TELANGANA STATE ELECTRICITY REGULATORY COMMISSION

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TELANGANA STATE ELECTRICITY REGULATORY COMMISSION (STATE ELECTRICITY GRID CODE) REGULATION, 2018

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Regulation No. 4 of 2018

INTRODUCTION

Electricity is a basic need and is required to perform every activity of life in the present day scenario in this world. It is produced, transmitted, supplied and consumed for various purposes by various means. Electricity once produced cannot be stored, as such it requires technological standards to safeguard the interests of the generator, transmitter, supplier and consumer.

Electricity is a concurrent subject under the Constitution of India and as such the Central and State Government have power to make laws. At present electricity is governed by the Electricity Act, 2003 (Act, 2003). It provides for establishment of Central and State Electricity Regulatory Commissions. The Act also envisages framing of technical standards and more particularly the grid code by both the Central and State Commissions. Grid in ordinary sense is a connection of several points by interrelated wires, pipes etc.

The then Andhra Pradesh Electricity Regulatory Commission (APERC) had notified the grid code to make provisions for authorizing system operations and the technical standards to be maintained by the distribution licensees, transmitters, generators and others under Section 86 (1) (h) of the Electricity Act, 2003 (36 of 2003) (Act, 2003).

Pursuant to the enactment of A. P. Reorganisation Act, 2014 and coming into being of the State of Telangana, this Commission had also been established. The State of Telangana is required to have its own grid code for the purposes of safe and reliable utilization of electricity. In order to cater to the present day needs as also that the technological advancement made, keeping the interests of all the stakeholders, the Commission now frames grid code applicable to the State of Telangana.

PREAMBLE

Section 86 (1) (h) of the Act, 2003 requires, the Commission has to specify State Electricity Grid Code, which is consistent with the grid code specified by CERC under Section 79 (1) (h) of the Act, 2003.

The State Grid Code aims to lay down the rules, guidelines and standards to be followed by various stakeholders in the intra-state transmission system to plan, develop, maintain and operate the intra-state transmission system, which is a part of southern region grid system, in the most secure, efficient, reliable and economic manner, while facilitating healthy competition in the generation, distribution and supply of electricity.

Structure of TSEGC

The structure is framed so that the State Grid Code contains the following parts, namely:

Part A: General - The part largely deals with the scope and application of the-regulation and the Grid Coordination Committee;

Part B: Planning Code - The code specifies the principles, procedures and criteria that shall be followed in planning and development of intra-state transmission system;

Part C: Connection Code – The connection conditions specify the minimum technical and design criteria that shall be complied with by a transmission licensee and user connected to or seeking connection to the intra-state transmission system;

Part D: **Metering Code** – The code specifies the commercial and operational metering to be provided by each user. It also sets out the requirement and procedures for metering in the state grid.

Part E: System Operating Code - The code describes the conditions under which

the State Load Despatch Centre (SLDC) shall operate the intra-state transmission system and under which users shall operate their facilities, insofar as it is necessary to maintain the security and quality of supply and safe operation of the intra-state transmission system, under both normal and abnormal operating conditions.

Part F: Scheduling and Despatch Code - The code deals with the provisions related to development of scheduling and despatch operations in the State of Telangana.

Part G: Miscellaneous - The part deals with a number of miscellaneous aspects including compliance with the State Grid Code, power to amend, power to remove difficulties and dispute resolution as well as repeal and savings.

In exercise of the powers conferred by clause (zp) of section 181 read along with clause (h) of section 86 of the Act, 2003, the Telangana Electricity Regulatory Commission (TSERC) hereby makes the following regulations, namely,

1. **Short title, extent and commencement**

1.1. The regulation may be called the Telangana Electricity Regulatory Commission (State Electricity Grid Code) Regulation, 2018, for the State of Telangana.

1.2. The regulations shall extend to the whole of the State of Telangana.

1.3. The regulations shall come into force with effect from the date of its publication in the official gazette for the State of Telangana and shall remain in force unless amended, varied, altered or modified by the Commission.

1.4. The Andhra Pradesh General clauses Act shall apply to interpretation of these regulations read with section 101 of the A. P. Re-organisation Act, 2014.

2. **Definitions**

2.1. In this regulation unless the context otherwise requires:

(a) **"Act or Act, 2003"** means the Electricity Act, 2003 (36 of 2003), including amendments there to;

(b) **"Area of Supply"** refers to area within which a distribution licensee or transmission licensee is authorized by his license to transmit or distribute and supply electricity.

(c) **"Authority or CEA"** means the Central Electricity Authority constituted and established under sub- section (1) of Section 70 of the Act, 2003.

(d) **"Automatic Voltage Regulator"** means a continuously acting automatic excitation control system to control the voltage of a generating unit measured at the generator terminals;

(e) **"Available Transfer Capability (ATC)"** refers to the transfer capability of the inter-control area transmission system available for scheduling commercial transactions (through long term access, medium term and short term open access) in a specific direction, taking into account the network security. Mathematically, ATC is the total transfer capability less transmission reliability margin.

(f) **"Black Start Procedure"** means procedure necessary to recover the grid from a partial or a total blackout;

(g) **"Bulk Consumer"** refers to any consumer who avails of supply at a voltage of 33 kV and above.

(h) **"Commission"** means the Telangana State Electricity Regulatory Commission or TSERC established for the State of Telangana.

(i) **"Connection Agreement"** means an agreement setting out the terms relating to connection to and / or for use of the intra-state transmission system;

(j) **"Connection Point"** means a point at which a user's or transmission licensee's plant and / or apparatus connects to the intra-state transmission system;

(k) **"Demand"** means the demand of active power in MW and reactive power in MVAr of electricity, unless otherwise stated.

(l) **"Demand Control"** refers to any of the following methods of achieving a load reduction:

a. Consumer load management initiated by users
b. Consumer load reduction by disconnection initiated by users (other than following an instruction from SLDC)
c. Consumer load reduction instructed by the SLDC.
d. Automatic Under Frequency Load Disconnection
e. Emergency manual load disconnection.

f. By means of load restrictions in terms of R & C measures imposed by statutory authorities

g. Automatic Demand Management System

(m) **"df / dt Relay"** means a relay which operates when the rate of change of system frequency (over time) exceeds a specified limit and initiates load shedding;

(n) **"Distribution System"** means the system of wires and associated facilities between the delivery points on the transmission lines or the generating station connection and the point of connection to the installation of the consumers;

(o) **"Disturbance Recorder"** means a device provided to record the behaviour of the pre-selected digital and analogue values of the system parameters during an event.

(p) **"Data Acquisition System"** means a system provided to record the sequence of operation in time, of the relays / equipment as well as the measurement of pre-selected system parameters;

(q) **"Element of state grid"** means any apparatus like EHV power transformer, breaker, isolator, EHV line segment, buses etc, as the case may be, in the Intra State Transmission System (In-STS).

(r) **"Event"** means an unscheduled or unplanned occurrence on the grid including faults, incidents and breakdowns:

(s) **"Event Logger"** means a device provided to record the sequence of operation in time, of the relays / equipment at a location during an event;

(t) **"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;

(u) **"Flexible Alternating Current Transmission System (FACTS)"** means a power electronics based system and other static equipment that provide control of one or more AC transmission system parameters to enhance controllability and increase power transfer capability.

(v) **"Force Majeure"** means any event which is beyond the control of the stakeholders 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 any or the

stakeholders, 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 persons involved.
e) Any other event duly recognized as force majeure event by any other law for the time being in force or a judgment rendered by a competent constitutional court, which is relatable to the grid operations.

(w) **"High Tension or HT"** means all voltages defined as "high" or "extra high" voltage under clause (av) of sub-rule (1) of Rule 2 of the Indian Electricity Rules, 1956 and corresponding voltage classifications as may be specified in accordance with clause (c) of sub-section (2) of Section 185 of the Act;

(x) **"Intra-State Transmission System or (In-STS)"** means any system for conveyance of electricity by transmission lines within the area of the State and includes all transmission lines, sub-stations and associated equipment of transmission licensees in the State:

Provided that the definition of point of separation between a transmission system and distribution system and between a generating station and transmission system shall be guided by the provision of the regulations notified by the Authority under clause (b) of Section 73 of the Act;

(y) **"Low Tension or LT"** means all voltages other than those defined as "high" or "extra high" voltage under clause (av) of sub-rule (1) of Rule 2 of the Indian Electricity Rules, 1956 and corresponding voltage classifications as may be specified in accordance with clause (c) of sub-section (2) of Section 185 of the Act;

(z) **"Maximum Continuous Rating"** means the maximum continuous output in MW at the generator terminals guaranteed by the manufacturer at rated parameters.

(aa) **"Operation"** means a scheduled or planned action relating to the operation of a system;

(bb) **"Single Line Diagram"** means diagrams which is a schematic representation of the High Voltage (HV) / Extra High Voltage (EHV) apparatus and the connections to all external circuits at a connection point incorporating its numbering, nomenclature and labelling;

(cc) **"Site Common Drawing"** means drawing prepared for each connection point, which incorporates layout drawing, electrical layout drawing, common protection / control drawings and common service drawing;

(dd) **"Spinning Reserve"** means part loaded generating capacity with some reserve margin that is synchronised to the system and is ready to provide increased generation at short notice pursuant to despatch instruction or instantaneously in response to a frequency drop.

(ee) **"Static VAR Compensator"** means an electrical facility designed for the purpose of generating or absorbing reactive power;

(ff) **"Total Transfer Capability (TTC)"** is defined as the amount of electric power that can be transferred reliably over the inter-control area transmission system under a given set of operating conditions considering the effect of occurrence of the worst credible contingency.

(gg) **"Transmission Reliability Margin"** is defined as the amount of margin kept in the total transfer capability necessary to ensure that the interconnected transmission network is secure under a reasonable range of uncertainties in system conditions.

(hh) **"Under Frequency Relay"** means a relay which operates when the system frequency falls below a specified limit and initiates load shedding;

(ii) **"User"** means persons including intra-state generating stations, transmission licensees, distribution licensees, consumers of the distribution licensees directly connected to intra-state transmission system **(including consumers connected at 33 kV bus of distribution substations),** persons availing inter / intra state open access, and captive generating plants connected and operating in parallel with the grid including those who are connected at 33 kV bus of distribution substations, who are connected to and / or use the intra-state transmission system:

(jj) **"Bilateral transaction"** means a transaction whereby transmission for exchange of energy (Mwh) between a specified buyer and specified seller

directly or through a trading licensee or discovered at power exchange through anonymous bidding from a specified point of drawl for a fixed or varying quantum of power (MW) for any time period during a month.

(kk) **"Capacitor"** is an electrical facility provided for generation of reactive power.

(ll) **"Central Generating Station(s) (CGS)"** means the generating stations owned and operated by the companies owned or controlled by Central Government.

(mm) **"State Generating Stations(s) (SGS)"** means the generating companies owned and operated by the companies owned and controlled by the State Governments.

(nn) **"Captive generating plant or station"** means a power plant set up by any person to generate electricity for his own use.

(oo) **"State transmission Utility (STU)"** means a government company as such by the state government under sub-section (1) of section 39 of the Act, 2003.

(pp) **"Congestion"** means a situation where the demand for transmission capacity exceeds the available transfer capacity.

(qq) **"Connectivity"** means the state of getting connected to the In-STS by a generating station, including a captive generating plant and bulk consumer or an intrastate transmission licensee or an open access consumer.

(rr) **"Drawl schedule"** means the summation of station wise ex-power plant drawl schedules from all intra state generating stations and drawl from / injection to state grid consequent to availing long term open access, medium term open access and short term open access transactions.

(ss) **"Forced outage"** means an outage of a generating unit or transmission facility due to a fault or other reasons which were not planned by any of the entities connected to the grid undertaking generation or transmission.

(tt) **"State Grid Code"** means the regulation specifying the philosophy, liabilities and the responsibilities for planning and operating state power system.

(uu) **"Transmission licensee"** means a licensee who has been granted licence under section 14 of the Act, 2003 to transmit electricity.

(vv) **"Time block"** means a block of 15 minutes each or any other time block as specified by the Commission for which special energy meters record values of specified electrical parameters with first time block starting 00.00 Hrs.

(ww) **"Deviation"** means the disturbance 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 drawl minus its total scheduled drawl.

(xx) **"SCADA (Supervisory Control and Data Acquisition)"** means and refers to the communication links and data processing systems which provide information to enable implementation of requisite supervisory and control access of the grid.

(yy) **"Gaming"** is an act of an intentional miss-declaration of declared capacity by any of the generating company / companies or seller / sellers in order to make undue commercial gains through change for deviations.

(zz) **"Pooling Station"** means the sub-station where pooling of generation of individual wind generators or solar generators is done for interfacing with the next higher level of voltage:

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

(aaa) **"Reform Act"** means the Telangana Electricity Reform Act, 1998.

(bbb) **"IEGC"** shall mean the Indian Electricity Grid Code as notified by the CERC under sec 79 (h) of the Act, 2003.

(ccc) **"CERC"** means the Central electricity Regulatory Commission established and constituted under sub sec (1) of sec 76 of the Act, 2003

(ddd) **"Central Transmission Utility or CTU"** means a government company notified as such by the central government under sub-section (1) of section 38 of the Act, 2003.

