



## **TAMIL NADU ELECTRICITY REGULATORY COMMISSION**

4<sup>th</sup> Floor, SIDCO Corporate Office building, Thiru.Vi.Ka Industrial Estate,  
Guindy, Chennai - 600 032.

Phone Nos : ++91-044-2953 5806 / 2953 5816 Fax : ++91-044-2953 5893

Email: [tnerc@nic.in](mailto:tnerc@nic.in)

Website: [www.tnerc.gov.in](http://www.tnerc.gov.in)

(Comments/suggestions are invited on or before 10-10-2023)

### **DRAFT TAMIL NADU ELECTRICITY REGULATORY COMMISSION (FORECASTING, SCHEDULING AND DEVIATION SETTLEMENT AND RELATED MATTERS FOR WIND AND SOLAR GENERATION) REGULATIONS, 2023**

The following draft of the Tamil Nadu Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for wind and solar generation) Regulations, 2023 duly repealing the existing 2019 Regulations which is proposed to be issued in exercise of the powers conferred by Sections 86(1) and 181(2)(zp) read with Sections 32 and 33 of the Electricity Act, 2003 (Central Act 36 of 2003) and all other powers enabling it in this behalf is hereby published for information of all persons likely to be affected thereby, as required under subsection (3) of section 181 of the Electricity Act, 2003.

2. Notice is hereby given that the draft Regulations will be taken into consideration after the expiry of thirty days from the date of publication of this notification in the TNERC website and that any objection or suggestion, which may be received from any person before the expiry of the aforesaid period, will be considered by the Commission.

3. Objection or suggestion, if any, should be addressed in duplicate to the Secretary, Tamil Nadu Electricity Regulatory Commission, 4<sup>th</sup> floor, SIDCO Corporate Office Building, Thiru-Vi-Ka Industrial Estate, Guindy, Chennai – 600 032.

## REGULATIONS

### 1. Short Title, Commencement and Extent

1.1 These Regulations may be called the "Tamil Nadu Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Wind and Solar Generation) Regulations, 2023".

1.2 These Regulations shall come into force from the date of publication in the Tamil Nadu Government Gazette:

### 2. Definitions

2.1 In these Regulations, unless the context otherwise requires,

(a) "**Absolute Error**" means the difference between the actual generation injected and the scheduled generation of Wind or Solar Energy Generators in relation to their scheduled generation in each time block, and may be computed in percentage terms by applying the following formula:

$$\text{Absolute Error (\%)} = 100 \times \frac{[\text{Actual Generation} - \text{Scheduled Generation}]}{\text{Scheduled Generation}}$$

Provided that when the scheduled generation is zero and if there is actual generation in a particular 15 minutes block by the wind/solar generator(s), only 70% of the actual generation will be considered as scheduled generation;

(b) "**Act**" means the Electricity Act, 2003 (36 of 2003), as amended from time to time;

(c) "**Actual Drawal**" in a time block means the electricity drawn by a Procurer, as measured by the interface meters;

(d) **“Actual Injection/Generation”** in a time block means the electricity generated and injected into the Grid by a Generator(s), as measured by the interface meters;

(e) **“Available Capacity” (or “AvC”)** of Wind or Solar Energy Generators means the cumulative capacity rating of the Wind turbines or Solar inverters that are capable of generating power in a given time block;

(f) **“Central Commission”** means the Central Electricity Regulatory Commission constituted under sub-section (1) of Section 76 of the Act,2003;

(g) **“Collective transactions”** shall have the same meaning as in the Indian Electricity Grid Code specified by the Central Electricity Regulatory Commission;

(h) **“Commission”** means the Tamil Nadu Electricity Regulatory Commission constituted under sub-section(1) of Section 82 of the Act,2003;

(i) **“De-Pooling”** means the disaggregation and apportionment of the deviations and the applicable charges among the Generators at a Pooling Sub-Station;

(j) **“Deviation”** in a time block means the difference between the actual injection of energy and scheduled generation;

(k) **“Forecasting”** means the projection of likely future electricity generation based on scientific analysis of meteorological data and other relevant parameters;

(l) **“Gaming”** in relation to these regulations, shall mean an intentional mis-declaration of scheduled generation by any generator/QCA in order to make an undue commercial gain through Charges for Deviation.

