

Rajasthan Electricity Regulatory Commission
NOTIFICATION

Jaipur 10th, June 2011

No.RERC/Secy/Reg. 88 In exercise of the powers conferred under Section 181, read with section 86(1)(h) of the Electricity Act, 2003 (Act 36 of 2003) and all powers enabling it in that behalf, the Rajasthan Electricity Regulatory Commission, after previous publication hereby, makes the following regulations:

1. Short title and commencement

- (1) These amendments shall be called the "Rajasthan Electricity Regulatory Commission (Rajasthan Electricity Grid Code) (1st Amendment) Regulations, 2011.
- (2) These amendments shall come into force on and from the date of its publication in the state gazette.

2. Amendment in Chapter II of Principal Regulations

In the sub clause 2.1.1 of regulation 2, following shall be deleted from the last line:
"till then part II of earlier Grid Code shall continue to be applicable wherever it is not inconsistent with **IEGC**".

3. Amendments in Chapter III of Principal Regulations for Definitions

- (i) In the Chapter III of regulation 3, following definitions shall be deleted, namely:
(11) Bulk Power Transmission Agreement (BPTA)
(50) Operating Coordination Committee (OCC)
- (ii) In the Chapter III of regulation 3, following definitions shall be inserted, namely:
(29)(A) Gaming shall mean an intentional mis-declaration of declared capacity by any generating Station or seller in order to make an undue commercial gain through Unscheduled Interchange charges.
(71)(A) Time Block means block of 15 minutes each for which interface meters record values of specified electrical parameters with first time block starting at 00.00 Hrs;
(73)(A) Unscheduled Interchange (UI) means in a time block for a generating station or a seller means its total actual generation minus its total scheduled generation and for a beneficiary or buyer means its total actual drawal minus its total scheduled drawal.

4. Amendments in Chapter-IV of Principal Regulations

- (i) In regulation 4, the clause 4.2 shall be substituted as under:
"4.2 SLDC responsibility:
The **SLDC** shall discharge the functions assigned to it under the provisions of the **Act** (Sec. 31, 32) and **REGC** in an independent and unbiased manner.
SLDC shall be the apex body to ensure the integrated operations of the power system in the State.
SLDC shall exercise supervision and control imparting directions not inconsistent with the provisions of the **Act**, in ensuring secured integrated grid operations in achieving the maximum economy and efficiency in operating the power system in the State.
The Regional Power Committee from time to time shall meet on the matters concerning stability and smooth operations of the integrated grid and economy in operating efficient power system in the region.
The **NLDC/NRLDC** shall issue directions through **SLDC**, and **SLDC** shall ensure that such directions are complied by the **Users**.
SLDC shall comply with the directions of **NRLDC**.
The decisions of **RPC** arrived at by consensus regarding operation of the regional grid and scheduling and despatch of electricity, if not inconsistent with the provisions of **IEGC/RERC** Regulations, shall be followed by the **SLDC /STU** and **Users**, subject to

directions of the Central/State Commission, if any, as the case may be.

SLDC shall –

(i) Be responsible for optimum scheduling and despatch of electricity within the State in accordance with the contracts signed with the licensee(s) or the generating companies operating in the State.

(ii) Monitor the grid operations in accordance with the Load Despatch and System Operations manual.

(iii) Keep account of the electricity transmitted through the State grid to the **Users**.

(iv) Exercise supervision and control over the intra-state transmission system.

(v) Be responsible for carrying out real time operations for grid control and electricity despatch within the state through secure and economic operation of the State grid in accordance with the grid standards and **REGC**.

The **SLDC**, which is responsible for coordinating the scheduling of a generating station, shall also be responsible for

- (i) real- time monitoring of the station's operation,
- (ii) checking that there is no gaming in its availability declaration,
- (iii) revision of availability declaration and injection schedule,
- (iv) switching instructions,
- (v) metering and energy accounting,
- (vi) issuance of UI accounts,
- (vii) collections/disbursement of UI payments,
- (viii) outage planning, etc.

Role of **SLDC** towards **Open Access** consumer /customer/supplier shall be as under:-

(i) Facilitating transactions of power under short term and long term intrastate open access as approved by **STU**.

(ii) Issuing No Objection Certificate/Standing Clearance/Concurrence for inter-state open access transactions and facilitating the same consequent upon the approval from **NRLDC**

SLDC may levy and collect such fee and charges as may be specified by the Commission from the **generating companies, licensee(s)** and **OA** consumer /customer/supplier utilizing intra-state transmission of electricity system.

