Madhya Pradesh Urja Vikas Nigam Limited

Guidelines for Registration of System Integrators for claiming Central and State Subsidy for Solar Rooftop System Implemented for Residential and Social Sector under Market Mode in the State of Madhya Pradesh

Guideline No.: MPUVN/SPVPP/2019-20/1100 dated 24/07/2019
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Issued by:-

Madhya Pradesh Urja Vikas Nigam Limited (MPUVNL)
Urja Bhawan Link Road No. 2, Shivaji Nagar, Bhopal – 462016
Telephone No.: +91-755-2553595, 2556566, 2767270
Fax No: 91-755-2553122
E-Mail: mupvn.spvmm@gmail.com
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INTERPRETATIONS

1. Words comprising the singular shall include the plural & vice versa.

2. An applicable law shall be construed as reference to such applicable law including its amendments or re-enactments from time to time.

3. Different parts of this Guideline are to be taken as mutually explanatory and supplementary to each other and if there is any differentiation between or among the parts of this Guideline, they shall be interpreted in a harmonious manner so as to give effect to each part.

4. The table of contents and any headings or sub headings in the Guideline has been inserted for case of reference only & shall not affect the interpretation of this guideline.
Guidelines for claiming Subsidy for Solar Rooftop Systems
Implemented under Market Mode in the State of Madhya Pradesh
for Residential and Social sectors

1. APPLICABILITY OF GUIDELINE

1.1. This Guideline is applicable to Grid Connected / Off-Grid Rooftop Solar System Developer (“System Integrator”) or Legal Owner of the System and Premise (Applicant) for the following cases:

1.1.1. Applicant who had installed (“System”) on or after 7th Sep, 2018 and before the date of issue of Guideline; and
1.1.2. Applicant who will be installing the System on or after the date of issue of Guideline and on or before 10th Nov, 2019 (“Expiry Date”);

1.2. Residential consumer shall be eligible for Central Subsidy only and Social sector consumer shall be eligible for State Subsidy only. Subsidy defined here is either Central Subsidy or State Subsidy based on MNRE/State guidelines.

1.3. Guideline is applicable to System installed in the premises of Residential consumers or Social sector consumers who have not availed applicable Subsidy towards such System.

1.4. Total Central Subsidy towards System installed for Residential consumer is available up to 1.5 MWp capacity.

1.5. The Applicant would be entitled for Subsidy amount, which would be transferred directly to its bank account.

2. REGISTRATION OF SYSTEM INTEGRATOR

2.1. System Integrator must have GSTIN number and CIN number for availing Subsidy.

2.2. System Integrator must be rated by MNRE’s designated Rating Agency, which is a minimum acceptable requirement for SPIN portal.

2.3. The System Integrator, who is intended to facilitate the Applicant to seek subsidy for the System installed in the State of Madhya Pradesh, is required to get registered with Madhya Pradesh Urja Vikas Nigam Limited (hereinafter referred as “MPUVNL” or “Nodal Agency”) to claim Subsidy.

2.4. The registration process shall be opened between 1st day to 10th day of every month for System, which is expected to be commissioned after issuance of this Guideline. In case, 10th day is holiday, then next working day would be considered as last day for registration for that month. For System, which are already installed, System Integrator for such System can get registered with Nodal Agency within thirty (30) days of issuance of this Guideline and Applicant/System Integrator must submit application within sixty (60) days of issuance of this Guideline.

2.5. Format of the registration form is attached as Annexure-A. Nodal Agency may ask for clarification in registration form within seven (7) days from the day of submission.
2.6. Nodal Agency may raise issue/concerns on submitted Application within fifteen (15) days from the date of submission. Nodal Agency shall issue registration certificate with a unique registration ID to each System Integrator within fifteen (15) days from the date of submission of application.

2.7. The Applicant while applying for claiming Subsidy, would need to refer unique registration ID of System Integrator. However, solar power developer/generator/EPC contractor who is already prevailing as a Nodal Agency’s selected contractor under different EPC bids conducted by Nodal Agency shall be considered as a registered System Integrator and, Nodal Agency shall issue a unique registration ID to such vendors within fifteen (15) days from the date of issuance of this Guideline.

2.8. Each System Integrator who has successfully registered at Nodal Agency office and Subsidy has been disbursed to at least one of its beneficiary consumer i.e., Applicant after Systems inspection by Nodal Agency’s officer, such System Integrator shall be treated as Empanelled System Integrator of the State and their name will be notified on Nodal Agency’s website.

2.9. One time non-refundable registration fees of twenty five thousand (Rs. 25,000) for registration of System Integrator at Nodal Agency. The Administrative Charges shall be paid in the form of Demand draft in favor of:-

MADHYA PRADESH URJA VIKAS NIGAM LIMITED
SHIVAJI NAGAR, BHOPAL (MP) - 452016

Registration of System Integrator is mandatory to facilitate Applicants in availing Subsidy.

3. SCOPE OF WORK

3.1. The System Integrator shall ensure that System must comply with technical standards as specified by Nodal Agency in this Guideline or defined by MNRE/BIS or appropriate authority recognized by GoI or MNRE.

3.2. The System Integrator shall be responsible for Comprehensive Operation and Maintenance including insurance and warranty of the products/equipment (“CMC”) of the System for five (5) years from the date of Completion/Commissioning of the System as approved by concerned DISCOM/Nodal Agency or any third party appointed by Nodal Agency(Agency) after the issuance date of this Guideline.

3.3. In case, System installed and completed before the issuance of this Guideline and no Completion/Commissioning certificate has been issued, Applicant and System Integrator shall be responsible for CMC of System for five (5) years from the date of Completion/Commissioning of the System as approved by concerned DISCOM/Nodal Agency or any Agency appointed by Nodal Agency. However, if Completion/Commissioning certificate has already been issued, then the responsibility for CMC of System for five (5) years shall start from the date of Completion/Commissioning as per certificate.

3.4. The System Integrator shall ensure that applicable warranties are available for at least five (5) years from the date of System Completion/Commissioned.
3.5. The System Integrator shall assist the Applicant in the process of filing application to Nodal Agency for disbursement of Subsidy and provide all the relevant documents including warranty/insurance.

3.6. At the end of five (5) years of CMC, System Integrator shall transfer all the existing warranties/insurance or any relevant document in favor of Applicant.

4. TERMS OF GUIDELINE

4.1. The System Integrator or Applicant must not have received GoI and/or State Subsidy for the System for which it is claiming Subsidy under this scheme.

4.2. The Applicant is required to install and Complete/Commission the System under EPC mode through a System Integrator. System Integrator must be responsible for at least five (5) years of CMC.

4.3. The System Integrator shall be eligible for Subsidy only on the new System. The System with previously used parts are ineligible for Subsidy.

4.4. However, if the building gets reconstructed by the Applicant within the CMC period i.e., within five (5) years from the date of Completion/Commissioning, then the System can be re-installed at some other place in the same premise at the cost of the Applicant or as mutually agreed between System Integrator or Applicant. However, System can be re-installed in other Premise of same Applicant due to reconstruction or renovation of the first Premise if such activities will take more than a year to complete. However, Applicant shall not be eligible for claiming Subsidy even for new System at new Premise.

4.5. Disbursement of the subsidy for the System Integrator shall be done according to the following conditions:

4.5.1. For Systems installed before the issuance of this Guideline, the System Integrator has to share all the documentation as per the described methodology and prescribed formats within a period of 60 days from the issuance of Guideline. For the installations that took place before the issuance of this Guideline, the decision for reimbursement of subsidy would be taken on case-to-case basis, which shall depend on availability of Financial Assistance, etc.

4.5.2. For Systems to be installed after the issuance of this Guideline, System Integrator shall be required to take prior approval, in written, from Nodal Agency, for the Subsidy claim.

4.6. Application without Performance Guarantee shall not be accepted by Nodal Agency.

5. RELEASE OF SUBSIDY

5.1. Nodal Agency shall release Subsidy to all the Applicants who fulfill the minimum conditions described in this Guideline specifically in Article 9 and, Subsidy shall be computed on the capital cost which is lowest\textsuperscript{1} of prevailing MNRE benchmark rate,

\textsuperscript{1}Till the time standardized rates of Nodal Agency is not determined, Subsidy shall be calculated on the lowest of prevailing MNRE benchmark rate for FY 2019-20 or actual cost as mutually agreed between Applicant and System Integrator i.e., Total Invoice Value of the System including all taxes, for the Systems Completed/Commissioned on or after 31st March 2019.
prevailing Nodal Agency’s standardized rates (determined through competitive bidding) or actual cost as mutually agreed between Applicant and System Integrator i.e., Total Invoice Value of the System including all taxes. It is clarified that, for the Systems Completed/commissioned on or before 31st March 2019, MNRE benchmark rate of FY 2018-19 shall be applicable for the computation of Subsidy amount. However, for the Systems Completed/commissioned after 31st March 2019, MNRE benchmark rate of FY 2019-20 shall be applicable for the calculation of Subsidy amount.

