Delhi Electricity Regulatory Commission (State Grid Code) Regulations, 2008

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Rule
DELHI-ELECTRICITY-REGULATORY-COMMISSION-STATE-GRID-COD of 2008

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Delhi Electricity Regulatory Commission (State Grid Code) Regulations, 2008Published vide Notification No. F. 17(14)/Engg./DERC/2003-04/---, dated 31st March, 2008No. F. 17(14)/Engg./DERC/2003-04/---. - In exercise of the powers conferred by Sub-section (zp) of Section 181(2) read with Sub-section (h) of Section 86(1) of the Electricity Act 2003 (36 of 2003), the Delhi Electricity Regulatory Commission hereby makes the following Regulations, namely:

Chapter I
General

1. Short title, extent and commencement.

- 1.1 These Regulations may be called the "Delhi Electricity Regulatory Commission (State Grid Code) Regulations, 2008", in short Delhi Grid Code (DGC).1.2These Regulations shall extend to the whole of the National Capital Territory of Delhi.1.3These Regulations shall come into force from the date of its publication in the Official Gazette.

2. Definitions.

- 2.1 In these Regulations unless the context otherwise requires:(a)"Act" means the Electricity Act, 2003 (36 of 2003), including amendments thereto;(b)"Apparatus" means Electrical Apparatus and includes all machines, fittings, accessories and appliances in which conductors are

used;(c)"Automatic Voltage Regulator" means a continuously acting automatic excitation control system to control the voltage of a Generating Unit measured at the generator terminals;(d)"Black Start Procedure" means procedure necessary to recover the grid from a partial or a total blackout;(e)"Commission" means the Delhi Electricity Regulatory Commission;(f)"Connection Agreement" means an agreement setting out the terms relating to connection to and/or use of the State Transmission System;(g)"Connection Point" means a point at which a User's or Transmission Licensee's Plant and/or Apparatus connects to the State Transmission System;(h)"df/dt Relay" means a relay which operates when the rate of change of system frequency (over time) goes higher than a laid down limit and initiates load shedding;(i)"Disturbance Recorder" means a device provided to record the behaviour of the pre-selected digital and analog values of the system parameters during an Event;(j)"Data Acquisition System" means a device provided to record the sequence of operation in time, of the relays/equipments/system parameters at a location;(k)"Distribution Control Centre (DCC)" means the office and associated facilities established by the Distribution Licensee to coordinate with SLDC and to carry out the functions as laid down in the DGC.(k)"Event" means an unscheduled or unplanned occurrence in the State transmission system including faults, incidents and breakdowns;(l)"Event Logger" means a device provided to record the sequence of operation in time, of the relays/ equipments at a location during an Event;(m)"Fault Locator" means a device provided at the end of a transmission line to measure/indicate the distance at which a line fault may have occurred;(n)"Flexible Alternating Current Transmission (FACT)" means facilities that enable power flows on A.C. lines to be regulated, to control loop flows, line loading etc.(p)"Maximum Continuous Rating" means the normal rated full load MW output capacity of a Generating Unit which can be sustained on a continuous basis at laid down conditions;(q)"Operation" means a scheduled or planned action relating to the operation of a System;(r)"Single Line Diagram" means diagrams which are a schematic representation of the HV/EHV apparatus and the connections to all external circuits at a Connection Point incorporating its numbering nomenclature and labelling;(s)"Site Common Drawing" means drawings prepared for each Connection Point, which incorporates layout drawings, electrical layout drawings, common protection/control drawings and common service drawings;(t)"Spinning Reserve" means generating capacity with some reserve margin, at standard rated frequency of 50 Hz, that is synchronized to the system and is ready to provide increased generation at short notice pursuant to dispatch instruction or instantaneously in response to a frequency drop;(u)"State Transmission System" (STS) means the transmission of electricity within the territory of State on a system built, owned, operated, maintained or controlled by the State Transmission Utility (STU) and/or Transmission Licensee(s).(v)"Static VAR Compensator" means an electrical facility designed for the purpose of generating or absorbing Reactive Power;(x)"Under Frequency Relay" means a relay which operates when the system frequency falls below a laid down limit and initiates load shedding;(y)"User" refers to persons, including in-State Generating Stations, Distribution Licensees, Consumers of the Distribution Licensees directly connected to State Transmission System (STS), and those availing of Open Access and connected to and/or using the STS, as more particularly identified in each Section of the DGC.2.2Words or expressions used herein and not defined in these Regulations shall have the meanings assigned to them under the Act and the Indian Electricity Grid Code (IEGC) specified by Central Electricity Regulatory Commission under clause (h) of Section 79 of the Act, failing which they shall have the meaning as commonly understood in Electricity Industry.

3. Introduction.

- 3.1 The Delhi Grid Code (DGC) lays down the regulations, guidelines and standards to be followed by various agencies and participants in the STS to plan, develop, maintain and operate the STS, a part of Northern Region Grid System, in the most efficient, reliable, economic, and secure manner, while facilitating a healthy competition in the generation and supply of electricity.

4. Objective.

- 4.1 The DGC is a document that governs the boundary between the State Transmission Utility (STU), Transmission Licensee(s) and other Users and establishes procedures for operations of facilities, which use the STS. It lays down both the information requirements and the procedures governing the relationship between various Users of STS as well as the State Load Despatch Centre (SLDC). It should be noted that the DGC is not concerned with the detailed design and operation of Generators, Power Stations, Suppliers and Distribution Systems, provided that their overall compatibility with the Transmission System needs are assured.4.2The DGC covers all material technical aspects relating to connections to and operation and use of the STS including the operation of electric lines and electrical plant connected thereto in so far as is relevant to the operation and use of the Transmission System. It is designed so as to permit the planning development, maintenance and operation to facilitate an efficient, coordinated, secured, reliable and economical system for the transmission and supply including trading of electricity in the State.

5. Scope of Regulations and extent of application.

- 5.1 These Regulations shall apply to-(a)the SLDC;(b)every Transmission Licensee in the State including the STU;(c)every User who is connected to and/or uses the STS:Provided that the Commission may issue directions relieving any Transmission Licensee or User, either suo-motu or based on an application submitted by such Transmission Licensee or User, of their obligations to implement or comply with the DGC to the extent as may be stipulated in the directions.5.2Transmission Licensee(s), forming part of the STS, and User(s), having connection(s) to the STS, as on date of notification of these Regulations shall be given a maximum period of one year to comply with the following requirements under these Regulations:(a)Entering into a Connection Agreement in accordance with Regulation 14;(b)Providing for protection systems in accordance with Regulations 16.2 and 16.3;(c)Providing for communication facilities in accordance with Regulation 17;(d)Providing for system recording instruments in accordance with Regulation 18;(e)Developing Single Line Diagrams in accordance with Regulation 19.3.1;(f)Developing Site Common Drawings in accordance with Regulation 19.4.2; and(g) Installation and Operation of meters in accordance with Metering Procedure developed as per Regulation 33.5.3The date of applicability of provisions related to Free Governor Action, as provided in Regulation 22.9, Regulation 22.10, Regulation 22.11 and Regulation 22.12 of these Regulations, shall be consistent with relevant provisions of the IEGC.5.4Persons availing of open access, who are connected to and/or use the STS, shall comply with the Terms and Conditions of Open Access Regulations notified by the Commission.

