

BEFORE THE UTTAR PRADESH ELECTRICITY REGULATORY COMMISSION

Quorum

1. Shri Raj Pratap Singh, Chairman
2. Shri Kaushal Kishore Sharma, Member
3. Vinod Kumar Srivastava, Member

IN THE MATTER OF:

Sub : Approval of procedure regarding UPERC (Forecasting, Scheduling, Deviation Settlement and related matters of Solar and Wind Generation Sources) Regulations, 2018.

ORDER

The Commission issued UPERC (Forecasting, Scheduling, Deviation Settlement and related matters of Solar and Wind Generation Sources) Regulations, 2018 on 12.12.18. The aforesaid regulation provides that the UPSLDC shall prepare a procedure for Forecasting, Scheduling, Deviation Settlement of Solar and Wind Generation Sources and shall submit it for the approval of the Commission. UPSLDC submitted revised draft procedure on 8.11.2019.

UPERC issued Public Notice on 26.11.2019 inviting written suggestion/objection from all stakeholders/public on the draft procedure on or before 18.12.2019. Suggestion were received from various stakeholders / public. After due diligence and deliberations the Commission approved the procedure regarding UPERC (Forecasting, Scheduling, Deviation Settlement and related matters of Solar and Wind Generation Sources) Regulations, 2018 with some modifications as suggested by the stakeholders.



(Vinod Kumar Srivastava)
Member



(Kaushal Kishore Sharma)
Member



(Raj Pratap Singh)
Chairman

Dated: 18 03.2020



PROCEDURE FOR FORECASTING, SCHEDULING AND DEVIATION SETTLEMENT OF SOLAR AND WIND GENERATION SOURCES, 2019

1. This Procedure is framed in compliance of provisions of Uttar Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2018 (herein after referred as "the Regulations") and shall be called the Procedure for Forecasting, Scheduling and Deviation Settlement of Solar And Wind Generation Sources, 2020, (herein after referred as "the Procedure").
2. **THE ROLES AND RESPONSIBILITIES OF THE QUALIFIED COORDINATING AGENCY (QCA)**
 - (1) The QCA shall be a Company incorporated in India under the Companies Act 2013 as amended from time to time.
 - (2) QCA shall be treated as an intra-state entity for the purpose of the Uttar Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2018.
 - (3) The QCA shall have the capability to provide real time monitoring systems or equivalent systems for seamless flow of information to and from SLDC and RLDC in order to facilitate scheduling, revision of schedule, intimation of outages / grid constraints etc.
 - (4) The Qualified Coordinating Agency (QCA) shall act as coordinating Agency on behalf of wind and Solar generators connected to the Pooling Station.
 - (5) QCA shall be the single point of contact with the SLDC on behalf of its coordinated generator(s) connected to a pooling station to perform following functions:-
 - (a) Provide schedules with periodic revisions as per the Regulations on behalf of all the Wind/Solar Generators connected to the pooling station.
 - (b) Provide the actual generation (Generator wise) in MW (hourly) and MU for the previous day latest by 8 AM of current day.
 - (c) Responsible for coordination with STU/SLDC and other agencies for metering, data collection and its transmission and communication.
 - (d) Undertake commercial settlements on behalf of the generators, of such charges pertaining to generation deviations only including payments to the State pool account through the concerned SLDC.
 - (e) Undertake de-pooling of payments received on behalf of the generators from the State Pool account and settling them with the individual generators in accordance with these Regulations.



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- (f) Undertake commercial settlement of any other charges on behalf of the generators as may be mandated from time to time.
 - (g) Maintain records and accounts of the time- block schedules, the actual generation injected and the deviations, for the pooling Sub-Station and the individual Generators separately.
 - (h) All other ancillary and incidental matters.

Note :-

In case a new Solar/Wind Generator(s) are connected with a pooling station, the newly added generator(s) shall have to be included as member(s) of the existing QCA. In such condition, it will be responsibility of the QCA to take necessary step to intimate the changes to the SLDC. Charging code by SLDC in respect of new generator will be released after changes duly registered with SLDC.

- (6) The QCA shall establish a control center and a protocol for communication within the Pooling Station with its member Generator(s) to implement the instructions of system operator and SLDC. The QCA shall be responsible to communicate and provide the instructions of the system operator to the generators for the implementation of such directions and the generator shall be bound to implement such directions and instructions. The Control Centre shall have the facilities of voice communication along with fax with SLDC, internet connection available for all the 24 hours.
- (7) QCA shall be also responsible for declaration of Available Capacity of the Generating Station(s) to SLDC to which it is representing.
- (8) QCA should be equipped with generation forecasting tools. The QCA shall prepare aggregate day ahead & week ahead forecasting for each representing Pooling Station separately and shall provide the same to SLDC as per pre-notified time schedule. This forecast should be generator centric. The QCA will have the option to give schedule based on the forecast made by SLDC of solar/wind generation that is expected to be injected into the State Grid. In such a condition, the consequence of any error shall be borne by the QCA. SLDC shall not be responsible for the error.
- (9) Based on the forecasting, QCA shall submit schedule data as per Annexure -II, through EASS/Scheduling portal of SLDC.
- (10) Keep SLDC indemnified at all times and shall undertake to indemnify, defend and save the SLDC harmless from any and all damages, losses including commercial losses due to forecasting error, claims and actions including those relating to injury to or death of any person or damage 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 transactions undertaken by the Generators. The QCA shall submit

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the indemnity bond as per Annexure- IV on Non-Judicial Stamp Paper of value notified from time to time by the State Government at the time of registration.