5.2. For the Systems Completed/commissioned on or before 31st March 2019, Central Subsidy is available for Residential Consumers and Social sector Consumers, whereas State Subsidy is available for Social sector Consumers only. However, it is further clarified that, for the Systems Completed/commissioned after 31st March 2019, Central Subsidy\(^2\) is available only for System installed for Residential Consumers and State Subsidy for System installed for Social sector Consumers only. It is important to note that, prevailing rates of Nodal Agency’s standardized rate and/or MNRE benchmark rates shall be considered for calculation of Subsidy. Further, State subsidy of 20% shall be applicable for the Systems installed in Social sector ranging between 5 kW to 25 kW. In case, size of the System is more than 25 kW, maximum allowable subsidy is for up to 25 kW.

5.3. The Nodal Agency shall be liable to pay Subsidy to Applicant and, Applicant is liable to make cost of the System to the System Integrator based on mutually agreed terms and condition. The Nodal Agency shall disburse Subsidy to the Applicant after the receipt of inspection report by Nodal Agency’s authorized officer or the Agency appointed for the said purpose and receipt of Performance Guarantee of the desired value as per this Guideline. Subsidy shall be released in Applicant’s account directly through electronic transfer within thirty (30) days from the date of Completion/Commissioning.

6. PERFORMANCE GUARANTEE

6.1. Nodal agency requires Performance Guarantee from System Integrator for the defined period to ensure that installed Systems must be maintained well for at least five (5) years at each Applicant’s premise. System Integrator are required to furnish Performance Guarantee from a nationalized/scheduled bank of value equivalent to the 20% of lowest of applicable MNRE benchmark rate or applicable Nodal Agency’s standardized rate or Total Invoice Value. Performance Guarantee can be submitted in any of the below format:

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\(^2\)MNRE benchmark rates for FY 2018-19 and FY 2019-20 are annexed as Annexure J-1 & J-2
FDR in favor of Madhya Pradesh Urja Vikas Nigam Limited, Bhopal;
OR
Bank Guarantee in the prescribed format, which is annexed as Annexure-G;

6.2. Validity of Performance Guarantee shall be 5 (five) years with a claim period of six (6) months from the date of Inspection cum Completion/Commissioning report duly signed by Authorized Nodal Agency’s officer under this Guideline.

6.3. Due to any reason, Nodal Agency has found that Applicant is not eligible for Subsidy; Nodal Agency shall return Performance Guarantee to the System Integrator within thirty (30) days of submission of Inspection report. Further, in case Applicant’s request for withdrawal of application, Nodal Agency shall return Performance Guarantee to the System Integrator within thirty (30) days of receipt of application. In such situation, System Integrator shall not be eligible for Subsidy.

6.4. For each System Integrator, the above Performance Guarantee amount shall be reduced based on number of Systems Inspection cum Completed/Commissioned by the System Integrator, in accordance with the following slabs:

6.4.1. Upto 3<sup>rd</sup> successful Inspection cum Completed/Commissioned Systems: The Performance Guarantee amount shall be 20% of value of works with subsequent annual reduction of 3% every year.

6.4.2. From 4<sup>th</sup> up to 10<sup>th</sup> successful Inspection cum Completed/Commissioned Systems: The Performance Guarantee amount shall be 10% of value of works with subsequent annual reduction of 1% every year.

6.4.3. From 11<sup>th</sup> successful Inspection cum Completed/Commissioned Systems and onwards: The Performance Guarantee amount shall be 8% of value of works with subsequent annual reduction of 0.5% every year.

6.5. Nodal Agency would release the Performance Guarantee, within ninety (90) days, after the expiry of Performance Guarantee. However, release of Performance Guarantee shall be subjected to submission of Certificate of Performance along with the all the relevant warranties/guaranties and title transfer documents, if any, by the System Integrator in the format annexed as Annexure F, along with the signed copy of Aadhar Card or PAN Card or any other applicable Identity Proof (in case Aadhar Card and PAN card is not valid constitutionally at the time of submission of Certificate of Performance and Performance Guarantee release request) of Applicant.

7. **INSPECTION OF THE SYSTEM**

7.1. The Applicant shall file an application for the System to Nodal Agency for inspection of the System once it is installed and ready for Completion/Commissioning. Applicant should submit pre-filled inspection report in accordance with format specified as Annexure-D. The application shall be accompanied by the Administrative Charges which shall be paid to Nodal Agency i.e., 2% of the amount
on which Subsidy shall be computed. The Administrative Charges shall be paid in the form of Demand draft in favor of:-
MADHYAPRADESH URJA VIKAS NIGAM LIMITED
SHIVAJI NAGAR, BHOPAL (MP)-452016

7.2. Nodal Agency, within thirty (30) days of receipt of application and requisite Administrative Charges, shall arrange for inspection of the System, through its Authorized Person or Agency.

8. SYSTEM COMPLETION TEST AND PERFORMANCE MONITORING MECHANISM

Inspection cum Completion/Commissioning of the System

8.1. The System Integrator shall be eligible for the Subsidy, if the System delivers Capacity Utilization Factor (“CUF”) of at least 15% at all time, adjusted for seasonality as indicated in the below table for one (1) day.

<table>
<thead>
<tr>
<th>Month</th>
<th>kWh generation in 1 day per kWp System</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>3.71</td>
</tr>
<tr>
<td>February</td>
<td>4.14</td>
</tr>
<tr>
<td>March</td>
<td>4.33</td>
</tr>
<tr>
<td>April</td>
<td>4.27</td>
</tr>
<tr>
<td>May</td>
<td>3.99</td>
</tr>
<tr>
<td>June</td>
<td>3.30</td>
</tr>
<tr>
<td>July</td>
<td>2.56</td>
</tr>
<tr>
<td>August</td>
<td>2.33</td>
</tr>
<tr>
<td>September</td>
<td>3.21</td>
</tr>
<tr>
<td>October</td>
<td>3.89</td>
</tr>
<tr>
<td>November</td>
<td>3.90</td>
</tr>
<tr>
<td>December</td>
<td>3.56</td>
</tr>
</tbody>
</table>

8.2. In case, Applicant and/or System Integrator fails to adhere to the requirement for System Completion/Commissioning test of this Guideline on first visit of Nodal Agency’s authorised representative or Agency, Applicant has to deposit an Inspection Fee i.e., higher of INR 500 or 10% of Administrative Charges to call Nodal Agency for subsequent inspections. However, inspection can be called up for maximum two (2) times, after the first inspection call. In case System Integrator or Applicant fails to satisfy the Nodal Agency’s Authorised Representative or Agency on System’s mandatory compliance/requirements, Applicant's eligibility would be disallowed to receive Subsidy under this Guideline.

Performance monitoring after commissioning

8.3. During the five (5) years of CMC period, the System Integrator and Applicant shall maintain a CUF of 15% for each year, subject to annual de-rating of output of SPV
modules of not more than 1% per year, implying shortfall in CUF shall not be more than 0.15% per year from the date of Completion.

8.4. System Integrator shall demonstrate the performance accomplished in 8.1of this Guideline for one day and adjusted for seasonality in each year and, submitted to Nodal Agency, within thirty (30) days from the end of each year. Such demonstration report must be signed by the Applicant i.e., beneficiary of the System. At the end of five (5) years of CMC and System Integrator requested for the return of Performance Guarantee for a particular System, Nodal Agency shall review the performance of System in last five (5) years. In the event of achieving lower CUF in any of the year, a penalty for an amount equivalent to product of shortfall in annual generation in kWh with respect to benchmark CUF for each year and applicable energy charges during normal period applicable for the Applicant shall be deducted. The applicable energy charges during normal period payable by the Applicant shall be based on tariff determined by the MPERC’s Tariff Order determined for last year of CMC and shall include Electricity Duty and Cess, but not Fuel Charge Adjustment. However, cumulative value of such penalty can be maximum to the 20% of lowest of prevailing MNRE benchmark rate or prevailing Nodal Agency’s standardized rate or Total Invoice Value. Nodal Agency shall recover the penalty amount from the Performance Guarantees submitted by the System Integrator and remaining amount can be refunded via suitable medium, if any.

8.5. In case, Penalty towards a specific System’s non-performance is not fully recoverable from the Performance Guarantee submitted against that System, Nodal Agency reserves the right to recover such penalty(ies) from other payments to be made to such System Integrator. If it is not recoverable from payments due to the System Integrator, same shall deducted from concerned Performance Guarantee residing with the Nodal Agency for the said Project before releasing it to the System Integrator as final settlement.

8.6. Nodal Agency or its authorized person or agency shall have the right to visit the Applicant premise at any time during the CMC period and ascertain the performance of System.

8.7. For Clarification, first year shall start from the date of Completion/Commissioning as per this Guideline and expiring at the end of calendar month in which System completed twelve (12) months after Completion/Commissioning. Thereafter, each period of twelve (12) months shall be considered as a year for calculation of CUF.

**For the purpose of measuring CUF:-**

8.8. The System Integrator shall ensure that all the Systems above 10 kWp are Remote Monitoring System (“RMS”) enabled. The data from such RMS enabled Systems would be monitored or analyzed remotely by Nodal Agency, independently or at its Centralized Monitoring Centre, to ensure desired level of performance.
8.9. The System Integrator shall have no objection to provide access to RMS for data acquisition and monitoring the performance of Systems by Nodal Agency. The System Integrator shall support Nodal Agency in establishing technical handshake between RMS and the Centralized Monitoring Centre being established by Nodal Agency.