6. Management of the Delhi Grid Code (DGC).

- 6.1 The DGC is specified by the Commission as per section 86 (1) (h) of the Act, after ensuring that it is consistent with the IEGC. Any amendments to DGC shall also be specified by the Commission only.6.1.1The DGC and its amendments shall be finalized and notified adopting the specified procedure followed for Regulations issued by Commission.6.1.2The requests for amendments to / modifications in the DGC and for removal of difficulties, including those proposed in the reports under Regulations 6.3 below, shall be addressed to Convener, Grid Coordination Committee (GCC), for periodic consideration, consultation and disposal. Such amendments/modifications suggested shall be finalized after obtaining opinions from all Users of the State Grid.6.1.3Any dispute or query regarding interpretation of DGC may be addressed to the Secretary of the Commission and clarification issued by the Commission shall be taken as final and binding on all concerned.6.2Grid Coordination Committee (GCC).6.2.1A Grid Coordination Committee shall be constituted by the State Transmission Utility within thirty (30) days from the date of notification of these Regulations.6.2.2The Grid Coordination Committee shall be responsible for the following matters, namely-(a)facilitating the implementation of these Regulations and the procedures developed under the provisions of these Regulations;(b)assessing and recommending remedial measures for issues that might arise during the course of implementation of provisions of these Regulations and the procedures developed under the provisions of these Regulations;(c)review of the DGC, in accordance with the provisions of the Act and these Regulations;(d)analyse any major grid disturbance after its occurrence,(e)examining problems raised by the Users, and(f)investigate in case any Beneficiary is indulging in unfair gaming or collusion after getting reported from SLDC.(g)review of the complete statement of the State UI and the State Reactive Energy account tabled by the SLDC through its Commercial Committee (a sub-committee of GCC); and(h)such other matters as may be directed by the Commission from time to time.6.2.3The Grid Coordination Committee shall comprise of the following members:(a)One member from the STU;(b)One member of the SLDC;(c)One member to represent the generating companies in the State;(d)One member to represent Badarpur Thermal Power Station;(e)One member to represent the Transmission Licensees in the State, other than the STU;(f)One member each to represent the Distribution Licensees in the State;(g)One member to represent the Electricity Traders in the State;(h)One member to represent the Northern Regional Load Despatch Centre (NRLDC); and(i)Such other persons as may be nominated by the Commission.Provided that the member from the STU shall be the Chairperson of the Committee:Provided also that Chairperson shall nominate one person from the SLDC as the Convener of the Grid Coordination Committee:Provided further that the STU shall, in coordination with State Load Despatch Centre, facilitate and manage the functioning of the Grid Coordination Committee;Provided further that the Committee will frame its own rules of business for the conduct of its meeting and other related matters.6.2.4The members of the Grid Coordination Committee shall be as follows:(a)the concerned Director of the STU, having the responsibility of looking after operational activities of the STU shall be the member referred to in clause (a) of Regulation 6.2.3 above;(b)the member referred to in clause (b) of Regulation 6.2.3 above shall be the head of the SLDC;(c)the members referred to in clauses (c), (e), (g) and (h) of Regulation 6.2.3 above shall be nominated by their respective organizations, which organizations will be selected in rotation from among all such organizations in the State. The term of each such member, selected in rotation, shall be one (1) year.Provided that the members nominated by each of the organisation to

the above Committee shall be holding a senior position in their respective organization.6.3Grid Code Review by GCC6.3.1DGC shall be reviewed by the Grid Coordination Committee at least once in every twelve (12) months.6.3.2Upon completion of such review, the Grid Coordination Committee shall send a report to the STU providing information regarding:(a)outcome of the review; and(b)any proposed revisions to the DGC.6.3.3The STU shall send the report, referred in Regulation 6.3.2, to the Commission with its recommendations.

7. Functional Responsibilities of Entities and their Linkages.

- 7.1 State Load Despatch Centre (SLDC).7.1.1Operation and management of STS is an important and complex activity which regularly requires addressing a number of complex, and often conflicting, issues and the SLDC plays the most important role in this. The functions of SLDC are stated under Section 32 of the Act.7.1.2The SLDC shall discharge the functions assigned to it under the provisions of the Act and the Regulations in an independent and unbiased manner:Provided that in the event of the SLDC being operated by the STU, as per first proviso of sub-section (2) of Section 31 of the Act, adequate autonomy shall be provided to the SLDC for it to be able to discharge its functions in the above mentioned manner.7.2State Transmission Utility (STU).7.2.1The STU shall play the main role for evacuation of generated power by Generating Companies, transmission of power to Distribution Companies, and exchange of power through inter-connection with the Central Transmission Utility (CTU) and IPPs and other entities. In abiding by the provisions of the Act, the STU,shall discharge functions of planning and co-ordination relating to the STS with (i) CTU, (ii) State Government, (iii) Generating and Distribution Companies/Licensees, (iv) CEA, (v) NRPC, and (vi) any other person notified by the State Govt.Provide non-discriminatory open access to its Transmission System for use by any Licensee or Generating Company/IPP and any consumer as per the Open Access Regulation notified by the State Regulatory Commission on payment of necessary charges.7.3Transmission Licensee(s)7.3.1The functions of Transmission Licensee(s) are as follows:• Build, maintain and operate an efficient, coordinated and economical Transmission System.• Comply with the directions of SLDC.• Provide non-discriminatory Open Access as in 7.2.1 above.7.4Distribution Companies/Licensees7.4.1The functions of Distribution Licensee are as follows:• Develop and maintain an efficient, coordinated and economical Distribution System in his Area of Supply;• Provide non-discriminatory Open Access to its Distribution System for use by(i)Any licensee or generating company on payment of the wheeling charges; or(ii)Any consumer as per the Open Access Regulation notified by the Commission under sub-section (2) of Section-42 of the Act, on payment of the transmission charges and a surcharge thereon, as may be specified by the Commission.7.4.2Further, in order to facilitate load control, scheduling & despatch, and open access operation etc. under the ABT mechanism within the state, each Distribution Licensee shall establish a Distribution Control Center (DCC) within its Area of Supply, having adequate communication facilities with round the clock manning. It shall take appropriate action in response to any Event in the grid in coordination with the SLDC.7.4.3The Distribution Licensee shall inform the SLDC about the details of 15 minutes/hourly/daily/weekly/monthly demand and energy requirement and also contracts entered into for importing power from different sources and coordinate with SLDC in real time operation. It shall assist/follow the directions of SLDC in scheduling its exchange of power and help in controlling the operation of the system by adjustment of drawal from the system. They shall take special care for drawl/injection of reactive power from/to

the State Power System.7.5Generating Companies7.5.1The generating companies connected to and/or using the STS for evacuating their generation, shall inform the STU and SLDC about the contracts entered into with different parties for exporting power along with its schedule from individual generating station under the company. They shall follow the relevant provisions of the DGC and assist the SLDC in the real time operation and control of the system and scheduling of generation.

Chapter II
Planning Code

8. Transmission System Planning.

- 8.1 The STU shall publish on its Internet website the transmission system plan for the STS and shall also make the same available to any person upon request at a reasonable cost.8.2The transmission system plan shall cover a plan period of five (5) years commencing from the financial year immediately following the year in which it is published:Provided that the transmission system plan shall be updated by the STU each year and published in the manner specified in Regulation 9.1 by the 30th day of September each year and shall cover a plan period of five (5) years commencing from the financial year immediately following the year in which it is published.Provided further that the STU shall submit to the Commission a report indicating the performance of the existing STS during the previous financial year. The Licensee shall, if required by the Commission, publish a summary of the report in a manner to be determined by the Commission.8.3The form of the transmission system plan shall be provided by the STU.8.4The transmission system plan shall describe the plan for the STS and shall include the proposed State transmission schemes and system strengthening schemes for the benefit of all Users:Provided that the transmission system plan may include information related not only to State transmission lines but also additional equipment including transformers, capacitors, reactors, Static VAR Compensators and Flexible Alternating Current Transmission Systems (FACT):Provided further that the transmission system plan shall also include information on progress achieved on the identified State transmission schemes and system strengthening schemes.8.5The STU may, for the purpose of preparing the transmission system plan under these Regulations, seek such information as may be required by it, including generation capacity addition, system augmentation and long-term load forecast and all applications for open access:Provided that the Distribution Licensees shall have the primary responsibility for developing long term load forecasts for their respective license areas.The Distribution Licensee may use consistent data and methods in its load forecasting exercise, and be guided by applicable provisions and submissions of sales/demand forecast under the MYT Regulations and License Conditions issued by the Commission, with appropriate reasoning/explanation for deviation, if any.Provided also that the STU shall consider, but not be bound by the information provided under this Regulation in preparing the transmission system plan.8.6The STU shall also consider the following for the purpose of preparing the transmission system plan under these Regulations -(a)Plans formulated by the Authority for the transmission system under the provisions of clause (a) of Section 73 of the Act;(b)Latest available Electric Power Survey of the Authority;(c)Grid Standards specified by the Authority under clause (d) of Section 73 of the Act;(d)Transmission Plan formulated

by Central Transmission Utility under the provisions of Grid Code specified by Central Electricity Regulatory Commission under clause (h) of Section 79 of the Act;(e)Transmission Planning Criteria and Guidelines issued by the Authority;(f)Recommendations/ inputs, if any, of the Northern Regional Power Committee (NRPC);(g)National Electricity Plan / National Electricity Policy which are relevant for development of STS; and(h)Any other information/data source suggested by the Commission.

