STATEMENT OF REASONS

GERC (FORECASTING, SCHEDULING, DEVIATION SETTLEMENT AND RELATED MATTERS OF SOLAR AND WIND GENERATION SOURCES) REGULATIONS, 2019

CORAM

Shri Anand Kumar, Chairman
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1. Background:

1.1. First framework on Forecasting, Scheduling and Imbalance Handling for Variable Renewable Energy Sources (Wind and Solar) was published by Central Electricity Regulatory Commission on 7th August, 2015. This framework is applicable for solar and wind generators that are regional entities, whose scheduling and settlement is handled by the respective Regional Load Dispatch Centre (RLDC).

1.2. Subsequently, the Forum of Regulators (FoR) also issued Model Regulations on Forecasting, Scheduling and Deviation Settlement for Wind and Solar Generating Stations at State level in 2015.

1.3. State of Gujarat is one of the frontrunners in Renewable Generation installations, with combined installed capacity of Wind and Solar being more than 7000 MW. Also substantial capacity addition is anticipated in line with the Government of India's target of 100 GW of Solar and 60 GW of Wind capacities by 2022.

1.4. However, integration of the such large renewable capacity into the State grid is a challenge, which requires immediate attention. Thus, with an objective to facilitate large-scale grid integration of solar and wind generation while maintaining grid stability and security as envisaged under the Grid code, through forecasting, scheduling and commercial mechanism for deviation settlement of these generators, the Commission issued a draft GERC (Forecasting, Scheduling, Deviation Settlement and related matters of Solar and

Wind Generations Sources) Regulations, 2017 on 13.1.2017 inviting comments and suggestions from the stakeholders.

1.5. The list of the stakeholders who filed their comments/suggestions/objections on the Draft Regulations is annexed at Annexure-A

1.6. Public hearing on the aforesaid draft Regulations was conducted on 7.7.2017.

1.7. The list of the stakeholders present during the hearing is annexed at Annexure-B.

1.8. After considering the suggestion/objections of the various stakeholders in their submissions and during the public hearing, the Commission has finalized the Regulations along with the Statement of Reasons encapsulating the suggestions/objections of the stakeholders and Commission's view thereon.

2. ***REGULATION-WISE SUGGESTIONS/OBJECTIONS RECEIVED AND THE VIEW OF COMMISSION***:

2.1. *Regulation 1 (2): Commercial Mechanism of these regulations shall come into force after six months from the date of notification in Gazette of State of Gujarat.*

2.1.1. Indian Wind Energy Association (InWEA) and Indian Wind Turbine Manufacturer Association (IWTMA) requested for a period of 12 months in implementation of Commercial Mechanism from the Notification of the Regulations in Gazette on the ground of requirement of robust communication & IT infrastructure, incorporation of QCA, determination of various fees and charges, procedures, preparation and approval of draft agreement, etc. as prerequisite.

2.1.2. IL & FS Energy Development Company Limited (IL&FS) submitted that Forecasting and Scheduling be made mandatory within 5 months from implementation of the Regulations, however, DSM charges be levied only after a year.

Commission's View:

The objectors have contended that the period for implementation of commercial mechanism be made effective after 12 months to facilitate setting up of robust communication, IT infrastructure, incorporation of QCA, determination of various fees and charges etc. We note that at present the data for wind and solar energy generation are being forwarded to SLDC with necessary communication link and also the IT infrastructure set up by SLDC. Moreover, SLDC has not raised any issue on any requirement for setting up of aforesaid infrastructure. So far as incorporation of QCA is concerned, we note that criteria for qualifying the QCAs is already defined in the Regulations, hence, person/company/associate who qualifies under this, is eligible to carry out the functions assigned to QCA. As regards determination of various fees and charges in the present Regulations, the Commission has already specified the charges for deviation from schedule. Thus, as far as the Commission's role is concerned, no other charges need to be clarified or defined by the Commission. Further, regarding the detailed procedure and its approval, we feel that 6 months' time is sufficient to carry out the aforesaid activities. Further, in the Draft Regulations 6 months' time for mock trial exercise will enable the wind and solar generators to acquaint with the procedure of the forecasting and scheduling, assessment on the energy accounting and the financial impact in case of deviation/error.

In view of the above, we decide that the request of the objectors is not acceptable and the same is rejected. The Commission decides that the Deviation Charges specified in the Regulations shall be effective from 1st August, 2019.

2.2. *Regulation 2 Scope: These regulations shall apply to all wind and solar generators connected to the State grid, including those connected via pooling stations, and selling generated power within or outside the State or consuming power generated for self-consumption.*

2.2.1. State Load Desptach Centre (SLDC) proposed the applicability of the Regulations to the aggregate capacity of wind pooling station/solar generating plant of 4 MW and above.

2.2.2. InWEA and IWTMA requested deviation of ± 15% for existing wind projects and impact of additional cost and risk be allowed to be recovered through tariff. Also, Pooling Station, being a basic building block, all the wind projects connected to the existing pooling sub stations are to be considered as exempted projects.

2.2.3. Statkraft Markets Private Limited (Statkraft) submitted that there is no minimum threshold capacity given in the Regulation and this will add undue and excessive burden on generation with small and limited capacity.

2.2.4. IL&FS submitted that the Regulations be made applicable to wind and solar projects having combined installed capacity of 10 MW and 5 MW respectively and projects under Average Power Purchase Cost (APPC) + Renewable Energy Certificate (REC) mode should not be subject to commercial impact. Inox Renewables Limited (Inox) submitted that the projects for self-consumption be kept out of the scope of the Regulations.

2.2.5. BLP Energy Private Limited (BLP Energy) submitted that solar and wind projects upto 25 MW connected and/or projected to connect up to 33 kV be exempted under these Regulations. Also, load to a single transformer/single sub-station from a single company/multiple companies be exempted.

2.2.6. EMCO Limited (EMCO) submitted that solar PV plants up to 5 MW should be exempted as they would not pose any substantial problem to the grid. Similarly, Mono Steel (India) Limited (Mono Steel) submitted that solar PV plants that are set up at independent location/pooling stations be exempted under these Regulations.

2.2.7. Visual Percept Solar Projects Private Limited (Visual Percept) submitted that Regulations were not envisaged at the time of investment and this will be an additional financial burden. Thus, existing renewable generators be excluded from Regulations 7, 11 and 12 which may be made applicable in entirety to only new renewable generators. In case the Commission is of the opinion to apply these Regulations to existing renewable generators also, a methodology to compensate such generators for the commercial losses be devised.

2.2.8. Sunkon Energy Private Limited (Sunkon) submitted that solar plants up to 15 MW that are set up at independent locations/pooling stations would not pose any substantial problem to grid and be exempted under these Regulations.

Commission's View:

As far as the contention of SLDC that the Regulations be made applicable to the wind pooling stations/solar generating plants of 4 MW and above is concerned, if the same is accepted, the purpose of measuring and mitigating the impact of deviation in scheduled generation and actual generation and its impact at State periphery will be diluted and correct details/impact of the deviations may not be available. Hence, the same is not acceptable and is rejected. InWEA and IWTMA have proposed the deviation limitation may be kept at ± 15% and impact of additional cost be allowed to be recovered through tariff. In this regard, we are of the view that all the existing WTGs are to be governed by the same provisions of deviation settlement charges and as far as the deviation ±15% to be allowed is concerned, the error % is to be evaluated on the Available Capacity (AvC) basis which reduces the error based on the scheduled generation considerably. Therefore, the contention of the above objectors is not acceptable.

The Commission has substituted State grid by State Grid/Substation, including those connected via pooling stations and selling generated power within or outside the State or consuming power generated for self-consumption to give more clarity that all wind and solar generators connected with the grid substations shall be covered in this Regulation.

As regards the contentions of the various objectors for various threshold capacity in applicability/non-applicability of these Regulations, we note that any exemption if granted to the wind/solar generators from forecasting and scheduling under these Regulations will affect the results of deviation and forecasting at State periphery and will also not give the correct picture of the deviation actually occurring due to such generators. However, keeping in view the suggestions we decide these Regulations shall be applicable to all wind / solar generator(s) having combined installed capacity above 1 MW connected to the State Grid/substation, including those connected via pooling station and Regulation (2) of the draft Regulation is amended accordingly.

2.3. Regulation 3 (1) (a): *'Absolute Error' means the absolute value of the error in the actual generation of wind or solar generators with reference to the scheduled generation and the 'Actual Generation' as calculated using the following formula for each 15-minute time block:*

Error (%) = 100 X [Actual Generation– Scheduled Generation] / Available Capacity;

2.3.1. SLDC and Gujarat Urja Vikas Nigam Limited (GUVNL) submitted that from the point of view of grid management, the deviation w.r.t Scheduled Generation *viz-a-viz* Actual Generation is relevant and not w.r.t Available Capacity and since Available Capacity (AvC) is much higher than forecast/schedule, % error will remain less. Absolute Error should be with respect to Schedule/forecast only. Astra Solar submitted that the AvC be equal to the Installed Capacity, unless the QCA informs SLDC that one or more turbines/inverters are under maintenance or shutdown. Units for Actual Generations, Scheduled Generation and AvC should also be defined in the Regulation.

Commission's View:

As the Commission is introducing the Forecasting, Scheduling and Deviation Settlement Mechanism Regulations for the first time for wind and solar generators, the Commission has adopted the definition of Absolute Error and the formula given in the Model FOR Regulations.

The purpose of these Regulations is to bring all wind and solar generators under the purview of forecasting and scheduling, to acquaint with the procedure specified in the Regulations and also to encourage the forecasting and scheduling as precisely as possible. The definition of AvC has already been covered in the Regulations which provides that the capacity capable of generating power should be considered while calculating absolute error and therefore, the contention to consider installed capacity is not acceptable. The Commission has, therefore, decided to keep the absolute error with reference to AvC of wind/solar generators.

2.4. Regulation 3 (1) (c) and (d):

'Actual Drawl' in a time-block means electricity drawn by a buyer, as the case may be, measured by the interface meters;

'Actual Injection' in a time-block means electricity generated or supplied by the seller, as the case may be, measured by the Interface meters;

2.4.1. GUVNL submitted that as per CEA's Metering Regulations, 2006, interface meter is a meter at interface point of electrical system of generating company and licensee. However, in case of WTGs, the Commission has defined it at GETCO receiving S/S. Moreover, as per the definition of Scheduled Generation, it is at ex-bus given to SLDC which may be different than interface point/metering point of WTGs. Therefore, to avoid any dispute and to have clarity, the Commission may specify the location where the schedule is to be declared and the point where the actual generation is to be measured.

Commission's View:

We note that the WTGs in the State are injecting the power at GETCO S/S from their pooling station and in such case the interface point is transmission system of GETCO. The power generated from solar power plant is either evacuated from generator bus bar or the same may be injected at transmission system of STU or distribution system as the case may be. Therefore, we are of the view that the actual injection of electricity in the transmission/distribution system shall be electricity generated or supplied by the seller, as the case may be, measured by the interface meter provided at transmission system sub-station of STU in case of wind pooling station and in case of solar the same is at generator bus bar or at the sub-station of the transmission system/distribution system, as the case may be, measured by the interface meter.

2.5. Regulation 3 (1) (e): *'Available Capacity or 'AvC' for wind or solar generators means the cumulative capacity rating of the wind turbines or solar inverters that are capable of generating power in a given time-block;*

2.5.1. ACME Solar Energy Private Limited (ACME Solar) submitted that as the plants have contract capacity of DC side with distribution licensees, the definition should mention that.

Commission's View:

The Commission is of the view that the definition of the AvC has already been dealt within the Regulation specifying the AvC as the cumulative capacity rating of Solar Inverters that are capable of generating power in a given time block. Therefore, no further clarification is required.

2.6. Regulation 3 (1) (f): *'Beneficiary' means a person purchasing electricity generated from a generating station;*

2.6.1. GUVNL submitted the above definition should be deleted as it differs from the provisions of Gujarat Grid Code and Indian Electricity Grid Code.

Commission's View:

The contention of GUVNL that the aforesaid definition may be deleted as it differs from Gujarat Grid Code and Indian Electricity Grid Code is not accepted because though the definitions specified in the respective Regulations may differ from each other, however, when any issue arises for interpretation of the word beneficiary, the relevant definition given in the respective Regulation needs to be applied. Hence, the contention of the objector is not acceptable and the same is rejected.

2.7. Regulation 3 (1) (r):

'Qualified Co-ordinating Agency or QCA' means the agency coordinating on behalf of Wind/Solar Generators connected to a pooling station or individual generator connected directly to the Gujarat Energy Transmission Company Ltd. substation. QCA may be one of the generators or any other mutually agreed agency for the following purposes:

i. *Provide schedules with periodic revisions as per this regulation on behalf of all the Wind/Solar Generators connected to the pooling station(s)or individual solar generator directly to the Gujarat Energy Transmission Company Ltd. sub-station,*
ii. *Responsible for metering, data collection/transmission, communication, co-ordination with DISCOMS, SLDC and other agencies in coordination with Generator & Developers.*
iii. *Undertake commercial settlement of all charges on behalf of the individual generators which is connected directly to GETCO sub-station or generators connected with*

pooling station which connect with GETCO sub-station, including payments to the State UI pool accounts through the concerned SLDC.

iv. *Undertake de-pooling of payments received/payable on behalf of the individual generator/generators of the pooling station from the State UI Pool account and settling them with the individual generators*

v. *Undertake commercial settlement or any other charges on behalf of the generators as may be mandated from time to time. The failure of QCA in carrying out above activities shall not provide freedom to the Generators/Developers from the penalties etc. provided in these regulations.*

QCA shall be treated as a State Entity.

2.7.1. SLDC submitted that the wording *"…connected directly to Gujarat Energy Transmission Company Limited substation…"* be replaced with *"…Transmission system/Distribution system…"* At the end of sentence of 3 (1) (r) (iii) wordings *"…and will provide necessary financial guarantee instruments"* be added.

2.7.2. SLDC also submitted that though QCA be treated as State entity and can undertake work of more than one pooling station, but all commercial matters have to be settled individually i.e. pooling station wise.

2.7.3. Tata Power Trading Company Limited (TPTCL) submitted that in cases of payment default or delay by the generator, QCA may inform such cases to SLDC, which will issue a notice to such generators and in case of non-clearance of dues, such generators be declared as defaulters and SLDC shall deal with them appropriately. QCA, while paying deviation charges of pooling station, will provide break-up of individual generator's deviation charges. QCA be treated as State entity and follow the GERC Regulations and procedure.

2.7.4. BLP Energy Private Limited (BLP) and Wind World India Limited (WWIL) requested a clarity on any QCA being a State entity and whether it will be a part of Government or one of its agencies.

2.7.5. Shri V. K. Agrawal submitted that QCA be entrusted with settlement of deviation charges, transmission charges and RLDC/SLDC fees etc. However, as far as energy charges are concerned, these be continued to be settled with the generators.

Commission's View:

The suggestions given by the SLDC seems to be valid and therefore, we decide to incorporate the suitable changes at appropriate places in the Regulation.

The Commission has modified the Regulation to define the QCA as under:

'Qualified Co-ordinating Agency or QCA' means the mutually agreed agency registered with SLDC, to act as a coordinating agency on behalf of wind/solar generators connected to a pooling station/substation and may be one of the generators.

The objections raised by SLDC that the QCA can undertake the work of more than one pooling station but all commercial matters to be settled individually i.e. pooling stations wise is not relevant since the Commission has decided not to allow aggregation of scheduling of more than one pooling station.

QCA is the agency working for and on behalf of the generator/generators which is assigned the function of forecasting and scheduling related works for the purpose of these Regulations only. As far as commercial function is concerned, it is limited to the penalty/deviation charges, if any, payable by the wind/solar generator/generators for whom the QCA is acting. So far as the payment of transmission charges, wheeling charges, sale of energy etc. are concerned, the same are to be made/received by the generators directly to/from entity concerned and QCA is not responsible for the same. However, for any default in payment of penalty/deviation charges by the generator/generators under these Regulations, QCA is responsible for on behalf of the generator/generators. QCA may carry out the function of energy accounting and related works which are part of the present Regulations only on behalf of wind/solar generators.

In so far as the functions of the QCA are concerned which were part of the definition in the draft regulations has been dealt separately elsewhere in the Regulations and accordingly, the Commission decides not to include the same in the definition clause of

QCA. Further, the Commission has considered it appropriate that QCA need not be a State entity.

2.8. Regulations 3 (1) (s) and (t):

'Scheduled Generation' at any time or for a time block or any period means schedule of generation in MWh ex-bus given by the concerned Load Despatch Centre;

'Scheduled Drawal' at any time or for a time block or any period time block means schedule of despatch MWh ex-bus given by the concerned Load Despatch Centre;

2.8.1. ACME Solar, Mytrah Energy (India) Private Limited (Mytrah), Indian Energy Exchange (IEX), REConnect Energy Solutions Private Limited (REConnect) submitted that the definition of Scheduled Generation and Scheduled Drawal should cover the Generation and Drawal in *MW* or MWh as for every 15-minute time block declaration as scheduling activities throughout the Country are carried out in MW. SLDC Gujarat EASS web portal also accepts the Scheduled Generation values in MW only.

2.8.2. SLDC submitted that wordings "… concerned Load Despatch Centre" in definition be replaced with State Load Desptach Centre.

