



WEST BENGAL ELECTRICITY REGULATORY COMMISSION



Ref No: WBERC/OA-367/21 - 22//552

Dated, Kolkata, the 31st December, 2021

From:

Secretary, WBERC

To:

The Chairman & Managing Director, West Bengal State Electricity Distribution Company Limited (WBSEDCL Vidyut Bhavan, Block - DJ, Sector - II, Bidhannagar, Kolkata - 700 091

> Subject: Approval of the modified connection procedure [Procedure C (2021)] including the model agreement

Ref:

WBSEDCL Memo No. REG/SERC/347 dated 08.12.2021

Sir.

. With above reference and subject, I am directed to state that the Commission has noted the Procedure C (2021) for Solar PV Generating System (SPGS) under Net Metering or Net Billing Arrangement submitted by WBSEDCL vide their letter dated 08.12.2021 is in compliance to the directions given by the Commission in its order dated 01.12.2021 in Case No. OA - 367/21 - 22.

The Commission accepts the Procedure (2021) of WBSEDCL submitted vide letter dated 08.12.2021.

The Commission also directs WBSEDCL to publish the procedure in their website.

Yours Faithfully,

Tel: (033) 2962 3756

Plot No: AH/5 (2nd and 4th Floor), Premises No: MAR 16-1111, Action Area-1A,

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Newtown, Rajarhat, Kolkata - 700163

CONNECTION PROCEDURES OF SOLAR PV GENERATING SYSTEM UNDER NET METERING AND NET BILLING ARRANGEMENT

UNDER

WBSEDCL PROCEDURES-C (2021)

IN TERMS OF

WEST BENGAL ELECTRICITY REGULATORY COMMISSION (COGENERATION AND GENERATION OF ELECTRICITY FROM RENEWABLE SOURCES OF ENERGY) REGULATIONS AS AMENDED.



West Bengal State Electricity Distribution Company ltd.

(A Government of West Bengal Enterprise)



1.0 Preamble:

- 1.1 These procedures for effecting connection of solar PV generating system under net metering/ net billing system by WBSEDCL named as WBSEDCL PROCEDURES-C (2021) has been prepared in accordance with regulation 16.9 of the West Bengal Electricity Regulatory Commission (Cogeneration and Generation of Electricity from Renewable Sources of Energy) Regulations as amended (hereinafter referred to as 'RE Regulation') in order to facilitate the renewable energy journey of the State of West Bengal considering the guidelines of Tariff Policy 2016 and declining price trend of Grid Connected Rooftop Solar PV (GRPV) system. Hon'ble West Bengal Electricity Regulatory Commission approved the procedure vide order dated
- 1.2 Accordingly the effective date of coming into force of these WBSEDCL PROCEDURES-C (2021) shall be 01/01/2022. Under these WBSEDCL PROCEDURES-C (2021) henceforth all connection of solar PV generating system under net metering/ net billing system shall be effected.

Provided solar PV generating system installed and notified to WBSEDCL within 31/12/2021 subject to verification by WBSEDCL shall be considered under net metering as per provision of West Bengal Electricity Regulatory Commission (Cogeneration and Generation of Electricity from Renewable Sources of Energy) Regulations, 2013.

2.0 Salient Stipulation:

- 1) Installed capacity of Solar PV Generating System shall be 1 kWp and above.
- Installed capacity of Solar PV Generating System shall not exceed the Consumer's Contract Demand (in kVA) or Sanctioned Load (in kW) except Govt. funded project or project under different scheme.
- 3) All type of consumers consumer having Sanctioned Load/Contract demand upto 5KW except Agriculture may avail Net Metering.
- 4) All type of consumers having Sanctioned Load/Contract demand above 5KW except Agriculture consumer shall only under Net Billing arrangement.
- 5) All Agriculture consumers may avail Net Metering.
- Solar-PV generating system, that are already connected to the distribution network under Net-Metering Arrangement shall continue with the existing accounting and settlement mechanism. However, in case of any roof-top solar capacity addition by existing net-metered consumers, they would be treated freshly for eligibility under net-metering or net-billing as per RE Regulations
- 7) AC Voltage level of Solar Injection shall be as below:
 - i) For Net metering arrangement: 230 / 240 V (single-phase) or 400 / 415 V (three-phase) at which the consumer has been given supply.
 - ii) For Net billing Arrangement:
 - a) Sanctioned Load/Contract demand upto 170 KW (200 KVA): 230 / 240 V (single-phase) or 400 / 415 V (three-phase) at which the consumer has been given supply.

- b) Sanctioned Load/Contract demand above 170 KW (200 KVA): 11 kV and above at which the consumer has been given supply.
 Consumer may be allowed connectivity at any other voltage of the distribution system of WBSEDCL based on capacity of solar-PV generating system as considered technically and financially suitable by WBSEDCL.
- 8) Cumulative capacity of solar-PV generating systems allowed to be interconnected with the distribution network (feeder/distribution transformer) shall not exceed 100% of the feeder and/or distribution transformer capacity, as applicable.
- 9) Net Metering Arrangement or Net Billing Arrangement, as the case may be, shall be permitted in a non-discriminatory basis and distribution transformer-wise or feeder-wise on 'first come first serve' basis.
- 10) Solar-PV generating system shall be equipped with an automatic inverter having synchronization device.

3.0 Responsibility:

- 3.1 The consumer shall develop the solar-PV generating system up to the point of metering as per specification approved by WBSEDCL.
- 3.2 The consumer shall be responsible for safe installation, operation, maintenance and rectification of any defect of the solar-PV generating system up to the point of metering.
- 3.3 Beyond the net meter responsibility of safe operation, maintenance and rectification of any defect in the system, including the net meter, shall be that of the WBSEDCL as per the provisions specified in the Central Electricity Authority (Measures relating to Safety and Electricity Supply) Regulations, 2010 and subsequent amendments thereof.
- 3.4 If the consumer prefers setting up of solar-PV generating system with battery backup (full load backup/partial load backup), the inverter shall have appropriate arrangement to automatically prevent the battery power to flow into the grid in the absence of grid supply in addition to manual isolation switch shall also have to be provided.
- 3.5 WBSEDCL shall be responsible for the testing, installation and maintenance of the metering equipment, and adhere to the applicable standards and specifications.

4.0 Codes and Standards

- 4.1 WBSEDCL shall ensure the interconnection of the solar-PV generating system of eligible consumer with its network conforming to the specifications, standard and other provisions specified in the Central Electricity Authority (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2013 and subsequent amendments thereof.
- 4.2 The solar-PV generating system must be capable of detecting an unintended islanding condition. The system must have anti-islanding protection to prevent any feeding into the grid in case of failure of supply or grid. Applicable IEC/IEEE technical standards shall be followed to test islanding prevention measure for grid connected inverters.