9. Planning Criterion.

- 9.1 The planning criterion shall be based on the security philosophy on which the STS has been planned. The security philosophy shall be as per the Transmission Planning Criteria and other guidelines as given by the Authority.Provided that the STU shall carry out appropriate system studies while developing the transmission system plan.9.2The State Transmission System, as a general rule, shall be capable of withstanding and be secured against the following contingency outages without necessitating load shedding or rescheduling of generation during Steady State Operation:(a)Outage of a D/C line of voltage above 66 kV and below 400 kV or,(b)Outage of a S/C line of voltage of 400kV and above or,(c)Outage of a single Interconnecting Transformer.Provided that the above contingencies shall be considered assuming a pre-contingency system depletion (planned outage) of another 220kV D/C line or 400kV S/C line in another corridor and not emanating from the same substation.9.3All the Generating Units may operate within their reactive capability curves and the network voltage profile shall be maintained within voltage limits specified.9.4The STS shall be capable of withstanding the loss of most severe single in-feed without loss of stability.9.5Any one of the Events defined in the Regulation 9.2 above shall not cause:(a)Loss of supply;(b)Prolonged operation of the system frequency below and above specified limits;(c)Unacceptable high or low voltage;(d)System instability;(e)Unacceptable overloading of STS elements.9.6In all extra high voltage substations, suitable number and capacity of transformers shall be provided to have adequate redundancy required to maintain firm capacity at the substation.Explanation. - for the purpose of Regulation 9.6, the term firm capacity shall mean the minimum transformation capacity available at the substation in case of outage of any one transformer.9.7The STU shall carry out planning studies for Reactive Power compensation of STS including reactive power compensation at the in-State Generating Station's switchyard.

10. Planning Data.

- 10.1 Transmission Licensees and Users are to supply following types of data to the State Transmission Utility for purpose of developing the transmission plan:(a)Standard Planning Data;(b)Detailed Planning Data10.2Standard Planning Data10.2.1Standard Planning Data shall consist of details which are expected to be normally sufficient for the STU to investigate the impact on the STS due to User/Transmission Licensee development.10.2.2Transmission Licensees and Users shall provide the following data to the STU from time to time in the standard formats provided by the STU:(a)Preliminary project planning data;(b)Committed project planning data; and(c)Connected planning data.Provided that the STU shall provide a date for submission of information in the said formats, after providing reasonable time to Transmission Licensees and Users:Provided that the STU shall develop standard formats, for submission of above mentioned

data, within one (1) month from notification of these Regulations and make the same available on its Internet website:Provided also that the STU shall be guided by the formats, developed for submission of above mentioned data, under the provisions of the IEGC.10.3Detailed Planning Data10.3.1Detailed Planning Data shall consist of additional, more detailed data not normally expected to be required by State Transmission Utility to assess the impact of User/Transmission Licensee development on the STS.10.3.2Detailed Planning Data shall be furnished by the Users and Transmission Licensees as and when requested by the STU.

Chapter III
Connection Conditions

11. Connection Standard.

- 11.1 The applicable technical standards for connectivity to the STS shall be as per the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 dated 21st February 2007 as amended from time to time, and standards specified there under.11.2The applicable technical standards for construction of electrical plants and electric lines shall be as per the standards specified by the Authority under clause (b) of Section 73 of the Act:Provided that the prevailing guidelines of the Authority shall be considered until the standards are notified under clause (b) of Section 73 of the Act by the Authority.

12. Safety Standard.

- The applicable safety requirements for construction, operation and maintenance of electrical plants and electric lines shall be as per the standards notified by the Authority under clause (c) of Section 73 read with Section 53 of the Act:Provided that the prevailing guidelines of the Authority/IE Rules shall be considered until the standards are notified under clause (c) of Section 73 of the Act by the Authority.

13. Application for Connection.

- 13.1 The STU shall prepare and submit to the Commission on an annual basis, a statement showing in respect of each of the five (5) succeeding financial years forecasts of circuit capacity, power flows and loading on the Transmission System as per its relevant License Conditions together with:(a)such further information as shall be reasonably necessary to enable any person seeking Use of System to identify and evaluate the opportunities available when connecting to and making use of such system; and(b)a commentary prepared by the STU indicating its views as to those parts of the STS most suited to new connections and transport of further quantities of electricity.Provided that the STU shall publish on its Internet website the above statement for the STS in such form as is approved by the Commission and shall also make the same available to any person upon request.13.2The STU or Transmission Licensee shall make arrangements for use of the STS by third parties as required under the Act, Regulations of the Commission, and relevant connection to and/or use of the STS shall be submitted by the concerned Transmission Licensee or User to the

STU:Provided that the standard format for application mentioned in the Regulation 13.2 shall be developed by the STU and shall be made available at its Internet website within two (2) months of notification of these Regulations.13.3The application mentioned in Regulation 13.2 shall include the following details:(a)Report stating the purpose of the proposed connection and/or modification, Transmission Licensee to whose system connection is proposed, description of apparatus to be connected or modification of the apparatus already connected and beneficiaries of the proposed connection;(b)Construction schedule and target completion date; and(c)Confirmation that the Transmission Licensee or the User shall abide by the provisions of DGC, Indian Electricity Rules, 1956 (until the Regulations under Section 53 of the Act are made and such Regulations specified by the Authority thereafter) and various standards including Grid Connectivity Standards made pursuant to the Act.13.4The STU shall forward a copy of the application to the Transmission Licensee in whose system the connection is being sought, to the SLDC and to every Transmission Licensee (if any) within the State whose Transmission System is likely to be affected by such application.13.5The STU or Transmission Licensee, in whose system the connection is being sought, may carry out the power system studies as considered appropriate before allowing any new connection.13.6The STU shall, within Thirty (30) days, from the receipt of an application under Regulation 13.2 and after considering all suggestions and comments received by the parties identified under Regulation 13.4(a)accept the application with such modification or such conditions as may be laid down by the STU;(b)reject the application for reasons to be recorded in writing if such application is not in accordance with the provisions of these Regulations.13.7In case of acceptance of an application as per sub-section (a) of Regulation 13.6, the STU shall make a formal offer to the applicant:Provided that the STU shall forward a copy of the offer to the appropriate Transmission Licensee.13.8The voltage level at which the applicant is offered to be connected to the STS shall be governed by the standards notified by the Authority and prevailing guidelines adopted by the STU.13.9The applicant and the appropriate Transmission Licensee, in whose system the connection is being sought, shall finalise a Connection Agreement on acceptance of the offer by the applicant.Provided that the STU shall be provided with a copy of the Connection Agreement:Provided further the SLDC shall be provided with a copy of the above mentioned Connection Agreement by the STU on request.13.10The STU shall, upon compliance of the required conditions by the concerned Transmission Licensee/ User, shall notify the concerned Transmission Licensee/User that it can be connected to the STS.

