



MNRE (Draft Guidelines for implementation of PM-Surya Ghar: Muft Bijli Yojana for component to “CFA to Residential Sector”), 2024

The MNRE notified “**MNRE (Draft Guidelines for implementation of PM-Surya Ghar: Muft Bijli Yojana for component to “CFA to Residential Sector”), 2024**” on 16th March, 2024. The key highlights of this draft is mentioned below:

Objective: The objective of PM-Surya Ghar: Muft Bijli Yojana is to promote the installation of rooftop solar systems in the residential sector. The scheme aims to achieve the installation of 1 crore rooftop solar systems by the end of the fiscal year 2026-27. Its key goals include providing free or low-cost electricity to households, with a target of supplying up to 300 units of electricity per month through rooftop solar installations. Additionally, the scheme seeks to reduce carbon emissions, develop the ecosystem for rooftop solar projects, boost the local economy, and support India's green climate commitments. The implementation period for the scheme is set until 31st March, 2027, with a significant financial outlay for Central Financial Assistance (CFA) to residential consumers, among other components. The scheme also includes mechanisms for third-party audits, coordination with state regulatory commissions, and a focus on rooftop solar in the government sector. The implementation is facilitated through a National Portal, and the scheme involves various stakeholders, including MNRE, NPIA, and SIAs, with a strong emphasis on monitoring and evaluation to ensure its successful execution.

The document can be accessed [here](#)

CER Opinion

The scheme proposes to address one of the key focus area for India's energy strategy while also meeting its commitments under the climate policy. However, given the substantial outlay of funds for the scheme, greater attention should be paid to the implementation strategy to ensure efficacy and efficiency in reaching out to the beneficiaries, and long term operational performance of the solar rooftop systems (RTS).

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1.	New Clause	Solar Rooftop Suitability Index (SRSI): Shadow Free Area	The scheme should adopt a Solar Rooftop Suitability Index (SRSI) based criteria for selection of appropriate rooftops for implementation of solar rooftop system have often witnessed limited assessment of site suitability. RTSPV installations have often been found in completely or significantly shadowed	Experience has shown that in order to meet targets for similar schemes, rooftop installations are sometimes also installed on sites currently with significant shadow or are likely to have significant shadow in the near future due to growth of vegetation/trees or nearby construction. A Solar Rooftop Suitability Index (SRSI) based rating system is proposed so as to take into account the current shadow and potential shadowing of the rooftop panels based on available free shadow area. The ratings can be defined by the duration of shadow free hours during the day: A: Shadow free rooftop for more than 8 solar hours

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			<p>areas. In some cases, growth of vegetation or nearby construction have made such installations ineffective. The suggested rating system would enable only selection of suitable roofs ensuring that the program achieves its objective to reduce electricity bill effectively as this would ensure a reasonable CUF and operational performance.</p>	<p>B: Shadow free rooftop for 6-8 solar hours C: Shadow free rooftop for 4-6 solar hours D: Shadow free rooftop for less than 4 solar hours</p> <p>These ratings provide valuable insights into the estimated energy generation capacity and suitability of locations for rooftop solar installations. This would also enable appropriate estimate of the solar energy generated and utilized, and reduction in carbon emissions to enable the country to meet its climate target commitments.</p>
2.	New Clause	Surya Aadhaar: Unique ID and database	<p>Creation of unique identity based database for each solar rooftop installation.</p> <p>The searchable national database, may be called “Surya Aadhaar”, would avoid leakages in the scheme and its misuse while providing for its efficient implementation.</p>	<p>Each solar rooftop installation, should be provided with a unique identification ID, may be called “Surya Aadhaar”, linking its key data. Some of these are identified below:</p> <ul style="list-style-type: none"> - Aadhaar number of the beneficiary - Address and contact details - Solar Rooftop Suitability Index (SRSI) (suggested above) - Each of the solar panels and other hardware - Size of the system - Placement of the RTS - Manufacturer and its make - Vendor/installer