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Chief Engineer (Regulation)

Regulation Department

WBSEDCL

- 4.3 The inverter shall have the features of filtering out harmonics and other distortions before injecting the energy into the system of WBSEDCL. The Total Voltage Harmonic Distortion (THD) shall be within the limits specified in the Technical Standards for Connectivity of the Distributed Generation Resources (Amendments), 2019 of CEA and subsequent amendments thereof and Indian Electricity Grid Code (IEGC)/ IEEE technical standards.
- 4.4 All meters shall comply with the CEA (Installation and Operation of Meters) Regulations, 2006 and subsequent amendments thereof.

5.0 Connection Diagram

Connection diagram of Net Metering Arrangement or Net Billing Arrangement, as the case may be in respect of the consumers of WBSEDCL in whose premises solar PV generating system will be installed as per RE Regulations:

- i) Connection Diagram for net metering arrangement-Diagram-A. [connectivity at same voltage level at which the consumer has been given supply]
- ii) Connection Diagram for net billing arrangement:
 - a) Sanctioned Load/Contract demand upto 170 KW (200 KVA): Diagram-B. [connectivity at same voltage level at which the consumer has been given supply]
 - b) Sanctioned Load/Contract demand above 170 KW (200 KVA): Diagram-C [connectivity at same voltage level at which the consumer has been given supply]
 Or Diagram-D if Consumer is allowed connectivity at any other lower voltage of the distribution system of WBSEDCL based on capacity of solar-PV generating system as considered technically and financially suitable by WBSEDCL.

6.0 Application Procedures:

- 6.1 Application form 'Form-S1' (in duplicate) of these procedures along with the following formats shall be downloaded from the website of WBSEDCL free of cost.
 - i) Agreement in 'Form-S2'
 - ii) Format of Work completion in 'Form-S3'
 - iii) Format for self certification in Form-S4 (for supply voltage below notified voltage
- 6.2 The consumer desiring installation of grid-connected solar-PV generating system shall have to submit application in 'Form-S1' along with other forms duly filled in at the concerned office of WBSEDCL (for off-line submission of application, the concerned office will be the office from where energy bill for consumer connection is delivered) or online with the application fees as follows:

i) For LV& MV

-Rs 500/- + GST as applicable

ii) For HV& EHV

- Rs 2000/- + GST as applicable

Govt. funded project or project under different scheme are exempted from application fees

6.3 The person(s) authorized on behalf of WBSEDCL to receive the application form duly filled up with other duly filled up documents as stated above shall handover a signed and dated receipt to

- the applicant with proper office seal. System generated receipt shall be provided to the applicant for application submitted through online.
- 6.4 After complying with above instruction as stated at procedure 6.2 above, an inspection at the premises to which net metering/ net billing arrangement is required shall have to be carried out within stipulated time frame as mentioned in procedure 7.0. Notice for inspection of premises shall be intimated to the applicant atleast three (03) days in advance prior to the date of inspection.
- 6.5 During inspection following points are to be checked and recorded in the inspection report:
 - i) Whether there is any DTR capacity constraint
 - ii) Whether alteration of service is required
- 6.6 After Inspection as per procedure 6.6, WBSEDCL shall either issue a quotation and intimation for go ahead clearance or issue a letter to the consumer informing inability of WBSEDCL to provide Net Metering or Net Billing Arrangement due to non-feasibility as per time schedule specified in procedure 7.0. In case of issuing a quotation, the quotation shall include the matters as specified below including GST as applicable:
 - i) Cost of Net Meter/Consumer meter and modem as applicable as per procedure 9.6
 - ii) Cost of Generation Meter and modem (01 no for net metering and 2 no for net billing arrangement) as applicable as per procedure 9.6
 - iii) Cost of Alteration of service if applicable as per procedure 11.0
 - iv) Cost of testing regarding fitness test as per procedure 8.3 (b)
- 6.7 The quotation shall remain valid for Ninety (90) days from the date of issue of the quotation, if not extended based on application of the consumer. On request of applicant validity of such quotation may be extended maximum for Thirty (30) days. The application shall be cancelled if quotation amount and Agreement in 'Form-S2' is not submitted within the validity period of the quotation and application fee shall be forfeited and that should be intimated to him/her indicating the application/registration number.
- 6.8 On receiving the quotation the consumer shall submit the quotation amount and agreement form in Form S2 duly signed along with the other necessary documents as required under these procedures. WBSEDCL shall issue an acknowledgement receipt of the quotation amount. On acceptance of the quotation amount and the agreement form in Form S2, a work order will be issued by WBSEDCL.
- 6.9 Consumer shall submit following before grid synchronization.
 - a) Work completion report of Installation of Solar Plant as per Form S3.
 - b) Certificate of Fitness
 - c) Clearance from Office of the Chief Electrical Inspector, Govt of West Bengal or self certification (for supply voltage below notified voltage) through Form S4 as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 as amended time to time.

- 6.10 On receiving the work completion report of Installation of Solar Plant, Inspection shall have to be carried out within stipulated time frame as mentioned in procedure 7.0. Notice for fitness test of premises shall be intimated to the applicant atleast three (03) days in advance prior to the date of inspection. WBSEDCL shall provide a copy of fitness certificate (if fitness test is done through authorized agencies of WBSEDCL) to the applicant within stipulated time frame as mentioned in procedure 7.0. If fitness test is done by the applicant in presence of authorized representative of WBSEDCL, applicant shall submit such fitness certificate to WBSEDCL within stipulated time frame as mentioned in procedure 7.0
- 6.11 In case the applicant fails to submit the work completion report within stipulated time frame as mentioned in procedure 7.0, the application shall be cancelled after giving a notice period of Thirty (30) days. In terms of the above notice applicant may request for one-time extension of time for a maximum period of Ninety (90) days. In case the application is cancelled even after such extended period, if any, the application fee shall be forfeited. The quotation amount after adjusting any expenditure already incurred by WBSEDCL shall be refunded without any interest.
- 6.12 Installation of meter and grid Synchronization shall be done within stipulated time frame as mentioned in procedure 7.0.
- 6.13 During Connectivity inspection if installation in all respect is found not proper for grid synchronization, a letter for connectivity failure shall be issued to the consumer within stipulated time frame as mentioned in procedure 7.0.

7.0 Time schedule:

Time	e schedule:	
SI No	Activity	Time Schedule
1	Inspection of technical feasibility/eligibility	Within 20 days from date of receipt of
2	Quotation for Meter cost, Testing Fees, alteration of service, if any and Intimation for go ahead clearance	application
3	Intimation for non feasibility to provide Net Metering or Net Billing Arrangement	Within 07 days from date of Tech. feasibility/Eligibility inspection.
4	Payment of quotation amount by consumer	Within 90 days from the date of quotation
5	Installation of Solar Plant by the consumer and Clearance from Office of the Chief Electrical Inspector, GoWB	Within 180 days from date of go ahead clearance.
6	Connectivity Inspection and testing of consumer installation if consumer desires	Within 10 days from date of receipt of work completion report from consumer
7	Copy of fitness certificate to be provided by authorized agencies of WBSEDCL if the applicant opts before WBSEDCL for such certification	Within Five (05) days from date of testing
8	Copy of fitness certificate to be submitted by applicant to WBSEDCL if it is done by applicant itself.	Within Five (05) days from date of testing
9	Intimation for connectivity failure	Within 07 days from date of connectivity Inspection
10	Installation of meter and grid Synchronization	Within 15 days from date of successful connectivity inspection and submission



of fitness certificate.