Every **User**, licensee, generating company, generating station, sub-station and the persons operating the power system shall comply with the directions issued by **SLDC**.

Any dispute relating to the quality of electricity or safe secure and integrated operation of the State Grid or about the directions given by **SLDC**, shall be referred to **RERC** for decision.

All grievances relating to **Open Access** consumer /customer/supplier -

i) shall be investigated by **SLDC** and efforts will be made to resolve the same within 30 days, and

ii) In case **SLDC** is unable to resolve a grievance, the **OA** consumer /customer/supplier may approach **SPC** within next 15 days to resolve the grievances. The **SPC** will resolve the grievance in 30 days, and

iii) Where **SPC** is unable to resolve the grievance in the time period specified above, it shall be referred to the Commission or else the aggrieved **OA** consumer /customer/supplier may approach the Commission within next 15 days.

However, until the **RERC** decides, the **SLDC** directions are to be complied with by the licensee and by the generating company.

If a licensee, generating company or a person fails to comply with the directions issued by **SLDC**, he shall be liable to penalty under the provisions of the **Act**."

- (ii) In regulation 4, the existing sub-clause 4.6(vii) shall be substituted as under:
"4.6(vii). In case of **OA**, where **SLDC** is unable to resolve a grievance, **SPC** shall resolve the grievance within 30 days. Where **SPC** is unable to resolve the grievance in the time period specified above, it shall be referred to the Commission."
- (iii) In regulation 4, the existing clause 4.9 shall be substituted as under:

“4.9 Non-Compliance & Derogation:

4.9.1 Non-Compliance:

- i. If a **User** fails to comply with the **REGC** provision(s), the affected party shall inform the **SLDC** for taking immediate remedial measures as per **REGC** provisions.
- ii. Wrong declaration of capacity, non-compliance of **SLDC's** instructions on load despatch, backing down without adequate reasons, non-furnishing of data etc. shall constitute non-compliance of **REGC** and shall be subject to financial penalty as per section 33 of the Act, presently not exceeding Rs. 5.0 lacs.
- iii. Constant failure to comply with the **REGC** may lead to **disconnection** of **User's** plant and/or facilities.
- iv. **SLDC** shall report to the **SPC** instances of serious or repeated violation of any of the provisions of the **REGC** and incidences of persistent non-compliance of the directions of the **SLDC** issued in order to exercise supervision and control required for ensuring stability of state grid operations and for achieving the maximum economy and efficiency in the operation of the power system in the state.
- v. The **SPC** shall also monitor and maintain appropriate record of such violation of **REGC** provisions. The **SPC** shall try to sort out all operational issues, suggest remedial measures and issue suitable directives to the **Users** to prevent non-compliance by building consensus. The **SPC** may report any issue that cannot be sorted out by the **SPC** the Commission
- vi. The Commission may initiate appropriate proceedings upon receipt of report of **SPC's** or **SLDC's** on non-compliance of **REGC**.
- vii. In case of non-compliance of any provisions of the **REGC** by **SLDC,SPC** and any other person the matter may be reported by any person to the **RERC** through petition.
- viii. Notwithstanding anything contained in these regulations, the Commission, if satisfied, may also take *suo-moto* action against any person, in case of non-compliance of any of the provisions of the **REGC** comes to its notice.

4.9.2 Derogation of any particular section or **REGC** chapter shall be with the express permission of the **Regulatory Commission** only for a specified time period. Derogation of the **REGC** requirements shall be an exception, and may be allowed only when it is not possible for the **User** to comply within the given time-frame. Failure to comply with fixed-time derogation by any **User** may attract a financial penalty as may be decided by the **Commission**."

5. Amendment in Chapter-V of Principal Regulations

In sub clause 5.3(i) of regulation 5, the following point shall be inserted in the end of paragraph as under:

"- Outage of one 765 kV S/C line."

6. Amendments in Chapter-VI of Principal Regulations

- (i) In sub clause 6.2(xv) of Regulation 6, the word "**NLDC**/" shall be inserted before "**NRLDC**".
- (ii) In sub-sub clause 6.6.4.1 of Regulation 6, the figures and word "49.0-50.5 Hz" shall be substituted by the figures and word "49.5 – 50.2" and the figure "5.2(l)" shall be deleted.
- (iii) The sub-sub clause 6.6.4.2, sub-sub clause 6.6.4.3 and sub-sub clause 6.6.4.4 of Regulation 6 shall be substituted as under:

“6.6.4.2 The **SLDC**, and the **Users** shall ensure that the grid voltage remains within the following operating limits as specified in **IEGC**:

Nominal System	Grid Voltage (kV rms)
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Voltage (kV rms)	Maximum	Minimum
765	800	728
400	420	380
220	245	198
132	145	122
33	36	30

All efforts shall be made for progressive reduction of operating voltage variation limit to be $\pm 3\%$ latest by 21.2. 2012.