8.10. The System Integrator shall ensure that the connectivity of the Systems with the Centralized Monitoring Centre of Nodal Agency is uninterrupted at all times during O&M period and shall make all necessary arrangements for the same. Nodal Agency or its authorized agency reserves right to validate the authenticity of such data for which shall extend full access and its cooperation.

8.11. The System should have ability to send data on defined time interval so that data should not be lost due to performance and load issue. The information should be shared with trusted network/system only and should not be available to any other unknown network/system. The System Integrator must ensure the availability and connectivity of the RMS system to be at least 98%.

8.12. The System should be able to store the data for the minimum period of one year in data logger located locally within for the System with Capacity up to 10 kWp.

8.13. System Integrator is bound to install Generation meter based on prevailing Discom’s and/or CEA’s technical specifications for the System above 10 kWp.

9. SUBMISSION OF DOCUMENTS

9.1. The Applicant is required to submit self-attested documents along with registration form:\n
- Application form duly filled in specified format as annexed in Annexure-B.
- Performance Guarantee of the desired value in the form of FDR or BG.
- Signed copy of Agreement/Contract (signed between Applicant and System Integrator) or Work Order issued by Applicant for System installation and Completion/Commissioning.
- Proof of payment done to System Integrator by the Applicant and confirmation receipt from the System Integrator depicting that he has received the milestone payments as per Agreement/Contract/Work Order. However, for the case where System is installed and Completed/Commissioned, 100% payment proof and payment confirmation receipt is required from Applicant and System Integrator respectively.

3 In case of already installed and Completed/Commissioned System, Applicant is required to submit documents within 30 days from the issuance of this Guideline
• Demand Draft for payment of Administrative Charges to Nodal Agency.
• Electricity bill of the three (3) preceding months and three (3) subsequent months in which System is installed (Applicable in cases where System is already installed) clearly depicting the installation & Completion / Commissioning and performance of the System.
• If details of System have been uploaded on SPIN portal, then documents related to the same should be submitted.
• Inspection cum Completion/ Commissioning report duly signed by Authorized Nodal Agency’s officer, Applicant and System Integrator within one week from the Inspection date for the release of Subsidy.
• Self-Declaration Certificate in the format provided in **Annexure-E**
• System Integrator shall ensure that all the documents should be compiled in the order mentioned in **Annexure-H** i.e., Checklist and to be submitted to DREO of concerned districts/region. List of DREOs is available with Nodal Agency and System Integrator can contact Nodal Agency to know details of Concerned DREO for processing of Application.

10. OTHER INSTRUCTIONS

10.1. **Applicable Law:** The Guideline shall be interpreted in accordance with the laws of India.

10.2. **Settlement of dispute:** If any dispute of any kind whatsoever arises between Nodal Agency and the Applicant or System Integrator in connection with or arising out of the Guideline including without prejudice to the generality of the foregoing, any question regarding the existence, validity or termination, the parties shall seek to resolve any such dispute or difference by mutual consent.

If the parties fail to resolve, such a dispute or difference by mutual consent, within forty five (45) days of its arising, then the dispute shall be referred by either party by giving notice to the other party in writing of its intention to refer to arbitration conducted under the provisions of the “Madhya Pradesh Madhyastham Adhikaran Adhiniyam, 1983”. The decision of MP Madhyastha Adhikaran Adhiniyam shall be final and binding up on the parties. The language of the arbitration proceedings and that of the documents and communications between the parties shall be English. All the dispute will be settled in the High Court of MP. No arbitration proceedings will commence unless such notice is given.

Notwithstanding any reference to the arbitration herein, the parties shall continue to perform their respective obligations under the Guideline unless they otherwise agree. Cost of arbitration shall be shared between the Applicant and Nodal Agency as per the award of the arbitration.
10.3. **Language:** All documents, drawings, instructions, design data, calculations, operation, maintenance and safety manuals, reports, labels and any other data shall be in English Language. All correspondence shall be in English language alone.

10.4. **Other conditions:** The System Integrator has to obtain all the necessary approvals/Consents/Clearances required for design, engineering, supply, installation, testing and commissioning including Comprehensive O&M of the Project, and its connectivity to the licensee’s network. The System Integrator shall be liable for the whole work pursuant to this guideline even in case of partially / fully work performed by third party i.e., other than the System Integrator. All the relevant test certifications must be kept valid up to the period of the contract (as applicable).

10.5. **Amendment:** Nodal Agency reserves the right to modify, amend or supplement this Guideline including all annexures at any time. Interested System Integrator and Applicants are advised to follow and keep track of Nodal Agency’s website for updated information. No separate notifications will be issued for such notices/amendments/clarification etc. in the print media or individually. Nodal Agency shall not be responsible and accountable for any consequences to any party.

10.6. **Extension of Guideline:** Nodal Agency may extend the Expiry Date of Guideline based on requirement and availability of Subsidy.

10.7. **Successors and Assignees:** In case the System Integrator may undergo any merger or amalgamation or a scheme of arrangement or similar re-organization and this Agreement assigned to any entity partly or wholly, the Agreement shall be binding mutatis mutandis upon the successor, entities and shall continue to remain valid with respect to obligation of the successor, entities.

10.8. **Price preference:** There is no relaxation in terms of any conditions of the Guideline for one time non-refundable fee or Administrative Charges or Performance Guarantee for any State or Central Applicant or State or Central System Integrator.

10.9. **Tax exemptions:** Nodal Agency will extend possible cooperation to the System Integrator in availing any tax exemptions. However, the responsibility of availing any such exemptions, if any, would rest with the Applicant and/or System Integrator.

10.10. **Inspection and audit by the Nodal agency:** Nodal Agency shall have the right to inspect the goods to confirm their conformity to the Technical Specifications annexed as *Annexure-C* during the inspection of the System. In addition to this, and in accordance with the directives of MNRE, New Delhi, the Nodal Agency or Agency may pick a sample of System on random basis. Third party inspection of the System
may be performed by Nodal Agency at its own cost. However, in case of any discrepancy is found during inspection, then the System Integrator shall be liable to incur all costs for removing/rectifying the defects identified as a result of such inspection.

10.11. **Fraud and corruption:** All the stakeholders are required to observe the highest standard of ethics during the installation and operation of the System. In pursuance of this, the Nodal Agency:

10.11.1. Defines, for the purpose of this provision, the terms set forth below as follows:

(i) “**corrupt practice**” is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(ii) “**fraudulent practice**” is any act or omission, including a misrepresentation, that knowingly or recklessly misleads or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(iii) “**collusive practice**” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

(iv) “**coercive practice**” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

(v) “**obstructive practice**” is

i. deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Nodal Agency’s investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation;

or

ii. acts intended to materially impede the exercise of the Nodal Agency’s inspection and audit rights.

10.12. **Removal of Difficulties:** If any difficulty arises in giving effect to the provisions of this Guideline, the Nodal Agency may, by order, make such provisions, not
inconsistent with the provisions of this Guideline, as may appear to be necessary for removing the difficulty.
Provided that no order shall be made under this section after the expiry of this Guideline.

10.13. **Debarred from participating in Nodal Agency’s tender:** Nodal Agency reserves the right to carry out the performance review of each System Integrator from the time of registration onwards. In case, it is observed that a System Integrator has not fulfilled its obligations in meeting the various terms and condition of the Guideline, he may be debarred from participating in Nodal Agency’s any future Scheme or RFP for a period as decided by the competent authority of Nodal Agency.
**ANNEXURE A: ONLINE REGISTRATION FORM**

**Details of the System Integrator**

<table>
<thead>
<tr>
<th>Details of System Integrator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Name of the Company/Firm</td>
</tr>
<tr>
<td>2. Registered Office Address</td>
</tr>
<tr>
<td>3. Incorporation certificate</td>
</tr>
<tr>
<td>4. Registration no of the Company/Firm</td>
</tr>
<tr>
<td>5. Details of Authorized Contact Person to whom all references shall be made</td>
</tr>
<tr>
<td>6. Name and Designation:</td>
</tr>
<tr>
<td>Address:</td>
</tr>
<tr>
<td>Email Address/Fax No.:</td>
</tr>
<tr>
<td>Mobile No.:</td>
</tr>
<tr>
<td>7. Power of Attorney in the name of Authorized Contact Person</td>
</tr>
<tr>
<td>8. GSTIN No., if available</td>
</tr>
<tr>
<td>9. Contact Details (Ph. No.)</td>
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<td>10. E-mail</td>
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<td>11. Web site, if any</td>
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<tr>
<td>12. Have the System Integrator ever been debarred/blacklisted/have failed to execute of Works of Nodal Agency or is in arbitration with Nodal Agency. If yes, provide the</td>
</tr>
<tr>
<td>13. Registration Fee of Rs. 25,000 (one time), in the form of Demand Draft</td>
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<tr>
<td>14. Name of Rating Agency</td>
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<tr>
<td>15. Prevailing Rating</td>
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</tbody>
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4 All the documents required to verify the information provided by the System Integrator in points, from 1 to 15 are to be attached along with this annexure
ANNEXURE B: FORMAT OF APPLICATION FORM FOR CLAIMING SUBSIDY

Part A: to be signed by System Integrator and Applicant both

To,

Superintending Engineer (Rooftop Solar),
Madhya Pradesh Urja Vikas Nigam Limited,
Urja Bhawan, Shivaji Nagar,
Bhopal - 462016