3. Role of SLDC:

- (1) The SLDC shall be responsible for forecasting scheduling, communication and coordination with QCA. The SLDC shall undertake aggregate forecasting of solar/wind power expected to be injected into the state grid. Forecasting of the generation done by the SLDC shall be available on the website of the SLDC.
- (2) The forecast by SLDC shall be done with the objective of ensuring safe and secure grid operation by planning for the requisite balancing resources.
- (3) The SLDC shall provide access to the EASS/ scheduling portal along with login id and password for use of QCA for following purpose :-
 - (a) Uploading of day ahead and Week ahead Generation forecasts
 - (b) Uploading of revisions in schedules
 - (c) Communication of Grid Constraints and curtailment if any.
 - (d) Mechanism for monitoring deviations in Scheduled & Actual generation along with commercial impact and acquisition of Meter reading.
 - (e) Any other data as communicated by SLDC
- (4) The SLDC shall be responsible for processing the interface meter data and computing the net injections by each QCA, and accordingly prepare pooling station-wise DSM account.
- (5) The SLDC shall prepare pooling station wise monthly energy accounts and maintain separate records and account of time block wise schedules, actual generation and deviations and failure/error in data provided by QCA.
- (6) The SLDC shall open and maintain a separate account which shall be called "State Deviation Settlement Account for Wind and Solar Generations" for receipts and payments on account of deviations by Wind and Solar Energy Generators.

4. ROLE AND RESPONSIBILITIES OF THE GENERATOR

- (1) The Solar / Wind generating plant(s) whose power is already being scheduled by the SLDC under the Regulations shall have to appoint the respective QCA and the QCA shall be registered with SLDC as per these procedure within the prescribed time frame failing which SLDC shall have the right to not to schedule the power of such generating plant(s).



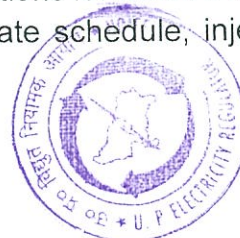
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- (2) The Generators in the Pooling Sub-Station shall appoint QCA and give consent for registration of QCA at SLDC.
 - (3) All the Generators shall save and store the block-wise generators injection data or any other data as desired by SLDC for three years and shall provide the same within (7) days through their QCA from the date of demand from SLDC.

5. PROCEDURE FOR REGISTRATION OF QCA WITH SLDC

- (1) The application for Registration of QCA for each pooling station shall be submitted to the SLDC as per Annexure- IV (Registration Form) in accordance with the provisions of the Regulations along with following:
 - a. The applicant shall pay one-time Registration Fees as per UPERC (Fees & Charges of State Load Despatch Center and other related matters) Regulations, 2020 as amended from time to time.
 - b. Non-Refundable application processing fees of Rs. 10,000/- plus applicable taxes payable in the account as stipulated by SLDC for each pooling station.
 - c. Consent letters from all the generators connected to the respective pooling station as per the Performa consent letter attached as Annexure- V
 - d. Irrevocable Bank guarantee or Fixed Deposit Receipt/Term Deposit Receipt for payment security issued by any Scheduled Bank as specified in the procedure for each pooling station separately.
 - e. Submit the details as per Annexure- I, attached along with the Procedure for each pooling station.
 - f. An undertaking to comply the UPERC Regulations and its procedure on Non-Judicial Stamp Paper of value notified by the State Government from time to time as per Annexure-VI.
 - g. Any other charges like SLDC Annual Fee etc or documents as specified by SLDC or by the Commission from time to time.

Provided that the QCA which has been registered with SLDC for one pooling station shall not be liable to pay Registration fee as stipulated in clause 5(1)(a) above again for operation of any other pooling station.

- (2) QCA can operate for one or more pooling stations for which it has registered. However, the QCA shall maintain and provide separate schedule, injection and accounts for each Pooling station.



- 3) The QCA shall intimate the SLDC of any change(s) in governance structure of QCA or in pool of generators or any other changes.

Provided that, the QCA shall pay applicable differential bank guarantee on account of any addition in respect of quantum in MW as per clause 7.1 above and 13 of this Procedure.

- (4) SLDC shall acknowledge the receipt of the application and after scrutinizing the application shall intimate about the deficiencies if any to the applicant within 7 working days from the date of receipt of the application.

Provided that if the application is complete in all respect, SLDC shall register the applicant as QCA and intimate the same to the applicant in 7 working days.

- (5) The applicant shall remove the defects as intimated by the SLDC and shall re-submit the details within seven (7) working days from the receipt of intimation.
- (6) SLDC after receiving the complete application in all respect and after removal of all defects by the QCA, shall process the application and register the QCA within 7 working days.
- (7) After completion of the registration, QCA may be allowed to schedule power for its constituent generators/pooling stations for which the necessary access to EASS/ scheduling portal along with login ID and password shall be provided by SLDC for forecasting and scheduling of RE generator for Day ahead as well as intraday revisions. The same shall be used by the QCA / RE Generator to know their relevant data of scheduling and energy accounting.

6. DE-REGISTRATION OF QUALIFIED CO-ORDINATING AGENCY

- (1) The QCA if wish to deregister himself shall make a request in writing three (3) months in advance to SLDC for de-registration along with the consent of the generator(s), with a copy of intimation to the buyer(s). However, in such cases, it shall be the responsibility of the QCA and generator(s) to settle all commercial obligations between themselves and with SLDC.

Provided that the generator(s) shall be responsible for appointing new QCA and ensure registration of new QCA at SLDC within this notice period, failing which generation shall not be scheduled.