6.6.4.3 Voltage and Current Harmonics:

(1) The total harmonic distortion for voltage at the connection point shall not exceed 5% with no individual harmonic higher than 3%.

(2) The total harmonic distortion for current drawn from the transmission system at the connection point shall not exceed 8%.

(3) The limits prescribed in (1) and (2) shall be implemented in a phased manner so as to achieve complete compliance not later than 21.2. 2012.

6.6.4.4 The Voltage Unbalance at 33 kV and above shall not exceed 3.0%."

- (iv) In the sub clause 6.7.1 of regulation 6, the figure and word "765 kV" shall be inserted before figure and word "400 kV".

7. Amendments in Chapter-VII of Principal Regulations

- (i) In sub clause 7.2(b) of regulation 7, word "**NLDC**/" shall be inserted before "**NRLDC**".

- (ii) The clause 7.6 of the regulation 7 shall be substituted as under:

7.6 All thermal generating units of 200 MW and above and all hydro units of 10 MW and above, which are synchronized with the grid, irrespective of their ownership, shall have their governors in operation at all times in accordance with the following provisions:

7.6.1 Governor Action:

i) Following Thermal and hydro (except those with up to three hours pondage) generating units shall be operated under restricted governor mode of operation:

- a) Thermal generating units of 200 MW and above,
1) Software based Electro Hydraulic Governor (EHG) system
2) Hardware based EHG system
b) Hydro units of 10 MW and above

ii) The restricted governor mode of operation shall essentially have the following features:

a) There should not be any reduction in generation in case of improvement in grid frequency below 50.2 Hz. (for example if grid frequency changes from 49.3 to 49.4 Hz. then there shall not be any reduction in generation). Whereas 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.

b) Ripple filter of +/- 0.03 Hz. shall be provided so that small changes in frequency are ignored for load correction, in order to prevent governor hunting.

c) If any of these generating units is required to be operated without its governor in operation as specified above, the **NRLDC** shall be immediately advised about the reason and duration of such operation. All governors shall have a droop setting of between 3% and 6%.

7.6.2 All other generating units including the pondage up to 3 hours, Gas turbine/Combined Cycle Power Plants, wind and solar generators and Nuclear Power Stations shall be exempted from sub clause 7.6.1(i), 7.7 and 7.8 till the Commission reviews the situation. "

- (iii) In clause 7.7 of regulation 7, words "except as specified in sub clause 7.6.1(i) above." shall be inserted in the end of the sentence.

- (iv) The clause 7.8 of regulation 7 shall substituted as under:

“7.8 All thermal generating units of 200 MW and above and all hydro units of 10 MW and above operating at or up to 100% of their Maximum Continuous Rating (MCR) shall normally be capable of (and shall not in any way be prevented from) instantaneously picking up to 105% and 110% of their MCR, respectively, when frequency falls suddenly. After an increase in generation as above, a generating unit may ramp back to the original level at a rate of about one percent (1%) per minute, in case continued operation at the increased level is not sustainable. Any generating unit, not complying with the above requirements, shall be kept in operation (synchronized with the Regional grid) only after obtaining the permission of NRLDC.

7.8.1 The **SLDC** shall make all efforts to evacuate the available solar and wind power and treat as a must-run station after taking into consideration the storage capacity. However, **SLDC** may instruct the solar /wind generator to back down generation on consideration of grid security or safety of any equipment or personnel is endangered and Solar/ wind generator shall comply with the same.

i) **SLDC** may direct a wind farm to curtail its VAr drawl / injection in case the security of grid or safety of any equipment or personnel is endangered.

ii) During the wind generator start-up, the wind generator shall ensure that reactive power drawl (inrush currents in case of induction generators) shall not affect the grid performance.”

(v) In clause 7.9 of regulation 7, in first paragraph, the figure and word “49.5 Hz.” shall be substituted by the figure and word “49.7 Hz.”

(vi) In clause 7.9 of regulation 7, in last paragraph, the figure and word “50.5 Hz.” shall be substituted by the figure and word “50.2 Hz.”.

