

TAMIL NADU ELECTRICITY REGULATORY COMMISSION

Draft Notification No.TNERC/GC/13- –..... dated .03.2022

(Comments invited by 21.04.2022)

The following draft of amendments to the Tamil Nadu Electricity Grid Code, which it is proposed to make in exercise of the powers conferred by section 181 read with clause (h) of sub-section (1) of section 86 of the Electricity Act, 2003 (Central Act 36 of 2003) and all other powers enabling it in this behalf, is hereby published for information of all persons likely to be affected thereby, as required by sub section (3) of section 181 of the said Act.

2. Notice is hereby given that the draft amendment will be taken into consideration after expiry of thirty days from the date of publication of this Notification in the TNERC website and that any objection or suggestion, which may be received from any person before the expiry of the aforesaid period will be considered by the Commission.

3. Objection or suggestion, if any, should be addressed in duplicate to the Secretary, Tamil Nadu Electricity Regulatory Commission, 4th Floor, SIDCO Corporate Office Building, Thiru Vi Ka Industrial Estate, Guindy, Chennai – 600 032 and a soft copy of the comments sent to tnerc@nic.in.

AMENDMENTS

In the said Grid Code,-

(1) in regulation 2,

(a) for the item Nos. 17 and 45 and the definitions set out thereto, the following shall be substituted, namely:-

“17 Connection point - A point at which an agency’s Plant and/or Apparatus connects to the Intra State Transmission/Distribution System.

45 National Grid - the entire inter-connected electric power network of the country;

(b) following new items and definitions thereto shall be inserted after item Nos. 20,21,28,36,45,50,52,58,65,69 and definitions thereto respectively, namely:-

‘20A Date of Commercial Operation or 'COD' shall have the same meaning as provided in Sub-Regulation 8.7.1, 8.7.2, and 8.7.4 of these Regulations.

21A Deviation Settlement Mechanism Regulations - Central Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations/TNERC Deviation Settlement Mechanism Regulations, as may be applicable, and as amended from time to time.

28A Ex-Power Plant - net MW/MWh output of a generating station, after deducting auxiliary consumption and transformation losses.

36A Independent Power Producer (IPP) - a generating company not owned/ controlled by the Central/State Government;

45A Operating range - the operating range of frequency and voltage as specified under the operating code.

50A *Power Exchange* - the power exchange which has been granted registration in accordance with CERC (Power Market Regulations), 2010 as amended from time to time;

52A *Regional Entity* - such persons who are in the RLDC control area and whose metering and energy accounting is done at the regional level;

58A *State Entity* - such person who is in the SLDC control area and whose metering and energy accounting is done at the State level;

65A *Technical Minimum Schedule* in respect of intra-State Generating Stations shall have the same meaning as provided in Sub-Regulation 8.8 of these Regulations

69A *Trial Operation or Trial Run* shall have the same meaning as provided in Sub-Regulation 8.7.3 and 8.7.5 of these Regulations.

(2) in regulation 3, in sub-regulation(5), in clause (i), the following expression shall be inserted after the expression ‘Tamil Nadu Electricity Distribution Code’, namely:-

“ Indian Electricity Grid Code ”

(3) in regulation 5,

(a) in sub-regulation (7), in clause (a),

**(l) in sub clause(i) the following shall be added after the expression ‘-
Outage of single Interconnecting Transformer’, namely:-**

“- Outage of a 765 kV single circuit

- Outage of one pole of HVDC bipole”

(II) in sub-clause (ii), in the first sentence, after the expression ‘or 400 kV S/C line’ and before the expression ‘in another corridor’ the following may be inserted, namely,:-

“ or 765 kV S/C”

(b) in sub regulation (8),

(I) in clause (iv), above sub clause (a), the following shall be inserted, namely,:-

“(b) 765 kV sub-station: One and a half breaker scheme or double main and transfer bus bar scheme.”

(II) for clause (xvii) and entries relating thereto, the following clause and entries relating thereto shall be substituted, namely,:-

“xvii) The stuck breaker condition in the sub-station shall cause disruption of not more than four feeders in 110 kV or 230 kV system, not more than two feeders in 400 kV and not more than one feeder in 765 kV.”

(4) in regulation 6,

(a) in sub-regulation(7), in clause (i), for the expression ‘Generating stations includingSTU’, the following shall be substituted, namely,-

“(i) Generating Stations including IPPs: Generating stations Switchyard Voltage may be at the level of 765, 400, 230 and 110 kV or as agreed to by the STU.”

(b) in sub-regulation(17), in clause (d), in sub-clause (i) before the heading ‘400 kV Lines/UG Cables’ following shall be inserted, namely:-

(i) ‘765 kV Lines’

(5) in regulation 7,

(a) in sub-regulation 3, for clauses (v) to (xii) and clause(xix) and entries relating thereto, the following clauses and entries relating thereto shall be substituted, namely,-

“(v) All Coal/lignite based thermal generating units of 200 MW and above, Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of capacity more than 50 MW each and all hydro units of 25 MW and above irrespective of their ownership, shall have their governors in operation at all times in accordance with the following provisions:

Governor Action

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

a) Coal/lignite based thermal generating units of 200 MW and above,

1) Software based Electro Hydraulic Governor (EHG) system :

2) Hardware based EHG system

b) Hydro units of 25 MW and above

(c) Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of capacity more than 50 MW each

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

a) There should not be any reduction in generation in case of improvement in grid frequency to a level below 50.00 Hz. (For example, if grid frequency changes from 49.9 to 49.95 Hz, or from 49.95 to 49.99 Hz there shall not be any reduction in generation). For any fall in grid frequency, generation from the unit should increase as per generator droop upto a maximum of 5% of the generation subject to ceiling limit of 105% of the MCR of the unit having regard to machine capability.

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

c) If any of these generating units is required to be operated without its governor in operation as specified above, the SLDC shall be immediately advised about the reason

and duration of such operation. All governors shall have a droop setting of between 3% and 6%.

d) After stabilisation of frequency around 50 Hz, provisions regarding the restricted governor mode of operation and free governor mode of operation as made by CERC shall apply.

*iii) All other generating units including the pondage upto 3 hours, wind and solar generators and Nuclear Power Stations shall be **exempted from Sections 5.2 (v) ,5.2 (vi), 5.2 (vii) and 5.2(viii)** till the Commission reviews the situation.*

Provided that if a generating unit cannot be operated under restricted governor mode operation, then it shall be operated in free governor mode operation with manual intervention to operate in the manner required under restricted governor mode operation.

(vi) Facilities available with/in load limiters, Automatic Turbine Runup System (ATRS), Turbine supervisory control, coordinated control system, etc., shall not be used to suppress the normal governor action in any manner and no dead bands and/or time delays shall be deliberately introduced except as specified in para 5.2(v) above.

Provided that periodic checkups by third party should be conducted at regular interval once in two years through independent agencies selected by SLDCs. The cost of such tests shall be recovered by the SLDC from the Generators. If deemed necessary by SLDC, the test may be conducted more than once in two years.

(vii) All coal/lignite based thermal generating units of 200 MW and above, Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of more than 50 MW each and all hydro units of 25 MW and above operating at or up to 100% of their Maximum Continuous Rating (MCR) shall have the capability of (and shall not in any way be prevented from) instantaneously picking up to 105%, 105% and 110% of their MCR, respectively, when the frequency falls suddenly.