(eee) **"State Load Dispatch Centre or SLDC"** means the company or centre established by the state government under Sec 31 (1) of the Act, 2003 or the centre run by the STU with in the state for undertaking load dispatch operations.

(fff) **"National Load Dispatch Centre or NLDC"** means the company or centre established by the central government under Sec 26 (1) of the Act, 2003 for

undertaking load dispatch operations covering whole of the country through regional load dispatch centres.

(ggg) **"Southern Regional Load Dispatch Centre or SRLDC or RLDC"** means the company or centre established by the central government under Sec 27 (1) of the Act, 2003 for undertaking load dispatch operations covering whole of the region through state load dispatch centres.

(hhh) **"Southern Regional Power Committee or SRPC or RPC"** means a committee established by resolution by the Central Government for a specified region for facilitating the integrated operation of the power systems in that region;

2.2 Words and expressions used and not defined in the Regulations but defined in the Act and Reform Act shall have the meanings assigned to them in the Act or Reform Act. Expressions used herein but not specifically defined in the Regulations or in the Act but defined under any law passed by a competent legislature and applicable to the electricity industry in the state shall have the meaning assigned to them in such law. Subject to the above, expressions used herein but not specifically defined in these Regulations or in the Act or any law passed by a competent legislature shall have the meaning as is generally assigned in the electricity industry.

2.3 In the interpretation of the clauses of the Regulation, unless the context otherwise requires:

a. words in the singular or plural term, as the case may be shall also be deemed to include the plural or the singular term, respectively;

b. references herein to the "Regulation" shall be construed as a reference to the Regulation as amended or modified by the Commission from time to time in accordance with the applicable laws in force.

c. the headings are inserted for convenience and may not be taken into account for the purpose of interpretation of the clauses in the Regulation.

d. reference to the statutes, regulations or guidelines shall be construed as including all provisions consolidating, amending or replacing such statutes, regulations or guidelines, as the case

may be, referred to.

2.4. **Application of other Codes etc.**

1. This code shall be read along with the, APERC supply code regulation, (until the notifying of TSERC supply code regulation in the official gazette and all other relevant provisions of the Act, 2003 along with amendments made from time to time including the rules and regulations as notified thereunder.
2. Where any of the provisions of this regulation is found to be inconsistent with the Act, 2003, any other rules or regulations made thereunder to the extent possible the provisions of this regulation will be given effect to or endeavour is made to read both the provisions harmoniously so that both the provisions are given effect to without affecting the functioning of any of the stakeholders as such.
3. Where any dispute arises as to the application or interpretation of any provisions of this regulation, it shall be referred to the Commission whose decision shall be final and binding on the parties concerned.

   Provided that the Commission may on intimation by any of the stakeholders, initiate a general or special proceeding either suo moto or on a petition filed under the Conduct of Business Regulation being regulation No. 2 of 2015.
4. In case of any inconsistency between IEGC Grid Standards and the State Grid Code, the provision of IEGC Grid Standards shall prevail to the extent the same can be applied in the state.

PART A: GENERAL

3. **Scope of regulation and extent of application**

3.1. This regulation shall apply to-

(i) Every transmission licensee in the state including STU;

(ii) The SLDC notified under the Act;

(iii) All users connect with and / or utilize the In-STS are required to abide by the principles and procedures defined in the regulation in so far as they apply to that user.

Provided that the Commission may issue directions exempting

any transmission licensee or user, either suo moto or based on a petition filed under Conduct of Business Regulation, 2015 by such transmission licensee or user, of their obligations to implement or comply with the State Grid Code to the extent as may be stipulated in the directions.

3.2. The transmission licensee forming part of the In-STS, and user, having connection(s) to the In-STS, as on the date of notification of the regulation shall be given a maximum period of one year to comply with the following requirements under the regulation:

(i) Entering into a connection agreement in accordance with clause 15 of the regulation;

(ii) Providing for protection systems in accordance with clauses 17.2 and 17.3 of the regulation;

(iii) Providing for communication facilities in accordance with clause 18 of the regulation;

(iv) Providing for system recording instruments in accordance with clause 19 of the regulation;

(v) Developing single line diagrams in accordance with clauses 20.3.1, 20.3.2, 20.3.3 of the regulation;

(vi) Preparing site common drawings in accordance with clause 20.4.2 of the regulation; and

(vii) Installation and Operation of meters in accordance with CEA metering regulation notified by the authority as provided in clause 14.

3.3. All provisions related to Free Governor Action ***/*** Restricted Governor action, shall be consistent with relevant provisions as provided in the IEGC specified by CERC as amended from time to time.

3.4. All users who are connected to and / or use the In-STS, shall comply with provision of the State Grid Code.

4. **State Grid Code**

4.1. A notified copy of the regulation shall be placed on the website of SLDC, STU, DISCOMs and state generating companies.

5. **Grid Coordination Committee**

5.1. A Grid Coordination Committee shall be constituted by the SLDC with the approval of the Commission within **sixty days** from the date of notification of this regulation.

5.2. The Grid Coordination Committee shall be responsible for the following matters, namely-

(i) facilitating the implementation of the regulation and the rules and procedures preparing under the provisions of the regulation;

(ii) assessing and recommending remedial measures for issues that might arise during the course of implementation of provisions of the regulations and the rules and procedures preparing under the provisions of the regulation;

(iii) review of the State Grid Code, in accordance with the provisions of the Act, 2003 and the regulation;

(iv) to assess and assist the Commission, from time to time to undertake, formulate and notify the necessary amendments / changes required to be brought in the regulation for smooth operation of the power sector and in the interest of overall compliance to the provisions of the Act, 2003 and;

(v) Such other matters as may be directed by the Commission from time to time.

5.3. The Grid Coordination Committee shall comprise of the following Chairperson and Members:

a) Director of Grid Operation (TSTRANSCO) shall be representative of STU and shall be the Chairperson of State Grid Coordination Committee (SGCC).

b) One member to represent the state generating companie(s).

c) One member from generating companies, other than state generating companies representing each technology being thermal, hydro, renewable energy like solar, wind, biomass, bagasse, mini-hydel etc.

d) One member to represent the transmission licensees in the state, other than the STU;

e) One member each to represent the state-owned DISCOMs in the state;

f) One member to represent the privately-owned DISCOMs, deemed DISCOMs, distribution license exemptees etc. if any, in the State.

g) One member to represent the electricity traders in the state;

h) One member to represent the SRLDC;

i) One person representing the SRPC.

j) One person each representing the commercial wing of the DISCOM.

k) One person representing Singareni Thermal Power Plant.

l) One member from SLDC.

m) One person representing the OA consumers in the state.

n) Such other persons as may be nominated by the Commission.

Provided further that the STU shall, in coordination with SLDC, provide necessary secretarial services to facilitate smooth functioning of the Grid Coordination Committee.

5.3.1. The Grid Co-ordination Committee shall meet once in three (3) months or whenever required.

5.4. The members of the Grid Coordination Committee shall be selected in the following manner:

(i) The Head of SLDC shall nominated as member referred to in sub-clause (l) of clause 5.3 above;

(ii) the concerned Director of State Transmission Utility, having the responsibility of looking after operation and maintenance, system studies and system protection activities of STU shall be the Chairperson as referred to in clause (a) of Regulation 5.3 above;

(iii) the members referred to in sub-clauses (b) to (o) of clause 5.3 above, except clause (l) shall be nominated by their respective organizations, which entities / organizations will be selected in rotation from among all such entities / 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 organization to the above committee shall be holding a senior position at the management level in their respective organization.

Provided further that the STU / SLDC shall ensure that the persons, who were on the committee shall not get a repeat selection after completion of the tenure so as to bring in transparency in the working of grid coordination committee.

5.5. That appointment of members shall be subject to ratification by the Commission upon the same being placed for consideration before it.

6. **Grid Code Review**

6.1. Implementation aspects of State Grid Code shall be reviewed by the Grid Coordination Committee at least once in every year or as and when required. The review panel may hold any number of meetings as required subject to the condition that at least one meeting shall be held once in a year and whenever required. Such meetings may be conducted by the SLDC in coordination with STU with the users to discuss individual requirements and with the group of users to prepare proposals for panel meeting for a decision.

6.2. Upon 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 be made in the State Grid Code.

6.3. The STU shall send the report, referred in clause 6.2, to the Commission.

6.4. Non-compliance:- If any user fails to comply with any provision of the grid code, the user shall inform the SLDC and grid code review panel without any delay duly explaining the reasoning for its non-compliance and remedy its non-compliance promptly. The SLDC may bring the non-compliance to the notice of the State Commission. It may in appropriate cases initiate proceedings before the Commission under Sec 33 (4) of the Act, 2003.

6.5. Dispute settlement procedure:- In the event of dispute regarding interpretation any part / clause of the grid code provision between any user and STU the matter may be referred to the Commission for its decision. Commission's decision shall be final and binding.

Provided that any such reference shall be undertaken in the manner as specified elsewhere in this regulation.

6.6. Compatibility with Indian Electricity Grid Code:- The grid code is consistent / compatible with IEGC, However, in matters relating to the inter-state

transmission if any provision of the state grid code is inconsistent with the provisions of IEGC, the provisions and amendments as notified by CERC from time to time will be applicable

6.7. Code responsibilities: -

a) in discharging its duties under the grid code, STU has to rely on information which users shall supply regarding their requirements and intentions

b) STU shall not be held responsible for any consequences that arise from its reasonable and prudent actions on the basis of such information.

6.8. Confidentiality:-

a) Under the terms of grid code, STU will receive information from users relating to their intentions in respect of their generation and supply business.

b) STU, shall not other than as required by the grid code, disclose information to any person other than central and state government as also the Commission without the prior written consent of the provider of any such information.

Provided that in respect of compliance of Right to Information Act, 2005, the provisions thereof shall be strictly followed while providing the information.

7. Role and Responsibility of Various ~~e~~ntities:

7.1. The STU and the SLDC shall discharge such functions, responsibility as trusted to them and issue of such directions as may be required and comply with such directions, under the provisions of the Act, 2003 and any other regulations issued by the any authority under the Act, 2003 in an independent and unbiased manner.

7.2. In addition to that, the SLDC shall also be responsible for operation of state DSM pool account, state reactive energy account and congestion charge ~~a~~account and state transmission deviation account etc from the date of framing of relevant regulations by the State Commission.

Provided that in event of a 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.

7.3. Apart from the functions prescribed in the Act, 2003, to be discharged by SLDC, the following are the exclusive functions of SLDC under this regulation;

7.3.1. System operation and control of the state grid covering contingency analysis and operational planning on real time basis and scheduling / re-scheduling of generation and drawl by users including open access users, based on system exigencies.

7.3.2. Scheduling / rescheduling of electricity within the state in accordance with the contracts entered with the licensees or the generating companies operating in the state.

7.3.3. System restoration following grid disturbances;

7.3.4. Metered data collection, compilation and processing for preparation of energy accounts and deviation accounts.

7.3.5. Compiling, furnishing and publishing the data pertaining to system operation in the official web-site maintained by SLDC. Data of open access transactions with breakup for renewable, non-renewable, intra-state, inter-state etc transactions and captive power transactions should be compiled and submitted to the Commission. The same has to be hosted on the common official web-site maintained by SLDC.

7.3.6. Operation of state deviation pool account, state reactive energy account, state congestion charge account, state transmission deviation account and other functions as directed by the Commission.

7.3.7. Keep account of the quantity of electricity generated including captive and utilized in the state.

7.3.8. The SLDC shall be the apex body to ensure integrated operation of the power system in the state and be responsible for optimum scheduling and despatch of electricity within the state, in accordance with the contracts entered with the licensees or the generators operating in the state.

7.3.9. As Telangana SLDC being designated as State Agency for the state of

Telangana by the Commission, the following are exclusive functions of SLDC in addition to the above.

1) The SLDC shall function in accordance with the directions issued by the Commission and shall act consistent with the procedures / rules laid by the Central Agency for discharge of its functions under the CERC (Terms and conditions for recognition and issue of Renewable Energy certificate for Renewable Energy generation) Regulations 2010 [CERC (REC) Regulation] as amended from time to time.
   (i) The SLDC shall accredit the renewable energy generation projects or distribution licensees, which participate in renewable energy certificate mechanism) and recommend them for registration by the Central Agency that is (NLDC) under REC mechanism, as per the procedures / rules laid by Central Agency for discharge of its functions under the CERC (REC) Regulation as amended from time to time.
   (ii) The SLDC shall submit quarterly status to the Commission in respect of compliance of renewable power purchase obligation (RPPO) by the obligated entity(ies) in the format as stipulated by the Commission and may suggest appropriate action to the Commission, if required for compliance of the RPPO.

        Provided that, all obligated entities shall submit the RPO related information to SLDC through web based RPO portal as and when it is implemented by SLDC.
   (iii) The SLDC shall accept application for self- retention of RECs and shall issue 'Certificate for purchase' of RECs to the buyers as per the procedures / rules laid by Central Agency for discharge of its functions under· the CERC (REC) Regulation as amended from time to time.
2) SLDC shall communicate the energy injection reports of registered RE generators under REC mechanism to Central Agency that is NLDC and concerned RE generator on monthly basis as per the procedures / rules made by Central Agency for discharge of its functions under the CERC (REC) Regulation as amended from time to time.