- (2) SLDC may also initiate the process of de-registration in case of default conditions mentioned in the Procedure after giving an reasonable opportunity of being heard.



7. Metering, Data collection and data Communication:

- (1) Interface Energy Meters - ABT Compliant, AMR, compatible with UPSLDC energy accounting software EASS. Interface meters shall be installed by the State Transmission Utility as per CEA Metering Regulations, 2006 and amendments thereof for energy metering.
- (2) On the basis of real time actual generation data of interface meters (MRI/AMR) and the forecast/schedule provided by the QCA, SLDC shall prepare the DSM account. Automated meter reading (AMR) system shall be preferably used for communicating interface meter data with SLDC.
- (3) QCA shall provide data telemetry at the turbine/inverter level to the SLDC and shall ensure the correctness of the real-time data and undertake the corrective actions, if required. Frequency of real-time data updating shall be 4 second or such other frequency as SLDC may require. Further, turbine/inverter outage plan shall also be forwarded to the SLDC. The proforma for data telemetry requirement for Solar and wind Generators is enclosed at Annexure III(a) and III(b).
- (4) Authorized representative of the STU shall forward monthly meter readings (MRI Data) to the SLDC within 10 days after completion of each month i.e. by 10th day of the next month of the previous month for energy accounting purpose.

8. Available Capacity (AvC):

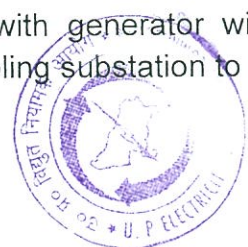
- (1) It is mandatory for a QCA to declare the block wise AvC for its each pooling station(s) on behalf of its generators. The AvC shall be declared each day latest by 10 AM on day ahead basis and can be revised during the submission of day ahead or intra-day schedules.
- (2) The Available capacity (AvC) for a wind generating plant shall be applicable for the entire 24 hours in a day. Whereas considering the availability of solar radiation only during the day, the AvC for a solar generating plant shall be applicable only between 05:00 AM to 07:30 PM.
Provided that the available capacity of Plant having mixed capacity of wind and solar generation shall be applicable pro-rata basis.

9. SCHEDULING AND DESPATCH

- (1) The QCA shall provide forecasting (along with generator wise breakup) for the wind/solar generating Plants connected to pooling substation to SLDC.

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- 2) QCA shall submit schedules for inter-state and intra-state transaction separately. In case of electrical separation not being possible, then a combined schedule of inter and intra-state transaction with bifurcated inter and intra-state schedule shall be allowed to be submitted.
- (3) The schedule of QCA for each of its pooling station(s) may be revised giving advance notice to the SLDC, as the case may be. Such revisions shall be effective from 4th time block, the first being the time-block in which notice was given. There may be one revision for each time slot of one and half hours starting from 00:00 hours of a particular day subject to maximum of 16 revisions during the day for wind Generators and a maximum of 8 revisions during the day for solar generators.
- (4) Revision in schedules of QCA for each of its pooling station(s) for selling power through collective transactions shall not be allowed.
- (5) Day ahead schedules shall be required to be communicated to SLDC up to 10:00 AM of the preceding day in the proforma at Annexure-II, Format-A of Regulations. However intra-day revisions are required to be communicated to SLDC in the proforma at Annexure-II, Format-B of Regulations.
- (6) The schedules of QCA for its each pooling stations shall be updated through online scheduling portal of SLDC (EASS) which shall be accessible to QCA through login credentials. After logging-in, the QCA shall be able to transfer schedules of its pooling station which it is representing and the revisions shall also be transferred.
- (7) The forecasting, scheduling, metering, energy accounting and deviation charges shall be applicable as per the Regulations, as amended from time to time.
- (8) In the event of contingencies, transmission constraints, congestion in the network, threat to system security, the transactions of QCA for its pooling station(s), already scheduled by SLDC, may be curtailed as per provisions of UPERC Grid Code for ensuring secure and reliable system operation.
- (9) QCA should maintain the Implemented AvC & Schedule of individual generator along with summation of the AvC & Schedule of all pool members and shall provide to SLDC as and when required by SLDC for maintaining historical data and analysis of RE generators at State level on monthly basis.

10. DEVIATION SETTLEMENT AND ENERGY ACCOUNTING:

1. The weighted average of the "Fixed rate" of the generators of QCA shall be considered as "Fixed rate" of QCA for computation of deviation settlement.

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2. The Fixed rates shall be submitted by the generator(s)/ QCA on an affidavit on Non Judicial Stamp paper of value notified by the State Government from time to time duly signed by the authorized signatory of generator(s)/ QCA along with the copy of all the PPAs.
 3. The SLDC shall compute the absolute error for each Pooling Sub-Station/QCA and shall compute the deviation charges accordingly and prepare energy account.
 4. Any transaction of interstate along with intra state transaction of Solar/Wind Power plants /QCA of concerned plants/QCA will be covered or regulated as per provisions of CERC DSM Regulations 2014 and amendments thereof.

11. Payment security:

- a) The RE (solar and wind) QCA shall submit the payment security as following :-
 - i. Solar QCA : Rs 10,000/- per MW
 - ii. Wind QCA : Rs 20,000/- per MW
- b) The mode of 'Payment Security' shall be either single or multiple Bank Guarantee (Format to be provided by SLDC), FDR/TDR of scheduled Bank, in favour of SLDC or officer so notified by SLDC.
- c) Payment security shall be maintained by QCA initially for 03 years and shall be rolled over/extended for fresh term as directed by the SLDC
- d) The validity of the payment security shall be extended at the instruction of SLDC.
- e) The payment security shall be released by SLDC within 06 months of full and final.
- f) account settlement of QCA after its closure of the respective pooling station.