For the purpose of ensuring primary response, SLDC shall not schedule the generating station or unit(s) thereof beyond exbus generation corresponding to 100% of the Installed capacity of the generating station or unit(s) thereof. The generating station 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 margin available for providing Governor action as primary response. In case of gas/liquid fuel based units, suitable adjustment in Installed Capacity should be made by SLDC for scheduling in due consideration of prevailing ambient conditions of temperature and pressure vis-à-vis site ambient conditions on which installed capacity of the generating station or unit(s) thereof have been specified:

Provided that scheduling of hydro stations shall not be reduced during high inflow period in order to avoid spillage;

Provided further that the VWO margin shall not be used by SLDC to schedule Ancillary Services;

(viii) The recommended rate for changing the governor setting, i.e., supplementary control for increasing or decreasing the output (generation level) for all generating units, irrespective of their type and size, would be one (1.0) per cent per minute or as per manufacturer's limits.

(ix) Except under an emergency, or to prevent an imminent damage to a costly equipment, no User shall suddenly reduce his generating unit output by more than one hundred (100) MW without prior intimation to and consent of the SLDC. Similarly, no User shall cause a sudden variation in its load by more than one hundred (100 MW) without prior intimation to and consent of the SLDC.

All users shall ensure that temporary over voltage due to sudden load rejection and the maximum permissible values of voltage unbalance shall remain within limits specified under Central Electricity Authority (Grid Standards) Regulations, 2010.

(x) All generating units shall normally have their automatic voltage regulators (AVRs) in operation. In particular, if a generating unit of over fifty (50) MW size is required to be operated without its AVR in service, the SLDC shall be immediately intimated about the reason and duration, and its permission obtained. Power System Stabilizers (PSS) in AVRs of generating units (wherever provided), shall be got properly tuned by the respective generating unit owner as per a plan prepared for the purpose by the STU/SPC from time to time. STU /SPC will be allowed to carry out checking of PSS and further tuning it, wherever considered necessary.

(xi) Provision of protections and relay settings shall be coordinated periodically throughout the State grid, as per a plan to be separately finalized by the SPC Secretariat.

SPC Secretariat shall also prepare islanding schemes and ensure its implementation in accordance with Central Electricity Authority (Grid Standards) Regulations, 2010. All users shall ensure that installation and operation of protection system shall comply with the provisions of Central Electricity Authority (Grid Standards) Regulations, 2010.

(xii) All Users, and SLDC shall take all possible measures to ensure that the grid frequency always remains within the 49.9 –50.05 Hz band. Maintenance of their respective power system elements shall be carried out by users, STUs in accordance with the provisions in Central Electricity Authority (Grid Standards) Regulations,2010.

(b) in sub-regulation 3, for clause(xix) and entries relating thereto, the following clause and entries relating thereto shall be substituted, namely:-

(xix) All Entities/Users shall take all possible measures to ensure that the grid voltage always remains within the following operating range.

<i>Voltage –(kV rms)</i>		
<i>Nominal</i>	<i>Maximum</i>	<i>Minimum</i>
<i>765</i>	<i>800</i>	<i>728</i>
<i>400</i>	<i>420</i>	<i>380</i>
<i>230</i>	<i>255</i>	<i>210</i>

110	120	100
66	72	60
33	36	30

They shall provide adequate voltage control measures through voltage relay as may be finalized by SPC, to prevent voltage collapse and shall ensure its effective application to prevent voltage collapse/ cascade tripping.

Voltage fluctuation limits and voltage wave-form quality shall be maintained as specified in Central Electricity Authority (Grid Standards) Regulations, 2010.”

(c) in sub-regulation 4, for clause (i) , the following shall be substituted, namely;-

“i. Power drawing entities shall endeavor to restrict their net drawal from the Grid to within their respective drawal schedules. The SLDC/Distribution Licensee shall ensure that requisite load shedding is carried out in their control area so that there is no overdrawal. Such load shedding shall be pre-planned for each level of under frequency. The SLDC through Distribution Licensees shall also formulate and implement state of the art demand management schemes for automatic demand management like rotational load shedding, demand response(which may include lower tariff for uninterruptible loads) etc to reduce overdrawal.”;

(6) in regulation 8,

(a) in sub-regulation (2)(a) at the end of the present regulation, the following shall be added, namely,-

“Keeping in view the variable nature of generation from wind and solar energy sources and the effect such variability has on the intrastate grid, and in view of the large-scale integration of such sources into the grid envisaged in view of the Government of India’s thrust on renewable sources of energy, wind and solar generators are required to be scheduled as envisaged in the Forecasting, Scheduling and Deviation Settlement mechanism and Related Matters Regulations 2019.”

(b) in sub-regulation (3), in clause (a), the expression “according to In force” shall be substituted by the expression, namely,-

“in compliance with the Commission’s regulations on Deviation Settlement Mechanism for conventional and renewable sources of energy for wind and solar.”

(c) in sub-regulation (3), in clause (c), for the expression “Despatch instructions shall be in Annexure D1”, the following shall be substituted, namely,-

“(c) Despatch instructions shall be in Annexure format D1 and in compliance with the Commission’s regulations on Deviation Settlement Mechanism for conventional and renewable sources of energy for wind and solar.”;

(d) in sub regulation (4), after sub-regulation (6) and entries relating thereto, the following sub-regulations (7) and (8) and entries relating thereto shall be inserted, namely,-

“(7) Commercial operation of intra-State Generating Stations

1. Date of commercial operation in case of a unit of thermal Generating Stations shall mean the date declared by the generating company after demonstrating the unit capacity corresponding to its Maximum Continuous Rating (MCR) or the Installed Capacity (IC) or Name Plate Rating on designated fuel through a successful trial run and after getting clearance from the SLDC, and in case of the generating station as a whole, the date of commercial operation of the last unit of the generating station:

Provided that:

(i) Where the beneficiaries/buyers have been tied up for purchasing power from the generating station, the trial run or each repeat of trial run shall commence after a notice of not less than seven days by the generating company to the beneficiaries/buyers and SLDC.

(ii) Where the beneficiaries/buyers have not been tied up for purchasing power from the generating station, the trial run or each repeat of trial run shall commence after a notice of not less than seven days by the generating company to the SLDC.

(iii) The generating company shall certify that: (a) The generating station meets the relevant requirements and provisions of the technical standards of Central Electricity

Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 and TN Electricity Grid Code, as applicable:

(b) The main plant equipment and auxiliary systems including Balance of Plant, such as Fuel Oil System, Coal Handling Plant, DM plant, pre-treatment plant, fire-fighting system, Ash Disposal system and any other site specific system have been commissioned and are capable of full load operation of the units of the generating station on sustained basis.

(c) Permanent electric supply system including emergency supplies and all necessary instrumentation, control and protection systems and auto loops for full load operation of unit have been put in service.

(iv) The certificates as required under clause (iii) above shall be signed by the CMD/CEO/MD of the generating company and a copy of the certificate shall be submitted to the Member Secretary of the concerned State Power Committee and the SLDC before declaration of COD. The generating company shall submit approval of Board of Directors to the certificates as required under clause (iii) within a period of 3 months of the COD.

(v) Trial run shall be carried out in accordance with Regulation 7.3 of these Regulations.

(vi) Partial loading may be allowed with the condition that average load during the duration of the trial run shall not be less than Maximum Continuous Rating or the

Installed Capacity or the Name Plate Rating excluding period of interruption and partial loading but including the corresponding extended period.

