

**Bhopal Dated: 25.09. 2019**

**No. 1322/MPERC/2019.-** In exercise of the powers conferred by Section 181 of the Electricity Act, 2003 (36 of 2003), and all other powers enabling it in this behalf, the Madhya Pradesh Electricity Regulatory Commission hereby makes amendments to the Madhya Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters of Wind and Solar generating stations) Regulations, 2018, namely:

**First amendment to the Madhya Pradesh Electricity Regulatory Commission  
(Forecasting, Scheduling, Deviation Settlement Mechanism and related matters of  
Wind and Solar generating stations) Regulations, 2018.**

**1. Short title, extent and commencement**

- i. These Regulations shall be called the **Madhya Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters of Wind and Solar generating stations) (First amendment) Regulations, 2018. {AG-44(i) of 2019}**
- ii. They shall extend to the whole of the State of Madhya Pradesh.
- iii. They shall come into force from the date of publication of this notification in the Madhya Pradesh Gazette.

**2. In the Madhya Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters of Wind and Solar generating stations) Regulations, 2018 hereinafter called the 'Principal Regulations', the following shall be amended, namely—**

**3. In sub-Regulation (1) of Regulation 2 of the principal Regulations:-**

- (1) Clause (b), (e) and (u) shall be omitted.
- (2) for Clause (g), the following clause shall be substituted namely:-

“(g) ‘Deviation’ in a time block for a Seller means its total actual injection minus its total scheduled generation.”
- (3) for Clause (j), the following clause shall be substituted namely:-

“(j) ‘Gaming’ in relation to these regulations, shall mean an intentional mis-declaration of available capacity by any seller in order to make an

- undue commercial gain through Charges for Deviations;”
- (4) After Clause (n), the following clause shall be inserted namely:-  
“(n-i) ‘MRI’ means Meter Reading Instrument used for downloading and storage of data from Special Energy Meters
- (5) In Clause (q) the words ‘Pool Account’ shall be substituted by the words ‘State Deviation Pool Account’.
- (6) In Clause (r), in the proviso, in the end, before semi-colon, the following word shall be added namely:-  
“However, in case the multiple common feeders of same developers are connected to the Grid Substation, then every individual feeder shall be treated as a separate pooling station.”
- (7) In Clause (s), in second item, the words ‘metering, data collection/transmission, communication’ shall be substituted by the words ‘metering & AMR, data collection / transmission, telemetry & communication’.
4. For Regulation 3 of the principal Regulations, the following Regulation shall be substituted namely:-
- “3. Objective and scope**
- “(1) The objective of these Regulations is to maintain grid discipline and grid security as envisaged under the Grid Code through the commercial mechanism for Deviation Settlement through injection of electricity by the users of the grid.
- “(2) These Regulations shall be applicable to Seller(s) involved in the transactions facilitated through short-term open access or medium-term open access or long-term open access in intra-state transmission or distribution of electricity (including intra-state wheeling of power), as the case may be, in respect of all wind power generators having a combined installed capacity of 10 MW & above and solar power generators having installed capacity of 5 MW & above including those connected via pooling stations and selling power within the State:
- Provided that these Regulations shall also be applicable to all wind & solar generators selling power outside the State under open access and having combined installed capacity of 1 MW and above.”

**"6. Forecasting, scheduling and elimination of gaming:**

**Procedure:-** The provisions of the Madhya Pradesh Electricity Grid Code and the M.P. Electricity Regulatory Commission (Terms and Conditions for intra-state open access in Madhya Pradesh) Regulations, 2005 as amended from time to time, shall be applicable for declaration of capacity, scheduling and elimination of gaming and the detailed operating procedure in this regard is annexed as **Annexure-I**.

**7. Amendment to Regulations 7,8 and 9:**

Regulations 7, 8 and 9 of the Principal Regulations shall be omitted.

**8. Amendment to Regulation 10:-**

for sub-regulation (1) of the Regulation 10 of the principal Regulations, the following sub-regulation shall be substituted, namely:-

"(1) Within two months from the date of notification of these Regulations, the State Load Despatch Centre shall formulate a "State Power Committee" and after obtaining approval from the Commission, issue the necessary order.

By order of the Commission  
SHAIENDRA SAXENA, Secy.

5. In the Principal Regulations, the Regulation 4 shall be amended as under: -
- (i) In the second line under para one, the words 'and drawal' shall be omitted.
  - (ii) For sub-regulation (7), the following sub-regulation shall be substituted, namely:  
“(7) All State Entities shall make necessary arrangements for putting up suitable meters, capable of recording energy flows at 15-minutes intervals, at the points of injection and providing AMR facility for data downloading remotely at SLDC.”
  - (iii) After so substituted sub-regulation (7), the following sub-regulations shall be added namely: -
    - “(8) All wind or solar generators including those connected via pooling station shall have to appoint a common QCA which may be one of the generator or mutually agreed agency. If generators fail to appoint a common QCA within a period of two months from the date of issue of notice by SLDC, then SLDC shall advise the concerned licensee for disconnection of defaulting generators. The licensee shall take action accordingly under intimation to SLDC.
    - (9) In case more than 50% of the installed capacity of wind or solar generators including those connected via pooling station have consented for a particular QCA, then remaining generators shall have to appoint same agency as a QCA. In case of non-compliance, SLDC shall advise the concerned licensee to disconnect the defaulting generators from the Grid. The licensee shall comply with the instructions of SLDC under intimation to SLDC.”
6. **Amendment to Regulation 5 and 6:-**
- In the Principal Regulations, for Regulation 5 and 6, the following Regulations shall be substituted, namely:-
- “5. **Principles for Operationalising Deviation Settlement Mechanism:**
- The framework for Deviation Settlement Mechanism shall cover the following key design parameters, viz. (a) Scheduling period (b) Deviation (c) Settlement period (d) Measurement unit for State Deviation Pool Account (e) Deviation Pool Price Vector
- (a) **Scheduling Period:** The scheduling period shall comprise of 96 time blocks, each of 15-minutes duration starting from 00:00 hours (IST) ending with 24:00 hours (IST). The first time block of scheduling period

shall commence from 00:00 hours (IST) to 00:15 hours (IST), second time block of scheduling period shall commence from 00:15 hours (IST) to 00:30 hours (IST) and so on:

Provided that the scheduling period may be revised to 288 time blocks, each of 5-minutes duration starting from 00:00 hours (IST) ending with 24:00 hours (IST) and accordingly, the Interface Metering, Energy Accounting and Deviation Settlement need to be capable to undertake transactions with 5-minutes duration. All future resource planning, IT and communication system requirement and infrastructure development may be undertaken to cater to this requirement.