(m) "**Grid Code**" means the State Grid Code specified by the Commission under Section 86(1) (h) of the Act;

(n) "**Indian Electricity Grid Code (or IEGC)**" means the Grid Code specified by the Central Electricity Regulatory Commission under Section 79(1)(h) of the Act;

(o) "**Interface Meter**" means interface meters as defined by the Central Electricity Authority under the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006, as amended from time to time;

(p) "**Inter-connection point**" means the interface point of a generation facility with the transmission or distribution system, in relation to a Wind or Solar Energy facility, and shall mean the line isolator on the incoming feeder on the Low Voltage (LV) side of the Pooling sub-station, for the purposes of these Regulations;

(q) "**Pooling Sub-Station**" means a sub-station consisting of a step-up transformer and associated switchgear to the Low Voltage (LV) side of which several Wind or Solar Energy Generators are connected:

Provided that, where a Generating Unit is connected through a common or an individual feeder terminating at a Sub-Station of a Distribution Licensee, or the State Transmission Utility, such Sub-Station shall be treated as the Pooling Sub-Station for such Wind or Solar Energy Generator for the purposes of these Regulations;

(r) "**Procurer**" means a person, including a Distribution Licensee, Trading Licensee or an Open Access consumer, procuring electricity through a transaction scheduled in accordance with the Regulations governing Open Access;

(s) "**Qualified Co-ordinating Agency (or QCA)**" means the agency appointed by the Wind or Solar Energy Generators connected to a Pooling Sub-Station, or by an

individual Generator connected directly to a sub-station or a single agency appointed by the majority of the Wind or Solar Energy Generators in the State, to perform the functions and discharge the obligations specified in these Regulations;

(t) "**Scheduled Generation**" for a time block or other time period, means the Schedule of generation in MW or MWh ex-bus provided by the State Load Despatch Centre;

(u) "**Scheduled Drawal**" for a time block or other time period means the Schedule of drawal in MW or MWh ex-bus provided by the State Load Despatch Centre;

(v) "**State Deviation Pool Account (Wind and Solar)**" means the State Account for receipts and payments on account of deviations by Wind and Solar Energy Generators;

(w) "**State Deviation Pool Account (DSM)**" means the State Account maintained by the State Load Despatch Centre for receipts and payments on account of deviations by buyers and sellers;

(x) "**State Entity**" means such person who is in the SLDC control area and whose metering and energy accounting is done at the State level;

(y) "**State Load Despatch Centre (or "SLDC")**" means the Load Despatch Centre of Tamil Nadu established under Section 31(1) of the Act and responsible for coordinating the scheduling of the State Entities in accordance with the provisions of the State Grid Code;

(z) "**Time block**" means a period of 15 minutes or any such shorter duration as may be notified by Central Commission and State Commission for which specified electrical parameters and quantities are recorded by a energy meter, with the first time block starting at 00.00 hrs., or such other period as the Commission may stipulate.

Words or expressions used and not defined in these Regulations shall have the meaning assigned to them in the Act, or the Rules or other Regulations framed there under.

## **PART A – GENERAL**

### **3. Objective**

3.1. These Regulations are intended to facilitate Grid integration of Wind and Solar energy generated in Tamil Nadu while maintaining Grid stability and security as envisaged under the State Grid Code and the Act, through forecasting, scheduling and a mechanism for the settlement of deviations by such Generators.

3.2. In order to maintain system security, stability and reliability, the SLDC shall take into consideration the forecasts of Wind and Solar generation for Week-Ahead, Day-Ahead and Intra-Day operations and scheduling, and longer term forecasts for its planning.

3.3. The SLDC shall make use of the flexibility provided by conventional Generating Units and the capacity of inter-Grid tie-lines to accommodate Wind and Solar energy generation to the largest extent possible subject to Grid security.

### **4. Applicability**

4.1 These Regulations shall apply to all Wind and Solar Energy Generators (excluding Rooftop PV Solar power projects of capacity less than 1 MW) in Tamil Nadu connected to the Intra-State Transmission System or Distribution System, including those connected through Pooling sub-stations, and using the power generated for self-consumption or sale within or outside the State.

4.2 The Commission shall review these Regulations including formulation for Absolute Error, Accuracy Band and Deviation charge thereof after two years, or earlier if it considers necessary.

## **PART B - TECHNICAL ARRANGEMENTS: FORECASTING AND SCHEDULING CODE**

### **5. Forecasting and Scheduling Code**

5.1. The Wind / Solar Energy Generators shall appoint a single QCA to represent on their behalf and comply with the requirements of forecasting and scheduling separately.

Provided that the QCA authorized by the majority of the generators in the State shall be engaged as a single QCA for all the respective wind/solar generators separately in the State and the terms and conditions for engagement of single QCA shall be governed by the mutual agreement between the respective generators and the QCA.