(vii) Where on the basis of the trial run, a unit of the generating station fails to demonstrate the unit capacity corresponding to Maximum Continuous Rating or Installed Capacity or Name Plate Rating, the generating company has the option to de-rate the capacity or to go for repeat trial run. Where the generating company decides to de-rate the unit capacity, the demonstrated capacity in such cases shall be more or equal to 105% of de-rated capacity.

(viii) The SLDC, , shall convey clearance to the generating company for declaration of COD within 7 days of receiving the generation data based on the trial run.

(ix) If the SLDC, notices any deficiencies in the trial run, it shall be communicated to the generating company within seven (7) days of receiving the generation data based on the trial run.

(x) Scheduling of power from the generating station or unit thereof shall commence from 0000 hrs after declaration of COD.

2. Date of commercial operation (COD) in relation to a generating unit of hydro generating station including pumped storage hydro generating station shall mean the date declared by the generating company after demonstrating peaking capability corresponding to the Installed Capacity of the generating station through a successful trial run, and after getting clearance from the SLDC, and in relation to the generating

station as a whole, the date of commercial operation of the last generating unit of the generating station.

Provided that:

(i) Where beneficiaries/buyers have been tied up for purchasing power from the generating station, trial run or each repeat of trial run shall commence after a notice of not less than seven days by the generating company to the beneficiaries/buyers and SLDC.;

(ii) Where the beneficiaries/buyers have not been tied up for purchasing power from the generating station, the trial run shall commence after a notice of not less than seven days by the generating company to SLDC.;

(iii) The generating company shall certify that:

(a) The generating station or unit thereof meets the requirement and relevant provisions of the technical standards of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 and Indian Electricity Grid Code, as applicable:

(b) The main plant equipment and auxiliary systems including Drainage Dewatering system, Primary and Secondary cooling system, LP and HP air compressor, Firefighting system, etc. have been commissioned and are capable for full load operation of units on sustained basis.

(c) Permanent electric supply system including emergency supplies and all necessary Instrumentations Control and Protection Systems and auto loops for full load operation of the unit are put into service.

(iv) The certificates as required under clause (iii) above shall be signed by the CMD/CEO/MD of the generating company and a copy of the certificate shall be submitted to the Member Secretary of the SLDC, before declaration of COD. The generating company shall submit approval of Board of Directors to the certificates as required under clause (iii) within a period of 3 months of COD.

(v) Trial run shall be carried out in accordance with sub-Regulation 7.3 of this Regulation.

(vi) Where on the basis of the trial run, a unit of the generating station fails to demonstrate the unit capacity corresponding to Maximum Continuous Rating or Installed Capacity or Name Plate Rating, the generating company shall have the option to either de-rate the capacity or to go for repeat trial run. If the generating company decides to de-rate the unit capacity, the demonstrated capacity in such cases shall be more or equal to 110% of de-rated capacity

(vii) In case a hydro generating station with pondage or storage is not able to demonstrate the peaking capability corresponding to the installed capacity for the reasons of insufficient reservoir or pond level, the date of commercial operation of the last unit of the generating station shall be considered as the date of commercial operation of the generating station as a whole, and it will be mandatory for such hydro

generating station to demonstrate peaking capability equivalent to installed capacity of the generating station or unit thereof as the case may be, as and when such reservoir/pond level is achieved:

(viii) If a run-of-river hydro generating station or a unit thereof is declared under commercial operation during lean inflows period when the water inflow is insufficient for such demonstration of peaking capability, it shall be mandatory for such hydro generating station or unit thereof to demonstrate peaking capability equivalent to installed capacity as and when sufficient water inflow is available. In case of failure to demonstrate the peaking capacity, the unit capacity shall be de-rated to the capacity demonstrated with effect from the COD.

(ix) The SLDC shall accord clearance to the generating company within seven (7) days of receiving the generation data based on the trial run.

(x) If the SLDC notices any deficiency in trial run, it shall be communicated to the generating company within seven (7) days of receiving the generation data based on trial run.

(xi) Scheduling shall commence from 0000 hrs after declaration of COD.

3. Trial Run or Trial Operation: *Trial Run or Trial Operation in relation to a thermal Generating Station or a unit thereof shall mean successful running of the generating station or unit thereof on designated fuel at Maximum Continuous Rating or Installed*

Capacity or Name Plate Rating for a continuous period of 72 hours and in case of a hydro Generating Station or a unit thereof for a continuous period of 12 hours:

Provided that:

(i) The short interruptions, for a cumulative duration of 4 hours, shall be permissible, with corresponding increase in the duration of the test. Cumulative Interruptions of more than 4 hours shall call for repeat of trial operation or trial run.

(ii) The partial loading may be allowed with the condition that average load during the duration of the trial run shall not be less than Maximum Continuous Rating, or the Installed Capacity or the Name Plate Rating excluding period of interruption and partial loading but including the corresponding extended period

(iii) Where the beneficiaries have been tied up for purchasing power from the generating station, the trial run or each repeat of trial run shall commence after a notice of not less than seven days by the generating company to the beneficiaries and SLDC.

(iv) Units of thermal and hydro Generating Stations shall also demonstrate capability to raise load upto 105% or 110% of this Maximum Continuous Rating or Installed Capacity or the Name Plate Rating as the case may be.

4. Date of commercial operation in relation to an intra-State Transmission System or an element thereof shall mean the date declared by the transmission licensee from 0000 hour of which an element of the transmission system is in regular service after successful

trial operation for transmitting electricity and communication signal from the sending end to the receiving end:

Provided that:

(i) In case of intra-State Transmission System executed through Tariff Based Competitive Bidding, the transmission licensee shall declare COD of the intraSTS in accordance with the provisions of the Transmission Service Agreement.

(ii) Where the transmission line or substation is dedicated for evacuation of power from a particular generating station and the dedicated transmission line is being implemented other than through tariff based competitive bidding, the concerned generating company and transmission licensee shall endeavour to commission the generating station and the transmission system simultaneously as far as practicable.

(iii) Where the transmission system executed by a transmission licensee is required to be connected to the transmission system executed by any other transmission licensee and both transmission systems are executed in a manner other than through tariff based competitive bidding, the transmission licensee shall endeavour to match the commissioning of its transmission system with the transmission system of the other licensee as far as practicable.

5. Trial run and Trial operation in relation to a transmission system or an element thereof shall mean successful charging of the transmission system or an element thereof for 24 hours at continuous flow of power, and communication signal from the sending

end to the receiving end and with requisite metering system, telemetry and protection system in service enclosing certificate to that effect from State Load Dispatch Centre.

6. Date of commercial operation in relation to a communication system or an element thereof shall mean the date declared by the transmission licensee from 0000 hour of which a communication system or element thereof shall be put into service after completion of site acceptance test including transfer of voice and data to the control centre as certified by the State Load Dispatch Centre.

7. In the event of inconsistency between the provisions relating to trial operation and commercial operation as specified in Sub-Regulation 7.1 to 7.6 of these regulations and the provisions of Commissions (Terms and Conditions of Tariff) Regulations, 2005 and its amendments, the provisions of these regulations shall prevail.

(8) Technical Minimum Schedule for operation of intra-State Generating Stations

1. The technical minimum for operation in respect of a unit or units of a Generating Station shall be 55% of MCR loading or installed capacity of the unit of at generating station.

2. The intra SGS may be directed by SLDC to operate its unit(s) at or above the technical minimum but below the normative plant availability factor on account of grid security or due to the fewer schedules given by the beneficiaries.