Commission's View:

The Commission decides to suitably modify the definition of 'scheduled generation' or 'scheduled drawal' as under:

'Scheduled Generation' at any time or for a time block or any period means schedule of generation in MW or MWh ex-bus given by the State Load Despatch Centre;

'Scheduled Drawal' at any time or for a time block or any period means schedule of despatch in MW or MWh ex-bus given by the State Load Despatch Centre;

2.9. Regulation 3 (1) (v) *'State Entity' means an entity which is in the SLDC control area and whose metering and energy accounting is done at the state level;*

2.9.1. GUVNL submitted that word "Intra-" be incorporated in the title and definition be modified as *" ...entities which are under the control area of Gujarat SLDC and whose metering and energy accounting is done at State level, be defined as "Intra State Entity".*

Commission's View:

The suggestion of GUVNL to incorporate the word "Intra-" prior to State entity is accepted and the definition is rephrased as under:

'Intra-State Entity' means an entity/entities which is/are under the control area of Gujarat SLDC and whose metering and energy accounting is done at State level;

2.10. The Commission decides to rename and rephrase the definition of 'Pool Account' as 'State Pool Account' taking into consideration the submissions made by some of the stakeholders to give clarity that the SLDC shall be mandated to create a separate pool account with regard to deviation charges receivable under the provisions of these Regulations and also give effect as a part of State DSM Account which consists of DSM Pool Account of conventional energy also. 'State Pool Account' is defined at 3(w) in the final Regulations as under:

"3(w) ***'State Pool Account'*** *means a separate account to be maintained by the SLDC for receipt and payments on account of deviations under these Regulations and it is a part of the State Deviation Settlement Account;"*

2.11. Regulation 4.2:

In order to maintain system security stability & reliability, the grid operator shall consider the Wind & Solar Power Generation forecast in the mid-term to long term, day ahead & intraday operation, for planning, and the process of scheduling. The grid operator shall make full use of the flexibility from conventional power plant as well as the capacity of inter grid tie lines to accommodate the maximum Wind & Solar Power while maintaining grid security.

2.11.1. ReGen Powertech Private Limited (ReGen), Ostro Energy Private Limited (Ostro) and Shri V. K. Agrawal submitted that wordings "*...to allow/honour must run stations to Wind &*

Solar Power..." be added to the existing clause *"...to accommodate the maximum Wind & Solar Power…"*

Commission's View:

The suggestion to incorporate the wordings "…*to allow/honour must run stations to Wind & Solar Power."* is not accepted because it is the prime responsibility of grid operator to operate grid on real time basis considering the security of the grid. Any compulsion on the grid operator to honour wind/solar generators as must run stations may affect the grid operations and security. It is on the wisdom of grid operator to allow/accommodate maximum wind and solar power instead of considering the must run status of the wind and solar generators when circumstances warrant.

2.12. Regulation 5.1:

This code provides methodology for day-ahead scheduling of wind and solar energy generator(s) which are connected to the State grid, and re-scheduling them on one and half hourly basis, for wind energy (16 intraday revisions) and solar energy (8 intraday revisions) based generation and the methodology of handling deviations of such wind and solar energy generators.

2.12.1. SLDC submitted that the constraint of one revision per one and half hour should not be there and RE generators to be free to revise its forecast subject to maximum numbers of revision allowed with a change of forecast more than 5% of previous revision.

2.12.2. Continuum Wind Energy (India) Private Limited (Continuum) endorsed the Regulations not providing any rider of only one revision per time slot of one-an-half hour, unlike model FoR Regulations. Also, for Wind Generation 24 Nos. of revisions be allowed.

2.12.3. Astra Solern Private Limited (Astra Solern) submitted that the number of revisions for Solar and Wind be increased to 24 and gradually reduced to 16. Also, clarification as to revision in schedule be allowed for both upward and downward changes.

2.12.4. Ostro Energy also submitted that 16 Nos. of revision be allowed to solar generation.

Commission's View:

Objections have been raised regarding re-scheduling not to be limited to one and half hourly basis and the generators be allowed to reschedule at any time subject to 16 intra-day revisions for wind and 8 intra-day revisions for solar generation. The Commission is of the view that the time period of re-scheduling after one and half hour is with a view that SLDC, in order to maintain grid security and / or DSM limits at Inter-State level, may be required to take steps including re-scheduling of Conventional generators. Accordingly, the Commission decides that revision shall be permitted subject to maximum 16 intra-day revisions for wind and maximum 9 intra-day revisions for solar generation.

As regards the suggestion of SLDC that the revision may be permissible if the same is more than 5% of the previous revision, the Commission is of the view that it will be appropriate to allow the revision if change is more than 2% of the previous schedule.

The objection has been also raised that in case of wind and solar generators, number of revisions be increased to 24 and gradually reduced to 16, however, the same is not accepted because the availability of wind and solar generation in a day is different. The Commission has already allowed the flexibility of revision in wind and solar generation for 16 and 9 times respectively with a consideration of the energy available from such generators and also to provide flexibility. Therefore, the contention of the objectors is not acceptable and the same is rejected.

Accordingly, the clause 5.1 is rephrased as under:

This code provides methodology for day-ahead/intra-day scheduling of wind and solar energy generator(s) which are connected to the State Grid/Sub-Station, and revision of schedule(s) and methodology of handling deviations of such wind and solar energy generator(s) and its deviation charges. Revision of schedule shall be allowed if the revision is more than 2% of the previous schedule. For wind energy based generation (maximum 16 intra-day revisions) and solar energy based generation (maximum 9 intra-day revisions) shall be allowed.

2.13. Regulation 5.2:

Appropriate meters shall be provided for energy accounting. Telemetry/communication system & Data Acquisition System shall also be provided for transfer of information to the Gujarat SLDC by the generator or QCA appointed by it.

2.13.1. SLDC submitted that along with SLDC wording "Sub-SLDC" also be included.

2.13.2. ACME, BLP Energy and Mytrah submitted that financial burden for additional equipment required for communications in respect of commissioned plants be allowed to be claimed from the procurer.

2.13.3. Mytrah also sought the clarification as to how the telemetry data is to be provided to SLDC and let SLDC prescribe a format in advance and reasonable proprietary window be provided post finalization of detailed procedure.

2.13.4. Manikaran Analytics Limited, Wind Independent Power Producers Association (WIPPA) and ReNew Power (ReNew) submitted that all the existing meters at sites are under the jurisdiction of SLDC and access to these to generators and appointed QCAs may not be allowed since the meters are sealed. Hence, clarification as to whether the existing meters will be utilized for F&S activities and the generator/QCA will be provided access for the same or not. If not, detailed guidelines and procedure in this regard be prescribed by SLDC.

2.13.5. WIPPA, ReNew, Ostro Energy and Energon GJ Wind Power Private Limited (Energon) also sought clarifications as to the mode of communication to be adopted for communication of telemetry data to SLDC.

2.13.6. IL&FS and Energon submitted that ABT meters that already exist at site and under the control of State Nodal Agency be used for getting generation data for F&S. SLDC may also be directed to devise a mechanism to retrieve data from these existing meters either directly by the generator or through QCA appointed by the generators.

2.13.7. Astra Solern submitted that appropriate meter be defined as to whether main meter, check meter, standby meter and ABT meter will be considered for energy accounting. The data communicated to SLDC through the meter or data based on Joint Meter Reading (JMR) will prevail needs to be clarified.

2.13.8. TPTCL submitted that QCA may coordinate with generators in installing appropriate meters as directed by SLDC, for energy accounting. QCA may also co-ordinate in providing the information from telemetry/communication system and DAS as set up at generators' end.

Commission's View:

The proposed addition of *"sub-SLDC"* along with SLDC is not acceptable because energy accounting is to be carried out by the SLDC which is responsible for the same. The data received by the SLDC needs to be verified and utilized for energy accounting by the SLDC. Any addition of entity in this regard will lead to duplication in transfer of data without any justification. In these Regulations, there is no role of sub-SLDC, hence, any sharing of data desired by SLDC with sub-SLDC may be carried out by it.

As regards the objection that financial burden of equipment for communication etc. be allowed to be claimed from the procurer, the same is between the supplier and the procurer and beyond the scope of these Regulations and the same is not acceptable.

Format for data required to be submitted shall be prescribed by the SLDC along with the procedure that needs to be followed for implementation of these Regulations as far as communication, energy accounting etc. as specified in the Regulations is concerned.

We note that it is necessary to access the data from the existing meters provided at the generator end for the purpose of forecasting and scheduling and energy accounting. Hence, accessibility of the meter must be made available to the generators as well as QCA. SLDC may specify the same in the procedure.

As to the clarity sought by a number of objectors on the meters, telemetry data, mode of communication etc., all such details are to be covered under the Detailed Procedure to be prepared by SLDC under these Regulations under Regulation 5.13 so that uniformity and compatibility of the data is maintained at the State level. The Commission is of the view that elaboration of all these in the Regulations is not necessary.

2.14. Regulation 5.3:

Wind and Solar generators and those represented by Qualified Coordinating Agencies (QCAs), shall mandatorily provide the technical specifications at the beginning and whenever there is any change to the SLDC in a format as prescribed by the SLDC. The data relating to power system output & parameters and weather related data as applicable shall also be mandatorily provided by such generators or QCA appointed by it to the SLDC in real time.

2.14.1. Mytrah submitted that let SLDC finalize the format as any change in between will take time for re-defining software and tune to SLDC requirement.

2.14.2. Mankinaran, WIPPA, ReNew, Energon and IL&FS sought a confirmation that the data and information shared on a real time basis will be accepted by SLDC on real time and that there would not be any communication failure for the same. Also, as the existing SCADA with all the manufacturers logs the data at 10 minutes interval, aggregated farm data can be shared at 10 minute interval. The converted data (10 to 15 minute) can also be shared with SLDC but after post processing the data from 10 minute to 15 minute. Ability of SCADA and file formats differ from manufacturer to manufacturer. Sharing real time availability of numbers is a challenge and disruption of cable connectivity & grid interruption will be captured as downtime because non-availability of real time data though the system was available.

2.14.3. BLP suggested to include the relevant procedure and formats in the Regulations to help QCA/Generators for this purpose.

2.14.4. ReConnect sought clarity as to the specific requirement pertaining to weather related data as this will have to be provided by QCA or generator themselves. Also, in old wind farms turbine SCADA may not be available and in such cases, to consider allowing such wind farms/pooling stations to provide weather data through a common weather station installed at wind/solar farm and real-time meter data instead of SCADA data at turbine level.

Commission's View:

As to the suggestion that the format for submission of data may be specified by the SLDC for re-defining of the software and tune it to the requirement of SLDC, we note that the SLDC is to specify the same within a period specified in Regulation 5.13 under the detailed procedure so as to enable the generator/QCA to get acquainted in this regard.

We also note the contention of some of the objectors regarding confirmation of data and information on real time basis to be accepted by SLDC so that the delay can be avoided in sharing of information as well as the penalty or deviation charges might be avoided by the generator if the real time data is available with generator and QCA as well as SLDC is capable to carry out the aforesaid function on real time basis.

Any delay in receiving data with 10-15 minutes interval may affect the forecasting & scheduling carried out by the generator/QCA and also the deviation and penalty charges payable by them. Therefore, it is necessary that a robust communication system capable of sharing the data on real time basis and communication shall be established between the generators/ QCA and SLDC. SLDC shall ensure the same as part of the procedure to be prepared by them.

As to the objection that since at old wind farm turbines SCADA may not be available, weather data provided through a common weather station from wind /solar farm and real-time meter data instead of SCADA data at turbine level be allowed, the Commission clarifies that the data which needs to be provided by the wind/solar generators/QCA for the purpose of these Regulations shall be without any discrimination amongst the old or new generators. Further, these Regulations are framed for forecasting the availability from wind and solar generation into the grid and its impact on grid operations on real time basis and also to secure the grid operation. Any deviation in the required data/communication amongst the generators may affect the grid operation which is not permissible. Hence, the generator/QCA shall submit the weather data etc. as per the provisions of these Regulations.

Moreover, we are of the view that since SLDC is required to undertake scheduling and dispatch of energy in the State in terms of the provisions of the Act and the forecast of wind and solar generation to be provided by the QCA or generator would enable SLDC to perform its functions including that of monitoring and carrying out the grid operations

more accurately the sentence '*The forecast by the QCA or wind and solar generator, as the case may be, shall be generator centric with intimation to SLDC containing the availability of WTGs/Solar generators based schedule'* appearing in Regulation 5.5 of the Draft Regulation needs to be part of this Regulation and accordingly, we decide to include the same in Regulation 5.4 of the final Regulations.

The revised Regulation 5.4 reads as under:

Forecasting shall be done by wind and solar generators connected to the State grid, or by QCAs on their behalf. The forecast by the QCA or wind and solar generator, as the case may be, shall be generator centric with intimation to SLDC containing the availability of WTGs/Solar generators based schedule for each pooling station separately.

2.15. Regulation 5.5

The Gujarat SLDC is also mandated to undertake forecasting of wind and solar power that is expected to be injected into the State grid. The forecast by the SLDC shall be with the objective of ensuring secure grid operation by planning for the requisite balancing resources and grid operation. The forecast by the QCA or wind and solar generator, as the case may be, shall be generator centric with intimation to SLDC containing the availability of WTGs/Solar generators based schedule.

2.15.1. SLDC submitted that the word forecast be replaced with State Level forecast.

2.15.2. Manikaran submitted that sharing real time availability of turbines on the basis of SCADA can be a challenge as per current scenario. If the optical cable connectivity of turbines' SCADA system to server is disrupted, on a real time basis it would be captured as down whereas actually only the connectivity was down and WTG was running and generating. Hence, instead of considering real time availability based on SCADA data, the availability can be considered on Day Ahead incorporating cases wherein the turbines are known to be under maintenance/break down and their non-availability is confirmed.

2.15.3. Astra Solern submitted that as per the Electricity Act, SLDC is not to forecast but to schedule so as to maintain grid stability. Therefore, statutory functions of SLDC may be complied with accordingly.

2.15.4. EMCO, Sunkon, Mono Steel and Konark Gujarat Private Limited (Konark) submitted that SLDC should play a major role in getting better forecast from Solar Generators by appointing QCA based on historical data and pattern of generation and grid availability so that variations can be minimized in forecasting vs actual generation.

Commission's View:

We note that the function of scheduling and despatch to be carried out by the SLDC is based on the contract entered into between the licensee and generating company operating in the State. Thus, it is the duty of the generator/licensee to schedule and dispatch the energy as per provisions of Intra-State ABT Order, Open Access Regulations as well as Other Regulations/Orders in this regard. The present Regulations are framed for the wind and solar generators specifically which are connected with the grid and injecting the electricity into the grid either for sale or self-consumption or third party sale under open access. Therefore, there has to be a contract between a licensee and the generators, while in case of captive consumption the same is not there. However, all the generators who are connected with the grid need to schedule the energy in accordance with Section 32 (2) (a) of the Act. As the generator requires to carry out scheduling which depends upon the weather data for wind and solar generators, it needs to be provided by the generators on the day ahead as well as week ahead basis. SLDC is required to consider the aforesaid data for scheduling and despatch of energy in the State as per the aforesaid provision of the Act with consideration of aforesaid data and also needs to monitor and carry out the grid operation.

Further, SLDC is an independent body carrying out the functions of grid operation and ensuring grid security on real time basis, hence, they are not responsible for forecasting of generation on behalf of the generators. However, SLDC shall carry out the forecasting of wind and solar power expected to be injected into the State grid at State level with the objective of ensuring secured grid operation.

An issue has been raised that in case of disruption in SCADA system, on real time basis it would be captured as generator being down however wind turbine generators at that time may be running and generating. This issue seems to be genuine, hence, in such a case, if

no alternate remedy is available, then the effect of error/deviation from the schedule may be verified on post facto basis taking into consideration all the relevant data so that any undue penalty or deviation charges may not be levied on such generators by the SLDC.

2.16. Regulation 5.6

The QCA or wind and solar generator/generators will have the option of accepting the SLDC's forecast for preparing its schedule or provide the SLDC with a schedule based on their own forecast.

2.16.1. SLDC submitted to include the wordings *"…In this case, they have to derive their forecast out of State level forecast published by SLDC."* at the end of the existing clause.

Commission's View:

As recorded earlier, SLDC shall forecast wind and solar power expected to be injected into the State Grid with the objective of secured grid operation.

Accordingly, we decide that the words "*will have the option of accepting"* appearing in the Regulation be replaced by "*may derive its own forecast based on*".

Accordingly, we decide to amend Regulation 5.6 as under:

The QCA or wind and solar generator/generators may either derive its forecast based on the SLDC's forecast for preparing its schedule or provide the SLDC with a schedule based on their own forecast. However, if the generator(s)/QCA derive its schedule based on SLDC's forecast, they shall not take a plea that the error is due to erroneous forecast by SLDC.

2.17. Regulation 5.7

The QCA may aggregate one or more pooling stations (either injecting wind energy, solar energy or both), aggregate even at the state level for leveraging maximum benefit of aggregation.

2.17.1. SLDC submitted that as present allocation of wind and solar generators is different for different Discom/captive users embedded in Discom and as Discom-wise forecast is challenging, QCA may provide separate forecast for each pooling station but can give forecast for more than one pooling station.

2.17.2. Mytrah, WIPPA, ReNew and Energon posed a question as to how the aggregation will be done for one pooling station selling power at Intra-State and one selling at Inter-State, with separate deviation mechanism.

2.17.3. Hero Future Energies Private Limited (Hero Future Energies) submitted that one QCA must not be allowed to do forecasting for entire State as it would be anti-competitive.

2.17.4. Manikaran also sought clarity on submission of aggregated schedule as well as on applicability of commercial calculations for aggregated schedule when solar and wind are aggregated which have different number of deviations allowed and different deviation bands.

2.17.5. WIPPA, ReNew and Energon also sought further clarity on present Regulation as well as Regulation 5.9. & 7.2 as to aggregating the forecast for pooling stations connected to different transmission zones. WIPPA, ReNew, Energon and WWIL also submitted that Regulation 5.9 contradicts the aggregations stated in Regulation 5.7.

