F. No. 318/37/2025-GCRT
Government of India
Ministry of New and Renewable Energy
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Atal Akshay Urja Bhawan,
Lodhi Road, New Delhi-110003
Dated: 19.12.2025

To
Secretary,
SERCs/JERCs of All States/UTs
(except OERC)

Subject: Adoption of M2M SIM-based Remote Monitoring System for recording Solar Generation under PMSG: MBY – reg.

Dear Sir/Madam,

As you are aware that Ministry, vide its OM dated 21.07.2025 had issued instructions regarding mandatory use of M2M SIM-based communication protocol for real-time monitoring and tracking of solar generation under PM Surya Ghar: Muft Bijli Yojana (PMSG: MBY) (copy enclosed).

2. In this regard, it is to inform you that Hon'ble Odisha Electricity Regulatory Commission (OERC), through its amendment Order No. OERC-Engg. 02/2022/1448 dated 27.11.2025 (copy enclosed), has considered real-time measurement and transmission of generation data through Inverter communication devices/dongles/data loggers having Machine-to-Machine (M2M) SIM communication protocol to be used as solar generation meter, therefore, avoiding the requirement of and expenditure on solar meter. The Hon'ble OERC's amendment reflects the Commission's proactive efforts to align its net metering regulations with technological advancement and MNRE guidelines, specifically the PMSG: MBY. Adoption of such M2M SIM-based communication protocol for real-time monitoring and tracking of solar generation is not only required from cybersecurity point of view, but it will help in taking measures for grid stability and security and also going forward, handling the P2P trading, EV to Grid mechanisms smoothly.

3. In view of the above, all SERCs/JERCs are requested to incorporate implementation of M2M SIM-based RMS for RTS solar installations line with the order issued by Hon'ble OERC, thus avoiding the requirement of additional solar generation meter for RTS systems, in addition to enhanced provisions for cybersecurity and managing the grid stability and security effectively.

Manish

(Manish Singh Bisht)
Scientist-D

Copy for information to ACS/Pr. Secretaries/Secretaries (Power/Energy/Renewable Energy) of all States/UTs

ODISHA ELECTRICITY REGULATORY COMMISSION
PLOT NO.4, CHUNOKOLI, SHAILASHREE VIHAR,
BHUBANESWAR – 751021
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ORDER

No. OERC-Engg. 02/2022/ 1448 **Dated: 27.11.2025**

The Commission had issued an order on 19.08.2016 on Net Metering / Bi-directional Metering and their connectivity with respect to Rooftop Solar PV Projects which was subsequently amended up to 17.01.2018 and 05.05.2022. Now, several issues such as usage of hybrid inverters by prosumers and their applicable standards have been brought before the Commission by various stakeholders which necessitates for further amendment of the said Order. In the meantime, the Ministry of New and Renewable Energy, Government of India vide its OM dated 20.09.2024 has also permitted use of different types of inverters including hybrid inverters. However, in the present Order of the Commission on net metering, only grid tied inverters are allowed. Further, the Ministry of New and Renewable Energy, Government of India vide its OM dated 21.07.2025 has mandated use of SIM based data loggers with M2M SIM communication protocol for real time generation monitoring and data transmission. Again, some of the provisions of Schemes on Government of India such as PMSGY are inconsistent to the provisions of the Order and requires to be incorporated in the Order to harmonize it to the schemes. After considering the Notification of the Ministry of Renewable Energy as well as suggestions from various stakeholders, the Commission hereby makes the following amendments to the previous Order which will be known as Amendment to the Order on Net Metering/Bi-Directional Metering & their Connectivity with respect to Solar PV Projects 2016 (as amended up to 27.11.2025).

Amendment to the Order on Net Metering/Bi-Directional Metering & their Connectivity with respect to Solar PV Projects 2016 (as amended upto 05.05.2022)

After Clause 2(e), the following new clause 2(f) shall be inserted:

"(f) ***"Hybrid Inverter"*** *is a bi-directional inverter capable of interfacing with both solar photovoltaic (PV) modules and an energy storage system, and designed to manage the flow of electricity between the renewable energy generating system, the battery storage, the consumer's load, and the distribution licensee's grid. It enables both grid-interactive and stand-alone operation, ensuring optimal utilization of renewable energy and maintaining system reliability."*

In Clause 7, the words,

".. An overview of basic grid interactive photovoltaic system is placed at Annexure-I."

shall be substituted with:

"…The consumer shall have the option to install either Grid tied inverters or hybrid inverters, the line diagram of which are provided in Annexure-I & Annexure-II respectively."