12. Curtailment Event:

- (1) In case planned curtailment/ shutdown/ system constraint necessitated in certain time blocks of a day by the SLDC, QCA shall be responsible to regulate the generation at site as per the advice of the SLDC and accordingly the QCA shall revise the schedule failing which the SLDC shall revise the Schedule as required and that will be binding on QCA.



13. Procedure for Commercial Settlement;

(1) Timelines for commercial settlement shall be as follows:

S No.	Action	Responsibility	Timeline
1	Publish DSM statement for the month on its website. This statement shall have detailed calculations of deviation for each pooling station/capacity under each QCA	SLDC	10th of the next month
2	File comments/rectification requests	QCA	Within 15 days from the publishing of the statement on the website
3	Carry out rectification/modification and finalization of DSM account and convey the same through Email/on website	SLDC	Within 15 days after receiving the rectification request as per (2) above
4	Make DSM payment	QCA	Within 10 working days from the finalization of the DSM account and billing.
5	If the payments against the Charges for Deviation are delayed beyond ten (10) working days from the date of issue of final DSM account and billing by SLDC, the defaulting QCA shall have to pay simple interest @ 1.25% per month.	QCA	
6	In case the payment is not made even after a lapse of 60 days from the issuance of final DSM account, SLDC shall initiate the process to invoke payment security to the extend of the pending payment subject to any other	SLDC	



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	action as permissible under law/Regulations.		
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14. Application of Losses and Charges:

Transmission charges and losses for State Transmission Network shall be applicable as determined by the Commission from time to time.

15. SLDC Fee & Charges and other charges:

SLDC fee and charges including scheduling and operating charges shall be payable by QCA or RE (Solar and Wind) Generator, as the case may be, as specified in the Uttar Pradesh Electricity Regulatory Commission (Procedure, Terms & Conditions for payment of Fee and charges to State Load Despatch Centre and other related provisions) Regulation, 2004 as amended from time to time.

16. Event of breach of procedure/regulation and consequences thereof:

(1) Following events shall constitute breach by QCA/Generators

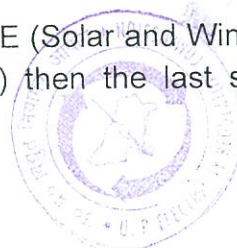
- a) Non-payment or delay in payment of Deviation Charges.
- b) Non-compliance of any of the terms/conditions/rules outlined under the Procedure and regulation.
- c) Non-compliance of any of the directives issued by SLDC, so long as such directives are not inconsistent with any of the provisions of Uttar Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2018.
- d) Obtaining registration on the basis of false information or by suppressing material information.
- e) Non Payment of SLDC Fee & Charges including scheduling and operating charges within stipulated period.
- f) RE (Solar and Wind) Generator or QCA fails to provide day ahead schedules for continuously for 10 days.

17. Consequences for Event of default

(1) If day ahead schedule is not provided by the RE (Solar and Wind) Generator/QCA upto prescribed time (default as per 16 (f) above) then the last schedule for those non

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submission days shall be considered as the schedule for that day and DSM charges shall be computed accordingly.

- (2) If QCA fails to provide the information to SLDC regarding any changes as provided in the Annexure -1 within 10 working days of that change, the SLDC shall give a notice to QCA to provide the information within 15 days failing which SLDC may initiate the de-registration process.
- (3) If QCA breaches any of event as stipulated at clause 16(1) of these Procedures, without prejudice to other actions as may be taken by SLDC, SLDC shall issue a show cause notice. In case QCA fails to address/rectify the breach expressed by the SLDC in the Notice within stipulated time, the SLDC may proceed with de-registration of QCA after providing reasonable opportunity to QCA/Generator to present its case before SLDC.

Provided that in case of non payment or delay in payment of any of the charges, the SLDC shall first take action to invoke payment security as per table under clause 8 before starting the process of de-registration of QCA.


(Vinod Kumar Srivastava)
Member


(Kaushal Kishore Sharma)
Member


(Raj Pratap Singh)
Chairman

Place: Lucknow

Dated: 18/03.2020



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Annexure-I

Details of QCA and Wind/Solar generating stations connected to Pooling Station to be submitted by QCA/Individual generator (if connected to other sub-station)	
Source:	Wind/Solar
Copy of Agreement between QCA and the generators connected to Pooling Station	
Total Installed Capacity of the generators connected to the Pooling Station	
Total Number of Units with details	
Physical location/address of Pooling Station	
Physical location/address of all Generating Stations	
Address of QCA Registered office	
QCA address for correspondence	
Whether any PPA has been signed:(Y/N)	If yes, then attach details
Connectivity Details	Location(name of substation)/Voltage Level
Metering Details with sealing certificate	Meter No. 1. Main 2. Check 3. Standby
Connectivity Diagram	(Please Enclose)
Static data	As per attached sheet
Contact person details of the QCA	Name : Designation : Number: Landline Number, Mobile Number, Fax Number E- Mail Address :
Contact Details of the Alternate Person	Name : Designation : Number: Landline Number, Mobile Number, Fax Number E- Mail Address :

Data to be submitted by the QCA for each RE (Solar & Wind) Generator

For Wind turbine generating plants

S.No	Particulars	
1.	Type	
2.	Manufacturer	
3.	Make	
4.	Model	
5.	Capacity	
6.	Commissioned date	
7.	Hub height	
8.	Total height	
9.	RPM range	
10.	Rated wind speed	
11.	Performance Parameter	
a)	Rated electrical power at Rated wind speed	
b)	Cut in speed	
c)	Cut out Speed	
d)	Survival speed (Max wind speed)	
e)	Ambient temperature for out of operation	
f)	Ambient temperature for in operation	
g)	Survival temperature	