2.17.6. GUVNL submitted that QCA should not be allowed to aggregate more than one pooling substations as it will not improve the forecasting on area basis but will only allow averaging out the deviation which is not beneficial from grid management point of view.

2.17.7. TPTCL submitted that aggregation of the pooling station be started after 2 years from the start of scheduling, forecasting and deviation settlement.

2.17.8. ReConnect also sought clarifications as to (i) if the pooling station is commissioned before 30.1.2010, with some generators having commissioned after 30.1.2010, then what will be the applicable DSM charges? (ii) if pooling stations under a single QCA fall under 2 or 3 categories, will aggregation be allowed for all or based on the three categories of pooling stations? and (iii) if it is allowed irrespective of three categories, what deviation charges

will be applicable on the aggregated schedule? ReConnect also highlighted the possible complexities on this regard.

Commission's View:

We note that the draft Regulations provide different error bands in case of WTGs and commissioned prior to 30.1.2010 and after that. However, with consideration of the submissions made by the stakeholder it seems that the different error bands for WTGs as proposed in draft Regulations may lead to complications and may become cumbersome for preparing the State Pool Account. Hence, we decide to keep the same error band for WTGs commissioned prior to or after 30.1.2010 as per Table-I in the draft Regulations having Absolute Error band of "≤ 12% to > 28%". Further, for the solar generator the deviation band and corresponding applicable charges are different and distinct. In such a situation, if the aggregation of Wind and Solar is allowed, it will make the energy accounting cumbersome and difficult. In view of the above, deviation charges are made applicable irrespective of commissioning date.

Further, the WTGs or solar generators which are situated in different licence areas if aggregated for scheduling and forecasting by the generator or QCA, it will also need to take care in the energy accounting of licensee etc. Hence, we decide that the QCA or an individual generator connected to substation shall not be eligible to aggregate pooling station or individual generator connected to substation.

Accordingly, Regulation 5.7 is amended as under:

The QCA or individual generator, either injecting wind energy, solar energy or both, connected to a substation shall not be permitted aggregation of more than one pooling stations or individual generating station connected to a substation as the case may be.

2.18. Regulation 5.8:

In case generator/ QCA obtain the services of SLDC forecast, the SLDC shall recover the charges for such services from the beneficiary generator / QCA as approved by the Commission. The amount recovered under above services by SLDC shall be considered as

other income and shall be given effect in the ARR of SLDC. The generator/QCA may submit the schedule based on their own forecast. However, if the generator(s)/QCA use the service of SLDC for forecasting or scheduling, they shall not take plea, that the error was reflected in the scheduling due to erroneous forecast by SLDC.

2.18.1. SLDC submitted that the wordings '…*based on the reimbursement policy adopted by the SLDC*" be added at the end of first sentence.

2.18.2. Mytrah requested that the detailed terms and conditions along with techno-commercial offer be placed in public domain and before finalization, SLDC to seek comments/suggestions from the stakeholders.

2.18.3. Manikaran submitted that the generators/stakeholders possessing major quantum (>50%) at a pooling sub-station be allowed to take a decisive step for the appointment of the QCA for the services to be rendered for them and the remaining generators need to abide by such decision. Also the procedure or criteria for segregation needs to be defined in such a way that there will be no ambiguity between the responsible agency/authority and authorized body. Further, the criteria needs to be well defined.

2.18.4. ReGen, TPTCL and Tata Power Company Limited (TPCL) submitted that ultimate responsibility of deviation settlement rests with the generator/QCA and since the forecast of SLDC has been mandated as per proviso of Regulation 5.5, any service charge by SLDC should not be there on Generator/QCA for forecast services of SLDC. This provision needs to be in line with the CERC framework as well as with that of Other SERCs.

Commission's View:

As observed earlier (Regulation 5.5), SLDC is mandated to carry out forecasting of the wind and solar power expected to be injected into the State grid. Further, we decide that where the QCA / generator derives its schedule from SLDC forecast, for any deviation they shall not take a plea that error is due to erroneous forecast by SLDC.

The aforesaid provisions are also incorporated by the Commission as part of Regulation 5.6.

In view of above, the provision of proposed Regulation 5.8 becomes part of Regulation 5.6 of the Final Regulations and accordingly, Regulation 5.8 as proposed in Draft Regulations is deleted.

2.19. Regulation 5.9

The QCA shall co-ordinate the aggregation of schedules of all generators connected to a pooling station and communicate it to the SLDC. In case of the generators who are directly connected to the Sub-station, such generators or the QCA appointed/nominated by such generators shall communicate their schedule at interface / interconnection point to the SLDC.

2.19.1. Manikaran submitted that single QCA for a pooling station be held eligible and authorized by SLDC to perform all the activities on behalf of all the generators and their coordination. The identification criteria for the appointment of QCA needs to be defined for the selection of QCA for pooling station. The criteria for the appointment of the QCA needs to be either based on the major quantum holder on behalf of the generators at the pooling station or any other well suited procedure recommended by SLDC.

Commission's View:

Selection of QCA is a subject matter of the generators at the pooling stations or the generators who desire to avail the services of the QCA. Therefore, the contention that the criteria for appointment of QCA needs to be specified in the present Regulations does not seem valid and hence, the same is not accepted. Further, as Regulation 5.8 of the Draft Regulations is deleted, we decide that Regulation 5.9 of Draft Regulation be renumbered as Regulation 5.8.

2.20. Regulation 5.10:

The QCA or the wind and solar generator shall submit a "Day-Ahead" and a "Three-Day-Ahead" schedule by 10 AM everyday for each pooling station or each generating station, as the case may be, which shall be utilized for planning of availability of energy and for calculating the margin available in the grid of the state. "Day-Ahead" schedule shall contain wind or solar energy generation schedule at intervals of 15 minutes (time-block) for the next day, starting from 00:00 hours of the day, and prepared for all 96 time-

blocks. "Three-Day-Ahead" schedule shall contain the same information for the next three days.

2.20.1. ACME Solar has sought clarification as to whether the revisions given in three-day ahead schedules will be counted under the 8 allowed revisions or will be separate over & above the 8 intra-day revisions. Also, the restriction of one and half hour for two consecutive revisions be removed.

2.20.2. Mytrah submitted not to make submission of Three Day Ahead Schedule mandatory.

2.20.3. Continuum Wind endorsed the proposal of Three Day Ahead Schedule for the purpose of improving the quality of forecast. ReGen submitted to replace Three Day Ahead Scheduled by Week ahead as per the FoR model Regulations.

2.20.4. IEX submitted that the time limit provided in the above Regulations conflicts with the Open Access Regulations as under these Regulations, RE generators are able to sell under Open Access, the time limit be adopted as per Open Access Regulations. Also, terminology 'Three Day Ahead schedule' be modified as 'Three Day Ahead forecasting' for better clarity and understanding.

2.20.5. BLP submitted to put wordings 'Tentative' for Three Day Ahead Schedule.

2.20.6. Shri V. K. Agrawal, submitted that the significance of Three- Day Ahead is not very clear. For a broad estimation and to remain in sync with other interconnected systems, it may be kept a Week Ahead Schedule.

2.20.7. EMCO, Sunkon, Konark and Mono Steel submitted that solar generation is based on availability of various environment factors, hence accurate forecasting of data in 15 minute blocks would be extremely difficult and not feasible.

Commission's View:

We note that as far as schedule to be given by the QCA/generator for three days ahead basis is concerned, it is for the purpose of estimating the available generation from the generators and its impact from the point of view of grid operation and is on tentative basis.

Hence, we are of the view that such schedules may be given by the QCA/generator on week ahead or seven days ahead basis as it will not make much difference as far as the utilization of the same for the forecasting by SLDC is concerned.

We also note that the time period specified in Open Access Regulations/ABT Orders need to be in consonance with present Regulations for correct scheduling/despatch at State periphery, hence, we decide the time limit for the schedule to be given by QCA/generator shall be as per the time frame of Open Access Regulations/ABT Orders for day ahead as well as week ahead schedules.

We, therefore, agree to replace three day ahead schedule with a week ahead schedule to be given by the QCA/generator in the aforesaid Regulation.

Further, as Regulation 5.8 of the Draft Regulation is deleted, we decide that Regulation 5.10 of Draft Regulations be renumbered as Regulation 5.9.

Accordingly, Regulation 5.9 is amended as under:

The QCA or the wind and solar generator shall submit "Day-Ahead" and a "Week-Ahead" schedule by 9 AM everyday for each pooling station or each generating station, as the case may be, which shall be utilized for planning availability of energy and for calculating the margin available in the grid of the State. "Day-Ahead" schedule shall contain wind or solar energy generation schedule at intervals of 15 minutes (time-block) for the next day, starting from 00:00 hours of the day, and prepared for all 96 time-blocks. "Week-Ahead" schedule shall contain the same information for the next seven days.

2.21. Regulation 5.11 and 5.12.

The schedule of wind generators connected to the State grid (excluding collective transactions) may be revised by giving advance notice to the SLDC. Such revisions shall be effective from 4th time block, the first being the time-block in which notice was given. There may be maximum of 16 revisions during the day.

The schedule of solar generator/generators connected to the State grid (excluding collective transactions) may be revised by giving advance notice to the SLDC. Such revisions shall be effective from 4th time block, the first being the time-block in which notice was given. There may be maximum of 8 revisions during the day starting from 05:30 hours of a particular day up to 17:30 hours of a day.

2.21.1. SLDC submitted that revisions to be made for deviation in forecast for more than 5% as compared to previous revision and effective in ensuing blocks only are to be considered for calculation of percentage change.

2.21.2. Manikaran submitted that since aggregation of Wind & Solar pooling station is allowed, the time limit and the format for the schedule submission for such case along with the applicable time and format for intraday revisions need to be well defined by the SLDC.

2.21.3. IL & FS and Ostro Energy requested to allow 16 nos. of revisions for solar as well as wind generators as per the FoR Regulations.

2.21.4. Astra Solern submitted that the effective revisions may be started from 2nd time block as the forecasting capabilities are in nascent stage and the revision would be rather frequent in initial period.

2.21.5. ReConnect submitted that it is not clear as to whether the revision can be submitted at regular intervals of 1.5 hours each or at any given time of day. Also, as Gujarat is located on western side of India, the ideal window for solar generation would extend from 6 am to 7 pm.

Commission's View:

As far as the objection of SLDC that the revision in deviation in forecast for more than 5% compared to previous one be allowed for considering change in the schedule is concerned, the same has been dealt by us earlier and hence not repeated.

As far as the issue as to the revision and other submission for aggregated wind and solar pooling station is concerned, we note that since the aggregation of wind and solar pooling stations is not allowed now by the Commission, the issue is not relevant anymore.

Further, as regards allowing of 16 Nos. of revisions for solar generation, the Commission is of the view that since the solar generation is available for limited period only and being more predictable compared to wind, the number of revisions allowed i.e. maximum 9 Nos. is sufficient.

The revision in solar generation permitted by the Commission with consideration of limitation of solar radiation available in the State and possibility of operation of the plant and accordingly, maximum 9 revisions are permitted to such generators by the Commission.

Further, as far as the suggestion of making the revision effective from 2nd time block is concerned, it is not acceptable in view of the CERC Regulations.

We note that ReConnect has submitted that window for solar generation to be extended from 6 am to 7 pm instead of 05.30 am to 5.30 pm since Gujarat is located in the Western side of India. In this regard, we note that the solar generation of a particular day varies according to duration of day which again varies on the basis of seasonal variation. Accordingly, we decide the time duration of 5:30 hours to 19:00 hours for the purpose of forecasting and scheduling of solar generation and accordingly, the revision in forecasting is allowed for nine times during the day.

Further, as Regulation 5.8 of the Draft Regulation is deleted, we decide that Regulation 5.11 and 5.12 of Draft Regulations be renumbered as Regulation 5.10 and 5.11 respectively and accordingly the amended Regulations 5.10 and 5.11 are reproduced hereunder:

5.10 The schedule of wind generators connected to the State grid (excluding collective transactions) may be revised by giving advance notice to the SLDC. Such revisions shall be effective from 4th time block, the first being the time-block in which notice was given. There may be maximum of 16 revisions during the day.

5.11 The schedule of solar generator/generators connected to the State grid (excluding collective transactions) may be revised by giving advance notice

to the SLDC. Such revisions shall be effective from 4th time block, the first being the time-block in which notice was given. There may be maximum of 9 revisions during the day starting from 05:30 hours to 19:00 hours of that day.

2.22. The Commission is of the view that as decided in earlier para in view of available capacity of Wind and Solar generation plant in the State having different periods, it is necessary to give clarity with regard to the period to be considered and accordingly we decide to incorporate Regulation 5.12 in the final Regulations as under:

The declared 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 irradiation only during the day, the AvC for a solar generating plants shall be applicable only between 05:30 to 19:00 hours.

2.23. Regulation 5.13

The plan for data telemetry, formats of forecast submission file upload facility in software etc. being provided by SLDC to a QCA/Generator and other details in this regard shall be provided in the Detailed Procedure to be prepared by SLDC and approved by the Commission. SLDC shall prepare the above details within one month from this notification and get approval from the Commission.

2.23.1. SLDC submitted to add *"As of now, real time telemetry data is 100% available at SLDC/Sub-SLDC of Solar and Wind generator of 5 MW capacity and above."*

2.23.2. Mytrah sought that before finalization of detailed procedure, SLDC should seek comments/suggestions from the stakeholders.

2.23.3. Manikaran submitted that detailed procedure will provide more clarity on the plant, telemetry communication and other information and formats as required by SLDC.

Commission's View:

SLDC has stated that presently the wind/solar generator with capacity of 5 MW and above are having real time telemetry data of 100%. It is clarified that the forecasting & scheduling initiated by the Commission through the present Regulations covers all the wind and solar generating stations having combined installed capacity above 1 MW under the aforesaid Regulations, so that more accurate impact due to the deviation, if any, caused by these generators is noted and recorded. We, therefore, decide that the telemetry data of all wind and solar generators covered under these Regulations must be available.

As far as finalization of Detailed Procedure to be prepared by SLDC consisting of plan for data telemetry communication, format in which data is to be submitted by the Generators/QCA etc., we decide that SLDC shall prepare it within one month from this notification and get it approved from the Commission after addressing the comments and suggestions of the stakeholders.

2.24. Regulation 5.15

In case of QCA appointed by renewable energy generator for forecasting and scheduling work, the QCA shall be responsible for the payment payable on behalf of the generator. The individual generator and QCA shall execute an agreement specifying that the QCA shall be responsible for all obligations/liability arising out of the scheduling/forecasting work carry out by him on behalf of the renewable energy generator.

2.24.1. Hero Future Energies submitted that QCA be made responsible for commercial obligations arising out of deviations only and cannot legally take responsibility on behalf of generators who are required to comply with the grid code and hence the Regulation be modified suitably.

2.24.2. Manikaran submitted that a bank guarantee to be given either by the generator or QCA to SLDC as payment security mechanism and in case the payment security mechanism is being provided by QCA, an equivalent back to back security to be provided by the generating company to QCA.

2.24.3. TPTCL also submitted on similar lines that the agreement to have provision for payment security by individual generator/generators to QCA, failing which QCA shall not aggregate

such generator for sending the schedule to SLDC and such generator shall be disconnected from pooling station.

2.24.4. ReConnect also submitted that the Regulation be construed as the liability of only DSM charges is that of QCA and not the others.

Commission's View:

The Commission has already clarified and has accordingly limited the liability/responsibility of the QCA only towards deviation charges.

As to the submission of back to back security to be provided by the generating company and QCA, we note that the responsibility of payment for deviation is of the generator and in case of failure, it will be the responsibility of QCA who functions on behalf of such generator as its authorized agent. The issue of back to back security is between the aforesaid two parties as a part of their business.

It has also been submitted that in case of failure in providing payment security by individual generator/generators, QCA should not aggregate such generator for sending schedule to SLDC and to disconnect from the pooling station. We clarify that it is the prime responsibility of the generator to carry out forecasting and scheduling under the present Regulations and to pay the deviation charges arising out of it. Any failure on this account amounts to non-compliance of the Commission's Regulations by the Wind and Solar generating company.

We also clarify that if the generator fails to pay QCA and QCA does not schedule such generator as per the agreement governing the parties, in that case it will be deemed that such generator has not scheduled the energy.

We also clarify that in such a situation QCA must point out that the scheduling of a particular generator is not being carried out by it, so while evaluating scheduling and its impact, SLDC may consider the same.

We also clarify that the responsibility of QCA is with regard to Deviation charges and other charges which are payable under these Regulations only on behalf of such generators for whom the QCA is functioning.

We also note that Payment Security Mechanism needs to be specified in the present Regulations. Accordingly, we decide to revise Regulation 5.15 as under:

"*In case of QCA appointed by renewable energy generator for forecasting and scheduling work, the QCA shall be responsible for the charges payable on behalf of the generator. The individual generator and QCA shall execute an agreement specifying that the QCA shall be responsible for all obligations/liabilities arising out of the forecasting and scheduling work carried out by him on behalf of the renewable energy generator. The QCA shall provide payment security to the extent of 110% against deviation charges in the form of Bank Guarantee / Revolving LC. The QCA may ensure similar payment security mechanism back to back with respective generators. The payment security amount for the first year shall be worked out considering average deviations observed during the mock trial for different set of sites:*

a) Wind generating plant of approximate 50 MW capacity at Pooling Sub-Station.

b) Solar generating plant of approximate 25 MW capacity at Pooling Sub-Station.