Provided that the wind/solar generators who do not wish to avail the services of the single QCA appointed by the majority of the generators shall have the option to avail the services of the SLDC for forecasting and scheduling services.

Provided that the service charges for forecasting and scheduling services along with applicable taxes shall be payable to the single QCA / SLDC by the generators as the case may be.

Provided that an individual Generator connected to a sub-station that is designated as a Pooling sub-station as defined in 2(q) of this regulation may opt to function as a QCA on its own or appoint a separate entity as its QCA. However, multiple QCA(s) for single pooling sub-station will not be permitted.

Provided that the wind/solar generators of the Pooling sub-station(s) having aggregate capacity upto 25 MW may aggregate their forecast, schedule with the QCA of the nearest Pooling sub-station.

Provided further that, such wind/solar generators shall obtain concurrence of SLDC. The decision of SLDC in this regard shall be binding on the wind/solar generators.

5.2. This Forecasting and Scheduling Code specifies the methodology for Day-Ahead scheduling of Wind and Solar Energy Generators connected to the intra-State Transmission Network (Transmission and Distribution system), its revisions on a one and a half hourly basis, and the treatment of their deviations from such Schedules. Wind and Solar generators, either by themselves or represented by Qualified Coordinating Agencies shall comply with the requirements of forecasting and scheduling code as stipulated under these Regulations.

5.3. The QCA(s) shall be treated as State Entity.

5.4. Every QCA shall be registered with the SLDC along with the authorization of the majority of wind/solar generators. The fee for registration of the QCA with the SLDC shall be specified in the Detailed Procedure to be issued by them, which will be approved by the Commission separately within the period as specified in the Regulation 5.21.

5.5. Notwithstanding the appointment of a QCA, the onus of complying with the relevant provisions of these Regulations shall remain that of the concerned Generators, and the commercial and other terms and conditions between the Generators and their QCA shall be governed by their inter-se agreements or terms of engagement.

5.6. The QCA shall be appointed by the Generators for the purposes specified in these Regulations, including but not limited to the following:

(a) Aggregation of scheduled generation of the generators, meter reading and data collection and its communication, and co-ordination with the Distribution Licensees, the SLDC and other agencies;

(b) De-pooling of Deviation Charges within the constituent Generators and intimating the deviation charges to the SLDC and the respective generators.

(c) In case of single QCA chosen by the wind/solar generators, such single QCA is responsible for state level aggregation of scheduled generation for selling out power within Tamil Nadu and outside Tamil Nadu separately.

(d) The minimum term period of agreement between the QCA and the wind/solar generators shall be two years. Until new arrangement is put in place, existing QCA shall continue for further period up to 1 year.

(e) The SLDC in their detailed procedure shall specify the qualification and other criterions viz. Business Rules/Net worth requirement etc. for the QCA.

5.7. The QCA shall be the Nodal Agency between the SLDC and its Generators for the purposes of these Regulations.

5.8. The QCA shall furnish the technical specifications of the Generators whom it represents to the SLDC in the prescribed format, at the time of its registration or within such period thereafter as may be stipulated by the SLDC in its Detailed Procedure, and also furnish details whenever there is a change in these specifications.

5.9. The QCA shall provide real-time data relating to the power generation parameters and weather-related data, as may be required to the SLDC.

5.10. Meters with the AMR facility and uninterrupted data transmission shall be installed for energy accounting in accordance with the relevant provisions of the Central Electricity Authority (CEA) Regulations and its amendments, governing metering for the transfer of information to the SLDC by the Generators.

5.11. The QCA shall furnish to the SLDC aggregated forecasts relating to its Wind Energy Generators and Solar Energy Generators connected to intra-State system and contracts undertaken for sale of power through intra-State or inter- State, as the case may be, separately, in the formats specified for each type of source and intra/inter State transaction.

5.12. The SLDC shall also undertake forecasting of the Wind and Solar energy generation expected to be injected into the intra-State Transmission network at each location, by engaging forecasting agencies if required, so as to enable it to better plan for the balancing resources required for secure Grid operation.

5.13. The QCA(s) shall aggregate the separate Schedules of all Wind / Solar generators connected to the intra-state network / Pooling sub-station and communicate to the SLDC.

Provided that in case of single QCA, the QCA shall aggregate the generation of all wind/solar generators separately for the entire State and communicate as single separate schedule for wind and solar respectively to the SLDC for each time block with respect to intra and inter-state transactions.

5.14. If the QCA has difficulty to aggregate the generation of wind/solar for the entire State, they may provide schedules for each pooling station individually and in such case, the deviation charges will be calculated pooling sub-station wise.