<table>
<thead>
<tr>
<th>Details of Applicant</th>
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</thead>
<tbody>
<tr>
<td>1. Name of the Applicant (Owner of the Premise ) or Representative on behalf of Applicant</td>
<td></td>
</tr>
<tr>
<td>2. Address where System is installed along with pin-code, latitude and longitude</td>
<td></td>
</tr>
<tr>
<td>3. Correspondence Address of the Applicant (if different from above)</td>
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<tr>
<td>4. Contact Details (Mobile No.)</td>
<td></td>
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<tr>
<td>5. E-mail Address / Registered E-Mail ID</td>
<td></td>
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<tr>
<td>6. Aadhar Number for Residential sector Registration number for Social sector (self-certified soft and hard copy)</td>
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</tr>
<tr>
<td>7. PAN No. for Residential sector PAN No./GST No./ Tin No./ any other for Social Sector (self-certified soft and hard copy)</td>
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</tr>
<tr>
<td>8. Ownership details of location where system is installed (Copy of property tax/Registry/etc.)</td>
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</tr>
<tr>
<td>9. Bank account details of Applicant along with IFSC code</td>
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</tr>
<tr>
<td>10. Electricity Consumer number, billing name and IVRS Number</td>
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</table>

Details of System Integrator
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<tbody>
<tr>
<td>11.</td>
<td>Name of the Company</td>
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<td>12.</td>
<td>Registration Unique ID number</td>
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<tr>
<td>13.</td>
<td>Registered Office Address</td>
</tr>
<tr>
<td>14.</td>
<td>Contact Details of Project Manager - Single Point of Contact (SPoC) for Applicant and Nodal Agency</td>
</tr>
<tr>
<td>15.</td>
<td>Contact Details (Ph. No.) of Company/Firm and SPoC</td>
</tr>
<tr>
<td>16.</td>
<td>E-mail of SPoC</td>
</tr>
<tr>
<td><strong>Details of System</strong></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Capacity of System applied for (in kWp)</td>
</tr>
<tr>
<td>18.</td>
<td>Completion / Commissioning date, if already System is installed on or before issuance of this Guideline</td>
</tr>
<tr>
<td>19.</td>
<td>Preferred Dates for inspection (multiple dates should be given)</td>
</tr>
</tbody>
</table>
DECLARATION REGARDING “FOR NOT HAVING AVAILED/ WILL AVAL OF CENTRAL AND/OR STATE SUBSIDY”

We have read in detail the guidelines regarding submission of this declaration. We confirm that neither we, nor the System Integrator have availed any Subsidy for the above mentioned System.

Comprehensive Maintenance Contract

I. The performance of the System supplied, installed & Completed/ Commissioned along with additional work, if any, shall be under Warranty by the System Integrator for a period of five (5) years from the date of Completion (as mentioned above) of System at Premise.

II. Warranty shall be for a period of five (5) years from the date of Completion of the System (In case of Systems it may be five (5) years or more as per guarantee / warranty card provided by System and for the SPV modules - as per MNRE guidelines, from the date of Completion).

III. During the course of aforesaid five (5) years of CMC, the System Integrator will service and maintain the System effectively and efficiently. The System Integrator shall have to arrange all required instruments, tools, spares, components, manpower and other necessary facilities at his own cost.

Name of Authorized Signatory of System Integrator

Name of the Applicant or Authorized Representative

Signature

With Seal/Stamp of the System Integrator
ANNEXURE C: TECHNICAL PARAMETERS

The proposed Projects shall be completed as per the technical specifications given below.

The participants are hereby advised to take a note of the draft guidelines issued by MNRE dated 09-08-2016 in respect of minimum technical requirements, quality standards, best practices and specifications for grid connected roof top PV systems in addition to technical parameters mentioned in this RFP and comply accordingly.

1. PARAMETERS:

1.1. A Project consists of SPV array, Module Mounting Structure, Power Conditioning Unit (PCU) consisting of Maximum Power Point Tracker, charge (MPPT), controller (if required), Inverter, Controls & Protections, interconnect cables and switches. PV Array should be mounted on a suitable structure. Project maybe with or without battery and should be designed with necessary features to synchronize with the grid power. Components and parts used in the Project including the PV modules, metallic structures, cables, junction box, switches, PCUs etc., should conform to the BIS or IEC or international specifications, wherever such specifications are available and applicable.

1.2. Project shall consist of following equipment/components:

- Indigenously manufactured mono/polycrystalline Solar PV modules, as prescribed by MNRE for categories with domestic modules mentioned. For other categories, the developer can also install imported mono/polycrystalline Solar PV modules, as prescribed by MNRE
- AC&DC generation meter
- Net meter
- Grid interactive/ off-grid system with battery will have Power Conditioning Unit with Remote Monitoring System and grid interactive systems without battery shall have string inverters with Remote Monitoring System.
- Mounting structures
- Battery Bank (if required)
- Junction Boxes.
- Earthing and lightening protections.
- IR/UV protected PVC Cables, pipes and accessories
2. SOLAR PHOTOVOLTAIC MODULES:

2.1. The PV modules used should be made in India for categories mentioned with domestic modules. The modules could be imported for other categories.

2.2. The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/IS14286. In addition, the modules must conform to IEC 61730 Part-2 requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.

2.3. For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701. The total solar PV array capacity should not be less than allocated capacity kWp) and should comprise of solar crystalline modules of minimum 250 Wp and above wattage. Module capacity less than minimum 250 Wp should not be accepted.

2.4. Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.

2.5. PV modules must be tested and approved by one of the IEC authorized test centers. The module frame shall be made of corrosion resistant materials, having Pre-galvanized/ anodized Aluminum or superior material (after approval from MNRE)

2.6. The Contractor shall carefully design & accommodate requisite numbers of the modules to achieve the rated power.

2.7. Other general requirement for the PV modules and subsystems shall be the following:

- The rated output power of any supplied module shall have tolerance of +/- 3%.

- The peak-power point voltage and the peak-power point current of any supplied module and/or any module string (series connected modules) shall not vary by more than 2 (two) per cent from the respective arithmetic means for all modules and/or for all module strings, as the case may be.

- The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of by-pass diode. The box shall have hinged, weather proof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.

- I-V curves at STC should be provided by Contractor.

2.8. Modules deployed must use a RF identification tag. The following information must be mentioned in the RFID used on each modules (This can be inside or outside the laminate, but must be able to withstand harsh environmental conditions).
- Name of the manufacturer of the PV module
- Name of the manufacturer of Solar Cells.
- Month & year of the manufacture (separate for solar cells and modules)
- Country of origin (for solar cells)
- I-V curve for the module Wattage, Im, Vm and FF for the module
- Unique Serial No and Model No of the module
- Date and year of obtaining IEC PV module qualification certificate.
- Name of the test lab issuing IEC certificate.
- Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001

2.9. **Warranties:**

- **Material Warranty:**

  Material Warranty is defined as:

  The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a Period as specified in MNRE guidelines from the date of completion.

  - Defects and/or failures due to manufacturing
  - Defects and/or failures due to quality of materials
  - Non conformity to specifications due to faulty manufacturing and/or inspection processes.
    
    If the solar Module(s) fails to conform to this warranty, the manufacturer will replace the solar module(s)

- **Performance Warranty:**

  The predicted electrical degradation of power generated not exceeding 20% of the minimum rated power over the 25 year period and not more than 10% at the end of tenth (10th) year of the full rated original output.

3. **ARRAY STRUCTURE:**

3.1. Hot dip galvanized MS/ Pre-galvanized/ Anodized Aluminium or superior material (after approval from MNRE) mounting structures may be used for mounting the modules/
panels/arrays. Each structure should have angle of inclination as per the site conditions to take maximum insulation. However to accommodate more capacity the angle inclination may be reduced until the Project meets the specified performance ratio requirements.

3.2. The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a Project is proposed to be installed (for minimum wind speed of 150 km/hour). Suitable fastening arrangement that do not require drilling in rooftops should be adopted to secure the installation against the specific wind speed.

3.3. The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be in compliance of latest IS 4759.

3.4. Structural material shall be corrosion resistant and electrolytically compatible with the materials used in the module frame, its fasteners, nuts and bolts. Aluminium structures also can be used, that can withstand the wind speed of respective wind zone. Necessary protection towards rusting need to be provided either by coating or anodization.

3.5. The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed that it will occupy minimum space without sacrificing the output from the SPV panels

3.6. Regarding civil structures, the Contractor need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof. The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m².

3.7. The minimum clearance of the structure from the roof level should be 300 mm.

4. **JUNCTION BOXES (JBs) BASED ON SYSTEM DESIGN REQUIREMENTS:**

4.1. The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminium/cast aluminium alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JBs shall be such that input & output termination can be made through suitable cable glands.

4.2. Copper bus bars/terminal blocks housed in the junction box with suitable termination threads Conforming to IP65 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single / double compression cable glands with provision of earthing. It should be placed at 5 feet or suitable height for ease of accessibility.

4.3. Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistors (MOVs) / SPDs, suitable Reverse Blocking Diodes. The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.

