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GUJARAT ELECTRICITY REGULATORY COMMISSION  
GANDHINAGAR

Draft Gujarat Electricity Regulatory Commission (Gujarat Electricity Grid Code)  
(First Amendment) Regulations, 2016

Notification No. .... of 2016

In exercise of the powers conferred under Section 86(h) of the Electricity Act, 2003 (Act 36 of 2003) and under Section 42 (b) of the Gujarat Electricity Industry (Reorganisation and Regulation) Act, 2003 (Gujarat Act 24 of 2003), and all powers enabling it in that behalf, the Gujarat Electricity Regulatory Commission hereby amends the Gujarat Electricity Regulatory Commission (Gujarat Electricity Grid Code) Regulations, 2013, “the principal Code”.

1. Short Title, Extent and Commencement

- 1) These regulations may be called the Gujarat Electricity Regulatory Commission (Gujarat Electricity Grid Code) (First Amendment) Regulations, 2016.
- 2) These regulations shall come into force from date of their publication in the official gazette;

**Amendment in Abbreviations in the principal regulations:**

2. Abbreviation of DSM shall be added in the principal regulations as under:

“DSM – Deviation Settlement Mechanism”

**Amendment in Regulations 1 of the principal regulations:**

3. Following shall be added at the end of Clause 1.5 (11) of the principal regulations:

Further, most of the wind and solar energy generators are presently connected to intra-State network and are likely to be connected to the inter-state transmission system (ISTS) in future as well. Keeping in view the variable nature of generation from such sources and the effect such variability has on the inter-state/intra-state grid, and with the large-scale integration of such sources into the grid envisaged, scheduling of wind and solar generators has been incorporated in this code.

**Amendment in Regulations 2 of the principal regulations:**

4. Following Definitions in the Principal Regulations shall be substituted as under;

(1)“2 (43)

‘Demand Response’ refers to reduction in electricity usage by end customers from their normal consumption pattern, manually or automatically, in response to high Deviation charge being incurred by the state due to over-drawal by the state at low frequency, or in response to congestion charges being incurred by the state for creating transmission congestion, or for alleviating a system contingency, for which such consumers could be given a financial incentive or lower tariff.”

(2)“2 (140)

‘State Pool Account’ refers to the State Pool account for (i) payment of Deviation Charge (Deviation Charge Account) or (ii) Reactive Energy exchanges (Reactive Energy Account) (iii) Congestion Charge (iv) Renewable Regulatory Fund (v) Power System Development Fund and other charges as determined by appropriate Commission from time to time, as the case may be.”

(3)“2 (142)

‘Short-term Open Access’ refers to open access for a period up to one month at a time.”

5. Following Definitions in the Principal Regulations shall stand deleted;

(1)“2 (96)

‘Notice to Synchronize’ refers to the amount of time (expressed in minutes) that is declared by a generating company in relation to a generator to enable it to be synchronized following the receipt of an instruction to synchronize.”

(2)“2 (162)

‘Unscheduled Interchange’ (UI) refers to in a time block for a generating station or a seller means its actual generation minus its total scheduled generation for a beneficiary or buyer means its total actual drawal minus its total scheduled drawal.

6. Following new definitions shall be added after definition no. 165 of the principal regulations as under:

(1)“2 (166)

‘Pooling Station’ refers to the sub-station where pooling of generation of individual wind generators or solar generators is done for interfacing with the next higher voltage level:

Provided that where there is no separate pooling station for a wind / solar generator and the generating station is connected through common feeder and terminated at a sub-station of distribution company/STU/ CTU, the sub-station of distribution company/STU/CTU shall be considered as the pooling station for such wind/solar generator, as the case may be.”

(2)“2 (167)

‘buyer’ refers to a person, including beneficiary, purchasing electricity through a transaction scheduled in accordance with the regulations applicable for short-term open access, medium-term open access and long-term access;

(3)“2 (168)

‘seller’ refers to a person, including a generating station, supplying electricity through a transaction scheduled in accordance with the regulations applicable for short-term open access, medium-term open access and long-term access”

(4)“2 (169)

‘Deviation’ in a time-block for a seller refers to its total actual injection minus its total scheduled generation and for a buyer means its total actual drawal minus its total scheduled drawal.”