7.4. **Monitoring of grid operations**

7.4.1. The SLDC shall ~~e~~xercise supervision and control over the In-STS and be responsible for carrying the real time operations for grid control and despatch of electricity with in the state through secure and economic operation of the state grid in accordance with the grid standards and the state grid code.

7.4.2. In accordance with section 32 of the Act, 2003, the SLDC may give such directions 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 with in the state of Telangana. Every licensee, generating company, generating station, substation and any other person connected with the operation of the power system shall comply with the directions issued by the SLDC under Section 32 (1) of the Act, 2003 and its amendments thereof. The SLDC shall comply with the directions of the RLDC.

7.4.3. In case of interstate bilateral and collective short term open access transactions having a state utility or an intra-state entity as a buyer or seller, SLDC shall accord concurrence or no objection or a prior standing clearance as the case may be in accordance with the CERC (open access in inter-state transmission) Regulation, 2008 as amended from time to time.

7.4.4. In case of any dispute arising with reference to quality of electricity or safe secure and integrated operation of the state grid or in relation to any direction given by the SLDC, it shall be referred to the Commission for a decision. However, pending such a decision of the Commission, the directions of the SLDC shall be given effect to by the licensee / generating company / OA consumer as case may be.

Provided that any such reference shall be undertaken in the manner as specified elsewhere in this regulation.

7.4.5. Until a government company or any authority or corporation is notified by the state government the STU shall operate the state load despatch centre. In doing so, the STU shall ensure complete functional autonomy to the personnel manning the same and do not influence their decisions in the interests of STU.

PART B: PLANNING CODE

This section specifies the technical and design criteria and procedures to be adopted by STU for planning and development of the transmission system with in its boundary.

8. Transmission System Planning

8.1. The system planning specifies the technical and design criteria and procedures to be adopted by STU for the planning and development of the transmission system. The users shall take into account for planning and development of their own system. Development of transmission system must be planned in advance, duly allowing sufficient lead time, so that the system is available for meeting the needs of demand and supply.

8.2. In accordance with Section 39 (2) (b) of the Act, 2003, the STU shall discharge all functions of planning and coordination relating to In-STS with CTU, state government, generating companies, Regional Power Committee, CEA, licensees and any other person notified by the state government in this behalf.

8.3. In accordance with Section 39 (2) (d) and Section 40 of the Act, 2003, the STU shall inter-alia provide non-discriminatory open access to its transmission system for use by –

i. any licensee or generating company on payment of the transmission charges; or

ii. any consumer as and when such open access is provided by the Commission under sub-section (2) of Section 42, on payment of the transmission charges and a surcharge thereon, as may be specified by the Commission.

8.4. Load forecasting shall be the primary responsibility of the DISCOMs within their area of supply. The DISCOMs shall prepare peak demand and energy forecasts duly assessing the requirements of open access, captive users, energy efficiency measures also of their areas for each of the succeeding 10 years and submit the same annually, by 31st January to the STU. Such forecasts shall be made by considering every operation division of DISCOMs as a basic unit of service area and shall be submitted to the STU. STU shall

submit the same for approval of the Commission.

Provided that the STU shall consolidate the load forecast received from all the DISCOMs and prepare a comprehensive report for the entire state while submitting the same to the Commission within a period of 28 days and also enclose the individual reports of each DISCOM operating in its area for consideration of the Commission.

8.5. The DISCOMs shall also furnish to the STU, the details of their power procurement plans and implementation schedules of future generating plants, existing generating plants, with whom they have entered into long term / medium term power purchase agreements (PPAs), for the purpose of planning the evacuation / system strengthening schemes.

8.6. The STU shall consolidate load forecasts of all DISCOMs in the state and prepare overall state wide load forecast which will form the basis for transmission expansion plan. Such plan shall be placed before the Commission for approval and acted upon it thereafter.

8.7. The STU shall publish on its website the transmission system plan for the In-STS as approved by the Commission and shall also make the same available to any person upon request on payment of reasonable cost of photocopying the same.

8.8. The transmission system plan shall cover a plan period of ten (10) years commencing from the financial year immediately following the year in which it is prepared:

Provided that the transmission system plan shall be updated by the STU in each year and published in the manner specified above, by the 30th day of September of each year.

8.9. The executive summary of such transmission plan should clearly indicate the location of existing and proposed EHT substations, connecting lines, no. of bays at each voltage level with details of present occupancy and availability for future expansion. New substations shall be planned with at least two spare bays at lower voltage levels (ex, for a 220 / 132 / 33 kV substations at 132 kV & 33 kV sides) and one spare bay at incoming side (Higher Voltage side) for future expansion.

8.10. The transmission system plan shall describe the plan for the In-STS and shall include the proposed intra-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 intra-state transmission lines but also additional equipment including transformers, capacitors, reactors, Static VAR compensators and flexible alternating current transmission systems:

Provided further that the transmission system plan shall also include information on progress achieved on the identified intra-state transmission schemes and system strengthening schemes.

8.11. The STU may, for the purpose of preparing the transmission system plan under this regulation, 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 etc.

Provided that the DISCOMs shall have the primary responsibility for developing long term load forecasts for their respective area of operation under their license. The DISCOMs may be guided by the applicable provisions related to load forecasting as provided in the guidelines for load forecasting and resource plans by the Commission.

Provided also that the STU shall consider, but not be guided by, the information provided under this regulation in preparing the transmission system plan.

8.12. **Planning Philosophy**

a) CEA would formulate perspective transmission plan for interstate transmission system as well as intra-state transmission system. These perspective transmission plans would be continuously upgraded to take care of the revisions in load projections and generation scenarios, considering the seasonal and time of day variations. In formulating perspective transmission plan, the transmission requirement for evacuating power from renewable energy sources would also be taken care off. The transmission system required for open access would also be taken into account in accordance with

National Electricity Policy so that congestion in system operation is minimised.

b) The STU shall also consider the following for the purpose of preparing the transmission system plan under this regulation –

Plans formulated by the Authority for the transmission system under the

(i) provisions of clause (a) of Section 73 of the Act, 2003;

(ii) Electric Power Survey of India report of the Authority;

(iii) Grid standards specified by the Authority under clause (d) of Section 73 of the Act, 2003;

(iv) Transmission plan formulated by CTU under the provisions of grid code specified by CERC under clause (h) of Section 79 of the Act, 2003;

(v) Latest transmission planning criteria and guidelines issued by the Authority;

(vi) Recommendations / inputs, if any, of the Southern Regional Power Committee (SRPC)

(vii) Reports on National Electricity Policy which are relevant for development of In-STS; and

(viii) Any other information / data source suggested by the Commission.

8.13. The STU shall, while submitting its application under sub-section (1) of Section 64 of the Act, 2003 for determination of tariff, to the Commission for approval, also submit therewith its investment plan based on the identified intra-state transmission schemes and system strengthening schemes projected in the transmission system plan.

8.14. The cost of the transmission system planning study undertaken in accordance with this Regulation shall be allowed in the determination of the charges of the STU under clause (b) of sub-section (1) of Section 62 of the Act, 2003.

9. Planning Criterion

9.1. The planning criterion shall be based on the security philosophy on which the In-STS has been planned. The security philosophy may be as per the transmission planning criteria and other guidelines as given by the Authority.

Provided that, STU shall carryout appropriate system studies while developing the transmission system plan.

9.2. The general policy shall be as detailed below:

The In-STS, 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(s)

(i) Outage of a 132 kV D / C line or,

(ii) Outage of a 220 kV D / C line or,

(iii) Outage of a 400 kV S / C line or,

(iv) Outage of a single interconnecting transformer or,

(v) Outage of a one pole of HVDC Bi-pole line or,

(vi) Outage of a 765 kV S / C line.

(vii) Outage of single biggest generator

(viii) Outage of single biggest load

(ix) Ground Return Mode (GRM) operation of HVDC line

(x) Power Demand Override (PDO) operation of a HVDC link.

Provided that the above contingencies shall be considered assuming a pre- contingency system depletion (planned outage) of another 220 kV D / C line or 400 kV S / C line in another corridor and not emanating from the same substation.

9.3. (a) All the generating units may operate within their reactive capability curves and the network voltage profile shall be maintained within voltage limits specified. STU / SLDC shall carry out demand forecast required for furnishing transmission requirement from ISTS for the purpose of calculation of transmission charge and loss sharing as per CERC regulations.

(b) The STU shall declare and publish on its website, ATC (Available transmission Capability) for In-STS corridors as stipulated in the above regulations as well as CERC regulations on measures to mitigate congestion in ISTS and regulations on LTOA / MTOA in ISTS. SLDC shall declare ATC for STOA and for operational purposes etc.

9.4. The In-STS shall be capable of withstanding the loss of most severe single infeed without loss of stability.

9.5. Any one of the events defined in the clause 9.2 above shall not cause: loss of

supply; prolonged operation of the system frequency below and above specified limits; unacceptable high or low voltage; system instability; unacceptable overloading of In-STS elements.

9.6. In all substations that is 132 kV and above, except HVDC, suitable number and capacity of transformers shall be provided to have adequate redundancy required to maintain firm capacity at the substation. In HVDC substations, at least one spare converter / inverter transformer shall be kept ready to use any time.

Explanation – For the purpose of this regulation, the term firm capacity shall mean the minimum transformation capacity available at the substation in case of outage of any one transformer in all substations (132 kV and above), at least two transformers shall be provided.

9.7. The STU shall carry out planning studies for reactive power compensation of In-STS.

9.8. The critical loads such as railways, metro rail, airports, refineries, underground mines, steel plants, smelter plants etc., shall plan their inter connection with the grid, with 100% redundancy and as far as possible from two different sources of supply in coordination with the concerned STU.

9.9. The appropriate communication system for the new substations and generating stations may be planned by the STU and implemented by the licensees as well as generation developers so that the same is ready at the time of evacuation.

9.10. **Applicability**

a) This planning criteria shall be applicable from the date on which, the State Grid Code is published.

b) This criteria shall be used for all new transmission systems planned after the above date.

c) The existing and already planned In-STS may be reviewed with respect to the provisions of this planning criteria. The STU and DISCOMs shall undertake such steps for upgrading the existing system wherever it is necessitated to ensure compliance of this regulation.

10. **Planning Data**

10.1. The transmission licensees and all users including the DISCOMs have to supply following types of data to the STU for purpose of developing the transmission plan: standard planning data; detailed planning data.

10.2. **Standard Planning Data**

10.2.1. The standard planning data shall consist of details which are expected to be normally sufficient for the STU to investigate the impact on the In-STS due to user / transmission licensee development.

10.2.2. The transmission licensees and users shall provide the following data to the STU from time to time in the standard formats provided by STU:

(a) Preliminary project planning data;

(b) Committed project planning data; and

(c) Connected planning data.

Provided that the STU shall fix a date for submission of information in the said formats, after providing reasonable time to transmission licensees and users:

Provided further that, the STU shall develop standard formats, for submission of above mentioned data, within one (1) month from notification of this regulation and make the same available on its website:

Provided also that the STU shall be guided by the formats, developed for submission of above mentioned data, under the provisions of IEGC specified by CERC under clause (h) of Section 79 of the Act, 2003.

10.3. **Detailed Planning Data**

10.3.1. Detailed planning data shall consist of additional, more detailed data not normally expected to be required by STU to assess the impact of user / transmission licensee development on the In-STS.

10.3.2. Detailed planning data shall be furnished by the users and transmission licensees as and when requested by the STU.

10.3.3. Planning data and implementation of transmission plan shall be in accordance with the CERC (grant of connectivity long term access and medium term open access in inter-state transmission and related matters)

Regulation, 2009 along with amendments made from time to time.

PART C: CONNECTION CODE

11. **Connection Standard**

The users connected to or seeking connection to In-STS shall comply with CEA (Technical Standards for Connectivity to Grid) Regulations, 2007, CEA (Grid Standards) Regulations, 2010, amended from time to time and as per the CERC regulations until TSERC frames regulations regarding grant of connectivity, open access to intra state transmission and distribution networks, notified from time to time.

11.1. In addition to the above, CERC Regulations as amended from time to time and CERC order dated 05.01.2016 in respect of petition No 420 / MP / 2014, TSERC RPPO (Compliance by Purchase of RE / REC) Regulations, 2018.

(a) Wind and solar generators shall provide directional protection for better selectivity and to avoid mal-operations.

(b) Wind generating stations shall have LVRT (Low Voltage Ride Through) feature, so that they shall remain connected to the grid, when voltage at the interconnection point on any or all phases dips up 15% of nominal system voltage for 300 ms to avoid cascade tripping of wind mills at low voltage conditions as per CEA (Technical Standards for Connectivity to Grid) amendment Regulations, 2013.

(c) Solar generating stations shall also have LVRT feature as per CERC order dated 05.01.2016 in the Petition No. 420 / MP / 2014.