4.4. Suitable markings shall be provided on the bus bar for easy identification and the cable
ferrules must be fitted at the cable termination points for identification

5. **DC DISTRIBUTION BOARD BASED ON SYSTEM DESIGN REQUIREMENTS:**

5.1. DC Distribution panel to receive the DC output from the array field.

5.2. DC DPBs shall have sheet from enclosure of dust & vermin proof conform to IP 65 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.

6. **AC DISTRIBUTION PANEL BOARD:**

6.1. AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter, and should have necessary surge arrestors. Interconnection from ACDB to mains at LT Bus bar while in grid tied mode.

6.2. All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.

6.3. The changeover switches, cabling work should be undertaken by the Contractor as part of the project.

6.4. All the Panel’s shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase / single phase, 415 or 230 volts, 50 Hz.

6.5. The panels shall be designed for minimum expected ambient temperature of 45 degree Celsius, 80 percent humidity and dusty weather.

6.6. All indoor panels will have protection of IP54 or better. All outdoor panels will have protection of IP65 or better.

6.7. Should conform to Indian Electricity Act and rules (till last amendment).

6.8. All the 415 AC or 230 volts devices / equipment like bus support insulators, circuit breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions:

<table>
<thead>
<tr>
<th>Variation in supply voltage</th>
<th>+/- 10 %</th>
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</thead>
<tbody>
<tr>
<td>Variation in supply frequency</td>
<td>+/- 3 Hz</td>
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</table>

7. **PCU/ARRAY SIZE RATIO:**

7.1. The combined DC wattage of all inverters should not be less than rated capacity of Project under STC.
7.2. Maximum power point tracker shall be integrated in the PCU/inverter to maximize energy drawn from the array.

8. **PCU/ Inverter:**

8.1. As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the Project are termed the “Power Conditioning Unit (PCU)”. In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to the PCU/inverter should also be DG set interactive. The PCU should also have provision of charge controller in case of systems with battery backup. If necessary. Inverter output should be compatible with the grid frequency. Typical technical features of the inverter shall be as follows:

- Switching devices: IGBT/MOSFET
- Control Microprocessor /DSP
- Nominal AC output voltage and frequency: 415V, 3 Phase, 50 Hz (In case single phase inverters are offered, suitable arrangement for balancing the phases must be made.)
- Output frequency: 50 Hz
- Grid Frequency Synchronization range: + 3 Hz or more
- Ambient temperature considered: -20o C to 50o C
- Humidity: 95 % Non-condensing
- Protection of Enclosure: IP-20(Minimum) for indoor: IP-65(Minimum) for outdoor.
- Grid Frequency Tolerance range: + 3 or more
- Grid Voltage tolerance: - 20% & + 15 %
- No-load losses: Less than 1% of rated power
- Inverter efficiency(minimum): >93% ( In case of 10kWp or above )
- Inverter efficiency (minimum ): > 90% (In case of less than 10 kWp)
- THD: < 3%
- PF: > 0.9
- Three phase PCU/ inverter shall be used as required.
• PCU/inverter shall be capable of complete automatic operation including wake-up, synchronization & shutdown.

• The output of power factor of PCU inverter is suitable for all voltage ranges or sink of reactive power; inverter should have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.

• Built-in meter and data logger to monitor Project performance retrievable through external computer shall be provided.

• The power conditioning units/inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068-2(1,2,14,30)/Equivalent BIS Std.

• The charge controller (if any) / MPPT units environmental testing should qualify IEC 60068-2(1, 2, 14, 30)/Equivalent BIS standard. The junction boxes/ enclosures should be IP 65 (for outdoor)/ IP 54 (indoor) and as per IEC 529 specifications.

• The PCU/ inverters should be tested from the MNRE approved test centres/NABL/BIS/IEC accredited testing-calibration laboratories. In case of imported power conditioning units, these should be approved by international test houses.

9. BATTERY BANK:

9.1. TECHNICAL SPECIFICATION OF TUBULAR (LEAD ACID) BATTERY

The batteries must be conforming to the programme of Ministry of New and Renewable Energy. The battery bank capacity shall be of different capacities as specified in the price schedule, of tubular lead acid (Flooded electrolyte type) Battery (2 volt cells). The general specifications shall be as under:

• The battery bank shall consist of required number of deep-discharge electrochemical storage cells, suitably interconnected as required. Parallel connections of storage cells will be discouraged.

• The cells shall be capable of deep discharge and frequent cycling with long maintenance intervals and high columbic efficiency. Automotive or car batteries shall not be accepted.

• The nominal voltage and capacity of the storage bank shall be selected.

• The self-discharge rate of the battery bank or individual cell shall not exceed four (4) percent per month.

• The permitted maximum depth of discharge (DOD), shall not be more than 80%.

• The cells shall include explosion proof safety vents.
• The cells shall include the required number or corrosion resistant inter-cell required chemicals electrolyte packed in separate containers. Full instructions and technical details shall be provided for electrolyte filling and battery recharging at site for the first time.

• In case of flooded electrolyte Cells, the cells shall preferably be supplied in dry charged condition, complete with all required chemicals electrolyte packed in separate containers. Full instructions and technical details shall be provided for electrolyte filling and battery recharging at site for the first time.

• If the cells are supplied in uncharged conditions, then the supplier shall provide full instructions for first time charging including, but not limited to, the following:

• Suitable number of corrosion resistant and acid-proof storage racks shall be supplied to accommodate the cells tester and other accessories. The rack design shall be such that minimum space is required, without any way obstructing the maintenance requirements. For metallic racks, standards specified for control panel enclosures and other metallic shall govern.

• All the connectors should be insulated except for the end portions.

10. **BATTERY RACK:**

Battery rack should be of matured treated Sal wood (In case of flooded electrolyte Cells) duly painted single tier or two tier (if required) or epoxy coated MS structure with rubberized coating on battery runners. Placement of battery should be such that maintenance of the battery could be carried out easily. The non-reactive acid proof mat should be provided to cover the entire floor space covering the battery rack. Battery rack should compulsorily be placed on the appropriate rubbers pads to avoid the contact of racks with the floor, and to protect wooden rack particularly from termite.

11. **INTEGRATION OF PV POWER WITH GRID:**

11.1. For better grid interaction and functioning of Project with energy storage, the following arrangement shall be ensured by Contractor:

a) Battery shall be placed between solar panel and load. The PCU should be programmed for pre-alarm depth of discharge of 70% and maximum DoD of 80%, when, if not recharged, the battery’s supply to load shall stop. PCU and energy storage system must be configured in such a way that the moment energy storage system’s DoD reaches 70%, it should get connected to power mains to draw power to charge itself.

b) Project should have appropriate instruments installed at solar panel output, PCU, battery and load to facilitate minute-wise recording and storage of monthly data (voltage, current, generation, consumption and grid injection) for twelve (12) months of energy flow at various
nodes.

c) In case of network failure, or low or high voltage, Project shall go under islanding mode but not be out of synchronization so far as its operation with connected load is concerned. The supply from Project to the load points would be resumed from its battery bank or once the DG set comes into service, Project shall again be synchronised with DG supply and load requirement would be met to the extent of availability of power. 4 pole isolation of inverter output with respect to the grid/ DG power connection need to be provided.

d) The Project commissioned under the Madhya Pradesh Policy for Decentralized Renewable Energy Systems, 2016 as amended from time to time, shall be provided with reverse protection relays in order to prevent reverse flow of active power into the Grid. The relay and devices used for such arrangement shall be of relevant standards.

12. **DATA ACQUISITION SYSTEM / PROJECT MONITORING:**

12.1. Data Acquisition System shall be provided for each of the solar PV Project.

12.2. Data Logging Provision for Project control and monitoring, time and date stamped system data logs for analysis computer for data monitoring, metering and instrumentation for display of systems parameters and status indication to be provided.

12.3. The following parameters should be accessible via the operating interface display in real time separately for Project:

- AC Voltage
- AC Output current.
- Output Power
- Power factor
- DC Input Voltage
- DC Input Current
- Time Active
- Time disabled
- Time Idle
- Power produced
- Protective function limits (Viz-AC Over voltage, AC Under voltage, Over frequency,
Under frequency ground fault, PV starting voltage, PV stopping voltage.

12.4. All major parameters available on the digital bus and logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time) and logging facility (the current values, previous values for up to a year and the average values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.

12.5. String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.

12.6. The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.

12.7. All instantaneous data should be available through RMS.

12.8. Software shall be provided for USB download and analysis of DC and AC parametric data for individual Project.

12.9. Provision for Internet monitoring and download of data shall be necessarily incorporated for projects 5 kW or above.

12.10. Remote Monitoring and data acquisition through Remote Monitoring System software with latest software/hardware configuration and service connectivity for online / real time data monitoring/control complete to be supplied and Comprehensive O &M/control to be ensured by the supplier. Provision for interfacing these data on Nodal Agency server and portal in future shall be kept.

13. TRANSFORMER “IF REQUIRED” & METERING:

13.1. Dry/oil type appropriate kVA, of transformer Step up along with all protections, switchgears, Vacuum circuit breakers, cables etc. along with required civil work.

13.2. The Contractor must take approval/NOC from the concerned distribution licensee for the connectivity, technical feasibility, and synchronization of Project with distribution network and submit the same to Nodal Agency before Commissioning of Project.