**Amendment in Regulation 3 of the principal regulations:**

7. Clause 3.16 (1) (3) (f) of the principal regulations shall be substituted as under:

“3.16 (1) (3) (f)

Operation of State deviation charge account, State Reactive Energy account, State Congestion Charge Account and State Transmission Deviation Account and other functions as directed by the Commission.”

**Amendment in Regulation 4 of the principal regulations:**

8. Following note shall be added below the table in Clause 4.21 (1) of the principal regulations:

“NOTE: Minimum safety working clearance of 2.8 Meters shall be maintained for the bare conductors or live parts of any apparatus in outdoor substation, excluding overhead lines of HV and EHV installation for 24 kV.”

**Amendment in Regulation 5 of the principal regulations:**

9. Clause 5.9 of the principal regulations shall be substituted as under:

“5.9 Wind generators and Solar Generating Station using Inverters: The connectivity standards specifying the technical requirements for wind generators and solar generating stations using inverters to be synchronized with the grid at 66 kV or above. They shall be capable of the following:

1. Wind generating stations connected at 66 kV and above shall be capable of supplying dynamically varying reactive power support, so as to maintain power factor within limits as specified in the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended time to time. Similarly, solar generating stations have to maintain power factor within limits as specified in the Central Electricity Authority

- (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended time to time.
2. Wind generating stations and solar generating stations shall have fault ride through capability as specified in the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended time to time so that grid is not destabilized due to sudden outage of generation in the event of a grid disturbance.
  3. The total harmonic distortion for voltage at the connection point shall not exceed 5% with no individual harmonic higher than 3% and the total harmonic distortion for current drawn from the transmission system at the connection point shall not exceed 8%. The above measurement of Harmonics Distortion has to be carried out every six monthly and shall be reported to STUs/ Licensees.

**Amendment in Regulation 6 of the principal regulations:**

10. Clause 6.29 of the principal regulations shall be substituted as under:

“6.29 Distribution licensee and bulk consumer shall initiate action to restrict the drawal of its control area, from the grid, within the net drawal schedule.”

11. Clause 6.30 of the principal regulations shall be substituted as under:

“6.30 The distribution licensee and bulk consumer shall ensure that requisite load shedding is carried out in its control area, so that there is no over drawal.”

12. Clause 6.35 of the principal regulations shall be substituted as under:

“6.35 SLDC shall devise standard instantaneous message formats in order to give directions in case of contingencies and/or threat to the system security to reduce deviation from schedule by the bulk consumer, ALDC/State Utility/Distribution Licensees/ISGS/State Generating Stations/State Entity/Injecting Utility at different over drawal/under-drawal/over-injection/under-injection conditions depending upon the severity. The ALDC, concerned distribution licensee, bulk consumers, state entity, SGS, ISGS, injecting utility shall ensure immediate compliance with these directions and

send a compliance report to the SLDC. These control measures shall be in force till further instruction of SLDC after review of the situation."

13. Clause 6.42 of the principal code shall be substituted as under:

"6.42 The governors of all the generating units of capacity 50 MW and above for hydro generating stations and 200MW and above for thermal generating stations except run of the river hydroelectric Generating Stations without pondage, steam turbines of combined cycle gas turbines and nuclear generating stations, shall be in free operation mode at all times irrespective of ownership of generating unit. If for any reason, the governors are locked, the same should be intimated to the SLDC along with the reasons and duration of such operation. Based on the same, SLDC shall advise WRLDC about such an operation along with the reasons and duration thereof. The load limiter, automatic turbine run-up system (ATRS), turbine supervisory coordinated control system etc shall not be used to suppress the normal governor action in any manner. There should not be any reduction in generation in case of improvement in grid frequency below 50.05 Hz (for example, if grid frequency changes from 49.9 to 49.95 Hz, there shall not be any reduction in generation). For any fall in grid frequency, generation from the unit should increase by 5% limited to 105 % of the MCR of the unit subject to machine capability. No dead bands and time delays shall be deliberately used. All governors shall have a drop of 3% to 6%."