(d) Wind and solar generating stations shall provide telemetry / communication system and data acquisition system for transformation of information to SLDC.

(e) All the captive power plants shall provide suitable metering for measurement of captive power consumption for compliance of Renewable Power Purchase Obligation (RPPO) by them as per TSERC RPPO (Compliance by Purchase of RE / REC) Regulations, 2018.

shall be followed.

11.2. In addition, connection code shall also cover the technical standards for connection of wind and solar plants which were not covered in CEA (technical standards for connectivity of grid) Regulation, 2007.

The objective of the connection code is given below;

a. To ensure the safe operation, integrity and reliability of the grid.

b. That the basic rules for connectivity are complied with in order to treat all users in a non-discriminatory manner.

c. Any new or modified connections when established, shall neither suffer unacceptable effects due to its connectivity to the grid, nor impose unacceptable effects on the system of any other connected user or STU.

d. Any person seeking a new connection to the state grid is required to be aware, in advance, of the procedure for connectivity to the state grid and also the standards and conditions his system has to meet for being integrated into the grid.

e. In the absence of grid connectivity regulations of APERC / TSERC the standard procedure for connectivity to the grid will be prepared based on the CERC connectivity regulations.

12. **Safety Standard**

i) The applicable safety requirements for construction, operation and maintenance of electrical plants and electric lines shall be as per the Indian Electricity Rules 1956 or the standards notified by the authority under clause (c) of Section 73 of the Act, 2003:

ii) CEA has been assigned the responsibility to specify applicable safety requirements for construction, operation and maintenance of electrical plants and electric lines as per the Act, 2003.

iii) Further, CEA's standards / regulations for wind generators specifying the requirement of LVRT and all other regulations specified by the competent authority shall also be applicable to all the users.

Harmonic Distortion:

iv) All the persons connected to the grid or intending to connect to the state grid shall ensure that, the total harmonic distortion for voltage at the connection point shall not exceed 5% with no individual harmonic higher than 3% and the total harmonic distortion for current drawn from the transmission system at the connection point shall not exceed 8%.

13. **Application for connection**

13.1. The application for establishing new arrangement or modifying existing arrangement of connection to and / or use of the In-STS shall be submitted by the concerned transmission licensee or user as per below guidelines.

Case I: For connectivity to a generator, application may be submitted to the state transmission utility / transmission licensee or respective DISCOM depending on the voltage level.

Case II: for connectivity to a transmission licensee / DISCOM, application may be submitted to STU.

Case III: For connectivity to a bulk load consumer, application may be submitted to the respective DISCOM irrespective of voltage level.

Provided that the standard format for application mentioned in the clause 13.1 shall be prepared by STU and shall be made available on its website within two (2) months of notification of this regulation.

13.2. The application mentioned in clause 13.1 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 State Grid Code, Indian Electricity Rules and various standards including grid connectivity standards made pursuant to the Act, 2003.

13.3. The STU shall forward a copy of the application to the transmission licensee in whose system the connection is being sought, to SLDC and to every transmission licensee within the state whose transmission system is likely to be affected by such application.

13.4. The STU or transmission licensee may carry out the power system studies as considered appropriate before allowing any new connection.

13.5. The STU shall, within thirty (30) days, from the receipt of an application under clause 13.1 and after considering all suggestions and comments received by the parties identified under clause 13.3 in accordance with CERC (grant of connectivity, long term open access and medium term open access in inter-state transmission and related matters) Regulation, 2009 including amendments made from time to time.

(a) accept the application with such modification or such conditions as may be specified 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 this regulation.

13.6. In case of acceptance of an application as per sub- clause (a) of clause 13.5, 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.

13.7. The voltage level at which the applicant has offered to be connected to the In-STS shall be governed by the standards notified by the Authority and prevailing guidelines adopted by the STU.

13.8. The 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.

13.9. The 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 In- STS.

14. **Metering Requirement**

14.1. With regard to type, standards, ownership, location, accuracy class, installation, operation, testing and maintenance, access, sealing, safety, meter reading and recording, meter failure or discrepancies, anti- tampering features, quality assurance, calibration and periodical testing of meters, additional meters and adoption of new technologies in respect of meters for correct accounting, billing and audit of electricity, the regulation issued by CEA under Section 55 read with section 177 of the Act, 2003 shall be binding on users including open access users, licensees, generators connecting to the in-STS including the persons connected to 33 kV bus at distribution substation.

14.2. If the existing metering is of better accuracy than the one specified in clause 14.1, the same may be used without alteration.

14.3. In case the existing metering system is not complying with the CEA standards, all licensees and generators shall comply with such standards within a period of 6 months. The Commission reserves the right to extend the above 6 months' time period based on the submission made by the licensees to its satisfaction.

14.4. The associated equipment of metering shall not be inferior to the installed meters. The installation of metering and associated equipment lies with the concerned DISCOM at the cost of users.

15. **Connection Agreement**

15.1. (i) A connection agreement shall be signed by the applicant with the STU, or with the DISCOM as per the below mentioned guidelines.

(a) **Case I:** A generator, may enter into a connection agreement with the STU / transmission licensee or respective DISCOM depending on the voltage level.

(b) **Case II:** A transmission licensee / DISCOM, may enter into connection agreement with the STU.

(c) **Case III:** A DISCOM consumer (bulk load consumer) may enter into connection agreement with the respective DISCOM irrespective of the voltage level in accordance with the prevailing APERC regulation until

framing of regulation by TSERC.

(ii) The connection agreement shall include, the following information in the terms and conditions, relating to the connection of the user or transmission licensee to the In-STS:

(a) a condition requiring both parties to comply with the State Grid Code, IEGC specified by CERC and all other regulations concerning standards of grid connectivity, safety and security notified by the Authority;

(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;

(f) Protection systems;

(g) System recording instruments;

(h) Communication facilities; and

(i) Any other information considered appropriate by the STU or the Commission.

15.2. (i) The STU shall prepare a model connection agreement within one month of notification of this regulation in the official gazette and place it before the Commission for approval. Upon approval by the Commission, the same shall be signed by the users within 3 months.

(ii) SLDC shall inform the progress of new projects inter-connecting with ISTS in advance so as to enable the CTU to coordinate installation of meters, SCADA data integration, speech and protection etc.

16. **Grid Parameter Variations**

16.1. The transmission licensees and users shall ensure that plant and apparatus requiring service from or providing service to the In-STS is of such design and construction that ensures satisfactory operation of such plant and apparatus which will not be obstructed 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 effect on the In-STS.

16.2. **Frequency Variation**

16.2.1. Rated frequency of the system shall be 50.0 Hz and operating frequency shall normally be controlled within the limits in strict conformity with IEGC specified by the CERC, and any other regulations as may be specified by the appropriate authority from time to time.

16.3. **Voltage Variation**

The variations of voltage may not be more than the voltage range specified in the regulations framed by the Commission

17. **Equipment at Connection Points**

17.1. **Sub-station Equipment**

17.1.1. All the extra high voltage (EHV) sub-station equipment shall comply with the requirements under the Bureau of Indian Standards / International Electro Technical Commission / prevailing code of practice.

17.1.2. All the 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.

17.1.3. Each connection between a user and In-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.

17.2. **Fault Clearance Times**

17.2.1. The fault clearance time for primary protection schemes, when all equipment operates correctly, for a three phase fault close to the bus-bars on users' equipment directly connected to In-STS and for a three phase fault close to the bus-bars on In-STS connected to users' equipment, shall not be more than:

a. 100 mille seconds for 800 kV class and 400 kV

b. 160 mille seconds for 220 kV and 132 kV/110 kV

17.2.2. The back-up or secondary protection shall be provided for required isolation / protection in the event of failure of the primary protection systems provided to meet the above fault clearance time requirements. If a generating unit is connected to the In-STS directly, it shall be capable of withstanding, until clearing of the fault by back-up protection on the In-STS side.

17.3. **Protection**

17.3.1. The protection systems shall be provided by all transmission licensees and users to isolate the faulty equipment and protect the other components against all types of faults, internal / external to them, within the specified fault clearance time with reliability, selectivity and sensitivity:

Provided that all users or transmission licensees shall establish protection systems as specified in the connection agreement or as specified by the competent Authority under the provisions of the Act, 2003.

17.3.2. Relay setting coordination shall be done at state level in coordination with the STU and with SRPC, if required.

17.3.3. All the substations of 220 kV and above shall have bus bar protection scheme, over flux, under voltage, over voltage relays and any other protection recommended by Regional PSCC of SRPC / STU.

17.3.4. The users shall provide information to SLDC regarding the installation and healthiness of the protective equipment like df / dt relays etc., reactive compensation on UFR monthly basis.

17.4. **Reactive Power Compensation**

17.4.1. The reactive power compensation and / or other facilities shall be provided by users, as far as possible, in the areas prone to low or high voltages systems thereby avoiding the need for exchange of reactive power to / from the In-STS and to maintain the In-STS voltage within the specified range at all times. Their healthiness and operation as per real time requirement shall be ensured by the user or STU.

17.4.2. The line reactors may be provided to control temporary over voltage within the limits as set out in connection agreements.

17.4.3. The additional reactive compensation to be provided by the user shall be indicated by STU in the connection agreement for implementation.

17.4.4. The users shall endeavour to minimize the reactive power drawl at an interchange point when the voltage at that point is below 97% of rated voltage and shall not inject reactive power when the voltage is above 103% of rated voltage. Interconnecting transformer taps at the respective drawl points may be changed to control the reactive power interchange as per user's request to the SLDC, but only at reasonable intervals.

17.4.5. (a) Switching in / out of all 400 kV bus and line reactors throughout the grid shall be carried out as per instructions of SLDC. Tap changing on all 400 / 220 kV interconnecting transformers shall also be done as per the instructions of SLDC only.

(b) The person already connected to the grid shall also provide additional reactive compensation as per the quantum and time frame decided by the SLDC.

17.4.6. The payment of charge for VARs shall be at a nominal paisa / KVArh as specified by the CERC from time to time and will be between beneficiary and state pool account for VAr exchanges. The generating station shall change generator transformer taps and generate / absorb reactive power as per the instructions of SLDC with in capability limits of the respective generating units that is without sacrificing the active generation required at that time. No payments shall be allowed to be paid to the generating stations for such VAr generation / absorption at the generating stations.

17.4.7. The VAr exchanges between two beneficiaries on the interconnecting lines owned by them either singly or jointly will be as per the provisions of the CERC, IEGC 2010 as amended from time to time.

17.4.8. Notwithstanding anything in the above, SLDC may direct a beneficiary to curtail its VAr drawl / injection in case the security of the grid or safety of any equipment is endangered.

17.4.9. All the hydro stations, combined cycle gas turbine (CCGT) and liquid fuel stations shall compulsorily have black start facilities. All stations at 220 kV and above shall have synchronizing facilities.

18. **Communication Facilities**

18.1. All the users and transmission licensees including the STU shall provide the required facilities at their respective ends as specified in the connection agreement:

Provided that the equipment / devices for communication and data exchange shall be provided considering the guidelines of SLDC, the interface requirements and other such guidelines / specifications as applicable.

18.2. Reliable and efficient speech and data communication systems shall be provided to the SLDC to facilitate necessary communication and data exchange, and supervision / control of the state grid by the SLDC, under normal and abnormal conditions.

18.3. It is the responsibility of the STU and transmission licensees, users including the DISCOMs to provide the necessary system operation parameters as specified by the SLDC on real time / online basis making use of the state of the art technology (data acquisition & communication) for effective operation of the state grid in coordination with the regional grid.

18.4. The SLDC shall ensure reliable communication channel with RLDC. The SLDC shall install and maintain voice logging systems for recording telephonic instructions and information shall be maintained for six months.

Explanation: For this purpose and also for storing old data beyond six months, the SLDC and all other stakeholders as may be required may provide suitable storage facilities using the latest data storage technology available at the relevant time.

18.5. All the generators should provide dedicated internet, land line telephone connection and fax facility for communication with SLDC.

Explanation: In providing the above facilities there should be second and backup facility to meet exigencies in case of existing system failure due to any technological reasons beyond the control of the stakeholders.

18.6. The generators including captive / co-generation plants shall make arrangement to provide online data to the SLDC by installing suitable RTUs / SCADA facility at their cost.

18.7. All the open access users should provide details of their email id / land line phone connection, mobile connection / fax number, of at least two authorized

representatives of their entity for the purpose of communicating any direction / information from the SLDC / DISCOMs, for immediate implementation.

Provided that the said information may preferably be comprising of at least one person at management level and another person at the field operation.

19. **System Recording Instruments**

19.1. The recording instruments such as data acquisition system / disturbance recorder / event logger / fault locator (including time synchronization equipment) shall be provided in the In-STS for recording of dynamic performance of the system.

19.2. All the users and transmission licensees shall provide all the requisite recording instruments as specified in the connection agreement in accordance with the agreed time schedule.

20. **Responsibilities for operational safety**

The transmission licensees and the users shall be responsible for safety as indicated in site responsibility schedules for each connection point.

20.1. **Site Responsibility Schedule**

20.1.1. The site responsibility schedule shall be produced by the concerned transmission licensees and the user detailing the ownership responsibilities of each, before execution of the project or connection, including safety responsibilities.