3. Where the intra SGS, whose tariff is either determined or adopted by the Commission, is directed by the SLDC to operate below normative plant availability factor but at or

above technical minimum, the intra SGS may be compensated depending on the average unit loading duly taking into account the forced outages, planned outages, PLF, generation at generator terminal, energy sent out ex-bus, number of start-stop, secondary fuel oil consumption and auxiliary energy consumption, in due consideration of actual and normative operating parameters of station heat rate, auxiliary energy consumption and secondary fuel oil consumption etc. on monthly basis duly supported by relevant data verified by SLDC. The compensation shall be calculated in accordance to the provisions in the Commission's tariff regulations.

(7) in regulation 9, in sub-regulation (2), clause (ix) shall be omitted.

(By the order of the Tamil Nadu Electricity Regulatory Commission)

(S.Chinnarajalu)
Secretary

EXPLANATORY STATEMENT

The Commission notified the State Grid Code, namely Tamil Nadu Electricity Grid Code(TNEGC) in Notification No. TNERC/GC/13/1 Dated 19.10.2005 that came into effect from 14 December 2005. The Central Commission upon notification of the Indian Electricity Grid Code(IEGC) 2010 has introduced various amendments to the IEGC 2010. Provisions like declaring date of commercial operation, conducting trial run of generators, system planning for 765 kV circuits available in the IEGC are proposed to be incorporated in the State Grid Code. The amendments proposed to the TNEGC are for the purpose of efficient supervision, grid control and efficient operation of the power system in the State.

(By the order of the Tamil Nadu Electricity Regulatory Commission)

(S.Chinnarajalu)
Secretary

STATEMENT SHOWING EXISTING PROVISION AND PROVISION AS AMENDED

Tamil Nadu Electricity Grid Code

Existing provision (1)	Provision as amended (2)
<p>2. Glossary and Definitions</p> <p>17. <i>Connection point - A point at which an agency's Plant and/or Apparatus connects to the Intra State Transmission System</i></p> <p>18.xxx</p> <p>..</p> <p>20 ...</p> <p>21 xxx</p> <p>28 xxx</p>	<p>2. Glossary and Definitions</p> <p>17. <i>Connection point - A point at which an agency's Plant and/or Apparatus connects to the Intra State Transmission/Distribution System.</i></p> <p>18.xxx</p> <p>..</p> <p>20</p> <p>20A <i>Date of Commercial Operation or 'COD' shall have the same meaning as provided in Sub-Regulation 8.7.1, 8.7.2, and 8.7.4 of these Regulations</i></p> <p>21 xxx</p> <p>21A <i>Deviation Settlement Mechanism Regulations - Central Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations/TNERC Deviation Settlement Mechanism Regulations, as may be applicable, and as amended from time to time.</i></p> <p>28 xxx</p> <p>28A <i>Ex-Power Plant - net MW/MWh output of a generating station, after deducting auxiliary consumption and transformation losses.</i></p>

<p>36 xxx</p> <p>....</p>	<p>36 xxx</p> <p>36a <i>Independent Power Producer (IPP) - a generating company not owned/controlled by the Central/State Government;</i></p>
<p>44....</p> <p>45 <i>National Grid- The entire inter-connected electric power network of the country, which would evolve after inter-connection of regional grids.</i></p>	<p>44....</p> <p>45 <i>National Grid - the entire inter-connected electric power network of the country;</i></p> <p>45A <i>Operating range - the operating range of frequency and voltage as specified under the operating code.</i></p>
<p>50 xxx</p>	<p>50 xxx</p> <p>50A <i>Power Exchange - the power exchange which has been granted registration in accordance with CERC (Power Market Regulations), 2010 as amended from time to time;</i></p>
<p>51 xxx</p>	<p>51 xxx</p> <p>52A <i>Regional Entity - such persons who are in the RLDC control area and whose metering and energy accounting is done at the regional level;</i></p>
<p>58 xxx</p>	<p>58 xxx</p>

<p>65 xxx</p> <p>68 xxx</p>	<p>58A <i>State Entity - such person who is in the SLDC control area and whose metering and energy accounting is done at the State level;</i></p> <p>65 xxx</p> <p>65A <i>Technical Minimum Schedule in respect of intra-State Generating Stations shall have the same meaning as provided in Sub-Regulation 8.8 of these Regulations</i></p> <p>68 xxx</p> <p>69A <i>Trial Operation or Trial Run shall have the same meaning as provided in Sub-Regulation 8.7.3 and 8.7.5 of these Regulations.</i></p>
<p>3. Overview (5) Application of other Codes etc.,</p> <p><i>i. This code shall be read along with the, Tamil Nadu Electricity Supply Code, Tamil Nadu Electricity Distribution Code, and other relevant provisions of the Act, along with amendments thereon, rules and regulations made there under.</i></p>	<p>3. Overview (5) Application of other Codes etc.,</p> <p><i>(i) This code shall be read along with the, Tamil Nadu Electricity Supply Code, Tamil Nadu Electricity Distribution Code, Indian Electricity Grid Code and other relevant provisions of the Act, along with amendments thereon, rules and regulations made there under.</i></p>
<p>5. System Planning</p> <p>(7) Transmission System Planning</p>	<p>5. System Planning</p> <p>(7) Transmission System Planning</p>

<p><i>(a) The planning criterion are based on the security philosophy on which the STS has been planned. The security philosophy may be as per the Transmission Planning Criteria and other guidelines as given by CEA. The general criteria shall be as detailed below:</i></p> <p><i>i) As a general rule, the STS 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:</i></p> <ul style="list-style-type: none"> <i>- Outage of a 110 kV D/C line or,</i> <i>- Outage of a 230 kV D/C line or,</i> <i>- Outage of a 400 kV S/C line or,</i> <i>- Outage of single Interconnecting Transformer.</i> <p><i>ii) The above contingencies shall be considered assuming a pre contingency system depletion (Planned outage) of another 230 kV D/C line or 400 kV S/C line in another corridor and not emanating from the same substation. All the Generating Units may operate within their reactive capability curves and the network</i></p>	<p><i>(a) The planning criterion are based on the security philosophy on which the STS has been planned. The security philosophy may be as per the Transmission Planning Criteria and other guidelines as given by CEA. The general criteria shall be as detailed below:</i></p> <p><i>i) As a general rule, the STS 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:</i></p> <ul style="list-style-type: none"> <i>- Outage of a 110 kV D/C line or,</i> <i>- Outage of a 230 kV D/C line or,</i> <i>- Outage of a 400 kV S/C line or,</i> <i>- Outage of single Interconnecting Transformer</i> <i>- Outage of a 765kV single circuit</i> <i>- Outage of one pole of HVDC bipole</i> <p><i>ii) The above contingencies shall be considered assuming a pre contingency system depletion (Planned outage) of another 230 kV D/C line or 400 kV S/C line or 765 kV S/C line in another corridor and not emanating from the same substation. All the Generating Units may operate within their reactive capability curves</i></p>
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voltage profile shall also be maintained within voltage limits specified.

(8) Sub-Station Planning

- i)*
- ii)*
- iii)*

iv) Switching Scheme: -

- (a) 400 kV sub-station : One and a half breaker scheme or double main and transfer bus bar scheme.*
- (b) 230 kV sub-station : Double Main and Transfer Scheme or DoubleMain with breaker by-pass scheme.*
- (c) 110 kV sub-station : Main and Transfer Scheme.*
- (d) Below 110 kV : as decided by the licensee with the consent of STU.*

....

xvii) The stuck breaker condition in the sub-station shall cause disruption of not more than four feeders in 110 kV or 230kV system, more than two feeders in 400kV.

and the network voltage profile shall also be maintained within voltage limits specified.