5.15. No Wind or Solar energy generation shall be despatched by the SLDC without schedule by the QCA on behalf of the Generators in accordance with the provisions of these Regulations. The generation from those generators not participating in the forecasting and scheduling activities shall be treated as inadvertent flow into the grid and no charges for such inadvertent injection of power shall be paid and/or no adjustment on consumption shall be made by the SLDC or distribution licensee.

5.16. The QCA shall provide SLDC with a Schedule based on its own forecast, which shall be the reference Schedule for the purposes of deviation determination and settlement:

Provided that, if the Generators/QCA opts to adopt the forecast of the SLDC, the consequences of any error in such forecast which results in deviations from scheduling shall be borne by the concerned Generators/QCA only.

5.17. In addition to the deviation charges collected by the SLDC from the generators, it shall also recover the charges towards the forecasting and scheduling services provided by the QCA to the generators and such charges shall be mutually agreed between the generators and the QCA or as decided by the Commission. The amount so recovered by the SLDC shall be paid back to the respective QCA nominated by the generators.

The SLDC shall also recover charges as may be approved by the Commission for providing its forecasting services to the Generators/QCA and the amount so recovered shall be treated as 'other income' in the Aggregate Revenue Requirement of the SLDC for the determination of its Fees and Charges.

5.18. The QCA shall provide to the SLDC a Day-Ahead and a Week-Ahead Schedule to enable it to assess the Availability of energy and the margin available in the State Grid. In case of state wide aggregation, the QCA shall provide the forecast considering the

generation measured at the metering points provided at the interconnection points / generating stations as the case may be.

Provided that the QCA shall internally maintain the schedule for each pooling sub-station and the same may be furnished to the SLDC as and when required.

5.19. The Day-Ahead Schedule shall comprise of the Wind or Solar energy generation to be scheduled in each 15-minute time block starting from 00:00 hours of the following day, and for all 96 time blocks of that day and the Week-Ahead Schedule shall contain the same information for the next seven days.

5.20. (a) The QCA may revise the Schedule of Generators connected to the Intra-State Transmission Network (excluding collective transactions) by giving advance notice to the SLDC.

(b) Such revisions shall be effective from the 6<sup>th</sup> time block following the time block in which notice was given.

(c) 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 a maximum of 16 revisions during the day.

5.21 The formats of forecast submission and other modalities and requirements shall be stipulated in the Detailed Procedure to be submitted by the SLDC within two month, which the Commission shall endeavor to approve within 15 days thereafter.

Provided that, SLDC shall undertake stakeholder consultation by uploading the Draft procedure on SLDC's website before submission of procedure to the Commission for approval.

**5.22 The Detailed Procedure mentioned in sub – regulation (21) shall contain the following:**

(a) The procedure and requirements, including the payment of fees and penalties, for the registration and de-registration of QCAs by the SLDC.

(b) The information and data, and the formats, required by the SLDC from the QCA(s) / Generators and to be provided by the SLDC to them.

(c) The mode and protocol of communication for exchange of information and data between the QCAs and the SLDC.

(d) The guidelines for energy and deviation accounting of Wind and Solar energy transactions under the State energy accounting framework, with illustrative examples, in accordance with the principles specified in these Regulations.

(e) The mechanism for monitoring compliance of the Forecasting and Scheduling by the QCAs.

(f) The default conditions in the State Pool Settlement by QCAs and their treatment.

5.23 The commercial impact of deviations from Schedules based on the forecasts shall be borne by the Generators through their QCAs.

5.24 The State entities shall operate their equipments and loads in a manner that is consistent with the provisions of the Indian Electricity Grid Code and the Tamil Nadu Electricity Grid Code.

## **5.25 Treatment to Gaming**

(a) Upon identification of gaming by SLDC if any, such as intentional mis-declaration of scheduled generation, etc. the QCA / Generator shall be liable to pay a penalty as decided by the Commission.

(b) The amount of penalty shall be payable by the QCA(s)/Generator(s) to the State Deviation Settlement Mechanism (DSM) Pool, through the SLDC.

(c) The SLDC may, after giving due notice, as stipulated in the Detailed Procedure, cancel the registration of the QCA upon repeated events of mis-declaration.

## **6. Principles of appointment of QCA**

6.1. The Generators connected to each Pooling sub-station shall appoint a person/entity as QCA from among themselves or any other entity/person as a QCA or majority of the Wind / Solar Energy Generators in the State shall also appoint a single QCA separately for state wide aggregation of solar/wind generation.