- (b) **State Deviation Pool Account:** For the purposes of Deviation settlement amongst qualified Wind and Solar Generators, the SLDC shall work out the 'Deviation Pool Accounts' comprising over-injection and under-injection for each qualified Wind and Solar Pooling Station, or solar/wind generators, as the case may be, corresponding to each Scheduling period in accordance with the provisions of these Regulations.
- (c) **Settlement Period:** Preparation and settlement of 'Deviation Pool Accounts' shall be undertaken on weekly basis coinciding with mechanism followed for regional energy accounts. Till such time, the complete weekly ABT meter data starts to flow through AMR System or manual data download by MRI, the State Load Despatch Centre shall prepare and issue Deviation Charges Account on monthly basis which shall be allowed maximum up to 3 months from the date of the notification of these Regulations.
- (d) **Measurement Unit for Deviation Pool Account:** The measurement unit for Deviation Pool Volume (Over-injection/under-injection) preparation shall be kiloWatt hours (kWh). Measurement unit for Deviation Pool Value (Payable and Receivable) preparation shall be Indian Rupees (INR). The decimal component of the energy unit (kWh) and amount (INR) shall be rounded off to nearest integer value.
- (e) **Deviation Pool Price Vector:** The charges for Deviation shall be in accordance with the Deviation Price Vector to be notified by the Commission from time to time. Separate treatment for pricing of Deviation of Wind/ Solar Generators, as specified under Regulation 6 shall be applicable.

**“6. Forecasting, scheduling and elimination of gaming:**

**Procedure:-** The provisions of the Madhya Pradesh Electricity Grid Code and the M.P. Electricity Regulatory Commission (Terms and Conditions for intra-state open access in Madhya Pradesh) Regulations, 2005 as amended from time to time, shall be applicable for declaration of capacity, scheduling and elimination of gaming and the detailed operating procedure in this regard is annexed as **Annexure-I**.

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**Annexure -I****OPERATING PROCEDURE FOR IMPLEMENTATION OF MPERC (FORECASTING, SCHEDULING, DEVIATION SETTLEMENT MECHANISM AND RELATED MATTERS OF WIND AND SOLAR GENERATING STATIONS) REGULATIONS 2018****1. Introduction -**

This procedure is prepared in accordance with the provisions of regulation 6(a) of MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters of Wind and Solar Generating Stations) Regulations 2018. This procedure shall be read in conjunction with Indian Electricity Grid Code (IEGC), Madhya Pradesh Electricity Grid Code (MPEGC), MPERC (Terms and Conditions for Intra-State Open Access in Madhya Pradesh), Regulations 2005 and subsequent amendments issued thereof.

**2. Qualified Coordinating Agency (QCA)****I. Qualifying Requirement for QCA -**

The following are the general guidelines for appointing QCA by the Wind and Solar Generators:

The QCA shall be a company incorporated in India under the Companies Act, 1956/2013.

- i. The QCA shall have the experience in the field of Wind and/ or Solar Power forecasting and scheduling for a minimum period of one (1) year with appropriate accuracy levels in forecasting.
- ii. The QCA shall have capability to manage multiple plant owners connected to a pooling station in order to de-pool deviation charges.
- iii. The financial strength of the QCA shall be such that it shall be in a position to handle the risk of penalties due to deviation charges applicable to RE generator. Considering this, the net worth of the QCA shall be at least Rs. 1.50 Crores (One Crore and Fifty Lakhs only) in the previous financial year which shall reflect from its audited accounts duly certified by the Chartered Accountant.
- iv. Operational requirements - The QCA shall have fully functional forecasting and scheduling tools to obtain the desired output.

- v. The QCA shall have a compatible system in place, for seamless flow of information to and from SLDC in order to facilitate forecasting, scheduling and revision of schedule, intimation of outages/ grid constraints etc. and it shall have capability to provide real time monitoring systems in place for seamless flow of information to and from SLDC.
- vi. QCA shall have an established team of Renewable Resource Analysts, modeling Statisticians, Energy modelers and 24x7 operation and monitoring team.

Note:-

Provided that when a generator(s) is not availing the services of QCA and a lead generator or individual generator acting as a QCA, it will be exempted from the aforesaid qualifying requirements of QCA mentioned above at S. No. (i) to (iii).

## II. Appointment of QCA by Generators -

- i. Wind and Solar Generators (more than one legal owner) including those connected via Pooling Station to State Grid shall appoint a common Qualified Coordinating Agency (QCA) with a consensus and mutually agreed terms & conditions amongst the Generators in that Pooling Station. Any one of the lead Generator may also act as a QCA with the consensus among the generators including those connected via pooling station to State Grid and shall be registered as a QCA at SLDC.
- ii. Wind and Solar generators (single legal owner) connected directly or via pooling station to State Grid may appoint a QCA or may act as a QCA and shall be registered as a QCA at SLDC.
- iii. Wind and solar generators (more than one legal owner) connected directly or via pooling station to State Grid shall submit a consent letter as per format **Annexure-II** and copy of agreement made with QCA clearly specifying the "QCA" who shall be responsible for coordinating on behalf of all the generators including those connected via pooling Station to state Grid on issues like forecasting, scheduling, deviation charges, metering, SCADA, and other responsibilities assigned to QCA in the MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar



Generating Stations) Regulation, 2018, and under this operating procedure. All wind and solar generators shall provide all the required support to the Qualified Coordinating Agency (QCA).

- iv. QCA shall be the single point of contact with SLDC on behalf of its coordinated generator(s).

**III. Registration of QCA with SLDC -**

- a. The QCA shall submit the consent letters and copy of agreements with Generators who have appointed him as a QCA and then apply for registration with SLDC.
- b. The QCA shall apply for registration with SLDC by submitting duly filled up application form as per the enclosed format (**Annexure-III**), Undertaking as per the enclosed format (**Annexure-IV**), Declaration as per the enclosed format (**Annexure-V**).
- c. The eligible QCA will be registered with SLDC and Registration No. will be provided by the SLDC. After registration with SLDC, QCA shall be treated as State Entity for the purpose of MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018.
- d. Each pooling Station shall have one QCA. However, one QCA can be registered for many pooling stations. In case a particular Wind or Solar Generators alone is connected to a Pooling station, then such Generator can also act as a QCA and get registered with SLDC by submitting the duly filled up application form, Undertaking & Declaration.
- e. In case QCA has obtained registration on the basis of false information or by suppressing material information, the registration of such entity shall be revoked.
- f. The registration of the QCA will be revoked on the request of majority generators who have appointed the QCA.
- g. The QCA may cancel their Registration by submitting "No Objection Certificate"

(NOC) from the concerned Generators. The Generators shall choose another QCA and get it registered immediately after cancellation of the registration of existing QCA.

- h. In the event non-compliance of any of the terms/ conditions/ rules outlined under Regulation 2(1)(s) of MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018 by QCA, the registration of the QCA will be revoked by SLDC.