14. Connection Agreement.

- 14.1 A Connection Agreement shall include, as appropriate, within its terms and conditions, the following information relating to the connection of the User or Transmission Licensee to the STS:(a)A condition requiring both parties to comply with the DGC;(b)Details of connection, technical requirements and commercial arrangements;(c)Details of any capital expenditure arising from necessary reinforcement or extension of the system, data communication etc. and demarcation of the same between the concerned parties;(d)Site Responsibility Schedule;(e)General philosophy and guidelines on protection (i.e., in accordance with the STU's Protection Plan finalised under Regulation 16.3.2);(f)Protection systems (i.e., in consonance with the System Protection Schemes prepared/updated under Regulation 22.21);(g)System recording instruments;(h)Communication facilities; and(i)Any other information considered appropriate by the STU or the Commission.14.2A

Model Connection Agreement is placed at Annexure-I to Chapter-III.

15. Grid Parameter Variations.

- 15.1 General.15.1.1Transmission Licensees and Users shall ensure that Plant and Apparatus requiring service from or providing service to the STS is of such design and construction that satisfactory operation of such Plant and Apparatus will not be prevented by variation in instantaneous values of system frequency and voltage from their nominal values and that such Plant and Apparatus shall not induce any adverse affect on the STS.15.2Frequency Variation15.2.1Rated frequency of the system shall be 50.0 Hz and shall normally be controlled within the limits as per Regulations specified by the Authority.15.3Voltage Variation15.3.1The variations of voltage may not be more than the voltage range specified in the Regulations framed by the Authority.

16. Equipment at Connection Points.

- 16.1 Sub-station Equipment.16.1.1All Extra High Voltage (EHV) sub-station equipments shall comply with the standards issued by Bureau of Indian Standards/International Electro technical Commission/prevailing Code of practice.16.1.2All equipment shall be designed, manufactured and tested and certified in accordance with the quality assurance requirements as per the standards of International Electro technical Commission or the Bureau of Indian Standards.16.1.3Each connection between a User and STS shall be controlled by a circuit breaker capable of interrupting, at the Connection Point, at least the short circuit current as advised by STU in the specific Connection Agreement.16.2Fault Clearance Times16.2.1The fault clearance time for primary protection schemes, when all equipments operate correctly, for a three phase fault (close to the bus-bars) on Users equipment directly connected to STS and for a three phase fault (close to the bus-bars) on STS connected to Users equipment, shall not be more than:(a)100 milli seconds for 400 kV and above(b)160 milli seconds for 220 kV and below16.2.2Back-up protection shall be provided for required isolation/protection in the event of failure of the primary protection systems in a coordinated manner. If a Generating Unit is connected to the STS directly, it shall be capable of withstanding such fault, until clearing of the fault by back-up protection on the STS side.16.3Protection16.3.1Protection Systems shall be provided by all Transmission Licensees and Users to isolate the faulty equipments and protect the other components against all types of faults, internal/external to them, within specified fault clearance time with reliability, selectivity and sensitivity:Provided that all Users or Transmission Licensees shall provide protection systems as laid down in the Connection Agreement.16.3.2Relay setting coordination is being done at regional level by the NRPC, whereas provision of protections and relay settings shall be coordinated periodically throughout the State grid, as per a plan to be separately finalized by the STU.16.4Reactive Power Compensation16.4.1Reactive Power compensation and/or other facilities shall be provided by Users, as far as possible, in the low voltage systems close to the load points thereby avoiding the need for exchange of Reactive Power to/from the STS and to maintain the STS voltage within the specified range.16.4.2Line Reactors may be provided to control temporary over voltage within the limits as set out in connection agreements.16.4.3The additional reactive compensation to be provided by the User shall be indicated by the STU in the Connection Agreement for implementation.16.4.4Users shall endeavour to minimize the Reactive Power drawal

at an interchange point when the voltage at that point is below 95% of rated voltage, and shall not inject Reactive Power when the voltage is above 105% of rated voltage. Interconnecting Transformer taps at the respective drawal points may be changed to control the Reactive Power interchange as per the User's request to the SLDC, but only at reasonable intervals.16.4.5Switching in/out of all 400 kV bus and line Reactors throughout the grid shall be carried out as per instructions of the SLDC. Tap changing on all 400/220 kV Interconnecting Transformers shall also be done as per the instructions of the SLDC only.

17. Communication Facilities.

- 17.1 Reliable and efficient speech and data communication systems shall be provided to facilitate necessary communication and data exchange, and supervision/control of the State Grid by the State Load Despatch Centre, under normal and abnormal conditions.17.2All Users and Transmission Licensees shall provide the required facilities at their respective ends as laid down in the Connection Agreement:Provided that the equipments/devices for communication and data exchange shall be provided considering the guidelines of the SLDC, the interface requirements and other such guidelines/specifications as applicable.

18. System Recording Instruments.

- 18.1 Recording instruments such as Data Acquisition System/Disturbance Recorder/Event Logger/Fault Locator (including time synchronization equipment) shall be provided in the STS for recording of dynamic performance of the system.18.2All Users and Transmission Licensees shall provide all the requisite recording instruments as laid down in the Connection Agreement in accordance with the agreed time schedule.

19. Responsibilities for operational safety.

- 19.1 Transmission Licensees and the Users shall be responsible for safety as indicated in Site Responsibility Schedules for each Connection Point.19.2Site Responsibility Schedule19.2.1A Site Responsibility Schedule shall be produced by the concerned Transmission Licensee and the User detailing the ownership responsibilities of each, before execution of the project or connection, including safety responsibilities.19.2.2For every connection to the STS, the Site Responsibility Schedule shall be prepared by the concerned Transmission Licensee pursuant to the relevant Connection Agreement and shall state the following for each item of plant and apparatus installed at the Connection Point:(a)Ownership of the Plant/Apparatus;(b)Responsibility for control of the Plant/Apparatus;(c)Responsibility for operation of the Plant/Apparatus;(d)Responsibility for maintenance of the Plant/Apparatus; and(e)Responsibility for all matters relating to safety of any persons at the Connection Point.19.2.3A Model Site Responsibility Schedule is provided at Annexure-II to Chapter-III.19.3Single Line Diagrams19.3.1Single Line Diagram shall be furnished for each Connection Point by the connected User or Transmission Licensee to the STU:Provided that the STU shall furnish the above information to the SLDC on request.19.3.2Single Line Diagram shall include all High Tension (HT) connected equipment and the connections to all external circuits and incorporate numbering, nomenclature and labeling.19.3.3In the event of a proposal to change any

equipment, the concerned User or Transmission Licensee shall intimate the necessary changes to State Transmission Utility and to all concerned. Single Line Diagram shall be updated appropriately by the concerned Users or Transmission Licensee and a copy of the same shall be provided to the STU.19.4Site Common Drawings19.4.1Site Common Drawings shall be prepared for each Connection Point and will include the following information:(a)Site Layout;(b)Electrical Layout including cable/wiring schedule;(c)Details of Protection/Control; and(d)Common Services Drawings.19.4.2Detailed drawings shall be prepared by Transmission Licensee and User in respect of their system/facility at each Connection Point and copies of the same shall be made available to concerned User and Transmission Licensee respectively.19.4.3In case of any changes in the Site Common Drawings that are found necessary by Transmission Licensee or User in respect of their system/facility at the Connection Point, the details of such changes shall be furnished to all concerned agencies as soon as possible but not later than 15 days of making such changes.