14. Clause 6.44 of the principal regulations shall be substituted as under:

"6.44 The SLDC, in consultation with the WRLDC and the Distribution Licensees, shall prepare a plan for automatic load relief during the low frequency conditions. In case the frequency rises to 50.05Hz or higher, neither any generating unit, which is in stand-by mode shall be synchronized with the grid; nor shall Active Power generation at any generating station be increased irrespective of the type and ownership, unless advised by SLDC."

15. Clause 6.45 of the principal regulations shall be substituted as under:

"No generating company shall suddenly increase/decrease its generation by more than 50 MW without prior intimation to the SLDC, except during emergencies or to prevent an imminent danger to any costly equipment. Similarly no Distribution Licensee shall cause a sudden decrease/increase in

its load due to imposition/lifting of power cuts etc. without prior intimation and consent of the SLDC, particularly when the frequency is between 49.90 – 50.05 Hz.”

16. Clause 6.48 of the principal regulations shall be substituted as under:

“6.48 Users shall make all possible efforts to ensure that the grid frequency always remains within the 49.90-50.05 Hz frequency band (as per the prevailing IEGC as amended from time to time ), the frequency range, within which the steam turbines conforming to the IEC specifications can safely operate.”

17. Clause 6.63 of the principal regulations shall be substituted as under:

“6.63 The state grid normally operates in synchronism with the western grid and the WRLDC has the overall responsibility of enforcing the grid discipline and managing the frequency in the region. The SLDC shall follow the instructions of WRLDC in this regard for backing down/shutting down generation, regulating the load flow etc. to meet the objective. The SLDC shall accordingly instruct the generating companies to regulate their generation and hold reserves, if any, of Active and Reactive Power within their respective declared parameters to ensure that the grid frequency remains in the frequency band of 49.90 to 50.05 Hz. ( as per prevailing IEGC as amended from time to time).”

18. Clause 6.79 of the principal regulations shall be substituted as under:

“6.79 In case of total and partial State Transmission System blackout, the recovery shall be as per the Black Start/Restoration procedure prepared by SLDC in consultation with all users. As these procedures are updated periodically, the latest updated procedures shall be followed during the total and partial state transmission system blackout. The instructions issued by SLDC in restoration of system from total or partial blackout shall be followed by all users, even though the same is not specifically mentioned in Black Start procedure/ restoration document. Mock trial runs of the procedure for different subsystems shall be carried out by the Users/ STU in consultation with SLDC at least once every six months under intimation to the RLDC. Diesel Generator sets for black start would be tested on weekly basis and test report shall be sent to SLDC on monthly basis.”

**Amendment in Regulation 8 of the principal regulations:**

19. Clause 8.1 of the principal regulations shall be substituted as under:

“8.1 STU/Transmission Licensee shall install and make operative an operational metering data collection system under SCADA for storage, display and processing of operational metering data. All the users shall make available outputs of their respective operational meters to the SCADA interface equipment. SLDC may establish Renewable Energy Management Centre/ Renewable Energy desk.”

20. Clause 8.5 of the principal regulations shall be substituted as under:

“8.5 The following real time data are required by SLDC for effective control of the power system:

- (a) MW and MVA<sub>r</sub> generated or absorbed in each generating station,
- (b) MVA<sub>r</sub> imported or exported from/to the external connections,
- (c) Voltages in all the system busbars,
- (d) Frequency in the system,
- (e) MW & MVA<sub>r</sub> flow in each Transmission element.
- (f) Weather Data viz. Temperature, Wind Speed & Direction, Humidity etc.
- (g) Tap position of Transformer, Breaker and Isolator status points.”

**Amendment in Regulation 11 of the principal regulations:**

21. Objective of Regulation 11 of the principal regulations shall be substituted as under:

“Objective

This code deals with the procedures to be adopted for scheduling of the net injection / drawals of concerned State entities on a day-ahead basis with the modality of the flow of information between the SLDC, ALDC and intra-state entities. The procedure for submission of capability declaration by each generating station and submission of requisition / drawal schedule by other state entities is intended to enable SLDCs to prepare the despatch schedule for each ISGS/SGS and drawal schedule for each intra-state entity. It also provides methodology of issuing real time despatch/drawal instructions and rescheduling, if required, to intra-state entities along with the commercial



arrangement for the deviations from schedules as well as mechanism for reactive power pricing. This code also provides the methodology for re-scheduling of wind and solar energy generators on one and half hourly basis and the methodology of handling deviations of such wind and solar energy generators. Appropriate meters shall be provided for accounting of charges for deviation under DSM Regulations. Telemetry/communication system & Data Acquisition System shall also be provided for transfer of information to the concerned Sub-SLDC/SLDC. The provisions contained in this part are without prejudice to the powers conferred on SLDC under Section 32 and 33 of the Electricity Act, 2003.”