(8) Sub-Station Planning

- i)*
- ii)*
- iii)*

iv) Switching Scheme: -

- a1) 765 kV sub-station: One and a half breaker scheme or double main and transfer bus bar scheme.*
- (a) 400 kV sub-station : One and a half breaker scheme or double main and transfer bus bar scheme.*
- (b) 230 kV sub-station : Double Main and Transfer Scheme or Double Main with breaker by-pass scheme.*
- (c) 110 kV sub-station : Main and Transfer Scheme. (d) Below 110 kV : as decided by the licensee with the consent of STU.*

xvii) The stuck breaker condition in the sub-station shall cause disruption of not more than four feeders in 110 kV or 230 kV system, not more than two feeders in 400 kV and not more than one feeder in 765 kV.

<p>Grid Connectivity Conditions</p> <p>6. Objectives (1) xxx ... (7) Connection Points (i) Generating Stations including IPPs:</p> <p><i>Generating stations Switchyard Voltage may be at the level of 400,230 and 110 kV or as agreed to by the STU. Unless specifically agreed with the STU, the connection point shall be the outgoing feeder gantry of the Power Station switchyard. All the terminal, communication, protection and metering equipments owned by the generating agency, within the perimeter of their site shall be maintained by them. From the outgoing feeder gantry onwards, all electrical equipments shall be maintained by the STU.</i></p> <p>.....</p> <p>(17) Protection System and Coordination: (a) xxx ..</p> <p>(d) All HV lines taking off from a power station or a sub-station shall have appropriate over voltage protection and distance protection and back up</p>	<p>Grid Connectivity Conditions</p> <p>6. Objectives 1) xxx ... 7) Connection Points (i) Generating Stations including IPPs:</p> <p><i>Generating Stations including IPPs: Generating stations Switchyard Voltage may be at the level of 765, 400, 230 and 110 kV or as agreed to by the STU. Unless specifically agreed with the STU, the connection point shall be the outgoing feeder gantry of the Power Station switchyard. All the terminal, communication, protection and metering equipments owned by the generating agency, within the perimeter of their site shall be maintained by them. From the outgoing feeder gantry onwards, all electrical equipments shall be maintained by the STU.</i></p> <p>...</p> <p>(17) Protection System and Coordination: (a) xxx ..</p> <p>(d) All HV lines taking off from a power station or a sub-station shall have appropriate over voltage protection and distance protection and back up protection schemes. The</p>

<p><i>protection schemes. The STU shall notify the users of any change in its policy on protection from time to time.</i></p> <p><i>i) 400 kV Lines / UG Cables: Two independent protection systems (Main I & II Protection) with separate DC Battery supply shall be arranged. Main-I Protection shall be preferably with three-zone static non-switched numerical distance protection with appropriate carrier protection and back up protection. Main-II Protection shall be a fast protection scheme using direction comparison or phase comparison carrier relaying scheme. In addition, single pole tripping and single shot, single pole auto-reclosing after an adjustable dead time shall be provided.</i></p>	<p><i>STU shall notify the users of any change in its policy on protection from time to time.</i></p> <p><i>i) 765 kV Lines, 400 kV Lines / UG Cables: Two independent protection systems (Main I & II Protection) with separate DC Battery supply shall be arranged. Main-I Protection shall be preferably with three-zone static non-switched numerical distance protection with appropriate carrier protection and back up protection. Main-II Protection shall be a fast protection scheme using direction comparison or phase comparison carrier relaying scheme. In addition, single pole tripping and single shot, single pole auto-reclosing after an adjustable dead time shall be provided.</i></p>
<p>Requirements in Grid Operation</p> <p>7. Introduction: - (1) xxx (2) xxx</p> <p>(3) System Security Aspects:</p> <p>(i) xxx (ii) xxx (iii) xxx (iv) xxx</p> <p>(v). All generating units, which are synchronized with</p>	<p>Requirements in Grid Operation</p> <p>7. Introduction: - (1) xxx (2) xxx</p> <p>(3) System Security Aspects:</p> <p>(i) xxx (ii) xxx (iii) xxx (iv) xxx</p> <p>v) All Coal/lignite based thermal generating units of 200 MW and above, Open Cycle Gas</p>

the Grid, irrespective of their ownership, type and size, shall have their governors in normal, preferably at free-governor mode at all times. If any generator of over 50 MW rating is required to be operated without its governor in normal operation, the SLDC shall be immediately advised about the reason and duration of such operation. All governors shall have a droop between 3 % and 6 % for thermal and 0 to 10 % for hydro generators.

(vi). Facilities available with load limiters, Automatic Turbine Run up System (ATRS), 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.

(vii). All generating units, operating at / up to 100% of their Maximum Continuous Rating (MCR) shall normally be capable of (and shall not in any way be prevented from) instantaneously picking up 5% of extra load and sustain the increase for a minimum of 5 minutes when frequency falls due to a system contingency. The generating units operating at above 100% of their MCR shall be capable of (and shall not

Turbine/Combined Cycle generating stations having gas turbines of capacity more than 50 MW each and all hydro units of 25 MW and above irrespective of their ownership, shall have their governors in operation at all times in accordance with the following provisions:

Governor Action

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

a) Coal/lignite based thermal generating units of 200 MW and above,

1) Software based Electro Hydraulic Governor (EHG) system :

2) Hardware based EHG system

b) Hydro units of 25 MW and above

c) Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of capacity more than 50 MW each.

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

a) There should not be any reduction in generation in

be prevented from) going at least up to 105% of their MCR when frequency falls suddenly. After an increase in generation as above, a generating unit may ramp back to the original level at a rate of about one percent (1%) per minute, in case continued operation at the increased level is not sustainable. Any generating unit of over fifty (50) MW size, not complying with the above requirement, shall be kept in operation (synchronized with the State Grid) only after obtaining the permission of SLDC. However, the entity can make up the corresponding shortfall in spinning reserve by maintaining an extra spinning reserve on the other generating units of the entity.

(viii). The recommended rate for changing the governor setting, i.e. supplementary control for increasing or decreasing the output (generation level) for all generating units, irrespective of their type and size, would be one (1.0) per cent per minute or as per manufacturer's limits. However, if frequency falls below 49.5 Hz, all partly loaded generating units shall pick up additional load at a faster rate, according to their capability.

(ix). Except under an emergency, or to prevent an

case of improvement in grid frequency to a level below 50.00 Hz. (For example, if grid frequency changes from 49.9 to 49.95 Hz, or from 49.95 to 49.99 Hz there shall not be any reduction in generation). For any fall in grid frequency, generation from the unit should increase as per generator droop upto a maximum of 5% of the generation subject to ceiling limit of 105% of the MCR of the unit having regard to machine capability

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

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

d) After stabilisation of frequency around 50 Hz, provisions regarding the restricted governor mode of operation and free governor mode of operation as made by CERC shall apply.

imminent damage to personnel and equipment, no entity shall suddenly reduce his generating unit output by more than one hundred (100) MW without prior intimation to and consent of the SLDC, particularly when frequency is falling or is below 49.0. Similarly, no entity shall cause sudden increase in its load by more than one hundred (100) MW without prior intimation to and consent of the SLDC.