20. Access at Connection Site.

- 20.1 The Transmission Licensee or User owning the Connection Site shall provide reasonable access and other required facilities to another Transmission Licensee or User whose equipment is proposed to be installed/installed at the Connection Site for installation, operation, maintenance, etc.20.2Written procedures and agreements shall be developed between Transmission Licensees and Users to ensure that mandatory access is available to the concerned Transmission Licensee or User at the same time safeguarding the interests of Transmission Licensee and User at the connection site.Annexure-I to Chapter-IIIConnection Agreement(Refer Regulations - 14.2)This Agreement for connection to and use of Transmission System of_____ (Name of the Transmission Licensee) is made this . . .day of . . . . . month of . . . . . year.Between[1] ----------(Name of the Transmission Licensee) whose registered office is at ----------,And[2] ..... (Name of the company) whose registered office is at ..... (detailed address) therein after called "User"Whereas[A] ----------(Name and address of the Transmission Licensee) is a holder of Transmission License granted by the DERC as per the provision of the Electricity Act, 2003 (here after called as the 'Act') agreed to execute a Connection Agreement for the purpose export/import of power at 220 kV/400 kV to ----------(name of the User)[B] .....(Name of the Distribution Company (the User) is the holder of the Distribution Licence, (No.....) issued by DERC vide order dated----------[C] ..... (Name of the User i.e. Generator / CGP / Bulk Consumer) is the holder of the authorization issued by the State Government / Central Government / CERC / DERC vide order No..... dated.Now is Hereby Agreed as Follows(i)Grid Code ComplianceIt is agreed that the User ..... and ----------(the Transmission Licensee) will abide by the provisions of the Delhi Grid Code (DGC)/Indian Electricity Grid Code (IEGC) in force for the purpose of availing / evacuating power from / to ----------(the Transmission Licensee) and to maintain a connectivity with the Transmission System network of ----------(the Transmission Licensee).(ii)Terms of agreement(a)This agreement shall be deemed to have

commenced from..... and shall continue until it is terminated. In case of any differences or disagreements between the Transmission Licensee and the User in regard to any changes required from time to time to the terms of this agreement the same shall be resolved amicably failing which the matters shall be referred to the DERC.(b)The term of this Agreement shall stand modified or terminated automatically as per the Regulations which DERC may issue from time to time in accordance with the functions and powers of the Commission under the Act. As soon as practicable following any Regulations of the Commission which has the effect of modifying the terms of this Agreement, the Transmission Licensee shall prepare a revised version of this agreement, incorporating the modified term and following Agreement between the Transmission Licensee and User that the revised version accurately reflects the relevant Regulation, the User shall execute the revised version.(c)No User shall assign the Agreement or transfer or part with the benefits under the Agreement in favour of any other person/User without the express consent or approval of the Transmission Licensee.(d)Any connection, which has been unauthorisedly transferred or parted with, shall be liable for disconnection after expiry of a seven days notice calling for explanation and considering the explanation submitted.(e)The User agrees to bear the cost of stamp duty and all cost incidental to the execution of this agreement in full.(iii)Details of Connection(a)System of supply voltage:(b)Total contract demand:(c)Phasing of the contract demand:(d)Connection details (Including control details as per the Regulations):(LILO arrangement of transmission line with a switching station/from a bay of an existing grid substation of the Transmission Licensee)(e)Details of reactive power compensation arrangement:(f)Details of the scheme of the switching station/bayi. Bus-bar arrangement: Three bus system/Two bus system/main and transfer bus system, Bus-bar typeii. Provision for future expansion(g)Captive Generating Plant:i. Rated capacity:ii. Rated voltage level of generation:iii. Quantum of surplus power to be evacuated:iv. Details of the connectivity with the Transmission Licensee's network:v. Mode of communication connectivity with SLDC: Telephone / Fax/ Carrier communication.(h)Communication arrangement: The User shall be required to provide voice and other data communication facility as decided by SLDC.(i)Metering Arrangement: The User shall provide meters for accounting and audit purposes as per the standard specified by CEA.[Details of operational/commercial (tariff) metering scheme to be provided.] Detailed data are to be provided as per provisions of the DGC.(j)Other Charges: The operation and maintenance charges of the transmission line details to be indicated, 220 kV/400 kV feeder bay (nos. of bays and location of grid substation to be indicated), 220 kV/400 kV switching station (details of bays etc. to be indicated) shall be governed by applicable provisions of the Act, Regulations, Codes, and Orders of the Commission.i. Entry Charges and Exit Charges as fixed by the Transmission Licensee and approved by DERC to be paid where appropriate.ii. Capital related payment arising from necessary reinforcement or extension of the System is to be paid.(k)Site Responsibility Schedule: The Site Responsibility Schedule format is at Annexure-II to Chapter-III of the DGC:(l)Protection Scheme: Protection scheme shall be provided in the User's system to protect the grid from the faults originating in their system and so also for safeguarding their system from the fault originating from the Transmission System. The protection scheme of the User's system shall have the approval of the STU, i.e. DTL.i. Transmission line protection scheme: (indicate the general philosophy of the scheme)ii. 220 kV / 400 kV feeder bay protection scheme: (indicate the general philosophy of the scheme)iii. General protection scheme adopted for the switching station: (indicate the general philosophy of the scheme).iv. Any other protection scheme provided:(m)Documents forming part of this agreement:i. Appendix-I: Data to be provided as per provisions of the DGCii. Appendix-II:

Attested copies of the Transmission Licensee permission letter no _____, date _____iii. Duly completed Site Responsibility Schedule as per Annexure-II (to Chapter-III).iv. Detail of procedure necessary for Site Access, Site Operational activities and maintenance Standards for equipments of the STU/Transmission Licensee at STU/Transmission Licensee premises and vice versa as Appendix-III.As Witness the hands of the Parties hereto or their duly authorized representative on this ..... day of month of ..... Year

SIGNED BY	SIGNED BY	
For & on behalf of User	For & on behalf of the Transmission Licensee	
WITNESSES:	1)	1)
	2)	2)

New DelhiDate: The ..... Day of .....Month of ..... YearAnnexure-II to Chapter-IIISite Responsibility Schedule (Refer Regulations - 19.2.3)Connection ConditionsName of Power Station/Sub-station: . . .Site Owner: . . .Tel. Number: . . .Fax Number: . . .

Item of Plant/Apparatus	Plant Owner	Safety Responsibility	Control Responsibility	Operation Responsibility	Maintenance Responsibility	Remarks
1	2	3	4	5	6	7
... . KV Switchyard						
All equipment including bus bars						
Feeders						
Generating Units						

Chapter IV
Operating Code

21. Operating Conditions.

- 21.1 The SLDC shall supervise the overall operation of the STS.21.2The SLDC shall develop, document and maintain detailed operating procedures in consultation with the in-State Generating Stations and the Distribution Licensees for managing the State Grid, which shall be consistent with

the DGC requirement to enable compliance therewith. These internal operating procedures shall include, but not limited to, the following:(a)Black start procedures;(b)Load shedding procedures;(c)Islanding procedures; and(d)Any other procedures considered appropriate by the SLDC:Provided that such procedures shall be developed in consultation with the NRPC and the NRLDC:Provided further that such procedures shall be submitted within three (3) months to the Commission for approval.21.3The control rooms of the SLDC, DCCs, Power Plants, substations of 220 kV and above and any other control centres of Transmission Licensees and Users shall be manned round-the-clock by qualified and adequately trained personnel.