22.Clause 11.2 of the principal regulations shall be substituted as under:

“11.2 The State Load Despatch Centre is responsible for coordinating the scheduling of a generating station, within the control area which is not scheduled by the RLDC in terms of CERC regulation, as notified from time to time. The SLDC shall also be responsible for such generating stations for (1) real-time monitoring of the station’s operation, (2) checking that there is no gaming (gaming is an intentional mis-declaration of a parameter related to commercial mechanism in vogue, in order to make an undue commercial gain) in its availability declaration, (3) revision of availability declaration and injection schedule,(4) switching instructions,(5) metering and energy accounting, (6) issuance of Deviation Charge accounts within the control area,(7) collections/disbursement of Deviation Charge payments, (8) outage planning etc.”

23.Clause 11.5 of the principal regulations shall be substituted as under:

“11.5 Each Distribution Licensee, through their ALDC, shall always endeavour to restrict the net drawal of their own Distribution Licensee from the grid to within the drawal schedules. The concerned distribution licensee, user shall ensure that their automatic demand management scheme acts to ensure that there is no over-drawal. If the automatic demand management scheme has not yet been commissioned, then action shall be taken as per manual demand management scheme to restrict the net drawal from grid within schedules and all actions for early commissioning of Automatic Demand Management Scheme (ADMS) shall be initiated.”

24. Clause 11.8 of the principal regulations shall be substituted as under:

“11.8 The generating station would normally be expected to generate power according to the daily schedules advised to them. The generating stations may deviate from the given schedules within the limits specified in the Deviation Settlement Mechanism and related matters Regulations in force and as amended from time to time, depending on the plant and system conditions. In particular, they may be allowed to generate beyond the given schedule under deficit conditions, as long as such deviations do not cause system parameters to deteriorate beyond permissible limits and/or do not lead to unacceptable line loading. Deviations, if any, from the ex-power plant generation schedules shall be appropriately priced in accordance with Deviation Settlement Mechanism and related matters regulations in force and GERC intra state ABT order and subsequent amendment time to time. In addition, deviations from schedules causing congestion, shall also be priced in accordance with the Congestion Charge Regulations of CERC.”

25. Clause 11.9 of the principal regulations shall stand deleted.

“11.9 Provided that when the frequency is higher than 50.2 Hz, the actual net injection shall not exceed the scheduled for that time block. Also, while the frequency is above 50.2 Hz, the generating stations may (at their discretion) back down without waiting for advice from SLDC to restrict the frequency rise. When the frequency falls below 49.8 Hz, the generation at all generating stations (except those on peaking duty) shall be maximized, at least up to the level to which can be sustained, without waiting for advice from SLDC subject to the condition that such increase does not lead to unacceptable line loading or system parameters to deteriorate beyond permissible limit.”

26. Clause 11.33 of the principal regulations shall be substituted as under:

“11.33 In case of any grid disturbance, scheduled generation of all the generating stations and scheduled drawal of all the beneficiaries shall be deemed to have been revised to be equal to their actual generation/drawal for all the time blocks affected by the grid disturbance. Certification of grid disturbance and its duration shall be done by the SLDC. The declaration of disturbance shall be done by the SLDC on its website or any other mode of communication to the concerned.. All State entities shall take note of the disturbance and take appropriate action at their end in consultation with SLDC.”

27. Clause 11.34 of the principal regulations shall be substituted as under:

“11.34 Revision of declared capability by the generating station having two-part tariff with capacity charge and energy charge (except hydro stations) and requisition by beneficiary(ies) for the remaining period of the day shall also be permitted with advance notice, but only in case of a contingency. Revised schedules/declared capability in such cases shall become effective from the 4<sup>th</sup> time block, counting the time block in which the request for revision has been received in the SLDC to be the first one.”

