

Annexure-I

Tel :

State Load Dispatch Centre

Email : de.re2@ttransco.in Transmission Corporation of Telangana Limited

QCA REGISTRATION FORM

(TSERC Regulation No: 3 of 2018)

Tick relevant box

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

<input checked="" type="checkbox"/>	Solar registration		Wind registration	
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1	Name of the <u>entity</u>	
2	Primary business (brief description)	
3	Business address	

Phone	Mobile	Fax	Email	Website

4	Postal <u>address</u>	
5	Contact person & <u>designation</u>	
Phone	Mobile	Fax

6	Postal <u>address</u>	
7	Alternate contact person & <u>designation</u>	
Phone	Mobile	Fax

8	Name of Directors	Position	Mobile	Email
A				
B				

9 Financial details**10. The Pooling station represented with which it is connected**

Pooling station name and address	Total installed capacity	TSTRANSCO/DISCOM injecting grid sub station	Voltage level	Type (solar / wind)
Agreements & appointing letters from the legal owners of solar / wind generators (enclose Copies)				

11	Details of BG / security deposit of generators	Name of the <u>solar</u> generator	Capacity in MW	Amount
		1.		
		2.		
		3.		
		4.		
11	Details of BG / security deposit of generators	Name of the <u>wind</u> generator	Capacity in MW	Amount
		1.		

12	Bank account details of generators for handling DSM mechanism	Name of the generator	Name of the bank, A/C No., & IFSC Code	Bank Address
		1.		
		2.		
		4.		

Authorized Signature and
Official Seal of QCA

DECLARATION BY THE QCA

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

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

I / We shall abide by such terms and conditions that the TSERC, TSTRANSCO, SLDC may impose to participate in the deviation settlement mechanism (DSM) for solar & wind from time to time.

I / We hereby also confirm that:

I / We have entered an agreement with 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 turbines / inverters	Total capacity of IPP	Accepted as QCA (Yes or No)
			Total capacity of pooling station (PS)		

INDEMNIFICATION

The renewable energy generator and QCA shall keep the SLDC indemnified at all times and shall undertake to indemnify, defend and protect the SLDC and keep it harmless from any and all damages, losses, claims and actions, including those relating to injury to or death of any person or damage to any property, demands, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or against third parties, arising out of or resulting from the registration of QCA under DSM

The renewable energy generator and QCA shall keep SLDC indemnified at all times and shall undertake to indemnify, defend and protect the SLDC and

keep it 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 with stamp

**PROFORMA CONSENT LETTER OF GENERATORS APPOINTING QUALIFIED
COORDINATING AGENCY**

To

Date: Chief Engineer,
State Load Dispatch Centre,
TSTRANSCO,
Vidyut Soudha, Hyderabad.

Sub: Appointment of QCA as per TSERC (Forecasting, Scheduling, Deviation
settlement and related matters for Solar and Wind Generation sources)
Regulation No. 3 of 2018.

Respected Sir,

We would like to inform you that, we as the solar / wind power generator at the (name) pooling station have decided to exclusively appoint _____ only as the Qualified Coordinating Agency (QCA) for forecasting, scheduling and commercial settlement, as per TSERC (Forecasting, Scheduling, Deviation settlement and related matters for Solar and Wind Generation Sources) Regulation No. 3 of 2018 (regulation).

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

Sl. No.	Generator name	No. of panels	Contact person name	Mail ID & contact No.	Capacity in MW
1				-	

We would like to state that henceforth the role of QCA the _____ (name) pooling station will be taken care by _____

Contact Person 1 : _____

Address : _____

Phones (O) : _____, (M) : _____
,

(E-mail): _____

Contact Person 2 : _____

Address : _____

Phones (O) : _____, (M) : _____

, (E-mail): _____

Contact Person 3 : _____

Address : _____

Phones (O) : _____, (M) : _____,

(E-mail): _____

Forecast Operations Desk: _____

(O): _____, (E-mail): _____

This is for your kind information and records.