13.3. Reverse power relay shall be provided by Contractor (if necessary), as per the local distribution licensee’s requirement.

14. **POWER CONSUMPTION:**

14.1. Regarding the generated power consumption, priority needs to be given for internal consumption first and thereafter any excess power can be exported to the distribution licensee network.

15. **PROTECTIONS:**

15.1. The Project should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:

15.1.1. **LIGHTNING PROTECTION (optional in case of domestic systems)**

The SPV power Project shall be provided with lightning & overvoltage protection of appropriate size. The main aim in this protection shall be to reduce the over voltage to a tolerable value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 standard. The protection against induced high-voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

15.1.2. **SURGE PROTECTION:**

Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and –ve terminals to earth (via Y arrangement).

15.1.3. **EARTHING PROTECTION:**

- Each array structure of the PV yard should be grounded/ earthed properly as per IS:3043-1987. In addition the lighting arrester/masts should also be earthed inside the array field.

  Earth resistance shall not be more than 5 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

15.1.4. **GRID ISLANDING:**

- In the event of a power failure on the electric grid, it is required that any independent power-producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to-AC inverters from continuing to feed power into small sections of the grid, known as “islands.” Powered islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Project shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided.
A manual disconnect 4pole isolation switch, besides automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel.

16. **CABLES:**

16.1. Cables of appropriate size to be used in the Project shall have the following characteristics:

- Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards
- Temp. Range: –10oC to +80oC.
- Voltage rating 660/1000V
- Excellent resistance to heat, cold, water, oil, abrasion, UV radiation
- Flexible
- Sizes of cables between array interconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire Project to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use.
- Cable Routing/ Marking: All cable/wires are to be routed in a GI cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified.
- The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e. twenty five (25) years.
- The ratings given are approximately, Contractor to indicate size and length as per system design requirement. All the cables required for the Project provided by the Contractor. All cable schedules/layout drawings approved prior to installation.
- Multi Strand, Annealed high conductivity copper/aluminum conductor PVC type ‘A’ pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armored cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BOS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC 69947.
- The size of each type of DC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 1%.
• The size of each type of AC cable selected shall be based on minimum voltage drop however; the maximum drop shall be limited to 2%.

• All such external electrical works shall be required to be done as per DISCOMs SOR.

17. **CONNECTIVITY:**

17.1. The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the Distribution Code/Supply Code of the State and amended from time to time. Following criteria have to be followed for selection of voltage level in the distribution licensee’s network for ready reference of the solar suppliers. The work should be done in compliance with respective regulations and policy.

<table>
<thead>
<tr>
<th>Project Capacity</th>
<th>Connecting Voltage</th>
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<tbody>
<tr>
<td>Up to 10 kWp</td>
<td>240 V- single phase or 415 V- three phase at the option of the Consumer</td>
</tr>
<tr>
<td>Above 10 kWp and up to 100 kWp</td>
<td>415 V- three phase</td>
</tr>
<tr>
<td>Above 100 kWp</td>
<td>At HT/EHT level (11/33/66 kV) as per distribution licensee’s rule</td>
</tr>
</tbody>
</table>

17.2. For Project (Above 100 kW) for installations having large load, the solar power can be generated at low voltage levels and stepped up to 11 kV level through the step up transformer. The transformers and associated switchgear would require to be carried out by the Contractors per DISCOMs SOR.

18. **TOOLS & TACKLES AND SPARES:**

18.1. The requirement of maintaining tools, tackles and spares at site or at service center is left to the discretion of the System Integrator with a condition that the same would be made available immediately as and when required.

18.2. The System Integrator are advice to ensure a response time of 24 hours and maximum expected turnaround time of 72 hours (under special circumstances, additional time limit may be considered).

18.3. Minimum requisite spares to be maintained by the Contractor, in case of PCU/inverter comprising of a set of control logic cards, IGBT driver cards etc. Junction Boxes, fuses, MOVs / arrestors, MCCBs etc. along with spare set of PV modules be indicated, shall be maintained at site or at nearest service centre for the entire period of Comprehensive O&M.

19. **DANGER BOARDS AND SIGNAGES:**
19.1. Danger boards should be provided as and where necessary as per IE Act./IE rules as amended up to date.

20. **FIRE EXTINGUISHERS:**

20.1. The fire fighting system for the proposed Project for fire protection shall consist of portable fire extinguishers in the control room for fire caused by electrical short circuits. The installation of Fire Extinguishers should confirm to TAC regulations and BIS standards. The fire extinguishers shall be provided in the control room housing PCUs.

21. **DRAWINGS & MANUALS:**

21.1. Two sets of Engineering, electrical drawings and Installation and Comprehensive O&M manuals are to be supplied. Contractor shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes and basic design of the Project and power evacuation, synchronization as also protection equipment.

21.2. Approved ISI and reputed makes for equipment be used.

21.3. For complete electro-mechanical works, Contractor shall supply complete design, details and drawings to Nodal Agency.

22. **PLANNING AND DESIGNING:**

22.1. The Contractor should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labour. The Contractor should submit the array layout drawings along with Shadow Analysis Report to the designated authority of Nodal Agency.

22.2. Nodal Agency reserves the right to modify the landscaping design, Layout and specification of sub-systems and components at any stage as per local site conditions/requirements.

22.3. The Contractor shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The Contractor shall submit one sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

23. **SAFETY MEASURES:**

23.1. The Contractor shall take entire responsibility for electrical safety of the installation(s) including connectivity with the grid and follow all the safety rules & regulations applicable as per Electricity Act, 2003 and CEA guidelines etc.
**ANNEXURE D: INSPECTION REPORT**

MADHYA PRADESH URJA VIKAS NIGAM LIMITED  
(M.P. Govt. undertaking)  
Urja Bhawan, Main road #2,  
SHIVAJI NAGAR, BHOPAL (MP)-452016  
Phone: 0755-2556566, 2556526 FAX:2553122  
E-mail: se.mpuvn1982@gmail.com; Web: www.mprenewable.nic.in

MPUVNL/DREO- ______________/2018-19/  
Dated __________

Inspection and Project Completion Report for SPV Off-Grid/ Grid Connected / Grid Connected with Battery Bank

**Details of Applicant and System**

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Name of Applicant and Address for Correspondence</td>
</tr>
<tr>
<td>2.</td>
<td>Contact Details of Applicant (Mobile No. and E-Mail Address)</td>
</tr>
<tr>
<td>3.</td>
<td>Category and sub-category of the Applicant as per</td>
</tr>
<tr>
<td>4.</td>
<td>Agreement Signing Date</td>
</tr>
<tr>
<td>5.</td>
<td>Cost of the System as per Agreement/Work Order between Applicant and System Integrator</td>
</tr>
<tr>
<td>6.</td>
<td>Name of System Integrator</td>
</tr>
<tr>
<td>7.</td>
<td>Name of DREO (Nodal Agency)</td>
</tr>
<tr>
<td>8.</td>
<td>Date of Installation of System (as certified by Applicant)</td>
</tr>
<tr>
<td>9.</td>
<td>Type of System</td>
</tr>
</tbody>
</table>

**DISCOM Information**

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Name of DISCOM</td>
</tr>
<tr>
<td>2.</td>
<td>Consumer Number/IVRS</td>
</tr>
<tr>
<td>3.</td>
<td>Is Net-Metering required</td>
</tr>
<tr>
<td>4.</td>
<td>If Yes, Applied for Net-Metering at concerned DISCOM office</td>
</tr>
<tr>
<td>5.</td>
<td>If Yes, Application Number</td>
</tr>
<tr>
<td>6.</td>
<td>Is Net-Meter installed</td>
</tr>
<tr>
<td>7.</td>
<td>If Yes, Net-Meter Number and name of Manufacturer</td>
</tr>
</tbody>
</table>
## Technology Description and System Design / Specification