8.0 Testing:

8.1 The consumers who have installed grid-connected roof-top solar PV module under net-metering / net-billing arrangement shall have to furnish certificate of fitness conforming to correct operation of islanding, generation of harmonics and other Power Quality parameters as per limits mentioned in procedure 4.3 above. Consumer can arrange such testing by their own in presence of representative of distribution licensee or request the connected distribution licensee for arranging such tests on cost basis through authorized agencies, whose details will be available on the website of WBSEDCL

8.2 Periodicity of Testing of consumers installations:

Consumers shall have to furnish certificate of fitness with the following periodicity:

- i) Every two years for PV output above 170 KW (200 KVA)
- ii) Every three years for PV output upto 170 KW (200 KVA)

If the solar installation remains out of operation for more than six (06) months, consumers shall have to furnish certificate of fitness afresh from the authorized agencies of WBSEDCL along with clearance from Office of the Chief Electrical Inspector, Govt of West Bengal as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 as amended time to time.

8.3 (a) Testing fees of Solar generation meter procured by consumer: Rs 1200 / Meter

(b) Testing fees for fitness certificate .:

To be Notified (Vendor List and Fee for the purpose under process).

8.4 Testing parameters:

- i) Harmonic Report
- ii) Voltage fluctuation and flicker
- iii) DC current injection
- iv) Fault current contribution
- v) Voltage and Frequency protection: As per CEA Guidelines
- vi) Reconnection time settings: As per CEA Guidelines
- vii) Reactive Support test

At 240 volt (Nominal Voltage) to 245 Volt it should operate at unity power factor. However, grid voltage reduces, inverter should operate in leading power factor with linearly increasing trend up to 230 Volt, and then it becomes fixed with 0.95 lead (i.e. 30% capacitive). Similarly, for voltage range from 245 to 255 Volt the Inverter should absorb reactive power gradually with maximum power factor 0.95 (i.e. Inductive 30%).



9.0 Metering and Meter Cost:

- 9.1 The Net Metering Arrangement shall include a single-phase or a three-phase Net Meter, as per the existing supply arrangement of the eligible consumer, located at the point of inter-connection as would be ascertained by WBSEDCL.
- 9.2 The Solar generation meter and net meter along-with allied accessories shall be procured and installed by WBSEDCL against the cost to be borne by the consumer.
- 9.3 In case of Net Billing arrangement, a check meter of appropriate class shall be installed by the WBSEDCL for the solar-PV generation meter against the cost to be borne by the consumer.
- 9.4 In case meter procured by WBSEDCL becomes defective within 07 years (useful life as per Regulation) from the date of installation where the meter is found not tampered/damaged on the fault of the consumers, WBSEDCL will replace the meter and cost of such replaced meter shall not be claimed from the consumer.

Beyond the above stated stipulated time frame when the meter become defective, WBSEDCL will replace the said defective meter (s) and meter cost will be claimed through energy bill.

9.5 Meter Reading:

- i) Meter reading of all the meters for the consumers having Sanctioned load/ contract demand below 50 KVA under net metering or net billing arrangement as the case may be will be taken physically by the meter reader or online (where possible) according to regular meter reading cycle.
- ii) Meter reading of all the meters for the consumers having Sanctioned load/ contract demand 50 KVA and above under net billing arrangement as the case may be will be taken through Meter Data Acquisition Systems (MDAS) according to regular meter reading cycle.

9.6 Cost of Net Meter/ Solar Generation meter/ Modem:

The cost of meters and modem will be as per cost data of WBSEDCL published time to time

10.0 Energy Accounting and Settlement:

- 10.1 For net metering arrangement as per Schedule-1 of RE Regulation. For this purpose, accounting of Solar Generation is also mandatory.
- 10.2 For net billing arrangement as per Schedule-2 of RE Regulation.
- 10.3 In case of in accessibility of meter Reading of Consumer meter/ Solar Generation meter:
 - Assessment of drawal energy in consumer mode including energy export (net metering arrangement) shall be computed based on the provision as laid down in the West Bengal Electricity Regulatory Commission (Electricity Supply Code) Regulations, 2013 as amended.

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Chief Engineer (Regulation)
Regulation Department
WBSEDCL

- ii) Assessment of Solar generation energy shall be computed on the basis of average generation and other parameters for the preceding months or during any previous period that may be reasonably comparable.
 - Provided where the actual Solar generation of previous months/period is not available, adjustment of Solar generation will be done on availability of actual generation during meter reading.
- iii) Inaccessibility of meter Reading normally shall not be allowed for more than one (01) consecutive billing cycle beyond which net metering / net billing arrangement shall be withdrawn.
- 10.4 In case of defective /defunct / defect in metering circuit of Consumer meter/ Solar Generation meter:
 - i) Assessment of drawal energy in consumer mode including energy export (net metering arrangement) shall be computed based on the provision as laid down in the West Bengal Electricity Regulatory Commission (Electricity Supply Code) Regulations, 2013 as amended.
 - ii) Assessment of Solar generation energy shall be computed based on Check meter. If both main and check meter / metering circuit are found defective, assessment of generation energy shall be computed on the basis of average generation and other parameters for the preceding three months or during any previous period that may be reasonably comparable before the meter has been found to be defective or defunct.
 - iii) If the Solar generation of previous months/period is not available, adjustment of Solar generation will be done on availability of actual generation during meter reading by taking average of actual electricity generated during the succeeding period (s) / month (s) after installation of a correct meter.

11.0 Alteration of service

If any consumer requires any alteration of service under net metering or net billing arrangement the charges for alteration of services will be as follows:

- i) For Sanctioned Load/Contract demand upto 170 KW (200 KVA): Charges will be as per procedure 8.0 of WBSEDCL PROCEDURES-A(2010)
- ii) For Sanctioned Load/Contract demand above 170 KW (200 KVA) : On actual basis based on inspection

12.0 Disconnection of solar-PV generating system / Discontinuation of Net metering / Net Billing Agreement:

12.1 WBSEDCL shall have the right to disconnect the solar-PV generating system at any time in 'the event of threat/damage' from such renewable energy system to its distribution system to prevent any accident or damage, without any notice. WBSEDCL shall call upon the consumer to rectify the defect within a reasonable time.