28. Following proviso shall be added at the end of Clause 11.35 of the principal regulations as under:

“Provided that the schedule of the buyers and sellers shall be revised after forced outage of a unit, only if the source of power for a particular transaction has clearly been indicated during short-term open access application and the said unit of that generating station goes under forced outage.

Provided that for such case of revision of schedule of a generating unit, the schedules of all transactions under the long-term access, medium-term open access and short-term open access (except collective transactions through power exchange), shall be reduced on pro-rata basis.”

29. Clause 11.38 of the principal regulations shall be substituted as under:

“11.38 Special dispensation for scheduling of wind and solar generation

(i) Wind and Solar generators shall mandatorily provide their scheduling in the prescribed format to SLDC. They shall also provide the technical specifications of their WTGs/SPGs. The data relating to power system parameters and weather related data as applicable shall also be mandatorily provided by such generators to SLDC in real time. The frequency and other details in this regard shall be provided in the Detailed Procedure to be prepared by SLDC and approved by the Commission.

(ii) Forecasting shall be done by wind and solar generators as well as the SLDC. The forecast by SLDC shall be with the objective of ensuring secure grid operation. The forecast by the wind and solar generator shall be generator

centric. The wind and solar generators will have the option of accepting SLDC's forecast for preparing its schedule or provide the schedule based on its own forecast. Any commercial impact on account of deviation from schedule based on the forecast chosen by the wind and solar generator shall be borne by it.

(iii) The schedule by wind and solar generators (excluding collective transactions) may be revised by giving advance notice to SLDC. Such revisions shall be effective from 4th time block, the first being the time-block in which notice was given. There may be one revision for each time slot of one and half hours starting from 00:00 hours of a particular day subject to maximum of 16 revisions during the day.”

30. Clause 11.57 of the principal regulations shall be substituted as under:

“11.57 The sum of the above two charges from all beneficiaries shall fully reimburse the generating station for generation according to the given despatch schedule. In case of deviation from the despatch schedule, the concerned generating station shall be additionally paid for excess generation through the Deviation Settlement Mechanism. In case of actual generation being below the given despatch schedule, the concerned station shall pay back through the Deviation Settlement Mechanism for the shortfall in generation.”

31. Clause 11.58 of the principal regulations shall be substituted as under:

“11.58 The summation of station-wise ex-power plant despatch schedules from each generating station and any bilaterally agreed interchanges of each beneficiary shall be adjusted for transmission losses, and the net drawal schedule so calculated shall be compared with the actual net drawal of the beneficiary. In case of excess drawal, the beneficiary shall be required to pay through the Deviation Settlement Mechanism for the excess energy. In case of under-drawal, the beneficiary shall be paid back through the Deviation Settlement Mechanism, for the energy not drawn.”

32. Clause 11.60 of the principal regulations shall be substituted as under:

“11.60 Monthly energy account and weekly statements of Deviation charges shall be prepared by the SLDC. The weekly statement of Deviation charges

shall be issued to all constituents by Thursday for the seven-day period ending on the penultimate Sunday at midnight. Payment of Deviation charge shall have a high priority and the concerned constituents shall pay the indicated amounts into State Deviation Charge Pool account operated by SLDC within 10 (ten) days of the issuance of statements. The agencies that have to receive the money on account of Deviation charges would then be paid out from the state Deviation Charge pool account, within three (3) working days.”

33.Clause 11.62 of the principal regulations shall be substituted as under:

“11.62 If payments against the above Deviation Charge and Reactive Energy (VAr) charges are delayed by more than two days; i.e. beyond twelve (12) days from the issuance of statements, the defaulting constituent shall have to pay simple interest @ 0.04% for each day of delay. The interest so collected shall be paid to the constituents who had to receive the amount, payment of which got delayed. Persistent payment defaults, if any, shall be reported by the SLDC to the Commission, for initiating remedial action.”

34.Clause 11.65 of the principal regulations shall be substituted as under:

“11.65 The SLDC shall also prepare quarterly statement of the state Deviation Charge account and the state Reactive Energy account and circulate the same to all the pool members for verification.”

35.Clause 11.66 of the principal regulations shall be substituted as under:

“11.66 All 15-minute energy figures (net scheduled, actually metered and deviation) shall be rounded off to the nearest 0.01 MWh.”

-Sd-

(Roopwant Singh, IAS)

Secretary

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