) compliant panels. Indian-made panels currently cost roughly ₹22–23 per watt, nearly double the price of imported Chinese modules (₹13 per watt).

Way Forward

To bridge the gap between the current 3.8 million installations and the 10 million targets, the following measures are essential –

1. **Storage Integration** – The future of the scheme lies in Hybrid Systems (Solar + Battery). Subsidizing battery storage will allow consumers to use afternoon generation during night peaks, solving the "Duck Curve" issue.
2. **Enforcing Legal Rights** – Net metering up to 10 kW is a legal right under the Electricity Rules. Strict regulatory action against defaulting discoms is necessary to ensure "deemed approval" becomes a reality on the ground.
3. **Digitized Lending** – Banks must integrate their loan processing with the National Solar Portal to provide instantaneous, collateral-free credit based on the solar asset itself.
4. **Time-of-Day (ToD) Tariffs** – Implementing ToD tariffs—where electricity is cheaper during the day and costlier at night—will naturally incentivize households to shift their heavy usage to solar hours or invest in storage.

Conclusion

The PM Surya Ghar – Muft Bijli Yojana is a transformative step toward a decentralized energy future. While it has successfully "turbocharged" the market, its ultimate success depends on overcoming the structural resistance of utilities and the financial hesitation of banks. By turning 10 million rooftops into mini-power plants, India is not just providing free electricity; it is democratizing energy production and fortifying its national security against the uncertainties of a volatile world.

Mains Practice Question

"Analyze the role of PM Surya Ghar – Muft Bijli Yojana in enhancing India's energy security. Discuss the structural and financial bottlenecks that hinder its nationwide penetration." (30 words)

Answer Guidelines

1. **Introduction** – Briefly state the objective of the scheme (10 million homes, free electricity) and its context in India's energy mix.
2. **Body**

Paragraph 1 (Role in Energy Security)

Discuss reduction in fossil fuel imports, decentralization of the power grid, and insulation from global geopolitical shocks (West Asia crisis).

Paragraph 1 (Structural Bottlenecks)

Mention the "Duck Curve" problem, old grid infrastructure, and the resistance from Discoms regarding net metering.

Paragraph 1 (Financial Bottlenecks)

Discuss high upfront costs, the price gap between DCR-compliant and imported panels, and the lack of digitized, easy-access credit.

3. Conclusion

Suggest a shift toward hybrid (solar+storage) systems and regulatory enforcement to ensure long-term sustainability.