6.2. Single QCA for state wide aggregation shall be appointed by the majority of the wind/solar generators separately in terms of their combined installed capacity. The QCA at Pooling sub-station level shall be appointed with the approval of majority of the Generators connected to the polling sub-station in terms of their combined installed capacity, and on appointment with majority, the QCA shall perform all functions assigned in these Regulations for all generators for whom they are representing.

6.3. The Generators shall satisfy themselves that the QCA is technically and financially competent to undertake on their behalf the functions and discharge the obligations specified in these Regulations.

6.4. The terms of engagement of the QCA shall include provisions on the following aspects:

- (a) The respective roles and responsibilities of the QCA and Generators;
- (b) The metering, billing and energy accounting arrangements;
- (c) The modalities for recovery of Deviation Charges from the Generators and their settlement, including the principles for de-pooling;
- (d) The payment security mechanism and related provisions;
- (e) The events of default and their mitigation.

## **PART C - COMMERCIAL ARRANGEMENTS**

### **7. Deviation Settlement for Intra-State Transactions**

7.1 The sale of power within Tamil Nadu by Wind and Solar Energy Generators connected to the Intra-State Transmission Network shall be settled by the Procurers on the basis of their actual generation, and the Deviation Settlement shall be undertaken as specified in these Regulations.

A Generator who deviates from its given Schedule shall be liable to pay a Deviation Charge under the provisions of these Regulations.

7.2 In respect of sale or self-consumption of power within Tamil Nadu, if the actual injected generation of wind or solar power differs from the scheduled generation, the Deviation Charge for the excess or shortfall shall be payable by the Generator to the "State Deviation Pool Account (Wind and Solar)", through the SLDC, as specified in the Tables:

**Table 1:** Deviation Charge for under or over injection of wind power, for sale or self-consumption of power within Tamil Nadu.

Sl. No.	Absolute error in % terms in 15 minute time block	Deviation charge payable to state deviation pool account (wind and solar)
1	<= 15%	Nil
2	>15% but <=20%	At Rs.0.25 per unit
3	> 20% but <= 30%	At Rs.0.25 per unit for the shortfall or excess beyond 15% and upto 20% + Rs. 0.50 per unit for the balance energy beyond 20% and upto 30%
4	>30%	At Rs. 0.25 per unit for the shortfall or excess beyond 15% and upto 20% + Rs. 0.50 per unit for the shortfall or excess beyond 20% and up to 30% + Rs.1.25 per unit for the balance energy beyond 30%

**Table 2:** Deviation Charge for under or over injection of solar power, for sale or self-consumption of power within Tamil Nadu.

Sl. No.	Absolute error in % terms in 15 minute time block	Deviation charge payable to state deviation pool account (wind and solar)
1	<= 10%	Nil
2	>10% but <= 20%	At Rs.0.25 per unit
3	> 20% but <= 30%	At Rs.0.25 per unit for the shortfall or excess beyond 10% and upto 20% + Rs. 0.50 per unit for the balance energy beyond 20% and upto 30%
4	>30%	At Rs. 0.25 per unit for the shortfall or excess beyond 10% and upto 20% + Rs. 0.50 per unit for the shortfall or excess beyond 20% and up to 30% + Rs.1.25 per unit for the balance energy beyond 30%

7.3. The SLDC and the QCA (except for the QCA responsible for the state wide aggregation) shall maintain records and accounts of the time block-wise Schedules, the actual generation injected and the deviations, for every Pooling sub-station, the individual Generators and state wide aggregation separately.

7.4. The QCA shall undertake de-pooling of the energy deviations and the Deviation Charges against each Generator as specified in Regulation 14.

7.5. The concerned Generators shall undertake the settlement of the Deviation Charges with the SLDC.

7.6. The total deviation charges remitted on account of deviations by wind / solar generator(s) into State Deviation Pool Account in a financial year shall be capped at the Ceiling Rate of 5 paise per unit multiplied by the total annual generation at the respective Pooling sub-station(s)/total generated units in state wide aggregation.

Provided that the Commission may refix the ceiling rates every year based on the true-up petition filed by the SLDC for the preceding year.

7.7. In addition to the above charges, the forecasting service charges based on the installed capacity of wind/solar generating station along with applicable taxes as agreed between Generators and QCA or as ordered by the Commission is to be remitted with SLDC by the generators and the SLDC will pay the charges towards forecasting services to QCA.

7.8 The deviations due to forced back down or abnormal weather conditions like cyclone, heavy rainfall, flood, gusty wind, if intimated by the QCA to the SLDC well before six hours of occurrence shall be excluded from the scope of deviation charges.