(x). All generating units shall normally have their Automatic Voltage Regulators (AVR) in operation, with appropriate settings. In particular, if a generating unit of over fifty (50) MW size is required to be operated without its AVR in service, the SLDC shall be immediately intimated about the reason and duration, and its permission obtained. Power System Stabilizers (PSS) in AVRs of generating units (wherever provided), shall be got properly tuned by the respective generating unit owner as per a plan prepared for the purpose by the STU from time to time. STU will be allowed to carry out checking of PSS and suggests further tuning, wherever considered necessary.

(xi). Provision of protections and relay settings shall

iii) All other generating units including the pondage upto 3 hours, wind and solar generators and Nuclear Power Stations shall be exempted from Sections 5.2 (v) ,5.2 (vi), 5.2 (vii) and 5.2(viii) till the Commission reviews the situation.

Provided that if a generating unit cannot be operated under restricted governor mode operation, then it shall be operated in free governor mode operation with manual intervention to operate in the manner required under restricted governor mode operation.

(vi) Facilities available with/in load limiters, Automatic Turbine Runup System (ATRS), Turbine supervisory control, coordinated control system, etc., shall not be used to suppress the normal governor action in any manner and no dead bands and/or time delays shall be deliberately introduced except as specified in para 5.2(v) above.

Provided that periodic checkups by third party should be conducted at regular interval once in two years through independent agencies selected by SLDCs . The cost of such tests shall be recovered by the

be coordinated periodically throughout the State Grid, as per a plan to be separately finalized by the STU in coordination with all entities.

(xii). All entities shall put in all possible efforts to ensure that the Grid is operated within the frequency limits prescribed by the implementation of Availability Based Tariff (ABT) i.e. frequency always remains within the 49.0 – 50.5 Hz band.

SLDC from the Generators. If deemed necessary by SLDC, the test may be conducted more than once in two years.

(vii) All coal/lignite based thermal generating units of 200 MW and above, Open Cycle Gas Turbine/Combined Cycle generating stations having gas turbines of more than 50 MW each and all hydro units of 25 MW and above operating at or up to 100% of their Maximum Continuous Rating (MCR) shall have the capability of (and shall not in any way be prevented from) instantaneously picking up to 105%, 105% and 110% of their MCR, respectively, when the frequency falls suddenly.

For the purpose of ensuring primary response, SLDC shall not schedule the generating station or unit(s) thereof beyond exbus generation corresponding to 100% of the Installed capacity of the generating station or unit(s) thereof. The generating station 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 margin available for

providing Governor action as primary response. In case of gas/liquid fuel based units, suitable adjustment in Installed Capacity should be made by SLDC for scheduling in due consideration of prevailing ambient conditions of temperature and pressure vis-à-vis site ambient conditions on which installed capacity of the generating station or unit(s) thereof have been specified:

Provided that scheduling of hydro stations shall not be reduced during high inflow period in order to avoid spillage:

Provided further that the VWO margin shall not be used by SLDC to schedule Ancillary Services.

(viii) The recommended rate for changing the governor setting, i.e., supplementary control for increasing or decreasing the output (generation level) for all generating units, irrespective of their type and size, would be one (1.0) per cent per minute or as per manufacturer's limits.

(ix) Except under an emergency, or to prevent an imminent damage to a costly equipment, no User shall suddenly reduce his generating unit output by

more than one hundred (100) MW without prior intimation to and consent of the SLDC, - Similarly, no User shall cause a sudden variation in its load by more than one hundred (100 MW) without prior intimation to and consent of the SLDC.

All users shall ensure that temporary over voltage due to sudden load rejection and the maximum permissible values of voltage unbalance shall remain within limits specified under Central Electricity Authority (Grid Standards) Regulations, 2010.

(x) All generating units shall normally have their automatic voltage regulators (AVRs) in operation. In particular, if a generating unit of over fifty (50) MW size is required to be operated without its AVR in service, the SLDC shall be immediately intimated about the reason and duration, and its permission obtained. Power System Stabilizers (PSS) in AVRs of generating units (wherever provided), shall be got properly tuned by the respective generating unit owner as per a plan prepared for the purpose by the STU/SPC from time to time. STU /SPC will be allowed to carry out checking of PSS and further

tuning it, wherever considered necessary.

(xi) Provision of protections and relay settings shall be coordinated periodically throughout the State grid, as per a plan to be separately finalized by the SPC Secretariat.

SPC Secretariat shall also prepare islanding schemes and ensure its implementation in accordance with Central Electricity Authority (Grid Standards) Regulations, 2010. All users shall ensure that installation and operation of protection system shall comply with the provisions of Central Electricity Authority (Grid Standards) Regulations, 2010.

(xii) All Users, and SLDC shall take all possible measures to ensure that the grid frequency always remains within the 49.9 –50.05 Hz band. Maintenance of their respective power system elements shall be carried out by users, STUs in accordance with the provisions in Central Electricity Authority (Grid Standards) Regulations,2010."

(xiii) xxx
(xiv) xxx
(xv) xxx
(xvi) xxx
(xvii) xxx

(xiii) xxx
(xiv) xxx
(xv) xxx
(xvi) xxx
(xvii) xxx

(xviii) xxx

(xix) All entities shall put in all possible efforts to ensure that the Grid voltage always remains within the following operating range.

Nominal	Maximum	Minimum
Voltage in (kV rms)		
400	420	360
230	255	210
110	120	100

(4) Demand Control

Demand control is concerned with the provisions to be made by SLDC to ensure the reduction of demand

(xviii) xxx

(xix) All entities shall put in all possible efforts to ensure that the Grid voltage always remains within the following operating range.

Nominal	Maximum	Minimum
Voltage in (kV rms)		
765	800	728
400	420	380
230	255	210
110	120	100
66	72	60
33	36	30

They shall provide adequate voltage control measures through voltage relay as may be finalized by SPC, to prevent voltage collapse. and shall ensure its effective application to prevent voltage collapse/ cascade tripping.

Voltage fluctuation limits and voltage wave-form quality shall be maintained as specified in Central Electricity Authority (Grid Standards) Regulations, 2010.

(4) Demand Control

Demand control is concerned with the provisions to be made by SLDC to ensure the reduction of demand in the

<p><i>in the event of insufficient generating capacity, and transfers from external interconnections being not available to meet demand, or in the event of breakdown or operating problems (such as frequency, voltage levels or thermal overloads) on any part of the Grid. Towards this end the following requirements shall be complied with:</i></p> <p><i>i. Power drawing entities shall endeavor to restrict their net drawal from the Grid to within their respective drawal schedules whenever the system frequency is below 49.5 Hz. When the frequency falls below 49.0 Hz., requisite load shedding (manual) shall be carried out to curtail the over drawal. Such load shedding shall be pre planned for each level of under frequency.</i></p>	<p><i>event of insufficient generating capacity, and transfers from external interconnections being not available to meet demand, or in the event of breakdown or operating problems (such as frequency, voltage levels or thermal overloads) on any part of the Grid. Towards this end the following requirements shall be complied with:</i></p> <p><i>i. Power drawing entities shall endeavor to restrict their net drawal from the Grid to within their respective drawal schedules. The SLDC/Distribution Licensee shall ensure that requisite load shedding is carried out in their control area so that there is no overdrawal. Such load shedding shall be pre-planned for each level of under frequency. The SLDC through Distribution Licensees shall also formulate and implement state of the art demand management schemes for automatic demand management like rotational load shedding, demand response(which may include lower tariff for uninterruptible loads) etc to reduce overdrawal.</i></p>
<p>CHAPTER 8 Scheduling and Despatch</p> <p>8 Scheduling and Despatch-</p>	<p>CHAPTER 8 Scheduling and Despatch</p> <p>8 Scheduling and Despatch-</p>