**V. Roles and Responsibilities of QCA -**

QCA shall be the single point of contact with SLDC on behalf of all the Generators connected to a pooling station for the following purpose:

- i. QCA shall provide 15 minutes block- wise Available Capacity and Forecasted Generation on day ahead basis with Intra day periodic revisions of the same to SLDC on behalf of all the Wind/Solar Generators connected to the pooling station(s) and also coordinate with SLDC for scheduling.
- ii. QCA shall be responsible for coordination with STU/Discoms / SLDC for installation of Special Energy Meters (SEM) alongwith AMR facility (modem, antenna & SIM) and integration of SEM with AMR Server of SLDC for meter data downloading remotely at SLDC.
- iii. QCA shall ensure periodical testing and calibration of SEMs as per CEA (Installation and Operation of Meters) Regulations and M P Electricity Grid Code.
- iv. QCA shall undertake commercial settlement of deviation charges which includes payment / receipt of deviation charges to / from the State Deviation Pool Account on behalf of Generators.
- v. QCA shall undertake de-pooling of amount (payable / receivable) on behalf of the generators from the State Deviation Pool Account and settling them with the individual generator.
- vi. QCA shall also undertake commercial settlement of all other charges on behalf of the generators as specified under these Regulations as amended from time to

time.

- vii. QCA shall submit details of contracts entered by Wind and Solar Generators connected to a pooling station. QCA shall obtain PPA rates on affidavit from Wind and Solar Generators supported by the copy of PPA and submit the same to SLDC for computation of deviation charges:

Provided that such information will not be shared to any party by SLDC without prior consent of concerned Wind and Solar based Generators.

- viii. QCA must have designated and qualified operator(s) available for twenty-four (24) hours every day for contact and Communication with the SLDC, in accordance with SLDC instructions and other communication policies and protocols.
- ix. QCA shall provide Turbine/Inverter- wise and pooling stations details (Static data) as per REMC format available at SLDC website [www.sldcmpindia.com](http://www.sldcmpindia.com) → RE Generator Info → REMC Format, or as required by SLDC.
- x. QCA shall co-ordinate and transmit the data of operation of Low Voltage Right Through (LVRT) on monthly basis to SLDC.
- xi. The QCA shall maintain historical data, all turbine / inverter -wise and pooling station -wise SCADA data and forecasting & scheduling data of pooling station and other necessary records, registers and accounts and shall furnish the same to SLDC on request.
- xii. QCA shall ensure Available Capacity (AvC) and data exchange of other parameters from QCA to SLDC and will also ensure data transfer of Available Capacity (AvC) of individual Turbines / inverters and maintenance schedules invariably, for use of SLDC in producing power forecasts and Deviation calculations.
- xiii. QCA shall ensure transfer of turbine / inverter level SCADA data to Pooling Station in real time and from the Pooling Station to the connected Grid Substation to SLDC without any interruption. The guidelines for providing telemetry data shall be as per Annexure-VI.

**3. Pre-conditions for participation in Deviation Settlement Mechanism:**

Necessary preconditions and covenants for participation by State Entities shall be as under:

- i. All State Entities shall have equal and non-discriminatory treatment towards 'Deviation Settlement Mechanism' of Wind and Solar Generators.
- ii. The State Entities shall inform the SLDC of all contracts they have entered into for exchange of energy.
- iii. SLDC shall take all decisions with regard to the despatching of stations after evaluating all possible network parameters, constraints, congestions in the transmission network and in the eventuality of any such network aberration, the instructions by the SLDC with regard to despatch shall be binding on all State Entities.
- iv. State Entities shall operate their equipment and loads in a manner that is consistent with the provisions of the Indian Electricity Grid Code (IEGC) and M.P. Electricity Grid Code, as amended from time to time.
- v. State Entities shall enter into BPTA (Bulk Power Transmission Agreement) and Connection Agreement with the transmission licensee, which shall specify the physical and operational requirements for a reliable operation and gain physical access and connection to the Intra-State Transmission System (ISTS) or enter into Connection and Use Agreement with concerned Distribution Licensee for use of distribution system, as the case may be.
- vi. SLDC shall publish all such information as required for implementation of MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018, on its website.
- vii. All State Entities shall make necessary arrangements for putting up suitable SEM, capable of recording energy flows at 15-minutes intervals alongwith AMR facility (Modem, Antena & SIM) for data downloading at SLDC, at the points of injection as per CEA Regulations and Grid Code.
- viii. In case of Wind or Solar Generators as state entities undertaking intra-state

transactions and inter-state transactions on a common feeder, then inter-state transactions shall be allowed provided that such generators are connected to separate feeders at LV side of the Pooling Station and metering, scheduling, energy accounting and deviation settlement account for such Wind or Solar Generators are maintained separately. However, the Wind or Solar generators connected on a same pooling station and were undertaking intra-state and inter-state transactions prior to date of notification of these Regulations, shall be allowed to continue their transactions for a maximum period of one year from the date of this notification, and till that time the Generator must obtain separate connectivity on a separate feeder. The Deviation Charges of such generators for the aforesaid period shall be computed individually by considering the schedules and meter data at generator's end.

- ix. In case of new and old wind/ solar projects exist on same pooling station and the pooling station is connected to State Grid prior to date of notification of MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018, the applicability of absolute error for computing Deviation Charges shall be as per Table -IV of this procedure.

**4. Declaration of Available Capacity (AvC), Forecasting, Scheduling and Despatch:**

- i. The Declaration of Available Capacity (AvC), forecasting and Scheduling of Wind and Solar Generating Stations shall be as per the provision of Madhya Pradesh Electricity Grid Code and subsequent amendments thereof.
- ii. The scheduling period shall comprise of 96 time blocks, each of 15 minutes duration starting from 00:00 hours (IST) ending with 24:00 hours (IST). The first-time block of scheduling period shall commence from 00:00 hours (IST) to 00:15 hours (IST), second time block of scheduling period shall commence from 00:15 hours (IST) to 00:30 hours (IST) and so on.

Provided that from the date as maybe notified by the Commission, the scheduling period maybe revised to 288 time blocks, each of 5-minutes duration starting from 00:00 hours (IST) ending with 24:00 hours (IST). Accordingly, the Interface Metering, Energy Accounting and Deviation

Settlement need to be capable to undertake transactions with 5minutes duration. All future resource planning, IT and communication system requirement and infrastructure development maybe undertaken to cater to the aforesaid requirement.