22. System Security Aspects.

- 22.1 All Users and Transmission Licensees shall endeavour to operate their respective power systems and power stations in synchronism with each other at all times, such that the entire system within the State operates as one synchronised system.22.2No part of the State Grid shall be deliberately isolated from the rest of the STS except(a)under an emergency, and conditions in which such isolation will prevent a total grid collapse and/or will enable early restoration of power supply;(b)when serious damage to a costly equipment is imminent and such isolation will prevent it;(c)when such isolation is specifically instructed by the SLDC.22.3Complete synchronism of the State Grid shall be restored as soon as the conditions again permit it. The restoration process shall be supervised by SLDC as per the operating procedures separately formulated.22.4No important element of the State Grid shall be deliberately opened or removed from service at any time, except when specifically instructed by the SLDC or with specific and prior clearance of the SLDC. The list of such important grid elements on which the above stipulations apply shall be prepared by the SLDC in consultation with the Transmission Licensees and Users within three (3) months of notification of the DGC and shall be available at the SLDC website.22.5In case of opening/removal of any important element of the State Grid under an emergency situation, the same shall be communicated to the SLDC at the earliest possible time after the Event.22.6Any tripping, whether manual or automatic, of any of the elements of the State Grid, referred in Regulation 22.4, shall be precisely intimated by the concerned Transmission Licensee or User to the SLDC at the earliest. The reason, to the extent determined, and the likely time of restoration shall also be intimated. All reasonable attempts shall be made for the elements restoration as soon as possible.22.7A Generating Unit shall be capable of continuously supplying its normal rated active/reactive output at the rated system frequency and voltage, subject to the design limitations laid down by the manufacturer.22.8A Generating Unit shall be provided with an Automatic Voltage Regulator, protective and safety devices, as set out in Connection Agreement.22.9Each Generating Unit shall be fitted with a turbine speed governor having an overall droop characteristic within the range of 3% to 6% and such turbine speed governor shall always be in service:Provided that if any generating unit of over fifty (50) MW size is required to be operated without its governor in normal operation, the SLDC shall be immediately advised about the reason and duration of such operation.22.10Facilities available with/in load limiters, Automatic Turbine Run-up System, Turbine Supervisory Control, Coordinated Control System, etc., shall not be used to suppress the normal governor action in any manner. No dead bands and/or time delays shall be deliberately introduced.22.11Each Generating Unit shall be capable of instantaneously increasing output by 5%, when the frequency falls, subject to limit of 105% of Maximum Continuous Rating. Ramping back to the previous generation level, in case the

increased output level cannot be sustained, shall not be faster than 1% per minute:Provided that any generating unit of over Fifty (50) MW size not complying with the above requirements, shall be kept in operation (synchronized with the State Grid) only after obtaining the permission of the SLDC:Provided also that User can make up the corresponding shortfall in spinning reserve by maintaining an extra spinning reserve on the other generating units of the User.22.12The recommended rate for changing the governor setting, i.e., supplementary control for increasing or decreasing the output (generation level) for all generating units, irrespective of their type and size, would be one (1.0) per cent per minute or as per manufacturer's limits. However, if frequency falls below 49.5 Hz, all partly loaded generating units shall pick up additional load at a faster rate, according to their capability.22.13Except under an emergency, or to prevent an imminent damage to costly equipment, no User shall suddenly reduce his generating unit output by more than a limit as laid down by the SLDC, without prior intimation to and consent of the SLDC, particularly when frequency is falling or is below 49.0 Hz. Similarly, no User shall cause a sudden increase in its load by more than a limit as laid down by the SLDC, without prior intimation to and consent of the SLDC.22.14All generating units shall normally have their Automatic Voltage Regulators in operation, with appropriate settings.Provided that in case a generating unit of over fifty (50) MW is required to be operated without its Automatic Voltage Regulator in service, the SLDC shall be immediately intimated about the reason and duration, and its permission be obtained.22.15Power System Stabilizers in Automatic Voltage Regulators of generating units, wherever provided, shall be properly tuned by the respective generating unit owner as per a plan prepared for the purpose by the STU from time to time. The STU will be allowed to carry out checking of Power System Stabilizer and further tuning it, wherever considered necessary.22.16Provision of protections and relay settings shall be coordinated periodically throughout the State grid, as per a plan to be separately finalized in consultation with the Protection Committee of the NRPC.22.17The SLDC, in coordination with NRLDC, Users and Transmission Licensees shall make all possible efforts to ensure that the grid frequency always remains within the 49.0 - 50.5 Hz band, the frequency range within which steam turbines conforming to the IEC specifications can safely operate continuously.22.18Users and Transmission Licensees shall provide automatic under-frequency and df/dt relay-based load shedding/islanding schemes in their respective systems, wherever applicable, to arrest frequency decline that could result in a collapse/disintegration of the State grid, as per the plan separately finalized in consultation with the NRPC and shall ensure its effective application to prevent cascade tripping of generating units in case of any contingency.22.19Users and Transmission Licensees shall ensure that the under-frequency and df/dt relay-based load shedding/islanding schemes, mentioned in Regulation 22.18 are always functional:Provided that the relays may be temporarily kept out of service, in extreme contingencies, with prior consent of the SLDC.22.20The STU shall carry out periodic inspection of the under frequency relays and produce the report to the SLDC. The SLDC shall maintain the record of under frequency relay and/or df/dt relay operation.22.21Users and Transmission Licensees shall facilitate identification, installation and commissioning of System Protection Schemes (including inter-tripping and runback), as finalized in consultation with the NRPC, in the power system to protect against situations including voltage collapse and cascading:Provided that such schemes shall be prepared by the STU after due consultations with the SLDC, Users and other Transmission Licensees, and be updated periodically as per requirement.22.22Each User and Transmission Licensee shall provide adequate and reliable communication facility internally and with the SLDC, other Users and other Transmission Licensees

to ensure exchange of data/information necessary to maintain reliability and security of the grid. Wherever possible, redundancy and alternate path shall be maintained for communication along important routes, e.g., SLDC to DCCs, SLDC to Generating Stations etc.22.23All Users and Transmission Licensees shall send the requested information/data including Disturbance Recorder/Sequential Event Recorder output etc to the SLDC for purpose of analysis of any grid disturbance/Event. No User or Transmission Licensee shall block any data/information required by the SLDC for maintaining reliability and security of the State or Regional Grid and for analysis of an event.22.24The SLDC, Users and Transmission Licensees shall make all possible efforts to ensure that the grid voltage always remains within the following operating range:Voltage - (kV rms)

Nominal	Maximum	Minimum
400	420	360
220	245	200
66	73	60

23. Demand forecast.

- 23.1 The SLDC shall set out the responsibilities for short term (one day to 52 weeks) demand estimation of active power as well as reactive power. It shall also provide for procedures as well as timelines to be followed for exchange of information between concerned entities for arriving at these estimates/forecasts:Provided that the SLDC shall refer to the demand forecast considered by the STU while developing the transmission system plan under Regulation 9 of these Regulations.23.2The demand estimation shall cover the time scales as applicable for operational purposes. The time scales should be decided after giving due considerations to the requirements under other existing Regulations for furnishing demand forecast related information.

24. Manual Demand Disconnection.

- 24.1 Users shall endeavour to restrict their actual drawal within their respective drawal schedules whenever the system frequency is below 49.5 Hz:Provided that, in case of frequency falling below 49.0 Hz., the SLDC shall direct the concerned Users to effect manual load shedding to curtail over-drawal:Provided further that such directions shall include the time period or the system conditions until which the issued directions shall be applicable.24.2In case of certain contingencies and/or threat to system security, the State Load Despatch Centre may direct Users to decrease their drawals and such Users shall act upon such directions immediately:Provided that any non-compliance with such directions shall be dealt with as per provisions of Regulation 35 of these Regulations.24.3Users shall make arrangements that will enable manual disconnection to take place as instructed by the SLDC.

25. Reports.

- 25.1 In addition to daily reports on important parameters, a weekly report shall be put up by the SLDC on its Internet website to inform about the performance of the State Grid for the previous week. The weekly report shall contain the following:(a)Frequency profile;(b)Voltage profile of

selected substations;(c)Demand and Supply Situation including Load Shedding, if any;(d)Major Generation and Transmission Outages;(e)Transmission Constraints; and(f)Instances of persistent/significant non-compliance of the DGC.Provided that the weekly report shall be available on the Internet website of the SLDC for at least twelve (12) weeks:Provided further that a copy of such report shall be made available to any User or Transmission Licensee on request.25.2The SLDC shall prepare a quarterly report which shall bring out the system constraints, reasons for not meeting the requirements, if any, of security standards and quality of service, along with details of various actions taken by different Users/Transmission Licensees, and the Users/Transmission Licensees responsible for causing the constraints.