- 12.2 If the presence of harmonics is beyond the limits specified in procedure 4.3 above, it may be treated as "the event of threat/damage" under regulation 7.2 (d) of RE Regulations, and the utility shall have the right to disconnect the solar PV generating system.
- 12.3 On disconnection of consumer mode of supply due to any reason whatsoever the net billing/net metering arrangement will also be discontinued till reconnection of consumer mode of supply.

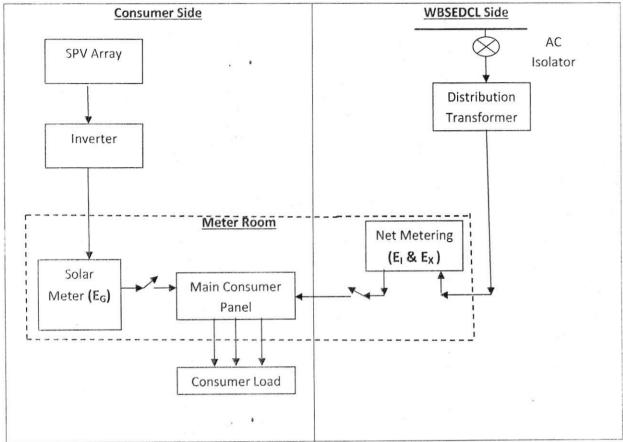
13.0 Termination of Agreement

- 13.1 In case consumers under Net Billing system resorts to unlawful drawal of solar power directly from solar panel before capturing of entire solar generation, then net billing facility will be withdrawn immediately for violation of agreement and agreement under net billing facility will be terminated.
- 13.2 On termination of Consumer mode of supply agreement under net metering/ net billing will also be terminated from date of termination of Consumer mode of supply agreement.
- 13.3 If consumer fails to supply Solar Generation to WBSEDCL within one year from the date of supply as agreed in the Power Purchase Agreement (PPA) or discontinue the supply for more than one year for any reason(s) whatsoever then such PPA shall be automatically cancelled.
- 13.4 In case of violation of grid discipline, agreement under net billing facility will be terminated as per order of Hon'ble Commission.
- 14.0 Treatment of existing consumer under net metering arrangement and solar PV generating system installed and notified to WBSEDCL within 31/12/2021
- 14.1 Solar-PV generating systems, which are already connected with the distribution network under Net-Metering Arrangement and solar PV generating system installed and notified to WBSEDCL within 31/12/2021, shall continue with the existing accounting and settlement mechanism.
- 14.2 In case of any roof-top solar capacity addition by existing net-metered consumers, they will be treated freshly for eligibility under net-metering or net-billing as per these procedures except Govt. funded projects / projects under different Govt. scheme.
- 14.3 The Solar generation meter and allied accessories shall be procured /supplied and installed by WBSEDCL at its own cost.
- 14.4 Alteration of service if required during installation of Solar generation meter shall be borne by WBSEDCL.

DIAGRAM-A



Connection Diagram for net metering Arrangement



For net metering arrangement billing will be done as per Schedule-1 of Renewable Regulation

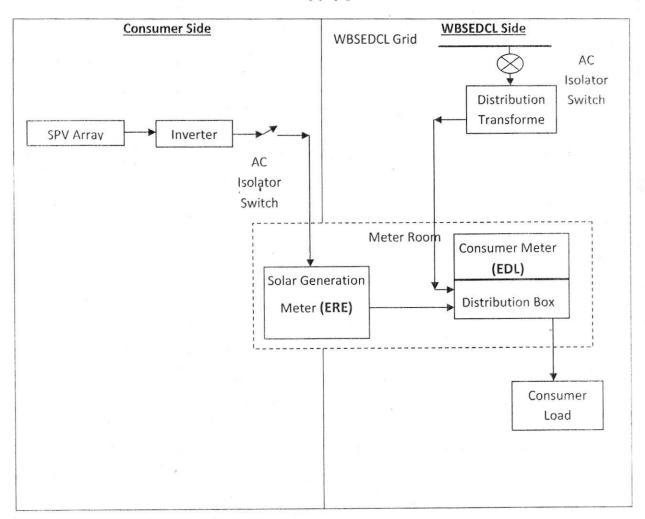


DIAGRAM-B

Connection Diagram for Net billing Arrangement having sanction load/contractual demand upto 200

KVA/ 170 KW except Agriculture consumer

[Solar injection at same voltage level at which the consumer has been given supply]



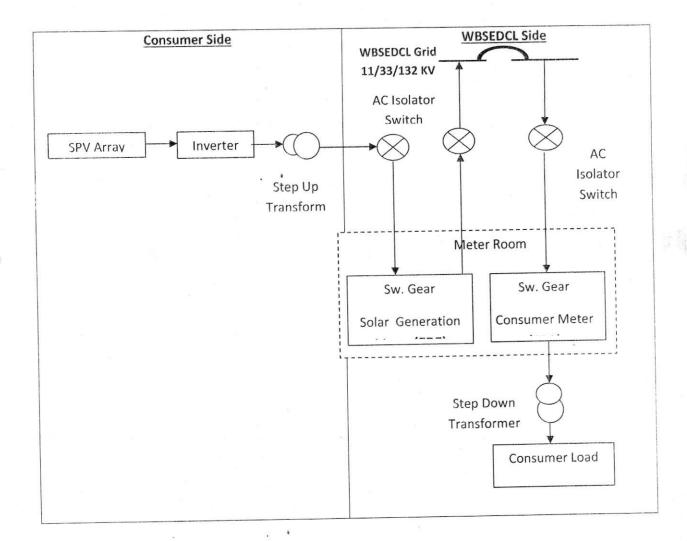
For net billing arrangement billing will be done as per Schedule-2 of Renewable Regulation

DIAGRAM-C

Connection Diagram for Net billing Arrangement having sanction load/contractual demand above 200

KVA/ 170 KW except Agriculture consumer

[Solar injection at same voltage level at which the consumer has been given supply]



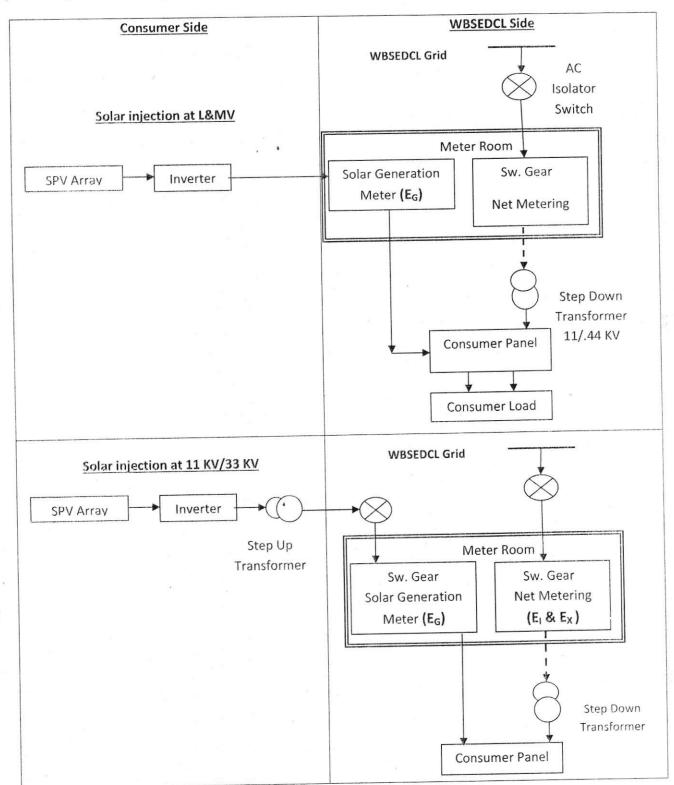
For net billing arrangement billing will be done as per Schedule-2 of RE Regulation