12.	Low Voltage Ride Through (LVRT) setting	
13.	High Voltage Ride Through (HVRT) setting	
14.	Lightning strength (KA & in coulombs)	
15.	Noise power level (db)	
16.	Rotor	
a)	Hub type	
b)	Rotor diameter	
c)	Number of blades	
d)	Area swept by blades	
e)	Rated rotational speed	
f)	Rotational Direction	
g)	Coning angle	
h)	Tilting angle	
i)	Design tip speed ration	
17.	Blade	
a)	Length	
b)	Diameter	
c)	Material	
d)	Twist angle	
18.	Generator	

a)	Generator type	
b)	Generator no of poles	
c)	Generator speed	
d)	Winding type	
e)	Rated Gen. Voltage	
f)	Rated Gen. frequency	
g)	Generator current	
h)	Rated Temperature of generator	
i)	Generator cooling	
j)	Generator power factor	
k)	KW/MW @ Rated Wind Speed	
l)	KW/MW @ peak continuous	
m)	Frequency Converter	
n)	Filter generator side	
o)	Filter grid side	
19.	Transformer	
a)	Transformer capacity	
b)	Transformer cooling type	
c)	Voltage	
d)	Winding configuration	

20.	Weight	
a)	Rotor weight	
b)	Nacelle weight	
c)	Tower weight	
21.	Over Speed Protection	
22.	Design Life	
23.	Design Standard	
a)	Latitude	
b)	Longitude	
c)	COD Details	
d)	Past Generation History from the COD to the date on which DAS facility provided at UPSLDC/RLDC, if applicable	
e)	Height above mean sea level	

For Solar generating Plants

Static data points:

- 1) Latitude
- 2) Longitude
- 3) Turbine Power Curve (In case of Solar Thermal based Plants)
- 4) Elevation and orientation angles of arrays or concentrators (In case of Solar Thermal based Plants)
- 5) The generation capacity of the Generating Facility
- 6) Height above mean sea level etc.
- 7) COD details
- 8) Rated voltage
- 9) Details of Type of Mounting: (Tracking Technology If used, single axis or dual axis, auto or manual)
- 10) Manufacturer and Model (of Important Components, Such as Turbine, Concentrators, Inverter, Cable, PV Module, Transformer, Cables)
- 11) DC installed Capacity
- 12) Module Cell Technology
- 13) I-V Characteristic of the Module
- 14) Inverter Rating at different temperature
- 15) Inverter Efficiency Curve
- 16) Transformer Capacity & Rating, evacuation voltage, distance from injection point

Annexure-II

FORMAT : A (to be submitted a day in advance)

Date of submission:

Forecast applicable for date:

Forecast and Schedule Data to be submitted by QCA

15 Min time block	Time	Installed Capacity (MW)	Day Ahead Availability (MW)
1	00:00 - 00:15		
2	00:15 - 00:30		
3	00:30 - 00:45		
4	00:45 - 01:00		
-			
-			
-			
94			
95			
96			

Note : The forecast should ideally factor in forecasting errors. As such schedule should ordinarily be same as forecast.

FORMAT : B (to be submitted on the day of actual generation, revision of availability and schedule, if any, shall be done as per provisions of the relevant Regulations.

Date:

Revision No.:

15 Min time block	Time	Current schedule (MW)	Revised Schedule (MW)
1	00:00 - 00:15		
2	00:15 - 00:30		
3	00:30 - 00:45		
4	00:45 - 01:00		
-			
-			
-			
94			
95			
96			

Real-time Data Telemetry requirement (Suggested List)

Wind turbine generating plants

- 1) Turbine Generation (MW and MVAR)
- 2) Wind Speed (meter/second)
- 3) Generator Status (on/off line)- this is required for calculation of availability of the WTG
- 4) Wind Direction (degree from true north)
- 5) Bus Voltage (Volt) and fq
- 6) Ambient air temperature (°C)
- 7) Barometric pressure (Pascal)
- 8) Relative humidity (in percent)
- 9) Air Density(kg/m³)

For Solar generating Plants

- 1) Solar Generation unit/ Inverter-wise (MW and MVAR)
- 2) Voltage and fq at interconnection point
- 3) Generator/Inverter Status (on/off-line)
- 4) Global horizontal irradiance (GHI)- Watt per meter square
- 5) Ambient temperature (°C)
- 6) Diffuse Irradiance - Watt per meter square
- 7) Direct Irradiance - Watt per meter square
- 8) Sun-rise and sunset timings
- 9) Cloud cover- (Okta)
- 10) Rainfall (mm)(Today from 00 hrs and last 24 hrs)
- 11) Relative humidity (%)
- 12) Performance Ratio-

Mode & Protocol of Communication for exchange of information and data between the QCA and SLDC

1. IEC- 60870-5-101

Analog: Short Floating Point Values (ASDU Type ID-13)

Digital: Double Point status with full time tag ASDU Address 31 for CB and Single Point Status with time ASDU -30 For Isolators

SOE : 7 Octect

IOA Size :3 Byte

ASDU Size -1Byte

Link Address size - 1 Byte

2. IEC -60870-5-104

Analog: Short Floating Point Values (ASDU Type ID-13)

Digital: Double Point status with full time tag ASDU Address 31 CB and Single Point Status with time ASDU -30 For Isolators

