

GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY
LOK SABHA
UNSTARRED QUESTION NO. 610
ANSWERED ON 03.12.2025

**MEASURABLE OUTCOMES FOR DISTRIBUTED RENEWABLE ENERGY
INTERVENTIONS**

610. SHRI VISHALDADA PRAKASHBAPU PATIL
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Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

- (a) whether the Government has defined measurable outcomes for distributed renewable energy interventions such as rooftop solar installations, pump-solarisation, community systems covering both installation and operational reliability and if so, the details thereof and if not, the reasons therefor;
- (b) the details of the measures adopted to support operations, maintenance and performance monitoring of these distributed systems including in remote or underserved areas;
- (c) the details of the steps taken to ensure integration of storage, net-metering and grid-interaction for optimal utilisation of distributed systems;
- (d) the details of the measures introduced to ensure equitable access across rural, tribal and urban regions in deployment of these systems; and
- (e) whether any assessment framework exists to evaluate long-term user satisfaction, system performance and return on investment and if so, the details thereof and if not, the reasons therefor?

ANSWER

THE MINISTER OF STATE FOR NEW & RENEWABLE ENERGY AND POWER

(SHRI SHRIPAD YESSO NAIK)

(a) & (b) The Ministry of New & Renewable Energy (MNRE) is implementing various schemes/ programmes to promote decentralised renewable energy in the country. The details of these schemes/ programmes including outcomes, and provisions for operations & maintenance and monitoring, are given in **Annexure**.

(c) The schemes and programme of the MNRE supporting distributed system have adequate provisions for optimal utilisation of these systems. Such major provisions are given below:

- i. Rooftop solar (RTS) systems being installed in the residential sector under PM Surya Ghar Muft Bijli Yojana (PMSG: MBY) PMSG: MBY are grid connected systems with Net metering mechanism as per prevailing regulations of the respective State/UT.
- ii. The Operational Guidelines for implementation of PMSG: MBY covers installation of rooftop solar including with additional technology components such as small wind hybrids, battery storage, solar tracker systems, etc.

- iii. Decentralized solar plants and solar pumps under Component A & C of Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyaan (PM KUSUM) are grid connected.
- iv. Option for installing Universal Solar Pump Controller (USPC) is given for standalone solar pumps installed in off-grid areas under Component-B of the PM KUSUM. With USPC the solar power generated can be utilised for other applications during the period when solar pump is not being used for irrigation purposes.
- v. The standalone solar pumps installed in off-grid areas under Component-B of the PM KUSUM, may be connected to grid, if the grid is available in that area in future.

(d) The schemes and programme of the MNRE supporting distributed system are mainly demand driven and are being implemented in open and transparent manner where eligible beneficiary can avail benefit through an easy and user-friendly process. Also, widespread publicity of these schemes and programmes are undertaken across the country including rural, tribal and urban areas to ensure eligible beneficiary are informed about the benefits of the scheme.

(e) The MNRE has specified minimum technical specifications and standards including system performance requirements of the distributed systems being supported under schemes and programme of the Ministry. Regular monitoring and evaluation are carried out during implementation, and based on the feedback received, corrective actions are taken in the form of amending guidelines, quality control orders, and updation of specifications.

Annexure referred to in reply of part (a) & (b) of Lok Sabha Unstarred Question No. 610 to be answered on 03.12.2025 regarding *Measurable Outcomes for Distributed Renewable Energy Interventions*