*(Compliance to BIS/IEC Standards is mandatory)*

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td><strong>1.</strong></td>
<td>System Capacity (kWp)</td>
</tr>
<tr>
<td><strong>2.</strong></td>
<td>Make of Module</td>
</tr>
<tr>
<td><strong>3.</strong></td>
<td>Capacity of each module (Wp) &amp; Number of modules&lt;sup&gt;5&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>4.</strong></td>
<td>Cumulative capacity of Module (kWp)</td>
</tr>
<tr>
<td><strong>5.</strong></td>
<td>Technology of Module</td>
</tr>
<tr>
<td><strong>6.</strong></td>
<td>Type of Inverter</td>
</tr>
<tr>
<td><strong>7.</strong></td>
<td>Make of Inverter</td>
</tr>
<tr>
<td><strong>8.</strong></td>
<td>Capacity of each Inverter (kW) &amp; Number of Inverter</td>
</tr>
<tr>
<td><strong>9.</strong></td>
<td>Cumulative capacity of Inverter (kW)</td>
</tr>
<tr>
<td><strong>10.</strong></td>
<td>Type of Battery</td>
</tr>
<tr>
<td><strong>11.</strong></td>
<td>Make of Battery</td>
</tr>
<tr>
<td><strong>12.</strong></td>
<td>Cell Voltage (V)</td>
</tr>
<tr>
<td><strong>13.</strong></td>
<td>Capacity of Battery (Ah) &amp; Number of Batteries</td>
</tr>
<tr>
<td><strong>14.</strong></td>
<td>Grid connectivity level phase : Single Phase / Three Phase</td>
</tr>
<tr>
<td><strong>15.</strong></td>
<td>Grid connectivity level Voltage : 230 V / 415 V / 11 kV / 33 kV</td>
</tr>
<tr>
<td><strong>16.</strong></td>
<td>Details of Metering</td>
</tr>
<tr>
<td><strong>17.</strong></td>
<td>Type of Connection</td>
</tr>
<tr>
<td><strong>18.</strong></td>
<td>Make of Meters</td>
</tr>
<tr>
<td><strong>19.</strong></td>
<td>Units of electricity generated by the System as per Meter (kWh)</td>
</tr>
<tr>
<td><strong>20.</strong></td>
<td>Monitoring Mechanism</td>
</tr>
<tr>
<td><strong>21.</strong></td>
<td>Name and Mobile number of 2 personnel trained in O &amp;M</td>
</tr>
<tr>
<td><strong>22.</strong></td>
<td>Mode of operation of the System as per MP Policy for Decentralised Renewable Energy System, 2016</td>
</tr>
<tr>
<td><strong>23.</strong></td>
<td>Earthing &amp; Protections</td>
</tr>
<tr>
<td><strong>24.</strong></td>
<td>Lightening Arrester</td>
</tr>
<tr>
<td><strong>25.</strong></td>
<td>O&amp;M Manuals</td>
</tr>
<tr>
<td><strong>26.</strong></td>
<td>Sign Board</td>
</tr>
<tr>
<td><strong>27.</strong></td>
<td>Danger Board</td>
</tr>
<tr>
<td><strong>28.</strong></td>
<td>Details of SCADA URL</td>
</tr>
<tr>
<td></td>
<td>User Name</td>
</tr>
<tr>
<td></td>
<td>Password</td>
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</tbody>
</table>

<sup>5</sup> Enclose list of Module Numbers
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>29</td>
<td>User Name</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Password</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Inspection Report issued by Electrical Inspectorate(^6)</td>
<td>Yes / No</td>
</tr>
<tr>
<td>32</td>
<td>If, Yes please enclose the copy of the approval</td>
<td></td>
</tr>
</tbody>
</table>

Applicants’s Signature
System Integrator’s Signature

DREO’s Signature

\(^6\) Required only for capacity over and above 100 kWp
Commissioning Report (Provisional) for grid connected solar photovoltaic power plant with Net-metering facility

Certified that a Grid Connected SPV Power Plant of .......... kWp Capacity has been installed at this site of Mr/Mrs ........................................ Bhopal district ............... of Madhya Pradesh which has been installed by M/s ............ On .................. . The System is as per BIS/MNRE specification. The System has been checked for its performance on .................. with installation of Net Meter and it is working satisfactorily.

Signature of the Applicant

Signature of the System Integrator
With name, seal and date

Signature of the DREO
With name, date and seal
ANNEXURE E: SELF-DECLARATION BY SYSTEM INTEGRATOR
(on letter head of System Integrator)

It is hereby declared by M/s ______________, that the above information is true and, the installation completed is in accordance with the Technical Standards and norms as prescribed by MNRE / BIS/ prevailing EPC Tender/DISCOM/ All other relevant Government bodies and this Guideline.

Signature of Authorized Signatory of System Integrator with seal
ANNEXURE F: CERTIFICATE OF PERFORMANCE

Grid-connected Solar photovoltaic power plant of ___ kWp capacity is installed and Completed/ Commissioned in_______ (Village/Town Name) of __________ (District) at __________ (Name of Applicant) Premise is working satisfactorily. All the requisite documents including warranties and ownership of the System are transferred in favor of Applicant for maintenance of the System.

Date:
Place:

Signature of Applicant:
Contact Details:
ANNEXURE G: FORMAT FOR PERFORMANCE GUARANTEE
(To be on non-judicial stamp paper of Minimum Rs. 1000/-)

In consideration of the____________________________ (Insert name of the System Integrator) submitting the response to Guideline________________ issued by Madhya Pradesh Urja Vikas Nigam Limited (hereinafter referred to as Nodal Agency) for claiming Subsidy for Solar Rooftop System located in the State of MP. As per the terms of this Guideline, the _________________ (insert name & address of bank) hereby agrees unequivocally, irrevocably and unconditionally to pay to Nodal Agency at _________________ (Insert Name of the Place from the address of the Nodal Agency) forthwith on demand in writing from Nodal Agency, or any officer authorized by it in this behalf, any amount up to and not exceeding Rupees(Rupees(Total Value in words)) only, on behalf of M/s _________________ (Applicant Name). This guarantee shall be valid and binding on this Bank up to and including _________________ and shall not be terminable by notice or any change in the constitution of the Bank or the term of Agreement or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective Agreement.

Our liability under this Guarantee is restricted to Rupees ____________ (both in Number and words). Our Guarantee shall remain in force until Nodal Agency shall be entitled to invoke this Guarantee till. The Guarantor Bank hereby agrees and acknowledges that Nodal Agency shall have a right to invoke this Bank Guarantee in part or in full, as it may deem fit.

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand by Nodal Agency, made in any format, raised at the above mentioned address of the Guarantor Bank, in order to make the said payment to Nodal Agency.

The Guarantor Bank shall make payment hereunder on first demand without restriction or conditions and notwithstanding any objection by (Insert name of the System Integrator). The Guarantor Bank shall not require Nodal Agency to justify the invocation of this Bank Guarantee, nor shall the Guarantor Bank have any recourse against Nodal Agency in respect of any payment made hereunder.

This Bank Guarantee shall be interpreted in accordance with the laws of India and the courts at Bhopal shall have exclusive jurisdiction.
The Guarantor Bank represents that this Bank Guarantee has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This Bank Guarantee shall not be affected in any manner by reason of merger, amalgamation, restructuring or any other change in the constitution of the Guarantor Bank.

This Bank Guarantee shall be a primary obligation of the Guarantor Bank and accordingly Nodal Agency shall not be obliged before enforcing this Bank Guarantee to take any action in any court or arbitral proceedings against the System Integrator, to make any claim against or any demand on the System Integrator or to give any notice to the System Integrator or to enforce any security held by Nodal Agency or to exercise, levy or enforce any distress, diligence or other process against the System Integrator.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rupees (Rupees (in words) only) and it shall remain in force until we are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if Nodal Agency serves upon us a written claim or demand.

Signature
Name
Power of Attorney No.:
For
[Insert Name of the Bank]
Banker's Stamp and Full Address.
Dated this ____ day of ____, 20__
Witness:
Signature
Name and Address
ANNEXURE H: CHECK LIST

Name & Address of the Applicant:
______________________________________________________________________________
______________________________________________________________________________

Category of the Applicant:
______________________________________________________________________________

Name & Address of the System Integrator:
______________________________________________________________________________
______________________________________________________________________________

### Schedule of Mandatory Documents to be submitted by the System Integrator / Applicant along with prescribed application & other documents (Self Attested)