## **8. Deviation Settlement for Inter-State Transactions**

8.1 The sale of power outside Tamil Nadu by Wind and Solar Energy Generators connected to the Intra-State Transmission system or Distribution system shall be settled by the Procurers on the basis of their scheduled generation. The QCA/Generators shall

not be allowed to aggregate their inter-state transaction schedule with intra-state transactions.

8.2 Inter-State transactions at a Pooling sub-station shall be permitted only if the concerned Generator is connected through a separate feeder/metering arrangements.

8.3 Generator intending to enter inter-state transaction shall submit, through the QCA, a separate Schedule for its energy generation, in accordance with these Regulations, to the SLDC and the concerned Regional Load Despatch Centre (RLDC).

8.4 The SLDC shall prepare the deviation settlement account for such Generator on the basis of measurement of the deviation in the energy injected.

8.5 The Deviation Charges for under-injection by Generators connected to the Intra-State Transmission Network and selling power outside Tamil Nadu shall be as per the Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2022 and the amendments issued time to time for which, the accounting shall be done by the SLDC separately.

## **9. Deviation Settlement for Inter and Intra-State transactions: other provisions**

9.1 Deviations in respect of Inter-State and Intra-State transactions for each source of RE *i.e.* wind and solar Generation shall be accounted for separately at each Pooling Sub-Station or at state level.

9.2 The SLDC shall provide separate energy and Deviation Accounts for Inter-State and Intra-State transactions in respect of wind and solar Generation to the respective QCA, who shall arrange to settle the Deviation Charges by the concerned Generators.

## **PART D - IMPLEMENTATION ARRANGEMENTS**

### **10. Metering**

10.1 Every Pooling Sub Station /Generator shall have a energy meter capable of recording the energy in time blocks as specified in the CEA Regulations governing metering. The meters shall be time synchronized through command instruction from the centralized Automated Meter Reading system.

10.2 The data from existing AMR metering arrangements available with SLDC will be shared to single QCA nominated by generators. The single QCA shall make their own arrangements to capture, transfer and analyse the respective data shared by SLDC without disturbing the working of their system. QCA shall develop a web portal and provide access to respective stakeholders to monitor real time schedule versus actual generation details.

10.3 The SLDC will provide generation readings for each 15-minutes time block on a monthly basis to QCA. This report shall contain the information related to meter's data received from AMR and data downloaded through CMRI.

10.4 The QCA shall consolidate meter readings provided by SLDC, compare with scheduled generation and report deviations on monthly basis to the SLDC.

10.5 The QCA shall consolidate the meter readings provided by the SLDC, compare with the scheduled generation and report deviations on monthly basis to the SLDC on 11<sup>th</sup> of every month.

10.6 The deviation charges shall be calculated by the SLDC based on data available with them in 15 minutes block wise.

## **11. Communication of QCA with SLDC**

11.1 The Detailed Procedure prescribed by the SLDC shall set out the protocol for communication and exchange of information between the QCA and the SLDC, including but not limited to the following aspects:

a) Communication of the Day-Ahead, Week-Ahead Schedule and intra-Day schedule and any revisions to the SLDC.

b) Communication of the time block-wise scheduled and actual generation data.

c) Communication of Grid constraints and curtailments by the SLDC to the QCA.

11.2 The SLDC shall equip itself with the necessary Information Technology (IT) enabled communication platform and software for communication between it and the QCA.

11.3 The QCA shall provide the IT-enabled communication software log-in details to enable the SLDC to access live data of all Schedules and deviations of all the generators.

11.4 The IT-enabled communication platform and software should enable the SLDC and QCA to exchange information, including but not limited to the following:

- i. Generator outages and their reasons;
- ii. Deviation Charges payable/receivable by the QCA;
- iii. Site characteristics and details of the Wind Turbines, Solar Inverters, etc.;
- iv. Schedules and generation handled by the QCA.

## **12. Deviation Accounting**

12.1 The methodology for deviation settlement for the State shall be as follows:

a) The SLDC shall compute the Absolute Error, i.e. the difference between the scheduled and the actual energy injected, in respect of statewide aggregation or each Pooling Sub-Station and shall accordingly determine the amounts payable/receivable on account of the Deviation Charge in accordance with Regulations 7 and 8.

b) The Deviation Charges payable or receivable for the State as a whole at the State periphery shall be computed by the SLDC.

c) The SLDC shall also compute the impact of the deviation of the Wind and Solar Energy Generation and its contribution to the Deviation Charge at the State periphery and maintain State Deviation Pool Account (Wind and Solar) for both intra-state and inter-state transactions separately for the same.