<p>(1) xxx</p> <p>(2) <i>Certain procedures are to be adopted while scheduling of generation by State Sector Generating Stations (SSGS), open access customers, share from central sector generation and other licensees for scheduling the drawal by the beneficiaries of the State on a daily basis. The procedure for submission of capability by each generating company and submission of drawal schedule by each beneficiary / distribution licensee of the State is intended to enable SLDC to prepare the generation and drawal schedule connected with system operation. It also provides methodology for issuing real time despatch / drawal instructions and rescheduling, if required, along with the commercial arrangement for the deviations from schedules..</i></p>	<p>(1) xxx</p> <p>(2) <i>Certain procedures are to be adopted while scheduling of generation by State Sector Generating Stations (SSGS), open access customers, share from central sector generation and other licensees for scheduling the drawal by the beneficiaries of the State on a daily basis. The procedure for submission of capability by each generating company and submission of drawal schedule by each beneficiary / distribution licensee of the State is intended to enable SLDC to prepare the generation and drawal schedule connected with system operation. It also provides methodology for issuing real time despatch / drawal instructions and rescheduling, if required, along with the commercial arrangement for the deviations from schedules. Keeping in view the variable nature of generation from wind and solar energy sources and the effect such variability has on the intrastate grid, and in view of the large-scale integration of such sources into the grid envisaged in view of the Government of India's thrust on renewable sources of energy, wind and solar generators are required to be</i></p>
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<p>(3) The following specific points would be taken into consideration while preparing and finalizing the schedules:</p> <p>(a) SLDC will issue despatch instruction required to regulate all generation and imports from SSGS, IPPs, CPPs and Generators based on renewable sources of energy according to the hourly day ahead generation schedule, unless rescheduling is required due to unforeseen circumstances. Generation from wind mills shall be scheduled as per the Commission's Intra State Availability Based Tariff (ABT) order or regulation in force;</p> <p>(b) xxx</p> <p>(c) Despatch instructions shall be in Annexure format D1. These instructions will recognize declared availability and other parameters that have been made.</p> <p>(d) xxx</p>	<p>scheduled as envisaged in the Forecasting, Scheduling and Deviation Settlement mechanism and Related Matters Regulations 2019.</p> <p>(3) The following specific points would be taken into consideration while preparing and finalizing the schedules:</p> <p>(a) SLDC will issue despatch instruction required to regulate all generation and imports from SSGS, IPPs, CPPs and NCES according to the hourly day ahead generation schedule, unless rescheduling is required due to unforeseen circumstances;</p> <p>(b) xxx</p> <p>(c) Despatch instructions shall be in Annexure format D1 and in compliance with the Commission's regulations on Deviation Settlement Mechanism for conventional and renewable sources of energy for wind and solar.</p> <p>(d) xxx</p> <p>(7) Commercial operation of intra-State Generating Stations</p> <p>1. Date of commercial operation in case of a unit of thermal Generating Stations shall mean the date</p>
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declared by the generating company after demonstrating the unit capacity corresponding to its Maximum Continuous Rating (MCR) or the Installed Capacity (IC) or Name Plate Rating on designated fuel through a successful trial run and after getting clearance from SLDC, and in case of the generating station as a whole, the date of commercial operation of the last unit of the generating station:

Provided that:

(i) Where the beneficiaries/buyers have been tied up for purchasing power from the generating station, the trial run or each repeat of trial run shall commence after a notice of not less than seven days by the generating company to the beneficiaries/buyers and SLDC.

(ii) Where the beneficiaries/buyers have not been tied up for purchasing power from the generating station, the trial run or each repeat of trial run shall commence after a notice of not less than seven days by the generating company to the SLDC.

(iii) The generating company shall certify that:

(a) The generating station meets the relevant requirements and provisions of the technical

standards of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 and TN Electricity Grid Code, as applicable:

(b) The main plant equipment and auxiliary systems including Balance of Plant, such as Fuel Oil System, Coal Handling Plant, DM plant, pre-treatment plant, fire-fighting system, Ash Disposal system and any other site specific system have been commissioned and are capable of full load operation of the units of the generating station on sustained basis.

(c) Permanent electric supply system including emergency supplies and all necessary instrumentation, control and protection systems and auto loops for full load operation of unit have been put in service.

(iv) The certificates as required under clause (iii) above shall be signed by the CMD/CEO/MD of the generating company and a copy of the certificate shall be submitted to the Member Secretary of the concerned State Power Committee and the SLDC before declaration of COD. The generating company shall submit approval of Board of Directors to the certificates as required under clause (iii) within a

period of 3 months of the COD.

(v) Trial run shall be carried out in accordance with Regulation 7.3 of these Regulations.

(vi) Partial loading may be allowed with the condition that average load during the duration of the trial run shall not be less than Maximum Continuous Rating or the Installed Capacity or the Name Plate Rating excluding period of interruption and partial loading but including the corresponding extended period.

(vii) Where on the basis of the trial run, a unit of the generating station fails to demonstrate the unit capacity corresponding to Maximum Continuous Rating or Installed Capacity or Name Plate Rating, the generating company has the option to de-rate the capacity or to go for repeat trial run. Where the generating company decides to de-rate the unit capacity, the demonstrated capacity in such cases shall be more or equal to 105% of de-rated capacity.

(viii) The SLDC, shall convey clearance to the generating company for declaration of COD within 7 days of receiving the generation data based on the trial run.

(ix) If the SLDC, notices any deficiencies in the trial run, it shall be communicated to the generating company within seven (7) days of receiving the generation data based on the trial run.

(x) Scheduling of power from the generating station or unit thereof shall commence from 0000 hrs after declaration of COD.

2. Date of commercial operation (COD) in relation to a generating unit of hydro generating station including pumped storage hydro generating station shall mean the date declared by the generating company after demonstrating peaking capability corresponding to the Installed Capacity of the generating station through a successful trial run, and after getting clearance from the SLDC, and in relation to the generating station as a whole, the date of commercial operation of the last generating unit of the generating station.

Provided that:

(i) Where beneficiaries/buyers have been tied up for purchasing power from the generating station, trial run or each repeat of trial run shall commence after a

notice of not less than seven days by the generating company to the beneficiaries/buyers and SLDC.;

(ii) Where the beneficiaries/buyers have not been tied up for purchasing power from the generating station, the trial run shall commence after a notice of not less than seven days by the generating company to SLDC.;

(iii) The generating company shall certify that:

(a) The generating station or unit thereof meets the requirement and relevant provisions of the technical standards of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 and Indian Electricity Grid Code, as applicable:

(b) The main plant equipment and auxiliary systems including Drainage Dewatering system, Primary and Secondary cooling system, LP and HP air compressor, Firefighting system, etc. have been commissioned and are capable for full load operation of units on sustained basis.

(c) Permanent electric supply system including emergency supplies and all necessary Instrumentations Control and Protection Systems and auto loops for full load operation of the unit are put

into service.

(iv) The certificates as required under clause (iii) above shall be signed by the CMD/CEO/MD of the generating company and a copy of the certificate shall be submitted to the Member Secretary of the SLDC, before declaration of COD. The generating company shall submit approval of Board of Directors to the certificates as required under clause (iii) within a period of 3 months of COD.