Details of schemes/ programmes to promote decentralised renewable energy

Scheme/Programme	Major Outcomes	Provisions on operations & maintenance and monitoring
a) PM-Surya Ghar Muft Bijli Yojana (PMSG: MBY)	<ul style="list-style-type: none"> • To achieve rooftop solar installations in One Crore households in the residential sector by 2026-27 with support of Central Financial Assistance (CFA) from Central Government. • Installation of 30 GW of solar capacity through rooftop solar by 2026-27 • To develop a Model Solar Village in each district of the country, with assistance of Rs 1 crore per Model Solar Village. • To support solarisation of government buildings with installation of rooftop solar on priority basis. 	<p>Under the PM-SGMBY, there is provision of Comprehensive Maintenance Contract (CMC) of the rooftop solar (RTS) plants installed by the registered vendors for a period of five years from the date of commissioning. The consumer is provided with the warranties given by the respective OEMs on the system components.</p> <p>In all cases, the vendors are bound to adhere to the minimum technical specifications provided in the scheme in their installations. Further, all installed systems undergo inspections by the DISCOMs to ensure compliance with scheme guidelines before the release of CFA.</p> <p>Vendors register with the DISCOMs/ REC (the NPJA) are required to submit Bank Guarantee (BG) depending upon the category of vendor i.e. National/ Multi State/ State level. DISCOMs/REC can take action against vendors in case of non-compliance of scheme guidelines including forfeiture of BG, deregistering, and blacklisting, etc.</p>

Scheme/Programme	Major Outcomes	Provisions on operations & maintenance and monitoring
		Third Party Assessment: Independent third-party assessment of RTS installations of at least 1% of installed systems on a pan-India being carried out to ensure quality of installed panel and other system components.
b) Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyaan (PM KUSUM)	<p>PM-KUSUM Scheme to enable the installation of standalone solar pumps, solarization of existing grid-connected agriculture pumps, and installation of solar power plants on farmer's land.</p> <p>The scheme has three Components:</p> <p>(i.) Component 'A': Setting up of 10,000 MW of Decentralized Ground/ Stilt Mounted Grid Connected Solar or other Renewable Energy based Power Plants by the farmers on their land;</p> <p>(ii) Component 'B': Installation of 14 lakh standalone off-grid solar agriculture pumps; and</p> <p>(iii) Component 'C': Solarization of 35 lakh existing grid-connected agriculture pumps including Feeder Level Solarization (FLS).</p>	The PM KUSUM scheme guidelines allow for the capacity building, compliance of Operation and Maintenance (O&M) and training of locals by the empanelled vendors, to the States. The scheme also mandates vendors to provide Annual Maintenance Contracts for five years from the date of installation, provide real-time monitoring, helpline support, and district level service centres for the redressal mechanism.

Scheme/Programme	Major Outcomes	Provisions on operations & maintenance and monitoring
c) Biogas Programme	Biogas Programme for installation of 93,500 no of small and medium sized biogas plants for individual households, dairy, poultry and agro based industries, which provides clean cooking fuel, fermented organic manure (FOM) and for meeting decentralized power and thermal energy requirements.	<p>The scheme mandates a five-year free O&M warranty for all biogas plants by the manufactures/biogas developers,</p> <p>The PIA and the inspection agencies perform the physical inspection of the along with geo-tagging, and regular reporting to ensure functionality.</p> <p>Medium-size plants must meet defined performance benchmarks with more than 80% of rated biogas production capacity for a period of 8 days, and more than 70% of power generation data for a period of over 3 months, including third-party inspection prior to CFA release.</p>
d) New Solar Power Scheme (for Tribal and PVTG Habitations/Villages) under Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM JANMAN) and Dharti Aabha Janjatiya Gram Utkarsh Abhiyan (DA JGUA)	<p>New Solar Power Scheme is applicable where electricity supply through grid is not techno-economically feasible.</p> <p>Major components of the scheme are as follows: -</p> <ul style="list-style-type: none"> • Provision of 0.3 kW Solar off-grid system for 1 lakh Tribal and PVTG HHs • Solar street lighting and provision of lighting in 1500 MPCs of PVTG areas (<i>under PM JANMAN component only</i>) • Solarisation of 2000 public institutions through off-grid solar systems (<i>under DA JGUA component only</i>) 	Under the scheme, there is a provision for comprehensive maintenance services for 5 years. Further, the scheme also mandates the provision of Remote Monitoring System (RMS) to ensure proper functioning and maintenance.