20.1.2. The site responsibility schedule shall be developed 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:

(i) Ownership of the plant / apparatus;

(ii) Responsibility for control of the plant / apparatus;

(iii) Responsibility for operation of the plant / apparatus;

(iv) Responsibility for maintenance of the plant / apparatus; and

(v) Responsibility for all matters relating to safety of any persons at the connection point.

20.1.3. The format, principles and basic procedure to be used in the preparation of site responsibility schedules shall be formulated by STU within three (3) months of notification of this regulation in the official gazette and shall be provided to each user and transmission licensee for compliance:

Provided that the STU shall put up the information related to the above mentioned format, principles and procedures on its website.

20.2. **Single Line Diagrams**

20.2.1. For the purpose of this clause

(1) The single line diagram forming part of SCADA of SLDC under the switch yard layout of a sub-station or the generating station and is always required by the SLDC for switching operations. Therefore, the transmission licensee / STU has to provide the same to SLDC as and when changes are made.

(2) The single line diagrams of renewable energy plants (which come under REC mechanism) and captive power plants shall be routed through SLDC before granting approval by the concerned DISCOM / transmission utility.

20.2.2. The single line diagram shall include all High Tension (HT) connected equipment and the connections to all external circuits and incorporate numbering, nomenclature and labelling.

20.2.3. In the event of a proposal to change any equipment, the concerned user or transmission licensee shall intimate the necessary changes to STU and to all concerned. Single line diagram shall be updated appropriately by the concerned user or transmission licensee and a copy of the same shall be provided to the STU.

20.2.4. The changes so brought about as necessitated shall be in conformity with the Act, 2003 and regulations issued thereunder including but not limited to this regulation.

20.3. **Site Common Drawings**

20.3.1. The site common drawings shall be prepared for each connection point and will include the following information: (i) site layout; (ii) electrical layout; (iii)

details of protection / control; and (iv) common services drawings.

20.3.2. The detailed 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.

20.3.3. In 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 the other party as soon as possible.

20.3.4. The changes so brought about as necessitated shall be in conformity with the Act, 2003 and regulations issued thereunder including but not limited to this regulation.

21. **Access at Connection Site**

21.1. 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 at the connection site for installation, operation, maintenance, etc.

21.2. The written procedures and agreements shall be prepared between transmission licensee 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.

PART D: METERING CODE

22. The metering code shall be as per CEA (Installation and Operation of Meters) Regulations, 2006 as amended from time to time.

Provided that till the time the aforesaid requirements are developed and approved by the Commission, the provisions of prevailing relevant statutes shall be applicable.

23. In addition to CEA metering code, recommendation of Scheduling, Accounting, Metering and Settlement of Transactions (SAMAST) on metering provisions shall also be considered such as 5 minutes time block, metering with AMR facilities etc.

PART E: SYSTEM OPERATING CODE

24. **Operating conditions**

24.1. The SLDC shall supervise the overall operation of the In-STS.

24.2. The SLDC shall prepare the necessary document and maintain the detailed operating procedures for managing the state grid. The internal operating procedures shall include the following:

(i) Black start procedures;

(ii) Load shedding procedures;

(iii) Islanding procedures; and

(iv) Any other procedures considered appropriate by the SLDC:

Provided that such procedures shall be prepared in consultation with SRPC and RLDC:

Provided further that such procedures shall be submitted within **six (6)** months from the date of notification of this regulation in the official gazette, to the Commission for approval.

24.3. The control rooms of the SLDC including sub-load despatch centres, power plants, substations of 132 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. All the personnel at SLDC and Sub LDC shall undergo manpower certification system as per norms set by Government of India.

25. **System security aspects**

25.1. All the 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.

25.2. No part of the state grid shall be deliberately isolated from the rest of the In-STs except,

(i) under an emergency~~,~~ and conditions in which such isolation will prevent a total grid collapse and / or will enable early restoration of power supply;

(ii) when serious damage to a costly equipment is imminent and such isolation will prevent it;

(iii) When such isolation is specifically instructed by the SLDC.

(iv) In case of opening / removal of any important element of the state grid under an emergency situation, the same shall be communicated to SLDC at the earliest possible time after the event.

(v) For safety of human life.

25.3. Complete 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.

25.4. No important element of the state grid shall be deliberately opened or removed from service at any time, except when specifically instructed by SLDC or with specific and prior clearance of 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 and shall be available on the SLDC website.

Explanation: The list of grid elements prepared by the SLDC shall be placed on the website of the SLDC for common knowledge of all the stakeholders.

25.5. Any tripping, whether manual or automatic, of any of the elements of the state grid, referred in clause 25.4, shall be precisely intimated by the concerned transmission licensee or user to the SLDC at the earliest point of time that is within 10 minutes. 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.

25.6. A 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 specified by the manufacturer. When instructed by SLDC, the unit shall maximize the reactive power generation / absorption as per its capability curve to the extent possible.

25.7. A generating unit shall be provided with an Automatic Voltage Regulator, protective devices and safety devices, as set out in connection agreement.

25.8. (a) The 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.

(b) Each 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 all coal / lignite based generating units of 200 MW and above and all hydro units of 50 MW and above and open cycle gas turbine / combined cycle generating stations having gas turbines of capacity more than 50 MW each is required to be operated without its governor in normal operation, the SLDC shall be immediately informed about the reason and duration of such operation.

(c) There should not be any reduction in generation in case of improvement in grid frequency below 50.00 Hz. (For example, if grid frequency changes from 49.9 Hz to 40.95 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.

25.9. The facilities 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.

25.10. Each 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 all coal / lignite based generating units of 200 MW and above and all hydro units of 50 MW and above and open cycle gas turbine combined cycle generating stations having gas turbines of capacity more than 50 MW each is required to be operated without its governor in normal operation, the SLDC shall be immediately informed about the reason and duration of such operation.

25.11. The recommended rate for changing the governor setting that is 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) percent per minute or as per manufacturer’s limits. All the generators

mentioned in clause (25.10) shall be operated under Restricted Governor Mode of Operation (RGMO). For the purpose of ensuring primary response, SLDC shall not schedule the generating station or units thereof beyond ex-bus generation corresponding to 100% of the installed capacity of the generating station or units thereof. The generators shall not resort to Valve Wide Open (VWO) operation of units whether running on full load or part load and shall ensure that there is a margin available for providing governor action as primary response.

25.12. Except 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 specified by the SLDC, without prior intimation to and consent of the SLDC. Similarly, no user shall cause a sudden increase in its load by more than a limit as specified by the SLDC, without prior intimation to and consent of the SLDC.

25.13. All 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 shall be obtained.

25.14. The power system stabilizers in Automatic Voltage Regulator of generating units, with capacity of over fifty (50) MW 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.

25.15. The provision of protections and relay settings shall be coordinated periodically throughout the state grid~~,~~ as per a plan to be separately finalized by the Protection Committee / SRPC.

25.16. The SLDC in coordination with RLDC, users and transmission licensees shall make all possible efforts to ensure that the grid frequency always remains within the frequency band of 49.90 to 50.5 or as specified by IEGC from time to time, the frequency range within which steam turbine conforming to the

IEGC specifications can safely operate continuously.

25.17. The users and transmission licensees shall provide automatic load shedding / islanding schemes by means of installation of under-frequency and df / dt relay-settings 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 by the SRPC and shall ensure its effective application to prevent cascade tripping of generating units in case of any contingency.

25.18. The users and transmission licensees shall ensure that the under-frequency and df / dt relay-based load shedding / islanding schemes, mentioned in Regulation 25.17 are always functional:

Provided that the relays may be temporarily kept out of service, in extreme contingencies, with prior consent of SLDC.

25.19. The STU shall carry out periodic inspection of the under frequency relays and produce the report to SLDC. The SLDC shall maintain the record of under frequency relay and / or df / dt relay operation.

25.20. The users and transmission licensees shall facilitate identification, installation and commissioning of system protection schemes including inter-tripping and run-back, as finalized by the SRPC, in the power system to protect against situations including voltage collapse and cascading:

Provided that such schemes shall be prepared by STU after due consultations with the SLDC, users and other transmission licensees.

25.21. Each user and transmission licensee shall provide adequate and reliable communication facility internally and with the SLDC, other users and 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 users.

25.22. (a) The user and transmission licensee shall send the requested information / data including disturbance recorder / sequential event recorder output etc. to SLDC within 3 days for the 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.

(b) Maintenance of their respective power system elements shall be carried out by users, STUs in accordance with the provisions of CEA Grid Standards 2010.

25.23. The hydro generators having capability to operate in condenser mode are required to do so under instructions from SLDC.

25.24. All the users and SLDC shall take all possible measures to ensure that the grid frequency remains within the frequency band as specified by CERC from time to time.

25.25. **Special requirement for Solar / Wind Generation:-** SLDC shall make all efforts to evacuate the available power from solar and wind power projects and treat the plants as must-run stations. However, SLDC may instruct such generator to back down generation in case of grid security and the generators mentioned above shall comply with the same. For this the data acquisition system facility shall be provided by the generator for transfer of information to the SLDC. Wind generators during start up shall ensure that the reactive power drawl (inrush of currents in case of induction generators) shall not affect the grid performance.

25.26. The hydro generators having capability to operate in pump mode are required to do so under instructions from SLDC.

25.27. The SLDC, user and transmission licensees shall make all possible efforts to ensure that the grid voltage always remains within the following operating range: Voltage –

RMS Voltage (KV)

Nominal	Maximum	Minimum
765	800	728
400	420	380
220	245	198
132	145	122
66	72	60
33	36	30

26. **Demand forecast**

26.1. (a) All the users / DISCOMs shall prepare methodologies / mechanisms for daily / weekly / monthly / yearly demand estimation for current year for operational purposes. Based on this demand estimate and the estimated availability from different sources, the demand management efforts like load generation balance shall be planned and ensured that the same is implemented by the DISCOMs / all users.

(b) All the users / DISCOMs shall provide relevant data to SLDC from time to time. SLDC shall maintain historical database of transmission<>distribution (T<>D) interface points wise grid demand, and generator wise injection data, power deficit / surplus data at grid level, for the purpose of reasonably validating the short term forecasts submitted by the users / DISCOMs.

26.2. 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 the procedures as well as time lines to be followed for exchange of information between the concerned entities for arriving at the estimates / forecasts:

Provided that the SLDC shall refer to the demand forecast considered by the STU while preparing the transmission system plan under clause 8 of this regulation to give effect to the above provision.

26.3. The 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.

26.4. The STU shall conduct monthly system study of the network on the peak demand reached to facilitate system improvement of the network. Similar studies shall be conducted for reactive power compensation only to consider enhancing by redeployment of reactive sources on a quarterly basis.

26.5. (a) Based on demand estimate and the estimated availability from different sources, the SLDC shall plan the demand management measures like load generation balance and shall ensure that the same is implemented by the DISCOMs.

(b) While the demand estimation for operational purposes is to be done on a daily / weekly / monthly basis initially, the mechanism and facilities at SLDC shall be created within one year to facilitate on line estimation of demand for daily operational use for each 15 minutes time block or any other time block as may be specified by the Commission from time to time.

26.6. All the DISCOMs shall abide by the demand management measures of the SLDC and shall also maintain historical database for demand estimation.

27. **Demand / Drawl Management**

27.1. (a) This section is concerned with the provisions to be made by SLDC to effect a reduction of demand in the event of insufficient generating capacity and inadequate transfers from external interconnections to meet demand or in the event of breakdown or congestion in inter / In-STS or other operating problems such as frequency, voltage levels beyond normal operating limit or thermal overloads, etc. or over-drawl of power vis-à-vis of the regional entities beyond the limits mentioned in deviation settlement mechanism regulation of CERC and its amendments.

(b) The users shall generally endeavour to restrict their actual drawl within their respective target drawl schedules / aggregate contracted demand from various sources of supply including open access issued by the SLDC. The SLDC shall at any point of time, shall direct the concerned users to effect manual load shedding to curtail over-drawl, if it feels that the grid operation and security is endangered. Frequency as per IEGC as amended from time to time shall be maintained.

Provided further that the directions of SLDC shall be applicable and such directions shall include the time period or the system conditions stipulated therein.

(c) The DISCOMs / OA users / licensees shall regularly carryout the necessary exercise regarding short-term from 1 day to up to 52 weeks estimation of their demand that they are entitled and the available generation, so as to take-up necessary steps to meet the shortage or to manage curtailment, without overdrawing from the grid.

27.2. **Demand Management Protocol**

(i) Within one month of this regulation coming into force, all the DISCOMs / deemed licensees / distribution license exemptees, shall set up a centre to be known as Load Monitoring and Control Centre (LMCC) at their headquarters to monitor the usage of electricity in the area of operation vis-à-vis their allocated generation / quota of drawl on real time basis and to coordinate and assist the SLDC in properly monitoring the state grid and implementing the load shedding / power cuts as and when necessitated and comply with the directions of SLDC from time to time.

(ii) The SLDC / DISCOMs and bulk consumers shall initiate action to restrict the drawl from the grid within the net drawl schedule whenever the system frequency falls below frequency specified by CERC from time to time.