(v) Trial run shall be carried out in accordance with sub-Regulation 7.3 of this Regulation.

(vi) Where on the basis of the trial run, a unit of the generating station fails to demonstrate the unit capacity corresponding to Maximum Continuous Rating or Installed Capacity or Name Plate Rating, the generating company shall have the option to either de-rate the capacity or to go for repeat trial run. If the generating company decides to de-rate the unit capacity, the demonstrated capacity in such cases shall be more or equal to 110% of de-rated capacity

(vii) In case a hydro generating station with pondage or storage is not able to demonstrate the peaking capability corresponding to the installed capacity for

the reasons of insufficient reservoir or pond level, the date of commercial operation of the last unit of the generating station shall be considered as the date of commercial operation of the generating station as a whole, and it will be mandatory for such hydro generating station to demonstrate peaking capability equivalent to installed capacity of the generating station or unit thereof as the case may be, as and when such reservoir/pond level is achieved:

(viii) If a run-of-river hydro generating station or a unit thereof is declared under commercial operation during lean inflows period when the water inflow is insufficient for such demonstration of peaking capability, it shall be mandatory for such hydro generating station or unit thereof to demonstrate peaking capability equivalent to installed capacity as and when sufficient water inflow is available. In case of failure to demonstrate the peaking capacity, the unit capacity shall be de-rated to the capacity demonstrated with effect from the COD.

(ix) The SLDC shall accord clearance to the generating company within seven (7) days of receiving the generation data based on the trial run.

(x) *If the SLDC notices any deficiency in trial run, it shall be communicated to the generating company within seven (7) days of receiving the generation data based on trial run.*

(xi) *Scheduling shall commence from 0000 hrs after declaration of COD.*

3. Trial Run or Trial Operation: *Trial Run or Trial Operation in relation to a thermal -Generating Station or a unit thereof shall mean successful running of the generating station or unit thereof on designated fuel at Maximum Continuous Rating or Installed Capacity or Name Plate Rating for a continuous period of 72 hours and in case of a hydro Generating Station or a unit thereof for a continuous period of 12 hours:*

Provided that:

(i) *The short interruptions, for a cumulative duration of 4 hours, shall be permissible, with corresponding increase in the duration of the test. Cumulative Interruptions of more than 4 hours shall call for repeat of trial operation or trial run.*

(ii) *The partial loading may be allowed with the condition that average load during the duration of the trial run shall not be less than Maximum Continuous*

Rating, or the Installed Capacity or the Name Plate Rating excluding period of interruption and partial loading but including the corresponding extended period

(iii) Where the beneficiaries have been tied up for purchasing power from the generating station, the trial run or each repeat of trial run shall commence after a notice of not less than seven days by the generating company to the beneficiaries and SLDC.

(iv) Units of thermal and hydro Generating Stations shall also demonstrate capability to raise load upto 105% or 110% of this Maximum Continuous Rating or Installed Capacity or the Name Plate Rating as the case may be.

4. Date of commercial operation in relation to an intra-State Transmission System or an element thereof shall mean the date declared by the transmission licensee from 0000 hour of which an element of the transmission system is in regular service after successful trial operation for transmitting electricity and communication signal from the sending end to the receiving end:

Provided that:

(i) In case of intra-State Transmission System executed through Tariff Based Competitive Bidding, the transmission licensee shall declare COD of the intraSTS in accordance with the provisions of the Transmission Service Agreement.

(ii) Where the transmission line or substation is dedicated for evacuation of power from a particular generating station and the dedicated transmission line is being implemented other than through tariff based competitive bidding, the concerned generating company and transmission licensee shall endeavour to commission the generating station and the transmission system simultaneously as far as practicable. (iii) Where the transmission system executed by a transmission licensee is required to be connected to the transmission system executed by any other transmission licensee and both transmission systems are executed in a manner other than through tariff based competitive bidding, the transmission licensee shall endeavour to match the commissioning of its transmission system with the transmission system of the other licensee as far as practicable.

5. Trial run and Trial operation in relation to a transmission system or an element thereof shall mean successful charging of the transmission system or an element thereof for 24 hours at continuous flow of power, and communication signal from the sending end to the receiving end and with requisite metering system, telemetry and protection system in service enclosing certificate to that effect from State Load Despatch Centre.

6. Date of commercial operation in relation to a communication system or an element thereof shall mean the date declared by the transmission licensee from 0000 hour of which a communication system or element thereof shall be put into service after completion of site acceptance test including transfer of voice and data to the control centre as certified by the State Load Dispatch Centre.

7. In the event of inconsistency between the provisions relating to trial operation and commercial operation as specified in Sub-Regulation 7.1 to 7.6 of these regulations and the provisions of Commissions (Terms and Conditions of Tariff) Regulations, 2005 and its amendments, the provisions of these regulations

shall prevail.

(8) Technical Minimum Schedule for operation of intra-State Generating Stations

1. The technical minimum for operation in respect of a unit or units of a Generating Station shall be 55% of MCR loading or installed capacity of the unit of at generating station.

2. The intra SGS may be directed by SLDC to operate its unit(s) at or above the technical minimum but below the normative plant availability factor on account of grid security or due to the fewer schedules given by the beneficiaries.

3. Where the intra SGS, whose tariff is either determined or adopted by the Commission, is directed by the SLDC to operate below normative plant availability factor but at or above technical minimum, the intra SGS may be compensated depending on the average unit loading duly taking into account the forced outages, planned outages, PLF, generation at generator terminal, energy sent out ex-bus, number of start-stop, secondary fuel oil consumption and auxiliary energy consumption, in due consideration of

	<p><i>actual and normative operating parameters of station heat rate, auxiliary energy consumption and secondary fuel oil consumption etc. on monthly basis duly supported by relevant data verified by SLDC. The compensation shall be calculated in accordance to the provisions in the Commission's tariff regulations.</i></p>
<p>Commercial Issues and Implementation</p> <p>9. Commercial Issues: -</p> <p>(1) xxx</p> <p>(2) Subject to any scheme of tariff, as may be approved by the TNERC, the bulk power supply agreements between the constituents shall duly specify the relationship between capacity charges to be paid and plant availability, and energy charge rates (in rupees per MWh) for each station, in ex-power plants. Regarding the other commercial issues, the following are applicable :</p> <p>(i) xxx</p> <p>...</p> <p>(viii)</p> <p>(ix) Energy accounting (including billing of UI charges and reactive energy charges) is one of the most important and critical function of SLDC. Any flaw in the energy accounting will lead to serious</p>	<p>Commercial Issues and Implementation</p> <p>9. Commercial Issues: -</p> <p>(1) xxx</p> <p>(2) Subject to any scheme of tariff, as may be approved by the TNERC, the bulk power supply agreements between the constituents shall duly specify the relationship between capacity charges to be paid and plant availability, and energy charge rates (in rupees per MWh) for each station, in ex-power plants. Regarding the other commercial issues, the following are applicable :</p> <p>(i) xxx</p> <p>...</p> <p>(viii)</p> <p>(ix) omitted</p>

financial consequences. Hence, a committee to be designated by the Commission will conduct annual audit on the accounting and technical performance of SLDC and present a report to the Commission before the end of May every year for the previous financial year.

(By the order of the Tamil Nadu Electricity Regulatory Commission)

(S.Chinnarajalu)
Secretary