Regards,

1) <<Signing Authority Name>>
<<Signing Authority Designation>>

2)

3)

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

Name: M/s. _____ :
(Postal Address) _____

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

1. M/s. _____ being an entity selected / appointed / nominated by the generator(s) as a QCA will be regulated by TSERC (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2018 (regulation) on wind and solar as amended from time to time.
2. The deviation settlement charges shall be as per the TSERC guidelines for which the above named entity as QCA will be responsible for the pooling station(s) / RE generator for which it represents as a QCA.
3. As per the regulations, the above named entity we as a QCA, agrees to provide the forecasting schedules to SLDC on day-ahead basis on behalf of wind and / or solar pooling station(s) / RE generator connected to STU / DISCOM.
4. The above named entity as QCA agrees to provide the authorization letter from all the generator(s) connected to the pooling station(s) / RE generator to act as the QCA.
5. The above named entity understands that it can revise the day ahead schedules for a maximum of 16 times for wind and 9 times for solar generation as per the regulations.
6. The above named entity agrees that if there is any deviation from the schedule, then for such energy, deviation charges will be applicable as per the regulation as amended from time to time.
7. The above named entity shall be responsible for commercial settlement(s) with the SLDC on behalf of wind and solar generators under its control connected to the pooling station
8. The above named entity understands 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 the regulations for solar_and wind generation stations.
10. The above named entity as QCA will abide by regulations, issued by the Commission and as amended from time to time for all transactions.
11. The above named entity shall establish necessary SCADA centre of the inter face point and other turbine / plant data for the purpose of monitoring and billing as per procedure as laid down in the regulation and such other guidelines as may be issued by the competent authority.
12. In the event of any fault in generating system resulting in lower generation then, the above named entity will revise the schedule and the same shall be intimated to SLDC as per the procedure set out in the regulation or guidelines as the case may be.
13. The above named entity agrees to pay bank guarantees of the generators, for the amount equivalent to Rs. 33,750 / MW for solar generator and Rs. 67,500 / MW for wind generator.
14. The above named entity agrees to provide wind turbine generator (WTG's) / inverter's static data and pooling stations details as per the formats specified by SLDC.
15. The above named entity agrees to facilitate the payment of simple interest at the rate of 0.04% per day for each day of delay in the event the payment is made beyond 12 days from the issue of the invoice along with final DSM account by SLDC and in case the payment is not made even after a lapse of 60 days from issuance of the invoice, SLDC shall not despatch such generation and corresponding bank guarantee will be invoked.
16. The above named entity is agreeing for the above terms and conditions for registering as QCA with SLDC, TSTRANSCO, Telangana.

Details of bank guarantees that is enclosed

(Name and postal address of QCA)

For pooling station:

TSTRANSCO /DISCOM injecting 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 the details stated here in above are true to the best of the knowledge and based on record according to the authorised signatory from the above named entity and no information is suppressed or falsified contrary to record for this purpose.

QCA Authorized Signator

Annexure - V

Technical Specifications, Static & Real time Data of Solar Plant

1	Name of the Solar Plant	
2	Physical Location of the Solar Plant	
a	Survey No.	
b	Village	
c	Mandal	
d	District	
3	Corresponding Address of the Solar Plant	
a	Land line No.	
b	Mobile No	
c	Fax No	
d	E Mail Id	
4	Contact details of Nodal Person :	
a	Name	
b	Designation	
c	Land line No.	
d	Mobile No	
e	Fax No	
f	E Mail Id	
5	Contact details of alternate Nodal Person :	
a	Name	
b	Designation	
c	Land line No.	
d	Mobile No	
e	Fax No	
f	E Mail Id	
6	Total Installed Capacity of Solar Plant	
7	Date of Commissioning (Enclose Synchronisation Certificate)	
8	Solar PV Modules (Enclose CEIG approval with Annexure)	
a	Capacity of each module(Wp)	
b	Total No. Of modules	
c	Total Capacity of Modules(DC Capacity in Wp)	
d	Voltage of each Module	
e	Module Cell technology(Thin film/Polycrystelene etc)	
f	Make of Module	
g	IV Characteristic of the Module	
h	(Enclose the Tuv Certificate regarding confirmation of IEC Standards)	

