Site verification report – Solar mini-grid • Template

Project completion report of

[Project title]

at

[Location]

[Date]

|  |  |
| --- | --- |
| **Prepared by** | **Submitted to** |
| [Company name]  [Company address] | [Company name]  [Company address] |

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# Executive Overview

*Provide the overall status and conclusions of the project. The table below is given for guidance.*

|  |  |
| --- | --- |
| **Project name:** |  |
| **Project code:** |  |
| **Location:** |  |
| **Installer:** |  |
| **Testing and commissioning completion date:** |  |
| **Registered name of the user committee (if applicable):** |  |
| **Focal person of the user committee:** |  |
| **Contact number:** |  |

*Provide details of:*

* *Any major recommendations for system operation*
* *Any pre-approved limitations identified during the project construction*

# System information

*Provide the details of the system architecture and its details (preferably in a tabular format). The table below is given for guidance.*

|  |  |
| --- | --- |
| **Solar PV system information** | |
| System architecture: | *For e.g. DC-coupled, AC-coupled, etc.* |
| System capacity (DC): |  |
| Total PV inverter capacity (AC): |  |
| Total battery inverter capacity (AC): |  |
| Rating, manufacturer, and model of individual PV inverter: |  |
| Total number of PV inverters: |  |
| Rating, manufacturer, and model of individual battery inverter: |  |
| Total number of battery inverters: |  |
| Rating, manufacturer and model of individual battery: |  |
| Total number of batteries: |  |
| Powerhouse output voltage and type (single-phase/three-phase): |  |
| **Beneficiary information** | |
| Total number of households connected: |  |
| Total number of PEUs connected: |  |

*Describe in more detail:*

* *System configuration (for example, total area covered in the village, ground-mounted/roof-mounted solar array)*

# Component details

## Solar array area

*Briefly describe the solar array location with GPS coordinates and describe whether the solar array area is secure and suitable.*

## Powerhouse

*Briefly describe the powerhouse location with GPS coordinates and describe whether the powerhouse area is secure and stable.*

## Solar array and structure

*Provide details of the solar array structure. Include:*

* *Verification against initial design specifications (structure types, tilt angle, azimuth, array separation gaps, structure materials such as number of rafters, long leg, short leg, anchor bolts, back bracing, side bracing and purlins – for each structure block)*
* *Satisfactory workmanship (adequate structure footing, neat installation, etc.)*

*Provide details of the string arrangement of the solar array. The table below is given for guidance.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **String ID** | **No. of modules** | **Tilt angle** | **Azimuth** | **Grounding (Yes/No)** | **Cable labelling (Yes/No)** | **Satisfactory workmanship (Yes/No)** | **Workmanship remarks** |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

## Solar modules

*Provide details of the solar modules in a tabular format.*

|  |  |
| --- | --- |
| Power rating (WP): |  |
| Manufacturer and model of the individual solar module: |  |
| Total number of solar modules: |  |
| Vmp: |  |
| Voc: |  |
| Imp: |  |
| Isc: |  |
| Efficiency: |  |
| Dimension: |  |
| Weight: |  |
| No. of cells: |  |
| Temperature coefficient of Isc: |  |
| Temperature coefficient of Voc: |  |
| Temperature coefficient of power: |  |

## PV inverter

*Provide details of the solar modules in a tabular format.*

|  |  |
| --- | --- |
| Power rating of individual PV inverter: |  |
| Manufacturer and model of individual PV inverter: |  |
| Total number of PV inverters: |  |
| Maximum input voltage: |  |
| MPPT range: |  |
| No. of MPPT inputs: |  |
| No. of independent MPPT inputs: |  |
| Output voltage: |  |
| Euro efficiency: |  |
| Dimension: |  |
| Weight: |  |
| **Installation status** | |
| Appropriate programming setting: |  |
| Remarks on setting mode: |  |
| Placement and clearance of each PV inverter: |  |
| Any visible damage and severity of damage? |  |
| Labelling of all cables (Yes/No) |  |
| Remarks on workmanship: |  |
| Grounding of all PV inverters: |  |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PV inverter ID** | **Power rating (kW)** | **Instantaneous phase voltages (V)** | | **Current (A)** | | | **Appropriate placement and clearance (Yes/No)** | **Grounding (Yes/No)** | **Cable labelling (Yes/No)** | **Satisfactory workmanship (Yes/No)** | **Workmanship remarks** |
| **L-L** | **L-N** | **R** | **Y** | **B** |
|  |  |  |  |  |  |  |  |  |  |  |  |
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# transmission and distribution

*Describe the cable selection and pole mapping of the transmission and distribution (T&D).*

## Cable selection

*Provide details of:*

* *Verification of the number of poles (differentiated by cable types and height of poles) as per site survey. See the table below for reference.*

**Table 1 Cable type and number of poles**

|  |  |  |  |
| --- | --- | --- | --- |
| **Cable type** | **No. of 11m poles** | **No. of 9m poles** | **No. of 8m poles** |
| *ACSR, Dog conductor, 100mm2* |  |  |  |
| *ACSR, Rabbit conductor, 50mm2* |  |  |  |
| *ACSR, Weasel conductor, 30mm2* |  |  |  |
| *Service Cable, 6mm2* |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Total** |  |  |  |

* *Verification of the cables (differentiated by cable types) as per site survey. See the table below for reference.*

**Table 2 Cable type and cable length**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Cable type** | **One-way length (km)** | **No. of runs** | **Total length (km)** | **Total length as per BoQ (km)** | **Excess cable** | **Remarks** |
| *ACSR, Dog conductor, 100mm2* |  |  |  |  |  |  |
| *ACSR, Rabbit conductor, 50mm2* |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| *ACSR, Weasel conductor, 30mm2* |  |  |  |  |  |  |
| *Service Cable, 6mm2* |  |  |  |  |  |  |

## Mapping of T&D and individual poles

*Describe how the T&D path and individual poles were mapped during the site survey. Attach maps of the T&D path in the Annex. Also, provide details of the voltage levels differentiated by the pole height.*

# main findings

*List out (preferably in bullet points) the main findings of the site survey.*

# request for approvals

*List out (preferably in bullet points) the approvals required from the GoN to proceed ahead.*

# ANNEXES

## Cable calculations

*Provide details (preferably in a table) of how the T&D cables were verified.*

*Include details of, but not limited to,*

* *Voltage levels*
* *Cable type (material, cross-sectional area)*
* *Location in the T&D*
* *Length*
* *Maximum load*
* *Voltage drops (%)*
* *Associated number of poles that will carry the cable (differentiated by pole height)*

## Placement of individual poles

*Provide details (preferably by snapshots of Google Earth) showing all sections of the T&D with positions of individual poles that are differentiated by pole height. It is advised that each section of the T&D can be correlated with the cable details provided in section 7.1 ‘Cable calculations’.*

## Bill of quantity

*Provide details of the bill of quantity (BoQ) with verification of details provided in the bidding document vs. site survey.*

*A reference table of goods is given below.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SN** | **Component** | **Description of components** | **Unit** | **Quantity as per BoQ** | **Quantity after site verification** | **Excess (+)/**  **Deficit (-)** |
| **A. Power generation components** | | | | | | |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **B. Distribution system** | | | | | | |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

*A reference table of services offered is given below.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **SN** | **Item description** | **Unit** | **Quantity as per BoQ** | **Quantity after site verification** | **Excess(+)/ Deficit(-)** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## Minutes of land area for solar array location