SOE :7 Octect

IOA Size :3 Byte

ASDU Size -2 Byte

Link Address size - 0 Byte

Annexure-IV

Tel :
Fax :
Email :

State Load Dispatch Centre
Uttar Pradesh Power Transmission Corporation Limited

Registration Form

Tick relevant box

<input type="checkbox"/>	New Registration	<input type="checkbox"/>	Change of registration	<input type="checkbox"/>	Cancel registration
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Tick relevant box

<input type="checkbox"/>	Wind Generation	<input type="checkbox"/>	Solar Generation
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1	Name of the Entity	
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2	Primary business (brief description)	
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3	Business address	
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Phone	Mobile	Fax	Email	Website

4	Postal address	
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5	Contact person name & designation	
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Phone	Mobile	Fax	Email

6	Name of Directors	Position	Mobile	Email
a				
b				

7	Financial details
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8	Pooling station details			
Pooling station Name and address	Total Installed capacity	Injecting Transmission Grid Sub Station details	Voltage Class	Type (Wind/Solar)
Agreement & consent letters from the legal Owners of WTGs. (Enclose Copies)				

9	Details of BG/Security deposit	Solar	MW capacity	Amount (Rs)
		Wind	MW capacity	Amount (Rs)

10	Bank account Details of QCA for handling DSM mechanism	A/C No.		
		IFSC Code		
		Name of the bank		
		Address		

Authorized Signature
Name And official seal

(For QCA)

Enclosures:

- 1 Certified copies of Agreement/ Agreements Between QCA and each Solar/Wind Power Plant which are coming through pooling substation.
- 2 QCA/Individual Solar & Wind Power Plants's Authorised Signatory declaration.
- 3 Consent letter from Solar/Wind Generator about appointing QCA.
- 4 Undertaking to be given by Prospective QCA at the time of Registration.
- 5 Certified copies of Power Purchase Agreement between solar & wind power plants and beneficiaries.
- 6 Certified copies of Connectivity Agreement between Solar & Wind Power Plants and STU along with Certified Copy Single line diagram of each Solar & wind power Plants with clearly showing the interface meter location along with CT & PT location on emanating feeder from plant to STU substations. Also Certified copy of Single line diagram of transmission substation. In case of pooling generating station interface meters configuration should be in compliance of para7.1(A) of CEA (Installation and operation of meters) Regulation2006 & amendments thereof, should also be commissioned by STU/Discom for connecting bus each pooling generator/member to common bus and work as standby Interface meter.
- 7 Certified copies of Long term Access Approvals for Each Solar & Wind Power Plants & each beneficiaries and STU in compliance of UPERC Terms and Conditions for Open Access Regulations and its Amendment.
- 8 Certified copies of Sealing Certificates of Interface meters for Plant end as well as Trans/Discom. substation end
- 9 Monthly MRI Data of each interface meters should be uploaded to EASS server of SLDC by Transmission licensee (declaration to be given by QCA)
- 10 UPSLDC Annual fee shall be submitted for long term intra state open access transactions as per para 8 of UPERC Terms and Conditions for Open Access Regulations, 2005 and amendments time to time. (declaration to be given by QCA)
- 11 Clearance for Protection System of elements from Testing & Commissioning Unit of transmission licensee and clearance from Electrical Safety Department.
- 12 Availability of Real Time DATA to sub LDC/SLDC as per Connectivity regulation of CERC & UPERC and CEA Standard (Certified by SE (SCADA & IT) Unit Gomti Nagar ,Lucknow (declaration to be given by QCA)
- 13 Long term PPA customers to submit the basic details of entity on the following link-
<http://www.eass.upsldc.org/eass/REPreRegistration.jsp> (Only for Long Term Customers which are covered under CRE regulation of UPERC).
- 14 Other documents which are necessary require for Schedule, dispatch & Energy Accounting along with DSM billing.

DECLARATION

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

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

I/We shall abide by such terms and conditions that the UPERC, SLDC may impose to participate in the DSM for Solar & Wind 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 Agreement is attached.

S.No	Name of IPP	No. of turbines/ Inverters	Capacity of Each turbine/ Inverter	Total Capacity of IPP	Accepted as QCA
			Total Capacity of PS		

INDEMNIFICATION

The Renewable Energy (Solar/Wind) 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 damage to property, demands, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligation by or to third parties, arising out of or resulting from the Registration of QCA under DSM Mechanism.

The Renewable Energy (Solar/Wind) 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, arising out of disputes with SLDC, as well as with generators and QCA inclusive of confidentially issues.

Date :

Signature of the QCA
Name
Designation
Seal

Performa Consent Letter

To,

Date:

Director
State Load Despatch Centre,
Vibhuti Khand-2, Gomti Nagar
Lucknow-226010

Sub: Appointment of QCA as per Uttar Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2018.

Respected Sir,

I would like to inform you that we as the Wind/Solar power generator at (name) pooling station have decided to exclusively appoint only as the Qualified Coordinating Agency (QCA) for Forecasting, Scheduling and Commercial Settlement, as per Uttar Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2018.

Kindly find below the details of our generating capacity at(name) pooling station havingMW.

S.No	Customer Name	No of Panels	Contact Person	Mail ID & Contact No.	Capacity in MW
1	Name	Y	Name	Maid Id and contact no.	

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 :

(E-mail) :

Forecast Operations Desk details:

(O) :, (E-mail) :

This is for your kind information and records.