- iii. QCA shall declare the AvC and forecast generation in 15 minutes time block for each pooling station (Wind / Solar) on behalf of Wind and Solar Generators connected to a pooling station. The AvC and Forecast shall be declared on day ahead basis and can be revised during the real time operation.
- iv. QCA shall submit the Day ahead AvC and Forecast in a time block of 15 minutes for the next day to SLDC upto 10:00Hrs in the enclosed proforma (**Annexure-VII**).
- v. The schedule by such Wind and Solar Generating Stations which are State Entities supplying Intra / Inter State power under long-term or medium term or short term open access may be revised by giving advance notice to SLDC. The revisions can be made in accordance with the provisions of Madhya Pradesh Electricity Grid Code and its amendments from time to time.
- vi. QCA shall submit the Available Capacity (AvC) and forecast of Solar Generating Stations based on availability of the generator, weather forecasting, solar insolation / irradiance, season and normal solar generation curve. Considering the availability of solar irradiation during the day only, the AvC for a Solar Generating Stations shall be submitted by QCA for the period 05:30Hrs to 19:30 Hrs.
- vii. Revision in schedules by the Wind and Solar Generators selling power through collective transactions shall not be allowed.
- viii. SLDC shall create a web portal for directly uploading the AvC and Forecast by QCA. Each QCA shall be provided login ID and password. After logging-in, QCA shall be able to submit the AvC and Forecast on day ahead basis and submit revisions during real time operations. The QCA shall have to submit the AvC and Forecast through this web portal and also at mail id - **remcibp@gmail.com**.
- ix. QCA shall submit separate AvC and Forecast for Intra State and Inter State

**Transactions of Wind/ Solar Generators.**

- x. The forecasting of Wind and Solar Generating Stations shall also be done by SLDC to facilitate safe, secure and reliable grid operation. The SLDC may engage a forecasting agency to undertake forecasting till Renewable Energy Management Centre (REMC) becomes fully functional. QCA shall provide all static data, real time power system parameters and weather related data as applicable at Turbine/ Inverter Level and at Pooling station along-with turbine/inverter outage plan for forecasting by SLDC. The forecasting of Wind/ Solar Generation done by SLDC shall be published at SLDC website.
- xi. QCA shall have the option of accepting SLDC forecast or providing their own for scheduling by SLDC. Any commercial impact on account of deviation from schedule based on forecast chosen by the Wind/ Solar Generators or QCA shall be borne by the respective Generators/ Pooling Stations. If the generator(s)/QCA derive its schedule based on SLDC's forecast, they shall not take a plea that the error is due to erroneous forecast by SLDC, and the Generator/QCA shall be solely responsible for any commercial impact on account of deviation.
- xii. On receipt of pooling station wise day ahead forecast of Wind and Solar Generating Stations by QCA, SLDC shall issue the despatch schedule of Wind and Solar Generating Stations and the same shall be uploaded on SLDC website.
- xiii. In the event of contingencies, transmission constraints, congestion in the network, threat to system security, the schedule of Wind and Solar Generating stations shall be curtailed by SLDC as per provisions of MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018, for ensuring secure and reliable grid operation.
- xiv. In case of any planned curtailment/ shutdown/ system constraint necessitated in certain time blocks of a day by the SLDC, Generator/ QCA shall be responsible to restrict the generation at site as per the advice of the SLDC and accordingly the QCA/ generator shall revise the schedule.
- xv. In case of any unplanned curtailment / shutdown / tripping of transmission elements or removal of curtailment / restoration of transmission elements, the

generation capacities thus reduced or increased by the generators for immediate time blocks shall be exempted from DSM calculations (scheduled generation shall be deemed to have been revised to be equal to their actual generation) till the 4th time block after communication with SLDC, the first block being the one in which the communication to SLDC has been made.

- xvi. SLDC shall prepare 15 minutes block-wise implemented schedules of the Wind and Solar Pooling Stations based on Forecasting and Intra-day revisions provided by QCA and shall publish the same on SLDC website within three days. The implemented Schedules issued by SLDC, shall be open to QCA's for checking/ verification, for a period of five (5) days. In case of any omission / mistake is intimated by QCA, the SLDC shall forthwith make a complete check and rectify the same.
- xvii. Wind and Solar Generators are required to declare Available Capacity (AvC) of their Generating Stations correctly, if any discrepancy in declaration of AvC is noticed by SLDC during the real time operation, the same shall be treated as Gaming and reported to the Commission.

**5. Metering and data collection:**

- i. In case of non-receipt of meter data through AMR System installed at SLDC, it shall be the responsibility of concerned licensee to ensure and arrange manual downloading of meter data and provide to SLDC on email id - [abtmpsem@gmail.com](mailto:abtmpsem@gmail.com) within 2 days from the date of intimation by SLDC. Discoms and STU shall nominate a nodal officer responsible for providing meter data to SLDC.
- ii. In Wind Generating Station where there is no separate pooling station and feeder is directly connected at Grid Substation, SEM installed at the metering yard on feeder before connecting with the grid shall be considered for computation of deviation charges of Wind Generating Stations.
- iii. In Solar Generating Station where there is no separate pooling station and feeder is directly connected at the Grid Substation, SEM installed at the Grid Substation shall be considered for computation of deviation charges of Solar Generating Stations.



**6. Computation of Deviation Charges:**

- a. SLDC shall compute the deviation charges of qualified Wind and Solar Pooling Stations, based on the forecast submitted by the QCA / Schedules issued by SLDC and SEM data received by SLDC from concerned Discoms / STU or through AMR System.
- b. The Deviation Charges Account shall be prepared on weekly basis coinciding with the mechanism followed for regional energy accounts. Till such time, the complete weekly ABT meter data is received through AMR System or manual data download by MRI, the SLDC shall prepare and issue Deviation Charges Account on monthly basis, which shall be allowed maximum upto 3 months from the date of the notification of these Regulations.
- c. SLDC shall publish the Deviation Charges Account of Wind and Solar Pooling Stations on SLDC website which shall be open to the respective entities for checking/ verification for a period of 15 days. In case of any discrepancy is pointed out by QCA, SLDC shall forthwith make a complete check and rectify the mistake and re-publish the Deviation Charges Account on SLDC website.
- d. In case Qualified Coordinating Agency (QCA) or Wind / Solar Generators do not furnish the available capacity and forecasted generation to SLDC, the Deviation Charges of such pooling stations shall be computed considering the available capacity and forecasted generation as Zero '0'.
- e. The computation of Deviation Charges of Wind and Solar Generators under taking Inter-State or Intra-State transactions shall be done in accordance with the provisions as outlined under following sub-clauses:
  - I. Wind/ Solar Generating Stations undertaking Inter-State transactions:**
    - (i) The Wind or Solar Generators which are state entities undertaking Inter-State transactions shall be paid as per schedule generation.
    - (ii) In the event of actual generation being lesser than the scheduled generation, the deviation charges for shortfall in generation shall be payable by such wind or solar generator which are state entities into State Deviation Pool Account as given in Table-I enclosed at the end of these

operating procedure.