(iii) The SLDC / DISCOM and bulk consumer shall ensure that the requisite load shedding is carried out in its area so that there is no over drawl when frequency is below the limit specified by CERC from time to time.

(iv) Each of the user / transmission licensee / STU / DISCOMs shall formulate contingency procedures and make arrangements that will enable the demand disconnection to take place as instructed by the SLDC under normal and / or contingent conditions. These contingency procedures and arrangements shall regularly be updated by user / STU / transmission licensee and monitored by SLDC. The SLDC may direct any user / STU / transmission licensee / DISCOM to modify the above procedures / arrangement, if required, in the interest of the grid security and the concerned user / STU / transmission licensee / DISCOMs shall abide by these directions.

(v) The SLDC through respective LMCs of DISCOMs shall also formulate and implement the state-of-the-art demand management schemes for automatic demand management like rotational load shedding, demand response which may include lower tariff for interruptible loads etc. A report detailing the scheme and periodic reports on progress of implementation of the schemes shall be sent to the Commission by the SLDC.

Provided the Commission in general or specific instances upon perusal of the report direct the SLDC to take any corrective steps as may be necessary in the interest of the grid stability and integrity.

(vi) In order to maintain the frequency within the stipulated band and maintaining the network security, the interruptible loads shall be arranged in four groups of loads 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 identified at the state level. These loads shall be grouped in such a manner, that there is no overlapping between different groups of loads. In case of certain contingencies and / or threat to system security, the SLDC may direct DISCOMs or bulk consumer connected to the In-STS to decrease drawl of its control area by a certain quantum. Such directions shall immediately be acted upon and compliance report shall be submitted to SLDC.

(vii) The SLDC shall devise standard instantaneous message formats in order to give directions in case of contingencies and / or threat to the system security due to deviation from schedule by all users in the case of different over drawl / under drawl / over injection / under injection conditions depending upon the severity. The concerned users shall ensure immediate compliance with the directions of SLDC and send a compliance report to the SLDC.

Explanation: The SLDC shall place the standard instantaneous message formats on its website after preparing them for general knowledge of the stakeholders, who are expected to comply with them whenever they are given.

(viii) All the users including generating stations, DISCOMs or bulk consumer / transmission licensees shall comply with the direction of SLDC and carry out requisite load shedding or backing down of the generation in case of congestion in transmission system to ensure safety and reliability of the system. The procedure for application of measures to relieve congestion in real time as well as provisions of withdrawal of congestion shall be in accordance with CERC (Measures to relieve congestion in real time operation) Regulation, 2009 and amendments made to it from time to time.

(ix) The measures taken by the user's, SLDC, DISCOM or bulk consumer shall not be withdrawn as long as the frequency remains at a level lower than the limits as specified in clause 27.2 (iii) or congestion continues, unless specifically permitted by the SLDC.

27.3. (a) In case of certain contingencies and / or threat to system security, the SLDC may direct users to decrease their drawls and such users shall act upon such directions immediately:

Provided that if such contingency is caused by the intra state open access user, the SLDC may direct the concerned drawl entity of such open access transaction to decrease their drawls and such drawl entities shall act upon such directions immediately;

Provided that any non-compliance with such directions shall be dealt with as per provisions of clause 60 of this regulation.

(b) All operational instructions given by SLDC shall have unique codes which shall be recorded and maintained as specified in CEA (grid standards) Regulation, 2010 as amended from time to time.

27.4. The users shall make all such necessary arrangements that will enable manual disconnection to take place as instructed by the SLDC.

27.5. **Load crash:** In the event of load crash in the system due to weather disturbances or any other reason, the situation would be controlled by SLDC duly following the system security aspects as per provisions of clause 5.2 of IEGC.

28. **Reports**

28.1. A weekly report shall be prepared by SLDC and placed on its website to inform about the performance of the state grid for the previous week. The weekly report shall contain the following: (i) frequency profile; (ii) voltage profile of selected substations; (iii) demand and supply situation; (iv) major generation and transmission outages; (v) transmission constraints; and (vi) instances of persistent / significant non-compliance of State Grid Code (vii) action taken in respect of any issue for that week or in respect of any issues that arose in the previous weeks.

Provided that the weekly report shall be available on the website of SLDC for at least twelve (12) weeks, after twelve (12) weeks the same shall be available in the archives of the website:

Provided further that a copy of such report shall be made available to any user or transmission licensee on request.

28.2. The 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. It shall also place on the record any information relating to action taken by it under section 33 of the Act, 2003 relating to the said quarter and also the details of the results of the action taken by it in respect of earlier quarters.

28.3. The SLDC shall give operational feedback to the STU with a copy to the Commission, once in every three months with regard to overloading of various transmission elements and may suggest suitable remedial measures to be taken.

Provided that the Commission may, in appropriate specific cases, require SLDC to take specific remedial action in accordance with the Act, 2003.

29. **Operational Liaison**

29.1. **Operations and events on the State Grid**

29.1.1. (a) The SLDC shall, before any operation is carried out on the 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.

(b) The SLDC shall, immediately following an event on the 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.

29.2. Operations and events on Users' or Transmission Licensees' System

29.2.1. Before 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.

29.2.2. The user 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 occurrence of the event. However, the transmission licensee (including the STU) is required to submit a detailed report within 48 hours duly mentioning the reasons for such event~~,~~ to SLDC and the Commission without fail.

30. **Outage planning and coordination**

30.1. All the users and transmission licensees shall provide SLDC with their proposed outage programmes in writing for the next financial year by 15th September of each year. The same 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.

30.2. The SLDC shall come out with a draft outage programme for the next financial year by 31st January of each year, for the commencing financial year for the state grid duly co-ordinating with regional outage planning in consultation with the RLDC and the SRPC.

Provided that outage plan shall be prepared after giving due considerations to system security and reliability and shall be such that the extent of unmet system demand on account of such a plan is kept to a minimum. However, while preparing the plan the SLDC shall keep in mind the expected growth in demand as also the likely availability of the power generation in the next financial year:

Provided further that in case of hydro generating stations such a plan shall also endeavour to maximize the utilization of water for purpose of power generation subject to applicable constraints related to alternate use of such water mainly for drinking and irrigation purposes. Outage of wind generation should be planned during the period when wind generation is expected to be

at bear minimum and outage of solar if required to be planned preferably during rainy season.

30.3. The transmission outage planning shall be harmonized with generation outage planning and distribution system outage planning shall be harmonized with generation and transmission outage planning by taking into consideration the load growth and meeting of demand at the relevant time period, so as to obviate the situation of complete outage of the system.

30.4. The final outage plan shall be intimated to all the users and transmission licensees latest by 15th February of each year:

Provided that the SLDC shall finalise the outage plan in consultation with the user and transmission licensee:

Provided further that the above annual outage plan shall be reviewed by SLDC on monthly basis in coordination with all the stakeholders concerned and adjustments made wherever found to be necessary to meet not only the demand but also avoid system constraints.

30.5. Each of the user or transmission licensee shall, at least one month prior to availing an outage at 400 kV level line as per the planned schedule, inform the SLDC about the same and obtain prior approval from the SLDC in that regard. The STU shall also provide one year ahead planning for all the maintenance schedule of elements coterminous with the RLDC practices. In respect of 220 kV / 132 kV level, each user or transmission licensee shall at least two (2) weeks prior to availing an outage as per the planned schedule, inform the SLDC and obtain prior approval from the SLDC in that regard.

30.6. The SLDC shall have the authority to defer any planned outage in case of occurrence of following events:

(i) major grid disturbances (e.g. total black out);

(ii) system isolation;

(iii) 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.

30.7. In case of emergency in the system, which may include events like loss of generation, breakdown of transmission line, grid disturbances and system

isolation, the SLDC may appropriately review the situation before clearance of the planned outage. Every user and STU shall obtain the final approval from SLDC / RLDC before availing an outage.

31. **Recovery Procedures**

31.1. Detailed plans and procedures for restoration after partial / total blackout shall be finalized by SLDC in coordination with the RLDC, users and transmission licensee.

31.2. The procedure shall be reviewed, confirmed and / or revised once every subsequent year. The training programs including workshops / MOCK TRIAL RUNS 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 in every six months. The diesel generator sets for black start would be tested on weekly basis and test report shall be sent to SLDC on quarterly basis. The monthly report on healthiness of synchroscopes shall be intimated by the concerned sub-stations to SLDC.

31.3. The list of generating stations with black start facility, inter-state / inter regional ties, synchronizing p**o**ints and essential loads to be restored on priority, shall be prepared by and be available with SLDC.

31.4. The 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.

31.5. All the communication channels required for restoration process shall be used for operational communication only till grid normalcy is restored.

Provided that in case of situation explained above, a comprehensive report shall be placed before the Commission along with recommendations, if any with a copy to the transmission licensees, generators and other users.

32. **Event information**

32.1. **Reportable Events**

32.1.1. Any of the following events shall require reporting by user / transmission licensee or SLDC as the case may be:

(i) Violation of security standards;

(ii) Grid indiscipline;

(iii) Non-compliance of SLDC's instructions;

(iv) System islanding / system split;

(v) Black out / partial system black out;

(vi) Protection failure on any element of intra-state transmission system;

(vii) Power system instability; and

(viii) Tripping of any element of the state grid.

(ix) Sudden load rejection by any user.

(x) Incomplete generation affecting the grid.

32.2. **Reporting Procedure**

32.2.1. The user or transmission licensee, after having initially reported about the event orally and not later than 10 minutes to the SLDC, shall provide a written report within one (1) day of the occurrence of the event to the SLDC in accordance with clause 32.1.1.

32.2.2. The SLDC, after having initially reported about the event orally to the users / transmission licensees, shall provide a written report within three (3) working days of the occurrence of the event to the concerned users / transmission licensees in accordance with clause 32.1.1.

32.2.3. A written report shall be sent to SLDC or users / transmission licensees, as the case may be, and shall confirm the oral notification / communication together with the following details of the event:

(i) Time and date of the event;

(ii) Location;

(iii) Plant and / or equipment directly involved;

(iv) Description and cause of the event;

(v) Antecedent conditions like line flows, bus voltage

(vi) Demand and / or generation (in MW) interrupted and duration of interruption;

(vii) All relevant system data including copies of records of all recording instruments including disturbance recorder, event logger and data acquisition system;

(viii) Sequence of tripping with time;

(ix) Details of relay flags; and

(x) Remedial measures undertaken or proposed to be undertaken by it.

(xi) Weather condition during the incident.

(xii) Brief description of the incident.

(xiii) If the event is the consequence of happening of external action not directly within the control of the user or transmission licensee, then suggestions regarding remedial measures to be taken by the SLDC or any other stakeholders.

32.2.4. The events affecting a generation capacity or a load of more than 2000 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, to the extent and probable causes of the event shall be sent across to the Commission within 48 hours of occurrence of such event.

32.2.5. **Reporting Form**

The standard reporting form other than for accidents shall be as agreed from time to time by the grid code review panel.

32.2.6. **Accident Reporting**

(a) The report of accidents shall be in accordance with the section 161 of the Act, 2003 and the rules framed thereunder. The report of accidents and failure of supply or transmission of electricity shall be in the specified form to the Commission and the Electrical Inspector.

(b) On receipt of report by the Electrical Inspector or on his own motion, the Electrical Inspector shall submit an independent report on the incident to the government with a copy to the Commission as practically as possible and not later than fifteen (15) days.

33. State Load Despatch Centre

33.1. Objectives of the State Load Despatch Centre

(a) The operation and management of In-STS is an important and often conflicting with interest of several stakeholders. The SLDC plays the most important role in the despatch of the generation of power and which regularly

requires addressing a number of complex issues.

(b) The functions of SLDC have been articulated in the Act, 2003. However, it is important to define the underlying objectives of SLDC, which are sought to be achieved through the functions as enumerated therein. The objectives of SLDC have been defined as under:

i. To ensure reliable power supply, within available generation capacity, to all consumers located at all points of the system;

ii. To ensure active / reactive power drawl from central grid as per IEGC and other regulations of CERC

iii. To ensure frequency and voltage conditions within the permissible limits;

iv. To supply power in the most economic manner possible; and

v. To limit the duration and extent of repercussions due to faults and restore normal functioning of the network as soon as possible.

33.2. The procedures and processes prepared by SLDC, in discharge of its functions under the provisions of this regulation, shall clearly provide for the following aspects wherever applicable.

(i) Roles and responsibilities of the sub-load despatch centres

(ii) Communication facilities between the SLDC and the sub-load despatch centres;

(iii) Information flow between SLDC and sub-load despatch centres; and

(iv) Any other aspect considered appropriate by the SLDC or the Commission.

34. **State Load Despatch Centre, Transmission Licensees and Users**

34.1. The procedures and processes prepared by SLDC, in discharge of its functions under the provisions of this regulation, shall clearly provide for the following aspects, wherever applicable:

(i) Roles and responsibilities of the SLDC, users and transmission licensees;

(ii) Information flow between the SLDC, users and transmission licensees; and

(iii) Any other aspect considered appropriate by the SLDC or the Commission.