For second year and onwards the payment security shall be reviewed based on the average deviations observed during the first year (previous year) and applying the aforesaid mechanism, the security amount shall be worked out and the same shall be provided by the QCA."

2.25. Regulation 5.16:

When the QCA appointed by the generator for the purpose of these regulations, the responsibility for all the payments payable on behalf of the RE generators shall be of QCA. The QCA shall be held responsible with regard to dues payable/receivable on behalf of the generator, if the generator fails to pay the deviation charges payable under these regulations through the QCA. The RE generators, QCA and SLDC shall sign a tri-party agreement in this regard and it required to submit to the SLDC and get approved from the Commission by the SLDC.

2.25.1. SLDC submitted that the last sentence be modified as *"…The RE generator(s) and QCA shall sign an agreement in this regard and get it approved from the Commission. Approved agreement is to be submitted to SLDC with necessary financial security instrument."*

2.25.2. Manikaran and ReConnect also submitted that the QCA be liable only for the DSM charges and not any other.

2.25.3. WIPPA, ReNew and Energon submitted to provide the format and consent of tri-partite agreement so as to keep all the stakeholders in the same format. Draft agreement to be shared for review and comments.

2.25.4. TPTCL submitted that tri-partite agreement to consider the payment security clause i.e. individual generator has to provide payment security to QCA, in the form of Bank Guarantee.

2.25.5. WWIL submitted that Regulation 5.16 holds the QCA responsible if the generator fails to pay deviation settlement. But this Regulation states that SLDC cannot be held responsible for erroneous forecast. This is a preferential treatment for SLDC and this, Regulation 5.16 be removed or let SLDC take liability of deviation charges.

Commission's View:

We have already decided that the responsibility of payment related to deviation charges on behalf of RE generators shall be that of QCA. QCA shall be held responsible with regard to dues payable / receivable on behalf of the generator(s), if the generator fails to pay the deviation charges payable under these Regulations through QCA. In this regard, as proposed by SLDC, the RE Generator and QCA shall sign an agreement. Accordingly, Regulation 5.16 is modified as under:

5.16 When the QCA is appointed by the generator for the purpose of these Regulations, the responsibility for all the payments related to deviation charges payable on behalf of the RE generators shall be that of QCA. The QCA shall be held responsible for the dues payable/receivable on behalf of the generator, if the generator fails

to pay the deviation charges payable under these Regulations through the QCA. The RE generators and QCA shall sign an agreement in this regard.

2.26. Regulation 5.17:

The Draft Agreement shall be prepared by the SLDC and get approved from the Commission.

2.26.1. SLDC submitted that the Regulation be modified as to …*'The Commission will prepare a standard format of agreement for all RE generators and QCA."*

2.26.2. Mytrah and Hero Future Energies submitted that before finalization of draft agreement, it should be placed on the website for inviting comments and suggestions from the stakeholders.

2.26.3. Manikaran submitted that in case there are multiple generators at pooling stations, how will triparty or multiparty agreement will work or be applicable. Also agreement to be based on either number of generators connected to pooling stations or one principal generator? Criteria of the agreement to be signed provided by SLDC after approval by the Commission needs to be defined.

Commission's View:

Taking into consideration the objections/suggestions of the stakeholders, we decide that the draft Regulation 5.17 proposed in the Regulations is not relevant in these Regulations as the SLDC which is a statutory authority under the Act is not required to prepare the agreement to be executed between the generator and the QCA. Hence, we decide to drop the aforesaid draft Regulation in the final Regulations.

2.27. We note that from the suggestions and objections of the stakeholders it transpires that it is necessary to incorporate Regulation to provide clarity about the 'Role of QCA' prior to the Regulation on the 'Qualifying Criteria for QCA'. Hence we decide to incorporate specific Regulation on the 'Role of QCA' as Regulation 6 prior to Regulation pertaining to the 'Qualifying Criteria for QCA', which is accordingly renumbered as Regulation 7.

Regulation 6 pertaining to 'Role of QCA' (Regulation 6.1 to Regulation 6.5) as a part of the final Regulations is as under:

6. ROLE OF QCA

QCA may be one of the generators or any other mutually agreed agency for the following purposes:

6.1. Provide schedules with periodic revisions as per this Regulations on behalf of all the Wind/Solar Generators connected to the pooling station(s) or individual Wind/Solar generator directly to the transmission licensee / distribution licensee network/ sub-stations.

6.2. Responsible for co-ordination with authorized agency DISCOM/STU/SLDC and other agencies in coordination with Generator /Developers for metering, data collection and its transmission and communication.

6.3. Undertake commercial settlement of deviation charges arising on account of forecasting and scheduling on behalf of the individual generators which is connected directly to transmission licensee / distribution licensee network/ sub-stations or generators connected with pooling station, including payments to the State Pool account through SLDC.

6.4. Undertake de-pooling of payments received/payable on behalf of the individual generator/generators of the pooling station from the State Pool account and settling them with the individual generators

6.5. Undertake commercial settlement of any other charges on behalf of the generators as may be mandated from time to time.

Failure of QCA in carrying out above activities shall not relieve the Generators/Developers from the penalties etc. provided in these Regulations.

QCA shall be treated as a Forecasting and Scheduling Entity and will be the single point of contact with SLDC. QCA shall get registered with the SLDC.

2.28. Regulation 6: *Qualifying criteria for QCA*:

6.1. The QCA shall be appointed by Wind/Solar Generators who may be one of the generators or any mutually agreed agency on the following criteria.

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

6.3. The QCA shall have the experience in the field of Wind/Solar Power forecasting and scheduling for a minimum period of 2 years.

6.4. The QCA shall have capability to handle multiple plant owners connected to a Pooling Station in order to be well positioned to de-pool deviation charges.

6.5. The QCA must have experience in working in different terrain & regions as wind/Solar generation depends on these factors and such experience facilitates better scheduling.

6.6. The financial strength of the QCA must be such that it should be in a position to handle the risk of penalties due to deviation charges applicable to generator. Considering this the net worth of the QCA from forecasting & scheduling services must be in positive amounting to at least Rs.2.5-Crores in the current financial year which should reflect from its audited balance sheet or CA's certificate.

6.7. The QCA shall have equivalent systems in place for seamless flow of information to and from SLDCs and RLDCs in order to facilitate scheduling, revision of schedule, intimation of outages/grid constraints etc.

6.8. QCA shall have capability to provide real time monitoring systems in place for seamless flow of information to and from SLDCs/ RLDCs.

6.9. QCA should have an established team of Renewable Resource Analysts, modeling Statisticians, Energy modelers, Software developers and 24x7 operation and monitoring team.

6.10. The QCA shall be using software developed by at least CMMI level 3 certified companies or as decided by SLDC or the Commission from time to time.

2.28.1. SLDC submitted that clause "*The QCA will apply to the Commission with appropriate format and enclosures to get approval as QCA (in line with the approval of trading license).*" be added to Regulation 6. SLDC also submitted that in Regulation 6.3 wordings *"…not less than quantum of 50 MW"* be added. QCA may be able to from a Joint Venture to meet financial/Technical capabilities. SLDC also requested the wording *"…current financial year"* be replaced with *"…consecutive last two years."* in Regulation 6.6.

2.28.2. Astra Solern submitted that the definition of power trader to be incorporated as there would be entities both existing and new who would sell power outside or within the State through power traders. Also power traders to be made eligible for becoming QCA as they undertake functions of QCA for many generators.

2.28.3. ACME Solar, Hero Future Energies and BLP Energy submitted that as the concept is new and for the new firms involved in R&D tools for solar forecasting, the criteria for minimum experience of 2 years should be removed.

2.28.4. Mytrah submitted that Regulation needs to address as there may be a single generator at pooling station acting as QCA. Mytrah also submitted that wordings "…from forecasting & scheduling services" as eligibility criteria for net worth and allow group companies financial assistance for computing networth at Regulation 6.3 and also increase the net worth to Rs. 100 Crs. per annum.

2.28.5. Myntrah, WIPPA, ReNew and Energon also sought clarity on the Regulation 6.10 for integration of proprietary software and in order to remove ambiguity, SLDC should lay down the list of authorized software.

2.28.6. Hero Future Energies submitted that according to Regulation 3 (r) (iii), QCA can be a generator. Generator acting as QCA may outsource forecasting to third parties, internally improve upon it and submit to SLDC. However, Regulation 6.3 does not support this, hence, may be deleted.

2.28.7. Manikaran submitted to clarify as to how and with what details/documents, the criteria will be verified by SLDC/Commission. Appropriate work orders and experience certificate from the generators/IPPs are to be furnished by the QCA for verification process. Manikaran also sought clarity as to whether QCA can give access of own software to SLDC

or SLDC will share the API of their scheduling software. SLDC may also clarify on the details of communication of data/flow of the data among SLDC and QCA.

2.28.8. WIPPA, ReNew and Energon submitted that Regulation needs to stipulate the eligibility conditions for a generator, who wishes to undertake the job of QCA.

2.28.9. Statkraft and BLP Energy sought clarity as to whether the relevant experience in forecasting and scheduling has to be India specific or International experience will also be valid. Statkraft also submitted that for only India specific, F&S is at nascent stage and has limited players, which restricts the competition and cost efficiency. Hence, it should not be impediment towards players having international experience. Also, parent company's experience and exposure should also be considered. Statkraft also sought clarity on Regulation 6.10 as to context and application of software developed by CMMI level 3 entities to be used by QCA.

2.28.10. BLP Energy submitted that in case of any dispute arising amongst the generators in selection of QCA, majority stakeholders of the connected pooling stations have the power and lead the decision taking activity in the selection of QCA.

2.28.11. Hero Future Energies suggested to delete Regulations 6.4 & 6.5 as capabilities to handle multiple plant owners is more relevant if the definition of QCA only envisages third party agencies as forecasters plus this criterion is too vague to have any objective assessment. A generator may not necessarily have assets in other States having different terrain and weather because of business viability and other factors. This however does not mean that the generator cannot act as efficient QCA because its own commercial interest is at stake. The QCA definition does not restrict a generator from becoming a QCA and hence this criterion has to be deleted. Similarly, Regulation 6.9 and 6.10 can never be met by a generator who wants to function as QCA, which is allowed as per the definition of QCA.

2.28.12. TPTCL submitted that Regulation 6.5 may not be required as for better forecasting, the experience criterion is necessary which is covered under Regulation 6.3. TPTCL also submitted that in case deviation upto 30 % from wind generators, deviation charges for a pooling station of size of 50 MW works out to Rs. 31.8 Crs. (Rs. 5.3 Crs./month). As QCA can aggregate two or more pooling stations, the net worth of QCA be enhanced accordingly. QCAs to have a trading license who is having net worth according to the liability for

payment on account of deviation charges. TPTCL also submitted that QCA to have a valid trading licence issued by CERC as this would ensure that QCA has experience in scheduling, invoicing, settlement and substation IT setup.

2.28.13. GUVNL submitted that instead of having networth of Rs. 2.5 Crs., the financial strength of QCA should be in proportion to MW capacity which it is representing.

2.28.14. WWIL submitted that it will not provide opportunity for new players even though they have better algorithms to get the numbers right merely because of the financial issues.

2.28.15. ReConnect submitted that Regulation 6.10 should be modified to *".... The QCA shall be using software developed by at least CMMI level 3 certified companies or as decided by SLDC or the Commission from time to time or the software or systems already developed by the QCA for a State SLDC or RLDCs as the case may be and being used by them."*

Commission's View:

The QCA is to be appointed by the generator/generators. Moreover, as per the Regulations, the prime responsibility of forecasting and scheduling is that of the generator. Therefore, the generator needs to forecast and schedule itself or by his agent who is fulfilling the necessary criteria as per the present Regulations to carry out such function on behalf of the generator/generators.

When the generator appoints such person and allows him to carry out the function on its behalf, he has to inform to SLDC and undertake that such person is carrying out the function on its behalf. Therefore, the generator needs to submit their proposal in the prescribed format with relevant data of QCA to SLDC.

We also note that the restriction desired by SLDC that QCA may have experience for not less than 50 MW of quantum, the same is not accepted as it may lead to restricting the availability of QCA which is not the intent of the present Regulations.

The net worth of QCA proposed as Rs. 2.5 Crs. in current financial year is with consideration to reflect the financial strength of the QCA for the current financial year

which is relevant with regard to penalty, if any, payable by the QCA on behalf of the generator.

Some of the objectors have submitted that the power traders be made eligible as QCA. We clarify that if the qualifying criteria as specified in the Regulations is fulfilled by power traders, they are eligible to function as QCA and there is no restriction on power trader from becoming and functioning as QCA.

A suggestion has also been made that the criteria of minimum experience of 2 years be removed. We clarify that the RRF mechanism was introduced by CERC since long back. Hence, there is a presence of the entities having such experience. Further, entities having experience may able to forecast with better accuracy than the entities not having such experience. However, to give leverage to the new entities who desire carry out such function, we decide that minimum experience of 2 years be reduced to 1 year.

As regards the suggestion that a single generator at pooling station may also act as QCA and accordingly the Regulation needs to be revised, we note that the Regulation states that a generator may forecast and schedule the energy on its own or may carry out this function through another person who is a qualified QCA. Therefore, there is no restriction that single generator at a pooling station may carry out the function of forecasting and scheduling under the present Regulations.

With regard to the suggestion that the networth of QCA or its group company be Rs. 100 Crs. per annum, we note that the aforesaid criteria will lead to restriction on entry or qualification of QCAs which is not the intent of the present Regulations. Hence, the same is not accepted and is rejected.

We note that whenever the generator carries out the function of scheduling for itself, it is not necessary for him to avail the services of QCA. It is at par with QCA. Accordingly, the necessary changes are incorporated at Regulation 7 as stated below:

"Provided that when a generator carries out forecasting and scheduling activity for itself, it need not avail the services of QCA and as such will be exempted from the qualifying criteria of QCA."

It has also been submitted that the Commission may clarify as to which details/documents will be verified by the SLDC/Commission. The aforesaid issue has already been clarified by the Commission in earlier para that the function of examining the documents to check as to whether the qualifying criteria is fulfilled or not is that of the SLDC.

As to the issue regarding clarity on sharing of information of scheduling through software between SLDC and QCA and data flow amongst QCA and SLDC, we decide that it is necessary that the data flow on real time basis continues between the aforesaid 2 entities without time delay to avoid any consequence of it on the scheduling, its revision as well as penalty. The means of software communication link, sharing of data flow to and from SLDC and QCA shall be specified by the SLDC as a part of the procedure so that necessary infrastructure is created by the entity concerned in this regard.

As far as the experience of QCA relating to different terrain and region is concerned, it is to clarify that the objective behind this is that QCA having such varied experience will able to give more accurate forecasting and scheduling. However, it is not being limited to Nation or region specific.

Moreover, keeping the software developed by at least CMMI level 3 certified companies is with reference to better application of software which will be helpful in scheduling of the energy. Any deficiency or limitation of software may lead to scheduling error which is not the intent of the present Regulations. Hence, it is necessary that software developed by CMMI 3 entities be used by the QCA.

As far as any dispute pertaining to appointment/selection of QCA is concerned, it is not a subject matter of the present Regulations and the said issue does not fall within the purview of the Commission.

Regulation 6.4 and 6.5 have been proposed with regard to various activities required to be carried out by the QCA for energy accounting of different generators as well as better scheduling on their behalf so that, as far as possible, the deviations are minimized and penalty/deviation charges are avoided to that extent.

We also clarify that there is no bar on the generators to carry out the forecasting & scheduling for their own plants. However, if the generator desires to carry out the same on behalf of the others, functioning as QCA, then it needs to fulfill the qualifying criteria specified in the Regulations.

As regards the suggestion that the net worth of the QCA be linked with scheduling carried out by it and anticipated penalty payable by such QCA and the net worth of Rs 2.5 Crs. needs to be revisited, we note that at present in the State neither scheduling is being done by wind/solar generators nor any data pertaining to deviation/penalty payable by the generators is available. In the absence of such data, it is difficult to decide the exact net worth required to qualify as QCA. The net worth proposed in the Regulation is with a view to ensure capability of QCA to pay the penalty on behalf of the generator if generator fails to pay the amount of penalty.

Moreover, the Commission is of the opinion that Regulation 6.2 of the draft Regulations providing that the QCA should be a company incorporated under the Companies Act, 1956/2013 needs to be broad based rather than restricting the QCA to be company incorporated under the Companies Act 1956/2013 and in order to provide opportunity to entities other than the companies, we decide to broaden the ambit by modifying and rephrasing the Regulation so as to enable any Company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person to act as QCA.

Considering the suggestions and objections made by various stake holders and the view of the Commission on the same, it is necessary to recast the said Regulation so as to provide more clarity on the 'Qualifying Criteria for QCA'. Hence we decide to recast the Regulation 6 pertaining to the 'Qualifying Criteria for QCA' and since in earlier para we have decided to incorporate Regulation regarding the 'Role of QCA' as Regulation 6, the Regulation pertaining to the 'Qualifying Criteria for QCA' is renumbered as Regulation 7. The revised Regulation pertaining to 'Qualifying Criteria for QCA' being Regulation 7 now is as under:

7. Qualifying criteria for a QCA

7.1. The QCA shall be appointed by Wind/Solar Generators who may be one of the generators or any mutually agreed agency. Any company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person shall be eligible to act as a QCA provided it satisfies the qualifying criteria as laid down hereunder:

(i) The QCA shall have the experience of minimum 1 year in the field of Wind/Solar Power forecasting and scheduling,

(ii) The financial strength of the QCA must be such that it should be in a position to handle the risk of penalties on account of deviation by the generator. Accordingly, the net worth of the QCA from forecasting & scheduling services must be positive amounting to at least Rs.2.5 Crores in the recent last financial year which should reflect from its audited balance sheet or from the certificate of a practicing Chartered Accountant,

(iii) 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.