i	Azimuth angle of PV entity in degrees with 0 degrees defined as south and going clockwise	
j	Tilt angle (in Degree)	
9	Inverters (Enclose CEIG approval with Annexure)	
a	Total No. Of Inverters	
b	Sl. No. of Inverters	
c	No. of Modules, Capacity of each module & total capacity of modules connected to each Inverter (Split up figures in tabular form)	
c	Capacity & Voltage of each Inverter (at Different temperature)	
d	Total Capacity of Inverters (AC Capacity)	
e	Inverter I/P Voltage(DC)	
f	Inverter O/P Voltage(AC)	
g	Make of Inverters	
h	Inverter efficiency curve	
i	(Enclose Test Reports including LVRT features)	
10	Inverter Transformer	
a	No of Inverter Transformers	
b	Sl.Nos of Inverter Transformers	/ KV
c	No. of inverters connected to each transformer	
d	Capacity of each Tr(MVA)	
e	Total Capacity of the Inverter Trs(MVA)	
f	Input Voltage(KV)	
g	Out put Voltage(KV)	
h	Make of Inverter Trs	
11	Connected TRANSCO/DISCOM Substataion	
a	Name of the SS:	
b	Voltage rating of SS	/ KV
c	Solar Plant Connected voltage level	
d	Length of the line from Plant to SS(KM)	
e	No of Ckts from Plant to SS	
f	Type of Conductor Used	
12	Pooling Station (if applicable)	
a	Name of the pooling Station	
b	Voltage rating of SS	/ KV
c	No. of feeders from Solar plants to Pooling Station	
d	Voltage level of each Feeder	
e	Total rating in MVA of Pooling Station	
f	No. of out going feeders from Pooling Station to TRANSCO/DISCOM SS	
g	Voltage level of outgoing Feeder	

13	GPS Coordinates of Solar Plant: 4 Corners	
	1st Corner Latitude	_____ ° _____ ' _____ "N
		Longitude _____ ° _____ ' _____ " E
	2nd Corner Latitude	_____ ° _____ ' _____ "N
		Longitude _____ ° _____ ' _____ " E
	3rd Corner Latitude	_____ ° _____ ' _____ "N
		Longitude _____ ° _____ ' _____ " E
	4th Corner Latitude	_____ ° _____ ' _____ "N
		Longitude _____ ° _____ ' _____ " E
14	GPS coordinates of Solar Plant(Center):	
		Latitude _____ ° _____ ' _____ "N
		Longitude _____ ° _____ ' _____ " E
15	Distance above mean sea level etc.	
16	Enclose Power Curve	
17	Details of Type of Mounting: (Tracking or fixed)	
	If tracking (Azimuth,Tilt or both)	
a	If Azimuth (Starting angle of Azimuth from south, as 0 degrees taken as south and going clockwise)	_____ ° _____ ' _____ "
	Ending Angle of Azimuth	_____ ° _____ ' _____ "
b	If tilting (starting angle of tilt)	_____ ° _____ ' _____ "
	Ending Angle of tilt	_____ ° _____ ' _____ "
c	If both (Starting & Ending angles of Azimuth and tilt)	
18	Meter Details at TRANSCO/DISCOM SS	
	1. Main Meter	
	Sl No.	
	Make of the Meter	
	Multiplication Factor	
	2. Check Meter	
	Sl No.	
	Make of the Meter	
	Multiplication Factor	
19	Meter Details at Pooling SS	
	1. Main Meter	
	Sl No.	
	Make of the Meter	
	Multiplication Factor	
	2. Check Meter	
	Sl No.	
	Make of the Meter	
	Multiplication Factor	

20	Meter Details at Solar Plant(if Mixed feeder)	
	1. Main Meter	
	Sl No.	
	Make of the Meter	
	Multiplication Factor	
	2. Check Meter	
	Sl No.	
	Make of the Meter	
	Multiplication Factor	
21	Real-time Data Telemetry requirement	
1	Voltage at interconnection point (Volt)	
2	Solar Generation unit/ Inverter-wise (MW and MVAR)	
3	Generator/Inverter Status (on/off-line)	
4	Module Temperature(o C)	
5	Ambient temperature (o C)	
6	Global horizontal irradiance (GHI)- Watt per meter square	
7	Diffuse Irradiance- Watt per meter square	
8	Direct Irradiance- Watt per meter square	
9	Sun-rise and sunset timings	
10	Cloud cover-(Okta)	
11	Rainfall (mm)	
12	Relative humidity (%)	
13	Plane Of Array (POA)	
14	Performance Ratio	