PART F: SCHEDULING AND DESPATCH CODE

35. This regulation deals with the procedures to be adopted for scheduling of the state generating stations, net drawls of DISCOMs and~~,~~ net injection / drawls of concerned intra state open access entities on a daily basis with the modality of the flow of information between the RLDC / SLDC / DISCOMs and open access entities. The procedure for submission of capacity declaration by each state generating station and submission of requisition / drawl schedule by the DISCOMs and open access users is intended to enable SLDC to prepare the despatch schedule for each interstate generating station and drawl schedule for each state entity. It also provides methodology of issuing real time dispatch / drawl instructions and rescheduling, if required, to state entities along with the commercial arrangement for the deviations from the schedules. The provisions contained in this chapter are without prejudice to the powers conferred on SLDC under sections 31 and 32 of the Act, 2003.

36. To maintain harmony and consistency with the scheduling and dispatch procedure of inter-state transactions as the power system of the state is operating in synchronism with the regional power system for the purpose of this section, scheduling and dispatch procedure as specified by the CERC in the IEGC issued and amended from time to time under clause (h) of Section 79 of the Act, 2003 shall be followed.

37. The provisions of the scheduling regulation shall be read with the provisions of the intra-state deviation settlement mechanism as and when specified by the Commission.

38. (a) The state generating stations, DISCOMs, transmission licensees including the STU, intrastate open access users and captive generating plants operating in parallel with transmission network and any other users as specified by the Commission from time to time shall have to follow the directions of the SLDC in the matter of scheduling and dispatch of power generation and drawl in the state. The roles and responsibilities of state generating stations / DISCOMs and open access users shall be similar to interstate generating stations and beneficiaries as provided in the IEGC as specified by CERC and by the Commission from time to time.

(b) Every generator other than wind and solar generators which is connected to the state grid at 33 kV and above, shall be required to give day-ahead generation schedules on a 15 minute time block basis or any other time block as specified by the Commission and generate according to such schedules. The SLDC is entitled to issue any dispatch instruction in accordance with the prevailing grid security / stability conditions at that point of time and the generators are required to abide by such instructions.

39. For wind and solar energy generators, the provisions of TSERC (Forecasting, Scheduling, Deviation Settlement and related matters for Solar and Wind Generation Sources) Regulations, 2018 as amended from time to time, shall be applicable in total.

Explanation: In case of inconsistency between the two regulations, both the regulations shall be harmoniously read so as to give effect to both the provisions to the extent possible in case of such a construction not being possible, the regulation which is later in time of notification shall prevail.

40. The SLDC / STU in coordination with the DISCOMs shall regularly carry out the necessary exercises regarding short-term demand estimation for their respective areas of operation, to enable themselves to plan in advance as to how they would meet their consumers' load without overdrawing from the grid.

41. The SLDC shall issue practice directions to all the users in respect of manner and timing of submission of day ahead, drawl / injection schedules along with such other information as may be required for consolidating the same and issue the target drawl / injection schedules for the next day starting at 00:00 Hrs.

42. The SLDC shall periodically review the actual deviation from dispatch and net drawl schedule being issued to check whether any of constituents are indulging in unfair gaming or collusion. In case of any such practice is detected, the matter should be reported to the Commission for further investigation / action.

Provided that the SLDC shall initiate a proper proceeding before the Commission under the relevant provisions of the Act, 2003 in accordance with Conduct of Business Regulation, 2015 of the Commission, if it is of the view

that the Commission is required to determine the issues relating to the dispute that have arisen 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 sub-section (1) of section 33 of the Act, 2003.

43. While finalizing the drawl and dispatch schedules as above, the SLDC shall check that the resulting power flows in the In-STS do not give rise to any transmission constraints. In case any impermissible constraints are foreseen, the SLDC shall moderate the schedules to the extent required under intimation to the state entities. Any changes in the scheduled quantum of power which are too fast or involve unacceptably large steps may be converted into suitable ramping up or down of the generation by the SLDC.

44. The generation schedules / drawl schedules issued / revised by the SLDC shall become effective from designated time block that is quarter hourly time period (15 minutes time block or such lesser period as notified by the Commission).

45. (a) All the users / DISCOMs shall always restrict the net drawl from the grid within the drawl schedules keeping the deviations from the schedule within the limits specified in the deviation settlement mechanism regulation as and when specified by the Commission. The concerned DISCOMs / user, SLDC shall ensure that their automatic demand management program acts to ensure that there is no over drawl. If the automatic demand management program has not yet been commissioned, then the action shall be taken as per manual demand management program to restrict the net drawl from the grid within the schedules and all the actions for early commissioning of automatic demand management program (ADMP) shall be initiated.

(b) The state generating stations are normally expected to generate power according to the daily schedules as notified by them barring any inadvertent deviations. The maximum deviation allowed during a time-block shall not exceed the limits as specified in the deviation settlement mechanism regulation.

(c) Such deviations should not cause system parameters to deteriorate beyond permissible limits and should not lead to unacceptable line loadings. The inadvertent deviations, if any, from the ex-power plant generation

schedules shall be appropriately priced in accordance with the deviation settlement mechanism regulation. In addition, the deviation from schedules causing congestion shall also be priced in accordance with the CERC (measures to relieve congestion in real time operation) Regulation, 2009.

46. By 06.00 AM every day, the state generating stations shall inform the SLDC, the station-wise ex - power plant MW and MWh capabilities forecasted for the next day that is from 00:00 hrs to 24:00 hrs of the following day.

47. **Scheduling and Despatch Procedure**

47.1. The availability declaration shall be submitted by all generators to the SLDC as per the specified format by the SLDC.

47.2. The scheduling and despatch procedure for long-term access, medium – term and short-term open access shall be in accordance with IEGC as amended from time to time.

47.3. Each day starting from 00.00 hours will be divided into 96 time blocks of 15 minutes intervals or any other time interval as specified by the CERC.

47.4. By 06:00 Hrs every day all the generating stations including open access generators connected to In-STS in the state~~s~~ shall furnish to the SLDC, the station wise ex-power plant MW and MWh availability as specified by the Commission in the deviation settlement mechanism regulation for each time block of the next day that is from 00.00 hours to 24.00 hours of the following day. For hydro generating station, the declaration shall be made for a period of time of not less than 3 hours within a 24 hours period for pondage and storage type of stations and for the entire day for purely run-of-river type stations. For hydro-generating stations, the declaration should also include limitation on generation during specific time periods, if any, on account of restriction on water use due to irrigation, drinking water, industrial and environmental considerations, etc.

47.5. By 08:00 Hrs each day all transmission open access consumers or any other buyers as specified by the Commission in the deviation settlement mechanism regulation~~s~~ shall furnish their drawl schedule for next day on 15 minute time block basis against bilateral power tentatively and same to be confirmed by 14:00 hrs including the IPP requisitions, which they have

contracted on short term and long term basis and collective transactions for the next day.

47.6. By 08:00 Hrs each day on a day ahead basis, the concerned DISCOM shall furnish the expected generation, including that of all embedded generators of next day, to SLDC in respect of IPP and CPP, and RE generators excluding solar and wind generators which are embedded into distribution system and injecting power directly into distribution system as a consolidated format for all such generating stations for the next day.

47.7. By 09:00 Hrs each day each DISCOM connected to In-STS shall furnish to the SLDC their MW and MU requisition for each 15-minute time blocks for the next day that is from 00:00 hrs to 24:00 hrs of the following day for the next day.

47.8. At 11:00 Hrs, after receipt of information on entitlements of Telangana users in different ISGS from RLDC through website, e-mail / fax etc, the generation schedules of state generators stations, bilateral exchange and other contracted power for day ahead, the SLDC shall review the availability vis-a-vis drawl schedule received from DISCOMs for each time block of 15 minute as per merit order despatch (MOD) principles for the following day and shall assess the shortage / excess for each time block of 15 Minutes.

47.9. The SLDC shall finalize drawl schedule on the basis of following criterion:

a) In case the demand estimate for any 15-minute time block exceeds or equals to the generation availability in that 15-minute time block, the drawl schedule shall be equal to the generation available for that time block.

b) If the generation availability for any 15-minute time block exceeds the demand estimate, the drawl schedule shall be prepared in the following order:

   i. Generation from run-of-river hydro stations.

   ii. Generation from ‘must run’ gas stations, CPPs and nuclear stations.

   iii. CGS, interstate generating stations, state generating stations, firm commitments against bi-lateral contracts based on merit order.

   iv. Generation from other hydel-stations for peaking requirement.

   v. Generation against firm off-take commitment.

   vi. Generation from In-STS thermal / gas generating stations according to variable cost and above the minimum technical limit of the respective

unit.

vii. Generation from CPPs according to variable cost.

The above priority may change based on the principles specified by the Commission in the intra-state deviation settlement mechanism.

47.10. Before 15:00 Hrs, SLDC shall finalize the drawl schedule of interstate generating stations and state generating stations based on review of the availability vis-a-vis drawl schedule received from DISCOMs.

47.11. At 15:00 Hrs each day, SLDC shall furnish to RLDC drawl schedule for interstate generating stations, bilateral interchanges and inter-state open access. SLDC shall ensure that the step increase regarding the interstate generating stations station-wise requisition is not more than 1% of the previous requisition.

47.12. By 18:00 Hrs each day, the RLDC shall convey to SLDC the net drawl schedule of the state in MW for different time block for the next day. The summation of the station-wise ex-power plant drawl schedules for all interstate generating stations and drawl from regional grid consequent to bilateral interchanges, after deducting the transmission losses (estimated), shall constitute the state drawl schedule.

47.13. By 19:00 Hrs, the SLDC shall finalize target dispatch schedules for generators and target drawl schedules including collective transactions and display the same on the website.

47.14. By 21:30 Hrs, revised requisitions from DISCOMs / licensees and revised availability from generators if any shall be communicated to SLDC.

47.15. By 22:00 Hrs, the revised requirement from the interstate generating stations shall be sent to the RLDC by SLDC.

47.16. By 23:00 Hrs the RLDC, after consulting the concerned stakeholders, shall issue the final drawl schedule to SLDC and the final dispatch schedule to each interstate generating stations.

47.17. Immediately, SLDC shall release final generation schedules to state generation stations and drawl schedule to each DISCOMs

47.18. By 23:15 Hrs, SLDC shall finalise the final despatch and drawl schedule and display the same on the website.

47.19. In case the day ahead schedule is not received by 23:15 Hrs, the corresponding schedule communicated at 19:00 Hrs shall be considered as final.

Provided the SLDC shall be allowed to undertake revision or deviation by any stakeholders only in terms of the DSM regulation for conventional sources to be notified by the commission in due course.

48. **Revision of Schedules**

48.1. In the event of any contingency, SLDC will revise the schedules on the basis of revised declared capability by the generators. The revised schedules will become effective from the 4th time block counting the time block in which the revision is advised by the generator to be the first one. The revised declared capability will also become effective from the 4th time block.

48.2. The revision of declared capability by the state generating stations having two part tariff with capacity charge and energy charge (except hydro stations) and requisition by beneficiary / ies for the remaining period of the day shall also be permitted with advance notice. The revised schedules / declared capability in such cases shall become effective from the 4th time-block counting the time block in which the request for revision has been received in the SLDC to be the first one.

48.3. In case of any grid disturbance, scheduled generation of all the state generating stations supplying power under long term / medium term / short term procurement shall be deemed to have been revised to be equal to their actual generation and the scheduled drawls of the beneficiaries / buyers shall be deemed to have been revised accordingly for all the time blocks affected by the grid disturbance. The certification of grid disturbance and its duration shall be done by the SLDC. For bilateral short term and collective transactions, the methodology of settlement of accounts for the period of grid disturbance shall be applicable as per the methodology formulated by National Power Committee (NPC) at regional level which is approved by the Commission

48.4. In the event of bottleneck in evacuation of power due to any constraint, outage, failure or limitation in the transmission system, associated switchyard

and substations owned by STU as certified by SLDC necessitating reduction in generation, the SLDC will revise the schedules which will become effective from the 4th time block counting the time block in which the bottleneck in evacuation of power has taken place to be the first one. Also, during the first, second and third time blocks of such an event, the scheduled generation of the station will be deemed to have been revised to be equal to actual generation and also the scheduled drawls of the beneficiaries / DISCOMs will be deemed to have been revised to be equal to their actual drawls.

48.5. The revision of declared capability by generator(s) and requisition by beneficiaries / DISCOMs for the remaining period of the day will also be permitted with advance notice. The revised schedules / declared capability in such cases shall become effective from the 4th time block counting the time block in which the request for revision has been received by SLDC to be the first one.

48.6. If, at any point of time, SLDC observes that there is need for revision of the schedules in the interest of better system operation, it may do so on its own and in such cases, the revised schedules shall become effective from the 4th time block counting the time block in which the revised schedule is issued by SLDC to be the first one. To discourage frivolous revisions, SLDC may, at its sole discretion, refuse to accept schedule / capability changes of less than 2% of the previous schedule in respect of both generation and drawl.

48.7. The generation schedules and drawl schedules issued / revised by SLDC shall become effective from designated time block irrespective of communication made and received by concerned stakeholders.

48.8. For any revision of scheduled generation, including post facto deemed revision, there shall be a corresponding revision of scheduled drawls of the beneficiaries.