In Clause 8, after the words *"…per Regulations in force.*" the following provisio shall be inserted:

"Notwithstanding anything contained in our existing Order on Net metering, for Central/ State Government Schemes, the conditions as mentioned in the Schemes shall be applicable to the consumer while installing the Photovoltaic system."

In Clause 10 first para, after the words *"… for Import/Export measurement."* the following

sentence shall be inserted:

"Inverter communication devices/dongles/data loggers having Machine-to-Machine (M2M) SIM communication protocol can also be relied upon for real-time measurement and transmission of generation data in lieu of generation meter."

After Clause 10(c), the following new clause 10(d) shall be inserted:

"(d) The cost of meters, cost of connectivity and all other related cost for setting up the meters etc. have to be borne by the eligible consumers under guidance of the concerned distribution licensee. Either consumer or distribution licensee shall procure the meter. The distribution licensee shall test and install the same in line with the provisions of the Central Electricity Authority's Metering Regulations/ OERC Supply Code as amended from time to time."

In Clause 14(f), the words, *"... the inverter shall..."* shall be substituted with the words *"...the grid tied inverter/ hybrid inverter shall..."*

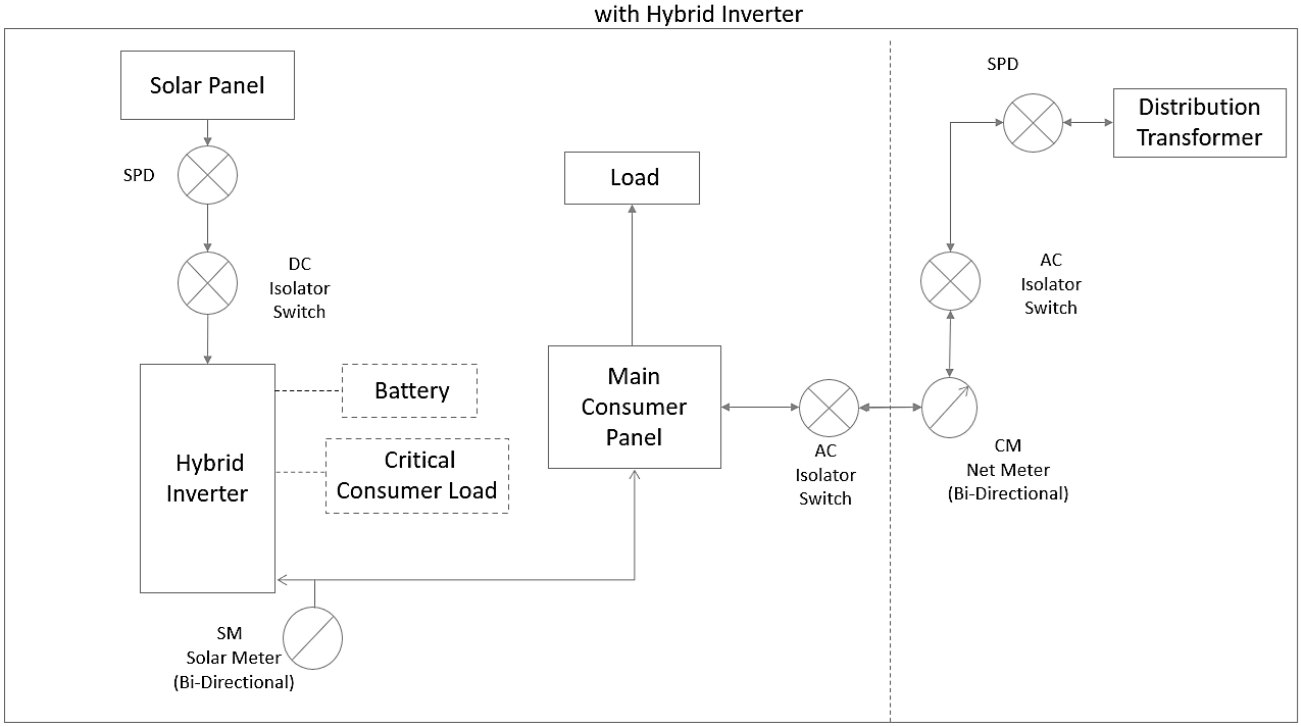
The existing Clause 14(h), shall be replaced with:

"(h) The inverter should be a sine wave inverter. Harmonic standards shall be as per IEEE 519. The inverter should also comply to the mandatory standards stated by MNRE: IS 16221 (Part 2).2015/IEC 62109-2.2011 Safety of Power Converters for use in Photovoltaic Power Systems Part 2 (Particular Requirements for Inverters) and IS 16169.2019/IEC 62116.2014 Test Procedure of Islanding Prevention Measures for Utility – Interconnected Photovoltaic Inverters."

After Annexure-I, the following Annexure-II shall be inserted:

Annexure-II

Overview of a basic grid interactive Photo Voltaic system with Hybrid Inverter



The existing *"Annexure-II"* shall be renamed as *"Annexure-III"* and the existing *"Annexure-III"* shall be renamed as *"Annexure-IV"*.

The above amendment shall come into force prospectively from the date of its Notification. This amendment Order is issued with the approval of the Commission.

-Sd/-

SECRETARY

F.No. 318/87/2024-GCRT -Part (1)
Government of India
Ministry of New and Renewable Energy
PMSG: MBY Division

Atal Akshay Urja Bhawan
Lodhi Road, New Delhi 110003,
Dated: 21st July 2025

OFFICE MEMORANDUM

Subject: Compliance requirements for inverters and communication devices used under PM Surya Ghar: Muft Bijli Yojana - reg.

The Ministry of New and Renewable Energy (MNRE) is implementing PM Surya Ghar: Muft Bijli Yojana (PMSG: MBY) targeting installation of Rooftop Solar (RTS) plants for one crore households across the country with a cumulative capacity of 30 GW. Simultaneously, the Ministry has been taking strides to strengthen the self-reliance in supply chain for RTS components, and ensure transparency, and effective monitoring under the scheme.

2. The integration of around one crore RTS plants under PMSG: MBY introduces significant grid stability and cybersecurity challenges. Inverter communication modules that transmit data to servers outside India not only pose risks of unauthorized control but also threaten national energy sovereignty by exposing sensitive consumption and generation data. Further, millions of inverters communicating with third party OEM servers can be exploited to manipulate inverter operations, potentially leading to coordinated disruptions in power generation and grid instability.

3. In this regard, multiple rounds of deliberation have been done with major stakeholders to implement a framework to track generation benefits of RTS installations as well as for the centralisation of RTS data on a National Software Platform hosted on servers located in India and managed by MNRE or any other Government Agency to ensure monitoring and control of millions of inverters aggregating GW of capacity remains with Government agencies considering Grid Security and Stability.

4. In view of the above, the undersigned has been directed to convey that:

i. All inverter communication devices/dongles/data loggers deployed under the scheme shall have Machine-to-Machine (M2M) SIM communication protocol to enable secure and reliable data transmission.
ii. Ministry is in the process of finalising the detailed vendor neutral and open communication protocol based data communication and security guidelines for RTS monitoring and control through the National Portal which will be made available for

integration testing of Inverter communication devices from 1st September, 2025. A separate communication in this regard shall be issued shortly

iii. All OEMs enlisted for supplying inverters under the PMSG: MBY scheme shall mandatorily connect their inverters directly to National Servers and Software managed by MNRE or any other agency designated by MNRE, with effective from the date to be notified by the MNRE.

5. This issues with the approval of Mission Director.

21.07.2025

(Hiren Chandra Borah)
Scientist -E

To,

- All concerned stakeholders

Copy to

- CMD, REC Limited, the NPIA for PMSG: MBY for information and appropriate action.