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				<ul style="list-style-type: none"> - Date of installation - Name and ID of the person (or the Surya Mitra) coordinating the application process he application process - GIS location, - Feeder identity - Consumer number (with Discom) - Meter number - Date of application - Status of approval of RTS - Date of approval of RTS - Status of subsidy disbursement and, amount and date thereof - Financial institution (for loan) - Date of sanction of loan, and amount thereof - Status of sanction of CFA - Date of release of CFA - Outstanding loan by end March each year - Date of final loan repayment - Name and ID of the personnel having verified the installation - Status – Functional or faulty (to be tracked across time) - Number of complaints received and status of resolution <p>The “Surya Aadhaar” and the associated information should be</p>

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				<p>archived and updated in a searchable database at an identified national portal. This database should be accessible to the existing as well as potential beneficiaries, who can search relevant information post validation of the identification through their own Aadhaar number and the associated OTP. Potential beneficiary as well as the implementing agencies/financial institution should be able to search if the location/ID has already been sanctioned/mapped with an installation.</p> <p>This will also ensure transparency and accountability in the implementation of the scheme and ownership of these systems. This will minimise leakage from the scheme and ensure that true beneficiaries avail of the benefits under the scheme. Lost/stolen assets can then also be tracked if found/sold in the secondary market.</p> <p>Anonymized data should be available for research and academic institutions to evaluate efficacy of the program.</p>
3.	New Clause	Tamper Proof embedded QR code for Solar PV panels	Solar PV panel to have tamper proof QR code, which can be embedded inside the encapsulant at the back side of the panel, embedded in the glass thus	<p>Each of the solar PV panel should have a QR code that can be embedded at the time of panel manufacturing. This would ensure that the QR code cannot be tampered with.</p> <p>Such a requirement can either be mandated for panels supplied for the scheme or the same can be included in the BIS</p>

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			eliminating its tampering.	<p>standard for the solar PV panels.</p> <p>This feature would discourage unauthorized resale of the PV panels thus improving implementation efficiency and efficacy of the scheme.</p>
4.	New Clause	Owner Vs tenant as beneficiary of Solar PV and relocation of the installation	<p>Clarity is required if a tenant, with short -term and with long-term rental/lease agreement, can also apply under the scheme and become owner of the solar PV installation.</p> <p>Furthermore, if relocation of the solar PV installation (owned by tenant) would be permitted before the end of loan repayment.</p>	<p>Multiple instances may occur wherein the tenant, who is currently bearing the electricity bill, would like to install the solar PV installation and seek benefit under the scheme. This would, however, require consent of the house owner to avoid legal complications. Furthermore, in case the tenant is asked to vacate the premises, the relocation of the installation if feasible would be required to be permitted.</p> <p>Alternatively, a mechanism needs to be evolved wherein the tenant can transfer the assets to the owner of the house after adjusting for the loan amount paid and ‘value’ of the assets.</p> <p>A framework may need to be evolved to provide for such valuation, and transfer of the asset.</p> <p>The grievances section does mention ‘change in ownership’ (of the house) as one of the issues but the same is not clarified elsewhere.</p>
5.	New Clause	Surrender of the electricity service connection	Can a consumer surrender its electricity connection after availing benefit	A consumer going off-grid and making full utilization of the rooftop solar would still contribute to the overall objective and continue to remain a beneficiary of the scheme. The scheme

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			<p>under the scheme?</p> <p>Such a scenario may arise if the owner, possibly, not satisfied with the electricity supply reliability of the respective Discom, plans to install battery storage system and go off the grid.</p>	<p>should ensure that such a bona fide consumer is not stopped from going off-grid and is not allowed to surrender the service connection. Clarification to that affect should be included in the guidelines.</p> <p>However, this may pose some challenge to effective post-installation monitoring and system functionality assurance. Another concern may be the heightened risk of unauthorized panel resale. The ‘Surya Aadhaar’, proposed above, with QR code and database feature should help address this concern to some extent.</p>
6.	New Clause	Engagement of Surya Mitra	<p>The National Institute of Solar Energy (NISE) trained about 56087 Surya Mitra for the installation process of rooftop solar (RTS) systems.</p> <p>The implementing vendors should be asked to enlist such locally available and trained manpower for implementation of the scheme. This would also ensure that benefits are</p>	<p>The Surya Mitras’ can be engaged for a variety of purposes, such as:</p> <p>Engagement by Vendors for Installation of RTS: Surya Mitra can be involved in assisting consumers during the installation process. This could include providing technical expertise, guidance on proper installation practices, and ensuring compliance with safety standards.</p> <p>Monitoring and Inspection: Surya Mitra personnel can be involved in monitoring and inspecting installations to ensure they meet quality standards and specifications. They can also assist Discom representatives during inspections, providing insights into technical aspects of the installations.</p> <p>Awareness and Outreach: Surya Mitra can play a role in raising</p>