DIAGRAM-D

Connection Diagram for Net billing Arrangement having sanction load/contractual demand above 200

KVA/ 170 KW except Agriculture consumer

[Solar injection at any other lower voltage at which the consumer has been given supply]



For net billing arrangement billing will be done as per Schedule-2 of RE Regulation, where ERE = $E_G/(1.03)^n$, EDL= $(E_G/(1.03)^n + E_I - E_X)$ and n is no of step down of voltage in between consumer supply point of WBSEDCL and solar generation injection points.

FORM S1

(Application form for connectivity of Solar PV generating system under net metering/ net billing arrangement)

WEST BENGAL STATE ELECTRICITY DISTRIBUTION COMPANY LIMITED. (IVRS Number: 1800-345-5221

Website: https://www.wbsedcl.in)

Name of The Office Application Number:	•••••	(Same as consumer connection)
Consumer Id	:	
Application Date	:	
Name of Applicant	:	
	:	
Address	:	
	:	
Mobile No.	:	
Email Id (mandatory)		
Aadhar No (optional)		34
Consumer Class	:	
Phase	:	
Contractual Load (in KW) (>= 1KW)	:	
Installed Capacity of the proposed Solar Plant (in KWp)	:	
Billing Type (#)	:	(Net-Metering/Net-Billing)
Generation Meter	:	(Self-Owned / Purchase from WBSEDCL)
Installation Testing required by WBSEDCL	:	(Yes/No)

Declaration: I agree to bear the cost of alteration of Service if required.

Place	Signature of the Applicant
#) (1) Net metering: (a) All	consumer except Agriculture Consumer having contra

(#) (1) Net metering: (a) All consumer except Agriculture Consumer having contractual load upto 5 KW

(b) All agriculture consumers.

(2) Net Billing : All consumer having contractual load above 5 KW Except Agriculture Consumer.

Form S2

AGREEMENT REGARDING MODALITIES OF OPERATION OF SOLAR PV SOURCE UNDER NET BILLING/ NET METERING BETWEEN WBSEDCL AND (NAME OF CONSUMER)

This Agreement is entered at Kolkata on the

day of (month) (year) by and

between

West Bengal State Electricity Distribution Company Limited, a Company incorporated under the Companies Act, 1956 having its Registered Office at Vidyut Bhawan, Bidhan Nagar, Kolkata – 700091 (hereinafter referred to as the WBSEDCL which expression shall, unless repugnant to the context or meaning thereof, include its successors and assigns) of the ONE PART.

And

The (Name of the consumer with address), a **low and medium** / **High voltage** consumer WBSEDCL (hereinafter referred to as the "CONSUMER", which expression, unless excluded by or repugnant to the context or meaning thereof, shall be deemed to include its successors and assigns) of the SECOND PART.

WHEREAS:

- A. Installation of KWp/MWp capacity Solar PV generating system at (Name of the consumer with address) is complete and ready for operation and installation check-up and clearance by testing department of WBSEDCL.
- C. The newly installed Solar PV source at CONSUMER is intended to be interconnected and operated in parallel with WBSEDCL distribution system at **low and medium / High voltage** and accordingly application has been submitted to WBSEDCL for such interconnection in terms of the West Bengal Electricity Regulatory Commission (Cogeneration and Generation of Electricity from Renewable Sources of Energy) Regulations, 2013 or any subsequent amendment/replacement of it from time to time (herein after referred to as the "RE Regulations") to which WBSEDCL agrees on the terms sand conditions as mentioned in this agreement.

WITNESSTH AND IT IS HEREBY AGREED by and between the parties hereto as follows:-

 That CONSUMER shall abide by the Procedures approved by Hon'ble WBERC made under regulation 16.9 of RE Regulations.

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Regulation Department
WBSEDCL

- 2. Subject to the provision of regulation 6.1 (v) (c) of RE Regulations, the consumers shall be under (Net Metering / Net Billing) arrangement in respect of solar PV generating system installed and notified to WBSEDCL after 31.12.2021. However, Net-metering arrangement will be provided to the Solar PV generating system installed and notified to WBSEDCL upto 31.12.2021, as per order dated 25.10.2021 of Hon'ble Commission [i.e as per West Bengal Electricity Regulatory Commission (Cogeneration and Generation of Electricity from Renewable Sources of Energy) Regulations, 2013 (The principal Regulation)].
- 3. Total installed capacity in such premises does not exceed the sanctioned load (in kW) or contract demand (in kVA) of the consumer, as applicable:
- 4. AC Voltage level of Solar Injection is(0.23/0.44/11/33/132 KV).
- 5. Connection diagram for (Net Metering / Net Billing) arrangement is Diagram-A/B/C/D as feasible.
- 6. Net Metering Arrangement or Net Billing Arrangement, as the case may be, shall be permitted transformer-wise or feeder-wise 'first come first serve' basis to eligible consumers in case of enhancement of capacity of Solar PV subject to limitation of contract demand as specified in (2) above.
- Status of Net Metering arrangement for the consumers (except agriculture consumers) will automatically converted to Net billing arrangement on any upward revision of sanction load/contract demand beyond 5 KW (5.88 KVA).
- 8. The consumers who have installed grid connected roof top solar generator under netmetering / net-billing arrangement shall have to furnish certificate of fitness conforming to correct operation of islanding, generation of harmonics and other Power Quality parameters as per limits mentioned above. Consumer can arrange such testing by their own in presence of representative of distribution licensee.
- 9. Consumers shall have to furnish certificate of fitness with the following periodicity:
 - i) Every two years for PV output above 170 KW (200 KVA)
 - ii) Every three years for PV output upto 170 KW (200 KVA)

If the solar installation remains out of operation for more than six (06) months, consumers shall have to furnish certificate of fitness afresh from the authorized agencies of WBSEDCL along with clearance from Office of the Chief Electrical Inspector, Govt of West Bengal as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010 as amended time to time or self certification (for supply voltage below notified voltage) through **Form S4**.