48.9. While finalizing the drawl and despatch schedules as above, the SLDC shall also check that the resulting power flows do not give rise to any transmission constraint. In case any impermissible constraints are forecasted, the SLDC shall moderate the schedules to the required extent, under intimation to the concerned users. Any changes in the scheduled quantum of power which are too fast or involve unacceptably large steps may be converted into suitable

ramping up or down as the case may be by the SLDC.

48.10. On completion of the operating day, of 24.00 hours, the schedule finally implemented during the day taking into account all the changes before the decision of SLDC in despatch schedule of generating stations and drawl schedule of the users shall be issued by SLDC. This schedule shall be the basis for commercial accounting. The average ex-bus capability for each of the generating stations shall also be worked out based on the decision of SLDC.

48.11. The SLDC shall properly document all the above information that is station-wise forecast of ex-power plant capabilities informed by the generating stations, the drawl schedule indented by the beneficiaries / DISCOMs, all schedules issued by the SLDC / ALDCs, and all revisions updating of the above.

Explanation:- For this purpose it is incumbent upon the SLDC to make use of latest information technology tools so as to achieve transparency in its actions and decisions communicated in real time basis.

48.12. The procedure for scheduling and final schedules issued by SLDC, shall be open to all entities for any checking / verification for 5 days. In case any mistake / omission is detected, the SLDC shall forthwith make a complete check and rectify the same.

Explanation:- In doing so the SLDC shall evolve a software application which is web based and integrated in to the system to bring the stakeholders within the ambit of participatory decision making so that the time scheduled above is not deviated upon and decisions are taken expeditiously and transparently while correcting the anomalies.

48.13. A procedure for recording the communication made regarding changes to schedules and also retaining it for a minimum period duly taking into account the time factor shall be evolved by STU.

49. **Reactive Power and Voltage Control**

49.1. With regard to VAR drawl / absorption from interstate grid, the SLDC has to follow provisions of IEGC.

49.2. All the end users, DISCOMs, transmission licensees and STU are expected

to provide local VAR compensation such that they do not draw VARs from the HV grid. The VAR compensation has to commence in the following order.

a) Consumer end

b) Distribution transformer end

c) At the substations end of 33 / 11 KV distribution feeders

d) Substations

e) Generating stations

49.3. While tap changing on all 400 / 220 KV ICTs of CTU shall be done as per the instruction of RLDC, tap changing of other ICTs shall be done as per the instructions of SLDC.

49.4. The beneficiaries shall endeavour to ensure that, there shall not be any reactive power drawl from the network at an interchange point when the voltage at that point is less than 97% of rated voltages and there shall not be any reactive power injection into the network when the voltage is greater than 103%.

49.5. The generating stations shall generate / absorb reactive power as per instructions of SLDC, within the capability limits of the respective generating units.

49.6. Notwithstanding the above, SLDC may direct a beneficiary to curtail its VAR drawl / injection in case the security of grid or safety of any equipment is endangered.

49.7. The penal charges for reactive power drawl at lower voltage limits or incentives for reactive power injection at lower voltage limits shall be applicable as specified by the Commission from time to time vide its regulations, practice directions and orders.

49.8. It shall be incumbent upon the state generating stations to declare the plant capabilities faithfully that is according to their best assessment. In case, it is suspected that they have deliberately over / under declared the plant capability contemplating to deviate from the schedules given on the basis of their capability declarations and thus make money either as undue capacity charge or as the charge for deviations from schedule, the SLDC may ask the state generating stations to explain the situation with necessary backup data.

Provided that the before taking any action against the state generating stations the SLDC may check with the DISCOMs as to any difficulty faced by them in meeting the demand and if so what measures were taken offset the situation.

50. The state generating stations shall be required to demonstrate the declared capability of its generating station as and when asked by the SLDC. In the event of the state generating stations failing to demonstrate the declared capability, the capacity charges due to the generator shall be reduced as a measure of penalty. The quantum of penalty for the first mis-declaration for any duration / block in a day shall be the charges corresponding to two days fixed charges. For the second mis-declaration the penalty shall be equivalent to fixed charges for four days and for subsequent mis-declarations, the penalty shall be multiplied in the geometrical progression over a period of a month.

51. The operating log books of the generating station shall be available for review by the SLDC. These books shall keep record of machine operation and maintenance.

Explanation:- For this purpose, the generator may adopt the latest information technology tools if enabled by the machinery employed and make available such data access to the SLDC on real time basis. This would enable the SLDC to suggest any corrective measure to be taken by the generator in technical operations if found necessary in terms of this regulation for safety and security of the grid.

52. While availability declaration by state generating stations shall have a resolution of one decimal (0.1) MW and one decimal (0.1) MWh, all entitlements, requisitions and schedules shall be rounded off to the nearest two decimals at each control area boundary for each of the transaction and shall have a resolution of 0.01 MW.

53. In case of forced outage of a unit of a generating station having generating capacity of 100 MW or more and selling power under short term bilateral transaction excluding collective transactions through power exchange, the generator or electricity trader or any other agency selling power from the unit of the generating station shall immediately intimate the outage of the unit

along with the requisition for revision of schedule and estimated time of restoration of the unit to the SLDC. The schedule of beneficiaries, sellers and buyers of power from this generating unit shall be revised accordingly. The revised schedules shall become effective from the 4th time-block~~,~~ counting the time block in which the forced outage is declared to be the first one. The SLDC shall inform the revised schedule to the seller and the buyer. The original schedule shall become effective from the estimated time of restoration of the unit. However, the transmission charges as per original schedule shall continue to be paid for two days.

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

Provided that the generator or trading licensee or any other agency selling power from the ~~g~~enerating station or unit(s) thereof may revise its estimated time once in a day and the revision schedule shall become effective from the 4th time-block counting the time block in which revision is informed by the generator to be the first one.

54. Commercial operation of state generating stations and embedded generators.

The procedure in accordance with the relevant provisions of IEGC as amended from time to time will be applicable.

55. **Technical Minimum Schedule for Operation of State Generating Stations and Embedded Generators.**

The procedure in accordance with the relevant provisions of IEGC as amended from time to time will be applicable.

Provided that, in case of old generating station or unit as directed by the SLDC to operate below technical minimum loading as approved by the Commission on account of grid security, the generator may approach the Commission for increase in operating parameters above the norms or any additional cost incurred if any, at time of truing up.

Provided the Commission may consider the same on a case to case basis, subject to prudence check.

Provided further that in case a generating station or unit is required to comply with the directions of SLDC and operate below the normative loading but above the technical minimum requirement as per this regulation, the same shall be complied with.

Provided further that the generating station or unit is required to operate the plant pursuant to the directions of SLDC on account of the grid security or due to lower schedule given by the beneficiaries, leading to increase in parameters above the norms or otherwise, which is being non-compliant of Bureau of Energy Efficiency (BEE) standards based on generation backing down or partial loading operation or both arose, resulting in penalties that may be imposed by the BEE, the same shall be contested and complied with based on the orders of the said bureau. However, to satisfy the requirement of this regulation the said generating station / unit shall approach the Commission on the issue for a prudent check.

56. **Ancillary services operation:** The CERC Regulation No. 14 of 2015 on ancillary services operation along with amendments from time to time will be applicable while giving effect to the provisions of the regulation.

57. **Treatment of Infirm Power:** i) The treatment of infirm power produced during testing period by the generating stations shall be treated in accordance with the Commission's on open access regulations and regulations for intra-state deviation settlement mechanism as and when notified by the Commission.

ii) However, till such time in the absence of the any specific regulation on any specific issue, guidance can be derived to the extent possible from the subsisting regulations of the Commission as also if necessary of the CERC, to the extent the subsisting regulations are silent on the issue.

58. The provisions of clauses 47 to 57 are subjected to the provisions of 'TSERC Intra-State DSM Framework' as and when it is notified by the Commission.

PART G: MISCELLANEOUS

59. **Dispute resolving mechanism**

In the event of any dispute regarding interpretation of any provision of the State Grid Code or rules and procedures notified under the provisions of the State Grid Code, the matter will be decided by the Commission according to Section 33 of the Act.

Provided that for this purpose the aggrieved person shall be entitled to file a proper petition before the Commission by following the Conduct of Business Regulation, 2015 being regulation No. 2 of 2015 and Levy of Fee for Rendering Services Rendered by the Commission Regulation, 2016 being regulation No. 2 of 2016.

Provided that the Commission may initiate such suo moto proceedings as may be necessary in the event of it having come to the conclusion based on reports of the of the SLDC or RLDC that action needs to be taken against any of the stakeholders in terms of sec 33 of the Act, 2003 by exercising the powers vested in it thereof and by invoking the Conduct of Business Regulation, 2015 being regulation No. 2 of 2015 and Levy of Fees for Rendering Services Rendered by the Commission Regulation, 2016 being regulation No. 2 of 2016, where such fee if required to be levied is to be decided at the end of the proceeding as to who shall pay the same.

60. **Compliance**

60.1. The STU shall be responsible for monitoring the compliance of the users and transmission system licensees with the provisions, contained in PART B, PART C, PART D, PART E and PART F of this regulation and along with the rules and procedures prepared under such provisions:

Provided that the STU shall not unduly discriminate against or unduly prefer any user or transmission licensee.

60.2. (a) The SLDC shall be responsible for monitoring the compliance of the users and transmission system licensees with the provisions contained in PART E and PART F of this regulation and along with the rules and procedures prepared under such provisions:

(b) The SLDC shall exercise such powers, supervision and control as

conferred on it vide section 33 of the Act, 2003, required for ensuring the integrated grid operations and for achieving the maximum economy and efficiency in the operation of power system in the state,

Provided that the SLDC shall not unduly discriminate against or unduly prefer any user or transmission licensee.

60.3. In case of repeated non-compliance with the provisions of State Grid Code and / or with the rule and procedures prepared under the provisions, the matter shall be reported to the Commission.

Provided that the SLDC shall have such power as conferred by Act, 2003 and shall be at liberty to invoke the Commission's jurisdiction to initiate proceedings thereof in accordance with the provisions of this regulation.

60.4. (a) All the directions issued by the SRLDC to any transmission licensee or any other licensee of the state or generating company other than those connected to interstate 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 by the licensee or generating company or sub-station.

(b) The 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 in accordance with Act, 2003 and this regulation.

60.5. Every transmission licensee and user connected with the operation of the power system shall comply with the direction issued by the SLDC under clause 44.5 of this regulation.

60.6. Subject to provision of this regulation, if 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 clause 60.0 of this regulation, the procedure as contemplated under clause 59 of this regulation shall be invoked.

Provided that pending the decision of the Commission, the direction of the SLDC shall be complied with by the transmission licensee or user.

60.7. Consistent failure to comply with the provisions of the grid code or with the rule and procedures prepared under the provisions of this regulation, by the user or transmission licensee, may lead to disconnection of the plant and / or

apparatus of such user or transmission licensee.

61. Nothing contained in clause 61 of this regulation shall in any manner impact the powers conferred upon the Commission to monitor and enforce compliance of the users and transmission system licensees with the provisions of State Grid Code and with the rules and procedures prepared under the provisions of this regulation.

62. In case of non-compliance of any provisions of the State Grid Code by SLDC, transmission licensee, STU, DISCOMs, state generating station and all other users of the intra state grid and any other person(s) the matter may be reported by any person to the Commission through a petition by following the Conduct of Business Regulation, 2015 being regulation No. 2 of 2015 and Levy of Fees for Rendering Services Rendered by the Commission Regulation, 2016 being regulation No. 2 of 2016.

63. **Power to amend**

The Commission may, at any time, vary, alter, modify or amend any provisions of this regulation.

64. **Power to remove difficulties**

If any difficulty arises in giving effect to the provisions of this regulations, the Commission may, by general or specific order, make such provisions not inconsistent with the provisions of the Act, 2003, as may appear to it to be necessary and expedient for removing such difficulty duly following the procedure contemplated under the Act, 2003 and regulations in vogue.

65. **Repeal and savings**

1) The Telangana State Electricity Regulatory Commission (adoption of previously subsisting regulations, decisions, directions or orders, licences and practice directions) Regulation, 2014 (Regulation No. 1 of 2014) to the extent relating to:

The General Code, The Planning Code, The Connection Code, The Metering Code and The Operation Code as amended from time to time stand repealed on and from the date this regulation is published in the official gazette for the State of Telangana to the extent relating to the

matters covered in this regulation adopted under Regulation No. 1 of 2014.

2) Anything done or any action taken or purported to have been done or taken including any rule, notification, inspection, order or notice made or issued or any appointment, confirmation or declaration made or any licence, permission, authorization or exemption granted or any document or instrument executed or any direction given under the repealed regulation shall, insofar as it is not inconsistent with the provisions of this regulation, be deemed to have been done or taken under the corresponding provisions of this regulation shall be deemed to be not invalid by virtue of such repeal.

(BY ORDER OF THE COMMISSION)

Sd/-

UMAKANTA PANDA
COMMISSION SECRETARY (FAC)
Telangana State Electricity
Regulatory Commission

Hyderabad

Date: 18.12.2018.