Annexure-VI

Static data of Wind Turbine Generators

I Plant Details			
1	Name of the Power Plant		
2	Capacity in MW		
	No of WTGs		
	Capacity of each WTG		
3	Commissioned date (Enclose COD Certificate)		
4	Developer details		
	Name of the Developer		
	Address for Correspondence		
	Ph no		
	Fax No		
	E-mail ID		
5	Contact Details of the Nodal-Person		
	Name		
	Designation		
	Ph no		
	E-mail ID		
6	Contact Details of the Alternate Nodal Person		
	Name		
	Designation		
	Mobile Number		
	Fax Number		
	E - Mail Address		
7	Capacity Approval from NREDCAP/TSREDCO / GoTS to set up		
8	Connectivity permission from STU/Discom		
9	Total Evacuation / Connectivity permission Accorded(Attach Copy)		
10	Details of the pooling Station (PS)		
	Name of the pooling station		
	GPS coordinates		
	Capacity		
	Voltage Level		
11	Connected Grid SS		
	GPS coordinates		
12	Lines from PS to Grid SS		
	Voltage Level		
	No of Ckts		
	Length		
	conductor used		
	Site Responsibility Schedule		
13	ABT Meters		
	Main		
	Check		
	Stand By		
14	SVC/STATCOM		
II	Individual Generators details		
		WTG1	WTG2
1	Name of the Generator:		
a	WTG Location No	Village	
		Mandal	
		District	
b	GPS Co-ordinates	Latitude	
		Longitude	
c	Contact Person name:	Address	
		Ph no	
		Fax No	
		E-mail ID	

d	Contact Alternate Person name:		
	Address		
	Ph no		
	Fax No		
	E-mail ID		
e	connected Line from the WTG to PS		
	Voltage Level		
	Conductor used		
	No of Lines		
	Name of the Line if any		
	Indicate the WTGs connected to each line		
III	Wind Turbine Generator		
a	Type		
b	Manufacturer		
c	Year of Mfg.		
d	Make		
e	Model		
f	SI No		
g	Capacity in MW		
h	Generator no of poles		
i	Generator speed		
j	Winding type		
k	Rated Gen. Voltage		
l	Rated Gen. frequency		
m	Generator current		
n	Rated Temperature of generator		
o	Generator cooling		
p	Generator power factor		
q	KW/MW @ Rated Wind speed		
r	KW/MW @ peak continuous		
s	Frequency Converter		
t	Filter generator side		
u	Filter grid side		
IV	Details of Rotor		
a	Rotor type		
b	Rotor diameter		
c	Number of blades		
d	Area swept by blades		
e	Hub type		
f	Hub height (mt)		
g	Coning angle		
h	Tilting angle		
i	Design tip speed ratio		
j	Rated rotational speed		
k	Rotational Direction		
V	Details of Blade		
a	Length (mt)		
b	Diameter		
c	Material		
d	Twist angle		
VI	Details of Transformer		
a	Transformer type		
b	Transformer capacity		
c	Transformer cooling type		
d	Voltage		
e	Winding configuration		

VII Performance Parameters	
1	Total height in M
2	RPM range
3	Rated wind speed m/s
4	Performance Parameter
5	Rated electrical power at Rated wind speed
6	Cut in speed
7	Cut out Speed
8	Survival speed (Max wind speed)
9	Ambient temperature for out of operation
10	Ambient temperature for in operation
11	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	Stall/Pitch control
17	Rotor weight
18	Nacelle weight
19	Tower weight
20	Over speed Protection
21	Design Life
22	Design Standard
23	Latitude
24	Longitude
25	Distance above mean sea level
VIII COD Details	
	Past Generation History from the COD to the date on which DAS facility provided at SLDC, if applicable
IX Generator Protection LVRT	
1	LVRT Availability (LVRT Feature available/LVRT Not Possible/LVRT feature available to be enabled/LVRT Design supported but to be fitted/LVRT feature to be retrofitted)
2	LVRT Settings as per CEA Regulation
3	LVRT Setting adopted(Enclose Test Certificate)
X Generator Test Certificates	
Approved Test Reports	
1	Type test certificated
2	FAT certificates
3	Precommissioning test certificates
4	Test reports of Harmonic Current Injection
5	Test reports of DC current Injection
6	Test reports of Flicker
XI CEA connectivity Regulation Provisions	
1	Test Certificate regarding capability of Generator supplying reactive power Support to maintain power factor within the limits of 0.95 lagging to 0.95 leading.
2	Test Certificate regarding capability of Generator delivering rated output in the frequency range of 49.5 Hz to *50.5 Hz

* This is subject to modification by the competent authorities including CERC / CEA

Developer/Generator

Annexure- VIII

Format for Solar Forecast

Annexure- IX

Format for Wind Forecast