- (iii) In the event of the actual generation being more than the scheduled generation, the Deviation Charges for excess generation shall be payable to the wind or solar generators from State Deviation Pool Account as given in Table-II enclosed at the end of these operating procedure.
- (iv) The Fixed Rate referred under Table-I and Table-II is the PPA rate as determined by the Commission under section 62 of the Electricity Act 2003 or adopted by the Commission under section 63 of the Electricity Act 2003. In case of multiple PPAs, the weighted average of the PPA rates shall be taken as the Fixed Rate. The wind and solar generators shall furnish the PPA rates on affidavit for the purpose of Deviation charge account preparation to SLDC supported by copy of the PPA.
- (v) Fixed Rate for Open Access participants selling power which is not accounted for RPO compliance of the buyer, and the captive wind or solar plants shall be the Average Power Purchase Cost (APPC) rate at the National level, as may be determined by the Central Commission from time to time through a separate order.
- (vi) Regarding inter-state wheeling transactions of Wind and Solar Generating stations as State Entities, for balancing of deemed renewable purchase obligation (RPO) compliance of buyers with respect to schedule, deviations by all wind and solar generators which are state entities shall first be netted off for the entire pool on a monthly basis and any remaining shortfall in renewable energy generation must be balanced through purchase of equivalent solar and non-solar Renewable Energy Certificates (RECs ), as the case may be, by SLDC or agency maintaining the pool account by utilizing funds from the Pool Account. For positive balance of renewable energy generation, equivalent notional RECs shall be credited to the DSM Pool and carried forward for settlement in future.

## **II. Wind/ Solar Generating Stations undertaking Intra-State transactions:**

- (i) The Wind and Solar Generator which are State Entities undertaking Intra State transactions shall be paid as per actual generation.
- (ii) In the event of actual generation of a generating station or a pooling

station, as the case may be, being less or more than the scheduled generation, the deviation charges for shortfall or excess generation shall be payable by the wind and solar generator or the QCA, as the case may be, to the State Deviation Pool Account, as given in Table - III or Table-IV enclosed at the end of these operating procedure.

- (iii) SLDC shall maintain separate records and account of time-block wise schedules, actual generation, deviations and deviation charges for all wind and solar generators.
- (iv) All Wind and Solar generators shall be treated together as a virtual pool within the State Deviation Pool Account. Deviations for and within this virtual pool could be settled first at the rates and methodology stipulated above for wind and solar generators.

**7. Settlement of Deviation Charges:**

- i. A statement of Charges for Deviations levied under MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018, shall be prepared by SLDC on monthly basis based on the implementation schedules and actual generation data recorded in SEM of Wind and Solar Pooling Stations. Within a period of three months from the date of notification of these Regulations, SLDC shall start the computation of Deviation Charges on weekly basis after receipt of complete meter data through AMR System,
- ii. All payments on account of Charges for Deviation levied under MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018 and interest, if any, received for late payment shall be credited to the funds called the "State Deviation Pool Account" which shall be maintained and operated by the State Load Despatch Centre (SLDC).  
Provided that -
  - (a) The Commission may by order direct any other entity to operate and maintain the respective "State Deviation Pool Account".
  - (b) Separate books of accounts shall be maintained for the principal component and interest component of Charges for Deviation by SLDC, as

the case may be.

All payments received in the "State Deviation Pool Account" shall be appropriated in the following sequence:

- (a) First towards any cost or expense or other charges incurred on recovery of Charges for deviation.
- (b) Next towards over dues or penal interest.
- (c) Next towards normal interest.
- (d) Lastly, towards charges for deviation.

Timelines for issuance & rectification of DSM Account and commercial settlement shall be as follows:

Sr. No.	Action	Responsibility	Timelines
1.	Publish DSM Account for the month on Website. The Account shall have day-wise, block-wise Deviation Charges, Schedule, Actual for each pooling station under QCA.	SLDC	15 <sup>th</sup> of the next month.
2.	File comments/ rectification requests.	QCA	Within 15 days from the date of publishing of the DSM Account on the website.
3.	Carry out rectification/ modifications of DSM account and convey the same through email/ on website.	SLDC	Within 10 days after receiving the rectification request from QCA.
4.	DSM Charges payable to Pool Account.	QCA	Within 10 days from the date of issue of DSM Account by SLDC.
5.	If payments against the Charges for Deviation are delayed by more than two days, i.e., beyond twelve (12) days from the date of issue of the statement by the SLDC, the defaulting QCA shall have to pay simple interest@ 0.04% for each day of delay.	QCA	In case the payment is not made even after a lapse of 60 days from date of issuance of DSM Account, process to invoke BG shall be initiated beside any other action as permissible under law / regulations.
6.	DSM Charges receivable from Pool Account.	SLDC or Agency maintaining the Pool Account.	Payment to QCA entitled to receive DSM Charges shall be made within 2 days of receipt of payments in the State Deviation Pool Account. Provided that -

		<p>a) In case of delay in the Payment of charges for Deviations into the State Deviation Pool Account and interest there on if any, beyond 12 days from the date of issue of the Statement of Charges for Deviations, the State Entities who have to receive payment for Deviation or interest thereon shall be paid from the balance available in the State Deviation Pool Account. In case the balance available is not sufficient to meet the payment to the State Entities, the payment from the State Deviation Pool Accounts shall be made on pro rata basis from the balance available in the Deviation Pool Account.</p> <p>b) The liability to pay interest for the delay in payments to the "State Deviation Pool Account" shall remain till interest is not paid; irrespective of the fact that constituents who have to receive payments, have been paid from the "State Deviation Pool Account" in part or full.</p>
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**8. Payment of Security towards Deviation Charges:**

QCA shall be required to submit to SLDC the following payment security in the form of a Bank Guarantee (BG) towards settlement of DSM charges of Wind and Solar Generating Stations with State Deviation Pool Account:

- (i) For Solar Generation- Rs.10,000/- per MW for installed capacity of Solar Generating Station.
- (ii) For Wind Generation – Rs. 40,000/- per MW for installed capacity of Wind Generating Station.
- (iii) The BG submitted shall be valid for a period of 3 years and issued by any

Nationalized Scheduled Bank branch situated in the State of Madhya Pradesh and shall be extended from time to time as required. The payment security shall be reviewed by the SLDC every year by the end of May based on actual incidence of DSM charges during the previous financial year.

- (iv) In case of failure to pay into the "State Deviation Pool Account" within the specified time of 12 days from the date of issue of statement of charges for Deviation and payment is not made even after lapse of 60 days from the date of issuance of DSM account, the SLDC shall encash the BG of the concerned QCA and the concerned QCA shall recoup the same within a period of one (1) month. However, after implementation of weekly statement by the SLDC, the recoupment period shall be reduced to 15 days.

**9. Compliance of SLDC Instructions:**

Notwithstanding anything specified in these procedures, the Wind / Solar Generators and QCA shall strictly follow the instructions issued by State Load Despatch Centre on injection in the interest of grid security and grid discipline.

**10. Event of default and consequences thereof:**

Following events shall constitute event of default by QCA /Generators:

- (a) Non-payment or delay in payment of Deviation Charges by QCA/Generators.
- (b) Non-compliance of any of the terms/conditions/rules outlined under this MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018.
- (c) Non-compliance of any of the directives issued by SLDC, so long as such directives are not inconsistent with any of the provisions of MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018 .
- (d) Obtained registration on the basis of false information or by suppressing material information.