<table>
<thead>
<tr>
<th>S. No</th>
<th>List of Documents</th>
<th>submission (Yes/No)</th>
<th>Status/Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Check list duly and signed by DREO (Assuring that all the documents are attached as per the check list)</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>Application form duly filed in the specified format annexed as <strong>Annexure-B</strong></td>
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<tr>
<td>3</td>
<td>Documents related to system integrator</td>
<td></td>
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<tr>
<td>4</td>
<td>Electricity bill of the subsequent month in which System is installed and commissioned.</td>
<td></td>
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<tr>
<td>5</td>
<td>Singed copy of Agreement (Signed between Applicant and System Integrator(s) or Work Order, if available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Power of Attorney in favor of Authorized Signatory required from System Integrator (format is attached as Annexure I).</td>
<td></td>
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<tr>
<td>7</td>
<td>Copy of registration of Applicant as a society/ trust, if applicable.</td>
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<tr>
<td>8</td>
<td>O-PBG by the vendor of desired value in the form of FDR or BG.</td>
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<tr>
<td>9</td>
<td>Delivery Challan: Proof of material delivered on site</td>
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<tr>
<td>10</td>
<td>Appropriate Bill/Invoice</td>
<td></td>
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<tr>
<td>11</td>
<td>Proof of Payment in the form of, Cheque / E-Transfer / Demand Draft/ Bank Statement/ Confirmation receipt from System Integrator on 100% payment/ any other.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td><strong>Solar PV Modules:</strong> Recent Testing certificates/Test reports (Testing Lab should be IS/IEC/MNRE/NABL Approved). Applicable IEC Standards:</td>
<td></td>
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<tr>
<td>S. No</td>
<td>List of Documents</td>
<td>submission (Yes/No)</td>
<td>Status/Remark</td>
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<td></td>
<td>IEC 61215</td>
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<td>IEC 61730</td>
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<td>IEC 61701</td>
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<td>IEC 62716</td>
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<td></td>
<td>Performance Test Report at STC for particular module Wp</td>
<td></td>
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<td></td>
<td>As per new amendments, as applicable</td>
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<tr>
<td></td>
<td>List of Sr. Nos. of all modules used in the system</td>
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<td></td>
<td>(Also submit 01 soft copy in excel)</td>
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<td></td>
<td>I-V Curve for all modules used in the system</td>
<td></td>
<td></td>
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<tr>
<td>13</td>
<td><strong>Solar Inverter (String/Hybrid/Off grid):</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Recent Testing certificates/Test reports (Testing Lab should be IS/IEC/MNRE/NABL Approved).</td>
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<tr>
<td></td>
<td>Applicable IEC Standards:</td>
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<td></td>
<td>IEC 61683</td>
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<td></td>
<td>IEC 60068-2 (1,2,14,30)</td>
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<td></td>
<td>IEC 62116 OR IS 16169</td>
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<td></td>
<td>Factory Test Reports as per MNRE/BIS standards</td>
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<td></td>
<td>As per new amendments, as applicable</td>
<td></td>
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<tr>
<td></td>
<td>Serial number of inverter</td>
<td></td>
<td></td>
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<tr>
<td>14</td>
<td><strong>Battery (LMLA/VRLA):</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recent Testing certificates/Test reports (Testing Lab should be IS/IEC/MNRE/NABL Approved).</td>
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<tr>
<td></td>
<td>Applicable IEC Standards:</td>
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<tr>
<td></td>
<td>Endurance Test: (IS 13369) For LMLA batteries</td>
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<tr>
<td></td>
<td>Endurance Test: (IS 15549) For VRLA batteries</td>
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<td></td>
<td>IS 1651 (Capacity, wh efficacy, charge retention test)</td>
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<td></td>
<td>Undertaking from Concerned manufacturer, if any discrepancy occurs in the standards set by MNRE/BIS</td>
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<tr>
<td></td>
<td>As per new amendments, as applicable</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>List of Sr. Nos. of all batteries used in the system</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Also submit 01 soft copy in excel)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>License Copy of concerned electrical contractor/Supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S. No</td>
<td>List of Documents</td>
<td>submission (Yes/No)</td>
<td>Status/Remark</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>16</td>
<td>Inspection and Testing Certificate: A certificate from any License holder contractor/Supervisor certifying that the electrical internal/external work carried out is in accordance with the norms of electrical safety standards</td>
<td></td>
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</tr>
<tr>
<td>17</td>
<td>Certified Print out from the inspecting authority of remote monitoring system indicating various parameters (Including C</td>
<td></td>
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</tr>
<tr>
<td>18</td>
<td>Self-Certified Copy of Application submitted/addressed to concerned DISCOM for connectivity of the project. (As Applicable to Category-I and Category-II)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Copy of Work Completion Report as per Annexure-XI of 'MP Policy for decentralized Renewable Energy – 2016'; duly signed, sealed by Applicant and System Integrator.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Copy of Aadhar of Applicant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Copy of Property Tax Receipt</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Duly filled Inspection cum Completion/ Commissioning report (annexed as Annexure-V).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Project Completion/Commissioning Certificate (MNRE format attached)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Color Photographs of Panels, Inverter, Battery (If Applicable), Sign Board, Safety Board, Earthing and Protection, Lightning Arrester (1 Set of copy)- duly Certified by the Concerned Inspecting Authority)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>If details of System have been uploaded on SPIN portal, then documents related to the same should be submitted.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Signature of System Integrator

With seal

Signature of DREO

With seal

Note:

1. DREO must ensure that the proposal is accomplished with all the above documents if any document found missing the proposal shall be rejected. DREO must sign documents indicated in sr. no. 1, 12, 13, 14, 17, 18, 19, 22, 23 and 24.
2. All the documents should be self-certified by the System Integrator.
ANNEXURE I: POWER OF ATTORNEY
(To be on non-judicial stamp paper of Minimum Rs. 1000/-)

Power of Attorney to be provided by the System Integrator in favour of its representative as evidence of authorized signatory’s authority.

Know all men by these presents, We (name and address of the registered office of the System Integrator) as applicable do hereby constitute, appoint and authorize Mr./Ms. (name & residential address) who is presently employed with us and holding the position of ___________ as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of Application for Grid Connected / Off-Grid Rooftop Solar PV Projects (with/without Storage) installed at various locations in the state of MP in response to the Guideline No. ___ dated _____ issued by MPUVNL including signing and submission of the Application and all other documents related to this Guideline including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other documents which the MPUVNL may require us to submit. The aforesaid Attorney is further authorized for making representations for providing information / responses to MPUVNL, and representing us in all matters before MPUVNL and generally dealing with MPUVNL in all matters in connection with the Guideline till the completion of the Performance Monitoring (5 years from commissioning of each System) as per the terms of the above mentioned in the Guideline.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

All the terms used herein but not defined shall have the meaning ascribed to such terms under the Guideline.

_________________________
Signed by the within named

(Insert the name of the executants company)

through the hand of

Mr_____________

duly authorized by the Board to issue such Power of Attorney

Dated this ________day of__________

Accepted

_________________________
Signature of Attorney

(Name, designation and address of the Attorney)
Attested

____________________________________________________
(Signature of the executant)

(Name, designation and address of the executant)

____________________________________________________
Signature and stamp of Notary of the place of execution

Common seal of ___________ has been affixed in my/our presence pursuant to Board of Director’s Resolution dated

WITNESS

____________________________________________________
(Signature)

Name __________________________
Designation ______________________

____________________________________________________
(Signature)

Name __________________________
Designation ______________________
ANNEXURE J-1: BENCHMARK COSTS YEAR 2018-19
OFFICE MEMORANDUM


I am directed to convey the approval of competent authority for issuing of the benchmark costs for Off-grid Solar PV Systems and Grid Connected Rooftop Solar Power Plants for the Year 2018-19. System-wise benchmark costs are as under:

(i) **Solar Pumps**

<table>
<thead>
<tr>
<th>Pump Capacity (HP)</th>
<th>General Category States</th>
<th>North Eastern States/Hill States/ Island UTs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 3 HP DC</td>
<td>85000</td>
<td>93500</td>
</tr>
<tr>
<td>&gt; 3 HP - 5 HP DC</td>
<td>77000</td>
<td>84700</td>
</tr>
<tr>
<td>Up to 3 HP AC</td>
<td>80000</td>
<td>88000</td>
</tr>
<tr>
<td>&gt; 3 HP - 5 HP AC</td>
<td>65000</td>
<td>71500</td>
</tr>
</tbody>
</table>

(ii) **Solar Lighting Systems**

<table>
<thead>
<tr>
<th>System</th>
<th>General Category States</th>
<th>North Eastern States/Hill States/ Island UTs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar Lamps</td>
<td>250</td>
<td>275</td>
</tr>
<tr>
<td>Solar Street Lights</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. With Lead Acid battery</td>
<td>300</td>
<td>330</td>
</tr>
<tr>
<td>ii. With Li-Ion battery</td>
<td>435</td>
<td>475</td>
</tr>
</tbody>
</table>
(iii) **Standalone Solar Power Plants/Packs**

<table>
<thead>
<tr>
<th>Capacity (kW)</th>
<th>Battery back-up (hrs)</th>
<th>Benchmark Costs (Rs./Wp)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>General Category States</td>
</tr>
<tr>
<td>Up to 10</td>
<td>6</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>68</td>
</tr>
<tr>
<td>Above 10 and up to 25</td>
<td>6</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>61</td>
</tr>
</tbody>
</table>

(iv) **Grid Connected Rooftop Solar Power Plants**

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Benchmark Costs (Rs./Wp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 1 kW and up to 10 kW</td>
<td>60</td>
</tr>
<tr>
<td>Above 10 and up to 100 kW</td>
<td>55</td>
</tr>
<tr>
<td>Above 100 kW and up to 500 kW</td>
<td>53</td>
</tr>
</tbody>
</table>

2. The above benchmark costs are inclusive of total system cost and its installation, commissioning, transportation, insurance, five year AMC/CMC, and applicable fees and taxes.

(Shobhit Srivastava)
Scientist-C

To

All Concern

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ANNEXURE J-2: BENCHMARK COSTS YEAR 2019-20
OFFICE MEMORANDUM

Subject: Benchmark costs for Grid Connected Rooftop Solar Power Plants for the Year 2019-20 -reg,

In continuation to this Ministry’s OM no. 318/38/2018-GCRT dated 15th June 2018, the undersigned is directed to say that benchmark costs for Grid Connected Rooftop Solar Power Plants for the Year 2019-20 will be as under:

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Benchmark cost (Rs/Wp) for Special category States which includes North Eastern States, Hilly States of Uttarakhand, Himachal Pradesh, J&amp;K and UTs of Andaman &amp; Nicobar Island and Lakshadweep</th>
<th>Benchmark cost (Rs/Wp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 1 kW and upto 10 kW</td>
<td>54</td>
<td>59</td>
</tr>
<tr>
<td>Above 10 kW and upto 100 kW</td>
<td>48</td>
<td>53</td>
</tr>
<tr>
<td>Above 100 kW and upto 500 kW</td>
<td>45</td>
<td>50</td>
</tr>
</tbody>
</table>

2. The above benchmark costs are inclusive of total system cost and its installation, commissioning, transportation, insurance, five year AMC/CMC, and applicable fees and taxes.

(Aujender Singh)
Deputy Secretary to the Government of India
Email: aujender.singh@nic.in
Phone:011-24360707 extn 1029

To
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