



# Chhattisgarh State Electricity Regulatory Commission

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Raipur, Dated 9 September, 2008

No. 22/CSERC/2008

The Chhattisgarh State Electricity Grid Code, 2007 provides for connectivity conditions for users seeking connections or to those already connected to the State Grid. The licensees / CSEB and generators including captive generating plant have been facing difficulties in implementation of the connectivity conditions laid down in the Chhattisgarh State Electricity Grid Code, 2007. There is, therefore, a need to amend the present provisions regarding connectivity in the Code.

Accordingly, in exercise of powers conferred under Section 86(1)(h) read with section 181(zp) of the Electricity Act, 2003, and all other powers enabling in this behalf, and after previous publication, in accordance with the provisions of the Electricity (Procedure for Previous Publication) Rule, 2005 the Chhattisgarh State Electricity Regulatory Commission hereby makes the following Regulations to amend the Chhattisgarh State Electricity Code, 2007, namely:-

## 1. Short title and commencement

- (i) These Regulations shall be called as Chhattisgarh State Electricity Grid Code (First amendment), 2008.
- (ii) The Regulations shall come into force from the date of their publication in the Chhattisgarh Rajpatra.

## 2. Clause 4.1.1 of the Chhattisgarh State Electricity Grid Code, 2007 (herein after referred to as the principal Code'), shall be substituted by the following:-

**“4.1.1 Generating Stations:** The voltages at which a generating station may be connected with the grid can be 400, 220, 132 or 33 KV. The connection point/interface point shall be the point at the sub-station of the licensee system where power is injected. The metering point shall be the connection point / interface point.

Following are the voltages prescribed for injection of power to the grid with reference to quantum of injected power: -

Sl. No.	Voltage of injection	Quantum of power to be injected into grid
1.	33 KV	Upto 15 MVA
2.	132 KV	More than 15 MVA and upto 75 MVA per circuit
3.	220 KV	More than 75 MVA and upto to 200 MVA per circuit
4.	400 KV	More than 200 MVA per circuit

**Note: 1.** For arriving at the quantum of power to be injected in MVA, power factor as indicated in the nameplate or the design details of the generator will be taken into account.

- 2: Under special circumstances, small deviations from the above limits may be considered by the licensee subject to technical feasibility and specific approval by the Commission. Connectivity at higher voltage specified above can also be done by the licensee on request of generator /captive generator.”
3. Clause 4.1.2 of the principal Code, shall be substituted by the following:-  
“**4.1.2** All the new generating stations including captive generating plants (CGP) having injection and / or drawal requirements of more than 15 MVA shall have connectivity with the grid under either of the following modes, at their own cost, subject to technical feasibility :-  
(i) At nearest EHV sub-station through dedicated EHV transmission line.  
(ii) At pooled / switching / load catering / step up EHV sub-station with dedicated EHV transmission line.  
(iii) At nearest EHV sub-station through a common pooled EHV transmission line with individual connectivity to this line under Gas Insulated Substation (GIS) control and metering system. This mode shall, however, be available only to such generating station / CGP which has injection and / or drawal requirement of not more than 35 MVA.”
4. Clause 4.1.3 of the principal Code, shall be substituted by the following:-  
“**4.1.3** All the new generating plants including captive generating plants having injection and / or drawal requirements from the grid up to and including 15 MVA shall have connectivity with the grid under either of following modes, at their own cost, subject to technical feasibility:-  
(i) At nearest EHV sub-station through dedicated 33 KV line..  
(ii) At nearest 33/11 KV sub-station through dedicated 33 KV line.  
(iii) At 33 KV switching or pooling sub-station through dedicated 33 KV line.”
5. Clause 4.1.4 of the principal Code, shall be substituted by the following:-  
“**4.1.4** All the existing generators including CGPs connected with the grid under any modes other than prescribed at Clause 4.1.2 and 4.1.3 shall have to ensure connectivity with the grid as per prescribed options given in Clause 4.1.2 / 4.1.3 latest by **31.03.2009** failing which their connectivity shall be liable for disconnection from the grid.

Provided that this time limit may be relaxed by the Commission in suitable cases where the Commission is satisfied that there are sufficient grounds for such relaxation.