10. That CONSUMER shall be responsible for safe installation, operation, maintenance and rectification of any defect of the solar-PV generating system up to the point of meter,

Sudipli Kushope-Cox

beyond which the responsibility of safe operation, maintenance and rectification of any defect in the system, including the meter, shall be that of the distribution licensee as per the provisions specified in the Central Electricity Authority (Measures relating to Safety and Electricity Supply) Regulations, 2010 and its subsequent amendments thereof.

- 11. That to avoid accident, CONSUMER shall make necessary arrangement for instantaneous disconnection of the Solar PV source as well as WBSEDCL source in case of any abnormal situation occurred from either end. Both the sources should also have independent arrangement to isolate itself immediately upon occurrence of abnormal condition, internal or external, in order to avoid any damage through suitable protection devices. In case of any untoward happening in spite of the best effort by the respective agency, the loss of damage will be shared by each agency on their part and every attempt would be taken to restore the system to its normalcy at the earliest.
- 12. The distribution licensee shall have the right to disconnect the solar PV generating system at any time in 'the event of threat/damage' from such renewable energy system to its distribution system to prevent any accident or damage, without any notice. The distribution licensee shall call upon the consumer to rectify the defect. Till rectification of the defect of solar PV generating system by the CONSUMER, solar PV generating system will remain disconnected.
- 13. The solar-PV generating system must be capable of detecting an unintended islanding condition. The system must have anti-islanding protection to prevent any feeding into the grid in case of failure of supply or grid. Applicable IEC/IEEE technical standards shall be followed to test islanding prevention measure for grid connected inverters.
- 14. The consumer may install grid interactive renewable energy system with or without battery backup:

Provided that if the consumer prefers setting up of solar-PV generating system with battery backup (full load backup/ partial load backup), the inverter shall have appropriate arrangement to automatically prevent the battery power to flow into the grid in the absence of grid supply in addition to manual isolation switch that shall also have to be provided.

- 15. The solar-PV generating system shall be equipped with an automatic synchronization device:
 - Provided that the solar-PV generating using inverter shall not be required to have separate synchronizing device if it is inherently built into the inverter.
- 16. The inverter shall have the features of filtering out harmonics and other distortions before injecting the energy into the system of the distribution licensee. The Total Harmonic Distortion (THD) shall be in accordance with the IEEE 519-2014 standards, as amended, from time to time or Inverter conforming IEC 61000 and IEC 61727 standards.

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Provided that, if the presence of harmonics is beyond the limits specified mentioned above it may be treated as "the event of threat/damage" under regulation 7.2 (d) of these Regulations, and the utility shall have the right to disconnect the solar PV generating system.

- 17. That CONSUMER shall provide suitable place for installation of Generation meter, Consumer meter, Check Meter, if any, for the purpose of billing, from the date of installation of such meter, as per Renewable Regulations or any other regulations under Electricity Act 2003.
- 18. That CONSUMER shall continue to be a consumer of WBSEDCL and all obligations under the terms of condition of the Agreement entered with WBSEDCL shall continue to be complied.
- 19. For the consumer under net metering, WBSEDCL will issue energy bill on net energy supplied by WBSEDCL in each billing cycle as per Schedule-1: Net Billing Energy Accounting and Settlement of RE Regulation.

In case of inaccessibility of meter for reading or defective /defunct / defect in metering circuit of consumer meter, assessment of drawal energy in consumer mode including energy export (net metering arrangement) shall be computed based on the provision as laid down in the West Bengal Electricity Regulatory Commission (Electricity Supply Code) Regulations, 2013 as amended.

Provided in accessibility of meter for Reading normally shall not be allowed for more than one (01) consecutive billing cycle beyond which net metering arrangement shall be withdrawn.

20. For the consumer under net billing, WBSEDCL will issue bill in each billing cycle as per Schedule-2: Net Billing - Energy Accounting and Settlement of RE Regulation.

That this Agreement shall also be considered as Power Purchase Agreement for net billing arrangement to the extent applicable as per RE Regulations (or any amendment thereof). Terms and conditions for the Power Purchase Agreement under net billing arrangement is applicable as per **Annexure-I.**

- 21. In case of Net Billing arrangement, a check meter of appropriate class shall be installed by the distribution licensee for the solar-PV generation meter against the cost to be borne by the consumer.
- 22. That any delay in payment shall attract surcharge as per prevailing West Bengal Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2011 or its amendment or subsequent replacement of it under section 61 of Electricity Act 2003 by West Bengal Electricity Regulatory Commission (WBERC).
- 23. That in the event of any default in payment or non-compliance of obligation/ any of the terms of this agreement, the matter will be dealt in accordance with the regulation 4.1 of West Bengal Electricity Regulatory Commission (Electricity Supply Code) Regulations,

2013 or its amendment or subsequent replacement of it under section 50 of Electricity Act 2003.

- 24. That CONSUMER shall abide by the Regulations made with relation to safety u/s 53 of the Electricity Act, 2003 by the Central Electricity Authority in regard to testing and installing of the source as applicable.
- 25. In case consumers under Net Billing system resorts to unlawful drawal of solar power directly from solar panel before capturing of entire solar generation, then net billing facility will be withdrawn immediately for violation of agreement.
- 26. That CONSUMER shall not indulge in any unauthorized transaction of electricity with third party or carry out any unauthorized alteration / extension / reconnection. In case any such unauthorized unlawful practice is detected, the service will be discontinued and this agreement will be terminated following 7 days' notice for termination.
- 27. That this agreement is entered into between WBSEDCL (1st party) and CONSUMER (2nd party) in terms of clause **6.1(v)** (c) of the RE Regulations (or any amendment thereof).
- 28. That save and except here-in-before specified or otherwise provided in the event of any dispute or difference arising at any time between the parties to the agreement in regards to any matter arising out of or in connection with this Agreement, such dispute or difference shall be settled through mutual discussion.

In WITNESS WHEREOF the parties have executed these presents through authorized representatives on day of 2021.