(vii) The clause 7.10 of regulation 7 shall be substituted as under:

“7.10 Except under an emergency, or to prevent an imminent damage to a costly equipment, no **User** shall suddenly reduce his generating unit output by more than one hundred (100) MW without prior intimation to and consent of the **SLDC**, particularly when frequency is falling or is below 49.5 Hz..Similarly, no **User** shall cause a sudden variation in its load by more than one hundred (100 MW) without prior intimation to and consent of the **SLDC**.”

(viii) In the clause 7.14 the words “as provided under **REGC**” shall be substituted by words “as per a plan to be separately finalized by the Protection sub-Committee of the **NRPC**”.

(ix) The clause 7.16 of regulation 7 shall be substituted as under:

“7.16 The **STU/Discoms** shall provide automatic Under Frequency & df/dt Relays to arrest frequency decline that could result in a collapse/disintegration of the grid, as per the plan finalized by **NRPC** and shall ensure its effective application to prevent cascade tripping of generating units in case of any contingency. **SLDC/STU/ Discoms** shall ensure that the above under-frequency and df/dt relays for load shedding/islanding schemes are always functional. **STU** shall furnish monthly report of UFR and df/dt relay operation to **SLDC** for onward transmission to **NRPC**.”

7.16.1 In order to maintain the system frequency within the stipulated band and maintaining the network security, the interruptible loads shall be arranged in four groups of loads viz. for scheduled power cuts/load shedding, loads for unscheduled load shedding, loads to be shed through under frequency relays/ df/dt relays and loads to be shed under any System Protection Scheme as identified at the **NRPC** level. These loads shall be grouped in such a manner, that there is no overlapping between different groups of loads.”

8. Amendment in Chapter-VIII of Principal Regulations.

A sub clause 8.1.9 shall be inserted in regulation 8 in chapter-VIII as under:

“8.1.9 The outage planning of run-of-the-river hydro plant, wind and solar power plant

and its associated evacuation network shall be planned to extract maximum power from these renewable sources of energy. Outage of wind generator should be planned during lean wind season, outage of solar, if required during the rainy season and outage of run-of-the river hydro power plant in the lean water season.”

9. Amendment in Chapter-IX of Principal Regulations

In clause 9.3 of regulation 9, following shall be inserted before the first paragraph:

“The **SLDC/STU/Distribution Licensee** shall regularly carryout the necessary exercise regarding short-term and long term demand estimation to plan in advance as to how the load would be met without overdrawing from the grid. The following deviations from the schedule and other violations would be regulated by the **SLDC**.

1. Over drawals/Under injection at frequencies below 49.5 Hz.
2. Under drawals/Over injection at frequencies above 50.2 Hz.
3. Reactive power drawals/injection causing low/high voltage respectively.”

10. Amendments in Chapter-X of Principal Regulations

(i) The title and first paragraph of regulation 10 under Chapter -X shall be substituted by the following:

“CHAPTER –X SCHEDULING, DESPATCH AND ACCOUNTING

This Chapter describes the procedure for scheduling, despatch and accounting to be adopted by the **Users** to meet the demand and **Drawal** allocation, requirements of **Discoms** and **O A consumers**. This will be applicable to **SLDC, SGS, Distribution Companies/STU**, Power Exchanges, wind and solar generating stations and other concerned persons in the state grid. The demarcation of responsibilities shall be as per provisions of latest **IEGC**.”

(ii) The clause 10.1 of regulation 10 shall be substituted as under:

“10.1.Generation Scheduling:

10.1.1 Each **SGS** and **OA** supplier shall declare the 15 minute time block averaged capability estimate in MW & MVAR at each connection point for the day ahead to **SLDC**.

10.1.2 The individual transactions for State Utilities/intra-State Entities shall be scheduled by the **SLDC**. Power Exchange(s) shall send the detailed break up of each point of injection and each point of drawal within the State to **SLDC** after receipt of acceptance from **SLDC**. Power Exchange(s) shall ensure necessary coordination with **SLDC** for scheduling of the transactions.

10.1.3 The **SLDC** shall prepare a day ahead generation ex-power plant schedule keeping in view the:

1. **STS** constraints.
2. Load requirements estimated by **SLDC** for specified intervals.
3. The operating margins and reserves required to be maintained.
4. Generation availability from **SGS, IPPs, CPPs**, and **ISGS** and constraints if any.
5. Overall economy to **Transmission Licensee** and each **Discom**.