Pooling will be allowed only if found technically feasible. The cost of common infrastructure like, transmission line, switching/load catering / step up sub-station or any other equipment / infrastructure including the facility for real time data transfer/communication etc. as the case may be, shall be borne by

the constituent generators/CGP(s) in proportion to their respective power injection to the grid.

An existing generating plant, presently not covered under clause 4.1.2 and 4.1.3, shall be subject to load-shedding plan of CSEB as and when enforced, till their connectivity is as per clause 4.1.2 or 4.1.3 as the case may be.

The licensee and the generating plants /CGPs shall abide by the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 and all other relevant Regulations and Code notified by CEA.”

6. Tables given in clause 4.11.1 of the principal code shall be substituted by the following:

“

<b>Voltage Class</b>	<b>Target fault clearance time</b>
400 KV and above	80 m sec.
220/132 KV	160 m sec.

“

7. Clause 5.3 of the principal Code, shall be substituted by the following:-

**“5.3 Demand Estimation for Operational Purposes:**

The SLDC shall develop methodologies / mechanisms for daily / weekly / monthly / yearly demand estimation (MW, MVAR and MWH) for operational purposes. The data for the estimation shall also include any load-shedding, power cuts, or any restriction on electricity supply, consumption etc., other wise imposed during the relevant period on the basis of which demand is estimated. SLDC shall also maintain historical database for demand estimation. The demand estimates are to enable the SLDC to conduct system studies for operational planning purposes.”

8. Clause 8.7.32 of the principal Code, shall be substituted by the following:-

**“8.7.32** The metering system shall derive operating system from AC or DC auxiliary supply. For auxiliary supply the internal DC battery which is an integral part of the meter or capacitor devices, incorporated in the meter, should be used”.

9. Clause 8.8.2 of the principal Code, shall be substituted by the following:-

**“8.8.2** Either dedicated set of CT / VT or dedicated core of current transformers shall be provided for metering and wherever feasible, CTs (or their cores) feeding to main meters and check meters shall be separate. The errors of the CT / VT shall be checked in the laboratory or at site. The CT / VT shall be tested using the testing equipment calibrated by any NABL lab or any NABL accredited laboratory.”

10. Clause 8.8.4 of the principal Code, shall be substituted by the following:-

**“8.8.4** Either Electromagnetic Voltage Transformers (EVT) or Capacitive Voltage transformer (CVT) may be used for metering purpose. Generally, voltage transformers (VT) is used to cover either EVT or CVT. The secondary

voltage per phase shall be  $110/\sqrt{3}$  volts. For protection of VT suitable devices such as MCB's etc may be used."

11. Table A, B, C, D and E of clause 8.8.5 shall be amended as follows:

(i) S.No. 4, S.No.8 (a) and (c) of table A shall be substituted by the following:

S. No.	Particulars	11KV	33KV	132KV	220KV
4	Standard CT Ratio	2000 or 1000/1-1	800 or 400/1-1	800 or 400/1-1-1	1200 or 600/1-1-1-1
		1600 or 800/1-1	600 or 300/1-1	400 or 200/1-1-1	800 or 400/1-1-1-1
		1200 or 600/1-1	400 or 200/1-1	200 or 100/1-1-1	
		800 or 400/1-1	300 or 150/1-1	100 or 50/1-1-1	
		600 or 300/1-1	100 or 50/1-1		
		400 or 200/1-1			
		300 or 150/1-1			
		150 or 75/1-1			

8.:	CT characteristics				
(a)	Rated Primary Current (Amps)	2000 or 1000	800 or 400	400	800
		1600 or 800	600 or 300	200	
		1200 or 600	400 or 200	100	
		800 or 400	300 or 150	50	
		600 or 300	100 or 50		
		400 or 200			
		300 or 150			
		150 or 75			

(c)	Accuracy Class	0.5S	0.5S	0.2S	0.2S
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(ii) Table B shall be substituted by the following:

S. No.	Particulars	33kV
<b>Specification of CT (for CT-PT Set)</b>		
1	Nominal System Voltage (kV rms)	33
2	Highest System Voltage (kV rms)	36
3	Reference Standard	IS 3156 with latest amendments
4	Standard CT Ratio (Amps/Amps)	200 or 100/1-1 100 or 50/1-1
5	Rated continuous thermal current	120% of rated primary current
6	Rated short time thermal primary current for 1 second (in kA)	25
7.	CT Characteristic:	
a	Rated Primary Current (Amps)	200 or 100 100 or 50
b	Rated Secondary Current (Amps)	1 or 5
c	Accuracy Class	0.5S
d	Maximum Instrument Security Factor (ISF)	<10
e	Rated Secondary Burden (VA)	30
8.	Reference Standard for insulating oil	IS 335 with latest amendments
<b>Specification of PT (for CT-PT Set)</b>		
1	Nominal System Voltage (kV rms)	33
2	Highest System Voltage (kV rms)	36

<b>3</b>	Reference Standard	IS 3156 with latest amendments
	No. of Secondary Windings for potential measurement devices	Two
	Standard Voltage Ratio	$33kV/\sqrt{3} / 110V/\sqrt{3}$
	Rated Secondary Burden (VA) per winding	50
	Accuracy Class (At 10% to 100% of rated VA burden)	0.5S
	Rated Voltage Factor and Duration	1.2 continuous and 1.5 for 30 seconds

(iii) S. No. 10 of table C shall be substituted by the following

<b>Sr. No.</b>	<b>Particulars</b>	<b>132kV</b>	<b>220kV</b>
<b>10</b>	Accuracy Class		
	(a) Winding-I		0.2 S
	(b) Winding-II		0.2 S

(iv) S. No. 7 of table D shall be substituted by the following

<b>S. No.</b>	<b>Particulars</b>	<b>132kV</b>	<b>220kV</b>
<b>7</b>	Accuracy Class		
	(a) Winding-I		3 P
	(b) Winding-II		0.2S
	(c) Winding-III		0.2S

(v) S. No. 7 of table E shall be substituted by the following

<b>S.No.</b>	<b>Particulars</b>	<b>33kV</b>	<b>11kV</b>
<b>7</b>	Accuracy Class(At 10% to 100% of rated VA burden)	0.5S	0.5S
	(a) Winding-I		3 P
	(b) Winding-II		0.5S
	(c) Winding-III		0.5S

12. Clause 8.12.2 of the principal Code, shall be substituted by the following:  
 “8.12.2 If the main as well as check metering systems become defective, the assessment of the energy consumed during the period of outage shall be done by the STU on the basis of the record of the substation where the injection or drawal takes place. It shall be the duty of the licensee to ensure that generally the defective meter is replaced within a week.”

13. Clauses 13.2, 13.3 to 13.7 shall be renumbered as clauses 13.3, 13.4, 13.5, 13.6, 13.7 and 13.8 respectively. For renumbered Clause 13.4 of the principal Code, the following shall be substituted, namely:-

**“13.4 (a) Unforeseen Circumstances / Force Majeure**

If any circumstances / force majeure not envisaged in the provisions of the Grid Code, should arise, the licensee shall, to the extent reasonably practicable in the circumstances, consult promptly and in good faith, all affected parties in an effort to reach an agreement as to what should be done.

If an agreement cannot be reached between the licensee and user within the time available, the licensee shall determine it in the manner to the best of its ability.

Wherever the licensee makes such a determination, it shall do so having regard, wherever possible, to the views expressed by the affected parties and, in any event, to what is reasonable in the circumstances. Each party shall comply with all instructions given to it by the licensee following such a determination, provided that the instructions are consistent with the prevailing Codes and Regulations. The licensee shall promptly refer all such unforeseen circumstances/force majeure, and any such determination to the Commission.

**(b) Force Majeure:** Any event which is beyond the control of the agencies involved which they could not foresee or with reasonable amount of diligence could not have foreseen or which could not be prevented and which substantially affect the performance by either agency such as but not limited to: -

- a) Acts of God, natural phenomena, including but not limited to floods, droughts, earthquakes and epidemics;
- b) Acts of any Government domestic or foreign, including but not limited to war declared or undeclared, hostilities, priorities, quarantines, embargoes;
- c) Riot or civil commotion;
- d) Grid's failure not attributable to agencies involved.”

14. The above provisions, in so far as these relate to generating stations, shall apply notwithstanding any provision to the contrary in the Chhattisgarh State Electricity Supply Code, 2005.

**By order of the Commission**

**(N.K. Rupwani)  
Secretary**