Signed and delivered for and on behalf of WBSEDCL	Signed and delivered for and on behalf of CONSUMER,
In the presence of:	In the presence of
i) Signature:	i) Signature:
Designation:	Designation:
	Y
ii) Signature:	ii) Signature:
Designation	Designation

"Schedule-I: Net Metering - Energy Accounting and Settlement:

- 1. The accounting of electricity exported and imported by the eligible consumer shall become effective from the date of notification of these Regulations or date of connectivity of the solar PV generating system with the distribution network, whichever is later.
- 2. The distribution licensee shall undertake meter reading of both, the solar PV generation meter and the net meter, for all eligible consumers, according to the regular metering cycle.
- 3. For each billing period, the distribution licensee shall make the following information available on its bill to the eligible consumer:
 - a. Quantum of solar-PV generation recorded in the generation meter;
- b. Electricity injected in the grid in the billing period, including opening and closing balance;
 - c. Electricity supplied by the distribution licensee in the billing period, including opening and closing balance;
 - d. Net billed electricity, for which a payment is to be made by the consumer;
 - e. Excess electricity carried forward from the last billing period;
 - f. Excess electricity to be carried forward to the next billing period.
- 4. Any excess energy injected from the roof-top solar PV sources being more than 90% of the consumption of energy by that consumer(s) from the licensee's supply in each billing period shall be carried over to the next billing period within that year.
- 5. Slab tariff, as per applicable tariff order under the Tariff Regulations, shall be applicable for the net energy supplied by the licensee in a billing period if the supplied energy by the licensee is more than the injected energy by the rooftop solar PV sources of the consumer(s) after taking into account the quantum of energy, if any, carried forward from earlier billing period(s) of that year.
- 6. Notwithstanding anything to the contrary contained elsewhere in any other Regulations of the Commission, in case the consumer is within the ambit of time of day tariff, as determined by the Commission from time to time, the following process shall be followed:
 - Electricity consumption in any time block (e.g., peak hours, off-peak hours, etc.) shall be first compensated with the electricity generation in the same time block;
 - Any excess generation over consumption in any time block in a billing cycle shall be accounted for in a manner, as if the excess generation occurred during the immediately lower tariff time block;
 - This process will continue till all consumption in lower tariff blocks is set off against solar-PV generation.
- 7. At the end of the year, if the total energy supplied by the licensee to the consumer(s) for that year is found to be less than the energy injected by the roof-top solar PV sources of that

Chief Engineer (Regulation)
Regulation Department

WBSEDCL

consumer(s) for that year, the licensee shall not pay any charge to the consumer(s) for that net energy injected by the consumer(s), in excess of 90% of consumption of that consumer(s) from the licensee's supply in that year and the same shall be treated as unwanted / inadvertent injection.

- 8. At the beginning of each year, cumulative carried over injected energy will be reset to zero.
- 9. Regardless of availability of excess electricity with the eligible consumer during any billing period, the consumer will continue to pay all other charges such as fixed/demand charges, Government levy, etc.
- 10. The distribution licensee shall accept the power as per the useful life of the solar-PV generating system, unless the eligible consumer ceases to be a consumer of the distribution licensee or the solar-PV generating system is abandoned earlier.
- 11. In case the eligible consumer leaves the system or changes the supply licensee, the excess electricity shall be considered as inadvertent injection by the distribution licensee.

Schedule-2: Net Billing - Energy Accounting and Settlement

- 1. Net billing is the arrangement where solar-PV generating system is:
 - a) Installed to serve a specific consumer;
 - b) Connected on the distribution licensee side on the consumer meter;
 - c) Selling power to a distribution licensee under Power Purchase Agreement.
- 2. The distribution licensee shall enter into Power Purchase Agreement at a generic tariff to be determined by the Commission:

Provided that the generic tariff of the projects commissioned during a specified year shall be fixed for the entire useful life of the project.

- 3. Entire quantum of electricity generated by the solar-PV generating system shall be procured by the distribution licensee.
- 4. The distribution licensee shall raise bill on the consumer in accordance with the following equation:

Energy Bill of consumer = Fixed Charges + other applicable charges, subsidy, rebates and levies + (EDL x TRST) - (ERE x TPPA) - Billing Credit;

Where:

- a) Fixed Charges means the Fixed/Demand Charges as applicable to the consumer category as per the applicable retail supply Tariff_ Order;
- b) Other charges and levies mean any other charges such as municipal tax, cess, etc.;
- c) ERE means the energy units recorded for the billing period by the Renewable Energy Generation Meter;
- d) TPPA means the energy charges as per the Power Purchase Agreement signed between the consumer and the distribution licensee, in accordance with paragraph (2) above;
- e) EDL means the energy units supplied (i.e., Gross Electricity Consumption by the consumer) by the distribution licensee as recorded by the consumer meter for the billing period;
- f) TRST means the applicable retail supply tariff of the concerned consumer category as per the applicable retail supply Tariff Order of the Commission;
- g) Billing Credit is the amount by which the value of Renewable Energy generation in a particular month is more than the value of all other components of consumer bill.
- 5. In case the consumer is subjected to time of day tariffs, energy bill (EDL x TRST) shall be computed accordingly.

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- 6. In case (ERE x TPPA) is more than (Fixed charges + other applicable charges, subsidy; rebates and levies + (EDL x TRST)), utility shall give credit of amount equal to difference (Billing Credit), which shall be carried forward to the next billing cycle within a financial year.
- 7. At the end of the financial year, if there is any outstanding Billing Credit, it shall not be paid by the distribution licensee.
- 8. For each billing period, the distribution licensee will make the following information available on its bill to the consumer:
 - a) Generation recorded in generation meter;
 - b) Electricity injected by the solar PV plant in the grid in the billing period, including opening and closing balance;
 - c) Electricity supplied by the distribution licensee in the billing period, including opening and closing balance;
 - d) Billing Credit carried forward from the last billing period;
 - e) Billing Credit carried forward to next billing period.

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Terms and conditions for the Power Purchase Agreement under net billing arrangement

(Under clause 2 of Schedule-2 of RE Regulations)

1) ARTICLE: POINT OF SUPPLY

Interconnection point with the WBSEDCL WBSEDCL's system immediate after generation meter

2) ARTICLE: APPLICABLE TARIFF

Both the parties agree that the generic tariffs for the purpose of net-billing shall be as per Order dated 25.10.2021 of Hon'ble Commission i.e average power purchase cost as allowed in the Tariff Order for the concerned financial year in which the Solar PV will be commissioned and such generic tariff shall remain fixed for the entire useful life of the project.

If Generic Tariff (i.e average power purchase cost as allowed in the Tariff Order) is not available for concerned financial year, Generic Tariff based on average power purchase cost as allowed in the latest Tariff Order by WBERC will be considered as interim measure which will be re-casted subsequently on issuance of Tariff order for concerned financial year.

According to above, the generic tariffs for the purpose of net-billing shall be Rs/ Kwh for the FY (Interim if generic tariff is not available for FY)

3) ARTICLE: Details of the projects:

- i) Expected date of completion of projects and/or date of commencement of supply :......
 ii) Month wise expected quantum of supply(In Kwh/MU):
 April-.....,May-....,June-....,July-....,August-....,Sept-....,Oct-....,Nov-....,Dec-....,January-.....,Feb-....,March-.....;
- iii) Time wise expected quantum of supply (In Kwh/MU): Normal:..... Peak:..... Off-peak:.....

4) ARTICLE: BILLING

Billing will be done as per Schedule-2: Net Billing - Energy Accounting and Settlement of RE Regulation.

i) In case of inaccessibility of meter for reading, assessment of solar generation energy shall be computed on the basis of average generation and other parameters for the preceding months or during any previous period that may be reasonably comparable.