26. Operational Liaison.

- 26.1 Operations and Events on the State Grid26.1.1The SLDC shall, before any Operation is carried out on State grid, inform each User and Transmission Licensee, whose system may or will experience an operational effect, and give details of the operation to be carried out.26.1.2The SLDC shall, immediately following an Event on State grid, inform each User and Transmission Licensee, whose system may or will experience an operational effect following the Event, and give details of what happened in the Event but need not give the reasons for the same.26.2Operations and Events on Users' or Transmission Licensees' System26.2.1Before any Operation is carried out on system of a User or a Transmission Licensee, the concerned User or Transmission Licensee shall inform the SLDC, in case the State Grid may or will, experience an operational effect, and shall give details of the operation to be carried out.26.2.2User or a Transmission Licensee shall, immediately following an Event on its system, inform the SLDC, in case the State Grid may or will, experience an operational effect following the Event, and give details of what happened in the Event but need not give the reasons for the same.

27. Outage Planning and Coordination.

- 27.1 All Users and Transmission Licensees shall provide the SLDC with their proposed outage programmes in writing for the next financial year by 30th November of each year. These shall contain identification of each Generating Unit/Transmission Line/Interconnecting Transformer for which outage is being planned, reasons for outage, the preferred date for each outage and its duration and where there is flexibility, the earliest start date and latest finishing date.27.2The SLDC shall come out with a draft outage programme for the next financial year by 31st December of each year for the State Grid:Provided that outage plan shall be developed after giving due considerations to system security and reliability and shall be developed such that the extent of unmet system demand on account of such a plan is kept to a minimum:27.3Transmission Outage Planning shall be harmonized with Generation Outage Planning and Distribution System Outage Planning shall be harmonized with Generation and Transmission Outage Planning:Provided that the SLDC shall, in consultation with the STU, harmonize the aforesaid outage plan with the regional outage planning process as specified under the IEGC.27.4The final outage plan shall be intimated to all Users and Transmission Licensee latest by 31st January each year:Provided that the SLDC shall finalise the outage plan in consultation with the Users and Transmission Licensee:Provided further that the above annual outage plan shall be reviewed by the SLDC on monthly basis as per a

schedule/procedure to be separately finalised by the SLDC in coordination with all parties concerned, and adjustments made wherever found to be necessary.27.5Each User or Transmission Licensee shall, at least seven (7) days prior to availing an outage as per the planned schedule, inform the SLDC about the same and obtain prior approval from the SLDC for the same.27.6The SLDC shall have the authority to defer any planned outage in case of occurrence of following Events:(a)major grid disturbances (e.g. total black out);(b)system isolation;(c)any other Event in the system that may have an adverse impact on the system security by the proposed outage.Provided that the SLDC shall inform about the revised outage plan, with appropriate reasons for revisions in the outage plan, as soon as possible.27.7In case of emergency in the system, which may include Events like loss of generation, break down of transmission line, grid disturbances and system isolation, the SLDC may appropriately review the situation before clearance of the planned outage.

28. Recovery Procedures.

- 28.1 Detailed plans and procedures for restoration after partial/total blackout shall be finalized by the SLDC in coordination with the NRLDC, Users and Transmission Licensees.28.2The procedure shall be reviewed, confirmed and/or revised once every subsequent year. Training programs including workshops and simulation exercises of the procedure for different sub-systems shall be carried out by the SLDC, in coordination and consultation with Users and Transmission Licensees, at least once every six months.28.3List of generating stations with black start facility, inter-State/inter regional ties, synchronizing points and essential loads to be restored on priority, shall be prepared by and be available with the SLDC.28.4The SLDC shall be authorized during the restoration process following a black out, to operate with reduced security standards for voltage and frequency as necessary in order to achieve the fastest possible recovery of the grid.28.5All communication channels required for restoration process shall be used for operational communication only, till grid normalcy is restored.

29. Event Information.

- 29.1 Reportable Events29.1.1Any of the following Events shall require reporting by User/Transmission Licensee or the SLDC as the case may be:(a)Violation of security standards;(b)Grid indiscipline;(c)Non-compliance of the SLDC's instructions;(d)System is landing/system split;(e)Black out/partial system black out;(f)Protection failure on any element of STS;(g)Power system instability; and(h)Tripping of any element of the State Grid.29.2Reporting Procedure29.2.1User or Transmission Licensee, after having initially reported about the Event orally to the SLDC, shall provide a written report within two (2) weeks of the occurrence of the Event to the SLDC in accordance with Regulation 29.2.3.29.2.2In case of an Event which was initially reported by the SLDC to the Users/Transmission Licensees, SLDC shall provide a written report within two (2) weeks of the occurrence of the Event to the concerned Users/Transmission Licensees in accordance with Regulation 29.2.3.29.2.3A written report shall be sent to the SLDC or Users/Transmission Licensees, as the case may be, and shall confirm the oral notification together with the following details of the Event:(a)Time and date of Event;(b)Location;(c)Plant and/or Equipment directly involved;(d)Description and cause of Event;(e)Antecedent conditions;(f)Demand and/or Generation (in MW) interrupted and duration of interruption;(g)All

relevant system data including copies of records of all recording instruments including Disturbance Recorder, Event Logger and Data Acquisition System;(h)Sequence of trippings with time;(i)Details of Relay Flags; and(j)Remedial measures.29.2.4Events affecting a generation capacity or a load of more than 500 MW shall immediately be reported in writing to the Commission by the SLDC, Transmission Licensee or User, as the case may be:Provided that a summary document including brief detail of the Event, extent and probable causes of the Event shall be sent to the Commission within 24 hours of occurrence of such Event.

Chapter V
Scheduling and Despatch Code

30. Compatibility with the Regional Scheduling and Despatch.

- 30.1 Regional grid operations, as far as scheduling and despatch is concerned, is required to be conducted in accordance with the Scheduling and Despatch Code as specified under the IEGC. Since the scope of such code extends over the SLDC, the STU, and other beneficiaries in the regional grid, to the extent such provisions are applicable to the Users in the State, the provision of IEGC shall have over-riding effect in case of inconsistencies with the provisions of DGC.30.2The Commission shall, however, continue to update the DGC so as to make it compatible with the IEGC, as provided under Regulations 6 of this Code.

31. Scheduling and Despatch Procedure.

- 31.1 The SLDC shall develop, document and maintain detailed procedure in consultation with the in-State Generating Stations and the Distribution Licensees incorporating processes and operating instructions for Scheduling and Despatch under the Intra-State ABT regime keeping in view the relevant orders of the Commission. These procedures shall include, but not limited to, the following:-(a)Network Security and System Operation;(b)System Contingencies;(c)Demand Estimation and Control;(d)Exchange of Information for Scheduling and Rescheduling including scheduling of Inter-Distribution Licensee Transfer of Power, if any;(e)Data requirement and verification in respect of ABT metering and accounts;(f)Complimentary Commercial Mechanism for ABT;(g)Monitoring of Generation and Drawal, keeping in view allocation of power by the Government from time to time;(h)Reactive Power Exchange and Pricing, if any;(i)Real time Voltage and Frequency Management; and(j)Any other relevant procedures considered appropriate by SLDC:Provided that such procedures shall be developed in consultation with the NRPC and NRLDC:Provided further that such procedure shall from time to time be suitably modified/enhanced to take care of future activities like (i) bilateral commercial agreements with new entities and (ii) market developments like operation of Power Exchanges, and (iii) Open Access transactions etc:Provided further that such procedures shall be submitted within three (3) months to the Commission for approval.31.2All Users and Transmission Licensee(s) shall comply promptly with any instruction issued by the SLDC under the above procedures unless this action would compromise the safety of plant or personnel:Provided that should a User or Transmission Licensee fail to comply with any of the above provisions, or in the event of any unforeseen difficulties in

carrying out an instruction, it shall inform the SLDC promptly of its failure.31.3Despatch instructions shall be in standard format. These instructions will recognise declared availability and other parameters, which have been made available by the Generators to SLDC. These instructions shall include time, Power Station, Generating Units, name of operators sending and receiving the same.Despatch instructions may, in addition to approved generation schedule, include:(i)To switch a generator into or out of service.(ii)Details of Spinning Reserve to be maintained.(iii)To increase or decrease MVAr generation for maintaining the voltage profile.(iv)To begin pre-planned Black Start procedures.(v)To hold Generating Units on standby.