Regards,

<<Signing Authority Name>>

<<Signing Authority Designation>>

<<Seal>>

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

Name: M//s (Name of QCA),

(Postal address)

(To be provided by the QCA on a stamp paper)

- 1) We, as a QCA will be regulated by Uttar Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2018 on Wind and Solar from time to time.
- 2) The Deviation Settlement charges shall be as per the UPERC guidelines for which we as QCA will be responsible for the pooling station/RE (Solar/Wind) generator for which we represent as a QCA.
- 3) As per the UPERC Regulations, we as a QCA, agree to provide the forecasting schedules to SLDC on day-ahead basis upto prescribed time on behalf of Wind and Solar pooling station/RE (Solar/Wind) Generator connected to STU.
- 4) We as QCA agree to provide the authorization letter from all the generators connected to the pooling station/RE (Solar/Wind) Generator for being appointed as the QCA.
- 5) We understand that we can revise the day ahead schedules for a maximum of 16 revisions during the day for wind generators and a maximum of 8 revisions during the day for solar generators as per the regulations.
- 6) We agree that if there is any deviation from the schedule, then for such energy, Deviation charges will be applicable as per the regulations and as amended from time to time.
- 7) We shall be responsible for commercial settlements with SLDC on behalf of wind and solar generators under our control connected to the pooling station and RE (Solar/Wind) generators.
- 8) We understand that SLDC will compute the comprehensive Deviation charges and raise bills for the deviation on a monthly basis.
- 9) DSM Account shall be prepared as per Uttar Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2018.
- 10) We as QCA will abide by Uttar Pradesh Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2018 as amended time to time for all transactions.
- 11) We shall establish and ensure continuous availability of necessary SCADA data of the interface point and also other points turbine/plant data as per requirement of SLDC for the purpose of monitoring and billing as per procedure.
- 12) In the event of any fault in generating system or any other reason resulting in lower generation then, we will revise the schedule and the same shall be intimated to SLDC as per the procedure.

- 13) We agree to pay a Bank Guarantee for the amount equivalent to Rs. 10,000/MW for solar generation and Rs. 20,000/MW for wind generation.
- 14) We agree to provide WTG's/ Inverter's static data and pooling station details as per the formats specified by SLDC.
- 15) We agree, if payments against the Charges for Deviation Charges are delayed by more than ten days from the issue of the accounts and billing by the SLDC, failing which QCA shall have to pay simple interest @ 1.25% per month in addition and in case the payment is not made even after a lapse of 60 days from issuance of final DSM account, process to invoke BG may be initiated by SLDC.

We agree to the above terms and condition for registering as /QCA with SLDC, UPPTCL, Uttar Pradesh

Details of enclosed Bank Guarantee

(Name and Postal address of QCA with seal)

For Pooling station :

Name of Injecting Transmission Grid Station :

Voltage level at injection point :

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

1.

2.

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

QCA

Authorised Signatory

Name:

Designation and seal:

**GUIDELINES FOR PROVIDING TELEMETRY DATA AND COMMUNICATION
SYSTEM AT SLDC, LUCKNOW**

The following guidelines shall be adopted by QCA for applying for Grid connectivity to provide telemetry data and communication system to SLDC, Lucknow.

DOCUMENTS TO BE FURNISHED WHILE APPLYING:

- a) Single line Diagram of pooling station and of all generating stations and connecting STU grid station
- b) Block diagram indicating information flow with brief details of each element

INFORMATION TO BE PROVIDED AT ACTUAL PORT:

(Data to be provided through two independent communication channels on real time basis)

- a) Meter readings:
 - 1) Power flow (Both active and reactive)
 - 2) Voltage (Bus)
 - 3) Frequency (Bus)
- b) Status of Circuit Breaker
- c) Status of Isolator (Optional)

Sample Deviation settlement bill format**Draft Deviation Settlement Bill Format**

Uttar Pradesh State Load Despatch Centre- Energy Operation

U.P. Power Corporation Ltd.

(Email: seaa@upslcdc.org)

Name of Injecting Entity: "Name of Solar/ Wind Power station/ QCA"

Deviation charges payable (for inter and intra-state transactions) / receivable (for inter-state transactions) on daily basis by "Name of Solar/ Wind Power station/ QCA" to DSM pool Account.

A. Monthly Summary of Intra-state DSM

Date	Available Capacity (Kwh)	Sch. (Kwh)	Actual (kwh)	Deviation (Kwh)	Deviation/ Absolute Error (%)	DSM charges as per Absolute Error (15%-25%) (Rs.)	DSM charges as per Absolute Error (25-35%) (Rs.)	DSM charges as per Absolute Error (>35%) (Rs.)	Total DSM Charges (Rs.)
	A	B	C	D= (C-B)	E= (D/A)*100	F	G	H	I= (F+G+H)
01-Jan-2019									
31-Jan-2019									
Total									

B. Monthly Summary of Inter-state DSM

Date	Sch. (KwH)	Actual (kWh)	Deviation (KwH)	Deviation (%)	Deviation / Absolute Error (%)	Deviation Charges for Deviation (Rs.)	Additional Charges for Deviation (Rs.)	Total Charges for Deviation (Rs.)	Nos. of Violations	Charges for Violations (Rs.)	Total Charges (Rs.)
	A	B	C	D= (C-B)	E= (D/S)*100	F	G	H= (F+G)	I	J	K= H+J
01-Jan-2019											
-											
-											
-											
31-Jan-2019											
Total											