(iv) QCA should have an established team of Renewable Resource Analysts, modeling Statisticians, Energy modelers, Software developers and 24x7 operation and monitoring team.

(v) The QCA shall be using software developed by at least CMMI level 3 certified companies or as decided by SLDC or the Commission from time to time.

Provided that when a generator carries out forecasting and scheduling activity for itself, it need not avail the services of QCA and as such will be exempted from the qualifying criteria of QCA.

2.29. Regulation 7.1:

The commercial mechanism and deviation settlement is stated below:

a) The wind or solar generators connected to the State grid and selling power within the State shall be paid by the buyer as per actual generation at the tariff rate agreed in the power purchase agreement or wheeling agreement.

b) The wind or solar generators connected to the State grid and selling power outside the State shall be paid by the buyer as per the term of agreement for the tariff rate agreed in the power purchase agreement or wheeling agreement and as per the CERC (Deviation Settlement Mechanism and Forecasting) Regulations, 2015.

c) The wind or solar generators connected to the State grid and self-consuming power within the State, accounting of such energy generated shall be set off against consumption as per prevailing orders passed by the Commission.

d) The wind or solar generator who deviate from its given schedule shall be liable to pay deviation charges as per the provisions of these regulations.

2.29.1. ACME Solar submitted that clarification is required for commercial settlement for the plants supplying power to Intra-State as well as Inter-State entities.

2.29.2. Continuum Wind also sought clarification submitting that there could be STU connected project selling partly Inter-State and partly Intra-State from common pooling station and in such cases there cannot be two different regulations governing such projects as forecasting shall be done at pooling station.

2.29.3. ReGen submitted that in order to bring clarity on Tariff and DSM, an Inter-State sale of power, the wind and solar generators connected to State grid and selling power outside the State be paid by buyer as per scheduled generation and deviation charges be made applicable as per the CERC DSM Regulations.

2.29.4. IEX has sought to modify the Regulation 7.1 (b) by addition of words "…paid by the buyer *as per the scheduled generation* as per the term …..".

2.29.5. Shri V. K. Agrawal submitted that once the generators are connected to the State grid, they become a control area under State jurisdiction and have to follow the State Regulations. To say that in wholesome they would follow the CERC DSM Regulations would not be correct

and may lead to anomalies in certain situations. The State Regulations for such transactions can follow the CERC (DSM) Regulations, however, appropriate words/sentences shall have to be part of the State Regulations. Furthermore, the important central theme under such transactions that the payment shall have to be made by the buyer to the QCA/generators as per "schedule" needs to be reflected clearly.

Commission's View:

In this regard, we clarify that the entities/generators, who are connected with the Intra-State Network but either selling the energy in another State or within State or consuming the same in the State, they are governed by these Regulations because any deviation between scheduled and actual generation impacts at the State periphery leading to deviation charges/penalty to the State entities. It is necessary that such deviations are recorded and the generator(s) who have deviated from their schedules are made to pay the deviation charges specified in the Regulations. Such entities are, therefore, governed by the provisions of these Regulations.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 7 of the Draft Regulation is renumbered as Regulation 8

2.30. Regulation 7.2:

The QCA /individual generator selling power/consuming power outside the State of Gujarat but connected with the State transmission network/distribution network shall require to give separate schedule for the energy generation as per these regulations to the SLDC and RLDC concerned. The deviation settlement account for such generators shall be prepared by the SLDC for measurement of the deviation of energy by such generator and its impact in the state periphery. Such generators shall pay the deviation charges within the State in case of deviations by them in the State DSM account. As far as the impact of deviation by such generator in the inter-state level is concerned they are governed by the regulations of CERC (Deviation Settlement Mechanism and Forecasting) Regulations, 2015.

2.30.1. SLDC proposed to delete the last sentence of the aforesaid Regulation.

2.30.2. GUVNL submitted that the generators embedded within the State are not required to give schedule directly to RLDC as the same is included in the composite schedule of the State and informed by SLDC to RLDC. Regulation 7.4 states that the accounting for this purpose shall be done by SLDC limited to the deviation that takes place in the State grid due to under/over injection by the generator. Deviation Settlement Account for any deviation by the generator against the total scheduled generation (within & Outside state) will be worked out commonly by SLDC and it is not possible to have separate mechanism for within State and outside State. Hence, the charges for deviation by such QCA/Generator be applied as per CERC Regulations.

2.30.3. BLP Energy requested that the deviation of forecast during the inter-state transfer of power to be illustrated and clarified that generators shall not be penalized twice.

2.30.4. Shri V. K. Agrawal submitted that as the deviation shall be measured within the State control area, the QCA/generator shall pay the deviations to the State Utility only, based on the specific rules contained in the State Regulations.

Commission's View:

We note that SLDC submitted to delete last sentence - "*..As far as the impact of deviation by such generator in the inter-state level is concerned they are governed by the regulations of CERC (Deviation Settlement Mechanism and Forecasting) Regulations, 2015."* We agree with the submission of SLDC. However, it is clarified that the said provision is made to qualify that any generator connected with State grid but supplying outside the State shall also be governed by CERC DSM Regulations, 2014. We agree with the submission made by GUVNL that the generator embedded within the State needs to provide schedules to SLDC and SLDC to inform RLDC.

Moreover, any deviation in the State grid due to deviation from scheduled energy will be governed by the State Regulations and generator/QCA is liable to pay charges as per the Regulations notified by the Commission in this regard.

Accordingly, the Regulation is rephrased.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 7 of the Draft Regulation is renumbered as Regulation 8

2.31. Regulation 7.3:

In case where QCA functions on behalf of individual generator at pooling sub-station the QCA shall also de-pool the energy deviations as well as deviation charges to each generator using one of the options given in clause 16.

2.31.1. ACME Solar sought the clarification for commercial settlement for the plants supplying power to Intra-State as well as Inter-State entities.

2.31.2. Mytrah submitted that if wind and solar generator do not appoint QCA and give mandate to SLDC for forecasting under such circumstances, who will be responsible for de-pooling of energy deviation as well as deviation charges to generators.

2.31.3. BLP and ReConnect submitted that this Regulation has reference to "De-pooling of deviation charges" i.e. Regulation 15, but it inadvertently mentions Regulation 16.

Commission's View:

As regards the commercial settlement for the generators supplying power to intra-state as well as inter-state entities, the same has already been clarified by the Commission that the present Regulations is limited to entities which are connected with the State grid and for any deviation from their schedules, they are liable to pay deviation charges as per the present Regulations.

We also clarify that it is not the duty of SLDC to carry out the function of forecasting on behalf of individual generator. The responsibility and duty is cast upon the individual generator and if any deviation thereupon leads to deviation charges, it has to be paid by the concerned generator.

We agree that there is a typographical error in Regulation 7.3 where reference of Clause 16 has been mentioned, which needs to be corrected.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 7 of the Draft Regulation is renumbered as Regulation 8

2.32. Regulation 7.4:

The QCA shall undertake all commercial settlement on behalf of the generator(s) connected to the respective pooling station(s).

Provided that deviation charges for under or over injection by wind or solar generator connected to the State grid and selling power outside the State shall be governed by the regulations of CERC (Deviation Settlement Mechanism and Forecasting) Regulations, 2015. The accounting for this purpose shall be done by the SLDC limited to deviation took place in the State grid due to under/over injection by the generator.

2.32.1. Manikaran submitted that clarity would be essential to segregate energy accounting and deviation settlement charges. If the energy payment along with deviation charges are to be routed via QCA, the same needs to be clarified and the generators need to provide the consent for same. But it seems difficult as various energy accounting mechanisms are in place like PPA, third party sale, captive consumption, etc.

2.32.2. IEX submitted that SLDC should follow the same methodology of accounting and settlement of deviation through RECs at the Intra-State level as specified in the CERC DSM Regulations.

Commission's View:

As the present Regulations is with regard to forecasting, scheduling and deviation settlement of wind and solar generator, the scope is limited only to scheduling carried out by wind and solar generators and in case of deviation, the deviation charges are to be paid by the generator/QCA. As far as the energy accounting with reference to amount payable by the purchaser, energy actually supplied by the generator, transmission/wheeling losses etc. payable by the entities- generator/purchaser are concerned, the same are governed either by the agreement between the parties or as per the prevalent orders/regulations of the Commission which the generator/purchaser are bound to follow.

However, for clarity Regulation 7.4 is rephrased.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 7 of the Draft Regulation is renumbered as Regulation 8

2.33. Regulation 7.5:

In the event of actual generation of a wind generating station or a pooling station, as the case may be, commissioned prior to 30.1.2010 being less or more than the scheduled generation, the deviation charges for shortfall or excess generation shall be payable by the wind generator or the QCA, as the case may be, to the State DSM Pool, as given in Table – I below. While in case of wind generating station or a pooling station, as the case may be, Commissioned on or after 30.1.2010 the deviation charges for shortfall or excess generation shall be payable by the wind generator or the QCA, as the case may be, to the State DSM Pool, as given in Table – II below

Table – I

Sr. No.	*Absolute Error in the 15-minute time block*	*Deviation Charges payable to State DSM Pool*
1	*< = 12%*	*None*
2	*>12% but <=20%*	*At Rs. 0.35 per unit for the shortfall or excess energy for absolute error beyond 12% and upto 20%*
3	*>20% but <=28%*	*At Rs. 0.35 per unit for the shortfall or excess energy beyond 12% and upto 20% + Rs. 0.70 per unit for balance energy beyond 20% and upto 28%*
4	*> 28%*	*At Rs. 0.35 per unit for the shortfall or excess energy beyond 12% and upto 20% + Rs. 0.70 per unit for shortfall or excess energy beyond 20% and upto 28%+ Rs. 1.05 per unit for balance energy beyond 28%*

Table – II

Sr. No.	*Absolute Error in the 15-minute time block*	*Deviation Charges payable to State DSM Pool*
1	*< = 8%*	*None*

Sr. No.	*Absolute Error in the 15-minute time block*	*Deviation Charges payable to State DSM Pool*
2	*>8% but <=16%*	*At Rs. 0.35 per unit for the shortfall or excess energy for absolute error beyond 8% and upto 16%*
3	*>16% but <=24%*	*At Rs. 0.35 per unit for the shortfall or excess energy beyond 8% and upto 16% + Rs. 0.70 per unit for balance energy beyond 16% and upto 24%*
4	*> 24%*	*At Rs. 0.35 per unit for the shortfall or excess energy beyond 8% and upto 16% + Rs. 0.70 per unit for shortfall or excess energy beyond 16% and upto 24% + Rs. 1.05 per unit for balance energy beyond 24%*

Provided that deviation charges for under or over injection by wind generator connected to the State grid and selling power outside the State shall be payable by wind generators as per the framework provided by the CERC Regulations. The accounting for this purpose shall be done by the SLDC.

2.33.1. Mytrah, Hero Future Energies, Manikarn, WIPPA, ReNew, Continuum Wind, ReGen, Energon, Inox and WWIL submitted to adopt the deviation band as per the FoR's model Regulations.

2.33.2. IL&FS, TPCL and Ostro Energy also submitted to adopt a deviation band in line with that of the CERC or as adopted by other SERCs.

2.33.3. TPTCL suggested the deviation limit be set to 15 % for Older generators and 12 % for new generators, whereas BLP Energy suggested the absolute error of ± 20% be allowed pending report of actual data/study.

2.33.4. Adani Green Energy also suggested that the deviation band should not be less than 15 %.

2.33.5. Hero Future Energies, Continuum Wind, Adani Green Energy suggested for reduction of deviation band and such stringent band should not be there without any scientific analysis and detailed deliberation with generators/stakeholders.

2.33.6. IL &FS and BLP Energy submitted that differentiation in generators should be based on the generators coming prior to and after the notification of the Regulations and not a particular CoD of 30.1.2010.

2.33.7. Inox submitted that differentiation of the generators based on CoD of 30.1.2010 is discriminatory as deviation in the generation of both will equally endanger the grid security. Common objection of the objectors is severe financial impact this stringent band will cause on the developers.

2.33.8. GUVNL also submitted that rather than different commercial & deviation settlement on the basis of CoD, it is suggested that forecasting, scheduling and deviation settlement may be made mandatory regardless of the date of commissioning so as to avoid any complexity and provide uniform treatment to all the wind generators. Deviation charges applicable to wind generators may be increased from present level of Rs. 0.35, 0.70 & 1.05 to Rs. 0.5, 1.00 & 1.50 per unit in line with the FoR's model Regulations.

2.33.9. BLP Energy suggested that the deviation charges may be linked to the respective tariff of the project instead of fixed amount.

2.33.10. Statkraft sought clarification as to how the appropriate deviation bands will be determined when there is pooling of different solar and wind assets.

2.33.11. Shri V. K. Agrawal submitted that as the deviations shall be measured within the State Control area, the QCA/Generator shall pay the deviations to the State Utility only, based on the specific rules which are contained in the State Regulations.

Commission's View:

We are of the view that it is more appropriate to keep the deviation band i.e. absolute error band and corresponding deviation charges leviable to the wind generators connected with the Intra-State grid existing on the date of notification as well as the upcoming projects common to avoid ambiguity in the energy accounting.

It has been suggested by a number of stakeholders to consider the error-deviation band as well as penalty amount in line with the FoR model Regulations/CERC Regulations. We

note that CERC Regulations are applicable to Inter-State entities and are not binding to the Commission. We are of the view that the wind energy projects might be installed during different years and may be situated in the same pooling station. In such a situation, by keeping different error band and corresponding deviation charges, it may be difficult for generators/QCA to forecast and may make energy accounting cumbersome. We, therefore, decide that the deviation charges cannot be based on the date of commissioning of the project or the tariff under which such generators are governed as it would require different accounting for different generators supplying to licensee or third party which may further complicate the energy accounting by SLDC. Hence, we decide to keep only one table for deviation charges payable by the wind generator for the absolute error in 15 minutes time block. Accordingly, it is decided to keep the Error band as provided in Table – I i.e. (i) < = 12%, (ii) >12% but <=20%, (iii) >20% but <=28% and (iv) > 28% and applicable irrespective of the date of commissioning of the wind energy generator.

Further, the deviation charges are considered by the Commission with reference to tariff determined by the Commission from time to time and tariff received by the wind generators from the buyers depending on the commissioning periods of the project. We also note that the licensees have initiated procurement of power from renewable energy sources through competitive bidding process and the tariff discovered is substantially lower than the generic tariff determined by the Commission. Further, such projects are also governed under the present Regulations. Moreover, the tariff of the WTG commissioned during different years are having different tariff. We are, therefore, of the view that the deviation charges provided in the Draft Regulation need to be revisited looking to the tariff discovered under the Competitive Bidding process conducted by the distribution licensee Accordingly, the Table –I for Wind Generators is as under:

Table – I

Sr. No.	**Absolute Error in the 15-minute time block**	**Deviation Charges payable to State DSM Pool**
1	< = 12%	None
2	>12% but <=20%	At Rs. 0.25 per unit for the shortfall or excess energy for absolute error beyond 12% and up to 20%

Sr. No.	Absolute Error in the 15-minute time block	Deviation Charges payable to State DSM Pool
3	>20% but <=28%	At Rs. 0.25 per unit for the shortfall or excess energy beyond 12% and up to 20% + Rs. 0.50 per unit for balance energy beyond 20% and up to 28%
4	> 28%	At Rs. 0.25 per unit for the shortfall or excess energy beyond 12% and up to 20% + Rs. 0.50 per unit for balance energy beyond 20% and up to 28% + Rs. 0.75 per unit for balance energy beyond 28%

We also decide to keep the deviation band for wind and solar generation different and distinct with consideration of the different characteristics of these renewable energy sources. The time period of these generations is different and distinct. The forecasting based on weather data for these energy sources is also different and distinct. Therefore, the suggestion to keep solar and wind generation deviation band as same is not accepted.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 7 of the Draft Regulation is renumbered as Regulation 8

2.34. Regulation 7.7:

In the event of actual generation of a solar generating station or a pooling station, as the case may be, being less or more than the scheduled generation, the deviation charges for shortfall or excess generation shall be payable by the solar generator or the QCA appointed on behalf of it, as the case may be, to the State DSM Pool, as given in Table – III below:

Table – III

Sr. No.	*Absolute Error in the 15-minute time block*	*Deviation Charges payable to State DSM Pool*
1	*< = 7%*	*None*

Sr. No.	*Absolute Error in the 15-minute time block*	*Deviation Charges payable to State DSM Pool*
2	*>7% but <=15%*	*At Rs. 0.60 per unit for the shortfall or excess energy for absolute error beyond 7% and upto 15%*
3	*>15% but <=23%*	*At Rs. 0.60 per unit for the shortfall or excess energy beyond 7% and upto 15% + Rs. 1.20 per unit for balance energy beyond 15% and upto 23%*
4	*>23%*	*At Rs. 0.60 per unit for the shortfall or excess energy beyond 7% and upto 15% + Rs. 1.20 per unit for shortfall or excess energy beyond 15% and upto 23% + Rs. 1.80 per unit for balance energy beyond 23%*

Provided that deviation charges for under or over injection by solar generator connected to the State grid and selling power outside the State shall be payable by Solar generators as per the framework provided by the CERC Regulations. The accounting for this purpose shall be done by the SLDC.

2.34.1. Hero Future Energies, Manikaran, Astra Solern, and Visual Percept suggested to keep the deviation band as per the FoR model Regulations.