## **12.2 Settlement of Deviation Charges**

a) The SLDC shall compute the deviations from the Schedule, determine the Deviation Charges payable/receivable and bill the Generators accordingly.

12.3 The charges collected in the State Deviation Pool (wind and solar) in respect of both inter-state and intra-state transactions shall be utilized to offset the shortfall in the State Deviation Pool Account (DSM).

## **13. Payment Mechanism for Deviation Settlement and Payment security**

13.1 Every Generator shall pay the total amount of Deviation Charges on state wide aggregation to the SLDC as mentioned in the Regulation 7.

13.2 The generators shall pay the amount towards the deviation charges provisionally based on the amount as fixed in the Regulation 7 for each unit of generation on a monthly basis based on the actual generation obtained through AMR/CMRI readings. The generators shall either pay the deviation charges directly to the SLDC through online or through the

billing of TANGEDCO's service connections of the captive consumers or third party consumers. The deviation charges based on the resultant data of the pilot study undergone by the stake holders for the past 18 months is worked out as follows:

For wind: 4.27 paisa/unit of generation

For Solar PV: 4.15 paisa /unit of generation.

The SLDC shall prepare the bill for the actual deviation charges for each generator on or before 15<sup>th</sup> of every month and post the same in their website, which can be viewed by the QCA(s)/Generators and the any excess or shortfall amount to the generator will be reconciled and included in the next billing month. The billing prepared by the SLDC includes deviation charges to be paid to the State Pool account and the forecasting charges to be paid to the QCA.

13.2 The said charges shall be paid within 10 days from the date of publishing of charges by the SLDC in their website. If payments of the above charges are delayed by more than 2 days *i.e.* beyond 12 days from the date of issue of statement, a simple interest of 0.06% for each day of delay shall be levied. This is without prejudice to any action that may be taken under Section 142 of the Act in addition to any action under Section 56 of the Act and other relevant Regulations. Further, any excess or shortfall in the deviation charges will be reconciled at the end of every financial year and collection from generators or refund to generators shall be done by SLDC within 60 days on completion of every financial year.

Provided that in case of delay in the Payment of Deviation Charges and interest thereon if any, beyond 12 days from the date of issue of the statement of charges for deviations, the QCAs/ generators who have to receive payments for earliest thereon,

shall be paid from the balance available in the State Deviation Pool Account (Wind and Solar). In case the balance available is not sufficient to meet the payments to the QCAs, the payment shall be made on pro rata basis from the balance available.

#### **14. De-Pooling of Deviation Charges**

The QCA shall de-pool the Deviation Charges against each Generator in proportion to their actual generation by the generators and report to SLDC for further action.

#### **15. Intimation of Curtailment**

15.1 Any curtailment imposed on the energy injection for reliable and secure Grid operation in emergent situations shall be communicated by the SLDC to the QCA through an IT-enabled communication, and no Deviation Charges shall be payable on account of such curtailment.

15.2 In case of any curtailment planned and communicated by the SLDC due to line maintenance or other reasons in certain time blocks of a day, the QCA shall be responsible to intimate the respective generators for curtailing the generation at site and amending the Schedule accordingly, failing which the SLDC shall revise the Schedule as required.

#### **16. Energy Accounting**

16.1 The energy accounting shall be undertaken on the basis of the data recorded by the SEM referred to in Regulation 10.

16.2 All accounts relating to deviations within pooling sub-station / State wide aggregation shall be prepared by the respective QCA on a monthly basis based on inputs from the SLDC, and be accessible to the SLDC through an IT-enabled system and software.

16.3 The SLDC shall furnish the processed data on a monthly basis to the concerned QCA in the prescribed format for the preparation of monthly accounts of energy from the Pooling Sub-Station/Generators.

16.4 Any discrepancy communicated by the QCA within 15 days shall be corrected forthwith by the SLDC after verification.

16.5 The SLDC/Distribution licensee as mutually agreed shall prepare the statement of accounting of energy in each time block for the wind and solar energy generators and the procurers on monthly basis for the purpose of billing. The billing centre of the distribution licensee shall be responsible for energy accounting, raising and settlement of bills with the procurers.

16.6 A detailed energy accounting procedure shall be prepared by SLDC and submitted for approval to the Commission after undertaking stakeholder consultation in accordance to Regulation 5.22.

## **PART E – MISCELLANEOUS**

### **17. Power to amend**

The Commission may, at any time vary, modify or amend any provision of these Regulations.

### **18. Repeal and savings**

(1) Save as otherwise provided in these regulations, the “Tamil Nadu Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Wind and Solar Generation) Regulations, 2019” and Procedures thereof shall stand repealed from the date of coming into force of these regulations.