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			shared by larger society and there is an effort towards employment creation for such trained manpower.	<p>awareness about the benefits of rooftop solar among consumers. This could involve conducting outreach activities, providing information on available incentives and subsidies, and facilitating consumer education programs.</p> <p>Documentation and Reporting: Surya Mitra personnel can assist in documentation and reporting tasks, such as collecting and verifying GPS-tagged photographs of pre-installation sites and completed installations, as well as filling out Discom reports.</p>
7.	New Clause	Smart Meter Based Monitoring of RTS through Stratified Sampling	Growth of solar power projects would constrain Discoms/SLDCs to effectively forecast and manage their schedules.	<p>Growing behind the meter installations also pose a challenge for demand forecasting as well as Resource Adequacy planning by the distribution licensees. In the absence of monitoring of electricity generation from the behind the meter solar RTS and consumption thereof, the forecasting models would face very serious challenge to forecast both short-term as well as long-term electricity demand.</p> <p>Apart from this, it would also be challenging to estimate green energy generation and consumption for accounting towards renewable portfolio obligation of the distribution licensees as well as estimation of contribution to India's climate policy commitments of reducing emission intensity.</p> <p>The scheme should provide for stratified sampling based remote metering installations on selected RTS to monitor solar energy generation and consumption thereof on real-time basis.</p>

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				<p>Adding a sampling-based monitoring system (through smart meters) for rooftop solar would enhance the visibility of RTS to the distribution licensees, the system operation as well as regulators and policy makers. Use of stratified sampling across geographically spread blocks across different agro climatic areas would enhance reliability of data. The stratified sampling-based data collection rate may be set, say, at least 1-2% of small-scale projects ranging from 1 kW to 3 kW, 2-3 % for 3-5 kW and 5% for 5 kW and above.</p> <p>It is also important to ensure that such data is archived and be accessible to the Discoms and SLDCs. Such data should also be access to academic/research institutions to enable research assisting better forecast of solar generation as well as electricity demand.</p> <p>The data would also enable effective monitoring and impact evaluation of the scheme.</p>
8.	New Clause	Standards of Performance and Grievance Redressal		<p>The new proposals identified herein should also be included in the grievance redressal and monitoring framework.</p> <p>The grievance redressal should also transparently share monthly report on complaints raised across issues across each district, name of the respective entity against whom such complaints are raised, time of resolution and outstanding complaints.</p>

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				<p>In line with the Standards of Performance (SoP) for the distribution licensees specified by the respective Electricity Regulatory Commissions, similar SoP should be established for the performance of the RTS installations and the associated stages of the application/installation processes as well as for redressal of complaints with a provision for payment of compensation to the affected party to be recovered through penalty on the vendor/responsible party. For e.g. delay in rectification of technical issues with the installation means loss of electricity generated from the solar RTS and consumption thereof, thus a financial implication for the consumer. UPI based payment of such compensation should be reflected in the App based account of the consumer with information shared through SMS/WhatsApp.</p>
9.	New Clause	Vendor Performance Rating System (VPRS)		<p>Performance of the various during various stages of application processing, installation and operational maintenance, should form the basis for Vendor Performance Rating System (VPRS). Such a system should include performance of the vendor with respect the SoP and its efficiency and efficacy in addressing consumer complaints. This should be subject to verifiable data and monthly reporting of the performance. Based on the rating (say, A+, A, B+, B, C+, C and the like), which can be developed on the basis of a composite index for the identified parameters above, an award scheme can be constituted. Performance below a minimum grade (say, B) should disqualify the vendor for enrolling further consumers. A+ category vendors can be incentivised by lowering of the performance guarantee</p>