2.34.2. Ostro Energy submitted that the deviation band should be as per the CERC and KERC Regulations.

2.34.3. Astra Solern and Hero Future Energies submitted that reduction in band should be based on certain scientific criterion, which needs to be shared and since generators do not have prior experience of doing forecasting and scheduling, the Commission may gradually reduce the deviation band only after data is collected by SLDC during the applicability period.

2.34.4. Manikaran submitted that aggregate schedule would require uniform deviation band for solar and wind generators for all categories.

2.34.5. Shri V. K. Agrawal submitted that once the generators are connected to the State grid, they come under the control area of State jurisdiction and as such have to follow the State Regulations and to say that they would follow CERC Regulation would not be correct and

may lead to anomalies. Otherwise also as the deviations shall be measured within the State control area, the QCA/Generator shall pay the deviation charges to the State Utilities only based on the specific rules which are contained in the State Regulations.

2.34.6. EMCO, Sunkon, Konark and Mono Steel submitted that deviation charges envisaged in Regulations will reduce the revenue of solar generators which was not envisaged as well as not consistent with the return on investment as provided in the Commission's Orders. The same also amounts to opening/modification of PPA terms, which is inconsistent with the spirit of contract.

Commission's View:

It has been suggested by a number of stakeholders to consider the error-deviation band as well as penalty amount in line with the FoR model Regulations/CERC Regulations. We note that CERC Regulations are applicable to Inter-State entities and are not binding to the Commission.

It has also been suggested that the aggregation of schedule would require uniform deviation band for solar and wind generator. In this regard, the Commission notes that the generation of energy from wind and solar is having different characteristics. Solar generation is more predictable than wind generation. Moreover, the generation period of solar and wind sources is different and distinct. In such a situation, it is not necessary to keep the deviation band of solar generation in line with the wind generation.

Moreover, the procurement price of the distribution licensee is different and distinct in respect of these sources of generation.

We also note that the licensees have initiated procurement of power from renewable energy sources through competitive bidding process and the tariff discovered is substantially lower than the generic tariff determined by the Commission. Further, such solar projects are also governed under the present Regulations. Moreover, the tariff of the solar projects commissioned during different years are having different tariff. We are, therefore, of the view that the deviation charges provided in the Draft Regulations need to be revisited

looking to the tariff discovered under the Competitive Bidding process conducted by the distribution licensee.

As already decided above there will not be any separate tariff for wind turbine generators commissioned / installed during different time periods and hence, Table II in the Draft Regulations is not included in the Final Regulations in respect of wind turbine generators. Therefore, Table III of the Draft Regulations pertaining to Solar generators is decided to be renumbered as Table II and is given as under:

Table – II

Sr. No.	Absolute Error in the 15-minute time block	Deviation Charges payable to State DSM Pool
1	< = 7%	None
2	>7% but <=15%	At Rs. 0.25 per unit for the shortfall or excess energy for absolute error beyond 7% and up to 15%
3	>15% but <=23%	At Rs. 0.25 per unit for the shortfall or excess energy beyond 7% and up to 15% + Rs. 0.50 per unit for balance energy beyond 15% and up to 23%
4	>23%	At Rs. 0.25 per unit for the shortfall or excess energy beyond 7% and up to 15% + Rs. 0.50 per unit for balance energy beyond 15% and up to 23% + Rs. 0.75 per unit for balance energy beyond 23%

The Commission has also decided in earlier paras that the aggregation of scheduling of different pooling station and generators is not permissible. Hence, the objection raised by the objector with regard to aggregate schedule which requires uniform deviation band is not permissible.

As to the objection that the deviation charges envisaged in the Regulations will reduce the Return on Investment as provided in the Commission's Orders and the same amounts to

opening or modification of the PPA which is against the spirit of the contract, we clarify that the aforesaid contention is not legal and valid because in the present Regulations the Commission is deciding on the aspects of forecasting, scheduling, deviation charges for wind and solar generation and the mechanism to deal with it, while the Commission has in its tariff Orders for wind and solar decided the tariff payable for procurement of power by the distribution licensee.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 7 of the Draft Regulation is renumbered as Regulation 8.

2.35. Regulation 7.6 and Regulation 7.8:

7.6 After the experience of three years from the effective date of this notification, the absolute error as specified in Colum 2 of above table I for wind energy generators shall be reduced by 1%(one percent) every year from the first date of start of the fourth year of these regulations for subsequent 5 years so that Minimum absolute error shall become <= 7% and maximum permissible absolute error shall not be >23% at the first date of 8th (Eighth year) of these regulations come in force. Similarly, in case of the wind generators falls in categories of Table-II the absolute error as specified in Colum 2 of the above table II shall be reduced by 1%(one percent) every year from the first date of start of the fourth year of these regulations for subsequent 5 years so that Minimum absolute error shall become <= 3% and maximum permissible absolute error shall not be >19 % at the first date of 8th (Eighth year) of these regulations come in force.

7.8 After the experience of three years from the effective date of this notification, the absolute error as specified in Colum 2 of above table I for solar energy generators shall be reduced by 1%(one percent) every year from the first date of start of the fourth year of these regulations for subsequent 5 years so that Minimum absolute error shall become <= 2% and maximum permissible absolute error shall not be >18% at the first date of 8th (Eighth year) of these regulations come in force.

2.35.1. SLDC submitted that as the work of forecasting is entrusted to the professionally qualified agency, meeting all qualifying criterion of the Commission with six month warm up time, it should be feasible to improve forecast after one and half year. Hence, there may be one-year time instead of three years and two years instead of five years.

2.35.2. Mytrah submitted to remove this Regulation since wind and solar are unpredictable and reducing Absolute Error limit by 1 % every year for 5 years will result more penalties.

2.35.3. Manikaran submitted that considering the fact that forecasting of weather parameters can only be predicted to a certain extent but will not allow highly accurate forecasting, the improvement vs. impact on commercial loss in revenue be reviewed by the Commission regularly after three years and imposing this additional reduction in exemption range shall be subjective and mandatory.

2.35.4. WIPPA and ReNew submitted that further reduction should be decided only after having on ground experience based upon the accuracy of forecasting system available from time to time. The Regulations allow for power to remove difficulties and any reduction in future should be decided after stakeholder consultation on the basis of practical on ground experience gained after the implementation of the Regulations.

2.35.5. Continuum Wind submitted that at this point of time, when the forecasting exercise is yet to begin, it is not possible to determine the rate at which accuracy will be improved over time. Hence, no tightening of the band be stipulated at this point of time.

2.35.6. IL&FS also submitted that the Commission may reduce the minimum absolute error progressively after the performance analysis of wind and solar plants is done for a period of 5 years.

2.35.7. ReGen submitted that this Regulation will lead to complexities in the accounting of DSM in the context of revision in absolute error bandwidth year-on-year basis from 3rd year onwards and since Regulation is generally for a period of 5 years or till the same is reviewed and superseded by new Regulations/amendment, DSM slab should remain sacrosanct till the operative period of the said Regulations.

2.35.8. TPTCL submitted that while maintaining absolute error <=15% as proposed in the CERC Regulations would itself be a challenge for generators, further reducing to 8% and subsequently to 2% in case of wind will result in heavy penalties to the generators. Hence, the permissible absolute error band be maintained in line with the S & F Regulations of CERC and Other SERCs.

2.35.9. Ostro Energy submitted that there are lot of uncertainties associated with forecasting and having the experience of 3 years does not mean that the uncertainties are reduced. Achieving an accuracy of 3 % in each time block of 15 minutes is almost not practicable at all and even in foreign countries, wind generators have struggled to achieve such high level accuracy of 6-7% on day ahead basis.

2.35.10. Visual Percept submitted that as it is not possible to operate the solar plants within the lowest error slab specified in Regulation 7.7 itself, it would not be possible to operate within the lowest error of 2 %. Meeting an error of 2% is altogether a different issue that can only be met through other technology applications like large scale grid storage and such markets shall be developed through appropriate regulatory intervention targeted at it. Therefore, this is an ad hoc provision without any data or studies or operating experience and be removed.

Commission's View:

The Commission has accepted the objections / suggestions of the stakeholders with regard to reduction in Error Band specified for Wind and Solar Energy Scheduling / Forecast after completion of three years and four years from the effective date of the notification and has accordingly, done away with the requirement.

2.36. Regulation 7.9 :

When all settlement pertaining to pooling station carryout by the QCA in that case the QCA shall also de-pool the energy deviations as well as deviation charges to each generator in proportion to deviation between the actual generated units and scheduled energy of each generator for each time-block as is defined in de-pooling mechanism.

2.36.1. ReGen submitted that this Regulation be modified to *"…….each time-block as is defined in Clause 15 of this regulation."*

Commission's View:

Suggestion of ReGen to replace the wording "…. as defined in the de-pooling mechanism" to "….as defined in the Clause 15 of this Regulations." does not have any significant

bearing. However, we decide to incorporate the aforesaid suggestion and the Regulation is redrafted as under:

8.7 When all settlement pertaining to a pooling station is carried out by the QCA, in that case the QCA shall also de-pool the energy deviations as well as deviation charges to each generator for each time-block as defined in 'De-pooling mechanism'.

2.37. Regulation 7.13:

Once the accounting procedures as above are put in place, all Wind /Solar Energy generators shall be covered within the State DSM Pool account of renewable energy created separately. The Energy Accounting of DSM shall be settled at the rates and methodology stipulated above for wind and solar generators separately.

2.37.1. GUVNL submitted that this Regulation provides that wind/solar generators shall be covered within the State DSM Pool Account of Renewable Energy created separately. While Regulation 3(p) states that the Pool Account shall mean State Account for receipts and payments on account of deviation by the buyers or sellers including wind and solar generators. Hence, clarification is required as to whether Clause 7.13 provides for a virtual DSM Pool Account for RE which shall be included within State DSM Pool Account or it is envisaged to have two separate DSM accounts viz. (i) State DSM Pool Account and (ii) Separate DSM Pool Account for RE.

Commission's View:

The observation of GUVNL is valid. At present there is no such separate pool account for renewable energy at State periphery/State level and the same is a part of the State DSM pool account. Once the DSM account based on the present Regulations is prepared by SLDC, the same needs to be part of the State DSM pool account with all payments and receipts for the deviation settlement. Therefore, we are of the view to add a definition of 'State Pool Account' in the present Regulations by incorporating the same at 3(w) of the Regulations.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 7 of the Draft Regulation is renumbered as Regulation 8.

2.38. Regulation 7.14:

Energy Accounts as mentioned above shall be prepared by the SLDC on Ten (10) days basis.

2.38.1. SLDC submitted that the period of 10 days to be replaced with 7 days.

2.38.2. Manikaran submitted that the period for which calculations shall be prepared should not be 10 days as this can lead to confusion month over month like a month will have unequal no. of days. The period should be either weekly or bi-weekly starting from Sunday to Saturday or Monday to Sunday. Also accounts prepared by SLDC/respective entity shall be published on their website for cross verification by the respective QCA.

2.38.3. Adani Green Energy submitted that there is a conflict on the specific time for energy accounting as Regulation 7.4 proposes 10 days whereas Regulation 14.2 proposes 7 days. Hence, it may be reviewed and kept uniform as 10 days.

Commission's View:

We agree with the aforesaid suggestion as the Deviation Settlement for the Intra-State Pool members is also carried out on a weekly basis. Thus, to avoid any ambiguities in the time frame, we decide to keep the time period of 7 days.

We also agree with the suggestion that the accounting statement prepared by the SLDC or respective entity shall be published on their website for cross verification and comments by the generators or QCA appointed by it.

2.39. Regulation 8.1:

Metering:

Interface Metering for intra-state entities shall be undertaken on an urgent basis. Every entity must be metered with a Special Energy Meter (SEM) i.e. ABT compliant meter, capable of recording the energy in 15 minutes time block.

QCA/generator as case may be forward weekly meter readings to the SLDC latest by Wednesday of a previous week in addition to data acquisition provided to SCADA for energy accounting purpose under these regulations.

2.39.1. SLDC submitted that presently 100 % ABT meters are installed at all the wind pooling stations/solar generators.

2.39.2. Manikaran submitted that detailed roles and responsibility on the meter data and the SCADA need to be well defined by the SDLC in their detailed procedure.

2.39.3. WIPPA, ReNew and Energon sought clarification on procedure to be followed for communication of telemetry data to be provided to SLDC. Also, procedure for QCA to access the metered data. They also made suggestion to have automated data handling mechanism rather than manual intervention to communicate and reconcile energy meter data.

2.39.4. GUVNL submitted that second paragraph be modified as follows: *"QCA/Generator as the case may be, forward weekly meter readings of previous week to SLDC latest by Wednesday in addition to data acquisition provided to SCADA for energy accounting purpose under this regulation."*

Commission's View:

We note that the scheduling time and deviations in the bandwidth of 15 minutes is to be reduced gradually to 5 minutes by the NLDC/RLDC and the same is required to be followed by the State for making the scheduling in line with central grid level. Therefore, it is better that energy meter capable of recording the data in 5 minutes would be helpful in future requirement for energy accounting.

We decide that the SLDC shall prepare detailed procedures under these Regulations specifying all necessary details which include the type of meter, data required to be provided by QCA/generators, SCADA system/communication of telemetry link etc. between the generator/QCA and SLDC for transfer of data to avoid any issues later on.

As far as suggestion of GUVNL is concerned, the same is already covered under the provisions of the Regulations. Hence, no further change is required in this regard.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 8 of the Draft Regulation is renumbered as Regulation 9.

2.40. **Regulation 9*: Means of Communication between QCA & SLDC***

The QCA and SLDC should communicate using software developed by the QCA duly approved by the SLDC for following:

a) Communicating day ahead, intra-day and/or 3 day ahead schedule along with revisions to SLDC.

b) Informing real time generation at pooling station and/or at individual generator level, as required.

c) Providing information of grid constraints and curtailments from SLDC side to QCA.

d) The QCA should provide software login to the state, wherein live data for all schedules and information on the deviations shall also be made available. This method will help in online communication without time lag and facilitate prompt payment of deviation charges by generator/QCA to SLDC.

e) The software should facilitate information from generator side/QCA to SLDC on generator outage with reason for outage.

f) It should intimate the QCA on the DSM/UI charges at the pooling station by the SLDC.

g) It should provide basic information of the site and turbines/inverters (Static Sheet).

h) SLDC should be able to view the State level schedule alongwith actual generation being handled by QCA/generator.

2.40.1. SLDC submitted to modify the first sentence as *"...The QCA should communicate with SLDC using software provided by SLDC for following :..."*. SLDC, on Regulation 9 (d), commented that the first sentence should be modified as *" The SLDC should provide software login to QCA wherein live data for..."*.

2.40.2. Hero Future Energies submitted that as this criterion cannot be met by a generator and is not required because the generator sources forecast from third parties and can act as a successful QCA. Rather than third party owned software, it should be created by SLDC and be under Government Control considering the confidentiality of data.

2.40.3. Manikaran submitted that communication of data from SLDC software to QCA's software and vice versa will require several technical clarifications. SLDC should provide the list of all the parameters desired by them from QCA and as also the details of software handshaking protocol used by them.

2.40.4. WIPPA, ReNew and Energon's submission on this Regulation was similar to that of the submission on Regulation 5.3. WWIL submitted to inform what parameters they require on real time basis.

2.40.5. Ostro Energy submitted that downtime for unscheduled maintenance, external grid failure be exempted from penalization and any backing down or curtailment by SLDC should also be exempted from penalization. Ostro Energy on Regulation 9 (d) submitted that there will always be some time lag for transfer of live data from group of turbine, hence, this be modified as " *The QCA should provide software login to the State, wherein live data for all schedules and information on the deviations shall also be made available. This method will help in online communication with minimum time lag and facilitate prompt payment of deviation charges by generator/QCA to SLDC."*

Commission's View:

SLDC has suggested to modify the first sentence as *'The QCA should communicate with SLDC using the software provided by SLDC for the following :…'* However, the Commission has specified that SLDC and QCA should communicate using the software developed by the QCA and duly approved by the SLDC.

We also note that while framing the procedure SLDC may specify all technical parameters for software for communication as well as data transfer between SLDC and generator / QCA along with software handshaking protocol used by them so that there is clarity amongst the entities and there may not be any shortcomings in the software/communication system. SLDC needs to mention the minimum or common

requirements that would be required to enable communication, data transfer etc. SLDC needs to mention about the real time data which is necessary for the purpose of the present Regulations and how the generator/QCA are required to provide the same by utilising the software and communication link to avoid any time lag in the communication so that the energy accounting is not affected.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 9 of the Draft Regulation is renumbered as Regulation 10.

2.41. **Regulation 10: Access to Meters:**

It is necessary that generator(s) with a QCA have an agreement that provides for the following:

a) Access to the QCAs to install modem on existing ABT meters for getting data on 15 minutes basis.

b) Or permit access to the API link for getting the data from the meter to the QCAs central server to facilitate better forecasting.

c) Alternatively allow the QCA to install parallel meter on the existing CT/PT to facilitate acquisition of real time data so that best schedule can be submitted to SLDC.

2.41.1. SLDC, on Regulation 10 (a) submitted, that the sentence "...*In case of existing AMR facility established by SLDC, amicable technical solution is to be provided at the discretion of SLDC."* be added therein.

2.41.2. Manikaran submitted that if in case new parallel meter is to be installed on existing CT/PT, then it will be the responsibility of the generator to install the same and if required QCA can assist the same or perform the activities on behalf of the generators with written approval from SLDC.

2.41.3. Manikaran, WIPPA and Energon also submitted that (i) additional core availability for CT/PT, (ii) Control and acceptance criteria of the additional meter, and (iii) time synchronization between the operational meter and the new meter getting installed, need further clarification.