(2) Anything done or action taken or purported to have been done in pursuance of the provisions of the earlier “Tamil Nadu Electricity Regulatory Commission (Forecasting,

Scheduling and Deviation Settlement and related matters for Wind and Solar Generation) Regulations, 2019” shall be considered to be legal and valid.

(3) Any rights and liabilities arising out of the earlier “Tamil Nadu Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Wind and Solar Generation) Regulations, 2019” shall be settled within its framework.

### **19. Power to remove difficulties**

If any difficulty arises in giving effect to the provisions of these Regulations, the Commission may, by general or specific order, make such provisions not inconsistent with the provisions of the Act, as may appear to be necessary for removing the difficulty.

### **20. Power to relax**

The Commission may by general or special order, for reasons to be recorded in writing, and after giving an opportunity of hearing to the parties likely to be affected by grant of relaxation, may relax any of the provisions of these Regulations on its own motion or on an application made before it by an interested person.

### **21. Powers to Issue Directions**

Subject to the provisions of the Act, 2003 and this Regulation, the Commission may, from time to time, issue orders and directions in regard to the implementation of the Regulation and procedure to be followed and various matters which the Commission has been empowered by this Regulation to specify or direct, as may be considered necessary in furtherance of the objective and purpose of this Regulation.

Sd/- dated 11-09-2023  
(Dr.C.Veeramani)  
Secretary  
Tamil Nadu Electricity Regulatory Commission

**Explanatory Statement explaining the reason and circumstances leading to the Draft Tamil Nadu Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Wind and Solar Generation) Regulations, 2023.**

1. The Tamil Nadu Electricity Regulatory Commission (hereinafter referred as the "Commission") earlier notified the Tamil Nadu Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Wind and Solar Generation) Regulations, 2019 vide Notification No. TNERC/F&S Wind & Solar/21-1, dt. 01-03-2019, which were published in the Tamil Nadu Government Gazette on 20-03-2019.
2. As per the above Regulations, the Wind/Solar Generators shall appoint 'Qualified Co-ordinating Agency' (QCA) for each pooling station on the principles of majority. The percentage of deviation was formulated to be based on the available capacity of generation.
3. Earlier, the Central Commission had notified the Central Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations, 2014 and its amendments from time to time prescribed the deviation charges worked out on the average frequency of a time-block, which is applicable for inter-state transaction of power.
4. Meanwhile, the Central Commission vide Notification No.L-1/260/2021/CERC, date 14-03-2022 repealed the above 2014 Regulations and notified new Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2022.
5. The Central Commission while repealing the above said 2014 Regulations has dispensed with the concept of frequency linked deviation charges and introduced the new concept of charges for deviation. As per the Central Electricity

Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2022, the normal rate of charges for deviation for a time block shall be equal to the highest of [the weighted average Area Clearing Price (ACP) of the Day Ahead Market segments of all the Power Exchanges; or the weighted average ACP of the Real Time Market segments of all the Power Exchanges; or the Weighted Average Ancillary Service Charge of all the regions] for that time block.

6. Now, it is considered that the formula to determine the deviation needs to be corrected. Also, it is felt that multiple QCAs within the State warrant multiple interaction points for SLDC for operationalizing the Scheduling and Deviation Settlement which is complicated and impractical. Therefore, it is better that single QCA can be selected by the Wind/Solar Generators separately by following the Majority principles for state wide aggregation for seamless implementation. At the same time, the right and responsibility of the Generating Stations to forecast and schedule by themselves cannot be diluted and therefore, the opportunity to the solar/wind generators should also be given to select QCA at Pooling Sub-Station wise also. Therefore, the RE generators will have choice either to schedule directly with/without the help of SLDC or schedule through QCA for state wide aggregation or appointing QCA for each pooling sub-station on the principles of majority.
7. Considering the above changes in the technical, commercial and implementation mechanisms, Commission finds it appropriate to frame new Regulations for forecasting, scheduling and deviation settlement for Wind and Solar Generation and refix the ceiling rates for deviation of wind and solar energy based on the pilot study conducted by the SLDC. Therefore, Commission has framed new draft Tamil Nadu Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Wind and Solar Generation)

Regulations, 2023 repealing the existing Regulations, 2019 and invited comments / suggestions from the various stakeholders.

(By order of the Tamil Nadu Electricity Regulatory Commission)

Sd/- dated 11-09-2023  
(Dr.C.Veeramani)  
Secretary,  
Tamil Nadu Electricity Regulatory Commission