Provided where the actual solar generation of previous months/period is not available, adjustment of solar generation will be done on availability of actual generation during meter reading.

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Chief Engineer (Regulation)
Regulation Department
WBSEDCL

In accessibility of meter for Reading normally shall not be allowed for more than one (01) consecutive billing cycle beyond which net metering / net billing arrangement shall be withdrawn.

ii) In case of defective /defunct generation meter, assessment of Solar generation energy shall be computed based on Check meter. If both main and check meter / metering circuit are found defective, assessment of generation energy shall be computed on the basis of average generation and other parameters for the preceding three months or during any previous period that may be reasonably comparable before.

Provided where the actual Solar generation of previous months/period is not available, adjustment of Solar generation will be done on availability of actual generation during meter reading by taking average of actual electricity generated during the succeeding period (s) / month (s) after installation of a correct meter.

5) Disconnection:

On disconnection of consumer mode of supply due to any reason whatsoever, this power purchase agreement will also be discontinued till reconnection of consumer mode of supply.

6) Termination of Agreement:

- (a) In case of unlawful drawal of solar power directly from solar panel before capturing of entire solar generation, net billing facility will be withdrawn immediately for violation of this agreement and agreement under net billing facility will be terminated.
- (b) On termination of Consumer mode of supply, agreement under net billing will also be terminated from the date of termination of Consumer mode of supply agreement.
- (c) If consumer fails to supply Solar generation to the licensee within one year from the date of supply as agreed in the PPA or discontinue the supply for more than one year for any reason(s) whatsoever then such PPA shall be automatically cancelled
- (d) In case of violation of grid discipline agreement under net billing facility will be terminated as per order of Hon'ble Commission.

Work Completion Report (To be submitted by the applicant)

To The	, (Same as consume	r connection) 5584 2008
		CCURT 70.8CS

Sub: Submission of work completion report

Ref: Application No.: dated

Dear Sir / Madam,

This is in reference to my above application for installation of RTSPV system I / We hereby confirm you that I / we have completed the work of installation of the RTSPV system of capacity—and submit the following basic information for your perusal and request you to inspect and commission the system.

SI. No.	Particulars	Information
Α.	Details of the Solar PV Module	The state of the s
1.	Type of Module	Polycrystalline/ Monocrystalline
2.	Name and address of manufacturer	
3.	Capacity of each Module (Wp)	
4.	No. of Modules (attach Serial Nos.)	
5.	Total Capacity (kWp)	
6.	Date of Installation	
7.	Applicable Standard (BIS/IEC)	IEC 61215 / IS 14286, IEC 61730(Par I & II), IEC 62804
В.	Details of the Inverter	
8.	Name and address of the Inverter manufacturer	
9.	Brand Name of the Inverter	
10.	Serial Nos. of inverters installed	
11.	AC Capacity of individual Inverter (kW)	100
12.	Cumulative AC capacity of Inverters (kW)	1
13.	Current THD at full load & Voltage THD-less than 3%	YES/NO

Sudipt. Kur lieged Copy Chief Engineer (Regulation) Regulation Department

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14.	Ingress Protection Limit	1000
15.	Date of Installation	
16.	Applicable Standard (BIS/IEC)	IEC-62109(Part I & II), IEC- 60068, IEC-61683, IEC 61000, IEC 62116, IEC 61727
C.	Details of the DC Cables	
17.	Make / Name of manufacturer	
18.	Size & Type	
19.	Applicable Standard (IEC)	TUV 2 Pfg 1169/08.2007
D.	Details of the AC Cables	
20.	Make / Name of manufacturer	
21.	Size & Type	
22.	Applicable Standard (IS/IEC)	
E.	Details of the Array Junction Box(AJB)	2 N 2
23.	Make / Name of manufacturer	
24.	Serial No.	
25.	DC Surge Protection Device	
26.	MCB / Isolator quantity & capacity	*
27.	Size & Type	
28.	Applicable Standard (IEC)	***
F.	Details of the AC Distribution Box/Inverter Interfaci	ng Panel
29.	Make / Name of manufacturer	
30.	Serial No.	
31.	AC Surge Protection Device	
32.	MCB / MCCB quantity & capacity	
33.	Size & Type	
34.	Applicable Standard (IEC)	
G.	Details of the Earthing*	
35.	Earth resistance (shall be less than 2 ohms)	,
36.	Size of the Earth wire / flat*	
37.	Two separate Earthling points: Module Mounting Structure & DC Surge Protection Device	Yes / No

WBSEDCL PROCEDURES-C (2021)

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		11(5)
2	Inverter, AC Surge Protection Device & Lightening Arrester	Yes / No
38.	Size & Type	18 18 8 8 8 1 1 3 1
39.	Applicable Standard (BIS / IEC)	MAN GAR COULD
	Note: * Earthing shall be done in accordance IS 3043-198 conductors shall have a minimum size of 6 mm ² copper wimm ² X 70 mm ² hot dip galvanized steel flat.	6, provided that Earthing re or 10 mm² aluminum wire or 3
Н.	Details of the Caution signage	
40.	Caution Signage	
l.	Provision of manual and automatic switches: Yes / No	
41.	Manual / Automatic Switches	
J.	G.P.S. Co-ordinates of the RTSPV System Installation	
42.	Latitude / Longitude	186 1 n i
K.	Operation and Maintenance	
43.	Whether Operation and Maintenance Manual provided to the consumer: Yes / No	

Standards Certificate / Standard Number BIS / IEC / etc. to be mentioned, wherever applicable.

Certification:

I / We certify that the above said RTSPV system is installed and the equipment used in the system comply the Technical and Safety Standards as specified in the regulations notified by the MNRE / CEA / WBERC.

Signature of the Applicant	Name and Signature of the System Installer
Name and Address with Seal	Name of the firm and Address
Name:	
Date:	Date:

Enclosures:

- 1. Copy of test report of PV modules, Inverter, Cable etc.
- 2. Data sheets / Drawing for the array mounting System.
- 3. Actual Single line wiring diagram (SLD) of the SPV System.
- 4. Signed Agreement in duplicate.

Form S4

West Bengal State Electricity Distribution Company Limited

Self Certification by the Applicant

(for supply voltage below notified voltage)

It is certified that:

I/ We declare that electrical installation installed at my /our premises is required to be supplied at notified voltage or below and it does not include installations of mines, oil fields and railways. I/We confirm that I/we have submitted the report of self-certification in respect of the electrical installation, installed at my/our premises to the Electrical Inspector in the formats, as framed and the same has duly been received by the Office of the Electrical Inspector. I/We, also enclose the receipted copy/ copy of system generated acknowledgment of the self-certification in respect of the electrical installation, installed at my/our premises.

Address of the premises:	
Permanent address of the applicant/authorized	signatory:
Signature of the applicant/authorized signatory	
Name of the applicant/authorized signatory	