**Consequences thereof:**

- (a) The SLDC shall provide 15 days time to the QCA/Generator to present its

case before serving the Notice for dis-connection from the grid.

- (b) In case QCA/Generator fails to address/rectify the default expressed by the SLDC in the Notice within stipulated time, the SLDC shall proceed with revocation of registration of QCA and/or disconnection of respective generator from grid.

#### 11. Removal of difficulties:

In case of any difficulty in implementation of this procedure, SLDC may approach the Commission for review or revision of the procedure with requisite details for removal of difficulties.

#### Schedule- : Deviation Charges for Wind/Solar Generating Stations

**Table - I: Deviation Charges in case of under injection by Wind/Solar Generating Stations as State Entities undertaking Inter-state transactions**

S.No.	Absolute Error in the 15 minute time block	Deviation charges payable to state for deviation from 100%
1.	$\leq 15\%$	At the Fixed Rate for the shortfall energy for absolute error upto 15%
2.	$>15\%$ but $\leq 25\%$	(At the Fixed Rate for the shortfall energy for absolute error upto 15%) + (110% of the Fixed Rate for balance energy beyond 15% and upto 25%)
3.	$>25\%$ but $\leq 35\%$	(At the Fixed Rate for the shortfall energy for absolute error upto 15%) + (110% of the Fixed Rate for balance energy beyond 15% and upto 25%) + (120% of the Fixed Rate for balance energy beyond 25% and upto 35%)
4.	$>35\%$	(At the Fixed Rate for the shortfall energy for absolute error upto 15%) + (110% of the Fixed Rate for balance energy beyond 15% and upto 25%) + (120% of the Fixed Rate for balance energy beyond 25% and upto 35%) + (130% of the Fixed Rate for balance energy beyond 35%)

**Table - II: Deviation Charges in case of over injection by Wind/Solar Generating Stations as State Entities undertaking Inter-state transactions**

Sl. No.	Deviation Charge (Percentage)	Deviation Charge (Rate/Formula)
1.	$\leq 15\%$	At the Fixed Rate for the excess energy upto 15%
2.	$>15\%$ but $\leq 25\%$	(At the Fixed Rate for the excess energy upto 15%) + (90% of the Fixed Rate for excess energy beyond 15% and upto 25%)
3.	$>25\%$ but $\leq 35\%$	(At the Fixed Rate for the excess energy upto 15%) + (90% of the Fixed Rate for excess energy beyond 15% and upto 25%) + (80% of the Fixed Rate for excess energy beyond 25% and upto 35%)
4.	$>35\%$	(At the Fixed Rate for the excess energy upto 15%) + (90% of the Fixed Rate for excess energy beyond 15% and upto 25%) + (80% of the Fixed Rate for excess energy beyond 25% and upto 35%) + (70% of the Fixed Rate for excess energy beyond 35%)

**Table - III: Deviation Charges in case of under-injection or over injection by Wind/Solar Generating Stations commissioned after date of Notification of these Regulations for sale of power within State**

Sl. No.	Deviation Charge (Percentage)	Deviation Charge (Rate/Formula)
1.	$\leq 10\%$	None
2.	$>10\%$ but $\leq 20\%$	(At the Rs 0.50 per unit for shortfall or excess energy for Absolute Error beyond 10% and upto 20%)
3.	$>20\%$ but $\leq 30\%$	(At the Rs 0.50 per unit for shortfall or excess energy for Absolute Error beyond 10% and upto 20%) + (At the Rs 1.00 per unit for balance energy beyond 20% and upto 30%)
4.	$>30\%$	(At the Rs 0.50 per unit for shortfall or excess energy for Absolute Error beyond 10% and upto 20%) + (At the Rs 1.00 per unit for shortfall or excess energy beyond 20% and upto 30%) + (At the Rs 1.50 per unit for balance energy beyond 30%)



**Table - IV: Deviation Charges in case of under-injection or over injection by Wind/Solar Generating Stations commissioned prior to date of Notification of these Regulations, for sale of power within State**

S.No.	Absolute Error in Energy Submitted (in %)	Deviation Charges payable to State Distribution Company (per unit)
1.	≤ 15%	None
2.	>15% but ≤25%	(At the Rs 0.50 per unit for shortfall or excess energy for Absolute Error beyond 15% and upto 25%)
3.	>25% but ≤35%	(At the Rs 0.50 per unit for shortfall or excess energy for Absolute Error beyond 15% and upto 25%) + (At the Rs 1.00 per unit for balance energy beyond 25% and upto 35%)
4.	>35%	(At the Rs 0.50 per unit for shortfall or excess energy for Absolute Error beyond 15% and upto 25%) + (At the Rs 1.00 per unit for shortfall or excess energy beyond 25% and upto 35%) + (At the Rs 1.50 per unit for balance energy beyond 35%)

**ANNEXURE-II****Consent Letter Proforma**

To,

The Chief Engineer,  
State Load Dispatch Centre,  
MPPTCL, Nayagaon,  
Jabalpur-482008.

**Sub:** Appointment of QCA as per MPERC (Forecasting, Scheduling, Deviation settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018 as amended from time to time.

Dear Sir,

I/We would like to inform you that I/we as the Wind/Solar power generator at (name) pooling station have decided to exclusively appoint .....as the Qualified Coordinating Agency (QCA) for Forecasting, Scheduling and Commercial Settlement, as per MPERC (Forecasting, Scheduling, Deviation settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018.

Kindly find below the details of our capacity at ..... (Name) pooling station having .... MW.

Sr. No.	Customer Name	No. of WTGs/ Panels	Contact Person	Mail ID & Contact No.	Capacity in MW
1	Name	Y	Name	Mail ID and contact No.	.....

I/We would like to state that henceforth the role of QCA at .... (Name) Pooling station will be taken care by.....

Contact Person 1.....

Address: .....

Phones (o)....., (M):..... (E-mail):.....

Contact Person 2:.....

(M):....., (E-mail).....

Contact Person 3:.....

(o):....., (Email):.....

This is for your kind information and records.