32. Time Table for Scheduling.

- 32.1 Subject to Regulation 31, the exchange of information in respect of the Scheduling process shall be, in general, as per the following time table:Process for Scheduling (for succeeding day)By 09:00 Hrs- Inter-State Generating Stations (ISGSs) advise NRLDC the station wise MW and MWh capabilities as per IEGC provisions.By 09:00 Hrs - BTPS, IPGCL and PPCL (GENCOs) shall declare their availability to the SLDC in 15 minutes time block in terms of MW and MWh.By 10:00 Hrs - Entitlement of the state posted by NRLDC in its website www.nrldc.org for central sector.By 11:00 Hrs - SLDC shall post the IPGCL, PPCL and BTPS (GENCOs) availability in its website www.delhisldc.orgBy 13:00 Hrs - NDPL,BRPL,BYPL,NDMC and MES (DISCOMs) shall intimate the SLDC, source-wise requirement of power for succeeding day in terms in MW and MWh in 15 minutes time block.By 15:00 Hrs - SLDC shall assess the requirement of power from all sources and intimate the same to NRLDC.By 17:00 Hrs - NRLDC conveys the net drawal schedule for Delhi and posted in the website.By 18:00 Hrs - SLDC shall post the provisional Drawal Schedule of DISCOMs and Generation Schedule of GENCOs based on the provisional Drawal schedule of Delhi as a whole posted on the NRLDC website.By 19:00 Hrs - GENCOs/ DISCOMs shall alter the schedule of generation/requirement and intimate the same to SLDC for forwarding the same to NRLDC for incorporation in final drawal schedule of Delhi.By 22:00 Hrs - SLDC shall inform the modification if any, for incorporating in the final drawal schedule to NRLDC.By 23:00 Hrs - NRLDC issues the final drawal schedule of Delhi state along with other states and posted in their website.By 23:30 Hrs - SLDC shall compute the drawal schedule of DISCOMs and generation schedule of GENCOs based upon the availability from central sector stations and bilateral agreements entered into by various distribution licensees for the next day.Provided that Intra-day scheduling as per IEGC provisions is also permitted.32.2The SLDC shall periodically review the actual deviation from the dispatch and net drawal schedules being issued, to check whether any of the constituents are indulging in unfair gaming or collusion. In case any such practice is detected, the matter shall be investigated and reported to the Commission.

Chapter VI
Metering Details

33. Metering requirements.

- 33.1 Functional requirements of Interface ABT meters (including those consumers availing open access or directly connected to the STS, who have to be covered under the ABT) from regulatory perspective are required to be aligned with the provisions specified under the IEGC, in order that such special energy meters conform to a uniform minimum technical specification.33.2All further metering details/requirements as indicated at Regulation 33.7 shall be covered under a Metering Procedure which shall be developed by the STU and submitted to the Commission for its approval within sixty (60) days of notification of these Regulations:Provided that till the time the Metering Procedure as mentioned above is developed and approved by the Commission, the provisions of prevailing relevant statutes shall be applicable.33.3Metering Procedure shall provide the minimum requirements and standards for Installation and Operation of meters, for commercial and operational purposes, to be provided by User or Transmission Licensee at the Connection Point:Provided that such requirements shall be consistent with the Central Electricity Authority (Installation and Operation of Meters) Regulations 2006 dated 17th March 2006 as amended from time to time, and standards specified there under.Provided further that such requirements shall be applicable to any other point that may be internal to the power system of the User or Transmission Licensee if information captured by such meter shall be required for commercial or operational purposes.33.4The Commission shall review the Metering Procedure submitted for approval by the State Transmission Utility and shall either-(a)approve the Metering Procedure, with such conditions or modifications as the Commission may deem appropriate; or(b)reject the Metering Procedure for reasons to be recorded in writing if the Metering Procedure is not in accordance with the Act or these Regulations or with the Grid Code specified under clause (h) of sub-section (1) of Section 79 of the Act and direct the STU to submit a revised draft Metering Procedure.33.5The STU shall put up a copy of the Metering Procedure on its Internet website and make available a copy of the applicable Metering Procedure to any person requesting it, at a price not exceeding the reasonable cost of reproducing it.33.6Metering Procedure shall clearly identify the concerned agency, i.e. User or Transmission Licensee, responsible for ownership and maintenance of the meters.33.7Metering Procedure shall describe the following:(a)provisions related to location and installation of meters;(b)specifications and accuracy limits for the meters;(c)rights, responsibilities and procedures related to recording, collection, transfer, processing and storage of data collected from meters;(d)provisions related to ownership of metering data;(e)calibration procedures to be carried out by each concerned agency to ensure conformance to the above accuracy limits;(vi)procedures associated with maintenance of the meters in proper functioning state, safety of meters, testing of the new or replacement meters, sealing of meters and inspection of meters;(f)provisions related to right of access to the meters;(g)procedures to address metering discrepancies, defective equipments and meter failures;(h)procedures for resolution of disputes on matters related to metering; and(i)any other aspect considered appropriate, for inclusion in the Metering Procedure, by the STU or the Commission.

Chapter VII
Miscellaneous

34. Compliance.

- 34.1 The STU shall be responsible for monitoring the compliance of the Users and Transmission Licensees with the provisions, contained in Chapter II, Chapter III and Chapter VI of these Regulations and with the procedures developed under such provisions:Provided that the STU shall not unduly discriminate against or unduly prefer any User or Transmission Licensee.34.2The SLDC shall be responsible for monitoring the compliance of the Users and Transmission System Licensees with the provisions contained in Chapter IV and Chapter V of these Regulations and with the procedures developed under such provisions.Provided that the SLDC shall not unduly discriminate against or unduly prefer any User or Transmission Licensee.34.3In case of persistent non-compliance with the provisions of DGC and/ or with the procedures developed under such provisions, such matter shall be reported to the Commission.34.4All directions issued by the NRLDC to any Transmission Licensee or any other Licensee of the State or generating company (other than those connected to inter State transmission system) or sub-station in the State shall be issued through the SLDC and the SLDC shall ensure that such directions are duly complied with the licensee or generating company or sub-station.34.5The SLDC may give such directions and exercise such supervision and control as may be required for ensuring the integrated grid operations and for achieving the maximum economy and efficiency in the operation of power system.34.6Every Transmission Licensee and User connected with the operation of the power system shall comply with the direction issued by the SLDC under Regulation 35.5 of these Regulations.34.7If any dispute arises with reference to the quality of electricity or safe, secure and integrated operation of the State grid or in relation to any direction given under Regulation 35.5 of these Regulations, it shall be referred to the Commission for decision:Provided that pending the decision of the Commission, the direction of the SLDC shall be complied with by the Transmission Licensee or User.34.8Consistent failure to comply with the provisions of the DGC or with the procedures developed under such provisions, by User or Transmission Licensee, may lead to disconnection of the Plant and/or Apparatus of such User or Transmission Licensee.34.9Nothing contained in Regulation 35 of these Regulations shall in any manner impact the powers conferred upon the Commission to monitor and enforce compliance of the Users and Transmission Licensees with the provisions of DGC and with the procedures developed under such provisions.

35. Power to amend.

- 35.1 The Commission may, at anytime, vary, alter, modify or amend any provisions of these Regulations.

36. Power of relaxation.

- 36.1 The Commission may, in public interest and for reasons to be recorded in writing, relax any provision(s) of these Regulations.

37. Power to remove difficulties.

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

38. Interpretation.

- 38.1 If any question arises relating to the interpretation of these Regulations, the decision of the Commission shall be final.