Commission's View:

The submission of SLDC is not acceptable as it says that only SLDC will provide amicable technical solution at its discretion because the access of meter data at the generating station on 15 minute time block which is a prime database on which revision in schedule, energy accounting, deviation and penalty payable by the generating station/QCA depends. In the absence of access of such prime data to the QCA/generator, it is unfair to the above entity to carry out the function on behalf of the generator for the purpose of the present Regulations.

As regards the parallel meter installation on existing CT/PT or additional core availability for CT/PT, control and acceptance criteria of the additional meter and time synchronisation between operational meter and new meter, the said issues shall be addressed in the detailed procedure to be prepared by SLDC as it is having exposure on the aforesaid subject. Therefore, the aforesaid issues are to be dealt as a part of the procedure to be prepared by the SLDC.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 10 of the Draft Regulation is renumbered as Regulation 11.

2.42. Regulation 11: *Deviation Accounting:*

Deviation settlement for the State shall be governed by the following provisions:

11.1. Computation of Deviation Charge: Deviation charges shall be computed in the following manner:-

a) *Implement Deviation Settlement Mechanism (DSM) for conventional generators on lines of CERC (Deviation Settlement Mechanism) Regulations, 2014 and amendment made in it from time to time and as adopted by the Commission and implemented in the State.*

b) *Deviation Charge (D) payable/receivable for the State as a whole at the State periphery shall be first computed by the SLDC.*

c) Deviation charges payable by the distribution licensee/ open access customers /conventional generators shall be calculate by SLDC as per the CERC (DSM) Regulations, 2014 and issue the energy account and recovered the deviation charges from such entity concerned as per the above Regulations.

d) SLDC calculate Absolute Error occurred in the scheduled energy and actual energy for each pooling station and for each generator which feed the energy directly to the substation and such deviation is reflected at state periphery shall be calculated.

e) Absolute error occurred in the scheduling of pooling station energy and individual generator feeding directly to the Substation for wind generator and solar generator shall be calculated by the SLDC

f) Energy Account specifying the Deviation charges (R) for renewable energy generators based on these Regulations prepared by the SLDC for the pooling stations/wind energy generators/solar generators, with consideration of the actual deviation in the energy from scheduled energy made by the pooling station or individual generator directly feed energy in to the sub- station reflected in the state periphery deviation account.

g) SLDC prepare the energy account specifying the deviation made in the scheduling by the pooling substation or individual generator directly feeding to sub-station and collect the deviation settlement charges from the entity concerned for the amount payable by them as per the provisions of these regulations.

h) SLDC Calculate the deviation of RE generators who actually deviate from the given schedule, assuming (i) the share out of State level deviation charge as D and (ii) receipt of deviation charge from RE generators (Pooling station)/individual generator feed to S/S directly based on the charges for deviation, as R - actual commercial impact for the State as a result of deviation of RE generation would be D-R. This amount D-R shall be further allocated to the wind/solar generators in proportion to deviation made by them which reflected in the state pool account payable by the State at interface point and the same shall be paid by the QCA/generators in proportion to their action in deviation which reflected at state periphery.

i) Actual commercial impact for the State as a result of deviation of RE generation would be calculated as D-R. Any deviation in the payable from the DSM pool account for Renewable Energy generators shall be distributed amongst the pool members who are responsible for deviation in proportionate to their deviation and the pool account maintain as revenue neutral.

The above mechanism shall be applicable upto initial 6 months without any financial implications as stated in regulation 7 above.

2.42.1. Manikaran submitted that detailed calculation criteria that needs to be adopted by QCA for calculation at pooling sub-station level as well as for de-pooling methodology be clearly defined by the State utility/SLDC. Manikaran, on 11.1 (e), submitted that SLDC in detailed procedure may clarify regarding scenario where the combined schedule is submitted for wind & solar pooling station at an aggregated level. On 11.1 (g), Manikaran sought clarification as to whether energy account and deviation charges will be clubbed together and all these accounts shall be routed via QCA or energy accounts will be settled directly and deviation charges would be routed through QCA.

2.42.2. Astra Solern submitted that new as well as existing plants be allowed a minimum grandfathering period of 1 year post CoD/effective date of notification of these Regulations containing 1 full cycle of all seasons to understand the seasonal/daily variation.

2.42.3. GUVNL submitted that settlement procedure is not clear and needs clarification with illustration. The fund received from deviation by RE generators also be utilised by SLDC to meet the additional expenses towards scheduling costly power for balancing purpose along with the payment of DSM with central pool.

2.42.4. ReConnect submitted that as per the methodology proposed, RE generators will have to deal with 2 different types of DSM charges (i) DSM charges as per Regulation 7.5 and (ii) Additional DSM charges as per 11.1 (g) and 11.1 (h). And as per the framework under 11.1 g/h, RE generator would eventually end up paying full DSM charges contrary to all existing model/draft/final Regulations by CERC/FoR/Other SERCs. Hence, RE generators should not to be imposed any additional State level DSM linked charges.

2.42.5. WWIL submitted that the clause is complicated to understand and can lead to several interpretations, hence, may be illustrated by examples.

2.42.6. SLDC submitted that word " SLDC " at 11.1 (b) be replaced with "WRLDC" and wording "…and existing GERC regulation/orders…" to be added after the word "….CERC (DSM) Regulations, 2014.." at 11.1 (c).

2.42.7. ACME Solar, on Regulation 11.1 (h), sought clarification as to how the value of D will be arrived and how it will be differentiated from conventional and non-conventional sources and also from wind and solar generations as % deviation and charge are different. As for an entity whose deviation is within the allowed limit may also have to pay for his D-R charges proportionately which is unjustifiable.

2.42.8. Hero Future Energies submitted that it be deleted because it amounts to double jeopardy and penalisation of the generators twice for the same deviation as wind/solar generators need to pay deviation charges as per tables and also need to pay D-R charges to pool account. Paying D-R charges by RE generators would amount to linking their deviations to frequency which is neither in CERC DSM Regulations nor FoR model Regulations.

2.42.9. ReGen submitted that it be modified in such a way that if there is deficit in the overall State DSM pool D-R, at the end of the year, SLDC may approach the State DSM pool accounts to cover such deficit, however, if such deficit is not covered through State DSM, SLDC may approach PSDF or NCEF to cover such deficit.

2.42.10. TPTCL and TPCL submitted that the difference D-R be borne by the host State instead of passing it on to QCA/RE generators, as charging this difference back to RE generators would amount to levying the DSM penalty on RE generators based on frequency instead of fixed applicable penalty as mentioned in CERC's Regulations.

2.42.11. Adani Green Energy submitted that the proposal in 11.1 (h), is against FoR Model Regulations which stipulates that all wind/solar generators should be treated together as a virtual pool within the State Pool and deviations within this virtual pool could be settled first at the rates and methodology specified for wind and solar generators.

2.42.12. Shri V. K. Agrawal submitted that from the given Regulation it can be inferred that any deficit in the DSM pool account for Renewable Energy generators shall be distributed amongst the pool members who are responsible for deviation in proportion to their deviation and the pool account is maintained as revenue neutral. However, by adopting such an accounting philosophy, the basic aim with which separate DSM regulations are being framed for renewable energy sources is getting defeated. In order to address this, and to take care of the deficit in the State pool which may occur to net out the deviations charges by RE sources, the philosophy of Virtual Pool Concept has been elaborated. If the deviation charges are same for the wind and solar generation, some of the possibilities/combinations submitted are as follows (i) all the pooling stations from both wind and solar categories in the State can be combined in one virtual pool, or (ii) In the State, there is one separate virtual pool for wind and another separate virtual pool for solar, or (iii) there is also a possibility that a certain group of RE pooling stations may form one virtual pool, some others may from a second virtual pool and the rest may form third virtual pool and so on. Under such a situation in a particular Virtual Pool the advantage of diversity would be available amongst the members of that virtual pool only (iv) SLDC itself discharges the responsibility of the virtual pool.

2.42.13. On Regulation 11.1 (i), Mytrah submitted a trial run for atleast 2 years be allowed before imposing the financial implication on wind/solar generators.

2.42.14. ReGen submitted that reference to Regulation 7 be deleted and Astra Solern, submitted that the said clause loads more deviation charges on the RE generators in case the State deviation increases. It also submitted to true-up the deviation charges of the State pool from previous years so that any decrease in the commercial impact for the State may be passed on to the RE developers.

Commission's View:

We have considered the objections / suggestions of the stakeholders and accordingly, decide to rephrase the Regulation as under:

12. Deviation Accounting

Deviation settlement for the State shall be governed by the following provisions:

Computation of Deviation Charges : Deviation charges shall be computed in the following manner:

a) *SLDC to calculate Absolute Error occurred in the scheduled energy and actual energy for each pooling station and for each generator which feed the energy directly to the substation.*

b) *Energy Account specifying the Deviation Charges for the renewable energy generators based on these Regulations prepared by the SLDC for the pooling stations/wind energy generators/solar generators, with consideration of the actual deviation in the energy from scheduled energy made by the pooling station or individual generator directly feeding energy in to the substation.*

c) *SLDC to prepare the energy account specifying the deviation made in the scheduling by the pooling substation or individual generator directly feeding to sub-station and collect the deviation settlement charges from the entity concerned for the amount payable by them as per the provisions of these Regulations.*

d) *SLDC is required to adjust the deviation settlement charges received from the renewable energy generators/QCAs under these Regulations in the State Pool for deviation charges payable / receivable. The said pool account is required to be maintained as revenue neutral in accordance with current practice.*

The above mechanism shall be applicable upto 31st July, 2019 without any financial implications (as stated in the Regulation 8 above).

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 11 of the Draft Regulation is renumbered as Regulation 12.

2.43. Regulation 12: *Payment Mechanism for Settlement of Deviations by Wind/Solar Generators and Payment Security:*

12.1 The payment settlement of deviations charges beyond permissible limits shall be prime responsibility of all the wind generators connected to respective pooling station and solar generator connected with the sub-station or pooling station as case may be. The

QCA shall collect the applicable deviation charges from all the generators as agreed between them and pay to SLDC.

12.2. The wind/solar generator/QCA shall provide payment security to SLDC by way of BG and/or revolving LC covering DSM payment for 6 months.

12.3 In case the wind or solar generator defaults in payment to QCA then QCA shall inform about the default by the generator to the SLDC and to disconnect such defaulting generator from the grid.

12.4 Payment of all charges on account of Deviations beyond the permissible limit at a Pooling Station by Wind and Solar generators shall have priority over other payments and shall be paid within 10 (ten) days from the issuance of the accounts. In case of default of payment exceeding more than 2 days that is 12 days then an interest of 0.04% per day for each day of delay shall be levied.

2.43.1. Hero Future Energies submitted that the last line " *...The QCA shall collect….and pay to SLDC"* needs to be deleted to allow right of the generators to directly settle the deviation charges with SLDC.

2.43.2. Manikaran submitted that the details of the State entity handling the deviation charges be defined by Regulator/SLDC.

2.43.3. TPTCL endorsed the Regulations 12.1, 12.2 and 12.3 and submitted that the same may also be applied to Regulations 5.15 and 5.16.

2.43.4. WWIL submitted that while the responsibility of deviation settlement rests with the generator, the QCA is charged with the responsibility of having to make necessary payment collected amongst the generators. In ideal conditions this might function, however, in real world situation without a proper dispute settlement arrangement, this approach would lead to too many issues. Regulations must provide for such situations. Generator gets his generation from another arm of the same establishment and there should be a book adjustment possibility in case of defaulted payments**.**

2.43.5. ACME Solar submitted that there should be either Bank Guarantee (BG) or revolving Letter of Credit (LC).

2.43.6. Mytrah submitted that since accounting is to be done on 10 day basis, there is no reasons for seeking 6 months payment security.

2.43.7. ACME Solar and Mytrah sought clarity as to the amount of security.

2.43.8. Hero Future Energies submitted that BG and/or revolving LC covering DSM payment should be for 1 month instead of 6 months as DSM bill is weekly and considering the due date in 10 days for payment and three days to raise the bill after the end of a week, total days add up to 20 days. Considering 2 weeks billing and adding another 7 days comes to 27 days and thus 1 month BG would suffice.

2.43.9. Manikaran submitted that amount of BG/LC be defined on the basis of deviation charges calculated during trial mechanism.

2.43.10. Astra Solern submitted that the said Regulation be deleted as the BG requirement will be an additional burden on the developers besides tariff pressure and curtailment by SLDC similar with Andhra Pradesh.

2.43.11. GUVNL submitted that the Commission may specify the methodology for working out BG/LC amount for the initial period.

2.43.12. Adani Green submitted that provision of LC should not be applicable for all the entities covered under the proposed Regulations and should be applied after a year only to the defaulter entities which failed to make payment during last year.

2.43.13. SLDC submitted to replace Regulation 12.3 with *"It will be a sole responsibility of QCA to settle the dues."*

2.43.14. Manikaran submitted that SLDC needs to be in a position to immediately inform the generator and QCA about the disconnection of the WTG or Inverter from the grid with immediate effect.

2.43.15. Mytrah submitted to keep the deviation charges payment in line with the billing cycle applicable to GUVNL i.e. 30 days from the receipt of the bill.

2.43.16. Energon submitted that the inward payment from the respective discom and the outward payment from the generator should be linked.

Commission's View:

We clarify that the prime responsibility for payment of deviation charges is that of the generator and the QCA is an agent appointed by the generator who will carry out the function on behalf of the generator. QCA shall pay the amount, payable by the generator, by collecting the same from the generator. There is no bar in the Regulations that the generator cannot carry out the function of scheduling and making payment for any deviations.

As to the submission that the handling of the deviation charges be defined by the Commission or SLDC, we note that the same is already clarified in the Regulations and will also be specified by SLDC as a part of procedure to be framed by SLDC under the provisions of the Regulations.

We note that the deviation charge payable under the Regulations is the prime responsibility of the generator. QCA, appointed on behalf of the generators for the purposes of the present Regulations, shall only be liable towards the deviation charges under these Regulations and not the settlement of energy charges of the Renewable Generations.

Regarding the payment security to be either Bank Guarantee or Revolving L/C, we note that the Regulation itself provides the payment security to SLDC either in the form of Bank Guarantee and/or Revolving L/C.

We agree with the suggestion for review of 6 months coverage for DSM payment considering that the accounting of deviation charges under the present Regulation is to be done on weekly basis and therefore, 6 months period provided for payment security in the form of BG/LC may be burdensome to the generators. Hence, the same is reduced to 1 month and the Regulation 12.2 is accordingly modified.

Objectors have also sought the mechanism for calculation of BG/LC amount to be specified. In this regard, we decide that the methodology for arriving the BG/LC amount for deviation charges has already been specified at Regulation 5.15.

As regards the suggestion that the BG/LC may only be sought from the generator who defaults to make payment during a year, we note that this provision is for payment security to SLDC and the SLDC has to secure itself from such payment risks and realise its legitimate dues from the wind/solar generators if they fail to pay. Therefore, the said suggestion is not acceptable and is rejected.

As to the suggestion of SLDC to replace Regulation 12.3 with “it will the sole responsibility of the QCA to settle the dues”, we note that the wind/solar generator has the

primary responsibility under the present Regulations and QCA is only an agent who carries out the functions on behalf of the generators. Hence, the suggestion of the SLDC that QCA shall be solely responsible for settlement of dues is not valid and therefore the same is rejected.

We note that in case of failure to make payment of dues by the generator or by the QCA appointed on its behalf, such generator is not entitled to schedule and despatch the energy into the grid. Therefore, it is necessary that when such generator is barred from injecting the energy into the grid for default in payment, the generator/QCA as the case may be, shall be informed immediately by SLDC so that the capacity of such plant is not considered for determination of error (AvC) and calculation of penalty amount.

As regards the suggestion of linking deviation charges payment with billing cycle of 30 days, we note that the present Regulation specify the scheduling and deviation charges settlement on weekly basis and the same is different and distinct from the billing cycle of energy charges. Hence, the same is not acceptable.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 12 of the Draft Regulation is renumbered as Regulation 13.

2.44. Regulation 13: Information about Curtailment:

13.1 Curtailment in the injection shall be intimated by the generator/QCA/SLDC through software enabled communication.
In case if SLDC fails to communicate about the curtailment to QCA/generator, deviation penalty shall not be levied for those given time blocks.

2.44.1. SLDC submitted to add the following at the end of first line *"...or any other mode of communication."*

2.44.2. Manikaran submitted that the information of the curtailment, if any, be provided by SLDC to the generators/QCA via software. SLDC needs to inform the scheduled curtailment and expected time by when the curtailment will be removed.

2.44.3. WIPPA, ReNew and Energon submitted that if generators are asked to back down in case of abnormal conditions with very less or no intimations, accuracy of forecast would be reduced for the time of backed down period as well as for next 4 time blocks after issuance of normalization of instruction, as turbine well have ramp up issues and grid induced error in turbine. SLDC be directed to provide reasons in writing for issuing a back down instruction to safeguard the must run status of wind and solar power plants.

2.44.4. Astra Solern submitted that curtailment time should be limited to a specified number a day/month/year so that unnecessary curtailment may be avoided. Also detailed reasons of curtailments backed by requisite data should be recorded in writing by SLDC and duly intimated to QCA.

2.44.5. Ostro Energy submitted to allow that in case there is no grid availability or backing down or curtailment for evacuation of power then also deviation penalty should not be applicable.

Commission's View:

We agree with the suggestion of SLDC to add *"... or any other mode of communication"* at the end of first line. However, we also decide that such communication must be capable of indicating as to when such curtailment information was communicated by the Generator/QCA/SLDC. We also note as far as possible the curtailment period may be intimated by the SLDC to the generator or QCA and vice versa.

We also note that whenever any curtailment intimation is given by the generator/QCA/SLDC, the same shall be recorded with reasons and the anticipated time for removal of curtailment.