Regards,

&lt;&lt; Signing Authority Name &gt;&gt;

&lt;&lt; Signing Authority Designation &gt;&gt;

		Annexure III
<b>APPLICATION FOR REGISTRATION OF QUALIFIED COORDINATING AGENCY (QCA) WITH SLDC</b>		
Sr. No	Particulars	
1	Applied for - Tick the relevant	New Registration / Change of Registration / Cancel Registration
2	Name of the Qualified Coordinating Agency(QCA)	
3	Registered Address	
4	Phone No./Fax/E-mail Id of Office	
5	Phone No./Fax/E-mail Id of Control Room	
6	Nodal Officer / Contact Person - Name, Designation, Address, Mobile, Fax & Email.	
7	Pooling Station wise total Wind / Solar Generating Capacity for which QCA registration is required.	
8	Pooling Stations wise list of Generators alongwith Consent letter & Agreement with Generators is enclosed. The list includes - Pooling Station (Name & Address), Capacity in MW, Type, Voltage in KV, Grid Substation Name, Name of Generators connected with Capacity in MW).	
9	Date of Commencement of agreement between QCA and Generators.	
10	Period of agreement with Generators.	
11	Details of Registration Fee payable to SLDC (Mode / No / Date)	
12	Bank Account Details of QCA for handling DSM mechanism-	
(i)	Bank A/C No. -	
(ii)	Bank IFSC Code -	
(iii)	Name of Bank -	
(iv)	Bank Address -	
13	<b>Undertaking:</b>	
(i)	We hereby undertake to abide by the instructions issued by the SLDC for compliance of regulatory provisions of MPERC(Forecasting, Scheduling, Deviation Settlement Mechanism and related matters of Wind and Solar Generating Stations) Regulations 2018 and subsequent amendments thereof.	
(ii)	We also undertake to inform SLDC regarding termination / breach of the agreement if any and shall not discharge the QCA functions without valid authorisations by Generators.	
(iii)	We also agree to pay the registration fee as approved by MPERC from time to time.	
		Signature of the Authorised Officer

Name and Designation of Authorised Officer

**ANNEXURE-IV**

**UNDERTAKING TO BE GIVEN BY PROSPECTIVE QCA AT THE TIME OF**

**REGISTRATION**

Name: M/s..... (Name of QCA), ..... (Postal address)  
 .....

[To be provided by the QCA on a 100 Rs. stamp paper]

1. We, as a QCA shall be regulated by MPERC (Forecasting, Scheduling, Deviation Settlement and related matters of Solar and Wind Generating Stations) Regulations, 2018 and subsequent amendments thereof.
2. We as a QCA shall be responsible for settlement of Deviation Charges as per the MPERC regulations for the pooling stations/ RE Generators for which we represent as a QCA.
3. As per the MPERC Regulations, we as a QCA, agree to provide the forecasting schedules to SLDC on day-ahead basis on behalf of Wind and Solar pooling stations/RE Generator connected to STU /DISCOM substations.
4. We as a QCA agree to provide the consent letter from all the generators connected to the pooling station/ RE Generator for being appointed as the QCA.
5. We understand that we can revise the day ahead schedules for a maximum of ----- revisions as per the regulations.
6. We agree that if there is any deviation from the schedule, then for such Energy, Deviation charges shall be applicable as per the MPERC regulations as amended from time to time.
7. We shall be responsible for commercial settlements with the SLDC on behalf of wind and solar generators connected to the pooling station and RE generators.
8. We understand that SLDC will compute the Deviation charges of pooling stations as per MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters of Wind and Solar generating stations) Regulations, 2018 and publish the same on its website on a monthly basis.
9. We as QCA shall abide by MPERC (Forecasting, Scheduling, Deviation Settlement Mechanism and related matters for Wind and Solar Generating Stations) Regulation, 2018, as amended from time to time for all transactions.
10. We shall establish necessary SCADA data of the turbine / inverter and pooling station for the purpose of monitoring and billing as per procedure.
11. In the event of any fault in generating system resulting in lower generation then, we shall revise the forecast and the same shall be intimated to SLDC as per the procedure.

12. We agree to pay a Bank Guarantee for the amount equivalent to Rs.10,000/MW for solar generation and Rs.40,000/MW for wind generation for a period of three years.

13. We agree to provide WTG's/ Invertor wise static data and pooling stations details as per the formats specified by SLDC.

14. We agree, if payments against the Charges for Deviation Charges are delayed by more than two days i.e., beyond twelve (12) days from the date of issue of DSM account by SLDC, the defaulting QCA shall have to pay simple interest@ 0.04% for each day of delay. We further agree that in case the payment is not made by us even after a lapse of 60 days from issuance of DSM account, process to invoke BG shall be initiated by SLDC.

15. We are agreeing for the above terms and conditions for registering as QCA with SLDC, MPPTCL Jabalpur, Madhya Pradesh.

Details of Bank Guarantee is enclosed.

(Name and Postal address of QCA)

.....  
.....  
for Pooling station:

MPPTCL/DISCOM Substation Station:

Voltage level at injecting point:

List of generators connected to the pooling station along with installed capacity for which consent is obtained:

1.

2.

Declaration: All that is stated in the above is true and correct.

QCA Authorized Signatory

.....

**ANNEXURE-V****DECLARATION**

{Declaration to be signed by the M.D./CEO/Authorised Signatory of the Applicant (QCA)}

I/ We certify that all information furnished is / are true to the best of my/ our knowledge and belief.

I/We shall abide by such term and conditions that the MPERC, SLDC may impose to participate in the Forecasting, Scheduling and DSM for Solar & Wind Generation from time to time.

I/ We hereby also confirm that:

I/We have obtained consent from all the generators connected to the Pooling Stations as QCA and the copy of agreement is attached herewith.

S.No.	Name of Pooling Station	Name of Generator	No. of turbines / Inverters	Capacity of Each turbine/Inverter	Total Capacity	Accepted as QCA
1.						
2.						
Total capacity of Pooling Station						

**INDEMNIFICATION**

The Wind / Solar Energy generator and QCA shall keep SLDC indemnified at all times and shall undertake to indemnify, defend and save the SLDC harmless from any and all damages, losses, claims and actions, including those relating to injury to or death of any person or damages to property, demands, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the Registration of QCA under DSM Mechanism.

The Wind / Solar Energy generators and QCA shall keep SLDC indemnified at all times and shall undertake to indemnify, defend and save the SLDC harmless from any and all damages, losses, claims and actions, arising out of disputes with SLDC, as well as with generators and QCA inclusive of confidentiality issues.

Date:

**Signature of the QCA.**

**ANNEXURE-VI****GUIDELINES FOR PLANNING OF TELEMTRY AND VOICE COMUNICATION**

1. The DAS/RTU to be installed at the power stations/substations/pooling station should have IEC 60870-5-101or IEC 60870-5-104 protocol with interoperability matrix compatible with the SCADA system available at SLDC/Sub-LDC/backup SLDC.
2. The renewable generating Stations are required to arrange data channel upto nearest Control centre i.e. SLDC Jabalpur/Sub-LDC Indore/backup SLDC Bhopal or nearest wideband nodes. The existing wideband nodes are at 400KV S/s Bhopal,400KV S/s Indore,400KV S/s Bina,400KV S/s Nagda,400KV S/s Katni, 400KV SGTPS, 400KV Pithampur, 400KV Chegaon, 220KV S/s Ujjain, 220KV Itarsi, 220KV Damoh, 220KV S/s Jabalpur,220KV S/s Satna, 220KV Seoni, 220KV Barwaha, 220KV Neemuch, 220KV Ratlam, 220KV Shivpuri, 220KV Gwalior-2, 220KV Malanpur, 220KV Shujalpur, 220KV Rajgarh, 220KV Indore (SZ),132KV Waidhan.
3. The Renewable Generators are required to provide pooling station wise and turbine wise / inverter wise telemetry along with whether parameters. The turbine wise/inverter wise telemetry (active and reactive power) along with active and reactive power of all feeders upto 33KV connected at pooling station/control centre, active and reactive power of transformers, bus voltage, frequency and circuit breaker status of all feeders, transformers, bus couplers of your pooling station/control centre, SOE upto 132KV elements of pooling station where DAS /RTU is located shall be provided by RE Generator. Further, telemetry of whether parameters like wind speed of each wind turbine, irradiation parameters, temperature, humidity, etc shall also required to be provided by RE generators.
4. The renewable generating stations are required to arrange reliable data channel using either Power Line Carrier Communication (PLCC), OPGW Communication, dedicated point to point leased line, VSAT communication or combination of these. In case RE generator/developer/QCA opt for data channel using VSAT then they have to utilized shared VSAT infrastructure of service providers

available at SLDC/backup SLDC/Sub-LDC. Due to space constraint, separate VSAT infrastructure for individual generator/developer/QCA shall not be possible.

**It may please be noted that communication channel using GPRS/GSM is not found reliable and suitable by SLDC, MPPTCL and hence shall not be permitted for telemetry. Further, data channel using internet/ broadband internet shall also not permitted due to cyber security reasons.**

5. The measured mentioned above are required to be configured in RTU/DAS as IEC type detailed hereunder:-

S.No.	Data object	IEC Data type to be configured
1.	Breaker Status	M_DP_TA_1 (TYP04) i.e Double status with time tag.
2.	Analog Input (MW, MVAR, KV, HZ)	M_ME_NA_1 (Type09) or M_ME_NC (TYPE 13)

6. The other important IEC 870-5-101 parameter setting required to be made in your DAS/RTU are also given hereunder

Iec Max User Frame Length	255
Iec LL Addr Field Length	1 octet
Iec ASDU Addr Field length	1 octet
IEC Object Addr Field length	2 octet
IEC Transmission Field length	1 octet

7. The various protocol parameters is required to be configured as given hereunder:-

Type of power system data	Data unit type	Description as per IEC	Data polling method	Scan group	Class-x	Object address range
Analog values	ASDU-9 or ASDU-13	Measured value normalized or short float	Periodic group scan	Group-3	Class-2	3001-4001
Single Input digital status	ASDU-1	Single Point information without time tag	By exception (spontaneous) and on periodic group scan	Group-1	Class-1 after exception, class-1 after group scan	1-1000
Single Input digital status	ASDU-2	Single Point information with time tag	By exception (spontaneous)	Group-1	Class-1 after exception	1001-2000



Digital Inputs Double point	ASDU-3	Double point information	By exception (spontaneous)	Group-2	Class1 after exception	2001-3001
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8. The reliable data channel from DAS/RTU to nearest SLDC/Sub-LDC/wideband node (either PLCC or leased line) is required to be arranged by Your company. The data channel speed for IEC 60870-5-101 protocol may be worked out on the basis of Number of analog data as per details given hereunder:-

No. of Analog Data	Minimum Baud Rate
0 - 30	300
31 - 60	600
61 - above	1200

For IEC 60870-5-104 protocol data channel using OPGW/VAST/dedicated point to point leased line with Ethernet port at both the ends is required to be arranged. The IP address for RTU/Ethernet port shall be provided at the time of commissioning. Two Number FEP server IP address is to be configured in RTU for redundancy purpose.

Data is required to be updated at SLDC SCADA as and when it is changed at field. The data update rate from RTU at TSS to SLDC SCADA/EMS system for analog signal is required in less than 10 seconds and for status signal is required less than 4 second.

9. As these renewable generating stations are located at remote stations, outage of telemetry due to non availability of backup auxiliary power supply is also observed. Hence, in order to ensure round the clock availability of telemetry, it is also required that the telemetry system shall be commissioned with UPS and battery of sufficient capacity so that power backup for at least 10 hours is available.
10. Modem/other integration equipment like VSAT terminal/OPGW terminal equipment/ PLCC cabinets along with necessary wiring/cabling required for integration of telemetry of your plant at Sub-LDC/ SLDC shall also be arranged by the concerned renewable generating agency. In case of leased line/ VAST communication arrangement for renewable of leased charges is required to be

made by renewable generating stations. The data base preparation in SLDC/backup SLDC/Sub-LDC SCADA system shall be arranged by SLDC.

11. The renewable generating stations are advised to obtain approval of telemetry scheme as well as data IO list before commissioning of telemetry so that compatibility issue with SLDC SCADA/EMS system, if any may be avoided.
12. Ensuring round the clock availability of telemetry after its commissioning is of utmost importance and necessary arrangement for ensuring 100% availability after sub sequent commissioning of telemetry like arrangement of sufficient spares for data channel as well as data acquisition equipment, AMC with OEMS, availability of backup of all configuration files, wiring diagram etc. is required to be maintained and details of contact person responsible for maintenance of telemetry is required to be informed by each renewable generating stations to SLDC. In case of lack of response/ abnormal delay in restoration of telemetry SLDC shall initiate necessary action like suspension of energy accounting/disconnection of pooling station from grid/taking up the matter with MPPMCL for stopping energy payment.
13. In order to ensure round the clock availability, it is required to install RTU/ DAS/ MFM/ MODEMS of reputed make having type test certificate.

**ANNEXURE-VII****STATE LOAD DESPATCH CENTRE - JABALPUR**

AVAILABLE CAPACITY (AvC) AND FORECASTED GENERATION OF -- MW WIND / SOLAR POWER  
PROJECT OF M/s \_\_\_\_\_ AT POOLING STATION IN MW

FOR DATE:
REV. NO.
TIME
REMARKS

BLK NO.	FROM TIME	TO TIME	POOLING STATION NAME	
			AVAILABLE CAPACITY (AvC) IN MW	FORECASTED GENERATION IN MW
1	0:00	0:15		
2	0:15	0:30		
3	0:30	0:45		
4	0:45	1:00		
5	1:00	1:15		
6	1:15	1:30		
7	1:30	1:45		
8	1:45	2:00		
9	2:00	2:15		
10	2:15	2:30		
11	2:30	2:45		
12	2:45	3:00		
13	3:00	3:15		
14	3:15	3:30		
15	3:30	3:45		
16	3:45	4:00		
17	4:00	4:15		
18	4:15	4:30		
19	4:30	4:45		
20	4:45	5:00		
21	5:00	5:15		
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.	.	.		
90	22:15	22:30		
91	22:30	22:45		
92	22:45	23:00		
93	23:00	23:15		
94	23:15	23:30		
95	23:30	23:45		
96	23:45	24:00		