The **SLDC** shall instruct the **SGS** to hold capacity reserves (spinning and/or standby) as per **NRPC** guidelines or as may be determined by **SLDC** or as agreed for local conditions.

SLDC may instruct the **SGS** to generate MVAR within the capability limits of its respective generating units to hold station bus-bar voltages at specified levels.

The **SLDC** shall also prepare the injection schedule for grid operation by **OA** customers/suppliers.”

(iii) In the clause 10.2 of regulation 10 word “hourly” shall be substituted by words “15 minutes time block wise”.

(iv) In clause 10.3 of regulation 10, following two paragraphs shall be inserted after second paragraph as under:

“While making or revising its declaration of capability, the **SGS** shall ensure that the declared capability during peak hours is not less than that during other hours. However, exception to this rule shall be allowed in case of tripping/re-synchronization

of units as a result of forced outage of units.

The **SLDC** shall maintain the record of schedule from renewable power generating stations based on type of renewable energy sources i.e. wind or solar from the point of view of grid security. While scheduling generating stations in a region, system operator shall aim at utilizing available wind and solar energy fully as per provisions of latest **IEGC**."

(v) The clause 10.4 of the regulation 10 shall be substituted as under:

"**10.4 SLDC/Distribution licensee** and bulk consumer shall be primarily responsible for managing their load and reactive power drawal and endeavour to restrict their load within its drawal schedule whenever, the system frequency falls to 49.7 Hz. **SLDC/Distribution licensee** and bulk consumer shall ensure that requisite load shedding is carried out so that there is no overdrawal when frequency is 49.5 Hz or below ."

(vi) In regulation 10, sub clause 10.9.1 shall be substituted as under:

"**10.9.1** Unscheduled Interchange (UI) and Reactive energy account:

SLDC shall prepare the energy account and settlement of UI and Reactive energy drawal / injection as per "**RERC** (Intra state ABT) Regulation 2006", "**RERC** (Terms & Conditions for Open Access) Regulations 2004 and "**CERC**(Unscheduled Interchange charges and related matters) Regulations, 2009" as amended from time to time for each **Discom** and **OA consumer**. Other provisions shall be as here-under:-

(i) Any generation from generating stations other than hydro generating stations, up to 105% of the declared capacity in time block of 15 minutes and averaging up to 101% of the average declared capacity over a day shall not be construed as gaming. The generator shall be entitled to UI charges for such excess generation over and above the scheduled generation.

(ii) For any generation beyond the prescribed limits, the **SLDC** shall ensure that there is no gaming and if gaming is found by the **SLDC**, the corresponding UI charges to the generating station on account of such extra generation can be reduced to zero and the amount shall be adjusted in UI account of beneficiaries in the ratio of their capacity share in the generating station.

(iii) **SLDC** shall periodically check that the generating station is declaring the capacity and energy sincerely, and is not manipulating the declaration with the intent of making undue money through UI.

(iv) The **SLDC** shall prepare the record and account of UI volume and additional UI drawal/injection in accordance with **CERC** (Unscheduled Interchange charges and related matters) Regulations, 2009 as amended from time to time.

(v) **SLDC** shall periodically review the actual deviation from the dispatch and net drawal schedules being issued, to check whether any of the **Users** is indulging in unfair **gaming** or collusion. In case any such practice is detected, the matter shall be reported to the **SPC** for further investigation and action. "

11. Amendment in Chapter-XI of Principal Regulations

In clause 11.3 of Regulation 11, the figures and word "49.0 Hz to 50.5 Hz" shall be substituted by the figures and word "49.5 Hz to 50.2 Hz.."

12. Amendments in Chapter XV of Principal Regulations

(i) In clause 15.3 of regulation 15, words "and as per directions of the Protection sub-Committee of the **NRPC**" shall be inserted in end of the first sentence.

(ii) In clause 15.4 of regulation 15, the table under the regulation shall be substituted by table as under:

Nominal Voltage	Minimum Short Circuit current rating of Switch-gear	Target Fault clearance Time
kV	kA (rms)	Milli sec.

765	50	100
400	40	100
220	40	160
132	31.5	160
33	26.3	*
11	26.3	*

*To be decided by Protection Coordination Committee of the state till Target Fault clearance Time is specified by the **CEA**.

- (iii) In sub clause 15.6.1, 15.6.2 and 15.8.1.1 of regulation 15, figure and word "765 kV and" shall be inserted before 400 kV", wherever appearing.

(Ashwini Bhagat)
Secretary