As far as the issue of must run status of wind/solar generator is concerned, it is a part of the relevant Orders or PPAs between the parties and the same cannot be covered under the present Regulations.

We also note that it is not possible to decide and specify the number of curtailments in a day/month/year by SLDC or any generator or QCA because it depends on various unanticipated factors except planned shutdown by the generators or grid operator.

We also note that in case of non-availability or backing down or curtailment for evacuation of power, no penalty towards deviation charges shall be applicable.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 13 of the Draft Regulation is renumbered as Regulation 14.

2.45. Regulation 13: Information about Curtailment:

13.2 In case there is planned curtailment due to line maintenance or any other reasons in certain time blocks of a day by the SLDC, Generator / QCA will be responsible to curtail the generation at site as per the advice of the SLDC. The QCA/generator shall amend the schedule and in case QCA/generator fails to revise the schedule, SLDC shall revise the schedule as per requirement.

2.45.1. ACME Solar submitted that in case of safety and security of the grid if the generator reduces the generation, a provision should be made to compensate the generator for the loss of generation.

2.45.2. Mytrah submitted that a specific timeline has to be followed by SLDC and time to be given to implement this to generators so that generations can be managed without penalty. Being Must Run plants such curtailment shall also be made eligible for deemed generation in the system.

Commission's View:

As to the contention that if the generators reduce generation for grid security/safety, then they should be compensated for the loss of generation, we clarify that the present Regulations provide for deviation charges and therefore, the contention regarding compensation for the loss of generation is beyond the scope of the Regulations and is not acceptable.

We also clarify that the generator/QCA/SLDC whenever intimates about the planned curtailment due to maintenance or for other reasons, the QCA/generator/SLDC needs to revise the schedule as per the curtailment proposed by the entity concerned. In the absence of any generation injected into the grid by the wind/solar generator, it is incorrect to say that the backing down is to be qualified as deemed generation. Further, the said issue is beyond the present Regulations and the same is not accepted and is rejected.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 13 of the Draft Regulation is renumbered as Regulation 14.

2.46. Regulation 14: *Energy Accounting (Deviation charges and de-pooling of deviation charges of Wind/Solar generators connected to pooling stations)*

14.1 All accounts related to deviation shall be prepared by the generator/QCA on a weekly basis, based on inputs from the SLDC. The same is to be made available to SLDC by the generator/QCA through software.

14.2 SLDC shall furnish the processed data on a weekly basis by each Thursday noon for the seven-day period ending on the previous Sunday mid-night, to the concerned QCA/generator in a prescribed format, for preparation of energy accounts related to accounting of energy from the Pooling station/sub-station on a weekly basis.

14.3 The data furnished by SLDC shall be open to all entities for checking/verification for a period of 15 days. In case any mistake is detected, SLDC shall forthwith make a complete check and rectify the mistakes.

2.46.1. Hero Future Energies submitted that the last line in 14.1 "*The same is to be made available to SLDC by the generator/QCA through software.*" needs to be deleted as generator may not be required to create software for communication. Already the communication with SLDC and RLDC is going on through email/fax and no limitation has been highlighted by SLDC/RLDC. By introducing a software, communication will become difficult with SLDC/RLDC. If at all software is required, this should be created by SLDC and be under government control considering the confidentiality/security of data.

2.46.2. SLDC submitted to replace 14.2 with *"SLDC shall furnish the processed energy account data along with release of every DSM account."*

Commission's View:

We note that the purpose of aforesaid Regulation is for deciding the responsibility of preparation of deviation settlement account for the generator/QCA based on the scheduling done by them and corresponding data received from SLDC in this regard and decide about the deviation charges payable by the generator and/or pooling station as the case may be. The provision for communication through software is made so as to include e-mails also. However, the mechanism for such communication and calculation of the deviation charge through software be decided by the SLDC in consultation with the generator/QCA as a part of the detailed procedure to be specified by SLDC. We also agree with suggestion of SLDC that Regulation 14.2 be replaced with the clause as suggested and accordingly the same is amended as under:

SLDC shall furnish the processed energy account data along with release of every DSM account.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 14 of the Draft Regulation is renumbered as Regulation 15.

2.47. Regulation 15: *De-pooling of Deviation Charges:*

15.1. QCA shall de-pool the energy deviation as well as deviation charges to each generator connected at a respective pooling station, using one of the following options:

a) In proportion to available capacity of each generator,

b) In proportion to energy generated in each time block by each generator,

c) In proportion to absolute error of Individual generator schedule.

d) Any other methodology/criteria mutually agreed between QCA and generators.

They may adopt any one of the above method, declaring that the same may apply to all members of pooling station.

15.2. Finalization of a methodology shall be on majority (>= 51%) consensus basis measured in terms of MW capacity and a methodology once finalised shall not be changed without majority consensus.

2.47.1. Manikaran submitted that any methodology as agreed or devised between the generators and the QCA needs to be well documented during the Agreement signing period and the same shall be applicable to all the individual generators connected at pooling station. The devised methodology shall be well documented in advance in the Agreement between SLDC, generators and the QCA. All individual generators shall be obligated to follow the same devised or opted mechanism of the payment disbursement.

2.47.2. TPTCL submitted that irrespective of the methodology followed for de-pooling of the deviation charges, it needs to be ensured that deviation charges payable to SLDC is the same as receivable, from all generators connected to a pooling station.

2.47.3. Adani Green submitted that for uniformity of methodology for apportionment and to avoid disputes, the Commission is requested to give the formula for such apportionment along with suitable numerical example or illustration.

2.47.4. ReConnect submitted that as it would be cumbersome process to carry out de-pooling based on actual generation for each time block, the Commission may consider 15.1 (b) as *" In proportion to energy generated over a period of one week"*.

2.47.5. Shri V. K. Agrawal, submitted that keeping such an important issue open at the discretion of members/QCA is not desirable. In order to address this, and to take care of the De-pooling aspect, the philosophy of "De-pooling of Net Deviation Charges amongst different Pooling Stations/Members" be referred. For further elaborations, three case studies of case 1-Net Deviation Value-low, case 2- Net Deviation value-High Positive and case 3- Net Deviation value- High Negative, with various de-pooing methodology, namely, Available Capacity (AvC), Schedule (MW), Actual Injection (MW), Deviation in Energy (MW) and Deviation in Value (Rs.) are given. The de-pooling methodology based on the deviation charges has been recommended.

2.47.6. Visual Percept submitted that the settlement mechanism should not be left open to generators to decide, which will lead to unnecessary disputes. Deviation at the pooling station shall be due to the deviation at the individual generators level only and therefore de-pooling be done only in proportion to the absolute error of individual generators. Other options be removed.

Commission's View

Suggestions have been made for the Commission to specify the mechanism of de-pooling of the deviation charges amongst the generator(s) as a part of the present Regulations, otherwise it will lead to conflict/dispute. Though, we agree that it is preferable to specify the de-pooling mechanism for deviation charges as a part of present Regulations, it will not be appropriate to specify fixed rules for de-pooling mechanism at this stage unless we have some experience in this regard. Therefore, we leave it to QCA to decide the de-pooling process as per the Regulations in mutual agreement with the Generators.

Moreover, if the methodology is decided based on the mutual agreement or majority consensus, then the same may differ from the pooling station to pooling station or generator to generator.

Since in earlier para we have decided to incorporate Regulation regarding 'Role of QCA' as Regulation 6, the Regulation 15 of the Draft Regulation is renumbered as Regulation 16.

Similarly, Regulation 16 and 17 of draft Regulations are renumbered as Regulation 17 and 18 respectively.

2.48. In addition to the above, the Commission decides to add the following Regulation:

Regulation 19 Power to amend:
The Commission may, at any time, vary, alter, modify or amend any provision of these Regulations.

2.49. General Suggestions:

2.49.1. ACME Solar sought to know the basis for discrimination between solar and wind energy sources as after all both are infirm in nature.

2.49.2. Mytrah submitted that investment in equipment for telemetry, SCADA, communication etc. has impact on capital cost and recommended that generic tariff determined by the Commission be revised appropriately to recover this cost. Mytrah also submitted that to reduce the risk to project economics, the Regulations be applied only to the projects with PPAs signed after the effective date of implementation of the Regulations.

2.49.3. WIPPA, ReNew and Energon sought to define a process/formats to be adopted for submission of revision of schedules and appropriate communication process for intimating the generators regarding the final/implemented schedules for the day.

2.49.4. They also sought the following additional information to be made available to the Stakeholders:

(i) Submission of schedule (web, e-mail or any other mechanism)

(ii) Facilitate intake of telemetric live data from wind farms in the file formats like .csv/.txt/.xlsx etc.

(iii) Aggregator does not have the access to 15 minutes time block energy.

Further, directions from the Commission have been sought on:

(i) Formats and specification of the level at which schedules for the day to be submitted to be finalized so that the forecasting software models can be trained accordingly,

(ii) Non-compliance due to communication failure is a likely scenario and waiver of submission of real time data in such scenario,

(iii) Sufficient redundancy to be provided for accepting revision in schedule,

(iv) Formats for appointing the aggregators, sharing the telemetric live data. Telemetric live data to be modified as per the existing SCADA capability

(v) Provision of remote collection of data from the meters.

2.49.5. WIPPA and ReNew submitted that there must be a separate band for measurement of deviation in different seasons, i.e. different tolerance band for wind and non-windy season in case of wind generations and monsoon and rest of the year in case of solar generators.

Alternatively, the metrics for measurement of deviation may not be absolute deviations but with respect of the wind/solar farm capacity.

2.49.6. WIPPA and ReNew further sought as to (i) Capital expenditure be standardized and allowed as a pass through in Power Purchase Agreement of the generators, (ii) Guidelines for generating stations which shall include communication facilities, SCADA, metering and connectivity, timeline for update on change in operating parameters, etc. (iii) A mock exercise with compulsory participation of all generators must be conducted for 1 year.

2.49.7. Continuum Wind submitted that Projects commissioned before 30.1.2010, had not considered the commercial impact of this Regulations and considering this Change in Law, some suitable comfort needs to be provided for such projects.

2.49.8. IL & FS submitted that certain incentive be provided to the developers for maintaining the generations within the Error Band. For this purpose, funds from "State Deviation Pool Account" may be used.

2.49.9. Astra Solern submitted that the Commission may clarify the fees payable to SLDC for each schedule submission or revision.

2.49.10. BLP Energy submitted to provide incentive for well performing generators. Also to clarify in case some units/turbines of a project commissioned before the effective date and some after effective date how will the accuracy/absolute error/deviation bands will be calculated and how the QCA will be apportioning the same. To share the analysis done by the Commission. It also submitted that such Additional Financial cost/impact were not considered/allowed by the Commission in its relevant Orders.

2.49.11. Adani Green submitted that neither detailed discussion paper nor explanatory memorandum giving detailed reasons for proposing each of the provisions of the proposed Regulations has been issued.

It would be completely unfair to penalize wind/solar generator for any inaccurate forecasting instead SLDC may be entrusted with the responsibility of such forecasting, as

is being done & proposed and SLDC may be compensated for additional costs for forecasting instead of RE generators bearing this burden.

No incentive/penalty mechanism for nature dependent phenomenon should be applied on wind/solar developers. This will not only be against the principle of equity but also against equality as conventional generators are subject to such deviation charges because both plant availability and fuel required for generators are under their control.

CERC has taken more than 4 years to come to a band of 15% for wind and solar since its introduction in 2011. The Commission may chalk out roadmap for wind and solar DSM introduction spanning from 2-3 years with starting band of 15% as was done by CERC. This band may then be tightened as the generators gain experience. However, the framework may be implemented on trial basis first for about a year and be fine-tuned on annual basis based on experience. Proposed Regulations provide only for penalties for generation outside a band, there is no incentive for being within the band.

The Capital cost of infrastructure and recurring charges for deviation need to be allowed to be passed through to beneficiaries for existing generators as it is clearly an impact of change in law. For new generators, the cost needs to be built in the tariff or the PPAs to be executed.

Centralized Forecasting, covering large number of solar/wind plants spread across large geographical area would be more suitable arrangement acceptable to the generators and SLDC.

2.49.12. TPCL submitted that the penalty amount that cannot be avoided by Generators in spite of using benchmarked forecasting capabilities needs to be considered by the Commission as payable by the buyers to the generators under Change of Law.

2.49.13. ReConnect submitted that the Commission may publish SoR along with final notification of the Regulations as it may be useful to understand Commission's view and act as reference point in case of any clarification not being provided in the Regulations.

Also, as to the Turbine/Generator level forecast or Pooling Station level forecast at multiple references in Regulations 7.10, 9.b, 11.1.d, 11.1.e,11.1.h/i, 15.1 a/b/c under the draft Regulations imply and indicate that the intent of Regulation is to enable the generator/turbine level forecasting framework with an access to real-time power generation data at an individual generator/turbine and thus carry out generator specific DSM charges

calculation in every 15 minute time block. It may be noted that the turbine level forecast is more expensive than the pooling station level forecast which is being carried out today by many generators and forecasters across all the States in India.

2.49.14. EMCO, Sunkon, Konark, and Mono Steel submitted that the Regulations is meant for the benefit of the power purchaser. The draft Regulations is based on the idea of penalizing the producer in case of deviation. Instead, an approach of incentivizing should be adopted which would benefit both the power producer and the purchaser.

Commission's View:

The Objectors have also submitted their suggestions/objections in general/overall as listed above.

However, many of such comments/suggestions/objections have been raised by other objectors and have been dealt with and clarified by the Commission in earlier paras. Hence, such comments/suggestions/objections are not being dealt with again. However, the comments/suggestions/objections which have not been dealt with or addressed, are dealt with hereunder:

As to the submission for different tolerance band for windy and non-windy season for wind generation and monsoon and rest of the year for solar generation, we note that absolute error being on AvC, such error at pooling station would give the deviation band wide margin to the wind/solar generations. Moreover, the aim of the present Regulations is to encourage the accurate forecast and scheduling by the wind and solar generators in order to maintain grid discipline. With increased penetration into the grid of such generation, their impact of deviation can no longer be neglected or absorbed by the other beneficiaries. Hence, accurate forecast will obviate the need of season and non-season wise deviation band. Besides, such seasonal changes in band will also create accounting and settlement difficulties. Hence, the said proposal is not accepted.

As to the submissions that the Regulations only provide for the penalties and do not incentivise the generators in any way, we note that, presently in the State, Renewable Energy Generators are being paid for on the basis of the actual generation and not on the

scheduled basis. Therefore, payment for over-injection/under-drawal as available to other Intra-State entities of DSM Account is not available to them. Moreover, the % age error is kept on the basis of AvC and that too at pooling station level, which provides them comfort. With the aim of promotion of the wind and solar generation, the deviations by these generators are being passed on to other beneficiaries. However, with the increasing penetration and a shift for moving towards the renewable sources, it is high time that these sources are also brought under the purview of grid discipline and the burden due to deviations caused by such generators is borne by them. Hence, it is not proper to say that the Regulations in any way penalize the wind and solar generators. The Commission is of the view that forecasting & scheduling of renewable energy has now become necessary in light of its high penetration in the State. However, after getting the feedback from all the stakeholders about their experience and learning, the Commission may review the Regulations at a later date.

Sd/-	Sd/-	Sd/-
[P. J. THAKKAR]	[K. M. SHRINGARPURE]	[ANAND KUMAR]
Member	Member	Chairman

Place: Gandhinagar.

Date: 19/01/2019.

Annexure A: Stakeholders who filed their written suggestions/objections

1 State Load Despatch Centre (SLDC)

2 ACME Solar Energy Private Limited

3 Myntrah Energy (India) Private Limited

4 Indian Wind Energy Association (InWEA)

5 Hero Future Energies Private Limited

6 Manikaran Analytics Limited (50 Hz)

7 Wind Indian Power Producers' Association (WIPPA)

8 Statkraft Markets Private Limited

9 Continuum Wind Energy (India) Private Limited

10 IL&FS Energy Development Company Limited

11 ReGen Powertech Private Limited (ReGen)

12 Energon GJ Wind Power Private Limited

13 Astra Solern Private Limited

14 Inox Renewables Limited

15 Tata Power Trading Company Limited (TPTCL)

16 Indian Energy Exchange

17 Enel Green Power - BLP Energy Private Limited

18 Adani Green Energy Limited

19 Tata Power Company Limited (TPCL)

20 ReConnect Energy Solution Private Limited (ReConnect)

21 Indian Wind Turbine Manufacturer's Association (IWTMA)

22 WindWorld India Limited (WWIL)

23 Ostro Energy Private Limited

24 Shri V. K. Agrawal

25 Gujarat Urja Vikas Nigam Limited (GUVNL)

26 EMCO Limited

27 Visual Percept Solar Projects Private Limited

28 Sunkon Energy Private Limited

29. Mono Steel (India) Limited

30. Konark Gujarat PV Private Limited

31. ReNew Power Limited

Annexure B Stakeholders who remained present during hearing

1. State Load Despatch Centre
2. Indian Wind Energy Association
3. Manikaran Analytics (50 Hz)
4. Statkraft Markets
5. Continuum Wind Energy
6. Energon GJ Wind Power Pvt. Ltd.
7. Tata Power Trading Company Limited
8. Enel Green Power- BLP Energy Pvt. Ltd.
9. Adani Green Energy Limited
10. ReConnect Energy Solution Private Limited
11. Indian Wind Turbine Manufacturer's Association
12. Ostro Energy Private Limited
13. Shri V. K. Agrawal
14. Gujarat Urja Vikas Nigam Limited
15. Visual Percept Solar Project
16. ReNew Power Ventures Private Limited
17. Environomics Private Limited