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				after consistent performance for 6 months.
10.	New Clause	Grievance redressal mechanism and role of Local Language		Given the expanse of the scheme throughout the country, importance of the local language for communication of the complaints and redressal thereof should be emphasized.
11.	New Clause	Escalation Matrix for Grievance Redressal		<p>The grievance redressal mechanism provides for two layers without mentioning further escalation chain and resolution with the specified '30 days'. Process of further escalation is also not specified.</p> <p>It is suggested that an Escalation Matric for each of the category of issues be developed so as to ensure speedy redressal with clear responsibility, timeline, thus further empowering the consumers.</p>
12.	Annexure VII (Part B)	<p><i>(Optional Value added services)</i> <i>S. No. Services Name</i> 1. GIS based design 2. Customized design as per the requirement of the consumer 3. Calculator / estimation for rooftops solar system (RTS) generation and returns/ savings calculations</p>	<p>Some of the services mentioned under Annexure VII should be included in the list of compulsory services. GIS based tagging of the RTS.</p> <p>The services of Surya Mitras should be engaged for offering such optional services such as calculations related to the RTS to take the</p>	<p>By mandating these value-added services, beneficiaries can benefit from increased clarity and improved competition among vendors, leading to better service delivery. Additionally, this approach will provide beneficiaries with accurate estimates of energy generation and potential returns or savings, enabling them to make informed decisions about adopting solar energy.</p> <p>App based delivery of mandatory as well as optional services would enhance user experience and would ensure seamless availability of services and monitoring thereof. Surya Mitras to be enabled with such Apps to do necessary calculations for the site including financial planning thereof.</p>

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		<p>4. Data base maintenance for the consumers</p> <p>5. On request generation data (inverter or online)</p> <p>6. Module cleaning system operation methodology</p> <p>7. Weather monitoring system (irradiation sensor, temperature sensor)</p>	<p>beneficiary informed decision. Module cleaning would also be a value added service that can be offered by such trained manpower.</p>	
13.	Clause no. 5(b) (2)	<p>Typographical error</p> <p>2. Residential Sector (with additional RTS capacity of 1 kWp or part thereof) 40% of benchmark cost of additional kWp</p>	<p>Contradiction in the subsidy (%) over benchmark for additional capacity.</p>	<p>The discrepancy between the details in Annexure I (stating a subsidy amount of 30% of benchmark cost for each additional 1 kW capacity) and Clause 5 (indicating a subsidy of 40% of benchmark cost for each additional 1 kW capacity) suggests a potential typographical error that should be rectified.</p>
14.	Clause no. 11(b)	<p>Third Party Assessment</p> <p>“The NPIA shall establish adequate mechanism to ensure independent third party assessment of RTS installations at time of commissioning of at least 1% of installations and post-installation inspection</p>		<p>The National Program Implementation Agency (NPIA) is to provide for inspection of 1% of the installations. This leaves a room for subjectivity in both the choice of the third party and the sampling for inspection of the installations.</p> <p>Stratified sampling should be specified upfront wherein 1% samples are collected from each block of every district across the country. In the absence of the same, limited sampling would often exclude some of the rural/remote installations where probability of poor implementation is likely to be much higher.</p>

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		<p><i>of at least 1% of installed systems.”</i></p>		<p>The report on the outcome of the same should be sharing through the portal of the scheme on a monthly basis.</p> <p>To ensure that the verification/inspection of the installation has been carried out in an efficiency and transparent manner, owners of each of such verified installations should be informed about the same through a message (SMS/WhatsApp) with a link to confirm that verification was done post visit to the site and that the verified details are correct. In case of any discrepancy, the beneficiary should easily able to raise a grievance against the same.</p> <p>Apart from this, reputed academic institutions/ research organisations should be entrusted with the task of evaluating benefit of the scheme post its implementation. Data for the verified installations should also be shared for such research purposes.</p> <p>Grievance mechanism should also allow for complaint against the agency undertaking verification of the installation. The ID of the Surya Mitra or other such person visiting the installation for verification etc. should be mapped across all sites verified to discourage misuse of their powers and identifying inefficiencies in the system. The personnel engaged for the verification purpose cannot be same who were engaged for installation in that area/block.</p>