C. Summary of Penalty due to mis- declaration of Available Capacity for the previous Month

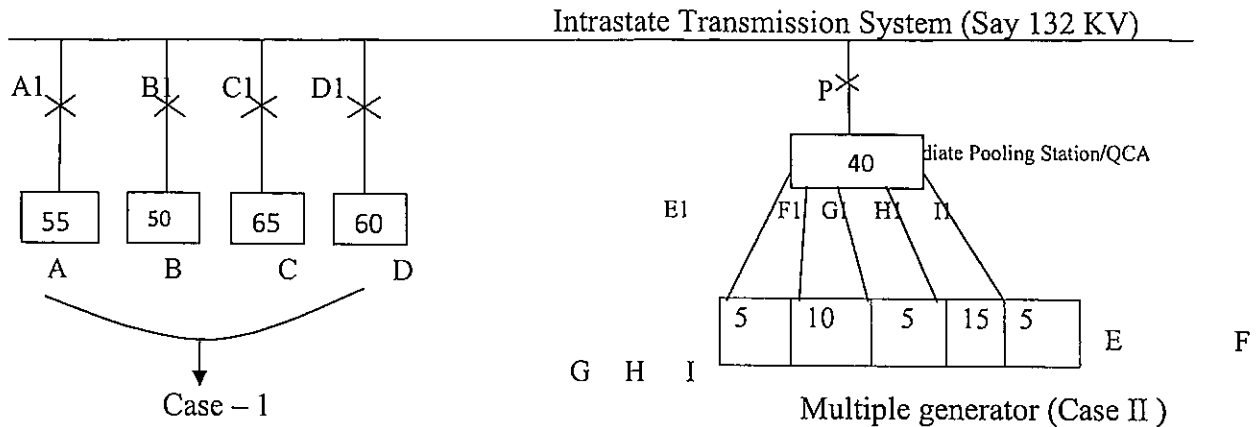
Date	Nos of Blocks for which mis-declaration was observed	Total DSM charges for the corresponding blocks (Rs.)	Penalty (Rs.)
	A	B	C= (3*B)
01-Jan-2019			
-			
-			
-			
31-Jan-2019			
Total			

Note:

- 1.The intra-state and inter-state DSM is calculated as per provisions of UPERC (Forecasting, Scheduling and Deviation Settlement) Regulation, 2018 and CERC Regulation 2014.
2. Late Payment Surcharge (LPS) shall be applicable as per provisions of UPERC (Forecasting, Scheduling and Deviation Settlement) Regulation, 2018.

The guidelines for energy and deviation and accounting of Solar and Wind energy transactions under the State energy accounting framework, with illustrative examples

Case 1- 5MW and above



Case-I

Generator(s)/QCA having capacity of 50 MW or above connected directly to the point A1, B1, C1 & D1 respectively at state grid. At the interface point A1, B1, C1 & D1, scheduling, deviation and accounting will be done by SLDC and each generator(s) can be QCA.

Case -II (Separate Generator(s)/Entities)

Let multiple generator(s) aggregating to 40 MW (5 Nos Multiple Generator(s) (as separate generator(s)/stations entities), be connected to intermediate pooling stations.

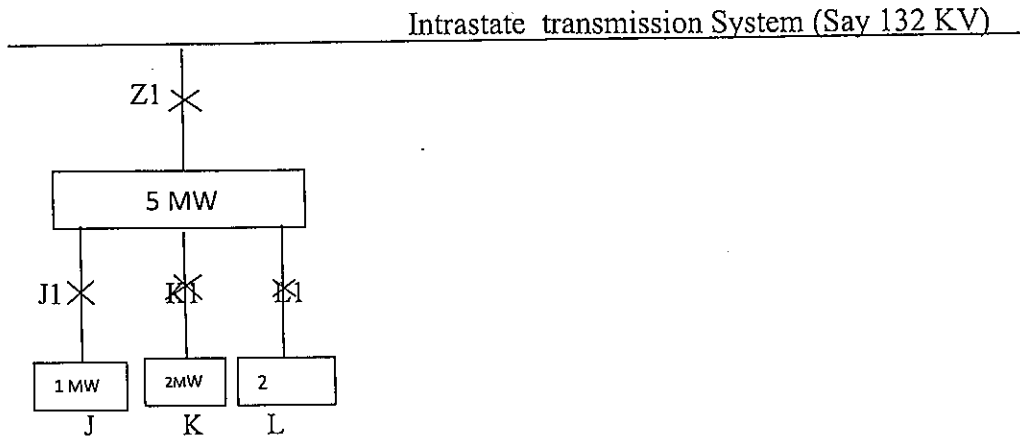
In this case, solar generating station may be developed single or multiple generator(s). Here we have considered as multiple generator(s) namely E, F, G, H & I, the generator(s) are connected to interface point E1, F1, G1, H1 & I1 and thereby connected to state grid to P point.

In such a case : Scheduling, deviation and accounting for these generator(s) need to be segregated at point E1, F1, G1, H1 & I1 and scheduling shall be done at these points. But in case the intermediate pooling station is acting as QCA then scheduling, deviation and accounting shall be done at point P.

Contd.

Case-III

There may be case where multiple generator(s) less than 5 MW (<5MW) capacity are connected to the intermediate pooling stations as under:



Let us consider, multiple generator(s) (say) 3 Nos (J,K,L) each having capacity less than 5 MW but collectively having an aggregate installed capacity of 5 MW or more. All these generator(s) are connected to state grid at point Z1.

Scheduling and forecasting for the generator(s) J,K,L shall be done at point Z1. In this case, SLDC shall schedule at point Z1. The QCA shall provide aggregated schedule to SLDC at Z1. Further the QCA shall do segregation of schedules and other operational and commercial activities for generator(s) J,K,L at points J1,K1,L1, at his level.